WONGA BINDA NO. 1

PEP 120

WELL COMPLETION REPORT



WCR
WONGA BINDA - 1
(W973)

W973.



# WONGA BINDA NO. 1

PEP 120

WELL COMPLETION REPORT

D. A. Short
for
Crusader Resources N.L.
July 1988

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## 1. ABSTRACT

Wonga Binda No. 1 was drilled for Crusader Resources N.L. by ATCO-APM Drilling Pty. Ltd. in the southwest of PEP 120 - Victoria, about 35 kilometres south of the city of Sale.

The closest wells to Wonga Binda No. 1 were Darriman No. 1 (Frome Lakes Pty. Ltd. - 1955) located 3 kilometres to the west and Salt Lake No. 1 (Woodside Oil N.L. - 1970) located 4 kilometres to the east. No shows were recorded in either well. The only hydrocarbons recorded from nearby onshore wells were gas flows up to 100 MCFD from the Strzelecki Group at North Seaspray No. 1 immediately to the northeast of the PEP 120 and minor oil recoveries reported from Woodside No. 2 and Sunday Island No. 1 to the southwest in PEP 123. Offshore are the marginally economic Dolphin and Perth Oilfields.

Drilling commenced on April 8 1988 and total depth was reached on April 17 1988 in Cretaceous Age Strzelecki Group sediments. The rig was released on April 20 1988. Total depth was 1,394 metres.

The well was located on the Wonga Binda Prospect, a small "Top Latrobe" culmination on the Darriman Anticline which plunges offshore to the east-northeast. Mapped areal closure of the prospect is about 1.27 sq. km. with a maximum vertical closure of 30 metres.

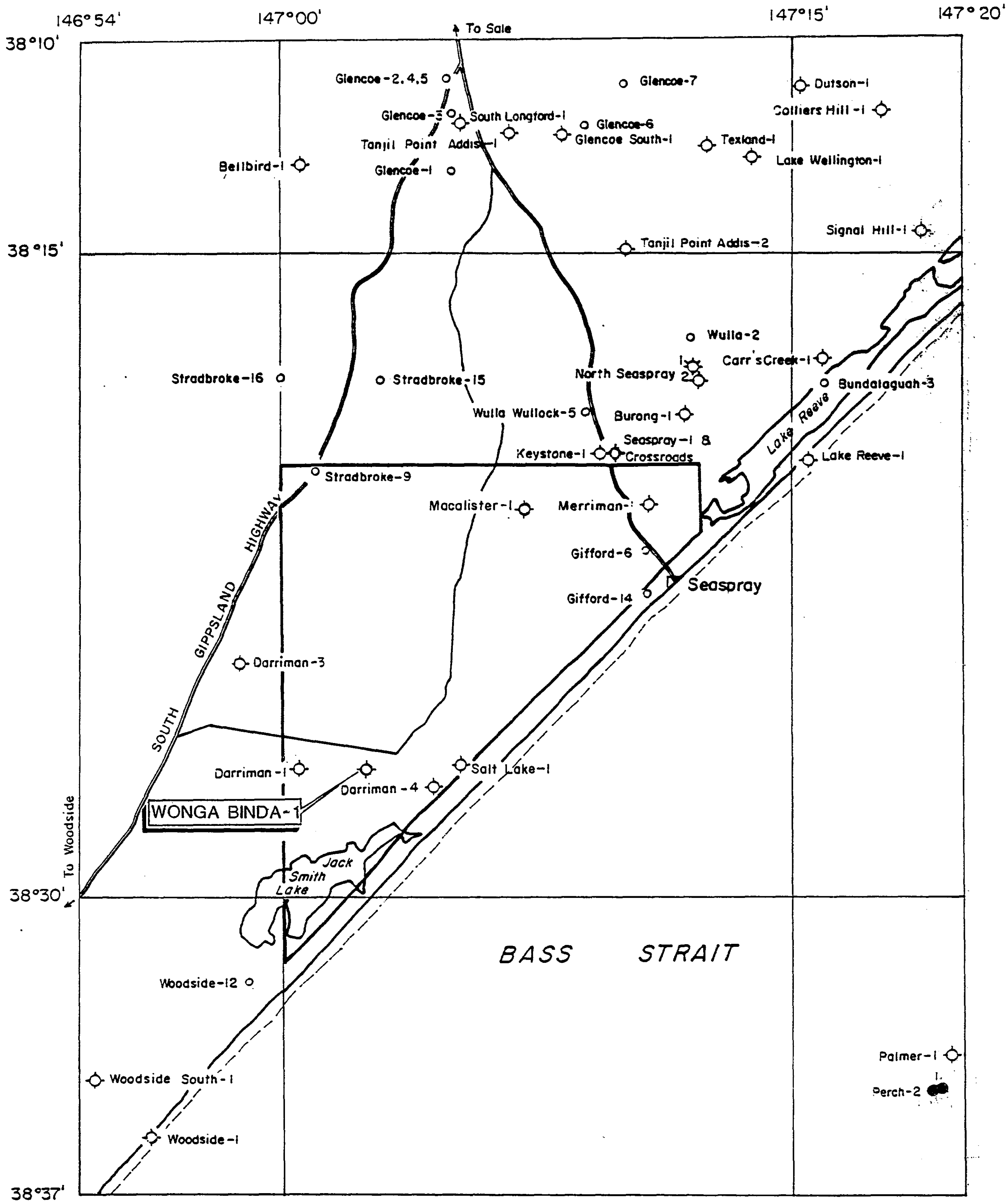
The primary target was a seismically mapped barrier/bar sand at the top of the Latrobe Group. Four way dip closure was confined to the top of the Latrobe Group and above and this vertically localised closure was interpreted as being due to sand build up associated with a buried barrier/bar sand. Secondary targets were possible stratigraphic traps in the intra Latrobe Group sands and sands in the Yarram Formation.

The sands at the top of the Latrobe Group are the reservoirs for the Dolphin and Perch Oilfields and also for the Golden Beach Gasfield and the giant Barracouta Gasfield.

The section encountered was as predicted with the Latrobe Group sands being well developed and having good reservoir quality but no oil or gas shows were recorded from them. The sands of the Yarram Formation had only poor to fair reservoir quality and no gas or oil shows were recorded. Two attempts were made to test the top sand of the Latrobe Group but both were unsuccessful due to plugging of the test tool.

After reaching total depth wireline logs, sidewall cores, a velocity survey and an RFT were run. The wireline logs indicated all prospective reservoir sands to be water saturated and the RFT on the top sand of the Latrobe Group recovered water.

Cement plugs were set across the top of the Latrobe Group, the casing shoe and at surface and the well was abandoned.




## LOCATION MAP


## LEGEND

Oil show
Gas show
Dry hole
Water bore
Proposed location

# CRUSADER RESOURCES N.L.

VICTORIA
PEP-120-GIPPSLAND BASIN

## LOCATION and ACCESS

WONGA BINDA No.1

SCALE 1:250,000

5 0 5 10 Km.

DRAWN : February, 1986 | Figure 1
REVISED : February, 1988 | A4 2115/2

## WONGA BINDA NO. 1 - WELL CARD

| | | | |
|---|---|---|---|
| LATITUDE: | 38°27'02.82"S | STATUS: | Dry Hole, P & A |
| LONGITUDE: | 147°02'25.70"E | PARTNERS: | Omega Oil Ltd. |
| LINE/SP NO.: | GCR-87A-22/1170 | DRILLER: | ATCO-APM Drilling P/L |
| LEASE: | VIC PEP 120 | RIG: | Troy 600 (Rig A7) |
| OPERATOR: | Crusader Limited | ELEVATION(K.B.): | 29.4m |
| SPUD: | 08.04.88 (0330) | ELEVATION(G.L.): | 25.6m |
| COMPLETION: | 20.04.88 (1330) | TOTAL DEPTH: | 1394m |
| DATA SOURCE: | Well records | | |

FORMATION TOPS:

| | Depth (K.B.) | Depth (S.S.) | Thickness |
|---|---|---|---|
| Boisdale Fm. | Surface | +25.6 | 33.0 |
| Jemmys Point Fm. | ?37.0 | -7.6 | 14.0 |
| Seaspray Group: | | | |
| Tambo River Fm. | ?51.0 | -21.6 | 85.0 |
| Gippsland Limestone | ?136.0 | -106.6 | 394.5 |
| ("Base Lst. Seismic Marker" | 481.7 | -452.3) | |
| Lakes Entrance Fm. | | | |
| Seacombe Marl Mbr. | 530.5 | -501.1 | 59.7 |
| Giffard Sandstone | 590.2 | -560.8 | 15.3 |
| Latrobe Group: | | | |
| Traralgon Fm. | 605.5 | -576.1 | 638.5 |
| Older Volcanics | 1244.0 | -1214.6 | 86.5 |
| Yarram Fm. | 1330.5 | -1301.1 | 13.5 |
| Strzelecki Group: | 1344.0 | -1314.6 | 50.0 |

HOLE SIZES: 12¼" to 175m. / 8½" to 1394m (T.D.)

CASING: Conductor - 13-3/8" set at 38m.
Surface - 14 jts of 9-5/8", 36lb/ft, K-55 set @ 173m & cemented with 280 sx Class A cement + 2% CaCl2.

DRILL STEM TESTS: DST #1 600-608m. Top Latrobe Group. Tool opened with a very weak blow which died after 7½ minutes due to tool plugging. Closed tool after 60 minutes flow and shut-in for 60 minutes. Recovered 2.4m of rathole mud.

DST #2 590-609m. Top Latrobe Group. Tool opened with a strong blow dying to zero after 3 minutes due to tool plugging. Closed tool after 60 minutes flow and shut-in for 37 minutes. Recovered 91m of water cushion and 76m of rathole mud.

REPEAT FORMATION TESTS: A Schlumberger RFT @ 606.5m recovered a total of 18 litres of muddy water with some sand grains. No chamber pressure was recorded and the field measurement Rw of 0.4 ohm-m @18°C equates to the sample being approximately 50% formation water and 50% mud filtrate.

| | | |
|---|---|---|
| WIRELINE LOG DATA: | (Queensland Shallow Logging) | |
| | DLL-GR-SP-CAL | 173-1367.5m (GR to surface) |
| | LDL-CNL-NGS | 570-1371.0m |
| | SHDT-GR | 570-1371.0m |
| | MSFL | 570-1362.5m |
| | BHC-GR | 173-1370.0m |
| | Velocity Survey | |

MUD PROPERTIES: Mud Type - KCl. S.G. 1.16; Vis 44; pH 10; FL 6.4; Rm=0.29; Rmf=0.25; Rmc=0.56. (All @ 13°C).

SIDEWALL CORES: A total of 30 SWC were recovered from the interval 754.0-1398.0m.

PALYNOLOGY:

WATER ANALYSIS:

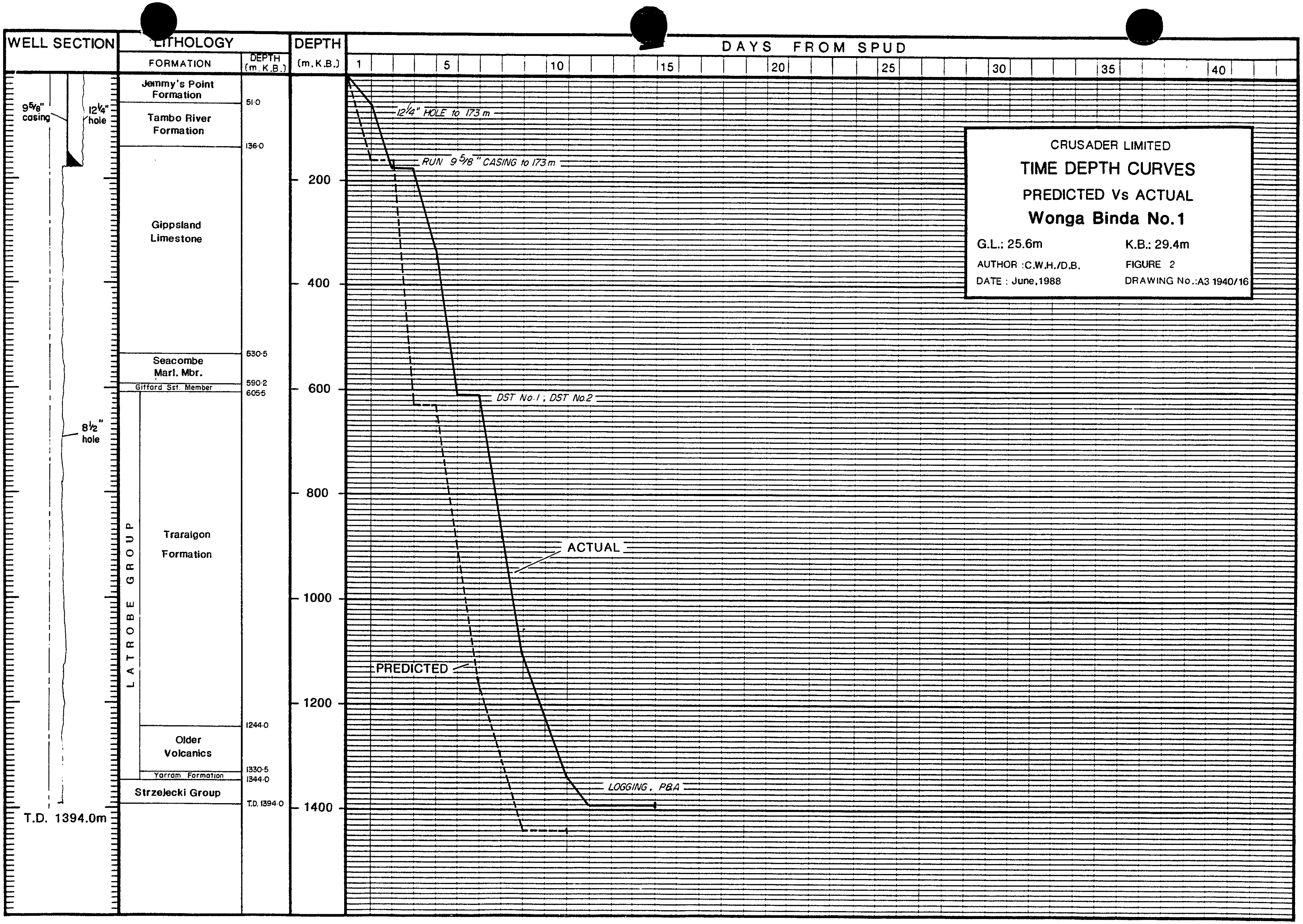
TEMPERATURES: (Recorded from logs at total depth).

38°C after 4.0 hours
41°C after 8.0 hours
42°C after 12.5 hours
Extrapolated bottom hole temperature at 1372m is 44.5°C.

ABANDONMENT PLUGS:

Plug #1 620-590m. 65 sacks. Across top of Latrobe Group.
Plug #2 189-158m. 90 sacks. Across surface casing shoe. (Tagged @ 152m.)
Plug #3 6- 1m. 10 sacks. At top of surface casing.

REMARKS: Located between Darriman No. 1 and Salt Lake No. 1 as a test of a "bar sand" developed at the top of the Latrobe Group. The sand was well developed with good reservoir quality but no gas or oil shows were recorded while drilling and a Schlumberger RFT recovered only formation water and mud filtrate. (Two DST's of the sand were attempted but both failed due to tool plugging.) No hydrocarbon shows were recorded from any other zones and the well was plugged and abandoned.


WELL SECTION
LITHOLOGY
FORMATION
DEPTH (m.K.B.)
DEPTH (m.K.B.)
DAYS FROM SPUD
1 5 10 15 20 25 30 35 40
9 5/8" casing
12 1/4" hole
8 1/2" hole
T.D. 1394.0m
Jemmy's Point Formation
51·0
Tambo River Formation
136·0
Gippsland Limestone
530·5
Seacombe Marl. Mbr.
590·2
Giffard Sst. Member
605·5
LATROBE GROUP
Traralgon Formation
1244·0
Older Volcanics
1330·5
Yarram Formation
1344·0
Strzelecki Group
T.D. 1394·0
200
400
600
800
1000
1200
1400
12 1/4" HOLE to 173 m
RUN 9 5/8" CASING to 173 m
DST No.1 ; DST No.2
ACTUAL
PREDICTED
LOGGING, P&A
CRUSADER LIMITED
TIME DEPTH CURVES
PREDICTED Vs ACTUAL
Wonga Binda No.1
G.L.: 25.6m
K.B.: 29.4m
AUTHOR : C.W.H./D.B.
FIGURE 2
DATE : June, 1988
DRAWING No.: A3 1940/16

## 3. GENERAL DATA

| | |
|---|---|
| Well Name: | WONGA BINDA NO. 1 |
| Name and Address of Operator: | Crusader Resources N.L.<br>27th Level<br>12 Creek Street<br>BRISBANE. QLD. 4000. |
| Interests: | Crusader Limited 50.0%<br>Omega Oil Pty. Ltd. 50.0% |
| Petroleum Title: | PEP 120 Victoria |
| Location: | Latitude - 38° 27' 02.82"S<br>Longitude - 147° 02' 25.70"E |
| Elevations: | Ground level - 25.7 metres<br>Kelly Bushing - 29.5 metres |
| Dates: | Spudded - April 8 1988 @ 0330 hours<br>TD Reached - April 17 1988 @ 1330 hours<br>Rig Released - April 20 1988 @ 1000 hours |
| Total Depth: | 1,394 metres - driller<br>1,372 metres - logs (22 metres of fill). |
| Status: | Plugged and Abandoned. |

# 4. ENGINEERING DATA

## 4.1 ENGINEERING SUMMARY

Wonga Binda No. 1 spudded at 0330 hrs, April 4, 1988. 13-3/8" conductor pipe had been pre-cemented, in 17½" hole, to a depth of 38m. 12¼" surface hole was drilled to 175m. 14 joints of 9-5/8" 36 lb/ft K-55 LTC casing were run and cemented at 173.0m. Cement was in place at 0137 hrs, 9.4.88.

BOPs were installed and successfully pressure tested. Cement was tagged at 159m and the cement, float collar, shoe and rat hole were drilled out. Prior to drilling further 8½" hole, the mud system was converted to a potassium chloride brine/prehydrated gel system.

Drilling of 8½" hole continued to 608m, Top of Latrobe Group, at which point the bit was pulled to run a drill stem test.

Two attempts were made to test the Top of Latrobe. Both failed due to plugging of the test tools.

Drilling of 8½" hole continued and TD of 1394m was reached at 1330 hrs, 17.4.88.

After logging, an RFT survey was run and samples taken. Both samples and RFT pressures confirmed the presence of a water column.

Wonga Binda No. 1 was plugged back to surface and abandoned. The rig was released at 1000 hrs, 20.4.88.

## 4.2 RIG DATA

| | |
|---|---|
| Contractor: | ATCO APM Drilling Pty. Limited<br>4 Formation Street<br>WACOL. QLD. 4076 |
| Rig: | A7 |
| Drawworks: | Troy 600. Mechanical drive, Single drum. |
| Rated Capacity: | 2,500 metres. |
| Power: | Caterpillar D353 diesel engine and National torque convertor. |

| | |
|---|---|
| Drill String: | Drill Pipe 4½", 16.6 lbs/ft, Grade E<br>4" IF connections. (API NC46)<br>10 joints 4½" Hevi-Wate drill pipe<br>4" IF connections. (API NC46)<br>Drill Collars 3 x 8" (3" ID) 6-5/8"<br>Reg. connections. (API Reg.)<br>Drill Collars 21 x 6½" (2-13/16" ID)<br>4" IF connections. (API NC46). |
| Mast: | Troy (111' x 14') free standing with GNC<br>420,000 lbs and 280,000 lbs with 8 lines. |
| Mud Pumps: | 1 - Continental Emsco D500 (7¼" x 16")<br>powered by a D353 Caterpillar engine.<br>1 - Continental Emsco D500 (7¼" x 14")<br>powered by a GM 6-71 twin set diesel engine. |
| Blowout Preventors: | Annular - Shafco (11" x 3000 psi)<br>Rams - 2 Shafco double gate 11" x 3000 psi.<br>Accumulator - Troy type K-90, 90 gallon,<br>4 station control.<br>Choke Manifold - Willis adjustable<br>2" x 3000 psi. |

## 4.3 DRILLING DATA

(a) Hole sizes and depths:

| | |
|---|---|
| Conductor hole: | 17½" to 38m. |
| Surface hole: | 12¼" to 175m. |
| Main hole: | 8½" to 1394m. (TD) |

(b) Casing and Cementing Record:

Conductor: 13-3/8" conductor was preset to 38m belog G.L. and cemented to surface.

Surface: 14 joints of 36 lb/ft K-55 9-5/8" casing fitted with Halliburton guide show and float collar at the first collar. Spring box centralisers were run on the first three collars and at a depth of 0.7m below GL.

The casing was cemented with 280 sacks of API Class A cement mixed with fresh water containing 2% calcium chloride. A top plug only was used and was bumped with 6,900 kPa and held. No returns were observed during displacement.

(c) Mud Summary:

Surface hole was drilled using a fresh water based native clay system.

After drilling cut surface casing, the hole was displaced to a potassium chloride brine drilling fluid. Drilling proceeded into the Latrobe Group where large amounts of coal were encountered and the mud weight was raised to help stabilize the formation.

Drilling continued to total depth with no further problems.

(d) Water Supply:

Water was pumped from a water bore on the site.

(e) Formation Testing:

| | | |
|---|---|---|
| DST No. 1 | 600-608m. | Latrobe Group. Conventional bottom hole test. Misrun due to tool plugging. |
| DST No. 2 | 590-609m | Latrobe Group. Conventional bottom hole test. Misrun due to tool plugging. |
| RFT No. 1 | 606.5m | Recovered approximately 18 litres of muddy water. (Field Rw = 0.4 ohm-m @ 18°C which equates to the sample being 50:50 formation water and mud filtrate). |

(f) Abandonment Data:

| | | | |
|---|---|---|---|
| Plug No. 1: | 620-590m. | 65 sx. | - Across top of Latrobe Gp. |
| Plug No. 3: | 189-158m. | 90 sx. | - Across casing shoe. |
| Plug No. 3: | 6- 1m. | 10 sx. | - At top of surface casing. |

## 5.1 GEOLOGICAL SUMMARY

Wonga Binda No. 1 spudded on April 8 1988 into loose sands of the Boisdale Formation. The top of the Jemmy's Point Formation was at 37.0m which was as predicted while the Tambo River Formation was encountered at 51.0m, 46.0m higher than prognosed.

The top of the Gippsland Limestone was placed at 136.0m from cuttings and was 7.0m low to prognosis but because of the lithologic similarity between the Tambo River Formation and the Gippsland Limestone there is a degree of uncertainty to this boundary.

After drilling 12¼" hole to 175.0m 9-5/8" surface casing was set at 173.0m and 8½" hole was then drilled to total depth.

The Seacombe Marl Member of the Lakes Entrance Formation was encountered at 530.5m, 13.5m high to prognosis while the Giffard Sandstone Member was at 590.2m, 23.8m high to prognosis.

At 600m the cuttings sampling interval was changed from 10 to 3m and the top of the Traralgon Formation of the Latrobe Group was encountered at 605.5m, 14.5m high to prognosis. A sample circulated at 608m was sand with good reservoir character but no fluorescence or gas.

DST No. 1 was attempted over the interval 600.0 - 608.0m but after 7½ minutes the tool had completely plugged and the packer (in-flate) would not seat. Drilled to 609m and ran DST No. 2 over the interval 590 - 609m. On DST No. 2 there was a strong blow for 3 minutes before the tool became completely plugged. Recovered 91m of water cushion and 76m of mud.

Drilling was then resumed and 3m samples were collected from 600m to total depth. The Older Volcanics were encountered at 1244.0m, 11m high to prognosis at the top of the Yarram Formation was at 1330.5m, 54.5m high to prognosis.

The top of the Strzelecki Group was encountered at 1344.0m, 61.0m high to prognosis and total depth was 1394m, still within the Strzelecki Group.

After reaching a total depth of 1394.0m on April 17 1988 wireline logs were run as well as a velocity survey and sidewall cores. An RFT was then run at 606.5m in the top sand of the Traralgon Formation and it recovered water.

Sample monitoring and gas detection while drilling indicated there were no significant hydrocarbons in any of the sands penetrated and this was confirmed by the wireline logs and the RFT which showed all potential reservoirs to be water saturated.

The well was then plugged and abandoned and the rig released on April 20 1988.

## 5.2 REASONS FOR DRILLING

Wonga Binda No. 1 was drilled to test for hydrocarbons in a northeast - southwest trending structure with four-way dip closure on the Darriman Anticline. Seismic mapping indicated the closure was only present at the top of the Latrobe Group (Traralgon Formation) and the top Latrobe Group sand was the primary target of the well. Secondary targets included possible intra Latrobe Group sands and in particular structural/stratigraphic traps associated with the Yarram Formation and the overlying Older Volcanics.

The four way dip closure at the top of the Latrobe Group was interpreted to be the result of draping and compaction over a buried barrier or bar sand which would have been a high since deposition. Because of this the sand should have been in a prime position to trap hydrocarbons migrating onshore ever since the marls of the Lakes Entrance Formation covered and sealed the porous sand.

No significant accumulations of hydrocarbons have yet been discovered in the on-shore Gippsland Basin but off-shore from PEP 120 are several marginally economic oil and gas fields, Golden Beach, Whiptail, Tarwhine, Dolphin and Perch. The sands at the top of the Latrobe Group are the reservoirs for all these fields.

On-shore, gas flowed at up to 100,000 cubic feet per day from the Strzelecki Group in North Seaspray No. 1 but other wells in the area failed to encounter the reservoir sand suggesting a strong stratigraphic component in its distribution. In the south of the permit minor oil shows were reported from Sunday Island No. 1 and Woodside No. 2. The closest well was Darriman No. 1 which was drilled in 1955, about 3km to the west but although it is mapped on a separate closure up-dip from Wonga Binda No. 1 the latest seismic indicates it to be off the crest of the structure.

## 5.3 STRATIGRAPHY

| AGE | GROUP / FORMATION | TOP KB | TOP MSL | THICK |
|---|---|---|---|---|
| Pliocene | Boisdale | Surface | +25.6 | 33.0 |
| Pliocene | Jemmys Point | 37.0 | -7.6 | 14.0 |
| | Seaspray Group | | | |
| Miocene | Tambo River | 51.0 | -21.6 | 85.0 |
| Miocene | Gippsland Lst. | 136.0 | -106.6 | 394.5 |
| | ("Base Lst. Seismic Marker" | 481.7 | -452.3) | |
| Oligocene | Lakes Entrance | | | |
| | Seacombe Marl Mbr. | 530.5 | -501.1 | 58.7 |
| | Giffard Sst. Mbr. | 590.2 | -560.8 | 15.3 |
| | Latrobe Group | | | |
| Eocene | Traralgon | 605.5 | -576.1 | 638.5 |
| Eocene | Older Volcanics | 1244.0 | -1214.6 | 86.5 |
| Eocene | Yarram | 1330.5 | -1301.1 | 13.5 |
| Cretaceous | Strzelecki Group | 1344.0 | -1314.6 | +50.0 |
| | Total Depth | 1394.0 | -1364.6 | |

## 5.4 DESCRIPTIVE STRATIGRAPHY

BOISDALE FORMATION (Pliocene) Surface - 37.0m

No description.

JEMMYS POINT FORMATION (Pliocene) 37.0 - 51.0m

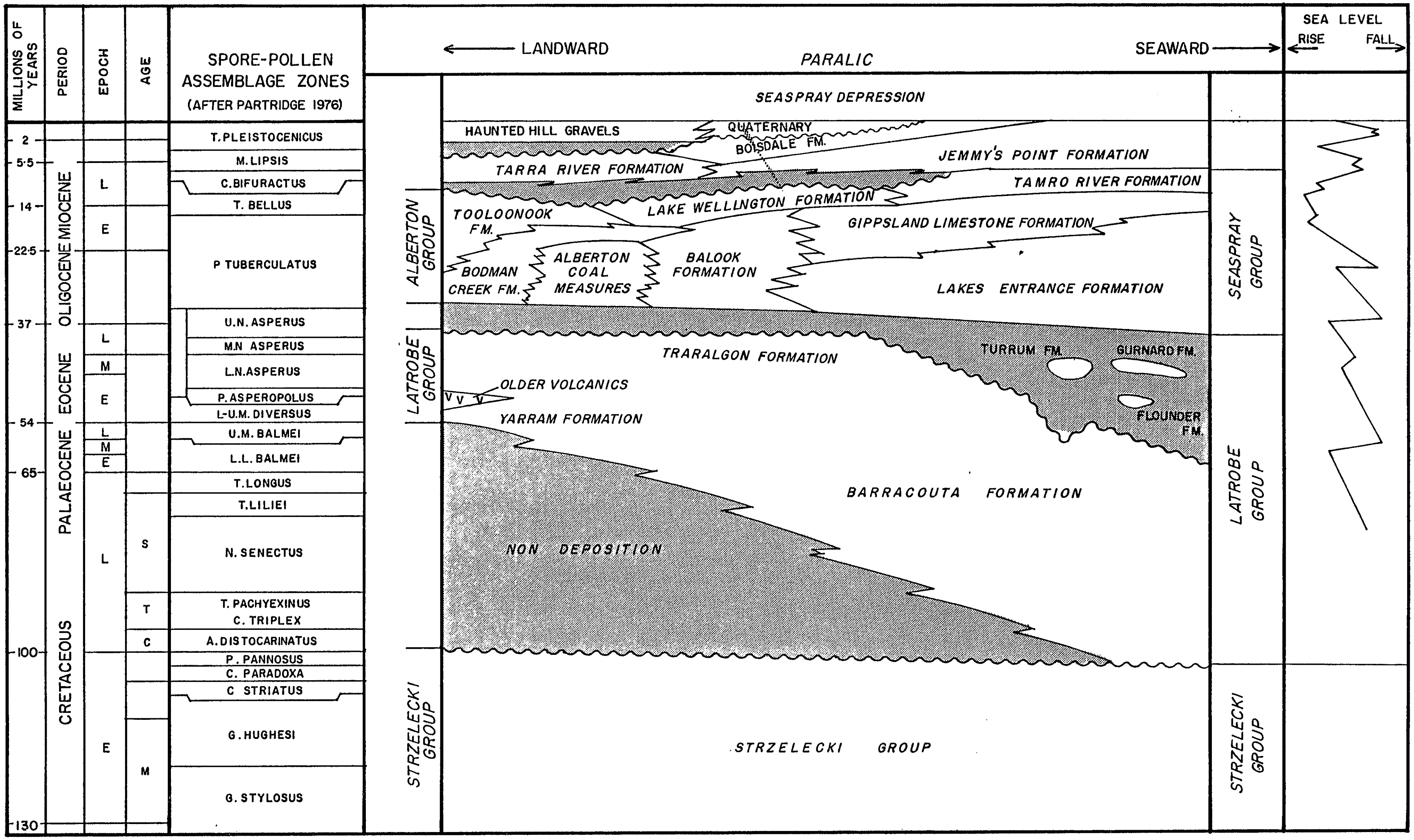
SANDSTONE, clear to milky white, common yellow iron stained, medium to coarse, sub-rounded, poorly sorted, trace ferruginous/argillaceous matrix/cement, loose, good porosity.

TAMBO RIVER FORMATION (Miocene) 51.0 - 136.0m

LIMESTONE with minor SANDSTONE and MARL.

Limestone is off-white, pale brown, light to medium grey, firm to moderately hard, sandy in part, grading to marl, argillaceous and very dispersive in part, abundant fossils, trace glauconite and lithic fragments.

# STRATIGRAPHIC UNITS GIPPSLAND BASIN




L – Late M – Middle E – Early

(Modified from THOMPSON and WALKER 1982)

Figure 3

A4 2209

GIPPSLAND LIMESTONE (Miocene) 136.0 - 530.5m

LIMESTONE and MARL, predominantly limestone at the top and marl at the base.

Limestone is white to cream, minor light to medium grey, grey-brown, friable, grading to coquina with abundant fossil fragments including bryozoa, foraminifera and molluscs, common light to dark green glauconite as grains and as calcite replacement in shells, firm to hard, crystalline in part, trace clear and yellow iron stained silty to very fine quartz grains.

Marl is white, cream, light grey-brown, light to dark grey, soft to firm, argillaceous, calcareous, fossiliferous, grading to limestone, with silt and very fine sand grains, dark green-black glauconite.

LAKES ENTRANCE FORMATION (Oligocene) 530.5 - 590.2m

SEACOMBE MARL MEMBER, MARL with minor LIMESTONE.

Marl is light to dark bluish-grey, grey-green, soft, sticky, dispersive, silty, glauconitic, trace pyrite, grading to calcareous claystone.

Limestone is white, grey, brown, crystalline, fossiliferous, hard.

LAKES ENTRANCE FORMATION (Oligocene) 590.2 - 605.5m

GIFFARD SANDSTONE MEMBER, CLAYSTONE/MARL and SANDSTONE.

Claystone/Marl, light to dark green, very dark grey-green, soft to firm, very abundant, very fine to coarse glauconite grains, common finely disseminated pyrite, minor to common clear, rounded, medium to very coarse quartz grains. Common white shell fragments.

Sandstone is grey, fine to very coarse, some pebbles of quartz and quartzite, sub-rounded to rounded, poorly sorted, white to light grey silty calcareous claystone matrix, tight to very poor porosity.

LATROBE GROUP, TRARALGON FORMATION (Eocene) 605.5 - 1244.0m.

SANDSTONE with interbeds of SILTSTONE, SHALE/CLAYSTONE and COAL.

Sandstones are white, minor light brown (lignite stained in part), fine to very coarse, angular to sub-angular, minor sub-rounded, poor to moderate sorted, friable to loose, some dispersive white to brown clay/argillaceous matrix, minor to common mica, minor lithic/quartzite grains, minor black carbonaceous/lignitic specks, trace feldspar, rare pyrite, predominantly very good porosity.

Siltstones are light brown, grey-brown to black, firm to hard, very argillaceous, carbonaceous and shaly.

Shales/Claystones are light grey, light to very dark brown, soft to firm, dispersive in part, silty, carbonaceous, lignitic, grading to coal in part.

Coal is dark brown to black, lignitic, shaly in part.

LATROBE GROUP, OLDER VOLCANICS (Eocene) 1244.0 - 1330.5m.

BASALT, weathered in part to CLAYSTONE.

Basalt is dark grey-green to black, hard, crystalline, feldspar, ferro-magnesian minerals, minor green serpentine and white calcite. Weathered in part.

Claystones are purple-red, dark chocolate brown, soft to firm, rare to common green-black ferro-magnesian grains.

LATROBE GROUP, YARRAM FORMATION (Eocene) 1330.5 - 1344.0m.

SANDSTONE with minor SILTSTONE bands.

Sandstones are white, pale green to grey-green, light grey, very fine to coarse, minor conglomerate, sub-angular to sub-rounded, poor to moderate sorted, abundant greenish clay matrix, minor lithics and feldspar, silty, poor porosity.

Siltstone is light to dark brown, grey-brown, firm, shaly, lignitic.

STRZELECKI GROUP (Cretaceous) 1344.0 - 1394.0m

SANDSTONE and CLAYSTONE.

Sandstones are white to light grey, grey-green, green, black, fine to coarse, sub-angular to sub-rounded, moderate sorted quartz and lighic/quartzite grains, white feldspar, trace mica, abundant clay matrix, poor porosity.

Claystone is white, medium to dark blue-grey, soft to firm, silty, sandy, dispersive in part.

## 5.5 FORMATION EVALUATION

### (a) MUD LOGGING

Mud logging services were provided by Gearhart Geodata. Basic rate of penetration, pit level, total gas and FID chromatography services were provided as well as lagged sample collection, description and processing. Cuttings were collected at 10 metre intervals from 40 to 600m and then at 3m intervals to total depth. These were examined for oil and gas indications, described then split into two sets of plastic sample packets and two sets of Samplex trays. One set of sample packets was sent to the Victorian Department of Industry, Technology and Resources, and the other to the Operator. One set of Samplex trays was retained by the Operator and the other was sent to Omega Oil Pty. Ltd..

### (b) WIRELINE LOGGING

The following logs were run by Queensland Shallow Logging at total depth:

| | |
|---|---|
| DLL-GR-SP-CAL | 173.0 - 1367.5 (GR to surface) |
| MSFL | 570.0 - 1362.5 |
| LDL-CNL-NGS | 570.0 - 1371.0 |
| SLS-GR | 181.5 - 1370.0 |
| SHDT-GR | 570.0 - 1371.0 |
| WST | |
| CST-GR | |
| RFT-HP-GR | |

### (c) TEMPERATURES

The following temperatures were recorded from wireline logs:

38°C after 4.0 hours
41°C after 8.0 hours
42°C after 12.5 hours

A time temperature plot of these gives an extrapolated BHT of 44.5°C @ 1,372 metres.

### (d) CORING

No conventional cores were cut.
30 sidewall cores were attempted and 27 were recovered.

## 5.6 RESERVOIR POTENTIAL

The wireline logs and samples indicated the sands of the Latrobe Group had good porosity and permeability with clean sands having only minor amounts of clay matrix and lithic fragments.

The sands of the Yarram Formation and Strzelecki Group had poor porosities and permeabilities and in general had a high proportion of lithic fragments, feldspar and argillaceous/clay matrix.

Within the Lakes Entrance Formation the Giffard Sandstone graded to a sandy, calcareous and glauconitic claystone with very poor reservoir quality and there was no reservoir development within the Seacombe Marl Member.

Samples from the Gippsland Limestone and the Tambo River Formation indicate some intervals to be friable and to have good reservoir quality.

(Appendix 8 gives a tabulation of log derived porosities.)

## 5.7 HYDROCARBON SHOWS

No gas peaks were recorded and there was no background gas while drilling until below the Latrobe Group at which stage very small amounts (½ unit) of methane were detected.

No indications of oil or fluorescence were observed but there was dark brown to black lignitic staining on some quartz grains. Sidewall cores showed this to be a lignitic material.

Wireline logs indicated all potential reservoir sands to be water saturated and an RFT of the top sand of the Latrobe Group recovered formation water.

## 5.8 CONTRIBUTIONS-TO-GEOLOGIC-CONCEPTS

Formation tops were generally as prognosed. The lithological distinctions from Tambo River Formation to the Gippsland Limestone and the Gippsland Limestone to the Lakes Entrance are imprecise. However, there is fair agreement between lithologically picked tops and the tops as picked from the wireline logs.

The Giffard Sandstone Member (not strictly a sandstone unit) is 15.3 metres thick at this location. The member here contains minor to common clear, rounded, medium to very coarse quartz grains.

The Traralgon Formation in Wonga Binda No. 1 does not have coal at the very top of the Formation. This is not the case in any other well in PEP 120 and 123 and in wells immediately to the north of these permits. The drilling results confirmed the seismic prognosis that a thick sand unit is present at the top of the Latrobe Group. This unit is believed to be a result of deposition in a barrier/bar complex.

The Traralgon Formation contains considerably less coal and thinner coals than are present in Macalister No. 1 and wells to the north.

The Older Volcanics are present and overlie the Yarram Formation. The Yarram is almost entirely sandstone, however, reservoir quality is low in comparison to the Traralgon Formation.

The Strzelecki Group was readily picked lithologically and confirmed by wireline logs.

## 6. CONCLUSIONS

Wonga Binda No. 1 was located at a crestal position on a structure showing four way dip closure at the top Latrobe Group horizon only. No dip closure was mapped seismically at other horizons. The closure at the Top Latrobe Group at this location is due to a sand build-up, probably a buried barrier/bar.

It was thought that the barrier may have trapped east to west migrating hydrocarbons which would have then collected at the structural high at Wonga Binda No. 1. However, this was not the case.

# LIST OF APPENDICES

1. Daily Operations Reports

2. Bit and Hydraulics Record/Deviation Record

3. Mud Record

4. Time Analysis

5. Drill Stem Test Reports

6. Description of Cutting Samples

7. Description of Sidewall Cores

8. Wireline Log Evaluation

9. Water Analysis

10. Well Velocity Survey

11. Well Location Survey

# APPENDIX 1

# APPENDIX 1

# DAILY OPERATIONS REPORTS

# CRUSADER LIMITED

## MORNING REPORT

Well Name: Wonga Binda #1

Date: 21.4.88

Days from Spud: 13

Depth at 0700 hrs: 1394 m

Progress Last 24 hrs: 0.0 m

Hole Size: 8.5 in

Last Casing: 9.625" at 173.00 m

Mud Weight: -

Viscosity: -

PV/YP: -/-

WL: -

Deviation Surveys: Nil

Preliminary Formation Tops: Nil

Operations Summary:

Set 5m cement plug from 6m BGL to 1m BGL. Completed cleaning mud tanks etc. Rig released 1000 hrs 20.4.88.

Estimated Costs: Daily = $131,341

Cumulative = $476,051

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CRUSADER LIMITED

MORNING REPORT

Well Name: Wonga Binda #1

Date: 20.4.88

Days from Spud: 12

Depth at 0700 hrs: 1394 m

Progress Last 24 hrs: 0.0 m

Hole Size: 8.5 in

Last Casing: 9.625" at 173.00 m

Mud Weight: -

Viscosity: -

PV/YP: -/-

WL: -

Deviation Surveys: Nil

Preliminary Formation Tops: Nil

Operations Summary:

Complete running CST (shot 30 - recovered 27). Rig down. RIH with BHA and layout. RIH OEDP to 620m. Circulate and balance mud system. Set cement plug #1 from 620m. to 590m. with 65 sx class "A" cement. P.O.O.H. and circulate hole clean. P.O.O.H. to 189m. Set plug #2 from 189m. to 158m. with 90 sx class "A" cement with 2% CaClc. P.O.O.H. and circulate hole clean. P.O.O.H. laying down pipe. RIH and tag cement plug #2 at 152m. P.O.O.H. laying down pipe. Nipple down flow line and BOPs and lay down. Break and lay down Kelly. Commence cleaning mud tanks. Cut off Bradenhead at minus one metre GL. Set plug #3 from 6m. to 1m. below GL (10 sx class "A" cement). Continue rigging down.

Estimated Costs: Daily = $88,473 Cumulative = $344,710

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CRUSADER LIMITED

MORNING REPORT

Well Name: Wonga Binda #1 | Date: 19.4.88 | Days from Spud: 11

Depth at 0700 hrs: 1394 m | Progress Last 24 hrs: 0.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.7 ppg | Viscosity: 44 sec

PV/YP: 12/18 | WL: 7 ml

Deviation Surveys: Nil | Preliminary Formation Tops: Nil

Operations Summary:

Continued logging with Schlumberger. Ran DLL-MSPL-GR-CAL/LDL-CNL-NGT-CAL/SLS-GR/BHC-GR/SHDT-GR/WST Survey/RFT.

Estimated Costs: Daily = $11,989 | Cumulative = $256,237

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# CRUSADER LIMITED

## MORNING REPORT

Well Name: Wonga Binda #1 | Date: 18.4.88 | Days from Spud: 10

Depth at 0700 hrs: 1394 m | Progress Last 24 hrs: 59.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.7 ppg | Viscosity: 44 sec

PV/YP: 12/18 | WL: 6.4 ml

Deviation Surveys: Nil | Preliminary Formation Tops: Nil

Operations Summary:

Drill to 1394m TD. Circulate sample. Wiper trip to shoe prior to logging. Hole tight from 1259m. Pumped and reamed out singles from 1225m. Circulated hi vis/hi density pill & lifted out coals. Continue POOH. Slip 20' drill line at shoe. RIH to 1338m. Wash & ream loose fill from 1338m to 1394m. Circulate & condition hole with hi vis sweep. POOH to log - no tight hole. Rig up Schlumberger & commence logging DLL-MSFL-GR-CAL.

Estimated Costs: Daily = $12,711 | Cumulative = $244,248

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CRUSADER LIMITED

MORNING REPORT

Well Name: Wonga Binda #1 | Date: 17.4.88 | Days from Spud: 9

Depth at 0700 hrs: 1335 m | Progress Last 24 hrs: 107.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.6 ppg | Viscosity: 45 sec

PV/YP: 13/19 | WL: 6 ml

Deviation Surveys:

0.50° at 1,325.0 m

Preliminary Formation Tops:

Yarram Fm at 1,332.0 m ( 53.0H)
Older Volcanics at 1,243.0 m ( 12.0H)

Operations Summary:

RIH with new bit. Ream tight spots at 838m & from 1021m to 1051m. Wash & ream last 15m to bottom. Drill to 1335m. (Circulate sample at 1332m - top of Yarram Fm).

Estimated Costs: Daily = $12,030 Cumulative = $231,537

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# CRUSADER LIMITED

## MORNING REPORT

Well Name: Wonga Binda #1 | Date: 16.4.88 | Days from Spud: 8

Depth at 0700 hrs: 1228 m | Progress Last 24 hrs: 130.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.4 ppg | Viscosity: 44 sec

PV/YP: 13/18 | WL: 7 ml

Deviation Surveys:

1.00° at 1,219.0 m

Preliminary Formation Tops:

Older Volcanics at 1,227.0 m ( 28.0H)

Operations Summary:

Circulate hole clean & make wiper trip to 609m. Hole tight from 853m to 655m. Slip 20' drill line & RIH. Drill to 1228m. Circulate hole clean & pump pill. Drop survey & POOH. P/U new bit & RIH.

Estimated Costs: Daily = $18,523 | Cumulative = $219,507

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# CRUSADER LIMITED

## MORNING REPORT

Well Name: Wonga Binda #1 | Date: 15.4.88 | Days from Spud: 7

Depth at 0700 hrs: 1098 m | Progress Last 24 hrs: 226.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.4 ppg | Viscosity: 43 sec

PV/YP: 13/17 | WL: 8 ml

Deviation Surveys: | Preliminary Formation Tops: Nil

1.00° at 874.0 m

Operations Summary:

Complete circulation of hi vis sweep. Drill to 874m. Bit torquing up on bottom. Circulate hole clean. Pump slug & drop survey. POOH for bit. Hole pulled tight from 874m to 628m. Bit came out 5-4-3/16. Stabiliser in gauge but showed signs of torquing up in U/G hole. Picked up new bit & RIH. Took weight at 628m. Washed & reamed from 628m to 874m. Drilled to 1098m.

Estimated Costs: Daily = $19,528 Cumulative = $200,984

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CRUSADER LIMITED

MORNING REPORT

Well Name: Wonga Binda #1 | Date: 14.4.88 | Days from Spud: 6

Depth at 0700 hrs: 872 m | Progress Last 24 hrs: 263.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.5 ppg | Viscosity: 44 sec

PV/YP: 11/16 | WL: 8.5 ml

Deviation Surveys: Nil | Preliminary Formation Tops: Nil

Operations Summary:

Break down test head and survace equipment and deflate packer. DST assembly stuck in hole. Jarred for half an hour but could not free. Pulled 140000 lb. over string weight to free. P.O.O.H. with DST #2. Recovered 300 ft. water cushion and 249 ft. rat hole mud. Break down and layout test tools. Plugged with chunks of marl and mud. Pick up bit and stabiliser and RIH with BHA to shoe. Slip and cut 60' of drill line. RIH to 588m. Wash and ream fill 21m. to bottom. Drill 8.5" hole from 609m. to 872m. Drill string torquing up. Work pipe and circulate hole clean with Hi-Vis sweep.

Estimated Costs: Daily = $47,371 | Cumulative = $181,456

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# CRUSADER LIMITED

## MORNING REPORT

Well Name: Wonga Binda #1 | Date: 13.4.88 | Days from Spud: 5

Depth at 0700 hrs: 609 m | Progress Last 24 hrs: 1.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.5 ppg | Viscosity: 49 sec

PV/YP: 15/19 | WL: 6 ml

Deviation Surveys: Nil | Preliminary Formation Tops: Nil

Operations Summary:

Set packers on DST #1 (inflate bottom hole). Open tool at 0845. Very weak blow for 7.5 mins. No blow and shut in for one hour after one hour open. Pull to fluid - approx. 8' of rat hole mud. Tool completely blocked. RIH with drilling assembly to condition hole and mud. Drill 1m. extra hole from 608m. to 609m. Circulate hole clean with Hi-Vis sweep. P.O.O.H. for DST #2. Pick up and make up Baker DST tools and Halliburton EMR guages. R.I.H. and tag TD. Set and inflate pkr. Open DST #2 at 0543 hrs. 3 min strong blow then tool plugged. No more blow - shut tool in after one hour at 0643 hrs. 300 ft. water cushion run on DST #2.

Estimated Costs: Daily = $11,414 | Cumulative = $134,085

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CRUSADER LIMITED

MORNING REPORT

Well Name: Wonga Binda #1 | Date: 12.4.88 | Days from Spud: 4

Depth at 0700 hrs: 608 m

Progress Last 24 hrs: 106.0 m

Hole Size: 8.5 in

Last Casing: 9.400" at 0.00 m

Mud Weight: 9.4 ppg

Viscosity: 46 sec

PV/YP: 14/17

WL: 8 ml

Deviation Surveys:

0.25° at 514.0 m

Preliminary Formation Tops:

Latrobe Group/Traralgon Fm at 606.0 m ( 14.0H)
Giffard Sandstone at 588.0 m ( 26.0H)
Seacombe Marl at 519.0 m ( 25.0H)

Operations Summary:

Drill to 514m. Circulate and survey at 514m. Drill to 608m. Circulate up sample. Circulate hole clean with Hi-Vis sweep. Make wiper trip to shoe. Pulled tight all the way - Had to pump out 6 singles. R.I.H. and circulate Hi-Vis sweep 4 stds up BHA. P.O.O.H. 2 stds. Complete circulate hole clean. P.O.O.H. Pick up Bake test tools with Halliburton EMRs. Make up and R.I.H. Make up test head - manifold etc.

Estimated Costs: Daily = $17,393 Cumulative = $122,671

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# CRUSADER LIMITED

## MORNING REPORT

Well Name: Wonga Binda #1 | Date: 11.4.88 | Days from Spud: 3

Depth at 0700 hrs: 502 m | Progress Last 24 hrs: 327.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.3+ ppg | Viscosity: 46 sec

PV/YP: 14/18 | WL: 8 ml

Deviation Surveys:

0.00° at 295.0 m

Preliminary Formation Tops:

| | | |
|---|---|---|
| Tambo River Fm | at | 51.0 m ( 46.0H) |
| Gippsland Lst | at | 136.0 m ( 7.0L) |

Operations Summary:

Stabilise top part of 9.625" casing and BOPs. Complete drill out float joint and shoe. Drill to 308m. Circulate and survey at 295m. Drill to 502m.

Estimated Costs: Daily = $13,789 Cumulative = $105,278

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CRUSADER LIMITED

MORNING REPORT

Well Name: Wonga Binda #1 | Date: 10.4.88 | Days from Spud: 2

Depth at 0700 hrs: 175 m | Progress Last 24 hrs: 0.0 m

Hole Size: 8.5 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9 ppg | Viscosity: 39 sec

PV/YP: 6/11 | WL: 20+ ml

Deviation Surveys: Nil | Preliminary Formation Tops: Nil

Operations Summary:

Wait on cement. Slack off casing. Cut and lay out conductor and casing. Prepare casing stub for welding. Install Bradenhead and weld. Cool and pressure test - good. Top up cement in annulus. Pick up BOPs and nipple up. Rig up and test BOPs. Rig up and drill mouse hole and install sock. Make up BHA and RIH to drill out. Tag cement at 159m. Drill cement. Tag top plug at 160m. Drill top plug and float collar. Drill 4m. of shoe track. Problem with BOPs rocking. P.O.O.H. 2 stds. Take remedial action.

Estimated Costs: Daily = $31,972 | Cumulative = $91,489

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# CRUSADER LIMITED

## MORNING REPORT

Well Name: Wonga Binda #1 | Date: 9.4.88 | Days from Spud: 1

Depth at 0700 hrs: 175 m | Progress Last 24 hrs: 122.0 m

Hole Size: 12.25 in | Last Casing: 9.625" at 173.00 m

Mud Weight: 9.1 ppg | Viscosity: 39 sec

PV/YP: 5/12 | WL: 20+ ml

Deviation Surveys: | Preliminary Formation Tops: Nil

1.00° at 108.0 m
1.00° at 174.0 m

Operations Summary:

Drill to 108m. Circulate and survey at 108m. Drill to 174m. Circulate hole clean with Hi-Vis sweep and make wiper trip to top of 8" collars. SLM (no correction). Drill to 175m. Circulate hole clean with Hi-Vis sweep and spot in 100 BBL Hi-Vis mud. Survey and P.O.O.H. for casing. Rig up to run casing. Run 14 JTS 9.625" - 36 PPF - K - 55 casing. Circulate casing for 1/2 hour. Rig up Halliburton and mix and pump 280 sxs class "A" cement - 15.6 PPG slurry with 2% CaClc. Displace cement with 41 BBLs water. Bump plug with 1000 PSI - Hold pressure 10 mins - good. W.O.C.

Estimated Costs: Daily = $12,471 | Cumulative = $59,517

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CRUSADER LIMITED

MORNING REPORT

Well Name: Wonga Binda #1 | Date: 8.4.88 | Days from Spud: 0

Depth at 0700 hrs: 53 m

Progress Last 24 hrs: 53.0 m

Hole Size: 12.25 in

Last Casing: 13.375" at 38.00 m

Mud Weight: 8.8 ppg

Viscosity: 34 sec

PV/YP: -/-

WL: -

Deviation Surveys:

1.00° at 50.0 m

Preliminary Formation Tops: Nil

Operations Summary:

Rigged up and drilled rat hole. Spudded 0330 hrs 8.4.88. Tagged cement at 38m. Drilled to 53m. Circulate & survey at 50m.

Estimated Costs: Daily = $47,046 Cumulative = $47,046

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REMARKS:

Drilling with 8% KCl & maintaining low hydraulics sufficient only to clean hole

[illegible]se hole will be drilled after surface casing is set

# APPENDIX 2

APPENDIX 2

APPENDIX 2

BIT AND HYDRAULICS RECORD

&

DEVIATION RECORD

CRUSADER LIMITED

BIT & HYDRAULIC RECORD — Wonga Binda #1 — 8.4.88 - 20.4.88

| Run | S/N | Size (in) | Type | Nozzles (32nds) | W.O.B. (m lb) | R.P.M. | Volume (gpm) | Pressure (psi) | Depth in, m | Depth out, m | Total Metres | Total Hours | R.O.P. (m/hr) | Condition T | B | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1RR | NL9497 | 12.25 | S11 | 3 x 16 | 5/ 7 | 80/ 90 | 250 | 200/ 300 | 38.0 | 175.0 | 137.0 | 11.0 | 5.0 | 3 | 4 | I |
| Remarks: Drilling with just enough hydraulics to keep hole clean | | | | | | | | | | | | | | | | |
| 2 | KH549 | X3A | X3A | 3 x 11 | 15/16 | 70/100 | 200 | 650 | 175.0 | 608.0 | 433.0 | 25.0 | 0.0 | 2 | 2 | I |
| Remarks: - | | | | | | | | | | | | | | | | |
| 3RR | KH549 | 8.5 | X3A | 3 x 11 | 5 | 80 | 200 | 650 | 608.0 | 609.0 | 1.0 | 0.0 | 0.0 | 2 | 2 | I |
| Remarks: - | | | | | | | | | | | | | | | | |
| 4RR | KH549 | 8.5 | X3A | 3 x 11 | 10/20 | 80/100 | 200 | 800 | 609.0 | 874.0 | 265.0 | 16.0 | 17.0 | 5 | 4 | 3/1 |
| Remarks: Total this bit = 699m. | | | | | | | | | | | | | | | | |
| 5 | CH605 | 8.5 | JD4 | 3 x 11 | 15/35 | 50/ 90 | 237 | 1,000 | 874.0 | 1228.0 | 354.0 | 31.0 | 15.0 | 6 | 4 | 1/1 |
| Remarks: - | | | | | | | | | | | | | | | | |
| 6 | AA428 | 8.5 | J22 | 3 x 11 | 25/35 | 50/ 60 | 237 | 1,000 | 1,228.0 | 1394.0 | 166.0 | 25.5 | 0.0 | 3 | 3 | I |
| Remarks: - | | | | | | | | | | | | | | | | |

# APPENDIX 3

APPENDIX 3

# APPENDIX 3

## MUD REDCORD

**M-I Australia Pty. Ltd.**
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

OPERATOR: CRUSADER RESOURCES

WELLSITE REP: E. BATT

CONTRACTOR: ATCO

CONTRACTOR REP: C. DANN

RIG: #7

WELL: WONGA BINDA #1

TOTAL DRILLING DAYS: 11

SPUD DATE: 8.4.88

TOTAL DAYS ON WELL: 14

TOTAL DEPTH DATE: 18.4.88

| DRILLING FLUID BY INTERVAL: | | MUD COST BY INTERVAL: |
|---|---|---|
| SPUD MUD .... | ......0.to..173 METRES | .....$..2966.03...... |
| KCL/POLYMER . | ....173.to.1394 METRES | .....$..9518.84...... |
| ............. | ........to........ | .................... |
| ............. | ........to........ | .................... |
| TOTAL MUD COST: | | .....$.12484.87...... |

DRESSER MAGCOBAR ENGINEERS: R. SWEET

M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

INTRODUCTION

**M-I Australia Pty. Ltd.**
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

## INTRODUCTION

Crusader Resources N.L's exploration well Wonga Binda #1 was spudded on the 8th April 1988 by the Atco Drilling Company using Rig A-7. This was the second of two wells drilled in the Gippsland Basin located in Permit PEP-120 near Seaspray. The primary target was the fluvial sandstones near the top of the Latrobe Group, and the secondary target was the sandstones of the Strzelecki Group.

The well was drilled to a total depth of 1394 metres in 11 drilling days. The geological formation tops, as supplied by the well site geologist, were:-

| AGE | FORMATION | DEPTH (METRES) | LITHOLOGY |
|---|---|---|---|
| | Tambo River | 51 | Sandstone/Marl/ Limestone. |
| Miocene | Gippsland Limestone | 136 | Limestone/Marl |
| Late Eocene | Seacombe Marl | 519 | Marl |
| Late Cretaceous | Latrobe Group | 606 | Sandstone/Coal |
| Late Cretaceous | Older Volcanic | 1243 | Sandstone/Basalt/ Coal |
| Late Cretaceous | Yarram Formation | 1332 | Sandstone |
| Early Cretaceous | Strzelecki Form. | 1346 | Sandstone/Claystone. |
| | TOTAL DEPTH | 1394 | |

M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

MUD SUMMARY BY INTERVAL

OBSERVATIONS AND RECOMMENDATIONS

## SUMMARY BY INTERVAL

### INTERVAL: 0-173 METRES 12 1/4" HOLE 9 5/8" CASING

On the 8th April, 1988 Wonga Binda #1 was spudded using a 12 1/4" bit to clean out the conductor and cement. The drilling fluid used for this interval was an 8% KCl fluid supplemented with high viscosity sweeps of either Bentonite or Polymer.

At 173 metres a wiper trip was made and some high viscosity mud was spotted on bottom. The 9 5/8" casing was run and cemented successfully.

### INTERVAL: 173-1394 METRES 8 1/2" HOLE

The BOP's were rigged up and the casing shoe was drilled out with fresh water before reverting back to a KCl mud system. Drilling continued quickly through the Gippsland Formation with the centrifuge being run instead of the desilter which had been loosing 10-20 bbls/hr. Upon reaching 608 metres the hole was cleaned with a high viscosity sweep and wiper trip to the shoe was made. The hole was tight on the trip and 6 singles were pumped out. The hole was circulated, cleaned and DST #1 was run unsuccessfully as the tool appeared to have plugged. The same ocurred for a second DST which became stuck and was pulled free with 140,000 lbs over string weight.

Drilling proceeded to 872 metres with regular additions of Polymer to maintain a higher yield point. A bit change was made at 874 metres. Drilling continued to 1098 metres with Caustic Soda additions necessary to combat the drop in pH caused by the coals. A thinning effect caused by the coals was countered by the additions of Polymer.

At 1228 metres the bit stopped drilling and was changed for a J22 to drill the volcanic section.

The trip encountered tight spots at 838 and 1021-1051 metres. As drilling continued the mud weight was increased to 10.6 ppg to help stabilize the formation.

The total depth of 1394 metres was reached and circulated prior to a wiper trip. The hole was very tight so a 12 ppg high viscosity sweep was circulated which removed large amounts of coal cuttings. The hole was circulated and conditioned prior to rigging up a logging run. The following electric logs were run:-

a) DLL-MSFL-GR-CAL-SP
b) LDL-CNL-NGT-CAL
c) SLS-GR
d) SHDT-GR
e) RFT pressure survey

Wonga Binda #1 was plugged and abandoned on the 20th April, 1988.

## OBSERVATIONS AND RECOMMENDATIONS

The 8% KCl drilling mud functioned well on Wonga Binda #1 with none of the major problems experienced on Macalister #1 occurring. The hole remained in better shape and the system never was overloaded by clays. The control over the fluid loss and yield points was maintained by the use of Polypac polymers.

The cost of the well was cheaper even with the use of KCl which is more expensive than NaCl.

To avoid any further drilling problems it is strongly recommended to run a KCl system when drilling the formations above the Latrobe.

M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

MUD CONSUMPTION BY INTERVAL

TOTAL MATERIAL CONSUMPTION

**M-I Australia Pty. Ltd.**
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

OPERATOR: CRUSADER RESOURCES WELL: WONGA BINDA #1

HOLE SIZE...12 1/4"..

INTERVAL.....0-173 METRES.... CASING SIZE..9 5/8"..

| PRODUCT | QUANTITY | COST |
|---|---|---|
| MAGCOGEL | 7 x 100 lb sx | $ 511.92 |
| CAUSTIC SODA | 6 x 25 kg sx | $ 148.50 |
| KCL | 94 x 25 kg sx | $ 957.86 |
| KCL | 40 x 50 kg sx | $ 536.00 |
| MAGCOPOLYPAC | 8 x 25 kg sx | $ 722.00 |
| LIME | 1 x 25 kg sx | $ 5.25 |
| MAGCOPOLYSAL | 2 x 25 kg sx | $ 84.50 |
| | INTERVAL COST : | $ 2966.03 |

M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

OPERATOR: CRUSADER RESOURCES WELL: WONGA BINDA #1

HOLE SIZE...8 1/2"...

INTERVAL....173-1394 METRES.. CASING SIZE....-.....

| PRODUCT | QUANTITY | COST |
|---|---|---|
| BARITE | 159 x 100 lb sx | $ 1351.50 |
| MAGCOGEL | 15 x 100 lb sx | $ 284.40 |
| CAUSTIC SODA | 20 x 25 kg sx | $ 495.00 |
| KCL | 306 x 25 kg sx | $ 3118.14 |
| MAGCOPOLYPAC | 44 x 25 kg sx | $ 3971.00 |
| LIME | 1 x 25 kg sx | $ 5.25 |
| MAGCOPOLYSAL | 4 x 25 kg sx | $ 169.00 |
| SPERSENE | 1 x 25 kg sx | $ 25.15 |
| SODIUM NITRATE | 1 x 50 kg sx | $ 42.30 |
| | INTERVAL COST : | $ 9518.84 |

M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

## TOTAL MATERIAL CONSUMPTION

OPERATOR: CRUSADER RESOUCES

WELL: WONGA BINDA #1

LOCATION: PEP-120, SEASPRAY, VICTORIA.

| PRODUCT | UNIT | COST | % |
|---|---|---|---|
| BARITE | 159 x 100 lb sx | $ 1351.50 | 10.83 |
| MAGCOGEL | 42 x 100 lb sx | $ 796.32 | 6.38 |
| CAUSTIC SODA | 26 x 25 kg sx | $ 643.50 | 5.15 |
| KCL | 400 x 25 kg sx | $ 4076.00 | 32.65 |
| KCL | 40 x 50 kg sx | $ 536.00 | 4.29 |
| MAGCOPOLYPAC | 52 x 25 kg sx | $ 4693.00 | 37.59 |
| MAGCOPOLYSAL | 6 x 25 kg sx | $ 253.50 | 2.03 |
| LIME | 2 x 25 kg sx | $ 10.50 | 0.08 |
| SPERSENE | 1 x 25 kg sx | $ 25.25 | 0.20 |
| SODIUM NITRATE | 1 x 50 kg sx | $ 42.30 | 0.34 |
| CALCIUM CHLORIDE | 3 x 25 kg sx | $ 57.00 | 0.46 |
| | TOTAL MATERIAL COST : | $12484.87 | 100.00 |

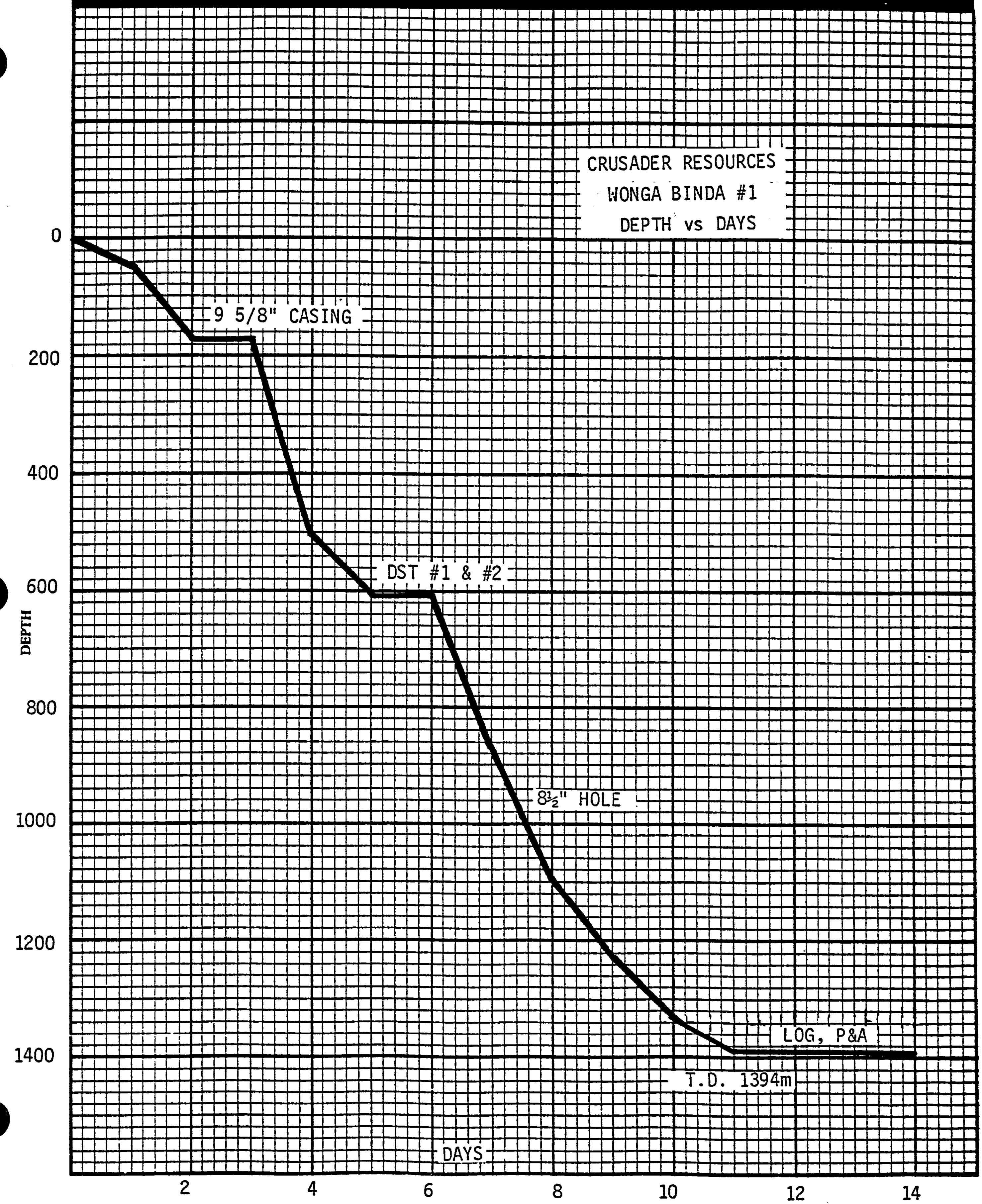
M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

GRAPHS

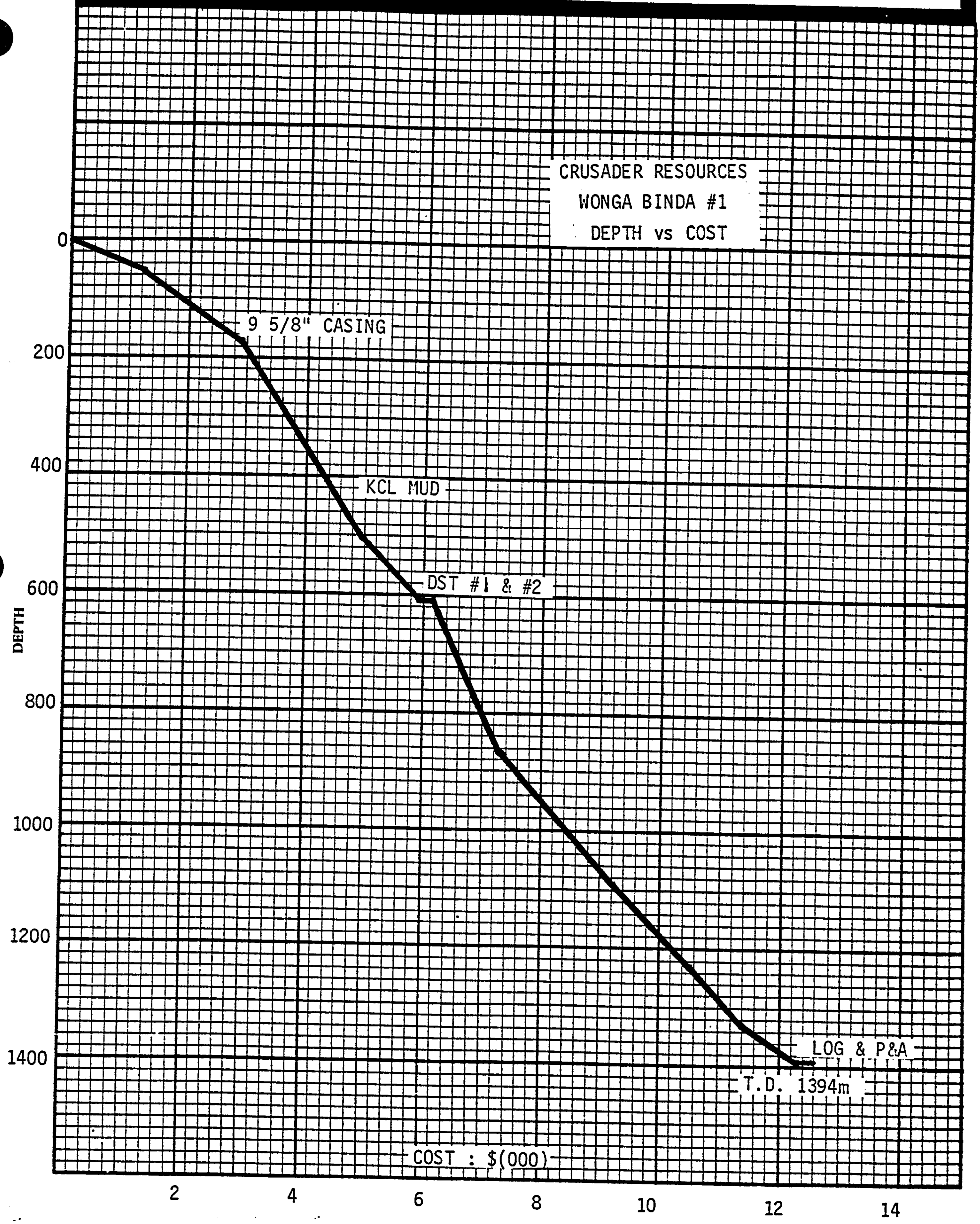
M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY



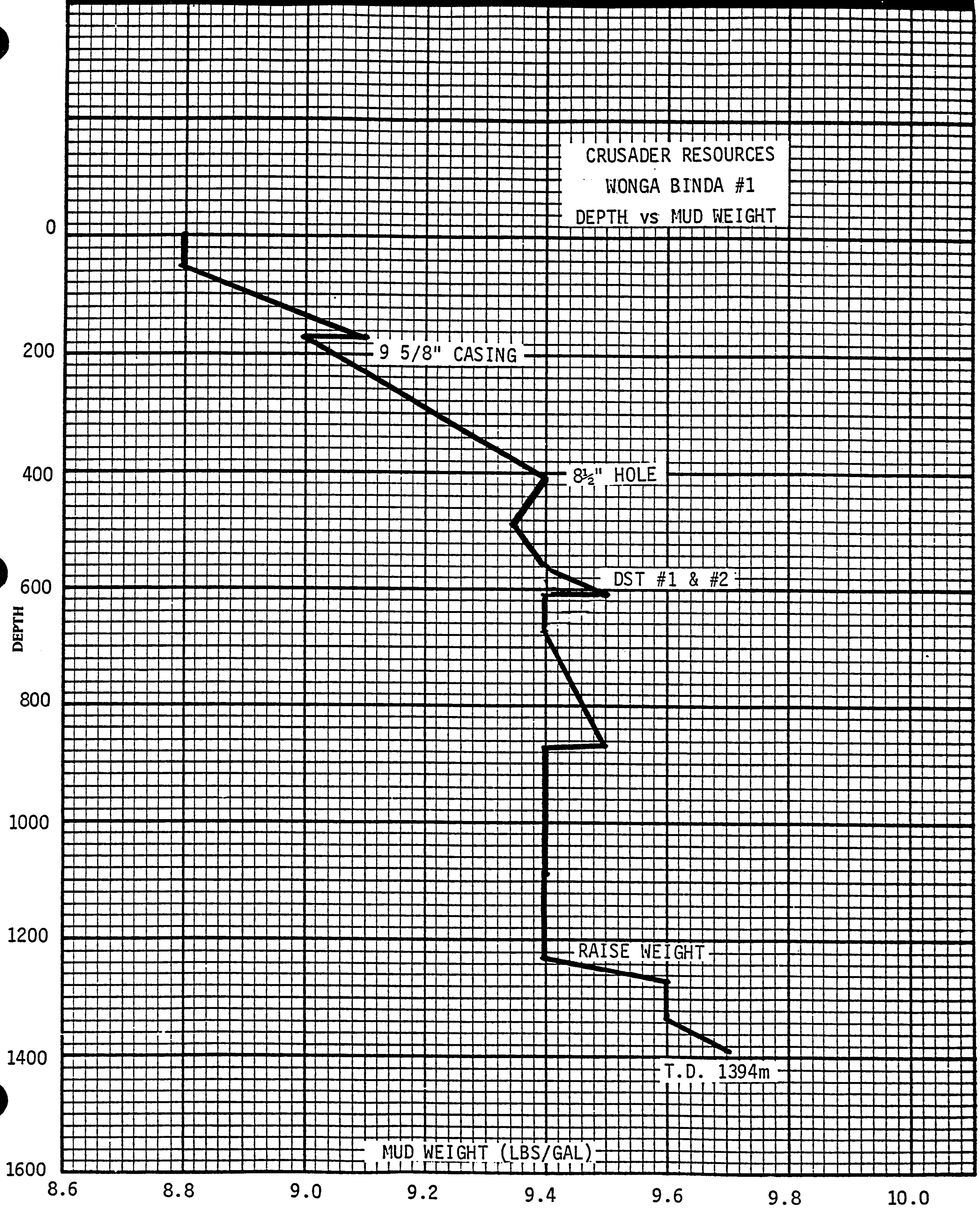
M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY



M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY



M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

BIT AND HYDRAULICS RECORD

# BIT & HYDRAULIC RECORD

| Contractor ATCO | Rig No. A-7 | Location VIC. PEP-120 | Well WONGA BINDA #1 |
|---|---|---|---|
| Operator CRUSADER RESOURCES | | NEAR SEASPRAY, VICTORIA | Engineer R. SWEET |

| Pump Name | Size | Liner Size/Stroke | DRILL Collars O.D. x I.D. x Length | Pipe Drill | Tool Joint Type | Wt/Ft | Pump Output Bbls/Stks. | |
|---|---|---|---|---|---|---|---|---|
| C-E | D395<br>D500 | 14 x 5½"<br>16 x 5½" | 8½"/6½" 89m | 4½" | 1F | 16.60 | 0.124/0.1362 | @ 97% |

| Date | Run No. | Size | Make | Type | Jet Size | Depth Out | Metres Drilled. | Hours Run | Weight On Bit | R.P.M. | Pump Pressure | Vert Dev. | Stks/min | Ann Vel Ft./min | Condition T-B-G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 12¼" | Smith | S 11 | 3x16 | 175 | 137 | 11 | - | - | 300 | 1° | 48 | 58 | 3-4-I |
| | 2 | 8½" | HTC | x3A | 3x11 | 608 | 471 | 25 | - | = | 625 | ¼° | 38 | 95 | - |
| | 2 RR | 8½" | HTC | x3A | 3x11 | 874 | 266 | 16 | - | - | 800 | 1° | 47 | 95 | 5-4-3/16 |
| | 3 | 8½" | HTC | x3A | 3x11 | 1228 | 354 | 31 | - | - | 1000 | 1° | 49 | 111 | 6-4-1/16 |
| | 4 | 8½" | HTC | x3A | 3x11 | 1394 | 166 | 24 | - | - | 1100 | ½° | 44 | 111 | - |

REMARKS

M-I Australia Pty. Ltd.
Magcobar/IMCO A Dresser/Halliburton Company

# WELL SUMMARY

DAILY MUD REPORTS

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

DRESSER MAGOBAR REGIONAL OFFICE

Magcobar DRESSER

MAGCOBAR GROUP
**Dresser Industries, Inc.**

P. O. BOX 6504
HOUSTON, TEXAS 77265

| | |
|---|---|
| DRILLING MUD REPORT NO. | 1 |
| DATE | 8 - 4 - 19 88 |
| DEPTH | 53 m |
| PRESENT ACTIVITY | |
| SPUD DATE | |

| | |
|---|---|
| OPERATOR | CRUSADER RESOURCES NL |
| CONTRACTOR | ATCO |
| RIG NO. | A7 |
| REPORT FOR | E. F. BATT |
| REPORT FOR | C. DANN |
| SECT., TWNSHP., RANGE | GIPPSLAND VALLEY |
| WELL NAME AND NO. | WONGA BINDA #1 |
| FIELD OR BLOCK NO. | PEP 120 |
| CTY., PAR. OR OFFSHORE AREA | SEASPRAY |
| STATE / PROVINCE | VIC |

## DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

| DRILLING ASSEMBLY | | | CASING | MUD VOLUME (BBL) | | CIRCULATION DATA | | |
|---|---|---|---|---|---|---|---|---|
| BIT SIZE 12¼ | TYPE S11 | JET SIZE 3x16 | SURFACE 13⅜ SET @ 38m FT. | HOLE 75 | PITS 240 | PUMP SIZE 14 X 5 IN. 16 5.5 | | ANNULAR VEL. (FT/MIN) DP 58 DC 72 |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE SET @ FT. | TOTAL CIRCULATING VOL. 265 | | PUMP MAKE, MODEL CE D375/D300 | ASSUMED EFF. 90% | CIRCULATION PRESSURE (PSI) - |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE SET @ FT. | IN STORAGE 100 | WEIGHT | BBL/STK .1152/.12645 | STK/MIN 46 | BOTTOMS UP (MIN) - |
| DRILL COLLAR SIZE | | LENGTH 22m | PRODUCTION OR LINER SET @ FT. | MUD TYPE KCL | | 6 BBL/MIN | 2.5 GAL/MIN | TOTAL CIRC. TIME (MIN) - |

## MUD PROPERTIES

| | ☐ F.L. ☑ PIT | ☐ F.L. ☐ PIT |
|---|---|---|
| SAMPLE FROM | PIT | |
| TIME SAMPLE TAKEN | 06:00 | |
| | | |
| DEPTH (ft) | 53m | |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 8.8 | |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | - | |
| PLASTIC VISCOSITY cP @ °F | - | |
| YIELD POINT (lb/100ft²) | - | |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | / - | / |
| FILTRATE API ($cm^3$ /30 min.) | - | |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | | |
| CAKE THICKNESS (32nd in. API/HTHP) | / | / |
| SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT | | |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | / | / |
| SAND CONTENT (% BY Vol.) | | |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3$ /$cm^3$ mud | | |
| PH ☐ STRIP ☐ METER @ °F | | |
| ALKALINITY MUD (Pm) | | |
| ALKALINITY FILTRATE ($P_f$ /$M_f$) | / | / |
| ALTERNATE ALKALINITY FILTRATE ($P_1$ /$P_2$) | / | / |
| CHLORIDE (mg/L) | | |
| TOTAL HARDNESS AS CALCIUM (mg/L) | | |
| KCl | 8% | |
| Resistivity | .26 @ 56°F | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 8.8 | 34 | - |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| GEL | USED FOR SWELLING ONLY |
| CAUSTIC | FOR pH |
| KCL | BASE FOR MUD SYS. |
| POLYPAC | FOR SWELLING |

REMARKS: COMMENCED DRILLING 12¼ HOLE AT 3:00 HRS. PREPARED 75 GEL FOR RATHOLE. SWELLED 1 ... 100 BBL POLYPAC ... HOLE SWELLED. DRILLED USING 8% KCl ... GEL MAINLY ... USED ... BAIRNSDALE STOCK FOR GEL (75).

## PRODUCT INVENTORY

| PRODUCT INVENTORY | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 415 | 40 | 71 | 1 | 70 | 51 | 69 | 10 | 9 | - | - |
| RECEIVED | | - | 30 | - | - | 40 | 40 | | 40 | 30 | 40 |
| USED LAST 24 HR. | | - | 3 | - | - | 3 | | | | 20 | 4 |
| CLOSING INVENTORY | 3 | 130 | 40 | 98 | 1 | 70 | 88 | 109 | 10 | 49 | 10 | 40 |
| COST LAST 24 HR. | | | 79 | | | 130 | | | - | 31 | 84 |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | | Desilter | 3 | H. S. Cent. | - |
| Degasser | - | Shaker | 3 | Super Cyclone | - |
| Desander | 3 | Other | | — | - |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $1247.84 | $1247.84 |

| | |
|---|---|
| MAGCOBAR ENGINEER | ... SWIFT |
| HOME ADDRESS | ... PARADISE SA |
| PHONE | 3366053 |
| MOBILE UNIT | |
| WAREHOUSE LOCATION | |
| PHONE | |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

DRESSER MAGOBAR REGIONAL OFFICE

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

| | |
|---|---|
| DRILLING MUD REPORT NO. | 2 |
| DATE | 9 - 4 - 19 88 |
| DEPTH | 175m |
| SPUD DATE | 8 - 4 - 88 |
| PRESENT ACTIVITY | WAITING ON CASING TO SET |

| | |
|---|---|
| OPERATOR | CRUSADER RESOURCES N.L. |
| CONTRACTOR | ATCO |
| RIG NO. | A7 |
| REPORT FOR | E F BATT |
| REPORT FOR | C. DANN |
| SECT., TWNSHP., RANGE | GIPPSLAND VALLEY |
| WELL NAME AND NO. | WONGA BINDA #1 |
| FIELD OR BLOCK NO. | PEP 120 |
| CTY., PAR. OR OFFSHORE AREA | [illegible] |
| STATE / PROVINCE | VIC |

## DRILLING ASSEMBLY

| | | |
|---|---|---|
| BIT SIZE 12¼ | TYPE S11 | JET SIZE 3x16 |
| DRILL PIPE SIZE | TYPE | LENGTH |
| DRILL PIPE SIZE | TYPE | LENGTH |
| DRILL COLLAR SIZE 6" - 8" | | LENGTH 175 |

## CASING

| | |
|---|---|
| SURFACE | 13⅜ [illegible] SET @ 35m FT. |
| INTERMEDIATE | 9⅝ SET @ FT. |
| INTERMEDIATE | SET @ FT. |
| PRODUCTION OR LINER | SET @ FT. |

## MUD VOLUME (BBL)

| | |
|---|---|
| HOLE | 44 |
| PITS | 306 |
| TOTAL CIRCULATING VOL. | 350 |
| IN STORAGE | 100 |
| WEIGHT | 8.8 |
| MUD TYPE | KCl |

## CIRCULATION DATA

| | |
|---|---|
| PUMP SIZE | 14 X 5.5 / 16 5.5 IN. |
| ANNULAR VEL. (FT/MIN) | DP 53 DC 72 |
| PUMP MAKE, MODEL | [illegible] |
| ASSUMED EFF. | 90% |
| CIRCULATION PRESSURE (PSI) | 300 |
| BBL/STK | .12645 |
| STK/MIN | 48 |
| BOTTOMS UP (MIN) | |
| BBL/MIN | 6 |
| GAL/MIN | 255 |
| TOTAL CIRC. TIME (MIN) | |

## MUD PROPERTIES

| SAMPLE FROM | ☐ F.L. ☑ PIT | ☐ F.L. ☐ PIT |
|---|---|---|
| TIME SAMPLE TAKEN | 18⁰⁰ | |
| | | |
| DEPTH (ft) | 175m | |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.1 | |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 39 | |
| PLASTIC VISCOSITY cP @ °F | 5 | |
| YIELD POINT (lb/100ft²) | 12 | |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 5/15 | / |
| FILTRATE API (cm³ /30 min.) | 20+ | |
| API HTHP FILTRATE (cm³ /30 min.) @ °F | - | |
| CAKE THICKNESS (32nd in. API/HTHP) | 3/32 | / |
| SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT | | |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | / | / |
| SAND CONTENT (% BY Vol.) | 1% | |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm³ /cm³ mud | | |
| pH ☑ STRIP ☐ METER @ °F | 11.0 | |
| ALKALINITY MUD (Pm) | 1.2 | |
| ALKALINITY FILTRATE (Pf /Mf) | 0.4/ 0.6 | / |
| ALTERNATE ALKALINITY FILTRATE (P1 /P2) | / | / |
| CHLORIDE (mg/L) | 16 000 | |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 40 | |
| Survey 355° | 1° | |
| " 577° | 1° | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.1 | 39 | 20+ cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| CAUSTIC | - TO MAINTAIN pH. |
| MAGCOGEL | FOR SWEEPS |
| POLYPAC | TO MAINTAIN A GOOD YP. |
| POTASSIUM CHL | MUD SYSTEM BASE. |
| LIME | - TO FLOCCULATE GEL [illegible] |
| POLYSAL | - FOR RHEOLOGICAL [illegible] |

REMARKS: POLYPAC WAS USED UP TO 2lb/bbl IN SOME SWEEPS AND TO SPOT THE 12¼" HOLE FOR 9⅝ CASING. INITIALLY GEL HAD BEEN USED IN SWEEPS AT THE USUAL [illegible] lb/bbl POLYPAC WAS [illegible] [illegible] TO YIELD ITS USUAL PROPERTIES [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

## PRODUCT INVENTORY

| PRODUCT INVENTORY | BARITE | [illegible] | [illegible] | [illegible] | [illegible] | LIME | POLYPAC | POLYSAL | SALT | [illegible] | KCl |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 4 | 110 | 40 | 52 | 1 | 30 | 68 | 109 | 10 | 49 | 164 |
| RECEIVED | 440 | - | - | - | - | - | - | - | - | - | 200 |
| USED 24 HR. | - | 27 | - | 3 | - | 1 | 5 | 2 | - | - | 58 |
| CLOSING INVENTORY | 444 | 93 | 40 | 49 | 1 | 29 | 63 | 107 | 10 | 49 | 306 |
| COST LAST 24 HR. | - | 511.92 | - | 74.25 | - | 5[illegible] | 4[illegible] | 84[illegible] | - | - | 591.02 |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | - | Desilter | 9 | H. S. Cent. | - |
| Degasser | 9 | Shaker | 11 | Super Cyclone | - |
| Desander | - | Other | - | | - |

DAILY COST $1718.19

CUMULATIVE COST $2968.03

MAGCOBAR ENGINEER ROBERT SWEET

HOME ADDRESS 12 LINCOLN RD, PARADISE SA

PHONE 3366053

MOBILE UNIT

WAREHOUSE LOCATION

PHONE

DRILLING MUD REPORT

DRESSER MAGOBAR REGIONAL OFFICE

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
**Dresser Industries, Inc.**

| | |
|---|---|
| DRILLING MUD REPORT NO. | 3 |
| DATE | 10 - 4 - 19 88 |
| DEPTH | 175 |
| SPUD DATE | 8 - 4 - 88 |
| PRESENT ACTIVITY | |

| | | | |
|---|---|---|---|
| OPERATOR | CRUSADER RESOURCES N.L. | CONTRACTOR | ATCO |
| RIG NO. | A7 | | |
| REPORT FOR | E. F. BATT | REPORT FOR | C DANN |
| SECT., TWNSHP., RANGE | GIPPSLAND VALLEY | | |
| WELL NAME AND NO. | WONGA BINDA - 1 | FIELD OR BLOCK NO. | PEP 120 |
| CTY., PAR. OR OFFSHORE AREA | SEASPRAY | STATE / PROVINCE | VIC |

## DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

| DRILLING ASSEMBLY | | | CASING | MUD VOLUME (BBL) | | CIRCULATION DATA | | |
|---|---|---|---|---|---|---|---|---|
| BIT SIZE 8½ | TYPE X3A | JET SIZE 3 x 11 | SURFACE 13 3/8 COND. SET @ 28 m FT. | HOLE 44 | PITS 306 | PUMP SIZE 14 X 5.5 IN. 16 5.5 | | ANNULAR VEL. (FT/MIN) DP 107 DC 125 |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE 9⅝ SET @ 173 m FT. | TOTAL CIRCULATING VOL. 350 | | PUMP MAKE, MODEL C-E D375/D500 | ASSUMED EFF. 90 % | CIRCULATION PRESSURE (PSI) 500 |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE SET @ FT. | IN STORAGE 100 | WEIGHT 8.8 | BBL/STK .1152/.12645 | STK/MIN 43 | BOTTOMS UP (MIN) 4 |
| DRILL COLLAR SIZE 6.5" | LENGTH 497.64' | | PRODUCTION OR LINER SET @ FT. | MUD TYPE KCl | | BBL/MIN 5.4 | GAL/MIN 228 | TOTAL CIRC. TIME (MIN) 5 |
| [illegible] | [illegible] | | | | | | | |

## MUD PROPERTIES

| | ☐ F.L. ☐ PIT | ☐ F.L. ☐ PIT |
|---|---|---|
| SAMPLE FROM | | |
| TIME SAMPLE TAKEN | [illegible] | |
| | | |
| DEPTH (ft) | | |
| WEIGHT ☐ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | [illegible] | |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | [illegible] | |
| PLASTIC VISCOSITY cP @ °F | [illegible] | |
| YIELD POINT (lb/100ft²) | [illegible] | |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | [illegible] / [illegible] | / |
| FILTRATE API (cm³ /30 min.) | 20 | |
| API HTHP FILTRATE (cm³ /30 min.) @ °F | - | |
| CAKE THICKNESS (32nd in. API/HTHP) | 1 / - | / |
| SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT | [illegible] | |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | 0 / [illegible] | / |
| SAND CONTENT (% BY Vol.) | [illegible] | |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm³ /cm³ mud | - | |
| PH ☑ STRIP ☐ METER @ °F | 11.0 | |
| ALKALINITY MUD (Pm) | 1.2 | |
| ALKALINITY FILTRATE (Pf /Mf) | 0.4 / 0.6 | / |
| ALTERNATE ALKALINITY FILTRATE (P1 /P2) | - / - | / |
| CHLORIDE (mg/L) | 16 000 | |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 40 | |
| .39 @ 58°F Resistivity | | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.0 | 39 | 20 cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| NONE USED. | |

REMARKS: AFTER WAITING ON CASING TO SET SOME PROBLEMS WERE ENCOUNTERED WITH THE B.O.P. ANNULAR. AT THE [illegible] [illegible] [illegible] [illegible] WERE ASKED TO DRILL OUT THE SHOE.

## PRODUCT INVENTORY

| PRODUCT INVENTORY | BARITE | [illegible] | [illegible] | [illegible] | [illegible] | LIME | [illegible] | [illegible] | SALT | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 444 | 33 | 40 | 40 | 1 | 29 | 63 | 107 | 10 | 49 | 306 |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - |
| USED LAST 24 HR. | - | | - | - | - | - | - | - | - | - | - |
| CLOSING INVENTORY | [illegible] | [illegible] | [illegible] | 40 | 1 | 29 | 63 | 107 | 10 | 49 | 306 |
| COST | | | - | - | - | - | - | - | - | - | - |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | - | Desilter | - | H. S. Cent. | - |
| Degasser | - | Shaker | 3 | Super Cyclone | - |
| Desander | - | Other | | ——— | - |

| DAILY COST | CUMULATIVE COST |
|---|---|
| 0 | $2963.03 |

| | | | |
|---|---|---|---|
| MAGCOBAR ENGINEER | ROBERT SWEET | HOME ADDRESS | 17 LINDEN AV [illegible] |
| PHONE | 3366057 | | |
| MOBILE UNIT | | WAREHOUSE LOCATION | |
| PHONE | | | |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

DRESSER MAGCOBAR REGIONAL OFFICE

Magcobar DRESSER

MAGCOBAR GROUP
Dresser Industries, Inc.

P. O. BOX 6504
HOUSTON, TEXAS 77265

| | |
|---|---|
| DRILLING MUD REPORT NO. | 4 |
| DATE | 11-4-1988 |
| DEPTH | 502 m |
| SPUD DATE | 8-4-88 |
| PRESENT ACTIVITY | DRILLING AHEAD |
| OPERATOR | CRUSADER RESOURCES NL |
| CONTRACTOR | ATCO |
| RIG NO. | A7 |
| REPORT FOR | E.F. BATT |
| REPORT FOR | C. DANN |
| SECT., TWNSHP., RANGE | GIPPSLAND BASIN |
| WELL NAME AND NO. | WONGA BINDA 1 |
| FIELD OR BLOCK NO. | PEP 120 |
| CTY., PAR. OR OFFSHORE AREA | SEASPRAY |
| STATE / PROVINCE | VICTORIA |

## DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

| | |
|---|---|
| BIT SIZE | 8.5" |
| TYPE | HTC X3A |
| JET SIZE | 3 x 11 |
| DRILL PIPE SIZE / TYPE / LENGTH | |
| DRILL PIPE SIZE | 4.5" |
| TYPE | 16.60 |
| LENGTH | 774 m |
| DRILL COLLAR SIZE | 6.5" |
| LENGTH | 170.6 m |
| SURFACE | 13 3/8" COND. SET @ 38 m |
| INTERMEDIATE | 9 5/8" SET @ 173 m |
| INTERMEDIATE | SET @ FT. |
| PRODUCTION OR LINER | SET @ FT. |
| HOLE | 120 |
| PITS | 411 |
| TOTAL CIRCULATING VOL. | 531 |
| IN STORAGE | - |
| WEIGHT | - |
| MUD TYPE | POTASSIUM CHL. (KCl) |
| PUMP SIZE | 14 X 5.5 IN. / 14 x 5.5 |
| PUMP MAKE, MODEL | C-F D375/D500 |
| ASSUMED EFF | 90 % |
| BBL/STK | .1152/.1214 5 |
| STK/MIN | 38 |
| BBL/MIN | 4.8 |
| GAL/MIN | 202 |
| ANNULAR VEL. (FT/MIN) | DP 75 DC 164 |
| CIRCULATION PRESSURE (PSI) | 625 |
| BOTTOMS UP (MIN) | 15 |
| TOTAL CIRC. TIME (MIN) | HOLE : 15 SYSTEM : 110 |

## MUD PROPERTIES

| | | |
|---|---|---|
| SAMPLE FROM | ☐ F.L. ☑ PIT | ☐ F.L. ☑ PIT |
| TIME SAMPLE TAKEN | 24:00 | 06:00 |
| | | |
| DEPTH (ft) | 412 m | 490 m |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.4 | 9.3+ |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 49 | 46 |
| PLASTIC VISCOSITY cP @ °F | 15 | 14 |
| YIELD POINT (lb/100ft²) | 19 | 18 |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 6/15 | 6/19 |
| FILTRATE API ($cm^3$ /30 min.) | 10 cc | 8 cc |
| HTHP FILTRATE ($cm^3$ /30 min.) @ °F | - | - |
| CAKE THICKNESS (32nd in. API/HTHP) | 1/32 | 1/32 |
| SOLIDS CONTENT (% BY Vol.) ☑ CALCD. ☐ RETORT | 13.6 | 13.1 |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | 0 / 86.4 | 0 / 86.9 |
| SAND CONTENT (% BY Vol.) | 2% | 1.5% |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3$ /$cm^3$ mud | - | - |
| PH ☑ STRIP ☐ METER @ °F | 10.5 | 11.5 |
| ALKALINITY MUD (Pm) | 1.8 | 1.8 |
| ALKALINITY FILTRATE ($P_f$ /$M_f$) | .2 / .4 | .3 / .6 |
| ALTERNATE ALKALINITY FILTRATE ($P_1$ /$P_2$) | - / - | - / - |
| CHLORIDE (mg/L) | 15,000 | 22,000 |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 120 | 200 |
| RESISTIVITY | .27 @ 60°F | .18 @ 52°F |
| POTASSIUM CHLORIDE (% BY Vol) | 3% | 5% |
| OUTPUT WEIGHT AT DESILTER | 13.6 | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.3+ | 46 | 8 cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ DRILLING CONTRACTOR ☐ OPERATOR'S REPRESENTATIVE ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| CAUSTIC | TO MAINTAIN pH |
| MAGCOGEL | FOR HI VISC SWEEPS |
| POTASSIUM CHL | REQUIRED FOR INCREASED VOL |
| POLYPAC | TO RAISE Y.P. |

REMARKS: AFTER NECESSARY REPAIRS AND ADJUSTMENTS TO WELL HEAD, DRILLING RECOMMENCED AT 12:00 HRS. THE CASING SHOE WAS DRILLED OUT WITH FRESH WATER THEN TO KCl MUD AND ON INTO THE EARLY MIOCENE LIMESTONES (14-22.5 myo) OF THE GIPPSLAND FM. A CHECK ON THE DESILTER SHOWED LOSS OF 10.2 BBL/HR. AS SUCH LOSSES ARE EXPENSIVE THE DESILTER WAS TURNED OFF AT 14:00 HRS AND THE TASK OF SOLIDS REMOVAL LEFT TO THE CENTRIFUGE. SHAKER SCREENS CHANGED FROM 60/60 TO 80/100. CENTRIFUGE [illegible] AT 20 [illegible] TO INCREASE [illegible] W.

## PRODUCT INVENTORY

| PRODUCT INVENTORY | BARITE | BENTONITE | CALCIUM CHLORIDE | CAUSTIC | D-D | COMPOUND | LIME | POLYPAC | POLYSAL | SALT | POTASSIUM CHL. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 444 | 93 | 40 | 49 | 1 | 29 | 63 | 107 | 10 | 49 | 306 |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - |
| USED LAST 24 HR. | - | 8 | - | 4 | - | - | 8 | - | - | - | 100 |
| CLOSING INVENTORY | 444 | 85 | 40 | 45 | 1 | 29 | 55 | 107 | 10 | 49 | 206 |
| COST LAST 24 HR. | - | 151.68 | - | 99.00 | - | - | 722.00 | - | - | - | 1019.00 |

## EQUIPMENT

| EQUIPMENT | HOURS | EQUIPMENT | HOURS | EQUIPMENT | HOURS |
|---|---|---|---|---|---|
| Centrifuge | 10 | Desilter | 4 | H. S. Cent. | - |
| Degasser | 16.5 | Shaker | 16.5 | Super Cyclone | - |
| Desander | - | Other | - | | — |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $1991.68 | $4957.71 |

| | |
|---|---|
| MAGCOBAR ENGINEER | ROBERT SWEET |
| HOME ADDRESS | 12 LINCOLN RD, PARADISE S.A. |
| PHONE | 3366053 |
| MOBILE UNIT | |
| WAREHOUSE LOCATION | |
| PHONE | |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

DRESSER MAGCOBAR REGIONAL OFFICE

Magcobar DRESSER

MAGCOBAR GROUP
**Dresser Industries, Inc.**

P. O. BOX 6504
HOUSTON, TEXAS 77265

| | |
|---|---|
| DRILLING MUD REPORT NO. | 5 |
| DATE | 12 · 4 19 88 |
| DEPTH | 608 |
| SPUD DATE | 8 - 4 - 88 |
| PRESENT ACTIVITY | DST TEST |

| | | | |
|---|---|---|---|
| OPERATOR | CRUSADER RESOURCES N.L | CONTRACTOR | ATCO |
| RIG NO. | A7 | | |
| T FOR | E.F. BATT | REPORT FOR | C. DANN |
| SECT., TWNSHP., RANGE | GIPPSLAND BASIN | | |
| WELL NAME AND NO. | WONGA BINDA 1 | FIELD OR BLOCK NO. | PEL 120 |
| CTY., PAR. OR OFFSHORE AREA | SEASPRAY | STATE / PROVINCE | VICTORIA |

## DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

| | | |
|---|---|---|
| **DRILLING ASSEMBLY** | | |
| BIT SIZE | 8.5" | |
| TYPE | HTC X3A | |
| JET SIZE | 3 x 11 | |
| DRILL PIPE SIZE / TYPE / LENGTH | | |
| DRILL PIPE SIZE | 4.5 | |
| TYPE | 16.60 | |
| LENGTH | 380 m | |
| DRILL COLLAR SIZE | 6.5" | |
| LENGTH | 170.6 m | |
| **CASING** | | |
| SURFACE | 13.375 cond. | SET @ 38 m FT. |
| INTERMEDIATE | 9.625" | SET @ 173 m FT. |
| INTERMEDIATE | | SET @ FT. |
| PRODUCTION OR LINER | | SET @ FT. |
| **MUD VOLUME (BBL)** | | |
| HOLE | 144 | |
| PITS | 411 | |
| TOTAL CIRCULATING VOL. | 555 | |
| IN STORAGE | - | |
| WEIGHT | - | |
| MUD TYPE | POTASSIUM CHLORIDE | |
| **CIRCULATION DATA** | | |
| PUMP SIZE | 14 X 5.5 IN. / 16 5.5 | |
| ANNULAR VEL. (FT/MIN) | DP 95 | DC 164 |
| PUMP MAKE, MODEL | C-E D375/D500 | |
| ASSUMED EFF. | 90 % | |
| CIRCULATION PRESSURE (PSI) | 650 | |
| BBL/STK | ·12645 | |
| STK/MIN | 38 | |
| BOTTOMS UP (MIN) | 18 | |
| BBL/MIN | 4.8 | |
| GAL/MIN | 202 | |
| TOTAL CIRC. TIME (MIN) | HOLE : 23 | SYSTEM : 115 |

## MUD PROPERTIES

| | | |
|---|---|---|
| SAMPLE FROM | ☐ F.L. ☐ PIT | ☐ F.L. ☑ PIT |
| TIME SAMPLE TAKEN | 12:00 | 23:30 |
| | | |
| DEPTH (ft) | 561m | 608m |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.4 | 9.4 |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 46 | 56 |
| PLASTIC VISCOSITY cP @ °F | 14 | 14 |
| YIELD POINT (lb/100ft²) | 15 | 17 |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 4/15 | 7/20 |
| FILTRATE API ($cm^3$ /30 min.) | 10cc | 8cc |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | - | - |
| ICKNESS (32nd in. API/HTHP) | / | 1/32 |
| SOLIDS CONTENT (% BY Vol.) ☑ CALCD. ☐ RETORT | 13.1 | 13.1 |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | /86.9 | /86.9 |
| SAND CONTENT (% BY Vol.) | 1.5% | 1.5% |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3$ /$cm^3$ mud | - | - |
| PH ☑ STRIP ☐ METER @ °F | 11.0 | 11.0 |
| ALKALINITY MUD (Pm) | 1.8 | 1.8 |
| ALKALINITY FILTRATE (Pf /Mf) | ·3 / ·6 | ·2 / ·5 |
| ALTERNATE ALKALINITY FILTRATE (P1 /P2) | - / - | - / - |
| CHLORIDE (mg/L) | 22 000 | 22 000 |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 200 | 200 |
| RESISTIVITY | ·15 @ 72°F | ·22 @ 60°F |
| | | |
| | | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.4 | 56 | 8cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| CAUSTIC | ADDED TO MAINTAIN pH. |
| POLYPAC | TO MAINTAIN A GOOD YP |
| POLYSAL | FOR RHEOLOGY CONTROL |
| BARITE | TO WEIGHT UP SLUG MIX. |

REMARKS: AT 13:00 HRS D-D COMPOUND WAS BLED INTO THE SYSTEM TO PREVENT SEACOMBE MARL FROM BALLING AT THE BIT. MUD WEIGHT WAS MAINTAINED AROUND 9.4 PPG DURING THIS 24 HR PERIOD BY THE INTERMITTENT USE OF THE CENTRIFUGE. THE DESANDER IS NOW REPAIRED AND IN FULL USE. STOPPED DRILLING AT 608 m AND PREPARED FOR DST.

## PRODUCT INVENTORY

| PRODUCT INVENTORY | BARITE | BENTONITE | CALCIUM CHLORIDE | CAUSTIC | D-D COMPOUND | LIME | POLYPAC | POLYSAL | SALT | SPERSENE | POTASSIUM CHL. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 444 | 85 | 40 | 45 | 1 | 29 | 55 | 107 | 10 | 49 | 206 |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - |
| USED LAST 24 HR. | 20 | - | - | 3 | - | - | 6 | 4 | - | - | - |
| CLOSING INVENTORY | 424 | 85 | 40 | 42 | 1 | 29 | 49 | 103 | 10 | 49 | 206 |
| ST | 170.00 | - | - | 74.25 | - | - | 541.50 | 169.00 | - | - | - |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | 6 | Desilter | 6 | H. S. Cent. | - |
| Degasser | 9.5 | Shaker | 17 | Super Cyclone | - |
| Desander | 9.5 | Other | - | —— | - |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $954.75 | $5902.46 |

| | | | |
|---|---|---|---|
| MAGCOBAR ENGINEER | ROBERT SWEET | HOME ADDRESS | 12 LINCOLN RD ; PARADISE · SA |
| PHONE | 3366053 | | |
| MOBILE UNIT | | WAREHOUSE LOCATION | |
| PHONE | | | |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

DRESSER MAGOBAR REGIONAL OFFICE

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
**Dresser Industries, Inc.**

| | |
|---|---|
| DRILLING MUD REPORT NO. | |
| DATE 1 - 4 19 88 | DEPTH 6087 |
| SPUD DATE 2 . 4 88 | PRESENT ACTIVITY DST TEST (2) |

| | | |
|---|---|---|
| OPERATOR CRUSADER RESOURCES N L | CONTRACTOR ATCO | RIG NO. A7 |
| T FOR F F BATT | REPORT FOR C DANN | SECT., TWNSHP., RANGE GIPPSLAND BASIN |

| WELL NAME AND NO. | FIELD OR BLOCK NO. | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE |
|---|---|---|---|
| WONGA BINDA 1 | PEP 120 | SEASPRAY | VICTORIA |

| DRILLING ASSEMBLY | | | CASING | MUD VOLUME (BBL) | | CIRCULATION DATA | | |
|---|---|---|---|---|---|---|---|---|
| BIT SIZE 8½ | TYPE | JET SIZE | SURFACE 13.375" CON SET @ 26 m FT. | HOLE 144 | PITS 411 | PUMP SIZE 6 X 5.5 IN. 6 x 5.5 | | ANNULAR VEL. (FT/MIN) DP 95 DC 164 |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE 9.625" SET @ 173 m FT. | TOTAL CIRCULATING VOL. 555 | | PUMP MAKE, MODEL C-E D375/D500 | ASSUMED EFF. 90 % | CIRCULATION PRESSURE (PSI) 650 |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE SET @ FT. | IN STORAGE - | WEIGHT - | BBL/STK .12645 | STK/MIN 38 | BOTTOMS UP (MIN) 18 |
| DRILL COLLAR SIZE | | LENGTH | PRODUCTION OR LINER SET @ FT. | MUD TYPE POTASSIUM CHLORIDE | | 4.8 BBL/MIN | 202 GAL/MIN | TOTAL CIRC. TIME (MIN) HOLE: 23 SYSTEM: 115 |

## MUD PROPERTIES

| SAMPLE FROM | ☐ F.L. ☑ PIT | ☐ F.L. ☐ PIT |
|---|---|---|
| TIME SAMPLE TAKEN | 18 30 | |
| | | |
| DEPTH (ft) | 6087 | |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.5 | |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 49 | |
| PLASTIC VISCOSITY cP @ °F | 15 | |
| YIELD POINT (lb/100ft²) | 19 | |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 7/20 | / |
| FILTRATE API ($cm^3$ /30 min.) | 6cc | |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | - | - |
| CAKE THICKNESS (32nd in. API/HTHP) | 1/32 | / |
| SOLIDS CONTENT (% BY Vol.) ☑ CALCD. ☐ RETORT | 14.3 | |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | 0/85.7 | / |
| SAND CONTENT (% BY Vol.) | 1.0 | |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3$ /$cm^3$ mud | - | - |
| PH ☑ STRIP ☐ METER @ °F | 10.3 | |
| ALKALINITY MUD (Pm) | 1.45 | |
| ALKALINITY FILTRATE (Pf /Mf) | .2 / .45 | / |
| ALTERNATE ALKALINITY FILTRATE (P1 /P2) | -/- | -/- |
| CHLORIDE (mg/L) | 19,400 | |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 160 | |
| RESISTIVITY | .2 @ 70°F | |
| [illegible] (% BY Vol.) | 8% | |
| | | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.5 | 49 | 6cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| BARITE | USED IN SLUG MIX. [illegible] |
| POLYPAC | USED IN HI. VIS. SWEEP |

REMARKS: DST (1) WAS NOT SUCCESSFUL AS INFLATEABLE PACKER COULD NOT SEAT PROPERLY DUE TO HIGH SOLIDS CONTENT IN DOWNHOLE MUD. P.O.O.H. AND TESTED SAMPLE IN TEST ASSEMBLY FOR Cl⁻ RESULT: 15,500 mg/L. R.I.H. AND DRILLED 3' THEN P.O.O.H. IN PREPARATION FOR DST (2). $NaNO_3$ WILL BE USED IN WATER CUSHION WITH TEST TOOL FOR [illegible]

| PRODUCT INVENTORY | BARITE | BENTONITE | CALCIUM [illegible] | CAUSTIC | D-D [illegible] | LIME | POLYPAC | [illegible] | POTASSIUM CHLORIDE | SALT | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 424 | 85 | 40 | 42 | 1 | 29 | 49 | 103 | 206 | 10 | 49 |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - |
| USED LAST 24 HR. | 20 | - | - | - | - | - | 1 | - | - | - | - |
| CLOSING INVENTORY | 404 | 85 | 40 | 42 | 1 | 29 | 48 | 103 | 206 | 10 | 49 |
| COST LAST 24 HR. | 170.00 | - | - | - | - | - | 90.25 | - | - | - | - |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | 1 | Desilter | - | H. S. Cent. | - |
| Degasser | 2 | Shaker | 2 | Super Cyclone | - |
| Desander | 1 | Other | - | — | - |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $260.25 | $6169.71 |

| | | |
|---|---|---|
| MAGCOBAR ENGINEER ROBERT SWEET | HOME ADDRESS 12 LINCOLN RD PARADISE SA | PHONE 3366053 |
| MOBILE UNIT | WAREHOUSE LOCATION | PHONE |

MAG 39 P (API Form 47-1)

**DRILLING MUD REPORT** — **DRESSER MAGOBAR REGIONAL OFFICE**

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
**Dresser Industries, Inc.**

| | |
|---|---|
| DRILLING MUD REPORT NO. | 7 |
| DATE | 14 - 4 - 19 88 |
| DEPTH | 872m |
| SPUD DATE | 5 - 4 - 88 |
| PRESENT ACTIVITY | DRILLING AHEAD |

| | | | |
|---|---|---|---|
| OPERATOR | CRUSADER RESOURCES N.L. | CONTRACTOR | ATCO |
| RIG NO. | A7 | | |
| REPORT FOR | E F BATT | REPORT FOR | C. DANN |
| SECT., TWNSHP., RANGE | GIPPSLAND BASIN | | |
| WELL NAME AND NO. | WONGA BINDA 1 | FIELD OR BLOCK NO. | PEP 170 |
| CTY., PAR. OR OFFSHORE AREA | SEASPRAY | STATE / PROVINCE | VICTORIA |

## DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

| | | | |
|---|---|---|---|
| BIT SIZE | 8½ | TYPE | HTC X3A |
| JET SIZE | 3 x 11 | | |
| DRILL PIPE SIZE | 4½ | TYPE | 16.60 |
| LENGTH | 643.4 | | |
| DRILL PIPE SIZE | | TYPE | |
| LENGTH | | | |
| DRILL COLLAR SIZE | 6¼" | LENGTH | 170.6 |
| B.H.A. | 228.6m | | |
| SURFACE | 13-3/8" CON. SET @ 38m FT. | INTERMEDIATE | 9-5/8" SET @ 173m FT. |
| INTERMEDIATE | SET @ FT. | PRODUCTION OR LINER | SET @ FT. |
| HOLE | 204.9 | PITS | 411 |
| TOTAL CIRCULATING VOL. | 615.9 | | |
| IN STORAGE | - | WEIGHT | - |
| MUD TYPE | POTASSIUM CHLORIDE | | |
| PUMP SIZE | 14 x 5.5 IN. / 16 x 5.5 | ANNULAR VEL. (FT/MIN) | DP 95 DC 164 |
| PUMP MAKE, MODEL | G.E. D375/D500 | ASSUMED EFF | 90 % |
| CIRCULATION PRESSURE (PSI) | 800 | | |
| BBL/STK | .12645/.1152 | STK/MIN | 47 |
| BOTTOMS UP (MIN) | 25 | | |
| BBL/MIN | 5.3/4.8 | GAL/MIN | 202 |
| TOTAL CIRC. TIME (MIN) | HOLE 32 - SYSTEM 116 | | |

## MUD PROPERTIES

| SAMPLE FROM | ☐ F.L. ☑ PIT | ☐ F.L. ☐ PIT |
|---|---|---|
| TIME SAMPLE TAKEN | 18:00 | 06:15 |
| | | |
| DEPTH (ft) | 677m | 872m |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.4 | 9.5 |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 49 | 44 |
| PLASTIC VISCOSITY cP @ °F | 13 | 11 |
| YIELD POINT (lb/100ft²) | 16 | 16 |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 7/20 | 5/18 |
| FILTRATE API (cm³/30 min.) | 7cc | 8.5cc |
| API HTHP FILTRATE (cm³/30 min.) @ °F | - | - |
| C... CKNESS (32nd in. API/HTHP) | 1/32 | 1/32 |
| SOLIDS CONTENT (% BY Vol.) ☑ CALCD. ☒ ~~RETORT~~ EXCLUDES SALTS | 11.6 | 12.1 |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | 0/88.4 | 0/87.9 |
| SAND CONTENT (% BY Vol.) | Tr | 0.5 |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm³/cm³ mud | - | - |
| PH ☑ STRIP ☐ METER @ °F | 11.5 | 10.0 |
| ALKALINITY MUD (Pm) | 1.45 | 0.6 |
| ALKALINITY FILTRATE ($P_f$/$M_f$) | 1.3/2.0 | 0.2/0.5 |
| ALTERNATE ALKALINITY FILTRATE ($P_1$/$P_2$) | -/- | -/- |
| CHLORIDE (mg/L) | 15 600 | 18 000 |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 40 | 120 |
| RESISTIVITY | .12 @ 76°F | .20 @ 60°F |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.5 | 44 | 8.5cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| POTASSIUM CHLORIDE | FOR PREMIX FOR VOL. INCREASE |
| CAUSTIC | TO MAINTAIN pH. |
| POLYPAC | USED IN SWEEPS |

REMARKS: DST (2) WAS UNSUCCESSFUL AS TOOL APPEARED TO BE PLUGGED. SODIUM NITRATE AT 500mg/L WAS USED IN WATER CUSHION FOR THE DST. LATER ANALYSIS OF SAMPLES SHOWED THAT WHILE NaNO3 [illegible] [illegible] REMAINED AT 500mg/L [illegible] MORE SECTION OF THE CUSHION, MW FELL FROM 8.5ppg AT THE TOP COLLAR TO 10.5ppm AT THE BOTTOM. DRILLING RECOMMENCED AT 0600 HRS.

## PRODUCT INVENTORY

| PRODUCT INVENTORY | BARITE | BENTONITE | CALCIUM CHLORIDE | CAUSTIC SODA | D-D | CONTROLLING | LIME | POLYPAC | POLYSAL / POTASSIUM CHLORIDE | SALT | SODIUM NITRATE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 404 | 85 | 40 | 42 | 1 | 29 | 48 | 103 | 206 | 10 | 4 |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - |
| USED LAST 24 HR. | - | - | - | 3 | - | - | 4 | - | 50 | - | 1 |
| CLOSING INVENTORY | 404 | 85 | 40 | 39 | 1 | 29 | 44 | 103 | 156 | 10 | 3 |
| CO... T 24 | - | - | - | 74.25 | - | - | 361.00 | | 509.50 | - | TBA |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | 16 | Desilter | - | H. S. Cent. | - |
| Degasser | 20 | Shaker | 20 | Super Cyclone | - |
| Desander | 16 | Other | - | — | - |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $ 987.05 | $ 7156.76 |

| | | | |
|---|---|---|---|
| MAGCOBAR ENGINEER | ROBERT SWEET | HOME ADDRESS | 12 LINCOLN RD. PARADISE SA |
| PHONE | 3366053 | | |
| MOBILE UNIT | | WAREHOUSE LOCATION | |
| PHONE | | | |

MAG 39 P (API Form 47-1)

**Magcobar** **DRESSER**

MAGCOBAR GROUP
**Dresser Industries, Inc.**

P. O. BOX 6504
HOUSTON, TEXAS 77265

# DRILLING MUD REPORT

DRESSER MAGOBAR REGIONAL OFFICE

| | |
|---|---|
| DRILLING MUD REPORT NO. | 8 |
| DATE | 15 - 4 - 1988 |
| DEPTH | 1098 |
| SPUD DATE | 8-4-88 |
| PRESENT ACTIVITY | DRILLING AHEAD |

| | |
|---|---|
| OPERATOR | CRUSADER RESOURCES N.L. |
| CONTRACTOR | ATCO |
| RIG NO. | A7 |
| REPORT FOR | L. F. BATT |
| REPORT FOR | C. DANN |
| SECT., TWNSHP., RANGE | GIPPSLAND BASIN |
| WELL NAME AND NO. | WONGA BINDA 1 |
| FIELD OR BLOCK NO. | PEP 120 |
| CTY., PAR. OR OFFSHORE AREA | SEASPRAY |
| STATE / PROVINCE | VICTORIA |

## DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

| DRILLING ASSEMBLY | | | CASING | MUD VOLUME (BBL) | | CIRCULATION DATA | | |
|---|---|---|---|---|---|---|---|---|
| BIT SIZE 8½ | TYPE HTC J04 | JET SIZE 3x11 | SURFACE 13.375" CON SET @ 28 m | HOLE 257 | PITS 411 | PUMP SIZE 14 x 5.5 / 16 x 5.5 IN. | | ANNULAR VEL. (FT/MIN) DP 111 DC 192 |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE 9.625" SET @ 173 m | TOTAL CIRCULATING VOL. 668 | | PUMP MAKE, MODEL C.E D375/D500 | ASSUMED EFF 90 % | CIRCULATION PRESSURE (PSI) 1000 |
| DRILL PIPE SIZE 4½" | TYPE E 16.60 | LENGTH 869.4 | INTERMEDIATE SET @ FT. | IN STORAGE 100 | WEIGHT 8.7 | BBL/STK .1152 | STK/MIN 49 | BOTTOMS UP (MIN) 31 |
| DRILL COLLAR SIZE 6½" | | LENGTH 170.6 | PRODUCTION OR LINER SET @ FT. | MUD TYPE POTASSIUM CHLORIDE | | BBL/MIN 5.6 | GAL/MIN 237 | TOTAL CIRC. TIME (MIN) 39 |

B.H.A. 228.6

## MUD PROPERTIES

| | | |
|---|---|---|
| SAMPLE FROM | ☐ F.L. ☑ PIT | ☐ F.L. ☑ PIT |
| TIME SAMPLE TAKEN | 17:00 | 06:15 |
| DEPTH (ft) | 879 m | 1089 |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.4 | 9.4 |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 44 | 43 |
| PLASTIC VISCOSITY cP @ °F | 13 | 13 |
| YIELD POINT (lb/100ft²) | 17 | 17 |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 7/18 | 8/22 |
| FILTRATE API ($cm^3$ /30 min.) | 10cc | 8cc |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | - | - |
| CAKE THICKNESS (32nd in. API/HTHP) | 1/32 | 1/32 |
| SOLIDS CONTENT (% BY Vol.) ☑ CALCD. ☐ RETORT | 12.6 | 12.6 |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | 0/87.4 | 0/87.4 |
| SAND CONTENT (% BY Vol.) | 1% | 1% |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ cm³/cm³ mud | - | - |
| PH ☑ STRIP ☐ METER @ °F | 10.5 | 10.0 |
| ALKALINITY MUD (Pm) | 0.85 | 0.5 |
| ALKALINITY FILTRATE (Pf /Mf) | 0.15/0.5 | 0.12/0.4 |
| ALTERNATE ALKALINITY FILTRATE (P1 /P2) | -/- | -/- |
| CHLORIDE (mg/L) | 14 000 | 22 000 |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 152 | 96 |
| RESISTIVITY | .23 @ 71°F | .18 @ 58°F |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.4 | 43 | 8cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| KCl | USED FOR [illegible] |
| BARITE | USED FOR SLUGS |
| CAUSTIC | TO MAINTAIN pH AROUND 10.5. |
| POLYPAC | TO MAINTAIN YP ABOVE 15. |
| SPERSENE | USED 1 SX TO THIN SLUG PIT MUD. |

REMARKS: P.O.O.H. TO CHANGE BIT FROM HTC X3A TO HTC J04. RECOMMENCED DRILL AT 15:30 HRS. MIXED 100 BBLS OF KCl MUD TO ADD TO ACTIVE SYSTEM AS INCREASED VOLUME IS REQUIRED. pH CONTINUES TO DROP WHEN DRILLING LATROBE COAL INTERBEDS AND CAUSTIC IS BEING ADDED AIMING AT RETAINING pH AROUND 10.5. VISCOSITY DROPPED BELOW 40 AT ONE STAGE BUT HAS BEEN RETURNED WITH POLYPAC ADDITIONS.

## PRODUCT INVENTORY

| PRODUCT INVENTORY | BARITE | BENTONITE | [illegible] | CAUSTIC | D-D | [illegible] | LIME | POLYPAC | POTASSIUM CHLORIDE | SALT | SPERSENE | [illegible] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 404 | 85 | 40 | 39 | 1 | 29 | 44 | 103 | 156 | 10 | 49 | 3 |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - | - |
| USED LAST 24 HR. | 15 | - | - | 3 | - | - | 9 | - | 100 | - | 1 | - |
| CLOSING INVENTORY | 389 | 85 | 40 | 36 | 1 | 29 | 35 | 103 | 56 | 10 | 48 | 3 |
| COST LAST 24 HR. | 127.50 | - | - | 74.25 | - | - | 817.[illegible] | - | 1015.[illegible] | - | 28.[illegible] | - |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | 15.5 | Desilter | - | H. S. Cent. | - |
| Degasser | 20 | Shaker | 20 | Super Cyclone | - |
| Desander | 15.5 | Other | - | — | - |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $2058.25 | 9215.01 |

| | | | |
|---|---|---|---|
| MAGCOBAR ENGINEER | ROBERT SWEET | HOME ADDRESS | 12 LINCOLN RD PARADISE SA |
| PHONE | 3366053 | | |
| MOBILE UNIT | | WAREHOUSE LOCATION | |
| PHONE | | | |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

DRESSER MAGOBAR REGIONAL OFFICE

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
**Dresser Industries, Inc.**

| | |
|---|---|
| DRILLING MUD REPORT NO. | 9 |
| DATE | 16 - 4 19 88 |
| DEPTH | 1228 |
| SPUD DATE | 8 - 4 - 88 |
| PRESENT ACTIVITY | R.I.H. |

| | | |
|---|---|---|
| OPERATOR: CRUSADER RESOURCES N.L. | CONTRACTOR: ATCO | RIG NO.: A7 |
| ...T FOR: F.F. BATT | REPORT FOR: C. DANN | SECT., TWNSHP., RANGE: GIPPSLAND BASIN |
| WELL NAME AND NO.: WONGA BINDA 1 | FIELD OR BLOCK NO.: PEP 130 | CTY., PAR. OR OFFSHORE AREA: SEASPRAY |
| STATE / PROVINCE: VICTORIA | | |

| DRILLING ASSEMBLY | | | CASING | MUD VOLUME (BBL) | | CIRCULATION DATA | | |
|---|---|---|---|---|---|---|---|---|
| BIT SIZE 8½ | TYPE ... 727 | JET SIZE 3x11 | SURFACE 13-375 CON SET @ 38m | HOLE 286.8 | PITS 411 | PUMP SIZE 14 X 5.5 IN. 16 x 5.5 | | ANNULAR VEL. (FT/MIN) DP 111 DC 192 |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE 9.625 SET @ 173m | TOTAL CIRCULATING VOL. 697.8 | | PUMP MAKE, MODEL C-E D375/D500 | ASSUMED EFF 90 % | CIRCULATION PRESSURE (PSI) 1000 |
| DRILL PIPE SIZE 4½ | TYPE | LENGTH 999.4 | INTERMEDIATE SET @ FT. | IN STORAGE - | WEIGHT - | BBL/STK .1152/.12645 | STK/MIN 49 | BOTTOMS UP (MIN) 34 |
| DRILL COLLAR SIZE 6½ | LENGTH 170.6 | | PRODUCTION OR LINER SET @ FT. | MUD TYPE POTASSIUM CHLORIDE | | BBL/MIN 5.6 | GAL/MIN 237 | TOTAL CIRC. TIME (MIN) HOLE: 44 |
| B.H.A. | 228.6 | | | | | | | |

## MUD PROPERTIES

| | | |
|---|---|---|
| SAMPLE FROM | ☐ F.L. ☑ PIT | ☐ F.L. ☑ PIT |
| TIME SAMPLE TAKEN | 1700 | 0600 |
| DEPTH (ft) | 1164m | 1228m |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.4 | 9.4 |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 45 | 44 |
| PLASTIC VISCOSITY cP @ °F | 12 | 13 |
| YIELD POINT (lb/100ft²) | 19 | 18 |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 9/16 | 7/15 |
| FILTRATE API ($cm^3$ /30 min.) | 7.6cc | 7cc |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | - | - |
| C... ...ICKNESS (32nd in. API/HTHP) | 1/32 | 1/ |
| SOLIDS CONTENT (% BY Vol.) ☑ CALCD. ☐ RETORT | 11.6 | 11.6 |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | 0 / 88.4 | 0 / 88.4 |
| SAND CONTENT (% BY Vol.) | Tr | Tr |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3$ /$cm^3$ mud | - | - |
| PH ☑ STRIP ☐ METER @ °F | 10.5 | 10.5 |
| ALKALINITY MUD (Pm) | 0.6 | 0.7 |
| ALKALINITY FILTRATE ($P_f$ /$M_f$) | 0.15/0.5 | 0.2/0.6 |
| ALTERNATE ALKALINITY FILTRATE ($P_1$ /$P_2$) | -/- | -/- |
| CHLORIDE (mg/L) | 18 000 | 17 000 |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 80 | 120 |
| RESISTIVITY | .2 @ 62°F | .3 @ 47°F |
| Survey @ 4000' | 1.75° | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.4 | 44 | 7cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| BARITE | USED FOR SLUG MUD. |
| CAUSTIC | TO MAINTAIN pH. |
| POLYPAC | FOR ... Y.P. ... |
| KCl | TO ... |

REMARKS: DRILLED ON THROUGH THE TRARALGON FORMATION CONSISTING MAINLY OF EOCENE SANDS AND COAL HORIZONS. BEGAN TO ... CLAYS ... BASALTS AROUND 1190m AND ... TO 1228 WHERE ... VOLCANICS OF THE LATROBE GROUP ... (... RANGE) A CHANGE OF BIT AT THIS POINT ... THE TOP ... TE...

| PRODUCT INVENTORY | BARITE | BENTONITE | ... | CHLORIDE | CAUSTIC SODA | D-D | ... | LIME | POLYPAC | POLYSAL | KCl | SALT | SODIUM ... | ... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 389 | 85 | 40 | 36 | 1 | 29 | 35 | 103 | 56 | 0 | 3 | 48 | | |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - | - | | |
| USED LAST 24 HR. | 36 | 7 | - | 2 | - | 1 | 7 | - | 18 | - | - | - | | |
| CLOSING INVENTORY | 353 | 78 | 40 | 34 | 1 | 28 | 28 | 103 | 38 | 10 | 3 | 48 | | |
| CO... ...T 24... | 306.64 | 132.74 | - | 49.10 | - | 5.25 | 631.75 | - | 182.46 | - | - | - | | |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | 16.5 | Desilter | 2 | H. S. Cent. | - |
| Degasser | 24 | Shaker | 24 | Super Cyclone | - |
| Desander | 18 | Other | - | — | - |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $ 1350.94 | $ 10565.95 |

| | | |
|---|---|---|
| MAGCOBAR ENGINEER: ROBERT SWEET | HOME ADDRESS: 12 LINCOLN RD. PARADISE S.A. | PHONE: 3366053 |
| MOBILE UNIT | WAREHOUSE LOCATION | PHONE |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

DRESSER MAGCOBAR REGIONAL OFFICE

Magcobar DRESSER

MAGCOBAR GROUP
**Dresser Industries, Inc.**

P. O. BOX 6504
HOUSTON, TEXAS 77265

| | |
|---|---|
| DRILLING MUD REPORT NO. | 1 |
| DATE 17-4 19 | DEPTH 1335 m |
| SPUD DATE 2-4-8 | PRESENT ACTIVITY DRILLING AHEAD |

| OPERATOR | CONTRACTOR | RIG NO. |
|---|---|---|
| CRUSADER RESOURCES N.L. | ATCO | A7 |
| **REPORT FOR** | **REPORT FOR** | **SECT., TWNSHP., RANGE** |
| E F BATT | C. VANN | GIPPSLAND BASIN |

| WELL NAME AND NO. | FIELD OR BLOCK NO. | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE |
|---|---|---|---|
| WONGA BINDA 1 | PEP 120 | | VICTORIA |

## DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

| DRILLING ASSEMBLY | | | CASING | MUD VOLUME (BBL) | | CIRCULATION DATA | | |
|---|---|---|---|---|---|---|---|---|
| BIT SIZE 8 1/2 | TYPE HTC | JET SIZE 3 x 11 | SURFACE 13.375" SET @ 26 m | HOLE 311 | PITS 411 | PUMP SIZE 14 X 5.5 IN. / 16 X 5.5 | | ANNULAR VEL. (FT/MIN) DP 111 DC 192 |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE 9.625" SET @ 172 m | TOTAL CIRCULATING VOL. 722 | | PUMP MAKE, MODEL C-E D375/D500 | ASSUMED EFF 90 % | CIRCULATION PRESSURE (PSI) 1000 |
| DRILL PIPE SIZE 4 1/2 | TYPE 16.60 | LENGTH 1107 | INTERMEDIATE SET @ FT. | IN STORAGE - | WEIGHT - | BBL/STK .1152/.12645 | STK/MIN 49 | BOTTOMS UP (MIN) 37 |
| DRILL COLLAR SIZE 6 1/2 | | LENGTH 170.6 | PRODUCTION OR LINER SET @ FT. | MUD TYPE POTASSIUM CHLORIDE | | BBL/MIN 5.6 | GAL/MIN 237 | TOTAL CIRC. TIME (MIN) HOLE: 47 TOTAL: 1 |
| B.H.A. | | 228.6 | | | | | | |

## MUD PROPERTIES

| | | |
|---|---|---|
| SAMPLE FROM | ☐ F.L. ☑ PIT | ☐ F.L. ☑ PIT |
| TIME SAMPLE TAKEN | 1700 | 0600 |
| | | |
| DEPTH (ft) | 1275 m | 1335 m |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.6 | 9.6 |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 48 | 45 |
| PLASTIC VISCOSITY cP @ °F | 12 | 13 |
| YIELD POINT (lb/100ft²) | 18 | 19 |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 7/15 | 6/16 |
| FILTRATE API ($cm^3$ /30 min.) | 7cc | 6cc |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | - | - |
| CAKE THICKNESS (32nd in. API/HTHP) | 1/32 | 1/32 |
| SOLIDS CONTENT (% BY Vol.) ☑ CALCD. ☐ RETORT (excludes salts) | 12.1 | 11.6 |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | 0/87.9 | 0/88.4 |
| SAND CONTENT (% BY Vol.) | 0.5 | Tr |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3/cm^3$ mud | - | - |
| PH ☑ STRIP ☐ METER @ °F | 10.0 | 10.5 |
| ALKALINITY MUD (Pm) | .6 | .9 |
| ALKALINITY FILTRATE (Pf /Mf ) | .08/.5 | .1/.6 |
| ALTERNATE ALKALINITY FILTRATE (P1 /P2 ) | -/- | -/- |
| CHLORIDE (mg/L) | 18200 | 22000 |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 220 | 120 |
| RESISTIVITY | .20 @ 67°F | .23 @ 40°F |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.6 | 45 | 6cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| CAUSTIC | ADDED TO MAINTAIN pH @ 10.5 |
| POLYPAC | USED TO MAINTAIN YP |
| POTASSIUM CHLORIDE | FOR PREMIX BASE FOR VOLUME |

REMARKS: WEIGHTED UP MUD FROM 9.4 to 9.6 BY USING FORMATION SOLIDS. CENTRIFUGE WAS LEFT OFF TO DO THIS. INCREASING M.W. INCREASED HYDROSTATIC PRESSURE SUFFICIENTLY TO GIVE US CONTROL OVER FORMATION PRESSURES WHICH PREVIOUSLY HAD BEEN CAUSING A SIGNIFICANT INCREASE IN CAVINGS.

## PRODUCT INVENTORY

| PRODUCT INVENTORY | BARITE | BENTONITE | ALCOMER | CHLOROX | CAUSTIC | SODA ASH | SODIUM CHROMATE | LIME | POLYPAC | CELLOSIZE | POTASSIUM CHLORIDE | SALT | NANO3 | BARACOR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 353 | 78 | 40 | 34 | 1 | 28 | 28 | 103 | 38 | 10 | 3 | 48 | | |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - | - | | |
| USED LAST 24 HR. | - | - | - | 4 | - | - | 4 | - | 38 | - | - | - | | |
| CLOSING INVENTORY | 353 | 78 | 40 | 30 | 1 | 28 | 24 | 103 | 0 | 10 | 3 | 48 | | |
| COST LAST 24 HR. | - | - | - | 99.00 | - | - | 361.00 | - | 387.22 | - | - | - | | |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | 8 | Desilter | - | H. S. Cent. | - |
| Degasser | 24 | Shaker | 24 | Super Cyclone | - |
| Desander | 24 | Other | - | — | - |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $847.22 | $11413.17 |

| | | |
|---|---|---|
| MAGCOBAR ENGINEER ROBERT SWEET | HOME ADDRESS 12 LINCOLN RD; PARADISE | PHONE 3366053 |
| MOBILE UNIT | WAREHOUSE LOCATION | PHONE |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

**DRESSER MAGOBAR REGIONAL OFFICE**

Magcobar DRESSER

MAGCOBAR GROUP
**Dresser Industries, Inc.**

P. O. BOX 6504
HOUSTON, TEXAS 77265

| | |
|---|---|
| DRILLING MUD REPORT NO. | 11 |
| DATE | 18 - 4 - 19 88 |
| DEPTH | 1394 |
| SPUD DATE | 8 - 4 - 88 |
| PRESENT ACTIVITY | ~~LOGGING~~ |

| | | | |
|---|---|---|---|
| OPERATOR | CRUSADER RESOURCES N.L. | CONTRACTOR | ATCO |
| RIG NO. | A7 | | |
| REPORT FOR | E.F. BATT | REPORT FOR | C. DANN |
| SECT., TWNSHP., RANGE | GIPPSLAND BASI | | |
| WELL NAME AND NO. | WONGA BINDA 1 | FIELD OR BLOCK NO. | PEF 120 |
| CTY., PAR. OR OFFSHORE AREA | SEASPRAY | STATE / PROVINCE | VICTORIA |

## DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

| | |
|---|---|
| BIT SIZE | $8\frac{1}{2}$" |
| TYPE | HTC J22 |
| JET SIZE | 3 x 11 |
| DRILL PIPE SIZE | |
| TYPE | |
| LENGTH | |
| DRILL PIPE SIZE | $4\frac{1}{2}$" |
| TYPE | 16.60 |
| LENGTH | 1166 m |
| DRILL COLLAR SIZE | $6\frac{1}{2}$" |
| LENGTH | 170.6 m |
| | 228.6 m |
| CASING SURFACE | 13.375" con. SET @ 30 FT. |
| INTERMEDIATE | 9.625" SET @ 173 m FT. |
| INTERMEDIATE | SET @ FT. |
| PRODUCTION OR LINER | SET @ FT. |
| HOLE | 324.6 |
| PITS | 411 |
| TOTAL CIRCULATING VOL. | 736 |
| IN STORAGE | |
| WEIGHT | |
| MUD TYPE | POTASSIUM CHLORIDE |
| PUMP SIZE | 14 X 5.5 IN. / 16 x 5.5 |
| PUMP MAKE, MODEL | C-E D375/D500 |
| ASSUMED EFF | 90 % |
| BBL/STK | .17645 |
| STK/MIN | 44 |
| BBL/MIN | 5.6 |
| GAL/MIN | 234 |
| ANNULAR VEL. (FT/MIN) | DP 111 DC 192 |
| CIRCULATION PRESSURE (PSI) | 1100 |
| BOTTOMS UP (MIN) | 39 |
| TOTAL CIRC. TIME (MIN) | SYSTEM: 131 HOLE: 50 |

## MUD PROPERTIES

| | ☐ F.L. ☑ PIT | ☐ F.L. ☐ PIT |
|---|---|---|
| SAMPLE FROM | PIT | |
| TIME SAMPLE TAKEN | | |
| | | |
| DEPTH (ft) | 1394 | |
| WEIGHT ☑ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | 9.7 | |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | 44 | |
| PLASTIC VISCOSITY cP @ °F | 12 | |
| YIELD POINT (lb/100ft²) | 18 | |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | 9/19 | / |
| FILTRATE API ($cm^3$ /30 min.) | 6.4 cc | |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | - | |
| CAKE THICKNESS (32nd in. API/HTHP) | 1/32 | / |
| SOLIDS CONTENT (% BY Vol.) ☑ CALCD. ☐ RETORT | 8.4 | |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | 0/91.6 | / |
| SAND CONTENT (% BY Vol.) | 0.5 | |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3$ /$cm^3$ mud | - | |
| PH ☑ STRIP ☐ METER @ °F | 10.0 | |
| ALKALINITY MUD (Pm) | 0.4 | |
| ALKALINITY FILTRATE ($P_f$ /$M_f$) | 0.1 / 0.3 | / |
| ALTERNATE ALKALINITY FILTRATE ($P_1$ /$P_2$) | - / - | / |
| CHLORIDE (mg/L) | 19 000 | |
| TOTAL HARDNESS AS CALCIUM (mg/L) | 200 | |
| RESISTIVITY | .24 @ 53°F | |
| | | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| 9.7 | 44 | 6.4 cc |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| BARITE | - USED IN SLUGS. |
| POLYPAC | - USED IN HI VIS SWEEPS |
| CAUSTIC | - TO MAINTAIN pH |

REMARKS: REACHED T.D. @ 1394 m. RAN A WIPER TRIP. HOLE TIGHT R.I.H. TO BOTTOM CIRCULATED A HIGH VISCOSITY SWEEP WHICH RETURNED A CONSIDERABLE PROPORTION OF COAL PIECES RANGING UP TO 4 cm² . P.O.O.H. IN PREPARATION FOR LOGGING.

## PRODUCT INVENTORY

| PRODUCT INVENTORY | BARITE | BENTONITE | CALCIUM CHLORIDE | CAUSTIC SODA | D-D COMPOUND | LIME | POLYPAC | POLYSAL | POTASSIUM CHLORIDE | SALT | NaNO3 | SPERSENE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 353 | 78 | 40 | 30 | 1 | 28 | 24 | 103 | 0 | 10 | 3 | 48 |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - | - |
| USED LAST 24 HR. | 60 | - | - | 1 | - | - | 4 | - | - | - | - | - |
| CLOSING INVENTORY | 293 | 78 | 40 | 29 | 1 | 28 | 20 | 103 | - | 10 | 3 | 48 |
| COST LAST 24 HR. | 510.00 | - | - | 24.75 | - | - | 361.00 | - | - | - | - | - |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | 4.5 | Desilter | - | H. S. Cent. | - |
| Degasser | 19 | Shaker | 19 | Super Cyclone | - |
| Desander | 4.5 | Other | - | —— | - |

DAILY COST: $895.75

CUMULATIVE COST: 12 308.92 ~~$12 266.62~~

| | | | |
|---|---|---|---|
| MAGCOBAR ENGINEER | ROBERT SWEET | HOME ADDRESS | 12 LINCOLN RD; PARADISE SA |
| PHONE | 3366053 | | |
| MOBILE UNIT | | WAREHOUSE LOCATION | |
| PHONE | | | |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

**Magcobar** **DRESSER**

MAGCOBAR GROUP
**Dresser Industries, Inc.**

P. O. BOX 6504
HOUSTON, TEXAS 77265

DRESSER MAGCOBAR REGIONAL OFFICE

| | |
|---|---|
| DRILLING MUD REPORT NO. | |
| DATE ______ 19 __ | DEPTH |
| SPUD DATE | PRESENT ACTIVITY |

| OPERATOR | CONTRACTOR | RIG NO. |
|---|---|---|
| T FOR [illegible] | REPORT FOR [illegible] | SECT., TWNSHP., RANGE |

| WELL NAME AND NO. | FIELD OR BLOCK NO. | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE |
|---|---|---|---|
| [illegible] | | | |

| DRILLING ASSEMBLY | | | CASING | MUD VOLUME (BBL) | | CIRCULATION DATA | | |
|---|---|---|---|---|---|---|---|---|
| BIT SIZE | TYPE | JET SIZE | SURFACE SET @ FT. | HOLE | PITS | PUMP SIZE X IN. | | ANNULAR VEL. (FT/MIN) DP ____ DC ____ |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE SET @ FT. | TOTAL CIRCULATING VOL. | | PUMP MAKE, MODEL | ASSUMED EFF. % | CIRCULATION PRESSURE (PSI) |
| DRILL PIPE SIZE | TYPE | LENGTH | INTERMEDIATE SET @ FT. | IN STORAGE | WEIGHT | BBL/STK — | STK/MIN | BOTTOMS UP (MIN) - |
| DRILL COLLAR SIZE | | LENGTH | PRODUCTION OR LINER SET @ — FT. | MUD TYPE | | BBL/MIN — | GAL/MIN | TOTAL CIRC. TIME (MIN) - |

## MUD PROPERTIES

| | | |
|---|---|---|
| SAMPLE FROM | ☐ F.L. ☐ PIT | ☐ F.L. ☐ PIT |
| TIME SAMPLE TAKEN | | |
| | | |
| DEPTH (ft) | | |
| WEIGHT ☐ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | | |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | | |
| PLASTIC VISCOSITY cP @ °F | | |
| YIELD POINT (lb/100ft²) | | |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | / | / |
| FILTRATE API ($cm^3$ /30 min.) | | |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | | |
| C ICKNESS (32nd in. API/HTHP) | / | / |
| SO CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT | | |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | / | / |
| SAND CONTENT (% BY Vol.) | | |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3$ /$cm^3$ mud | | |
| PH ☐ STRIP ☐ METER @ °F | | |
| ALKALINITY MUD (Pm) | | |
| ALKALINITY FILTRATE ($P_f$ /$M_f$) | / | / |
| ALTERNATE ALKALINITY FILTRATE ($P_1$ /$P_2$) | / | / |
| CHLORIDE (mg/L) | | |
| TOTAL HARDNESS AS CALCIUM (mg/L) | | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| | | |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| BARITE | USED FOR MIX TO TOP UP HOLE |
| POLYPAC | " " " " " " |

REMARKS: AFTER LOGS WERE WELL UNDERWAY MUD TANKS WERE DRAINED AND CLEANED. RAN [illegible] [illegible] [illegible] [illegible] FILLING PITS WITH [illegible] [illegible] A TRIP [illegible]

| PRODUCT INVENTORY | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | | 40 | | 1 | 28 | 10 | | | | 46 |
| RECEIVED | | | | | | | | | | |
| USED LAST 24 HR. | | | | | | 1 | | | | |
| CLOSING INVENTORY | | | | 1 | 28 | 10 | 10 | - | 13 | 46 |
| CO ST. 24 | | | | | | | | | | - |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | - | Desilter | - | H. S. Cent. | — |
| Degasser | - | Shaker | — | Super Cyclone | — |
| Desander | - | Other | - | —— | — |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $158-25 | $12467.47 |

| MAGCOBAR ENGINEER [illegible] | HOME ADDRESS [illegible] | PHONE 336605 |
|---|---|---|
| MOBILE UNIT | WAREHOUSE LOCATION | PHONE |

MAG 39 P (API Form 47-1)

# DRILLING MUD REPORT

DRESSER MAGOBAR REGIONAL OFFICE

Magcobar DRESSER

P. O. BOX 6504
HOUSTON, TEXAS 77265

MAGCOBAR GROUP
**Dresser Industries, Inc.**

| | |
|---|---|
| DRILLING MUD REPORT NO. | [illegible] |
| DATE | [illegible] - 4 - 19 [illegible] |
| DEPTH | [illegible] |
| SPUD DATE | [illegible] - 4 - [illegible] |
| PRESENT ACTIVITY | P & A |

| OPERATOR | CONTRACTOR | RIG NO. |
|---|---|---|
| [illegible] N L | ATCO | A7 |
| REPORT FOR: [illegible] BATT | REPORT FOR: C DANN | SECT., TWNSHP., RANGE: GIPPSLAND BASIN |

| WELL NAME AND NO. | FIELD OR BLOCK NO. | CTY., PAR. OR OFFSHORE AREA | STATE / PROVINCE |
|---|---|---|---|
| [illegible] BINIA 1 | PEP 120 | SEASPRAY | VICTORIA |

| DRILLING ASSEMBLY | | | CASING | MUD VOLUME (BBL) | | CIRCULATION DATA | |
|---|---|---|---|---|---|---|---|
| BIT SIZE — | TYPE — | JET SIZE — | SURFACE 13 3/8 CSW SET @ 3?? FT | HOLE — | PITS — | PUMP SIZE 14 X 5.5 IN. / 14 5.5 | ANNULAR VEL. (FT/MIN) DP — DC — |
| DRILL PIPE SIZE — | TYPE — | LENGTH — | INTERMEDIATE 9 5/8 SET @ 173? FT | TOTAL CIRCULATING VOL. — | | PUMP MAKE, MODEL C-E 03?/1500; ASSUMED EFF. 90% | CIRCULATION PRESSURE (PSI) — |
| DRILL PIPE SIZE — | TYPE — | LENGTH — | INTERMEDIATE SET @ — FT. | IN STORAGE — | WEIGHT — | BBL/STK — STK/MIN | BOTTOMS UP (MIN) — |
| DRILL COLLAR SIZE — | | LENGTH — | PRODUCTION OR LINER SET @ — FT. | MUD TYPE POTASSIUM CHL | | BBL/MIN — GAL/MIN | TOTAL CIRC. TIME (MIN) — |

## MUD PROPERTIES

| | | |
|---|---|---|
| SAMPLE FROM | ☐ F.L. ☐ PIT | ☐ F.L. ☐ PIT |
| TIME SAMPLE TAKEN | | |
| | | |
| DEPTH (ft) | | |
| WEIGHT ☐ (ppg) ☐ (lb/cu. ft) ☐ Sp. G | | |
| FUNNEL VISCOSITY (sec./qt.) API @ °F | | |
| PLASTIC VISCOSITY cP @ °F | | |
| YIELD POINT (lb/100ft²) | | |
| GEL STRENGTH (lb/100ft²) 10 sec./10 min. | / | / |
| FILTRATE API ($cm^3$ /30 min.) | | |
| API HTHP FILTRATE ($cm^3$ /30 min.) @ °F | | |
| CAKE THICKNESS (32nd in. API/HTHP) | / | / |
| SOLIDS CONTENT (% BY Vol.) ☐ CALCD. ☐ RETORT | | |
| LIQUID CONTENT (% BY Vol.) OIL/WATER | / | / |
| SAND CONTENT (% BY Vol.) | | |
| METHYLENE BLUE CAPACITY ☐ lb/bbl equiv. ☐ $cm^3$ /$cm^3$ mud | | |
| PH ☐ STRIP ☐ METER @ °F | | |
| ALKALINITY MUD (Pm) | | |
| ALKALINITY FILTRATE (Pf /Mf) | / | / |
| ALTERNATE ALKALINITY FILTRATE (P1 /P2) | / | / |
| CHLORIDE (mg/L) | | |
| TOTAL HARDNESS AS CALCIUM (mg/L) | | |

## MUD PROPERTY SPECIFICATIONS

| WEIGHT | VISCOSITY | FILTRATE |
|---|---|---|
| | | |

BY AUTHORITY: ☐ OPERATOR'S WRITTEN ☐ OPERATOR'S REPRESENTATIVE ☐ DRILLING CONTRACTOR ☐ OTHER

| PRODUCTS | TREATMENT |
|---|---|
| CALCIUM CHLORIDE | FOR CEMENTING PLUG |

REMARKS:
COMPLETED LOGGING, PLUGGED & ABANDONED WELL.

| PRODUCT INVENTORY | BARITE | GEL | CaCl2 | CAUSTIC | D-D | LIME | POLYPAC | POLYSAL | NaCl | NaNO3 | SPERSENE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| STARTING INVENTORY | 225 | 12 | 40 | 2? | 1 | 28 | 15 | 103 | 10 | 3 | 48 |
| RECEIVED | - | - | - | - | - | - | - | - | - | - | - |
| USED LAST 24 HR. | - | - | 3 | - | - | - | - | - | - | - | - |
| CLOSING INVENTORY | 225 | 12 | 37 | 29 | 1 | 28 | 15 | 103 | 10 | 3 | 48 |
| COST LAST 24 HR. | - | - | | - | - | - | - | - | - | - | - |

## EQUIPMENT

| | HOURS | | HOURS | | HOURS |
|---|---|---|---|---|---|
| Centrifuge | — | Desilter | — | H. S. Cent. | — |
| Degasser | — | Shaker | — | Super Cyclone | — |
| Desander | — | Other | — | — | — |

| DAILY COST | CUMULATIVE COST |
|---|---|
| $57.00 | $12027.17 |

| MAGCOBAR ENGINEER | HOME ADDRESS | PHONE |
|---|---|---|
| ROBERT SWEET | 12 LINCOLN RD, PARADISE | 3366053 |
| MOBILE UNIT | WAREHOUSE LOCATION | PHONE |

**WELL HISTORY**

**Magcobar**

DRILLING FLUID SERVICES

| | |
|---|---|
| OPERATOR | CRUSADER RESOURCES N.L. |
| WELL | WONGA BINDA #1 |
| CONTRACTOR | ATCO DRILLING |
| ENGINEER | R. G. SWEET |
| SECTION | PEP-120 |
| TOWNSHIP | SEASPRAY |
| RANGE | |
| FIELD | GIPPSLAND BASIN |
| COUNTY/PARISH | |
| STATE | VICTORIA |
| MUD TYPE | POTASSIUM CHLORIDE |
| SPUD DATE | 8th April, 1988 |
| T.D. DATE | 18th April, 1988 |
| DAYS TO T.D. | 11 |

| CASING | SIZE | DEPTH | BIT SIZE | NO. BITS | ROTATING HOURS | DEGASSER | DESANDER | DESILTER | CENTRIFUGE | SHAKER SCREENS |
|---|---|---|---|---|---|---|---|---|---|---|
| CONDUCTOR | 13 3/8 | 38 m | | | | | | | | |
| SURFACE | 9 5/8 | 173 m | | | | | | | | 60/(a) |
| INTERMEDIATE | | | | | | | | | | |
| LINER(S) | | | | | | | | | | |
| PRODUCTION | | | | | | | | | | |

| DATE | MEAS-URED DEPTH | TVD | MUD WT | VIS SEC | ANGLE AND DIREC-TION | FLOW RATE (gpm) | FLOW LINE TEMP °F °C | PV. | YP. | GELS 0/10 | PH | API FLUID LOSS | HTHP FLUID LOSS | $P_f$ | $M_f$ | $P_m$ | SALT OR CHLORIDE ppm mg/l | CALCIUM (ppm) | SOL % | OIL % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.4 | 53 | 53 | 8.8 | 34 | | 255 | | | | / | | | | | | | | | | |
| 9.4 | 175 | 175 | 9.1 | 39 | 1° | 255 | | 5 | 12 | 5/15 | 11.0 | 20+ | | 0.4 | 0.6 | 1.2 | 16000 | 40 | | · |
| 10.4 | 175 | 175 | 9.0 | 46 | | 228 | | 6 | 11 | 4/15 | 11.0 | 20+ | | 0.4 | 0.6 | 1.2 | 16000 | 40 | 11.0 | |
| 11.4 | 502 | 502 | 9.3+ | 46 | | 202 | | 14 | 18 | 6/19 | 11.5 | 8 | | 0.3 | 0.6 | 1.8 | 22000 | 200 | 13.1 | |
| 12.4 | 608 | 608 | 9.4 | 56 | | 202 | | 14 | 17 | 7/20 | 11.0 | 8 | | 0.2 | 0.5 | 1.8 | 22000 | 200 | 13.1 | |
| 13.4 | 609 | 609 | 9.5 | 49 | | 202 | | 15 | 19 | 7/20 | 10.3 | 6 | | 0.2 | 0.45 | 1.45 | 19400 | 160 | 14.3 | |
| 14.4 | 872 | 872 | 9.5 | 44 | | 202 | | 11 | 16 | 5/18 | 10.0 | 8.5 | | 0.2 | 0.5 | 0.8 | 18000 | 120 | 12.1 | |
| 15.4 | 1098 | 1098 | 9.4 | 43 | | 237 | | 13 | 17 | 8/22 | 10.0 | 8 | | 0.12 | 0.4 | 0.5 | 22000 | 96 | 12.6 | |
| 16.4 | 1228 | 1228 | 9.4 | 44 | | 237 | | 13 | 18 | 7/15 | 10.5 | 7 | | 0.2 | 0.6 | 0.7 | 17000 | 120 | 11.6 | |
| 17.4 | 1335 | 1335 | 9.6 | 45 | | 237 | | 13 | 19 | 6/16 | 10.5 | 6 | | 0.1 | 0.6 | 0.9 | 22000 | 120 | | |
| 18.4 | 1394 | 1394 | 9.7 | 44 | | 234 | | 12 | 18 | 9/19 | 10.0 | 6.4 | | 0.1 | 0.3 | 0.4 | 19000 | 200 | 8.4 | |
| | | | | | | | | | | / | | | | | | | | | | |
| | | | | | | | | | | / | | | | | | | | | | |

| DATE | | | BARITE | BENTONITE | CAL. CHL | D.D. COMP | LIME | POLYPAC | POLYSAL | SALT | SPERSENE | SOD.NIT. | KCL.25kg | KCL.50kg | CAUSTIC | | | | | | MUD COST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.4 | | | | | | | | 3 | | | | | 36 | 40 | 3 | | | | | | 1247.84 |
| 9.4 | | | | 27 | | | 1 | 5 | 2 | | | | 58 | | 3 | | | | | | 1718.19 |
| 10.4 | | | | | | | | | | | | | | | | | | | | | - |
| 11.4 | | | | 8 | | | | 8 | | | | | 100 | | 4 | | | | | | 1991.68 |
| 12.4 | | | 20 | | | | | 6 | 4 | | | | | | 3 | | | | | | 954.75 |
| 13.4 | | | 20 | | | | | 1 | | | | | | | | | | | | | 260.25 |
| 14.4 | | | | | | | | 4 | | | | 1 | 50 | | 3 | | | | | | 987.05 |
| 15.4 | | | 15 | | | | | 9 | | | 1 | | 100 | | 3 | | | | | | 2058.25 |
| 16.4 | | | 36 | 7 | | | 1 | 7 | | | | | 18 | | 2 | | | | | | 1350.94 |
| 17.4 | | | | | | | | 4 | | | | | 38 | | 4 | | | | | | 847.22 |
| 18.4 | | | 60 | | | | | 4 | | | | | | | 1 | | | | | | 895.75 |
| | | | 8 | | | | | 1 | | | | | | | | | | | | | 158.25 |
| | | | | | 3 | | | | | | | | | | | | | | | | 57.00 |

# APPENDIX 4

APPENDIX 4

# APPENDIX 4

## TIME ANALYSIS

CRUSADER LIMITED

TIME ANALYSIS: Wonga Binda #1 8.4.88 - 21.4.88

APRIL, 1988

PREPARATION
***********

| Opcode + Description | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A 1 Preparation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |

MOBILIZATION/MOVING
*******************

| Opcode + Description | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B 1 Mobilization | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| B 2 Moving | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| B 3 Rigging up | . | . | . | . | . | . | . | 20.5 | . | 2.5 | . | . | . | . | . | . |
| B 4 Rigging Down | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| B 5 Demobilization | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| B 6 Dismantling | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |

MAKING HOLE
***********

| Opcode + Description | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C10 Drilling | . | . | . | . | . | . | . | 3.0 | 8.0 | . | 16.5 | 8.5 | 0.5 | 16.0 | 15.5 | 16.0 |
| C11 Adding Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C12 Survey | . | . | . | . | . | . | . | 0.5 | 1.0 | . | 0.5 | 0.5 | . | . | . | 0.5 |
| C13 Check Trip | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 2.5 |
| C20 Trip - Bit Change | . | . | . | . | . | . | . | . | . | . | . | . | 1.0 | 2.5 | 8.0 | 3.0 |
| C21 Trip - Deviation Op | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C30 Circulation | . | . | . | . | . | . | . | . | 1.0 | . | . | . | 1.0 | . | 0.5 | 2.0 |
| C31 Reaming/Washing | . | . | . | . | . | . | . | . | . | . | . | . | 1.0 | . | . | . |
| C32 Formation Kick | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C33 Lost Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C39 Stuck Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | 1.0 | . | . |
| C42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C43 Wait Time | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | 0.5 | . | . | . |

| Opcode + Description | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SECURING HOLE** | | | | | | | | | | | | | | | | |
| ************* | | | | | | | | | | | | | | | | |
| D10 Drilling cement | . | . | . | . | . | . | . | . | . | 3.5 | 3.0 | . | . | . | . | . |
| D11 Adding Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D12 Survey | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D13 Check Trip | . | . | . | . | . | . | . | . | 1.0 | . | . | . | . | . | . | . |
| D14 Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D20 Trip - Drilling Cement | . | . | . | . | . | . | . | . | . | 1.5 | . | . | . | . | . | . |
| D22 Trip - Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D25 Trip - Before Casing | . | . | . | . | . | . | . | . | 1.0 | . | . | . | . | . | . | . |
| D26 Trip - Bit & Scraper | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D30 Circulation | . | . | . | . | . | . | . | . | 0.5 | . | . | . | . | . | . | . |
| D31 Reaming/Washing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D32 Formation Kick | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D33 Lost Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D39 Stuck Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D43 Wait Time | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | 4.0 | . | . | . | . | . |
| D55 Run & Cement Casing | . | . | . | . | . | . | . | . | 6.5 | . | . | . | . | . | . | . |
| D56 Nippling Up BOP | . | . | . | . | . | . | . | . | . | 15.5 | . | . | . | . | . | . |
| D57 Standing Cement | . | . | . | . | . | . | . | . | 5.0 | 1.0 | . | . | . | . | . | . |
| **FORMATION EVALUATION** | | | | | | | | | | | | | | | | |
| ******************** | | | | | | | | | | | | | | | | |
| E10 Coring | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E11 Adding Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E12 Survey | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E13 Check Trip | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E14 Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E20 Trip - Coring | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E22 Trip - Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E23 Trip - Logging | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E24 Trip - Formation Test | . | . | . | . | . | . | . | . | . | . | . | 12.0 | 11.5 | 3.0 | . | . |
| E30 Circulation | . | . | . | . | . | . | . | . | . | . | . | 2.0 | . | . | . | . |
| E31 Reaming/Washing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E32 Formation Kick | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E33 Lost circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E34 Fmn Strength Test | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E39 Stuck Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | 1.5 | . | . |
| E40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E43 Wait Time | . | . | . | . | . | . | . | . | . | . | . | . | 2.5 | . | . | . |
| E44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E50 Logging - Open Hole | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E60 Testing Formation | . | . | . | . | . | . | . | . | . | . | . | . | 6.0 | . | . | . |
| E65 Circ - Geol/Res Info | . | . | . | . | . | . | . | . | . | . | . | 1.0 | . | . | . | . |

| Opcode + Description | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COMPLETION/SUSPENSION** | | | | | | | | | | | | | | | | |
| ******************** | | | | | | | | | | | | | | | | |
| [illegible]rilling Cement | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F11 Adding Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F12 Survey | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F13 Check Trip | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F14 Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F20 Trip - Drilling Cement | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F22 Trip - Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F25 Trip - Before Casing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F26 Trip - Bit & Scraper | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F30 Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F31 Reaming/Washing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F32 Formation Kick | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F33 Lost Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F34 Fmn Leak Off Test | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F39 Stuck Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F43 Wait Time | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F50 Logging - Completion | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F55 Run & Cement Casing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F56 Nippling Up Wellhead | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F57 Standing Cemented | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F60 Testing & Perforation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F7[illegible] Run Tubing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| [illegible]un Production Pakcer | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F72 Run Wireline | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F73 Pressure Surveys | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F80 Well Stimulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F81 Sand Exclusion | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| **PLUGBACK/ABANDONMENT** | | | | | | | | | | | | | | | | |
| ******************** | | | | | | | | | | | | | | | | |
| G40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G43 Waiting | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G90 Abandonment | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G95 Plugback for sidetrack | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |

| Opcode + Description | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | Month Total | % | Grand Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PREPARATION** | | | | | | | | | | | | | | | | | | |
| A 1 Preparation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| TOTAL PREPARATION: | | | | | | | | | | | | | | | . | . | . | . |
| **MOBILIZATION/MOVING** | | | | | | | | | | | | | | | | | | |
| B 1 Mobilization | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| B 2 Moving | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| B 3 Rigging up | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 23.0 | 6.8 | 23.0 | 6.8 |
| B 4 Rigging Down | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| B 5 Demobilization | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| B 6 Dismantling | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| TOTAL MOBILIZATION/MOVING: | | | | | | | | | | | | | | | 23.0 | 6.8 | 23.0 | 6.8 |
| **MAKING HOLE** | | | | | | | | | | | | | | | | | | |
| C10 Drilling | 19.0 | 6.5 | . | . | . | . | . | . | . | . | . | . | . | . | 109.5 | 32.6 | 109.5 | 32.6 |
| C11 Adding Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C12 Survey | 0.5 | . | . | . | . | . | . | . | . | . | . | . | . | . | 3.5 | 1.0 | 3.5 | 1.0 |
| C13 Check Trip | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 2.5 | 0.7 | 2.5 | 0.7 |
| C20 Trip - Bit Change | 3.5 | . | . | . | . | . | . | . | . | . | . | . | . | . | 18.0 | 5.4 | 18.0 | 5.4 |
| C21 Trip - Deviation Op | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C30 Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 4.5 | 1.3 | 4.5 | 1.3 |
| C31 Reaming/Washing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1.0 | 0.3 | 1.0 | 0.3 |
| C32 Formation Kick | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C33 Lost Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C39 Stuck Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1.0 | 0.3 | 1.0 | 0.3 |
| C42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C43 Wait Time | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| C44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 0.5 | 0.1 | 0.5 | 0.1 |
| TOTAL MAKING HOLE: | | | | | | | | | | | | | | | 140.5 | 41.8 | 140.5 | 41.8 |

| Opcode + Description | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | Month Total | % | Grand Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **SECURING HOLE** | | | | | | | | | | | | | | | | | | |
| [illegible] Drilling cement | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 6.5 | 1.9 | 6.5 | 1.9 |
| D11 Adding Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D12 Survey | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D13 Check Trip | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1.0 | 0.3 | 1.0 | 0.3 |
| D14 Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D20 Trip - Drilling Cement | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1.5 | 0.4 | 1.5 | 0.4 |
| D22 Trip - Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D25 Trip - Before Casing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1.0 | 0.3 | 1.0 | 0.3 |
| D26 Trip - Bit & Scraper | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D30 Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 0.5 | 0.1 | 0.5 | 0.1 |
| D31 Reaming/Washing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D32 Formation Kick | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D33 Lost Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D39 Stuck Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D43 Wait Time | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| D44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 4.0 | 1.2 | 4.0 | 1.2 |
| D55 Run & Cement Casing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 6.5 | 1.9 | 6.5 | 1.9 |
| D56 Nippling Up BOP | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 15.5 | 4.6 | 15.5 | 4.6 |
| D57 Standing Cement | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 6.0 | 1.8 | 6.0 | 1.8 |
| TOTAL SECURING HOLE: | | | | | | | | | | | | | | | 42.5 | 12.6 | 42.5 | 12.6 |
| **FORMATION EVALUATION** | | | | | | | | | | | | | | | | | | |
| E10 Coring | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E11 Adding Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E12 Survey | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E13 Check Trip | . | 8.5 | . | . | . | . | . | . | . | . | . | . | . | . | 8.5 | 2.5 | 8.5 | 2.5 |
| E14 Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E20 Trip - Coring | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E22 Trip - Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E23 Trip - Logging | . | 3.0 | . | . | . | . | . | . | . | . | . | . | . | . | 3.0 | 0.9 | 3.0 | 0.9 |
| E24 Trip - Formation Test | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 26.5 | 7.9 | 26.5 | 7.9 |
| E30 Circulation | . | 2.0 | . | . | . | . | . | . | . | . | . | . | . | . | 4.0 | 1.2 | 4.0 | 1.2 |
| E31 Reaming/Washing | . | 1.5 | . | . | . | . | . | . | . | . | . | . | . | . | 1.5 | 0.4 | 1.5 | 0.4 |
| E32 Formation Kick | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E33 Lost circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E34 Fmn Strength Test | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E39 Stuck Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1.5 | 0.4 | 1.5 | 0.4 |
| E40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E41 Rig Service | . | 0.5 | . | . | . | . | . | . | . | . | . | . | . | . | 0.5 | 0.1 | 0.5 | 0.1 |
| E42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E43 Wait Time | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 2.5 | 0.7 | 2.5 | 0.7 |
| E44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| E50 Logging - Open Hole | . | 2.0 | 24.0 | 3.5 | . | . | . | . | . | . | . | . | . | . | 29.5 | 8.8 | 29.5 | 8.8 |
| E60 Testing Formation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 6.0 | 1.8 | 6.0 | 1.8 |
| E65 Circ - Geol/Res Info | 1.0 | . | . | . | . | . | . | . | . | . | . | . | . | . | 2.0 | 0.6 | 2.0 | 0.6 |
| TOTAL FORMATION EVALUATION: | | | | | | | | | | | | | | | 85.5 | 25.4 | 85.5 | 25.4 |

| Opcode + Description | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | Month Total | % | Grand Total | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **COMPLETION/SUSPENSION** | | | | | | | | | | | | | | | | | | |
| ******************** | | | | | | | | | | | | | | | | | | |
| [illegible] Drilling Cement | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F11 Adding Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F12 Survey | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F13 Check Trip | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F14 Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F20 Trip - Drilling Cement | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F22 Trip - Reaming | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F25 Trip - Before Casing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F26 Trip - Bit & Scraper | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F30 Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F31 Reaming/Washing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F32 Formation Kick | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F33 Lost Circulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F34 Fmn Leak Off Test | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F39 Stuck Pipe | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F43 Wait Time | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F50 Logging - Completion | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F55 Run & Cement Casing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F56 Nippling Up Wellhead | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F57 Standing Cemented | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F60 Testing & Perforation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| [illegible]un Tubing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F71 Run Production Pakcer | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F72 Run Wireline | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F73 Pressure Surveys | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F80 Well Stimulation | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| F81 Sand Exclusion | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| TOTAL COMPLETION/SUSPENSION: | | | | | | | | | | | | | | | . | . | . | . |
| **PLUGBACK/ABANDONMENT** | | | | | | | | | | | | | | | | | | |
| ******************* | | | | | | | | | | | | | | | | | | |
| G40 Fishing | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G41 Rig Service | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G42 Repairs | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G43 Waiting | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G44 Miscellaneous | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| G90 Abandonment | . | . | . | 20.5 | 24.0 | . | . | . | . | . | . | . | . | . | 44.5 | 13.2 | 44.5 | 13.2 |
| G95 Plugback for sidetrack | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . |
| TOTAL PLUGBACK/ABANDONMENT: | | | | | | | | | | | | | | | 44.5 | 13.2 | 44.5 | 13.2 |

# APPENDIX 5

APPENDIX 5

DRILL STEM TEST REPORTS

# HARVEST

HALLIBURTON RESERVOIR EVALUATION SYSTEM

| | | |
|---|---|---|
| Lease Owner | : | CRUSADER RES. |
| Country | : | AUSTRALIA |
| Lease | : | WONGA BINDA |
| Well No. | : | 1 |
| Test No. | : | 1 |
| Test Date | : | 12-APR-88 |
| Ticket No. | : | 330038 |

HALLIBURTON
SERVICES

REPORT TICKET NO: 330038
MEMORY GAUGE TICKET NO: 330038
DATE: 12-APR-88
HALLIBURTON CAMP: SALE
TESTER: W.FARRELLY / I.HOVELL
WITNESS: E.BATT

DRILLING CONTRACTOR: ACTO #7
LEGAL LOCATION:

OPERATOR: CRUSADER RES.
LEASE NAME: WONGA BINDA
WELL NO: 1
TEST NO: 1
TESTED INTERVAL: 1968.00 - 1995.00 ft

FIELD AREA: GIPPSLAND BASIN
COUNTY/LSD:
STATE/PROVINCE: VICTORIA
COUNTRY: AUSTRALIA

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SECTION 2: ANALYSIS

| | |
|---|---|
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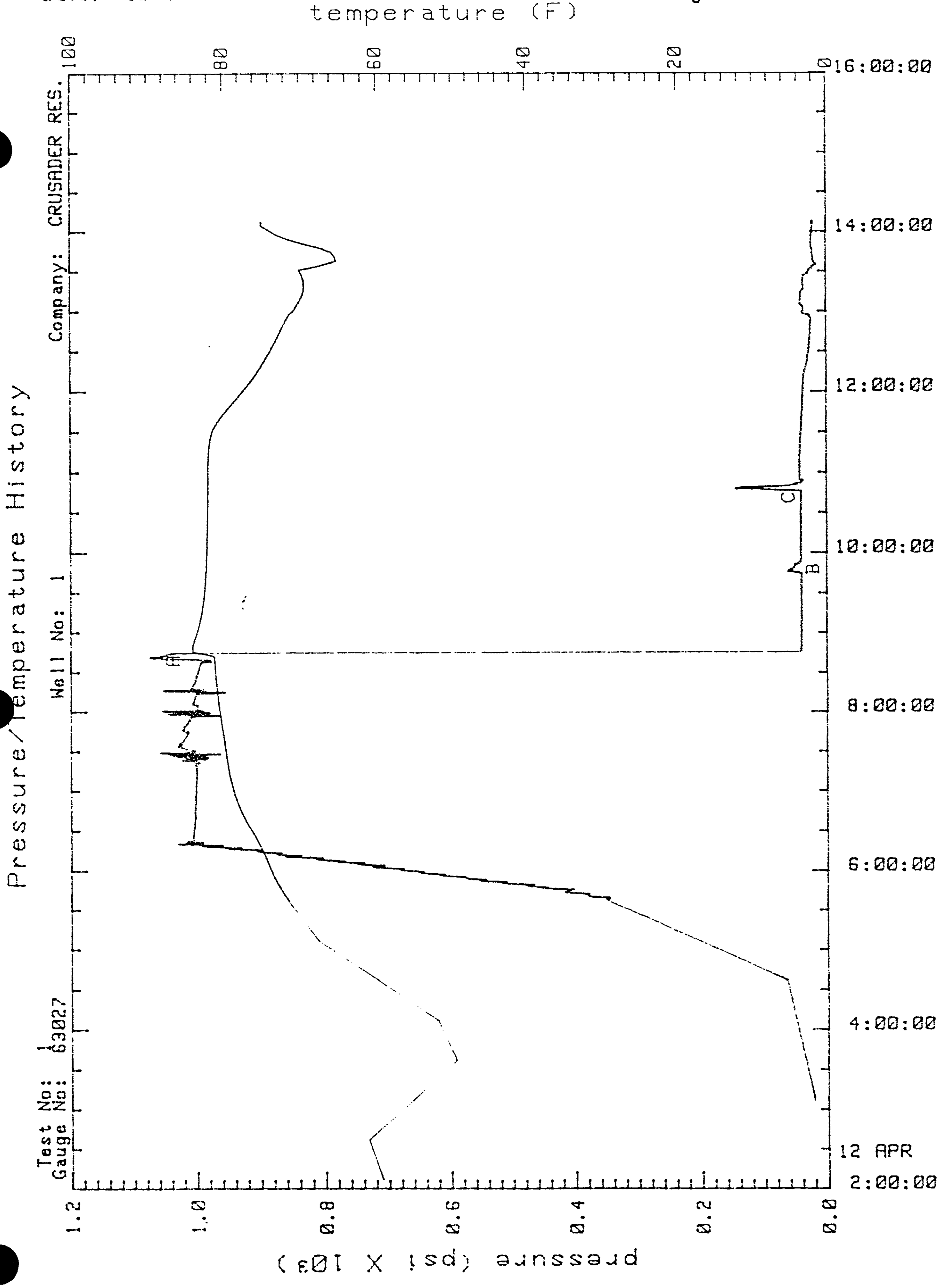
SECTION 3: MEMORY GAUGE DATA

| | | |
|---|---|---|
| Gauge No. | 63027 | 3.1 |
| Gauge No. | 62530 | 3.2 |

Date: 12-APR-88 Ticket No: 330238 Page No: 3.1.0



Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.1

PRESSURE VS TIME

GRC gauge no.: 63027 Gauge Depth: 1941.00 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 02:37:26 | | | 61.2 | |
| 03:15:00 | | | | MAKE UP GAUGE CARRIERS |
| 03:37:26 | | | 49.4 | |
| 04:37:26 | | 65.044 | 59.8 | |
| 05:37:26 | | | 71.5 | |
| 05:38:24 | | 352.866 | 71.6 | |
| 05:39:21 | | 346.794 | 71.7 | |
| 05:40:19 | | 361.247 | 71.9 | |
| 05:41:16 | | | 72.0 | |
| 05:42:14 | | 378.724 | 72.1 | |
| 05:43:12 | | 398.245 | 72.2 | |
| 05:44:09 | | 411.166 | 72.3 | |
| 05:45:07 | | 410.654 | 72.4 | |
| 05:46:04 | | 403.282 | 72.5 | |
| 05:47:02 | | 451.580 | 72.6 | |
| 05:48:00 | | | 72.7 | |
| 05:48:57 | | 478.366 | 72.8 | |
| 05:49:55 | | 465.949 | 72.9 | |
| 05:50:52 | | 518.217 | 73.0 | |
| 05:51:50 | | 510.935 | 73.1 | |
| 05:52:48 | | 554.605 | 73.1 | |
| 05:53:45 | | 544.379 | 73.2 | |
| 05:54:43 | | | 73.3 | |
| 05:55:40 | | 577.193 | 73.4 | |
| 05:56:38 | | 619.861 | 73.5 | |
| 05:57:36 | | 610.881 | 73.5 | |
| 05:58:33 | | 651.514 | 73.6 | |
| 05:59:31 | | 644.725 | 73.7 | |
| 06:00:28 | | 681.985 | 73.8 | |
| 06:01:26 | | | 73.8 | |
| 06:02:24 | | 707.291 | 73.9 | |
| 06:03:21 | | 709.879 | 74.0 | |
| 06:04:19 | | 707.361 | 74.0 | |
| 06:05:16 | | 750.685 | 74.1 | |
| 06:06:14 | | 738.747 | 74.2 | |
| 06:07:12 | | 769.358 | 74.2 | |
| 06:08:09 | | | 74.3 | |
| 06:09:07 | | 804.394 | 74.4 | |
| 06:10:04 | | 804.929 | 74.5 | |
| 06:11:02 | | 863.363 | 74.5 | |
| 06:12:00 | | 837.006 | 74.6 | |
| 06:12:57 | | 872.227 | 74.7 | |
| 06:13:55 | | 868.703 | 74.8 | |
| 06:14:52 | | | 74.8 | |
| 06:15:50 | | 900.296 | 74.9 | |
| 06:16:48 | | 950.861 | 75.0 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 1.1

SUMMARY OF TEST

Lease Owner: CRUSADER RES.

Lease Name: WONGA BINDA

Well No.: 1

Test No.: 1

County/LSD:

State/Province: VICTORIA

Country: AUSTRALIA

Formation Tested: TRARALGON

Hole Temp: 84.00 F

Total Depth: 1995.00 ft

Net Pay: 7.00 ft

Gross Tested Interval: 1968.00 - 1995.00 ft

Perforated Interval (ft):

COVERY:

8 FT RAT HOLE MUD

REMARKS:

TEST PERFORMED WITH BAKER HYDROFLATE
TEST STRING.

Date: 12-APR-88 Ticket No: 330038 Page No: 1.2

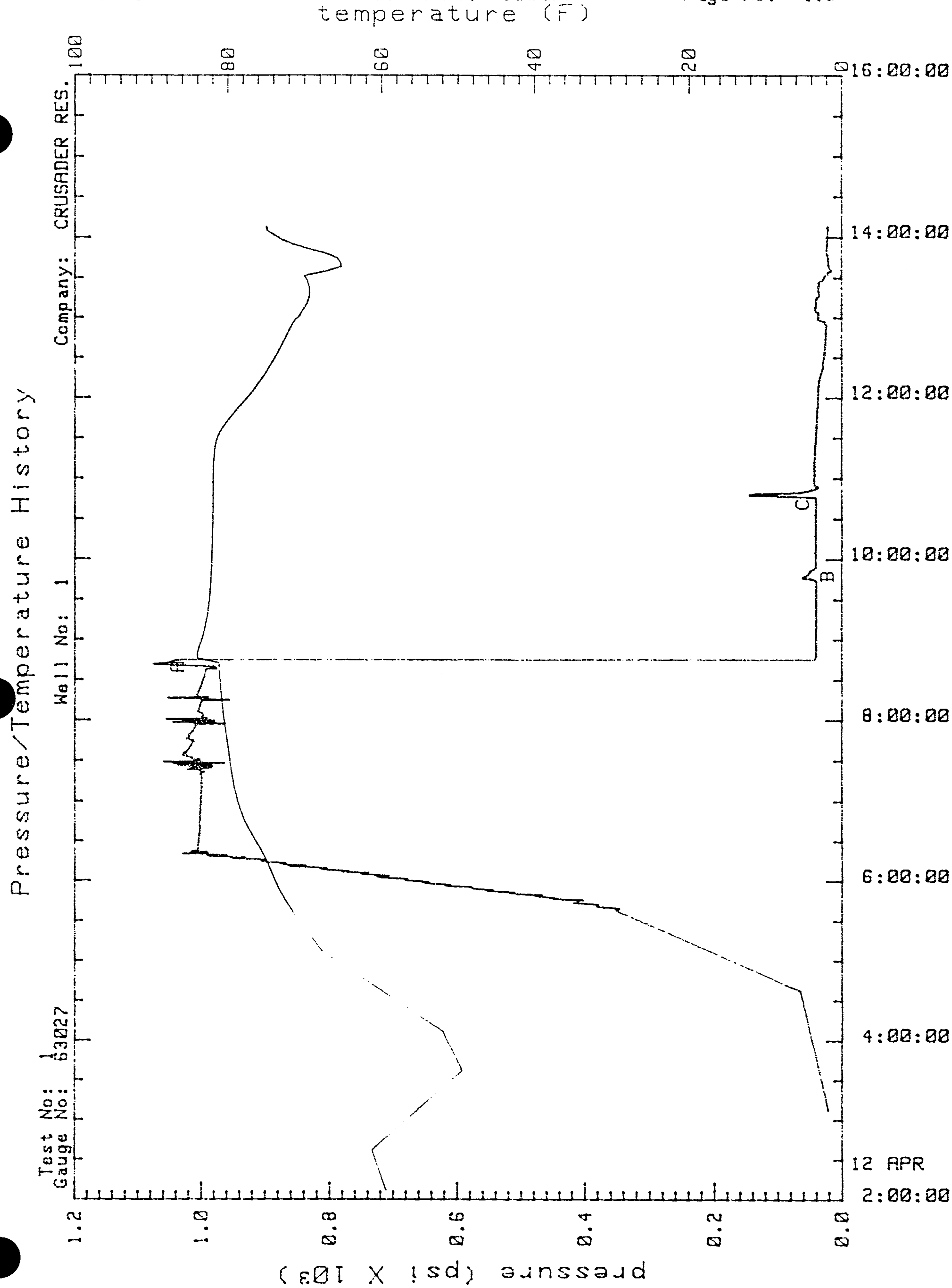
TEST PERIOD SUMMARY

Gauge No.: 63027 Depth: 1941.00 ft Blanked off: No

| ID | PERIOD | DESCRIPTION | PRESSURE (psi) | DURATION (min) |
|---|---|---|---|---|
| A | 1 | Start Draw-down | 1042.20 | |
| B | | End Draw-down | 39.55 | 60.00 |
| B | 2 | Start Build-up | 39.55 | |
| C | | End Build-up | 39.92 | 61.44 |

NOTE: for Pressure vs. Time Plot, see next page.

Date: 12-APR-88 Ticket No: 330038 Page No: 1.3



## TEST AND FORMATION DATA

Formation Tested: TRARALGON
All Depths Measured From: K.B
Elevation: 96.80 ft
Total Depth: 1995.00 ft
Net Pay: 7.00 ft
Hole or Casing Size: 8.500 in
Gross Tested Interval: 1968.00 - 1995.00 ft
Perforated Interval (ft):

### HOLE FLUID

Type: MUD
Weight: 9.40 lb/gal
Viscosity: 49 seconds

### HOLE TEMPERATURE

Depth: 1941.00 ft
Estimated: 0.00 F
Actual: 84.00 F

### HYDROCARBON PROPERTIES

Oil Gravity (API): 0.0 @ 60 F
Gas/Oil ratio (ScF/STB): 0.0
Gas Gravity (SG): 0.00

### CUSHION DATA

| TYPE | AMOUNT | WEIGHT |
|---|---|---|
| NIL | | |

### FLUID PROPERTIES FOR RECOVERED MUD AND WATER

| SOURCE | RESISTIVITY | CHLORIDES | SG | PH |
|---|---|---|---|---|
| | @ F | PPM | | |
| | @ F | PPM | | |
| | @ F | PPM | | |
| | @ F | PPM | | |
| | @ F | PPM | | |
| | @ F | PPM | | |

### SAMPLER DATA

Surface Pressure: 0 psi
Volume of Gas: 0 cc
Volume of Oil: 0 cc
Volume of Water: 0 cc
Volume of Mud: 0 cc
Total Liquids: 0 cc

REMARKS:

## TEST STRING CONFIGURATION

| | O.D. (in) | I.D. (in) | LENGTH (ft) | DEPTH (ft) |
|---|---|---|---|---|
| ELECTRONIC GAUGE RUNNING CASE... | 5.000 | 1.000 | 7.950 | 1934.20 |
| ELECTRONIC GAUGE RUNNING CASE... | 5.000 | 1.000 | 7.950 | 1941.20 |
| TOTAL DEPTH | | | | 1995.00 |

Date: 12-APR-88 Ticket No: 330038 Page No: 1.7.1
Test No: 1

OPERATOR JOB LOG

Type of Flow Measuring Device: 1/2" CHOKE

| TIME HH:MM:SS | CHOKE SIZE (in) | SURFACE PRESSURE (psi) | GAS RATE (MCF/D) | LIQUID RATE (bbl/d) | REMARKS |
|---|---|---|---|---|---|
| 12-APR-88 | | | | | |
| 03:15:00 | 32/64 | | | | MAKE UP GAUGE CARRIERS |
| 07:34:00 | 32/64 | | | | ROTATE TO PUMP UP PACKER |
| 08:45:00 | 32/64 | | | | TOOL OPEN |
| 09:45:00 | 32/64 | | | | TOOL CLOSED |
| 10:50:00 | 32/64 | | | | PULL FREE BYPASS OPEN |
| 13:00:00 | 32/64 | | | | BREAK DOWN GAUGE CARRIERS |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1

TEST PERIOD SUMMARY

Gauge No.: 63027 Depth: 1941.00 ft Blanked off: No

| ID | PERIOD | DESCRIPTION | PRESSURE (psi) | DURATION (min) |
|---|---|---|---|---|
| A | 1 | Start Draw-down | 1042.20 | |
| B | | End Draw-down | 39.55 | 60.00 |
| B | 2 | Start Build-up | 39.55 | |
| C | | End Build-up | 39.92 | 61.44 |

NOTE: for Pressure vs. Time Plot, see next page.

## PRESSURE VS TIME

[illegible] gauge no.: 63027 Gauge Depth: 1941.00 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: 2 | |
| 06:17:45 | | 930.708 | 75.1 | |
| 06:18:43 | | 992.346 | 75.2 | |
| 06:19:40 | | 960.248 | 75.2 | |
| 06:20:38 | | 1031.000 | 75.3 | |
| 06:21:36 | | | 75.4 | |
| 06:22:33 | | 1018.868 | 75.5 | |
| 06:23:31 | | 1005.912 | 75.6 | |
| 06:24:28 | | 1006.053 | 75.7 | |
| 06:25:26 | | 1005.848 | 75.8 | |
| 06:26:24 | | 1005.596 | 75.9 | |
| 06:27:21 | | 1005.297 | 76.0 | |
| 06:28:19 | | | 76.1 | |
| 06:29:16 | | 1004.722 | 76.2 | |
| 06:30:14 | | 1004.421 | 76.3 | |
| 06:31:12 | | 1004.029 | 76.4 | |
| 06:32:09 | | 1003.706 | 76.5 | |
| 06:33:07 | | 1003.475 | 76.6 | |
| 06:34:04 | | 1003.222 | 76.7 | |
| 06:35:02 | | | 76.8 | |
| 06:36:00 | | 1002.832 | 76.9 | |
| 06:36:57 | | 1002.626 | 77.0 | |
| 06:37:55 | | 1002.444 | 77.0 | |
| 06:38:52 | | 1002.402 | 77.1 | |
| 06:39:50 | | 1002.269 | 77.2 | |
| 06:40:48 | | 1002.182 | 77.3 | |
| 06:41:45 | | | 77.4 | |
| 06:42:43 | | 1002.838 | 77.5 | |
| 06:43:40 | | 1002.686 | 77.6 | |
| 06:44:38 | | 1002.510 | 77.6 | |
| 06:45:36 | | 1002.314 | 77.7 | |
| 06:46:33 | | 1002.142 | 77.8 | |
| 06:47:31 | | 1002.039 | 77.9 | |
| 06:48:28 | | | 77.9 | |
| 06:49:26 | | 1001.860 | 78.0 | |
| 06:50:24 | | 1001.761 | 78.1 | |
| 06:51:21 | | 1001.662 | 78.1 | |
| 06:52:19 | | 1001.565 | 78.2 | |
| 06:53:16 | | 1001.514 | 78.3 | |
| 06:54:14 | | 1001.394 | 78.3 | |
| 06:55:12 | | | 78.4 | |
| 06:56:09 | | 1001.273 | 78.4 | |
| 06:57:07 | | 1001.225 | 78.5 | |
| 06:58:04 | | 1001.200 | 78.5 | |
| 06:59:02 | | 1001.108 | 78.6 | |
| 07:00:00 | | 1001.063 | 78.6 | |
| 07:00:57 | | 1000.971 | 78.7 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.3

PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1941.00 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 07:01:55 | | | 78.7 | |
| 07:02:52 | | 1000.653 | 78.8 | |
| 07:03:50 | | 1000.587 | 78.8 | |
| 07:04:48 | | 1000.613 | 78.9 | |
| 07:05:45 | | 1000.501 | 78.9 | |
| 07:06:43 | | 1000.391 | 78.9 | |
| 07:07:40 | | 1000.234 | 79.0 | |
| 07:08:38 | | | 79.0 | |
| 07:09:36 | | 1000.058 | 79.1 | |
| 07:10:33 | | 999.902 | 79.1 | |
| 07:11:31 | | 999.814 | 79.1 | |
| 07:12:28 | | 999.890 | 79.2 | |
| 07:13:26 | | 999.993 | 79.2 | |
| 07:14:24 | | 1000.233 | 79.2 | |
| 07:15:21 | | | 79.3 | |
| 07:16:19 | | 1000.161 | 79.3 | |
| 07:17:16 | | 1000.377 | 79.3 | |
| 07:18:14 | | 1000.316 | 79.4 | |
| 07:19:12 | | 1000.050 | 79.4 | |
| 07:20:09 | | 1001.599 | 79.4 | |
| 07:21:07 | | 1001.058 | 79.4 | |
| 07:22:04 | | | 79.5 | |
| 07:23:02 | | 1003.788 | 79.5 | |
| 07:24:00 | | 1017.329 | 79.5 | |
| 07:24:57 | | 1016.766 | 79.5 | |
| 07:25:55 | | 981.539 | 79.6 | |
| 07:26:52 | | 1033.755 | 79.6 | |
| 07:27:50 | | 1044.764 | 79.6 | |
| 07:28:48 | | | 79.6 | |
| 07:29:45 | | 1000.655 | 79.7 | |
| 07:30:43 | | 1003.032 | 79.7 | |
| 07:31:40 | | 1015.723 | 79.7 | |
| 07:32:38 | | 1015.001 | 79.7 | |
| 07:33:36 | | 1027.310 | 79.8 | |
| 07:34:00 | | | | ROTATE TO PUMP UP PACKER |
| 07:34:33 | | 1030.405 | 79.8 | |
| 07:35:31 | | | 79.8 | |
| 07:36:28 | | 1026.223 | 79.8 | |
| 07:37:26 | | 1022.718 | 79.8 | |
| 07:38:24 | | 1020.938 | 79.9 | |
| 07:39:21 | | 1019.479 | 79.9 | |
| 07:40:19 | | 1018.180 | 79.9 | |
| 07:41:16 | | 1016.882 | 79.9 | |
| 07:42:14 | | | 80.0 | |
| 07:43:12 | | 1014.469 | 80.0 | |
| 07:44:09 | | 1013.286 | 80.0 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.4

## PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1941.00 ft
mory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 07:45:07 | | 1012.470 | 80.0 | |
| 07:46:04 | | 1022.868 | 80.1 | |
| 07:47:02 | | 1021.178 | 80.1 | |
| 07:48:00 | | 1019.786 | 80.1 | |
| 07:48:57 | | | 80.1 | |
| 07:49:55 | | 1017.855 | 80.2 | |
| 07:50:52 | | 1015.638 | 80.2 | |
| 07:51:50 | | 1013.949 | 80.2 | |
| 07:52:48 | | 1012.559 | 80.2 | |
| 07:53:45 | | 1011.491 | 80.3 | |
| 07:54:43 | | 1010.492 | 80.3 | |
| 07:55:40 | | | 80.3 | |
| 07:56:38 | | 1009.896 | 80.3 | |
| 07:57:36 | | 962.929 | 80.4 | |
| 07:58:33 | | 1046.456 | 80.4 | |
| 07:59:31 | | 979.938 | 80.4 | |
| 08:00:28 | | 1012.266 | 80.4 | |
| 08:01:26 | | 988.586 | 80.5 | |
| :02:24 | | | 80.5 | |
| :03:21 | | 998.135 | 80.5 | |
| 08:04:19 | | 998.103 | 80.5 | |
| 08:05:16 | | 998.392 | 80.5 | |
| 08:06:14 | | 1006.189 | 80.6 | |
| 08:07:12 | | 1005.169 | 80.6 | |
| 08:08:09 | | 1004.265 | 80.6 | |
| 08:09:07 | | | 80.6 | |
| 08:10:04 | | 1002.893 | 80.6 | |
| 08:11:02 | | 1002.288 | 80.7 | |
| 08:12:00 | | 1001.637 | 80.7 | |
| 08:12:57 | | 1000.963 | 80.7 | |
| 08:13:55 | | 1000.474 | 80.7 | |
| 08:14:52 | | 972.595 | 80.7 | |
| 08:15:50 | | | 80.7 | |
| 08:16:48 | | 1053.444 | 80.8 | |
| 08:17:45 | | 1005.814 | 80.8 | |
| 08:18:43 | | 1008.194 | 80.8 | |
| 08:19:40 | | 1006.487 | 80.8 | |
| 08:20:38 | | 1005.308 | 80.8 | |
| 08:21:36 | | 1004.084 | 80.9 | |
| 08:22:33 | | | 80.9 | |
| 08:23:31 | | 1002.463 | 80.9 | |
| 08:24:28 | | 1001.560 | 80.9 | |
| 08:25:26 | | 1000.819 | 80.9 | |
| 08:26:24 | | 1000.192 | 80.9 | |
| :27:21 | | 999.612 | 80.9 | |
| :28:19 | | 999.468 | 81.0 | |

PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1941.00 ft
mory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 2 |
| 08:29:16 | | | 81.0 | |
| 08:30:14 | | 997.367 | 81.0 | |
| 08:31:12 | | 996.856 | 81.0 | |
| 08:32:09 | | 996.276 | 81.0 | |
| 08:33:07 | | 995.627 | 81.0 | |
| 08:34:04 | | 995.049 | 81.0 | |
| 08:35:02 | | 994.355 | 81.0 | |
| 08:36:00 | | | 81.1 | |
| 08:36:57 | | 993.243 | 81.1 | |
| 08:37:55 | | 992.756 | 81.1 | |
| 08:38:52 | | 978.300 | 81.1 | |
| 08:39:50 | | 979.349 | 81.1 | |
| 08:40:48 | | 1054.042 | 81.1 | |
| 08:41:45 | | 1076.061 | 81.1 | |
| 08:42:43 | | | 81.2 | |
| 08:43:40 | | 1047.663 | 81.9 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.6

PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1941.00 ft
mory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 1 | | |
| | | *** Start of Period 1 *** | | |
| 08:44:38 | 0.0 | 1042.200 | 82.7 | |
| 08:45:00 | | | | TOOL OPEN |
| 08:45:07 | 0.5 | 655.337 | 83.1 | |
| 08:45:36 | 1.0 | 41.289 | 83.5 | |
| 08:46:04 | 1.4 | | 83.9 | |
| 08:46:33 | 1.9 | 40.939 | 83.9 | |
| 08:47:02 | 2.4 | 41.283 | 83.9 | |
| 08:47:31 | 2.9 | 40.802 | 83.9 | |
| 08:48:00 | 3.4 | 40.603 | 83.9 | |
| 08:48:28 | 3.8 | 40.165 | 84.0 | |
| 08:48:57 | 4.3 | 39.923 | 84.0 | |
| 08:49:26 | 4.8 | | 84.0 | |
| 08:49:55 | 5.3 | 39.841 | 83.9 | |
| 08:50:24 | 5.8 | 39.894 | 83.9 | |
| 08:50:52 | 6.2 | 39.946 | 83.9 | |
| 08:51:21 | 6.7 | 39.999 | 83.9 | |
| 08:51:50 | 7.2 | 40.029 | 83.8 | |
| :52:19 | 7.7 | 40.082 | 83.8 | |
| :52:48 | 8.2 | | 83.8 | |
| 08:53:16 | 8.6 | 40.102 | 83.8 | |
| 08:53:45 | 9.1 | 40.157 | 83.7 | |
| 08:54:14 | 9.6 | 40.146 | 83.7 | |
| 08:54:43 | 10.1 | 40.158 | 83.7 | |
| 08:55:12 | 10.6 | 40.169 | 83.7 | |
| 08:55:40 | 11.0 | 40.180 | 83.6 | |
| 08:56:09 | 11.5 | | 83.6 | |
| 08:56:38 | 12.0 | 40.159 | 83.6 | |
| 08:57:07 | 12.5 | 40.170 | 83.5 | |
| 08:57:36 | 13.0 | 40.138 | 83.5 | |
| 08:58:04 | 13.4 | 40.149 | 83.5 | |
| 08:58:33 | 13.9 | 40.138 | 83.5 | |
| 08:59:02 | 14.4 | 40.128 | 83.4 | |
| 08:59:31 | 14.9 | | 83.4 | |
| 09:00:00 | 15.4 | 40.084 | 83.4 | |
| 09:00:28 | 15.8 | 40.072 | 83.3 | |
| 09:00:57 | 16.3 | 40.082 | 83.3 | |
| 09:01:26 | 16.8 | 40.049 | 83.3 | |
| 09:01:55 | 17.3 | 40.059 | 83.3 | |
| 09:02:24 | 17.8 | 40.025 | 83.2 | |
| 09:02:52 | 18.2 | | 83.2 | |
| 09:03:21 | 18.7 | 40.022 | 83.2 | |
| 09:03:50 | 19.2 | 40.009 | 83.2 | |
| 09:04:19 | 19.7 | 39.996 | 83.1 | |
| :04:48 | 20.2 | 39.983 | 83.1 | |
| :05:16 | 20.6 | 39.970 | 83.1 | |

PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1941.00 ft
mory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 1 |
| 09:05:45 | 21.1 | 39.935 | 83.1 | |
| 09:06:14 | 21.6 | | 83.1 | |
| 09:06:43 | 22.1 | 39.930 | 83.0 | |
| 09:07:12 | 22.6 | 39.916 | 83.0 | |
| 09:07:40 | 23.0 | 39.902 | 83.0 | |
| 09:08:09 | 23.5 | 39.887 | 83.0 | |
| 09:08:38 | 24.0 | 39.873 | 83.0 | |
| 09:09:07 | 24.5 | 39.859 | 82.9 | |
| 09:09:36 | 25.0 | | 82.9 | |
| 09:10:04 | 25.4 | 39.656 | 82.9 | |
| 09:10:33 | 25.9 | 39.663 | 82.9 | |
| 09:11:02 | 26.4 | 39.692 | 82.9 | |
| 09:11:31 | 26.9 | 39.721 | 82.8 | |
| 09:12:00 | 27.4 | 39.728 | 82.8 | |
| 09:12:28 | 27.8 | 39.735 | 82.8 | |
| 09:12:57 | 28.3 | | 82.8 | |
| 09:13:26 | 28.8 | 39.769 | 82.8 | |
| 09:13:55 | 29.3 | 39.754 | 82.8 | |
| :14:24 | 29.8 | 39.760 | 82.7 | |
| :14:52 | 30.2 | 39.766 | 82.7 | |
| 09:15:21 | 30.7 | 39.772 | 82.7 | |
| 09:15:50 | 31.2 | 39.778 | 82.7 | |
| 09:16:19 | 31.7 | | 82.7 | |
| 09:16:48 | 32.2 | 39.724 | 82.7 | |
| 09:17:16 | 32.6 | 39.729 | 82.7 | |
| 09:17:45 | 33.1 | 39.713 | 82.6 | |
| 09:18:14 | 33.6 | 39.718 | 82.6 | |
| 09:18:43 | 34.1 | 39.723 | 82.6 | |
| 09:19:12 | 34.6 | 39.707 | 82.6 | |
| 09:19:40 | 35.0 | | 82.6 | |
| 09:20:09 | 35.5 | 39.695 | 82.6 | |
| 09:20:38 | 36.0 | 39.700 | 82.6 | |
| 09:21:07 | 36.5 | 39.682 | 82.6 | |
| 09:21:36 | 37.0 | 39.687 | 82.5 | |
| 09:22:04 | 37.4 | 39.757 | 82.5 | |
| 09:22:33 | 37.9 | 39.674 | 82.5 | |
| 09:23:02 | 38.4 | | 82.5 | |
| 09:23:31 | 38.9 | 39.640 | 82.5 | |
| 09:24:00 | 39.4 | 39.644 | 82.5 | |
| 09:24:28 | 39.8 | 39.626 | 82.5 | |
| 09:24:57 | 40.3 | 39.630 | 82.5 | |
| 09:25:26 | 40.8 | 39.613 | 82.4 | |
| 09:25:55 | 41.3 | 39.617 | 82.4 | |
| 09:26:24 | 41.8 | | 82.4 | |
| :26:52 | 42.2 | 39.646 | 82.4 | |
| :27:21 | 42.7 | 39.650 | 82.4 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.8

PRESSURE VS TIME

[illegible]C gauge no.: 63027 Gauge Depth: 1941.00 ft
[illegible]ory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 1 |
| 09:27:50 | 43.2 | 39.631 | 82.4 | |
| 09:28:19 | 43.7 | 39.656 | 82.4 | |
| 09:28:48 | 44.2 | 39.638 | 82.4 | |
| 09:29:16 | 44.6 | 39.642 | 82.4 | |
| 09:29:45 | 45.1 | | 82.4 | |
| 09:30:14 | 45.6 | 39.626 | 82.4 | |
| 09:30:43 | 46.1 | 39.608 | 82.4 | |
| 09:31:12 | 46.6 | 39.611 | 82.3 | |
| 09:31:40 | 47.0 | 39.636 | 82.3 | |
| 09:32:09 | 47.5 | 39.617 | 82.3 | |
| 09:32:38 | 48.0 | 39.620 | 82.3 | |
| 09:33:07 | 48.5 | | 82.3 | |
| 09:33:36 | 49.0 | 39.605 | 82.3 | |
| 09:34:04 | 49.4 | 39.585 | 82.3 | |
| 09:34:33 | 49.9 | 39.588 | 82.3 | |
| 09:35:02 | 50.4 | 39.591 | 82.3 | |
| 09:35:31 | 50.9 | 39.572 | 82.3 | |
| 09:36:00 | 51.4 | 39.574 | 82.3 | |
| [illegible]:36:28 | 51.8 | | 82.3 | |
| [illegible]36:57 | 52.3 | 39.601 | 82.3 | |
| 09:37:26 | 52.8 | 39.582 | 82.2 | |
| 09:37:55 | 53.3 | 39.585 | 82.2 | |
| 09:38:24 | 53.8 | 39.565 | 82.2 | |
| 09:38:52 | 54.2 | 39.590 | 82.2 | |
| 09:39:21 | 54.7 | 39.592 | 82.2 | |
| 09:39:50 | 55.2 | | 82.2 | |
| 09:40:19 | 55.7 | 39.597 | 82.2 | |
| 09:40:48 | 56.2 | 39.577 | 82.2 | |
| 09:41:16 | 56.6 | 39.623 | 82.2 | |
| 09:41:45 | 57.1 | 39.603 | 82.2 | |
| 09:42:14 | 57.6 | 39.605 | 82.2 | |
| 09:42:43 | 58.1 | 39.586 | 82.2 | |
| 09:43:12 | 58.6 | | 82.2 | |
| 09:43:40 | 59.0 | 39.568 | 82.2 | |
| 09:44:09 | 59.5 | 39.569 | 82.2 | |
| 09:44:38 | 60.0 | 39.549 | 82.2 | |
| 09:45:00 | | | | TOOL CLOSED |

*** End of Period 1 ***

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.9

PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1941.00 ft
mory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 1 | | |
| | | *** Start of Period 2 *** | | |
| 09:45:07 | 0.5 | 44.137 | 82.2 | |
| 09:45:36 | 1.0 | 44.008 | 82.2 | |
| 09:46:04 | 1.4 | 62.761 | 82.2 | |
| 09:46:33 | 1.9 | | 82.2 | |
| 09:47:02 | 2.4 | 59.718 | 82.1 | |
| 09:47:31 | 2.9 | 59.328 | 82.1 | |
| 09:48:00 | 3.4 | 56.307 | 82.1 | |
| 09:48:28 | 3.8 | 53.829 | 82.1 | |
| 09:48:57 | 4.3 | 52.374 | 82.1 | |
| 09:49:26 | 4.8 | 51.572 | 82.1 | |
| 09:49:55 | 5.3 | | 82.1 | |
| 09:50:24 | 5.8 | 50.423 | 82.1 | |
| 09:50:52 | 6.2 | 50.293 | 82.1 | |
| 09:51:21 | 6.7 | 50.208 | 82.1 | |
| 09:51:50 | 7.2 | 50.035 | 82.1 | |
| 09:52:19 | 7.7 | 44.730 | 82.1 | |
| 09:52:48 | 8.2 | 43.187 | 82.1 | |
| :53:16 | 8.6 | | 82.1 | |
| :53:45 | 9.1 | 41.320 | 82.1 | |
| 09:54:14 | 9.6 | 40.886 | 82.1 | |
| 09:54:43 | 10.1 | 40.387 | 82.1 | |
| 09:55:12 | 10.6 | 40.388 | 82.1 | |
| 09:55:40 | 11.0 | 40.454 | 82.1 | |
| 09:56:09 | 11.5 | 40.498 | 82.1 | |
| 09:56:38 | 12.0 | | 82.1 | |
| 09:57:07 | 12.5 | 40.544 | 82.1 | |
| 09:57:36 | 13.0 | 40.589 | 82.1 | |
| 09:58:04 | 13.4 | 40.590 | 82.1 | |
| 09:58:33 | 13.9 | 40.613 | 82.1 | |
| 09:59:02 | 14.4 | 40.614 | 82.1 | |
| 09:59:31 | 14.9 | 40.637 | 82.1 | |
| 10:00:00 | 15.4 | | 82.0 | |
| 10:00:28 | 15.8 | 40.639 | 82.0 | |
| 10:00:57 | 16.3 | 40.640 | 82.0 | |
| 10:01:26 | 16.8 | 40.663 | 82.0 | |
| 10:01:55 | 17.3 | 40.664 | 82.0 | |
| 10:02:24 | 17.8 | 40.665 | 82.0 | |
| 10:02:52 | 18.2 | 40.645 | 82.0 | |
| 10:03:21 | 18.7 | | 82.0 | |
| 10:03:50 | 19.2 | 40.647 | 82.0 | |
| 10:04:19 | 19.7 | 40.648 | 82.0 | |
| 10:04:48 | 20.2 | 40.627 | 82.0 | |
| 10:05:16 | 20.6 | 40.628 | 82.0 | |
| :05:45 | 21.1 | 40.629 | 82.0 | |
| :06:14 | 21.6 | 40.608 | 82.0 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.10

PRESSURE VS TIME

SRC gauge no.: 63027 Gauge Depth: 1941.00 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 1 |
| 10:06:43 | 22.1 | | 82.0 | |
| 10:07:12 | 22.6 | 40.610 | 82.0 | |
| 10:07:40 | 23.0 | 40.589 | 82.0 | |
| 10:08:09 | 23.5 | 40.590 | 82.0 | |
| 10:08:38 | 24.0 | 40.569 | 82.0 | |
| 10:09:07 | 24.5 | 40.592 | 82.0 | |
| 10:09:36 | 25.0 | 40.571 | 82.0 | |
| 10:10:04 | 25.4 | | 82.0 | |
| 10:10:33 | 25.9 | 40.551 | 82.0 | |
| 10:11:02 | 26.4 | 40.552 | 82.0 | |
| 10:11:31 | 26.9 | 40.531 | 82.0 | |
| 10:12:00 | 27.4 | 40.510 | 82.0 | |
| 10:12:28 | 27.8 | 40.533 | 82.0 | |
| 10:12:57 | 28.3 | 40.490 | 82.0 | |
| 10:13:26 | 28.8 | | 82.0 | |
| 10:13:55 | 29.3 | 40.492 | 82.0 | |
| 10:14:24 | 29.8 | 40.471 | 82.0 | |
| 10:14:52 | 30.2 | 40.472 | 82.0 | |
| 10:15:21 | 30.7 | 40.473 | 82.0 | |
| 10:15:50 | 31.2 | 40.452 | 82.0 | |
| 10:16:19 | 31.7 | 40.453 | 82.0 | |
| 10:16:48 | 32.2 | | 82.0 | |
| 10:17:16 | 32.6 | 40.433 | 82.0 | |
| 10:17:45 | 33.1 | 40.412 | 82.0 | |
| 10:18:14 | 33.6 | 40.413 | 82.0 | |
| 10:18:43 | 34.1 | 40.436 | 82.0 | |
| 10:19:12 | 34.6 | 40.393 | 82.0 | |
| 10:19:40 | 35.0 | 40.394 | 82.0 | |
| 10:20:09 | 35.5 | | 81.9 | |
| 10:20:38 | 36.0 | 40.374 | 81.9 | |
| 10:21:07 | 36.5 | 40.375 | 81.9 | |
| 10:21:36 | 37.0 | 40.332 | 81.9 | |
| 10:22:04 | 37.4 | 40.355 | 81.9 | |
| 10:22:33 | 37.9 | 40.334 | 81.9 | |
| 10:23:02 | 38.4 | 40.313 | 81.9 | |
| 10:23:31 | 38.9 | | 81.9 | |
| 10:24:00 | 39.4 | 40.293 | 81.9 | |
| 10:24:28 | 39.8 | 40.293 | 81.9 | |
| 10:24:57 | 40.3 | 40.294 | 81.9 | |
| 10:25:26 | 40.8 | 40.273 | 81.9 | |
| 10:25:55 | 41.3 | 40.252 | 81.9 | |
| 10:26:24 | 41.8 | 40.252 | 81.9 | |
| 10:26:52 | 42.2 | | 81.9 | |
| 10:27:21 | 42.7 | 40.232 | 81.9 | |
| 10:27:50 | 43.2 | 40.211 | 81.9 | |
| 10:28:19 | 43.7 | 40.211 | 81.9 | |

PRESSURE VS TIME

GRC gauge no.: 63027 Gauge Depth: 1941.00 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 1 | | |
| 10:28:48 | 44.2 | 40.190 | 81.9 | |
| 10:29:16 | 44.6 | 40.191 | 81.9 | |
| 10:29:45 | 45.1 | 40.191 | 81.9 | |
| 10:30:14 | 45.6 | | 81.9 | |
| 10:30:43 | 46.1 | 40.149 | 81.9 | |
| 10:31:12 | 46.6 | 40.149 | 81.9 | |
| 10:31:40 | 47.0 | 40.193 | 81.9 | |
| 10:32:09 | 47.5 | 40.172 | 81.9 | |
| 10:32:38 | 48.0 | 40.151 | 81.9 | |
| 10:33:07 | 48.5 | 40.129 | 81.9 | |
| 10:33:36 | 49.0 | | 81.9 | |
| 10:34:04 | 49.4 | 40.108 | 81.9 | |
| 10:34:33 | 49.9 | 40.087 | 81.9 | |
| 10:35:02 | 50.4 | 40.087 | 81.9 | |
| 10:35:31 | 50.9 | 40.088 | 81.9 | |
| 10:36:00 | 51.4 | 40.066 | 81.9 | |
| 10:36:28 | 51.8 | 40.067 | 81.9 | |
| 10:36:57 | 52.3 | | 81.9 | |
| 10:37:26 | 52.8 | 40.046 | 81.9 | |
| 10:37:55 | 53.3 | 40.046 | 81.9 | |
| 10:38:24 | 53.8 | 40.047 | 81.9 | |
| 10:38:52 | 54.2 | 40.025 | 81.9 | |
| 10:39:21 | 54.7 | 40.004 | 81.9 | |
| 10:39:50 | 55.2 | 40.004 | 81.9 | |
| 10:40:19 | 55.7 | | 81.9 | |
| 10:40:48 | 56.2 | 39.983 | 81.9 | |
| 10:41:16 | 56.6 | 39.984 | 81.9 | |
| 10:41:45 | 57.1 | 39.984 | 81.9 | |
| 10:42:14 | 57.6 | 39.963 | 81.9 | |
| 10:42:43 | 58.1 | 39.963 | 81.9 | |
| 10:43:12 | 58.6 | 39.941 | 81.9 | |
| 10:43:40 | 59.0 | | 81.9 | |
| 10:44:09 | 59.5 | 39.942 | 81.9 | |
| 10:44:38 | 60.0 | 39.920 | 81.9 | |
| 10:45:07 | 60.5 | 39.920 | 81.9 | |
| 10:45:36 | 61.0 | 39.921 | 81.9 | |
| 10:46:04 | 61.4 | 39.921 | 81.9 | |
| | | *** End of Period 2 *** | | |
| | | Data Print Frequency: 2 | | |
| 10:46:33 | | 75.149 | 81.9 | |
| 10:47:31 | | 145.494 | 81.9 | |
| 10:48:28 | | 102.050 | 81.9 | |
| 10:49:26 | | 80.510 | 81.9 | |
| 10:50:00 | | | | PULL FREE BYPASS OPEN |
| 10:50:24 | | | 81.9 | |
| 10:51:21 | | 49.600 | 81.9 | |

PRESSURE VS TIME

SRC gauge no.: 63027 Gauge Depth: 1941.00 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 2 |
| 10:52:19 | | 41.728 | 81.9 | |
| 10:53:16 | | 38.468 | 81.9 | |
| 10:54:14 | | 36.968 | 81.9 | |
| 10:55:12 | | 42.381 | 81.9 | |
| 10:56:09 | | 42.295 | 81.9 | |
| 10:57:07 | | | 81.9 | |
| 10:58:04 | | 42.252 | 81.9 | |
| 10:59:02 | | 42.274 | 81.9 | |
| 11:00:00 | | 42.253 | 81.9 | |
| 11:00:57 | | 42.275 | 81.9 | |
| 11:01:55 | | 42.276 | 81.9 | |
| 11:02:52 | | 42.125 | 81.9 | |
| 11:03:50 | | | 81.9 | |
| 11:04:48 | | 42.148 | 81.9 | |
| 11:05:45 | | 42.128 | 81.9 | |
| 11:06:43 | | 42.108 | 81.8 | |
| 11:07:40 | | 42.240 | 81.8 | |
| 11:08:38 | | 42.134 | 81.8 | |
| 11:09:36 | | 42.115 | 81.8 | |
| 11:10:33 | | | 81.8 | |
| 11:11:31 | | 42.078 | 81.8 | |
| 11:12:28 | | 42.061 | 81.8 | |
| 11:13:26 | | 42.044 | 81.8 | |
| 11:14:24 | | 41.875 | 81.8 | |
| 11:15:21 | | 41.967 | 81.8 | |
| 11:16:19 | | 41.951 | 81.7 | |
| 11:17:16 | | | 81.7 | |
| 11:18:14 | | 41.766 | 81.7 | |
| 11:19:12 | | 41.555 | 81.7 | |
| 11:20:09 | | 41.604 | 81.7 | |
| 11:21:07 | | 41.394 | 81.7 | |
| 11:22:04 | | 41.359 | 81.7 | |
| 11:23:02 | | 41.150 | 81.6 | |
| 11:24:00 | | | 81.6 | |
| 11:24:57 | | 40.912 | 81.6 | |
| 11:25:55 | | 40.839 | 81.5 | |
| 11:26:52 | | 40.615 | 81.5 | |
| 11:27:50 | | 40.633 | 81.5 | |
| 11:28:48 | | 40.350 | 81.4 | |
| 11:29:45 | | 40.371 | 81.3 | |
| 11:30:43 | | | 81.3 | |
| 11:31:40 | | 40.031 | 81.2 | |
| 11:32:38 | | 39.910 | 81.1 | |
| 11:33:36 | | 39.767 | 81.1 | |
| 11:34:33 | | 39.562 | 81.0 | |
| 11:35:31 | | 39.406 | 80.9 | |

PRESSURE VS TIME

[illegible]C gauge no.: 63027 Gauge Depth: 1941.00 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 11:36:28 | | 39.293 | 80.8 | |
| 11:37:26 | | | 80.7 | |
| 11:38:24 | | 39.031 | 80.6 | |
| 11:39:21 | | 38.904 | 80.4 | |
| 11:40:19 | | 38.734 | 80.3 | |
| 11:41:16 | | 38.675 | 80.2 | |
| 11:42:14 | | 38.620 | 80.1 | |
| 11:43:12 | | 38.456 | 79.9 | |
| 11:44:09 | | | 79.8 | |
| 11:45:07 | | 38.240 | 79.6 | |
| 11:46:04 | | 38.101 | 79.5 | |
| 11:47:02 | | 37.983 | 79.4 | |
| 11:48:00 | | 37.845 | 79.2 | |
| 11:48:57 | | 37.751 | 79.1 | |
| 11:49:55 | | 37.809 | 78.9 | |
| 11:50:52 | | | 78.8 | |
| 11:51:50 | | 37.578 | 78.6 | |
| 11:52:48 | | 37.507 | 78.5 | |
| 11:53:45 | | 37.413 | 78.3 | |
| 11:54:43 | | 37.277 | 78.2 | |
| 11:55:40 | | 37.227 | 78.0 | |
| 11:56:38 | | 37.112 | 77.9 | |
| 11:57:36 | | | 77.8 | |
| 11:58:33 | | 36.904 | 77.6 | |
| 11:59:31 | | 36.831 | 77.5 | |
| 12:00:28 | | 36.759 | 77.3 | |
| 12:01:26 | | 36.664 | 77.2 | |
| 12:02:24 | | 36.547 | 77.0 | |
| 12:03:21 | | 36.430 | 76.9 | |
| 12:04:19 | | | 76.8 | |
| 12:05:16 | | 36.258 | 76.6 | |
| 12:06:14 | | 36.116 | 76.5 | |
| 12:07:12 | | 36.127 | 76.4 | |
| 12:08:09 | | 36.027 | 76.2 | |
| 12:09:07 | | 35.970 | 76.1 | |
| 12:10:04 | | 35.739 | 76.0 | |
| 12:11:02 | | | 75.9 | |
| 12:12:00 | | 35.426 | 75.8 | |
| 12:12:57 | | 35.366 | 75.6 | |
| 12:13:55 | | 34.284 | 75.5 | |
| 12:14:52 | | 34.005 | 75.4 | |
| 12:15:50 | | 33.725 | 75.3 | |
| 12:16:48 | | 32.467 | 75.2 | |
| 12:17:45 | | | 75.1 | |
| 12:18:43 | | 31.860 | 75.0 | |
| 12:19:40 | | 31.229 | 74.9 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.14

PRESSURE VS TIME

CPC gauge no.: 63027 Gauge Depth: 1941.00 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 12:20:38 | | 30.664 | 74.8 | |
| 12:21:36 | | 30.077 | 74.7 | |
| 12:22:33 | | 29.685 | 74.6 | |
| 12:23:31 | | 29.271 | 74.5 | |
| 12:24:28 | | | 74.4 | |
| 12:25:26 | | 28.987 | 74.3 | |
| 12:26:24 | | 29.008 | 74.2 | |
| 12:27:21 | | 28.725 | 74.0 | |
| 12:28:19 | | 28.180 | 73.9 | |
| 12:29:16 | | 27.742 | 73.9 | |
| 12:30:14 | | 27.500 | 73.8 | |
| 12:31:12 | | | 73.7 | |
| 12:32:09 | | 27.035 | 73.6 | |
| 12:33:07 | | 26.790 | 73.5 | |
| 12:34:04 | | 26.654 | 73.4 | |
| 12:35:02 | | 26.257 | 73.3 | |
| 12:36:00 | | 26.099 | 73.2 | |
| 12:36:57 | | 25.810 | 73.1 | |
| 12:37:55 | | | 73.0 | |
| 12:38:52 | | 25.384 | 73.0 | |
| 12:39:50 | | 25.333 | 72.9 | |
| 12:40:48 | | 25.239 | 72.8 | |
| 12:41:45 | | 25.015 | 72.7 | |
| 12:42:43 | | 24.833 | 72.6 | |
| 12:43:40 | | 24.478 | 72.5 | |
| 12:44:38 | | | 72.4 | |
| 12:45:36 | | 24.590 | 72.4 | |
| 12:46:33 | | 24.666 | 72.3 | |
| 12:47:31 | | 24.743 | 72.2 | |
| 12:48:28 | | 24.755 | 72.1 | |
| 12:49:26 | | 24.789 | 72.0 | |
| 12:50:24 | | 24.758 | 72.0 | |
| 12:51:21 | | | 71.9 | |
| 12:52:19 | | 24.071 | 71.8 | |
| 12:53:16 | | 23.784 | 71.7 | |
| 12:54:14 | | 23.692 | 71.6 | |
| 12:55:12 | | 23.473 | 71.5 | |
| 12:56:09 | | 26.145 | 71.4 | |
| 12:57:07 | | 26.341 | 71.3 | |
| 12:58:04 | | | 71.2 | |
| 12:59:02 | | 37.873 | 71.0 | |
| 13:00:00 | | | | BREAK DOWN GAUGE CARRIERS |
| 13:00:00 | | 38.103 | 70.9 | |
| 13:00:57 | | 36.157 | 70.7 | |
| 13:01:55 | | 36.084 | 70.5 | |
| 13:02:52 | | 36.034 | 70.5 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.1.15

PRESSURE VS TIME

GRC gauge no.: 63027 Gauge Depth: 1941.00 ft

Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 13:03:50 | | 37.571 | 70.4 | |
| 13:04:48 | | | 70.3 | |
| 13:05:45 | | 41.157 | 70.2 | |
| 13:06:43 | | 41.075 | 70.1 | |
| 13:07:40 | | 40.797 | 70.0 | |
| 13:08:38 | | 40.536 | 69.9 | |
| 13:09:36 | | 40.467 | 69.8 | |
| 13:10:33 | | 40.398 | 69.7 | |
| 13:11:31 | | | 69.6 | |
| 13:12:28 | | 40.397 | 69.5 | |
| 13:13:26 | | 40.379 | 69.5 | |
| 13:14:24 | | 40.273 | 69.4 | |
| 13:15:21 | | 38.507 | 69.4 | |
| 13:16:19 | | 36.232 | 69.4 | |
| 13:17:16 | | 35.435 | 69.3 | |
| 13:18:14 | | | 69.3 | |
| 13:19:12 | | 35.854 | 69.3 | |
| 13:20:09 | | 36.546 | 69.3 | |
| 13:21:07 | | 36.413 | 69.3 | |
| 13:22:04 | | 36.360 | 69.4 | |
| 13:23:02 | | 36.323 | 69.4 | |
| 13:24:00 | | 35.916 | 69.4 | |
| 13:24:57 | | | 69.5 | |
| 13:25:55 | | 35.439 | 69.5 | |
| 13:26:52 | | 35.413 | 69.6 | |
| 13:27:50 | | 30.517 | 69.6 | |
| 13:28:48 | | 30.439 | 69.7 | |
| 13:29:45 | | 28.485 | 69.8 | |
| 13:30:43 | | 27.053 | 69.9 | |
| 13:31:40 | | | 70.0 | |
| 13:32:38 | | 21.868 | 69.2 | |
| 13:33:36 | | 22.050 | 68.4 | |
| 13:34:33 | | 21.105 | 67.6 | |
| 13:35:31 | | 15.066 | 66.9 | |
| 13:36:28 | | 17.943 | 66.3 | |
| 13:37:26 | | 19.714 | 65.8 | |
| 13:38:24 | | | 65.2 | |
| 13:39:21 | | 20.380 | 65.2 | |
| 13:40:19 | | 20.774 | 65.3 | |
| 13:41:16 | | 21.125 | 65.3 | |
| 13:42:14 | | 21.390 | 65.4 | |
| 13:43:12 | | 21.439 | 65.5 | |
| 13:44:09 | | 21.402 | 65.7 | |
| 13:45:07 | | | 65.8 | |
| 13:46:04 | | 21.163 | 66.3 | |
| 13:47:02 | | 22.309 | 66.7 | |

PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1941.00 ft
ory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 13:48:00 | | 23.412 | 67.2 | |
| 13:48:57 | | 23.544 | 67.7 | |
| 13:49:55 | | 23.248 | 68.3 | |
| 13:50:52 | | 23.148 | 68.9 | |
| 13:51:50 | | | 69.6 | |
| 13:52:48 | | 23.202 | 70.1 | |
| 13:53:45 | | 23.028 | 70.7 | |
| 13:54:43 | | 22.790 | 71.2 | |
| 13:55:40 | | 22.625 | 71.7 | |
| 13:56:38 | | 22.599 | 72.1 | |
| 13:57:36 | | 22.486 | 72.6 | |
| 13:58:33 | | | 73.0 | |
| 13:59:31 | | 21.895 | 73.2 | |
| 14:00:28 | | 21.742 | 73.5 | |
| 14:01:26 | | 22.241 | 73.8 | |
| 14:02:24 | | 22.346 | 74.0 | |
| 14:03:21 | | 21.623 | 74.3 | |
| 14:04:19 | | 21.725 | 74.6 | |
| :05:16 | | | 74.9 | |
| 06:14 | | 21.415 | 74.9 | |
| 14:07:12 | | 21.523 | 74.9 | |
| 14:08:09 | | 21.219 | 74.9 | |

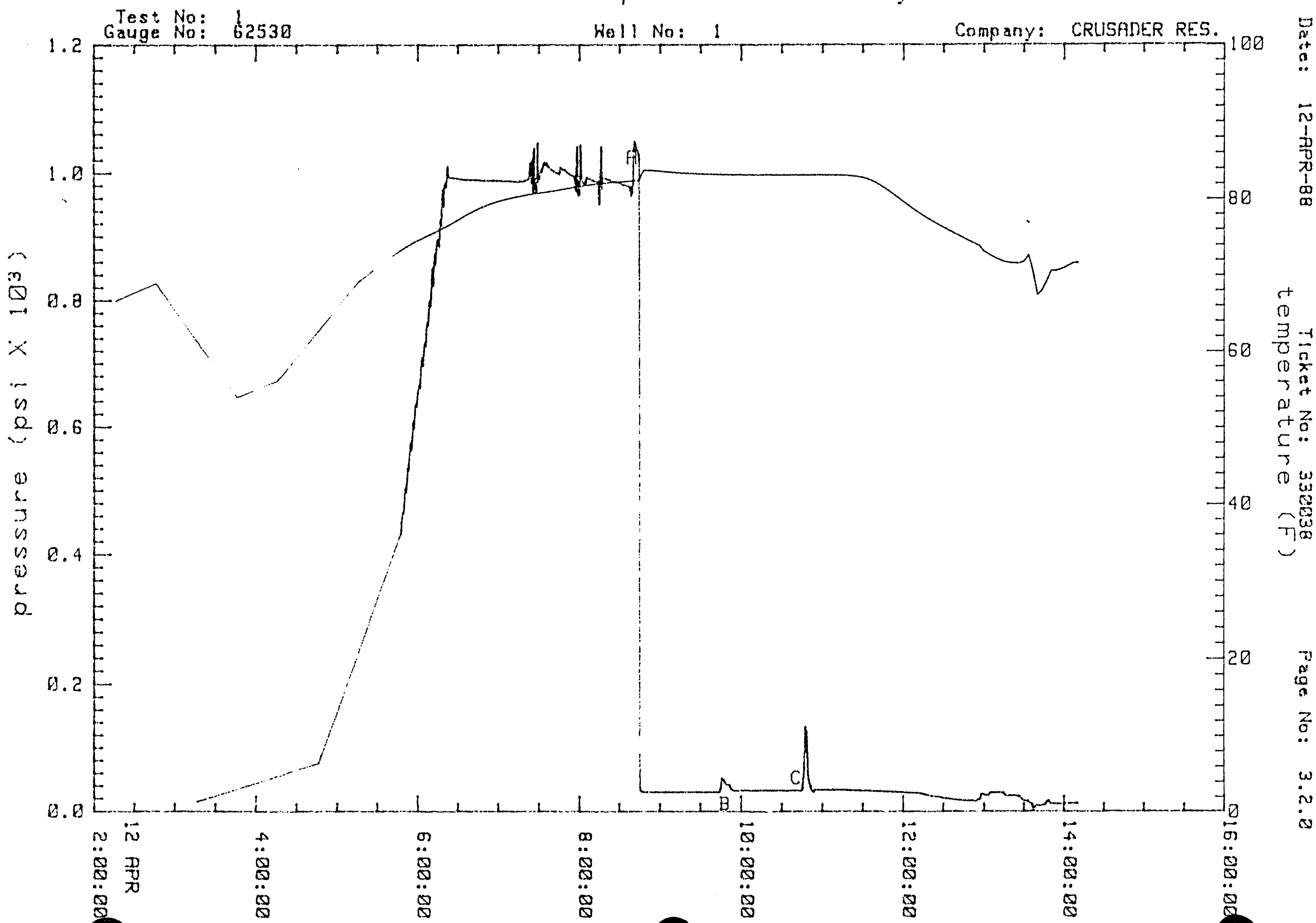
TEST PERIOD SUMMARY

Gauge No.: 62530 Depth: 1934.00 ft Blanked off: No

| ID | PERIOD | DESCRIPTION | PRESSURE (psi) | DURATION (min) |
|---|---|---|---|---|
| A | 1 | Start Draw-down | 1029.05 | |
| B | | End Draw-down | 30.15 | 60.00 |
| B | 2 | Start Build-up | 30.15 | |
| C | | End Build-up | 32.34 | 60.96 |

NOTE: for Pressure vs. Time Plot, see next page.

# Pressure/Temperature History



Date: 12-APR-88 Ticket No: 330038 Page No: 3.2.1

PRESSURE VS TIME

[illegible]C gauge no.: 62530 Gauge Depth: 1934.00 ft
[illegible]mory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: | | 2 |
| 02:46:30 | | | 69.1 | |
| 03:15:00 | | | | MAKE UP GAUGE CARRIERS |
| 03:46:30 | | | 54.0 | |
| 04:46:30 | | 76.359 | 62.7 | |
| 05:46:30 | | | 73.3 | |
| 05:47:28 | | 431.882 | 73.4 | |
| 05:48:25 | | 456.725 | 73.5 | |
| 05:49:23 | | 464.439 | 73.6 | |
| 05:50:20 | | | 73.7 | |
| 05:51:18 | | 497.886 | 73.8 | |
| 05:52:16 | | 519.848 | 73.9 | |
| 05:53:13 | | 531.237 | 74.0 | |
| 05:54:11 | | 557.093 | 74.1 | |
| 05:55:08 | | 564.034 | 74.2 | |
| 05:56:06 | | 585.457 | 74.3 | |
| 05:57:04 | | | 74.4 | |
| 05:58:01 | | 617.595 | 74.4 | |
| 05:58:59 | | 631.399 | 74.5 | |
| 05:59:56 | | 652.403 | 74.6 | |
| [illegible]:00:54 | | 665.806 | 74.7 | |
| 06:01:52 | | 660.347 | 74.8 | |
| 06:02:49 | | 710.222 | 74.9 | |
| 06:03:47 | | | 75.0 | |
| 06:04:44 | | 730.068 | 75.0 | |
| 06:05:42 | | 727.622 | 75.1 | |
| 06:06:40 | | 764.568 | 75.2 | |
| 06:07:37 | | 759.504 | 75.3 | |
| 06:08:35 | | 799.431 | 75.3 | |
| 06:09:32 | | 791.121 | 75.4 | |
| 06:10:30 | | | 75.5 | |
| 06:11:28 | | 823.060 | 75.6 | |
| 06:12:25 | | 860.694 | 75.7 | |
| 06:13:23 | | 854.781 | 75.7 | |
| 06:14:20 | | 891.080 | 75.8 | |
| 06:15:18 | | 886.333 | 75.9 | |
| 06:16:16 | | 883.503 | 76.0 | |
| 06:17:13 | | | 76.1 | |
| 06:18:11 | | 959.258 | 76.2 | |
| 06:19:08 | | 946.659 | 76.2 | |
| 06:20:06 | | 983.900 | 76.3 | |
| 06:21:04 | | 976.929 | 76.4 | |
| 06:22:01 | | 993.644 | 76.5 | |
| 06:22:59 | | 998.079 | 76.6 | |
| 06:23:56 | | | 76.7 | |
| 06:24:54 | | 992.956 | 76.8 | |
| [illegible]25:52 | | 992.799 | 76.9 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.2.2

PRESSURE VS TIME

C gauge no.: 62530 Gauge Depth: 1934.00 ft
mory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 06:26:49 | | 992.391 | 77.0 | |
| 06:27:47 | | 992.026 | 77.1 | |
| 06:28:44 | | 991.662 | 77.2 | |
| 06:29:42 | | 991.423 | 77.3 | |
| 06:30:40 | | | 77.4 | |
| 06:31:37 | | 990.578 | 77.5 | |
| 06:32:35 | | 990.306 | 77.6 | |
| 06:33:32 | | 989.992 | 77.7 | |
| 06:34:30 | | 989.759 | 77.8 | |
| 06:35:28 | | 989.565 | 77.9 | |
| 06:36:25 | | 989.412 | 78.0 | |
| 06:37:23 | | | 78.1 | |
| 06:38:20 | | 989.141 | 78.2 | |
| 06:39:18 | | 989.149 | 78.2 | |
| 06:40:16 | | 988.990 | 78.3 | |
| 06:41:13 | | 988.953 | 78.4 | |
| 06:42:11 | | 989.622 | 78.5 | |
| 06:43:08 | | 989.540 | 78.6 | |
| :44:06 | | | 78.7 | |
| :45:04 | | 989.201 | 78.8 | |
| 06:46:01 | | 989.027 | 78.8 | |
| 06:46:59 | | 988.811 | 78.9 | |
| 06:47:56 | | 988.675 | 79.0 | |
| 06:48:54 | | 988.537 | 79.1 | |
| 06:49:52 | | 988.439 | 79.1 | |
| 06:50:49 | | | 79.2 | |
| 06:51:47 | | 988.198 | 79.3 | |
| 06:52:44 | | 988.137 | 79.3 | |
| 06:53:42 | | 988.118 | 79.4 | |
| 06:54:40 | | 988.053 | 79.5 | |
| 06:55:37 | | 988.068 | 79.5 | |
| 06:56:35 | | 988.040 | 79.6 | |
| 06:57:32 | | | 79.6 | |
| 06:58:30 | | 987.981 | 79.7 | |
| 06:59:28 | | 987.992 | 79.7 | |
| 07:00:25 | | 987.919 | 79.8 | |
| 07:01:23 | | 987.760 | 79.8 | |
| 07:02:20 | | 987.723 | 79.9 | |
| 07:03:18 | | 987.561 | 79.9 | |
| 07:04:16 | | | 80.0 | |
| 07:05:13 | | 987.526 | 80.0 | |
| 07:06:11 | | 987.444 | 80.1 | |
| 07:07:08 | | 987.363 | 80.1 | |
| 07:08:06 | | 987.153 | 80.2 | |
| :09:04 | | 987.025 | 80.2 | |
| :10:01 | | 986.897 | 80.2 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.2.3

PRESSURE VS TIME

CRC gauge no.: 62530
Memory Recorder No.: 65478

Gauge Depth: 1934.00 ft

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 07:10:59 | | | 80.3 | |
| 07:11:56 | | 986.846 | 80.3 | |
| 07:12:54 | | 986.839 | 80.4 | |
| 07:13:52 | | 987.125 | 80.4 | |
| 07:14:49 | | 987.285 | 80.4 | |
| 07:15:47 | | 987.235 | 80.5 | |
| 07:16:44 | | 987.227 | 80.5 | |
| 07:17:42 | | | 80.5 | |
| 07:18:40 | | 987.206 | 80.6 | |
| 07:19:37 | | 988.823 | 80.6 | |
| 07:20:35 | | 988.352 | 80.6 | |
| 07:21:32 | | 987.128 | 80.6 | |
| 07:22:30 | | 991.041 | 80.7 | |
| 07:23:28 | | 1018.063 | 80.7 | |
| 07:24:25 | | | 80.7 | |
| 07:25:23 | | 1022.842 | 80.8 | |
| 07:26:20 | | 1023.745 | 80.8 | |
| 07:27:18 | | 970.131 | 80.8 | |
| 07:28:16 | | 970.907 | 80.8 | |
| 07:29:13 | | 1048.034 | 80.9 | |
| 07:30:11 | | 990.744 | 80.9 | |
| 07:31:08 | | | 80.9 | |
| 07:32:06 | | 1006.164 | 80.9 | |
| 07:33:04 | | 1007.941 | 81.0 | |
| 07:34:00 | | | | ROTATE TO PUMP UP PACKER |
| 07:34:01 | | 1017.033 | 81.0 | |
| 07:34:59 | | 1011.079 | 81.0 | |
| 07:35:56 | | 1015.197 | 81.0 | |
| 07:36:54 | | 1009.911 | 81.0 | |
| 07:37:52 | | | 81.1 | |
| 07:38:49 | | 1006.322 | 81.1 | |
| 07:39:47 | | 1004.968 | 81.1 | |
| 07:40:44 | | 1003.613 | 81.1 | |
| 07:41:42 | | 1002.386 | 81.2 | |
| 07:42:40 | | 1001.119 | 81.2 | |
| 07:43:37 | | 999.851 | 81.2 | |
| 07:44:35 | | | 81.3 | |
| 07:45:32 | | 998.031 | 81.3 | |
| 07:46:30 | | 1007.171 | 81.3 | |
| 07:47:28 | | 1005.907 | 81.3 | |
| 07:48:25 | | 1004.642 | 81.4 | |
| 07:49:23 | | 1005.758 | 81.4 | |
| 07:50:20 | | 1002.487 | 81.4 | |
| 07:51:18 | | | 81.5 | |
| 07:52:16 | | 999.161 | 81.5 | |
| 07:53:13 | | 997.895 | 81.5 | |

PRESSURE VS TIME

C gauge no.: 62530 Gauge Depth: 1934.00 ft
mory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: | 2 | |
| 07:54:11 | | 996.921 | 81.6 | |
| 07:55:08 | | 995.904 | 81.6 | |
| 07:56:06 | | 994.971 | 81.6 | |
| 07:57:04 | | 972.575 | 81.6 | |
| 07:58:01 | | | 81.7 | |
| 07:58:59 | | 963.867 | 81.7 | |
| 07:59:56 | | 965.355 | 81.7 | |
| 08:00:54 | | 1045.022 | 81.8 | |
| 08:01:52 | | 989.121 | 81.8 | |
| 08:02:49 | | 984.382 | 81.8 | |
| 08:03:47 | | 984.111 | 81.8 | |
| 08:04:44 | | | 81.8 | |
| 08:05:42 | | 993.636 | 81.9 | |
| 08:06:40 | | 991.821 | 81.9 | |
| 08:07:37 | | 990.884 | 81.9 | |
| 08:08:35 | | 989.987 | 81.9 | |
| 08:09:32 | | 988.839 | 82.0 | |
| 08:10:30 | | 988.401 | 82.0 | |
| :11:28 | | | 82.0 | |
| :12:25 | | 987.188 | 82.0 | |
| 08:13:23 | | 986.496 | 82.0 | |
| 08:14:20 | | 987.099 | 82.1 | |
| 08:15:18 | | 949.847 | 82.1 | |
| 08:16:16 | | 1033.855 | 82.1 | |
| 08:17:13 | | 973.501 | 82.1 | |
| 08:18:11 | | | 82.1 | |
| 08:19:08 | | 992.910 | 82.2 | |
| 08:20:06 | | 991.507 | 82.2 | |
| 08:21:04 | | 990.439 | 82.2 | |
| 08:22:01 | | 989.286 | 82.2 | |
| 08:22:59 | | 988.592 | 82.2 | |
| 08:23:56 | | 987.480 | 82.2 | |
| 08:24:54 | | | 82.3 | |
| 08:25:52 | | 986.091 | 82.3 | |
| 08:26:49 | | 985.563 | 82.3 | |
| 08:27:47 | | 985.119 | 82.3 | |
| 08:28:44 | | 984.089 | 82.3 | |
| 08:29:42 | | 983.477 | 82.3 | |
| 08:30:40 | | 982.947 | 82.3 | |
| 08:31:37 | | | 82.4 | |
| 08:32:35 | | 981.637 | 82.4 | |
| 08:33:32 | | 981.065 | 82.4 | |
| 08:34:30 | | 980.367 | 82.4 | |
| 08:35:28 | | 979.920 | 82.4 | |
| :36:25 | | 979.348 | 82.4 | |
| :37:23 | | 978.902 | 82.4 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.2.5

PRESSURE VS TIME

C gauge no.: 62530 Gauge Depth: 1934.00 ft
ory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 2 |
| 08:38:20 | | | 82.4 | |
| 08:39:18 | | 964.530 | 82.5 | |
| 08:40:16 | | 982.284 | 82.5 | |
| 08:41:13 | | 1049.297 | 82.5 | |
| 08:42:11 | | 1043.954 | 82.5 | |
| 08:43:08 | | 1035.556 | 82.5 | |
| 08:44:06 | | 1029.795 | 82.5 | |

## PRESSURE VS TIME

C gauge no.: 62530 Gauge Depth: 1934.00 ft
ory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 1 | | |
| | | *** Start of Period 1 *** | | |
| 08:44:35 | 0.0 | 1029.047 | 82.5 | |
| 08:45:00 | | | | TOOL OPEN |
| 08:45:04 | 0.5 | | 82.5 | |
| 08:45:32 | 1.0 | 37.603 | 82.7 | |
| 08:46:01 | 1.4 | 32.927 | 82.9 | |
| 08:46:30 | 1.9 | 31.939 | 83.1 | |
| 08:46:59 | 2.4 | 31.114 | 83.3 | |
| 08:47:28 | 2.9 | 30.572 | 83.5 | |
| 08:47:56 | 3.4 | 30.475 | 83.7 | |
| 08:48:25 | 3.8 | | 83.8 | |
| 08:48:54 | 4.3 | 30.335 | 83.8 | |
| 08:49:23 | 4.8 | 30.292 | 83.8 | |
| 08:49:52 | 5.3 | 30.288 | 83.8 | |
| 08:50:20 | 5.8 | 30.285 | 83.8 | |
| 08:50:49 | 6.2 | 30.323 | 83.8 | |
| 08:51:18 | 6.7 | 30.360 | 83.8 | |
| 08:51:47 | 7.2 | | 83.8 | |
| :52:16 | 7.7 | 30.391 | 83.8 | |
| 52:44 | 8.2 | 30.425 | 83.8 | |
| 08:53:13 | 8.6 | 30.419 | 83.8 | |
| 08:53:42 | 9.1 | 30.453 | 83.8 | |
| 08:54:11 | 9.6 | 30.446 | 83.8 | |
| 08:54:40 | 10.1 | 30.480 | 83.8 | |
| 08:55:08 | 10.6 | | 83.8 | |
| 08:55:37 | 11.0 | 30.507 | 83.8 | |
| 08:56:06 | 11.5 | 30.500 | 83.8 | |
| 08:56:35 | 12.0 | 30.493 | 83.8 | |
| 08:57:04 | 12.5 | 30.486 | 83.7 | |
| 08:57:32 | 13.0 | 30.520 | 83.7 | |
| 08:58:01 | 13.4 | 30.513 | 83.7 | |
| 08:58:30 | 13.9 | | 83.7 | |
| 08:58:59 | 14.4 | 30.538 | 83.7 | |
| 08:59:28 | 14.9 | 30.489 | 83.7 | |
| 08:59:56 | 15.4 | 30.521 | 83.7 | |
| 09:00:25 | 15.8 | 30.513 | 83.7 | |
| 09:00:54 | 16.3 | 30.505 | 83.7 | |
| 09:01:23 | 16.8 | 30.496 | 83.7 | |
| 09:01:52 | 17.3 | | 83.7 | |
| 09:02:20 | 17.8 | 30.480 | 83.7 | |
| 09:02:49 | 18.2 | 30.471 | 83.7 | |
| 09:03:18 | 18.7 | 30.463 | 83.6 | |
| 09:03:47 | 19.2 | 30.495 | 83.6 | |
| 09:04:16 | 19.7 | 30.487 | 83.6 | |
| :04:44 | 20.2 | 30.479 | 83.6 | |
| 05:13 | 20.6 | | 83.6 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.2.7

PRESSURE VS TIME

[illegible]C gauge no.: 62530 Gauge Depth: 1934.00 ft
[illegible]mory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 1 | | |
| 09:05:42 | 21.1 | 30.463 | 83.6 | |
| 09:06:11 | 21.6 | 30.536 | 83.6 | |
| 09:06:40 | 22.1 | 30.447 | 83.6 | |
| 09:07:08 | 22.6 | 30.439 | 83.6 | |
| 09:07:37 | 23.0 | 30.431 | 83.6 | |
| 09:08:06 | 23.5 | 30.463 | 83.6 | |
| 09:08:35 | 24.0 | | 83.6 | |
| 09:09:04 | 24.5 | 30.449 | 83.5 | |
| 09:09:32 | 25.0 | 30.483 | 83.5 | |
| 09:10:01 | 25.4 | 30.395 | 83.5 | |
| 09:10:30 | 25.9 | 30.348 | 83.5 | |
| 09:10:59 | 26.4 | 30.341 | 83.5 | |
| 09:11:28 | 26.9 | 30.375 | 83.5 | |
| 09:11:56 | 27.4 | | 83.5 | |
| 09:12:25 | 27.8 | 30.361 | 83.5 | |
| 09:12:54 | 28.3 | 30.354 | 83.5 | |
| 09:13:23 | 28.8 | 30.348 | 83.5 | |
| 09:13:52 | 29.3 | 30.381 | 83.5 | |
| [illegible]:14:20 | 29.8 | 30.334 | 83.5 | |
| [illegible]:14:49 | 30.2 | 30.327 | 83.5 | |
| 09:15:18 | 30.7 | | 83.5 | |
| 09:15:47 | 31.2 | 30.356 | 83.5 | |
| 09:16:16 | 31.7 | 30.310 | 83.5 | |
| 09:16:44 | 32.2 | 30.304 | 83.4 | |
| 09:17:13 | 32.6 | 30.339 | 83.4 | |
| 09:17:42 | 33.1 | 30.293 | 83.4 | |
| 09:18:11 | 33.6 | 30.328 | 83.4 | |
| 09:18:40 | 34.1 | | 83.4 | |
| 09:19:08 | 34.6 | 30.277 | 83.4 | |
| 09:19:37 | 35.0 | 30.272 | 83.4 | |
| 09:20:06 | 35.5 | 30.308 | 83.4 | |
| 09:20:35 | 36.0 | 30.303 | 83.4 | |
| 09:21:04 | 36.5 | 30.298 | 83.4 | |
| 09:21:32 | 37.0 | 30.253 | 83.4 | |
| 09:22:01 | 37.4 | | 83.4 | |
| 09:22:30 | 37.9 | 30.243 | 83.4 | |
| 09:22:59 | 38.4 | 30.280 | 83.4 | |
| 09:23:28 | 38.9 | 30.275 | 83.4 | |
| 09:23:56 | 39.4 | 30.231 | 83.4 | |
| 09:24:25 | 39.8 | 30.267 | 83.4 | |
| 09:24:54 | 40.3 | 30.222 | 83.4 | |
| 09:25:23 | 40.8 | | 83.4 | |
| 09:25:52 | 41.3 | 30.255 | 83.4 | |
| 09:26:20 | 41.8 | 30.211 | 83.4 | |
| [illegible]:26:49 | 42.2 | 30.207 | 83.3 | |
| [illegible]:27:18 | 42.7 | 30.244 | 83.3 | |

PRESSURE VS TIME

C gauge no.: 62530 Gauge Depth: 1934.00 ft
ory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 1 | | |
| 09:27:47 | 43.2 | 30.200 | 83.3 | |
| 09:28:16 | 43.7 | 30.197 | 83.3 | |
| 09:28:44 | 44.2 | | 83.3 | |
| 09:29:13 | 44.6 | 30.230 | 83.3 | |
| 09:29:42 | 45.1 | 30.227 | 83.3 | |
| 09:30:11 | 45.6 | 30.182 | 83.3 | |
| 09:30:40 | 46.1 | 30.179 | 83.3 | |
| 09:31:08 | 46.6 | 30.216 | 83.3 | |
| 09:31:37 | 47.0 | 30.171 | 83.3 | |
| 09:32:06 | 47.5 | | 83.3 | |
| 09:32:35 | 48.0 | 30.165 | 83.3 | |
| 09:33:04 | 48.5 | 30.162 | 83.3 | |
| 09:33:32 | 49.0 | 30.199 | 83.3 | |
| 09:34:01 | 49.4 | 30.155 | 83.3 | |
| 09:34:30 | 49.9 | 30.193 | 83.3 | |
| 09:34:59 | 50.4 | 30.149 | 83.3 | |
| 09:35:28 | 50.9 | | 83.3 | |
| 09:35:56 | 51.4 | 30.144 | 83.3 | |
| 09:36:25 | 51.8 | 30.142 | 83.3 | |
| 09:36:54 | 52.3 | 30.139 | 83.3 | |
| 09:37:23 | 52.8 | 30.177 | 83.3 | |
| 09:37:52 | 53.3 | 30.135 | 83.3 | |
| 09:38:20 | 53.8 | 30.132 | 83.3 | |
| 09:38:49 | 54.2 | | 83.3 | |
| 09:39:18 | 54.7 | 30.128 | 83.3 | |
| 09:39:47 | 55.2 | 30.167 | 83.3 | |
| 09:40:16 | 55.7 | 30.165 | 83.3 | |
| 09:40:44 | 56.2 | 30.122 | 83.3 | |
| 09:41:13 | 56.6 | 30.161 | 83.3 | |
| 09:41:42 | 57.1 | 30.118 | 83.3 | |
| 09:42:11 | 57.6 | | 83.3 | |
| 09:42:40 | 58.1 | 30.155 | 83.3 | |
| 09:43:08 | 58.6 | 30.153 | 83.3 | |
| 09:43:37 | 59.0 | 30.110 | 83.3 | |
| 09:44:06 | 59.5 | 30.149 | 83.3 | |
| 09:44:35 | 60.0 | 30.147 | 83.2 | |
| 09:45:00 | | | | TOOL CLOSED |

*** End of Period 1 ***

PRESSURE VS TIME

GRC gauge no.: 62530 Gauge Depth: 1934.00 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 1 | | |
| | | *** Start of Period 2 *** | | |
| 09:45:04 | 0.5 | 35.698 | 83.2 | |
| 09:45:32 | 1.0 | | 83.2 | |
| 09:46:01 | 1.4 | 53.492 | 83.2 | |
| 09:46:30 | 1.9 | 50.772 | 83.2 | |
| 09:46:59 | 2.4 | 50.363 | 83.2 | |
| 09:47:28 | 2.9 | 50.238 | 83.2 | |
| 09:47:56 | 3.4 | 47.517 | 83.2 | |
| 09:48:25 | 3.8 | 45.041 | 83.2 | |
| 09:48:54 | 4.3 | | 83.2 | |
| 09:49:23 | 4.8 | 43.009 | 83.2 | |
| 09:49:52 | 5.3 | 42.035 | 83.2 | |
| 09:50:20 | 5.8 | 41.790 | 83.2 | |
| 09:50:49 | 6.2 | 41.708 | 83.2 | |
| 09:51:18 | 6.7 | 41.666 | 83.2 | |
| 09:51:47 | 7.2 | 41.625 | 83.2 | |
| 09:52:16 | 7.7 | | 83.2 | |
| 09:52:44 | 8.2 | 35.745 | 83.2 | |
| 09:53:13 | 8.6 | 34.448 | 83.2 | |
| 09:53:42 | 9.1 | 33.718 | 83.2 | |
| 09:54:11 | 9.6 | 33.312 | 83.2 | |
| 09:54:40 | 10.1 | 32.826 | 83.2 | |
| 09:55:08 | 10.6 | 32.785 | 83.2 | |
| 09:55:37 | 11.0 | | 83.2 | |
| 09:56:06 | 11.5 | 32.865 | 83.2 | |
| 09:56:35 | 12.0 | 32.905 | 83.2 | |
| 09:57:04 | 12.5 | 32.904 | 83.2 | |
| 09:57:32 | 13.0 | 32.944 | 83.2 | |
| 09:58:01 | 13.4 | 32.943 | 83.2 | |
| 09:58:30 | 13.9 | 32.942 | 83.2 | |
| 09:58:59 | 14.4 | | 83.2 | |
| 09:59:28 | 14.9 | 32.981 | 83.2 | |
| 09:59:56 | 15.4 | 32.980 | 83.2 | |
| 10:00:25 | 15.8 | 33.020 | 83.2 | |
| 10:00:54 | 16.3 | 33.019 | 83.2 | |
| 10:01:23 | 16.8 | 32.978 | 83.2 | |
| 10:01:52 | 17.3 | 32.977 | 83.2 | |
| 10:02:20 | 17.8 | | 83.2 | |
| 10:02:49 | 18.2 | 33.016 | 83.2 | |
| 10:03:18 | 18.7 | 33.015 | 83.2 | |
| 10:03:47 | 19.2 | 33.014 | 83.2 | |
| 10:04:16 | 19.7 | 33.013 | 83.2 | |
| 10:04:44 | 20.2 | 33.012 | 83.2 | |
| 10:05:13 | 20.6 | 33.011 | 83.2 | |
| 10:05:42 | 21.1 | | 83.2 | |
| 10:06:11 | 21.6 | 32.969 | 83.2 | |

PRESSURE VS TIME

GRC gauge no.: 62530 Gauge Depth: 1934.00 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 1 |
| 10:06:40 | 22.1 | 33.009 | 83.2 | |
| 10:07:08 | 22.6 | 33.009 | 83.2 | |
| 10:07:37 | 23.0 | 32.968 | 83.2 | |
| 10:08:06 | 23.5 | 32.967 | 83.2 | |
| 10:08:35 | 24.0 | 32.966 | 83.2 | |
| 10:09:04 | 24.5 | | 83.2 | |
| 10:09:32 | 25.0 | 32.965 | 83.2 | |
| 10:10:01 | 25.4 | 32.964 | 83.2 | |
| 10:10:30 | 25.9 | 32.923 | 83.2 | |
| 10:10:59 | 26.4 | 32.922 | 83.2 | |
| 10:11:28 | 26.9 | 32.921 | 83.2 | |
| 10:11:56 | 27.4 | 32.960 | 83.2 | |
| 10:12:25 | 27.8 | | 83.2 | |
| 10:12:54 | 28.3 | 32.918 | 83.2 | |
| 10:13:23 | 28.8 | 32.918 | 83.2 | |
| 10:13:52 | 29.3 | 32.877 | 83.2 | |
| 10:14:20 | 29.8 | 32.917 | 83.2 | |
| 10:14:49 | 30.2 | 32.875 | 83.2 | |
| 10:15:18 | 30.7 | 32.834 | 83.2 | |
| 10:15:47 | 31.2 | | 83.2 | |
| 10:16:16 | 31.7 | 32.874 | 83.2 | |
| 10:16:44 | 32.2 | 32.833 | 83.2 | |
| 10:17:13 | 32.6 | 32.833 | 83.2 | |
| 10:17:42 | 33.1 | 32.873 | 83.2 | |
| 10:18:11 | 33.6 | 32.833 | 83.2 | |
| 10:18:40 | 34.1 | 32.792 | 83.2 | |
| 10:19:08 | 34.6 | | 83.2 | |
| 10:19:37 | 35.0 | 32.791 | 83.2 | |
| 10:20:06 | 35.5 | 32.831 | 83.2 | |
| 10:20:35 | 36.0 | 32.790 | 83.2 | |
| 10:21:04 | 36.5 | 32.749 | 83.2 | |
| 10:21:32 | 37.0 | 32.789 | 83.2 | |
| 10:22:01 | 37.4 | 32.789 | 83.2 | |
| 10:22:30 | 37.9 | | 83.2 | |
| 10:22:59 | 38.4 | 32.748 | 83.2 | |
| 10:23:28 | 38.9 | 32.747 | 83.2 | |
| 10:23:56 | 39.4 | 32.747 | 83.2 | |
| 10:24:25 | 39.8 | 32.747 | 83.2 | |
| 10:24:54 | 40.3 | 32.706 | 83.2 | |
| 10:25:23 | 40.8 | 32.706 | 83.2 | |
| 10:25:52 | 41.3 | | 83.2 | |
| 10:26:20 | 41.8 | 32.665 | 83.2 | |
| 10:26:49 | 42.2 | 32.665 | 83.2 | |
| 10:27:18 | 42.7 | 32.665 | 83.2 | |
| 10:27:47 | 43.2 | 32.665 | 83.2 | |
| 10:28:16 | 43.7 | 32.624 | 83.2 | |

PRESSURE VS TIME

[illegible]C gauge no.: 62530 Gauge Depth: 1934.00 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 1 | | |
| 10:28:44 | 44.2 | 32.624 | 83.2 | |
| 10:29:13 | 44.6 | | 83.2 | |
| 10:29:42 | 45.1 | 32.583 | 83.2 | |
| 10:30:11 | 45.6 | 32.624 | 83.2 | |
| 10:30:40 | 46.1 | 32.623 | 83.2 | |
| 10:31:08 | 46.6 | 32.583 | 83.2 | |
| 10:31:37 | 47.0 | 32.582 | 83.2 | |
| 10:32:06 | 47.5 | 32.582 | 83.2 | |
| 10:32:35 | 48.0 | | 83.2 | |
| 10:33:04 | 48.5 | 32.542 | 83.2 | |
| 10:33:32 | 49.0 | 32.542 | 83.2 | |
| 10:34:01 | 49.4 | 32.542 | 83.2 | |
| 10:34:30 | 49.9 | 32.543 | 83.2 | |
| 10:34:59 | 50.4 | 32.502 | 83.2 | |
| 10:35:28 | 50.9 | 32.503 | 83.2 | |
| 10:35:56 | 51.4 | | 83.2 | |
| 10:36:25 | 51.8 | 32.503 | 83.2 | |
| 10:36:54 | 52.3 | 32.503 | 83.2 | |
| 10:37:23 | 52.8 | 32.503 | 83.2 | |
| 10:37:52 | 53.3 | 32.503 | 83.2 | |
| 10:38:20 | 53.8 | 32.462 | 83.2 | |
| 10:38:49 | 54.2 | 32.503 | 83.2 | |
| 10:39:18 | 54.7 | | 83.2 | |
| 10:39:47 | 55.2 | 32.462 | 83.2 | |
| 10:40:16 | 55.7 | 32.462 | 83.2 | |
| 10:40:44 | 56.2 | 32.422 | 83.2 | |
| 10:41:13 | 56.6 | 32.462 | 83.2 | |
| 10:41:42 | 57.1 | 32.422 | 83.2 | |
| 10:42:11 | 57.6 | 32.381 | 83.2 | |
| 10:42:40 | 58.1 | | 83.2 | |
| 10:43:08 | 58.6 | 32.422 | 83.2 | |
| 10:43:37 | 59.0 | 32.381 | 83.2 | |
| 10:44:06 | 59.5 | 32.381 | 83.2 | |
| 10:44:35 | 60.0 | 32.381 | 83.2 | |
| 10:45:04 | 60.5 | 32.381 | 83.2 | |
| 10:45:32 | 61.0 | 32.341 | 83.2 | |
| | | *** End of Period 2 *** | | |
| | | Data Print Frequency: 2 | | |
| 10:46:01 | | | 83.2 | |
| 10:46:59 | | 65.432 | 83.2 | |
| 10:47:56 | | 134.644 | 83.2 | |
| 10:48:54 | | 127.326 | 83.2 | |
| 10:49:52 | | 58.293 | 83.2 | |
| 10:50:00 | | | | PULL FREE BYPASS OPEN |
| 10:50:49 | | 45.030 | 83.2 | |
| 10:51:47 | | 40.285 | 83.2 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.2.12

PRESSURE VS TIME

GRC gauge no.: 62530
Memory Recorder No.: 65478

Gauge Depth: 1934.00 ft

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 2 |
| 10:52:44 | | | 83.2 | |
| 10:53:42 | | 30.881 | 83.2 | |
| 10:54:40 | | 33.922 | 83.2 | |
| 10:55:37 | | 33.802 | 83.2 | |
| 10:56:35 | | 33.803 | 83.2 | |
| 10:57:32 | | 33.803 | 83.2 | |
| 10:58:30 | | 33.804 | 83.2 | |
| 10:59:28 | | | 83.2 | |
| 11:00:25 | | 33.844 | 83.2 | |
| 11:01:23 | | 33.803 | 83.2 | |
| 11:02:20 | | 33.762 | 83.2 | |
| 11:03:18 | | 33.721 | 83.2 | |
| 11:04:16 | | 33.761 | 83.2 | |
| 11:05:13 | | 33.801 | 83.2 | |
| 11:06:11 | | | 83.2 | |
| 11:07:08 | | 33.758 | 83.2 | |
| 11:08:06 | | 33.837 | 83.2 | |
| 11:09:04 | | 33.794 | 83.2 | |
| 11:10:01 | | 33.832 | 83.2 | |
| 11:10:59 | | 33.827 | 83.2 | |
| 11:11:56 | | 33.822 | 83.2 | |
| 11:12:54 | | | 83.1 | |
| 11:13:52 | | 33.728 | 83.1 | |
| 11:14:49 | | 33.801 | 83.1 | |
| 11:15:47 | | 33.752 | 83.1 | |
| 11:16:44 | | 33.662 | 83.1 | |
| 11:17:42 | | 33.651 | 83.1 | |
| 11:18:40 | | 33.599 | 83.1 | |
| 11:19:37 | | | 83.1 | |
| 11:20:35 | | 33.414 | 83.1 | |
| 11:21:32 | | 33.320 | 83.1 | |
| 11:22:30 | | 33.266 | 83.0 | |
| 11:23:28 | | 33.088 | 83.0 | |
| 11:24:25 | | 33.069 | 83.0 | |
| 11:25:23 | | 32.887 | 83.0 | |
| 11:26:20 | | | 83.0 | |
| 11:27:18 | | 32.915 | 82.9 | |
| 11:28:16 | | 32.841 | 82.9 | |
| 11:29:13 | | 32.726 | 82.9 | |
| 11:30:11 | | 32.685 | 82.8 | |
| 11:31:08 | | 32.595 | 82.8 | |
| 11:32:06 | | 32.425 | 82.7 | |
| 11:33:04 | | | 82.7 | |
| 11:34:01 | | 32.270 | 82.6 | |
| 11:34:59 | | 32.286 | 82.6 | |
| 11:35:56 | | 32.180 | 82.5 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.2.13

PRESSURE VS TIME

GRC gauge no.: 62530 Gauge Depth: 1934.00 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 2 |
| 11:36:54 | | 32.105 | 82.4 | |
| 11:37:52 | | 32.021 | 82.3 | |
| 11:38:49 | | 31.977 | 82.2 | |
| 11:39:47 | | | 82.2 | |
| 11:40:44 | | 31.793 | 82.1 | |
| 11:41:42 | | 31.734 | 82.0 | |
| 11:42:40 | | 31.635 | 81.9 | |
| 11:43:37 | | 31.529 | 81.8 | |
| 11:44:35 | | 31.457 | 81.7 | |
| 11:45:32 | | 31.345 | 81.5 | |
| 11:46:30 | | | 81.4 | |
| 11:47:28 | | 31.071 | 81.3 | |
| 11:48:25 | | 31.032 | 81.2 | |
| 11:49:23 | | 30.870 | 81.1 | |
| 11:50:20 | | 30.869 | 81.0 | |
| 11:51:18 | | 30.785 | 80.8 | |
| 11:52:16 | | 30.579 | 80.7 | |
| 11:53:13 | | | 80.6 | |
| 11:54:11 | | 30.408 | 80.5 | |
| 11:55:08 | | 30.280 | 80.3 | |
| 11:56:06 | | 30.232 | 80.2 | |
| 11:57:04 | | 30.104 | 80.1 | |
| 11:58:01 | | 30.057 | 80.0 | |
| 11:58:59 | | 29.848 | 79.8 | |
| 11:59:56 | | | 79.7 | |
| 12:00:54 | | 29.671 | 79.6 | |
| 12:01:52 | | 29.543 | 79.5 | |
| 12:02:49 | | 29.373 | 79.3 | |
| 12:03:47 | | 29.286 | 79.2 | |
| 12:04:44 | | 29.161 | 79.1 | |
| 12:05:42 | | 28.995 | 79.0 | |
| 12:06:40 | | | 78.8 | |
| 12:07:37 | | 28.828 | 78.7 | |
| 12:08:35 | | 28.705 | 78.6 | |
| 12:09:32 | | 28.623 | 78.5 | |
| 12:10:30 | | 28.461 | 78.4 | |
| 12:11:28 | | 28.343 | 78.2 | |
| 12:12:25 | | 28.184 | 78.1 | |
| 12:13:23 | | | 78.0 | |
| 12:14:20 | | 27.263 | 77.9 | |
| 12:15:18 | | 26.907 | 77.8 | |
| 12:16:16 | | 26.632 | 77.7 | |
| 12:17:13 | | 25.670 | 77.6 | |
| 12:18:11 | | 25.279 | 77.5 | |
| 12:19:08 | | 24.807 | 77.4 | |
| 12:20:06 | | | 77.3 | |

PRESSURE VS TIME

GRC gauge no.: 62530 Gauge Depth: 1934.00 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 12:21:04 | | 23.789 | 77.2 | |
| 12:22:01 | | 23.243 | 77.1 | |
| 12:22:59 | | 22.900 | 77.0 | |
| 12:23:56 | | 22.556 | 76.9 | |
| 12:24:54 | | 22.334 | 76.8 | |
| 12:25:52 | | 22.193 | 76.7 | |
| 12:26:49 | | | 76.6 | |
| 12:27:47 | | 21.751 | 76.5 | |
| 12:28:44 | | 21.247 | 76.4 | |
| 12:29:42 | | 20.744 | 76.3 | |
| 12:30:40 | | 20.445 | 76.2 | |
| 12:31:37 | | 20.148 | 76.1 | |
| 12:32:35 | | 19.932 | 76.0 | |
| 12:33:32 | | | 75.9 | |
| 12:34:30 | | 19.420 | 75.8 | |
| 12:35:28 | | 19.043 | 75.8 | |
| 12:36:25 | | 18.707 | 75.7 | |
| 12:37:23 | | 18.453 | 75.6 | |
| 12:38:20 | | 18.241 | 75.5 | |
| 12:39:18 | | 17.988 | 75.4 | |
| 12:40:16 | | | 75.3 | |
| 12:41:13 | | 17.603 | 75.2 | |
| 12:42:11 | | 17.389 | 75.1 | |
| 12:43:08 | | 17.216 | 75.1 | |
| 12:44:06 | | 16.883 | 75.0 | |
| 12:45:04 | | 16.674 | 74.9 | |
| 12:46:01 | | 16.546 | 74.8 | |
| 12:46:59 | | | 74.7 | |
| 12:47:56 | | 16.451 | 74.6 | |
| 12:48:54 | | 16.443 | 74.5 | |
| 12:49:52 | | 16.394 | 74.5 | |
| 12:50:49 | | 16.347 | 74.4 | |
| 12:51:47 | | 16.464 | 74.3 | |
| 12:52:44 | | 16.216 | 74.2 | |
| 12:53:42 | | | 74.1 | |
| 12:54:40 | | 15.807 | 74.1 | |
| 12:55:37 | | 18.118 | 74.0 | |
| 12:56:35 | | 18.362 | 73.9 | |
| 12:57:32 | | 18.287 | 73.8 | |
| 12:58:30 | | 26.893 | 73.5 | |
| 12:59:28 | | 27.066 | 73.3 | |
| 13:00:00 | | | | BREAK DOWN GAUGE CARRIERS |
| 13:00:25 | | | 73.1 | |
| 13:01:23 | | 25.519 | 73.0 | |
| 13:02:20 | | 25.542 | 72.9 | |
| 13:03:18 | | 25.485 | 72.8 | |

Date: 12-APR-88 Ticket No: 330038 Page No: 3.2.15

PRESSURE VS TIME

GRC gauge no.: 62530 Gauge Depth: 1934.00 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 2 |
| 13:04:16 | | 25.423 | 72.7 | |
| 13:05:13 | | 29.696 | 72.6 | |
| 13:06:11 | | 29.710 | 72.5 | |
| 13:07:08 | | | 72.4 | |
| 13:08:06 | | 29.555 | 72.3 | |
| 13:09:04 | | 29.466 | 72.2 | |
| 13:10:01 | | 29.459 | 72.2 | |
| 13:10:59 | | 29.336 | 72.1 | |
| 13:11:56 | | 29.261 | 72.0 | |
| 13:12:54 | | 29.186 | 71.9 | |
| 13:13:52 | | | 71.9 | |
| 13:14:49 | | 28.857 | 71.8 | |
| 13:15:47 | | 26.577 | 71.8 | |
| 13:16:44 | | 24.945 | 71.7 | |
| 13:17:42 | | 24.460 | 71.7 | |
| 13:18:40 | | 24.392 | 71.7 | |
| 13:19:37 | | 24.973 | 71.6 | |
| 13:20:35 | | | 71.6 | |
| 13:21:32 | | 24.775 | 71.6 | |
| 13:22:30 | | 24.646 | 71.6 | |
| 13:23:28 | | 24.638 | 71.6 | |
| 13:24:25 | | 24.359 | 71.6 | |
| 13:25:23 | | 23.606 | 71.6 | |
| 13:26:20 | | 23.582 | 71.6 | |
| 13:27:18 | | | 71.6 | |
| 13:28:16 | | 19.602 | 71.7 | |
| 13:29:13 | | 17.309 | 71.8 | |
| 13:30:11 | | 16.272 | 71.8 | |
| 13:31:08 | | 16.022 | 72.0 | |
| 13:32:06 | | 14.775 | 72.2 | |
| 13:33:04 | | 17.257 | 72.4 | |
| 13:34:01 | | | 72.7 | |
| 13:34:59 | | 12.214 | 72.0 | |
| 13:35:56 | | 11.457 | 71.4 | |
| 13:36:54 | | 3.118 | 70.8 | |
| 13:37:52 | | -0.271 | 70.0 | |
| 13:38:49 | | 8.301 | 69.2 | |
| 13:39:47 | | 9.452 | 68.3 | |
| 13:40:44 | | | 67.5 | |
| 13:41:42 | | 9.435 | 67.6 | |
| 13:42:40 | | 9.690 | 67.8 | |
| 13:43:37 | | 10.025 | 67.9 | |
| 13:44:35 | | 10.329 | 68.2 | |
| 13:45:32 | | 10.480 | 68.5 | |
| 13:46:30 | | 11.036 | 68.8 | |
| 13:47:28 | | | 69.2 | |

PRESSURE VS TIME

GRC gauge no.: 62530 Gauge Depth: 1934.00 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: 2 | | |
| 13:48:25 | | 16.764 | 69.6 | |
| 13:49:23 | | 13.096 | 70.0 | |
| 13:50:20 | | 11.860 | 70.4 | |
| 13:51:18 | | 11.718 | 70.6 | |
| 13:52:16 | | 11.779 | 70.6 | |
| 13:53:13 | | 11.677 | 70.6 | |
| 13:54:11 | | | 70.6 | |
| 13:55:08 | | 11.464 | 70.7 | |
| 13:56:06 | | 11.230 | 70.7 | |
| 13:57:04 | | 11.442 | 70.8 | |
| 13:58:01 | | 11.620 | 70.8 | |
| 13:58:59 | | 11.886 | 70.9 | |
| 13:59:56 | | 11.949 | 70.9 | |
| 14:00:54 | | | 71.0 | |
| 14:01:52 | | 12.442 | 71.1 | |
| 14:02:49 | | 12.305 | 71.2 | |
| 14:03:47 | | 12.127 | 71.3 | |
| 14:04:44 | | 12.713 | 71.4 | |
| 14:05:42 | | 12.726 | 71.5 | |
| 14:06:40 | | 12.577 | 71.6 | |
| 14:07:37 | | | 71.7 | |
| 14:08:35 | | 12.388 | 71.7 | |
| 14:09:32 | | 12.671 | 71.7 | |
| 14:10:30 | | 12.753 | 71.7 | |
| 14:10:59 | | | 71.7 | |

# HARVEST

HALLIBURTON RESERVOIR EVALUATION SYSTEM

| | | |
|---|---|---|
| Lease Owner | : | CRUSADER RES. |
| Country | : | AUSTRALIA |
| Lease | : | WONGA BINDA |
| Well No. | : | 1 |
| Test No. | : | 2 |
| Test Date | : | 13-APR-88 |
| Ticket No. | : | 330039 |

HALLIBURTON
SERVICES

REPORT TICKET NO: 330039
MEMORY GAUGE TICKET NO: 330039
DATE: 13-APR-88
HALLIBURTON CAMP: SALE
TESTER: W.FARRELLY /I.HOVELL
WITNESS: E.BATT

DRILLING CONTRACTOR: ACTO #7
LEGAL LOCATION:

OPERATOR: CRUSADER RES.
LEASE NAME: WONGA BINDA
WELL NO: 1
TEST NO: 2
TESTED INTERVAL: 1936.00 - 1998.00 ft

FIELD AREA: GIPPSLAND BASIN
COUNTY/LSD:
STATE/PROVINCE: VICTORIA
COUNTRY: AUSTRALIA

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SECTION 2: ANALYSIS

| | |
|---|---|
| Plots | 2.1 |

SECTION 3: MEMORY GAUGE DATA

| | | |
|---|---|---|
| Gauge No. | 63027 | 3.1 |
| Gauge No. | 62530 | 3.2 |

Date: 13-APR-88 Ticket No: 330039 Page No: 1.1

SUMMARY OF TEST

Lease Owner: CRUSADER RES.

Lease Name: WONGA BINDA

Well No.: 1

Test No.: 2

County/LSD:

State/Province: VICTORIA

Country: AUSTRALIA

Formation Tested: TRARALGON

Hole Temp: 82.00 F

Total Depth: 1998.00 ft

Net Pay: 10.00 ft

Gross Tested Interval: 1936.00 - 1998.00 ft

Perforated Interval (ft):

RECOVERY:

300 ft WATER CUSHION
249 ft RAT HOLE MUD

REMARKS:

TEST PERFORMED WITH BAKER HYDROFLATE
TEST STRING.

Date: 13-APR-88 Ticket No: 330039 Page No: 1.2

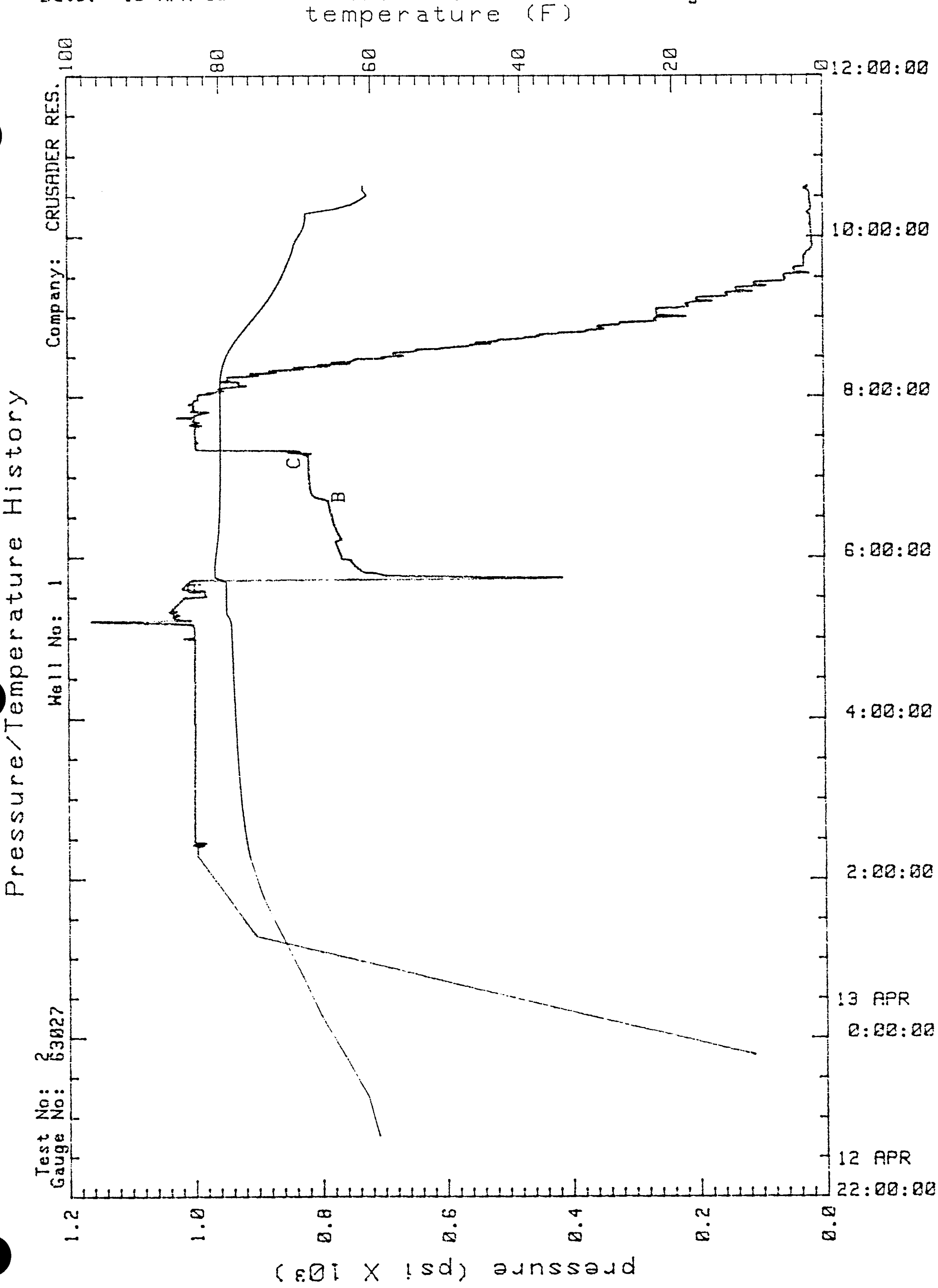
TEST PERIOD SUMMARY

Gauge No.: 63027 Depth: 1915.60 ft Blanked off: No

| ID | PERIOD | DESCRIPTION | PRESSURE (psi) | DURATION (min) |
|---|---|---|---|---|
| A | 1 | Start Draw-down | 1003.75 | |
| B | | End Draw-down | 788.75 | 59.52 |
| B | 2 | Start Build-up | 788.75 | |
| C | | End Build-up | 820.00 | 33.60 |

NOTE: for Pressure vs. Time Plot, see next page.

Date: 13-APR-88 Ticket No: 330039 Page No: 1.3



## TEST AND FORMATION DATA

Formation Tested: TRARALGON
All Depths Measured From: K.B.
Elevation: 96.80 ft
Total Depth: 1998.00 ft
Net Pay: 10.00 ft
Hole or Casing Size: 8.500 in
Gross Tested Interval: 1936.00 - 1998.00 ft
Perforated Interval (ft):

### HOLE FLUID

Type: MUD
Weight: 9.40 lb/gal
Viscosity: 49 seconds

### HOLE TEMPERATURE

Depth: 1908.60 ft
Estimated: 0.00 F
Actual: 82.00 F

### HYDROCARBON PROPERTIES

Oil Gravity (API): 0.0 @ 60 F
Gas/Oil ratio (ScF/STB): 0.0
Gas Gravity (SG): 0.00

### CUSHION DATA

| TYPE | AMOUNT | WEIGHT |
|---|---|---|
| WATER | 300 FT | 8.34 PPG |

### FLUID PROPERTIES FOR RECOVERED MUD AND WATER

| SOURCE | RESISTIVITY | CHLORIDES | SG | PH |
|---|---|---|---|---|
| | @ F | PPM | | |
| | @ F | PPM | | |
| | @ F | PPM | | |
| | @ F | PPM | | |
| | @ F | PPM | | |
| | @ F | PPM | | |

### SAMPLER DATA

Surface Pressure: 0 psi
Volume of Gas: 0 cc
Volume of Oil: 0 cc
Volume of Water: 0 cc
Volume of Mud: 0 cc
Total Liquids: 0 cc

REMARKS:

RATE HISTORY TABLE

| Period No | Test Type | j | Prod Rate q(j) (bbl/d) | Duration (hrs) | Cum. Time t(j) (hrs) |
|---|---|---|---|---|---|
| | | 0 | 0.0 | 0.00 | 0.00 |
| 1 | DD | 1 | | 0.99 | 0.99 |
| 2 | BU | 2 | 0.0 | 0.56 | 1.55 |
| 3 | DD | 3 | | 1.64 | 3.19 |

## TEST STRING CONFIGURATION

| | O.D. (in) | I.D. (in) | LENGTH (ft) | DEPTH (ft) |
|---|---|---|---|---|
| ELECTRONIC GAUGE RUNNING CASE... | 5.000 | 1.000 | 7.950 | 1908.60 |
| ELECTRONIC GAUGE RUNNING CASE... | 5.000 | 1.000 | 7.950 | 1915.60 |
| TOTAL DEPTH | | | | 1998.00 |

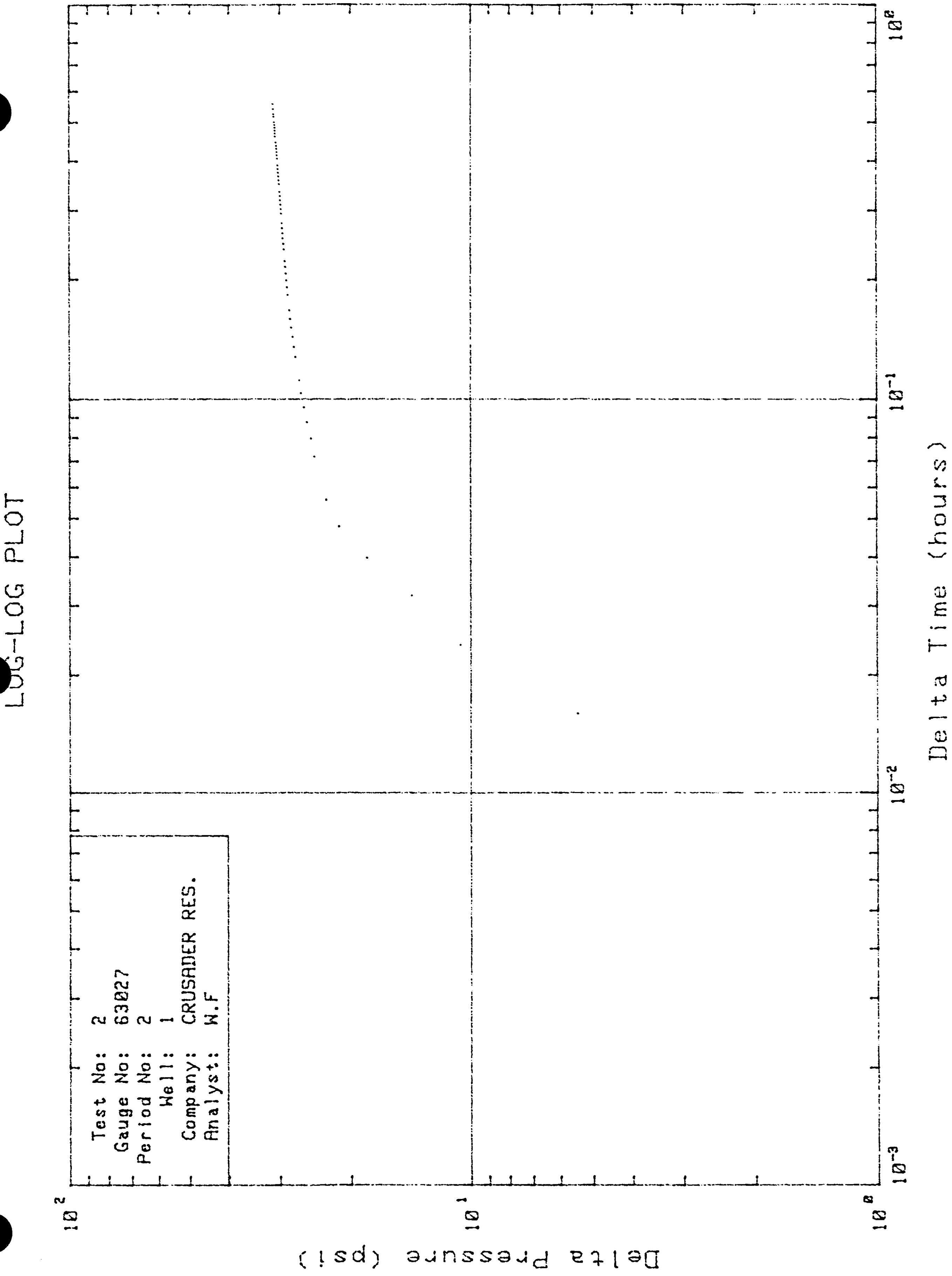
Date: 13-APR-88 Ticket No: 330039 Page No: 1.7.1
Test No: 2

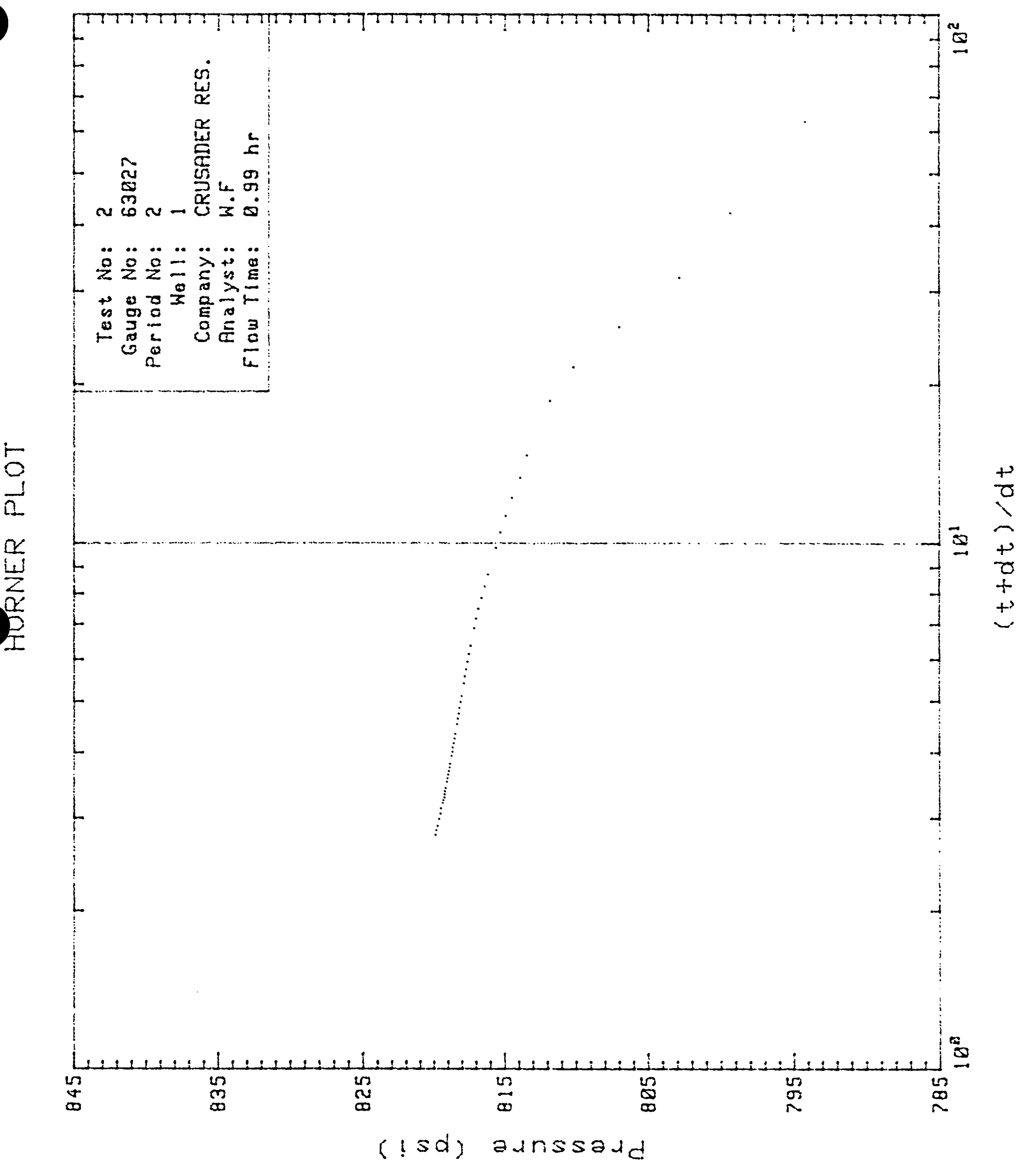
# OPERATOR JOB LOG

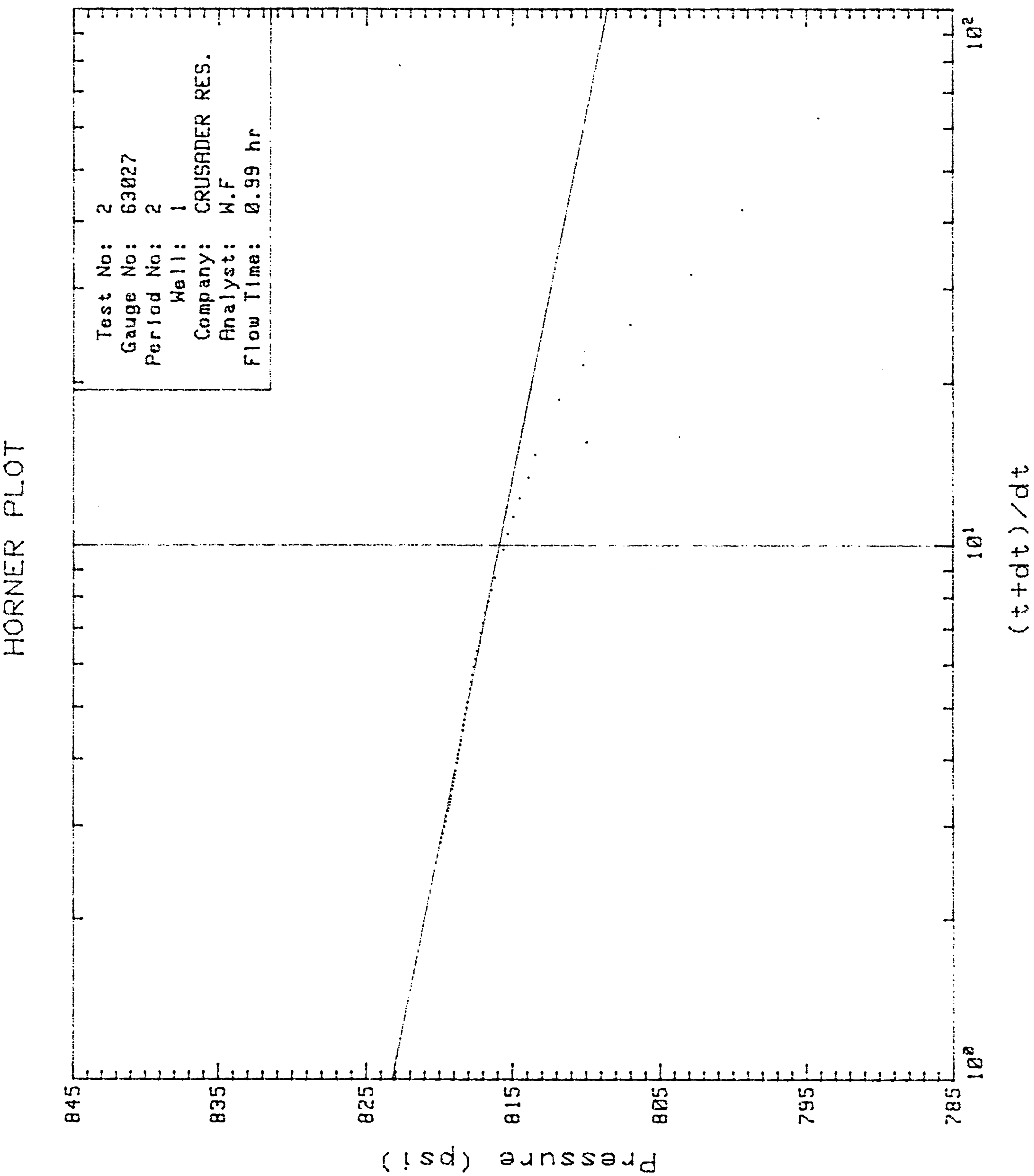
Type of Flow Measuring Device: 1/2 " CHOKE

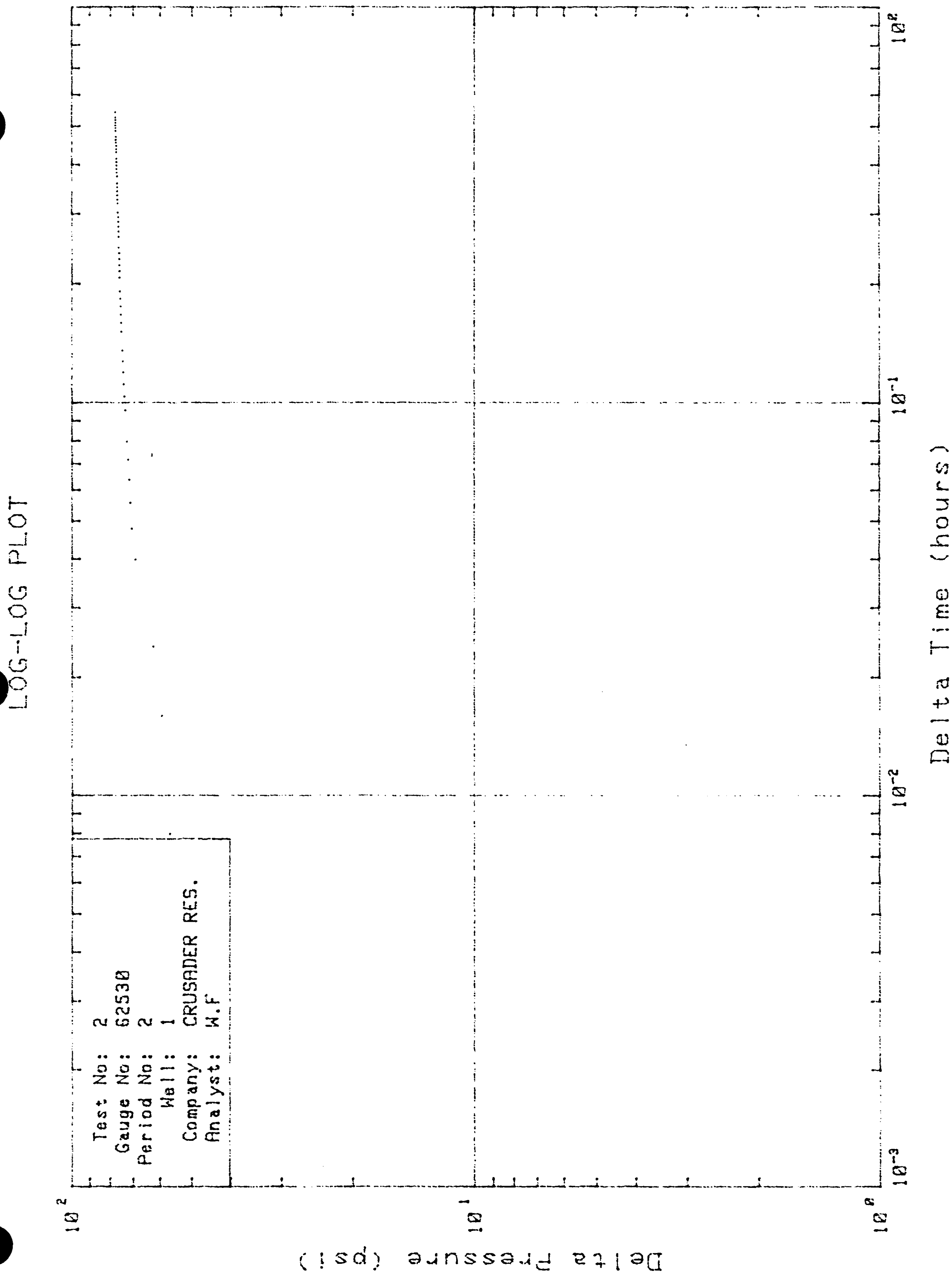
| TIME HH:MM:SS | CHOKE SIZE (in) | SURFACE PRESSURE (psi) | GAS RATE (MCF/D) | LIQUID RATE (bbl/d) | REMARKS |
|---|---|---|---|---|---|
| 12-APR-88 | | | | | |
| 22:45:00 | 32/64 | | | | MAKE UP GAUGE CARRIERS |
| 13-APR-88 | | | | | |
| 05:30:00 | 32/64 | | | | INFLATE PACKER |
| 05:43:00 | 32/64 | | | | TOOL OPEN STRONG BLOW |
| 05:46:46 | 32/64 | | | | BLOW DECEASED TO DEAD |
| 06:43:00 | 32/64 | | | | TOOL CLOSED |
| 07:20:00 | 32/64 | | | | PULL FREE BYPASS OPEN |
| 11:00:00 | 32/64 | | | | TEST TOOLS OUT OF HOLE |

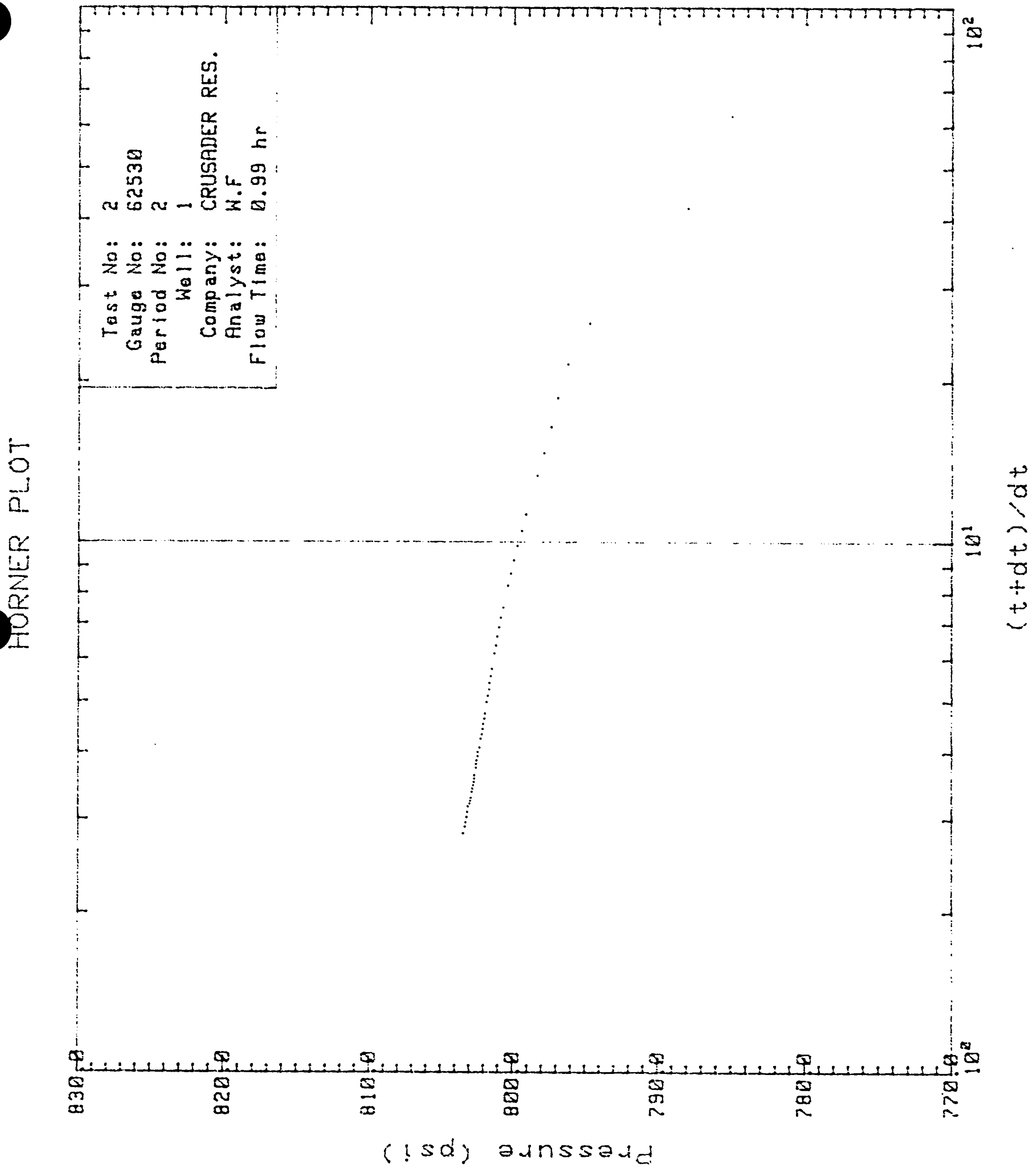
Date: 13-APR-88 Ticket No: 330039 Page No: 2.2.1




HORNER PLOT
Test No: 2
Gauge No: 63027
Period No: 2
Well: 1
Company: CRUSADER RES.
Analyst: W.F
Flow Time: 0.99 hr
845
835
825
815
805
795
785
Pressure (psi)
10^0
10^1
10^2
(t+dt)/dt


HORNER PLOT
Test No: 2
Gauge No: 63027
Period No: 2
Well: 1
Company: CRUSADER RES.
Analyst: W.F
Flow Time: 0.99 hr
845
835
825
815
805
795
785
Pressure (psi)
$10^0$
$10^1$
$10^2$
(t+dt)/dt


LOG-LOG PLOT
Test No: 2
Gauge No: 62530
Period No: 2
Well: 1
Company: CRUSADER RES.
Analyst: W.F
Delta Time (hours)
Delta Pressure (psi)
10^2
10^1
10^0
10^-1
10^-2
10^-3


HORNER PLOT
Test No: 2
Gauge No: 62530
Period No: 2
Well: 1
Company: CRUSADER RES.
Analyst: W.F
Flow Time: 0.99 hr
830.0
820.0
810.0
800.0
790.0
780.0
770.0
Pressure (psi)
$10^0$
$10^1$
$10^2$
(t+dt)/dt

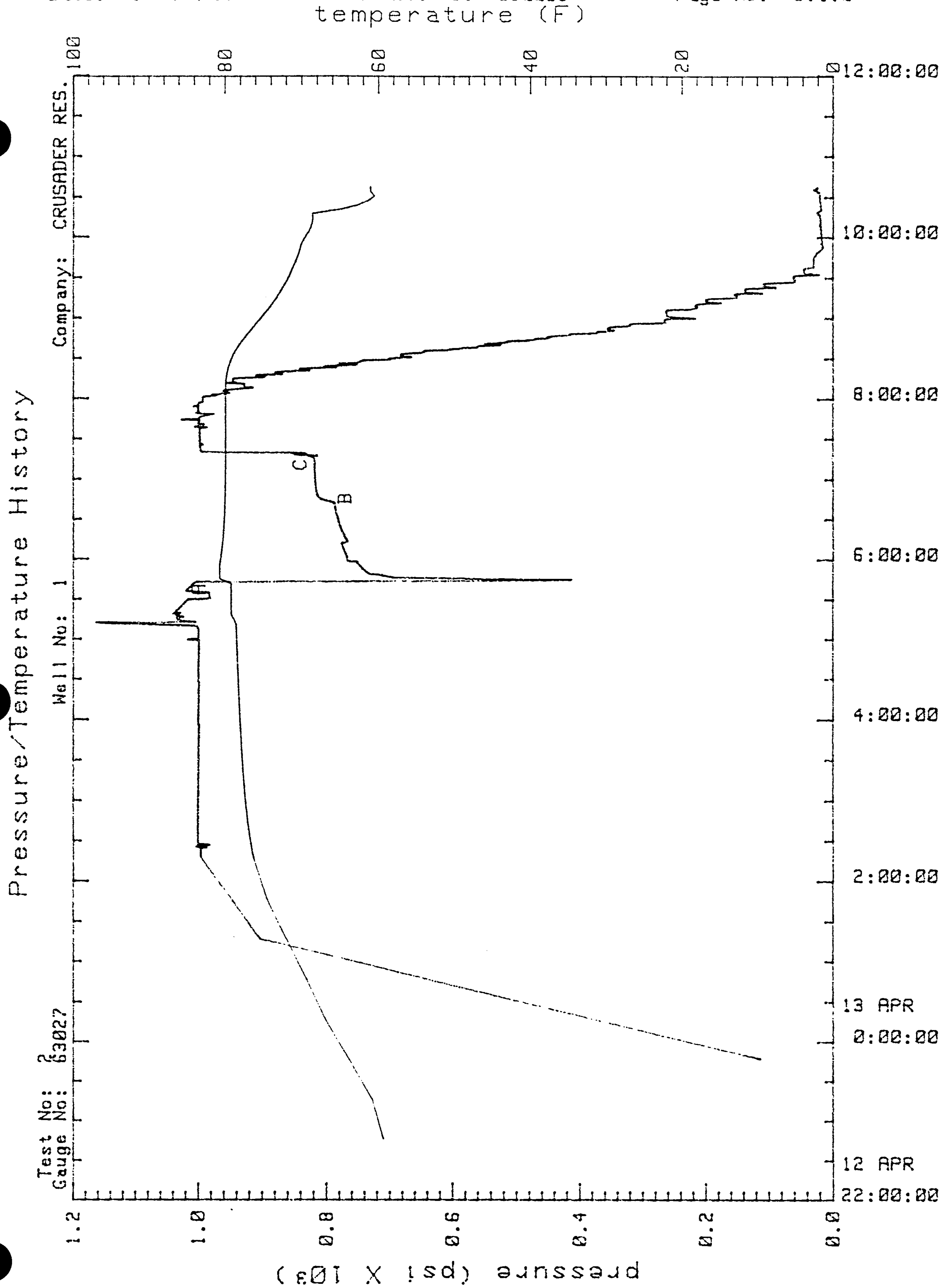
# TEST PERIOD SUMMARY

Gauge No.: 63027 Depth: 1915.60 ft Blanked off: No

| ID | PERIOD | DESCRIPTION | PRESSURE (psi) | DURATION (min) |
|---|---|---|---|---|
| A | 1 | Start Draw-down | 1003.75 | |
| B | | End Draw-down | 788.75 | 59.52 |
| B | 2 | Start Build-up | 788.75 | |
| C | | End Build-up | 820.00 | 33.60 |

NOTE: for Pressure vs. Time Plot, see next page.

Date: 13-APR-88 Ticket No: 330039 Page No: 3.1.0



PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print Frequency: | 2 | |
| 22:45:00 | | | | MAKE UP GAUGE CARRIERS |
| 23:17:10 | | | 60.7 | |
| 13-APR-88 | | | | |
| 00:17:10 | | | 66.8 | |
| 01:17:10 | | 903.779 | 71.8 | |
| 02:17:10 | | | 76.1 | |
| 02:18:08 | | 996.361 | 76.2 | |
| 02:19:05 | | 996.252 | 76.2 | |
| 02:20:03 | | 996.213 | 76.2 | |
| 02:21:00 | | | 76.3 | |
| 02:21:58 | | 996.180 | 76.3 | |
| 02:22:56 | | 996.163 | 76.3 | |
| 02:23:53 | | 996.170 | 76.4 | |
| 02:24:51 | | 996.177 | 76.4 | |
| 02:25:48 | | 1004.727 | 76.4 | |
| 02:26:46 | | 1000.051 | 76.5 | |
| 02:27:44 | | | 76.5 | |
| :28:41 | | 1000.895 | 76.5 | |
| :29:39 | | 1000.950 | 76.6 | |
| 02:30:36 | | 1000.960 | 76.6 | |
| 02:31:34 | | 1000.970 | 76.6 | |
| 02:32:32 | | 1000.981 | 76.6 | |
| 02:33:29 | | 1000.968 | 76.7 | |
| 02:34:27 | | | 76.7 | |
| 02:35:24 | | 1000.921 | 76.7 | |
| 02:36:22 | | 1000.909 | 76.7 | |
| 02:37:20 | | 1000.874 | 76.8 | |
| 02:38:17 | | 1000.840 | 76.8 | |
| 02:39:15 | | 1000.760 | 76.8 | |
| 02:40:12 | | 1000.910 | 76.8 | |
| 02:41:10 | | | 76.9 | |
| 02:42:08 | | 1000.865 | 76.9 | |
| 02:43:05 | | 1000.855 | 76.9 | |
| 02:44:03 | | 1000.798 | 76.9 | |
| 02:45:00 | | 1000.765 | 77.0 | |
| 02:45:58 | | 1000.778 | 77.0 | |
| 02:46:56 | | 1000.768 | 77.0 | |
| 02:47:53 | | | 77.0 | |
| 02:48:51 | | 1000.726 | 77.0 | |
| 02:49:48 | | 1000.670 | 77.1 | |
| 02:50:46 | | 1000.615 | 77.1 | |
| 02:51:44 | | 1000.606 | 77.1 | |
| 02:52:41 | | 1000.597 | 77.1 | |
| :53:39 | | 1000.543 | 77.1 | |
| :54:36 | | | 77.2 | |
| 02:55:34 | | 1000.503 | 77.2 | |

PRESSURE VS TIME

SRC gauge no.: 63027
Memory Recorder No.: 61771

Gauge Depth: 1915.60 ft

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 02:56:32 | | 1000.494 | 77.2 | |
| 02:57:29 | | 1000.463 | 77.2 | |
| 02:58:27 | | 1000.478 | 77.2 | |
| 02:59:24 | | 1000.424 | 77.2 | |
| 03:00:22 | | 1000.416 | 77.3 | |
| 03:01:20 | | | 77.3 | |
| 03:02:17 | | 1000.355 | 77.3 | |
| 03:03:15 | | 1000.325 | 77.3 | |
| 03:04:12 | | 1000.294 | 77.3 | |
| 03:05:10 | | 1000.287 | 77.3 | |
| 03:06:08 | | 1000.280 | 77.4 | |
| 03:07:05 | | 1000.250 | 77.4 | |
| 03:08:03 | | | 77.4 | |
| 03:09:00 | | 1000.236 | 77.4 | |
| 03:09:58 | | 1000.207 | 77.4 | |
| 03:10:56 | | 1000.223 | 77.4 | |
| 03:11:53 | | 1000.171 | 77.4 | |
| 03:12:51 | | 1000.164 | 77.5 | |
| 03:13:48 | | 1000.158 | 77.5 | |
| 03:14:46 | | | 77.5 | |
| 03:15:44 | | 1000.099 | 77.5 | |
| 03:16:41 | | 1000.093 | 77.5 | |
| 03:17:39 | | 1000.042 | 77.5 | |
| 03:18:36 | | 1000.036 | 77.5 | |
| 03:19:34 | | 999.984 | 77.5 | |
| 03:20:32 | | 999.955 | 77.6 | |
| 03:21:29 | | | 77.6 | |
| 03:22:27 | | 999.920 | 77.6 | |
| 03:23:24 | | 999.938 | 77.6 | |
| 03:24:22 | | 999.863 | 77.6 | |
| 03:25:20 | | 999.835 | 77.6 | |
| 03:26:17 | | 999.806 | 77.6 | |
| 03:27:15 | | 999.778 | 77.6 | |
| 03:28:12 | | | 77.7 | |
| 03:29:10 | | 999.744 | 77.7 | |
| 03:30:08 | | 999.739 | 77.7 | |
| 03:31:05 | | 999.711 | 77.7 | |
| 03:32:03 | | 999.683 | 77.7 | |
| 03:33:00 | | 999.655 | 77.7 | |
| 03:33:58 | | 999.627 | 77.7 | |
| 03:34:56 | | | 77.7 | |
| 03:35:53 | | 999.571 | 77.7 | |
| 03:36:51 | | 999.567 | 77.8 | |
| 03:37:48 | | 999.539 | 77.8 | |
| 03:38:46 | | 999.489 | 77.8 | |
| 03:39:44 | | 999.484 | 77.8 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.1.3

PRESSURE VS TIME

SRC gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: | 2 | |
| 03:40:41 | | 999.456 | 77.8 | |
| 03:41:39 | | | 77.8 | |
| 03:42:36 | | 999.401 | 77.8 | |
| 03:43:34 | | 999.373 | 77.8 | |
| 03:44:32 | | 999.346 | 77.8 | |
| 03:45:29 | | 999.318 | 77.8 | |
| 03:46:27 | | 999.291 | 77.8 | |
| 03:47:24 | | 999.264 | 77.9 | |
| 03:48:22 | | | 77.9 | |
| 03:49:20 | | 999.255 | 77.9 | |
| 03:50:17 | | 999.205 | 77.9 | |
| 03:51:15 | | 999.155 | 77.9 | |
| 03:52:12 | | 999.151 | 77.9 | |
| 03:53:10 | | 999.124 | 77.9 | |
| 03:54:08 | | 999.074 | 77.9 | |
| 03:55:05 | | | 77.9 | |
| 03:56:03 | | 998.973 | 77.9 | |
| 03:57:00 | | 1000.484 | 77.9 | |
| 03:57:58 | | 1000.503 | 78.0 | |
| 03:58:56 | | 1000.430 | 78.0 | |
| 03:59:53 | | 1000.380 | 78.0 | |
| 04:00:51 | | 1000.330 | 78.0 | |
| 04:01:48 | | | 78.0 | |
| 04:02:46 | | 1000.253 | 78.0 | |
| 04:03:44 | | 1000.202 | 78.0 | |
| 04:04:41 | | 1000.175 | 78.0 | |
| 04:05:39 | | 1000.102 | 78.0 | |
| 04:06:36 | | 1000.053 | 78.0 | |
| 04:07:34 | | 1000.026 | 78.0 | |
| 04:08:32 | | | 78.1 | |
| 04:09:29 | | 999.927 | 78.1 | |
| 04:10:27 | | 999.877 | 78.1 | |
| 04:11:24 | | 999.827 | 78.1 | |
| 04:12:22 | | 999.800 | 78.1 | |
| 04:13:20 | | 999.750 | 78.1 | |
| 04:14:17 | | 999.654 | 78.1 | |
| 04:15:15 | | | 78.1 | |
| 04:16:12 | | 999.601 | 78.1 | |
| 04:17:10 | | 999.552 | 78.1 | |
| 04:18:08 | | 999.548 | 78.1 | |
| 04:19:05 | | 999.476 | 78.1 | |
| 04:20:03 | | 999.426 | 78.2 | |
| 04:21:00 | | 999.377 | 78.2 | |
| 04:21:58 | | | 78.2 | |
| 04:22:56 | | 999.278 | 78.2 | |
| 04:23:53 | | 999.229 | 78.2 | |

PRESSURE VS TIME

RC gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 04:24:51 | | 999.157 | 78.2 | |
| 04:25:48 | | 999.131 | 78.2 | |
| 04:26:46 | | 999.128 | 78.2 | |
| 04:27:44 | | 999.102 | 78.2 | |
| 04:28:41 | | | 78.2 | |
| 04:29:39 | | 1000.312 | 78.2 | |
| 04:30:36 | | 1000.285 | 78.2 | |
| 04:31:34 | | 1000.282 | 78.2 | |
| 04:32:32 | | 1000.163 | 78.2 | |
| 04:33:29 | | 1000.091 | 78.3 | |
| 04:34:27 | | 1000.064 | 78.3 | |
| 04:35:24 | | | 78.3 | |
| 04:36:22 | | 999.965 | 78.3 | |
| 04:37:20 | | 999.939 | 78.3 | |
| 04:38:17 | | 999.890 | 78.3 | |
| 04:39:15 | | 999.841 | 78.3 | |
| 04:40:12 | | 999.815 | 78.3 | |
| 04:41:10 | | 999.766 | 78.3 | |
| 04:42:08 | | | 78.3 | |
| 04:43:05 | | 999.691 | 78.3 | |
| 04:44:03 | | 999.642 | 78.3 | |
| 04:45:00 | | 999.593 | 78.3 | |
| 04:45:58 | | 999.567 | 78.3 | |
| 04:46:56 | | 999.541 | 78.3 | |
| 04:47:53 | | 999.469 | 78.4 | |
| 04:48:51 | | | 78.4 | |
| 04:49:48 | | 999.394 | 78.4 | |
| 04:50:46 | | 999.368 | 78.4 | |
| 04:51:44 | | 999.343 | 78.4 | |
| 04:52:41 | | 999.294 | 78.4 | |
| 04:53:39 | | 999.245 | 78.4 | |
| 04:54:36 | | 999.220 | 78.4 | |
| 04:55:34 | | | 78.4 | |
| 04:56:32 | | 999.146 | 78.4 | |
| 04:57:29 | | 999.097 | 78.4 | |
| 04:58:27 | | 999.048 | 78.4 | |
| 04:59:24 | | 999.022 | 78.4 | |
| 05:00:22 | | 1000.717 | 78.4 | |
| 05:01:20 | | 999.842 | 78.4 | |
| 05:02:17 | | | 78.4 | |
| 05:03:15 | | 999.882 | 78.5 | |
| 05:04:12 | | 999.765 | 78.5 | |
| 05:05:10 | | 1000.152 | 78.5 | |
| 05:06:08 | | 999.828 | 78.5 | |
| 05:07:05 | | 999.779 | 78.5 | |
| 05:08:03 | | 1000.718 | 78.5 | |

PRESSURE VS TIME

[illegible]C gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 2 | | |
| 05:09:00 | | | 78.5 | |
| 05:09:58 | | 1002.040 | 78.5 | |
| 05:10:56 | | 1030.022 | 78.5 | |
| 05:11:53 | | 1116.158 | 78.5 | |
| 05:12:51 | | 1164.774 | 78.6 | |
| 05:13:48 | | 1022.428 | 78.6 | |
| 05:14:46 | | 1030.837 | 78.7 | |
| 05:15:44 | | | 78.8 | |
| 05:16:41 | | 1029.769 | 78.9 | |
| 05:17:39 | | 1027.281 | 79.0 | |
| 05:18:36 | | 1031.577 | 79.1 | |
| 05:19:34 | | 1040.176 | 79.1 | |
| 05:20:32 | | 1034.583 | 79.1 | |
| 05:21:29 | | 1035.616 | 79.2 | |
| 05:22:27 | | | 79.2 | |
| 05:23:24 | | 1030.506 | 79.2 | |
| 05:24:22 | | 1028.229 | 79.2 | |
| 05:25:20 | | 1026.067 | 79.2 | |
| 05:26:17 | | 1024.021 | 79.2 | |
| 05:27:15 | | 1022.021 | 79.2 | |
| 05:28:12 | | 1020.113 | 79.2 | |
| 05:29:10 | | | 79.2 | |
| 05:30:00 | | | | INFLATE PACKER |
| 05:30:08 | | 1016.552 | 79.2 | |
| 05:31:05 | | 980.857 | 79.2 | |
| 05:32:03 | | 982.853 | 79.2 | |
| 05:33:00 | | 983.266 | 79.2 | |
| 05:33:58 | | 983.655 | 79.2 | |
| 05:34:56 | | 983.449 | 79.2 | |
| 05:35:53 | | | 79.2 | |
| 05:36:51 | | 1019.793 | 79.2 | |
| 05:37:48 | | 1017.196 | 79.2 | |
| 05:38:46 | | 1014.968 | 79.2 | |
| 05:39:44 | | 1012.830 | 79.2 | |
| 05:40:41 | | 1010.623 | 79.2 | |
| 05:41:39 | | 1008.509 | 79.2 | |
| 05:42:36 | | | 79.2 | |
| 05:43:00 | | | | TOOL OPEN STRONG BLOW |

PRESSURE VS TIME

RC gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| | | *** Start of Period 1 *** | | |
| 05:43:05 | 0.0 | 1003.750 | 79.4 | |
| 05:43:34 | 0.5 | 757.115 | 79.6 | |
| 05:44:03 | 1.0 | 541.552 | 79.8 | |
| 05:44:32 | 1.4 | 457.606 | 80.0 | |
| 05:45:00 | 1.9 | 412.196 | 80.2 | |
| 05:45:29 | 2.4 | 507.490 | 80.4 | |
| 05:45:58 | 2.9 | | 80.6 | |
| 05:46:27 | 3.4 | 695.929 | 80.6 | |
| 05:46:46 | | | | BLOW DECEASED TO DEAD |
| 05:46:56 | 3.8 | 700.102 | 80.6 | |
| 05:47:24 | 4.3 | 707.369 | 80.6 | |
| 05:47:53 | 4.8 | 711.477 | 80.6 | |
| 05:48:22 | 5.3 | 713.959 | 80.7 | |
| 05:48:51 | 5.8 | 732.717 | 80.7 | |
| 05:49:20 | 6.2 | | 80.7 | |
| 05:49:48 | 6.7 | 735.180 | 80.7 | |
| 05:50:17 | 7.2 | 736.583 | 80.7 | |
| 05:50:46 | 7.7 | 737.896 | 80.7 | |
| 05:51:15 | 8.2 | 739.164 | 80.7 | |
| 05:51:44 | 8.6 | 740.386 | 80.7 | |
| 05:52:12 | 9.1 | 741.609 | 80.7 | |
| 05:52:41 | 9.6 | | 80.7 | |
| 05:53:10 | 10.1 | 743.831 | 80.6 | |
| 05:53:39 | 10.6 | 744.944 | 80.6 | |
| 05:54:08 | 11.0 | 745.966 | 80.6 | |
| 05:54:36 | 11.5 | 746.988 | 80.6 | |
| 05:55:05 | 12.0 | 747.943 | 80.6 | |
| 05:55:34 | 12.5 | 748.761 | 80.6 | |
| 05:56:03 | 13.0 | | 80.6 | |
| 05:56:32 | 13.4 | 750.581 | 80.6 | |
| 05:57:00 | 13.9 | 751.492 | 80.6 | |
| 05:57:29 | 14.4 | 752.334 | 80.6 | |
| 05:57:58 | 14.9 | 753.154 | 80.5 | |
| 05:58:27 | 15.4 | 751.371 | 80.5 | |
| 05:58:56 | 15.8 | 767.412 | 80.5 | |
| 05:59:24 | 16.3 | | 80.5 | |
| 05:59:53 | 16.8 | 767.399 | 80.5 | |
| 06:00:22 | 17.3 | 767.631 | 80.5 | |
| 06:00:51 | 17.8 | 767.886 | 80.5 | |
| 06:01:20 | 18.2 | 768.231 | 80.5 | |
| 06:01:48 | 18.7 | 768.598 | 80.5 | |
| 06:02:17 | 19.2 | 768.943 | 80.4 | |
| 06:02:46 | 19.7 | | 80.4 | |
| 06:03:15 | 20.2 | 769.769 | 80.4 | |
| 06:03:44 | 20.6 | 770.227 | 80.4 | |

PRESSURE VS TIME

[illegible]C gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| 06:04:12 | 21.1 | 770.663 | 80.4 | |
| 06:04:41 | 21.6 | 771.076 | 80.4 | |
| 06:05:10 | 22.1 | 771.534 | 80.4 | |
| 06:05:39 | 22.6 | 771.970 | 80.4 | |
| 06:06:08 | 23.0 | | 80.4 | |
| 06:06:36 | 23.5 | 772.863 | 80.3 | |
| 06:07:05 | 24.0 | 773.298 | 80.3 | |
| 06:07:34 | 24.5 | 773.688 | 80.3 | |
| 06:08:03 | 25.0 | 774.123 | 80.3 | |
| 06:08:32 | 25.4 | 774.150 | 80.3 | |
| 06:09:00 | 25.9 | 774.631 | 80.3 | |
| 06:09:29 | 26.4 | | 80.3 | |
| 06:09:58 | 26.9 | 775.524 | 80.3 | |
| 06:10:27 | 27.4 | 775.913 | 80.3 | |
| 06:10:56 | 27.8 | 776.348 | 80.3 | |
| 06:11:24 | 28.3 | 776.737 | 80.2 | |
| 06:11:53 | 28.8 | 777.127 | 80.2 | |
| 06:12:22 | 29.3 | 777.494 | 80.2 | |
| [illegible]:12:51 | 29.8 | | 80.2 | |
| 06:13:20 | 30.2 | 767.233 | 80.2 | |
| 06:13:48 | 30.7 | 767.758 | 80.2 | |
| 06:14:17 | 31.2 | 768.351 | 80.2 | |
| 06:14:46 | 31.7 | 768.989 | 80.2 | |
| 06:15:15 | 32.2 | 769.605 | 80.2 | |
| 06:15:44 | 32.6 | 770.243 | 80.2 | |
| 06:16:12 | 33.1 | | 80.2 | |
| 06:16:41 | 33.6 | 771.406 | 80.2 | |
| 06:17:10 | 34.1 | 771.863 | 80.1 | |
| 06:17:39 | 34.6 | 772.410 | 80.1 | |
| 06:18:08 | 35.0 | 772.935 | 80.1 | |
| 06:18:36 | 35.5 | 773.505 | 80.1 | |
| 06:19:05 | 36.0 | 774.052 | 80.1 | |
| 06:19:34 | 36.5 | | 80.1 | |
| 06:20:03 | 37.0 | 775.033 | 80.1 | |
| 06:20:32 | 37.4 | 775.534 | 80.1 | |
| 06:21:00 | 37.9 | 776.013 | 80.1 | |
| 06:21:29 | 38.4 | 776.469 | 80.1 | |
| 06:21:58 | 38.9 | 776.880 | 80.1 | |
| 06:22:27 | 39.4 | 777.313 | 80.1 | |
| 06:22:56 | 39.8 | | 80.1 | |
| 06:23:24 | 40.3 | 778.134 | 80.1 | |
| 06:23:53 | 40.8 | 778.545 | 80.1 | |
| 06:24:22 | 41.3 | 778.933 | 80.1 | |
| 06:24:51 | 41.8 | 779.320 | 80.0 | |
| [illegible]:25:20 | 42.2 | 779.731 | 80.0 | |
| 06:25:48 | 42.7 | 780.096 | 80.0 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.1.8

PRESSURE VS TIME

RC gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| 06:26:17 | 43.2 | | 80.0 | |
| 06:26:46 | 43.7 | 780.803 | 80.0 | |
| 06:27:15 | 44.2 | 781.168 | 80.0 | |
| 06:27:44 | 44.6 | 781.510 | 80.0 | |
| 06:28:12 | 45.1 | 781.807 | 80.0 | |
| 06:28:41 | 45.6 | 781.990 | 80.0 | |
| 06:29:10 | 46.1 | 781.675 | 80.0 | |
| 06:29:39 | 46.6 | | 80.0 | |
| 06:30:08 | 47.0 | 782.245 | 80.0 | |
| 06:30:36 | 47.5 | 782.633 | 80.0 | |
| 06:31:05 | 48.0 | 782.884 | 80.0 | |
| 06:31:34 | 48.5 | 783.226 | 80.0 | |
| 06:32:03 | 49.0 | 783.523 | 80.0 | |
| 06:32:32 | 49.4 | 783.842 | 80.0 | |
| 06:33:00 | 49.9 | | 80.0 | |
| 06:33:29 | 50.4 | 784.458 | 80.0 | |
| 06:33:58 | 50.9 | 784.731 | 80.0 | |
| 06:34:27 | 51.4 | 785.119 | 80.0 | |
| 06:34:56 | 51.8 | 785.392 | 80.0 | |
| 06:35:24 | 52.3 | 785.621 | 80.0 | |
| 06:35:53 | 52.8 | 785.894 | 80.0 | |
| 06:36:22 | 53.3 | | 80.0 | |
| 06:36:51 | 53.8 | 786.328 | 79.9 | |
| 06:37:20 | 54.2 | 786.534 | 79.9 | |
| 06:37:48 | 54.7 | 786.739 | 79.9 | |
| 06:38:17 | 55.2 | 786.922 | 79.9 | |
| 06:38:46 | 55.7 | 787.082 | 79.9 | |
| 06:39:15 | 56.2 | 787.287 | 79.9 | |
| 06:39:44 | 56.6 | | 79.9 | |
| 06:40:12 | 57.1 | 787.630 | 79.9 | |
| 06:40:41 | 57.6 | 787.835 | 79.9 | |
| 06:41:10 | 58.1 | 788.109 | 79.9 | |
| 06:41:39 | 58.6 | 788.314 | 79.9 | |
| 06:42:08 | 59.0 | 788.543 | 79.9 | |
| 06:42:36 | 59.5 | 788.748 | 79.9 | |
| 06:43:00 | | | | TOOL CLOSED |

*** End of Period 1 ***

Date: 13-APR-88 Ticket No: 330039 Page No: 3.1.9

PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| | | *** Start of Period 2 *** | | |
| 06:43:05 | 0.5 | | 79.9 | |
| 06:43:34 | 1.0 | 794.195 | 79.9 | |
| 06:44:03 | 1.4 | 799.394 | 79.9 | |
| 06:44:32 | 1.9 | 802.890 | 79.9 | |
| 06:45:00 | 2.4 | 807.046 | 79.9 | |
| 06:45:29 | 2.9 | 810.226 | 79.9 | |
| 06:45:58 | 3.4 | 811.862 | 79.9 | |
| 06:46:27 | 3.8 | | 79.9 | |
| 06:46:56 | 4.3 | 813.476 | 79.9 | |
| 06:47:24 | 4.8 | 813.954 | 79.9 | |
| 06:47:53 | 5.3 | 814.546 | 79.9 | |
| 06:48:22 | 5.8 | 814.979 | 79.9 | |
| 06:48:51 | 6.2 | 815.366 | 79.9 | |
| 06:49:20 | 6.7 | 815.662 | 79.9 | |
| 06:49:48 | 7.2 | | 79.9 | |
| 06:50:17 | 7.7 | 816.232 | 79.9 | |
| 06:50:46 | 8.2 | 816.483 | 79.9 | |
| 06:51:15 | 8.6 | 816.688 | 79.9 | |
| 06:51:44 | 9.1 | 816.916 | 79.9 | |
| 06:52:12 | 9.6 | 817.076 | 79.9 | |
| 06:52:41 | 10.1 | 817.213 | 79.9 | |
| 06:53:10 | 10.6 | | 79.9 | |
| 06:53:39 | 11.0 | 817.464 | 79.9 | |
| 06:54:08 | 11.5 | 817.579 | 79.9 | |
| 06:54:36 | 12.0 | 817.693 | 79.9 | |
| 06:55:05 | 12.5 | 817.785 | 79.9 | |
| 06:55:34 | 13.0 | 817.876 | 79.9 | |
| 06:56:03 | 13.4 | 817.945 | 79.9 | |
| 06:56:32 | 13.9 | | 79.9 | |
| 06:57:00 | 14.4 | 818.105 | 79.9 | |
| 06:57:29 | 14.9 | 818.174 | 79.9 | |
| 06:57:58 | 15.4 | 818.265 | 79.9 | |
| 06:58:27 | 15.8 | 818.311 | 79.9 | |
| 06:58:56 | 16.3 | 818.380 | 79.9 | |
| 06:59:24 | 16.8 | 818.425 | 79.9 | |
| 06:59:53 | 17.3 | | 79.9 | |
| 07:00:22 | 17.8 | 818.562 | 79.9 | |
| 07:00:51 | 18.2 | 818.608 | 79.9 | |
| 07:01:20 | 18.7 | 818.676 | 79.9 | |
| 07:01:48 | 19.2 | 818.745 | 79.9 | |
| 07:02:17 | 19.7 | 818.768 | 79.9 | |
| 07:02:46 | 20.2 | 818.836 | 79.9 | |
| 07:03:15 | 20.6 | | 79.9 | |
| 07:03:44 | 21.1 | 818.928 | 79.9 | |
| 07:04:12 | 21.6 | 818.974 | 79.9 | |

PRESSURE VS TIME

RC gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| 07:04:41 | 22.1 | 819.019 | 79.9 | |
| 07:05:10 | 22.6 | 819.065 | 79.9 | |
| 07:05:39 | 23.0 | 819.111 | 79.9 | |
| 07:06:08 | 23.5 | 819.157 | 79.9 | |
| 07:06:36 | 24.0 | | 79.9 | |
| 07:07:05 | 24.5 | 819.248 | 79.9 | |
| 07:07:34 | 25.0 | 819.294 | 79.9 | |
| 07:08:03 | 25.4 | 819.317 | 79.9 | |
| 07:08:32 | 25.9 | 819.340 | 79.9 | |
| 07:09:00 | 26.4 | 819.409 | 79.9 | |
| 07:09:29 | 26.9 | 819.455 | 79.8 | |
| 07:09:58 | 27.4 | | 79.8 | |
| 07:10:27 | 27.8 | 819.592 | 79.8 | |
| 07:10:56 | 28.3 | 819.592 | 79.8 | |
| 07:11:24 | 28.8 | 819.615 | 79.8 | |
| 07:11:53 | 29.3 | 819.660 | 79.8 | |
| 07:12:22 | 29.8 | 819.706 | 79.8 | |
| 07:12:51 | 30.2 | 819.752 | 79.8 | |
| 07:13:20 | 30.7 | | 79.8 | |
| 07:13:48 | 31.2 | 819.820 | 79.8 | |
| 07:14:17 | 31.7 | 819.865 | 79.8 | |
| 07:14:46 | 32.2 | 819.911 | 79.8 | |
| 07:15:15 | 32.6 | 819.933 | 79.8 | |
| 07:15:44 | 33.1 | 819.956 | 79.8 | |
| 07:16:12 | 33.6 | 820.002 | 79.8 | |
| | | *** End of Period 2 *** | | |
| | | Data Print Frequency: 2 | | |
| 07:16:41 | | | 79.8 | |
| 07:17:39 | | 814.341 | 79.9 | |
| 07:18:36 | | 849.726 | 79.9 | |
| 07:19:34 | | 835.819 | 79.9 | |
| 07:20:00 | | | | PULL FREE BYPASS OPEN |
| 07:20:32 | | 994.708 | 79.9 | |
| 07:21:29 | | 997.506 | 79.9 | |
| 07:22:27 | | 996.815 | 79.9 | |
| 07:23:24 | | | 79.9 | |
| 07:24:22 | | 998.374 | 79.9 | |
| 07:25:20 | | 997.134 | 79.9 | |
| 07:26:17 | | 998.879 | 79.9 | |
| 07:27:15 | | 995.551 | 79.9 | |
| 07:28:12 | | 998.420 | 79.9 | |
| 07:29:10 | | 998.926 | 79.9 | |
| 07:30:08 | | | 79.9 | |
| 07:31:05 | | 998.720 | 79.9 | |
| 07:32:03 | | 998.996 | 79.9 | |
| 07:33:00 | | 998.881 | 79.9 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.1.11

PRESSURE VS TIME

C gauge no.: 63027
Memory Recorder No.: 61771

Gauge Depth: 1915.60 ft

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 07:33:58 | | 997.642 | 79.9 | |
| 07:34:56 | | 999.042 | 79.9 | |
| 07:35:53 | | 998.767 | 79.9 | |
| 07:36:51 | | | 79.9 | |
| 07:37:48 | | 999.112 | 79.9 | |
| 07:38:46 | | 987.065 | 79.9 | |
| 07:39:44 | | 997.896 | 79.9 | |
| 07:40:41 | | 999.711 | 79.9 | |
| 07:41:39 | | 1001.778 | 79.9 | |
| 07:42:36 | | 999.231 | 79.9 | |
| 07:43:34 | | | 79.9 | |
| 07:44:32 | | 1028.226 | 79.9 | |
| 07:45:29 | | 999.462 | 79.9 | |
| 07:46:27 | | 998.360 | 79.9 | |
| 07:47:24 | | 991.360 | 79.9 | |
| 07:48:22 | | 982.804 | 79.9 | |
| 07:49:20 | | 1005.661 | 79.9 | |
| 07:50:17 | | | 79.9 | |
| 07:51:15 | | 999.990 | 79.9 | |
| 07:52:12 | | 1000.885 | 79.9 | |
| 07:53:10 | | 1000.448 | 79.9 | |
| 07:54:08 | | 1000.701 | 79.9 | |
| 07:55:05 | | 999.989 | 79.9 | |
| 07:56:03 | | 1000.747 | 79.9 | |
| 07:57:00 | | | 79.9 | |
| 07:57:58 | | 993.080 | 79.9 | |
| 07:58:56 | | 993.769 | 79.9 | |
| 07:59:53 | | 993.792 | 79.9 | |
| 08:00:51 | | 993.884 | 79.9 | |
| 08:01:48 | | 993.884 | 79.9 | |
| 08:02:46 | | 973.494 | 79.9 | |
| 08:03:44 | | | 79.9 | |
| 08:04:41 | | 951.822 | 79.9 | |
| 08:05:39 | | 961.464 | 79.9 | |
| 08:06:36 | | 961.395 | 79.9 | |
| 08:07:34 | | 939.829 | 79.9 | |
| 08:08:32 | | 914.886 | 79.9 | |
| 08:09:29 | | 928.328 | 79.9 | |
| 08:10:27 | | | 79.9 | |
| 08:11:24 | | 928.082 | 79.8 | |
| 08:12:22 | | 942.153 | 79.8 | |
| 08:13:20 | | 946.344 | 79.8 | |
| 08:14:17 | | 946.214 | 79.8 | |
| 08:15:15 | | 946.087 | 79.8 | |
| 08:16:12 | | 895.585 | 79.8 | |
| 08:17:10 | | | 79.7 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.1.12

PRESSURE VS TIME

[illegible]C gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 2 | | |
| 08:18:08 | | 878.956 | 79.7 | |
| 08:19:05 | | 879.838 | 79.7 | |
| 08:20:03 | | 879.989 | 79.6 | |
| 08:21:00 | | 825.382 | 79.6 | |
| 08:21:58 | | 841.594 | 79.6 | |
| 08:22:56 | | 810.737 | 79.5 | |
| 08:23:53 | | | 79.5 | |
| 08:24:51 | | 774.673 | 79.4 | |
| 08:25:48 | | 780.591 | 79.4 | |
| 08:26:46 | | 751.814 | 79.3 | |
| 08:27:44 | | 747.040 | 79.3 | |
| 08:28:41 | | 743.244 | 79.2 | |
| 08:29:39 | | 702.922 | 79.1 | |
| 08:30:36 | | | 79.1 | |
| 08:31:34 | | 679.811 | 79.0 | |
| 08:32:32 | | 683.229 | 78.9 | |
| 08:33:29 | | 683.151 | 78.8 | |
| 08:34:27 | | 645.857 | 78.8 | |
| 08:35:24 | | 647.770 | 78.7 | |
| 08:36:22 | | 607.859 | 78.6 | |
| 08:37:20 | | | 78.5 | |
| 08:38:17 | | 561.008 | 78.3 | |
| 08:39:15 | | 560.385 | 78.2 | |
| 08:40:12 | | 524.475 | 78.1 | |
| 08:41:10 | | 550.857 | 78.0 | |
| 08:42:08 | | 519.373 | 77.9 | |
| 08:43:05 | | 514.734 | 77.8 | |
| 08:44:03 | | | 77.6 | |
| 08:45:00 | | 471.846 | 77.5 | |
| 08:45:58 | | 448.006 | 77.4 | |
| 08:46:56 | | 448.932 | 77.2 | |
| 08:47:53 | | 417.234 | 77.1 | |
| 08:48:51 | | 385.949 | 77.0 | |
| 08:49:48 | | 373.526 | 76.8 | |
| 08:50:46 | | | 76.7 | |
| 08:51:44 | | 351.141 | 76.5 | |
| 08:52:41 | | 355.629 | 76.4 | |
| 08:53:39 | | 355.579 | 76.3 | |
| 08:54:36 | | 320.515 | 76.1 | |
| 08:55:34 | | 320.334 | 76.0 | |
| 08:56:32 | | 291.936 | 75.8 | |
| 08:57:29 | | | 75.7 | |
| 08:58:27 | | 266.685 | 75.5 | |
| 08:59:24 | | 266.615 | 75.4 | |
| 09:00:22 | | 216.323 | 75.3 | |
| 09:01:20 | | 249.914 | 75.1 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.1.13

PRESSURE VS TIME

C gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 09:02:17 | | 263.492 | 75.0 | |
| 09:03:15 | | 263.485 | 74.8 | |
| 09:04:12 | | | 74.7 | |
| 09:05:10 | | 263.913 | 74.6 | |
| 09:06:08 | | 263.929 | 74.4 | |
| 09:07:05 | | 232.057 | 74.3 | |
| 09:08:03 | | 213.853 | 74.2 | |
| 09:09:00 | | 214.194 | 74.0 | |
| 09:09:58 | | 217.610 | 73.9 | |
| 09:10:56 | | | 73.8 | |
| 09:11:53 | | 174.798 | 73.7 | |
| 09:12:51 | | 200.860 | 73.5 | |
| 09:13:48 | | 201.109 | 73.4 | |
| 09:14:46 | | 201.181 | 73.3 | |
| 09:15:44 | | 151.740 | 73.2 | |
| 09:16:41 | | 151.307 | 73.1 | |
| 09:17:39 | | | 73.0 | |
| 09:18:36 | | 154.443 | 72.9 | |
| 09:19:34 | | 125.901 | 72.8 | |
| 09:20:32 | | 138.167 | 72.6 | |
| 09:21:29 | | 138.583 | 72.5 | |
| 09:22:27 | | 138.692 | 72.4 | |
| 09:23:24 | | 88.723 | 72.3 | |
| 09:24:22 | | | 72.2 | |
| 09:25:20 | | 108.772 | 72.2 | |
| 09:26:17 | | 108.857 | 72.1 | |
| 09:27:15 | | 59.907 | 72.0 | |
| 09:28:12 | | 59.271 | 71.9 | |
| 09:29:10 | | 59.222 | 71.8 | |
| 09:30:08 | | 61.176 | 71.7 | |
| 09:31:05 | | | 71.6 | |
| 09:32:03 | | 61.681 | 71.5 | |
| 09:33:00 | | 20.195 | 71.5 | |
| 09:33:58 | | 44.377 | 71.4 | |
| 09:34:56 | | 45.562 | 71.3 | |
| 09:35:53 | | 45.573 | 71.2 | |
| 09:36:51 | | 45.845 | 71.2 | |
| 09:37:48 | | | 71.1 | |
| 09:38:46 | | 29.775 | 71.0 | |
| 09:39:44 | | 30.220 | 70.9 | |
| 09:40:41 | | 30.187 | 70.9 | |
| 09:41:39 | | 30.000 | 70.8 | |
| 09:42:36 | | 30.204 | 70.7 | |
| 09:43:34 | | 30.299 | 70.7 | |
| 09:44:32 | | | 70.6 | |
| 09:45:29 | | 30.377 | 70.5 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.1.14

## PRESSURE VS TIME

RC gauge no.: 63027 Gauge Depth: 1915.60 ft
Memory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 2 | | |
| 09:46:27 | | 28.425 | 70.5 | |
| 09:47:24 | | 26.170 | 70.4 | |
| 09:48:22 | | 25.935 | 70.3 | |
| 09:49:20 | | 24.133 | 70.3 | |
| 09:50:17 | | 20.290 | 70.2 | |
| 09:51:15 | | | 70.2 | |
| 09:52:12 | | 16.421 | 70.1 | |
| 09:53:10 | | 14.919 | 70.1 | |
| 09:54:08 | | 15.436 | 70.0 | |
| 09:55:05 | | 16.373 | 70.0 | |
| 09:56:03 | | 18.750 | 69.9 | |
| 09:57:00 | | 16.784 | 69.8 | |
| 09:57:58 | | | 69.8 | |
| 09:58:56 | | 17.426 | 69.7 | |
| 09:59:53 | | 17.689 | 69.6 | |
| 10:00:51 | | 17.887 | 69.5 | |
| 10:01:48 | | 18.019 | 69.4 | |
| 10:02:46 | | 18.152 | 69.2 | |
| 10:03:44 | | 18.306 | 69.1 | |
| 10:04:41 | | | 69.0 | |
| 10:05:39 | | 18.517 | 69.0 | |
| 10:06:36 | | 18.508 | 68.9 | |
| 10:07:34 | | 18.738 | 68.8 | |
| 10:08:32 | | 18.810 | 68.7 | |
| 10:09:29 | | 20.982 | 68.7 | |
| 10:10:27 | | 18.809 | 68.6 | |
| 10:11:24 | | | 68.6 | |
| 10:12:22 | | 19.512 | 68.6 | |
| 10:13:20 | | 19.652 | 68.5 | |
| 10:14:17 | | 19.856 | 68.5 | |
| 10:15:15 | | 20.469 | 68.5 | |
| 10:16:12 | | 20.556 | 68.5 | |
| 10:17:10 | | 20.316 | 68.5 | |
| 10:18:08 | | | 68.5 | |
| 10:19:05 | | 23.637 | 67.4 | |
| 10:20:03 | | 18.444 | 66.4 | |
| 10:21:00 | | 17.514 | 65.3 | |
| 10:21:58 | | 18.467 | 64.4 | |
| 10:22:56 | | 19.304 | 63.8 | |
| 10:23:53 | | 19.012 | 63.1 | |
| 10:24:51 | | | 62.5 | |
| 10:25:48 | | 19.941 | 62.1 | |
| 10:26:46 | | 20.140 | 61.8 | |
| 10:27:44 | | 20.753 | 61.5 | |
| 10:28:41 | | 20.624 | 61.2 | |
| 10:29:39 | | 20.516 | 60.9 | |

PRESSURE VS TIME

ﾠC gauge no.: 63027 Gauge Depth: 1915.60 ft
ﾠemory Recorder No.: 61771

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 10:30:36 | | 20.798 | 60.7 | |
| 10:31:34 | | | 60.5 | |
| 10:32:32 | | 21.267 | 60.6 | |
| 10:33:29 | | 21.257 | 60.8 | |
| 10:34:27 | | 22.768 | 61.0 | |
| 10:35:24 | | 29.100 | 61.0 | |
| 10:36:22 | | 30.253 | 61.0 | |
| 10:37:20 | | 23.883 | 61.0 | |
| 10:38:17 | | | 61.0 | |
| 11:00:00 | | | | TEST TOOLS OUT OF HOLE |

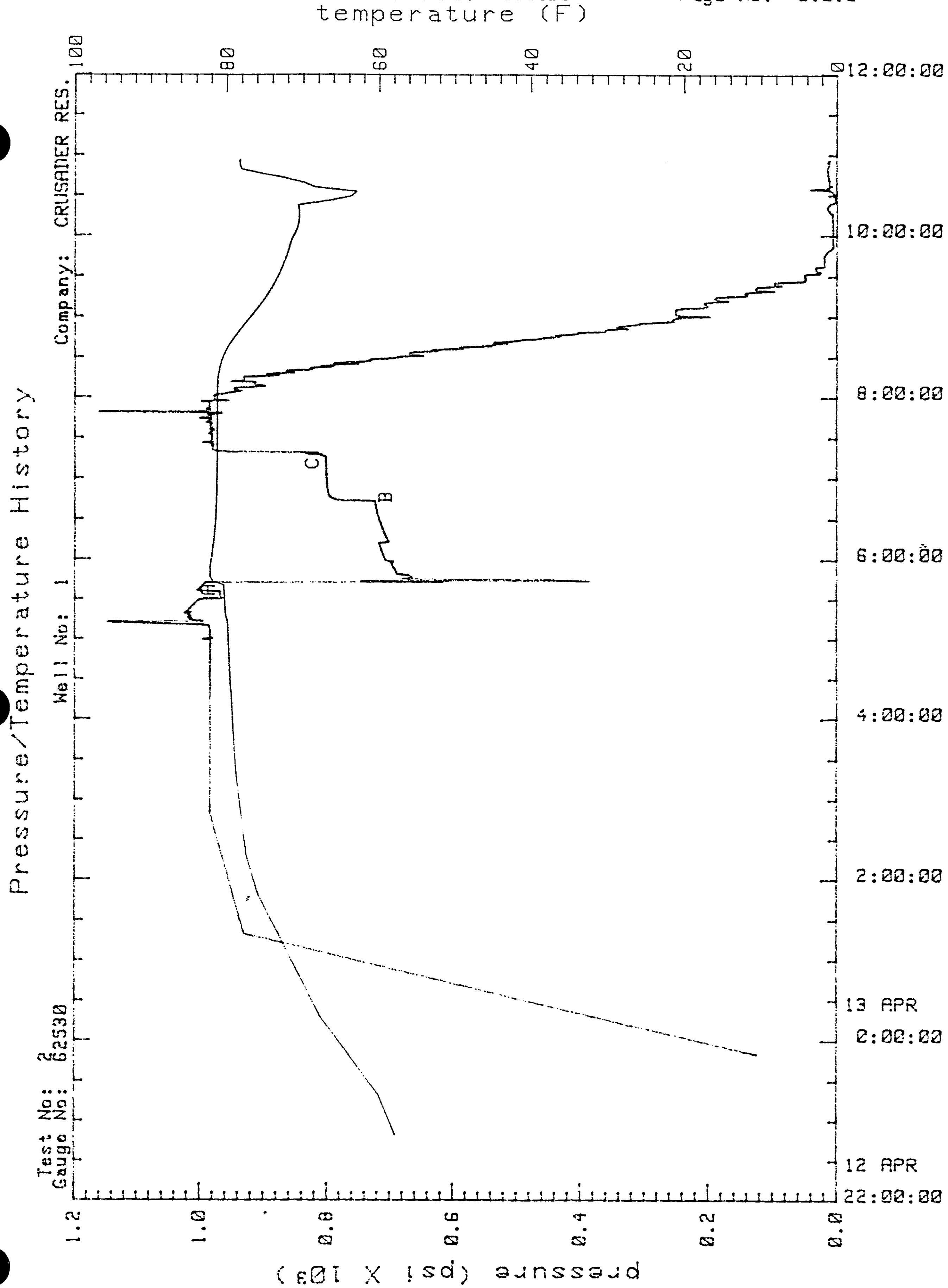
TEST PERIOD SUMMARY

Gauge No.: 62530 Depth: 1908.60 ft Blanked off: No

| ID | PERIOD | DESCRIPTION | PRESSURE (psi) | DURATION (min) |
|---|---|---|---|---|
| A | 1 | Start Draw-down | 991.89 | |
| B | | End Draw-down | 725.43 | 60.48 |
| B | 2 | Start Build-up | 725.43 | |
| C | | End Build-up | 803.47 | 33.12 |

NOTE: for Pressure vs. Time Plot, see next page.

Date: 13-APR-88 Ticket No: 330239 Page No: 3.2.0



Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.1

PRESSURE VS TIME

[illegible]C gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 12-APR-88 | | Data Print | Frequency: | 2 |
| 22:45:00 | | | | MAKE UP GAUGE CARRIERS |
| 23:20:00 | | | 59.9 | |
| 13-APR-88 | | | | |
| 00:20:00 | | | 67.8 | |
| 01:20:00 | | 931.287 | 73.1 | |
| 02:20:00 | | | 77.4 | |
| 03:20:00 | | | 78.7 | |
| 04:20:00 | | 984.180 | 79.4 | |
| 04:20:58 | | 983.897 | 79.4 | |
| 04:21:55 | | 983.865 | 79.4 | |
| 04:22:53 | | 983.791 | 79.4 | |
| 04:23:50 | | | 79.4 | |
| 04:24:48 | | 983.646 | 79.4 | |
| 04:25:46 | | 983.657 | 79.5 | |
| 04:26:43 | | 983.668 | 79.5 | |
| 04:27:41 | | 983.596 | 79.5 | |
| 04:28:38 | | 984.776 | 79.5 | |
| 04:29:36 | | 984.828 | 79.5 | |
| [illegible]:30:34 | | | 79.5 | |
| 04:31:31 | | 984.764 | 79.5 | |
| 04:32:29 | | 984.689 | 79.5 | |
| 04:33:26 | | 984.656 | 79.5 | |
| 04:34:24 | | 984.623 | 79.5 | |
| 04:35:22 | | 984.548 | 79.6 | |
| 04:36:19 | | 984.515 | 79.6 | |
| 04:37:17 | | | 79.6 | |
| 04:38:14 | | 984.449 | 79.6 | |
| 04:39:12 | | 984.415 | 79.6 | |
| 04:40:10 | | 984.382 | 79.6 | |
| 04:41:07 | | 984.307 | 79.6 | |
| 04:42:05 | | 984.273 | 79.6 | |
| 04:43:02 | | 984.239 | 79.6 | |
| 04:44:00 | | | 79.6 | |
| 04:44:58 | | 984.171 | 79.6 | |
| 04:45:55 | | 984.137 | 79.6 | |
| 04:46:53 | | 984.102 | 79.6 | |
| 04:47:50 | | 984.027 | 79.7 | |
| 04:48:48 | | 983.993 | 79.7 | |
| 04:49:46 | | 984.002 | 79.7 | |
| 04:50:43 | | | 79.7 | |
| 04:51:41 | | 983.891 | 79.7 | |
| 04:52:38 | | 983.897 | 79.7 | |
| 04:53:36 | | 983.862 | 79.7 | |
| 04:54:34 | | 983.827 | 79.7 | |
| [illegible]:55:31 | | 983.792 | 79.7 | |
| 04:56:29 | | 983.716 | 79.7 | |

PRESSURE VS TIME

RC gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 04:57:26 | | | 79.7 | |
| 04:58:24 | | 983.647 | 79.7 | |
| 04:59:22 | | 983.612 | 79.7 | |
| 05:00:19 | | 979.276 | 79.8 | |
| 05:01:17 | | 984.753 | 79.8 | |
| 05:02:14 | | 984.801 | 79.8 | |
| 05:03:12 | | 984.598 | 79.8 | |
| 05:04:10 | | | 79.8 | |
| 05:05:07 | | 984.820 | 79.8 | |
| 05:06:05 | | 984.535 | 79.8 | |
| 05:07:02 | | 984.792 | 79.8 | |
| 05:08:00 | | 985.510 | 79.8 | |
| 05:08:58 | | 986.353 | 79.8 | |
| 05:09:55 | | 986.988 | 79.8 | |
| 05:10:53 | | | 79.8 | |
| 05:11:50 | | 1109.406 | 79.8 | |
| 05:12:48 | | 1147.890 | 79.9 | |
| 05:13:46 | | 1007.645 | 79.9 | |
| 05:14:43 | | 1016.750 | 79.9 | |
| 05:15:41 | | 1014.043 | 80.0 | |
| 05:16:38 | | 1014.513 | 80.0 | |
| 05:17:36 | | | 80.1 | |
| 05:18:34 | | 1016.676 | 80.1 | |
| 05:19:31 | | 1025.016 | 80.1 | |
| 05:20:29 | | 1022.277 | 80.1 | |
| 05:21:26 | | 1020.036 | 80.2 | |
| 05:22:24 | | 1017.455 | 80.2 | |
| 05:23:22 | | 1015.041 | 80.2 | |
| 05:24:19 | | | 80.2 | |
| 05:25:17 | | 1010.672 | 80.2 | |
| 05:26:14 | | 1008.673 | 80.2 | |
| 05:27:12 | | 1006.633 | 80.2 | |
| 05:28:10 | | 1004.802 | 80.2 | |
| 05:29:07 | | 1002.969 | 80.2 | |
| 05:30:00 | | | | INFLATE PACKER |
| 05:30:05 | | 1000.718 | 80.2 | |
| 05:31:02 | | | 80.2 | |
| 05:32:00 | | 967.991 | 80.2 | |
| 05:32:58 | | 968.290 | 80.3 | |
| 05:33:55 | | 968.631 | 80.3 | |
| 05:34:53 | | 968.434 | 80.3 | |
| 05:35:50 | | 968.159 | 80.3 | |
| 05:36:48 | | 1004.301 | 80.3 | |
| 05:37:46 | | | 80.3 | |
| 05:38:43 | | 999.648 | 80.3 | |
| 05:39:41 | | 997.444 | 80.3 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.3

PRESSURE VS TIME

C gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 2 | | |
| 05:40:38 | | 995.323 | 80.4 | |
| 05:41:36 | | 993.443 | 80.6 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.4

PRESSURE VS TIME

GRC gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| | | *** Start of Period 1 *** | | |
| 05:42:34 | 0.0 | 991.886 | 81.0 | |
| 05:43:00 | | | | TOOL OPEN STRONG BLOW |
| 05:43:02 | 0.5 | 616.619 | 81.2 | |
| 05:43:31 | 1.0 | 747.753 | 81.4 | |
| 05:44:00 | 1.4 | 385.852 | 81.6 | |
| 05:44:29 | 1.9 | | 81.8 | |
| 05:44:58 | 2.4 | 441.857 | 81.9 | |
| 05:45:26 | 2.9 | 682.376 | 81.9 | |
| 05:45:55 | 3.4 | 667.660 | 82.0 | |
| 05:46:24 | 3.8 | 665.847 | 82.0 | |
| 05:46:46 | | | | BLOW DECEASED TO DEAD |
| 05:46:53 | 4.3 | 666.308 | 82.1 | |
| 05:47:22 | 4.8 | 669.540 | 82.1 | |
| 05:47:50 | 5.3 | | 82.2 | |
| 05:48:19 | 5.8 | 671.905 | 82.2 | |
| 05:48:48 | 6.2 | 690.354 | 82.2 | |
| 05:49:17 | 6.7 | 690.603 | 82.2 | |
| 05:49:46 | 7.2 | 690.853 | 82.2 | |
| 05:50:14 | 7.7 | 691.309 | 82.2 | |
| 05:50:43 | 8.2 | 691.806 | 82.2 | |
| 05:51:12 | 8.6 | | 82.2 | |
| 05:51:41 | 9.1 | 692.835 | 82.2 | |
| 05:52:10 | 9.6 | 693.448 | 82.1 | |
| 05:52:38 | 10.1 | 694.104 | 82.1 | |
| 05:53:07 | 10.6 | 694.676 | 82.1 | |
| 05:53:36 | 11.0 | 695.248 | 82.1 | |
| 05:54:05 | 11.5 | 695.821 | 82.1 | |
| 05:54:34 | 12.0 | | 82.1 | |
| 05:55:02 | 12.5 | 697.045 | 82.1 | |
| 05:55:31 | 13.0 | 697.779 | 82.1 | |
| 05:56:00 | 13.4 | 698.224 | 82.1 | |
| 05:56:29 | 13.9 | 698.710 | 82.1 | |
| 05:56:58 | 14.4 | 699.154 | 82.1 | |
| 05:57:26 | 14.9 | 699.599 | 82.0 | |
| 05:57:55 | 15.4 | | 82.0 | |
| 05:58:24 | 15.8 | 695.230 | 82.0 | |
| 05:58:53 | 16.3 | 707.717 | 82.0 | |
| 05:59:22 | 16.8 | 708.491 | 82.0 | |
| 05:59:50 | 17.3 | 709.099 | 82.0 | |
| 06:00:19 | 17.8 | 709.666 | 82.0 | |
| 06:00:48 | 18.2 | 710.150 | 82.0 | |
| 06:01:17 | 18.7 | | 81.9 | |
| 06:01:46 | 19.2 | 710.994 | 81.9 | |
| 06:02:14 | 19.7 | 711.436 | 81.9 | |
| 06:02:43 | 20.2 | 711.796 | 81.9 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.5

PRESSURE VS TIME

RC gauge no.: 62530
Memory Recorder No.: 65478

Gauge Depth: 1908.60 ft

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| 06:03:12 | 20.6 | 712.156 | 81.9 | |
| 06:03:41 | 21.1 | 712.599 | 81.9 | |
| 06:04:10 | 21.6 | 712.959 | 81.9 | |
| 06:04:38 | 22.1 | | 81.9 | |
| 06:05:07 | 22.6 | 713.680 | 81.8 | |
| 06:05:36 | 23.0 | 714.041 | 81.8 | |
| 06:06:05 | 23.5 | 714.402 | 81.8 | |
| 06:06:34 | 24.0 | 714.721 | 81.8 | |
| 06:07:02 | 24.5 | 715.124 | 81.8 | |
| 06:07:31 | 25.0 | 715.485 | 81.8 | |
| 06:08:00 | 25.4 | | 81.8 | |
| 06:08:29 | 25.9 | 716.621 | 81.8 | |
| 06:08:58 | 26.4 | 716.941 | 81.7 | |
| 06:09:26 | 26.9 | 717.262 | 81.7 | |
| 06:09:55 | 27.4 | 717.541 | 81.7 | |
| 06:10:24 | 27.8 | 717.861 | 81.7 | |
| 06:10:53 | 28.3 | 718.140 | 81.7 | |
| 06:11:22 | 28.8 | | 81.7 | |
| 06:11:50 | 29.3 | 718.780 | 81.7 | |
| 06:12:19 | 29.8 | 719.059 | 81.7 | |
| 06:12:48 | 30.2 | 700.955 | 81.7 | |
| 06:13:17 | 30.7 | 703.220 | 81.6 | |
| 06:13:46 | 31.2 | 703.912 | 81.6 | |
| 06:14:14 | 31.7 | 704.522 | 81.6 | |
| 06:14:43 | 32.2 | | 81.6 | |
| 06:15:12 | 32.6 | 705.661 | 81.6 | |
| 06:15:41 | 33.1 | 706.150 | 81.6 | |
| 06:16:10 | 33.6 | 706.679 | 81.6 | |
| 06:16:38 | 34.1 | 707.375 | 81.6 | |
| 06:17:07 | 34.6 | 707.904 | 81.6 | |
| 06:17:36 | 35.0 | 708.434 | 81.6 | |
| 06:18:05 | 35.5 | | 81.6 | |
| 06:18:34 | 36.0 | 709.370 | 81.5 | |
| 06:19:02 | 36.5 | 709.776 | 81.5 | |
| 06:19:31 | 37.0 | 710.224 | 81.5 | |
| 06:20:00 | 37.4 | 710.755 | 81.5 | |
| 06:20:29 | 37.9 | 711.161 | 81.5 | |
| 06:20:58 | 38.4 | 711.567 | 81.5 | |
| 06:21:26 | 38.9 | | 81.5 | |
| 06:21:55 | 39.4 | 712.257 | 81.5 | |
| 06:22:24 | 39.8 | 712.664 | 81.5 | |
| 06:22:53 | 40.3 | 713.071 | 81.5 | |
| 06:23:22 | 40.8 | 713.437 | 81.5 | |
| 06:23:50 | 41.3 | 713.886 | 81.5 | |
| 06:24:19 | 41.8 | 714.252 | 81.5 | |
| 06:24:48 | 42.2 | | 81.4 | |

PRESSURE VS TIME

RC gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 1 |
| 06:25:17 | 42.7 | 714.943 | 81.4 | |
| 06:25:46 | 43.2 | 715.351 | 81.4 | |
| 06:26:14 | 43.7 | 715.677 | 81.4 | |
| 06:26:43 | 44.2 | 716.085 | 81.4 | |
| 06:27:12 | 44.6 | 716.411 | 81.4 | |
| 06:27:41 | 45.1 | 716.736 | 81.4 | |
| 06:28:10 | 45.6 | | 81.4 | |
| 06:28:38 | 46.1 | 718.051 | 81.4 | |
| 06:29:07 | 46.6 | 718.047 | 81.4 | |
| 06:29:36 | 47.0 | 718.497 | 81.4 | |
| 06:30:05 | 47.5 | 718.783 | 81.4 | |
| 06:30:34 | 48.0 | 719.068 | 81.4 | |
| 06:31:02 | 48.5 | 719.436 | 81.4 | |
| 06:31:31 | 49.0 | | 81.4 | |
| 06:32:00 | 49.4 | 720.089 | 81.4 | |
| 06:32:29 | 49.9 | 720.374 | 81.4 | |
| 06:32:58 | 50.4 | 720.701 | 81.4 | |
| 06:33:26 | 50.9 | 720.945 | 81.4 | |
| 06:33:55 | 51.4 | 721.230 | 81.3 | |
| 06:34:24 | 51.8 | 721.598 | 81.3 | |
| 06:34:53 | 52.3 | | 81.3 | |
| 06:35:22 | 52.8 | 722.127 | 81.3 | |
| 06:35:50 | 53.3 | 722.331 | 81.3 | |
| 06:36:19 | 53.8 | 722.409 | 81.3 | |
| 06:36:48 | 54.2 | 722.696 | 81.3 | |
| 06:37:17 | 54.7 | 722.816 | 81.3 | |
| 06:37:46 | 55.2 | 723.019 | 81.3 | |
| 06:38:14 | 55.7 | | 81.3 | |
| 06:38:43 | 56.2 | 723.674 | 81.3 | |
| 06:39:12 | 56.6 | 723.920 | 81.3 | |
| 06:39:41 | 57.1 | 723.916 | 81.3 | |
| 06:40:10 | 57.6 | 724.120 | 81.3 | |
| 06:40:38 | 58.1 | 724.324 | 81.3 | |
| 06:41:07 | 58.6 | 724.527 | 81.3 | |
| 06:41:36 | 59.0 | | 81.3 | |
| 06:42:05 | 59.5 | 725.021 | 81.3 | |
| 06:42:34 | 60.0 | 725.227 | 81.3 | |
| 06:43:00 | | | | TOOL CLOSED |
| 06:43:02 | 60.5 | 725.434 | 81.3 | |

*** End of Period 1 ***

PRESSURE VS TIME

RC gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| | | *** Start of Period 2 *** | | |
| 06:43:31 | 0.5 | 782.317 | 81.3 | |
| 06:44:00 | 1.0 | 785.055 | 81.3 | |
| 06:44:29 | 1.4 | 788.001 | 81.3 | |
| 06:44:58 | 1.9 | | 81.3 | |
| 06:45:26 | 2.4 | 794.764 | 81.3 | |
| 06:45:55 | 2.9 | 796.257 | 81.3 | |
| 06:46:24 | 3.4 | 796.961 | 81.3 | |
| 06:46:53 | 3.8 | 797.416 | 81.3 | |
| 06:47:22 | 4.3 | 797.912 | 81.3 | |
| 06:47:50 | 4.8 | 798.366 | 81.3 | |
| 06:48:19 | 5.3 | | 81.3 | |
| 06:48:48 | 5.8 | 799.151 | 81.3 | |
| 06:49:17 | 6.2 | 799.439 | 81.3 | |
| 06:49:46 | 6.7 | 799.727 | 81.3 | |
| 06:50:14 | 7.2 | 799.974 | 81.3 | |
| 06:50:43 | 7.7 | 800.179 | 81.3 | |
| 06:51:12 | 8.2 | 800.384 | 81.3 | |
| 06:51:41 | 8.6 | | 81.3 | |
| 06:52:10 | 9.1 | 800.711 | 81.3 | |
| 06:52:38 | 9.6 | 800.875 | 81.2 | |
| 06:53:07 | 10.1 | 800.997 | 81.2 | |
| 06:53:36 | 10.6 | 801.120 | 81.2 | |
| 06:54:05 | 11.0 | 801.200 | 81.2 | |
| 06:54:34 | 11.5 | 801.323 | 81.2 | |
| 06:55:02 | 12.0 | | 81.2 | |
| 06:55:31 | 12.5 | 801.485 | 81.2 | |
| 06:56:00 | 13.0 | 801.567 | 81.2 | |
| 06:56:29 | 13.4 | 801.648 | 81.2 | |
| 06:56:58 | 13.9 | 801.688 | 81.2 | |
| 06:57:26 | 14.4 | 801.770 | 81.2 | |
| 06:57:55 | 14.9 | 801.851 | 81.2 | |
| 06:58:24 | 15.4 | | 81.2 | |
| 06:58:53 | 15.8 | 801.973 | 81.2 | |
| 06:59:22 | 16.3 | 802.014 | 81.2 | |
| 06:59:50 | 16.8 | 802.096 | 81.2 | |
| 07:00:19 | 17.3 | 802.137 | 81.2 | |
| 07:00:48 | 17.8 | 802.177 | 81.2 | |
| 07:01:17 | 18.2 | 802.259 | 81.2 | |
| 07:01:46 | 18.7 | | 81.2 | |
| 07:02:14 | 19.2 | 802.340 | 81.2 | |
| 07:02:43 | 19.7 | 802.463 | 81.2 | |
| 07:03:12 | 20.2 | 802.462 | 81.2 | |
| 07:03:41 | 20.6 | 802.543 | 81.2 | |
| 07:04:10 | 21.1 | 802.583 | 81.2 | |
| 07:04:38 | 21.6 | 802.582 | 81.2 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.8

PRESSURE VS TIME

RC gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print Frequency: 1 | | |
| 07:05:07 | 22.1 | | 81.2 | |
| 07:05:36 | 22.6 | 802.703 | 81.2 | |
| 07:06:05 | 23.0 | 802.702 | 81.2 | |
| 07:06:34 | 23.5 | 802.742 | 81.2 | |
| 07:07:02 | 24.0 | 802.782 | 81.2 | |
| 07:07:31 | 24.5 | 802.823 | 81.2 | |
| 07:08:00 | 25.0 | 802.863 | 81.2 | |
| 07:08:29 | 25.4 | | 81.2 | |
| 07:08:58 | 25.9 | 802.944 | 81.2 | |
| 07:09:26 | 26.4 | 802.984 | 81.2 | |
| 07:09:55 | 26.9 | 803.025 | 81.2 | |
| 07:10:24 | 27.4 | 803.149 | 81.2 | |
| 07:10:53 | 27.8 | 803.148 | 81.2 | |
| 07:11:22 | 28.3 | 803.189 | 81.2 | |
| 07:11:50 | 28.8 | | 81.2 | |
| 07:12:19 | 29.3 | 803.228 | 81.2 | |
| 07:12:48 | 29.8 | 803.228 | 81.2 | |
| 07:13:17 | 30.2 | 803.310 | 81.2 | |
| 07:13:46 | 30.7 | 803.309 | 81.2 | |
| 07:14:14 | 31.2 | 803.350 | 81.2 | |
| 07:14:43 | 31.7 | 803.391 | 81.2 | |
| 07:15:12 | 32.2 | | 81.2 | |
| 07:15:41 | 32.6 | 803.473 | 81.2 | |
| 07:16:10 | 33.1 | 803.473 | 81.2 | |
| | | *** End of Period 2 *** | | |
| | | Data Print Frequency: 2 | | |
| 07:16:38 | | 807.293 | 81.2 | |
| 07:17:36 | | 809.121 | 81.2 | |
| 07:18:34 | | | 81.2 | |
| 07:19:31 | | 954.943 | 81.2 | |
| 07:20:00 | | | | PULL FREE BYPASS OPEN |
| 07:20:29 | | 978.531 | 81.2 | |
| 07:21:26 | | 981.378 | 81.2 | |
| 07:22:24 | | 980.631 | 81.2 | |
| 07:23:22 | | 981.927 | 81.2 | |
| 07:24:19 | | 982.679 | 81.2 | |
| 07:25:17 | | | 81.2 | |
| 07:26:14 | | 982.679 | 81.2 | |
| 07:27:12 | | 979.921 | 81.2 | |
| 07:28:10 | | 982.675 | 81.2 | |
| 07:29:07 | | 981.588 | 81.2 | |
| 07:30:05 | | 981.921 | 81.2 | |
| 07:31:02 | | 981.335 | 81.2 | |
| 07:32:00 | | | 81.2 | |
| 07:32:58 | | 986.552 | 81.2 | |
| 07:33:55 | | 981.707 | 81.2 | |

PRESSURE VS TIME

[illegible]RC gauge no.: 62530
Memory Recorder No.: 65478

Gauge Depth: 1908.60 ft

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 07:34:53 | | 983.501 | 81.2 | |
| 07:35:50 | | 979.574 | 81.2 | |
| 07:36:48 | | 980.449 | 81.2 | |
| 07:37:46 | | 983.454 | 81.2 | |
| 07:38:43 | | | 81.2 | |
| 07:39:41 | | 982.491 | 81.2 | |
| 07:40:38 | | 981.196 | 81.2 | |
| 07:41:36 | | 991.343 | 81.2 | |
| 07:42:34 | | 983.283 | 81.2 | |
| 07:43:31 | | 983.282 | 81.2 | |
| 07:44:29 | | 1001.993 | 81.2 | |
| 07:45:26 | | | 81.2 | |
| 07:46:24 | | 983.993 | 81.2 | |
| 07:47:22 | | 975.102 | 81.2 | |
| 07:48:19 | | 966.089 | 81.2 | |
| 07:49:17 | | 1162.921 | 81.2 | |
| 07:50:14 | | 985.418 | 81.2 | |
| 07:51:12 | | 985.584 | 81.2 | |
| 07:52:10 | | | 81.2 | |
| 07:53:07 | | 984.789 | 81.2 | |
| 07:54:05 | | 985.916 | 81.2 | |
| 07:55:02 | | 985.415 | 81.2 | |
| 07:56:00 | | 985.748 | 81.2 | |
| 07:56:58 | | 999.823 | 81.2 | |
| 07:57:55 | | 977.896 | 81.2 | |
| 07:58:53 | | | 81.2 | |
| 07:59:50 | | 978.560 | 81.2 | |
| 08:00:48 | | 978.600 | 81.2 | |
| 08:01:46 | | 978.681 | 81.2 | |
| 08:02:43 | | 959.980 | 81.2 | |
| 08:03:41 | | 949.214 | 81.2 | |
| 08:04:38 | | 934.992 | 81.2 | |
| 08:05:36 | | | 81.2 | |
| 08:06:34 | | 946.454 | 81.2 | |
| 08:07:31 | | 921.768 | 81.2 | |
| 08:08:29 | | 898.059 | 81.2 | |
| 08:09:26 | | 913.885 | 81.2 | |
| 08:10:24 | | 913.713 | 81.2 | |
| 08:11:22 | | 913.584 | 81.2 | |
| 08:12:19 | | | 81.1 | |
| 08:13:17 | | 931.526 | 81.1 | |
| 08:14:14 | | 931.386 | 81.1 | |
| 08:15:12 | | 931.286 | 81.1 | |
| 08:16:10 | | 875.616 | 81.1 | |
| 08:17:07 | | 895.364 | 81.1 | |
| 08:18:05 | | 864.702 | 81.0 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.10

PRESSURE VS TIME

RC gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 08:19:02 | | | 81.0 | |
| 08:20:00 | | 865.599 | 81.0 | |
| 08:20:58 | | 824.984 | 80.9 | |
| 08:21:55 | | 827.236 | 80.9 | |
| 08:22:53 | | 791.147 | 80.9 | |
| 08:23:50 | | 789.901 | 80.8 | |
| 08:24:48 | | 750.449 | 80.8 | |
| 08:25:46 | | | 80.7 | |
| 08:26:43 | | 730.668 | 80.7 | |
| 08:27:41 | | 732.894 | 80.6 | |
| 08:28:38 | | 706.293 | 80.6 | |
| 08:29:36 | | 689.138 | 80.5 | |
| 08:30:34 | | 664.376 | 80.4 | |
| 08:31:31 | | 667.451 | 80.4 | |
| 08:32:29 | | | 80.3 | |
| 08:33:26 | | 669.323 | 80.2 | |
| 08:34:24 | | 624.895 | 80.1 | |
| 08:35:22 | | 634.185 | 80.0 | |
| 08:36:19 | | 585.465 | 79.9 | |
| 08:37:17 | | 590.971 | 79.8 | |
| 08:38:14 | | 540.699 | 79.7 | |
| 08:39:12 | | | 79.6 | |
| 08:40:10 | | 515.199 | 79.5 | |
| 08:41:07 | | 537.895 | 79.4 | |
| 08:42:05 | | 502.420 | 79.3 | |
| 08:43:02 | | 489.877 | 79.2 | |
| 08:44:00 | | 459.538 | 79.0 | |
| 08:44:58 | | 448.238 | 78.9 | |
| 08:45:55 | | | 78.8 | |
| 08:46:53 | | 423.549 | 78.7 | |
| 08:47:50 | | 405.155 | 78.5 | |
| 08:48:48 | | 363.003 | 78.4 | |
| 08:49:46 | | 361.721 | 78.3 | |
| 08:50:43 | | 356.834 | 78.1 | |
| 08:51:41 | | 341.302 | 78.0 | |
| 08:52:38 | | | 77.9 | |
| 08:53:36 | | 326.211 | 77.7 | |
| 08:54:34 | | 308.930 | 77.6 | |
| 08:55:31 | | 308.667 | 77.5 | |
| 08:56:29 | | 263.526 | 77.3 | |
| 08:57:26 | | 255.502 | 77.2 | |
| 08:58:24 | | 255.481 | 77.0 | |
| 08:59:22 | | | 76.9 | |
| 09:00:19 | | 197.019 | 76.8 | |
| 09:01:17 | | 245.703 | 76.6 | |
| 09:02:14 | | 251.971 | 76.5 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.11

PRESSURE VS TIME

C gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 09:03:12 | | 252.034 | 76.3 | |
| 09:04:10 | | 252.344 | 76.2 | |
| 09:05:07 | | 252.287 | 76.1 | |
| 09:06:05 | | | 75.9 | |
| 09:07:02 | | 208.349 | 75.8 | |
| 09:08:00 | | 202.870 | 75.7 | |
| 09:08:58 | | 204.200 | 75.5 | |
| 09:09:55 | | 206.311 | 75.4 | |
| 09:10:53 | | 206.226 | 75.3 | |
| 09:11:50 | | 168.933 | 75.2 | |
| 09:12:48 | | | 75.0 | |
| 09:13:46 | | 189.506 | 74.9 | |
| 09:14:43 | | 189.549 | 74.8 | |
| 09:15:41 | | 139.826 | 74.7 | |
| 09:16:38 | | 140.361 | 74.6 | |
| 09:17:36 | | 143.628 | 74.5 | |
| 09:18:34 | | 133.099 | 74.4 | |
| 09:19:31 | | | 74.3 | |
| 09:20:29 | | 127.148 | 74.2 | |
| 09:21:26 | | 127.207 | 74.1 | |
| 09:22:24 | | 123.646 | 74.0 | |
| 09:23:22 | | 85.008 | 73.9 | |
| 09:24:19 | | 97.791 | 73.8 | |
| 09:25:17 | | 97.774 | 73.7 | |
| 09:26:14 | | | 73.6 | |
| 09:27:12 | | 49.619 | 73.5 | |
| 09:28:10 | | 48.756 | 73.4 | |
| 09:29:07 | | 48.583 | 73.3 | |
| 09:30:05 | | 50.848 | 73.2 | |
| 09:31:02 | | 51.048 | 73.2 | |
| 09:32:00 | | 51.126 | 73.1 | |
| 09:32:58 | | | 73.0 | |
| 09:33:55 | | 31.658 | 72.9 | |
| 09:34:53 | | 32.845 | 72.9 | |
| 09:35:50 | | 32.977 | 72.8 | |
| 09:36:48 | | 33.350 | 72.7 | |
| 09:37:46 | | 20.297 | 72.7 | |
| 09:38:43 | | 18.963 | 72.6 | |
| 09:39:41 | | | 72.5 | |
| 09:40:38 | | 19.465 | 72.4 | |
| 09:41:36 | | 19.353 | 72.4 | |
| 09:42:34 | | 19.404 | 72.3 | |
| 09:43:31 | | 19.498 | 72.2 | |
| 09:44:29 | | 19.514 | 72.2 | |
| 09:45:26 | | 19.490 | 72.1 | |
| 09:46:24 | | | 72.1 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.12

PRESSURE VS TIME

RC gauge no.: 62530 Gauge Depth: 1908.60 ft
Memory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 09:47:22 | | 15.840 | 72.0 | |
| 09:48:19 | | 15.296 | 72.0 | |
| 09:49:17 | | 13.008 | 71.9 | |
| 09:50:14 | | 9.429 | 71.9 | |
| 09:51:12 | | 6.747 | 71.8 | |
| 09:52:10 | | 5.200 | 71.8 | |
| 09:53:07 | | | 71.7 | |
| 09:54:05 | | 4.526 | 71.7 | |
| 09:55:02 | | 5.967 | 71.6 | |
| 09:56:00 | | 6.070 | 71.6 | |
| 09:56:58 | | 5.431 | 71.5 | |
| 09:57:55 | | 5.511 | 71.4 | |
| 09:58:53 | | 5.631 | 71.3 | |
| 09:59:50 | | | 71.3 | |
| 10:00:48 | | 5.863 | 71.2 | |
| 10:01:46 | | 5.895 | 71.1 | |
| 10:02:43 | | 5.927 | 71.0 | |
| 10:03:41 | | 5.968 | 70.9 | |
| 10:04:38 | | 5.977 | 70.9 | |
| 10:05:36 | | 5.985 | 70.8 | |
| 10:06:34 | | | 70.7 | |
| 10:07:31 | | 6.029 | 70.7 | |
| 10:08:29 | | 6.064 | 70.6 | |
| 10:09:26 | | 6.301 | 70.6 | |
| 10:10:24 | | 6.308 | 70.6 | |
| 10:11:22 | | 6.734 | 70.5 | |
| 10:12:19 | | 6.835 | 70.5 | |
| 10:13:17 | | | 70.5 | |
| 10:14:14 | | 6.854 | 70.5 | |
| 10:15:12 | | 7.015 | 70.5 | |
| 10:16:10 | | 6.892 | 70.5 | |
| 10:17:07 | | 6.536 | 70.5 | |
| 10:18:05 | | 11.296 | 70.5 | |
| 10:19:02 | | 11.598 | 70.5 | |
| 10:20:00 | | | 70.6 | |
| 10:20:58 | | 14.652 | 70.6 | |
| 10:21:55 | | 14.568 | 70.6 | |
| 10:22:53 | | 12.050 | 70.7 | |
| 10:23:50 | | 11.342 | 70.1 | |
| 10:24:48 | | 5.829 | 68.9 | |
| 10:25:46 | | -0.137 | 67.7 | |
| 10:26:43 | | | 66.4 | |
| 10:27:41 | | 2.592 | 65.6 | |
| 10:28:38 | | 2.372 | 64.8 | |
| 10:29:36 | | 3.082 | 64.0 | |
| 10:30:34 | | 3.619 | 63.5 | |

Date: 13-APR-88 Ticket No: 330039 Page No: 3.2.13

PRESSURE VS TIME

C gauge no.: 62530 Gauge Depth: 1908.60 ft
emory Recorder No.: 65478

| TIME HH:MM:SS | D TIME (min) | PRESSURE (psi) | TEMP (F) | COMMENTS |
|---|---|---|---|---|
| 13-APR-88 | | Data Print | Frequency: | 2 |
| 10:31:31 | | 4.718 | 63.3 | |
| 10:32:29 | | 5.370 | 63.1 | |
| 10:33:26 | | | 62.9 | |
| 10:34:24 | | 11.852 | 64.5 | |
| 10:35:22 | | 22.455 | 66.1 | |
| 10:36:19 | | 13.573 | 67.7 | |
| 10:37:17 | | 7.889 | 68.7 | |
| 10:38:14 | | 11.370 | 69.2 | |
| 10:39:12 | | 11.484 | 69.6 | |
| 10:40:10 | | | 70.0 | |
| 10:41:07 | | 12.542 | 70.7 | |
| 10:42:05 | | 13.037 | 71.4 | |
| 10:43:02 | | 13.611 | 72.1 | |
| 10:44:00 | | 13.593 | 72.8 | |
| 10:44:58 | | 14.237 | 73.7 | |
| 10:45:55 | | 13.742 | 74.6 | |
| 10:46:53 | | | 75.5 | |
| 10:47:50 | | 14.185 | 76.2 | |
| :48:48 | | 14.921 | 77.0 | |
| 0:49:46 | | 14.559 | 77.7 | |
| 10:50:43 | | 13.437 | 78.1 | |
| 10:51:41 | | 13.501 | 78.2 | |
| 10:52:38 | | 12.187 | 78.3 | |
| 10:53:36 | | | 78.3 | |
| 10:54:34 | | 12.859 | 78.3 | |
| 10:55:31 | | 12.940 | 78.3 | |
| 10:56:29 | | 12.130 | 78.3 | |
| 10:56:58 | | | 78.3 | |
| 11:00:00 | | | | TEST TOOLS OUT OF HOLE |

# APPENDIX 6

# APPENDIX 6

## DESCRIPTION OF CUTTING SAMPLES

WONGA BINDA #1 : SAMPLE DESCRIPTIONS.

| Metres | % | Description |
|---|---|---|
| 50 | 100 | SANDSTONE, clear to milky white, common yellow iron stained, medium to coarse, sub-rounded, poorly sorted, trace ferruginous / argillaceous matrix / cement, loose, good porosity. |
| 60 | 10 | SANDSTONE, a.a. |
| | 90 | LIMESTONE, light to medium grey, pale brown, firm to moderately hard, sandy in part, argillaceous in part, fossiliferous, trace lithic/volcanic fragments. |
| 70 | 20 | SANDSTONE, a.a. |
| | 80 | LIMESTONE, off white to light grey, silty in part, firm, abundant fossils, trace glauconite. |
| 80 | Tr | SANDSTONE, a.a. |
| | 100 | LIMESTONE, a.a. |
| 90 | 10 | SANDSTONE, a.a. |
| | 90 | LIMESTONE, a.a. - grading to marl, dispersive and argillaceous in part. |
| 100 | Tr | SANDSTONE, a.a. |
| | 100 | LIMESTONE, a.a. |
| 110 | 10 | SANDSTONE, a.a. |
| | 90 | LIMESTONE, a.a. - grades to marl, silty and argillaceous in part. |
| 120 | Tr | SANDSTONE, a.a. |
| | 100 | LIMESTONE, a.a. |
| 130 | Tr | SANDSTONE, a.a. |
| | 100 | LIMESTONE, a.a. - grades to marl in part, trace glauconite and lithic fragments. |
| 140 | 100 | LIMESTONE, a.a. |
| 150 | 100 | LIMESTONE, a.a. |
| 160 | 100 | LIMESTONE, a.a. |
| 170 | 100 | LIMESTONE, white, cream, sandy in part, friable, fossiliferous. |
| 180 | 100 | LIMESTONE, a.a. |
| 190 | 100 | LIMESTONE, white, cream, very fossiliferous, abundant light to dark green glauconite. |
| 200 | 100 | LIMESTONE, a.a. - fossiliferous, abundant shell fragments, bryozoa, some forams, common to abundant glauconite which replaces shell in part. |
| 210 | 100 | LIMESTONE, a.a. - very glauconitic. |
| 220 | - | NO SAMPLE, changing shaker screen. |
| 230 | 100 | LIMESTONE, white, off white, fossiliferous, green glauconite, trace mica. |

240 20 MARL, light brown, grey, silty, argillaceous, dispersive, grading to limestone.
80 LIMESTONE, white, cream, light grey-brown, firm, fossiliferous, common to abundant glauconite, silty in part, grading to marl in part.

250 10 MARL, a.a.
90 LIMESTONE, a.a.

260 Tr MARL, a.a.
100 LIMESTONE, a.a. - common glauconite, very fossiliferous.

270 10 MARL, a.a. - grades to limestone.
90 LIMESTONE, a.a. - white, cream, light grey, silty in part, glauconitic, very fossiliferous.

280 10 MARL, a.a.
90 LIMESTONE, a.a. - grey, hard, crystalline in part.

290 10 MARL, a.a.
90 LIMESTONE, a.a.

300 20 MARL, white to light grey-brown, soft to firm, dispersive, silty in part, grading to limestone.
80 LIMESTONE, white, light grey-brown, argillaceous in part, grading to marl, fossiliferous, glauconitic.

310 30 MARL, a.a. - white to light grey, silty, dispersive, trace glauconite.
70 LIMESTONE, a.a. - trace glauconite.

320 40 MARL, a.a.
60 LIMESTONE, a.a. - grey-brown, crystalline, hard.

330 30 MARL, a.a. - also greenish white, glauconitic.
70 LIMESTONE, a.a. - fossiliferous, crystalline in part.

340 30 MARL, a.a.
70 LIMESTONE, a.a.

350 30 MARL, light grey-brown, firm, silty, fossiliferous, glauconitic, grading to limestone.
70 LIMESTONE, white, light grey-brown, firm to hard, fossiliferous, glauconitic, grading to marl in part.

360 40 MARL, a.a.
60 LIMESTONE, a.a.

370 30 MARL, a.a.
70 LIMESTONE, a.a.

380 40 MARL, a.a.
60 LIMESTONE, a.a.

390 40 MARL, a.a.
60 LIMESTONE, a.a.

400 -- NO SAMPLE, changing shaker screen.

410 70 MARL, a.a. - grey, grey-brown, silty, argillaceous, glauconitic.
30 LIMESTONE, a.a.

420 70 MARL, a.a.
30 LIMESTONE, a.a.

430 70 MARL, a.a. - grades to claystone in part.
30 LIMESTONE, a.a.

440 80 MARL, light to medium grey, light grey-brown, soft to firm, dispersive, silty, minor glauconite, fossiliferous.
20 LIMESTONE, a.a.

450 70 MARL, a.a. - argillaceous / dispersive.
30 LIMESTONE, a.a. - cream, glauconitic.

460 70 MARL, a.a. - also grey-green, glauconitic.
30 LIMESTONE, a.a.

470 80 MARL, a.a. - also green-grey, glauconitic.
20 LIMESTONE, a.a.

480 70 MARL, a.a.
30 LIMESTONE, a.a.

490 80 MARL, a.a.
20 LIMESTONE, a.a.

500 80 MARL, white to bluish grey, soft to firm, argillaceous, minor glauconite and fossils.
20 LIMESTONE, a.a. - mostly white to yellow brown, hard, crystalline, some fossils.

510 90 MARL, a.a. - white to dark bluish grey, fossiliferous.
10 LIMESTONE, a.a.

520 80 MARL, a.a. - mostly medium to dark blue-grey.
20 LIMESTONE, a.a. - pinkish white, light yellow-brown, fossiliferous and crystalline.

530 100 MARL, light to dark bluish grey, soft, sticky, dispersive, very argillaceous, grading to claystone.
Tr LIMESTONE, a.a.

540 100 MARL, a.a. - grades to claystone.
Tr LIMESTONE, a.a.

550 90 MARL, a.a.
10 LIMESTONE, a.a.

560 90 MARL, a.a.
10 LIMESTONE, a.a.

570 100 MARL, a.a. - trace pyrite.
Tr LIMESTONE, white, brown, grey, hard, fossiliferaous, some crystalline grains.

580 100 MARL, a.a. - grey-green, grey-blue, argillaceous, dispersive in part, soft, silty, grades to calcareous claystone.
Tr LIMESTONE, a.a.

590 100 MARL, a.a. - also light green, soft, argillaceous, trace glauconite.
Tr LIMESTONE, a.a.

| | | |
|---|---|---|
| 600 | 60 | SANDSTONE, clear, fine to coarse, angular to occasional rounded, (polished surfaces on some grains), poorly sorted, loose, no matrix or cement. No Fluorescence. |
| | 40 | MARL, dark grey, soft, very glauconitic with fine to coarse grains, disseminated pyrite, occasional embedded sand grains. |
| | Tr | LIMESTONE, a.a. |
| 603 | 30 | SANDSTONE, a.a. |
| | 70 | MARL, light green, light to dark grey, soft to firm, abundant fine to coarse glauconite grains. |
| | Tr | LIMESTONE, a.a. |
| 606 | 70 | SANDSTONE, a.a. |
| | 30 | MARL, a.a. |
| | Tr | LIMESTONE, a.a. |
| 609 | 100 | SANDSTONE, clear, fine to coarse, angular to sub-angular, poorly sorted, no matrix or cement, very good porosity. |
| 612 | 100 | SANDSTONE, clear, fine to coarse, sub-angular to sub-rounded, poorly sorted, no matrix or cement, very good porosity. |
| | Tr | CLAYSTONE/MARL, green, soft to firm, trace glauconite. |
| 615 | 100 | SANDSTONE, a.a. |
| 618 | 100 | SANDSTONE, a.a. |
| 621 | 100 | SANDSTONE, a.a. |
| 624 | 50 | SANDSTONE, clear, medium to very coarse, sub-angular to sub-rounded, moderate sorted, no matrix or cement, good porosity. |
| | 50 | CLAYSTONE, dark brown, soft, dispersive, silty in part, slightly calcareous. |
| 627 | 50 | SANDSTONE, a.a. |
| | 50 | CLAYSTONE, a.a. |
| 630 | 60 | SANDSTONE, a.a. |
| | 40 | CLAYSTONE, a.a. |
| 633 | 80 | SANDSTONE, a.a. - fine to very coarse, good porosity. |
| | 20 | CLAYSTONE, a.a. |
| 636 | 100 | SANDSTONE, a.a. - fine to very coarse, sub-angular, poorly sorted, no matrix or cement, good porosity. |
| | Tr | CLAYSTONE, a.a. |
| 639 | 100 | SANDSTONE, a.a. |
| 642 | 100 | SANDSTONE, a.a. |
| 645 | 70 | SANDSTONE, a.a. |
| | 30 | CLAYSTONE, a.a. |
| 648 | 30 | SANDSTONE, a.a. |
| | 70 | CLAYSTONE, a.a. - dark brown, soft, dispersive. |

651 50 SANDSTONE, clear, fine to very coarse, sub-angular, poorly sorted quartz grains, trace mica, good porosity.
50 CLAYSTONE, a.a.
Tr COAL, black, shaley.

654 30 SANDSTONE, a.a. - common white mica.
70 CLAYSTONE, a.a.

657 50 SANDSTONE, a.a. - mostly fine to medium, abundant white mica.
40 CLAYSTONE, a.a.
10 COAL, a.a.

660 40 SANDSTONE, a.a. - predominantly fine, abundant white mica.
50 CLAYSTONE, a.a.
10 COAL, a.a.

663 20 SANDSTONE, a.a.
80 CLAYSTONE, a.a.

666 50 SANDSTONE, a.a. - abundant white mica.
50 CLAYSTONE, a.a.
Tr COAL, a.a.

669 50 SANDSTONE, a.a. - fine to coarse, abundant white mica.
40 CLAYSTONE, a.a.
10 COAL, black, shaley.

672 60 SANDSTONE, a.a. - fine to coarse, sub-angular to sub-rounded, occsional rounded, poor to moderate sorted, loose, trace brown lignitic/clay stain on grains, trace mica, good porosity.
40 CLAYSTONE, a.a.
Tr COAL, a.a.

675 50 SANDSTONE, a.a. - fine to coarse,
40 CLAYSTONE, a.a.
10 COAL, a.a.

678 20 SANDSTONE, a.a.
60 CLAYSTONE, a.a.
20 COAL, a.a.

681 40 SANDSTONE, a.a.
50 CLAYSTONE, a.a.
10 COAL, a.a.

684 30 SANDSTONE, a.a. - common mica.
60 CLAYSTONE, a.a.
10 COAL, a.a.

687 20 SANDSTONE, a.a.
60 CLAYSTONE, a.a.
20 COAL, a.a.

690 40 SANDSTONE, a.a.
60 CLAYSTONE, brown, silty, dispersive, soft.
Tr COAL, dark brown to black, shaley.

693 40 SANDSTONE, a.a.
60 CLAYSTONE, a.a.
Tr COAL, a.a.

696 Tr SANDSTONE, a.a.
Tr CLAYSTONE, a.a.
100 COAL, very dark brown to dull black, silty, shaley.

699 100 SANDSTONE, clear, very fine to coarse, angular to occasional sub-rounded, poorly sorted, common white mica, no matrix or cement, very good porosity.
Tr CLAYSTONE, a.a.
Tr COAL, a.a.

702 90 SANDSTONE, a.a.
10 CLAYSTONE, a.a.

705 60 SANDSTONE, a.a.
10 CLAYSTONE, a.a.
30 COAL, a.a.

708 90 SANDSTONE, a.a. - fine to coarse, loose, good porosity.
10 CLAYSTONE, a.a. - very dispersive.

711 100 SANDSTONE, a.a. - angular to sub-rounded, occasional rounded, poor to moderate sorted, minor white and grey lithic/quartzite grains, good porosity.
Tr CLAYSTONE, a.a.

714 100 SANDSTONE, a.a.

717 100 SANDSTONE, clear medium to very coarse, angular to sub-rounded, poorly sorted quartz grains, trace grey lithic/quartzite grains, no matrix or cement, good porosity.
Tr COAL, a.a.

720 60 SANDSTONE, a.a. - fine to medium, some coarse to very coarse, sub-angular to sub-angular, poor to moderate sorted, minor lithic/quartzite grains, trace mica, good porosity.
40 CLAYSTONE, a.a.
Tr COAL, a.a.

723 90 SANDSTONE, a.a.
10 COAL, a.a.

726 70 SANDSTONE, a.a.
30 SHALE, brown and black, carbonaceous, coally, firm to hard, sub-fissile.

729 30 SANDSTONE, a.a.
20 SHALE, a.a.
50 COAL, a.a. - shaley.

732 40 SANDSTONE, a.a.
20 CLAYSTONE, a.a.
40 COAL, a.a.

735 50 SANDSTONE, clear, very fine, minor fine to coarse, sub-angular, moderate sorted, micaceous, minor grey lithic/quartzite grains, loose, good porosity.
20 CLAYSTONE, a.a.
30 COAL, a.a.

738 80 SANDSTONE, clear, very fine to coarse, angular to sub-rounded, poorly sorted, loose, trace grey lithic/quartzite grains and mica, good porosity.
10 CLAYSTONE, a.a.
10 COAL, a.a.

741 100 SANDSTONE, a.a. - medium to very coarse.

744 100 SANDSTONE, clear, fine to coarse, angular to sub-angular, poor to moderate sorted, no matrix or cement, very good porosity.

747 100 SANDSTONE, a.a.

750 100 SANDSTONE, a.a.

753 100 SANDSTONE, a.a.

756 100 SANDSTONE, a.a.

759 100 SANDSTONE, a.a.

762 100 SANDSTONE, a.a.

765 100 SANDSTONE, a.a.

768 100 SANDSTONE, a.a.

771 100 SANDSTONE, a.a.

774 100 SANDSTONE, a.a.

777 100 SANDSTONE, a.a.

780 80 SANDSTONE, a.a.
10 SHALE, dark brown to black, grades to coal.
10 COAL, black, grading to shale.

783 70 SANDSTONE, clear, brown "lignite/clay stained", fine to coarse, angular to sub-rounded, poor to moderate sorted, no matrix or cement, good porosity.
20 CLAYSTONE, dark brown, silty, dispersive, soft.
10 COAL, black, shaley.

786 60 SANDSTONE, a.a.
40 COAL, a.a.

789 50 SANDSTONE, a.a.
20 CLAYSTONE, a.a.
30 COAL, a.a.

792 90 SANDSTONE, a.a. - common white mica.
10 COAL, a.a.

795 20 SANDSTONE, a.a.
30 SHALE, light to dark brown, sub-fissile, firm to hard, carbonaceous, gradiing to coal.
50 COAL, a.a.

798 20 SANDSTONE, a.a.
10 SHALE, a.a.
20 CLAYSTONE, a.a.
50 COAL, a.a.

801 100 SANDSTONE, clear, medium to very coarse, angular to sub-rounded, poor to moderate sorted, trace brown clay matrix, very good porosity.
Tr COAL, a.a.

804 100 SANDSTONE, a.a.

807 100 SANDSTONE, a.a.

810 100 SANDSTONE, a.a.

813 100 SANDSTONE, a.a.

816 100 SANDSTONE, a.a. - angular, some sub-angular to sub-rounded.
Tr COAL, a.a.

819 100 SANDSTONE, a.a.
Tr COAL, a.a.

822 100 SANDSTONE, a.a.
Tr COAL, a.a.

825 80 SANDSTONE, a.a.
20 CLAYSTONE, a.a.

828 90 SANDSTONE, clear, minor grey, angular to sub-angular, occasional sub-rounded, poor to moderate sorted, trace grey lithic/quartzite grains and white mica, no matrix or cement, very good porosity.
10 CLAYSTONE, a.a.

831 100 SANDSTONE, a.a. - trace pyrite, mica and brown clay matrix.
Tr CLAYSTONE, a.a.

834 100 SANDSTONE, clear, medium to very coarse quartz grains, angular to sub-angular, poor to moderate sorted, trace pyrite, very good porosity.

837 100 SANDSTONE, a.a.

840 100 SANDSTONE, a.a.

843 100 SANDSTONE, a.a.

846 100 SANDSTONE, a.a.
Tr COAL, a.a.

849 100 SANDSTONE, a.a.
Tr COAL, a.a.

852 100 SANDSTONE, a.a.

855 100 SANDSTONE, a.a.

858 100 SANDSTONE, a.a.
Tr CLAYSTONE, a.a.
Tr COAL, a.a.

861 100 SANDSTONE, a.a.

864 100 SANDSTONE, a.a.

867 100 SANDSTONE, a.a.

870 100 SANDSTONE, a.a.
Tr COAL, a.a.

873 100 SANDSTONE, a.a.

876 100 SANDSTONE, clear, medium to very coarse, angular to sub-angular, poorly sorted, no matrix or cement, very good porosity.
Tr COAL, a.a.

879 100 SANDSTONE, a.a.
Tr COAL, a.a.

882 100 SANDSTONE, a.a.
Tr COAL, a.a.

885 100 SANDSTONE, a.a. - trace white weathered feldspar and white mica, rare pink garnet and brown tourmaline.
Tr COAL, a.a.

888 100 SANDSTONE, a.a.
Tr COAL, a.a.

891 100 SANDSTONE, a.a. - fine to coarse.
Tr COAL, a.a.

894 100 SANDSTONE, clear quartz, rare white feldspar, grey lithic/quartzite grains, white mica, fine to coarse, angular to sub-angular, poorly sorted, loose, good porosity.
Tr COAL, a.a.

897 70 SANDSTONE, a.a.
30 COAL, dark brown to black, shaley, lignitic.

900 30 SANDSTONE, a.a. - rare garnet.
70 COAL, dark brown to black, lignitic, shaley, dull lustre.

903 20 SANDSTONE, a.a. - occasional sub-rounded.
80 COAL, a.a. - soft to dispersive inpart, grading to carbonaceous shale / claystone.

906 40 SANDSTONE, a.a. - rare pyrite.
30 CLAYSTONE, white, very soft and very dispersive.
30 COAL, brown to black, shaley in part.

909 70 SANDSTONE, a.a.
20 CLAYSTONE, a.a.
10 COAL, a.a.

912 100 SANDSTONE, clear, coarse to very coarse, angular to sub-angular, poor to moderate sorted, loose, trace mica, very good porosity.

915 100 SANDSTONE, a.a. - occasional sub-rounded.

918 100 SANDSTONE, a.a.

921 100 SANDSTONE, a.a. - rare feldspar, mica and lithic grains.

924 100 SANDSTONE, a.a.

927 40 SANDSTONE, a.a.
60 COAL, dark brown to black, shaley.

930 40 SANDSTONE, a.a.
30 CLAYSTONE, white to brown, silty, sticky, dispersive.
30 COAL, a.a.

933 100 SANDSTONE, a.a.

936 100 SANDSTONE, a.a.

939 100 SANDSTONE, a.a.

942 90 SANDSTONE, clear, fine to coarse, angular, poorly sorted, loose, very good porosity.
10 COAL, a.a.

945 90 SANDSTONE, a.a.
10 COAL, a.a.

948 100 SANDSTONE, a.a.

951 100 SANDSTONE, clear, medium to very coarse, angular to sub-angular, poor to moderate sorted, no matrix or cement, very good porosity.

954 100 SANDSTONE, a.a.

957 100 SANDSTONE, a.a.
Tr COAL, a.a.

960 100 SANDSTONE, a.a.
Tr COAL, a.a.

963 100 SANDSTONE, a.a.

966 100 SANDSTONE, a.a.

969 100 SANDSTONE, a.a.
Tr COAL, a.a.

972 100 SANDSTONE, a.a.
Tr COAL, a.a.

978 100 SANDSTONE, clear, fine to very coarse, angular to sub-angular, poor to moderate sorted, loose, trace grey lithic/quartzite grains, rare mica, very good porosity.

984 100 SANDSTONE, a.a. - common to abundant pinkish white mica flakes and "books".

990 100 SANDSTONE, a.a.
Tr COAL, a.a.

996 100 SANDSTONE, a.a. angular with common pinkish white mica, trace grey and grey-green lithic/quartzite grains.

1002 100 SANDSTONE, a.a. - coarse to very coarse.
Tr COAL, a.a.

1008 100 SANDSTONE, medium to very coarse, trace mica and rare grey lithic/quartzite grains.

1014 100 SANDSTONE, a.a. - medium to very coarse, trace white to buff clay matrix and grey lithic/quartzite grains.

1020 100 SANDSTONE, fine to very coarse, angular, trace mica, rare pyrite.

1026 100 SANDSTONE, a.a.

1032 100 SANDSTONE, a.a. - trace mica and grey and green lithic/quartzite grains.

1038 100 SANDSTONE, a.a. - trace mica, grey-green lithic/quartzite grains and pyrite.

1041 100 SANDSTONE, a.a.

1044 80 SANDSTONE, clear, fine to coarse, angular, poorly sorted, trace white clay matrix and weathered feldspar, pink mica, grey lithic/quartzite grains, rare aggregates, good porosity.
20 COAL, a.a.

1050 100 SANDSTONE, a.a.

1053 100 SANDSTONE, a.a. - trace white to light brown clay matrix and weathered feldspar, grey and green lithic / quartzite grains, mica, rare aggregates, good porosity.

1056 100 SANDSTONE, a.a.
Tr COAL, a.a.

1059 70 SANDSTONE, clear quartz, minor pinkish white feldspar, green and grey lithic/quartzite grains, minor white to cream clay matrix / weathered feldspar, fine to coarse, angular to sub-angular, poor to moderate sorted, loose, rare aggregates, good porosity.
30 COAL, a.a.

1062 30 SANDSTONE, a.a.
70 COAL, a.a.

1065 100 SANDSTONE, a.a.
Tr COAL, a.a.

1068 100 SANDSTONE, clear, fine to coarse, angular to sub-angular, minor sub-rounded, poor to moderate sorted, trace white clay matrix / weathered feldspar, minor pinkish white mica, mostly loose, rare aggregates, good porosity.

1071 30 SANDSTONE, a.a.
70 COAL, a.a.

1074 60 SANDSTONE, a.a.
40 COAL, a.a.

1077 100 SANDSTONE, clear, fine to very coarse, angular to sub-angular, some sub-rounded, poor to moderate sorted, trace clay matrix / weathered feldspar, trace grey-green lithic/quartzite grains, rare pinkish white mica, loose, very good porosity.

1080 100 SANDSTONE, a.a.

1083 100 SANDSTONE, a.a.

1086 100 SANDSTONE, a.a.

1089 100 SANDSTONE, clear, medium to very coarse, angular to sub-rounded, poor to moderate sorted, trace feldspar and pyrite, minor grey lithic/quartzite grains, good porosity.

1092 100 SANDSTONE, a.a.

1095 100 SANDSTONE, a.a.

1098 50 SANDSTONE, a.a. - trace pyrite.
50 COAL, a.a.

1101 60 SANDSTONE, a.a.
40 COAL, a.a.

1104 100 SANDSTONE, clear, fine to very coarse, angular to sub-angular, poorly sorted, trace feldspar, pyrite and grey lithic/quartzite grains, very good porosity.
Tr COAL, a.a.

1107 100 SANDSTONE, a.a. - occasional sub-rounded.
Tr COAL, a.a.

1110 90 SANDSTONE, a.a. - also trace mica.
10 COAL, a.a.

1113 100 SANDSTONE, a.a.
Tr COAL, a.a.

1116 80 SANDSTONE, a.a.
20 COAL, a.a.

1119 60 SANDSTONE, a.a.
40 COAL, a.a.

1122 100 SANDSTONE, a.a.
Tr COAL, a.a.

1125 100 SANDSTONE, a.a.
Tr COAL, a.a.

1128 100 SANDSTONE, a.a.

1131 100 SANDSTONE, clear, medium to very coarse, angular to sub-angular, occasional sub-rounded, poor to moderate sorted, trace white feldspar, grey lithics and pinkish white mica, rare white clay matrix, very good porosity.

1134 100 SANDSTONE, a.a.

1137 100 SANDSTONE, a.a. - trace pyrite.

1140 90 SANDSTONE, a.a.
10 COAL, a.a.

1143 100 SANDSTONE, a.a. - trace grey lithic/quartzite grains and pyrite.

1146 90 SANDSTONE, a.a. - trace lithic/quartzite grains, mica and pyrite.
10 COAL, black, dull lustre, shaley.

1149 100 SANDSTONE, a.a. - trace to common pyrite.
Tr COAL, a.a.

1152 100 SANDSTONE, clear, medium to coarse, angular to sub-rounded, moderate sorted, trace pyrite, mica and grey lithic/quartzite grains, good porosity.
Tr COAL, a.a.

1155 100 SANDSTONE, a.a. - medium to very coarse, trace white feldspar and grey lithic/quartzite grains.

1158 100 SANDSTONE, a.a. - trace pyrite, mica and lithic/quartzite grains.

1161 100 SANDSTONE, clear, fine to very coarse, angular to sub-angular, poorly sorted, trace clay matrix / weathered feldspar, mica, pyrite and lithic/quartzite grains, loose, good porosity.
Tr COAL, a.a.

1164 100 SANDSTONE, a.a.
Tr COAL, a.a.

1167 100 SANDSTONE, a.a. - trace pyrite, mica lithic/quartzite grains and white feldspar.
Tr COAL, a.a.

1170 80 SANDSTONE, a.a.
20 COAL, a.a.

1173 100 SANDSTONE, clear, medium to very coarse, angular to sub-angular, poor to moderate sorted, trace pyrite, grey lithic/quartzite grains, white feldspar, white mica, crystal faces on some quartz grains, no matrix or cement, very good porosity.
Tr COAL, a.a.

1176 80 SANDSTONE, a.a.
20 COAL, a.a.

1179 100 SANDSTONE, a.a.

1182 100 SANDSTONE, a.a.

1185 40 SANDSTONE, a.a. - white dispersive clay matrix.
60 COAL, a.a.

1188 40 SANDSTONE, a.a.
60 COAL, a.a.

1191 100 SANDSTONE, a.a. - fine to coarse, angular, poor to moderate sorted, trace grey lithic/quartzite grains, no matrix or cement, good porosity.
Tr COAL, a.a.

1194 100 SANDSTONE, a.a. - fine to very coarse, angular, poorly sorted, trace lithic/quartzite grains, pinkish white mica, very good porosity.

1197 100 SANDSTONE, a.a.

1200 100 SANDSTONE, a.a.

1203 100 SANDSTONE, a.a. - trace pyrite.

1206 70 SANDSTONE, a.a.
30 COAL, dull black, shaley.

1209 30 SANDSTONE, a.a.
70 COAL, a.a.

1212 70 SANDSTONE, clear quartz, minor white feldspar, pink to white mica, grey lithic/quartzite grains, trace pyrite, fine to coarse, angular to sub-angular, occasional sub-rounded, poorly sorted, loose, trace white clay matrix, good porosity.
30 COAL, a.a.

1215 100 SANDSTONE, a.a. - minor grey lithic/quartzite grains, trace mica, white feldspar and pyrite, very good porosity.
Tr COAL, a.a.

1218 100 SANDSTONE, a.a. - minor to common lithic/quartzite grains, trace white clay matrix / weathered feldspar, minor pyrite.

1221 70 SANDSTONE, a.a.
Tr SILTSTONE, white to light brown, hard, sandy, carbonaceous specks and laminae.
30 COAL, a.a. - grading to carbonaceous shale in part.

1224 70 SANDSTONE, a.a. - also trace very fine, hard, silicified, tight.
30 COAL, a.a.

1227 80 SANDSTONE, clear, fine to very coarse, angular to sub-angular, poorly sorted, trace grey lithic / quartzite grains, feldspar mica and pyrite, rare garnet. Trace white to brown, very fine, hard, siliceous, greyish black lithics, tight. clay matrix, good porosity.
Tr SILTSTONE, brown to black, carbonaceous, shaley.
20 COAL, a.a.

1229 80 SANDSTONE, a.a. - trace very hard, siliceous, tight.
Tr SILTSTONE, a.a.
Tr CLAYSTONE, white, dispersive, soft.
Tr BASALT, brown, weathered with needle crystals.
20 COAL, a.a.

1230 40 SANDSTONE, a.a.
60 COAL, brown to dull black, shaley.

1233 60 SANDSTONE, a.a. - also white to yellow limonitic/feldspathic grains, minor clear, fine grained, hard, siliceous, poor porosity sandstone, trace to common white, grey and green-brown mica, trace pyrite, minor lithics.
Tr BASALT, a.a.
40 COAL, a.a.

1236 100 SANDSTONE, a.a. - trace greenish "doleritic" quartzitic grains, common mica.
Tr SHALE, a.a.

1239 100 SANDSTONE, a.a.
Tr COAL, a.a.

1242 100 SANDSTONE, a.a. - green and grey lithic/quartzite grains, trace white and brown mica, good porosity.

1245 100 SANDSTONE, a.a. - trace pyrite.
Tr COAL, a.a.
Tr BASALT/VOLCANICS, reddish brown to purple, firm, weathered.

1248 30 SANDSTONE, a.a.
70 CLAYSTONE/WEATHERED BASALT, dark red-brown, silty, soft, dispersive, minor red-brown and greenish grains of weathered basalt.
Tr COAL, a.a.

1251 40 SANDSTONE, a.a.
60 BASALT, white to grey and black, some purple-red, green, soft to firm, weathered.

1254 30 SANDSTONE, a.a.
40 CLAYSTONE, medium to dark brown, silty, dispersive, soft.
30 BASALT/VOLCANICS, white, grey-black, red-brown, green, firm, cream-white feldspar, dark ferro-magnesians, weathered in part.

1257 20 SANDSTONE, a.a.
30 CLAYSTONE, dark grey-brown, silty, dispersive, soft.
50 BASALT, a.a. - very fine, crystalline.

1260 10 SANDSTONE, a.a.
40 CLAYSTONE, dark red-brown, soft to firm, silty, dispersive.
10 COAL, a.a.
40 BASALT, a.a.

1263 50 CLAYSTONE, purple, red-brown, soft to firm, dispersive, weathered basalt.
50 BASALT, dark grey-green to black, crystalline, very fine, crystal needles of feldspar and dark ferro-magnesian minerals, hard, weathereing to soft claystone in part.

1266 50 CLAYSTONE, a.a.
50 BASALT, a.a.

1269 50 CLAY, a.a. - weathered basalt.
50 BASALT, a.a. - becoming coarser grained.

1272 20 CLAY, a.a.
80 BASALT, dark green, black, hard, crysatlline, feldspar, olivine.

1275 20 CLAY, a.a.
80 BASALT, a.a.

1278 20 CLAY, a.a.
80 BASALT, a.a. - green serpentine.

1281 20 CLAY, a.a.
80 BASALT, a.a. - white calcite veining.

1284 100 BASALT, a.a.

1287 100 BASALT, a.a.

1290 100 BASALT, a.a. - some grey and weathered.

1293 100 BASALT, grey, grey-green to black, hard, crystalline, feldspar, ferro-magnesians, green serpentine, weathered in part, calcite veins.

1296 100 BASALT, a.a. - also weathered brown, purple, grey, soft to firm, grading to claystone.

1299 100 BASALT, a.a. - weathered in part.

1302 100 BASALT, a.a.

1305 100 BASALT, a.a.

1308 100 BASALT, a.a. - grey to brick red, weathering to claystone in part.

1311 100 BASALT, a.a. - minor weathered.

1314 100 BASALT, a.a.

1317 100 BASALT, a.a.

1320 100 BASALT, a.a.

1323 100 BASALT, a.a.

1326 100 BASALT, a.a.

1329 100 BASALT, a.a. - weathered to brick red claystone in part.

1332 100 BASALT, a.a.

1335 60 SANDSTONE, clear, medium to coarse, angular to sub-angular, poor to moderate sorted, common white feldspar, loose, good porosity.
40 BASALT, a.a.

1338 70 SANDSTONE, a.a.
30 BASALT, a.a.

1341 80 SANDSTONE, clear, coarse quartz grains, angular, good porosity.
20 BASALT, a.a.

1344 70 SANDSTONE, a.a.
30 BASALT, a.a.

1347 80 SANDSTONE, a.a. - also abundant grey lithic/quartzite grains, some orange, pink and green, white feldspar, fine to coarse, mostly fine to medium, sub-rounded, moderate sorted, loose, trace clay matrix, fair to good apparent porosity.
20 BASALT, a.a.

1350 90 SANDSTONE, a.a. - 50:50 quartz and grey lithic/quartzite grains.
10 BASALT, a.a.

1353 90 SANDSTONE, a.a.
10 CLAYSTONE, grey, silty, soft to firm.

1356 50 SANDSTONE, clear quartz, grey, green and red-brown lithic/quartzite grains, fine to medium, minor coarse, sub-rounded, moderate sorted, dispersive clay matrix, fair porosity.
50 CLAYSTONE, grey, silty, soft to firm, trace carbonaceous material, also white, soft, sticky, dispersive.

1359 40 SANDSTONE, clear white, grey, green, yellow, red, fine to medium, some coarse, sub-angular to sub-rounded, moderate sorted quartz and quartzite grains, white feldspar, loose, trace dispersive white clay matrix, fair to good? porosity.
60 CLAYSTONE, grey, silty, soft to firm, blocky, also white, soft, dispersive, sticky.

1362 30 SANDSTONE, a.a.
70 CLAYSTONE, a.a.
Tr BASALT, a.a.

1365 20 SANDSTONE, a.a.
80 CLAYSTONE, a.a
Tr BASALT, a.a.

1368 70 SANDSTONE, a.a. - loose quartz and quartzite grains, common feldspar.
30 CLAYSTONE, a.a.

1371 70 SANDSTONE, a.a. - black and multi-coloured grains, quartz/quartzite/lithic grains, white feldspar, weathered in part, sub-rounded, moderately sorted, trace clay matrix, fair porosity.
30 CLAYSTONE, a.a.

1374 80 SANDSTONE, a.a. - trace pyrite.
20 CLAYSTONE, a.a.

1377 80 SANDSTONE, a.a.
20 CLAYSTONE, a.a.

1380 20 SANDSTONE, a.a.
80 CLAYSTONE, grey, grey-green, soft, dispersive, silty to very fine sand grains.

1383 20 SANDSTONE, a.a.
80 CLAYSTONE, a.a.

1386 20 SANDSTONE, a.a.
80 CLAYSTONE, a.a.

1389 40 SANDSTONE, a.a. - clear quartz, grey, green quartzite, white feldspar, sub-rounded, moderate sorted, loose, poor to fair porosity.
60 CLAYSTONE, white to grey, grey-green, soft to firm, silty/sandy.

1392 70 SANDSTONE, a.a.
30 CLAYSTONE, a.a.

1394 80 SANDSTONE, a.a.
20 CLAYSTONE, a.a.

# APPENDIX 7

# APPENDIX 7

## DESCRIPTION OF SIDEWALL CORES

## WONGA BINDA #1 SIDEWALL CORE DESCRIPTIONS

| SWC | DEPTH m. (Rec mm) | DESCRIPTION |
|---|---|---|
| 1 | 1357.5 (18) | SANDSTONE/CLAYSTONE, grey, grey-green, black, white, fine to medium, sub-angular to sub-rounded, moderate sorted, quartz and lithic / quartzite grains, white feldspar, trace brown biotite, abundant white clay matrix, poor porosity. |
| 2 | 1353.0 (20) | CLAYSTONE, medium to dark blue-grey, soft. |
| 3 | 1347.5 (21) | SANDSTONE, white, grey, green, black, fine to coarse, sub-rounded, moderate sorted quartz and lithic/quartzite grains, feldspar, trace mica, abundant clay matrix, poor porosity. |
| 4 | 1342.5 (15) | SANDSTONE/CONGLOMERATE, white to light grey, fine to coarse with pebbles to 10 mm., sub-rounded, poorly sorted, minor lithics and feldspar, abundant clay matrix, trace siltstone bands, poor porosity. |
| 5 | 1336.0 (20) | SANDSTONE/CONGLOMERATE, as for SWC #4. |
| 6 | 1331.5 (14) | SANDSTONE, white, pale green to grey-green, very fine to fine, sub-angular to sub-rounded, moderate to well sorted, minor very coarse to granular grains, abundant greenish clay matrix, poor porosity. |
| 7 | 1328.0 (20) | CLAYSTONE, dark chocolate brown, soft to firm, weathered basalt?/indurated haematite clay? trace hard olivine grains. |
| 8 | 1300.5 | NO RECOVERY. |
| 9 | 1242.5 (20) | SANDSTONE, clear, white, grey, fine to very coarse, sub-angular to sub-rounded, poorly sorted, quartz and lithic/quartzite grains, minor feldspar, moderate to abundant clay matrix, trace mica, poor to fair porosity. |
| 10 | 1206.5 (28) | SILTSTONE, white, light grey, sandy, lithic, carbonaceous specks, micaceous. |
| 11 | 1159.5 (20) | SANDSTONE/SILTSTONE, white, light grey, very fine, sub-rounded, well sorted, argillaceous/clay matrix, trace grey-black lithics and mica, poor porosity. |

| | | |
|---|---|---|
| 12 | 1175.5 (27) | CLAYSTONE, grey, silty, firm, trace mica and lithic grains. |
| 13 | 1042.5 (32) | SILTSTONE, light brown, grey-brown, firm to hard, very argillaceous. |
| 14 | 1002.0 (23) | CLAYSTONE, light grey, soft to firm, silty in part. |
| 15 | 933.5 (50) | SANDSTONE, light brown, fine to medium, sub-angular, moderate sorted, friable, trace clay, minor black carbonaceous specks and grey-black lithic grains, good porosity. |
| 16 | 907.0 (42) | CLAYSTONE, light grey, soft to firm, silty in part. |
| 17 | 823.5 (40) | SHALE, dark brown, silty, very carbonaceous. |
| 18 | 789.0 (40) | Laminated dark brown to black very carbonaceous to coally SHALE and white to brown very fine, sub-angular, moderate sorted, quartzose SANDSTONE, fair porosity. |
| 19 | 722.0 (50) | SHALE/COAL, dull brown to black, lignitic. |
| 20 | 675.0 | NO RECOVERY. |
| 21 | 644.0 (50) | SHALE, very dark chocolate brown, very carbonaceous, grading to lignite. |
| 22 | 624.0 (50) | Bands of shale as for SWC #21 and SANDSTONE, white to brown, very fine, sub-angular, moderate sorted quartz grains, fair porosity. |
| 23 | 612.0 (30) | SANDSTONE, medium to dark honey brown, very fine medium, sub-angular, poor to moderate sorted quartz grains in a brown lignitic/argillaceous matrix, very friable to loose, good porosity. |
| 24 | 607.0 (28) | SANDSTONE, as for SWC #23. |
| 25 | 602.5 | NO RECOVERY. |
| 26 | 597.0 (50) | Sandy pyritic and glauconitic CLAYSTONE, very dark grey to green, probably 20% glauconite, up to 5% very fine disseminated pyrite, 10% clear, rounded, medium to very coarse quartz grains. |
| 27 | 594.5 (50) | CLAYSTONE, as for SWC #26. |

| | | |
|---|---|---|
| 28 | 593.0 (45) | CLAYSTONE, light green, firm. |
| 29 | 590.5 (50) | SANDSTONE, grey grains an pebbles of quartz and grey quartzite to 10 mm. diameter, sub-rounded to rounded, poorly sorted in a white to light grey silty calcareous claystone. |
| 30 | 587.5 (45) | CLAYSTONE, dark green, firm, very calcareous with abundant white fossil fragments. |

# APPENDIX 8

APPENDIX 8

# APPENDIX 8

# WIRELINE LOG EVALUATION

dnc

CRUSADER RESOURCES N.L.

WONGA BINDA #1

WIRELINE LOG EVALUATION

BOWLER LOG CONSULTING SERVICES PTY. LTD.

JACK BOWLER
Telephone: (051) 56 6170

P.O. BOX 2,
PAYNESVILLE, VICTORIA.
AUSTRALIA, 3880.

21 April, 1988

Mr. Doug Barrenger
Crusader Resources N.L.
27th Floor, AMP Centre
12 Creek Street
Brisbane, Queensland 4000

Dear Doug,

Please find my evaluation for the porous intervals of Wonga Binda #1. The evaluation, RFT pressure plot and recovered water samples show the sands to be 100% water saturated with very fresh formation waters which are fresher than those found in Macalister #1.

Logs and data available over the zones of interest included:
-DLL-MSFL-GR-CAL-SP
-LDL-CNL-NGS-CAL
-BHC-GR
-SHDT-GR
-RFT-HP-GR pressures and formation water samples.
-Mudlog
- Rmf=0.248 ohm.m @ 13°C. RHOF=1.02 g/cc. BHT first log=38°C. Mud weight=9.7#/gal which contains barite.

**Log Quality**

The Traralgon (605.5-1243.5 meters) from the logs consists of clean porous sandstones, 60 meters of thin to thick (10 meters) coals and three 3-5 meter shales. Generally the coals are badly washed out, in some cases to the maximum LDL caliper reading of 22 inches. As in Macalister #1 the sands are usually washed out less than three inches resulting in good quality RHOB and MSFL readings when the hole is not too rugose. This is confirmed by the Rmfa=0.158 ohm.m computed from the Rxo-Density porosity plot which is equal to the surface measured value of Rmf converted to reservoir temperature of 91°F at 750 meters. The MSFL resistivity has been corrected for mudcake thicknes by multiplying it by 0.8.

To a lesser extent than in Macalister #1 the PEF values are reading too high due to the barite in the mud. A correction of -0.7 has been made to the PEF resulting in an improvement which can be seen in the Traralgon RHOmaa-Umaa plot where most of the data clusters around the quartz point.

**Log Evaluation**
Representative data points were taken in the sands and evaluated using MacLog® software. The sands have a high radioactivity (20-75 API) and the coals a low radioactivity (20-30 API) while the few shales have gamma ray radioactivity greater than 150 API. Generally the increase in radioactivity is due to uranium. Schlumberger are concerned about the low K content of rocks shown by the NGS and will check that out.

Again it appears that the "freshwater wedge" mentioned in the 1986 APEA Journal paper "Freshwater Influx in the Gippsland Basin: Impact on Formation Evaluation, Hydrocarbon Volumes, and Hydrocarbon Migration", by Kuttan, Kulla and Neumann, may be present from 907-1243.5 meters. This is suggested by DLL-MSFL log, the Pre Evaluation Rwa values and the RT-Porosity plots. Rw= 19 ohm.m was used from 605.5-907 meters while Rw=46 ohm.m was used from 907-1243.5 meters.

| Formation | Porosity | Sw | Remarks |
|---|---|---|---|
| Giffard Sandstone (590.2-605.5m) | 20 | 100 | heavy minerals or glauconite? |
| Traralgon (605.5-1243.5m) | 20-37 | 100 | clean, unconsolidated, qtz. sandstone. |
| Yarram (1330-1344m) | 14-20 | 100 | some clay, looks tight |
| Strzelecki (1344-1372m) | 14-20 | 100 | more clay, looks tight |

**RFT Evaluation**
The RFT HP gage pressure profile of 1.03 g/cc clearly show that the free fluid within the pore space of the upper Traralgon is fresh water.

The Long Nose Probe was used to obtain HP formation pressures at 5 levels within the Traralgon. Five attempts in the Giffard Sandstone from 593-601 meters resulted in seal failures as the probe pushed its way as far as it could into the soft formation and than lost the seal. The tool would not pass below 903 meters probably due to a ledge present at a large washout there.

The Martineau Probe, designed for unconsolidated sands, was used to sample the top of the Traralgon at 605.5 meters. The 6 gallon sample chamber was opened first and sampled at around 70 psia HP recovering 9,000 cc of 0.455 ohm.m water @ 18°C. Due to the low sampling pressure and the resulting long fillup time it was decided to close the 6 gallon chamber before fillup. The sample was sealed and the 2 3/4 gallon chamber was opened and filled with 9,000 cc of recovered water measuring 0.359 ohm.m @ 18°C.

No surface chamber pressure was reported nor was gas or oil reported. Sand grains and dirty water was reported for the 2 3/4 gallon chamber while less muddy water was reported from the 6 gallon chamber.

Mud salinity and resistivity data extracted from the mud report are:

| Depth (meters) | Cl | Rmf | Temperature °F |
|---|---|---|---|
| 490 | 20,000 | 0.18 | 52 |
| 608 | 22,000 | 0.22 | 60 |
| 608 | 19,400 | 0.20 | 70 |
| 872 | 18,000 | 0.20 | 60 |
| 1089 | 22,000 | 0.18 | 58 |
| 1228 | 17,000 | 0.3 | 47 |
| 1335 | 22,000 | 0.23 | 46 |
| Schlumberger | | 0.248 | 55.4 |
| circulated sample. | | 0.217 | 64.4 18°C |

The percent formation water recovered (**H**) can be computed knowing Rmf, Rw and the resistivity of the recovered water (Rrf):

$1/Rrf = H/Rw + (1-H)/Rmf$

Rmf=0.217 @ 18°C

Rrf 6 gal =0.455 @ 18°C

Rw=26 @ 18°C

**H=53%**

Rrf 2 3/4 gal = 0.359

**H=40**

The recovery of around 50% formation water and 50% mud filtrate without a trace of hydrocarbons suggests that the 605.5 meter sand will produce fresh water.

Yours truly,

J Bowler

Jack Bowler

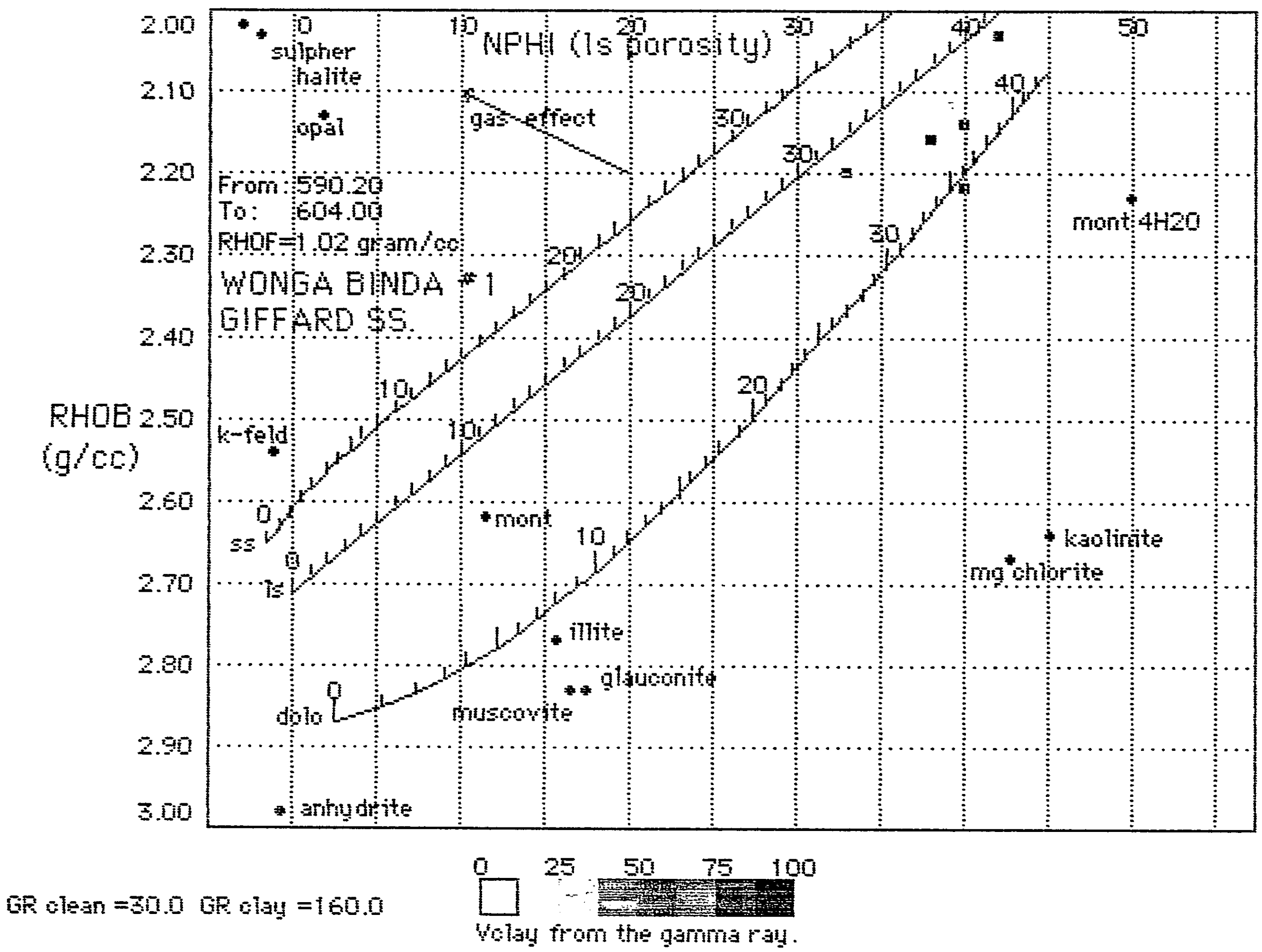
WONGA BINDA #1 GIFFARD SANDSTONE (590.20-605.50 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt. PHIE=(1-Vclay)*PHIT.
RHOF=1.02 GRclean=30.00 GRclay=160.00 Rtclay=15.000 Rwb=2.465.
Clean matrix density= 2.65 Clay matrix density= 2.95.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
Rw=1.000 everywhere except from 0.00 to 0.00 where Rw=1.000.
Rmf=0.200 a=1.00 m=2.00 n=2.00 Sonic por. comp. factor=1.50.
PHIE cutoff sets Sw and Sxo to 100% below 0.0 % porosity.
Coal is detected if RHOB<1.50 or if NPHI>55.0
or if Sonic>200.0 microsec/ft.
PHIT clay=35.0.
(1/RT)^0.5=(PHIT-PHIE)^0.86*(SWDPor^(n/2)/Rwb)^0.5
+ ((PHIE^m)*SwDPor^n/a*Rw)^0.5 Rwb=Rclay*PHITclay^1.72
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when MSFL<=0.00 from 0.00 to 0.00 meters.
**** Sonic porosity with PHITclay= 35.0

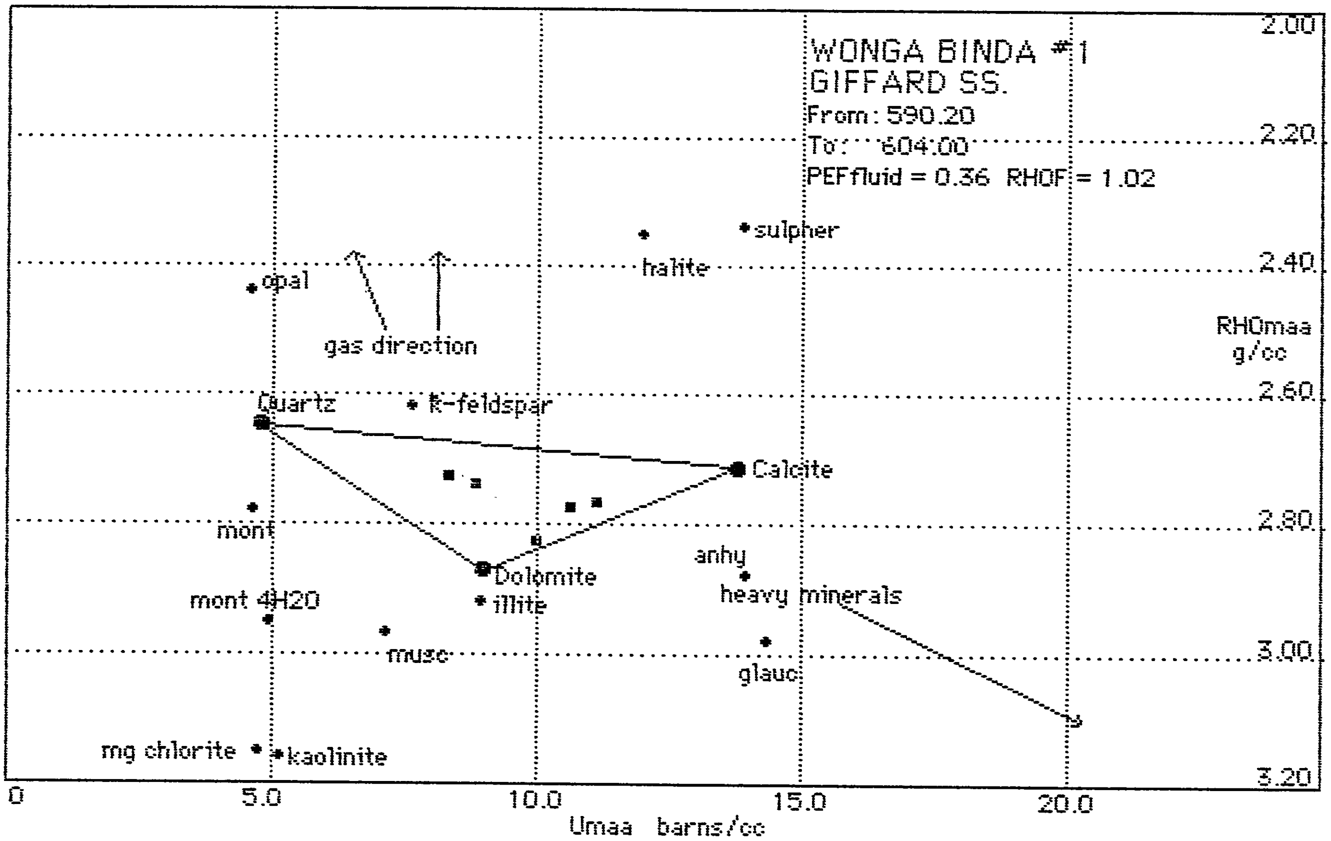
EVALUATION

| Depth meters | RHOma | PHIT | Vclay | PHIE | SwDPor | SxoDPor |
|---|---|---|---|---|---|---|
| 590.50 | 2.78 | 30.0 | 23.1 | 23.1 | 100.0 | 100.0 |
| 591.00 | 2.75 | 37.1 | 33.1 | 24.8 | 100.0 | 100.0 |
| 593.00 | 2.61 | 48.7 | 0.0 | 48.7 | 100.0 | 100.0 |
| 594.50 | 2.87 | 11.2 | 19.2 | 9.0 | 100.0 | 100.0 |
| 596.00 | 2.78 | 37.0 | 42.6 | 21.3 | 100.0 | 100.0 |
| 597.00 | 2.74 | 31.7 | 30.2 | 22.1 | 100.0 | 100.0 |
| 598.00 | 2.77 | 35.4 | 39.7 | 21.4 | 100.0 | 100.0 |
| 600.00 | 2.73 | 41.2 | 26.4 | 30.3 | 100.0 | 100.0 |
| 604.00 | 2.83 | 34.8 | 59.7 | 14.0 | 95.6 | 100.0 |

WONGA BINDA #1    GIFFARD SS.    (590.2-605.5)
LITHOLOGY and POROSITY DETERMINATION from DENSITY-NEUTRON PLOT

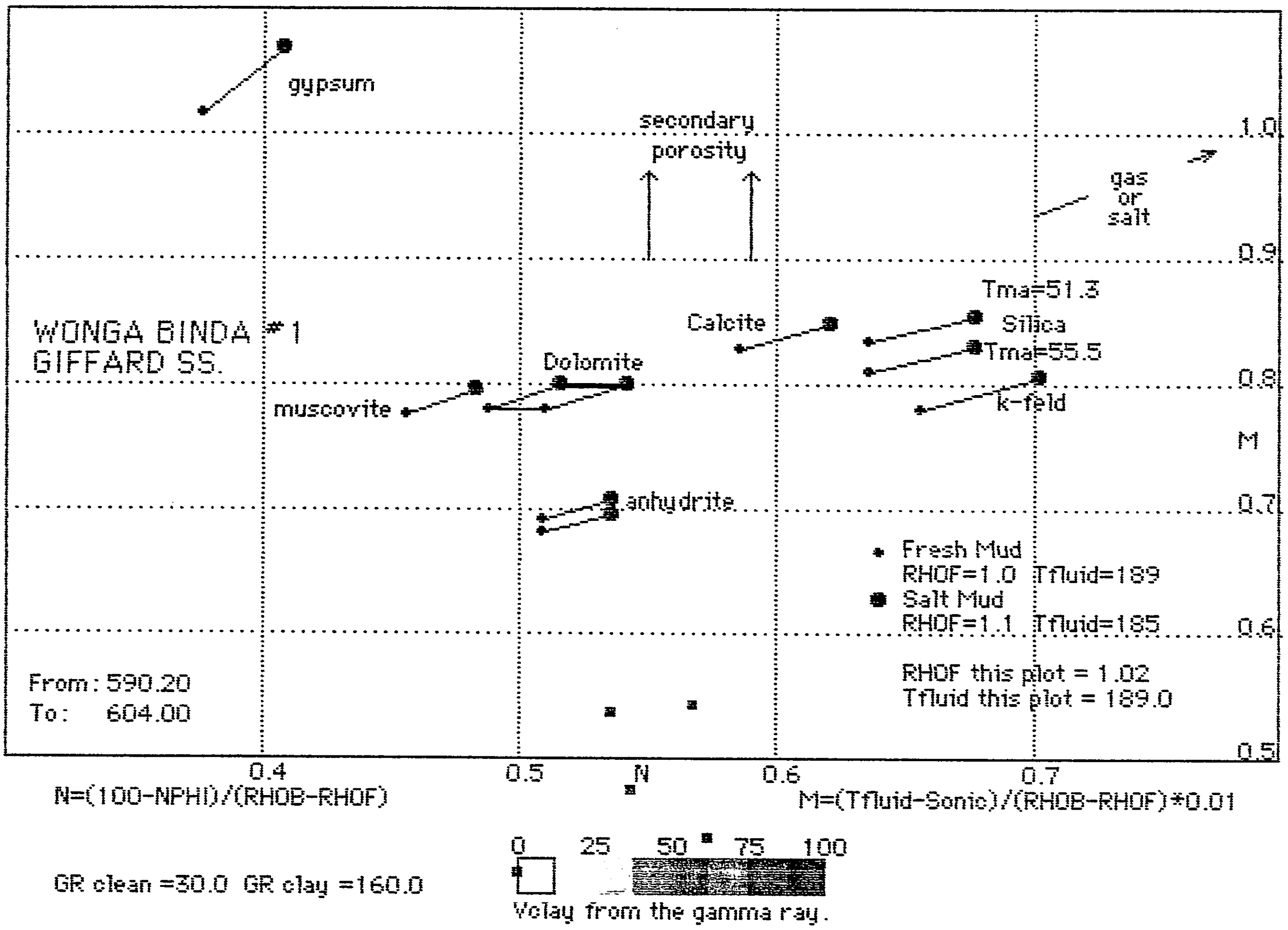


WONGA BINDA #1    GIFFARD SS.    (590.2-605.5)
MINERAL IDENTIFICATION from RHOmaa-Umaa PLOT




GR clean =30.0 GR clay =160.0

WONGA BINDA #1    GIFFARD SS.    (590.2-605.5)
MINERAL IDENTIFICATION from MN PLOT



WONGA BINDA #1    GIFFARD SANDSTONE    (590.20-605.50 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt. PHIE=(1-Vclay)*PHIT.
Clean matrix density=2.65  Clay matrix density=2.95  Rt clay=3.0.
RHOF=1.02  GR clean=30.00   GR clay=160.00.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
RWA=(RT*PHIT^2.00)/1.00 RMFA=(Rxo*PHIT^2.00)/1.00 Son por comp fac=1.50.
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when Rxo<=0.00 from 0.00 to 0.00 meters.

PRE EVALUATION

| Depth meters | RHOma | PHIT | VclayRt | VclayGR | VclayDN | Vclay | PHIE | RWA | RMFA |
|---|---|---|---|---|---|---|---|---|---|
| 590.50 | 2.78 | 30.0 | 66.7 | 23.1 | 43.0 | 23.1 | 23.1 | 0.405 | 0.432 |
| 591.00 | 2.75 | 37.1 | 85.7 | 33.1 | 34.7 | 33.1 | 24.8 | 0.481 | 0.385 |
| 593.00 | 2.61 | 48.7 | 100.0 | 42.3 | 0.0 | 0.0 | 48.7 | 0.498 | 0.190 |
| 594.50 | 2.87 | 11.2 | 25.8 | 19.2 | 72.1 | 19.2 | 9.0 | 0.237 | 0.399 |
| 596.00 | 2.78 | 37.0 | 34.7 | 100.0 | 42.6 | 34.7 | 24.2 | 1.113 | 0.219 |
| 597.00 | 2.74 | 31.7 | 33.3 | 84.6 | 30.2 | 30.2 | 22.1 | 0.931 | 0.176 |
| 598.00 | 2.77 | 35.4 | 42.0 | 100.0 | 39.7 | 39.7 | 21.4 | 0.897 | 0.201 |
| 600.00 | 2.73 | 41.2 | 49.6 | 100.0 | 26.4 | 26.4 | 30.3 | 1.025 | 0.203 |
| 604.00 | 2.83 | 34.8 | 31.1 | 88.5 | 59.7 | 31.1 | 24.0 | 1.396 | 0.349 |

WONGA BINDA #1    TRARALGON    (605.50-907.00 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt.  PHIE=(1-Vclay)*PHIT.
RHOF=1.02 GRclean=30.00 GRclay=160.00 Rtclay=100.000 Rwb=9.214.
Clean matrix density= 2.65   Clay matrix density= 3.16.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
Rw=19.000 everywhere except from 0.00 to 0.00 where Rw=19.000.
Rmf=0.160    a=1.00   m=2.00   n=2.00   Sonic por. comp. factor=1.50.
PHIE cutoff sets Sw and Sxo to 100% below 0.0 % porosity.
Coal is detected if RHOB<1.50 or if NPHI>55.0
or if Sonic>200.0 microsec/ft.
PHIT clay=25.0.
(1/RT)^0.5=(PHIT-PHIE)^0.86*(SWDPor^(n/2)/Rwb)^0.5
+ ((PHIE^m)*SwDPor^n/a*Rw)^0.5          Rwb=Rclay*PHITclay^1.72
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when MSFL<=0.00 from 0.00 to 0.00 meters.
**** Sonic porosity with PHITclay= 25.0

EVALUATION

| Depth meters | RHOma | PHIT | Vclay | PHIE | SwDPor | SxoDPor |
|---|---|---|---|---|---|---|
| 606.00 | 2.66 | 33.4 | 1.7 | 32.9 | 100.0 | 100.0 |
| 608.00 | 2.63 | 47.0 | 0.0 | 47.0 | 100.0 | 100.0 |
| 610.00 | 2.63 | 35.4 | 0.0 | 35.4 | 100.0 | 100.0 |
| 615.00 | 2.63 | 35.1 | 0.0 | 35.1 | 100.0 | 100.0 |
| 619.00 | 2.64 | 31.5 | 0.0 | 31.5 | 100.0 | 100.0 |
| 625.00 | 2.72 | 41.7 | 13.0 | 36.3 | 100.0 | 100.0 |
| 632.80 | 2.68 | 39.2 | 5.4 | 37.0 | 100.0 | 100.0 |
| 635.00 | 2.66 | 30.5 | 1.6 | 30.0 | 100.0 | 100.0 |
| 640.30 | 2.63 | 34.3 | 0.0 | 34.3 | 99.6 | 99.6 |
| 644.70 | 2.79 | 32.7 | 26.6 | 24.0 | 100.0 | 100.0 |
| 653.50 | 2.66 | 36.4 | 1.7 | 35.8 | 100.0 | 100.0 |
| 660.00 | 2.67 | 38.0 | 3.1 | 36.8 | 100.0 | 100.0 |
| 667.00 | 2.64 | 35.9 | 0.0 | 35.9 | 100.0 | 100.0 |
| 680.00 | 2.64 | 31.5 | 0.0 | 31.5 | 100.0 | 100.0 |
| 687.50 | 2.66 | 35.3 | 2.0 | 34.6 | 100.0 | 100.0 |
| 707.80 | 2.63 | 32.1 | 0.0 | 32.1 | 100.0 | 100.0 |
| 711.00 | 2.66 | 31.6 | 0.0 | 31.6 | 100.0 | 100.0 |
| 732.00 | 2.76 | 33.0 | 20.7 | 26.2 | 100.0 | 100.0 |
| 740.00 | 2.64 | 34.4 | 0.0 | 34.4 | 100.0 | 100.0 |
| 761.20 | 2.64 | 29.6 | 0.0 | 29.6 | 93.1 | 93.1 |
| 770.00 | 2.65 | 30.0 | 0.0 | 30.0 | 91.6 | 100.0 |
| 791.00 | 2.66 | 33.4 | 1.7 | 32.9 | 100.0 | 100.0 |
| 801.00 | 2.63 | 29.1 | 0.0 | 29.1 | 77.0 | 100.0 |
| 833.00 | 2.66 | 33.1 | 2.6 | 32.2 | 89.0 | 100.0 |
| 856.00 | 2.67 | 32.0 | 3.0 | 31.1 | 97.9 | 100.0 |
| 877.00 | 2.66 | 22.3 | 2.1 | 21.8 | 100.0 | 100.0 |
| 907.00 | 2.89 | 30.1 | 47.2 | 15.9 | 100.0 | 100.0 |

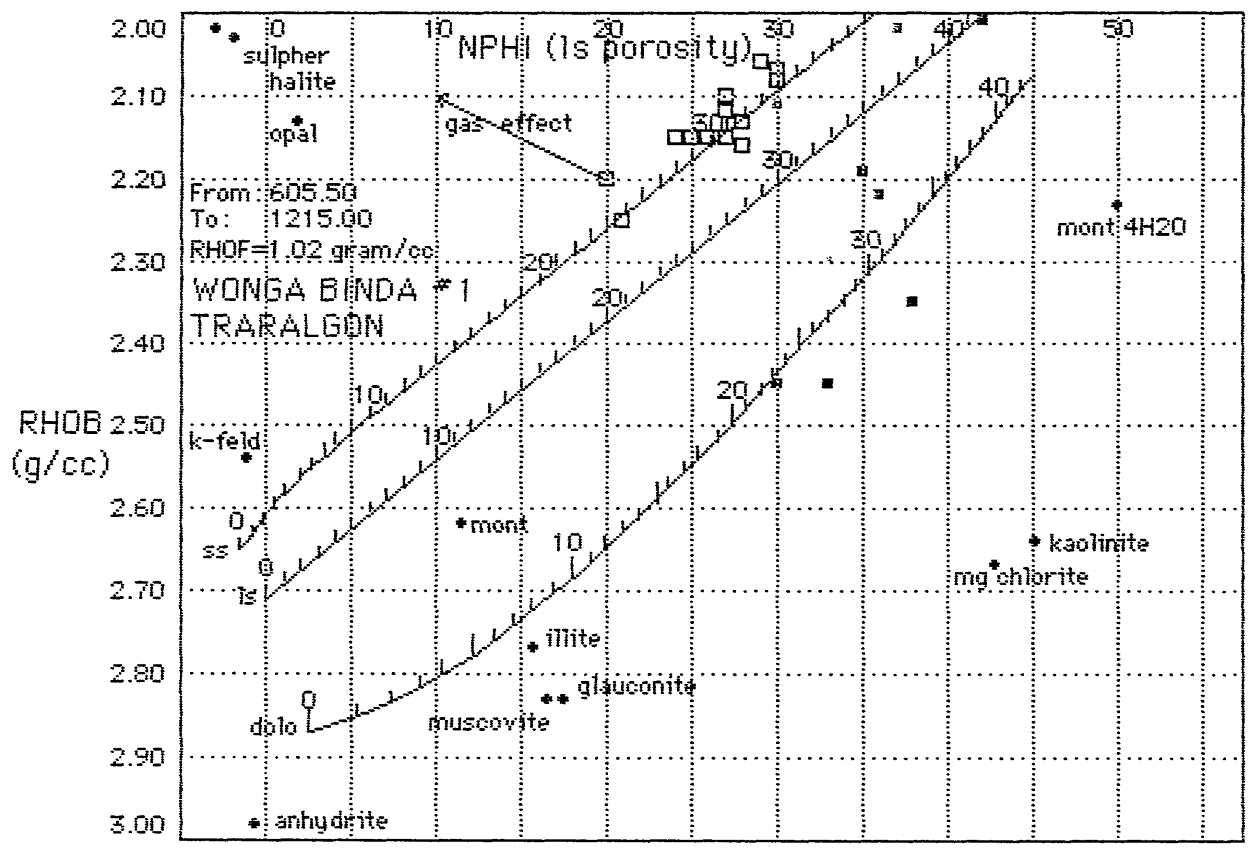
WONGA BINDA #1    TRARALGON    (907.00-1243.50 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt.  PHIE=(1-Vclay)*PHIT.
RHOF=1.02 GRclean=30.00 GRclay=160.00 Rtclay=100.000 Rwb=9.214.
Clean matrix density= 2.65   Clay matrix density= 3.16.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
Rw=46.000 everywhere except from 0.00 to 0.00 where Rw=46.000.
Rmf=0.190   a=1.00  m=2.00  n=2.00  Sonic por. comp. factor=1.50.
PHIE cutoff sets Sw and Sxo to 100% below 0.0 % porosity.
Coal is detected if RHOB<1.50 or if NPHI>55.0
or if Sonic>200.0 microsec/ft.
PHIT clay=25.0.
(1/RT)^0.5=(PHIT-PHIE)^0.86*(SWDPor^(n/2)/Rwb)^0.5
+ ((PHIE^m)*SwDPor^n/a*Rw)^0.5        Rwb=Rclay*PHITclay^1.72
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when MSFL<=0.00 from 0.00 to 0.00 meters.
**** Sonic porosity with PHITclay= 25.0

EVALUATION

| Depth meters | RHOma | PHIT | Vclay | PHIE | SwDPor | SxoDPor |
|---|---|---|---|---|---|---|
| 907.00 | 2.89 | 30.1 | 47.2 | 15.9 | 100.0 | 100.0 |
| 926.00 | 2.65 | 34.1 | 0.0 | 34.1 | 100.0 | 100.0 |
| 961.00 | 2.67 | 23.8 | 3.4 | 23.0 | 100.0 | 100.0 |
| 974.10 | 2.62 | 25.7 | 0.0 | 25.7 | 85.1 | 85.1 |
| 1013.00 | 2.66 | 24.5 | 1.5 | 24.1 | 100.0 | 100.0 |
| 1027.00 | 2.65 | 30.0 | 0.0 | 30.0 | 100.0 | 100.0 |
| 1048.00 | 2.67 | 30.6 | 4.2 | 29.3 | 100.0 | 100.0 |
| 1106.00 | 2.80 | 28.9 | 30.3 | 20.1 | 87.0 | 100.0 |
| 1159.00 | 2.87 | 23.1 | 42.8 | 13.2 | 100.0 | 100.0 |
| 1185.00 | 2.90 | 24.7 | 49.1 | 12.5 | 100.0 | 100.0 |
| 1215.00 | 2.68 | 19.1 | 5.6 | 18.0 | 100.0 | 100.0 |

WONGA BINDA #1    TRARALGON    (605.5-1243.5)
LITHOLOGY and POROSITY DETERMINATION from DENSITY-NEUTRON PLOT

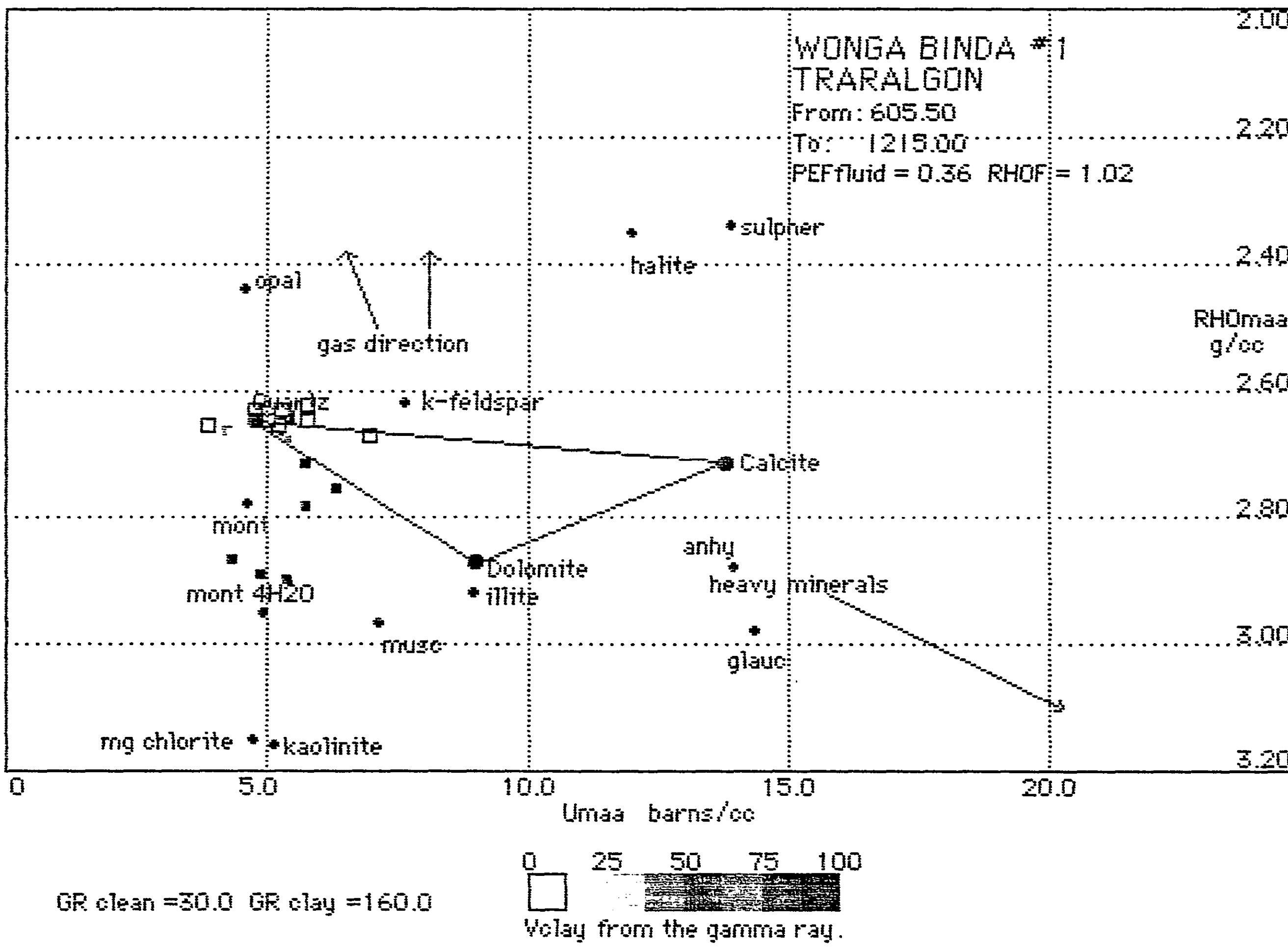



GR clean =30.0 GR clay =160.0

0 25 50 75 100

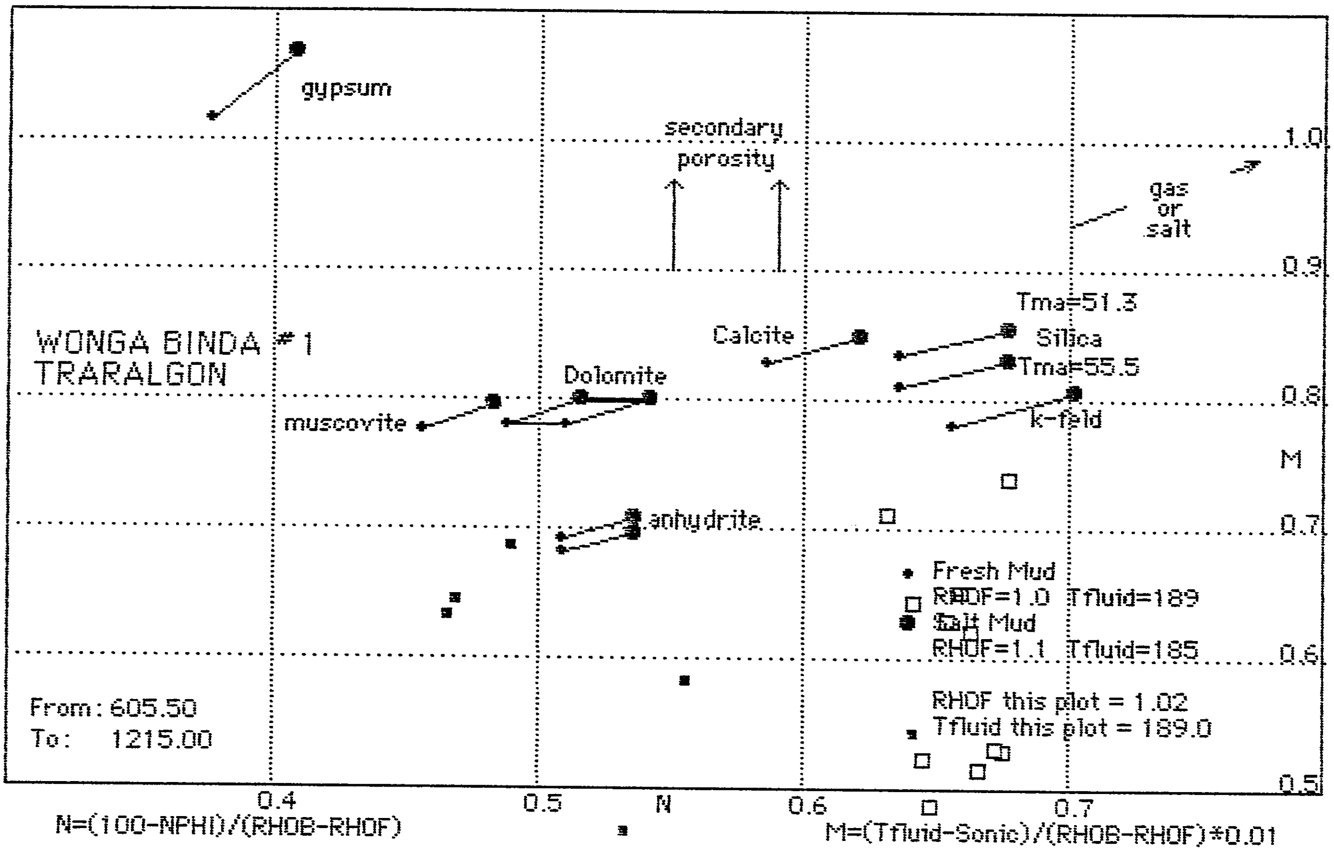
Vclay from the gamma ray.

WONGA BINDA #1 TRARALGON (605.5-1243.5)
MINERAL IDENTIFICATION from RHOmaa-Umaa PLOT

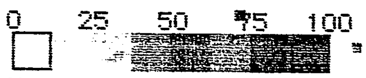



GR clean =30.0 GR clay =160.0

WONGA BINDA #1    TRARALGON    (605.5-1243.5)
MINERAL IDENTIFICATION from MN PLOT

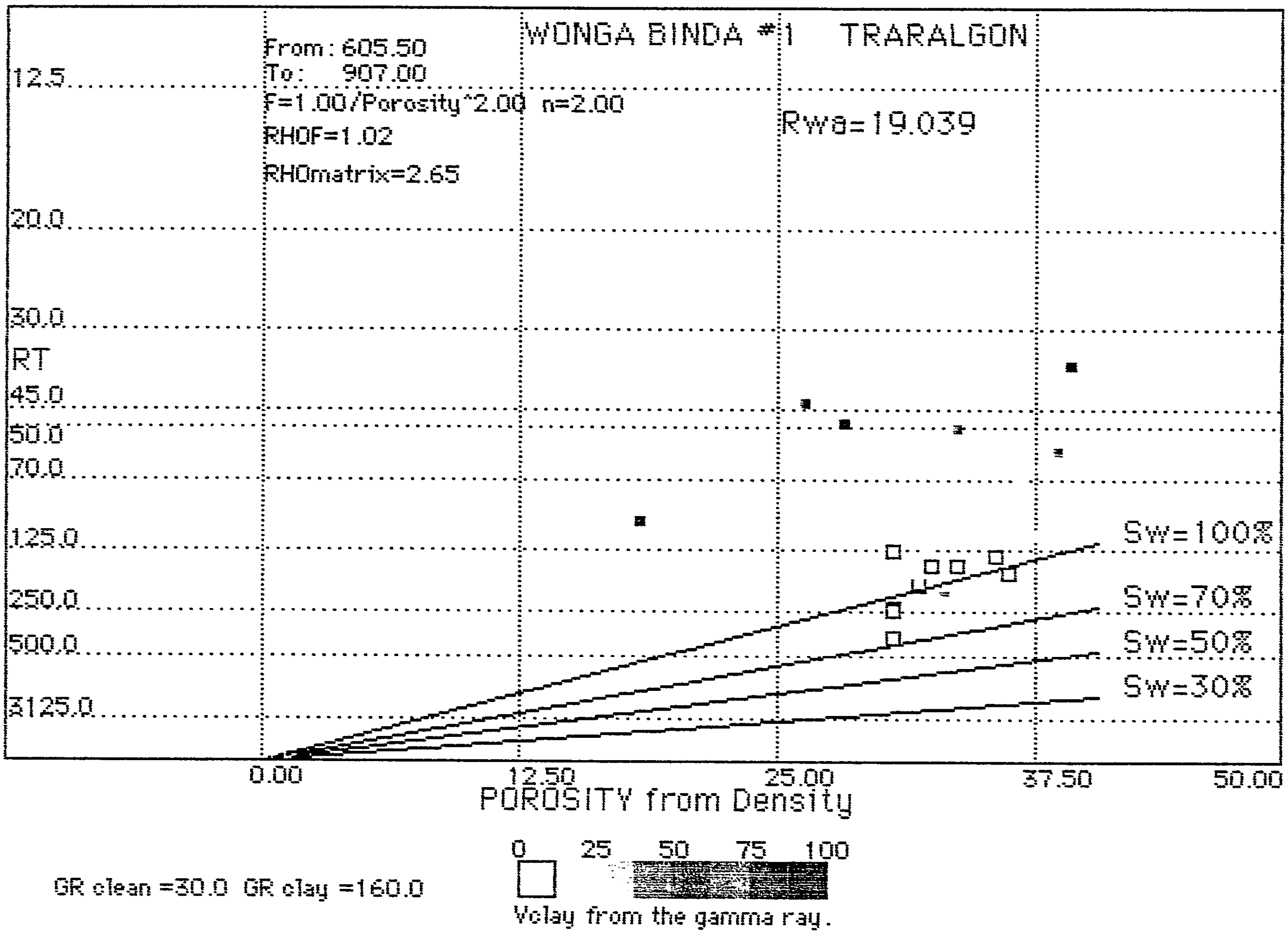



GR clean =30.0 GR clay =160.0

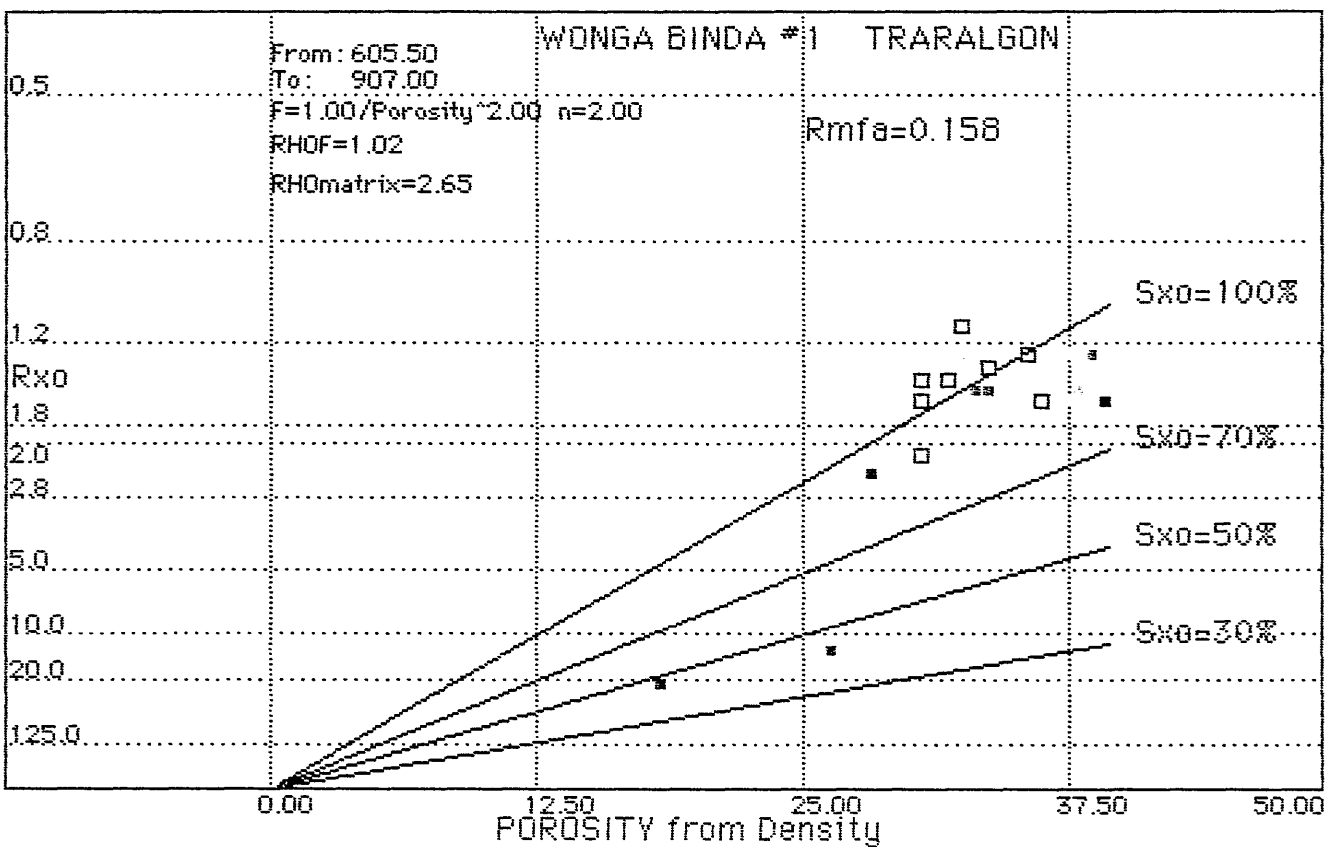



Vclay from the gamma ray.

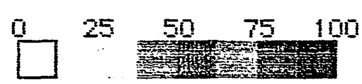
WONGA BINDA #1 TRARALGON (605.5-907.0)
Rt vs DENSITY POROSITY HINGLE PLOT



WONGA BINDA #1    TRARALGON    (605.5-907.0)
Rxo vs DENSITY POROSITY HINGLE PLOT

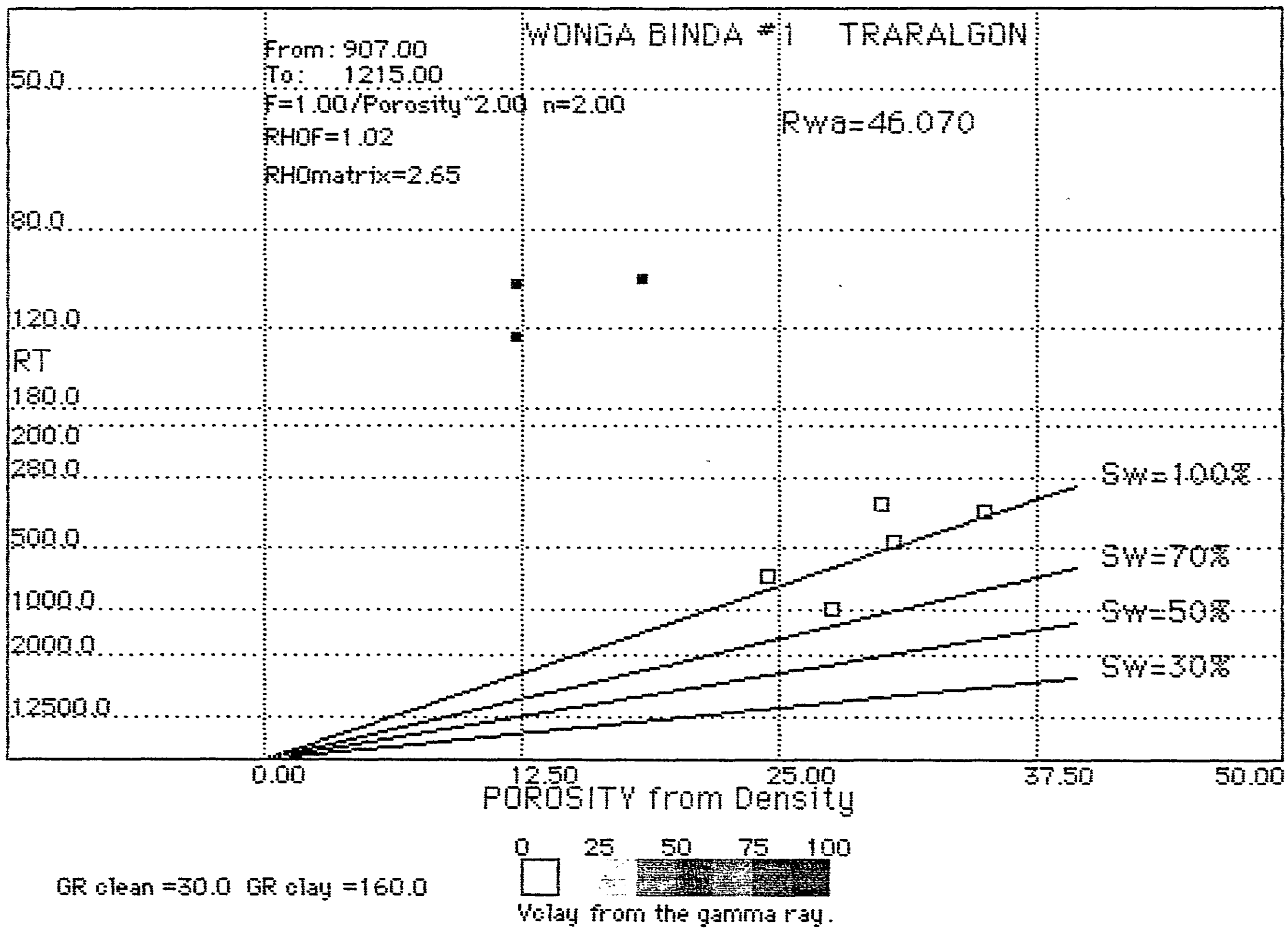



GR clean =30.0  GR clay =160.0

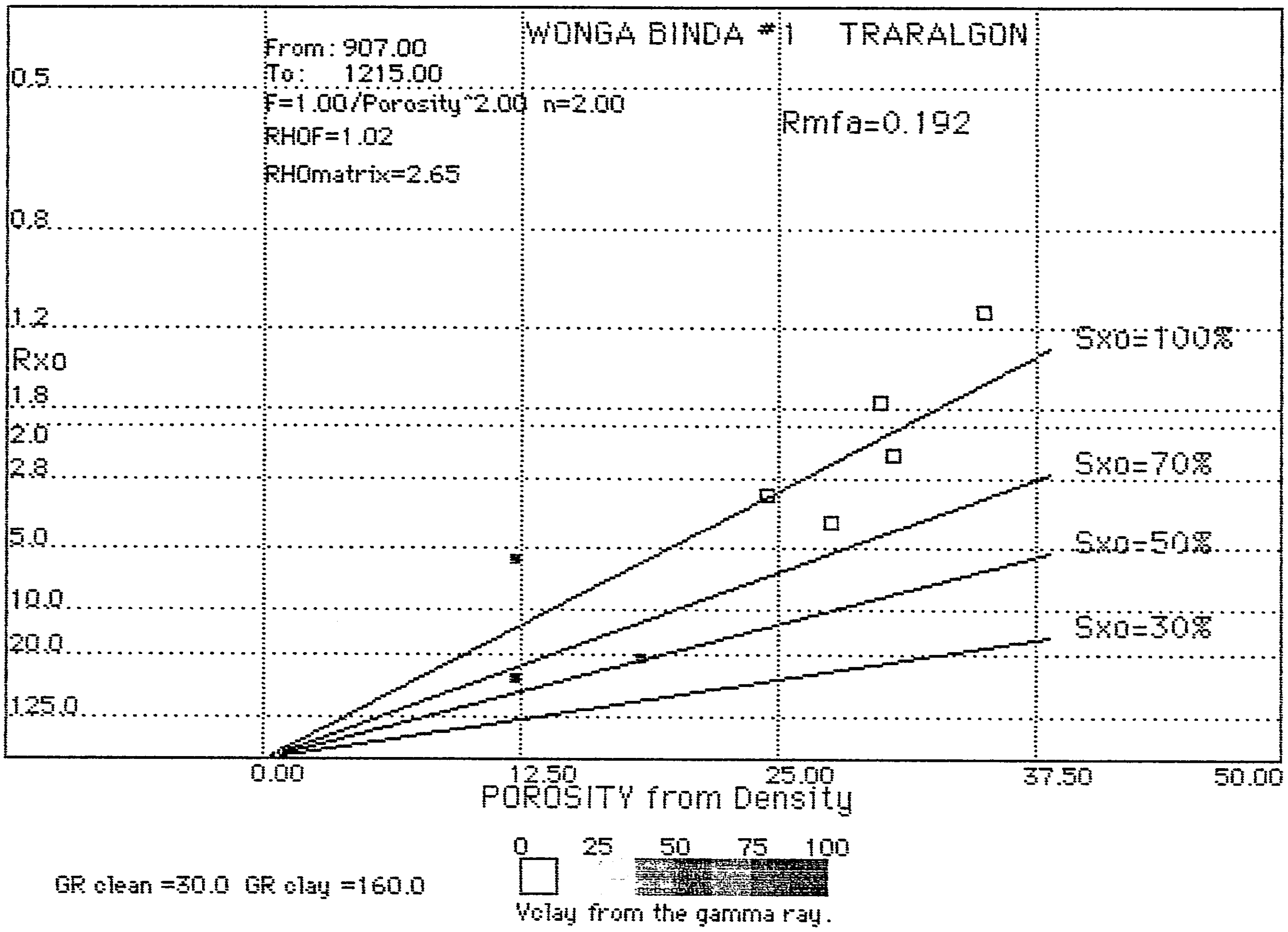


Vclay from the gamma ray.

WONGA BINDA #1   TRARALGON   (907.0-1215.0)
Rt vs DENSITY POROSITY HINGLE PLOT



WONGA BINDA #1    TRARALGON    (907.0-1215.0)
Rxo vs DENSITY POROSITY HINGLE PLOT




GR clean =30.0 GR clay =160.0

WONGA BINDA #1 TRARALGON (605.50-907.00 meters.

Vclay is min. of VclayDN, VclayGR & VclayRt. PHIE=(1-Vclay)*PHIT.
Clean matrix density=2.65 Clay matrix density=3.16 Rt clay=100.0.
RHOF=1.02 GR clean=30.00 GR clay=160.00.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
RWA=(RT*PHIT^2.00)/1.00 RMFA=(Rxo*PHIT^2.00)/1.00 Son por comp fac=1.50.
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when Rxo<=0.00 from 0.00 to 0.00 meters.

PRE EVALUATION

| Depth meters | RHOma | PHIT | VclayRt | VclayGR | VclayDN | Vclay | PHIE | RWA | RMFA |
|---|---|---|---|---|---|---|---|---|---|
| 606.00 | 2.66 | 33.4 | 100.0 | 44.6 | 1.7 | 1.7 | 32.9 | 5.695 | 0.170 |
| 608.00 | 2.63 | 47.0 | 100.0 | 21.5 | 0.0 | 0.0 | 47.0 | 7.971 | 0.177 |
| 610.00 | 2.63 | 35.4 | 90.5 | 23.1 | 0.0 | 0.0 | 35.4 | 13.870 | 0.161 |
| 615.00 | 2.63 | 35.1 | 100.0 | 23.1 | 0.0 | 0.0 | 35.1 | 9.825 | 0.187 |
| 619.00 | 2.64 | 31.5 | 68.2 | 10.0 | 0.0 | 0.0 | 31.5 | 14.519 | 0.111 |
| 625.00 | 2.72 | 41.7 | 100.0 | 94.6 | 13.0 | 13.0 | 36.3 | 6.304 | 0.279 |
| 632.80 | 2.68 | 39.2 | 100.0 | 69.2 | 5.4 | 5.4 | 37.0 | 9.027 | 0.196 |
| 635.00 | 2.66 | 30.5 | 77.8 | 3.8 | 1.6 | 1.6 | 30.0 | 11.919 | 0.148 |
| 640.30 | 2.63 | 34.3 | 62.7 | 6.2 | 0.0 | 0.0 | 34.3 | 18.790 | 0.189 |
| 644.70 | 2.79 | 32.7 | 100.0 | 61.5 | 26.6 | 26.6 | 24.0 | 4.693 | 1.367 |
| 653.50 | 2.66 | 36.4 | 100.0 | 23.1 | 1.7 | 1.7 | 35.8 | 9.744 | 0.159 |
| 660.00 | 2.67 | 38.0 | 100.0 | 34.6 | 3.1 | 3.1 | 36.8 | 14.143 | 0.219 |
| 667.00 | 2.64 | 35.9 | 90.6 | 15.4 | 0.0 | 0.0 | 35.9 | 14.194 | 0.206 |
| 680.00 | 2.64 | 31.5 | 77.8 | 34.6 | 0.0 | 0.0 | 31.5 | 12.715 | 0.127 |
| 687.50 | 2.66 | 35.3 | 81.7 | 15.4 | 2.0 | 2.0 | 34.6 | 15.254 | 0.140 |
| 707.80 | 2.63 | 32.1 | 67.9 | 0.0 | 0.0 | 0.0 | 32.1 | 15.199 | 0.140 |
| 711.00 | 2.66 | 31.6 | 54.4 | 0.0 | 1.3 | 0.0 | 31.6 | 18.307 | 0.143 |
| 732.00 | 2.76 | 33.0 | 100.0 | 100.0 | 20.7 | 20.7 | 26.2 | 5.394 | 0.261 |
| 740.00 | 2.64 | 34.4 | 74.3 | 11.5 | 0.0 | 0.0 | 34.4 | 15.965 | 0.152 |
| 761.20 | 2.64 | 29.6 | 40.7 | 5.4 | 0.0 | 0.0 | 29.6 | 21.477 | 0.189 |
| 770.00 | 2.65 | 30.0 | 40.7 | 3.8 | 0.0 | 0.0 | 30.0 | 22.167 | 0.144 |
| 791.00 | 2.66 | 33.4 | 87.5 | 23.1 | 1.7 | 1.7 | 32.9 | 12.776 | 0.179 |
| 801.00 | 2.63 | 29.1 | 31.5 | 2.3 | 0.0 | 0.0 | 29.1 | 31.249 | 0.122 |
| 833.00 | 2.66 | 33.1 | 51.0 | 46.2 | 2.6 | 2.6 | 32.2 | 21.493 | 0.167 |
| 856.00 | 2.67 | 32.0 | 58.2 | 17.7 | 3.0 | 3.0 | 31.1 | 17.593 | 0.164 |
| 877.00 | 2.66 | 22.3 | 73.9 | 23.1 | 2.1 | 2.1 | 21.8 | 6.729 | 0.072 |
| 907.00 | 2.89 | 30.1 | 100.0 | 100.0 | 47.2 | 47.2 | 15.9 | 8.798 | 2.029 |

WONGA BINDA #1    TRARALGON    (907.00-1243.50 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt. PHIE=(1-Vclay)*PHIT.
Clean matrix density=2.65  Clay matrix density=3.16  Rt clay=100.0.
RHOF=1.02  GR clean=30.00    GR clay=160.00.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
RWA=(RT*PHIT^2.00)/1.00 RMFA=(Rxo*PHIT^2.00)/1.00 Son por comp fac=1.50.
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when Rxo<=0.00 from 0.00 to 0.00 meters.

PRE EVALUATION

| Depth meters | RHOma | PHIT | VclayRt | VclayGR | VclayDN | Vclay | PHIE | RWA | RMFA |
|---|---|---|---|---|---|---|---|---|---|
| 907.00 | 2.89 | 30.1 | 100.0 | 100.0 | 47.2 | 47.2 | 15.9 | 8.798 | 2.029 |
| 926.00 | 2.65 | 34.1 | 31.5 | 11.5 | 0.0 | 0.0 | 34.1 | 42.721 | 0.130 |
| 961.00 | 2.67 | 23.8 | 35.5 | 19.2 | 3.4 | 3.4 | 23.0 | 14.303 | 0.091 |
| 974.10 | 2.62 | 25.7 | 21.2 | 7.7 | 0.0 | 0.0 | 25.7 | 65.089 | 0.265 |
| 1013.00 | 2.66 | 24.5 | 25.1 | 11.5 | 1.5 | 1.5 | 24.1 | 40.875 | 0.192 |
| 1027.00 | 2.65 | 30.0 | 28.7 | 3.8 | 0.0 | 0.0 | 30.0 | 43.244 | 0.216 |
| 1048.00 | 2.67 | 30.6 | 32.2 | 5.4 | 4.2 | 4.2 | 29.3 | 32.066 | 0.164 |
| 1106.00 | 2.80 | 28.9 | 40.8 | 34.6 | 30.3 | 30.3 | 20.1 | 20.445 | 0.147 |
| 1159.00 | 2.87 | 23.1 | 79.3 | 100.0 | 42.8 | 42.8 | 13.2 | 6.718 | 1.918 |
| 1185.00 | 2.90 | 24.7 | 99.9 | 92.3 | 49.1 | 49.1 | 12.5 | 6.089 | 0.341 |
| 1215.00 | 2.68 | 19.1 | 58.0 | 26.9 | 5.6 | 5.6 | 18.0 | 6.284 | 0.117 |

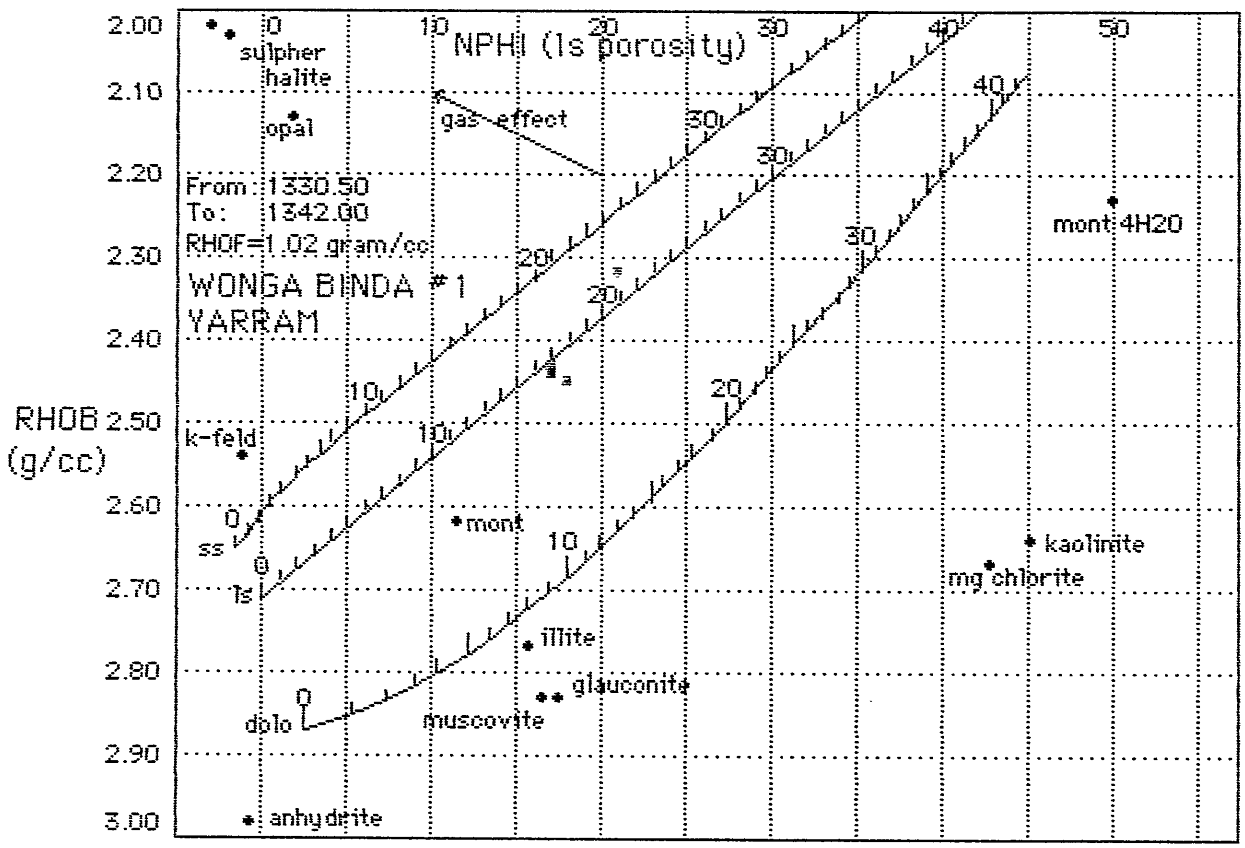
WONGA BINDA #1    YARRAM    (1330.50-1344.00 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt.  PHIE=(1-Vclay)*PHIT.
RHOF=1.02 GRclean=30.00 GRclay=160.00 Rtclay=10.000 Rwb=0.921.
Clean matrix density= 2.65   Clay matrix density= 3.16.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
Rw=0.700 everywhere except from 0.00 to 0.00 where Rw=0.700.
Rmf=0.150    a=1.00  m=2.00  n=2.00  Sonic por. comp. factor=1.00.
PHIE cutoff sets Sw and Sxo to 100% below 0.0 % porosity.
Coal is detected if RHOB<1.50 or if NPHI>55.0
or if Sonic>200.0 microsec/ft.
PHIT clay=25.0.
(1/RT)^0.5=(PHIT-PHIE)^0.86*(SWDPor^(n/2)/Rwb)^0.5
+ ((PHIE^m)*SwDPor^n/a*Rw)^0.5        Rwb=Rclay*PHITclay^1.72
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when MSFL<=0.00 from 0.00 to 0.00 meters.
**** Sonic porosity with PHITclay= 25.0

EVALUATION

| Depth meters | RHOma | PHIT | Vclay | PHIE | SwDPor | SxoDPor |
|---|---|---|---|---|---|---|
| 1331.60 | 2.74 | 16.8 | 17.3 | 13.9 | 100.0 | 100.0 |
| 1334.00 | 2.71 | 17.1 | 11.5 | 15.1 | 100.0 | 100.0 |
| 1336.00 | 2.71 | 16.8 | 12.7 | 14.7 | 100.0 | 100.0 |
| 1339.00 | 2.69 | 22.2 | 8.3 | 20.3 | 100.0 | 100.0 |
| 1342.00 | 2.72 | 16.5 | 13.9 | 14.2 | 100.0 | 100.0 |

WONGA BINDA #1 YARRAM (1330.5-1344.0)
LITHOLOGY and POROSITY DETERMINATION from DENSITY-NEUTRON PLOT

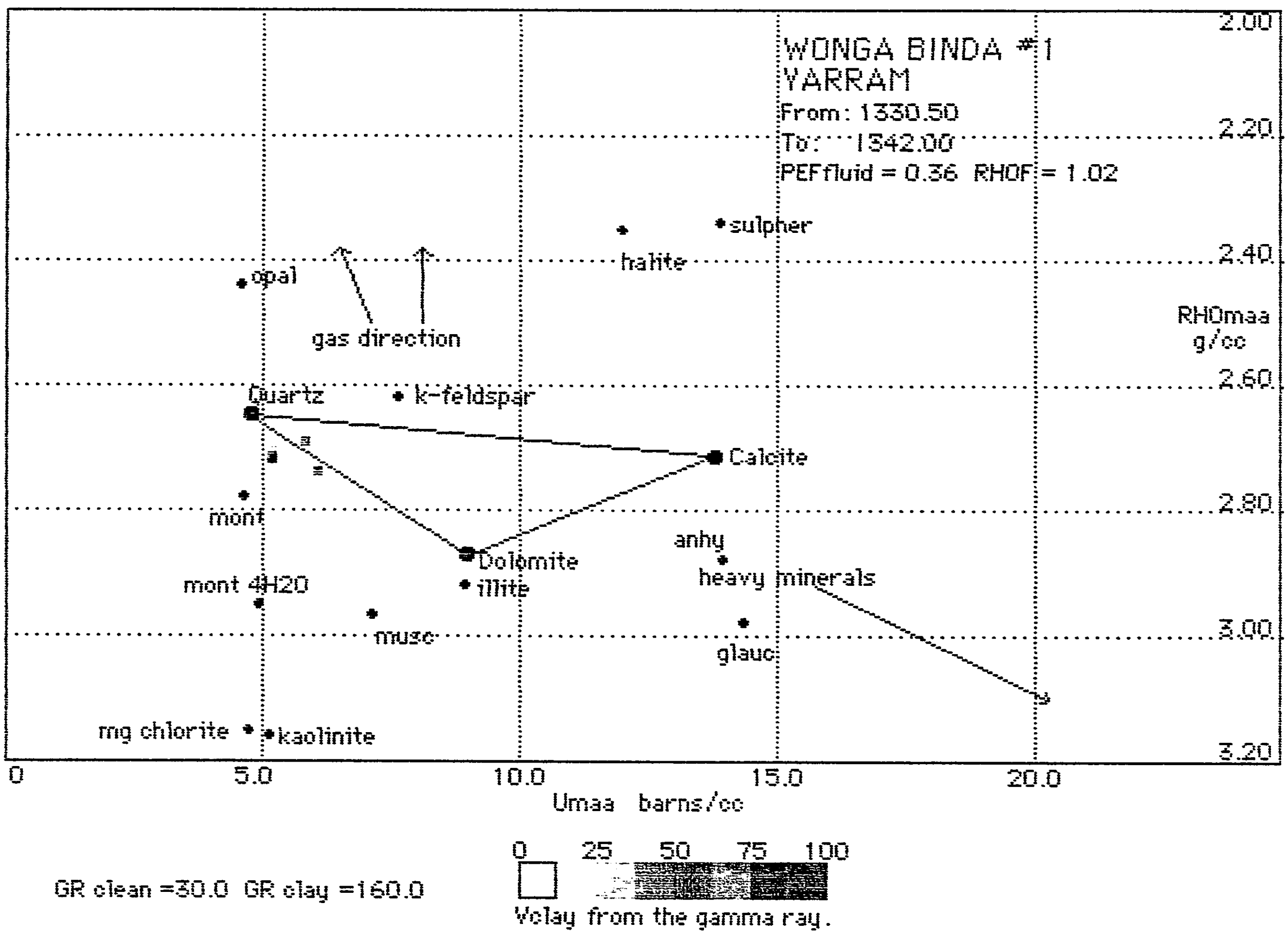



GR clean =30.0 GR clay =160.0

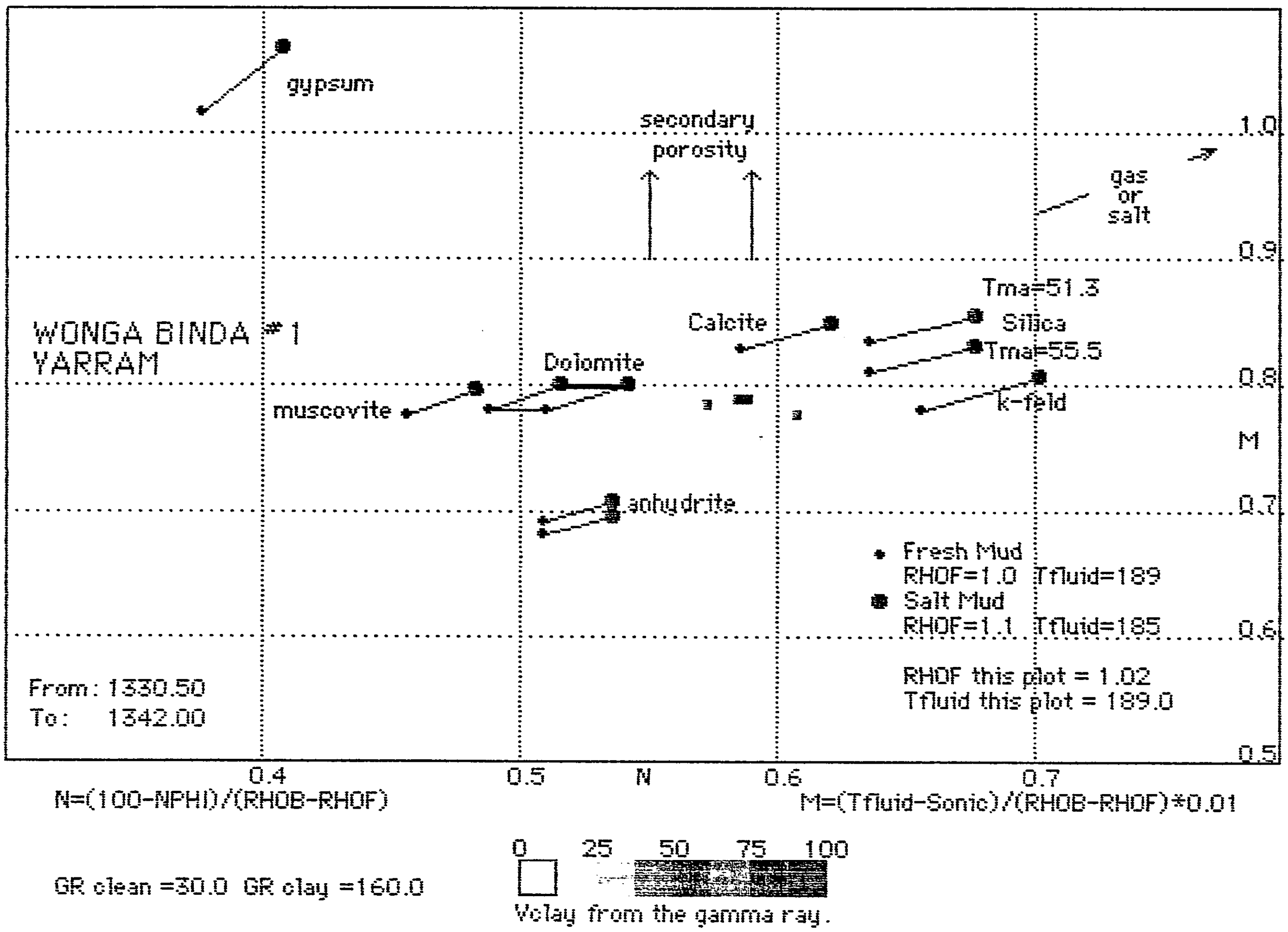
0 25 50 75 100

Vclay from the gamma ray.

WONGA BINDA #1 YARRAM (1330.5-1344.0)
MINERAL IDENTIFICATION from RHOmaa-Umaa PLOT



WONGA BINDA #1    YARRAM    (1330.5-1344.0)
MINERAL IDENTIFICATION from MN PLOT



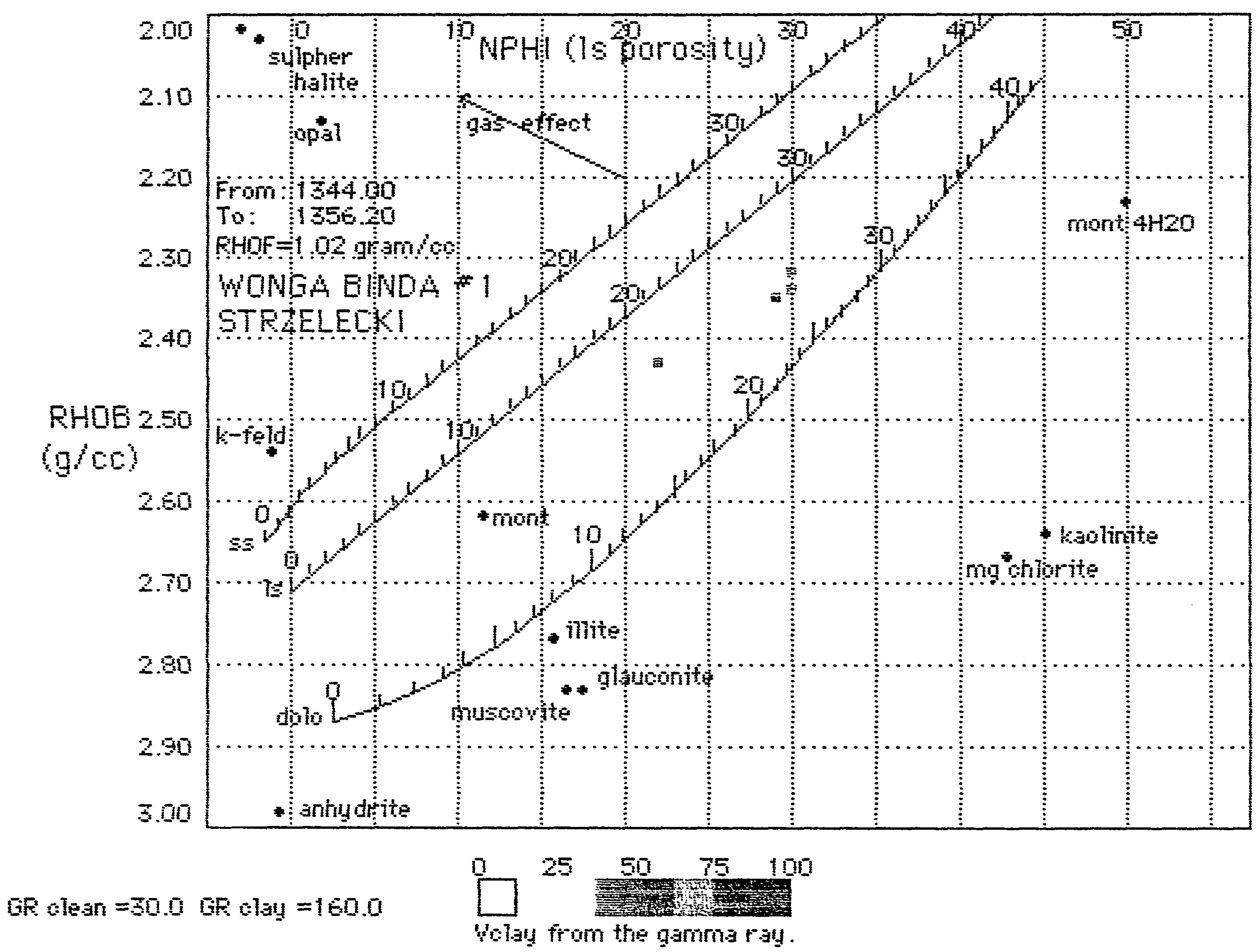
WONGA BINDA #1    STRZELECKI    (1344.00-1372.00 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt.  PHIE=(1-Vclay)*PHIT.
RHOF=1.02 GRclean=30.00 GRclay=160.00 Rtclay=4.000 Rwb=0.369.
Clean matrix density= 2.65   Clay matrix density= 3.16.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
Rw=0.700 everywhere except from 0.00 to 0.00 where Rw=0.700.
Rmf=0.150    a=1.00  m=2.00  n=2.00  Sonic por. comp. factor=1.00.
PHIE cutoff sets Sw and Sxo to 100% below 0.0 % porosity.
Coal is detected if RHOB<1.50 or if NPHI>55.0
or if Sonic>200.0 microsec/ft.
PHIT clay=25.0.
(1/RT)^0.5=(PHIT-PHIE)^0.86*(SWDPor^(n/2)/Rwb)^0.5
+ ((PHIE^m)*SwDPor^n/a*Rw)^0.5        Rwb=Rclay*PHITclay^1.72
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when MSFL<=0.00 from 0.00 to 0.00 meters.
**** Sonic porosity with PHITclay= 25.0

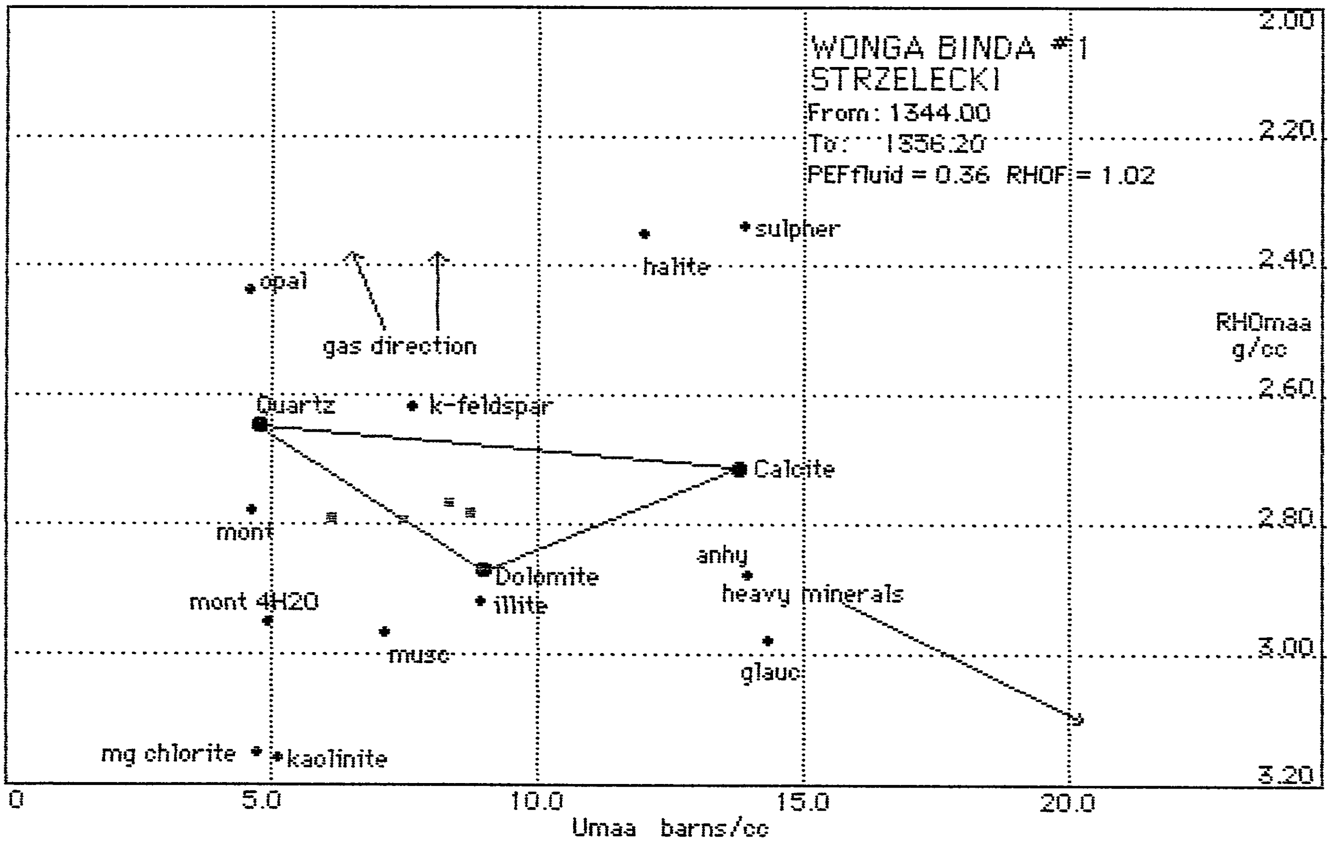
EVALUATION

| Depth meters | RHOma | PHIT | Vclay | PHIE | SwDPor | SxoDPor |
|---|---|---|---|---|---|---|
| 1346.00 | 2.79 | 25.4 | 28.1 | 18.2 | 100.0 | 100.0 |
| 1350.00 | 2.78 | 26.7 | 26.4 | 19.7 | 94.9 | 94.9 |
| 1355.00 | 2.80 | 26.2 | 29.0 | 18.6 | 100.0 | 100.0 |
| 1356.20 | 2.77 | 19.4 | 23.3 | 14.9 | 100.0 | 100.0 |

WONGA BINDA #1 STRZELECKI (1344.0-1372.0)
LITHOLOGY and POROSITY DETERMINATION from DENSITY-NEUTRON PLOT



WONGA BINDA #1    STRZELECKI    (1344.0-1372.0)
MINERAL IDENTIFICATION from RHOmaa-Umaa PLOT

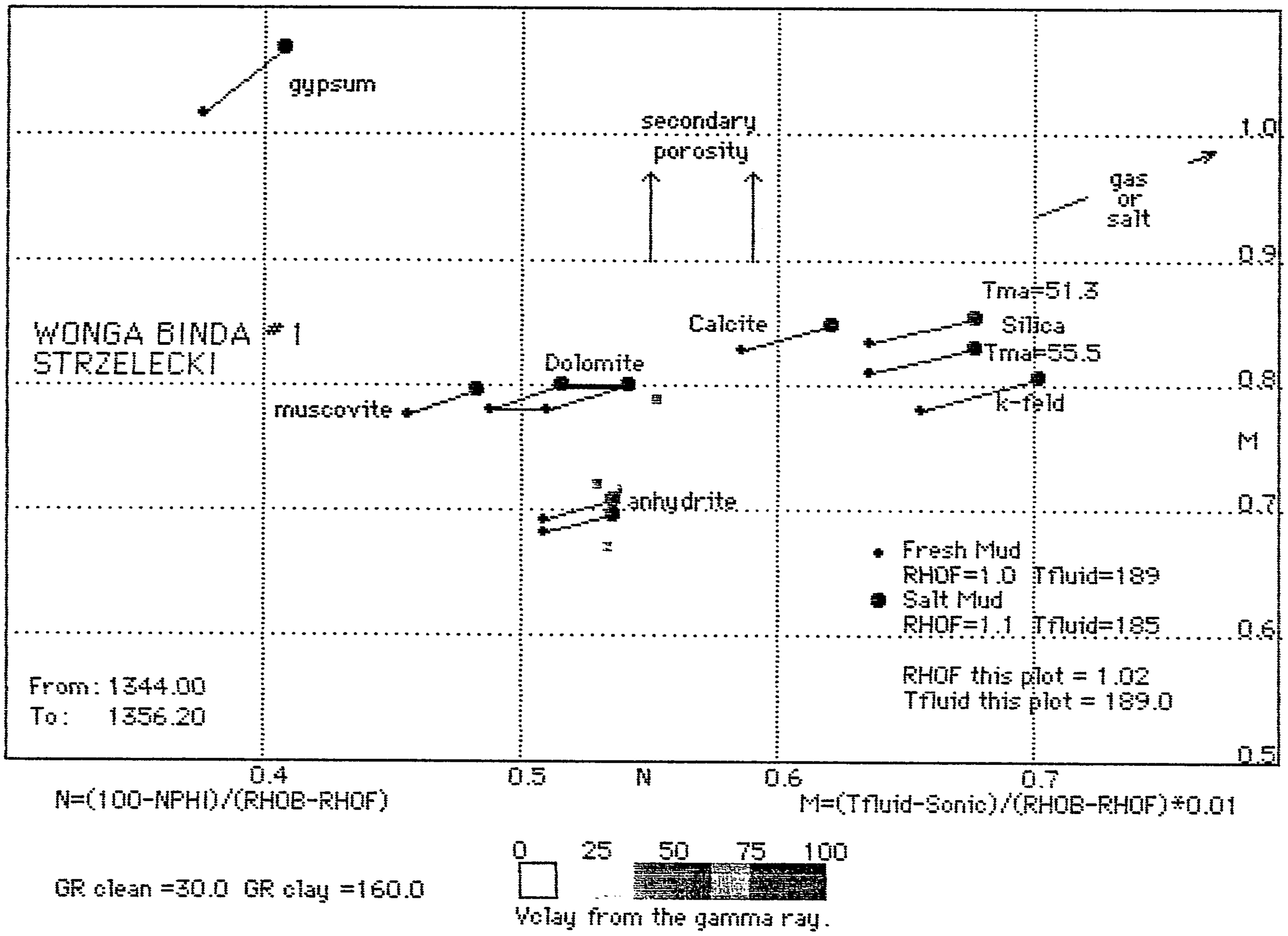



GR clean =30.0 GR clay =160.0

0 25 50 75 100

Vclay from the gamma ray.

WONGA BINDA #1 STRZELECKI (1344.0-1372.0)
MINERAL IDENTIFICATION from MN PLOT



WONGA BINDA #1    YARRAM    (1330.50-1344.00 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt. PHIE=(1-Vclay)*PHIT.
Clean matrix density=2.65  Clay matrix density=3.16  Rt clay=10.0.
RHOF=1.02  GR clean=30.00   GR clay=160.00.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
RWA=(RT*PHIT^2.00)/1.00 RMFA=(Rxo*PHIT^2.00)/1.00 Son por comp fac=1.00.
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when Rxo<=0.00 from 0.00 to 0.00 meters.

PRE EVALUATION

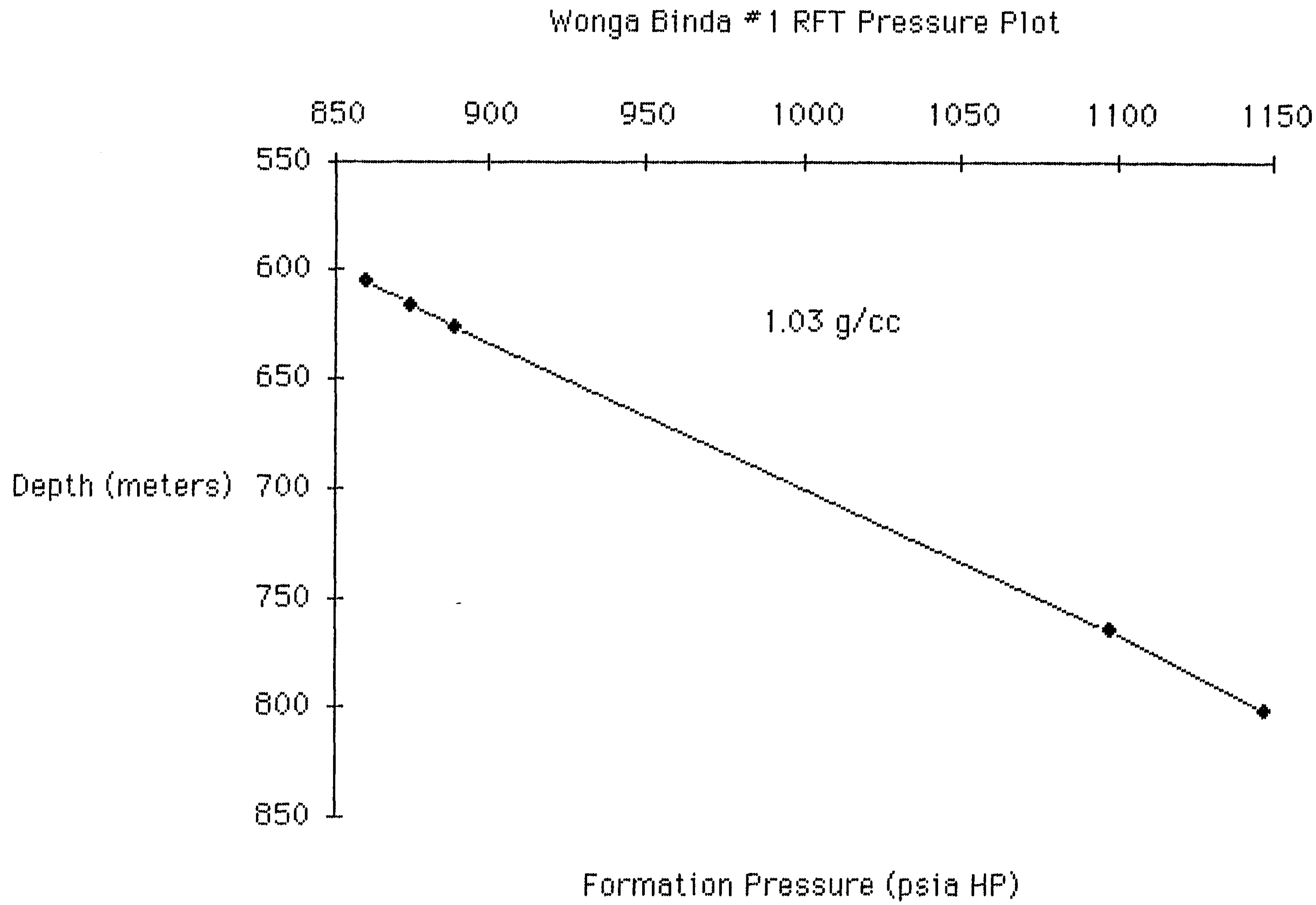
| Depth meters | RHOma | PHIT | VclayRt | VclayGR | VclayDN | Vclay | PHIE | RWA | RMFA |
|---|---|---|---|---|---|---|---|---|---|
| 1331.60 | 2.74 | 16.8 | 49.4 | 38.5 | 17.3 | 17.3 | 13.9 | 0.569 | 0.247 |
| 1334.00 | 2.71 | 17.1 | 83.3 | 34.6 | 11.5 | 11.5 | 15.1 | 0.350 | 0.164 |
| 1336.00 | 2.71 | 16.8 | 58.8 | 46.2 | 12.7 | 12.7 | 14.7 | 0.480 | 0.271 |
| 1339.00 | 2.69 | 22.2 | 100.0 | 38.5 | 8.3 | 8.3 | 20.3 | 0.492 | 0.126 |
| 1342.00 | 2.72 | 16.5 | 47.6 | 53.8 | 13.9 | 13.9 | 14.2 | 0.573 | 0.218 |

WONGA BINDA #1    STRZELECKI    (1344.00-1372.00 meters)

Vclay is min. of VclayDN, VclayGR & VclayRt. PHIE=(1-Vclay)*PHIT.
Clean matrix density=2.65  Clay matrix density=3.16  Rt clay=3.0.
RHOF=1.02  GR clean=30.00   GR clay=160.00.
Fluid DT=189.00 & clean matrix DT=55.50 microsec/ft.
RWA=(RT*PHIT^2.00)/1.00 RMFA=(Rxo*PHIT^2.00)/1.00 Son por comp fac=1.00.
**** Sonic porosity when RHOB<=0.00g/cc from 0.00 to 0.00 meters.
**** Sonic porosity when Rxo<=0.00 from 0.00 to 0.00 meters.

PRE EVALUATION

| Depth meters | RHOma | PHIT | VclayRt | VclayGR | VclayDN | Vclay | PHIE | RWA | RMFA |
|---|---|---|---|---|---|---|---|---|---|
| 1346.00 | 2.79 | 25.4 | 50.0 | 46.2 | 28.1 | 28.1 | 18.2 | 0.386 | 0.309 |
| 1350.00 | 2.78 | 26.7 | 45.5 | 46.2 | 26.4 | 26.4 | 19.7 | 0.471 | 0.263 |
| 1355.00 | 2.80 | 26.2 | 50.0 | 46.2 | 29.0 | 29.0 | 18.6 | 0.411 | 0.438 |
| 1356.20 | 2.77 | 19.4 | 63.0 | 42.3 | 23.3 | 23.3 | 14.9 | 0.180 | 1.661 |




[(1148.42-859.96)/(802-605.5)]*[1/3.281]*[1/0.433]=1.03 g/cc

Wonga Binda #1 RFT Pressure Plot

| Formation Press | Depth (meters) |
|---|---|
| 859.96 | 605.5 |
| 874.67 | 616 |
| 889.23 | 626 |
| 1097.6 | 765 |
| 1148.42 | 802 |

$[(1148.42-859.96)/(802-605.5)]*[1/3.281]*[1/0.433]=1.03$ g/cc

WONGA BINDA #1 Corr.    0.8*MSFL  PEF-0.7    (595.5-1356.2 Meters)

Mud filtrate density=1.02 g/cc.
Surface temperature=80.00 deg. F.   Bottom hole temperature=100.40 deg. F.
Surface depth=0.00 Meters.   Depth logger=1372.00 Meters.

DATA LISTING

| Depth Meters | MSFL | LLS | LLD | RT | RHOB | NPHIls | NPHIc | GR | PEF | Sonic mcs/ft |
|---|---|---|---|---|---|---|---|---|---|---|
| 596.00 | 1.60 | 6.00 | 7.00 | 8.12 | 2.14 | 40.0 | 40.0 | 160.0 | 3.2 | 129.0 |
| 598.00 | 1.60 | 6.00 | 6.50 | 7.15 | 2.16 | 38.0 | 38.0 | 165.0 | 3.4 | 135.0 |
| 600.00 | 1.20 | 5.00 | 5.50 | 6.05 | 2.03 | 42.0 | 42.0 | 210.0 | 2.5 | 145.0 |
| 604.00 | 2.88 | 9.00 | 10.00 | 11.53 | 2.22 | 40.0 | 40.0 | 145.0 | 3.0 | 140.0 |
| 606.00 | 1.52 | 22.00 | 41.00 | 50.95 | 2.10 | 30.0 | 30.0 | 88.0 | 1.8 | 160.0 |
| 608.00 | 0.80 | 13.00 | 29.00 | 36.07 | 1.85 | 42.0 | 42.0 | 58.0 | 3.7 | 170.0 |
| 610.00 | 1.28 | 50.00 | 90.00 | 110.47 | 2.04 | 30.0 | 30.0 | 60.0 | 1.8 | 125.0 |
| 615.00 | 1.52 | 45.00 | 65.00 | 79.74 | 2.05 | 30.0 | 30.0 | 60.0 | 1.8 | 151.0 |
| 619.00 | 1.12 | 80.00 | 120.00 | 146.73 | 2.12 | 27.0 | 27.0 | 43.0 | 1.8 | 162.0 |
| 625.00 | 1.60 | 26.00 | 31.00 | 36.21 | 2.01 | 42.0 | 42.0 | 153.0 | 1.8 | 146.0 |
| 632.80 | 1.28 | 35.00 | 48.00 | 58.87 | 2.02 | 37.0 | 37.0 | 120.0 | 1.7 | 148.0 |
| 635.00 | 1.60 | 75.00 | 105.00 | 128.49 | 2.15 | 27.0 | 27.0 | 35.0 | 1.8 | 130.0 |
| 640.30 | 1.60 | 72.00 | 130.00 | 159.43 | 2.06 | 29.0 | 29.0 | 38.0 | 1.8 | 143.0 |
| 644.70 | 12.80 | 29.00 | 38.00 | 43.93 | 2.22 | 36.0 | 36.0 | 110.0 | 1.8 | 133.0 |
| 653.50 | 1.20 | 43.00 | 60.00 | 73.50 | 2.05 | 33.0 | 33.0 | 60.0 | 1.5 | 143.0 |
| 660.00 | 1.52 | 50.00 | 80.00 | 98.20 | 2.03 | 35.0 | 35.0 | 75.0 | 1.6 | 145.0 |
| 667.00 | 1.60 | 60.00 | 90.00 | 110.32 | 2.04 | 31.0 | 31.0 | 50.0 | 1.5 | 142.0 |
| 680.00 | 1.28 | 70.00 | 105.00 | 128.49 | 2.12 | 27.0 | 27.0 | 75.0 | 1.6 | 130.0 |
| 687.50 | 1.12 | 65.00 | 100.00 | 122.37 | 2.07 | 32.0 | 32.0 | 50.0 | 1.4 | 140.0 |
| 707.80 | 1.36 | 60.00 | 120.00 | 147.29 | 2.10 | 27.0 | 27.0 | 25.0 | 1.6 | 132.0 |
| 711.00 | 1.44 | 80.00 | 150.00 | 183.80 | 2.13 | 28.0 | 28.0 | 27.0 | 1.3 | 135.0 |
| 732.00 | 2.40 | 28.00 | 40.00 | 49.54 | 2.19 | 35.0 | 35.0 | 185.0 | 2.0 | 121.0 |
| 740.00 | 1.28 | 70.00 | 110.00 | 134.65 | 2.07 | 30.0 | 30.0 | 45.0 | 1.9 | 135.0 |
| 761.20 | 2.16 | 100.00 | 200.00 | 245.41 | 2.15 | 25.0 | 25.0 | 37.0 | 1.8 | 119.0 |
| 770.00 | 1.60 | 70.00 | 200.00 | 245.97 | 2.15 | 26.0 | 26.0 | 35.0 | 1.7 | 118.0 |
| 791.00 | 1.60 | 52.00 | 93.00 | 114.30 | 2.10 | 30.0 | 30.0 | 60.0 | 1.8 | 150.0 |
| 801.00 | 1.44 | 100.00 | 300.00 | 367.84 | 2.15 | 24.0 | 24.0 | 33.0 | 1.8 | 129.0 |
| 833.00 | 1.52 | 80.00 | 160.00 | 196.18 | 2.11 | 30.0 | 30.0 | 90.0 | 1.4 | 130.0 |
| 856.00 | 1.60 | 70.00 | 140.00 | 171.85 | 2.13 | 29.0 | 29.0 | 53.0 | 1.8 | 120.0 |
| 877.00 | 1.44 | 50.00 | 110.00 | 135.35 | 2.29 | 19.0 | 19.0 | 60.0 | 1.8 | 118.0 |
| 907.00 | 22.40 | 48.00 | 70.00 | 97.12 | 2.35 | 38.0 | 38.0 | 190.0 | 1.5 | 105.0 |
| 926.00 | 1.12 | 100.00 | 300.00 | 367.40 | 2.08 | 30.0 | 30.0 | 45.0 | 1.9 | 120.0 |
| 961.00 | 1.60 | 80.00 | 205.00 | 251.74 | 2.27 | 21.0 | 21.0 | 55.0 | 1.5 | 104.0 |
| 974.10 | 4.00 | 220.00 | 800.00 | 982.91 | 2.20 | 20.0 | 20.0 | 40.0 | 2.0 | 102.0 |
| 1013.00 | 3.20 | 100.00 | 550.00 | 680.79 | 2.25 | 21.0 | 21.0 | 45.0 | 1.8 | 110.0 |
| 1027.00 | 2.40 | 110.00 | 390.00 | 479.85 | 2.15 | 26.0 | 26.0 | 35.0 | 1.7 | 118.0 |
| 1048.00 | 1.76 | 110.00 | 280.00 | 343.35 | 2.16 | 28.0 | 28.0 | 37.0 | 2.3 | 108.0 |
| 1106.00 | 1.76 | 90.00 | 200.00 | 245.40 | 2.30 | 33.0 | 33.0 | 75.0 | 1.8 | 110.0 |
| 1159.00 | 36.00 | 75.00 | 105.00 | 126.07 | 2.45 | 30.0 | 30.0 | 160.0 | 1.4 | 91.0 |
| 1185.00 | 5.60 | 50.00 | 80.00 | 100.10 | 2.45 | 33.0 | 33.0 | 150.0 | 1.7 | 97.0 |
| 1215.00 | 3.20 | 80.00 | 140.00 | 172.43 | 2.36 | 17.0 | 17.0 | 65.0 | 1.8 | 95.0 |
| 1269.90 | 1600.00 | 2000.00 | 2000.00 | 2000.00 | 2.86 | 18.0 | 18.0 | 55.0 | 3.8 | 55.0 |
| 1275.50 | 0.96 | 5.00 | 5.00 | 5.00 | 2.12 | 48.0 | 48.0 | 60.0 | 3.7 | 103.0 |
| 1280.20 | 18.40 | 21.00 | 20.00 | 20.00 | 2.60 | 31.0 | 31.0 | 55.0 | 4.9 | 75.0 |
| 1283.00 | 800.00 | 190.00 | 210.00 | 210.00 | 2.76 | 23.0 | 23.0 | 52.0 | 4.3 | 59.0 |
| 1300.00 | 1360.00 | 600.00 | 500.00 | 340.50 | 2.81 | 18.0 | 18.0 | 58.0 | 3.8 | 54.0 |
| 1330.00 | 3.60 | 5.50 | 6.00 | 6.60 | 2.25 | 40.0 | 40.0 | 55.0 | 2.3 | 115.0 |
| 1331.60 | 8.80 | 16.00 | 18.00 | 20.25 | 2.45 | 18.0 | 18.0 | 80.0 | 2.1 | 77.0 |
| 1334.00 | 5.60 | 12.00 | 12.00 | 12.00 | 2.42 | 17.0 | 17.0 | 75.0 | 1.8 | 83.0 |
| 1336.00 | 9.60 | 17.00 | 17.00 | 17.00 | 2.43 | 17.0 | 17.0 | 90.0 | 1.8 | 78.0 |
| 1339.00 | 2.56 | 10.00 | 10.00 | 10.00 | 2.32 | 21.0 | 21.0 | 80.0 | 2.0 | 88.0 |
| 1342.00 | 8.00 | 21.00 | 21.00 | 21.00 | 2.44 | 17.0 | 17.0 | 100.0 | 1.8 | 77.0 |
| 1346.00 | 4.80 | 6.00 | 6.00 | 6.00 | 2.35 | 29.0 | 29.0 | 90.0 | 2.0 | 100.0 |
| 1350.00 | 3.68 | 5.80 | 6.00 | 6.60 | 2.32 | 30.0 | 30.0 | 90.0 | 2.8 | 96.0 |
| 1355.00 | 6.40 | 6.00 | 6.00 | 6.00 | 2.34 | 30.0 | 30.0 | 90.0 | 2.4 | 94.0 |
| 1356.20 | 44.00 | 9.00 | 8.50 | 4.76 | 2.43 | 22.0 | 22.0 | 85.0 | 2.8 | 78.0 |

WONGA BINDA #1 (590.5-1357.0 Meters)

Mud filtrate density=1.02 g/cc.
Surface temperature=80.00 deg. F. Bottom hole temperature=100.40 deg. F.
Surface depth=0.00 Meters. Depth logger=1372.00 Meters.

DATA LISTING

| Depth Meters | MSFL | LLS | LLD | RT | RHOB | NPHIls | NPHIc | GR | PEF | Sonic mcs/ft |
|---|---|---|---|---|---|---|---|---|---|---|
| 590.50 | 6.00 | 5.00 | 4.50 | 3.90 | 2.26 | 33.0 | 33.4 | 60.0 | 4.0 | 115.0 |
| 591.00 | 3.50 | 3.50 | 3.50 | 3.50 | 2.12 | 39.0 | 39.4 | 73.0 | 3.5 | 130.0 |
| 593.00 | 1.00 | 2.10 | 2.10 | 2.10 | 1.80 | 42.0 | 42.6 | 85.0 | 3.1 | 170.0 |
| 594.50 | 40.00 | 13.00 | 19.00 | 19.00 | 2.65 | 18.0 | 18.1 | 55.0 | 3.7 | 95.0 |
| 596.00 | 2.00 | 6.00 | 7.00 | 8.08 | 2.14 | 40.0 | 40.4 | 160.0 | 3.9 | 129.0 |
| 597.00 | 2.20 | 7.00 | 8.00 | 9.24 | 2.20 | 33.0 | 33.4 | 140.0 | 3.5 | 125.0 |
| 598.00 | 2.00 | 6.00 | 6.50 | 7.15 | 2.16 | 38.0 | 38.4 | 165.0 | 4.1 | 135.0 |
| 600.00 | 1.50 | 5.00 | 5.50 | 6.05 | 2.03 | 42.0 | 42.5 | 210.0 | 3.2 | 145.0 |
| 604.00 | 3.60 | 9.00 | 10.00 | 10.81 | 2.22 | 40.0 | 40.4 | 145.0 | 3.7 | 140.0 |
| 606.00 | 1.90 | 22.00 | 41.00 | 51.21 | 2.10 | 30.0 | 30.4 | 88.0 | 2.5 | 160.0 |
| 608.00 | 1.00 | 13.00 | 29.00 | 36.26 | 1.85 | 42.0 | 42.6 | 58.0 | 4.4 | 170.0 |
| 610.00 | 1.60 | 50.00 | 90.00 | 110.65 | 2.04 | 30.0 | 30.4 | 60.0 | 2.5 | 125.0 |
| 615.00 | 1.90 | 45.00 | 65.00 | 79.87 | 2.05 | 30.0 | 30.4 | 60.0 | 2.5 | 151.0 |
| 619.00 | 1.40 | 80.00 | 120.00 | 146.83 | 2.12 | 27.0 | 27.4 | 43.0 | 2.5 | 162.0 |
| 625.00 | 2.00 | 26.00 | 31.00 | 37.01 | 2.01 | 42.0 | 42.5 | 153.0 | 2.5 | 146.0 |
| 632.80 | 1.60 | 35.00 | 48.00 | 58.96 | 2.02 | 37.0 | 37.5 | 120.0 | 2.4 | 148.0 |
| 635.00 | 2.00 | 75.00 | 105.00 | 128.61 | 2.15 | 27.0 | 27.4 | 35.0 | 2.5 | 130.0 |
| 640.30 | 2.00 | 72.00 | 130.00 | 159.66 | 2.06 | 29.0 | 29.4 | 38.0 | 2.5 | 143.0 |
| 644.70 | 16.00 | 29.00 | 38.00 | 46.22 | 2.22 | 36.0 | 36.4 | 110.0 | 2.5 | 133.0 |
| 653.50 | 1.50 | 43.00 | 60.00 | 73.59 | 2.05 | 33.0 | 33.5 | 60.0 | 2.2 | 143.0 |
| 660.00 | 1.90 | 50.00 | 80.00 | 98.37 | 2.03 | 35.0 | 35.5 | 75.0 | 2.3 | 145.0 |
| 667.00 | 2.00 | 60.00 | 90.00 | 110.46 | 2.04 | 31.0 | 31.5 | 50.0 | 2.2 | 142.0 |
| 680.00 | 1.60 | 70.00 | 105.00 | 128.61 | 2.12 | 27.0 | 27.4 | 75.0 | 2.3 | 130.0 |
| 687.50 | 1.40 | 65.00 | 100.00 | 122.48 | 2.07 | 32.0 | 32.5 | 50.0 | 2.1 | 140.0 |
| 707.80 | 1.70 | 60.00 | 120.00 | 147.53 | 2.10 | 27.0 | 27.4 | 25.0 | 2.3 | 132.0 |
| 711.00 | 1.80 | 80.00 | 150.00 | 184.02 | 2.13 | 28.0 | 28.4 | 27.0 | 2.0 | 135.0 |
| 732.00 | 3.00 | 28.00 | 40.00 | 49.75 | 2.19 | 35.0 | 35.4 | 185.0 | 2.7 | 121.0 |
| 740.00 | 1.60 | 70.00 | 110.00 | 134.78 | 2.07 | 30.0 | 30.5 | 45.0 | 2.6 | 135.0 |
| 761.20 | 2.70 | 100.00 | 200.00 | 245.79 | 2.15 | 25.0 | 25.4 | 37.0 | 2.5 | 119.0 |
| 770.00 | 2.00 | 70.00 | 200.00 | 246.50 | 2.15 | 26.0 | 26.4 | 35.0 | 2.4 | 118.0 |
| 791.00 | 2.00 | 52.00 | 93.00 | 114.53 | 2.10 | 30.0 | 30.5 | 60.0 | 2.5 | 150.0 |
| 801.00 | 1.80 | 100.00 | 300.00 | 368.35 | 2.15 | 24.0 | 24.4 | 33.0 | 2.5 | 129.0 |
| 833.00 | 1.90 | 80.00 | 160.00 | 196.45 | 2.11 | 30.0 | 30.5 | 90.0 | 2.1 | 130.0 |
| 856.00 | 2.00 | 70.00 | 140.00 | 172.13 | 2.13 | 29.0 | 29.5 | 53.0 | 2.5 | 120.0 |
| 877.00 | 1.80 | 50.00 | 110.00 | 135.67 | 2.29 | 19.0 | 19.4 | 60.0 | 2.5 | 118.0 |
| 907.00 | 28.00 | 48.00 | 70.00 | 90.67 | 2.35 | 38.0 | 38.5 | 190.0 | 2.2 | 105.0 |
| 926.00 | 1.40 | 100.00 | 300.00 | 367.79 | 2.08 | 30.0 | 30.5 | 45.0 | 2.6 | 120.0 |
| 961.00 | 2.00 | 80.00 | 205.00 | 252.18 | 2.27 | 21.0 | 21.4 | 55.0 | 2.2 | 104.0 |
| 974.10 | 5.00 | 220.00 | 800.00 | 984.77 | 2.20 | 20.0 | 20.4 | 40.0 | 2.7 | 102.0 |
| 1013.00 | 4.00 | 100.00 | 550.00 | 683.37 | 2.25 | 21.0 | 21.4 | 45.0 | 2.5 | 110.0 |
| 1027.00 | 3.00 | 110.00 | 390.00 | 480.93 | 2.15 | 26.0 | 26.5 | 35.0 | 2.4 | 118.0 |
| 1048.00 | 2.20 | 110.00 | 280.00 | 343.82 | 2.16 | 28.0 | 28.5 | 37.0 | 3.0 | 108.0 |
| 1106.00 | 2.20 | 90.00 | 200.00 | 245.78 | 2.30 | 33.0 | 33.5 | 75.0 | 2.5 | 110.0 |
| 1159.00 | 45.00 | 75.00 | 105.00 | 135.39 | 2.45 | 30.0 | 30.5 | 160.0 | 2.1 | 91.0 |
| 1185.00 | 7.00 | 50.00 | 80.00 | 100.81 | 2.45 | 33.0 | 33.5 | 150.0 | 2.4 | 97.0 |
| 1215.00 | 4.00 | 80.00 | 140.00 | 172.87 | 2.36 | 17.0 | 17.4 | 65.0 | 2.5 | 95.0 |
| 1269.90 | 2000.00 | 2000.00 | 2000.00 | 2000.00 | 2.86 | 18.0 | 18.1 | 55.0 | 4.5 | 55.0 |
| 1275.50 | 1.20 | 5.00 | 5.00 | 5.00 | 2.12 | 48.0 | 48.9 | 60.0 | 4.4 | 103.0 |
| 1280.20 | 23.00 | 21.00 | 20.00 | 18.80 | 2.60 | 31.0 | 31.4 | 55.0 | 5.6 | 75.0 |
| 1283.00 | 1000.00 | 190.00 | 210.00 | 210.00 | 2.76 | 23.0 | 23.2 | 52.0 | 5.0 | 59.0 |
| 1300.00 | 1700.00 | 600.00 | 500.00 | 309.92 | 2.81 | 18.0 | 18.2 | 58.0 | 4.5 | 54.0 |
| 1330.00 | 4.50 | 5.50 | 6.00 | 6.60 | 2.25 | 40.0 | 40.7 | 55.0 | 3.0 | 115.0 |
| 1331.60 | 11.00 | 16.00 | 18.00 | 21.41 | 2.45 | 18.0 | 18.4 | 80.0 | 2.8 | 77.0 |
| 1334.00 | 7.00 | 12.00 | 12.00 | 12.00 | 2.42 | 17.0 | 17.4 | 75.0 | 2.5 | 83.0 |
| 1336.00 | 12.00 | 17.00 | 17.00 | 17.00 | 2.43 | 17.0 | 17.4 | 90.0 | 2.5 | 78.0 |
| 1339.00 | 3.20 | 10.00 | 10.00 | 10.00 | 2.32 | 21.0 | 21.5 | 80.0 | 2.7 | 88.0 |
| 1342.00 | 10.00 | 21.00 | 21.00 | 21.00 | 2.44 | 17.0 | 17.4 | 100.0 | 2.5 | 77.0 |
| 1346.00 | 6.00 | 6.00 | 6.00 | 6.00 | 2.35 | 29.0 | 29.6 | 90.0 | 2.7 | 100.0 |
| 1350.00 | 4.60 | 5.80 | 6.00 | 6.60 | 2.32 | 30.0 | 30.6 | 90.0 | 3.5 | 96.0 |
| 1355.00 | 8.00 | 6.00 | 6.00 | 6.00 | 2.34 | 30.0 | 30.6 | 90.0 | 3.1 | 94.0 |
| 1356.20 | 55.00 | 9.00 | 8.50 | 3.71 | 2.43 | 22.0 | 22.4 | 85.0 | 3.5 | 78.0 |

WONGA BINDA #1 (590.5-1357.0 Meters)

Mud filtrate density=1.02 g/cc.
Surface temperature=80.00 deg. F. Bottom hole temperature=100.40 deg. F.
Surface depth=0.00 Meters. Depth logger=1372.00 Meters.

DATA LISTING

| Depth Meters | MSFL | LLS | LLD | RT | RHOB | NPHIls | NPHIc | GR | PEF | Sonic mcs/ft |
|---|---|---|---|---|---|---|---|---|---|---|
| 590.50 | 6.00 | 5.00 | 4.50 | 3.90 | 2.26 | 33.0 | 33.4 | 60.0 | 4.0 | 115.0 |
| 591.00 | 3.50 | 3.50 | 3.50 | 3.50 | 2.12 | 39.0 | 39.4 | 73.0 | 3.5 | 130.0 |
| 593.00 | 1.00 | 2.10 | 2.10 | 2.10 | 1.80 | 42.0 | 42.6 | 85.0 | 3.1 | 170.0 |
| 594.50 | 40.00 | 13.00 | 19.00 | 19.00 | 2.65 | 18.0 | 18.1 | 55.0 | 3.7 | 95.0 |
| 596.00 | 2.00 | 6.00 | 7.00 | 8.08 | 2.14 | 40.0 | 40.4 | 160.0 | 3.9 | 129.0 |
| 597.00 | 2.20 | 7.00 | 8.00 | 9.24 | 2.20 | 33.0 | 33.4 | 140.0 | 3.5 | 125.0 |
| 598.00 | 2.00 | 6.00 | 6.50 | 7.15 | 2.16 | 38.0 | 38.4 | 165.0 | 4.1 | 135.0 |
| 600.00 | 1.50 | 5.00 | 5.50 | 6.05 | 2.03 | 42.0 | 42.5 | 210.0 | 3.2 | 145.0 |
| 604.00 | 3.60 | 9.00 | 10.00 | 10.81 | 2.22 | 40.0 | 40.4 | 145.0 | 3.7 | 140.0 |
| 606.00 | 1.90 | 22.00 | 41.00 | 51.21 | 2.10 | 30.0 | 30.4 | 88.0 | 2.5 | 160.0 |
| 608.00 | 1.00 | 13.00 | 29.00 | 36.26 | 1.85 | 42.0 | 42.6 | 58.0 | 4.4 | 170.0 |
| 610.00 | 1.60 | 50.00 | 90.00 | 110.65 | 2.04 | 30.0 | 30.4 | 60.0 | 2.5 | 125.0 |
| 615.00 | 1.90 | 45.00 | 65.00 | 79.87 | 2.05 | 30.0 | 30.4 | 60.0 | 2.5 | 151.0 |
| 619.00 | 1.40 | 80.00 | 120.00 | 146.83 | 2.12 | 27.0 | 27.4 | 43.0 | 2.5 | 162.0 |
| 625.00 | 2.00 | 26.00 | 31.00 | 37.01 | 2.01 | 42.0 | 42.5 | 153.0 | 2.5 | 146.0 |
| 632.80 | 1.60 | 35.00 | 48.00 | 58.96 | 2.02 | 37.0 | 37.5 | 120.0 | 2.4 | 148.0 |
| 635.00 | 2.00 | 75.00 | 105.00 | 128.61 | 2.15 | 27.0 | 27.4 | 35.0 | 2.5 | 130.0 |
| 640.30 | 2.00 | 72.00 | 130.00 | 159.66 | 2.06 | 29.0 | 29.4 | 38.0 | 2.5 | 143.0 |
| 644.70 | 16.00 | 29.00 | 38.00 | 46.22 | 2.22 | 36.0 | 36.4 | 110.0 | 2.5 | 133.0 |
| 653.50 | 1.50 | 43.00 | 60.00 | 73.59 | 2.05 | 33.0 | 33.5 | 60.0 | 2.2 | 143.0 |
| 660.00 | 1.90 | 50.00 | 80.00 | 98.37 | 2.03 | 35.0 | 35.5 | 75.0 | 2.3 | 145.0 |
| 667.00 | 2.00 | 60.00 | 90.00 | 110.46 | 2.04 | 31.0 | 31.5 | 50.0 | 2.2 | 142.0 |
| 680.00 | 1.60 | 70.00 | 105.00 | 128.61 | 2.12 | 27.0 | 27.4 | 75.0 | 2.3 | 130.0 |
| 687.50 | 1.40 | 65.00 | 100.00 | 122.48 | 2.07 | 32.0 | 32.5 | 50.0 | 2.1 | 140.0 |
| 707.80 | 1.70 | 60.00 | 120.00 | 147.53 | 2.10 | 27.0 | 27.4 | 25.0 | 2.3 | 132.0 |
| 711.00 | 1.80 | 80.00 | 150.00 | 184.02 | 2.13 | 28.0 | 28.4 | 27.0 | 2.0 | 135.0 |
| 732.00 | 3.00 | 28.00 | 40.00 | 49.75 | 2.19 | 35.0 | 35.4 | 185.0 | 2.7 | 121.0 |
| 740.00 | 1.60 | 70.00 | 110.00 | 134.78 | 2.07 | 30.0 | 30.5 | 45.0 | 2.6 | 135.0 |
| 761.20 | 2.70 | 100.00 | 200.00 | 245.79 | 2.15 | 25.0 | 25.4 | 37.0 | 2.5 | 119.0 |
| 770.00 | 2.00 | 70.00 | 200.00 | 246.50 | 2.15 | 26.0 | 26.4 | 35.0 | 2.4 | 118.0 |
| 791.00 | 2.00 | 52.00 | 93.00 | 114.53 | 2.10 | 30.0 | 30.5 | 60.0 | 2.5 | 150.0 |
| 801.00 | 1.80 | 100.00 | 300.00 | 368.35 | 2.15 | 24.0 | 24.4 | 33.0 | 2.5 | 129.0 |
| 833.00 | 1.90 | 80.00 | 160.00 | 196.45 | 2.11 | 30.0 | 30.5 | 90.0 | 2.1 | 130.0 |
| 856.00 | 2.00 | 70.00 | 140.00 | 172.13 | 2.13 | 29.0 | 29.5 | 53.0 | 2.5 | 120.0 |
| 877.00 | 1.80 | 50.00 | 110.00 | 135.67 | 2.29 | 19.0 | 19.4 | 60.0 | 2.5 | 118.0 |
| 907.00 | 28.00 | 48.00 | 70.00 | 90.67 | 2.35 | 38.0 | 38.5 | 190.0 | 2.2 | 105.0 |
| 926.00 | 1.40 | 100.00 | 300.00 | 367.79 | 2.08 | 30.0 | 30.5 | 45.0 | 2.6 | 120.0 |
| 961.00 | 2.00 | 80.00 | 205.00 | 252.18 | 2.27 | 21.0 | 21.4 | 55.0 | 2.2 | 104.0 |
| 974.10 | 5.00 | 220.00 | 800.00 | 984.77 | 2.20 | 20.0 | 20.4 | 40.0 | 2.7 | 102.0 |
| 1013.00 | 4.00 | 100.00 | 550.00 | 683.37 | 2.25 | 21.0 | 21.4 | 45.0 | 2.5 | 110.0 |
| 1027.00 | 3.00 | 110.00 | 390.00 | 480.93 | 2.15 | 26.0 | 26.5 | 35.0 | 2.4 | 118.0 |
| 1048.00 | 2.20 | 110.00 | 280.00 | 343.82 | 2.16 | 28.0 | 28.5 | 37.0 | 3.0 | 108.0 |
| 1106.00 | 2.20 | 90.00 | 200.00 | 245.78 | 2.30 | 33.0 | 33.5 | 75.0 | 2.5 | 110.0 |
| 1159.00 | 45.00 | 75.00 | 105.00 | 135.39 | 2.45 | 30.0 | 30.5 | 160.0 | 2.1 | 91.0 |
| 1185.00 | 7.00 | 50.00 | 80.00 | 100.81 | 2.45 | 33.0 | 33.5 | 150.0 | 2.4 | 97.0 |
| 1215.00 | 4.00 | 80.00 | 140.00 | 172.87 | 2.36 | 17.0 | 17.4 | 65.0 | 2.5 | 95.0 |
| 1269.90 | 2000.00 | 2000.00 | 2000.00 | 2000.00 | 2.86 | 18.0 | 18.1 | 55.0 | 4.5 | 55.0 |
| 1275.50 | 1.20 | 5.00 | 5.00 | 5.00 | 2.12 | 48.0 | 48.9 | 60.0 | 4.4 | 103.0 |
| 1280.20 | 23.00 | 21.00 | 20.00 | 18.80 | 2.60 | 31.0 | 31.4 | 55.0 | 5.6 | 75.0 |
| 1283.00 | 1000.00 | 190.00 | 210.00 | 210.00 | 2.76 | 23.0 | 23.2 | 52.0 | 5.0 | 59.0 |
| 1300.00 | 1700.00 | 600.00 | 500.00 | 309.92 | 2.81 | 18.0 | 18.2 | 58.0 | 4.5 | 54.0 |
| 1330.00 | 4.50 | 5.50 | 6.00 | 6.60 | 2.25 | 40.0 | 40.7 | 55.0 | 3.0 | 115.0 |
| 1331.60 | 11.00 | 16.00 | 18.00 | 21.41 | 2.45 | 18.0 | 18.4 | 80.0 | 2.8 | 77.0 |
| 1334.00 | 7.00 | 12.00 | 12.00 | 12.00 | 2.42 | 17.0 | 17.4 | 75.0 | 2.5 | 83.0 |
| 1336.00 | 12.00 | 17.00 | 17.00 | 17.00 | 2.43 | 17.0 | 17.4 | 90.0 | 2.5 | 78.0 |
| 1339.00 | 3.20 | 10.00 | 10.00 | 10.00 | 2.32 | 21.0 | 21.5 | 80.0 | 2.7 | 88.0 |
| 1342.00 | 10.00 | 21.00 | 21.00 | 21.00 | 2.44 | 17.0 | 17.4 | 100.0 | 2.5 | 77.0 |
| 1346.00 | 6.00 | 6.00 | 6.00 | 6.00 | 2.35 | 29.0 | 29.6 | 90.0 | 2.7 | 100.0 |
| 1350.00 | 4.60 | 5.80 | 6.00 | 6.60 | 2.32 | 30.0 | 30.6 | 90.0 | 3.5 | 96.0 |
| 1355.00 | 8.00 | 6.00 | 6.00 | 6.00 | 2.34 | 30.0 | 30.6 | 90.0 | 3.1 | 94.0 |
| 1356.20 | 55.00 | 9.00 | 8.50 | 3.71 | 2.43 | 22.0 | 22.4 | 85.0 | 3.5 | 78.0 |

# APPENDIX 9

APPENDIX 9

amdel

Water Analysis Report    Job No. 3376/88    Method W2/1  Page W1

Sample ID.  WONGA BINDA 1

## Chemical Composition

| | | mg/L | me/L |
|---|---|---|---|
| **Cations** | | | |
| Calcium | (Ca) | 619.0 | 30.888 |
| Magnesium | (Mg) | 29.2 | 2.403 |
| Sodium | (Na) | 1698.0 | 73.858 |
| Potassium | (K) | 6720.0 | 171.867 |
| **Anions** | | | |
| Hydroxide | (OH) | | |
| Carbonate | (CO3) | | |
| Bi-Carbonate | (HCO3) | 186.2 | 3.052 |
| Sulphate | (SO4) | 167.0 | 3.477 |
| Chloride | (Cl) | 10895 | 306.901 |
| Nitrate | (NO3) | <0.1 | |

Other Analyses

| | |
|---|---|
| Reaction - pH | 7.2 |
| Conductivity (E.C) (micro -S/cm at 25°C) | 34500 |
| Resistivity Ohm.M at 25°C | 0.290 |

## Derived Data

| | mg/L |
|---|---|
| Total Dissolved Solids | |
| A. Based on E.C. | 25347 |
| B. Calculated (HCO3=CO3) | 20221 |
| Total Hardness | 1666 |
| Carbonate Hardness | 174 |
| Non-Carbonate Hardness | 1492 |
| Total Alkalinity | 174 |
| (Each as CaCO3) | |

### Totals and Balance

| | | | |
|---|---|---|---|
| Cations (me/L) | 279.0 | Diff= | 34.41 |
| Anions (me/L) | 313.4 | Sum = | 592.45 |

ION BALANCE (Diff*100/Sum) = 5.81%

Sodium / Total Cation Ratio 26.5%

Remarks

IMBALANCE UNKNOWN ALL RESULTS CHECKED AND VERIFIED

Note: mg/L = Milligrams per litre
me/L = MilliEqivs.per litre

| | | | |
|---|---|---|---|
| Name: | ATIZVAR LTD | Formation | LATROBE GROUP |
| Address: | P.O BOX 251 | Type | |
| | NORWOOD | Point | |
| | S.A 5067 | Time | |
| | | Interval | |
| | | Geologist | |
| Date Collected | 19-4-88 | Depth | 606.5 |
| Date Received | 20-5-88 | | |
| Collected by | D.A.SHORT | | |

# APPENDIX 10

APPENDIX 10

APPENDIX 10

WELL VELOCITY SURVEY

Schlumberger

# CRUSADER RESOURCES N.L.

# GEOGRAM PROCESSING REPORT

## WONGA BINDA #1

| | | |
|---|---|---|
| FIELD | : | WILDCAT |
| STATE | : | VICTORIA |
| COUNTRY | : | AUSTRALIA |
| COORDINATES | : | 038 deg 27' 02.36" S<br>147 deg 02' 26.13" E |
| DATE OF SURVEY | : | 18-APR-1988 |
| REFERENCE NO. | : | 569160 |

W/F.

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# 1. Introduction

A checkshot survey was shot in the Wonga Binda #1 well on 18 April 1988. Data was acquired using a dynamite source located near the wellhead. Eighteen levels were shot from 1369 metres to 29.5 metres below KB. All levels are used in the sonic calibration processing.

## 2. Data Acquisition

The data was acquired using the well seismic tool (WST). Recording was made on the Schlumberger Cyber Service Unit (CSU) using LIS format at a tape density of 800 BPI.

Table 1: Survey Parameters

| | |
|---|---|
| Datum | 0.0 metres AMSL |
| Elevation KB | 29.5 metres AMSL |
| Elevation DF | 29.0 metres AMSL |
| Elevation GL | 25.7 metres AMSL |
| Total Depth | 1442 metres below KB |
| Energy Source | Dynamite |
| Source Offset | 1370.0 metres |
| Source Depth | 1.5 metres |
| Reference Sensor | Hydrophone |
| Sensor Offset | 2 metres from shot |
| | |
| Downhole Geophone | Geospace HS-1 |
| | High Temp. (350 deg $F$) |
| | Coil Resist. 225$\Omega$ $\pm$10 % |
| | Natural Freq. 8-12 hertz |
| | Sensitivity 0.45 V/in/sec |
| | Maximum tilt angle 60 deg |

# 3. Sonic Calibration Processing

## 3.1 Sonic Calibration

A 'drift' curve is obtained using the sonic log and the vertical check level times. The term 'drift' is defined as the seismic time (from check shots) minus the sonic time (from integration of edited sonic). Commonly the word 'drift' is used to identify the above difference, or to identify the gradient of drift versus increasing depth, or to identify a difference of drift between two levels.

The gradient of drift, that is the slope of the drift curve, can be negative or positive.

For a negative drift $\frac{\Delta drift}{\Delta depth} < 0$, the sonic time is greater than the seismic time over a certain section of the log.

For a positive drift $\frac{\Delta drift}{\Delta depth} > 0$, the sonic time is less than the seismic time over a certain section of the log.

The drift curve, between two levels, is then an indication of the error on the integrated sonic or an indication of the amount of correction required on the sonic to have the TTI of the corrected sonic match the check shot times.

Two methods of correction to the sonic log are used.

1. **Uniform or block shift** This method applies a uniform correction to all the sonic values over the interval. This uniform correction is applied in the case of positive drift and is the average correction represented by the drift curve gradient expressed in $\mu$sec/ft.

2. **$\Delta T$ Minimum** In the case of negative drift a second method is used, called $\Delta t$ minimum. This applies a differential correction to the sonic log, where it is assumed that the greatest amount of transit time error is caused by the lower velocity sections of the log. Over a given interval the method will correct only $\Delta t$ values which are higher than a threshold, the $\Delta t_{min}$. Values of $\Delta t$ which are lower than the threshold are not corrected. The correction is a reduction of the excess of $\Delta t$ over $\Delta t_{min}$, $\Delta t$ - $\Delta t_{min}$.

   $\Delta t - \Delta t_{min}$ is reduced through multiplication by a reduction coefficient which remains constant over the interval. This reduction coefficient, named $G$, can be be defined as:

   $$G = 1 + \frac{drift}{\int (\Delta t - \Delta t_{min}) dZ}$$

   Where drift is the drift over the interval to be corrected and the value $\int (\Delta t - \Delta t_{min}) dZ$ is the time difference between the integrals of the two curves $\Delta t$ and $\Delta t_{min}$, only over the intervals where $\Delta t > \Delta t_{min}$.

   Hence the corrected sonic: $\Delta t = G(\Delta t - \Delta t_{min}) + \Delta t_{min}$.

## 3.2 Checkshot Data

The fire pulse is used as the zero time reference. The checkshot data quality is good and is displayed in Figure 2.

## 3.3 Correction to Datum

The sonic calibration processing has been referenced to the seismic datum at MSL. A velocity of 700 metres/sec, calculated from the checkshot at 29.5 metres is used to correct transit times to datum. The equivalent static time from source depth to datum is -34.57 msec one way time.

## 3.4 Open Hole Logs

The sonic log was recorded from 1370 metres to the casing shoe at 173 metres below KB. Minor zones of cycle skipping have been removed. The density log was recorded from TD upto 567 metres, and is extrapolated to the surface at a constant density of 1.95 gm/cc

The caliper and gamma ray curves are included as correlation curves.

## 3.5 Sonic Calibration Results

The top of the sonic log (173 metres below KB) is chosen as the origin for the calibration drift curve.

The drift curve indicates a number of corrections to be made to the sonic log. The adjusted sonic curve is considered to be the best result using the available data. A list of shifts used on the sonic data is given below.

Table 2: Sonic Drift

| Depth Interval (metres below KB ) | Block Shift $\mu$sec/ft | $\Delta t_{min}$ $\mu$sec/ft | Equiv Block Shift $\mu$sec/ft |
|---|---|---|---|
| 173-424 | 4.61 | - | 4.61 |
| 424-606 | 0.00 | - | 0.00 |
| 606-778 | - | 128.07 | -3.54 |
| 778-1369 | 0.00 | - | 0.00 |

## Synthetic Seismogram Processing

R..M plots were generated using 10-60 and 10-80 hertz zero phase butterworth ;s.

ese tations include both normal and reverse polarity on a time scale of 10 cm/sec.

RA M processing produces synthetic seismic traces based on reflection coefficients tec from sonic and density measurements in the well-bore. The steps in the sing chain are the following:

ı t time conversion
:tion coefficients
ıuation coefficients
olı ion
ut.

### Depth to Time Conversion

ho logs are recorded from the bottom to top with a depth index. This data is :ted to a two-way time index and flipped to read from the top to bottom in order tch the seismic section.

### Primary Reflection Coefficients

and density data are averaged over chosen time intervals (normally 2 or 4 mil-ı. ] eflection coefficients are then computed using:

$$R = \frac{\rho_2.\nu_2 - \rho_1.\nu_1}{\rho_2.\nu_2 + \rho_1.\nu_1}$$

ɘ:

= density of the layer above the reflection interface
= density of the layer below the reflection interface
= compressional wave velocity of the layer above the reflection interface
= compressional wave velocity of the layer below the reflection interface

computation is done for each time interval to generate a set of primary reflection .cie ts without transmission losses.

## 4.3 Primaries with Transmission Loss

Transmission loss on two-way attenuation coefficients is computed using:

$$A_n = (1 - R_1^2).(1 - R_2^2).(1 - R_3^2)...(1 - R_n^2)$$

A set of primary reflection coefficients with transmission loss is generated using:

$$Primary_n = R_n.A_{n-1}$$

## 4.4 Primaries plus Multiples

Multiples are computed from these input reflection coefficients using the transform technique from the top of the well to obtain the impulse response of the earth. The transform outputs primaries plus multiples.

## 4.5 Multiples Only

By subtracting previously calculated primaries from the above result we obtain multiples only.

## 4.6 Wavelet

A theoretical wavelet is chosen to use for convolution with the reflection coefficients previously generated. Choices available include:

Klauder wavelet
Ricker zero phase wavelet
Ricker minimum phase wavelet
Butterworth wavelet
User defined wavelet.

Time variant Butterworth filtering can be applied after convolution.

## 4.7 Polarity Convention

An increase in acoustic impedance gives a positive reflection coefficent and is displayed as a white trough under normal polarity. Polarity conventions are displayed in Figure-1.

## 4.8 Convolution

Standard procedure of convolution of wavelet with reflection coefficients. The output is the synthetic seismogram.

# A Summary of Geophysical Listings

Six geophysical data listings are appended to this report. Following is a brief description of the format of each listing.

## A1 Geophysical Airgun Report

1. Level number : the level number starting from the top level (includes any imposed shots).
2. Vertical depth from KB : *dkb*, the depth in metres from kelly bushing .
3. Vertical depth from SRD : *dsrd*, the depth in metres from seismic reference datum.
4. Vertical depth from GL : *dgl*, the depth in metres from ground level.
5. Observed travel time HYD to GEO : *tim*0, the transit time picked from the stacked data by subtracting the surface sensor first break time from the downhole sensor first break time.
6. Vertical travel time SRC to GEO : *timv*, is corrected for source to hydrophone distance and for source offset.
7. Vertical travel time SRD to GEO : *shtm*, is *timv* corrected for the vertical distance between source and datum.
8. Average velocity SRD to GEO : the average seismic velocity from datum to the corresponding checkshot level, $\frac{dsrd}{shtm}$.
9. Delta depth between shots : $\Delta depth$, the vertical distance between each level.
10. Delta time between shots : $\Delta time$, the difference in vertical travel time (*shtm*) between each level.
11. Interval velocity between shots : the average seismic velocity between each level, $\frac{\Delta depth}{\Delta time}$.

## A2 Drift Computation Report

1. Level number : the level number starting from the top level (includes any imposed shots).
2. Vertical depth from KB : the depth in metres from kelly bushing .
3. Vertical depth from SRD : the depth in metres from seismic reference datum.
4. Vertical depth from GL : the depth in metres from ground level.
5. Vertical travel time SRD to GEO : the calculated vertical travel time from datum to downhole geophone (see column 7, Geophysical Airgun Report).

6. Integrated raw sonic time : the raw sonic log is integrated from top to bottom and listed at each level. An initial value at the top of the sonic log is set equal to the checkshot time at that level. This may be an imposed shot if a shot was not taken at the top of the sonic.

7. Computed drift at level : the checkshot time minus the integrated raw sonic time.

8. Computed blk-shft correction : the drift gradient between any two checkshot levels ($\frac{\Delta drift}{\Delta depth}$).

## A3 Sonic Adjustment Parameter Report

1. Knee number : the knee number starting from the highest knee. (The first knees listed will generally be at SRD and the top of sonic. The drift imposed at these knees will normally be zero.)

2. Vertical depth from KB : the depth in metres from kelly bushing .

3. Vertical depth from SRD : the depth in metres from seismic reference datum.

4. Vertical depth from GL : the depth in metres from ground level.

5. Drift at knee : the value of drift imposed at each knee.

6. Blockshift used : the change in drift divided by the change in depth between any two levels.

7. Delta-T minimum used : see section 4 of report for an explanation of $\Delta t_{min}$.

8. Reduction factor : see section 4 of report.

9. Equivalent blockshift : the gradient of the imposed drift curve.

## A4 Velocity Report

1. Level number : the level number starting from the top level (includes any imposed shots).

2. Vertical depth from KB : the depth in metres from kelly bushing .

3. Vertical depth from SRD : the depth in metres from seismic reference datum

4. Vertical depth from GL : the depth in metres from ground level

5. Vertical travel time SRD to GEOPH : the vertical travel time from SRD to downhole geophone (see column 7, Geophysical Airgun Report)

6. Integrated adjusted sonic time : the adjusted sonic log is integrated from top to bottom. An initial value at the the top of the sonic is set equal the checkshot time at that level. (The adjusted sonic log is the drift corrected sonic log.)

7. Drift=shot time-raw son : the check shot time minus the raw integrated sonic time.
8. Residual=shot time-adj son : the check shot time minus the adjusted integrated sonic time. This is the difference between calculated drift and the imposed drift.
9. Adjusted interval velocity : the interval velocity calculated from the integrated adjusted sonic time at each level.

## A5 Time Converted Velocity Report

The data in this listing has been resampled in time.

1. Two way travel time from SRD : This is the index for the data in this listing. The first value is at SRD (0 millisecs) and the sampling rate is 2 millisecs.
2. Measured depth from KB : the depth from KB at each corresponding value of two way time.
3. Vertical depth from SRD : the vertical depth from SRD at each corresponding value of two way time.
4. Average velocity SRD to GEO : the vertical depth from SRD divided by half the two way time.
5. RMS velocity : the root mean square velocity from datum to the corresponding value of two way time.
$$v_{rms} = \sqrt{\Sigma_1^n v_i^2 t_i / \Sigma_1^n t_i}$$
where $v_i$ is the velocity between each 2 millisecs interval.
6. First normal moveout : the correction time in millisecs to be applied to the two way travel time for a specified moveout distance (default = 3000 feet).
$$\Delta t = \sqrt{t^2 + (\frac{X}{v_{rms}})^2} - t$$
where:

$\Delta t$ = normal moveout (secs)
X = moveout distance (metres )
t = two way time (secs)
$v_{rms}$ = rms velocity (metres /sec)

7. Second normal moveout : the correction time in millisecs to be applied to the two way travel time for a specified moveout distance (default = 4500 feet).
8. Third normal moveout : the correction time in millisecs to be applied to the two way travel time for a specified moveout distance (default = 6000 feet).
9. Interval velocity : the velocity between each sampled depth. Typically, the sampling rate is 2 millisecs two way time, (1 millisec one way time) therefore the interval velocity will be equal to the depth increment divided by 0.001. It is equivalent to column 9 from the the Velocity Report.

## A6 Synthetic Seismogram Table

1. Two way travel time from SRD : This is the index for the data in this listing. The first value is at the top of the sonic. The default sampling rate is 2 millisecs.

2. Vertical depth from SRD : the vertical depth from SRD at each corresponding value of two way time.

3. Interval velocity : the velocity between each sampled depth. Typically, the sampling rate is 2 millisecs two way time, (1 millisec one way time) therefore the interval velocity will be equal to the depth increment divided by 0.001. It is equivalent to column 9 from the the Velocity Report.

4. Interval density : the average density between two successive values of two way time.

5. Reflect. coeff. : the difference in acoustic impedance divided by the sum of the acoustic impedance between any two levels. The acoustic impedance is the product of the interval density and the interval velocity.

6. Two way atten. coeff. : is computed from the series

$$A_n = (1 - R_1^2).(1 - R_2^2).(1 - R_3^2)...(1 - R_n^2)$$

7. Sythetic seismo. primary : the product of the reflection coefficient at each depth and the two way attenuation coefficient up to that depth.

$$Primary_n = R_n.A_{n-1}$$

8. Primary + multiple : a transform technique is used to calculate multiples from the input reflection coefficients.

9. Multiples only : (Primary + multiple) - (Synthetic seismo. primary)

# SCHLUMBERGER (SEG-1976) WAVELET POLARITY CONVENTION

Figure 1

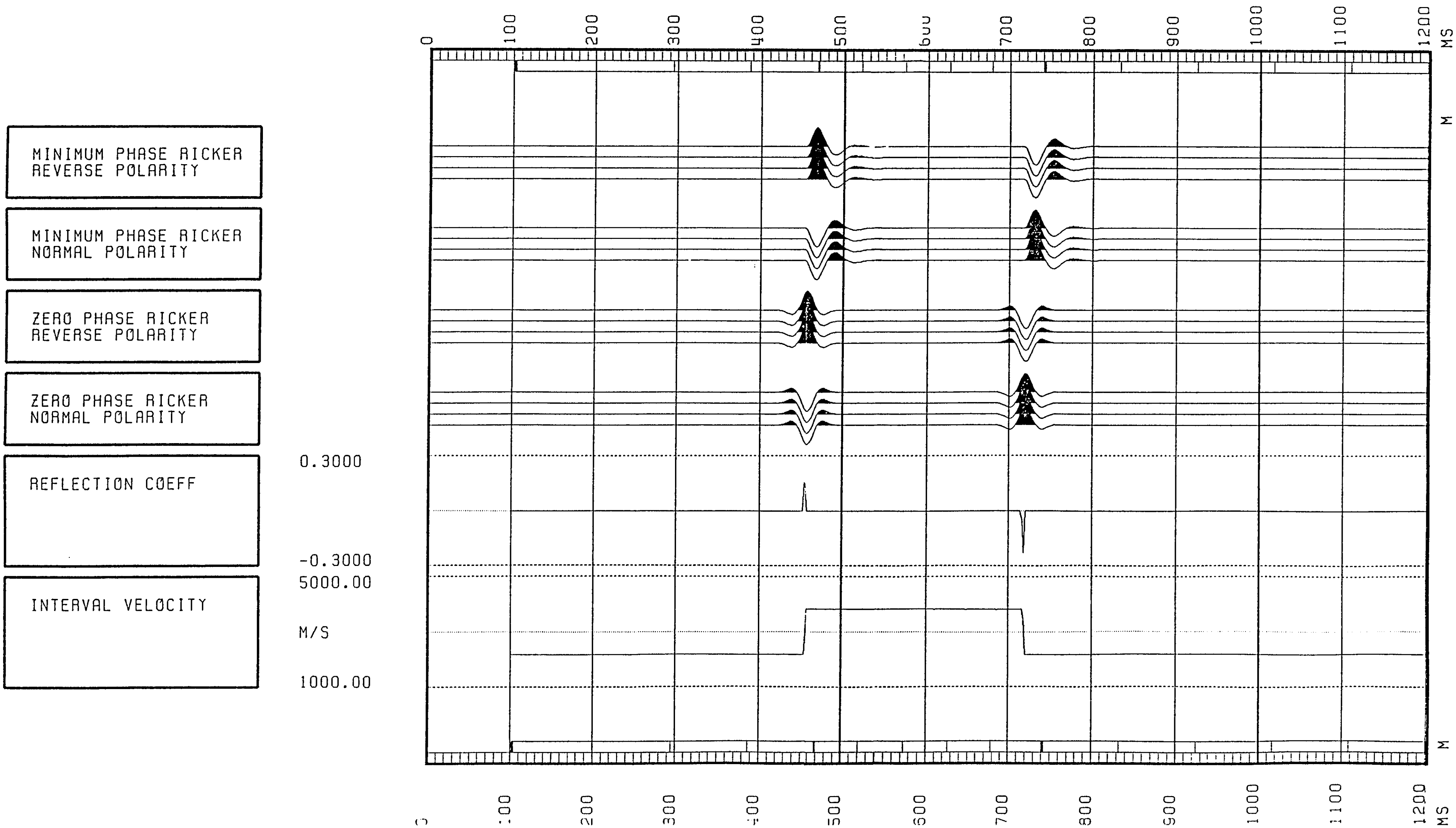
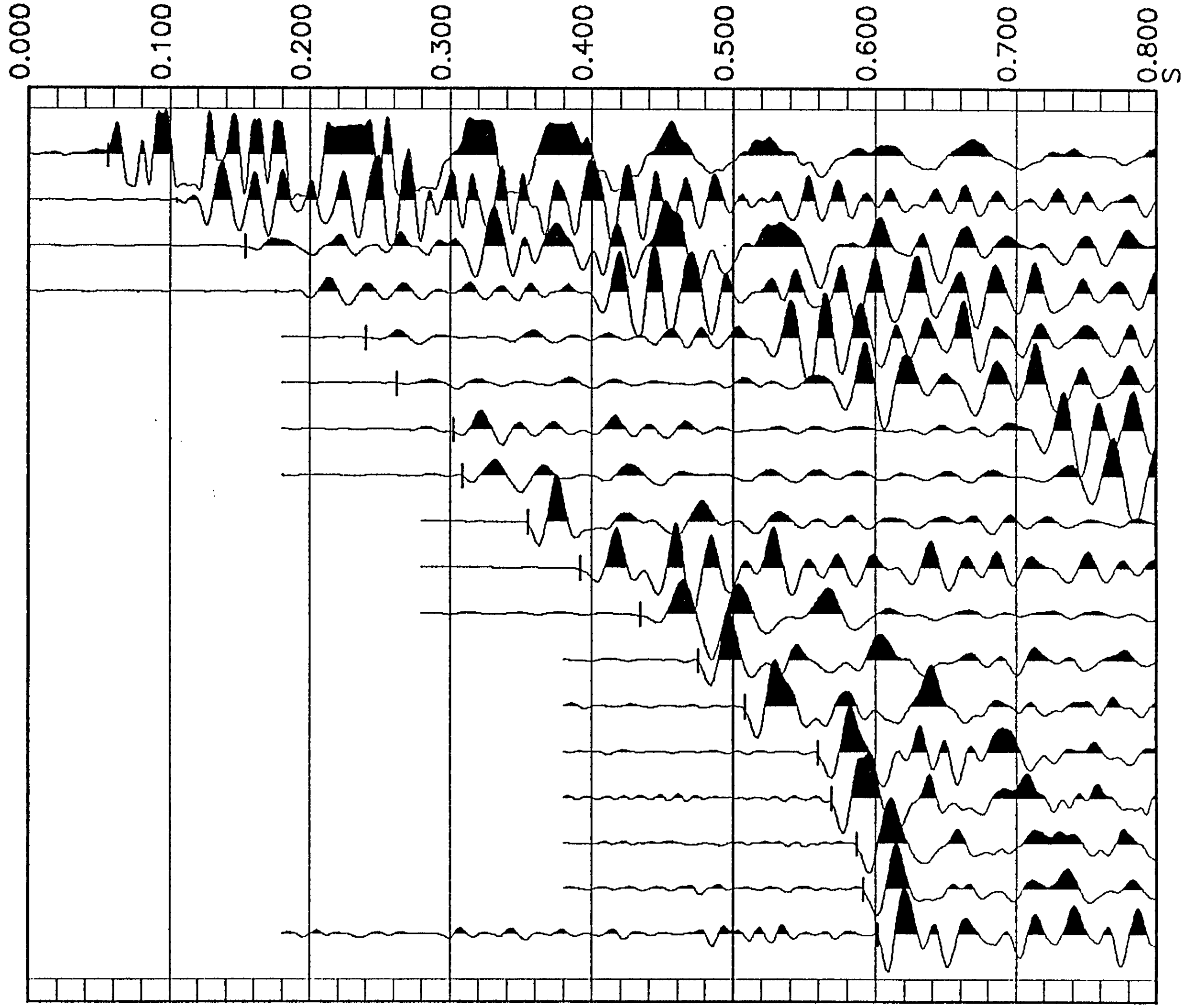


Figure 2

# WONGA BINDA #1
## STACKED CHECKSHOT DATA

| RAW DEPTH M | TRANSIT TIME S | LEVEL NO |
|---|---|---|
| 29.5 | 0.056 | 19 |
| 173.0 | 0.120 | 18 |
| 256.0 | 0.156 | 17 |
| 337.0 | 0.194 | 16 |
| 460.0 | 0.241 | 15 |
| 506.0 | 0.263 | 14 |
| 590.0 | 0.302 | 13 |
| 605.5 | 0.309 | 12 |
| 707.0 | 0.355 | 11 |
| 798.0 | 0.392 | 10 |
| 896.0 | 0.434 | 9 |
| 996.0 | 0.476 | 8 |
| 1095.0 | 0.508 | 7 |
| 1239.0 | 0.560 | 6 |
| 1267.0 | 0.569 | 4 |
| 1331.0 | 0.587 | 3 |
| 1345.0 | 0.592 | 2 |
| 1369.0 | 0.602 | 1 |



**SCHLUMBERGER**

# GEOPHYSICAL AIRGUN REPORT

COMPANY : CRUSADER RESOURCES N.L.

WELL : WONGA BINDA #1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 569160

LONG DEFINITIONS

GLOBAL

```
KB     - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD    - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
EKB    - ELEVATION OF KELLY BUSHING
GL     - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
VELHYD - VELOCITY OF THE MEDIUM BETWEEN THE SOURCE AND THE HYDROPHONE
VELSUR - VELOCITY OF THE MEDIUM BETWEEN THE SOURCE AND THE SRD
```

MATRIX

```
GUNELZ - SOURCE ELEVATION ABOVE SRD (ONE FOR THE WHOLE JOB; OR ONE PER SHOT)
GUNEWZ - SOURCE DISTANCE FROM THE BOREHOLE AXIS IN EW DIRECTION (CF. GUNELZ)
GUNNSZ - SOURCE DISTANCE FROM THE BOREHOLE AXIS IN NS DIRECTION (CF. GUNELZ)
HYDELZ - HYDROPHONE ELEVATION ABOVE SRD (CF. GUNELZ)
HYDEWZ - HYDROPHONE DISTANCE FROM THE BOREH AXIS IN EW DIRECTION (CF GUNELZ)
HYDNSZ - HYDROPHONE DISTANCE FROM THE BOREH AXIS IN NS DIRECTION (CF GUNELZ)
TRTHYD - TRAVEL TIME FROM THE HYDROPHONE TO THE SOURCE
TRTSRD - TRAVEL TIME FROM THE SOURCE TO THE SRD
DEVWEL - DEVIATED WELL DATA PER SHOT : MEAS. DEPTH, VERT. DEPTH, EW, NS
```

SAMPLED

```
SHOT.GSH   - SHOT NUMBER
DKB.GSH    - MEASURED DEPTH FROM KELLY-BUSHING
DSRD.GSH   - DEPTH FROM  SRD
DGL.GSH    - VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USER'S REFERENCE)
TIMO.GSH   - MEASURED TRAVEL TIME FROM HYDROPHONE TO GEOPHONE
TIMV.GSH   - VERTICAL TRAVEL TIME FROM THE SOURCE TO THE GEOPHONE
SHTM.GSH   - SHOT TIME (WST)
AVGV.GSH   - AVERAGE SEISMIC VELOCITY
DELZ.GSH   - DEPTH INTERVAL BETWEEN SUCCESSIVE SHOTS
DELT.GSH   - TRAVEL TIME INTERVAL BETWEEN SUCCESSIVE SHOTS
INTV.GSH   - INTERNAL VELOCITY, AVERAGE
```

| (GLOBAL PARAMETERS) | | | (VALUE) | |
|---|---|---|---|---|
| ELEV OF KB AB. MSL (WST) | KB | : | 29.5000 | M |
| ELEV OF SRD AB. MSL(WST) | SRD | : | 0 | M |
| ELEVATION OF KELLY BUSHI | EKB | : | 29.5000 | M |
| ELEV OF GL AB. SRD(WST) | GL | : | 25.7000 | M |
| VEL SOURCE-HYDRO(WST) | VELHYD | : | 1500.00 | M/S |
| VEL SOURCE-SRD (WST) | VELSUR | : | 700.000 | M/S |

(MATRIX PARAMETERS)

| | SOURCE ELV M | SOURCE EW M | SOURCE NS M | HYDRO ELEV M | HYDRO EW M | HYDRO NS M |
|---|---|---|---|---|---|---|
| 1 | 24.20 | 0 | 31.00 | 24.20 | 0 | 31.00 |

| | TRT HYD-SC MS | TRT SC-SRD MS |
|---|---|---|
| 1 | 0 | -34.57 |

| | MD @ KB M | VD @ KB M | VD @ SRD M | E-W COORD M | N-S COORD M |
|---|---|---|---|---|---|
| 1 | 173.00 | 173.00 | 143.50 | 0 | 0 |
| 2 | 256.00 | 256.00 | 226.50 | 0 | 0 |
| 3 | 337.00 | 337.00 | 307.50 | 0 | 0 |
| 4 | 460.00 | 460.00 | 430.50 | 0 | 0 |
| 5 | 506.00 | 506.00 | 476.50 | 0 | 0 |
| 6 | 590.00 | 590.00 | 560.50 | 0 | 0 |
| 7 | 605.50 | 605.50 | 576.00 | 0 | 0 |
| 8 | 707.00 | 707.00 | 677.50 | 0 | 0 |
| 9 | 798.00 | 798.00 | 768.50 | 0 | 0 |
| 10 | 896.00 | 896.00 | 866.50 | 0 | 0 |
| 11 | 996.00 | 996.00 | 966.50 | 0 | 0 |
| 12 | 1095.00 | 1095.00 | 1065.50 | 0 | 0 |
| 13 | 1239.00 | 1239.00 | 1209.50 | 0 | 0 |
| 14 | 1267.00 | 1267.00 | 1237.50 | 0 | 0 |
| 15 | 1331.00 | 1331.00 | 1301.50 | 0 | 0 |
| 16 | 1345.00 | 1345.00 | 1315.50 | 0 | 0 |
| 17 | 1369.00 | 1369.00 | 1339.50 | 0 | 0 |

| LEVEL NUMBER | MEASUR DEPTH FROM KB M | VERTIC DEPTH FROM SRD M | VERTIC DEPTH FROM GL M | OBSERV TRAVEL TIME HYD/GEO MS | VERTIC TRAVEL TIME SRC/GEO MS | VERTIC TRAVEL TIME SRD/GEO MS | AVERAGE VELOC SRD/GEO M/S | DELTA DEPTH BETWEEN SHOTS M | DELTA TIME BETWEEN SHOTS MS | INTERV VELOC BETWEEN SHOTS M/S |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 173.00 | 143.50 | 169.20 | 120.00 | 118.90 | 83.43 | 1720 | | | |
| 2 | 256.00 | 226.50 | 252.20 | 155.39 | 154.71 | 120.14 | 1885 | 83.00 | 36.71 | 2261 |
| 3 | 337.00 | 307.50 | 333.20 | 194.29 | 193.45 | 158.88 | 1935 | 81.00 | 38.74 | 2091 |
| 4 | 460.00 | 430.50 | 456.20 | 240.91 | 240.35 | 205.78 | 2092 | 123.00 | 46.91 | 2622 |
| 5 | 506.00 | 476.50 | 502.20 | 262.40 | 261.90 | 227.33 | 2096 | 46.00 | 21.55 | 2135 |
| 6 | 590.00 | 560.50 | 586.20 | 301.71 | 301.22 | 266.72 | 2101 | 84.00 | 39.39 | 2133 |
| 7 | 605.50 | 576.00 | 601.70 | 309.03 | 308.62 | 274.05 | 2102 | 15.50 | 7.33 | 2114 |
| 8 | 707.00 | 677.50 | 703.20 | 355.42 | 355.13 | 320.56 | 2113 | 101.50 | 46.51 | 2182 |
| 9 | 793.00 | 763.50 | 789.20 | 392.27 | 391.97 | 357.40 | 2150 | 91.00 | 36.84 | 2470 |
| 10 | 896.00 | 866.50 | 892.20 | 434.02 | 433.76 | 399.19 | 2171 | 98.00 | 41.79 | 2345 |
| 11 | 996.00 | 966.50 | 992.20 | 475.62 | 475.39 | 440.92 | 2193 | 100.00 | 41.63 | 2402 |
| 12 | 1095.00 | 1065.50 | 1091.20 | 508.09 | 507.83 | 473.31 | 2251 | 99.00 | 32.50 | 3046 |
| 13 | 1239.00 | 1209.50 | 1235.20 | 559.94 | 559.76 | 525.19 | 2303 | 144.00 | 51.88 | 2776 |
| 14 | 1267.00 | 1237.50 | 1263.20 | 569.22 | 569.05 | 534.48 | 2315 | 28.00 | 9.28 | 3016 |
| 15 | 1331.00 | 1301.50 | 1327.20 | 586.88 | 586.72 | 552.15 | 2357 | 64.00 | 17.67 | 3622 |
| 16 | 1345.00 | 1315.50 | 1341.20 | 591.81 | 591.65 | 557.08 | 2361 | 14.00 | 4.93 | 2839 |
| 17 | 1369.00 | 1339.50 | 1365.20 | 601.84 | 601.68 | 567.11 | 2362 | 24.00 | 10.03 | 2392 |

ANALYST: M. SANDERS 11-MAY-83 13:20:10 PROGRAM: GDRIFT 007.E09

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*                *
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*                *
*  SCHLUMBERGER  *
*                *
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DRIFT COMPUTATION REPORT

COMPANY : CRUSADER RESOURCES N.L.

WELL : WONGA BINDA #1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 569160

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*                 *
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*                 *
*   SCHLUMBERGER  *
*                 *
*******************
```

# DRIFT COMPUTATION REPORT

COMPANY : CRUSADER RESOURCES N.L.
WELL : WONGA BINDA #1
FIELD : WILDCAT
COUNTRY : AUSTRALIA
REFERENCE: 569160

LONG DEFINITIONS

GLOBAL

```
KB     - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD    - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
EKB    - ELEVATION OF KELLY BUSHING
GL     - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
XSTART - TOP OF ZONE PROCESSED BY WST
XSTOP  - BOTTOM OF ZONE PROCESSED BY WST
GAD001 - RAW SONIC CHANNEL NAME USED FOR WST SONIC ADJUSTMENT
UNFDEN - UNIFORM DENSITY VALUE
```

ZONE

```
LOFDEN - LAYER OPTION FLAG FOR DENSITY : -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYDEN - USER SUPPLIED DENSITY DATA
```

SAMPLED

```
SHOT   - SHOT NUMBER
DKB    - MEASURED DEPTH FROM KELLY-BUSHING
DSRD   - DEPTH FROM  SRD
DGL    - VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USER'S REFERENCE)
SHTM   - SHOT TIME (WST)
RAWS   - RAW SONIC (WST)
SHDR   - DRIFT AT SHOT OR KNEE
BLSH   - BLOCK SHIFT BETWEEN SHOTS OR KNEE
```

| (GLOBAL PARAMETERS) | | | (VALUE) | |
|---|---|---|---|---|
| ELEV OF KB AB. MSL (WST) | KB | : | 29.5000 | M |
| ELEV OF SRD AB. MSL(WST) | SRD | : | 0 | M |
| ELEVATION OF KELLY BUSHI | EKB | : | 29.5000 | M |
| ELEV OF GL AB. SRD(WST) | GL | : | 25.7000 | M |
| TOP OF ZONE PROCD (WST) | XSTART | : | 0 | M |
| BOT OF ZONE PROCD (WST) | XSTOP | : | 0 | M |
| RAW SONIC CH NAME (WST) | GAD001 | : | DT.ATT.002.FLP.* | |
| UNIFORM DENSITY VALUE | UNFDEN | : | 2.30000 | G/C3 |

| (ZONED PARAMETERS) | | | (VALUE) | | (LIMITS) | | |
|---|---|---|---|---|---|---|---|
| LAYER OPTION FLAG DENS | LOFDEN | : | 1.000000 | | 30479.7 | - | 0 |
| USER SUPPLIED DENSITY DA | LAYDEN | : | -999.2500 | G/C3 | 30479.7 | - | 0 |

| LEVEL NUMBER | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | VERTICAL DEPTH FROM GL M | VERTICAL TRAVEL TIME SRD/GEO MS | INTEGRATED RAW SONIC TIME MS | COMPUTED DRIFT AT LEVEL MS | COMPUTED BLK-SHFT CORRECTION US/F |
|---|---|---|---|---|---|---|---|
| 1 | 173.00 | 143.50 | 169.20 | 83.43 | 83.43 | 0 | 0 |
| 2 | 256.00 | 226.50 | 252.20 | 120.14 | 120.38 | -.24 | -.87 |
| 3 | 337.00 | 307.50 | 333.20 | 158.88 | 154.83 | 4.05 | 16.11 |
| 4 | 460.00 | 430.50 | 456.20 | 205.78 | 202.83 | 2.95 | -2.71 |
| 5 | 506.00 | 476.50 | 502.20 | 227.33 | 220.47 | 6.86 | 25.87 |
| 6 | 590.00 | 560.50 | 586.20 | 266.72 | 261.04 | 5.67 | -4.30 |
| 7 | 605.50 | 576.00 | 601.70 | 274.05 | 268.16 | 5.89 | 4.22 |
| 8 | 707.00 | 677.50 | 703.20 | 320.56 | 316.53 | 4.03 | -5.57 |
| 9 | 798.00 | 768.50 | 794.20 | 357.40 | 356.70 | .70 | -11.16 |
| 10 | 896.00 | 866.50 | 892.20 | 399.19 | 397.81 | 1.37 | 2.09 |
| 11 | 996.00 | 966.50 | 992.20 | 440.82 | 436.96 | 3.86 | 7.58 |
| 12 | 1095.00 | 1065.50 | 1091.20 | 473.31 | 473.01 | .30 | -10.94 |
| 13 | 1239.00 | 1209.50 | 1235.20 | 525.19 | 524.18 | 1.01 | 1.49 |
| 14 | 1267.00 | 1237.50 | 1263.20 | 534.48 | 534.51 | -.03 | -11.30 |
| 15 | 1331.00 | 1301.50 | 1327.20 | 552.15 | 551.41 | .73 | 3.64 |
| 16 | 1345.00 | 1315.50 | 1341.20 | 557.08 | 555.22 | 1.86 | 24.49 |
| 17 | 1369.00 | 1339.50 | 1365.20 | 567.11 | 562.57 | 4.55 | 34.14 |

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*   SCHLUMBERGER  *
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SONIC ADJUSTMENT PARAMETER REPORT

COMPANY : CRUSADER RESOURCES N.L.

WELL : WONGA BINDA #1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 569160

ANALYST: M. [illegible]NDERS        11-MAY-83 13:32:13        PROGRAM: GADJST 008.E08

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*   SCHLUMBERGER  *
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SONIC ADJUSTMENT PARAMETER REPORT

COMPANY   : CRUSADER RESOURCES N.L.
WELL      : WONGA BINDA #1
FIELD     : WILDCAT
COUNTRY   : AUSTRALIA
REFERENCE: 569160

LONG DEFINITIONS

GLOBAL

```
SRCDRF - ORIGIN OF ADJUSTMENT DATA
CONADJ - CONSTANT ADJUSTMENT TO AUTOMATIC DELTA-T MINIMUM = 7.5 US/F
UNERTH - UNIFORM EARTH VELOCITY  (GTRFRM)
```

ZONE

```
ZDRIFT - USER DRIFT AT BOTTOM OF THE ZONE
ADJOPZ - TYPE OF ADJUSTMNENT IN THE DRIFT ZONE : 0=DELTA-T MIN, 1=BLOCKSHIFT
ADJUSZ - DELTA-T MINIMUM USED FOR ADJUSTMENT IN THE DRIFT ZONE
LOFVEL - LAYER OPTION FLAG FOR VELOCITY: -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYVEL - USER SUPPLIED VELOCITY DATA
```

SAMPLED

```
SHOT   - SHOT NUMBER
VDKB   - VERTICAL DEPTH RELATIVE TO KB
DSRD   - DEPTH FROM  SRD
DGL    - VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USER'S REFERENCE)
KNEE   - KNEE
BLSH   - BLOCK SHIFT BETWEEN SHOTS OR KNEE
DTMI   - VALUE OF DELTA-T MINIMUM USED
COEF   - DELTA-T MIN COEFFICIENT USED IN THE DRIFT ZONE
DRGR   - GRADIENT OF DRIFT CURVE
```

| (GLOBAL PARAMETERS) | | | (VALUE) | |
|---|---|---|---|---|
| ORIG OF ADJ DATA (WST) | SRCDRF | : | 2.00000 | |
| CONS SONIC ADJST (WST) | CONADJ | : | 7.50000 | US/F |
| UNIFORM EARTH VELOCITY | UNERTH | : | 2133.60 | M/S |

| (ZONED PARAMETERS) | | | (VALUE) | | (LIMITS) | | |
|---|---|---|---|---|---|---|---|
| USER DRIFT ZONE (WST) | ZDRIFT | : | 1.800000 | MS | 1369.00 | - | 778.000 |
| | | | 1.800000 | | 778.000 | | 606.000 |
| | | | 3.800000 | | 606.000 | | 424.000 |
| | | | 3.800000 | | 424.000 | | 173.000 |
| | | | 0 | | 173.000 | | 0 |
| ADJUSMNT MODE (WST) | ADJOPZ | : | -999.2500 | | 30479.7 | - | 0 |
| USER DELTA-T MIN (WST) | ADJUSZ | : | -999.2500 | US/F | 30479.7 | - | 0 |
| LAYER OPTION FLAG VELOC | LOFVEL | : | 1.000000 | | 30479.7 | - | 0 |
| USER VELOC (WST) | LAYVEL | : | 1720.000 | M/S | 173.000 | - | 29.5000 |
| | | | 700.0000 | | 29.5000 | | 0 |

| KNEE NUMBER | VERTICAL DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | VERTICAL DEPTH FROM GL M | DRIFT AT KNEE MS | BLOCKSHIFT USED US/F | DELTA-T MINIMUM USED US/F | REDUCTION FACTOR G | EQUIVALENT BLOCKSHIFT US/F |
|---|---|---|---|---|---|---|---|---|
| | | | | | 0 | | | 0 |
| 2 | 173.00 | 143.50 | 169.20 | 0 | | | | |
| | | | | | 4.61 | | | 4.61 |
| 3 | 424.00 | 394.50 | 420.20 | 3.80 | | | | |
| | | | | | 0 | | | 0 |
| 4 | 606.00 | 576.50 | 602.20 | 3.80 | | | | |
| | | | | | | 128.07 | .72 | -3.54 |
| 5 | 778.00 | 748.50 | 774.20 | 1.80 | | | | |
| | | | | | 0 | | | 0 |
| 6 | 1369.00 | 1339.50 | 1365.20 | 1.80 | | | | |

ANALYST: M. SANDERS 11-MAY-83 13:32:35 PROGRAM: GADJST 008.E03

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*  SCHLUMBERGER   *
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VELOCITY REPORT

COMPANY : CRUSADER RESOURCES N.L.

WELL : WONGA BINDA #1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 569160

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VELOCITY REPORT

COMPANY : CRUSADER RESOURCES N.L.
WELL : WONGA BINDA #1
FIELD : WILDCAT
COUNTRY : AUSTRALIA
REFERENCE: 569160

LONG DEFINITIONS

GLOBAL

| | |
|---|---|
| KB | - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL |
| SRD | - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL |
| EKB | - ELEVATION OF KELLY BUSHING |
| GL | - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD |
| UNERTH | - UNIFORM EARTH VELOCITY (GTRFRM) |

ZONE

| | |
|---|---|
| LOFVEL | - LAYER OPTION FLAG FOR VELOCITY: -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER |
| LAYVEL | - USER SUPPLIED VELOCITY DATA |

SAMPLED

| | |
|---|---|
| SHOT | - SHOT NUMBER |
| DKB | - MEASURED DEPTH FROM KELLY-BUSHING |
| DSRD | - DEPTH FROM SRD |
| DGL | - VERTICAL DEPTH RELATIVE TO GROUND LEVEL (USER'S REFERENCE) |
| SHTM | - SHOT TIME (WST) |
| ADJS | - ADJUSTED SONIC TRAVEL TIME |
| SHDR | - DRIFT AT SHOT OR KNEE |
| REST | - RESIDUAL TRAVEL TIME AT KNEE |
| INTV | - INTERNAL VELOCITY, AVERAGE |

| (GLOBAL PARAMETERS) | | | (VALUE) | |
|---|---|---|---|---|
| ELEV OF KB AB. MSL (WST) | KB | : | 29.5000 | M |
| ELEV OF SRD AB. MSL(WST) | SRD | : | 0 | M |
| ELEVATION OF KELLY BUSHI | EKB | : | 29.5000 | M |
| ELEV OF GL AB. SRD(WST) | GL | : | 25.7000 | M |
| UNIFORM EARTH VELOCITY | UNERTH | : | 2133.60 | M/S |

| (ZONED PARAMETERS) | | | (VALUE) | | (LIMITS) | | |
|---|---|---|---|---|---|---|---|
| LAYER OPTION FLAG VELOC | LOFVEL | : | 1.000000 | | 30479.7 | - | 0 |
| USER VELOC (WST) | LAYVEL | : | 1720.000 | M/S | 173.000 | - | 29.5000 |
| | | | 700.0000 | | 29.5000 | | 0 |

| LEVEL NUMBER | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | VERTICAL DEPTH FROM GL M | VERTICAL TRAVEL TIME SRD/GEOPH MS | INTEGRATED ADJUSTED SONIC TIME MS | DRIFT = SHOT TIME - RAW SON MS | RESIDUAL = SHOT TIME - ADJ SON MS | ADJUSTED INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 1 | 173.00 | 143.50 | 169.20 | 83.43 | 83.43 | 0 | 0 | 1720 |
| 2 | 256.00 | 226.50 | 252.20 | 120.14 | 121.63 | -.24 | -1.49 | 2173 |
| 3 | 337.00 | 307.50 | 333.20 | 158.88 | 157.30 | 4.05 | 1.57 | 2270 |
| 4 | 460.00 | 430.50 | 456.20 | 205.78 | 206.62 | 2.95 | -.84 | 2494 |
| 5 | 506.00 | 476.50 | 502.20 | 227.33 | 224.26 | 6.86 | 3.07 | 2608 |
| 6 | 590.00 | 560.50 | 586.20 | 266.72 | 264.84 | 5.67 | 1.87 | 2070 |
| 7 | 605.50 | 576.00 | 601.70 | 274.05 | 271.96 | 5.89 | 2.09 | 2179 |
| 8 | 707.00 | 677.50 | 703.20 | 320.56 | 318.72 | 4.03 | 1.84 | 2170 |
| 9 | 798.00 | 768.50 | 794.20 | 357.40 | 358.50 | .70 | -1.10 | 2288 |
| 10 | 896.00 | 866.50 | 892.20 | 399.19 | 399.61 | 1.37 | -.42 | 2384 |
| 11 | 996.00 | 966.50 | 992.20 | 440.82 | 438.75 | 3.86 | 2.06 | 2555 |
| 12 | 1095.00 | 1065.50 | 1091.20 | 473.31 | 474.80 | .30 | -1.49 | 2746 |
| 13 | 1239.00 | 1209.50 | 1235.20 | 525.19 | 525.98 | 1.01 | -.78 | 2814 |
| 14 | 1267.00 | 1237.50 | 1263.20 | 534.48 | 536.29 | -.03 | -1.82 | 2714 |
| 15 | 1331.00 | 1301.50 | 1327.20 | 552.15 | 553.20 | .73 | -1.05 | 3785 |
| 16 | 1345.00 | 1315.50 | 1341.20 | 557.08 | 557.01 | 1.86 | .07 | 3676 |
| 17 | 1369.00 | 1339.50 | 1365.20 | 567.11 | 564.40 | 4.55 | 2.71 | 3248 |

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TIME CONVERTED VELOCITY REPORT

COMPANY : CRUSADER RESOURCES N.L.
WELL : WONGA BINDA #1
FIELD : WILDCAT
COUNTRY : AUSTRALIA
REFERENCE: 569160

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*   SCHLUMBERGER  *
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TIME CONVERTED VELOCITY REPORT

COMPANY : CRUSADER RESOURCES N.L.
WELL : WONGA BINDA #1
FIELD : WILDCAT
COUNTRY : AUSTRALIA
REFERENCE: 569160

LONG DEFINITIONS

GLOBAL

```
KB     - ELEVATION OF THE KELLY-BUSHING ABOVE MSL OR MWL
SRD    - ELEVATION OF THE SEISMIC REFERENCE DATUM ABOVE MSL OR MWL
GL     - ELEVATION OF USER'S REFERENCE (GENERALLY GROUND LEVEL) ABOVE SRD
UNERTH - UNIFORM EARTH VELOCITY  (GTRFRM)
UNFDEN - UNIFORM DENSITY VALUE
```

MATRIX

```
MVODIS - MOVE-OUT DISTANCE FROM BOREHOLE
```

ZONE

```
LOFVEL - LAYER OPTION FLAG FOR VELOCITY: -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYVEL - USER SUPPLIED VELOCITY DATA
LOFDEN - LAYER OPTION FLAG FOR DENSITY : -1=NONE; 0=UNIFORM; 1=UNIFORM+LAYER
LAYDEN - USER SUPPLIED DENSITY DATA
```

SAMPLED

```
TWOT   - TWO WAY TRAVEL TIME (RELATIVE TO THE SEISMIC REFERENCE
DKE    - MEASURED DEPTH FROM KELLY-BUSHING
DSRD   - DEPTH FROM  SRD
AVGV   - AVERAGE SEISMIC VELOCITY
RMSV   - ROOT MEAN SQUARE VELOCITY (SEISMIC)
MVOT   - NORMAL MOVE-OUT
MVOT   - NORMAL MOVE-OUT
MVOT   - NORMAL MOVE-OUT
INTV   - INTERNAL VELOCITY, AVERAGE
```

| (GLOBAL PARAMETERS) | | | (VALUE) | |
|---|---|---|---|---|
| ELEV OF KB AB. MSL (WST) | KB | : | 29.5000 | M |
| ELEV OF SRD AB. MSL(WST) | SRD | : | 0 | M |
| ELEV OF GL AB. SRD(WST) | GL | : | 25.7000 | M |
| UNIFORM EARTH VELOCITY | UNERTH | : | 2133.60 | M/S |
| UNIFORM DENSITY VALUE | UNFDEN | : | 2.30000 | G/C3 |

(MATRIX PARAMETERS)

| | MVOUT DIST M |
|---|---|
| 1 | 1000.0 |
| 2 | 1500.0 |
| 3 | 2000.0 |

| (ZONED PARAMETERS) | | (VALUE) | | (LIMITS) | | |
|---|---|---|---|---|---|---|
| LAYER OPTION FLAG VELOC | LOFVEL | : 1.000000 | | 30479.7 | - | 0 |
| USER VELOC (WST) | LAYVEL | : 1720.000 | M/S | 173.000 | - | 29.5000 |
| | | 700.0000 | | 29.5000 | | 0 |
| LAYER OPTION FLAG DENS | LOFDEN | :-1.000000 | | 30479.7 | - | 0 |
| USER SUPPLIED DENSITY DA | LAYDEN | :-999.2500 | G/C3 | 30479.7 | - | 0 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 2.00 | 31.22 | 1.72 | 1720 | 1720 | 579.40 | 870.10 | 1160.79 | 1720 |
| 4.00 | 32.94 | 3.44 | 1720 | 1720 | 577.41 | 868.10 | 1158.80 | 1720 |
| 6.00 | 34.66 | 5.16 | 1720 | 1720 | 575.43 | 866.11 | 1156.81 | 1720 |
| 8.00 | 36.38 | 6.88 | 1720 | 1720 | 573.45 | 864.13 | 1154.82 | 1720 |
| 10.00 | 38.10 | 8.60 | 1720 | 1720 | 571.48 | 862.15 | 1152.83 | 1720 |
| 12.00 | 39.82 | 10.32 | 1720 | 1720 | 569.52 | 860.18 | 1150.85 | 1720 |
| 14.00 | 41.54 | 12.04 | 1720 | 1720 | 567.56 | 858.21 | 1148.88 | 1720 |
| 16.00 | 43.26 | 13.76 | 1720 | 1720 | 565.62 | 856.24 | 1146.90 | 1720 |
| 18.00 | 44.98 | 15.48 | 1720 | 1720 | 563.67 | 854.28 | 1144.93 | 1720 |
| 20.00 | 46.70 | 17.20 | 1720 | 1720 | 561.74 | 852.32 | 1142.96 | 1720 |
| 22.00 | 48.42 | 18.92 | 1720 | 1720 | 559.81 | 850.37 | 1141.00 | 1720 |
| 24.00 | 50.14 | 20.64 | 1720 | 1720 | 557.89 | 848.42 | 1139.04 | 1720 |
| 26.00 | 51.86 | 22.36 | 1720 | 1720 | 555.98 | 846.48 | 1137.08 | 1720 |
| 28.00 | 53.58 | 24.08 | 1720 | 1720 | 554.07 | 844.54 | 1135.13 | 1720 |
| 30.00 | 55.30 | 25.80 | 1720 | 1720 | 552.17 | 842.61 | 1133.18 | 1720 |
| 32.00 | 57.02 | 27.52 | 1720 | 1720 | 550.28 | 840.68 | 1131.23 | 1720 |
| 34.00 | 58.74 | 29.24 | 1720 | 1720 | 548.39 | 838.76 | 1129.29 | 1720 |
| 36.00 | 60.46 | 30.96 | 1720 | 1720 | 546.51 | 836.84 | 1127.35 | 1720 |
| 38.00 | 62.18 | 32.68 | 1720 | 1720 | 544.64 | 834.92 | 1125.41 | 1720 |
| 40.00 | 63.90 | 34.40 | 1720 | 1720 | 542.77 | 833.01 | 1123.48 | 1720 |
| 42.00 | 65.62 | 36.12 | 1720 | 1720 | 540.91 | 831.10 | 1121.55 | 1720 |
| 44.00 | 67.34 | 37.84 | 1720 | 1720 | 539.06 | 829.20 | 1119.62 | 1720 |
| 46.00 | 69.06 | 39.56 | 1720 | 1720 | 537.21 | 827.31 | 1117.70 | 1720 |
| 48.00 | [illegible].78 | 41.28 | 1720 | 1720 | 535.[illegible] | 825.41 | 1115.78 | 1720 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1720 |
| 50.00 | 72.50 | 43.00 | 1720 | 1720 | 533.54 | 823.53 | 1113.87 | |
| | | | | | | | | 1720 |
| 52.00 | 74.22 | 44.72 | 1720 | 1720 | 531.72 | 821.64 | 1111.95 | |
| | | | | | | | | 1720 |
| 54.00 | 75.94 | 46.44 | 1720 | 1720 | 529.90 | 819.76 | 1110.04 | |
| | | | | | | | | 1720 |
| 56.00 | 77.66 | 48.16 | 1720 | 1720 | 528.09 | 817.89 | 1108.14 | |
| | | | | | | | | 1720 |
| 58.00 | 79.38 | 49.88 | 1720 | 1720 | 526.28 | 816.02 | 1106.24 | |
| | | | | | | | | 1720 |
| 60.00 | 81.10 | 51.60 | 1720 | 1720 | 524.48 | 814.15 | 1104.34 | |
| | | | | | | | | 1720 |
| 62.00 | 82.82 | 53.32 | 1720 | 1720 | 522.69 | 812.29 | 1102.44 | |
| | | | | | | | | 1720 |
| 64.00 | 84.54 | 55.04 | 1720 | 1720 | 520.91 | 810.44 | 1100.55 | |
| | | | | | | | | 1720 |
| 66.00 | 86.26 | 56.76 | 1720 | 1720 | 519.13 | 808.59 | 1098.66 | |
| | | | | | | | | 1720 |
| 68.00 | 87.98 | 58.48 | 1720 | 1720 | 517.36 | 806.74 | 1096.78 | |
| | | | | | | | | 1720 |
| 70.00 | 89.70 | 60.20 | 1720 | 1720 | 515.59 | 804.90 | 1094.90 | |
| | | | | | | | | 1720 |
| 72.00 | 91.42 | 61.92 | 1720 | 1720 | 513.84 | 803.06 | 1093.02 | |
| | | | | | | | | 1720 |
| 74.00 | 93.14 | 63.64 | 1720 | 1720 | 512.09 | 801.23 | 1091.14 | |
| | | | | | | | | 1720 |
| 76.00 | 94.86 | 65.36 | 1720 | 1720 | 510.34 | 799.40 | 1089.27 | |
| | | | | | | | | 1720 |
| 78.00 | 96.58 | 67.08 | 1720 | 1720 | 508.60 | 797.57 | 1087.40 | |
| | | | | | | | | 1720 |
| 80.00 | 98.30 | 68.80 | 1720 | 1720 | 506.87 | 795.75 | 1085.54 | |
| | | | | | | | | 1720 |
| 82.00 | 100.02 | 70.52 | 1720 | 1720 | 505.15 | 793.94 | 1083.68 | |
| | | | | | | | | 1720 |
| 84.00 | 101.74 | 72.24 | 1720 | 1720 | 503.43 | 792.13 | 1081.82 | |
| | | | | | | | | 1720 |
| 86.00 | 103.46 | 73.96 | 1720 | 1720 | 501.72 | 790.32 | 1079.97 | |
| | | | | | | | | 1720 |
| 88.00 | 105.18 | 75.68 | 1720 | 1720 | 500.02 | 788.52 | 1078.12 | |
| | | | | | | | | 1720 |
| 90.00 | 106.90 | 77.40 | 1720 | 1720 | 498.32 | 786.72 | 1076.27 | |
| | | | | | | | | 1720 |
| 92.00 | 108.62 | 79.12 | 1720 | 1720 | 496.63 | 784.93 | 1074.42 | |
| | | | | | | | | 1720 |
| 94.00 | 110.34 | 80.84 | 1720 | 1720 | 494.95 | 783.14 | 1072.58 | |
| | | | | | | | | 1720 |
| 96.00 | 112.06 | 82.56 | 1720 | 1720 | 493.27 | 781.36 | 1070.75 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 98.00 | 113.78 | 84.28 | 1720 | 1720 | 491.60 | 779.58 | 1068.91 | 1720 |
| 100.00 | 115.50 | 86.00 | 1720 | 1720 | 489.93 | 777.81 | 1067.08 | 1720 |
| 102.00 | 117.22 | 87.72 | 1720 | 1720 | 488.28 | 776.04 | 1065.26 | 1720 |
| 104.00 | 118.94 | 89.44 | 1720 | 1720 | 486.62 | 774.27 | 1063.43 | 1720 |
| 106.00 | 120.66 | 91.16 | 1720 | 1720 | 484.98 | 772.51 | 1061.61 | 1720 |
| 108.00 | 122.38 | 92.88 | 1720 | 1720 | 483.34 | 770.75 | 1059.80 | 1720 |
| 110.00 | 124.10 | 94.60 | 1720 | 1720 | 481.71 | 769.00 | 1057.98 | 1720 |
| 112.00 | 125.82 | 96.32 | 1720 | 1720 | 480.08 | 767.26 | 1056.17 | 1720 |
| 114.00 | 127.54 | 98.04 | 1720 | 1720 | 478.47 | 765.51 | 1054.37 | 1720 |
| 116.00 | 129.26 | 99.76 | 1720 | 1720 | 476.85 | 763.77 | 1052.56 | 1720 |
| 118.00 | 130.98 | 101.48 | 1720 | 1720 | 475.25 | 762.04 | 1050.76 | 1720 |
| 120.00 | 132.70 | 103.20 | 1720 | 1720 | 473.65 | 760.31 | 1048.97 | 1720 |
| 122.00 | 134.42 | 104.92 | 1720 | 1720 | 472.06 | 758.59 | 1047.17 | 1720 |
| 124.00 | 136.14 | 106.64 | 1720 | 1720 | 470.47 | 756.86 | 1045.38 | 1720 |
| 126.00 | 137.86 | 108.36 | 1720 | 1720 | 468.89 | 755.15 | 1043.60 | 1720 |
| 128.00 | 139.58 | 110.08 | 1720 | 1720 | 467.32 | 753.44 | 1041.81 | 1720 |
| 130.00 | 141.30 | 111.80 | 1720 | 1720 | 465.75 | 751.73 | 1040.04 | 1720 |
| 132.00 | 143.02 | 113.52 | 1720 | 1720 | 464.19 | 750.03 | 1038.26 | 1720 |
| 134.00 | 144.74 | 115.24 | 1720 | 1720 | 462.64 | 748.33 | 1036.49 | 1720 |
| 136.00 | 146.46 | 116.96 | 1720 | 1720 | 461.09 | 746.63 | 1034.72 | 1720 |
| 138.00 | 148.18 | 118.68 | 1720 | 1720 | 459.55 | 744.94 | 1032.95 | 1720 |
| 140.00 | 149.90 | 120.40 | 1720 | 1720 | 458.01 | 743.26 | 1031.19 | 1720 |
| 142.00 | 151.62 | 122.12 | 1720 | 1720 | 456.49 | 741.58 | 1029.43 | 1720 |
| 144.00 | 153.34 | 123.84 | 1720 | 1720 | 454.96 | 739.90 | 1027.67 | 1720 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 146.00 | 155.06 | 125.56 | 1720 | 1720 | 453.45 | 738.23 | 1025.92 | 1720 |
| 148.00 | 156.78 | 127.28 | 1720 | 1720 | 451.94 | 736.56 | 1024.17 | 1720 |
| 150.00 | 158.50 | 129.00 | 1720 | 1720 | 450.43 | 734.90 | 1022.43 | 1720 |
| 152.00 | 160.22 | 130.72 | 1720 | 1720 | 448.94 | 733.24 | 1020.68 | 1720 |
| 154.00 | 161.94 | 132.44 | 1720 | 1720 | 447.45 | 731.59 | 1018.94 | 1720 |
| 156.00 | 163.66 | 134.16 | 1720 | 1720 | 445.96 | 729.94 | 1017.21 | 1720 |
| 158.00 | 165.38 | 135.88 | 1720 | 1720 | 444.48 | 728.29 | 1015.48 | 1720 |
| 160.00 | 167.10 | 137.60 | 1720 | 1720 | 443.01 | 726.65 | 1013.75 | 1720 |
| 162.00 | 168.82 | 139.32 | 1720 | 1720 | 441.54 | 725.01 | 1012.02 | 1720 |
| 164.00 | 170.54 | 141.04 | 1720 | 1720 | 440.08 | 723.38 | 1010.30 | 1720 |
| 166.00 | 172.26 | 142.76 | 1720 | 1720 | 438.63 | 721.75 | 1008.58 | 1720 |
| 168.00 | 174.21 | 144.71 | 1723 | 1723 | 436.25 | 718.70 | 1004.95 | 1946 |
| 170.00 | 176.42 | 146.92 | 1728 | 1729 | 432.68 | 713.81 | 998.84 | 2216 |
| 172.00 | 178.55 | 149.05 | 1733 | 1735 | 429.60 | 709.67 | 993.74 | 2127 |
| 174.00 | 180.68 | 151.18 | 1738 | 1740 | 426.55 | 705.57 | 988.68 | 2135 |
| 176.00 | 182.81 | 153.31 | 1742 | 1745 | 423.59 | 701.60 | 983.79 | 2128 |
| 178.00 | 184.94 | 155.44 | 1747 | 1749 | 420.68 | 697.69 | 978.99 | 2130 |
| 180.00 | 187.05 | 157.55 | 1751 | 1754 | 417.92 | 694.01 | 974.48 | 2107 |
| 182.00 | 189.14 | 159.64 | 1754 | 1758 | 415.29 | 690.52 | 970.23 | 2086 |
| 184.00 | 191.31 | 161.81 | 1759 | 1763 | 412.37 | 686.58 | 965.37 | 2170 |
| 186.00 | 193.45 | 163.95 | 1763 | 1767 | 409.62 | 682.89 | 960.85 | 2140 |
| 188.00 | 195.51 | 166.01 | 1766 | 1771 | 407.21 | 679.72 | 957.02 | 2064 |
| 190.00 | 197.67 | 168.17 | 1770 | 1775 | 404.47 | 676.03 | 952.48 | 2162 |
| 192.00 | 199.75 | 170.25 | 1773 | 1779 | 402.07 | 672.87 | 948.66 | 2081 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 194.00 | 201.94 | 172.44 | 1778 | 1783 | 399.33 | 669.17 | 944.10 | 2185 |
| 196.00 | 204.05 | 174.55 | 1781 | 1787 | 396.89 | 665.92 | 940.15 | 2117 |
| 198.00 | 206.14 | 176.64 | 1784 | 1790 | 394.59 | 662.88 | 936.48 | 2087 |
| 200.00 | 208.18 | 178.68 | 1787 | 1793 | 392.48 | 660.13 | 933.20 | 2039 |
| 202.00 | 210.38 | 180.88 | 1791 | 1798 | 389.86 | 656.59 | 928.84 | 2197 |
| 204.00 | 212.51 | 183.01 | 1794 | 1801 | 387.50 | 653.43 | 924.99 | 2136 |
| 206.00 | 214.79 | 185.29 | 1799 | 1806 | 384.70 | 649.60 | 920.24 | 2272 |
| 208.00 | 216.97 | 187.47 | 1803 | 1810 | 382.25 | 646.29 | 916.18 | 2187 |
| 210.00 | 219.17 | 189.67 | 1806 | 1814 | 379.80 | 642.97 | 912.11 | 2198 |
| 212.00 | 221.40 | 191.90 | 1810 | 1819 | 377.29 | 639.56 | 907.92 | 2226 |
| 214.00 | 223.74 | 194.24 | 1815 | 1824 | 374.44 | 635.61 | 902.99 | 2343 |
| 216.00 | 226.01 | 196.51 | 1820 | 1829 | 371.86 | 632.08 | 898.61 | 2276 |
| 218.00 | 228.24 | 198.74 | 1823 | 1833 | 369.48 | 628.85 | 894.64 | 2227 |
| 220.00 | 230.49 | 200.99 | 1827 | 1837 | 367.07 | 625.56 | 890.60 | 2247 |
| 222.00 | 232.59 | 203.09 | 1830 | 1840 | 365.13 | 622.99 | 887.51 | 2102 |
| 224.00 | 234.72 | 205.22 | 1832 | 1843 | 363.14 | 620.35 | 884.33 | 2126 |
| 226.00 | 236.89 | 207.39 | 1835 | 1846 | 361.05 | 617.54 | 880.92 | 2169 |
| 228.00 | 239.12 | 209.62 | 1839 | 1849 | 358.80 | 614.48 | 877.16 | 2236 |
| 230.00 | 241.30 | 211.80 | 1842 | 1853 | 356.74 | 611.71 | 873.80 | 2179 |
| 232.00 | 243.47 | 213.97 | 1845 | 1856 | 354.74 | 609.02 | 870.54 | 2168 |
| 234.00 | 245.67 | 216.17 | 1848 | 1859 | 352.68 | 606.23 | 867.13 | 2201 |
| 236.00 | 247.93 | 218.43 | 1851 | 1863 | 350.49 | 603.23 | 863.45 | 2257 |
| 238.00 | 250.22 | 220.72 | 1855 | 1867 | 348.23 | 600.12 | 859.60 | 2295 |
| 240.00 | [illegible]52.49 | 222.99 | 1858 | 1870 | 3[illegible].07 | 597.16 | 855.96 | 2271 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2188 |
| 242.00 | 254.68 | 225.18 | 1861 | 1873 | 344.15 | 594.56 | 852.81 | |
| | | | | | | | | 2169 |
| 244.00 | 256.85 | 227.35 | 1864 | 1876 | 342.30 | 592.07 | 849.80 | |
| | | | | | | | | 2330 |
| 246.00 | 259.18 | 229.68 | 1867 | 1880 | 340.07 | 588.98 | 845.96 | |
| | | | | | | | | 2225 |
| 248.00 | 261.41 | 231.91 | 1870 | 1883 | 338.14 | 586.34 | 842.74 | |
| | | | | | | | | 2247 |
| 250.00 | 263.65 | 234.15 | 1873 | 1886 | 336.17 | 583.65 | 839.45 | |
| | | | | | | | | 2259 |
| 252.00 | 265.91 | 236.41 | 1876 | 1889 | 334.21 | 580.95 | 836.14 | |
| | | | | | | | | 2253 |
| 254.00 | 268.16 | 238.66 | 1879 | 1893 | 332.28 | 578.30 | 832.90 | |
| | | | | | | | | 2211 |
| 256.00 | 270.38 | 240.88 | 1882 | 1895 | 330.47 | 575.85 | 829.91 | |
| | | | | | | | | 2228 |
| 258.00 | 272.60 | 243.10 | 1885 | 1898 | 328.65 | 573.35 | 826.86 | |
| | | | | | | | | 2293 |
| 260.00 | 274.90 | 245.40 | 1888 | 1901 | 326.70 | 570.65 | 823.54 | |
| | | | | | | | | 2203 |
| 262.00 | 277.10 | 247.60 | 1890 | 1904 | 324.97 | 568.30 | 820.69 | |
| | | | | | | | | 2252 |
| 264.00 | 279.35 | 249.85 | 1893 | 1907 | 323.16 | 565.81 | 817.64 | |
| | | | | | | | | 2273 |
| 266.00 | 281.62 | 252.12 | 1896 | 1910 | 321.32 | 563.27 | 814.52 | |
| | | | | | | | | 2240 |
| 268.00 | 283.86 | 254.36 | 1898 | 1912 | 319.58 | 560.87 | 811.60 | |
| | | | | | | | | 2225 |
| 270.00 | 286.09 | 256.59 | 1901 | 1915 | 317.89 | 558.55 | 808.77 | |
| | | | | | | | | 2251 |
| 272.00 | 288.34 | 258.84 | 1903 | 1918 | 316.16 | 556.17 | 805.86 | |
| | | | | | | | | 2443 |
| 274.00 | 290.78 | 261.28 | 1907 | 1922 | 314.04 | 553.16 | 802.08 | |
| | | | | | | | | 2318 |
| 276.00 | 293.10 | 263.60 | 1910 | 1925 | 312.22 | 550.61 | 798.94 | |
| | | | | | | | | 2201 |
| 278.00 | 295.30 | 265.80 | 1912 | 1927 | 310.66 | 548.47 | 796.35 | |
| | | | | | | | | 2268 |
| 280.00 | 297.57 | 268.07 | 1915 | 1930 | 308.98 | 546.15 | 793.49 | |
| | | | | | | | | 2307 |
| 282.00 | 299.88 | 270.38 | 1918 | 1933 | 307.24 | 543.72 | 790.50 | |
| | | | | | | | | 2340 |
| 284.00 | 302.22 | 272.72 | 1921 | 1936 | 305.46 | 541.21 | 787.39 | |
| | | | | | | | | 2281 |
| 286.00 | 304.50 | 275.00 | 1923 | 1939 | 303.81 | 538.92 | 784.58 | |
| | | | | | | | | 2304 |
| 288.00 | 306.80 | 277.30 | 1926 | 1941 | 302.14 | 536.58 | 781.69 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 290.00 | 309.06 | 279.56 | 1928 | 1944 | 300.58 | 534.41 | 779.04 | 2256 |
| 292.00 | 311.19 | 281.69 | 1929 | 1945 | 299.25 | 532.59 | 776.87 | 2138 |
| 294.00 | 313.44 | 283.94 | 1932 | 1947 | 297.72 | 530.48 | 774.29 | 2250 |
| 296.00 | 315.60 | 286.10 | 1933 | 1949 | 296.38 | 528.65 | 772.09 | 2156 |
| 298.00 | 317.88 | 288.38 | 1935 | 1951 | 294.83 | 526.47 | 769.41 | 2283 |
| 300.00 | 320.18 | 290.68 | 1938 | 1954 | 293.26 | 524.26 | 766.70 | 2301 |
| 302.00 | 322.49 | 292.99 | 1940 | 1956 | 291.71 | 522.08 | 764.00 | 2302 |
| 304.00 | 324.76 | 295.26 | 1942 | 1959 | 290.23 | 520.00 | 761.45 | 2272 |
| 306.00 | 327.07 | 297.57 | 1945 | 1961 | 288.69 | 517.82 | 758.76 | 2314 |
| 308.00 | 329.39 | 299.89 | 1947 | 1964 | 287.16 | 515.66 | 756.09 | 2316 |
| 310.00 | 331.73 | 302.23 | 1950 | 1966 | 285.60 | 513.43 | 753.33 | 2345 |
| 312.00 | 334.04 | 304.54 | 1952 | 1969 | 284.12 | 511.33 | 750.73 | 2309 |
| 314.00 | 336.30 | 306.80 | 1954 | 1971 | 282.73 | 509.38 | 748.35 | 2259 |
| 316.00 | 338.69 | 309.19 | 1957 | 1974 | 281.15 | 507.11 | 745.51 | 2387 |
| 318.00 | 341.08 | 311.58 | 1960 | 1977 | 279.58 | 504.85 | 742.68 | 2393 |
| 320.00 | 343.46 | 313.96 | 1962 | 1979 | 278.05 | 502.64 | 739.93 | 2380 |
| 322.00 | 345.71 | 316.21 | 1964 | 1981 | 276.73 | 500.78 | 737.65 | 2252 |
| 324.00 | 348.09 | 318.59 | 1967 | 1984 | 275.23 | 498.63 | 734.96 | 2377 |
| 326.00 | 350.45 | 320.95 | 1969 | 1986 | 273.78 | 496.53 | 732.34 | 2363 |
| 328.00 | 352.79 | 323.29 | 1971 | 1989 | 272.37 | 494.51 | 729.84 | 2337 |
| 330.00 | 355.13 | 325.63 | 1974 | 1991 | 270.98 | 492.51 | 727.36 | 2338 |
| 332.00 | 357.53 | 328.03 | 1976 | 1994 | 269.51 | 490.37 | 724.68 | 2401 |
| 334.00 | 359.87 | 330.37 | 1978 | 1996 | 268.15 | 488.41 | 722.25 | 2337 |
| 336.00 | 362.28 | 332.78 | 1981 | 1999 | 266.69 | 486.29 | 719.58 | 2412 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2406 |
| 338.00 | 364.69 | 335.19 | 1983 | 2001 | 265.26 | 484.20 | 716.96 | |
| | | | | | | | | 2374 |
| 340.00 | 367.06 | 337.56 | 1986 | 2004 | 263.89 | 482.21 | 714.48 | |
| | | | | | | | | 2372 |
| 342.00 | 369.43 | 339.93 | 1988 | 2006 | 262.53 | 480.24 | 712.02 | |
| | | | | | | | | 2350 |
| 344.00 | 371.78 | 342.28 | 1990 | 2008 | 261.22 | 478.34 | 709.65 | |
| | | | | | | | | 2371 |
| 346.00 | 374.15 | 344.65 | 1992 | 2010 | 259.90 | 476.41 | 707.23 | |
| | | | | | | | | 2365 |
| 348.00 | 376.52 | 347.02 | 1994 | 2013 | 258.59 | 474.51 | 704.86 | |
| | | | | | | | | 2468 |
| 350.00 | 378.99 | 349.49 | 1997 | 2016 | 257.16 | 472.39 | 702.18 | |
| | | | | | | | | 2453 |
| 352.00 | 381.44 | 351.94 | 2000 | 2018 | 255.76 | 470.33 | 699.57 | |
| | | | | | | | | 2492 |
| 354.00 | 383.93 | 354.43 | 2002 | 2021 | 254.33 | 468.19 | 696.86 | |
| | | | | | | | | 2429 |
| 356.00 | 386.36 | 356.86 | 2005 | 2024 | 253.00 | 466.22 | 694.38 | |
| | | | | | | | | 2376 |
| 358.00 | 388.73 | 359.23 | 2007 | 2026 | 251.75 | 464.39 | 692.08 | |
| | | | | | | | | 2421 |
| 360.00 | 391.16 | 361.66 | 2009 | 2028 | 250.45 | 462.47 | 689.66 | |
| | | | | | | | | 2426 |
| 362.00 | 393.58 | 364.08 | 2012 | 2031 | 249.16 | 460.56 | 687.25 | |
| | | | | | | | | 2447 |
| 364.00 | 396.03 | 366.53 | 2014 | 2033 | 247.85 | 458.62 | 684.80 | |
| | | | | | | | | 2424 |
| 366.00 | 398.45 | 368.95 | 2016 | 2036 | 246.59 | 456.75 | 682.43 | |
| | | | | | | | | 2383 |
| 368.00 | 400.84 | 371.34 | 2018 | 2038 | 245.40 | 454.98 | 680.21 | |
| | | | | | | | | 2443 |
| 370.00 | 403.28 | 373.78 | 2020 | 2040 | 244.14 | 453.10 | 677.83 | |
| | | | | | | | | 2384 |
| 372.00 | 405.66 | 376.16 | 2022 | 2042 | 242.96 | 451.35 | 675.64 | |
| | | | | | | | | 2372 |
| 374.00 | 408.03 | 378.53 | 2024 | 2044 | 241.81 | 449.65 | 673.50 | |
| | | | | | | | | 2426 |
| 376.00 | 410.46 | 380.96 | 2026 | 2046 | 240.60 | 447.85 | 671.22 | |
| | | | | | | | | 2413 |
| 378.00 | 412.87 | 383.37 | 2028 | 2048 | 239.43 | 446.09 | 669.00 | |
| | | | | | | | | 2452 |
| 380.00 | 415.33 | 385.83 | 2031 | 2051 | 238.22 | 444.27 | 666.69 | |
| | | | | | | | | 2611 |
| 382.00 | 417.94 | 388.44 | 2034 | 2054 | 236.82 | 442.15 | 663.95 | |
| | | | | | | | | 2600 |
| 384.00 | 420.54 | 391.04 | 2037 | 2057 | 235.46 | 440.07 | 661.26 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2598 |
| 386.00 | 423.13 | 393.63 | 2040 | 2060 | 234.12 | 438.01 | 658.61 | |
| | | | | | | | | 2753 |
| 388.00 | 425.89 | 396.39 | 2043 | 2065 | 232.60 | 435.65 | 655.53 | |
| | | | | | | | | 2685 |
| 390.00 | 428.57 | 399.07 | 2047 | 2068 | 231.19 | 433.46 | 652.69 | |
| | | | | | | | | 2753 |
| 392.00 | 431.33 | 401.83 | 2050 | 2072 | 229.71 | 431.16 | 649.68 | |
| | | | | | | | | 2637 |
| 394.00 | 433.96 | 404.46 | 2053 | 2076 | 228.39 | 429.12 | 647.03 | |
| | | | | | | | | 2873 |
| 396.00 | 436.84 | 407.34 | 2057 | 2080 | 226.80 | 426.62 | 643.74 | |
| | | | | | | | | 2732 |
| 398.00 | 439.57 | 410.07 | 2061 | 2084 | 225.40 | 424.43 | 640.89 | |
| | | | | | | | | 2707 |
| 400.00 | 442.28 | 412.78 | 2064 | 2088 | 224.04 | 422.33 | 638.14 | |
| | | | | | | | | 2716 |
| 402.00 | 444.99 | 415.49 | 2067 | 2091 | 222.70 | 420.22 | 635.39 | |
| | | | | | | | | 2753 |
| 404.00 | 447.74 | 418.24 | 2071 | 2095 | 221.33 | 418.07 | 632.57 | |
| | | | | | | | | 2659 |
| 406.00 | 450.40 | 420.90 | 2073 | 2098 | 220.08 | 416.12 | 630.04 | |
| | | | | | | | | 2686 |
| 408.00 | 453.09 | 423.59 | 2076 | 2102 | 218.81 | 414.15 | 627.46 | |
| | | | | | | | | 2592 |
| 410.00 | 455.68 | 426.18 | 2079 | 2104 | 217.66 | 412.35 | 625.14 | |
| | | | | | | | | 2695 |
| 412.00 | 458.38 | 428.88 | 2082 | 2107 | 216.41 | 410.40 | 622.58 | |
| | | | | | | | | 2450 |
| 414.00 | 460.83 | 431.33 | 2084 | 2109 | 215.42 | 408.88 | 620.64 | |
| | | | | | | | | 2470 |
| 416.00 | 463.30 | 433.80 | 2086 | 2111 | 214.42 | 407.34 | 618.67 | |
| | | | | | | | | 2541 |
| 418.00 | 465.84 | 436.34 | 2088 | 2113 | 213.36 | 405.70 | 616.54 | |
| | | | | | | | | 2600 |
| 420.00 | 468.44 | 438.94 | 2090 | 2116 | 212.25 | 403.97 | 614.30 | |
| | | | | | | | | 2571 |
| 422.00 | 471.01 | 441.51 | 2092 | 2118 | 211.19 | 402.30 | 612.14 | |
| | | | | | | | | 2641 |
| 424.00 | 473.65 | 444.15 | 2095 | 2121 | 210.06 | 400.54 | 609.84 | |
| | | | | | | | | 2741 |
| 426.00 | 476.39 | 446.89 | 2098 | 2124 | 208.85 | 398.62 | 607.31 | |
| | | | | | | | | 2787 |
| 428.00 | 479.18 | 449.68 | 2101 | 2128 | 207.61 | 396.64 | 604.70 | |
| | | | | | | | | 2842 |
| 430.00 | 482.02 | 452.52 | 2105 | 2132 | 206.33 | 394.58 | 601.97 | |
| | | | | | | | | 2572 |
| 432.00 | 484.59 | 455.09 | 2107 | 2134 | [illegible].32 | 393.00 | 599.91 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2635 |
| 434.00 | 487.22 | 457.72 | 2109 | 2137 | 204.26 | 391.33 | 597.73 | |
| | | | | | | | | 2608 |
| 436.00 | 489.83 | 460.33 | 2112 | 2139 | 203.24 | 389.71 | 595.62 | |
| | | | | | | | | 2635 |
| 438.00 | 492.47 | 462.97 | 2114 | 2142 | 202.21 | 388.07 | 593.47 | |
| | | | | | | | | 2682 |
| 440.00 | 495.15 | 465.65 | 2117 | 2144 | 201.14 | 386.37 | 591.23 | |
| | | | | | | | | 2876 |
| 442.00 | 498.03 | 468.53 | 2120 | 2148 | 199.90 | 384.37 | 588.56 | |
| | | | | | | | | 2332 |
| 444.00 | 500.36 | 470.86 | 2121 | 2149 | 199.15 | 383.20 | 587.09 | |
| | | | | | | | | 2695 |
| 446.00 | 503.05 | 473.55 | 2124 | 2152 | 198.10 | 381.52 | 584.87 | |
| | | | | | | | | 2300 |
| 448.00 | 505.35 | 475.85 | 2124 | 2153 | 197.38 | 380.42 | 583.48 | |
| | | | | | | | | 2275 |
| 450.00 | 507.63 | 478.13 | 2125 | 2153 | 196.68 | 379.35 | 582.13 | |
| | | | | | | | | 2208 |
| 452.00 | 509.84 | 480.34 | 2125 | 2153 | 196.04 | 378.37 | 580.91 | |
| | | | | | | | | 1976 |
| 454.00 | 511.81 | 482.31 | 2125 | 2153 | 195.55 | 377.66 | 580.07 | |
| | | | | | | | | 2289 |
| 456.00 | 514.10 | 484.60 | 2125 | 2153 | 194.85 | 376.59 | 578.71 | |
| | | | | | | | | 2101 |
| 458.00 | 516.20 | 486.70 | 2125 | 2153 | 194.29 | 375.75 | 577.68 | |
| | | | | | | | | 2108 |
| 460.00 | 518.31 | 488.81 | 2125 | 2153 | 193.73 | 374.90 | 576.65 | |
| | | | | | | | | 2148 |
| 462.00 | 520.46 | 490.96 | 2125 | 2153 | 193.14 | 374.01 | 575.54 | |
| | | | | | | | | 2144 |
| 464.00 | 522.60 | 493.10 | 2125 | 2153 | 192.56 | 373.13 | 574.45 | |
| | | | | | | | | 2143 |
| 466.00 | 524.74 | 495.24 | 2126 | 2153 | 191.98 | 372.25 | 573.36 | |
| | | | | | | | | 2116 |
| 468.00 | 526.86 | 497.36 | 2125 | 2153 | 191.42 | 371.40 | 572.32 | |
| | | | | | | | | 2173 |
| 470.00 | 529.03 | 499.53 | 2126 | 2153 | 190.83 | 370.50 | 571.19 | |
| | | | | | | | | 2070 |
| 472.00 | 531.10 | 501.60 | 2125 | 2152 | 190.30 | 369.71 | 570.23 | |
| | | | | | | | | 2060 |
| 474.00 | 533.16 | 503.66 | 2125 | 2152 | 189.79 | 368.94 | 569.28 | |
| | | | | | | | | 1962 |
| 476.00 | 535.12 | 505.62 | 2124 | 2151 | 189.33 | 368.27 | 568.48 | |
| | | | | | | | | 1952 |
| 478.00 | 537.08 | 507.58 | 2124 | 2150 | 188.89 | 367.61 | 567.70 | |
| | | | | | | | | 2278 |
| 480.00 | 539.35 | 509.85 | 2124 | 2151 | 188.24 | 366.59 | 566.41 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 482.00 | 541.32 | 511.82 | 2124 | 2150 | 187.79 | 365.92 | 565.61 | 1969 |
| 484.00 | 543.43 | 513.93 | 2124 | 2150 | 187.25 | 365.11 | 564.59 | 2108 |
| 486.00 | 545.49 | 515.99 | 2123 | 2150 | 186.75 | 364.34 | 563.65 | 2064 |
| 488.00 | 547.54 | 518.04 | 2123 | 2149 | 186.25 | 363.59 | 562.73 | 2051 |
| 490.00 | 549.44 | 519.94 | 2122 | 2148 | 185.85 | 363.00 | 562.03 | 1898 |
| 492.00 | 551.35 | 521.85 | 2121 | 2147 | 185.43 | 362.39 | 561.32 | 1910 |
| 494.00 | 553.20 | 523.70 | 2120 | 2146 | 185.06 | 361.84 | 560.68 | 1849 |
| 496.00 | 555.26 | 525.76 | 2120 | 2146 | 184.56 | 361.09 | 559.76 | 2057 |
| 498.00 | 557.33 | 527.83 | 2120 | 2146 | 184.06 | 360.33 | 558.30 | 2075 |
| 500.00 | 559.39 | 529.89 | 2120 | 2145 | 183.58 | 359.58 | 557.88 | 2059 |
| 502.00 | 561.48 | 531.98 | 2119 | 2145 | 183.07 | 358.80 | 556.91 | 2086 |
| 504.00 | 563.50 | 534.00 | 2119 | 2145 | 182.61 | 358.10 | 556.05 | 2021 |
| 506.00 | 565.57 | 536.07 | 2119 | 2144 | 182.12 | 357.34 | 555.10 | 2075 |
| 508.00 | 567.55 | 538.05 | 2118 | 2144 | 181.69 | 356.68 | 554.30 | 1978 |
| 510.00 | 569.59 | 540.09 | 2118 | 2143 | 181.22 | 355.96 | 553.41 | 2037 |
| 512.00 | 571.71 | 542.21 | 2118 | 2143 | 180.71 | 355.16 | 552.40 | 2123 |
| 514.00 | 573.81 | 544.31 | 2118 | 2143 | 180.21 | 354.39 | 551.43 | 2100 |
| 516.00 | 575.86 | 546.36 | 2118 | 2143 | 179.75 | 353.67 | 550.54 | 2045 |
| 518.00 | 577.96 | 548.46 | 2118 | 2143 | 179.26 | 352.90 | 549.57 | 2101 |
| 520.00 | 580.05 | 550.55 | 2118 | 2142 | 178.77 | 352.14 | 548.61 | 2094 |
| 522.00 | 582.14 | 552.64 | 2117 | 2142 | 178.29 | 351.39 | 547.66 | 2088 |
| 524.00 | 584.24 | 554.74 | 2117 | 2142 | 177.81 | 350.63 | 546.70 | 2102 |
| 526.00 | 586.39 | 556.89 | 2117 | 2142 | 177.30 | 349.83 | 545.68 | 2144 |
| 528.00 | 588.47 | 558.97 | 2117 | 2142 | 176.83 | 349.09 | 544.75 | 2081 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 530.00 | 590.38 | 560.88 | 2117 | 2141 | 176.44 | 348.50 | 544.04 | 1917 |
| 532.00 | 592.67 | 563.17 | 2117 | 2142 | 175.87 | 347.57 | 542.81 | 2284 |
| 534.00 | 594.69 | 565.19 | 2117 | 2141 | 175.43 | 346.89 | 541.97 | 2024 |
| 536.00 | 597.12 | 567.62 | 2118 | 2142 | 174.77 | 345.80 | 540.53 | 2430 |
| 538.00 | 599.38 | 569.88 | 2119 | 2143 | 174.22 | 344.90 | 539.35 | 2261 |
| 540.00 | 601.43 | 571.93 | 2118 | 2142 | 173.78 | 344.22 | 538.49 | 2043 |
| 542.00 | 603.39 | 573.89 | 2118 | 2142 | 173.39 | 343.61 | 537.73 | 1960 |
| 544.00 | 605.61 | 576.11 | 2118 | 2142 | 172.86 | 342.75 | 536.62 | 2228 |
| 546.00 | 607.62 | 578.12 | 2118 | 2142 | 172.45 | 342.10 | 535.81 | 2006 |
| 548.00 | 609.58 | 580.08 | 2117 | 2141 | 172.06 | 341.50 | 535.06 | 1959 |
| 550.00 | 611.58 | 582.08 | 2117 | 2140 | 171.65 | 340.85 | 534.25 | 2003 |
| 552.00 | 613.62 | 584.12 | 2116 | 2140 | 171.23 | 340.19 | 533.41 | 2035 |
| 554.00 | 615.69 | 586.19 | 2116 | 2140 | 170.79 | 339.49 | 532.52 | 2074 |
| 556.00 | 617.79 | 588.29 | 2116 | 2140 | 170.34 | 338.77 | 531.59 | 2098 |
| 558.00 | 619.84 | 590.34 | 2116 | 2139 | 169.91 | 338.09 | 530.73 | 2054 |
| 560.00 | 621.99 | 592.49 | 2116 | 2139 | 169.44 | 337.33 | 529.75 | 2142 |
| 562.00 | 624.19 | 594.69 | 2116 | 2140 | 168.95 | 336.52 | 528.70 | 2200 |
| 564.00 | 626.34 | 596.84 | 2116 | 2140 | 168.48 | 335.77 | 527.72 | 2151 |
| 566.00 | 628.46 | 598.96 | 2116 | 2140 | 168.03 | 335.04 | 526.78 | 2120 |
| 568.00 | 630.56 | 601.06 | 2116 | 2139 | 167.59 | 334.32 | 525.85 | 2108 |
| 570.00 | 632.74 | 603.24 | 2117 | 2140 | 167.12 | 333.55 | 524.85 | 2176 |
| 572.00 | 634.94 | 605.44 | 2117 | 2140 | 166.64 | 332.76 | 523.81 | 2200 |
| 574.00 | 637.33 | 607.83 | 2118 | 2141 | 166.06 | 331.79 | 522.51 | 2388 |
| 576.00 | 639.55 | 610.05 | 2118 | 2141 | [illegible]5.57 | 330.99 | 521.45 | 2223 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 578.00 | 641.71 | 612.21 | 2118 | 2141 | 165.12 | 330.24 | 520.48 | 2158 |
| 580.00 | 643.98 | 614.48 | 2119 | 2142 | 164.62 | 329.40 | 519.37 | 2269 |
| 582.00 | 646.28 | 616.78 | 2120 | 2142 | 164.10 | 328.54 | 518.21 | 2301 |
| 584.00 | 648.60 | 619.10 | 2120 | 2143 | 163.57 | 327.66 | 517.04 | 2319 |
| 586.00 | 650.84 | 621.34 | 2121 | 2143 | 163.09 | 326.86 | 515.98 | 2240 |
| 588.00 | 653.06 | 623.56 | 2121 | 2143 | 162.62 | 326.08 | 514.94 | 2218 |
| 590.00 | 655.31 | 625.81 | 2121 | 2144 | 162.14 | 325.27 | 513.87 | 2253 |
| 592.00 | 657.53 | 628.03 | 2122 | 2144 | 161.67 | 324.50 | 512.85 | 2220 |
| 594.00 | 659.71 | 630.21 | 2122 | 2144 | 161.23 | 323.76 | 511.87 | 2179 |
| 596.00 | 661.93 | 632.43 | 2122 | 2144 | 160.76 | 322.99 | 510.85 | 2223 |
| 598.00 | 664.21 | 634.71 | 2123 | 2145 | 160.28 | 322.17 | 509.76 | 2277 |
| 600.00 | 666.45 | 636.95 | 2123 | 2145 | 159.81 | 321.39 | 508.72 | 2242 |
| 602.00 | 668.62 | 639.12 | 2123 | 2145 | 159.38 | 320.68 | 507.78 | 2167 |
| 604.00 | 670.79 | 641.29 | 2123 | 2145 | 158.96 | 319.97 | 506.84 | 2166 |
| 606.00 | 672.90 | 643.40 | 2123 | 2145 | 158.55 | 319.30 | 505.96 | 2115 |
| 608.00 | 675.04 | 645.54 | 2123 | 2145 | 158.14 | 318.62 | 505.06 | 2138 |
| 610.00 | 677.17 | 647.67 | 2124 | 2145 | 157.74 | 317.94 | 504.17 | 2136 |
| 612.00 | 679.28 | 649.78 | 2123 | 2145 | 157.34 | 317.29 | 503.32 | 2103 |
| 614.00 | 681.57 | 652.07 | 2124 | 2145 | 156.87 | 316.48 | 502.23 | 2294 |
| 616.00 | 683.85 | 654.35 | 2125 | 2146 | 156.41 | 315.70 | 501.17 | 2275 |
| 618.00 | 685.99 | 656.49 | 2125 | 2146 | 156.00 | 315.02 | 500.28 | 2143 |
| 620.00 | 688.21 | 658.71 | 2125 | 2146 | 155.57 | 314.29 | 499.31 | 2217 |
| 622.00 | 690.43 | 660.93 | 2125 | 2146 | 155.14 | 313.56 | 498.33 | 2219 |
| 624.00 | 692.61 | 663.11 | 2125 | 2147 | 154.73 | 312.86 | 497.40 | 2185 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 626.00 | 694.64 | 665.14 | 2125 | 2146 | 154.38 | 312.28 | 496.64 | 2031 |
| 628.00 | 696.76 | 667.26 | 2125 | 2146 | 153.99 | 311.64 | 495.79 | 2120 |
| 630.00 | 699.00 | 669.50 | 2125 | 2146 | 153.56 | 310.90 | 494.79 | 2240 |
| 632.00 | 701.12 | 671.62 | 2125 | 2146 | 153.18 | 310.26 | 493.94 | 2123 |
| 634.00 | 703.31 | 673.81 | 2126 | 2146 | 152.77 | 309.57 | 493.02 | 2183 |
| 636.00 | 705.40 | 675.90 | 2125 | 2146 | 152.41 | 308.96 | 492.21 | 2090 |
| 638.00 | 707.65 | 678.15 | 2126 | 2147 | 151.98 | 308.23 | 491.22 | 2251 |
| 640.00 | 709.90 | 680.40 | 2126 | 2147 | 151.55 | 307.49 | 490.23 | 2256 |
| 642.00 | 712.21 | 682.71 | 2127 | 2147 | 151.10 | 306.72 | 489.18 | 2307 |
| 644.00 | 714.54 | 685.04 | 2127 | 2148 | 150.65 | 305.94 | 488.11 | 2326 |
| 646.00 | 716.85 | 687.35 | 2128 | 2149 | 150.20 | 305.17 | 487.06 | 2311 |
| 648.00 | 719.14 | 689.64 | 2129 | 2149 | 149.77 | 304.42 | 486.03 | 2294 |
| 650.00 | 721.38 | 691.88 | 2129 | 2149 | 149.36 | 303.71 | 485.08 | 2238 |
| 652.00 | 723.42 | 693.92 | 2129 | 2149 | 149.03 | 303.15 | 484.34 | 2043 |
| 654.00 | 725.54 | 696.04 | 2129 | 2149 | 148.67 | 302.54 | 483.52 | 2116 |
| 656.00 | 727.86 | 698.36 | 2129 | 2149 | 148.23 | 301.79 | 482.49 | 2316 |
| 658.00 | 729.90 | 700.40 | 2129 | 2149 | 147.90 | 301.23 | 481.75 | 2041 |
| 660.00 | 732.22 | 702.72 | 2129 | 2150 | 147.47 | 300.48 | 480.72 | 2319 |
| 662.00 | 734.68 | 705.18 | 2130 | 2151 | 146.98 | 299.61 | 479.51 | 2468 |
| 664.00 | 736.92 | 707.42 | 2131 | 2151 | 146.59 | 298.93 | 478.59 | 2232 |
| 666.00 | 739.29 | 709.79 | 2132 | 2152 | 146.14 | 298.15 | 477.50 | 2374 |
| 668.00 | 741.56 | 712.06 | 2132 | 2152 | 145.73 | 297.45 | 476.54 | 2268 |
| 670.00 | 743.82 | 714.32 | 2132 | 2152 | 145.34 | 296.75 | 475.60 | 2260 |
| 672.00 | 746.22 | 716.72 | 2133 | 2153 | 144.88 | 295.96 | 474.49 | 2401 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2410 |
| 674.00 | 748.63 | 719.13 | 2134 | 2154 | 144.43 | 295.16 | 473.39 | |
| | | | | | | | | 2532 |
| 676.00 | 751.16 | 721.66 | 2135 | 2155 | 143.93 | 294.27 | 472.14 | |
| | | | | | | | | 2514 |
| 678.00 | 753.63 | 724.18 | 2136 | 2156 | 143.44 | 293.40 | 470.92 | |
| | | | | | | | | 2379 |
| 680.00 | 756.05 | 726.55 | 2137 | 2157 | 143.01 | 292.64 | 469.86 | |
| | | | | | | | | 2358 |
| 682.00 | 758.41 | 728.91 | 2138 | 2158 | 142.59 | 291.90 | 468.83 | |
| | | | | | | | | 2431 |
| 684.00 | 760.84 | 731.34 | 2138 | 2158 | 142.14 | 291.10 | 467.72 | |
| | | | | | | | | 2424 |
| 686.00 | 763.27 | 733.77 | 2139 | 2159 | 141.70 | 290.32 | 466.63 | |
| | | | | | | | | 2427 |
| 688.00 | 765.69 | 736.19 | 2140 | 2160 | 141.26 | 289.54 | 465.54 | |
| | | | | | | | | 2585 |
| 690.00 | 768.28 | 738.78 | 2141 | 2161 | 140.76 | 288.64 | 464.26 | |
| | | | | | | | | 2521 |
| 692.00 | 770.80 | 741.30 | 2142 | 2163 | 140.28 | 287.79 | 463.08 | |
| | | | | | | | | 2662 |
| 694.00 | 773.46 | 743.96 | 2144 | 2164 | 139.76 | 286.84 | 461.73 | |
| | | | | | | | | 2758 |
| 696.00 | 776.22 | 746.72 | 2146 | 2166 | 139.20 | 285.82 | 460.27 | |
| | | | | | | | | 2517 |
| 698.00 | 778.74 | 749.24 | 2147 | 2167 | 138.74 | 284.99 | 459.10 | |
| | | | | | | | | 2023 |
| 700.00 | 780.76 | 751.26 | 2146 | 2167 | 138.45 | 284.50 | 458.45 | |
| | | | | | | | | 2072 |
| 702.00 | 782.83 | 753.33 | 2146 | 2166 | 138.15 | 283.99 | 457.75 | |
| | | | | | | | | 1933 |
| 704.00 | 784.76 | 755.26 | 2146 | 2166 | 137.90 | 283.55 | 457.17 | |
| | | | | | | | | 1647 |
| 706.00 | 786.41 | 756.91 | 2144 | 2165 | 137.72 | 283.27 | 456.82 | |
| | | | | | | | | 1855 |
| 708.00 | 788.27 | 758.77 | 2143 | 2164 | 137.49 | 282.88 | 456.31 | |
| | | | | | | | | 2092 |
| 710.00 | 790.36 | 760.86 | 2143 | 2164 | 137.19 | 282.35 | 455.60 | |
| | | | | | | | | 2054 |
| 712.00 | 792.41 | 762.91 | 2143 | 2163 | 136.90 | 281.85 | 454.92 | |
| | | | | | | | | 2592 |
| 714.00 | 795.00 | 765.50 | 2144 | 2165 | 136.43 | 280.99 | 453.70 | |
| | | | | | | | | 2011 |
| 716.00 | 797.01 | 767.51 | 2144 | 2164 | 136.15 | 280.52 | 453.06 | |
| | | | | | | | | 2296 |
| 718.00 | 799.31 | 769.81 | 2144 | 2165 | 135.79 | 279.88 | 452.16 | |
| | | | | | | | | 2437 |
| 720.00 | [illegible]1.75 | 772.25 | 2145 | 2165 | 135[illegible]8 | 279.14 | 451.11 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2924 |
| 722.00 | 804.67 | 775.17 | 2147 | 2168 | 134.78 | 278.03 | 449.52 | |
| | | | | | | | | 2780 |
| 724.00 | 807.45 | 777.95 | 2149 | 2170 | 134.25 | 277.05 | 448.11 | |
| | | | | | | | | 2901 |
| 726.00 | 810.35 | 780.85 | 2151 | 2172 | 133.67 | 275.98 | 446.56 | |
| | | | | | | | | 2724 |
| 728.00 | 813.08 | 783.58 | 2153 | 2174 | 133.16 | 275.06 | 445.23 | |
| | | | | | | | | 2650 |
| 730.00 | 815.73 | 786.23 | 2154 | 2175 | 132.69 | 274.20 | 443.99 | |
| | | | | | | | | 2569 |
| 732.00 | 818.30 | 788.80 | 2155 | 2176 | 132.25 | 273.40 | 442.85 | |
| | | | | | | | | 1879 |
| 734.00 | 820.17 | 790.67 | 2154 | 2176 | 132.03 | 273.02 | 442.35 | |
| | | | | | | | | 1960 |
| 736.00 | 822.13 | 792.63 | 2154 | 2175 | 131.79 | 272.60 | 441.78 | |
| | | | | | | | | 2429 |
| 738.00 | 824.56 | 795.06 | 2155 | 2176 | 131.41 | 271.90 | 440.79 | |
| | | | | | | | | 2278 |
| 740.00 | 826.84 | 797.34 | 2155 | 2176 | 131.07 | 271.30 | 439.95 | |
| | | | | | | | | 2327 |
| 742.00 | 829.17 | 799.67 | 2155 | 2177 | 130.73 | 270.68 | 439.07 | |
| | | | | | | | | 2264 |
| 744.00 | 831.43 | 801.93 | 2156 | 2177 | 130.40 | 270.09 | 438.25 | |
| | | | | | | | | 2395 |
| 746.00 | 833.83 | 804.33 | 2156 | 2177 | 130.04 | 269.43 | 437.31 | |
| | | | | | | | | 2424 |
| 748.00 | 836.25 | 806.75 | 2157 | 2178 | 129.66 | 268.75 | 436.34 | |
| | | | | | | | | 2536 |
| 750.00 | 838.79 | 809.29 | 2158 | 2179 | 129.25 | 268.00 | 435.27 | |
| | | | | | | | | 2391 |
| 752.00 | 841.18 | 811.68 | 2159 | 2180 | 128.90 | 267.35 | 434.34 | |
| | | | | | | | | 2224 |
| 754.00 | 843.40 | 813.90 | 2159 | 2180 | 128.59 | 266.80 | 433.57 | |
| | | | | | | | | 2236 |
| 756.00 | 845.64 | 816.14 | 2159 | 2180 | 128.28 | 266.25 | 432.79 | |
| | | | | | | | | 2234 |
| 758.00 | 847.87 | 818.37 | 2159 | 2180 | 127.98 | 265.70 | 432.02 | |
| | | | | | | | | 2101 |
| 760.00 | 849.97 | 820.47 | 2159 | 2180 | 127.71 | 265.22 | 431.36 | |
| | | | | | | | | 2318 |
| 762.00 | 852.29 | 822.79 | 2160 | 2180 | 127.39 | 264.63 | 430.52 | |
| | | | | | | | | 2491 |
| 764.00 | 854.78 | 825.28 | 2160 | 2181 | 127.01 | 263.93 | 429.51 | |
| | | | | | | | | 2357 |
| 766.00 | 857.14 | 827.64 | 2161 | 2182 | 126.67 | 263.31 | 428.64 | |
| | | | | | | | | 2554 |
| 768.00 | 859.69 | 830.19 | 2162 | 2183 | 126.27 | 262.58 | 427.59 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 770.00 | 862.04 | 832.54 | 2162 | 2183 | 125.94 | 261.98 | 426.73 | 2352 |
| 772.00 | 864.45 | 834.95 | 2163 | 2184 | 125.60 | 261.34 | 425.82 | 2407 |
| 774.00 | 866.92 | 837.42 | 2164 | 2185 | 125.23 | 260.67 | 424.85 | 2473 |
| 776.00 | 869.43 | 839.93 | 2165 | 2185 | 124.86 | 259.98 | 423.86 | 2508 |
| 778.00 | 871.98 | 842.48 | 2166 | 2186 | 124.47 | 259.27 | 422.83 | 2553 |
| 780.00 | 874.50 | 845.00 | 2167 | 2187 | 124.10 | 258.58 | 421.84 | 2513 |
| 782.00 | 876.65 | 847.15 | 2167 | 2187 | 123.84 | 258.10 | 421.16 | 2156 |
| 784.00 | 878.64 | 849.14 | 2166 | 2187 | 123.62 | 257.71 | 420.61 | 1992 |
| 786.00 | 880.49 | 850.99 | 2165 | 2186 | 123.43 | 257.38 | 420.17 | 1841 |
| 788.00 | 882.29 | 852.79 | 2164 | 2185 | 123.25 | 257.07 | 419.76 | 1803 |
| 790.00 | 884.25 | 854.75 | 2164 | 2185 | 123.04 | 256.69 | 419.24 | 1957 |
| 792.00 | 886.95 | 857.45 | 2165 | 2186 | 122.62 | 255.90 | 418.08 | 2703 |
| 794.00 | 889.61 | 860.11 | 2167 | 2187 | 122.21 | 255.14 | 416.98 | 2658 |
| 796.00 | 892.08 | 862.58 | 2167 | 2188 | 121.87 | 254.50 | 416.05 | 2474 |
| 798.00 | 894.54 | 865.04 | 2168 | 2189 | 121.53 | 253.87 | 415.14 | 2455 |
| 800.00 | 897.02 | 867.52 | 2169 | 2190 | 121.18 | 253.23 | 414.21 | 2486 |
| 802.00 | 899.22 | 869.72 | 2169 | 2190 | 120.92 | 252.75 | 413.52 | 2195 |
| 804.00 | 901.06 | 871.56 | 2168 | 2189 | 120.74 | 252.43 | 413.09 | 1844 |
| 806.00 | 902.86 | 873.36 | 2167 | 2188 | 120.57 | 252.13 | 412.69 | 1795 |
| 808.00 | 904.80 | 875.30 | 2167 | 2187 | 120.37 | 251.77 | 412.19 | 1944 |
| 810.00 | 907.44 | 877.94 | 2168 | 2189 | 119.98 | 251.05 | 411.14 | 2634 |
| 812.00 | 910.09 | 880.59 | 2169 | 2190 | 119.60 | 250.32 | 410.07 | 2652 |
| 814.00 | 912.61 | 883.11 | 2170 | 2191 | 119.25 | 249.68 | 409.13 | 2520 |
| 816.00 | 915.07 | 885.57 | 2171 | 2191 | 118.92 | 249.06 | 408.24 | 2468 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 818.00 | 917.55 | 888.05 | 2171 | 2192 | 118.60 | 248.45 | 407.35 | 2471 |
| 820.00 | 920.17 | 890.67 | 2172 | 2193 | 118.23 | 247.75 | 406.32 | 2625 |
| 822.00 | 922.73 | 893.23 | 2173 | 2194 | 117.88 | 247.10 | 405.36 | 2560 |
| 824.00 | 925.19 | 895.69 | 2174 | 2195 | 117.56 | 246.50 | 404.49 | 2461 |
| 826.00 | 927.73 | 898.23 | 2175 | 2196 | 117.22 | 245.86 | 403.56 | 2534 |
| 828.00 | 929.84 | 900.34 | 2175 | 2196 | 116.99 | 245.45 | 402.97 | 2111 |
| 830.00 | 931.76 | 902.27 | 2174 | 2195 | 116.80 | 245.11 | 402.50 | 1927 |
| 832.00 | 934.36 | 904.86 | 2175 | 2196 | 116.45 | 244.45 | 401.53 | 2592 |
| 834.00 | 937.10 | 907.60 | 2176 | 2198 | 116.06 | 243.71 | 400.43 | 2741 |
| 836.00 | 939.98 | 910.48 | 2178 | 2199 | 115.63 | 242.89 | 399.21 | 2879 |
| 838.00 | 942.99 | 913.49 | 2180 | 2202 | 115.17 | 241.99 | 397.87 | 3009 |
| 840.00 | 944.98 | 915.48 | 2180 | 2201 | 114.97 | 241.64 | 397.37 | 1990 |
| 842.00 | 947.62 | 918.12 | 2181 | 2202 | 114.62 | 240.97 | 396.38 | 2640 |
| 844.00 | 950.53 | 921.03 | 2183 | 2204 | 114.19 | 240.14 | 395.15 | 2913 |
| 846.00 | 953.38 | 923.88 | 2184 | 2206 | 113.78 | 239.36 | 393.99 | 2854 |
| 848.00 | 956.24 | 926.74 | 2186 | 2208 | 113.37 | 238.58 | 392.83 | 2854 |
| 850.00 | 959.13 | 929.63 | 2187 | 2210 | 112.96 | 237.79 | 391.64 | 2891 |
| 852.00 | 962.00 | 932.50 | 2189 | 2212 | 112.56 | 237.01 | 390.48 | 2868 |
| 854.00 | 964.76 | 935.26 | 2190 | 2213 | 112.19 | 236.30 | 389.43 | 2760 |
| 856.00 | 967.44 | 937.94 | 2191 | 2214 | 111.84 | 235.64 | 388.44 | 2682 |
| 858.00 | 970.20 | 940.70 | 2193 | 2216 | 111.47 | 234.94 | 387.39 | 2761 |
| 860.00 | 972.91 | 943.41 | 2194 | 2217 | 111.12 | 234.27 | 386.40 | 2712 |
| 862.00 | 975.56 | 946.06 | 2195 | 2218 | 110.79 | 233.63 | 385.45 | 2648 |
| 864.00 | 978.22 | 948.72 | 2196 | 2219 | 110.46 | 232.99 | 384.51 | 2661 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2637 |
| 866.00 | 980.86 | 951.36 | 2197 | 2220 | 110.13 | 232.37 | 383.58 | |
| | | | | | | | | 2660 |
| 868.00 | 983.52 | 954.02 | 2198 | 2221 | 109.80 | 231.74 | 382.64 | |
| | | | | | | | | 2689 |
| 870.00 | 986.21 | 956.71 | 2199 | 2222 | 109.47 | 231.10 | 381.69 | |
| | | | | | | | | 2785 |
| 872.00 | 988.99 | 959.49 | 2201 | 2224 | 109.11 | 230.41 | 380.65 | |
| | | | | | | | | 2654 |
| 874.00 | 991.65 | 962.15 | 2202 | 2225 | 108.79 | 229.79 | 379.74 | |
| | | | | | | | | 2563 |
| 876.00 | 994.21 | 964.71 | 2203 | 2226 | 108.49 | 229.23 | 378.89 | |
| | | | | | | | | 2482 |
| 878.00 | 996.69 | 967.19 | 2203 | 2226 | 108.21 | 228.70 | 378.11 | |
| | | | | | | | | 2651 |
| 880.00 | 999.34 | 969.84 | 2204 | 2228 | 107.90 | 228.09 | 377.20 | |
| | | | | | | | | 2655 |
| 882.00 | 1002.00 | 972.50 | 2205 | 2229 | 107.58 | 227.49 | 376.30 | |
| | | | | | | | | 2756 |
| 884.00 | 1004.75 | 975.25 | 2206 | 2230 | 107.24 | 226.83 | 375.32 | |
| | | | | | | | | 2697 |
| 886.00 | 1007.45 | 977.95 | 2208 | 2231 | 106.92 | 226.21 | 374.39 | |
| | | | | | | | | 2677 |
| 888.00 | 1010.13 | 980.63 | 2209 | 2232 | 106.61 | 225.61 | 373.48 | |
| | | | | | | | | 2893 |
| 890.00 | 1013.02 | 983.52 | 2210 | 2234 | 106.24 | 224.89 | 372.41 | |
| | | | | | | | | 2745 |
| 892.00 | 1015.76 | 986.26 | 2211 | 2235 | 105.91 | 224.26 | 371.46 | |
| | | | | | | | | 2782 |
| 894.00 | 1018.54 | 989.05 | 2213 | 2237 | 105.58 | 223.61 | 370.48 | |
| | | | | | | | | 2663 |
| 896.00 | 1021.21 | 991.71 | 2214 | 2238 | 105.27 | 223.02 | 369.60 | |
| | | | | | | | | 2588 |
| 898.00 | 1023.80 | 994.30 | 2214 | 2238 | 104.99 | 222.47 | 368.78 | |
| | | | | | | | | 2663 |
| 900.00 | 1026.46 | 996.96 | 2215 | 2239 | 104.69 | 221.89 | 367.91 | |
| | | | | | | | | 2783 |
| 902.00 | 1029.24 | 999.74 | 2217 | 2241 | 104.36 | 221.26 | 366.95 | |
| | | | | | | | | 2855 |
| 904.00 | 1032.10 | 1002.60 | 2218 | 2242 | 104.02 | 220.59 | 365.94 | |
| | | | | | | | | 2975 |
| 906.00 | 1035.07 | 1005.57 | 2220 | 2244 | 103.65 | 219.87 | 364.84 | |
| | | | | | | | | 3087 |
| 908.00 | 1038.16 | 1008.66 | 2222 | 2246 | 103.25 | 219.09 | 363.66 | |
| | | | | | | | | 2926 |
| 910.00 | 1041.09 | 1011.59 | 2223 | 2248 | 102.90 | 218.40 | 362.61 | |
| | | | | | | | | 3038 |
| 912.00 | [illegible]44.12 | 1014.62 | 2225 | 2250 | 1[illegible].52 | 217.65 | 361.48 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 2676 |
| 914.00 | 1046.80 | 1017.30 | 2226 | 2251 | 102.23 | 217.09 | 360.63 | |
| | | | | | | | | 2733 |
| 916.00 | 1049.53 | 1020.03 | 2227 | 2252 | 101.93 | 216.51 | 359.74 | |
| | | | | | | | | 2651 |
| 918.00 | 1052.18 | 1022.68 | 2228 | 2253 | 101.64 | 215.96 | 358.92 | |
| | | | | | | | | 2714 |
| 920.00 | 1054.90 | 1025.40 | 2229 | 2254 | 101.35 | 215.39 | 358.06 | |
| | | | | | | | | 2686 |
| 922.00 | 1057.58 | 1028.08 | 2230 | 2255 | 101.07 | 214.83 | 357.22 | |
| | | | | | | | | 2952 |
| 924.00 | 1060.54 | 1031.04 | 2232 | 2257 | 100.72 | 214.16 | 356.19 | |
| | | | | | | | | 2866 |
| 926.00 | 1063.40 | 1033.90 | 2233 | 2259 | 100.40 | 213.52 | 355.23 | |
| | | | | | | | | 3076 |
| 928.00 | 1066.48 | 1036.98 | 2235 | 2261 | 100.03 | 212.80 | 354.11 | |
| | | | | | | | | 3134 |
| 930.00 | 1069.61 | 1040.11 | 2237 | 2263 | 99.65 | 212.04 | 352.96 | |
| | | | | | | | | 2981 |
| 932.00 | 1072.59 | 1043.09 | 2238 | 2265 | 99.30 | 211.37 | 351.93 | |
| | | | | | | | | 2630 |
| 934.00 | 1075.22 | 1045.72 | 2239 | 2266 | 99.04 | 210.86 | 351.16 | |
| | | | | | | | | 2326 |
| 936.00 | 1077.55 | 1048.05 | 2239 | 2266 | 98.84 | 210.47 | 350.58 | |
| | | | | | | | | 2420 |
| 938.00 | 1079.97 | 1050.47 | 2240 | 2266 | 98.62 | 210.04 | 349.94 | |
| | | | | | | | | 2584 |
| 940.00 | 1082.55 | 1053.05 | 2241 | 2267 | 98.37 | 209.56 | 349.20 | |
| | | | | | | | | 2678 |
| 942.00 | 1085.23 | 1055.73 | 2241 | 2268 | 98.10 | 209.03 | 348.41 | |
| | | | | | | | | 2674 |
| 944.00 | 1087.90 | 1058.40 | 2242 | 2269 | 97.84 | 208.51 | 347.62 | |
| | | | | | | | | 2507 |
| 946.00 | 1090.41 | 1060.91 | 2243 | 2269 | 97.61 | 208.06 | 346.94 | |
| | | | | | | | | 2534 |
| 948.00 | 1092.95 | 1063.45 | 2244 | 2270 | 97.37 | 207.60 | 346.25 | |
| | | | | | | | | 2707 |
| 950.00 | 1095.65 | 1066.15 | 2245 | 2271 | 97.10 | 207.08 | 345.45 | |
| | | | | | | | | 3128 |
| 952.00 | 1098.78 | 1069.28 | 2246 | 2273 | 96.74 | 206.37 | 344.36 | |
| | | | | | | | | 2699 |
| 954.00 | 1101.48 | 1071.98 | 2247 | 2274 | 96.48 | 205.85 | 343.57 | |
| | | | | | | | | 2795 |
| 956.00 | 1104.28 | 1074.78 | 2248 | 2275 | 96.20 | 205.29 | 342.72 | |
| | | | | | | | | 2790 |
| 958.00 | 1107.07 | 1077.57 | 2250 | 2276 | 95.92 | 204.75 | 341.88 | |
| | | | | | | | | 2644 |
| 960.00 | 1109.71 | 1080.21 | 2250 | 2277 | 95.67 | 204.26 | 341.14 | |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 962.00 | 1112.32 | 1082.32 | 2251 | 2278 | 95.43 | 203.79 | 340.43 | 2609 |
| 964.00 | 1115.30 | 1085.80 | 2253 | 2280 | 95.12 | 203.16 | 339.47 | 2979 |
| 966.00 | 1118.23 | 1088.73 | 2254 | 2281 | 94.82 | 202.57 | 338.55 | 2930 |
| 968.00 | 1120.87 | 1091.37 | 2255 | 2282 | 94.57 | 202.09 | 337.82 | 2647 |
| 970.00 | 1123.32 | 1093.82 | 2255 | 2282 | 94.37 | 201.69 | 337.22 | 2446 |
| 972.00 | 1125.80 | 1096.30 | 2256 | 2283 | 94.16 | 201.27 | 336.59 | 2484 |
| 974.00 | 1128.34 | 1098.84 | 2256 | 2283 | 93.94 | 200.84 | 335.94 | 2531 |
| 976.00 | 1130.95 | 1101.45 | 2257 | 2284 | 93.70 | 200.38 | 335.24 | 2618 |
| 978.00 | 1133.62 | 1104.12 | 2258 | 2285 | 93.46 | 199.91 | 334.51 | 2670 |
| 980.00 | 1136.24 | 1106.74 | 2259 | 2286 | 93.23 | 199.45 | 333.81 | 2617 |
| 982.00 | 1138.72 | 1109.22 | 2259 | 2286 | 93.03 | 199.05 | 333.20 | 2475 |
| 984.00 | 1141.43 | 1111.93 | 2260 | 2287 | 92.78 | 198.56 | 332.46 | 2711 |
| 986.00 | 1144.07 | 1114.57 | 2261 | 2288 | 92.55 | 198.10 | 331.75 | 2643 |
| 988.00 | 1146.71 | 1117.21 | 2262 | 2288 | 92.32 | 197.65 | 331.06 | 2636 |
| 990.00 | 1149.45 | 1119.95 | 2263 | 2289 | 92.07 | 197.16 | 330.30 | 2743 |
| 992.00 | 1152.06 | 1122.56 | 2263 | 2290 | 91.85 | 196.72 | 329.63 | 2607 |
| 994.00 | 1154.66 | 1125.16 | 2264 | 2291 | 91.63 | 196.28 | 328.97 | 2600 |
| 996.00 | 1157.35 | 1127.85 | 2265 | 2292 | 91.39 | 195.82 | 328.25 | 2694 |
| 998.00 | 1160.27 | 1130.77 | 2266 | 2293 | 91.11 | 195.26 | 327.39 | 2923 |
| 1000.00 | 1162.91 | 1133.41 | 2267 | 2294 | 90.89 | 194.82 | 326.71 | 2637 |
| 1002.00 | 1165.73 | 1136.23 | 2268 | 2295 | 90.64 | 194.31 | 325.93 | 2821 |
| 1004.00 | 1168.45 | 1138.95 | 2269 | 2296 | 90.40 | 193.85 | 325.21 | 2719 |
| 1006.00 | 1171.11 | 1141.61 | 2270 | 2297 | 90.18 | 193.40 | 324.53 | 2657 |
| 1008.00 | 1173.92 | 1144.42 | 2271 | 2298 | 89.93 | 192.90 | 323.76 | 2816 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 1010.00 | 1176.74 | 1147.24 | 2272 | 2299 | 89.68 | 192.40 | 322.99 | 2822 |
| 1012.00 | 1179.57 | 1150.07 | 2273 | 2300 | 89.43 | 191.91 | 322.22 | 2826 |
| 1014.00 | 1182.37 | 1152.87 | 2274 | 2301 | 89.18 | 191.42 | 321.47 | 2803 |
| 1016.00 | 1185.37 | 1155.87 | 2275 | 2303 | 88.91 | 190.86 | 320.60 | 2992 |
| 1018.00 | 1188.49 | 1158.99 | 2277 | 2305 | 88.61 | 190.26 | 319.66 | 3123 |
| 1020.00 | 1191.35 | 1161.85 | 2278 | 2306 | 88.36 | 189.76 | 318.88 | 2858 |
| 1022.00 | 1194.37 | 1164.87 | 2280 | 2308 | 88.08 | 189.20 | 318.01 | 3023 |
| 1024.00 | 1197.44 | 1167.94 | 2281 | 2309 | 87.79 | 188.63 | 317.12 | 3068 |
| 1026.00 | 1200.55 | 1171.05 | 2283 | 2311 | 87.50 | 188.04 | 316.21 | 3110 |
| 1028.00 | 1203.57 | 1174.07 | 2284 | 2313 | 87.23 | 187.49 | 315.35 | 3025 |
| 1030.00 | 1206.68 | 1177.18 | 2286 | 2315 | 86.94 | 186.92 | 314.45 | 3103 |
| 1032.00 | 1209.56 | 1180.06 | 2287 | 2316 | 86.70 | 186.42 | 313.68 | 2889 |
| 1034.00 | 1212.26 | 1182.76 | 2288 | 2317 | 86.49 | 186.00 | 313.03 | 2695 |
| 1036.00 | 1215.14 | 1185.64 | 2289 | 2318 | 86.24 | 185.52 | 312.27 | 2884 |
| 1038.00 | 1218.34 | 1188.84 | 2291 | 2320 | 85.95 | 184.91 | 311.33 | 3199 |
| 1040.00 | 1220.99 | 1191.49 | 2291 | 2321 | 85.75 | 184.51 | 310.71 | 2646 |
| 1042.00 | 1224.04 | 1194.54 | 2293 | 2322 | 85.48 | 183.97 | 309.86 | 3053 |
| 1044.00 | 1227.02 | 1197.52 | 2294 | 2324 | 85.23 | 183.47 | 309.07 | 2975 |
| 1046.00 | 1230.34 | 1200.84 | 2296 | 2326 | 84.91 | 182.83 | 308.07 | 3326 |
| 1048.00 | 1233.21 | 1203.71 | 2297 | 2327 | 84.68 | 182.36 | 307.34 | 2868 |
| 1050.00 | 1235.96 | 1206.46 | 2298 | 2328 | 84.47 | 181.94 | 306.68 | 2747 |
| 1052.00 | 1239.10 | 1209.60 | 2300 | 2330 | 84.19 | 181.38 | 305.81 | 3144 |
| 1054.00 | 1242.11 | 1212.61 | 2301 | 2331 | 83.94 | 180.88 | 305.01 | 3011 |
| 1056.00 | 1245.01 | 1215.51 | 2302 | 2332 | 83.71 | 180.41 | 304.29 | 2900 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 1058.00 | 1247.70 | 1218.20 | 2303 | 2333 | 83.52 | 180.01 | 303.67 | 2687 |
| 1060.00 | 1250.45 | 1220.95 | 2304 | 2334 | 83.31 | 179.60 | 303.03 | 2756 |
| 1062.00 | 1252.98 | 1223.48 | 2304 | 2334 | 83.14 | 179.26 | 302.49 | 2528 |
| 1064.00 | 1255.71 | 1226.21 | 2305 | 2335 | 82.94 | 178.85 | 301.87 | 2727 |
| 1066.00 | 1258.38 | 1228.88 | 2306 | 2336 | 82.75 | 178.47 | 301.27 | 2668 |
| 1068.00 | 1260.94 | 1231.44 | 2306 | 2336 | 82.58 | 178.12 | 300.73 | 2562 |
| 1070.00 | 1263.48 | 1233.98 | 2307 | 2337 | 82.40 | 177.78 | 300.20 | 2544 |
| 1072.00 | 1266.13 | 1236.63 | 2307 | 2337 | 82.22 | 177.41 | 299.62 | 2646 |
| 1074.00 | 1270.34 | 1240.84 | 2311 | 2342 | 81.75 | 176.44 | 298.07 | 4209 |
| 1076.00 | 1275.21 | 1245.71 | 2315 | 2349 | 81.12 | 175.15 | 296.01 | 4875 |
| 1078.00 | 1278.56 | 1249.06 | 2317 | 2352 | 80.83 | 174.56 | 295.07 | 3344 |
| 1080.00 | 1282.81 | 1253.31 | 2321 | 2357 | 80.37 | 173.60 | 293.54 | 4253 |
| 1082.00 | 1288.17 | 1258.67 | 2327 | 2366 | 79.64 | 172.09 | 291.11 | 5362 |
| 1084.00 | 1292.47 | 1262.97 | 2330 | 2371 | 79.17 | 171.14 | 289.58 | 4301 |
| 1086.00 | 1295.20 | 1265.70 | 2331 | 2371 | 78.99 | 170.77 | 289.01 | 2728 |
| 1088.00 | 1299.42 | 1269.92 | 2334 | 2376 | 78.56 | 169.87 | 287.56 | 4220 |
| 1090.00 | 1304.63 | 1275.13 | 2340 | 2384 | 77.90 | 168.50 | 285.36 | 5204 |
| 1092.00 | 1306.84 | 1277.34 | 2339 | 2384 | 77.78 | 168.28 | 285.02 | 2209 |
| 1094.00 | 1310.06 | 1280.56 | 2341 | 2386 | 77.54 | 167.78 | 284.22 | 3220 |
| 1096.00 | 1314.94 | 1285.44 | 2346 | 2393 | 76.97 | 166.60 | 282.33 | 4887 |
| 1098.00 | 1319.12 | 1289.62 | 2349 | 2397 | 76.56 | 165.76 | 280.98 | 4181 |
| 1100.00 | 1322.10 | 1292.60 | 2350 | 2399 | 76.36 | 165.35 | 280.32 | 2974 |
| 1102.00 | 1325.09 | 1295.59 | 2351 | 2400 | 76.16 | 164.93 | 279.66 | 2994 |
| 1104.00 | 1327.74 | 1298.24 | 2352 | 2400 | 76.00 | 164.61 | 279.16 | 2654 |

| TWO-WAY TRAVEL TIME FROM SRD MS | MEASURED DEPTH FROM KB M | VERTICAL DEPTH FROM SRD M | AVERAGE VELOCITY SRD/GEO M/S | RMS VELOCITY M/S | FIRST NORMAL MOVEOUT MS | SECOND NORMAL MOVEOUT MS | THIRD NORMAL MOVEOUT MS | INTERVAL VELOCITY M/S |
|---|---|---|---|---|---|---|---|---|
| 1106.00 | 1330.38 | 1300.88 | 2352 | 2401 | 75.84 | 164.29 | 278.66 | 2640 |
| 1108.00 | 1333.99 | 1304.49 | 2355 | 2403 | 75.55 | 163.68 | 277.69 | 3608 |
| 1110.00 | 1337.73 | 1308.23 | 2357 | 2406 | 75.23 | 163.04 | 276.65 | 3738 |
| 1112.00 | 1341.42 | 1311.92 | 2360 | 2409 | 74.93 | 162.41 | 275.65 | 3689 |
| 1114.00 | 1345.00 | 1315.50 | 2362 | 2412 | 74.65 | 161.83 | 274.72 | 3581 |
| 1116.00 | 1348.13 | 1318.63 | 2363 | 2413 | 74.43 | 161.39 | 274.02 | 3125 |
| 1118.00 | 1351.29 | 1321.79 | 2365 | 2415 | 74.22 | 160.94 | 273.31 | 3168 |
| 1120.00 | 1354.35 | 1324.85 | 2366 | 2416 | 74.01 | 160.53 | 272.65 | 3060 |
| 1122.00 | 1357.68 | 1328.18 | 2368 | 2418 | 73.78 | 160.04 | 271.87 | 3322 |
| 1124.00 | 1360.81 | 1331.31 | 2369 | 2420 | 73.57 | 159.61 | 271.19 | 3130 |
| 1126.00 | 1364.06 | 1334.56 | 2370 | 2421 | 73.34 | 159.15 | 270.45 | 3250 |
| 1128.00 | 1367.60 | 1338.10 | 2373 | 2424 | 73.08 | 158.60 | 269.57 | 3542 |

ANALYST: M. SANDERS          11-MAY-88 14:26:39     PROGRAM: GMULTP 006.F06

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*                 *
*   SCHLUMBERGER  *
*                 *
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SYNTHETIC SEISMOGRAM TABLE

COMPANY  : CRUSADER RESOURCES N.L.
WELL     : WONGA BINDA #1
FIELD    : WILDCAT
COUNTRY  : AUSTRALIA
REFERENCE: 569160

ANALYST: M. SANDERS 11-MAY-89 14:26:39 PROGRAM: GMULT9 006.E06

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*                 *
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*                 *
*  SCHLUMBERGER   *
*                 *
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SYNTHETIC SEISMOGRAM TABLE

COMPANY : CRUSADER RESOURCES N.L.

WELL : WONGA BINDA #1

FIELD : WILDCAT

COUNTRY : AUSTRALIA

REFERENCE: 569160

THE HEADINGS AND FLAGS SHOWN IN THE DATA LIST ARE DEFINED
AS FOLLOWS:

```
IGEOFL- FLAG INDICATING  MODE OF PROCESSING
        IGEOFL = 0     WST DATA AVAILABLE AND PROCESSED
        IGEOFL = 1     WST DATA NOT AVAILABLE

LOG INPUT DATA :
GRFOC1- CHANNEL NAME FOR INPUT DENSITY LOG DATA
GTRUC1- CHANNEL NAME FOR INPUT SONIC LOG DATA
GCURVE- CORRELATION LOG NAMES

USER DEFINED MODELING

LOFVEL- LAYER OPTION FLAG FOR VELOCITY
LOFDEN- LAYER OPTION FLAG FOR DENSITY
LAYVEL- LAYERED VELOCITY VALUES FOR USER SUPPLIED ZONE LIMIT
        WITH RESPECT TO SONIC LOG DATA
LAYDEN- LAYERED DENSITY VALUES FOR USER SUPPLIED ZONE LIMITS
        WITH RESPECT TO SONIC LOG DATA
UNERTH- UNIFORM EARTH VELOCITY
UNFDEN- UNIFORM EARTH DENSITY
SRATE   SAMPLING RATE IN MS
INIDEP  START DEPTH FOR COMPUTING SYNTHETIC SEISMOGRAM
        WITH RESPECT TO SONIC LOG DATA
IGESTP  STOP DEPTH FOR COMPUTING SYNTHETIC SEISMOGRAM
        WITH RESPECT TO SONIC LOG DATA
INITAU  TWO WAY TRAVEL TIME FROM TOP SONIC TO SRD
EKB     ELEVATION OF KELLY BUSHING WITH RESPECT TO
        MEAN SEA LEVEL
SRDGEO  SEISMIC REFERENCE DEPTH WITH RESPECT TO
        MEAN SEA LEVEL
ICDP    FLAG FOR COMPUTING RESIDUAL MULTIPLES
CDPTIM  TWO WAY TIME INTERVAL FOR COMPUTATION OF
        RESIDUAL MULTIPLES
SCRTIM  SURFACE REFLECTOR TWO WAY TIME ABOVE INITAU
SCREFL  SURFACE REFLECTION COEFFICIENT
RCMAX   REFLECTION COEFFICIENTS THAT ARE EQUAL TO OR
        GREATER  THAN THIS VALUE SHALL BE FLAGGED

*NOTE*  IN CASE OF MODELING A SYNTHETIC SEISMOGRAM WITHOUT
        SONIC LOG DATA ,THE DEPTH REFERENCES SHALL BE USER
        DEFINED


OUTPUT DATA

RMSVWE  ROOT MEAN SQUARE VELOCITY FOUND FOR THE WELL
SRDTIM  TWO WAY TRANSIT TIME BETWEEN INIDEP AND SRDGEO

CHANNNEL NAMES
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WOT- TWO WAY TRAVEL TIME
SRD- DEPTH OF COMPUTED DATA WITH RESPECT TO SRD
NTV- INTERVAL VELOCITY ON A TIME SCALE
HOT- INTERVAL DENSITY ON A TIME SCALE
EFL- REFLECTION COEFFICIENT AT GIVEN TWO WAY TRAVEL TIMES
TTE- ATTENUATION COEFFICIENT AT GIVEN TWO WAY TRAVEL TIMES
RIM- SYNTHETIC SEISMOGRAM - PRIMARIES
ULT- SYNTHETIC SEISMOGRAM - PRIMARIES + MULTIPLES
UON- MULTIPLES ONLY

CHANNEL NAMES

HAN 1 - TWOT.GMU.002.*
HAN 2 - DSRD.GRF.006.*
HAN 3 - INTV.GRF.007.*
HAN 4 - RHOT.GRF.001.*
HAN 5 - REFL.GRF.001.*
HAN 6 - ATTE.GRF.001.*
HAN 7 - PRIM.GRF.001.*
HAN 8 - MULT.GMU.001.*
HAN 9 - MUON.GMU.001.*

| (GLOBAL PARAMETERS) | | | (VALUE) | |
|---|---|---|---|---|
| MODE OF PROC (GEOGRAM) | IGEOFL | : | 0 | |
| INITIALIZE CDP LOGIC | ICDP | : | 0 | |
| CDP TIME | CDPTIM | : | .200000 | S |
| TIME SAMPLING (WST) | SRATE | : | 2.00000 | MS |
| TOP DEPTH OF PROCESSING | INIDEP | : | 142.760 | M |
| BOTTOM DEPTH OF PROCESSI | IGESTP | : | 1333.00 | M |
| INITIAL TWO WAY TRAVEL T | INITAU | : | .166000 | S |
| SRD FOR GEOGRAM | SRDGEO | : | -30479.7 | M |
| ELEVATION OF KELLY BUSHI | EKB | : | 0 | M |
| SRD TIME | SRDTIM | : | 0 | MS |
| SURFACE COEFFICIENT OF R | SCRTIM | : | 0 | MS |
| SURFACE COEFFICIENT OF R | SCREFL | : | -1.00000 | |
| REFLECTION COEFF MAXIMUM | RCMAX | : | .300000 | |
| RMS VELOCITY IN WELL | RMSVWE | : | 2532.03 | M/S |
| UNIFORM EARTH VELOCITY | UNERTH | : | 2133.60 | M/S |
| UNIFORM DENSITY VALUE | UNFDEN | : | 2.30000 | G/C3 |

(MATRIX PARAMETERS)

1 GR*
2 CALI*

| (ZONED PARAMETERS) | | (VALUE) | | (LIMITS) | | |
|---|---|---|---|---|---|---|
| LAYER OPTION FLAG DENS | LOFDEN | :-1.000000 | | 30479.7 | - | 0 |
| LAYER OPTION FLAG VELOC | LOFVEL | : 1.000000 | | 30479.7 | - | 0 |
| USER SUPPLIED DENSITY DA | LAYDEN | :-999.2500 | G/C3 | 30479.7 | - | 0 |
| USER VELOC (WST) | LAYVEL | : 1720.000 | M/S | 173.000 | - | 29.5000 |
| | | 700.0000 | | 29.5000 | | 0 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 1931 | 1.950 | | | | | |
| 168.0 | 144.69 | | | .066 | .99561 | .06627 | .06627 | 0 |
| | | 2205 | 1.950 | | | | | |
| 170.0 | 146.90 | | | -.015 | .99538 | -.01490 | -.01929 | -.00439 |
| | | 2140 | 1.950 | | | | | |
| 172.0 | 149.04 | | | -.002 | .99538 | -.00158 | .00067 | .00225 |
| | | 2133 | 1.950 | | | | | |
| 174.0 | 151.17 | | | -.001 | .99538 | -.00130 | -.00153 | -.00023 |
| | | 2128 | 1.950 | | | | | |
| 176.0 | 153.30 | | | -.002 | .99538 | -.00220 | -.00203 | .00016 |
| | | 2118 | 1.950 | | | | | |
| 178.0 | 155.41 | | | 0 | .99538 | .00027 | .00050 | .00023 |
| | | 2119 | 1.950 | | | | | |
| 180.0 | 157.53 | | | -.008 | .99531 | -.00811 | -.00824 | -.00013 |
| | | 2085 | 1.950 | | | | | |
| 182.0 | 159.62 | | | .018 | .99499 | .01775 | .01883 | .00108 |
| | | 2161 | 1.950 | | | | | |
| 184.0 | 161.78 | | | -.004 | .99497 | -.00425 | -.00692 | -.00267 |
| | | 2143 | 1.950 | | | | | |
| 186.0 | 163.92 | | | -.017 | .99470 | -.01663 | -.01534 | .00134 |
| | | 2072 | 1.950 | | | | | |
| 188.0 | 165.99 | | | .021 | .99426 | .02090 | .02279 | .00190 |
| | | 2161 | 1.950 | | | | | |
| 190.0 | 168.16 | | | -.018 | .99393 | -.01806 | -.02145 | -.00338 |
| | | 2084 | 1.950 | | | | | |
| 192.0 | 170.24 | | | .021 | .99350 | .02063 | .02399 | .00336 |
| | | 2172 | 1.950 | | | | | |
| 194.0 | 172.41 | | | -.009 | .99341 | -.00940 | -.01307 | -.00366 |
| | | 2131 | 1.950 | | | | | |
| 196.0 | 174.54 | | | -.012 | .99326 | -.01237 | -.00990 | .00247 |
| | | 2079 | 1.950 | | | | | |
| 198.0 | 176.62 | | | -.009 | .99318 | -.00847 | -.00782 | .00065 |
| | | 2044 | 1.950 | | | | | |
| 200.0 | 178.67 | | | .036 | .99192 | .03537 | .03604 | .00067 |
| | | 2195 | 1.950 | | | | | |
| 202.0 | 180.86 | | | -.014 | .99174 | -.01342 | -.01740 | -.00398 |
| | | 2136 | 1.950 | | | | | |
| 204.0 | 183.00 | | | .030 | .99087 | .02950 | .03134 | .00184 |
| | | 2267 | 1.950 | | | | | |
| 206.0 | 185.26 | | | -.019 | .99052 | -.01847 | -.02180 | -.00333 |
| | | 2184 | 1.950 | | | | | |
| 208.0 | 187.45 | | | .004 | .99051 | .00375 | .00678 | .00302 |
| | | 2201 | 1.950 | | | | | |
| 210.0 | 189.65 | | | .005 | .99048 | .00542 | .00375 | -.00167 |
| | | 2225 | 1.950 | | | | | |
| 212.0 | 191.87 | | | .025 | .98986 | .02477 | .02597 | .00120 |
| | | 2339 | 1.950 | | | | | |
| 214.0 | 194.21 | | | -.013 | .98969 | -.01278 | -.01666 | -.00387 |
| | | 2279 | 1.950 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 216.0 | 196.49 | | | -.012 | .98956 | -.01142 | -.00955 | .00186 |
| | | 2227 | 1.950 | | | | | |
| 213.0 | 198.72 | | | .004 | .98955 | .00395 | .00580 | .00185 |
| | | 2245 | 1.950 | | | | | |
| 220.0 | 200.96 | | | -.031 | .98862 | -.03026 | -.03141 | -.00115 |
| | | 2112 | 1.950 | | | | | |
| 222.0 | 203.08 | | | .003 | .98861 | .00331 | .00674 | .00344 |
| | | 2126 | 1.950 | | | | | |
| 224.0 | 205.20 | | | .009 | .98853 | .00886 | .00966 | .00080 |
| | | 2165 | 1.950 | | | | | |
| 226.0 | 207.37 | | | .017 | .98825 | .01669 | .01163 | -.00506 |
| | | 2239 | 1.950 | | | | | |
| 228.0 | 209.61 | | | -.015 | .98802 | -.01512 | -.01426 | .00086 |
| | | 2172 | 1.950 | | | | | |
| 230.0 | 211.78 | | | 0 | .98802 | .00021 | .00133 | .00112 |
| | | 2172 | 1.950 | | | | | |
| 232.0 | 213.95 | | | .005 | .98799 | .00497 | .00735 | .00238 |
| | | 2194 | 1.950 | | | | | |
| 234.0 | 216.14 | | | .013 | .98782 | .01305 | .00870 | -.00434 |
| | | 2253 | 1.950 | | | | | |
| 236.0 | 218.40 | | | .011 | .98771 | .01044 | .01270 | .00226 |
| | | 2301 | 1.950 | | | | | |
| 238.0 | 220.70 | | | -.007 | .98767 | -.00649 | -.01152 | -.00503 |
| | | 2271 | 1.950 | | | | | |
| 240.0 | 222.97 | | | -.017 | .98738 | -.01697 | -.01320 | .00377 |
| | | 2195 | 1.950 | | | | | |
| 242.0 | 225.16 | | | -.007 | .98732 | -.00713 | -.00552 | .00162 |
| | | 2163 | 1.950 | | | | | |
| 244.0 | 227.33 | | | .036 | .98601 | .03599 | .03646 | .00047 |
| | | 2327 | 1.950 | | | | | |
| 246.0 | 229.65 | | | -.022 | .98555 | -.02130 | -.02727 | -.00597 |
| | | 2222 | 1.950 | | | | | |
| 243.0 | 231.88 | | | .005 | .98553 | .00480 | .00875 | .00395 |
| | | 2250 | 1.950 | | | | | |
| 250.0 | 234.13 | | | .001 | .98553 | .00114 | -.00120 | -.00234 |
| | | 2255 | 1.950 | | | | | |
| 252.0 | 236.39 | | | 0 | .98553 | -.00009 | -.00020 | -.00010 |
| | | 2255 | 1.950 | | | | | |
| 254.0 | 238.64 | | | -.009 | .98544 | -.00902 | -.00516 | .00386 |
| | | 2214 | 1.950 | | | | | |
| 256.0 | 240.86 | | | .002 | .98544 | .00153 | .00052 | -.00101 |
| | | 2221 | 1.950 | | | | | |
| 258.0 | 243.08 | | | .016 | .98518 | .01606 | .01631 | .00075 |
| | | 2294 | 1.950 | | | | | |
| 260.0 | 245.37 | | | -.020 | .98480 | -.01942 | -.02476 | -.00534 |
| | | 2206 | 1.950 | | | | | |
| 262.0 | 247.58 | | | .010 | .98471 | .00950 | .01534 | .00634 |
| | | 2249 | 1.950 | | | | | |
| 264.0 | 249.83 | | | .005 | .98468 | .00520 | .00319 | -.00202 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM GRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 2273 | 1.950 | | | | | |
| 266.0 | 252.10 | | | -.007 | .98463 | -.00683 | -.00626 | .00062 |
| | | 2241 | 1.950 | | | | | |
| 268.0 | 254.34 | | | -.003 | .98462 | -.00247 | -.00172 | .00075 |
| | | 2230 | 1.950 | | | | | |
| 270.0 | 256.57 | | | .003 | .98461 | .00337 | -.00182 | -.00520 |
| | | 2245 | 1.950 | | | | | |
| 272.0 | 258.81 | | | .041 | .98297 | .04026 | .04312 | .00286 |
| | | 2437 | 1.950 | | | | | |
| 274.0 | 261.25 | | | -.022 | .98248 | -.02181 | -.02726 | -.00545 |
| | | 2331 | 1.950 | | | | | |
| 276.0 | 263.58 | | | -.028 | .98169 | -.02789 | -.02127 | .00662 |
| | | 2202 | 1.950 | | | | | |
| 278.0 | 265.78 | | | .011 | .98157 | .01089 | .01008 | -.00081 |
| | | 2251 | 1.950 | | | | | |
| 280.0 | 268.04 | | | .012 | .98144 | .01144 | .01108 | -.00035 |
| | | 2305 | 1.950 | | | | | |
| 282.0 | 270.34 | | | .009 | .98135 | .00915 | .00583 | -.00331 |
| | | 2348 | 1.950 | | | | | |
| 284.0 | 272.69 | | | -.012 | .98120 | -.01215 | -.01081 | .00134 |
| | | 2291 | 1.950 | | | | | |
| 286.0 | 274.98 | | | .001 | .98120 | .00137 | .00463 | .00326 |
| | | 2297 | 1.950 | | | | | |
| 288.0 | 277.28 | | | -.009 | .98112 | -.00889 | -.01063 | -.00174 |
| | | 2256 | 1.950 | | | | | |
| 290.0 | 279.53 | | | -.026 | .98048 | -.02510 | -.02514 | -.00004 |
| | | 2143 | 1.950 | | | | | |
| 292.0 | 281.67 | | | .024 | .97990 | .02382 | .02910 | .00528 |
| | | 2250 | 1.950 | | | | | |
| 294.0 | 283.92 | | | -.022 | .97944 | -.02126 | -.02815 | -.00689 |
| | | 2154 | 1.950 | | | | | |
| 296.0 | 286.08 | | | .027 | .97871 | .02672 | .02932 | .00259 |
| | | 2275 | 1.950 | | | | | |
| 298.0 | 288.35 | | | .007 | .97865 | .00731 | .00691 | -.00040 |
| | | 2309 | 1.950 | | | | | |
| 300.0 | 290.66 | | | -.001 | .97865 | -.00135 | -.00242 | -.00107 |
| | | 2303 | 1.950 | | | | | |
| 302.0 | 292.97 | | | -.007 | .97860 | -.00730 | -.00606 | .00124 |
| | | 2269 | 1.950 | | | | | |
| 304.0 | 295.23 | | | .010 | .97851 | .00935 | .00744 | -.00191 |
| | | 2313 | 1.950 | | | | | |
| 306.0 | 297.55 | | | 0 | .97851 | .00043 | .00028 | -.00016 |
| | | 2315 | 1.950 | | | | | |
| 308.0 | 299.86 | | | .005 | .97848 | .00495 | .00380 | -.00115 |
| | | 2333 | 1.950 | | | | | |
| 310.0 | 302.20 | | | -.003 | .97847 | -.00341 | -.00264 | .00077 |
| | | 2322 | 1.950 | | | | | |
| 312.0 | 304.52 | | | -.015 | .97826 | -.01442 | -.01073 | .00369 |
| | | 2255 | 1.950 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 314.0 | 306.78 | | | .027 | .97757 | .02601 | .02255 | -.00346 |
| | | 2378 | 1.950 | | | | | |
| 316.0 | 309.16 | | | .004 | .97755 | .00399 | .00319 | -.00080 |
| | | 2397 | 1.950 | | | | | |
| 318.0 | 311.55 | | | -.004 | .97754 | -.00367 | -.00691 | -.00324 |
| | | 2379 | 1.950 | | | | | |
| 320.0 | 313.93 | | | -.027 | .97685 | -.02592 | -.02110 | .00481 |
| | | 2256 | 1.950 | | | | | |
| 322.0 | 316.19 | | | .026 | .97620 | .02519 | .02697 | .00178 |
| | | 2376 | 1.950 | | | | | |
| 324.0 | 318.56 | | | -.003 | .97619 | -.00268 | -.00530 | -.00262 |
| | | 2363 | 1.950 | | | | | |
| 326.0 | 320.93 | | | -.006 | .97615 | -.00626 | -.00588 | .00038 |
| | | 2333 | 1.950 | | | | | |
| 328.0 | 323.26 | | | .001 | .97615 | .00106 | .00557 | .00451 |
| | | 2338 | 1.950 | | | | | |
| 330.0 | 325.60 | | | .014 | .97595 | .01382 | .00562 | -.00820 |
| | | 2405 | 1.950 | | | | | |
| 332.0 | 328.00 | | | -.014 | .97577 | -.01331 | -.01104 | .00227 |
| | | 2340 | 1.950 | | | | | |
| 334.0 | 330.34 | | | .014 | .97560 | .01318 | .01653 | .00335 |
| | | 2404 | 1.950 | | | | | |
| 336.0 | 332.75 | | | .001 | .97559 | .00087 | .00017 | -.00070 |
| | | 2409 | 1.950 | | | | | |
| 338.0 | 335.16 | | | -.007 | .97555 | -.00675 | -.00885 | -.00210 |
| | | 2376 | 1.950 | | | | | |
| 340.0 | 337.53 | | | 0 | .97555 | -.00042 | -.00220 | -.00178 |
| | | 2374 | 1.950 | | | | | |
| 342.0 | 339.91 | | | -.005 | .97552 | -.00526 | -.00605 | -.00079 |
| | | 2348 | 1.950 | | | | | |
| 344.0 | 342.25 | | | .006 | .97549 | .00553 | .00672 | .00119 |
| | | 2375 | 1.950 | | | | | |
| 346.0 | 344.63 | | | -.004 | .97547 | -.00391 | .00162 | .00553 |
| | | 2356 | 1.950 | | | | | |
| 348.0 | 346.98 | | | .023 | .97496 | .02245 | .01701 | -.00544 |
| | | 2467 | 1.950 | | | | | |
| 350.0 | 349.45 | | | -.003 | .97495 | -.00272 | -.00709 | -.00437 |
| | | 2453 | 1.950 | | | | | |
| 352.0 | 351.90 | | | .008 | .97488 | .00787 | .01138 | .00352 |
| | | 2493 | 1.950 | | | | | |
| 354.0 | 354.40 | | | -.013 | .97473 | -.01232 | -.00856 | .00376 |
| | | 2431 | 1.950 | | | | | |
| 356.0 | 356.83 | | | -.012 | .97458 | -.01205 | -.01679 | -.00475 |
| | | 2372 | 1.950 | | | | | |
| 358.0 | 359.20 | | | .012 | .97445 | .01142 | .01833 | .00692 |
| | | 2428 | 1.950 | | | | | |
| 360.0 | 361.63 | | | -.001 | .97444 | -.00122 | -.00757 | -.00635 |
| | | 2422 | 1.950 | | | | | |
| 362.0 | 364.05 | | | .007 | .97440 | .00667 | .00876 | .00209 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 2455 | 1.950 | | | | | |
| 364.0 | 366.50 | | | -.009 | .97433 | -.00842 | -.01166 | -.00323 |
| | | 2413 | 1.950 | | | | | |
| 366.0 | 368.92 | | | -.006 | .97429 | -.00572 | -.00086 | .00485 |
| | | 2385 | 1.950 | | | | | |
| 368.0 | 371.30 | | | .011 | .97416 | .01118 | .00963 | -.00155 |
| | | 2440 | 1.950 | | | | | |
| 370.0 | 373.74 | | | -.011 | .97405 | -.01063 | -.01419 | -.00356 |
| | | 2387 | 1.950 | | | | | |
| 372.0 | 376.13 | | | -.003 | .97404 | -.00335 | .00481 | .00816 |
| | | 2371 | 1.950 | | | | | |
| 374.0 | 378.50 | | | .013 | .97386 | .01309 | .00374 | -.00935 |
| | | 2436 | 1.950 | | | | | |
| 376.0 | 380.94 | | | -.006 | .97382 | -.00597 | -.00200 | .00397 |
| | | 2406 | 1.950 | | | | | |
| 378.0 | 383.34 | | | .008 | .97375 | .00826 | .00702 | -.00125 |
| | | 2447 | 1.950 | | | | | |
| 380.0 | 385.79 | | | .033 | .97272 | .03175 | .03417 | .00242 |
| | | 2612 | 1.950 | | | | | |
| 382.0 | 388.40 | | | -.004 | .97270 | -.00427 | -.00878 | -.00451 |
| | | 2589 | 1.950 | | | | | |
| 384.0 | 390.99 | | | .002 | .97270 | .00214 | .00132 | -.00082 |
| | | 2601 | 1.950 | | | | | |
| 386.0 | 393.59 | | | .029 | .97188 | .02814 | .02766 | -.00049 |
| | | 2756 | 1.950 | | | | | |
| 388.0 | 396.35 | | | -.014 | .97168 | -.01388 | -.01537 | -.00149 |
| | | 2678 | 1.950 | | | | | |
| 390.0 | 399.03 | | | .013 | .97151 | .01311 | .01887 | .00576 |
| | | 2751 | 1.950 | | | | | |
| 392.0 | 401.78 | | | -.022 | .97103 | -.02153 | -.02731 | -.00578 |
| | | 2632 | 1.950 | | | | | |
| 394.0 | 404.41 | | | .045 | .96906 | .04368 | .04641 | .00273 |
| | | 2880 | 1.950 | | | | | |
| 396.0 | 407.29 | | | -.027 | .96836 | -.02603 | -.03201 | -.00598 |
| | | 2729 | 1.950 | | | | | |
| 398.0 | 410.02 | | | -.004 | .96835 | -.00388 | .00318 | .00706 |
| | | 2708 | 1.950 | | | | | |
| 400.0 | 412.73 | | | .003 | .96834 | .00243 | .00041 | -.00202 |
| | | 2721 | 1.950 | | | | | |
| 402.0 | 415.45 | | | .007 | .96830 | .00658 | .00642 | -.00016 |
| | | 2758 | 1.950 | | | | | |
| 404.0 | 418.21 | | | -.020 | .96792 | -.01919 | -.01883 | .00036 |
| | | 2651 | 1.950 | | | | | |
| 406.0 | 420.86 | | | .007 | .96787 | .00711 | .00753 | .00042 |
| | | 2691 | 1.950 | | | | | |
| 408.0 | 423.55 | | | -.017 | .96759 | -.01622 | -.01574 | .00048 |
| | | 2602 | 1.950 | | | | | |
| 410.0 | 426.15 | | | .015 | .96739 | .01409 | .01757 | .00347 |
| | | 2679 | 1.950 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM GRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 412.0 | 428.33 | | | -.039 | .96595 | -.03730 | -.04497 | -.00767 |
| | | 2480 | 1.950 | | | | | |
| 414.0 | 431.31 | | | -.005 | .96592 | -.00509 | .00093 | .00601 |
| | | 2454 | 1.950 | | | | | |
| 416.0 | 433.76 | | | .018 | .96562 | .01715 | .01782 | .00067 |
| | | 2543 | 1.950 | | | | | |
| 418.0 | 436.31 | | | .010 | .96553 | .00939 | .00569 | -.00369 |
| | | 2592 | 1.950 | | | | | |
| 420.0 | 438.90 | | | -.003 | .96552 | -.00301 | -.00696 | -.00395 |
| | | 2576 | 1.950 | | | | | |
| 422.0 | 441.47 | | | .009 | .96544 | .00880 | .01263 | .00383 |
| | | 2624 | 1.950 | | | | | |
| 424.0 | 444.10 | | | .022 | .96495 | .02167 | .02107 | -.00060 |
| | | 2744 | 1.950 | | | | | |
| 426.0 | 446.84 | | | .006 | .96491 | .00605 | .00467 | -.00139 |
| | | 2779 | 1.950 | | | | | |
| 428.0 | 449.62 | | | .015 | .96470 | .01443 | .00752 | -.00691 |
| | | 2863 | 1.950 | | | | | |
| 430.0 | 452.48 | | | -.052 | .96211 | -.04998 | -.04492 | .00506 |
| | | 2581 | 1.950 | | | | | |
| 432.0 | 455.07 | | | .008 | .96205 | .00760 | .00810 | .00050 |
| | | 2622 | 1.950 | | | | | |
| 434.0 | 457.69 | | | -.002 | .96205 | -.00177 | .00544 | .00721 |
| | | 2613 | 1.950 | | | | | |
| 436.0 | 460.30 | | | .006 | .96202 | .00535 | -.00232 | -.00767 |
| | | 2642 | 1.950 | | | | | |
| 438.0 | 462.94 | | | .006 | .96198 | .00609 | .01241 | .00633 |
| | | 2675 | 1.950 | | | | | |
| 440.0 | 465.62 | | | .033 | .96093 | .03181 | .02348 | -.00832 |
| | | 2858 | 1.950 | | | | | |
| 442.0 | 468.48 | | | -.103 | .95082 | -.09856 | -.09403 | .00453 |
| | | 2327 | 1.950 | | | | | |
| 444.0 | 470.80 | | | .075 | .94550 | .07113 | .07606 | .00493 |
| | | 2703 | 1.950 | | | | | |
| 446.0 | 473.51 | | | -.076 | .94002 | -.07196 | -.07696 | -.00500 |
| | | 2321 | 1.950 | | | | | |
| 448.0 | 475.83 | | | -.008 | .93996 | -.00767 | -.00089 | .00679 |
| | | 2283 | 1.950 | | | | | |
| 450.0 | 478.11 | | | -.021 | .93954 | -.01976 | -.02181 | -.00205 |
| | | 2189 | 1.950 | | | | | |
| 452.0 | 480.30 | | | -.048 | .93738 | -.04509 | -.04403 | .00106 |
| | | 1988 | 1.950 | | | | | |
| 454.0 | 482.29 | | | .073 | .93242 | .06814 | .06915 | .00101 |
| | | 2300 | 1.950 | | | | | |
| 456.0 | 484.59 | | | -.045 | .93050 | -.04229 | -.04707 | -.00478 |
| | | 2101 | 1.950 | | | | | |
| 458.0 | 486.69 | | | .003 | .93050 | .00287 | .01064 | .00776 |
| | | 2114 | 1.950 | | | | | |
| 460.0 | 488.30 | | | .004 | .93048 | .00326 | -.00394 | -.00720 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 2129 | 1.950 | | | | | |
| 462.0 | 490.93 | | | .008 | .93043 | .00720 | .00378 | -.00343 |
| | | 2162 | 1.950 | | | | | |
| 464.0 | 493.09 | | | -.005 | .93041 | -.00448 | .00138 | .00585 |
| | | 2141 | 1.950 | | | | | |
| 466.0 | 495.23 | | | -.010 | .93032 | -.00923 | -.02225 | -.01302 |
| | | 2099 | 1.950 | | | | | |
| 468.0 | 497.33 | | | .016 | .93009 | .01447 | .03676 | .02229 |
| | | 2165 | 1.950 | | | | | |
| 470.0 | 499.50 | | | -.015 | .92987 | -.01422 | -.03224 | -.01802 |
| | | 2100 | 1.950 | | | | | |
| 472.0 | 501.60 | | | -.012 | .92974 | -.01107 | -.00387 | .00720 |
| | | 2051 | 1.950 | | | | | |
| 474.0 | 503.65 | | | -.021 | .92934 | -.01932 | -.01884 | .00048 |
| | | 1967 | 1.950 | | | | | |
| 476.0 | 505.62 | | | -.008 | .92928 | -.00767 | -.00056 | .00711 |
| | | 1935 | 1.950 | | | | | |
| 478.0 | 507.55 | | | .083 | .92293 | .07682 | .06677 | -.01006 |
| | | 2284 | 1.950 | | | | | |
| 480.0 | 509.83 | | | -.071 | .91833 | -.06515 | -.05929 | .00586 |
| | | 1983 | 1.950 | | | | | |
| 482.0 | 511.82 | | | .029 | .91753 | .02704 | .02514 | -.00190 |
| | | 2103 | 1.950 | | | | | |
| 484.0 | 513.92 | | | -.011 | .91742 | -.00992 | -.01015 | -.00022 |
| | | 2058 | 1.950 | | | | | |
| 486.0 | 515.98 | | | -.005 | .91740 | -.00452 | -.00459 | -.00007 |
| | | 2038 | 1.950 | | | | | |
| 488.0 | 518.01 | | | -.029 | .91665 | -.02618 | -.02361 | .00257 |
| | | 1925 | 1.950 | | | | | |
| 490.0 | 519.94 | | | -.005 | .91663 | -.00468 | .00337 | .00806 |
| | | 1905 | 1.950 | | | | | |
| 492.0 | 521.84 | | | -.017 | .91637 | -.01531 | -.02485 | -.00953 |
| | | 1842 | 1.950 | | | | | |
| 494.0 | 523.69 | | | .058 | .91332 | .05290 | .05772 | .00483 |
| | | 2068 | 1.950 | | | | | |
| 496.0 | 525.76 | | | 0 | .91332 | .00039 | -.00495 | -.00534 |
| | | 2070 | 1.950 | | | | | |
| 498.0 | 527.82 | | | -.002 | .91331 | -.00218 | .00531 | .00748 |
| | | 2060 | 1.950 | | | | | |
| 500.0 | 529.89 | | | .005 | .91329 | .00424 | -.01092 | -.01516 |
| | | 2079 | 1.950 | | | | | |
| 502.0 | 531.96 | | | -.015 | .91309 | -.01369 | .00087 | .01457 |
| | | 2018 | 1.950 | | | | | |
| 504.0 | 533.98 | | | .015 | .91289 | .01339 | .00574 | -.00764 |
| | | 2078 | 1.950 | | | | | |
| 506.0 | 536.06 | | | -.026 | .91227 | -.02390 | -.02621 | -.00231 |
| | | 1974 | 1.943 | | | | | |
| 508.0 | 538.03 | | | .015 | .91207 | .01338 | .02541 | .01203 |
| | | 2034 | 1.946 | | | | | |

COMPANY : CRUSADER RESOURCES N.L.　　　WELL : WONGA BINDA #1　　　

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 510.0 | 540.07 | | | .027 | .91143 | .02428 | .02024 | -.00404 |
| | | 2134 | 1.957 | | | | | |
| 512.0 | 542.20 | | | -.010 | .91133 | -.00946 | -.01460 | -.00514 |
| | | 2097 | 1.951 | | | | | |
| 514.0 | 544.30 | | | -.024 | .91079 | -.02216 | -.01374 | .00843 |
| | | 2042 | 1.908 | | | | | |
| 516.0 | 546.34 | | | .021 | .91037 | .01941 | .00579 | -.01362 |
| | | 2104 | 1.932 | | | | | |
| 518.0 | 548.44 | | | -.002 | .91037 | -.00163 | .01820 | .01983 |
| | | 2095 | 1.934 | | | | | |
| 520.0 | 550.54 | | | -.009 | .91029 | -.00862 | -.02176 | -.01314 |
| | | 2091 | 1.901 | | | | | |
| 522.0 | 552.63 | | | .014 | .91012 | .01243 | .01469 | .00227 |
| | | 2103 | 1.943 | | | | | |
| 524.0 | 554.73 | | | .006 | .91009 | .00530 | -.00049 | -.00579 |
| | | 2132 | 1.939 | | | | | |
| 526.0 | 556.87 | | | -.007 | .91004 | -.00642 | .00558 | .01200 |
| | | 2095 | 1.945 | | | | | |
| 528.0 | 558.96 | | | -.064 | .90629 | -.05847 | -.06880 | -.01033 |
| | | 1890 | 1.896 | | | | | |
| 530.0 | 560.85 | | | .152 | .88534 | .13777 | .14663 | .00886 |
| | | 2315 | 2.107 | | | | | |
| 532.0 | 563.17 | | | -.135 | .86919 | -.11961 | -.13527 | -.01566 |
| | | 1979 | 1.874 | | | | | |
| 534.0 | 565.14 | | | .201 | .83404 | .17478 | .19128 | .01651 |
| | | 2447 | 2.279 | | | | | |
| 536.0 | 567.59 | | | -.061 | .83097 | -.05057 | -.05520 | -.00463 |
| | | 2273 | 2.173 | | | | | |
| 538.0 | 569.86 | | | -.078 | .82595 | -.06460 | -.06876 | -.00416 |
| | | 2049 | 2.063 | | | | | |
| 540.0 | 571.91 | | | -.011 | .82586 | -.00871 | -.01213 | -.00342 |
| | | 1954 | 2.117 | | | | | |
| 542.0 | 573.87 | | | .098 | .81800 | .08059 | .08147 | .00088 |
| | | 2230 | 2.257 | | | | | |
| 544.0 | 576.10 | | | -.089 | .81146 | -.07313 | -.06117 | .01196 |
| | | 2012 | 2.091 | | | | | |
| 546.0 | 578.11 | | | -.070 | .80752 | -.05649 | -.08175 | -.02526 |
| | | 1958 | 1.869 | | | | | |
| 548.0 | 580.07 | | | .038 | .80633 | .03105 | .05790 | .02684 |
| | | 2002 | 1.975 | | | | | |
| 550.0 | 582.07 | | | .020 | .80601 | .01610 | -.00385 | -.01994 |
| | | 2034 | 2.022 | | | | | |
| 552.0 | 584.10 | | | .016 | .80581 | .01275 | .02078 | .00802 |
| | | 2071 | 2.050 | | | | | |
| 554.0 | 586.17 | | | .009 | .80575 | .00704 | .01704 | .01000 |
| | | 2098 | 2.060 | | | | | |
| 556.0 | 588.27 | | | 0 | .80575 | 0 | -.01980 | -.01980 |
| | | 2058 | 2.099 | | | | | |
| 558.0 | 590.33 | | | .015 | [illegible]0555 | .01247 | .03102 | .01855 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 2134 | 2.089 | | | | | |
| 560.0 | 592.46 | | | .018 | .80529 | .01451 | -.00488 | -.01940 |
| | | 2202 | 2.092 | | | | | |
| 562.0 | 594.67 | | | -.033 | .80439 | -.02690 | .00515 | .03204 |
| | | 2152 | 2.008 | | | | | |
| 564.0 | 596.82 | | | -.019 | .80410 | -.01547 | -.04559 | -.03013 |
| | | 2123 | 1.959 | | | | | |
| 566.0 | 598.94 | | | -.013 | .80396 | -.01045 | .01458 | .02503 |
| | | 2106 | 1.924 | | | | | |
| 568.0 | 601.05 | | | .049 | .80202 | .03948 | -.00148 | -.04096 |
| | | 2176 | 2.054 | | | | | |
| 570.0 | 603.22 | | | 0 | .80202 | .00004 | .02472 | .02467 |
| | | 2190 | 2.042 | | | | | |
| 572.0 | 605.41 | | | .071 | .79800 | .05680 | .06285 | .00604 |
| | | 2392 | 2.154 | | | | | |
| 574.0 | 607.80 | | | -.042 | .79658 | -.03365 | -.04111 | -.00746 |
| | | 2231 | 2.122 | | | | | |
| 576.0 | 610.03 | | | -.026 | .79604 | -.02081 | -.03765 | -.01684 |
| | | 2158 | 2.082 | | | | | |
| 578.0 | 612.19 | | | .023 | .79563 | .01795 | .05018 | .03223 |
| | | 2261 | 2.079 | | | | | |
| 580.0 | 614.45 | | | .030 | .79492 | .02385 | -.00055 | -.02440 |
| | | 2299 | 2.171 | | | | | |
| 582.0 | 616.75 | | | -.006 | .79489 | -.00458 | .01474 | .01931 |
| | | 2320 | 2.127 | | | | | |
| 584.0 | 619.07 | | | -.030 | .79418 | -.02379 | -.01081 | .01298 |
| | | 2243 | 2.072 | | | | | |
| 586.0 | 621.32 | | | -.009 | .79411 | -.00754 | -.02832 | -.02078 |
| | | 2220 | 2.055 | | | | | |
| 588.0 | 623.54 | | | .010 | .79402 | .00831 | .01435 | .00603 |
| | | 2251 | 2.069 | | | | | |
| 590.0 | 625.79 | | | -.010 | .79394 | -.00813 | -.00257 | .00555 |
| | | 2222 | 2.053 | | | | | |
| 592.0 | 628.01 | | | -.014 | .79378 | -.01098 | -.01374 | -.00276 |
| | | 2130 | 2.036 | | | | | |
| 594.0 | 630.19 | | | .015 | .79360 | .01218 | -.00649 | -.01867 |
| | | 2219 | 2.062 | | | | | |
| 596.0 | 632.41 | | | .017 | .79338 | .01320 | .02899 | .01578 |
| | | 2274 | 2.080 | | | | | |
| 598.0 | 634.68 | | | -.014 | .79322 | -.01106 | -.00718 | .00388 |
| | | 2249 | 2.045 | | | | | |
| 600.0 | 636.93 | | | -.029 | .79255 | -.02311 | -.04403 | -.02092 |
| | | 2169 | 2.001 | | | | | |
| 602.0 | 639.10 | | | -.003 | .79254 | -.00211 | .00398 | .00609 |
| | | 2171 | 1.939 | | | | | |
| 604.0 | 641.27 | | | -.042 | .79115 | -.03326 | -.02367 | .00959 |
| | | 2109 | 1.882 | | | | | |
| 606.0 | 643.38 | | | .020 | .79083 | .01590 | .00560 | -.01030 |
| | | 2139 | 1.932 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 608.0 | 645.52 | | | .017 | .79059 | .01376 | .01258 | -.00118 |
| | | 2141 | 1.999 | | | | | |
| 610.0 | 647.66 | | | -.034 | .78967 | -.02697 | -.02072 | .00625 |
| | | 2039 | 1.913 | | | | | |
| 612.0 | 649.75 | | | .092 | .78298 | .07269 | .05962 | -.01307 |
| | | 2293 | 2.096 | | | | | |
| 614.0 | 652.04 | | | -.007 | .78294 | -.00549 | .01077 | .01626 |
| | | 2280 | 2.079 | | | | | |
| 616.0 | 654.32 | | | -.049 | .78103 | -.03871 | -.04480 | -.00609 |
| | | 2149 | 1.997 | | | | | |
| 618.0 | 656.47 | | | .022 | .78065 | .01718 | .01982 | .00264 |
| | | 2211 | 2.029 | | | | | |
| 620.0 | 658.68 | | | .010 | .78057 | .00784 | -.00014 | -.00798 |
| | | 2223 | 2.059 | | | | | |
| 622.0 | 660.91 | | | -.018 | .78031 | -.01420 | .00185 | .01605 |
| | | 2188 | 2.017 | | | | | |
| 624.0 | 663.09 | | | -.087 | .77436 | -.06816 | -.06169 | .00646 |
| | | 2033 | 1.823 | | | | | |
| 626.0 | 665.13 | | | .016 | .77416 | .01245 | -.01484 | -.02729 |
| | | 2111 | 1.913 | | | | | |
| 628.0 | 667.24 | | | .099 | .76656 | .07671 | .09614 | .01943 |
| | | 2241 | 2.083 | | | | | |
| 630.0 | 669.48 | | | -.048 | .76476 | -.03708 | -.04564 | -.00856 |
| | | 2124 | 1.995 | | | | | |
| 632.0 | 671.60 | | | .024 | .76433 | .01822 | .02901 | .01079 |
| | | 2134 | 2.055 | | | | | |
| 634.0 | 673.79 | | | -.078 | .75968 | -.05962 | -.05661 | .00301 |
| | | 2090 | 1.813 | | | | | |
| 636.0 | 675.38 | | | .087 | .75390 | .06626 | .04586 | -.02040 |
| | | 2245 | 2.016 | | | | | |
| 638.0 | 678.12 | | | .016 | .75371 | .01177 | .03195 | .02018 |
| | | 2260 | 2.067 | | | | | |
| 640.0 | 680.38 | | | .008 | .75367 | .00601 | -.02022 | -.02624 |
| | | 2302 | 2.061 | | | | | |
| 642.0 | 682.68 | | | .010 | .75360 | .00716 | .04628 | .03912 |
| | | 2333 | 2.073 | | | | | |
| 644.0 | 685.02 | | | -.050 | .75172 | -.03767 | -.03472 | .00295 |
| | | 2303 | 1.909 | | | | | |
| 646.0 | 687.32 | | | .025 | .75126 | .01845 | -.01161 | -.03005 |
| | | 2298 | 2.009 | | | | | |
| 648.0 | 689.62 | | | 0 | .75126 | -.00008 | .00803 | .00811 |
| | | 2241 | 2.059 | | | | | |
| 650.0 | 691.86 | | | -.093 | .74477 | -.06985 | -.07711 | -.00725 |
| | | 2050 | 1.869 | | | | | |
| 652.0 | 693.91 | | | -.017 | .74454 | -.01298 | -.00581 | .00717 |
| | | 2101 | 1.753 | | | | | |
| 654.0 | 696.01 | | | .067 | .74119 | .04996 | .03844 | -.01152 |
| | | 2331 | 1.807 | | | | | |
| 656.0 | 698.34 | | | -.082 | .73619 | -.06089 | -.06398 | -.00308 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 2042 | 1.750 | | | | | |
| 658.0 | 700.38 | | | .120 | .72557 | .08839 | .09947 | .01103 |
| | | 2298 | 1.979 | | | | | |
| 660.0 | 702.68 | | | .085 | .72033 | .06168 | .06124 | -.00044 |
| | | 2471 | 2.132 | | | | | |
| 662.0 | 705.15 | | | -.093 | .71403 | -.06734 | -.03481 | .03254 |
| | | 2240 | 1.996 | | | | | |
| 664.0 | 707.39 | | | .041 | .71283 | .02934 | .00927 | -.02007 |
| | | 2372 | 2.047 | | | | | |
| 666.0 | 709.76 | | | -.014 | .71270 | -.00975 | -.01036 | -.00061 |
| | | 2271 | 2.080 | | | | | |
| 668.0 | 712.04 | | | -.002 | .71269 | -.00157 | .00265 | .00422 |
| | | 2257 | 2.083 | | | | | |
| 670.0 | 714.29 | | | .045 | .71127 | .03179 | .05430 | .02251 |
| | | 2391 | 2.150 | | | | | |
| 672.0 | 716.68 | | | -.014 | .71114 | -.00964 | -.01677 | -.00713 |
| | | 2413 | 2.074 | | | | | |
| 674.0 | 719.10 | | | .007 | .71111 | .00514 | -.00774 | -.01288 |
| | | 2529 | 2.003 | | | | | |
| 676.0 | 721.63 | | | -.011 | .71101 | -.00812 | .00359 | .01171 |
| | | 2509 | 1.978 | | | | | |
| 678.0 | 724.13 | | | .007 | .71098 | .00484 | -.01889 | -.02373 |
| | | 2390 | 2.104 | | | | | |
| 680.0 | 726.53 | | | -.041 | .70977 | -.02936 | -.00982 | .01954 |
| | | 2357 | 1.965 | | | | | |
| 682.0 | 728.88 | | | .047 | .70820 | .03336 | .03480 | .00143 |
| | | 2425 | 2.098 | | | | | |
| 684.0 | 731.31 | | | .004 | .70819 | .00285 | -.00377 | -.00662 |
| | | 2428 | 2.113 | | | | | |
| 686.0 | 733.73 | | | -.018 | .70795 | -.01308 | -.01701 | -.00393 |
| | | 2426 | 2.037 | | | | | |
| 688.0 | 736.16 | | | .054 | .70590 | .03808 | .04750 | .00942 |
| | | 2534 | 2.130 | | | | | |
| 690.0 | 738.75 | | | -.009 | .70584 | -.00658 | .00496 | .01154 |
| | | 2518 | 2.146 | | | | | |
| 692.0 | 741.26 | | | .035 | .70496 | .02482 | .00570 | -.01912 |
| | | 2656 | 2.132 | | | | | |
| 694.0 | 743.92 | | | .031 | .70429 | .02187 | .04858 | .02671 |
| | | 2762 | 2.233 | | | | | |
| 696.0 | 746.63 | | | -.057 | .70200 | -.04009 | -.02893 | .01116 |
| | | 2529 | 2.176 | | | | | |
| 698.0 | 749.21 | | | -.175 | .68055 | -.12273 | -.17797 | -.05524 |
| | | 2030 | 1.904 | | | | | |
| 700.0 | 751.24 | | | .029 | .67996 | .02000 | .03341 | .01341 |
| | | 2078 | 1.973 | | | | | |
| 702.0 | 753.32 | | | -.093 | .67403 | -.06349 | -.05599 | .00750 |
| | | 1938 | 1.755 | | | | | |
| 704.0 | 755.26 | | | -.078 | .66991 | -.05270 | -.07775 | -.02505 |
| | | 1661 | 1.750 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 706.0 | 756.92 | | | .050 | .66823 | .03352 | .00347 | -.03004 |
| | | 1836 | 1.759 | | | | | |
| 708.0 | 758.75 | | | .101 | .66143 | .06742 | .10003 | .03261 |
| | | 2085 | 1.887 | | | | | |
| 710.0 | 760.84 | | | .055 | .65946 | .03607 | .02934 | -.00673 |
| | | 2056 | 2.134 | | | | | |
| 712.0 | 762.89 | | | .040 | .65842 | .02620 | .02502 | -.00119 |
| | | 2586 | 1.837 | | | | | |
| 714.0 | 765.48 | | | -.145 | .64449 | -.09579 | -.07349 | .02230 |
| | | 2025 | 1.750 | | | | | |
| 716.0 | 767.50 | | | .107 | .63704 | .06928 | .03601 | -.03327 |
| | | 2272 | 1.935 | | | | | |
| 718.0 | 769.78 | | | .076 | .63337 | .04834 | .03791 | -.01043 |
| | | 2429 | 2.108 | | | | | |
| 720.0 | 772.21 | | | .126 | .62326 | .08003 | .14079 | .06076 |
| | | 2910 | 2.263 | | | | | |
| 722.0 | 775.12 | | | -.025 | .62286 | -.01572 | -.01540 | .00032 |
| | | 2788 | 2.251 | | | | | |
| 724.0 | 777.90 | | | .016 | .62271 | .00987 | .03098 | .02111 |
| | | 2894 | 2.233 | | | | | |
| 726.0 | 780.30 | | | -.038 | .62179 | -.02393 | -.05527 | -.03133 |
| | | 2740 | 2.169 | | | | | |
| 728.0 | 783.54 | | | -.013 | .62158 | -.01124 | -.01352 | -.00228 |
| | | 2646 | 2.187 | | | | | |
| 730.0 | 786.18 | | | -.013 | .62148 | -.00789 | .00676 | .01466 |
| | | 2538 | 2.179 | | | | | |
| 732.0 | 788.77 | | | -.246 | .58394 | -.15276 | -.13841 | .01435 |
| | | 1894 | 1.803 | | | | | |
| 734.0 | 790.67 | | | -.001 | .58394 | -.00061 | -.04710 | -.04649 |
| | | 1946 | 1.751 | | | | | |
| 736.0 | 792.61 | | | .211 | .55789 | .12334 | .12092 | -.00242 |
| | | 2416 | 2.166 | | | | | |
| 738.0 | 795.03 | | | -.025 | .55753 | -.01410 | .00132 | .01542 |
| | | 2297 | 2.166 | | | | | |
| 740.0 | 797.32 | | | -.007 | .55750 | -.00407 | .02427 | .02833 |
| | | 2304 | 2.128 | | | | | |
| 742.0 | 799.63 | | | -.021 | .55725 | -.01178 | -.03327 | -.02149 |
| | | 2280 | 2.061 | | | | | |
| 744.0 | 801.91 | | | .038 | .55645 | .02109 | .02533 | .00424 |
| | | 2385 | 2.125 | | | | | |
| 746.0 | 804.29 | | | .009 | .55641 | .00487 | -.02522 | -.03009 |
| | | 2425 | 2.127 | | | | | |
| 748.0 | 806.72 | | | .015 | .55623 | .00837 | .03153 | .02316 |
| | | 2530 | 2.102 | | | | | |
| 750.0 | 809.25 | | | -.009 | .55624 | -.00485 | .01051 | .01536 |
| | | 2408 | 2.169 | | | | | |
| 752.0 | 811.66 | | | -.059 | .55432 | -.03266 | -.04148 | -.00882 |
| | | 2218 | 2.094 | | | | | |
| 754.0 | 813.87 | | | .002 | .55432 | .00086 | -.05191 | -.05278 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 2238 | 2.082 | | | | | |
| 756.0 | 816.11 | | | -.020 | .55411 | -.01093 | -.00049 | .01043 |
| | | 2251 | 1.990 | | | | | |
| 758.0 | 818.36 | | | -.060 | .55214 | -.03306 | -.01682 | .01624 |
| | | 2035 | 1.906 | | | | | |
| 760.0 | 820.45 | | | .113 | .54507 | .06244 | .08280 | .02036 |
| | | 2301 | 2.168 | | | | | |
| 762.0 | 822.75 | | | .047 | .54388 | .02550 | .01459 | -.01092 |
| | | 2492 | 2.198 | | | | | |
| 764.0 | 825.24 | | | -.030 | .54338 | -.01648 | .00559 | .02206 |
| | | 2370 | 2.176 | | | | | |
| 766.0 | 827.61 | | | .025 | .54305 | .01334 | -.01180 | -.02514 |
| | | 2547 | 2.126 | | | | | |
| 768.0 | 830.16 | | | -.032 | .54251 | -.01714 | -.00255 | .01460 |
| | | 2350 | 2.163 | | | | | |
| 770.0 | 832.51 | | | -.012 | .54244 | -.00630 | -.02969 | -.02339 |
| | | 2407 | 2.064 | | | | | |
| 772.0 | 834.92 | | | .034 | .54181 | .01844 | .01035 | -.00809 |
| | | 2475 | 2.149 | | | | | |
| 774.0 | 837.39 | | | .021 | .54158 | .01128 | .03530 | .02402 |
| | | 2499 | 2.218 | | | | | |
| 776.0 | 839.89 | | | .022 | .54133 | .01166 | .01698 | .00532 |
| | | 2554 | 2.266 | | | | | |
| 778.0 | 842.45 | | | -.021 | .54108 | -.01153 | -.02950 | -.01796 |
| | | 2523 | 2.198 | | | | | |
| 780.0 | 844.97 | | | -.099 | .53579 | -.05351 | -.00877 | .04474 |
| | | 2171 | 2.095 | | | | | |
| 782.0 | 847.14 | | | .002 | .53579 | .00096 | -.00333 | -.00429 |
| | | 1998 | 2.284 | | | | | |
| 784.0 | 849.14 | | | -.026 | .53542 | -.01399 | -.02099 | -.00700 |
| | | 1842 | 2.351 | | | | | |
| 786.0 | 850.98 | | | -.026 | .53505 | -.01407 | -.03504 | -.02097 |
| | | 1798 | 2.285 | | | | | |
| 788.0 | 852.78 | | | .006 | .53503 | .00307 | -.00957 | -.01264 |
| | | 1950 | 2.132 | | | | | |
| 790.0 | 854.73 | | | .129 | .52608 | .06923 | .05600 | -.01324 |
| | | 2665 | 2.024 | | | | | |
| 792.0 | 857.39 | | | .036 | .52540 | .01886 | .03903 | .02016 |
| | | 2656 | 2.182 | | | | | |
| 794.0 | 860.05 | | | -.030 | .52493 | -.01574 | -.00663 | .00912 |
| | | 2499 | 2.184 | | | | | |
| 796.0 | 862.55 | | | .005 | .52492 | .00243 | -.02579 | -.02822 |
| | | 2462 | 2.237 | | | | | |
| 798.0 | 865.01 | | | -.053 | .52342 | -.02306 | -.00018 | .02788 |
| | | 2478 | 1.997 | | | | | |
| 800.0 | 867.49 | | | -.120 | .51583 | -.06303 | -.08413 | -.02110 |
| | | 2220 | 1.750 | | | | | |
| 802.0 | 869.71 | | | -.092 | .51149 | -.04728 | -.05770 | -.01042 |
| | | 1847 | 1.750 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 804.0 | 871.56 | | | -.015 | .51137 | -.00777 | .02171 | .02948 |
| | | 1792 | 1.759 | | | | | |
| 806.0 | 873.35 | | | .047 | .51023 | .02415 | .00868 | -.01547 |
| | | 1941 | 1.776 | | | | | |
| 808.0 | 875.29 | | | .240 | .48077 | .12261 | .03231 | -.09029 |
| | | 2595 | 2.169 | | | | | |
| 810.0 | 877.88 | | | .011 | .48071 | .00551 | .12664 | .12113 |
| | | 2649 | 2.174 | | | | | |
| 812.0 | 880.53 | | | -.019 | .48053 | -.00924 | -.01596 | -.00672 |
| | | 2543 | 2.179 | | | | | |
| 814.0 | 883.08 | | | -.023 | .48028 | -.01105 | -.02524 | -.01419 |
| | | 2473 | 2.140 | | | | | |
| 816.0 | 885.55 | | | -.021 | .48007 | -.01002 | .01900 | .02902 |
| | | 2461 | 2.062 | | | | | |
| 818.0 | 888.01 | | | .067 | .47788 | .03239 | .03150 | -.00089 |
| | | 2626 | 2.213 | | | | | |
| 820.0 | 890.64 | | | -.038 | .47720 | -.01804 | -.00085 | .01719 |
| | | 2566 | 2.100 | | | | | |
| 822.0 | 893.20 | | | -.025 | .47691 | -.01180 | -.05170 | -.03990 |
| | | 2458 | 2.035 | | | | | |
| 824.0 | 895.66 | | | .019 | .47674 | .00906 | .00957 | .00051 |
| | | 2521 | 2.113 | | | | | |
| 826.0 | 898.13 | | | -.150 | .46603 | -.07145 | -.12960 | -.05815 |
| | | 2147 | 1.834 | | | | | |
| 828.0 | 900.33 | | | -.078 | .46320 | -.03635 | -.00761 | .02874 |
| | | 1924 | 1.759 | | | | | |
| 830.0 | 902.25 | | | .216 | .44161 | .10000 | .13136 | .03136 |
| | | 2556 | 2.043 | | | | | |
| 832.0 | 904.81 | | | .070 | .43941 | .03112 | .02783 | -.00329 |
| | | 2738 | 2.197 | | | | | |
| 834.0 | 907.55 | | | .039 | .43875 | .01707 | .06617 | .04910 |
| | | 2874 | 2.261 | | | | | |
| 836.0 | 910.42 | | | .038 | .43811 | .01682 | -.00366 | -.02048 |
| | | 3050 | 2.301 | | | | | |
| 838.0 | 913.47 | | | -.335 | .38904 | -.14661 | -.11934 | .02727 |
| | | 1999 | 1.750 | | | | | |
| 840.0 | 915.47 | | | .219 | .37034 | .08529 | .07817 | -.00712 |
| | | 2592 | 2.108 | | | | | |
| 842.0 | 918.06 | | | .083 | .36781 | .03063 | -.04324 | -.07387 |
| | | 2915 | 2.213 | | | | | |
| 844.0 | 920.98 | | | -.015 | .36772 | -.00562 | .09795 | .10357 |
| | | 2854 | 2.192 | | | | | |
| 846.0 | 923.83 | | | .002 | .36772 | .00056 | -.07167 | -.07223 |
| | | 2857 | 2.196 | | | | | |
| 848.0 | 926.69 | | | .006 | .36771 | .00231 | .07065 | .06834 |
| | | 2889 | 2.199 | | | | | |
| 850.0 | 929.58 | | | -.013 | .36765 | -.00461 | -.02268 | -.01807 |
| | | 2871 | 2.158 | | | | | |
| 852.0 | 932.45 | | | -.020 | .36751 | -.00734 | .00775 | .01509 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 2763 | 2.151 | | | | | |
| 854.0 | 935.22 | | | -.020 | .36736 | -.00720 | .00215 | .00936 |
| | | 2679 | 2.137 | | | | | |
| 856.0 | 937.90 | | | .012 | .36731 | .00459 | .02347 | .01889 |
| | | 2762 | 2.125 | | | | | |
| 858.0 | 940.66 | | | .001 | .36731 | .00045 | .00514 | .00469 |
| | | 2713 | 2.169 | | | | | |
| 860.0 | 943.37 | | | -.016 | .36721 | -.00581 | -.06540 | -.05959 |
| | | 2650 | 2.151 | | | | | |
| 862.0 | 946.02 | | | -.004 | .36721 | -.00134 | .04737 | .04871 |
| | | 2658 | 2.129 | | | | | |
| 864.0 | 948.68 | | | .001 | .36721 | .00040 | -.01641 | -.01682 |
| | | 2641 | 2.148 | | | | | |
| 866.0 | 951.32 | | | -.001 | .36721 | -.00027 | -.02564 | -.02538 |
| | | 2657 | 2.131 | | | | | |
| 868.0 | 953.98 | | | .006 | .36720 | .00217 | -.01107 | -.01324 |
| | | 2680 | 2.139 | | | | | |
| 870.0 | 956.66 | | | .040 | .36659 | .01486 | -.00354 | -.01840 |
| | | 2784 | 2.232 | | | | | |
| 872.0 | 959.44 | | | -.050 | .36569 | -.01820 | .02003 | .03823 |
| | | 2661 | 2.115 | | | | | |
| 874.0 | 962.10 | | | -.016 | .36560 | -.00570 | .00169 | .00739 |
| | | 2566 | 2.126 | | | | | |
| 876.0 | 964.67 | | | -.016 | .36551 | -.00588 | -.01872 | -.01284 |
| | | 2481 | 2.129 | | | | | |
| 878.0 | 967.15 | | | .063 | .36404 | .02317 | -.02217 | -.04534 |
| | | 2659 | 2.255 | | | | | |
| 880.0 | 969.81 | | | -.030 | .36371 | -.01096 | .00716 | .01813 |
| | | 2619 | 2.156 | | | | | |
| 882.0 | 972.43 | | | .060 | .36239 | .02192 | .05565 | .03373 |
| | | 2784 | 2.288 | | | | | |
| 884.0 | 975.21 | | | -.034 | .36198 | -.01217 | .02806 | .04023 |
| | | 2690 | 2.214 | | | | | |
| 886.0 | 977.90 | | | -.002 | .36198 | -.00074 | -.03620 | -.03545 |
| | | 2686 | 2.209 | | | | | |
| 888.0 | 980.59 | | | .042 | .36133 | .01534 | -.01950 | -.03485 |
| | | 2885 | 2.233 | | | | | |
| 890.0 | 983.47 | | | -.028 | .36105 | -.01003 | -.01324 | -.00321 |
| | | 2751 | 2.220 | | | | | |
| 892.0 | 986.22 | | | -.013 | .36099 | -.00467 | .04804 | .05270 |
| | | 2782 | 2.139 | | | | | |
| 894.0 | 989.00 | | | -.022 | .36081 | -.00797 | -.04006 | -.03210 |
| | | 2665 | 2.137 | | | | | |
| 896.0 | 991.67 | | | -.013 | .36075 | -.00474 | .04191 | .04664 |
| | | 2594 | 2.139 | | | | | |
| 898.0 | 994.26 | | | .014 | .36068 | .00507 | -.06947 | -.07454 |
| | | 2654 | 2.150 | | | | | |
| 900.0 | 996.92 | | | .031 | .36033 | .01128 | .03498 | .02369 |
| | | 2774 | 2.190 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 902.0 | 999.69 | | | .021 | .36017 | .00761 | -.02410 | -.03171 |
| | | 2862 | 2.214 | | | | | |
| 904.0 | 1002.55 | | | .014 | .36010 | .00499 | .03784 | .03285 |
| | | 2957 | 2.203 | | | | | |
| 906.0 | 1005.51 | | | .036 | .35963 | .01304 | .01793 | .00490 |
| | | 3098 | 2.261 | | | | | |
| 908.0 | 1008.61 | | | -.053 | .35862 | -.01899 | .04117 | .06015 |
| | | 2930 | 2.150 | | | | | |
| 910.0 | 1011.54 | | | .025 | .35840 | .00904 | -.04622 | -.05526 |
| | | 3040 | 2.180 | | | | | |
| 912.0 | 1014.58 | | | -.061 | .35707 | -.02176 | -.00350 | .01826 |
| | | 2682 | 2.182 | | | | | |
| 914.0 | 1017.26 | | | .009 | .35704 | .00333 | .01688 | .01354 |
| | | 2734 | 2.187 | | | | | |
| 916.0 | 1019.99 | | | -.023 | .35685 | -.00838 | -.04572 | -.03734 |
| | | 2655 | 2.143 | | | | | |
| 918.0 | 1022.65 | | | .033 | .35646 | .01179 | .06939 | .05761 |
| | | 2716 | 2.244 | | | | | |
| 920.0 | 1025.36 | | | -.023 | .35627 | -.00816 | -.04097 | -.03280 |
| | | 2679 | 2.172 | | | | | |
| 922.0 | 1028.04 | | | .036 | .35580 | .01289 | -.01230 | -.02518 |
| | | 2959 | 2.115 | | | | | |
| 924.0 | 1031.00 | | | -.009 | .35578 | -.00315 | .01246 | .01560 |
| | | 2830 | 2.172 | | | | | |
| 926.0 | 1033.83 | | | .054 | .35474 | .01920 | .00700 | -.01220 |
| | | 3079 | 2.225 | | | | | |
| 928.0 | 1036.91 | | | .018 | .35463 | .00622 | .05465 | .04843 |
| | | 3171 | 2.237 | | | | | |
| 930.0 | 1040.08 | | | -.106 | .35066 | -.03752 | -.08065 | -.04314 |
| | | 2939 | 1.952 | | | | | |
| 932.0 | 1043.02 | | | .013 | .35060 | .00447 | .00334 | -.00113 |
| | | 2674 | 2.200 | | | | | |
| 934.0 | 1045.69 | | | -.090 | .34775 | -.03165 | .00319 | .03484 |
| | | 2327 | 2.110 | | | | | |
| 936.0 | 1048.02 | | | .016 | .34766 | .00568 | -.02810 | -.03378 |
| | | 2414 | 2.102 | | | | | |
| 938.0 | 1050.44 | | | .019 | .34752 | .00674 | -.02390 | -.03065 |
| | | 2575 | 2.048 | | | | | |
| 940.0 | 1053.01 | | | .046 | .34678 | .01613 | .02655 | .01042 |
| | | 2686 | 2.155 | | | | | |
| 942.0 | 1055.70 | | | .005 | .34677 | .00173 | -.01767 | -.01940 |
| | | 2675 | 2.135 | | | | | |
| 944.0 | 1058.37 | | | -.041 | .34618 | -.01432 | -.00690 | .00742 |
| | | 2506 | 2.148 | | | | | |
| 946.0 | 1060.88 | | | -.005 | .34617 | -.00156 | -.00588 | -.00431 |
| | | 2529 | 2.109 | | | | | |
| 948.0 | 1063.41 | | | .037 | .34570 | .01280 | -.03784 | -.05064 |
| | | 2689 | 2.136 | | | | | |
| 950.0 | 1066.09 | | | .128 | .34002 | .04431 | .11275 | .06844 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 3124 | 2.379 | | | | | |
| 952.0 | 1069.22 | | | -.107 | .33614 | -.03631 | -.01214 | .02417 |
| | | 2718 | 2.207 | | | | | |
| 954.0 | 1071.94 | | | -.005 | .33613 | -.00173 | .00475 | .00647 |
| | | 2788 | 2.129 | | | | | |
| 956.0 | 1074.72 | | | .026 | .33591 | .00860 | .00067 | -.00792 |
| | | 2799 | 2.232 | | | | | |
| 958.0 | 1077.52 | | | -.022 | .33575 | -.00723 | .02122 | .02845 |
| | | 2650 | 2.259 | | | | | |
| 960.0 | 1080.17 | | | -.015 | .33567 | -.00520 | -.02751 | -.02231 |
| | | 2609 | 2.224 | | | | | |
| 962.0 | 1082.78 | | | .065 | .33423 | .02197 | .06249 | .04052 |
| | | 2966 | 2.230 | | | | | |
| 964.0 | 1085.75 | | | -.045 | .33354 | -.01520 | -.04354 | -.02835 |
| | | 2907 | 2.073 | | | | | |
| 966.0 | 1083.65 | | | .006 | .33353 | .00199 | .01097 | .00898 |
| | | 2686 | 2.276 | | | | | |
| 968.0 | 1091.34 | | | -.082 | .33130 | -.02727 | .01747 | .04474 |
| | | 2443 | 2.124 | | | | | |
| 970.0 | 1093.78 | | | .011 | .33126 | .00379 | -.04789 | -.05169 |
| | | 2467 | 2.134 | | | | | |
| 972.0 | 1096.27 | | | .003 | .33126 | .00109 | -.00186 | -.00295 |
| | | 2531 | 2.111 | | | | | |
| 974.0 | 1098.80 | | | .006 | .33124 | .00185 | -.02676 | -.02861 |
| | | 2614 | 2.067 | | | | | |
| 976.0 | 1101.42 | | | .042 | .33066 | .01390 | .02240 | .00851 |
| | | 2673 | 2.199 | | | | | |
| 978.0 | 1104.09 | | | -.067 | .32917 | -.02221 | -.05178 | -.02957 |
| | | 2607 | 1.970 | | | | | |
| 980.0 | 1106.70 | | | .029 | .32889 | .00962 | -.03642 | -.04604 |
| | | 2482 | 2.194 | | | | | |
| 982.0 | 1109.18 | | | .026 | .32867 | .00857 | .02288 | .01431 |
| | | 2697 | 2.127 | | | | | |
| 984.0 | 1111.87 | | | -.006 | .32865 | -.00203 | .01278 | .01480 |
| | | 2655 | 2.134 | | | | | |
| 986.0 | 1114.53 | | | -.009 | .32862 | -.00309 | .02370 | .02679 |
| | | 2623 | 2.120 | | | | | |
| 988.0 | 1117.15 | | | .054 | .32767 | .01768 | -.03122 | -.04890 |
| | | 2758 | 2.246 | | | | | |
| 990.0 | 1119.91 | | | -.049 | .32688 | -.01608 | .03754 | .05361 |
| | | 2600 | 2.159 | | | | | |
| 992.0 | 1122.51 | | | .006 | .32687 | .00197 | .02970 | .02773 |
| | | 2604 | 2.182 | | | | | |
| 994.0 | 1125.12 | | | .029 | .32660 | .00938 | .02902 | .01963 |
| | | 2699 | 2.230 | | | | | |
| 996.0 | 1127.81 | | | .043 | .32600 | .01399 | -.05319 | -.06719 |
| | | 2892 | 2.262 | | | | | |
| 998.0 | 1130.71 | | | -.050 | .32517 | -.01643 | -.00734 | .00909 |
| | | 2658 | 2.230 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1000.0 | 1133.36 | | | .027 | .32493 | .00384 | .04552 | .03668 |
| | | 2827 | 2.214 | | | | | |
| 1002.0 | 1136.19 | | | -.024 | .32474 | -.00789 | .00754 | .01543 |
| | | 2706 | 2.203 | | | | | |
| 1004.0 | 1138.90 | | | -.014 | .32468 | -.00462 | -.03330 | -.02868 |
| | | 2671 | 2.170 | | | | | |
| 1006.0 | 1141.57 | | | .027 | .32443 | .00891 | -.01037 | -.01929 |
| | | 2806 | 2.183 | | | | | |
| 1008.0 | 1144.38 | | | .002 | .32443 | .00052 | .04433 | .04382 |
| | | 2821 | 2.177 | | | | | |
| 1010.0 | 1147.20 | | | .006 | .32442 | .00186 | -.01395 | -.01581 |
| | | 2826 | 2.198 | | | | | |
| 1012.0 | 1150.02 | | | -.011 | .32438 | -.00345 | -.02819 | -.02474 |
| | | 2802 | 2.171 | | | | | |
| 1014.0 | 1152.82 | | | .060 | .32320 | .01962 | .08640 | .06678 |
| | | 2977 | 2.306 | | | | | |
| 1016.0 | 1155.80 | | | .053 | .32229 | .01717 | .03876 | .02159 |
| | | 3133 | 2.437 | | | | | |
| 1018.0 | 1158.93 | | | -.081 | .32016 | -.02618 | -.09931 | -.07313 |
| | | 2854 | 2.274 | | | | | |
| 1020.0 | 1161.79 | | | .036 | .31974 | .01157 | .11009 | .09853 |
| | | 3035 | 2.298 | | | | | |
| 1022.0 | 1164.82 | | | -.014 | .31968 | -.00455 | -.12131 | -.11727 |
| | | 3053 | 2.221 | | | | | |
| 1024.0 | 1167.83 | | | .017 | .31958 | .00557 | .04255 | .03698 |
| | | 3121 | 2.249 | | | | | |
| 1026.0 | 1171.00 | | | -.015 | .31951 | -.00474 | .02992 | .03466 |
| | | 3017 | 2.259 | | | | | |
| 1028.0 | 1174.01 | | | -.004 | .31950 | -.00115 | -.03181 | -.03066 |
| | | 3094 | 2.187 | | | | | |
| 1030.0 | 1177.11 | | | -.022 | .31934 | -.00719 | .03222 | .03940 |
| | | 2914 | 2.220 | | | | | |
| 1032.0 | 1180.02 | | | -.044 | .31873 | -.01395 | -.04836 | -.03441 |
| | | 2693 | 2.201 | | | | | |
| 1034.0 | 1182.71 | | | .042 | .31818 | .01332 | -.01768 | -.03100 |
| | | 2865 | 2.249 | | | | | |
| 1036.0 | 1185.58 | | | .084 | .31594 | .02670 | .03872 | .01201 |
| | | 3208 | 2.376 | | | | | |
| 1038.0 | 1188.79 | | | -.120 | .31136 | -.03803 | -.01923 | .01880 |
| | | 2647 | 2.262 | | | | | |
| 1040.0 | 1191.44 | | | .086 | .30908 | .02664 | .05823 | .03159 |
| | | 3031 | 2.345 | | | | | |
| 1042.0 | 1194.47 | | | -.009 | .30906 | -.00273 | -.01487 | -.01213 |
| | | 2992 | 2.334 | | | | | |
| 1044.0 | 1197.46 | | | .055 | .30812 | .01699 | .04160 | .02461 |
| | | 3325 | 2.344 | | | | | |
| 1046.0 | 1200.78 | | | -.090 | .30561 | -.02783 | -.05336 | -.02554 |
| | | 2876 | 2.262 | | | | | |
| 1048.0 | 1203.66 | | | -.060 | .30450 | -.01342 | -.03258 | -.01416 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| | | 2735 | 2.108 | | | | | |
| 1050.0 | 1206.39 | | | .134 | .29902 | .04086 | .01336 | -.02750 |
| | | 3158 | 2.391 | | | | | |
| 1052.0 | 1209.55 | | | -.041 | .29851 | -.01229 | -.02036 | -.00807 |
| | | 3022 | 2.301 | | | | | |
| 1054.0 | 1212.57 | | | -.084 | .29642 | -.02496 | .01602 | .04099 |
| | | 2894 | 2.032 | | | | | |
| 1056.0 | 1215.47 | | | -.057 | .29547 | -.01677 | -.00740 | .00937 |
| | | 2689 | 1.953 | | | | | |
| 1058.0 | 1218.16 | | | .012 | .29543 | .00346 | -.03278 | -.03624 |
| | | 2757 | 1.950 | | | | | |
| 1060.0 | 1220.91 | | | -.044 | .29486 | -.01296 | -.02984 | -.01688 |
| | | 2525 | 1.950 | | | | | |
| 1062.0 | 1223.44 | | | .038 | .29443 | .01131 | .00871 | -.00260 |
| | | 2726 | 1.950 | | | | | |
| 1064.0 | 1226.16 | | | -.010 | .29440 | -.00304 | -.06816 | -.06512 |
| | | 2671 | 1.950 | | | | | |
| 1066.0 | 1228.83 | | | -.017 | .29431 | -.00505 | .08080 | .08585 |
| | | 2570 | 1.958 | | | | | |
| 1068.0 | 1231.40 | | | -.007 | .29430 | -.00203 | -.06554 | -.06351 |
| | | 2545 | 1.950 | | | | | |
| 1070.0 | 1233.95 | | | .046 | .29368 | .01355 | .02645 | .01290 |
| | | 2628 | 2.071 | | | | | |
| 1072.0 | 1236.52 | | | .324 | .26283 | .09518 | .10268 | .00750 |
| | | 4109 | 2.594 | | | | | |
| 1074.0 | 1240.69 | | | .110 | .25967 | .02380 | .06986 | .04106 |
| | | 4913 | 2.704 | | | | | |
| 1076.0 | 1245.60 | | | -.252 | .24317 | -.06546 | -.11607 | -.05061 |
| | | 3364 | 2.359 | | | | | |
| 1078.0 | 1248.96 | | | .155 | .23733 | .03770 | .09649 | .05879 |
| | | 4197 | 2.535 | | | | | |
| 1080.0 | 1253.16 | | | .152 | .23185 | .03607 | .08968 | .05361 |
| | | 5345 | 2.757 | | | | | |
| 1082.0 | 1258.50 | | | -.125 | .22824 | -.02892 | .04553 | .07445 |
| | | 4331 | 2.647 | | | | | |
| 1084.0 | 1262.84 | | | -.262 | .21259 | -.05977 | -.12879 | -.06901 |
| | | 2829 | 2.371 | | | | | |
| 1086.0 | 1265.66 | | | .220 | .20228 | .04681 | .08133 | .03452 |
| | | 4072 | 2.577 | | | | | |
| 1088.0 | 1269.74 | | | .168 | .19655 | .03406 | -.00967 | -.04372 |
| | | 5352 | 2.755 | | | | | |
| 1090.0 | 1275.09 | | | -.545 | .13806 | -.10721 | -.03233 | .07489 |
| | | 2223 | 1.951 | | | | | |
| 1092.0 | 1277.31 | | | .253 | .12926 | .03487 | .02423 | -.01064 |
| | | 3098 | 2.346 | | | | | |
| 1094.0 | 1280.41 | | | .288 | .11857 | .03716 | .00334 | -.03383 |
| | | 4900 | 2.680 | | | | | |
| 1096.0 | 1285.31 | | | -.039 | .11763 | -.01058 | .03096 | .04154 |
| | | 4259 | 2.578 | | | | | |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1098.0 | 1289.57 | | | -.271 | .10897 | -.03191 | -.00725 | .02465 |
| | | 2965 | 2.127 | | | | | |
| 1100.0 | 1292.53 | | | .043 | .10877 | .00466 | .03598 | .03132 |
| | | 3014 | 2.275 | | | | | |
| 1102.0 | 1295.55 | | | -.086 | .10796 | -.00937 | -.05090 | -.04153 |
| | | 2661 | 2.169 | | | | | |
| 1104.0 | 1298.21 | | | 0 | .10796 | .00005 | -.10328 | -.10332 |
| | | 2624 | 2.200 | | | | | |
| 1106.0 | 1300.33 | | | .193 | .10392 | .02089 | -.05725 | -.07813 |
| | | 3573 | 2.392 | | | | | |
| 1108.0 | 1304.41 | | | .027 | .10385 | .00281 | .05526 | .05244 |
| | | 3733 | 2.416 | | | | | |
| 1110.0 | 1308.14 | | | -.008 | .10384 | -.00087 | .06293 | .06380 |
| | | 3696 | 2.400 | | | | | |
| 1112.0 | 1311.84 | | | -.013 | .10382 | -.00132 | -.06810 | -.06678 |
| | | 3602 | 2.400 | | | | | |
| 1114.0 | 1315.44 | | | -.092 | .10295 | -.00951 | .01408 | .02359 |
| | | 3124 | 2.307 | | | | | |
| 1116.0 | 1318.56 | | | .010 | .10294 | .00099 | .10022 | .09923 |
| | | 3168 | 2.319 | | | | | |
| 1118.0 | 1321.73 | | | -.040 | .10278 | -.00413 | -.03698 | -.03284 |
| | | 3061 | 2.211 | | | | | |
| 1120.0 | 1324.79 | | | .068 | .10229 | .00704 | -.01234 | -.01937 |
| | | 3317 | 2.341 | | | | | |
| 1122.0 | 1328.11 | | | -.060 | .10193 | -.00614 | -.05945 | -.05331 |
| | | 3140 | 2.192 | | | | | |
| 1124.0 | 1331.25 | | | .031 | .10183 | .00316 | -.02958 | -.03275 |
| | | 3234 | 2.265 | | | | | |
| 1126.0 | 1334.48 | | | .065 | .10140 | .00657 | .05697 | .05040 |
| | | 3523 | 2.366 | | | | | |
| 1128.0 | 1338.00 | | | 0 | 0 | 0 | .05603 | .05603 |
| 1130.0 | | | | | | | -.04647 | -.04647 |
| 1132.0 | | | | | | | -.04884 | -.04884 |
| 1134.0 | | | | | | | .00817 | .00817 |
| 1136.0 | | | | | | | -.01237 | -.01237 |
| 1138.0 | | | | | | | .12107 | .12107 |
| 1140.0 | | | | | | | -.02232 | -.02232 |
| 1142.0 | | | | | | | -.05978 | -.05978 |
| 1144.0 | | | | | | | .04630 | .04630 |
| 1146.0 | | | | | | | -.01206 | -.01206 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1148.0 | | | | | | | .05278 | .05278 |
| 1150.0 | | | | | | | -.02056 | -.02056 |
| 1152.0 | | | | | | | -.06110 | -.06110 |
| 1154.0 | | | | | | | .05731 | .05731 |
| 1156.0 | | | | | | | .02381 | .02381 |
| 1158.0 | | | | | | | -.01816 | -.01816 |
| 1160.0 | | | | | | | .01035 | .01035 |
| 1162.0 | | | | | | | .01541 | .01541 |
| 1164.0 | | | | | | | -.03176 | -.03176 |
| 1166.0 | | | | | | | -.04745 | -.04745 |
| 1168.0 | | | | | | | .00057 | .00057 |
| 1170.0 | | | | | | | .07960 | .07960 |
| 1172.0 | | | | | | | .00533 | .00533 |
| 1174.0 | | | | | | | -.02552 | -.02552 |
| 1176.0 | | | | | | | -.00715 | -.00715 |
| 1178.0 | | | | | | | -.03844 | -.03844 |
| 1180.0 | | | | | | | .03079 | .03079 |
| 1182.0 | | | | | | | -.06594 | -.06594 |
| 1184.0 | | | | | | | -.03357 | -.03357 |
| 1186.0 | | | | | | | -.01426 | -.01426 |
| 1188.0 | | | | | | | .01722 | .01722 |
| 1190.0 | | | | | | | .09525 | .09525 |
| 1192.0 | | | | | | | .00628 | .00628 |
| 1194.0 | | | | | | | .04114 | .04114 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1196.0 | | | | | | | -.01363 | -.01363 |
| 1198.0 | | | | | | | -.06665 | -.06665 |
| 1200.0 | | | | | | | .04024 | .04024 |
| 1202.0 | | | | | | | .04137 | .04137 |
| 1204.0 | | | | | | | -.01662 | -.01662 |
| 1206.0 | | | | | | | -.01524 | -.01524 |
| 1208.0 | | | | | | | .02558 | .02558 |
| 1210.0 | | | | | | | -.01060 | -.01060 |
| 1212.0 | | | | | | | -.13155 | -.13155 |
| 1214.0 | | | | | | | .11041 | .11041 |
| 1216.0 | | | | | | | -.06843 | -.06843 |
| 1218.0 | | | | | | | .02130 | .02130 |
| 1220.0 | | | | | | | .01965 | .01965 |
| 1222.0 | | | | | | | -.06571 | -.06571 |
| 1224.0 | | | | | | | .06232 | .06232 |
| 1226.0 | | | | | | | .02717 | .02717 |
| 1228.0 | | | | | | | -.01152 | -.01152 |
| 1230.0 | | | | | | | -.01084 | -.01084 |
| 1232.0 | | | | | | | .03767 | .03767 |
| 1234.0 | | | | | | | -.04724 | -.04724 |
| 1236.0 | | | | | | | -.08664 | -.08664 |
| 1238.0 | | | | | | | .00574 | .00574 |
| 1240.0 | | | | | | | .00437 | .00437 |
| 1242.0 | | | | | | | .04827 | .04827 |
| 1244.0 | | | | | | | .00042 | .00042 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1246.0 | | | | | | | -.02803 | -.02803 |
| 1248.0 | | | | | | | .05168 | .05168 |
| 1250.0 | | | | | | | .02792 | .02792 |
| 1252.0 | | | | | | | -.00245 | -.00245 |
| 1254.0 | | | | | | | .00605 | .00605 |
| 1256.0 | | | | | | | .04096 | .04096 |
| 1258.0 | | | | | | | -.00193 | -.00193 |
| 1260.0 | | | | | | | -.06624 | -.06624 |
| 1262.0 | | | | | | | .01673 | .01673 |
| 1264.0 | | | | | | | -.11468 | -.11468 |
| 1266.0 | | | | | | | .04485 | .04485 |
| 1268.0 | | | | | | | -.00168 | -.00168 |
| 1270.0 | | | | | | | .00373 | .00373 |
| 1272.0 | | | | | | | .01026 | .01026 |
| 1274.0 | | | | | | | .02974 | .02974 |
| 1276.0 | | | | | | | .04293 | .04293 |
| 1278.0 | | | | | | | -.07302 | -.07302 |
| 1280.0 | | | | | | | .07934 | .07934 |
| 1282.0 | | | | | | | -.07716 | -.07716 |
| 1284.0 | | | | | | | .06399 | .06399 |
| 1286.0 | | | | | | | -.06144 | -.06144 |
| 1288.0 | | | | | | | .04150 | .04150 |
| 1290.0 | | | | | | | -.00044 | -.00044 |
| 1292.0 | | | | | | | -.04142 | -.04142 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1294.0 | | | | | | | .03499 | .03499 |
| 1296.0 | | | | | | | -.01834 | -.01834 |
| 1298.0 | | | | | | | .04920 | .04920 |
| 1300.0 | | | | | | | .02774 | .02774 |
| 1302.0 | | | | | | | -.07871 | -.07871 |
| 1304.0 | | | | | | | .03495 | .03495 |
| 1306.0 | | | | | | | -.01221 | -.01221 |
| 1308.0 | | | | | | | .04925 | .04925 |
| 1310.0 | | | | | | | -.02445 | -.02445 |
| 1312.0 | | | | | | | -.00344 | -.00344 |
| 1314.0 | | | | | | | -.10007 | -.10007 |
| 1316.0 | | | | | | | .08066 | .08066 |
| 1318.0 | | | | | | | -.05380 | -.05380 |
| 1320.0 | | | | | | | .02399 | .02399 |
| 1322.0 | | | | | | | -.00798 | -.00798 |
| 1324.0 | | | | | | | .04863 | .04863 |
| 1326.0 | | | | | | | -.01217 | -.01217 |
| 1328.0 | | | | | | | .04559 | .04559 |
| 1330.0 | | | | | | | -.00300 | -.00300 |
| 1332.0 | | | | | | | -.08172 | -.08172 |
| 1334.0 | | | | | | | .00683 | .00683 |
| 1336.0 | | | | | | | -.04803 | -.04803 |
| 1338.0 | | | | | | | -.02993 | -.02993 |
| 1340.0 | | | | | | | .07040 | .07040 |
| 1342.0 | | | | | | | .07450 | .07450 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1344.0 | | | | | | | -.06127 | -.06127 |
| 1346.0 | | | | | | | .02062 | .02062 |
| 1348.0 | | | | | | | .03695 | .03695 |
| 1350.0 | | | | | | | -.04622 | -.04622 |
| 1352.0 | | | | | | | -.01239 | -.01239 |
| 1354.0 | | | | | | | .01721 | .01721 |
| 1356.0 | | | | | | | .02618 | .02618 |
| 1358.0 | | | | | | | -.01577 | -.01577 |
| 1360.0 | | | | | | | .00843 | .00843 |
| 1362.0 | | | | | | | -.02255 | -.02255 |
| 1364.0 | | | | | | | .00409 | .00409 |
| 1366.0 | | | | | | | .02461 | .02461 |
| 1368.0 | | | | | | | -.02251 | -.02251 |
| 1370.0 | | | | | | | -.01665 | -.01665 |
| 1372.0 | | | | | | | .03639 | .03639 |
| 1374.0 | | | | | | | -.03798 | -.03798 |
| 1376.0 | | | | | | | .04701 | .04701 |
| 1378.0 | | | | | | | -.02224 | -.02224 |
| 1380.0 | | | | | | | .06604 | .06604 |
| 1382.0 | | | | | | | .00290 | .00290 |
| 1384.0 | | | | | | | -.04430 | -.04430 |
| 1386.0 | | | | | | | .02012 | .02012 |
| 1388.0 | | | | | | | -.09375 | -.09375 |
| 1390.0 | | | | | | | .03047 | .03047 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1392.0 | | | | | | | .01601 | .01601 |
| 1394.0 | | | | | | | -.02047 | -.02047 |
| 1396.0 | | | | | | | .10385 | .10385 |
| 1398.0 | | | | | | | -.01789 | -.01789 |
| 1400.0 | | | | | | | -.03787 | -.03787 |
| 1402.0 | | | | | | | -.00680 | -.00680 |
| 1404.0 | | | | | | | -.06163 | -.06163 |
| 1406.0 | | | | | | | -.01862 | -.01862 |
| 1408.0 | | | | | | | .01955 | .01955 |
| 1410.0 | | | | | | | .04156 | .04156 |
| 1412.0 | | | | | | | -.04182 | -.04182 |
| 1414.0 | | | | | | | .01553 | .01553 |
| 1416.0 | | | | | | | -.02366 | -.02366 |
| 1418.0 | | | | | | | .03963 | .03963 |
| 1420.0 | | | | | | | .05842 | .05842 |
| 1422.0 | | | | | | | -.01119 | -.01119 |
| 1424.0 | | | | | | | .02952 | .02952 |
| 1426.0 | | | | | | | -.04721 | -.04721 |
| 1428.0 | | | | | | | -.04471 | -.04471 |
| 1430.0 | | | | | | | .00630 | .00630 |
| 1432.0 | | | | | | | .03524 | .03524 |
| 1434.0 | | | | | | | .00409 | .00409 |
| 1436.0 | | | | | | | -.02817 | -.02817 |
| 1438.0 | | | | | | | -.04523 | -.04523 |
| 1440.0 | | | | | | | .07905 | .07905 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1442.0 | | | | | | | -.08647 | -.08647 |
| 1444.0 | | | | | | | .04159 | .04159 |
| 1446.0 | | | | | | | .02045 | .02045 |
| 1448.0 | | | | | | | .00535 | .00535 |
| 1450.0 | | | | | | | -.00748 | -.00748 |
| 1452.0 | | | | | | | .07477 | .07477 |
| 1454.0 | | | | | | | -.01845 | -.01845 |
| 1456.0 | | | | | | | -.10569 | -.10569 |
| 1458.0 | | | | | | | .04333 | .04333 |
| 1460.0 | | | | | | | .00727 | .00727 |
| 1462.0 | | | | | | | -.06451 | -.06451 |
| 1464.0 | | | | | | | .03917 | .03917 |
| 1466.0 | | | | | | | .04680 | .04680 |
| 1468.0 | | | | | | | -.01502 | -.01502 |
| 1470.0 | | | | | | | .03888 | .03888 |
| 1472.0 | | | | | | | .02401 | .02401 |
| 1474.0 | | | | | | | .00334 | .00334 |
| 1476.0 | | | | | | | -.06913 | -.06913 |
| 1478.0 | | | | | | | -.01992 | -.01992 |
| 1480.0 | | | | | | | .01220 | .01220 |
| 1482.0 | | | | | | | -.00664 | -.00664 |
| 1484.0 | | | | | | | .01065 | .01065 |
| 1486.0 | | | | | | | -.05510 | -.05510 |
| 1488.0 | | | | | | | .04044 | .04044 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1490.0 | | | | | | | .07025 | .07025 |
| 1492.0 | | | | | | | -.04177 | -.04177 |
| 1494.0 | | | | | | | .04264 | .04264 |
| 1496.0 | | | | | | | -.05507 | -.05507 |
| 1498.0 | | | | | | | -.00174 | -.00174 |
| 1500.0 | | | | | | | .00327 | .00327 |
| 1502.0 | | | | | | | -.05250 | -.05250 |
| 1504.0 | | | | | | | .01280 | .01280 |
| 1506.0 | | | | | | | -.02555 | -.02555 |
| 1508.0 | | | | | | | .00930 | .00930 |
| 1510.0 | | | | | | | .06799 | .06799 |
| 1512.0 | | | | | | | -.08823 | -.08823 |
| 1514.0 | | | | | | | .00485 | .00485 |
| 1516.0 | | | | | | | .08204 | .08204 |
| 1518.0 | | | | | | | -.02246 | -.02246 |
| 1520.0 | | | | | | | -.02756 | -.02756 |
| 1522.0 | | | | | | | .02000 | .02000 |
| 1524.0 | | | | | | | -.00213 | -.00213 |
| 1526.0 | | | | | | | .00175 | .00175 |
| 1528.0 | | | | | | | .03635 | .03635 |
| 1530.0 | | | | | | | -.00187 | -.00187 |
| 1532.0 | | | | | | | -.03340 | -.03340 |
| 1534.0 | | | | | | | .04770 | .04770 |
| 1536.0 | | | | | | | -.05721 | -.05721 |
| 1538.0 | | | | | | | .02149 | .02149 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (OR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1540.0 | | | | | | | .03327 | .03327 |
| 1542.0 | | | | | | | .00526 | .00526 |
| 1544.0 | | | | | | | -.09912 | -.09912 |
| 1546.0 | | | | | | | .03651 | .03651 |
| 1548.0 | | | | | | | -.02426 | -.02426 |
| 1550.0 | | | | | | | .00886 | .00886 |
| 1552.0 | | | | | | | .06569 | .06569 |
| 1554.0 | | | | | | | -.05461 | -.05461 |
| 1556.0 | | | | | | | .06490 | .06490 |
| 1558.0 | | | | | | | -.05721 | -.05721 |
| 1560.0 | | | | | | | .00003 | .00003 |
| 1562.0 | | | | | | | -.00168 | -.00168 |
| 1564.0 | | | | | | | .04801 | .04801 |
| 1566.0 | | | | | | | -.03010 | -.03010 |
| 1568.0 | | | | | | | -.02503 | -.02503 |
| 1570.0 | | | | | | | -.02448 | -.02448 |
| 1572.0 | | | | | | | -.01675 | -.01675 |
| 1574.0 | | | | | | | .04157 | .04157 |
| 1576.0 | | | | | | | .05642 | .05642 |
| 1578.0 | | | | | | | -.06724 | -.06724 |
| 1580.0 | | | | | | | .09524 | .09524 |
| 1582.0 | | | | | | | -.07279 | -.07279 |
| 1584.0 | | | | | | | -.00634 | -.00634 |
| 1586.0 | | | | | | | -.00325 | -.00325 |

| TWO WAY TRAVEL TIME MS | DEPTH FROM SRD (COR TOP) M | INTERVAL VELOCITY M/S | INTERVAL DENSITY G/C3 | REFLECT. COEFF. | TWO WAY ATTEN. COEFF. | SYNTHETIC SEISMO. PRIMARY | PRIMARY + MULTIPLES | MULTIPLES ONLY |
|---|---|---|---|---|---|---|---|---|
| 1588.0 | | | | | | | .02291 | .02291 |
| 1590.0 | | | | | | | -.03988 | -.03988 |
| 1592.0 | | | | | | | -.02575 | -.02575 |
| 1594.0 | | | | | | | -.01526 | -.01526 |
| 1596.0 | | | | | | | -.00464 | -.00464 |
| 1598.0 | | | | | | | .03291 | .03291 |
| 1600.0 | | | | | | | -.06021 | -.06021 |
| 1602.0 | | | | | | | .00931 | .00931 |
| 1604.0 | | | | | | | .09848 | .09848 |
| 1606.0 | | | | | | | .00430 | .00430 |
| 1608.0 | | | | | | | -.07756 | -.07756 |

PE601028

This is an enclosure indicator page.
The enclosure PE601028 is enclosed within the container PE902188 at this location in this document.

The enclosure PE601028 has the following characteristics:

| | |
|---|---|
| ITEM_BARCODE = | PE601028 |
| CONTAINER_BARCODE = | PE902188 |
| NAME = | Drift Corrected Sonic |
| BASIN = | GIPPSLAND |
| PERMIT = | PEP/120 |
| TYPE = | WELL |
| SUBTYPE = | VELOCITY_CHART |
| DESCRIPTION = | Drift Corrected Sonic (enclosure from WCR) for Wonga Binda-1 |
| REMARKS = | |
| DATE_CREATED = | 4/05/88 |
| DATE_RECEIVED = | 12/09/88 |
| W_NO = | W973 |
| WELL_NAME = | Wonga Binda-1 |
| CONTRACTOR = | SCHLUMBERGER |
| CLIENT_OP_CO = | CRUSADER RESOURCES NL |

(Inserted by DNRE - Vic Govt Mines Dept)

PE601029

This is an enclosure indicator page.
The enclosure PE601029 is enclosed within the container PE902188 at this location in this document.

The enclosure PE601029 has the following characteristics:

| | |
|---|---|
| ITEM_BARCODE = | PE601029 |
| CONTAINER_BARCODE = | PE902188 |
| NAME = | Seismic Calibration Log |
| BASIN = | GIPPSLAND |
| PERMIT = | PEP/120 |
| TYPE = | WELL |
| SUBTYPE = | VELOCITY_CHART |
| DESCRIPTION = | Seismic Calibration Log (enclosure from WCR) for Wonga Binda-1 |
| REMARKS = | |
| DATE_CREATED = | 4/05/88 |
| DATE_RECEIVED = | 12/09/88 |
| W_NO = | W973 |
| WELL_NAME = | Wonga Binda-1 |
| CONTRACTOR = | SCHLUMBERGER |
| CLIENT_OP_CO = | CRUSADER RESOURCES NL |

(Inserted by DNRE - Vic Govt Mines Dept)

PE601030

This is an enclosure indicator page.
The enclosure PE601030 is enclosed within the container PE902188 at this location in this document.

The enclosure PE601030 has the following characteristics:

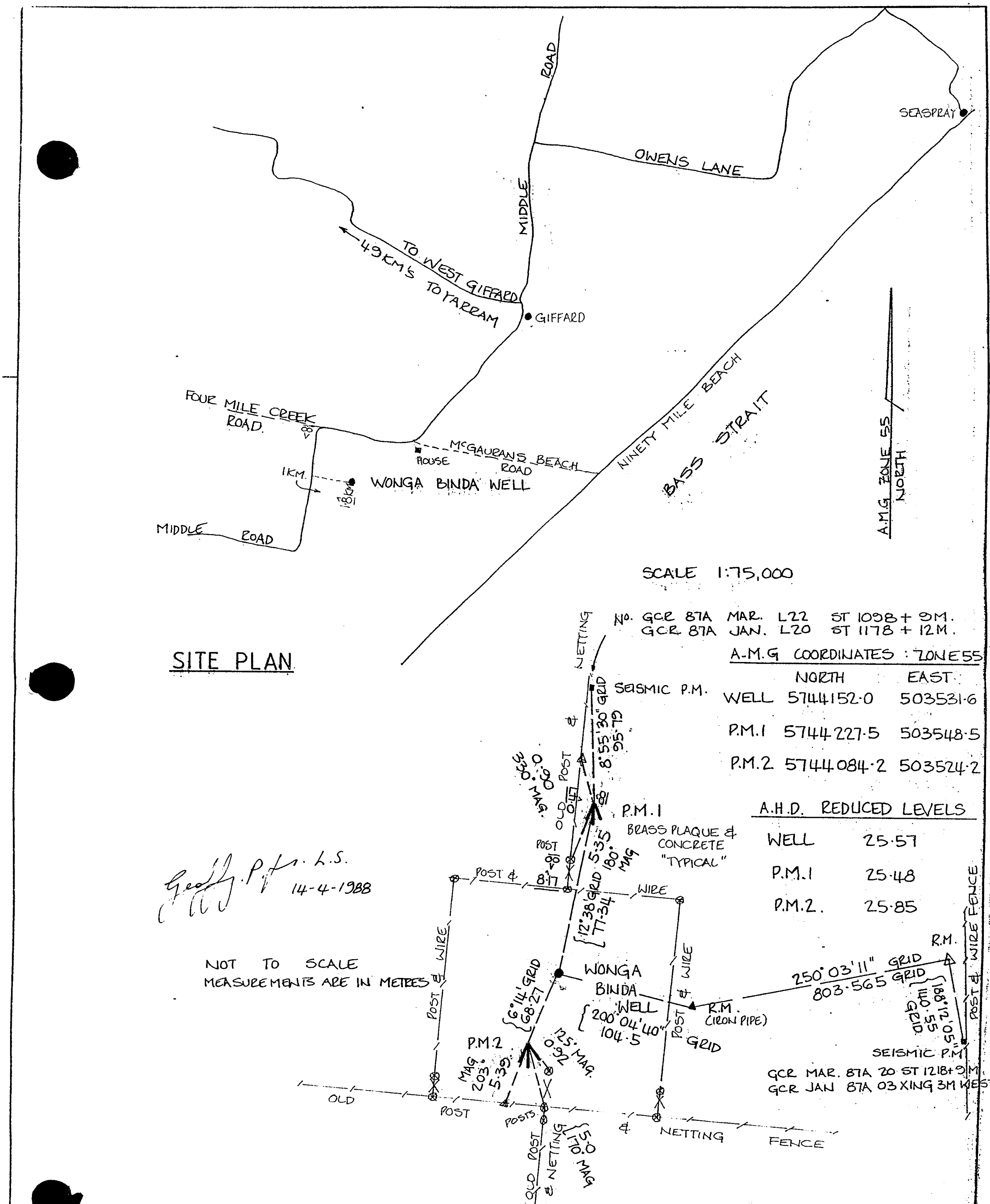
ITEM_BARCODE = PE601030
CONTAINER_BARCODE = PE902188
NAME = Geogram - Synthetic Seismogram 10-60 Hz
BASIN = GIPPSLAND
PERMIT = PEP/120
TYPE = WELL
SUBTYPE = SYNTH_SEISMOGRAM
DESCRIPTION = Geogram - Synthetic Seismogram 10-60 Hz (enclosure from WCR ) for Wonga Binda-1
REMARKS =
DATE_CREATED = 4/05/88
DATE_RECEIVED = 12/09/88
W_NO = W973
WELL_NAME = Wonga Binda-1
CONTRACTOR = SCHLUMBERGER
CLIENT_OP_CO = CRUSADER RESOURCES NL

(Inserted by DNRE - Vic Govt Mines Dept)

# APPENDIX 11

# APPENDIX 11

## WELL LOCATION SURVEY




A.M.G COORDINATES : ZONE 55

| | NORTH | EAST |
|---|---|---|
| WELL | 5744152.0 | 503531.6 |
| P.M.1 | 5744227.5 | 503548.5 |
| P.M.2 | 5744084.2 | 503524.2 |

A.H.D. REDUCED LEVELS

| | |
|---|---|
| WELL | 25.57 |
| P.M.1 | 25.48 |
| P.M.2. | 25.85 |

WONGA BINDA WELL No.1
SITE & P.M. REFERENCE PLAN
FOR CRUSADER OIL N.L.

**KLUGE JACKSON CONSULTANTS PTY. LTD.**
SURVEYORS & TOWN PLANNERS

45 MACALISTER STREET
SALE 3850 (051) 44 3877
41 BREED STREET
TRARALGON 3844
(051) 74 4808

| LEVEL DATUM | SCALE | DATE | DRN. | CHK. | PROJ. SURV. |
|---|---|---|---|---|---|
| AUSTRALIAN HEIGHT DATUM. P.M.19 DARRIMAN | AS SHOWN | 14.4.88 | G.P.I. | J.J. | J.J. |

| REF./DRAWING NUMBER | REV. |
|---|---|
| 88039 B | 1 |

PE601025

This is an enclosure indicator page.
The enclosure PE601025 is enclosed within the container PE902188 at this location in this document.

The enclosure PE601025 has the following characteristics:

ITEM_BARCODE = PE601025
CONTAINER_BARCODE = PE902188
NAME = Composite well log
BASIN = GIPPSLAND
PERMIT = PEP/120
TYPE = WELL
SUBTYPE = COMPOSITE_LOG
DESCRIPTION = Composite Well Log (enclosure from WCR) for Wonga Binda-1
REMARKS =
DATE_CREATED = 20/04/88
DATE_RECEIVED = 12/09/88
W_NO = W973
WELL_NAME = Wonga Binda-1
CONTRACTOR = Crusader Limited
CLIENT_OP_CO = CRUSADER LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE601026

This is an enclosure indicator page.
The enclosure PE601026 is enclosed within the container PE902188 at this location in this document.

The enclosure PE601026 has the following characteristics:

| | |
|---|---|
| ITEM_BARCODE = | PE601026 |
| CONTAINER_BARCODE = | PE902188 |
| NAME = | Mud log |
| BASIN = | GIPPSLAND |
| PERMIT = | PEP/120 |
| TYPE = | WELL |
| SUBTYPE = | MUD_LOG |
| DESCRIPTION = | Mud log (enclosure from WCR) for Wonga Binda-1 |
| REMARKS = | |
| DATE_CREATED = | 17/04/88 |
| DATE_RECEIVED = | 12/09/88 |
| W_NO = | W973 |
| WELL_NAME = | Wonga Binda-1 |
| CONTRACTOR = | GEARHART PTY LTD GEODATA SERVICES |
| CLIENT_OP_CO = | CRUSADER LTD |

PE601027

This is an enclosure indicator page.
The enclosure PE601027 is enclosed within the container PE902188 at this location in this document.

The enclosure PE601027 has the following characteristics:

| | |
|---|---|
| ITEM_BARCODE = | PE601027 |
| CONTAINER_BARCODE = | PE902188 |
| NAME = | Strip Log |
| BASIN = | GIPPSLAND |
| PERMIT = | PEP/120 |
| TYPE = | WELL |
| SUBTYPE = | WELL_LOG |
| DESCRIPTION = | Strip Log (enclosure from WCR) for Wonga Binda-1 |
| REMARKS = | |
| DATE_CREATED = | |
| DATE_RECEIVED = | 12/09/88 |
| W_NO = | W973 |
| WELL_NAME = | Wonga Binda-1 |
| CONTRACTOR = | |
| CLIENT_OP_CO = | CRUSADER LTD |

(Inserted by DNRE - Vic Govt Mines Dept)