



OIL and GAS DIVISION

MILDURA WEST 2

25 OCT 1983

WELL COMPLETION REPORT

W824

SOUTH AUSTRALIAN OIL & GAS
CORPORATION PTY. LTD.

204/130

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902538 002

SOUTH AUSTRALIAN OIL & GAS CORPORATION PTY. LTD. - COMSERV (779)

OIL and GAS DIVISION
MILDURA WEST 2

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25 OCT 1983

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PLEASE DO NOT TAKE APART.

Prepared by
R.J. Suttill
SAOGC
July, 1983

IMPORTANT NOTICE

902588 003

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WELL: MILDURA WEST 2		WELL CATEGORY: EXPLORATION	
LAT: 34° 32' 29.04" S.	PROSPECT TYPE: ONLAP ONTO PRE-PERMIAN HIGH	INTEREST HOLDERS:	
LONG: 141° 17' 04.92" E.		SAOGC 30% Conserv (779) 70%	
SEISMIC SP: 81-A2 (350)	PARTICIPATING INTERESTS: SAOGC 100%		
ELEVATION GND: 58 m			
KB: 62.63 m			
MAP: MU000.2751			
T.D. (LOG): 598.2 m			
TD(DRLR): 597.2 m			
PBTD: - m			
RIG: ATCO-APM A3			

SPD: 20-6-83	RIG RELEASED: 25-6-83	
COMPLETED: -	STATUS: PLUGGED AND ABANDONED	
TYPE COMPLETION: -		
IP: -	INTERVAL: - 902538 005	
ZONE(S): -		
CASING SIZE	SHOE DEPTH	TYPE
7"	95.71m	231b, J55 LT & C Range 3

AGE	FORMATION OR ZONE TOPS	DEPTH (m)		THICKNESS (m)	(H)IGH/(L)OW(m)	PERFORATIONS 4 SHOTS/m	
		DRLD	SUBSEA			UNIT	INTERVAL
Quaternary	Undifferentiated and Blanchetown Clay	4.63	+ 58.0	17.8	0	None	
Pliocene	Parilla Sand	22.4	+ 40.2	60.0	12.2 (H)		
Pliocene/Miocene	Bookpurnong Beds	82.4	- 19.8	21.0	2.2 (H)		
Miocene	Duddo Limestone	103.4	- 40.8	149.6	1.2 (H)		
Oligocene	Ettrick Formation	253.0	-190.8	22.4	23.4 (L)		
Eocene	Olney Formation	275.4	-212.8	88.6	27.8 (L)		
Eocene/Palaeocene	Warina Formation	364.0	-301.4	110.4	11.4 (L)		
Early Cretaceous	Monash Formation						
	Coombool Member	Absent	Absent	Absent	Absent		
	Merreti Member	474.4	-411.8	37.6	183.2 (H)		
Cambrian	Pyap Member	512.0	-449.4	47.2	210.6 (H)		
	Undifferentiated Karman-too Group	Absent	Absent	Absent	Absent		
	Total Depth	559.2	-496.6	> 39.0	238.4 (H)		
		598.2	-535.6	-	209.4 (H)		

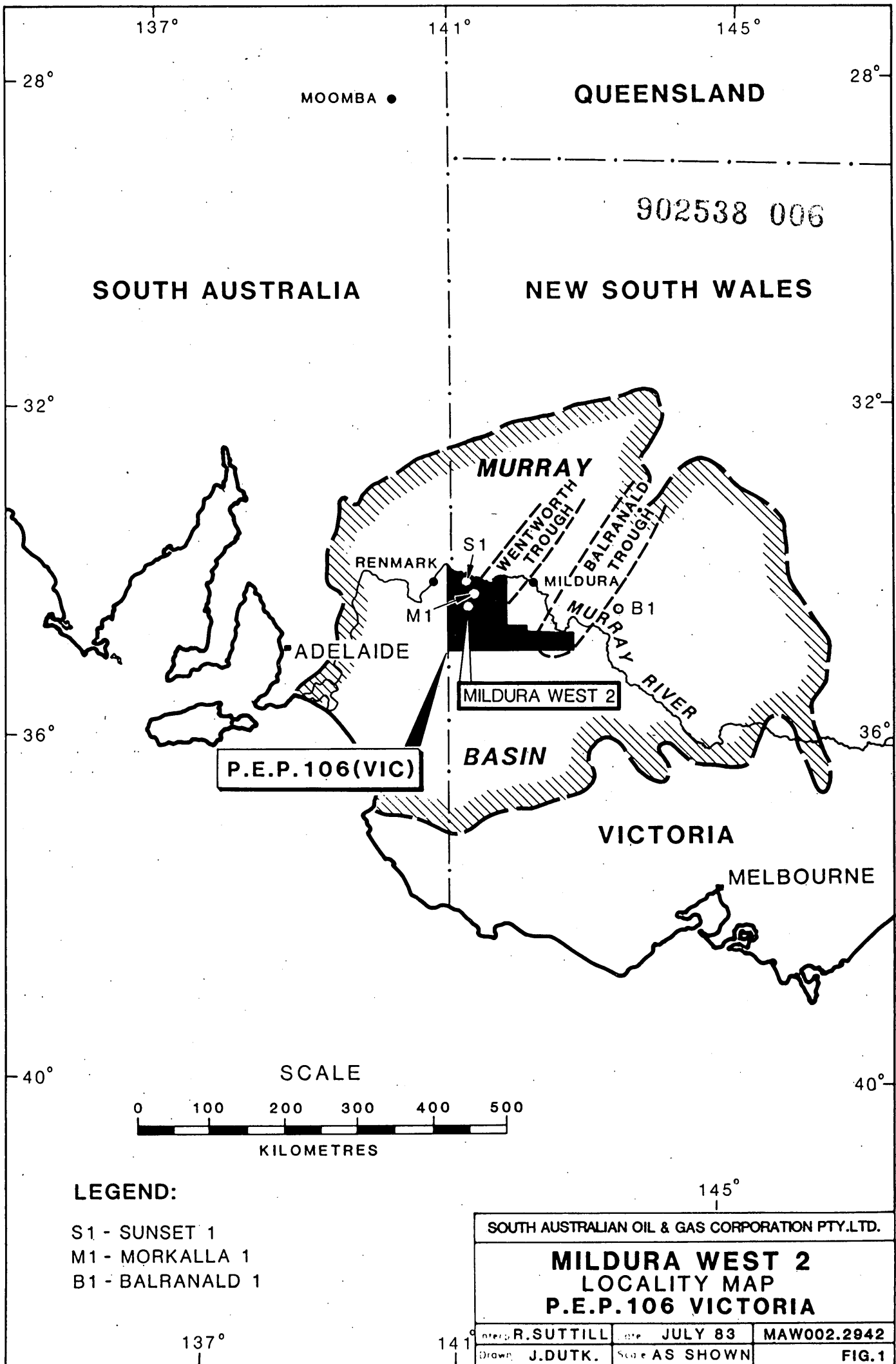
LOG	RUN	INTERVAL	BHT
BPB Logs:			
MCS	1	90m - 596m	50°C
CCS	1	Surface-598.2m	
NS	1	19m-598m	
FE	1	92.4m - 596m	
SP-RES	1	86m - 597m	

LOG INTERPRETATION									
INTERVAL	Ø	Sw	INTERVAL	Ø	Sw	INTERVAL	Ø	Sw	

CORES				
FORM	NO.	INTERVAL	CUT	REG.
Karman-too	1	585m - 589m	4m	1.2m

FORMATION TESTS												
NO.	INTERVAL	IO	ISI	FO	FSI	1st FLOW IP/FP	ISIP	2nd FLOW IP/FP	FSIP	TC	BC	REMARKS
					N	O	N	E				

ADDITIONAL INFORMATION :	PREPARED: 18-7-83
	UPDATED:



WELL HISTORY1. General Data

902538 007

Interest Holders:	SAOGC	30%
	Comserv (779)	70%
Participation Interests:	SAOGC	100%

Surveyed Location: Latitude: 34°32'29.04"S (Subject to Survey)
Longitude: 141°17'04.92"E (Subject to Survey)

Surveyed Elevation: Ground level: 58 m (Subject to Survey)
Kelly Bushing: 62.63 m (Subject to Survey)

Seismic Reference: 81-A2 (350) Mildura West Seismic Survey 1981

Total Depth: Driller: 597.2 m
B.P.B.: 598.2 m

2. Drilling Summary (All depths are to Drillers' KB unless shown otherwise)

Mildura West 2 was spudded at 1100 hours on the 20th June 1983. It was plugged and abandoned as a dry hole on the 25th June 1983. A 8-3/4" (222.25 mm) hole was drilled to 100.8 m, this was cased with 8 joints of 7" (177.80 mm), 23 lb J55, LT & C, Range 3 casing, with a shoe at 94.50 m. Casing was cemented with 70 sacks Class A cement (slurry weight 13.5 ppq (SG 1.62) plus 2% calcium chloride).

A 6" (152.40 mm) hole was drilled to 585 m and Core 1 was cut from 585 m to 589 m with 1.2 m (30%) being recovered. A 6" (152.40 mm) hole was then drilled to 597.2 m which was total depth for the well.

Electric logs were then run, the well was plugged and abandoned with three cement plugs. The rig was released at 1630 hours on the 25th June 1983.

(a) Drilling Make-up Water

The make-up water for Mildura West 2 was obtained by tanker from the Bambil South Storage Tank approximately 26 kilometres from the wellsite.

(b) Mud Logging

Mudlogging operations were carried out by Gearhart Pty. Ltd. (Geodata Division).

Ditch cutting samples were collected at 10 m intervals from the surface to 27 m at which point the conductor pipe was washed out and no further samples were obtained until surface casing had been set. From surface casing point (95.71 m) ditch cutting samples were collected at 3 m intervals

to a total depth of 597.2 m. All samples were described and checked for fluorescence and visual porosity.

Source rock samples were taken at 50 m intervals from 95.71 m to 597.2 m (T.D.).

A Gearhart mud logging unit was used to monitor ditch gas from surface to 27 m and from 95.71 m to 597.2 m (T.D.). The break in recording gas values was caused by loss of circulation through the conductor pipe. Total gas was recorded continuously using a Continental Laboratories 900 Series gas detector. Depth, rate of penetration and pump strokes were also monitored continuously.

(c) Testing

No drill stem tests were conducted in Mildura West 2.

(d) Coring

One core was cut in Mildura West 2

Core 1: Kanmantoo Group 585 m - 589 m

(e) Electric Logging (B.P.B. depths)

Electric logging was performed using slimline logging tools by British Plaster Boards Limited (B.P.B.).

Suite No. 1

MCS	(Multichannel Sonic)	90.0 m - 596.0 m
CCS	(Coal Combination Sonde)	Surface - 598.2 m
NS	(Neutron Sonde)	19.0 m - 598.0 m
FE	(Focussed Electric)	92.4 m - 596.0 m
SP-RES	(Spontaneous Potential - Resistance)	86.0 m - 597.0 m

(f) Sidewall Cores

No sidewall coring programme was conducted in Mildura West 2.

902533 010

(g) Temperature Control

A bottom hole temperature (BHT) of 50°C at a depth of 598.2 m was recorded prior to running the CCS logging tool. This BHT was recorded 5 hours after circulation was stopped. This gives a minimum BHT for the well of 50°C (122°F). As only one BHT is available it is not possible to calculate an extrapolated BHT in the conventional way. Data from the other two wells drilled in this programme Mildura West 1 and Robinvale 1, are plotted on a depth-temperature plot (Appendix 4) which gives a minimum regional geothermal gradient of 4.5°C/100 m (2.46°F/100 ft) for this area.

(h) Deviation Surveys

Three deviation surveys were recorded, the first at 95 m showed a 1° deviation from vertical, the second at 244 m showed a 1/20° deviation and the third at 558 m showed a 1/40° deviation.

(i) Velocity Survey

No Velocity Survey was conducted at Mildura West 2.

(j) Completion Details

Mildura West 2 was plugged and abandoned with three cement plugs. A 31 m plug was set over the top of the Warina Formation with 20 sacks of class 'A' cement over the interval 359 m to 390 m. A 42 m plug was then set over the casing shoe with 25 sacks of class 'A' cement over the interval 78 m to 120 m. Finally a 6 m surface plug was set at the surface using 2 sacks of class 'A' cement. A steel cap with the well name, number, spud date, total depth and the plugged and abandoned date was then

welded in place on the casing. The rig was released at 1630 hours on the 25th June 1983.

3. Drilling Data

Date drilling commenced: 20-6-83 @ 1100 hours
Date drilling completed: 24-6-83 @ 0630 hours
Date rig released: 25-6-83 @ 1630 hours
Total rig time: 5 days, 5.5 hours
Contractor: ATCO-APM Drilling Pty. Ltd.
Rig: Trailer Mounted Franks Cabot Drilling Rig (Rig No. A3)
 Mounted on a 12' wide x 47' long Goose Neck Trailer, with a 24" Fabricated Channel Beam.
 Tandem Rear Axles: 16 - 11R 22.5 Radial Tyres Hydraulic support legs: Four Locknut Feature Carrier is complete with 1/8" Steel Plated Deck, 2' x 8' long Folding type Walkways on each side, Handrails and Stairways to ground level. Dog House and Generator Set are mounted on Trailer.

Tag Axle:

1 - 45,000 lb rated Tandem Axle Booster with
 8 - 11R 22.5 Tyres to offset overload weight on Rig Carrier during highway moves.

Drawworks:

Franks Cabot, Model 1287-TD Single Drum Drawworks
 Main Drum Barrel Dia. : 18 7/8" x 34" 1" Grooving
 Brake Rim Dia./Width : 42" x 12
 Drum Clutch : 24" - 2 Plate
 Jackshaft Clutches : 18" - 2 Plate

Drum Shaft Diameter : 6"
 Main Drum Drive Chain : 1 1/4" - T
 Jackshaft Drive Chain : 1 1/4" - DBL
 Hydromatic : 22" SR Parmac

902550 012

Drawworks Motor:

G.E. Series SGE-76101 Electric Motor, complete with Blower driven by a 5 h.p. Electric Motor.

Hydraulic System:

1 - 1/4" x 2" Hydraulic Pump, driven by a 50 h.p. Electric Motor, 575 volts, ID# 9002764-049, connected to a 270 gallon Fluid Reservoir.

S.C.R. System:

Manufactured by Integrated Power Systems Corporation.

Ratings: Input Voltage	:	600 VAC 30-3W
Output Voltage	:	0-750 VDC
Input Current	:	600 ADC Cont. 1250 ADC Int.

Generators A.C.:

Rig Light Plant:

Stamford Generator, 37.5 K.V.A., Type AC-244D, powered by a Chrysler Nissan Six Cylinder Diesel Engine.

Generator Nos. 1 and 2

E.M. Bemac Brushless Generator, S.N: 178235231

500 K.V.A., 400 KW, 600 Volts, Powered by a Caterpillar Model D-353E Diesel Engine.

Table Rotary Machine:

902538 013

Ideco Model C-175 Rotary Table

Size: 17.5" x 44" complete with Split Master Bushings.

Substructure:

Two Section Box Style Substructure

Top Section : 11'W x 11'L x 9' High (BOP RACK)

Pony Sub : 11'W x 11'L x 3'8" High

Overall Size : 11'W x 11'L x 12'8" High

Top Floor Section Accommodates Rotary Table and Racking Platform has 3'6" Fold-Out Walkways on each side, wide square tubing Handrails, V-Door Ramp and Stairs to Catwalk 3' Fold-Out Stabilizers on each side.

Substructure is sheathed with 10 gauge steel panels and is pinned to the Rig Carrier.

Lighting:

Including: Mast Light String, Flood Lights, Building Lighting.

Mast:

96' Two Section Telescoping Type Mast, manufactured by Greco Steel Corp.

Raising/Lowering System: Two Double Acting, three stage, telescoping type Hydraulic Cylinders.

Top Section is raised with Bridle Line

Deadline Anchor: attached to Carrier

Crown Blocks:

Working Sheaves : 4 - 22" Dia. - 1" Grooving
Fastline Sheave : 1 - 32" Dia. - 1" Grooving

Blocks and Hook:

Sowa Hook-Block Assembly, 150 Ton Capacity,
Model 3630-4, S/N: 3896-1 with 4 - 30" Sheaves, grooved
for 1" Drilling Line.

Swivel:

Oilwell Model No. SA-150 Swivel, Job No. 2048
Kelly Spinner, Foster Model 77, S/N: 77-1-412 complete
with 2 - 1" x 60' Long Hydraulic Hoses.

Kelly, Kelly Bushing, Kelly Cock and Stabbing Valve:

1- 4 1/4" x 40' long Kelly with 4 1/2" XH Pin and 6 5/8"
Reg. Box.
1- Baash Ross 2RCS4 Kelly Bushings
1- Griffith Upper Kelly Cock, 5000 PSI, S/N: 5139 452U-33
1- Hydril Stabbing Valve with 4 1/2" XH Pin and Box
1- Grey Inside B.O.P. with 4 1/2" XH Pin and Box

Pumps - Slush No. 1 and 2:

1 - TSM-500 Duplex Slush Pump,
Size: 7 1/2" x 16"
Maximum Pump Speed: 65 S.P.M.
Maximum Fluid End Test Pressure: 5000 PSI

No. 1 Pump Drive:

902538 015

54" OD Sheave with 10 Grooves and Pressed on 6" dia
 Shaft complete with 10 Groove "V" Belt Power Bands and
 Steel Guard.

No. 1 Pump Engine:

G.E. Electric Motor, Model 5-GE-761-J1,

No. 2 Pump Drive:

- 1 - Pump Drive Pedestal Assembly with 20" Clutch,
 Drum Spider, Rotor Seal and Mounted on Skid with
 D-353 Caterpillar Engine.
- 1 - 58" 8V 10 Groove Pump Sheave V-Hub
- 2 - 15" 8V 10 Groove Drive Sheave X-Hub
- 2 - (5) 8V3150 "Vee" Belts

No. 2 Pump Engine:

Caterpillar Model D-353 Diesel Engine, 435 H.P.

Tanks - Mud and Mud System:

- Single Tank Mud System, 265 BBL Capacity.
- One Tank - 3 Compartment Mud System with Sand Trap.
- Low pressure Mud System with 3 Subsurface Guns.
- 2 - Grey Agitators Model 72-0-5, powered by 2 - 5 H.P.
 Electric Motors, Starozik Single Screen Shale Shaker
 Model SC-145, powered by a 5 H.P. Electric Motor.
- 1 - 2" x 3" Poor Boy Degasser
- 1 - 4" x 2" Standard Mud Mix Hopper

- 1 - 3 Cone Desander complete with 6" square Header Manifold and underflow Trough.
- 1 - B.J. Hughes 4" x 6" Centrifugal Pump model 112-6CW, powered by 75 H.P. Electric Motor, 575 Volts.
- All connected to Mud System with 1 - 4"
- 1 - 6" and 1 - 8" Demco Butterfly Valves.

Blowout and Well Control Equipment:

- 1 - Shaffer "Annular" Blowout Preventer
3000 PSI, Assembly No. 5820
Trim : Internal H₂S
Top Connection : Studded
Btm Connection : Flanged
Bore Size : 11"
- 1 - Cameron 3000 PSI Double Gate Blowout Preventer,
Type "SS", No. 165
Bore Size : 11"
Top & Bottom
Connections : Studded
Outlets : 2 - 3" 3000 PSI Flanged
Extra Rams to Fit : 2 3/8", 2 7/8", 5 1/2" and 7"

Hydraulic Fluid Accumulator:

- 1 - Wagner Model 5-80-1BN Hydraulic Fluid Accumulator Unit Four Station Control Manifold with 4 - 20 gallon Bladder type Accumulator Bottles, Hydraulic Pump Powered by a 5 H.P. Electric Motor.

- 2 - 220 Cu. Ft. Nitrogen Bottle Back-up System
- 2 - CPW 3000 and 5000 LB. Hydro Poise Read-Out Gauges, A-B On/Off Switch Panel.

System is complete with Remote Control Panel, mounted in Dog House.

Compressor - Air, Auxiliary:

Dresser Model 660-A Air Compressor
Belt driven by a C.G.E. 15 H.P. Electric Motor Model IF5295H, A-B Switch and Mounted on 24" dia x 66" long Air Receiver (Situated on Gooseneck of Rig Carrier)

B.O.P. Spools and Valves:

Including:

- 1 - 900 Series 10" Adapter Spool with 2 - 3" Flanged Outlets
- 1 - 3" 3000 PSI McEvoy Gate Valve with Otis Actuator
- 2 - 3" McEvoy 3000 PSI Gate Valves
- 2 - 3" 3000 PSI National Ball Valves
- 1 - 3" 3000 PSI Check Valve

Well Control Manifold:

McEvoy 3" x 2" Well Control Manifold consisting of:

- 8 - 2" 3000 LB Flanged McEvoy Gate Valves
- 2 - 3" 3000 LB Flanged McEvoy Gate Valves
- 2 - 2" Three Way Block Connectors
- 2 - 3"x3"x2"x2" Four Way Block Connectors
- 2 - Willis Multi-Orifice Chokes
- 1 - CPW, 21 MPA Pressure Gauge
- 1 - Marsh 20,000 LB Gauge complete with 100' 1/2" Hydraulic Hose.

Drilling Line:

2500' Wrights 1" Steel Drilling Line.

Drill Pipe:

58 - Joints (Approx 1815') 4 1/2" 16.60# Grade "E" Range 2 Armco seamless Drill Pipe W/ 6 1/4" ID 18 Deg. Reed 4 1/4" XH Tool Joints. Drill Pipe is complete with Hardfacing, Series 200 inspected and internally coated with PA-200.

137- Joints (approx 4288') 4 1/2" 16.60# Grade "E" Range 2 Armco Seamless Drill Pipe W/ 6 1/4" ID 18 Deg. Reed 4 1/2" XH Tool Joints. Drill Pipe is complete with Hardfacing, Series 200 inspected and internally coated with PA-2000.

10 - Joints 4 1/2" XH Heavi-Wate Drill Pipe Range 2 with 4 1/2" XH Box to Pin complete ID Tube cote and Hardfacing premium No. 1.

Drill Collars:

14 - 6 1/4" OD Drill Collars, Zip Lift, Hardbanded with 4 1/2" XH Connections.

Tongs - Rotary and Power Tongs:

1 - Set Web Wilson Type "B" Tongs with 4 1/4" - 6 3/4" Jaws.
2 - 13 3/8" Farr Model LW-13375 Hi-Torque Power Tongs, complete with 5 1/2", 7" and 9 5/8" Jaws, Torque Gauge

and Single Hanger Assembly. Hydraulic Power Unit, driven by a Lister Four Cylinder Diesel Engine.

Elevators and Links:

- 1 - Set 1 3/4" x 72" B.J. Ruffneck Links.
- 1 - 4 1/2" B.J. Type "MAA" Centre Latch Elevators.
- 1 - 4 1/2" W.W. 18 Degree Type T-100 Centre Latch Elevators
- 1 - 7" W.W. Single Joint Pick-up Elevators with 5 1/2" Bushing.
- 1 - 7" Side Door Casing Elevators
- 1 - 10 3/4" W.W. H-150 Casing Elevators with 8 5/8" and 9 5/8" Bushings.
- 1 - 5 1/2" W.W. Type H-150 Casing Elevators
- 1 - 9 5/8" Single Joint Pick-up Elevators with 8 5/8" Insert.

Slips, Spider and Safety Clamps:

- 1 - 4 1/2" DU Reg. Baash Ross Slips
- 1 - 5 1/2" - 7" Baash Ross Type "C" Drill Collars Slips
- 1 - Baash Ross Type "C" 5" - 7" Safety Clamp complete with Wrench and Box.
- 1 - Varco "CMSCL" Multi Segment 10 3/4" Casing Slips
- 1 - 4 1/2" DU Reg. Baash Ross Slips with 2 3/8", 2 7/8" and 3 1/2" Dies.
- 1 - 7" Baash Ross Type "UC" Casing Slips

Instrumentation:

- 1 - Cameron Type "C" Weight Indicator, 180,000 LB, S.N 78D5431

2 - 2" Gauges Int. Mud Gauges Type "D" (Standpipe).

1 - 2" Cameron Type "F" Pressure Gauge (Pump).

Tool House:

11' 6" wide x 30' long x 8'4" high Broken Panel Steel Construction.

Dog House:

Mounted on Rig Carrier - Size: 12'W x 12'L x 7' High.

Dog House Contents:

1 - Knowledge Box

2 - NRL Light Fixtures recessed into roof of building

Combination Building:

Accumulator Building/Change Room/Water Tank.

Accumulator Bldg. Size: 11'6"W x 13'8"L x 8'6"H

Change Room Size : 7' W x 10' L x 8'6"H

Water Tank Size : 11'6"W x 17'4"L x 8'6"H (300 BBLs)

Fuel Section : 4'6"W x 10' L x 8'6"H (approx
1800 galls)

Overall Size : 11'6"W x 41' L x 8'6"H

Combination Building:

S.C.R. Building/Generator Room/Fuel Tank

Trailer Mounted Combination Building complete with 16 -
11R 22.5 Radial Tyres

S.C.R. Building Size : 12'W x 7'6"L x 8'8" High

Generator Bldg. Size : 12'W x 20' L x 8'8" High

Fuel Tank Size : 12'L x 6'6"H x 45" Deep

(approx 1800 galls)

Overall Trailer Size : 12'W x 38'L x 12'6" High

S.C.R. Building has 2 - 48" NRL Light Fixtures

Generator Building has 2 - NLR 48" Fluorescent Light Fixtures.

Pump House No. 1 & 2:

12'W x 30'L x 9'6" High with Peaked Roof.

3 - NRL Model 484 Fluorescent Light Fixtures.

Catwalk - Pipe Racks:

Trailer Mounted Catwalk 8' Wide x 40' Long

Mounted on Tandem Axles with 8 - 10.00 x 20 Tyres, complete with 2 - 15' long fold-out Pipe Racks, constructed with 3 1/2" Pipe.

2 - Sets Pipe Racks built with 4" Square Tubing.

Miscellaneous Rig Up Parts:

Including:

Wireline, Manilla Rope, Snakeskin, Chain, Shackles, Clamps, Cable, Safety Hooks, Fuel, Oil, Gaskets and Grease.

1 - Lot of Piping, Valves and Fittings

Required for Air, Fuel and Water Lines.

1 - Junk Rack 5'W x 8': x 2'H mounted on Skid

with Steel Frame, expanded metal floor and sides.

1 - Baroid Mud Testing Equipment

1 - Combination Derrick Stand and Drilling Line Stand.

1 - Gavel Mud Saver Bucket complete with 4 1/2" End Seals.

1 - Chemical Mixing Barrel

1 - 52" Bug Blower with 3 HP explosion proof Electric Motor, 1800 RPM.

- 1 - Bell Nipple and Flow Line
- 6 - Assorted Bit Breakers
- 1 - 8 5/8" x 28' Long Mousehole
- 1 - 8 5/8" x 40' Long Rathole

902533 022

Subs:

- 4 - Save Subs with 4 1/2" XH Pin and Box
- 2 - Bit Subs with 4 1/2" XH Box with 4 1/2" Reg. Box.
- 1 - Bell Sub with 4 1/2" Reg Box by 6 5/8" Reg Box.
- 1 - 7" Casing Cement Head
- 1 - Cementing Nubbin with 4 1/2" XH Pin

Pumps - Centrifugal:

Water Circulating:

- 1 - 2" x 2" Centrifugal Pump Driven by a 5 HP Lincoln Electric Motor.

Rig Wash Pump:

Magikist Model 32-C Triplex Pump driven by a 3 HP Brook Electric Motor, 230o460 volts Type "DP", S/N: X807080.

Fuel Transfer Pump:

- 1 - 1" x 1" Fuel Transfer Pump driven by a 3/4 HP Electric Motor.

Matting - Rig:

- 4 - 8' Wide x 20' Long x 8" High Rig Mats.

Winches:

Gearmatic Pullmaster Model H-10 Powered by a Commercial 1" x 1" Hydraulic Motor, Model D230-154-2, S/N: C39-647

complete with approx 300' - 1/2" Steel Cable.

1 - Wireline Survey Unit, powered by a Hydraulic Motor and complete with 7000' of .092 Wire Line.

Fishing Equipment:

1 - 8 1/8" OD Overshot with 4 1/2" FH Box Connection, complete with 4 3/8", 4 1/2", 5 3/4", 6", 6 1/8", 6 1/4" Basket Grapples and Mill Control Packers for each.

Swabbing Unit:

TSM Swabbing Unit consisting of IDECO H-25 Main Drum with 10,000' - 9/16" Sand Line Fawick Clutch. Kremco Right Angle Gear Box, 1 3/4" Single Drive Chain. Fuller Model T905-C 5 Speed Transmission and driven by a Detroit Diesel Engine Model 471, complete with 24 Volt Starter, Barber Rig Saver, Model 25-2191. Tu-Flo Air Compressor P.T.O. driven off engine with 10" dia. x 15" Long Air Receiver mounted on a 7'6" Wide x 15' Long Skid.

1. Objectives

Mildura West 2 was an exploration well designed to test the stratigraphy and stratigraphic closure on the eastern limb at the southern end of the Wentworth Trough (Fig.1). Primary targets were the sandstones of the Cretaceous, Monash Formation, particularly the basal, Pyap Member, as well as the less prospective Merreti and Coombool Members.

A further objective of the well was to gather source rock and maturity data from the Mesozoic sequence.

2. Structure

Mapping of the Mildura West area was made using 9 lines of the 1981 Mildura West Seismic Survey. The survey covers the southern end of the Wentworth Trough which forms an infrabasin to the main Murray Basin. In addition to the Tertiary, Murray Basin sequence it was anticipated that a Mesozoic, Cretaceous sequence, and also a thin Palaeozoic, early Permian sequence would be intersected.

Mapping of the structure was conducted using three seismic reflectors, 'W', 'BT' and 'Z' which were interpreted to represent the top of the Warina Formation, the base of the Tertiary and the top of the Cambrian respectively. Well control for the Mildura West Seismic Survey was very poor as the nearest well, Morkalla 1, lies several hundred metres from seismic line 81-A4.

3. Results of Drilling

902538 025

(a) Stratigraphy

The following stratigraphic section was intercepted at Mildura West 2:

Age	Formation	Depth (KB) (metres)	Subsea Elev (Subject to Survey)	Thickness (metres)
Quaternary	Undifferentiated and Blanch- town Clay	4.63	+ 58	17.8
Pliocene	Parilla Sand	?22.4	+ 40.2	60.0
Pliocene/ Miocene	Bookpurnong Beds	82.4	- 19.8	21.0
Miocene	Duddo Limestone	103.4	- 40.8	149.6
Oligocene	Ettrick Formation	253.0	- 190.8	22.4
Eocene	Olney Formation	275.4	- 212.8	88.6
Palaeocene/ Eocene	Warina Formation	364.0	- 301.4	110.4
Early Cret- aceous	Monash Formation Coombool Member	Absent	Absent	Absent
	Merreti Member	474.4	- 411.8	38.0
	Pyap Member	512.4	- 449.8	46.8
Cambrian	Kanmantoo Group (Quartzite)	559.2 589.0	- 496.6 - 526.4	29.8 > 9.2
Total Depth		598.2	- 535.6	

UNDIFFERENTIATED AND BLANCHETOWN CLAY
(RECENT)

Surface to 22.4 m

SANDSTONE: light brown - medium reddish orange. Medium grained, subrounded, unconsolidated, strong iron staining, abundant reworked quartz grains, excellent visual porosity.

PARILLA SAND
(PLIOCENE)

22.4 m to 82.4 m

Shakers bypassed, no returns.

BOOKPURNONG BEDS
(MIOCENE TO PLIOCENE)

82.4 m - 103.4 m

Shakers bypassed, no returns.

DUDDO LIMESTONE
(MIOCENE)

103.4 m - 253.0 m

MASSIVE LIMESTONE with minor CLAYSTONE interbeds. Rare DOLOMITE stringers at base. LIMESTONE: 2 types; (A) white-off white, crinoids, bryozoa, wackestone, brittle, hard in part, unconsolidated. (B) white, recrystallised, sucrosic texture, moderately hard, abundant Fossil Fragments; bryozoa, occasional crinoids, echinoids and gastropods, trace pyrite, glauconite at base of Duddo, becomes silty with depth, poor visual porosity. CLAYSTONE: dark grey, soft, non calcareous, carbonaceous in part, becomes gritty in part with sucrosic texture with depth. DOLOMITE: dark-medium grey, hard, occasionally very-hard, packstone, microcrystalline, occasionally sucrosic, occasionally silty, glauconitic, trace carbonaceous matter, poor visual porosity, interbedded with Limestone (described above).

ETTRICK FORMATION
(OLIGOCENE)

253.0 m - 275.4 m

MARL CLAYSTONE and SILTSTONE interbeds. MARL: dark greyish green, occasionally light greyish green, soft swelling in part, very calcareous, slightly glauconitic, trace carbonaceous matter, trace microfossils, becoming orange-brown with depth, occasional glauconite clusters. SILTSTONE: light-medium greyish brown, soft-firm, non-swelling, grading to CLAYSTONE in part, non calcareous, glauconitic, abundant microcrystalline pyrite.

OLNEY FORMATION
(PALAEOCENE-EOCENE)

275.4 m - 364.0 m

SILTSTONE and SANDSTONE interbeds with thin COALS and rare CLAYSTONE beds. SILTSTONE: 2 types (A) light-medium greyish brown, soft firm, non swelling, grading to CLAYSTONE in part, non calcareous, glauconitic, abundant microcrystalline pyrite. (B) dark brown, firm, blocky carbonaceous, laminated in part, associated with massive pyrite, non calcareous. SANDSTONE: colourless-translucent, medium-coarse grained, well sorted, subangular-subrounded, clean, trace pyrite, excellent visual porosity, no fluorescence. COAL: black occasionally dark reddish-brown, soft-firm, silty blocky, subvitreous, occasionally silky lustre, trace lignite. CLAYSTONE:

2 types; (A) dark greyish brown, soft, sticky, swelling, trace carbonaceous matter, pyritic; (B) medium brown, soft sticky, swelling, trace carbonaceous matter, silty in part, pyritic.

WARINA FORMATION
(PALAEOCENE-EOCENE)
364,0 m - 474.4 m

Massive SANDSTONE with minor COAL and SILTSTONE beds at the top of the formation trace CHERT. SANDSTONE: colourless-milky white, coarse becoming medium grained with depth, occasionally very coarse grained, subrounded to subangular, predominantly subangular at base, bimodal to well sorted, clean, excellent visual porosity, no fluorescence. CHERT: light brown, hard, glassy.

MONASH FORMATION (Merreti Member)
(LOWER CRETACEOUS)
474.4 m to 512.4 m

SANDSTONE with minor SILTSTONE and COAL. SANDSTONE: colourless, occasionally milky, coarse occasionally medium grained, subangular-angular, well sorted, occasional iron staining, sucrosic, clean, excellent, visual porosity, no fluorescence. SILTSTONE: buff-light grey, moderately soft, sandy non-calcareous, pyritic in part, carbonaceous in part, poorly sorted. COAL: dark brown-black, silty in part, fissile in part, moderately hard.

MONASH FORMATION (Pyap Member)
(LOWER CRETACEOUS)
512.4 m TO 559.2 m

SANDSTONE and SILTSTONE with minor COAL beds. SANDSTONE: two types; (A) colourless, coarse grained, subrounded, well sorted, clean, sucrosic, occasional iron staining (B) light grey-translucent, coarse occasionally very coarse, angular, occasionally very angular, clean, trace muscovite, well sorted excellent visual porosity, no fluorescence. SILTSTONE: light grey-buff, sandy carbonaceous, non calcareous, moderately hard, micromicaceous, interbedded with SANDSTONE (B) (described above). COAL: black, occasionally dark brown, occasionally subfissile, silty in part, moderately hard, vitreous-subvitreous lustre.

KANMANTOO GROUP
(CAMBRIAN)
559.2 m - 598.2 (T.D.)

PHYLLITE: light olive, occasionally greyish yellowish green, soft-firm-moderately hard, chloritic, micaceous, predominantly muscovite with occasional biotite, trace pyritie, minor calcareous

silt stringers. Lithics: associated metaquartzite. In core; parallel laminated (horizontal to 50), fissile with vertical partings coated with calcite.

(b) Stratigraphic Prognosis

Formation	Prognosed Depth (KB) (metres)	Actual Depth (KB) (metres)	Variations From Prognosis (metres)	Thickness (metres)	Variations From Prognosis (metres)
QUATERNARY					
Undifferentiated and Blanchetown Clay	4.63	4.63	0	17.8	- 12.2
TERTIARY					
Parilla Sand	34.6	22.4	12.4 (H)	60.0	+ 10
Bookpurnong Beds	84.6	82.4	2.2 (H)	21.0	+ 1
Duddo Limestone	104.6	103.4	1.2 (H)	149.6	+ 24.6
Ettrick Formation	229.6	253.0	23.4 (L)	22.4	- 4.4
Olney Formation	247.6	275.4	27.8 (L)	88.6	- 8.4
Warina Formation	352.6	364.0	11.4 (L)	110.4	- 24.6
CRETACEOUS					
Monash Formation					
Coombool Member	487.6	Absent	Absent	Absent	-100
Merreti Member	657.6	474.4	183.2 (H)	38.0	- 27.0
Pyap Member	722.6	512.4	210.2 (H)	46.8	+ 6.8
PERMIAN					
Early Permian	762.6	Absent	Absent	0	- 35
CAMBRIAN					
Kanmantoo Group	797.6	559.2	238.4 (H)	>29.8	-
(Quartzite)	Not Prognosed		589.0	Not Prognosed	> 9.2 -
Total Depth	807.6	598.2	209.4	-	-

The stratigraphic prognosis in the Tertiary section was generally good, considering the lack of well control. However, an unpredicted thickening of the Duddo Limestone resulted in the Ettrick Formation being encountered 23.4 m low to prognosis. Similarly the Olney and Warina Formation tops were low to prognosis. The 'BT' reflector was prognosed to occur at 487.6 m but was actually encountered at 474.4 m (13.2 m high to prognosis).

Beneath the Tertiary sequence it was predicted that the first Monash Formation sediments to be encountered would be represented by the Coombool Member. This was not the case and the first sediments encountered correspond to the Merreti Member of the Monash Formation. The absence of the Coombool Member is explained by erosion prior to deposition of the Tertiary Warina Formation. Therefore the Merreti Member top occurred 183.2 m high to prognosis. For the same reason the Pyap Member was encountered 210.6 m high to prognosis.

Underlying the Cretaceous sediments at the base of the trough it had been predicted that a thin (35 m) sequence of early Permian sediments might be encountered. The early Permian sediments were, however, absent with the result that economic basement, represented by the Kanmantoo Group, was intersected 238.4 m high to prognosis. All of the error between prognosed and actual depths beneath the base of Tertiary cannot be simply attributed to the absence of the Coombool Member. The error results from the cumulative effect of:-

- 1) the absence of Coombool Member sediments by erosion
- 2) an incorrect pick of the basement Z reflector on seismic line 81-A2 at this location.
- 3) the interval velocity of 2550 m/s used in computing the depth to basement ('Z' reflector) was too high. The actual interval velocity completed from the sonic log was 2110 m/s, as also found at Mildura West 1.

The low interval velocity is in agreement with the unconsolidated nature of the section penetrated, as observed in cuttings.

(c) Hydrocarbons

A gas detector was in operation from surface casing shoe at 94.5 m to total depth, 598.2 m and all cutting

samples were checked for fluorescence in ultra-violet light. One core was cut, but this was for basement identification and not for reservoir analysis.

Only a trace of gas was recorded in the section from the surface casing shoe to the base of the Duddo Limestone.

A slight increase in gas to a roughly constant reading of 0.25 units was recorded in the Ettrick Formation.

Throughout the Olney Formation gas values were generally below 1 unit, with a peak value of only 1.25 Units.

In the Monash Formation, only trace amounts of gas were detected with the exception of a very small gas peak at the top of the Pyap Member of only 1.25 Units which probably represents gas from a thin coal.

In the Kanmantoo Group gas values of 0.25 to 0.75 Units were encountered.

No shows of fluorescence were recorded in any of the samples analysed.

902538 031

4. Conclusions

Mildura West 2 was an exploration well designed to test sands draped against a high near the southeastern edge of the Wentworth Trough. Primary targets were the sandstones of the Monash Formation, in the Coombool, Merreti and Pyap Members, and also any sandstones which might occur in a presumed early Permian sequence at the base of the Wentworth Trough.

Drilling results have shown that two of the prognosed primary targets were absent in the well, these are the Coombool Member of the Monash Formation, and the early Permian sediments.

Total depth was 598.2 m (KB Logger) which occurred in Cambrian metasediments. The Cambrian section was encountered 238.4 m high to prognosis.

Source rock studies of four samples from the Monash Formation, two from the Merreti and two from the Pyap, were made. The results showed that whilst two of the samples had fair to good total organic carbon, all samples were thermally immature for the generation of hydrocarbons.

No hydrocarbon shows were encountered in Mildura West 2 and no drill stem tests were run. The well was plugged and abandoned. No zones were suitable for completion as a water well.

902532 032

APPENDIX 1 : LITHOLOGICAL DESCRIPTIONS

In accordance with the Mildura West 2 Prospect Sheet and Drilling Programme, ditch cuttings were collected, washed, split, logged and described at 9 m intervals from surface to 27 m at which point circulation over the shakers was lost due to a washed out conductor pipe. Sampling resumed at 3 m intervals from 102 m to 597.2 m (Drillers T.D.) by Gearhart Pty. Ltd. (Geodata Division).

All lithological intervals and core intervals are quoted as drillers depths.

902532 033

9 Metre Sampling

<u>Depth</u>	<u>%</u>	<u>Description</u>
9	100	<u>Sandstone</u> : light brown-medium reddish orange, medium grained, subrounded, strong iron staining, abundant reworked quartz grains, excellent visual porosity.
18	100	<u>Sandstone</u> : as above
27	100	<u>Sandstone</u> : as above
27-99		Shakers bypassed

3 Metre Sampling

102	100	<u>Cement</u>
105	100	<u>Cement</u>
108	100	<u>Fossil Fragments</u> : brachiopods, bryozoa, gastropods, coral fragments, occasional quartz cavings.
111	100	<u>Fossil Fragments</u> : as above
114	100	<u>Fossil Fragments</u> : white-off white, brachiopods, bryozoans, limestone fragments, echinoid spines, loose unconsolidated, brittle.
117	100	<u>Fossil Fragments</u> : as above
120	100	<u>Fossil Fragments</u> : as above
123	70	<u>Limestone</u> : off white-white, chalky in part, moderately hard-soft, medium-coarse grained.
	10	<u>Claystone</u> : grey-blue grey, soft, non calcareous, pyritic in part, splintery in part.
	20	<u>Fossil Fragments</u> : as above
126	100	<u>Limestone</u> : as above
129	70	<u>Limestone</u> : as above, wackestone
	TR	<u>Claystone</u> : as above
	30	<u>Fossil Fragments</u> : as above, crinoid stems.
132	90	<u>Limestone</u> : wackestone, white, moderately hard, recrystallized in part, moderate porosity.
	TR	<u>Claystone</u> : as above
	10	<u>Fossil Fragments</u> : as above

902538 034

<u>Depth</u>	<u>ft</u>	<u>Description</u>
135	80	<u>Limestone</u> : as above
	20	<u>Claystone</u> : two types; (a) dark grey-grey, soft non calcareous, carbonaceous flecks in part. (b) light grey, moderately soft, calcareous, gritty, sucrosic.
138	80	<u>Limestone</u> : off white-white, moderately hard-hard, recrystallised, fossiliferous, occasional carbonaceous flecks, mottled in part.
	20	<u>Fossil Fragments</u> : as above
141	90	<u>Limestone</u> : as above
	10	<u>Claystone</u> : as above
144	40	<u>Limestone</u> : as above
	60	<u>Fossil Fragments</u> : crinoid stems, bryozoa, occasional shell fragments.
147	80	<u>Limestone</u> : as above, occasionally sucrosic and recrystallised.
	TR	<u>Claystone</u> : as above
	20	<u>Fossil Fragments</u> : as above
150	80	<u>Limestone</u> : as above
	20	<u>Fossil Fragments</u> : as above
153	90	<u>Limestone</u> : as above, predominantly sucrosic and recrystallised.
	10	<u>Fossil Fragments</u> : as above
156	90	<u>Limestone</u> : as above
	10	<u>Fossil Fragments</u> : as above
159	90	<u>Limestone</u> : as above
	10	<u>Fossil Fragments</u> : as above
162	50	<u>Limestone</u> : as above
	50	<u>Fossil Fragments</u> : predominantly bryozoa
165	60	<u>Limestone</u> : as above
	40	<u>Fossil Fragments</u> : as above

902538 035

<u>Depth</u>	<u>%</u>	<u>Description</u>
168	50	<u>Limestone</u> : as above
	30	<u>Claystone</u> : dark grey-grey, soft, calcareous flecks, carbonaceous in part, silty in part.
	20	<u>Fossil Fragments</u> : as above
171	70	<u>Limestone</u> : white, recrystallised, sucrosic, moderately hard.
	30	<u>Fossil Fragments</u> : as above
174	50	<u>Limestone</u> : as above
	50	<u>Fossil Fragments</u> : as above
177	60	<u>Limestone</u> : as above with occasional carbonaceous flecks
	40	<u>Fossil Fragments</u> : as above
180	50	<u>Limestone</u> : as above, occasionally pyritic in part.
	50	<u>Fossil Fragments</u> : as above
183	50	<u>Limestone</u> : as above
	50	<u>Fossil Fragments</u> : as above
186	50	<u>Limestone</u> : as above
	50	<u>Fossil fragments</u> : as above
189	70	<u>Limestone</u> : predominantly fine grained, hard, sucrosic, homogeneous texture.
	30	<u>Fossil Fragments</u> : as above
192	40	<u>Limestone</u> : as above
	60	<u>Fossil Fragments</u> : as above
195	20	<u>Limestone</u> : fine grained, sucrosic texture.
	80	<u>Fossil Fragments</u> : as above
198	20	<u>Limestone</u> : as above
	80	<u>Fossil Fragments</u> : as above
201	50	<u>Limestone</u> : as above, occasionally buff, predominantly sucrosic.
	50	<u>Fossil Fragments</u> : as above

902538 036

<u>Depth</u>	<u>%</u>	<u>Description</u>
204	40	<u>Limestone</u> : as above
	60	<u>Fossil Fragments</u> : as above
207	70	<u>Limestone</u> : predominantly fine grained, sucrosic, angular recrystallised, moderately hard.
	30	<u>Fossil Fragments</u> : as above
210	40	<u>Limestone</u> : as above
	60	<u>Fossil Fragments</u> : as above
213	40	<u>Limestone</u> : as above
	60	<u>Fossil Fragments</u> : as above
216	100	<u>Silty Limestone</u> : grey, hard, silty flecks of carbonaceous material, moderately well cemented, poor porosity.
219	90	<u>Limestone</u> : fine-very fine grained, angular grains, moderately hard to hard, brittle sucrosic, relatively homogeneous.
	10	<u>Fossil Fragments</u> : as above
	TR	<u>Dolomite</u> : dark-medium grey, hard-very hard, crystalline carbonate packstone, microcrystalline occasionally silty, glauconite, trace carbonaceous matter, poor visual porosity, no fluorescence.
222	90	<u>Limestone</u> : light grey-cream white, hard, silty in part, grainstone-packstone, fine-very fine grained, angular calcite, carbonaceous, glauconitic.
	10	<u>Fossil Fragments</u> : echinoid spines, occasional brachiopods.
	TR	<u>Dolomite</u> : as above
225	30	<u>Limestone</u> : as above
	40	<u>Fossil Fragments</u> : as above
	30	<u>Dolomite</u> : as above
228	50	<u>Limestone</u> : as above
	40	<u>Fossil Fragments</u> : as above
	10	<u>Dolomite</u> : as above
231	20	<u>Limestone</u> : as above

902538 037

<u>Depth</u>	<u>ft</u>	<u>Description</u>
	80	<u>Fossil Fragments:</u> as above
	TR	<u>Dolomite:</u> as above
234	TR	<u>Limestone:</u> as above
	80	<u>Fossil Fragments:</u> as above
	20	<u>Dolomite:</u> as above
237	TR	<u>Limestone:</u> as above, becoming hard and brittle with depth.
	70	<u>Fossil Fragments:</u> as above
	30	<u>Dolomite:</u> as above
240	60	<u>Limestone:</u> as above, with occasional reworked quartz grains
	10	<u>Fossil Fragments:</u> as above
	30	<u>Dolomite:</u> as above
243	80	<u>Limestone:</u> light grey-light brownish grey, hard, silty in part. Grainstone-packstone, very fine grained, calcareous, becoming increasingly silty with depth, glauconitic, trace carbonaceous material.
	10	<u>Fossil Fragments:</u> echinoid spines, corals brachiopods, microfossils, <u>Nummilites</u> sp.
	10	<u>Dolomite:</u> medium grey, calcareous.
246	100	<u>Limestone:</u> as above
	TR	<u>Fossil Fragments:</u> as above
	TR	<u>Dolomite:</u> as above
249	100	<u>Limestone:</u> as above
	TR	<u>Fossil Fragments:</u> as above
	TR	<u>Dolomite:</u> as above
252	100	<u>Limestone:</u> as above
	TR	<u>Fossil Fragments:</u> as above
	TR	<u>Dolomite:</u> as above
255	90	<u>Limestone:</u> as above
	TR	<u>Fossil Fragments:</u> as above
	10	<u>Dolomite:</u> as above

902538 038

<u>Depth</u>	<u>%</u>	<u>Description</u>
	TR	<u>Marl</u> : dark greyish green, occasionally light green, soft, swelling in part, very calcareous, silty, glauconitic, trace carbonaceous matter, trace microfossils, becoming orange-brown with depth, glauconite clusters, becoming less calcareous with depth.
258	60	<u>Limestone</u> : as above
	TR	<u>Fossil Fragments</u> : as above
	TR	<u>Dolomite</u> : as above
	40	<u>Marl</u> : as above
261	TR	<u>Limestone</u> : as above
	TR	<u>Fossil Fragments</u> : as above
	TR	<u>Dolomite</u> : as above
	100	<u>Marl</u> : as above
264	TR	<u>Siltstone</u> : light-medium grey brown, soft-firm, non swelling, grading to claystone, glauconite in part.
	TR	<u>Fossil Fragments</u> : as above
	TR	<u>Coal</u> : black soft, firm
	100	<u>Marl</u> : as above
267	20	<u>Siltstone</u> : as above
	TR	<u>Fossil Fragments</u> : corals
	TR	<u>Coal</u> : as above
	80	<u>Marl</u> : as above
	TR	<u>Pyrite</u> : microcrystalline
270	60	<u>Siltstone</u> : as above
	TR	<u>Fossil Fragments</u> : as above
	TR	<u>Dolomite</u> : as above
	10	<u>Marl</u> : as above
	30	<u>Pyrite</u> : as above
273	40	<u>Siltstone</u> : as above
	TR	<u>Fossil Fragments</u> : as above

<u>Depth</u>	<u>%</u>	<u>Description</u>
	TR	<u>Dolomite</u> : as above
	TR	<u>Marl</u> : as above
	60	<u>Pyrite</u> : as above
276	60	<u>Siltstone</u> : as above
	10	<u>Fossil Fragments</u> : as above
	TR	<u>Coal</u> : as above
	TR	<u>Marl</u> : as above
	30	<u>Pyrite</u> : as above
279	80	<u>Siltstone</u> : as above
	TR	<u>Fossil Fragments</u> : as above
	TR	<u>Coal</u> : as above
	TR	<u>Sandstone</u> : colourless, with predominantly orange-red iron-staining, medium-fine grained, subangular-angular pyritic.
	20	<u>Pyrite</u> : as above
282	10	<u>Siltstone</u> : light grey-cream white, soft non swelling, trace carbonaceous matter, trace glauconite
	TR	<u>Fossil Fragments</u> : as above
	TR	<u>Coal</u> : as above
	60	<u>Sandstone</u> : as above
	30	<u>Pyrite</u> : as above
285	80	<u>Siltstone</u> : as above
	TR	<u>Fossil Fragments</u> : as above
	TR	<u>Coal</u> : black, occasionally dark reddish brown, soft, blocky, occasionally lignitic, fibrous, occasionally firm to hard.
	TR	<u>Sandstone</u> : as above
	20	<u>Pyrite</u> : as above
288	30	<u>Siltstone</u> : as above
	TR	<u>Fossil Fragments</u> : as above
	60	<u>Coal</u> : as above

902538 039

902538 040

<u>Depth</u>	<u>%</u>	<u>Description</u>
	TR	<u>Sandstone:</u> as above
	10	<u>Pyrite:</u> as above
291	10	<u>Siltstone:</u> medium brownish grey, soft, sticky, occasionally carbonaceous.
	TR	<u>Fossil Fragments:</u> as above
	90	<u>Coal:</u> as above
	TR	<u>Sandstone:</u> as above
	TR	<u>Pyrite:</u> as above
294	TR	<u>Siltstone:</u> as above
	TR	<u>Fossil Fragments:</u> as above
	100	<u>Coal:</u> as above
	TR	<u>Sandstone:</u> as above
	TR	<u>Pyrite:</u> as above
297	20	<u>Siltstone:</u> as above
	TR	<u>Fossil Fragments:</u> as above
	60	<u>Coal:</u> as above
	10	<u>Sandstone:</u> as above
	10	<u>Pyrite:</u> as above
300	10	<u>Siltstone:</u> as above
	TR	<u>Fossil Fragments:</u> as above
	TR	<u>Coal:</u> as above
	90	<u>Sandstone:</u> as above
	TR	<u>Pyrite:</u> as above
303	100	<u>Sandstone:</u> colourless-translucent, coarse, well sorted, subangular-subrounded, clean, trace pyrite, excellent visual porosity no fluorescence
	TR	<u>Coal:</u> as above
306	100	<u>Sandstone:</u> as above with trace glauconite
	TR	<u>Coal:</u> as above
	TR	<u>Pyrite:</u> as above

<u>Depth</u>	<u>%</u>	<u>Description</u>
309	100	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	TR	<u>Pyrite</u> : as above
312	100	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	TR	<u>Pyrite</u> : as above
	TR	<u>Claystone</u> : dark greyish brown, soft, sticky, swelling, trace carbonaceous matter.
315	80	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : dull black, firm, occasionally soft, subvitreous lustre, silty, occasionally laminated; trace lignite brown and fibrous.
	TR	<u>Siltstone</u> : dark reddish-brown, firm-soft, occasionally very
	10	<u>Pyrite</u> : as above
	10	<u>Claystone</u> : as above
318	60	<u>Sandstone</u> : as above
	10	<u>Coal</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	30	<u>Claystone</u> : as above
321	100	<u>Sandstone</u> : colourless-translucent, medium-coarse grained, well sorted, subangular-subrounded, clean, excellent visual porosity, no fluorescence
	TR	<u>Coal</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	TR	<u>Claystone</u> : as above
324	90	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	TR	<u>Siltstone</u> : as above
	10	<u>Pyrite</u> : as above

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<u>Depth</u>	<u>%</u>	<u>Description</u>
	TR	<u>Claystone</u> : as above
327	100	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	TR	<u>Claystone</u> : as above
330	100	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
333	60	<u>Sandstone</u> : as above
	10	<u>Coal</u> : as above
	10	<u>Siltstone</u> : dark brown, firm, blocky, carbonaceous, laminated in part associated with massive pyrite, non calcareous.
	10	<u>Pyrite</u> : as above
	10	<u>Claystone</u> : light-medium brown, soft, swelling interbedded with siltstone described above.
336	40	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	60	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	TR	<u>Claystone</u> : as above
339	100	<u>Sandstone</u> : black, firm, silty, blocky, subvitreous occasionally silky lustre
	TR	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	TR	<u>Claystone</u> : as above
342	90	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above

<u>Depth</u>	<u>§</u>	<u>Description</u>
	10	<u>Claystone</u> : medium brown, soft, sticky swelling, trace carbonaceous matter, silty in part, pyritic.
345	70	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	20	<u>Siltstone</u> : medium brown-medium reddish brown, soft, crumbly, pyritic, trace carbonaceous matter, occasionally light-grey-green, soft sandy in part calcareous.
	TR	<u>Pyrite</u> : as above
	10	<u>Claystone</u> : as above
348	50	<u>Sandstone</u> : as above
	10	<u>Coal</u> : as above
	30	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	10	<u>Claystone</u> : as above
351	30	<u>Sandstone</u> : as above
	10	<u>Coal</u> : as above
	40	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	20	<u>Claystone</u> : as above
354	90	<u>Sandstone</u> : colourless, coarse grained, occasionally medium grained, well sorted, subrounded, occasionally subangular, clean, excellent visual porosity, no fluorescence.
	TR	<u>Coal</u> : as above
	10	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	TR	<u>Claystone</u> : as above
357	80	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	20	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above

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<u>Depth</u>	<u>%</u>	<u>Description</u>
	TR	<u>Claystone</u> : as above
360	70	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
	30	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
	TR	<u>Claystone</u> : as above
363	40	<u>Sandstone</u> : as above
	10	<u>Siltstone</u> : as above, becoming subfissile.
	50	<u>Coal</u> : black, firm, blocky, occasionally subfissile, trace lignitic in part, silty, subvitreous lustre.
366	60	<u>Sandstone</u> : as above
	20	<u>Siltstone</u> as above
	20	<u>Coal</u> : as above
369	60	<u>Sandstone</u> : as above
	20	<u>Siltstone</u> : cream, white, firm, non calcareous, carbonaceous, non swelling.
	10	<u>Coal</u> : as above
	10	<u>Pyrite</u> : as above
372	40	<u>Sandstone</u> : as above
	30	<u>Siltstone</u> : as above
	10	<u>Coal</u> : as above
	20	<u>Pyrite</u> : as above
375	20	<u>Sandstone</u> : clear milky, coarse fine grained subrounded-angular, loose, hard, clean.
	20	<u>Siltstone</u> : as above
	50	<u>Coal</u> : as above
	10	<u>Pyrite</u> : as above
378	30	<u>Sandstone</u> : as above
	20	<u>Siltstone</u> : as above
	40	<u>Coal</u> : as above

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<u>Depth</u>	<u>%</u>	<u>Description</u>
	10	<u>Pyrite</u> : as above
381	50	<u>Sandstone</u> : loose, clear, quartz, predominantly coarse grained, subrounded to subangular, very well sorted, occasionally milky.
	TR	<u>Siltstone</u> : as above
	50	<u>Coal</u> : as above
	TR	<u>Pyrite</u> : as above
384	30	<u>Sandstone</u> : as above, trace muscovite.
	70	<u>Coal</u> : as above
387	40	<u>Sandstone</u> : as above, some medium grained sand angular, well sorted clear quartz.
	60	<u>Coal</u> : as above
390	40	<u>Sandstone</u> : as above, predominantly coarse, subrounded.
	60	<u>Coal</u> : as above
393	100	<u>Sandstone</u> : clean, clear, loose, subrounded quartz, well sorted.
	TR	<u>Coal</u> : as above
396	100	<u>Sandstone</u> : as above
	TR	<u>Coal</u> : as above
399	100	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
402	100	<u>Sandstone</u> : as above
405	100	<u>Sandstone</u> : as above
408	100	<u>Sandstone</u> : as above
411	100	<u>Sandstone</u> : as above, occasionally very coarse, occasionally milky, mottled.
414	100	<u>Sandstone</u> : as above, occasional light brown chert.
417	100	<u>Sandstone</u> : as above
420	100	<u>Sandstone</u> : as above

<u>Depth</u>	<u>%</u>	<u>Description</u>
423	100	<u>Sandstone</u> : loose, very hard, clear, occasionally milky, coarse grained, subrounded to subangular, well sorted, no cut.
	TR	<u>Coal</u> : as above
426	100	<u>Sandstone</u> : as above, occasionally more angular grains.
429	100	<u>Sandstone</u> : as above
432	100	<u>Sandstone</u> : as above
435	100	<u>Sandstone</u> : as above
438	100	<u>Sandstone</u> : predominantly subangular and coarse grained.
441	100	<u>Sandstone</u> : as above
444	100	<u>Sandstone</u> : as above
447	100	<u>Sandstone</u> : as above, clear, predominantly medium grained, loose.
450	100	<u>Sandstone</u> : as above
453	100	<u>Sandstone</u> : as above, some grains have brown staining.
456	100	<u>Sandstone</u> : as above, occasionally fine grained sandstone, clear quartz, angular, well sorted.
459	100	<u>Sandstone</u> : as above, iron staining and black organic stains, sand becoming more angular.
462	100	<u>Sandstone</u> : as above
465	100	<u>Sandstone</u> : as above, predominantly subangular.
468	100	<u>Sandstone</u> : as above
471	100	<u>Sandstone</u> : as above
474	100	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
477	100	<u>Sandstone</u> : as above, occasional very angular quartz grains.
	TR	<u>Siltstone</u> : buff siltstone

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<u>Depth</u>	<u>%</u>	<u>Description</u>
480	100	<u>Sandstone</u> : as above
483	100	<u>Sandstone</u> : loose, clear, occasionally milky quartz, coarse, occasionally medium grained, subangular-angular, well sorted, occasional iron stains, sucrosic, clean.
486	100	<u>Sandstone</u> : as above
	TR	<u>Pyrite</u> : as above
489	100	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Pyrite</u> : as above
492	100	<u>Sandstone</u> : as above, with 60% very coarse grained, subrounded, milky to clear quartz.
	TR	<u>Pyrite</u> : as above
495	100	<u>Sandstone</u> : as above
	TR	<u>Pyrite</u> : as above
498	70	<u>Sandstone</u> : as above
	30	<u>Siltstone</u> : buff-light grey, moderately soft, sandy, non calcareous, pyritic in part, carbonaceous in part, poorly sorted.
501	90	<u>Sandstone</u> : as above
	10	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
504	40	<u>Sandstone</u> : medium-coarse grained, subangular, clear quartz.
	60	<u>Coal</u> : dark brown, black, silty in part, fissile in part, moderately hard.
507	70	<u>Sandstone</u> : as above
	30	<u>Siltstone</u> : as above, becoming harder, sandier, pyritic.
	TR	<u>Coal</u> : as above
510	70	<u>Sandstone</u> : as above
	30	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
513	60	<u>Sandstone</u> : as above

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<u>Depth</u>	<u>%</u>	<u>Description</u>
	10	<u>Siltstone</u> : as above
	30	<u>Coal</u> : as above
516	100	<u>Sandstone</u> : coarse grained, clean, quartz, loose, subrounded, well sorted.
	TR	<u>Coal</u> : as above
519	100	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	TR	<u>Mica</u> : muscovite
522	50	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	50	<u>Coal</u> : as above
525	20	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	80	<u>Coal</u> : as above
528	50	<u>Sandstone</u> : as above
	50	<u>Coal</u> : as above
531	60	<u>Sandstone</u> : as above
	10	<u>Siltstone</u> : as above
	30	<u>Coal</u> : as above
534	80	<u>Sandstone</u> : as above
	20	<u>Coal</u> : as above
537	50	<u>Sandstone</u> : as above
	20	<u>Siltstone</u> : light grey-buff, sandy, carbonaceous flecks, non calcareous, moderately hard, gritty, micaceous in part.
	30	<u>Coal</u> : as above
540	80	<u>Sandstone</u> : as above
	10	<u>Siltstone</u> : as above
	10	<u>Coal</u> : as above

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<u>Depth</u>	<u>%</u>	<u>Description</u>
543	100	<u>Sandstone</u> : light grey, translucent, coarse, occasionally very coarse grained, angular, occasionally subangular, clean occasional trace of muscovite, well sorted, excellent fluorescence.
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
546	100	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
549	100	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
552	90	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	10	<u>Phyllite</u> : light olive, occasionally greyish yellowish green, soft, chloritic, micaceous, predominantly biotite with occasional muscovite, trace pyrite. Lithics; associated metaquartzite.
555	90	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	10	<u>Phyllite</u> : as above
558	90	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	10	<u>Phyllite</u> : as above
561	60	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	40	<u>Phyllite</u> : as above

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<u>Depth</u>	<u>%</u>	<u>Description</u>
564	40	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	60	<u>Phyllite</u> : as above
567	50	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	50	<u>Phyllite</u> : as above
570	40	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	60	<u>Phyllite</u> : as above
573	20	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	80	<u>Phyllite</u> : as above
576	60	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	40	<u>Phyllite</u> : as above
579	30	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	70	<u>Phyllite</u> : as above
582	20	<u>Sandstone</u> : as above
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	80	<u>Phyllite</u> : as above
585	10	<u>Sandstone</u> : as above

902533 051

<u>Depth</u>	<u>%</u>	<u>Description</u>
	TR	<u>Siltstone</u> : as above
	TR	<u>Coal</u> : as above
	90	<u>Phyllite</u> : as above

585-589 CORE 1(see core description)

591	100	<u>Phyllite</u> : olive, greyish-green, moderately hard, biotitic, chloritic, quartzitic, with <u>Quartzite</u> - hard, calcareous cement, fine angular well sorted grains with loose sheets of biotite and muscovite.
594	100	as above
597	100	as above

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APPENDIX 2 : CORE DESCRIPTIONS

Core 1 Kanmantoo Group
 585.0 m - 589.0 m (Driller)
 585.0 m - 589.0 m (BPB)
 Cut 4 m
 Recovered 30.0%

SOUTH AUSTRALIAN OIL AND GAS CORPORATION

Date 23-6-83

CORE DESCRIPTION

902538 053 Page 1 of 2

Well Name Mildura West 2

CORE No 1

Location : Lat 34°32'29.04"S

Interval 585-589 Cut 4 m

Long 141°17'04.92"E

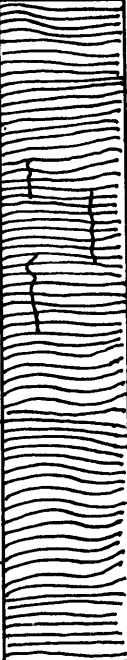
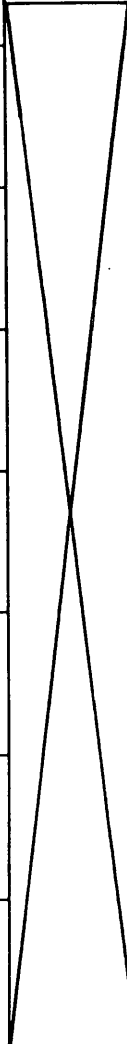
Recovery 1,2 m 30 %

Elevation G.L. 58m K.B. 62.63m

Formation Kanmantoo

Geologist R.J. Suttill

Age Cambrian

CORE ANALYSIS			DEPTH (metres)	R.O.P. m/metre	VIS	Floor GOOD FAIR TRACE	LITHOLOGY	DESCRIPTION
Ø	K	SW						SAMPLES FOR ANALYSIS
			585					FISSILE SHALE - SLATE, medium greyish green, parallel laminated (horizontal to 5°), firm to moderately hard, chloritic. Fissile with vertical partings coated with calcite. Minor thin silt stringers (1mm)-calcareous.
			15					
			586					
			61					No Recovery Core Catcher Jamed
			587					
			77					
			588					

SOUTH AUSTRALIAN OIL AND GAS CORPORATION

Date 23-6-83

CORE DESCRIPTION

Page 2 of 2

Well Name Mildura West 2

CORE No 1

Location : Lat 34°32'29.04"S

Interval 585-589 Cut 4 m

Long 141°17'04.92"E

Recovery 1.2 m 30 %

Elevation G.L. 58m K.B. 62.63m

Formation Kanmantoo

Geologist R.J. Suttill

Age Cambrian

CORE ANALYSIS				DEPTH (metres)	R.O.P. mm/metre	VIS ϕ	Fluor GOOD TRACE	LITHOLOGY	DESCRIPTION
ϕ	K	SW	SAMPLES FOR ANALYSIS						Legend :
				588				<div style="border: 2px solid black; width: 100%; height: 100%; display: flex; align-items: center; justify-content: center;"> X </div>	<p style="font-size: 24px; margin: 0;">902538 054</p> <p style="margin: 0;">No Recovery</p>
				589					

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APPENDIX 3 : SOURCE ROCK ANALYSIS

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MILDURA WEST 2

The following samples were forwarded to AMDEL for Source Rock Analysis.

<u>Depth</u> (drillers)	<u>Formation</u>
498 m	Monash Formation (Merreti Member)
507 m	Monash Formation (Merreti Member)
513 m	Monash Formation (Pyap Member)
537 m	Monash Formation (Pyap Member)

A report prepared by Amdel follows.

902588 057

HYDROCARBON SOURCE EVALUATION OF THE
MONASH FORMATION, MILDURA WEST NOS. 1 & 2,
MURRAY BASIN

South Australian Oil & Gas
Corporation Pty Limited

F4/454/2/0-5576/84 September 1983



**The Australian
Mineral Development
Laboratories**

Flemington Street, Frewville
South Australia 5063
Phone Adelaide 79 1662
Telex AA82520

Please address all
correspondence to
P.O. Box 114 Eastwood
SA 5063
In reply quote:

amdel

902538 053

20 September 1983

F 4/454/2/0

South Australian Oil & Gas Corporation Pty Limited
PO Box 470
NORTH ADELAIDE SA 5006

Attention: Mr Richard Suttill

REPORT F 5576/84

YOUR REFERENCE: Purchase Order No. 4048
MATERIAL: Cuttings
LOCALITY: Mildura West Nos. 1 & 2
IDENTIFICATION: As specified in report
DATE RECEIVED: 15 July 1983
WORK REQUIRED: Total organic carbon, Rock-Eval pyrolysis.
Interpretation.

Investigation and Report by: Dr David M. McKirdy and Dr Robert E. Cox

Chief - Fuel Section: Dr Brian Steveson
Manager, Mineral and Materials Sciences Division: Dr William G. Spencer

for Brian S. Hickman
Managing Director

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Telephone (09) 325 7311
Telex: Amdel AA94893
Townsville
Queensland 4814
Telephone (077) 75 1377

caw

1. INTRODUCTION

Six cuttings samples of the Monash Formation from Mildura West 1 & 2 (Table 1) were received for source rock analysis. Total organic carbon and Rock-Eval data on these samples, together with some preliminary interpretative comments were communicated by telex to R.J. Suttill on 20 August 1983. This report is the formal presentation of the abovementioned information.

2. ANALYTICAL PROCEDURE

2.1 Sample Preparation

Each cuttings sample (as received) was ground in a Siebtechnik mill for 20-30 secs.

2.2 Total Organic Carbon (TOC)

Total organic carbon was determined by digestion of a known weight (2-10 g) of powdered rock in 50% HCl to remove carbonates, followed by combustion in oxygen in the induction furnace of Leco IR-12 Carbon Determinator and measurement of the resultant CO₂ by infra-red detection.

2.3 Rock-Eval Analysis

A 100 mg portion of powdered rock was analysed by the Rock-Eval pyrolysis technique (Girdel IFP-Fina Mark 2 instrument; operating mode , Cycle 1).

3. RESULTS

TOC and Rock-Eval data are summarised in Table 2. Figures 1 and 2 illustrate the type and maturity of the organic matter present in these sedimentary rocks.

4. DISCUSSION

4.1 Maturity

The low T_{max} values (415-422°C: Table 2) indicate that the Monash Formation at both well localities is thermally immature (equivalent vitrinite reflectance <0.5%: Figs. 1 & 2).

4.2 Source Richness

Four of the six samples examined contain in excess of 1% TOC (Table 2). However, only two of these samples possess fair or better source richness, indicated by potential hydrocarbon yields (S₁ + S₂) of >2 kg/tonne, as follows:

902508 060

<u>Well</u>	<u>Depth (m)</u>	<u>TOC (%)</u>	<u>S₁ + S₂ (kg/tonne)</u>	<u>Source Richness</u>
Mildura West-1	507	2.70	2.9	Fair
Mildura West-2	537*	5.35	6.8	Good

*Cuttings contain 30% Coal (Table 1).

On the assumption that the sandstone component of each cuttings sample listed in Table 1 is barren of dispersed organic matter, it is possible to calculate the aggregate richness of the more likely hydrocarbon source lithologies present (viz. claystone, siltstone, coal). These 'corrected' TOC values and potential hydrocarbon yields (S₁ + S₂) are given in Table 3.

4.3 Source Quality and Kerogen Type

Hydrogen indices in the range HI = 50-123 (Table 2) suggest that these rocks contain organic matter of humic Type III, tending to inertinitic Type IV, composition (Figs. 1 and 2). Such organic matter is gas-prone.

5. CONCLUSIONS

The Monash Formation at the Mildura West-1 and 2 well localities contains fair to good amounts of thermally immature, gas-prone, terrigenous organic matter.

TABLE 1: CUTTINGS SAMPLES SUBMITTED FOR SOURCE-ROCK ANALYSIS, MILDURA WEST - 1 & 2

Well	Depth (metres)	Formation/Member	Lithology*
Mildura West - 1	375	Monash/Coombool	60% sandstone, 40% claystone, trace coal
	405	Monash/Coombool	70% claystone, 20% sandstone, trace coal, trace dolomite
Mildura West - 2	498	Monash/Merreti	70% sandstone, 30% siltstone
	507	Monash/Merreti	70% sandstone, 30% siltstone, trace coal
	513	Monash/Pyap	60% sandstone, 30% siltstone, 10% coal
	537	Monash/Pyap	50% sandstone, 20% siltstone, 30% coal

*Information supplied by client.

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TABLE 2: TOC AND ROCK-EVAL DATA, MONASH FORMATION, MILDURA WEST - 1 & 2

Well	Depth (m)	Tmax	S ₁	S ₂	S ₃	PI	S ₂ /S ₃	PC	TOC	HI	OI
Mildura West - 1	375	422	0.13	1.44	0.98	0.08	1.46	0.13	1.27	113	77
	405	415	0.02	0.22	39.0	0.08	0.00	0.02	0.44	50	8880
Mildura West - 2	498	-	-	-	-	-	-	-	0.18	-	-
	507	422	0.10	2.83	1.48	0.03	1.91	0.24	2.70	105	55
	513	420	0.03	0.88	1.71	0.03	0.51	0.07	1.44	61	119
	537	417	0.25	6.57	3.05	0.04	2.15	0.56	5.35	123	57

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KEY TO ROCK-EVAL PYROLYSIS DATA SHEET

	<u>PARAMETER</u>	<u>SPECIFICITY</u>
T max	position of S ₂ peak in temperature program (°C)	Maturity/Kerogen type
S ₁	kg hydrocarbons (extractable)/tonne rock	Kerogen type/Maturity/Migrated oil
S ₂	kg hydrocarbons (kerogen pyrolysate)/tonne rock	Kerogen type/Maturity
S ₃	kg CO ₂ (organic)/tonne rock	Kerogen type/Maturity *
S ₁ + S ₂	Potential Yield	Organic richness/Kerogen type
PI	Production Index (S ₁ /S ₁ + S ₂)	Maturity/Migrated Oil
PC	Pyrolysable Carbon (wt. percent)	Organic richness/Kerogen type/Maturity
TOC	Total Organic Carbon (wt. percent)	Organic richness
HI	Hydrogen Index (mg h'c (S ₂)/g TOC)	Kerogen type/Maturity
OI	Oxygen Index (mg CO ₂ (S ₃)/g TOC)	Kerogen type/Maturity *

*Also subject to interference by CO₂ from decomposition of carbonate minerals.

202508 003

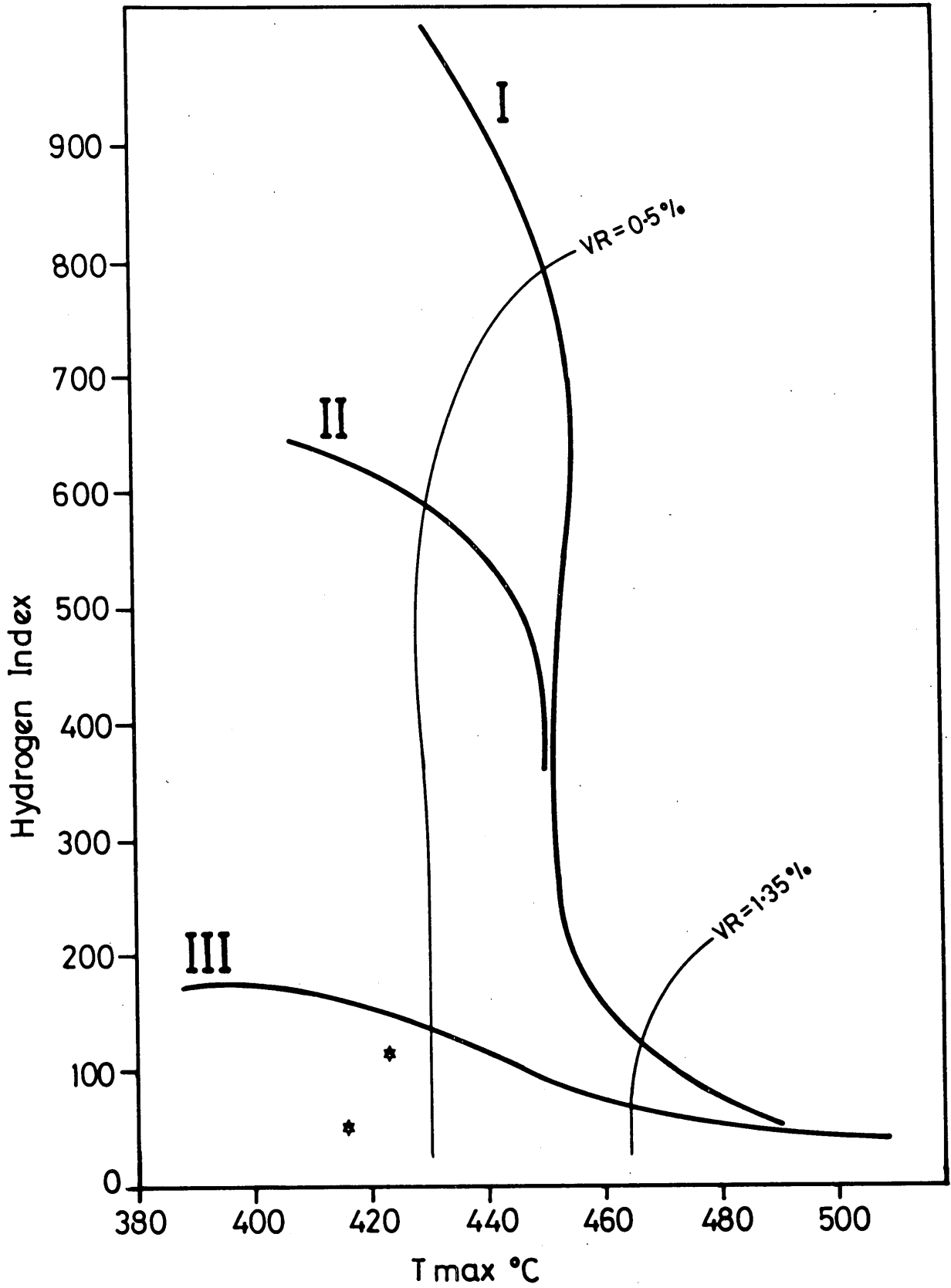
TABLE 3: SOURCE RICHNESS OF MONASH FORMATION CUTTINGS AFTER CORRECTION FOR PRESENCE OF BARREN SANDSTONE

Well	Depth	TOC	S ₁ + S ₂ (kg/tonne)	Source Richness
Mildura West - 1	375	3.2	3.9	fair
	405	0.6	0.3	poor
Mildura West - 2	498	0.6	-	poor
	507	9.0	9.8	good
	513	3.6	2.3	fair
	537	10.7	13.6	good

Client : SAOGC
Well : MILDURA WEST - #1
Interval : Monash Formation

FIGURE 1

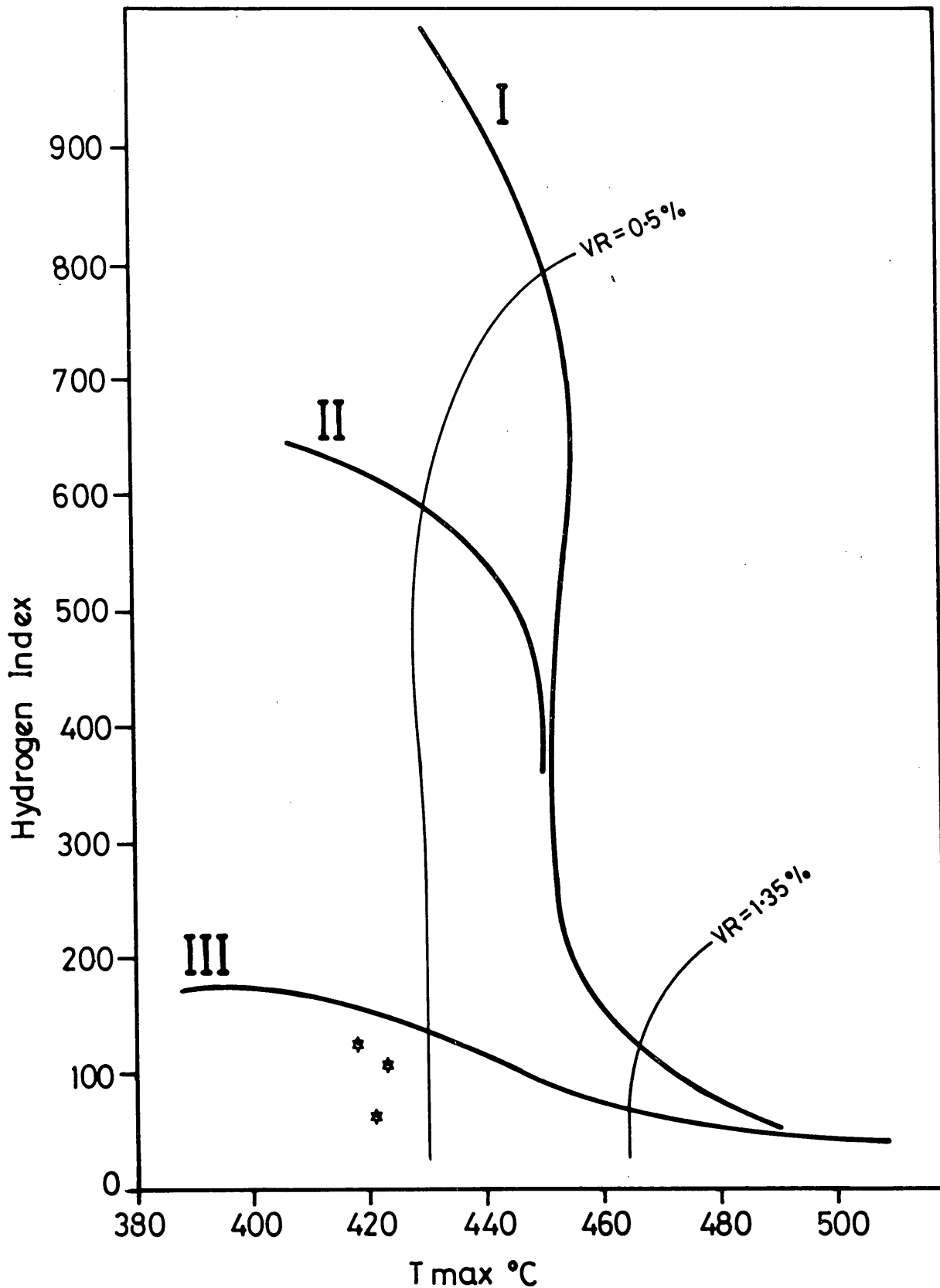
902588 065



Client : SAOGC
Well : MILDURA WEST - #2
Interval : Monash Formation

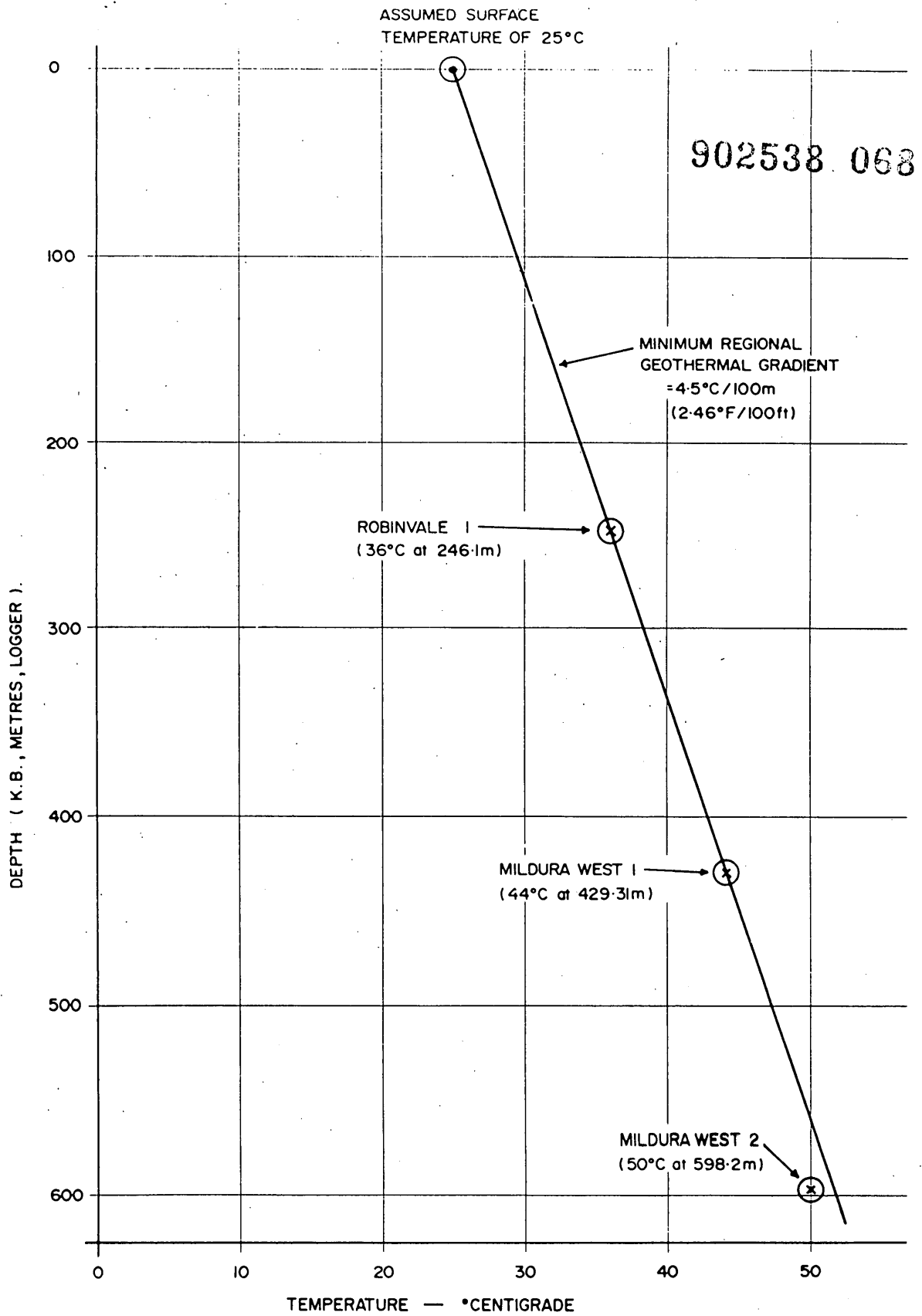
FIGURE 2

902538 086



902538 007

APPENDIX 4 : DEPTH VS TEMPERATURE



SOUTH AUSTRALIAN OIL & GAS CORP. PTY. LTD.		
Mildura West 1 & 2, Robinvale 1		
GEOTHERMAL GRADIENT		
Interp. R.SUTTILL	Date JULY 83	MAW000.2939
Drawn. C.KAY	Scale AS SHOWN	FIG.2

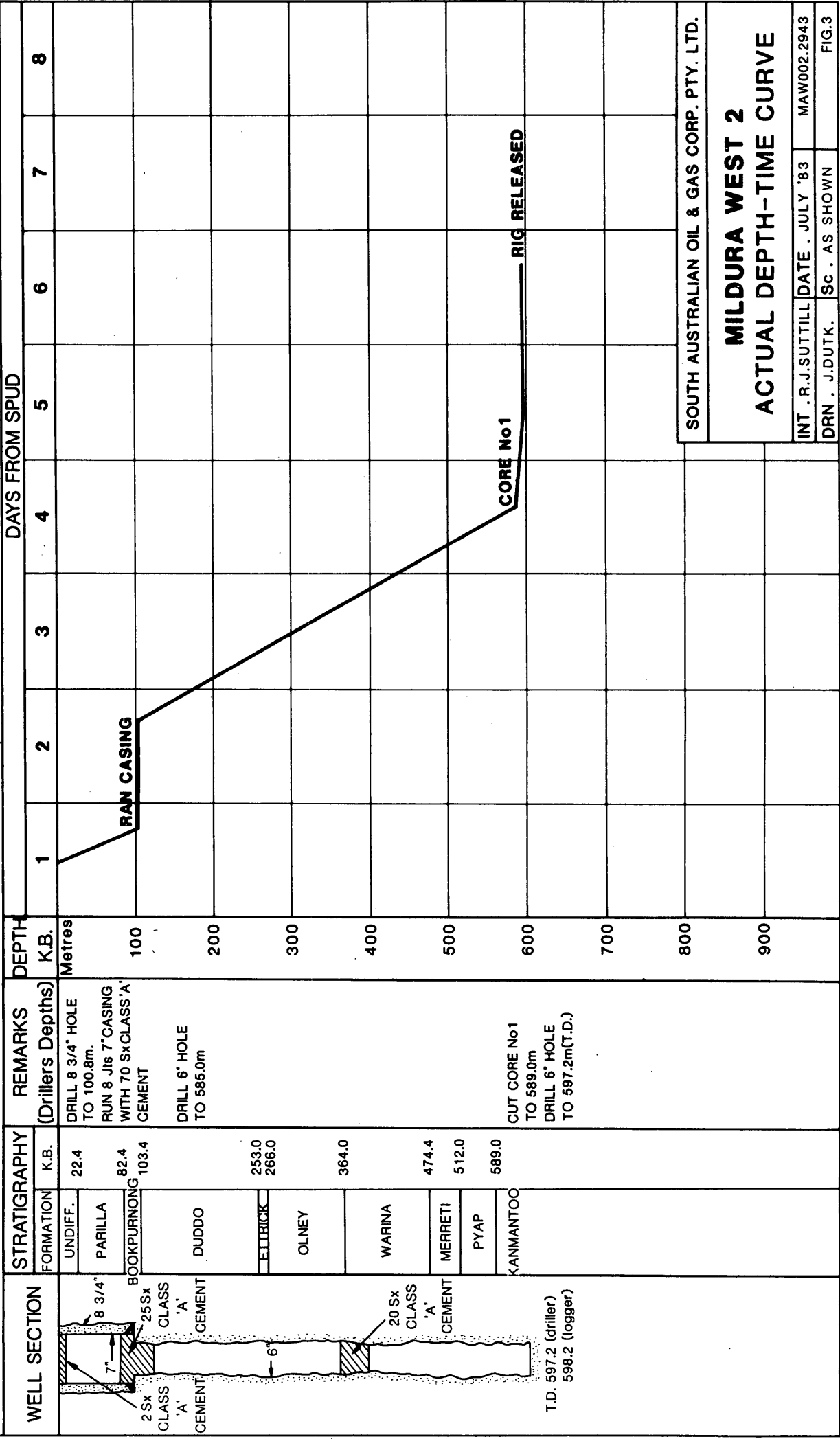
902538 069

APPENDIX 5 : ACTUAL DEPTH-TIME CURVE

WELL: **MILDURA WEST 2**
 LATITUDE. 34°32'29.04" S
 LONGITUDE. 141°17'04.92" E
 S.P. 81-A2(350)
 ELEVATION. G.L. 58m K.B. 62.63m

CONTRACTOR. ATCO-APM
 RIG No. A3
 FRANKS
 TYPE. CABOT

ACTUAL DEPTH-TIME CURVE



SOUTH AUSTRALIAN OIL & GAS CORP. PTY. LTD.

MILDURA WEST 2
ACTUAL DEPTH-TIME CURVE

INT. R.J. SUTTILL DATE. JULY '83 MAW002.2943
 DRN. J. DUTK. SC. AS SHOWN FIG. 3

ENCLOSURES

1. COMPOSITE WELL LOG (GR-LINEAR DENSITY) 1:200
2. SP-RESISTIVITY LOG 1:200
3. GEARHART MUD LOG 1:500

902538 072

PE601259

This is an enclosure indicator page.
The enclosure PE601259 is enclosed within the
container PE902538 at this location in this
document.

The enclosure PE601259 has the following characteristics:

ITEM_BARCODE = PE601259
CONTAINER_BARCODE = PE902538
 NAME = Composite Well Log Mildura West-2
 BASIN = MURRAY
 OFFSHORE? = Y
 DATA_TYPE = COMPOSITE_LOG
 DATA_SUB_TYPE = HARDCOPY-PAPER
 DESCRIPTION =
 REMARKS = 25-JUN-1983
 DATE_WRITTEN =
DATE_PROCESSED = SA Oil Wells Corp LTD.
DATE_RECEIVED =
RECEIVED_FROM = 25-OCT-1983
 WELL_NAME =
 CONTRACTOR =
 AUTHOR =
 ORIGINATOR = xls_kb00
 TOP_DEPTH =
 BOTTOM_DEPTH =
ROW_CREATED_BY =

(Inserted by DNRE - Vic Govt Mines Dept)

902538 073

PE601260

This is an enclosure indicator page.
The enclosure PE601260 is enclosed within the
container PE902538 at this location in this
document.

The enclosure PE601260 has the following characteristics:

ITEM_BARCODE = PE601260
CONTAINER_BARCODE = PE902538
NAME = SP Resistivity Log Mildura West-2
BASIN = MURRAY
OFFSHORE? = Y
DATA_TYPE = WELL_LOG
DATA_SUB_TYPE = HARDCOPY-PAPER
DESCRIPTION =
REMARKS = 24-JUN-1983
DATE_WRITTEN =
DATE_PROCESSED = SA Oil Wells Corp LTD.
DATE_RECEIVED =
RECEIVED_FROM = 25-OCT-1983
WELL_NAME =
CONTRACTOR =
AUTHOR =
ORIGINATOR = xls_kb00
TOP_DEPTH =
BOTTOM_DEPTH =
ROW_CREATED_BY =

(Inserted by DNRE - Vic Govt Mines Dept)

902538 074

PE601261

This is an enclosure indicator page.
The enclosure PE601261 is enclosed within the
container PE902538 at this location in this
document.

The enclosure PE601261 has the following characteristics:

ITEM_BARCODE = PE601261
CONTAINER_BARCODE = PE902538
 NAME = Gearhart Mud log Mildura West-2
 BASIN = MURRAY
 OFFSHORE? = Y
 DATA_TYPE = MUD_LOG
 DATA_SUB_TYPE = HARDCOPY-PAPER
 DESCRIPTION =
 REMARKS = 24-JUN-1983
 DATE_WRITTEN =
 DATE_PROCESSED = SA Oil Wells Corp LTD.
 DATE_RECEIVED =
 RECEIVED_FROM = 25-OCT-1983
 WELL_NAME =
 CONTRACTOR =
 AUTHOR =
 ORIGINATOR = xls_kb00
 TOP_DEPTH =
 BOTTOM_DEPTH =
 ROW_CREATED_BY =

(Inserted by DNRE - Vic Govt Mines Dept)