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DUTSON DOWNS NO. 1 WELL

COMPLETION REPORT

WOODSIDE (LAKES ENTRANCE) OIL COMPANY N.L.

DUTSON DOWNS NO. 1 WELL

COMPLETION REPORT

by

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of

MINES ADMINISTRATION PROPRIETARY LTD.

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ABSTRACT

Woodside Dutson Downs No.1 was drilled in P.E.P. 44 (Victoria) by Richter Bawden Drilling Pty. Ltd. using Woodside's Brewster N.4 rig. It was drilled to a total depth of 6,113 feet of which 190 feet are Quaternary in age, 4,542 feet Tertiary and 1,381 feet Mesozoic.

The Tertiary penetrated is similar in thickness and lithology to that found elsewhere in the Gippsland Basin. It can be divided as follows:-

(a) The sands, gravels and coquina beds of the Jemmy's Point Formation.

(b) The marl and limestone of the Tambo River Formation.

(c) The limestone, calcarenite and calcilutite of the Gippsland limestone.

(d). The variably calcareous sediments forming the Lakes Entrance Formation.

(e) The brown coal, sandstone and claystone of the Latrobe Valley Coal Measures. Included in this formation are a number of limestone and dolomite bands, some or all of which, are due to at least one marine incursion. ?

The Mesozoic sequence is similar in lithology to two of the wells south of Dutson Downs No.1 i.e. Lake Reeve No.1, Carr's Creek No.1. In all three wells marine Cretaceous sediments overlie the Upper Jurassic - Lower Cretaceous Strzelecki Group.

The Upper Cretaceous is a mudstone - sandstone sequence similar to that found in Woodside Golden Beach West No.1.

The sediments of the Strzelecki Group are similar to those found in all wells penetrating this formation in the Gippsland Basin.

Porosity and permeability is present in both the Latrobe Valley Coal Measures and the Upper Cretaceous. Tests conducted on the Latrobe Valley Coal Measures (Tests No.1 and No.2) produced large quantities of fresh water. Drill stem tests Nos.3, 4 and 5 covered sandstone within the Upper Cretaceous and produced large quantities of water which became increasingly brackish towards the base of the formation. Small amounts of dissolved gases were produced from drill stem tests Nos.4 and 5.

The sandstones of the Strzelecki Group are extremely felspathic and kaolinitic and as a result have very low porosities.

As commercial hydrocarbon accumulations were not present in the formations penetrated, the well was plugged and abandoned.

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INTRODUCTION

Woodside Dutson Downs No.1 was located 3 miles north of Golden Beach West No.1, 17.5 miles east-south-east of the township of Sale situated in eastern Victoria. This area forms the central part of the onshore section of the Gippsland Basin. Dutson Downs No.1 was drilled both as a stratigraphic test of the Upper Cretaceous and a possible structural test of the Latrobe Valley Coal Measures.

The wellsite is located between Golden Beach West No.1 and Wellington Park No.1. 1,584 feet plus of Upper Cretaceous sediments were penetrated in Golden Beach West No.1. These sediments included a number of sandstones which produced salt water and small quantities of gas when tested. However, no Upper Cretaceous sediments were present in Wellington Park No.1 where the Latrobe Valley Coal Measures overlie the Strzelecki Group. Dutson Downs No.1 was therefore located to test the up-dip pinch-out of the sandstones of the Upper Cretaceous.

Although recent data from the Woodside-Paynesville seismic survey 1965, the Gravity Survey and Golden Beach West No.1, would suggest that Dutson Downs No.1 was located in a Tertiary low, an old seismic survey (Sale Survey 1961) shows this location in a high position on a nose of the Baragwanath Anticline. The drilling of the well discredited the older information.

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III WELL HISTORY

1. GENERAL DATA

(a) Well name and number:	Dutson Downs No.1.
(b) Location:	Latitude: 38° 12' 00". Longitude: 147° 21' 45". In P.E.P. 44, about 17½ miles from town of Sale on an azimuth bearing of 108°.
(c) Name and address of tenement holder:	Woodside (Lakes Entrance) Oil Co. N.L. 792 Elizabeth St., Melbourne, Vic.
(d) Details of Petroleum tenement:	Petroleum Exploration Permit No.44, issued by The State of Victoria.
(e) District:	Shire: Rosedale. Country: Buln Buln. Parish: Dutson Downs. Dulungalong
(f) Total depth:	6,110 ft. - Driller. 6,113 ft. - Schlumberger.
(g) Date drilling commenced:	8th. March, 1966.
(h) Date drilling completed:	10th. April, 1966.
(i) Date well completed:	12th. April, 1966.
(j) Date rig released:	13th. April, 1966.
(k) Drilling time to T.D.	33 days.
(l) Elevation:	Ground 5ft. above sea level. RKB 16ft. above sea level.
(m) Status:	Dry, plugged and abandoned.
(n) Cost:	

2. DRILLING DATA.

(a) Contractor:	Richter Bawden Drilling P/Ltd. Elizabeth St., Brisbane, Qld.
(b) Drilling Plant:	
Make:	Brewster.
Type:	N-4.
Rated capacity with 3½" drill pipe:	7,500 ft.
Rated capacity with 4½" drill pipe:	5,500 ft.
Motors:	G.M. diesel, 6-71 twin 6. rated 396 BHP.

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(c) Mast:

Make:	Lee C. Moore.
Type:	Jacknife, 126 ft.
Capacity:	368,000 lbs.

(d) Pumps - Two:

Make:	Oilwell.
Type:	214P.
Size:	$7\frac{1}{2}$" x 14"
Motors:	G.M. diesel, 6-71 twin 6. rated 396 BHP

(e) Blowout preventer equipment.

(i) Make:	Cameron.
(Size:	12" Double gate.
Series:	900.
(II) Make:	10".
Series:	900.

(f) Hole sizes and depths.

22" Conductor Pipe:	K.B. to 43 ft. RKB.
$17\frac{1}{2}$" Hole:	43 ft. to 394 ft. RKB.
$12\frac{1}{4}$" Hole:	394 ft. to 3,284 ft. RKB.
$8\frac{1}{4}$" Hole:	3,284 ft. to 6,110 ft. RKB.

(g) Casing Details.

(i) Size:	20".
Weight:	60 lbs.
Grade:	Welded.
Range:	I.
Setting depth:	41 ft.
(ii) Size:	$13\frac{3}{8}$".
Weight:	48 lbs.
Grade:	H.40.
Range:	II.
Setting depth:	360 ft.
(iii) Size:	$9\frac{5}{8}$".
Weight:	36 lbs.
Grade:	J.55.
Range:	II.
Setting depth.	2,766 ft.

(h) Casing cementing details.

(i) Size:	20".
Setting depth:	41 ft.
Qty. Cmt. used:	80 sacks.
Cement to:	surface.
Method:	B.J. Services.

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(ii) Size: $13\frac{3}{8}$".
Setting depth: 374 ft.
Qty. Cmt. used: 322 sacks.
Cemented to: Surface.
Method: B.J. Services.

(iii) Size: $9\frac{5}{8}$".
Setting depth: 2761 ft.
Qty. Cmt. used 380 sacks.
Cemented to: 1,300 ft.
Method: B.J. Services.

(i) Drilling fluid:

(i) Type - to 394 ft.: Bentonite/water only.
- to T.D.: Ligno-sulphonate system.

(ii) Treatment: With stock chemicals on location, on day to day basis as required.

(iii) Mud material & chemical consumption:

Supercol:	38,700 lbs.	(Viscosity).
Volclay:	25,398 lbs.	(Viscosity).
Unical:	16,950 lbs.	(Thinners and pH).
Milcon:	8,300 lbs.	(Water loss control).
Caustic:	1,400 lbs.	(Thinners and pH).
Cellucol:	748 lbs.	(Water loss control).
Soda Bicarb:	500 lbs.	(Cement contamination).
Cal. Chloride:	840 lbs.	(Advance cmt. setting time).

(iv) Average Weight Analysis:

Week.	depth ft.	Weight lbs/U.S. gal.	Visc. Secs/ 946 cc.	W.L. c.c.	F.C. ins.	pH.
1	2,354	9.2	101	7.7	2/32	11.0
2	3,284	9.9	54	7.2	2/32	9.5
3	4,950	9.4	54	7.3	2/32	10.5
4	5,673	9.7	53	5.0	2/32	9.5
5	6,110	9.7	47	5.5	2/32	9.5

(j) Water Supply:
Water was pumped from Latrobe Valley Water & Sewerage Board Irrigation Channel, 500 ft., from Well-head.

(k) Perforations and Shooting: Nil.

(l) Plug back and Cementation Jobs:

Plug back on abandonment:

1.	5500' - 5300'.	66 sacks.	15 lbs.	Slurry.
2.	4830' - 4630'.	66 sacks.	15 lbs.	Slurry.
3.	2860' - 2660'.	98 sacks.	15 lbs.	Slurry.
4.	20' - 0'	8 sacks.	15 lbs.	Slurry.

(m) Fishing Operation: NIL.

(n) Side-tracking Hole: NIL.

3. LOGGING & TESTING.

(a) Ditch Cuttings.

Representative samples were collected from the shaleshaker at 10 ft., intervals whilst drilling was in progress, and at 5 ft. intervals whilst coring. Samples collected from the sample catcher, which is an attachment on the shaleshaker, were sieved to remove most of the cavings, washed, dried, examined under the microscope and then described in detail.

Two sets of samples were bagged and forwarded to the undermentioned:-

(i) Victorian Department of Mines.

(ii) Woodside (Lakes Entrance) Oil Co. N.L.

Adequate and representative samples were often unprocurable whilst drilling through certain zones in the Tambo River Formation and Lakes Entrance formation, on account of the clay admixtures of the marly beds.

Samples obtained below the Latrobe Valley Coal Measures were often contaminated with large coal fragments.

(b) Coring.

Cores were to be obtained at the contacts of the various intersected formations within the Tertiary and Mesozoic sediments. In addition cores were also to be taken in zones of economic interest that exhibited some porosity, hydrocarbon emanations, oil staining and fluorescence.

The following cores were cut:-

Date	Core No.	Interval.	Cut	Recovery	%Rec.	Type of Core Barrel
14/3/66	1	1810' - 1820'	10'	8'6"	85%	H/F 7⅞"
17/3/66	2	3000' - 3012'	12'	2'	16.7%	" 8¾"
25/3/66	3	4245' - 4258'	13'	7'	53.8%	" 7⅞"
28/3/66	4	4785' - 4800'	15'	5'9"	38.3%	" 7⅞"
1/4/66	5	5120' - 5130'	10'	5'	50%	" 7⅞"
6/4/66	6	5673' - 5678'	5'	3'6"	70%	" 7⅞"
10/4/66	7	6099' - 6110'	11'	11'	100%	" 7⅞"
	7		76'	42'9"	56.3%	

(c) Side Wall Cores

Attempts were made to procure 30 side wall cores, However, only 27 samples were subsequently recovered. Side wall cores were taken commencing from approximately the zone of contact of the Latrobe Valley Coal Measures and the Upper Cretaceous and at various

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intervals to total depth.

Number	Depth	Number	Depth
1	6,020 ft.	16	5,267 ft.
2	6,018 ft.	17	5,068 ft.
3	5,862 ft.	18	5,063 ft.
4	no recovery.	19	5,060 ft.
5	5,850 ft.	20	4,933 ft.
6	no recovery	21	4,931 ft.
7	5,664 ft.	22	4,926 ft.
8	5,662 ft.	23	4,838 ft.
9	5,625 ft.	24	4,834 ft.
10	5.624 ft.	25	4,828 ft.
11	5,605 ft.	26	4,811 ft.
12	5,603 ft.	27	4,712 ft.
13	5,342 ft.	28	4,712 ft.
14	5,340 ft.	29	no recovery.
15	5,269 ft.	30	no recovery.

(d) Electrical and Other Logs:

A detailed logging programe was undertaken by Schlumberger Seaco Inc. The following logs were obtained:-

(i) Run 1.

(a)	Electric Log	376' - 3,201'.
(b)	Microlog-caliper	374' - 3,201'.
(c)	Sonic	374' - 3,197'.
(d)	Gamma Ray Neutron	100' - 3,203'.
(e)	Continuous Dipmeter	374' - 3,199'.
(f)	Temperature Log	100' - 2,688'.

(ii) Run 2.

(a)	Electric Log	3,201' - 6,112'.
(b)	Microlog-caliper	3,200'- 6,112'.
(c)	Sonic	3,200' - 6,101'.
(d)	Gamma Ray-Neutron	2,115' - 6,112'.
(e)	Continuous Dipmeter	3,200' - 6,112'.

(e) Drilling Time and Gas Log:

A Geolograph, located on the rig floor, functioned to total depth.

A Johnson - Williams Gas detector was operated in conjunction with a Honeywell recorder. No major mechanical difficulties were encountered in their operations and the readings recorded thereon can be regarded as accurate. Several positive deflections or"kicks" were noticed on the chart, caused by thick coal seams within the Latrobe Valley Coal Measures. The gas detector was subjected to a daily test to ensure no malfunction of the equipment.

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(f) Formation Drill Stem Testing.

Test No. 1.

Interval tested:	2289' - 2354'.
Reason for testing:	Porosity.
Method:	Dual conventional open hole.
Recovery:	190' sand; 180' muddy water.
Salinity:	1287 p.p.m. (Na Cl.)

Test No. 2.

Interval tested:	3389' - 3435'.
Reason for testing:	Porosity.
Method:	Dual conventional open hole.
Recovery:	30' muddy water; 3342' water.
Salinity:	1140 p.p.m. (Na Cl.)

Test No. 3.

Interval:	4920' - 4950'.
Reason for testing:	Porosity.
Method:	Dual conventional open hole.
Recovery:	Water to surface in 20 mins. at 940 g.p.h. 4895' slightly gas-cut water; 5' sand;
Salinity:	1820 p.p.m. (Na Cl.)

Test No.4.

Interval:	5036' - 5120'
Reason for testing:	Porosity.
Method:	Dual conventional open hole.
Recovery:	4646' slightly gas-cut water; 90' muddy water.
Salinity:	1050' p.p.m. (Na Cl.)

Test No. 5.

Interval:	5321' - 5378'.
Reason for testing:	Porosity.
Method:	Dual conventional open hole.
Recovery:	Gas to surface in 20 mins.- too small to measure; water to surface in 60 mins. Flowed at 540 g.p.h. Recovered 90' gas-cut muddy water & 5203' gas-cut water; 2' sand.
Salinity:	10900 p.p.m. (Na Cl.).

Test No. 6.

Interval:	5740' - 5841'.
Reasons for testing:	Porosity.
Method:	Dual conventional open hole.
Recovery:	260' mud; 15' watery mud.
Salinity:	Filtrate salinity 1290 p.p.m. (Na Cl.)

(g) Deviation Surveys:

Surveys of the deviation of the hole from the vertical were conducted at various intervals by using a Totco inclinometer.

DEPTH	DEVIATION
100'	$\frac{1}{2}^{o}$
200'	$\frac{1}{2}^{o}$
300'	1^{o}
390'	1^{o}
940'	$\frac{1}{4}^{o}$
1,450'	$\frac{1}{2}^{o}$
1,800'	$\frac{1}{4}^{o}$
2,350'	$\frac{1}{2}^{o}$
3,000'	$\frac{1}{4}^{o}$
3,804'	$\frac{1}{2}^{o}$
4,210'	$\frac{1}{2}^{o}$
4,650'	$\frac{3}{4}^{o}$
5,010'	1^{o}
5,450'	$\frac{3}{4}^{o}$
6,000'	$\frac{1}{4}^{o}$

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GEOLOGY

1. Summary of Previous Work:

Exploration for oil in the Gippsland Basin commenced in earnest in 1924 after the discovery of oil at Lakes Entrance. Since then, geological knowledge of the basin has increased considerably due to the large number of wells drilled, the surface geological surveys and the geophysical investigations carried out. These have been financed by private companies, the State Government, and the Commonwealth Government.

Although a large number of wells have been drilled in the basin, the data obtained from wells drilled prior to 1961 are of limited value. More recent wells both onshore and offshore, have greatly increased the knowledge of the individual Tertiary and Mesozoic formations. Knowledge of the Palaeozoic sediments is confined mainly to that obtained from outcrop.

The nearest wells to have penetrated a similar sequence to that found in Dutson Downs No. 1 are Woodside Lake Reeve, Carr's Creek, North Seaspray No. 1 and Merriman. It is thought that, from studies carried out after the compiling of the well completion report for this well, both Upper Cretaceous and Strzelecki Formation sediments, as well as a full sequence of Tertiary sediments, are present. The nearest well, however, Golden Beach West No. 1, situated 3 miles south of Dutson Downs No. 1, penetrated 5,926 feet of Tertiary and 1,584 feet of Upper Cretaceous sediments. The well was abandoned while still in Upper Cretaceous. Four miles to the north of Dutson Downs No. 1 is Woodside's Wellington Park No. 1. In this well 3,800 feet of Tertiary sediments and 8,211 feet of Lower Cretaceous - Upper Jurassic Strzelecki sediments were penetrated. No Upper Cretaceous sediments were encountered.

Extensive geophysical exploration has been carried out in the East Gippsland area. This included a Magnetometer survey (B.M.R. map J.56/BI-2) and a Gravity survey (B.M.R. Record 1962/53) both carried out by the Bureau of Mineral Resources. Both surveys indicate the presence of a major sedimentary basin to the east of Lake Wellington.

Seismic surveys have been carried out both onshore and offshore. These indicate that Dutson Downs is in a Tertiary low situated between the Golden Beach structure and the Baragwanath Anticline. Due to poor reflections as well as multiple reflections, produced by the numerous coal seams within the Latrobe Valley Coal Measures, the seismic surveys cannot define structure in the pre-Latrobe Valley Coal Measure sediments.

2. Summary of Regional Geology:

The Gippsland Basin is a sequence of marine and continental Tertiary sediments overlying Mesozoic sediments in the southern part of the basin and Palaeozic sediments in the northern section. The onshore region of the basin covers most of the eastern coast of Victoria extending up to fifty miles inland. The greater part of the Basin, however, lies offshore. The southern-most boundary is unknown, and it is possible that it is connected with the Bass Basin.

Basement in the Gippsland area is steeply dipping Ordovician and Silurian sediments and metamorphics intruded by "Granites" (Webb 1964). Highly folded Middle Devonian, marine and continental sandstones, siltstone, shales and limestones unconformably overlie basement.

Unconformably overlying the Middle Devonian is a moderately folded continental sequence of red and green shales, sandstones, conglomerates and volcanics of Upper Devonian to Lower Carboniferous age which were penetrated in South West Bairnsdale No. 1.

Until the drilling of Duck Bay No. 1 the only indication of Permian sediments in the Gippsland Basin was an isolated outcrop of conglomerates (glacial tillite) on the southern side of the Carrajung Uplift in the central part of the basin. The Duck Bay No. 1 well however, penetrated both Permian sediments and volcanics. No sediments of Triassic age are known in the Gippsland Basin.

Jurassic and Lower Cretaceous sedimentation is represented by the Strzelecki Group, a non-marine sequence of arkose and felspathic greywacke. These were deposited in a deep east-west trending basin with a maximum thickness thought to be as much as 20,000 feet. The only well to penetrate this formation entirely is Duck Bay No. 1 at the northern edge of the basin where a pinchout occurs. Offshore and

in the central part of the basin onshore, the Strzelecki passes into the "Upper Cretaceous", a sequence of fine grained sandstone and mudstone. The actual distribution of the latter is difficult to determine onshore and in a number of wells drilled prior to Golden Beach West No.1, the first well to penetrate this sequence onshore, it cannot be determined accurately whether it is present or not. Dutson Downs No. 1 well is the first well drilled in the basin where a definite boundary between the upper and lower Cretaceous sediments is present. No upper Cretaceous sediments have been seen in outcrop.

Sedimentation during the Tertiary commenced in early Eocene or Palaeocene times with the deposition of the Latrobe Valley Coal Measures. Almost entirely terrestial, it is composed of claystone, semi-consolidated sandstones, gravel and brown coal. In some areas, i.e. Woodside area, basalt and basaltic soils of the Narracan Group mark the base of the Tertiary.

A marine transgression began either late in the Eocene or early in the Oligocene with the deposition of the Lakes Entrance Formation, a sequence of marl, limestone and glauconitic sandstone. Limestone and marl of the Gippsland Limestone and the Tambo River Formation were deposited as the transgressive sea gradually encroached over the basin during the Miocene. Regression of the sea commenced in the Pliocene and the resultant sandstone, coquina and limestone form the Jemmy's Point Formation.

With the withdrawal of the sea, continental conditions prevailed and the resultant peats, clays and sandstones form the Bushy Park Beds, and the Lake Wellington Gravels.

A generalised stratigraphic succession of the Tertiary and Mesozoic in the Gippsland Basin may be represented thus:

Age	Formation	Rock Type
Pliocene	Bushy, Park Beds Jemmy's Point Formation.	Clay, Peat Fossiliferous sands.
Upper Miocene	Tambo River Formation	Limestone & Marl.
Miocene	Gippsland Limestone	Limestone
Oligocene	Lakes Entrance Formation.	Marl
Eocene & Palaeocene	Latrobe Valley Coal Measures. Narracan Group.	Sandstone, Clay, Coal. Basalt & Basaltic soils.

Age	Formation	Rock Type
Upper Cretaceous	Undifferentiated Upper Cretaceous	Sandstones & Mudstones
Lower Cretaceous Upper Jurassic	Strzelecki Group	Felspathic Sandstones & Shales
Palaeozoic		

3. Stratigraphic Table of formations encountered in Dutson Downs No. 1 Well:

Age	Formation	Top	ASL	Thickness
Quaternary	Undifferentiated	Surface	+16	190
Tertiary				
Pliocene	Jemmy's Point	190	-174	250
Miocene	Tambo River	440	-424	180
	Gippsland Limestone	620	-604	1278
Oligocene	Lakes Entrance	1898	-1882	426
Eocene	Latrobe Valley	2324	-2308	2408
Mesozoic				
Upper Cretaceous	Undifferentiated	4732	-4716	1111
Lower Cretaceous Upper Jurassic	Strzelecki Group	5843	-5827	270+

T.D. (Schlumberger) 6113 - 6097

4. STRATIGRAPHY

(a) Quaternary (Surface to 190 feet).

This is mainly an unconsolidated sand made up of medium, coarse or very coarse, clear light grey, pale yellow, quartz grains and white felspar grains. The entire unit is poorly sorted. Rare bands of siliceous material of pebble and granule sized are interbeded.

(b) Tertiary:

(i) Pliocene:

Jemmy's Point Formation: (190 to 440 feet).
250 feet thick.

The dominant lithology of this formation is sandstone varying very little from the Quaternary sands. They are unconsolidated, with gravel bands made up entirely of clear to slightly cloudy quartz, subangular rarely subrounded with some coarser grains rounded, poorly sorted. Felspar is present but is rare. Included in the sands are numerous shell fragments with the main fauna varying and including Lamellibranchia, Gastropoda, and Bryzoa. Foraminifera and Echinodermata fragments are much less common.

A minor amount of coal and lignite is present and is probably contained as fragments within the sandstone. A top and a bottom layer, rich in shell fragment, can be recognised. The top layer may be equivalent to the Bushy Park Beds (Hocking, 1965).

(ii) Miocene:

Tambo River Formation: (440 to 620 feet)
180 feet thick.

This formation is very poorly defined by logs as a distinct change is not present. The upper boundary has been determined from cuttings and is taken as the first appearance of a marl. The lower boundary has been placed at 620 feet because at that depth there is a change in the sonic log. Above 620 feet there are large fluctuations in the sonic log over small intervals, whereas below there is very little variation. Cuttings, however, show a gradation between the Tambo River Formation and the Gippsland Limestone. If this formation is taken as being formed at the commencement of the regression of the Tertiary sea, such gradation would be expected.

The Tambo River Formation could therefore be included with the underlying Gippsland Limestone.

The marl is light grey, argillaceous and calcareous, and contains a large number of fossil fragments including Bryzoa, Echinodermata, Gastropoda and Lamellibranchia. Also present is a calcareous sandstone grading into a calcarenite. It is light grey to light brown, fine-grained, tight, with a brown calcareous cement making up to 40% of the rock, slightly carbonaceous, variably quartzose, dominantly composed of fossil fragments including the worm tube Ditrupa and corals. Very thin beds of limestone are present towards the base. These are cream to white, crystalline to cryptocrystalline with Ditrupa common as well as a number of Foraminifera.

Gippsland Limestone (620 to 1898 feet)

1278 feet thick.

The Gippsland Limestone in this well is a calcareous sequence made up of crystalline limestone, calcilutites and calcarenites. Both boundaries are indistinct being somewhat vague on logs. The reasons for the upper boundary have been given in the Tambo River Formation description.

At the lower boundary in cuttings there is an indistinct change from a light grey calcareous clay to a light green one. This change was noted at 1900 feet. A variation in the calcareous content cannot be determined accurately. The boundary has been placed at 1898 feet for the following reasons:-

(i) The change in colour from light grey to light green at 1900 feet.

(ii) A slight decrease in resistivity at 1898' possibly due to a decreased calcareous content.

Lithology

The top of the Gippsland Limestone is a crystalline limestone, cream to a very light brown, crystalline generally, dominantly microcystalline with porosity, probably vugular. It contains varying amounts of skeletal fragments and is a skeletal limestone in part with mostly Bryzoan fragments. The skeletal limestone grades into a calcarenite which is partly glauconitic but rarely quartzose. Foraminifera as well as Gastropods, Corals, and Echinodermata are present.

The lower sections become more detrital and vary between a light grey calcilutite, slightly argillaceous, very calcareous and containing numerous fossil fragments, and a marl light grey varying only in the amount of calcareous material. Interbedded are thin beds of either limestone and calcarenite as described previously. These are present on the electrical logs as sharp increases in resistivity. The dominant fossils towards the base are Foraminifera of which a wide variety of these is present.

Oligocene:

Lakes Entrance Formation: (1898 to 2324 ft)

426 Ft. thick.

As in the other marine formations present in the Gippsland Basin, doubt exists as to the boundaries of the Lakes Entrance Formation. Sample descriptions show a marked change at the base from a marl to a sandstone. No distinct change is present on any of the logs run. Although this sandstone has been included in the Latrobe Valley Coal Measures, it is possible that it may be part of the Lakes Entrance Formation. The equivalent of this sandstone has been included in the Lakes Entrance in Golden Beach West No.1. The Lakes Entrance Formation is composed almost entirely of marl, light green to green, variably calcareous, glauconitic and pyritic. It is fossilferous throughout. The basal section becomes very glauconitic and pyritic with the glauconite black and dark green and generally well rounded. Often, Foraminifera, which are the most common fossils, have been entirely replaced by glauconite. Two thin brown dolomite bands are present at the base i.e. 2290 feet and 2305 feet. The top one is marked by an increase in resistivity and is present in most wells drilled through the Lakes Entrance Formation. The lower one is responsible for the "sawtooth" S.P., i.e. the presence of a small negative S.P. deflection above the positive deflection opposite the fresh water sandstones of the Latrobe Valley Coal Measures.

Eocene:

Latrobe Valley Coal Measures: (2324 to 4732 ft.)

2408 feet thick.

The Latrobe Valley Coal Measures in this well is a sequence of sandstone, gravel, coal and claystone with at least three thin limestone beds. These beds between 2900 feet and 3100 feet are due to marine incursions into the fresh water beds of the Latrobe Valley Coal Measure. Due to these variations in lithology, seperate intervals will be described.

2324 to 2900 feet:

This interval is composed of interbedded sandstone, brown coal and clay.

Two types of sandstone are present within this interval. The uppermost sandstone (2324 to 2360 ft.) is composed of slightly cloudy to cloudy, medium grained, subrounded to rounded, moderately well sorted quartz grains. Rare Foraminifera are present and could be part of the sandstone or a result of caving further up the hole. They have, however been found in the equivalent of this sandstone in both Woodside's Golden Beach West No.1 and Esso Gippsland Shelf No.1. The remaining sandstones, i.e. from 2360 to 2900 feet, are composed of medium grained, subangular to subrounded, clear to slightly cloudy quartz grains. It would appear that the two types of sandstone have been derived from different sources. The brown coal present is soft and fibrous and the claystone is light brown, kaolinitic and quartzose with carbonised plant remains throughout.

2900 to 3400 feet:

This is dominantly a sandstone-coal sequence with thin beds of limestone, dolomite, and glauconitic clays. The sandstone is composed of clear and subangular quartz grains as in most of the sandstones of the previous interval. The limestone is light green, partly dolomitic, mainly calcareous and crystalline. Fossils are numerous and include Bryzoa, Echinodermata, lamellibranchiata and Foraminifera. The limestone is also glauconitic, pyritic and micaceous. Also present, and found in Core No.2 (3000 to 3012 feet) are very thin beds of claystone which are pyritic, micaceous, glauconitic and argillaceous. The age of this core has been given as possibly Palaeocene. Between 3280 and 3400 feet are three beds of dolomite showing high restivity on the electrical log. They are light grey, slightly quartzose and carbonaceous, nonfossiliferous, microcrystalline.

3400 to 4310 feet:

This interval is composed of sandstone, claystone and brown coal. All lithologies compare with those found in the overlying intervals.

4310 to 4732 feet:

This section is composed entirely of sandstone, fine-to coarse-grained, probably porous with a kaolinitic matrix or a dolomitic, pyritic or siliceous cement.

It is slightly carbonaceous, dominantly quartzose. It is probable that the cement becomes dolomitic and siliceous from approximately 4500 feet. Side-wall cores at 4712 feet have a dolomitic cement. From 4500 feet to 4732 feet the drilling rate was reduced considerably and bit life was

..../Cont.

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DUTSON DOWNS

reduced from 24 hours to 10 hours. However, no variation in log characteristics occur from 4310 to 4732 feet. This unit marks the base of the Latrobe Valley Coal Measures in a number of wells in the Gippsland Basin.

(c) Mesozoic:

Upper Cretaceous Unnamed: (4732 to 5843 ft.)
1111 ft. thick

The log and lithological boundaries, particularly that with the Latrobe Valley Coal Measures, are clear cut. The lower boundary, i.e. with the Strzelecki Formation is clear cut on all logs with the exception of the Continuous Dip Meter. Using the latter, this boundary is at 5930 ft.
This formation is made up of sandstone, siltsone and mudstone with very minor dolomite. The sandstone is light grey, very fine, fine-and medium-grained, rarely coarse-grained, slightly carbonaceous, lithic, dominantly quartzose with a kaolinitic matrix. This sandstone is present in cuttings as subangular, clear to slightly cloudy quartz grains. Matrix varies considerably, with the amount increasing in the sandstone towards the base. The sandstone below 5500 is in almost all cases, very fine-grained. Porosity and permeability in the basal sandstone is lower, while porosity and permeability above 5500 feet is generally high. Sorting throughout is generally fair, though it is possible that large scale graded bedding does occur with some beds very fine-grained at the top and medium grained at the base.
The mudstone is present throughout this formation. Although it is very hard and compact, it is present in samples as a soft, grey, sticky clay. The description is taken from cores. It is brown to a very dark-grey, dominantly argillaceous, kaolinitic, carbonaceous in part, with rare plant fragments, slightly quartzose. Rare granule sized well rounded siliceous and cloudy quartz grains, as well as coarse lithic grains, are present. Pyrite nodules, as well as grains of quartz and pyrite, are present though more abundant towards the top. The only bed of dolomite recognizable on logs is at 4812 feet and is grey to brown, microcrystalline, slightly quartzose, lithic and carbonaceous. The siltstone is not common but tends to increase towards the base. It is grey to brown, lithic, felspathic, carbonaceous, with an argillaceous matrix grading into a mudstone..

Strzelecki Group: (5843 to 6113 ft.)
ft. thick.

As stated, all logs with the exception of the Continuous Dipmeter indicate a sharp boundary. The dominant lithologies are arkose or felspathic greywacke and claystone.

The claystone is light to medium grey, compact, non-fissile slightly carbonaceous and micaceous, kaolinitic, and composed of indeterminate clay-sized material.

The arkose is a very light green to light grey, compact, fine grained, tight, composed predominantly of white felspar or its alteration product, kaolin, dark grey lithics, very minor light grey cloudy quartz, slightly micaceous and carbonaceous. The matrix, although dominantly kaolinitic, is calcareous in part.

5. STRUCTURE

Before the drilling of this well, it was generally thought that this well would be located down dip, from Golden Beach West No.1. Upper Cretaceous dips in Golden Beach West were to the north and the Woodside Paynesville Seismic Survey (1965) indicated a trough between Golden Beach No.1 and Wellington Park No.1. An earlier survey, however, (Sale Survey 1961) indicated that the wellsite may be positioned on a nose of the Baragwanath Anticline. Drilling of the well indicated no Tertiary or Mesozoic structure.

Dutson Downs No.1 was therefore a stratigraphic test of the Upper Cretaceous sandstones, found in Golden Beach West No.1 but absent in Wellington Park No.1. Although thinning has occurred, no stratigraphic trap is present. Unfortunately the direction of a stratigraphic trap cannot be determined readily from this well. Although a very low westerly dip is shown by the Continuous Dipmeter the dip prior to post Cretaceous movement was probably south to south west. There was therefore a trough running between Golden Beach West No.1 and Dutson Downs No.1.

6. OCCURRENCE OF HYDROCARBONS.

No commercial accumulations of hydrocarbons were produced from any of the formations penetrated in this well. However very small quantities of methane (too small to measure) were produced from two tests on sandstones of the Upper Cretaceous. Drill Stem Test No.4, 5036 to 5120 feet and Drill Stem Test No.5, 5321 to 5378 feet. Large quantities of brackish water were also recovered from these tests. Sandstones in the Upper Cretaceous tested in Golden Beach West No.1 also produced methane and salt water. It is considered that the gas produced from both wells was in solution.

A test on one of the primary targets of the well, the top sand of the Latrobe Valley Coal Measures, produced fresh water with no indications of gas (Drill Stem Test No.1 2289 to 2354 feet).

7. POROSITY AND PERMEABILITY

DUTSON DOWNS

It has been observed both from the Microlog and cutting analyses that good porosity, greater than 20% exists in the following formations:- Jemmy's Point Formation, Gippsland Limestone, Latrobe Valley Coal Measures, and Upper Cretaceous. The Mesozoic Strzelecki Formation is non-porous. However, as very little Jemmy's Point Formation has been covered by the logs run, the porosity through this formation has not been calculated.

(a) Gippsland Limestone.

The accuracy of porosities calculated from this formation is limited as the main porosity tool, the Sonic log is completely unreliable. Microlog determinations give a porosity range of 33% to 37% over the top 250 feet. This interval covers a crystalline limestone and porosity present is vugular. Permeability is completely unknown as no tests were run covering this interval.

(b) Latrobe Valley Coal Measures.

Porosities of the sandstones throughout this formation are high with the top sandstone unit having a higher porosity than the lower sandstones. For the sandstone at the top of this formation, i.e. 2322 to 2359 feet, porosities as determined by the sonic log range between 33% and 39%. From the microlog a consistent porosity of 35% has been calculated.

Lower sandstone beds have porosities ranging between 28% and 32% (determined from Sonic Log).

(c) "Upper Cretaceous".

Sandstone beds of this formation are generally thinless than 30 feet-with porosity varying between beds. The main problem, using the sonic log, is determining the matrix velocity. By calculating the porosity at 4894 feet from the microlog, the same porosity is obtained on the Sonic Log by using a matrix velocity of 18,000 feet per second. Other porosities calculated using this figure are:

5125 ft - 26%. 5278 ft - 24%. 5340 ft - 33%.
5602 ft - 22%. 5662 ft - 22%.

Although these figures are probably optimistic, they do indicate that porosities of the basal sandstones are lower than the uppermost sandstones. Drill stem tests No. 3 (4920 to 4950 ft), No. 4 (5036 to 5120 ft) and No. 5 (5321 to 5378 ft) produced large quantities of slightly brackish to brackish water while drill stem Test No. 6 (5740 to 5841 ft) proved that the formation was tight.

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8. CONTRIBUTIONS TO GEOLOGICAL KNOWLEDGE: Dutson Downs

The pre-Tertiary sequence penetrated in this well varies very little to that found elsewhere in the Gippsland Basin. The main differences lie within the Upper Cretaceous and the Latrobe Valley Coal Measures.

(i) Upper Cretaceous

Although this formation occurs in other wells onshore, the actual limits in all cases, with the exception of Golden Beach West No. 1 are ill-defined. Dutson Downs No. 1 is the first well where the top and bottom of this formation can be accurately located. The information concerning this formation provided by the drilling of this well is:

(a) No sharp change is present in the dip or dips azimuth between the Latrobe Valley Coal Measures and the "Upper Cretaceous". There is, however, a gradual change in dip azimuth swinging from 35 degrees in the Tertiary to 270 degrees in the Mesozoic. In other wells and logs, there is generally an abrupt change between the two ages.

(b) This formation, as in all wells penetrating it, contains a number of porous and permeable sandstones.

(c) The "Upper Cretaceous" is unconformable with the older Strzelecki Group. Up to the drilling of this well, the relation between the two Mesozoic formations was unknown. It is now known that there is a marked change in dip azimuth, i.e. from 270 degrees to approximately 50 degrees. Dips in both formations vary considerably.

(ii) Latrobe Valley Coal Measures

(a) There is no marked unconformity at the top of the Latrobe Valley Coal Measures. Changes in dip and dip azimuth occur within the coal measures at 2330 feet (change in dip from 1 degree to approximately 10 degrees) and 2370 feet (change back to 1 degree). Dip azimuth is the same in both cases. A marked change in dip azimuth occurs at 2495 feet from north west below 2495 feet to north east above. Although there is no marked change in lithology or other log characteristics, movement has occured within the basin prior to the transgression of the sea.

(b) The presence of limestones and dolomites within the Latrobe Valley Coal Measures: Although these have been grouped together there is little to no relation between the two. The limestone is definitely marine, containing large numbers of marine fossils including foraminifera and interbedded with glauconitic and pyritic claystones and sandstones.

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DUTSON DOWNS

The dolomite, however, is completely unfossiliferous and contains no evidence that it is marine. However, they have been found within the coal measures in other wells in the basin (Wellington Park No.1). The limestone in this stratigraphic location has not been seen elsewhere.

DUTSON DOWNS

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APPENDIX 1:

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DUTSON DOWNS

APPENDIX NO. 1

CORE DESCRIPTION

DUTSON DOWNS NO. 1

CORE NO. 1.

1,810 to 1,820 feet. Recovered 8' 6" (85%)
1,810 to 1,812 feet. Limestone; light grey, recrystallized in part though tending toward a consolidated calcarenite with rare calcite crystals. Recrystallized bands are cream to light brown in colour, microcrystalline fossil fragments are present but not as common as in other sections.
1,812 to 1,814'6". Marl; grey, darker than above limestone, equally calcareous and argillaceous, extremely fossiliferous with Bryzoa most common.
1,814'6" to 1,817 feet. Limestone; light grey tending to a calcarenitic part as above.
1,817 to 1,818 feet. Marl; as above.
1,818 to 1,818' 6". Limestone; as above.

CORE NO. 2

3,000 to 3,012 feet. Recovered 2' (16.66%)
Interbedded Brown Coal, clay and very fine-grained sandstone. Sandstone very light brown and light green with both types fine to very fine grained grading into a silt. The light brown type is tight with an argillaceous kaolinitic matrix and almost entirely quartzose.
The light green type is fine- to very fine-grained with a light brown dominantly argillaceous, partly kaolinitic matrix, slightly micaceous, very pyritic and glauconitic, fossiliferous in part (Foraminifera) quartzose. The coal, clay and sandstone are present as irregular bands throughout the core. The sandstone bands are no greater than 1" thick.

CORE NO. 3

4,245 to 4,258 feet. Recovered 7' (54%)
4,245 to 4,247 feet. Claystone; light grey to light brown, in part slightly micaceous, very pyritic in part, arenaceous, dominantly kaolinitic, with thin carbonized streets throughout. Interbedded a thin coal band up to an inch thick.

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4,247 to 4,252 feet. Coal and very Carbonaceous Clay; the coal is black, sub-bituminous, extremely fractured.

CORE NO. 4

4,785 to 4,800 feet. Recovered 5' 9" (38%).
Interbedded Mudstone and fine-grained Sandstone.
Mudstone: grey brown argillaceous, micromicaceous very carbonaceous in part, with both small and large coal fragments present, with increasing intensity in the arenaceous part of the core.
Sandstone: brown, fine- to medium-grained, with varying amounts of the dolomitic cement and in fact grading into a dolomite in part, slightly felspathic, varyoably carbonaceous with a large number of variably shaped coal fragments, variably quartzose with quartz grains subrounded and fine to medium grained.
Carbonaceous material makes up the matrix in part.
Coal often has fractures filled with kaolinite.

CORE NO. 5

5,120 to 5,130 feet. Recovered 3' 6" (50%).
Sandstone; grading into Siltstone and Mudstone.
Sandstone: light grey, fine, rarely medium-grained, light, with a kaolinitic matrix slightly felspathic, with felspar in process of weathering to kaolin, variably c carb. with parts containing a large number of thin elongated coal fragments, slightly lithic, (dark grey) mainly quartzose. Sorting is moderate, but rare granule size grains sub-angular to sub-rounded and made up of cloudy quartz. Majority of quartz grains are sub-angular and clear to slightly cloudy. Large, elongated, dark-grey lithics are present.

Siltsone: grey, grading into sandstone, also containing rare, coarse to granule-size quartz grains, tending to be more kaolinitic. Mudstone: grading into siltstone, and approximately same composition, micremicaceous.
Dip 5^{o} - 10^{o}.
Petroleum manifestations - nil.

CORE NO. 6.

5,673 to 5,678 feet. Recovered 3' 6" (70%).
5,673 to 5,675 feet. Mudstone:
Top 2' - Medium-grey, argillaceous, kaolinitic, relatively consolidated, carbonaceous in places (black coaly material), partly micaceous and also containing rare, dark-yellow browny, sub-conchoidal fractured, amber-like material up to 1 cm. in size; containing also rare, cloudy, light grey quartz grains of medium-grain size.
5,676 to 5,675'2". Sandstone:
Top 2" - light grey, cloudy, whitish, fine to medium-grained, subangular to angular quartz grains, rare coarse grains and some dark grey lithic grains set in an off-white kaolinitic matrix; poorly sorted, non - calareous, non-friable.
5,675' 2" to 5,676' 6". Mudstone:
Bottom 1'4" - as previously, but slightly lighter-grey in colour and less carbonaceous material.
No indication of sedimentary structures, no dip and no indication of hydrocarbons.

CORE NO. 7.

6,099 to 6,110 feet. Recovered 11' (100%).
6,099 to 6,100' 8". Claystone:
Top 1'8" - light and medium-grey, compact, non-fissile, slightly carbonaceous, slightly micaceous, kaolinitic, and composed of indeterminate clay-sized material.
6,100' 8" to 6,101 feet. Arkose:
Top 4" - light green-grey to grey, compact, tight, blotchy in places where more whitish grey than greenish, composed predominately of white felspar or its alteration product kaolin, dark grey, lithic material, very minor light grey, cloudy quartz; slightly micaceous and carbonaceous up to 0.4mm; generally fine-grained, calcareous.

6,101 to 6,101'6". Claystone:
Top 6" - as described above.
6,101' 6" to 6,110 feet. Arkose:
Top 8'6" - as described above, but in some places much coarser in grain to medium-to coarse-size and more lithic, some rare crystals of?ankerite.
Contact with Claystone givesa 30^{o} - 40^{o} dip; no trace of hydrocarbons, and no sedimentary structures.

APPENDIX 2:

DUTSON DOWNS APPENDIX No. 2.

DESCRIPTIONS of SIDE WALL CORES.

CORE NO. 28 Depth 4712'	Sandstone	Colourless, fine to coarse-grained, angular to sub-angular quartz, siliceous matrix in part, traces of pyrite. Kaolinitic in part. Carbonaceous, lithic, possibly calcareous or dolomitic. Quartzose.
	Coal	Dark brown to black, fragmentary, medium hard.
CORE NO. 27 Depth 4712' 8	Sandstone	Quartz grains often coarse-grained, compact very pyritic. Siliceous, kaolinitic, carbonaceous.
	Coal	Same as above, with pyrite aggregates disseminated within the coal fragments.
CORE NO. 26 Depth 4811'	Siltstone	Grey to dark grey, lithic, feldspathic, highly indurated, siliceous. Small proportion fine-grained quartz.
	Coal	Same as above, minor coal laninations throughout the sample. No pyrite aggregations.
CORE NO. 25 Depth 4848'	Siltstone	Heavily clay laden sample, some fine grains of clear to cloudy quartz. Thin beds of minor coal fragments. Siliceous in part. Felspathic.
	Coal	Disseminated fragmentary coal as well. Carbonaceous, possibly dolomitic.
CORE NO. 24 Depth 4834'	Siltstone	Very clayey, lithic, carbonaceous, siliceous kaolinitic, microcrystalline.
	Coal	Finely disseminated coal fragments. Also traces of finely divided pyrite.
CORE NO. 23 Depth 4838'	Siltstone	Microcrystalline, lithic, quartzose, carbonaceous. Finely divided coal.
	Coal	Possibly dolomitic.

CORE NO. 22 Depth 4926'	Sandstone & Siltstone	Microcrystalline, lithic, felspathic kaolinitic matrix, carbonaceous, poorly sorted, clear to cloudy quartz grains, traces of pyrite, quartzose, finely divided coal disseminated throughout.
CORE NO. 21. Depth 4931'	Sandstone	Poorly sorted sub-angular to rounded, clear to cloudy quartz siliceous matrix, kaolinitic, microcrystalline in part, felspathic, quartzose. Some fragments of coal sparsely disseminated, lithic.
CORE NO. 20 Depth 4933'	Sandstone	Poorly sorted, sub-angular to rounded quartz, siliceous, kaolinitic, lithic, carbonaceous, quartzose, coal fragments, traces of pyrite.
CORE NO. 19 Depth 5060'	Sandstone	Poorly sorted, rounded to sub-angular quartz, microcrystalline, quartzose, siliceous, kaolinitic, lithic, felspathic, possibly dolomitic, micro-micaceous. Coal fragments disseminated throughout.
CORE NO. 18 Depth 5063'	Sandstone, Mudstone & Coal	Some poorly sorted, cloudy to clear quartz grains, siliceous, kaolinitic, quartzose, argillaceous, felspathic, lithic fragmentary coal, traces of pyrite.
CORE NO. 17 Depth 5068'	Sandstone & mudstone	Poorly sorted, clear to cloudy, sub-angular to rounded quartz, finely grained with some coarser quartz grains, microcrystalline, lithic, carbonaceous, kaolinitic, very loosely consolidated, felspathic. Certain amount of grading from a mudstone to a siltstone.
CORE NO. 16 Depth 5267'	Sandstone	Poorly sorted, microcrystalline, kaolinitic, siliceous, lithic, carbonaceous. Possible grading from sandstone to mudstone and siltstone varieties. Fine fragments of coal, disseminated throughout sample.
CORE NO. 15 Depth 5269'	Sandstone, Mudstone & Siltstone.	Poorly sorted quartz grains, microcrystalline, argillaceous, kaolinitic, lithic, carbonaceous. Interbedded grading of sandstones, mudstones and

		siltstones. Coal fragments not prominent. Sample poorly consolidated.
CORE NO. 14 Depth 5340'	Sandstone	Poorly consolidated sandstone, kaolinitic, siliceous, binding quartz grains, sub-angular to rounded, lithic, carbonaceous, traces of pyrite. Some minor coal fragments sparsely disseminated.
CORE NO. 13 Depth 5342'	Sandstone	Cloudy to clear, sub-angular to rounded quartz, micro-crystalline, lithic, carbonaceous, micromicaceous, kaolinitic, fine coal fragments disseminated throughout. Pyritic in parts.
CORE NO. 12 Depth 5603'	Sandstone & Mudstone	Some fragmentary quartz grains, clear, mostly sub-angular, kaolinitic, argillaceous matrix, lithic materials abundant, carbonaceous. Certain amount of grading to a mudstone. Coal fragments finely disseminated.
CORE NO. 11 Depth 5605'	Sandstone & Mudstone	Poorly consolidated sandstone, kaolinitic, siliceous matrix, clear to cloudy angular quartz, microcrystalline, felspathic with included grey lithics, quartzose, carbonaceous. Some minor coal fragments included. Argillaceous. Interbedded sandstone grading to a mudstone.
CORE NO. 10 Depth 5624'	Sandstone &Siltstone	Medium to fine grained, sub-angular to rounded, cloudy to clear quartz, siliceous, kaolinitic, quartzose, grey lithic, carbonaceous, felspathic. Some coarse quartz sparsely disseminated.
CORE NO. 9 Depth 5625'	Sandstone, Siltstone, & Mudstone	Dark grey to brown clay, poorly sorted, quartzose, siliceous, some sub-angular quartz, dark grey lithics, carbonaceous and felspathic, kaolinitic in parts. Matrix loosely consolidated.
CORE NO. 8 Depth 5662'	Sandstone, Siltstone, & Mudstone	Dark grey clay, siliceous, kaolinitic, with a few irregular clear quartz, grey lithics, felspathic, poorly consolidated, matrix being poorly evident. Carbonaceous mudstone and siltstone intercalations.

CORE NO. 7 Depth 5664'	Sandstone, Mudstone & Siltstone	Microcrystalline, siliceous, small grains of clear irregularly-shaped quartz sparsely disseminated, grey lithics, felspathic, carbonaceous, minute coal fragments. Minor mudstone and sandstone intercalations.
CORE NO. 6		No recovery.
CORE NO. 5 Depth 5850'	Mudstone & Siltstone	Dark brown to grey mudstone, siltstone intercalations, microcrystalline, kaolinitic in parts, dark grey lithics, carbonaceous, felspathic, micromicaceous, quartzose poorly consolidated.
CORE NO. 4		No Recovery.
CORE NO. 3 Depth 5862'	Mudstone, Siltstone & Sandstone	Dark grey mudstone to brown siltstone intercalations, with minor sandstone segments. Dominantly quartzose, kaolinitic in parts, abundant lithic material, some fine-grained cloudy quartz in random distribution, felspathic, carbonaceous.
CORE NO. 2 Depth 6018'	Sandstone	Predominantly sandstone, well consolidated, largely siliceous and kaolinitic in parts, irregular cloudy, fine grained quartz, slightly lithic quartzose. The sandstone fragments display greenish tinge, possibly calcareous, micaceous.
CORE NO. 1. Depth 6020'	Sandstone & Siltstone	Predominantly sandstone with minor siltstone intercalations, largely siliceous, quartzose, kaolinitic in parts, slightly lithic, microcrystalline lithic, felspathic, carbonaceous, possibly calcareous.

APPENDIX 3:

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DUTSON DOWNS

TESTING REPORT

Well Name DUTSON DOWNS NO.1	Test No. 1
Well Number 1	Zone Tested L.V.C.M.
Company WOODSIDE (L.E.) OIL CO.	Date 15-3-66
Comp. Rep. R.H. McCallum	Tester L.B. Thrupp

Recorder No.	2237	Recorder No.	2238
Clock Range	12 hr.	Clock Range	24 hr.
Depth	2340'	Depth	2347'
Initial Hydro Mud Press.	1263	Initial Hydro Mud Press.	1245
Initial Shut-in Press.	1071	Initial Shut-in Press.	1047
Initial Flow Press.	809	Initial Flow Press.	817
Final Flow Press.	1046	Final Flow Press.	1021
Final Shut-in Press.	-	Final Shut-in Press.	-
Final Hydro Mud Press.	Ran out of chart	Final Hydro Mud Press.	Ran out of chart
Temperature	103°	Tool Open Before I.S.I.	30 Mins. 2:07 A.M.
Mud Drop	4'	Initial Shut-in	30 Mins. 2:37 A.M.
Mud Weight	9.9	Viscosity 75	Flow Period Mins.
Fluid Loss	5.4		Final Shut-in Mins.
Interval Tested	2289 - 2354	Surface Choke Size	-
Net Pay Tested		Bottom Choke Size	1/2"
Top Packer Depth	2283'	Main Hole Size	8 3/4"
Bottom Packer Depth	2289'	Rat Hole Size	-
Total Depth	2354'	Feet of Rat Hole	-
Drill Pipe Size	4 1/2" F.H.	Wt. 16.6	Type of Test Dual Bottom Hole
Drill Collar I.D.	2 1/4"	Ft. Run 358	Cushion Amount—Type -
Anchor Size	4 3/4"		Rubber size 7 3/4"

Recovery—Total Feet 1995

Recovered 1805 Feet Of Muddy water

Recovered 190 Feet Of Sand

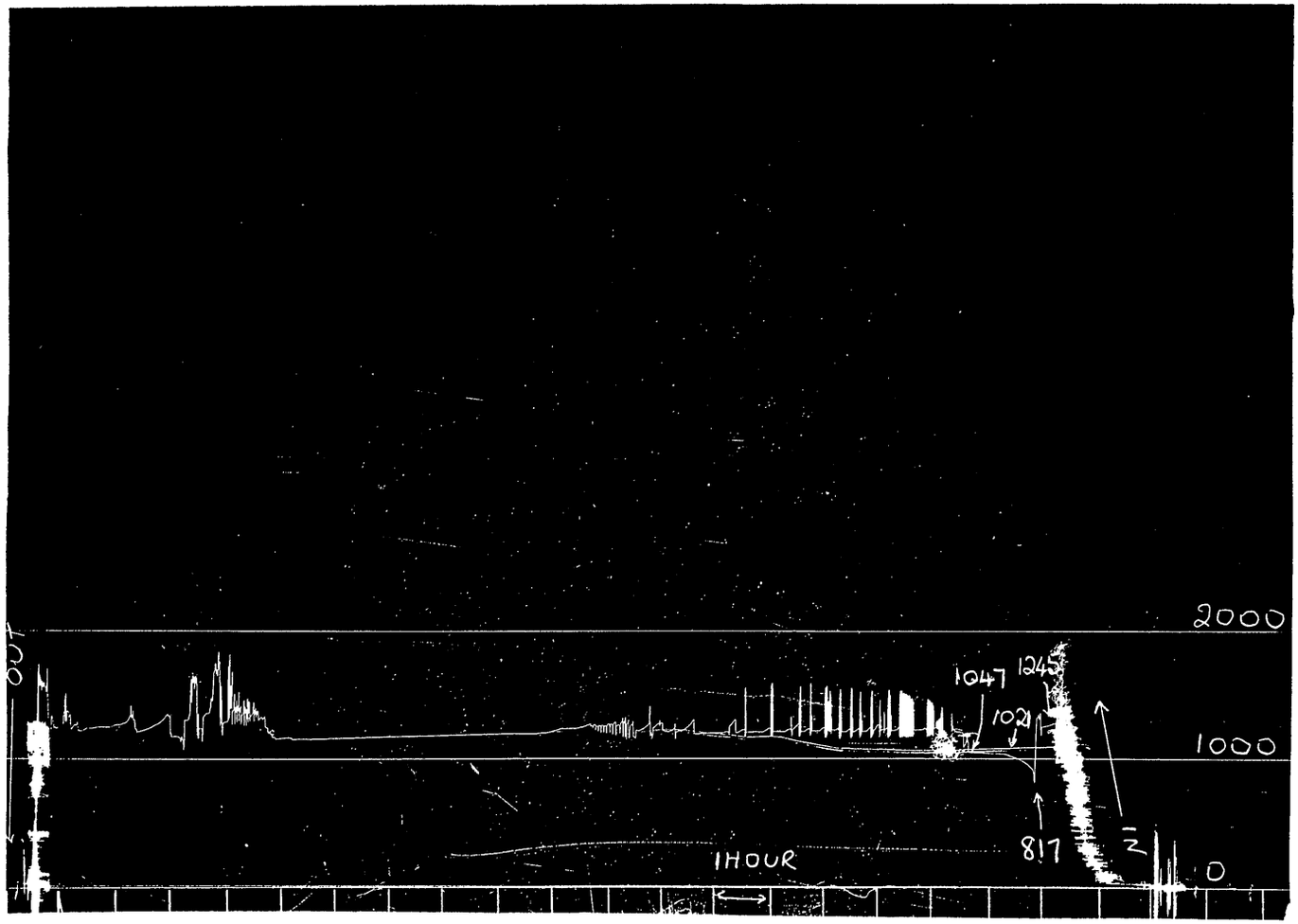
Recovered Feet Of

Recovered Feet Of

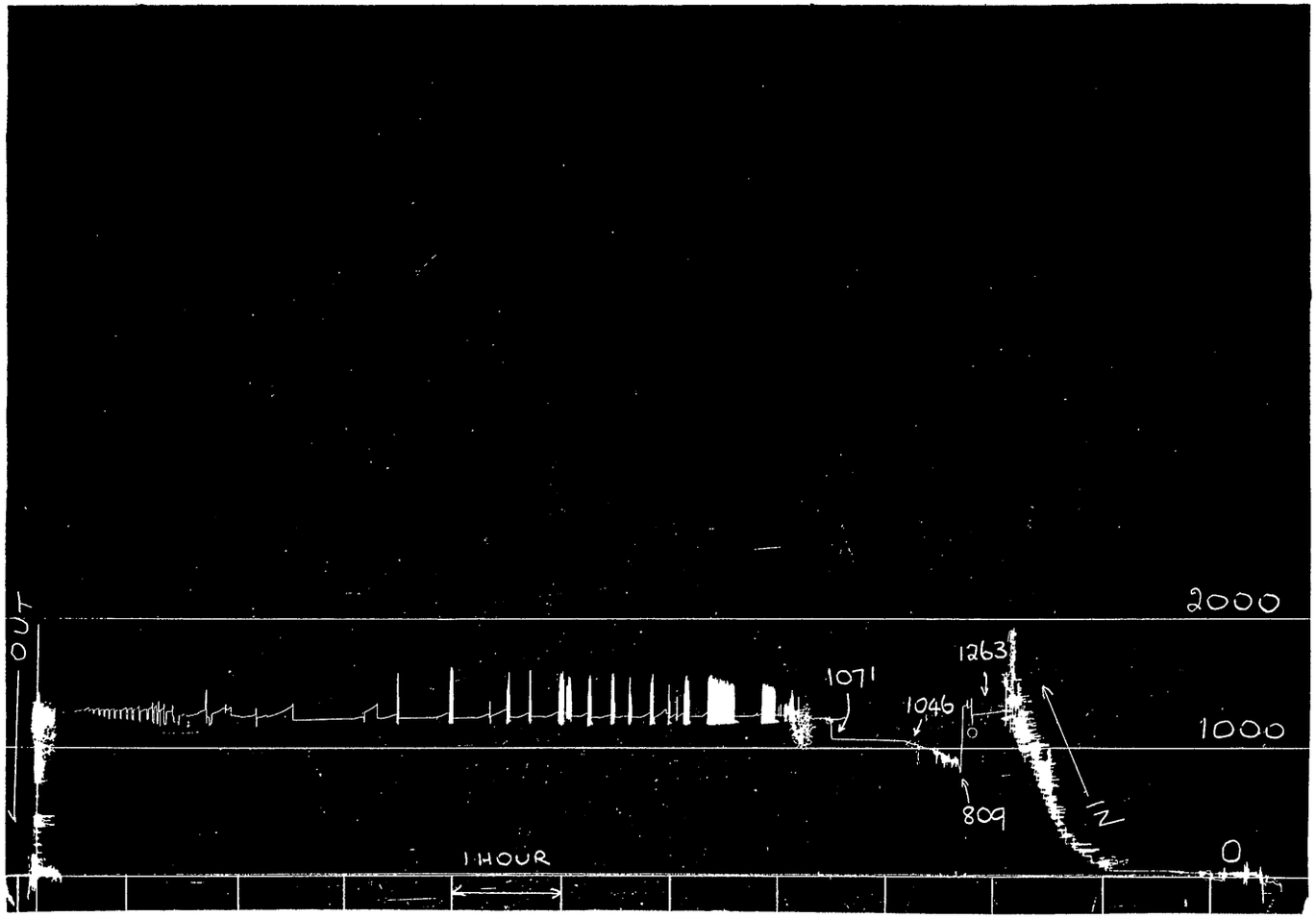
Remarks

Tool opened with good strong blow on initial. No blow on final flow indicating completely plugged tool. Left tool open for 15minutes, to see if it would clear, then pulled packer loose, packer pulled freely for first 6' then stuck. Jarred on and off for 3hrs., then packed off safety joint and came out of hole to run fishing tools.

WOODSIDE (L.E.) OIL CO. MARCH 15, 1966
DUTSON DOWNS NO.1 TEST NO.1
RECORDER NO.2238 RECORDER DEPTH 2347'



WOODSIDE (L.E.) OIL CO. MARCH 15, 1966
DUTSON DOWNS NO.1 TEST NO.1
RECORDER NO.2237 RECORDER DEPTH 2340'



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DUTSON DOWNS

TESTING REPORT

Well Name	DUTSON DOWNS NO. 1	Test No. 2	
Well Number	1	Zone Tested	L.V.C.M.
Company	WOODSIDE (L.E.) OIL CO. N.L.	Date	23-3-66
Comp. Rep.	R.H. McCulloch	Tester	L.B. Thrupp

Recorder No.	2237	Recorder No.	2238
Clock Range	12 hr.	Clock Range	24 hr.
Depth	3420'	Depth	3426'
Initial Hydro Mud Press.	1696	Initial Hydro Mud Press.	1682
Initial Shut-in Press.		Initial Shut-in Press.	
Initial Flow Press.	1556	Initial Flow Press.	
Final Flow Press.	1539	Final Flow Press.	
Final Shut-in Press.		Final Shut-in Press.	
Final Hydro Mud Press.	1673	Final Hydro Mud Press.	1652
Temperature	131°	Tool Open Before I.S.I.	13 Mins. 8:32 P.M
Mud Drop	3'	Initial Shut-in	Mins.
Mud Weight	9.3	Viscosity 57	Flow Period Mins.
Fluid Loss	7.2	Final Shut-in	Mins.
Interval Tested	3389 - 3435'	Surface Choke Size	-
Net Pay Tested		Bottom Choke Size	1/2"
Top Packer Depth	3383'	Main Hole Size	8 3/4"
Bottom Packer Depth	3389'	Rat Hole Size	-
Total Depth	3435'	Feet of Rat Hole	-
Drill Pipe Size	3 1/2" I.F.	Wt. 13.3	Type of Test Dual Bottom Hole
Drill Collar I.D.	2 1/4"	Ft. Run 268	Cushion Amount—Type -
Anchor Size	4 3/4"	Rubber size	7 3/4"

Recovery—Total Feet 3372

Recovered 30 Feet Of Muddy water

Recovered 3342 Feet Of Water

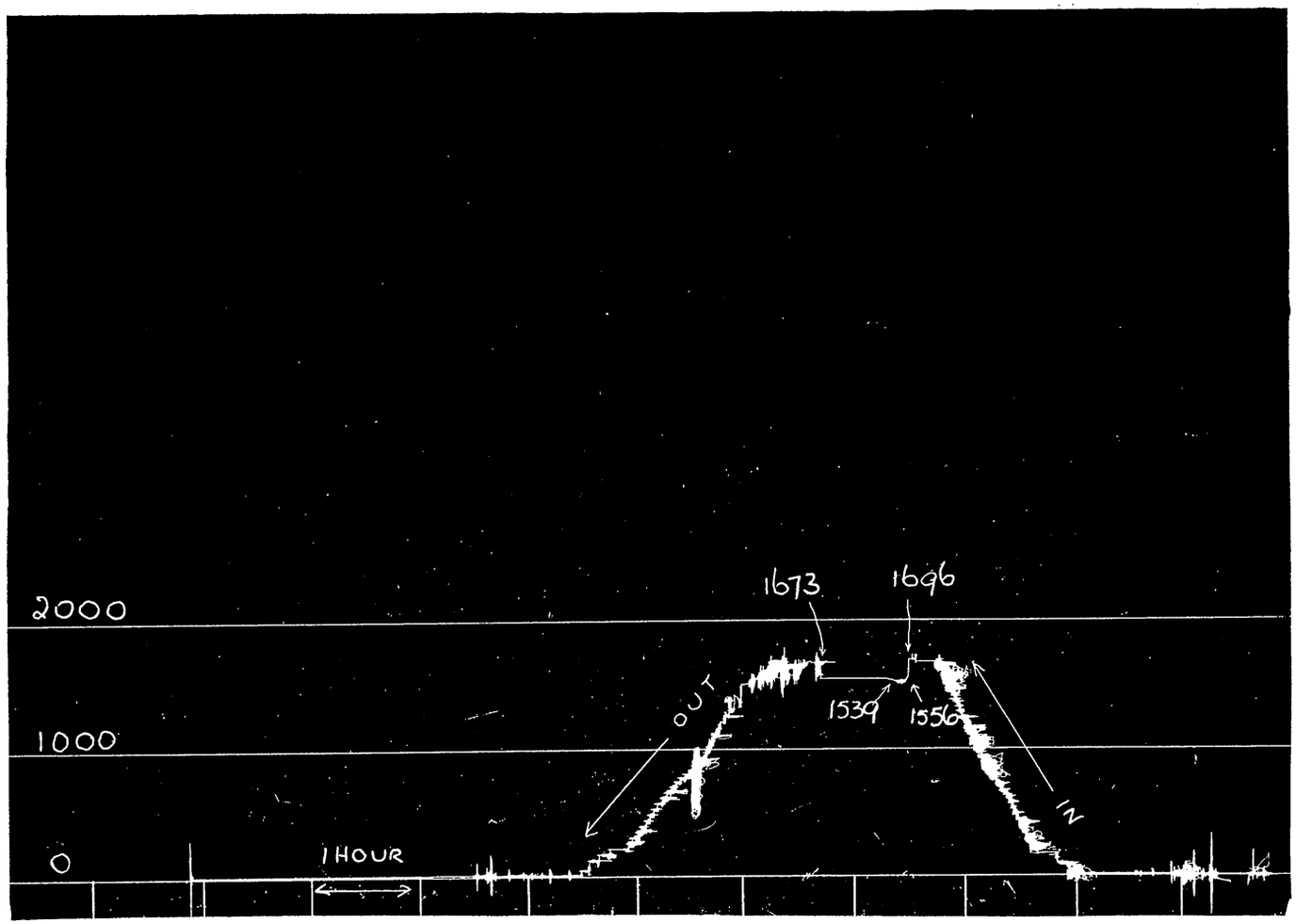
Recovered Feet Of

Recovered Feet Of

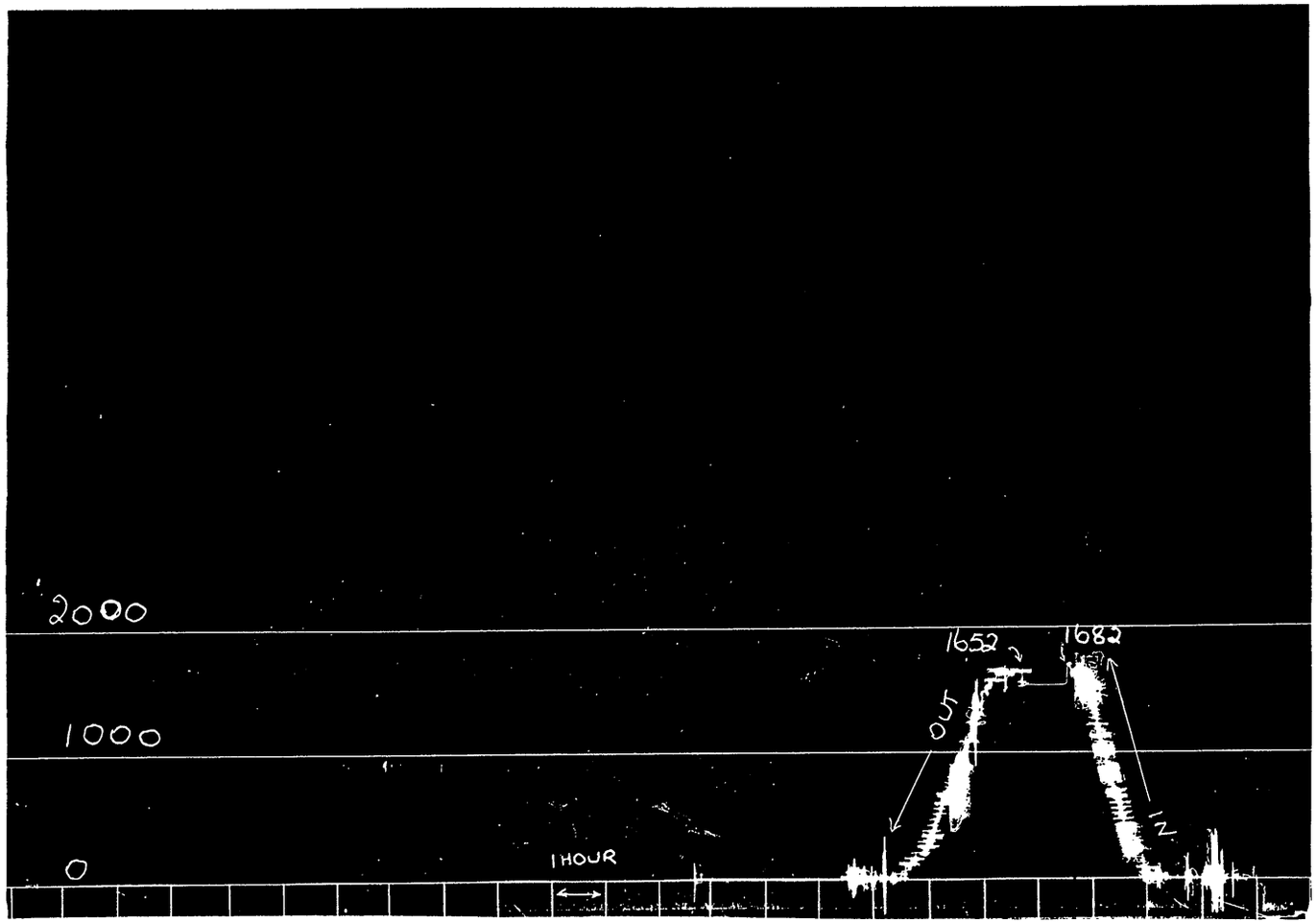
Remarks

Tool opened with a good strong blow and plugged off after 13 minutes of the initial flow, due to the amount of sand in the tool, could not rotate to Shut-in. Left tool sit for 30 minutes, then came out of hole.

WOODSIDE (LAKES ENTRANCE) OIL CO.
MARCH 23, 1966 DUTSON DOWNS NO.1 TEST NO.2
RECORDER NO.2237 RECORDER DEPTH 3420'



WOODSIDE (LAKES ENTRANCE) OIL CO.
MARCH 23, 1966 DUTSON DOWNS NO.1 TEST NO.2
RECORDER NO.2238 RECORDER DEPTH 3426'



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DUTSON DOWNS

TESTING REPORT

Well Name DUTSON DOWNS NO.1	Test No. 3
Well Number 1	Zone Tested L.V.C.M.
Company WOODSIDE (L.E.) OIL CO.	Date 29-3-66
Comp. Rep. R.H. McCulloch	Tester L.B. Thrupp

Recorder No.	2237	Recorder No.	2238
Clock Range	12 hr.	Clock Range	24 hr.
Depth	4936'	Depth	4942'
Initial Hydro Mud Press.	2700	Initial Hydro Mud Press.	2685
Initial Shut-in Press.	2194	Initial Shut-in Press.	2187
Initial Flow Press.	2008	Initial Flow Press.	2089
Final Flow Press.	2179	Final Flow Press.	2174
Final Shut-in Press.	2194	Final Shut-in Press.	2187
Final Hydro Mud Press.	2671	Final Hydro Mud Press.	2668
Temperature	150°	Tool Open Before I.S.I.	40 Mins. 1:52 P.M.
Mud Drop	8'	Initial Shut-in	30 Mins. 2:32
Mud Weight	9.9	Viscosity 53 Flow Period	10 Mins. 3:02
Fluid Loss	6.8	Final Shut-in	17 Mins. 3:12 -3:2 P.M.
Interval Tested	4920 - 4950'	Surface Choke Size	-
Net Pay Tested	13'	Bottom Choke Size	½"
Top Packer Depth	4914'	Main Hole Size	8¾"
Bottom Packer Depth	4920'	Rat Hole Size	-
Total Depth	4950'	Feet of Rat Hole	-
Drill Pipe Size	3½" I.F.	Wt. 13.3 Type of Test	Dual Bottom Hole
Drill Collar I.D.	2¼"	Ft. Run 268 Cushion Amount—Type	-
Anchor Size	4¾"	Rubber size	7¾"

Recovery—Total Feet Full pipe

Recovered 4895 Feet Of water

Recovered 5 Feet Of sand

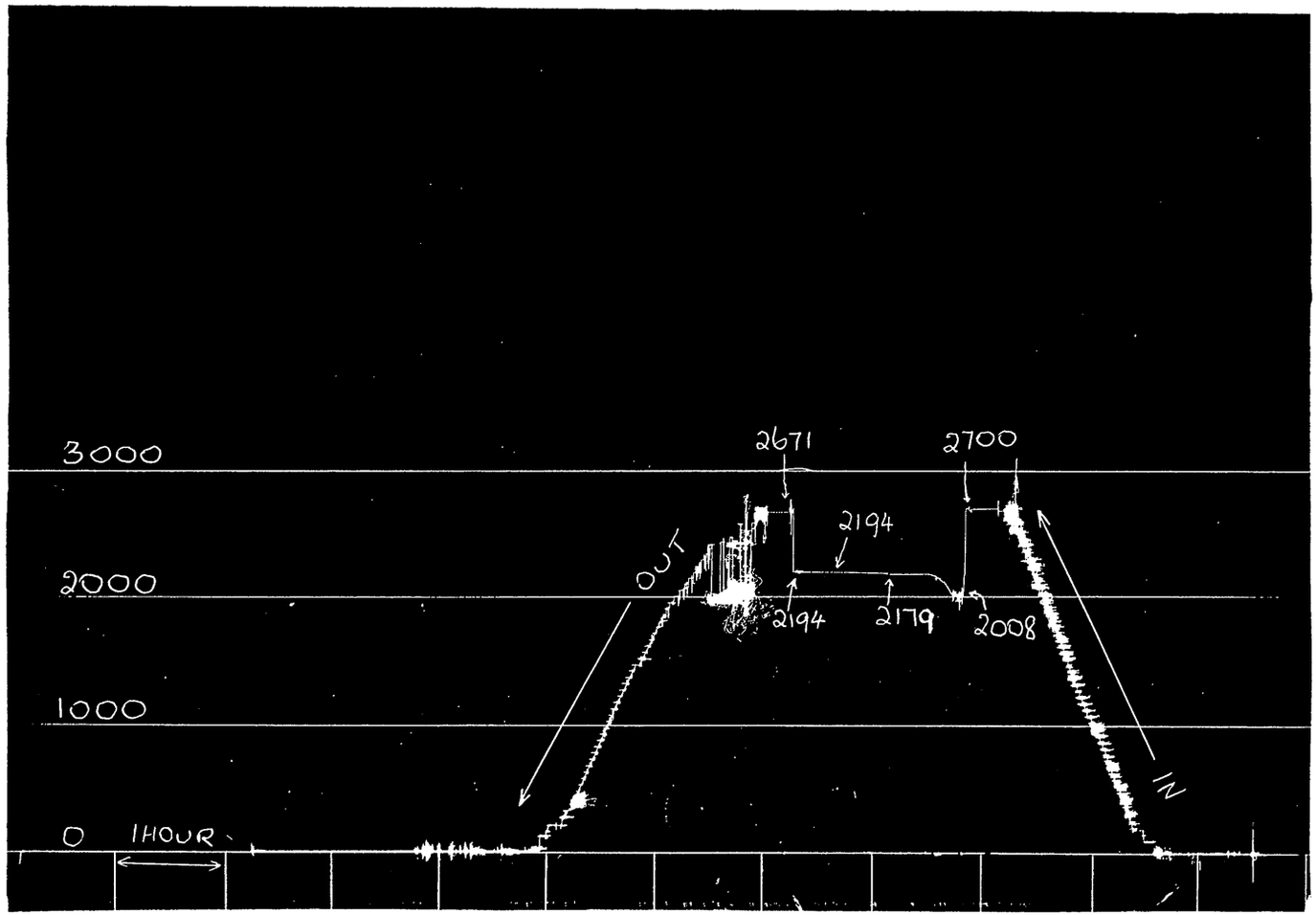
Recovered Feet Of

Recovered Feet Of

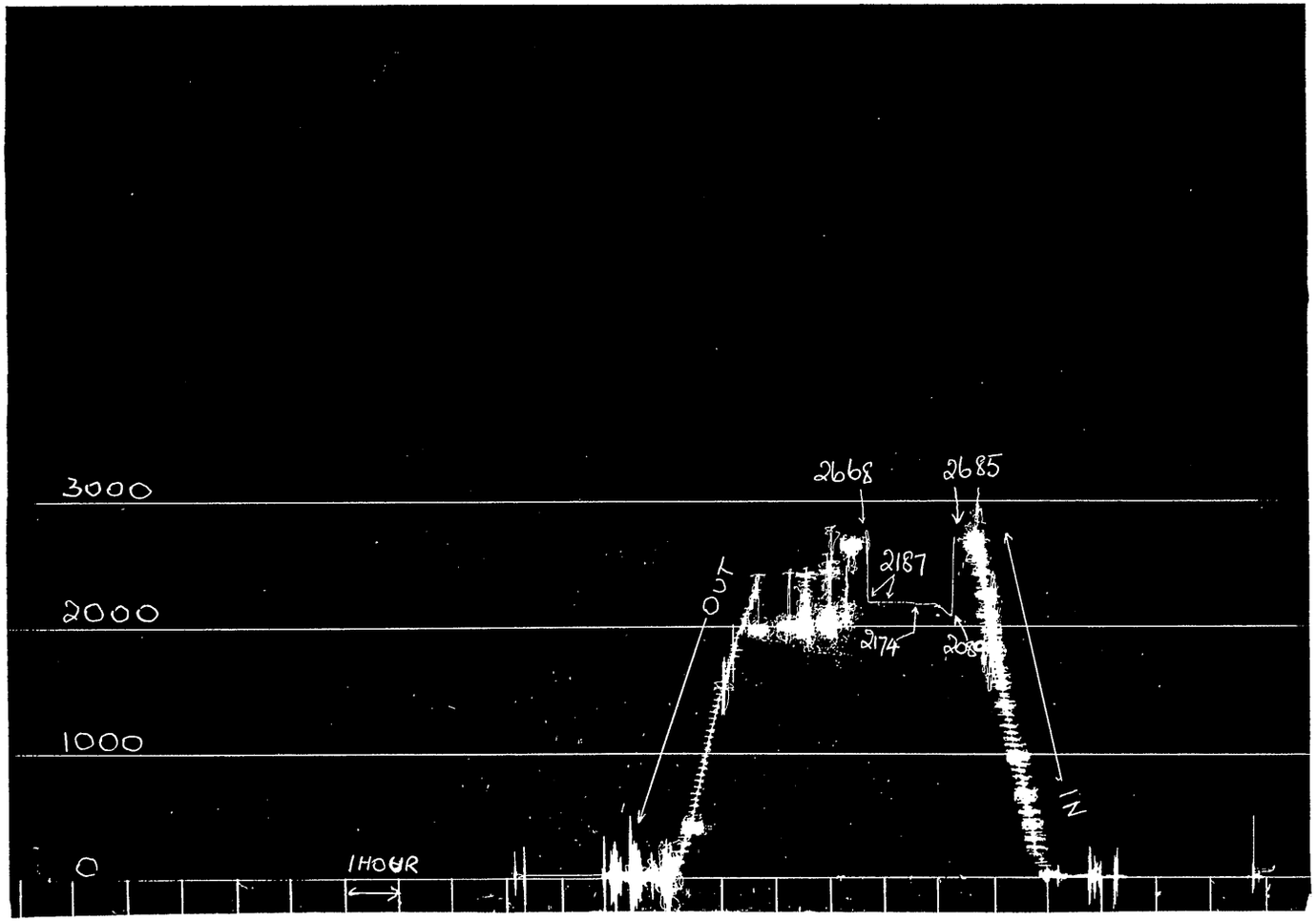
Remarks

Tool opened with real strong blow on initial, water to surface 20 minutes. Water flow measured at 900 gallons per hour. Did not flow when opened for the final flow. Left tool open for 10 minutes, then shut in for 17 minutes.

WOODSIDE (LAKES ENTRANCE) OIL CO.
MARCH 29, 1966 DUTSON DOWNS NO.1 TEST NO.3
RECORDER NO.2237 RECORDER DEPTH 4936'



WOODSIDE (LAKES ENTRANCE) OIL CO.
MARCH 29, 1966 DUTSON DOWNS NO.1 TEST NO.3
RECORDER NO.2238 RECORDER DEPTH 4942'



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DUTSON DOWNS

SERVICE (AUSTRALIA) PTY. LTD. TESTING REPORT

Well Name DUTSON DOWNS NO. 1	Test No. 4
Well Number 1	Zone Tested
Company WOODSIDE (L.E.) OIL CO.	Date 31-3-66
Comp. Rep. R.H. McCulloch	Tester L.B. Thrupp

Recorder No.	2237	Recorder No.	2238
Clock Range	12 hr.	Clock Range	24 hr.
Depth	5020'	Depth	5042'
Initial Hydro Mud Press.	2675	Initial Hydro Mud Press.	2685
Initial Shut-in Press.	2198	Initial Shut-in Press.	2185
Initial Flow Press.	1456	Initial Flow Press.	1576
Final Flow Press.	2135	Final Flow Press.	2119
Final Shut-in Press.	-	Final Shut-in Press.	0
Final Hydro Mud Press.	2667	Final Hydro Mud Press.	2655
Temperature	164°	Tool Open Before I.S.I.	40 Mins. 10:58 A.M.
Mud Drop	6'	Initial Shut-in	30 Mins. 11:38-12:0
Mud Weight	9.8	Viscosity 50	Flow Period Mins. P.M.
Fluid Loss	6.6	Final Shut-in	Mins.
Interval Tested	5036 - 5120'	Surface Choke Size	-
Net Pay Tested	-	Bottom Choke Size	1"
Top Packer Depth	5030'	Main Hole Size	8¾"
Bottom Packer Depth	5036'	Rat Hole Size,	-
Total Depth	5120'	Feet of Rat Hole	-
Drill Pipe Size	3½" I.F.	Wt. 13.3	Type of Test Dual Bottom Hole
Drill Collar I.D.	2¼"	Ft. Run 268	Cushion Amount—Type -
Anchor Size	4¾"	Rubber size	7¾"

Recovery—Total Feet 4736

Recovered 90 Feet Of muddy water

Recovered 4646 Feet Of slightly gas cut water

Recovered Feet Of

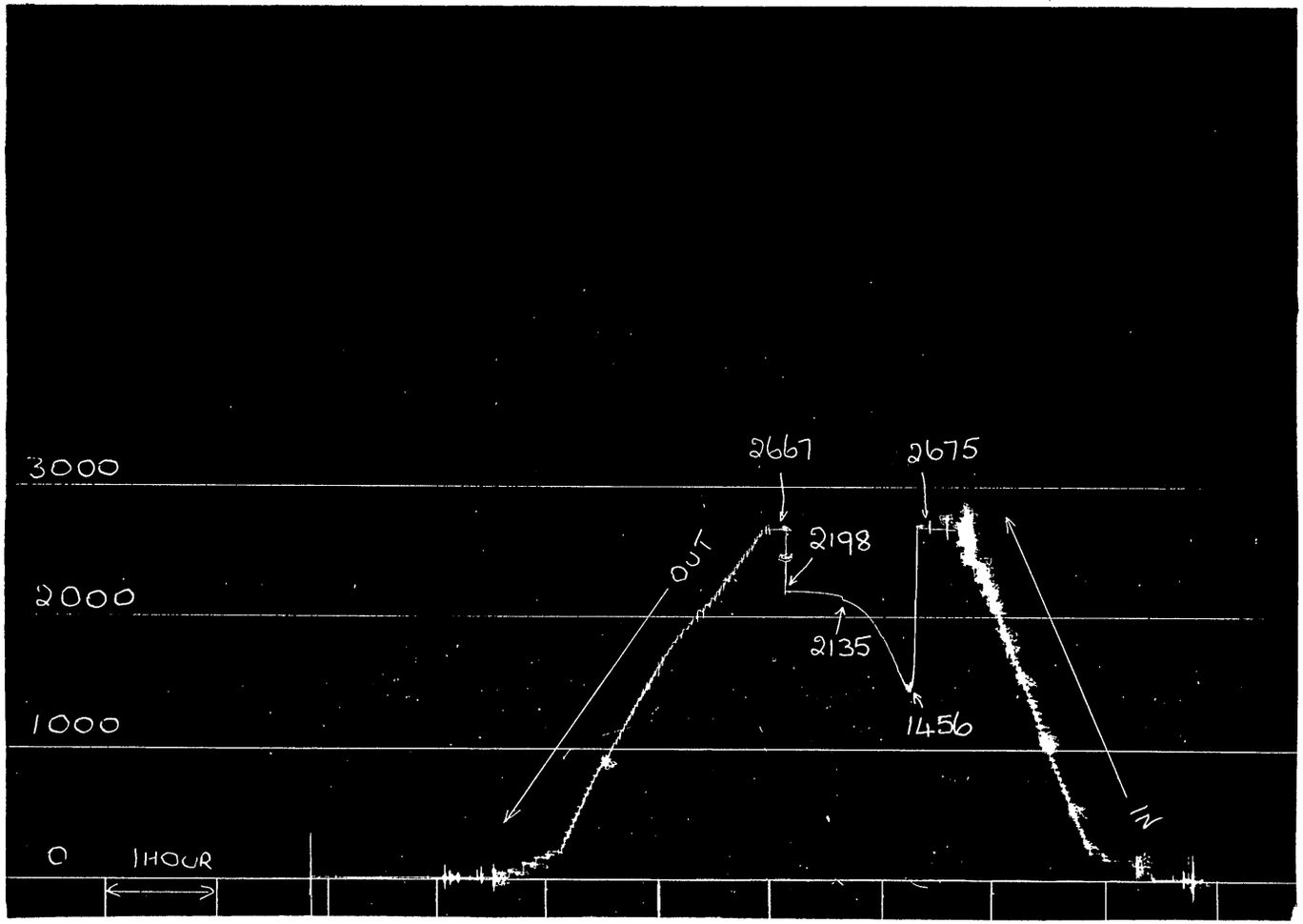
Recovered Feet Of

Remarks

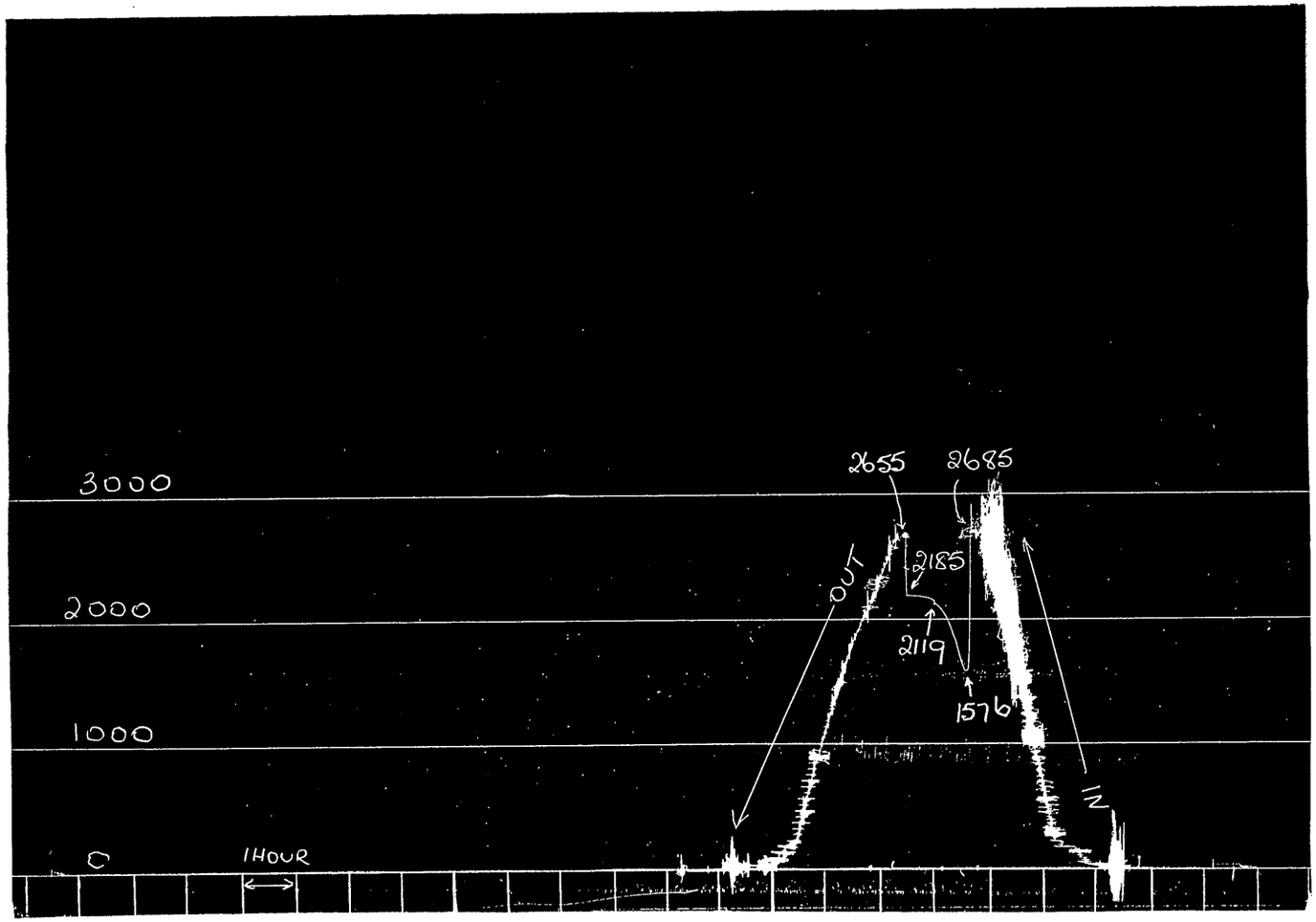
Tool opened with good strong blow, and continued steady throughout test. Water flowed within 270 feet of surface.

Woodside requested one flow and shut-in only.

WOODSIDE (LAKES ENTRANCE) OIL CO.
MARCH 31, 1966 DUTSON DOWNS NO.1 TEST NO.4
RECORDER NO.2237 RECORDER DEPTH 5020'



WOODSIDE (LAKES ENTRANCE) OIL CO.
MARCH 31, 1966 DUTSON DOWNS NO.1 TEST NO.4
RECORDER NO.2238 RECORDER DEPTH 5042'



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DUTSON DOWNS

TESTING REPORT

DRILL-STEM TEST DATA

Well Name	DUTSON DOWNS NO.1	Test No.	5
Well Number	1	Zone Tested	UPPER CRETACEOUS
Company	WOODSIDE (L.E.) OIL CO.	Date	3-4-66
Comp. Rep.	R.H. McCulloch	Tester	L.B. Thrupp

Recorder No.	2237	Recorder No.	2238
Clock Range	12 hr.	Clock Range	24 hr.
Depth	5334'	Depth	5340'
Initial Hydro Mud Press.	2882	Initial Hydro Mud Press.	2874
Initial Shut-in Press.	2361	Initial Shut-in Press.	2346
Initial Flow Press.	1661	Initial Flow Press.	1678
Final Flow Press.	2321	Final Flow Press.	2310
Final Shut-in Press.	-	Final Shut-in Press.	-
Final Hydro Mud Press.	2869	Final Hydro Mud Press.	2859
Temperature	170°	Tool Open Before I.S.I.	77 Mins. 11:10 P.M.
Mud Drop	6'	Initial Shut-in	30 Mins. 12:27 -
Mud Weight	9.9	Viscosity 48	Flow Period Mins. 12:57 A.M.
Fluid Loss	6.6	Final Shut-in	Mins.
Interval Tested	5321 - 5378'	Surface Choke Size	-
Net Pay Tested	-	Bottom Choke Size	1/2"
Top Packer Depth	5315'	Main Hole Size	8 3/4"
Bottom Packer Depth	5321'	Rat Hole Size	-
Total Depth	5378'	Feet of Rat Hole	-
Drill Pipe Size	3 1/2" I.F.	Wt. 13.3	Type of Test Dual Bottom Hole
Drill Collar I.D.	2 1/4"	Ft. Run 268	Cushion Amount—Type -
Anchor Size	4 3/4"	Rubber size	7 3/4"

Recovery—Total Feet 5295

Recovered 90 Feet Of gas cut muddy water

Recovered 5203 Feet Of gas cut water

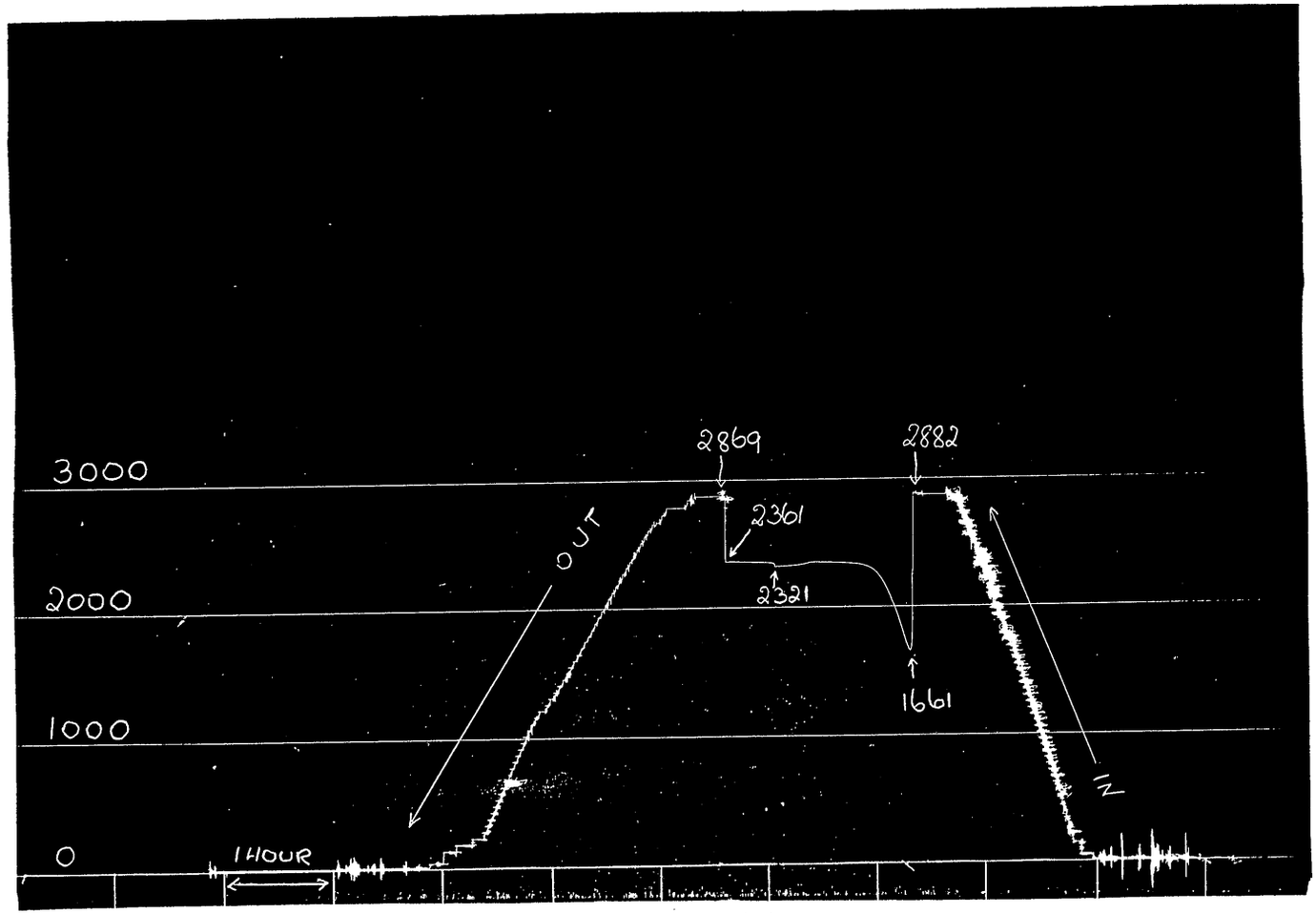
Recovered 2 Feet Of sand

Recovered Feet Of

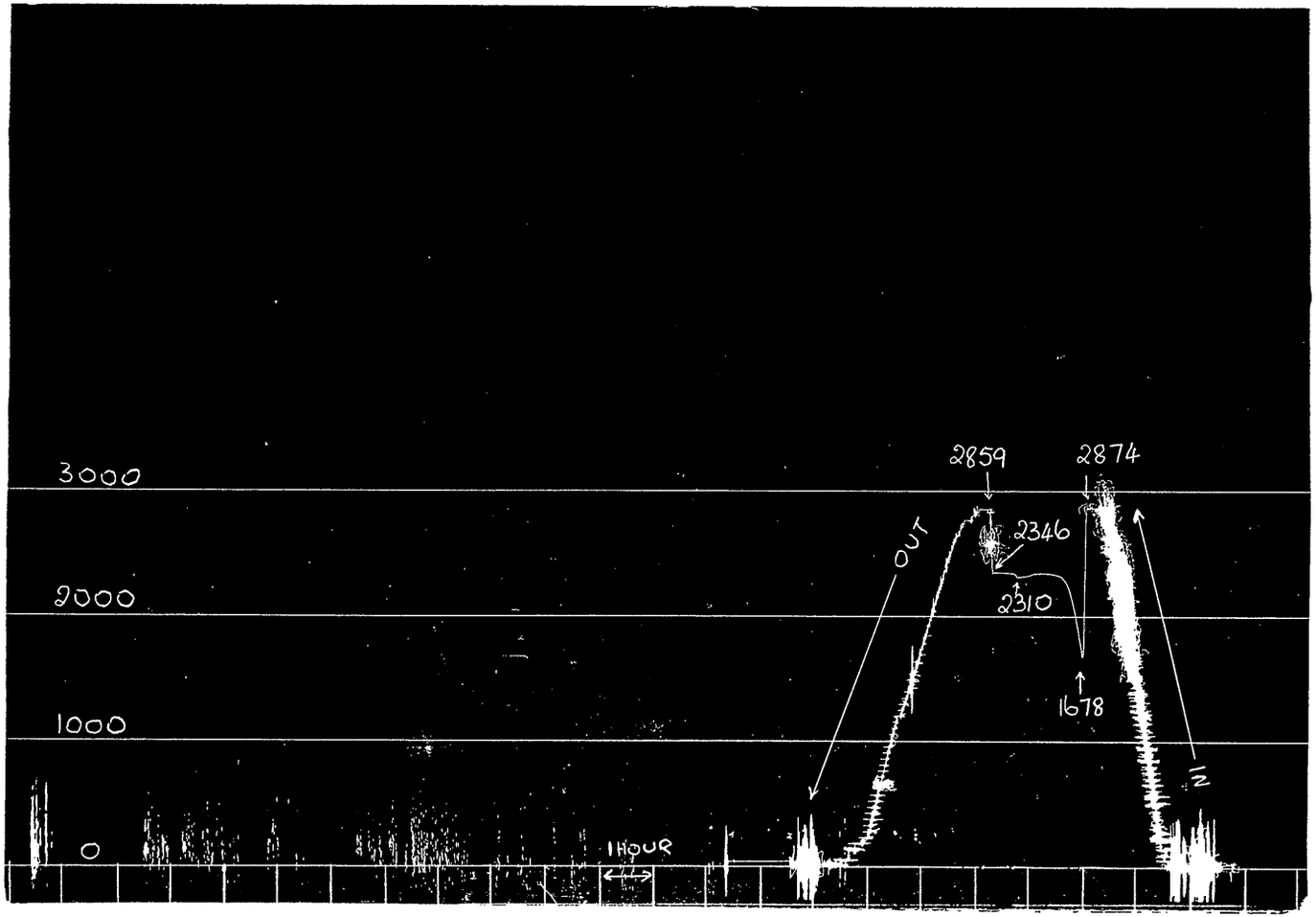
Remarks

Tool opened with strong blow, gas to surface 20 minutes. T.S.T.M. Water to surface 60 minutes. Water flow measured at 540 gallons per hour. Woodside requested one flow and shut-in only.

WOODSIDE (LAKES ENTRANCE) OIL CO.
APRIL 3, 1966 DUTSON DOWNS NO.1 TEST NO. 5
RECORDER NO.2237 RECORDER DEPTH 5334'



WOODSIDE (LAKES ENTRANCE) OIL CO.
APRIL 3, 1966 DUTSON DOWNS NO.1 TEST NO. 5
RECORDER NO.2238 RECORDER DEPTH 5340'



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DUTSON DOWNS

SERVICE (AUSTRALIA) PTY. LTD. — TESTING REPORT

DRILL-STEM TEST DATA

Well Name	DUTSON DOWNS NO.1	Test No.	6
Well Number	1	Zone Tested	UN-NAMED UPPER CRETACEOUS
Company	WOODSIDE (LAKES ENTRANCE) OIL Co.	Date	7-4-66
Comp. Rep.	R.H. McCulloch	Tester	L.B. Thrupp

Recorder No.	2237	Clock Range 12 hr.	Recorder No. 2238	Clock Range 24 hr.
Depth	5767'		Depth 5773'	
Initial Hydro Mud Press.	3170		Initial Hydro Mud Press.	3157
Initial Shut-in Press.	1259		Initial Shut-in Press.	412
Initial Flow Press.	(123) 157		Initial Flow Press.	(123) 164
Final Flow Press.	(110) 195		Final Flow Press.	(123) 166
Final Shut-in Press.	-		Final Shut-in Press.	-
Final Hydro Mud Press.	3145		Final Hydro Mud Press.	3127
Temperature	160°		Tool Open Before I.S.I.	2 Mins. 5:25 P.M.
Mud Drop	6'		Initial Shut-in	30 Mins. 5:27
Mud Weight	10.1	Viscosity 52	Flow Period	30 Mins. 5:57 -
Fluid Loss	5.8		Final Shut-in	Mins. 6:27 P.M.
Interval Tested	5740 - 5841'		Surface Choke Size	-
Net Pay Tested	-		Bottom Choke Size	1/2"
Top Packer Depth	5734'		Main Hole Size	8 3/4"
Bottom Packer Depth	5740'		Rat Hole Size	-
Total Depth	5841'		Feet of Rat Hole	-
Drill Pipe Size	3 1/2" I.F.	Wt. 13.3	Type of Test	Dual Bottom Hole
Drill Collar I.D.	2 1/4"	Ft. Run 268	Cushion Amount—Type	-
Anchor Size	4 3/4"		Rubber size	7 3/8"

Recovery—Total Feet 275

Recovered 260 Feet Of Mud

Recovered 15 Feet Of Watery mud

Recovered Feet Of

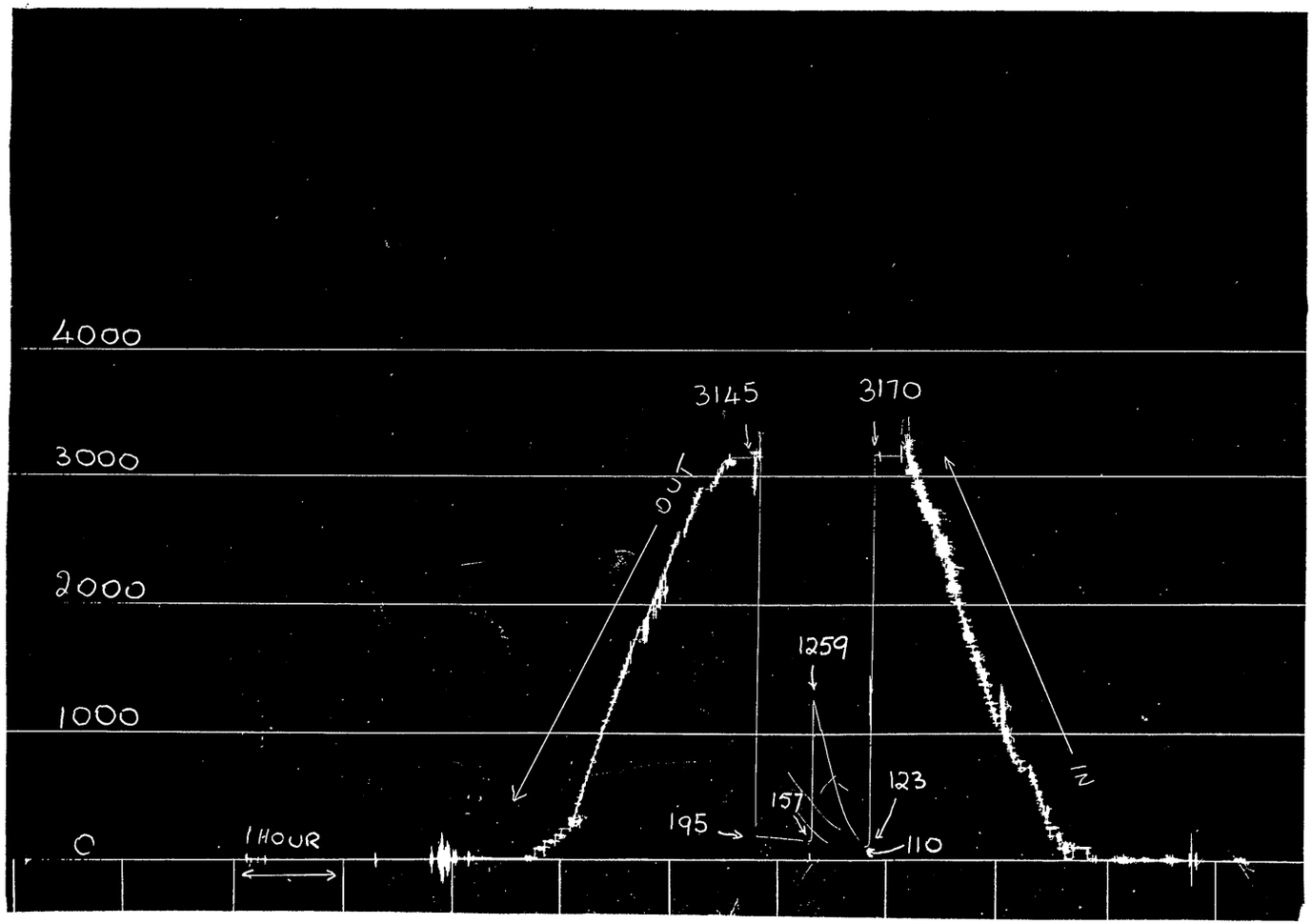
Recovered Feet Of

Remarks

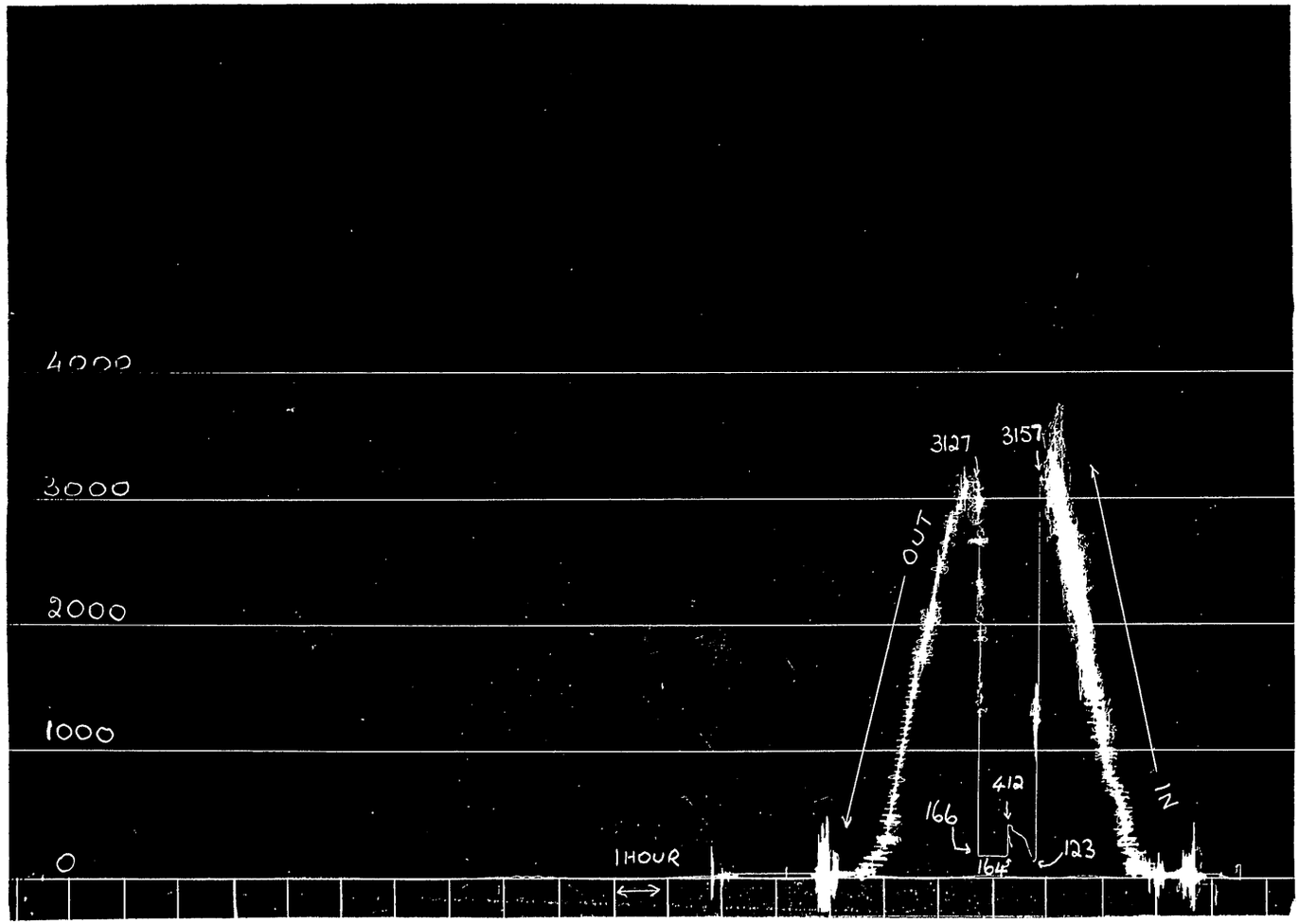
Misrun with very weak blow. On opening for final flow, increased to a light to moderate blow and remained steady throughout test.

Woodside requested that there be no final shut-in.

WOODSIDE (LAKES ENTRANCE) OIL CO.
APRIL 7, 1966 DUTSON DOWNS NO.1 TEST NO.6
RECORDER NO.2237 RECORDER DEPTH 5767'



WOODSIDE (LAKES ENTRANCE) OIL CO.
APRIL 7, 1966 DUTSON DOWNS NO.1 TEST NO.6
RECORDER NO.2238 RECORDER DEPTH 5773'



APPENDIX 4:

ENCLOSURES:

DIPMETER SURVEY

Although the first dip measurements were made at 374', the first indication of a consistent pattern in either dip or direction of dip does not occur till the top of the Gippsland Limestone, i.e. 620 feet.

620' - 1060' As seen throughout the marine Tertiary, dips are very low and average less than 1 degree. Throughout the above interval, the dip azimuth is approximately south east (145 to 130 degrees). This interval corresponds to the top part of the Gippsland Limestone which has a higher resistivity on electrical logs than anywhere lower in this formation.

1060' - 1895' This interval covers most of the Gippsland Limestone and the Lakes Entrance Formation. There is no sharp change in either dip or dip azimuth with the overlying interval, i.e. the top 100 feet of this interval is horizontal. The dip azimuth then changes to 75 degrees while the dip remains extremely small. Although there are dips up to 10 degrees, the average is less than 1 degree.

1895' - 2495' Included in this interval is most of the Lakes Entrance Formation and 171 feet of the Latrobe Valley Coal Measures. The reason for delineating this interval is that the dip azimuth throughout is consistent, i.e. 50 degrees variation in dip, however, is considerable.

(a) 2000 to 2100 feet. Average dip approximately 7 degrees.

(b) 2,330 to 2,370 feet. Dips across this interval are approximately 12 degrees. At 2,290 feet is a thin dolomite bed found in almost every Tertiary marine section penetrated in the Gippsland Basin. This shows a dip of 13 degrees with a dip azimuth of 79 degrees.

(c) 2,300 to 2,330 feet. Average dip approximately 1 degree.

(d) 2,330 to 2,370 feet. Dips range from 5 to 14 degrees in this interval which covers the top sandstone of the Latrobe Valley Coal Measures.

(e) 2,370 to 2,495 feet. Average dip of 1 degree.

Dutson Downs

2495' - 3641' Again the dip azimuth is constant and ranges from 250 to 310 degrees. Dips are low, i.e. averaging 2 degrees, with the exception of the interval 3,200 to 3,450 feet where dips are as high as 30 degrees. The average dip is 6 degrees. The interval 3,200 to 3,450 feet includes the dolomitic beds - all three of which tend to have a slightly higher dip than the surrounding beds.

3641' - 4760' This includes the remaining section of the Latrobe Valley Coal Measures. The top of this interval is at the base of the main coal section of the Coal Measures while the base marks the top of the Upper Cretaceous. The dip azimuth is approximately 35 degrees while the average dip is 4 degrees.

4760' - 5110' This is the top of the Upper Cretaceous. No consistent dip or dip azimuth can be determined though an average dip is possibly 8 degrees. There is an indication of a gradual deviation in azimuth from 35 degrees found in the basal Latrobe Valley Coal Measures to 155 degrees. There is no distinct change in any other log characteristics at 5,110 feet. The only noticeable difference is on the electrical log where a larger difference in resistivity is noted between the 16 inch and the 64 inch normals in the above interval than below 5,110 feet.

5110' - 5840' Dips over this interval, which includes most of the Upper Cretaceous, are somewhat erratic. The main dip however, is approximately 1 degree with a bearing of 270 degrees. There are, however, a large number of dips of 4 degrees with a wide variety of dip azimuth.

5840' - T.D. This interval covers the Strzelecki Formation. The azimuth varies from 50 to 90 degrees while the dip increases towards the base, where it is approximately 10 degrees.

DUTSON DOWNS.

by whom?

Note: A re-evaluation of the dipmeter results has shown the existence of:-

(i) A normal fault trending north-west to south-east with the beds having a north-east dip azimuth above & below the intersection of the fault plane at 3690 feet.

(ii) A small fault at 4003 feet.

(iii) A normal fault trending west-north-west at 4858 feet.

(iv) An unconformable surface at 5096 feet.

PE905452

This is an enclosure indicator page.
The enclosure PE905452 is enclosed within the container PE903908 at this location in this document.

The enclosure PE905452 has the following characteristics:

ITEM_BARCODE	= PE905452
CONTAINER_BARCODE	= PE903908
NAME	= Generalised Stratigraphic Column
BASIN	= GIPPSLAND
PERMIT	= PEP44
TYPE	= WELL
SUBTYPE	= STRAT_COLUMN
DESCRIPTION	= Dutson Downs 1 generalised Stratigraphic Column (as assumed before drilling Dutson Downs 1)
REMARKS	=
DATE_CREATED	= 30/04/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= Dutson Downs-1
CONTRACTOR	= Goedrafting Services
CLIENT_OP_CO	= Woodside (Lakes Entrance) Oil Company N.L

(Inserted by DNRE - Vic Govt Mines Dept)

PE905453

This is an enclosure indicator page.
The enclosure PE905453 is enclosed within the container PE903908 at this location in this document.

The enclosure PE905453 has the following characteristics:

ITEM_BARCODE	= PE905453
CONTAINER_BARCODE	= PE903908
NAME	= Geological Section Dutson Downs 1
BASIN	= GIPPSLAND
PERMIT	= PEP44
TYPE	= WELL
SUBTYPE	= CROSS_SECTION
DESCRIPTION	= Dutson Downs Geological section through well before and after drilling.
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= Dutson Downs-1
CONTRACTOR	= Woodside (Lakes Entrance) Oil Company N.L
CLIENT_OP_CO	= Woodside (Lakes Entrance) Oil Company N.L

(Inserted by DNRE - Vic Govt Mines Dept)

PE603725

This is an enclosure indicator page.
The enclosure PE603725 is enclosed within the container PE903908 at this location in this document.

The enclosure PE603725 has the following characteristics:

ITEM_BARCODE	= PE603725
CONTAINER_BARCODE	= PE903908
NAME	= Composite Log sheet 1 of 2
BASIN	= GIPPSLAND
PERMIT	= PEP44
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Dutson Downs 1 Composite Well Log sheet 1 of 2.
REMARKS	=
DATE_CREATED	= 10/04/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= Dutson Downs-1
CONTRACTOR	= Schlumberger
CLIENT_OP_CO	= Woodside (Lakes Entrance) Oil Company N.L

(Inserted by DNRE - Vic Govt Mines Dept)

PE603726

This is an enclosure indicator page.
The enclosure PE603726 is enclosed within the container PE903908 at this location in this document.

The enclosure PE603726 has the following characteristics:

ITEM_BARCODE	= PE603726
CONTAINER_BARCODE	= PE903908
NAME	= Composite Log sheet 2 of 2
BASIN	= GIPPSLAND
PERMIT	= PEP44
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Dutson Downs 1 Composite Well Log sheet 2 of 2.
REMARKS	=
DATE_CREATED	= 10/04/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= Dutson Downs-1
CONTRACTOR	= Schlumberger
CLIENT_OP_CO	= Woodside (Lakes Entrance) Oil Company N.L

(Inserted by DNRE - Vic Govt Mines Dept)

PE604410

This is an enclosure indicator page.
The enclosure PE604410 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604410 has the following characteristics:

ITEM_BARCODE	= PE604410
CONTAINER_BARCODE	= PE903908
NAME	= Electrical Log (2"":100')
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Electrical Log, Run 2, 2"" : 100' (enclosure 5 from WCR) for Dutson Downs-1
REMARKS	=
DATE_CREATED	= 9/04/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604411

This is an enclosure indicator page.
The enclosure PE604411 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604411 has the following characteristics:

ITEM_BARCODE	= PE604411
CONTAINER_BARCODE	= PE903908
NAME	= Electrical Log (2"":100')
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Electrical Log, Run 1, 2"" : 100' (enclosure 5 from WCR) for Dutson Downs-1
REMARKS	=
DATE_CREATED	= 17/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604412

This is an enclosure indicator page.
The enclosure PE604412 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604412 has the following characteristics:

ITEM_BARCODE	= PE604412
CONTAINER_BARCODE	= PE903908
NAME	= Electrical Log (5"":100')
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Electrical Log, Run 1, 5"" : 100' (enclosure 5 from WCR) for Dutson Downs-1
REMARKS	=
DATE_CREATED	= 17/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604413

This is an enclosure indicator page.
The enclosure PE604413 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604413 has the following characteristics:

ITEM_BARCODE	= PE604413
CONTAINER_BARCODE	= PE903908
NAME	= Electrical Log (5"":100')
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Electrical Log, Run 2, 5"" : 100' (enclosure 5 from WCR) for Dutson Downs-1
REMARKS	=
DATE_CREATED	= 9/04/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604391

This is an enclosure indicator page.
The enclosure PE604391 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604391 has the following characteristics:

ITEM_BARCODE	= PE604391
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 1 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 1 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 10/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604392

This is an enclosure indicator page.
The enclosure PE604392 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604392 has the following characteristics:

ITEM_BARCODE	= PE604392
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 2 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 2 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 13/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604393

This is an enclosure indicator page.
The enclosure PE604393 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604393 has the following characteristics:

ITEM_BARCODE	= PE604393
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 3 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 3 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 13/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604394

This is an enclosure indicator page.
The enclosure PE604394 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604394 has the following characteristics:

ITEM_BARCODE	= PE604394
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 4 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 4 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 13/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604395

This is an enclosure indicator page.
The enclosure PE604395 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604395 has the following characteristics:

ITEM_BARCODE	= PE604395
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 5 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 5 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 14/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604396

This is an enclosure indicator page.
The enclosure PE604396 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604396 has the following characteristics:

ITEM_BARCODE	= PE604396
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 6 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 6 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 14/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604397

This is an enclosure indicator page.
The enclosure PE604397 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604397 has the following characteristics:

ITEM_BARCODE	= PE604397
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 7 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 7 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 15/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604398

This is an enclosure indicator page.
The enclosure PE604398 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604398 has the following characteristics:

ITEM_BARCODE	= PE604398
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 8 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 8 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 17/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604399

This is an enclosure indicator page.
The enclosure PE604399 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604399 has the following characteristics:

ITEM_BARCODE	= PE604399
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 9 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 9 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 17/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604400

This is an enclosure indicator page.
The enclosure PE604400 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604400 has the following characteristics:

ITEM_BARCODE	= PE604400
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 10 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 10 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 19/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604401

This is an enclosure indicator page.
The enclosure PE604401 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604401 has the following characteristics:

ITEM_BARCODE	= PE604401
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 11 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 11 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 24/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604402

This is an enclosure indicator page.
The enclosure PE604402 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604402 has the following characteristics:

ITEM_BARCODE	= PE604402
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 12 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 12 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 24/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604403

This is an enclosure indicator page.
The enclosure PE604403 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604403 has the following characteristics:

ITEM_BARCODE	= PE604403
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 13 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 13 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 25/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604404

This is an enclosure indicator page.
The enclosure PE604404 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604404 has the following characteristics:

ITEM_BARCODE	= PE604404
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 14 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 14 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 27/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604405

This is an enclosure indicator page.
The enclosure PE604405 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604405 has the following characteristics:

ITEM_BARCODE	= PE604405
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 15 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 15 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 29/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604406

This is an enclosure indicator page.
The enclosure PE604406 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604406 has the following characteristics:

ITEM_BARCODE	= PE604406
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 16 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 16 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 31/03/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604407

This is an enclosure indicator page.
The enclosure PE604407 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604407 has the following characteristics:

ITEM_BARCODE	= PE604407
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 17 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 17 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 4/04/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604408

This is an enclosure indicator page.
The enclosure PE604408 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604408 has the following characteristics:

ITEM_BARCODE	= PE604408
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 18 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 18 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 8/04/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)

PE604409

This is an enclosure indicator page.
The enclosure PE604409 is enclosed within the container PE903908 at this location in this document.

The enclosure PE604409 has the following characteristics:

ITEM_BARCODE	= PE604409
CONTAINER_BARCODE	= PE903908
NAME	= Mud Log (page 19 of 19)
BASIN	= GIPPSLAND BASIN
PERMIT	= PEP/44
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Mud Log, page 19 of 19, (enclosure 6 from WCR) for Dutson Downs-1
REMARKS	= aiso contains Lithological Description
DATE_CREATED	= 10/04/66
DATE_RECEIVED	=
W_NO	= W498
WELL_NAME	= DUTSON DOWNS-1
CONTRACTOR	=
CLIENT_OP_CO	= WOODSIDE (LAKES ENTRANCE) OIL CO. N.L.

(Inserted by DNRE - Vic Govt Mines Dept)