Natural Resources and Environment

AGRICULTURE • RESOURCES • CONSERVATION • LAND MANAGEMENT

WELL SUMMARY

LAKE BUNGA-1 (W365)

1 Folio No	2 Referred to	3 Date	4 Clearing Officer's Initials	1 Folio No.	2 Referred to	3 Date	4 Clearing Officer's Initials

FILE COVER INSTRUCTIONS FOR ACTION OFFICERS

(1) FOLIO NUMBERS: Each subject paper attached to a file is to be given a consecutive number by the attaching officer. Papers must not be removed from or attached to a file without approval.

(2) REFERRAL TO OTHER OFFICERS: When an Officer completes action on the file and further action is required by some other Officer, please initial Column (4) and on the next vacant line, enter the relevant folio number in Column (1), indicate to whom the file is to be forwarded in Column (2) and record the date in Column (3).

(3) BRING UP MARKINGS: When action on a file is required at a later date, the officer will initial Column (4) and, on the next vacant line, enter the relevant folio number in Column (1), then write "B/U" followed by the action officer's name in Column (2) and the date the file is required in Column (3).

(4) PUTAWAY MARKINGS: When ALL action on a file is completed the officer concerned will initial Column (4) and, on the next vacant line, write "P/A" in column (2).

REGISTRY MUST BE NOTIFIED OF ANY FILE MOVEMENTS BETWEEN OFFICERS

LOCATION

EARLIER FILES	LATER FILES	RECORDS DISPOSITION

RELEVANT FILES

File No.	Subject

SYMBOLS FOR ACTION OFFICERS

EXECUTIVE

Secretary	SEC
Deputy Secretary	DS
Executive Director Portfolio Management	EDPM
Executive Director Performance Evaluation	EDPE
Executive Director Primary Industries and Chief Scientist	EDPI,CS
Executive Director Catchment Mgt & Sustainable Agriculture	EDCMSA
Executive Director Minerals and Petroleum	EDMP
Executive Director Forests Service	EDFS
Executive Director Parks, Flora and Fauna	EDPF
Executive Director Land Victoria	EDLV
Executive Director Regional Services	EDRS

CORPORATE MANAGEMENT

General Manager Corporate Services	GMCS
Chief Finance Officer	CFNO
Manager Information Technology Strategies	MITS
Director Capital Policy	DCP
Director Human Resources	DHR
Director Planning & Budget	DPB
Director Information Technology & Telecommunications	DITT
Director Business Reform	DBR
Manager Business Improvement	MBI
Manager Administrative Policy & Procedures	MAPP
Manager Metropolitan Administrative Operations	MMAO
Manager Corporate Communications & Information	MCCI
Manager Electronic Information Services	MEIS
Manager Library & Information Services	MLIS

MINERALS AND PETROLEUM

Manager Petroleum Development	MPD
Manager Geological Survey Victoria	MGSV
Manager Mineral & Petroleum Operations	MMPO
Manager Minerals Development	MMD
Manager Extractive Industries	MEI
Manager Minerals & Petroleum Titles	MMPT

PRIMARY INDUSTRIES & CHIEF SCIENTIST

Manager Chemical Standards Branch	MCSB
Manager Plant Standards	MPS
Chief Veterinary Officer	CVO
Director Bureau of Animal Welfare	DBAW
Director Fisheries	DF
Director Quality Assurance	DQA
Director Agribusiness	DA

PERFORMANCE EVALUATION

Chief Economist	CE
Manager Internal Audit & Risk Mgt Policy	MIARMP
Manager Strategic Quality Assurance	MSQA

CATCHMENT MGT & SUSTAINABLE AGRICULTURE

Program Manager Pest Plants & Animals	PMPPA
Director Catchment & Water Resources	DCWR
Director Sustainable Development	DSD
Director Office of Rural Affairs	DORA
Director Natural Resource Policy	DNRP

FORESTS SERVICE

Manager Commercial Forestry	MCF
Chief Fire Officer	CFO
Manager Forest Management	MFM
Manager Regional Forests Agreements	MRFA

PARKS, FLORA & FAUNA

Manager Parks & Reserves	MPR
Manager Business Management Parks, Flora & Fauna	MBMPFF
Manager Flora & Fauna	MFF
Manager Coasts & Ports	MCP

LAND VICTORIA

Director Geospatial Information	DGI
Director Resources & Reform	DRR
Surveyor General	SG
Valuer General	VG
Director Land Registry	DLR
Director Crown Land Management	DCLM

PORTFOLIO MANAGEMENT

Director Water Agencies	DWA
Manager Portfolio Coordination	MPC
Manager Environmental Policy	MEP
Manager Policy Support	MPOS
Director Media	DM

LAKE BUNGA-1 (W365)

Well Summary Report

Table of Contents

Enclosures

Lithological Log Part 1 of 2
Lithological Log Part 2 of 2

PE904071

This is an enclosure indicator page.
The enclosure PE904071 is enclosed within the container PE906137 at this location in this document.

The enclosure PE904071 has the following characteristics:

ITEM_BARCODE	= PE904071
CONTAINER_BARCODE	= PE906137
NAME	= well card
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= WELL_CARD
DESCRIPTION	= well card Lake Bunga 1
REMARKS	=
DATE_CREATED	= 5/01/24
DATE_RECEIVED	=
W_NO	= W365
WELL_NAME	= Lake Bunga-1
CONTRACTOR	= Lakes Entrance Development Co
CLIENT_OP_CO	= Lakes Entrance Development Co

(Inserted by DNRE - Vic Govt Mines Dept)

LITHOLOGY, WATER AND HYDROCARBON ANALYSIS

(Copy of Log) (Govt.)

LAKES ENTRANCE DEVELOPMENT COMPANY No.1. BORE - LAKES ENTRANCE.

Elevation 10'.

LAKE BUNGA.

Surface to 10' - soil.

10'	to	102'	- sand yellow and blue, with shell fossils.
102'	"	150'	- sandy clay with shell fossils and marl do.
150'	"	200'	- limestone with marl.
200'	"	273'	- sand cemented, white calc. polyzoal
273'	"	763'	- alternating bands of sands, marls. and limestones.
763'	"	909'	- marl grey - polyzoal.
909'			- hard band 1'
909'	"	963'	- marl grey - polyzoal
963'			- hard band 1'
963'	"	997'	- marl grey, polyzoal
997'	"		- hard band 1'
997'	"	1013'	- marly, polyzoal
1013'	"	1042'	- sandstone, fine grained brown micaceous
1042'			- hard band 10"
1042'	"	1070'	- micaceous, approx.
1070'			- hard band
1070'	"	1077'	- micaceous approx.

Oil films from 1080' to 1100'

1099'			- hard band 8"

1000 gallons an hour of artesian water at 1099'.

1099'	to	1184'	- glauconite
1184'	"	1200'	-
1200'	"	1210'	- fine river grit, cemented with liminite
1215'			- bedrock

This well was drilled by the State Mines Department. Details are taken from log prepared by same.

ABANDONED.

Bore 4.

Position.—6 chains east and 1 chain north from north-west corner of allotment 19A, section C.

Surface level, 405 feet.

Strata.	Thickness. ft.	in.	Depth struck. ft.	in.
Sand	44	0	0	0
Clay, sandy	7	0	44	0
Sand	3	0	51	0
Clay	15	0	54	0
Clay, sandy	16	0	69	0
Sand	6	0	85	0
Clay	12	0	91	0
Brown coal	6	0	103	0
Clay	16	0	109	0
Sand	8	0	125	0
Sand and gravel	47	0	133	0
Gravel, coarse	7	0	180	0
Sand, coarse	9	0	187	0
Gravel, fine	12	0	196	0
Depth bored			208	0

Water struck at 103 feet.

Bore 5.

Position.—3 chains south, then 1·30 chains west from north-west corner of allotment 33, section A.

Surface level, 280 feet.

Strata.	Thickness. ft.	in.	Depth struck. ft.	in.
Sand and ironstone gravel	9	0	0	0
Sandstone, soft	55	0	9	0
Clay	5	0	64	0
Marl, with limestone bands	81	0	69	0
Limestone	2	0	150	0
Marl	1	0	152	0
Limestone	1	0	153	0
Marl, with limestone bands	8	0	154	0
Marl	7	0	162	0
Limestone	2	0	169	0
Marl, with limestone bands	12	0	171	0
Limestone	2	0	183	0
Marl	45	0	185	0
Sand	10	0	230	0
Depth bored			240	0

Bore 6.

Position.—At north-west corner of allotment 1B, section B.

Surface level, 325 feet.

Strata.	Thickness. ft.	in.	Depth struck. ft.	in.
Sand, fine	11	0	0	0
Clay	20	0	11	0
Marl, with limestone bands	45	0	31	0
Clay	5	0	76	0
Marl	3	0	81	0
Clay, sandy	7	0	84	0
Sand	29	0	91	0
Clay, ligneous	2	0	120	0
Clay, sandy	25	0	122	0
Brown coal, inferior	4	0	147	0
Clay, sandy	6	0	151	0
Sand and ligneous matter	8	0	157	0
Sand drift	22	0	165	0
Depth bored			187	0

Fresh water struck at 120 feet.

Bore 6.

Proximate Analysis: Results calculated to 40% moisture content.

Bore Number.	Depth.	Volatile Hydro-carbon.	Fixed Carbon.	Ash.	Lab. Number.	Bitumen.
	feet.	per cent.	per cent.	per cent.		per cent.
3	120–130	27·02	31·48	1·50	595	0.71
	130–140	27·49	31·78	0·73	596	
	140–150	27·79	31·43	0·78	597	
	150–160	27·32	32·08	0·69	598	
	160–170	27·15	32·18	0·67	599	
	170–180	27·23	31·85	0·92	600	
	180–190	27·48	31·89	0·63	601	
	190–200	27·17	32·27	0·56	602	
	200–210	27·30	32·28	0·42	603	
	210–220	27·94	30·83	1·23	604	
	220–230	26·92	30·50	2·58	605	

Ultimate Analysis of Brown Coal dried at 105° C.

Bore Number.	Depth.	Carbon.	Hydrogen.	Nitrogen.	Sulphur.	Oxygen.	Ash.
	feet.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
3	120–230	68·72	5·11	0·59	3·95	19·39	2·24

Low Temperature Distillation. Sample treated in a revolving retort under partial vacuum at temperatures gradually rising to 500° C.

Bore No.	Depth.	Charge.	Water.	Carb. Residue.	Gas. Burnable.	Gas. Non-burnable.	Crude Oil (Hydrated).
	ft.	lb.	lb.	lb.	c. ft.	c. ft.	lb.
3	120–230	112	61·5	36·0	100	50	5

Low Temperature Distillation. Calculated average yields per ton of Brown Coal dried to 40% moisture content.

Bore No.	Water. Free.	Water. Combined.	Carb. Residue.	Gas. Burnable. Amt.	Gas. Burnable. Cal. Value.	Gas. Non-burnable.	Crude Oil. (Hydrated.)	Light Oil. (Gas Strippings.)
	lb.	lb.	lb.	c. ft.	B.T.U.	c. ft.	gall.	gall.
3	896	..	958	2,660	..	1,330	13	0·75

PARISH OF COLQUHOUN.

L.E.D. Co.'s No. 1 Bore (Lake Bunga).

Position.—On Bunga Creek in bend of road north of allotment 131c.

Surface level, 9·4 feet.

Strata.	Thickness. ft.	in.	Depth struck. ft.	in.
Soil	1	0	0	0
Sand and silt	9	0	1	0
Sand, yellow, fossiliferous	50	0	10	0
Limestone, blue, sandy, fossiliferous	60	0	60	0
Limestone, white, sandy, fossiliferous	80	0	120	0
Marl, blue, sandy, fossiliferous	54	0	200	0
Marl, fossiliferous	234	0	254	0
Limestone, coral and shell	2	0	488	0
Marl, blue, dark, puggy bands	274	0	490	0
Marl, grey, puggy	60	0	764	0
Marl, dark	16	0	824	0
Marl, puggy, with sand	69	0	840	0
Sand, calcareous	1	0	909	0
Marl, puggy, sandy in places, calcareous bands	40	0	910	0

Strata.	Thickness. ft.	in.	Depth struck. ft.	in.
Marl, puggy and sandy, pyritic ..	17	0	950	0
Hard band	1	0	967	0
Marl, puggy and sandy, pyritic ..	16	0	968	0
Hard band	1	0	984	0
Marl, puggy and sandy, pyritic ..	12	0	985	0
Hard band	1	0	997	0
Marl, puggy and sandy, pyritic ..	47	0	998	0
Limestone, fossiliferous	19	0	1,045	0
Marl, puggy and sandy, pyritic ..	6	0	1,064	0
Clay, fine sandy, ligneous ..	4	0	1,070	0
Clay, fine sandy, ligneous, silty ..	6	6	1,074	0
Glauconite	31	6	1,080	6
Sandstone, soft, brown, micaceous	10	0	1,112	0
Sandstone, fine grained, calcareous	20	0	1,122	0
Sandstone, fine grained, micaceous	3	0	1,142	0
Rock, hard, septarian	7	0	1,145	0
Sandstone, light brown, micaceous..	32	0	1,152	0
Sandstone, sage green, calcareous ..	16	0	1,184	0
River grit, fine, cemented with lime	10	0	1,200	0
Slate, falcose of Phyllite, some chlorite	5	0	1,210	0
Total depth			1,215	0

L.E.D. No. 1, Parish of Colquhoun.

Water analysis; grains per gallon.

Lab. No. ..	162	498
Depth	220-ft.–550-ft.	1,080-ft.
$CaCO_3$	9·3	3·7
$MgCO_3$ ..	10·1	2·5
Na_2CO_3 ..	3·1	28·8
Na_2SO_4 ..	11·0	Nil
NaCl	32·3	80·8
Total solids ..	65·8	115·8

Analysis of natural gas.

Lab. No. 503. *Depth*, 1,080 feet.

CH_4	44·2
O_2	11·8
N_2	44·0
CO_2	Nil
CO	Nil
C_2H_6	Nil
C_nH_{2n}	Nil
H_2	Nil
H_2S	Nil
	100·0

The gas consists of methane (44·2%) and air, with a small excess of nitrogen.

L.E.D. No. 1, Parish of Colquhoun.

Oil Analysis.

Samples .. Water, sediment, gas, &c.
Locality .. Lake Bunga bore, Lakes Entrance
Sender .. W. Baragwanath

Description of Samples.

Field Mark.	Assay No.	Particulars.
..	544	Water and oily matter mixed with cotton waste
..	544x	Cotton waste used for wiping boring rods
A	546	Gas as issuing from bore
B	547	Water as pumped into bore hole
C	548	Sediment from bore
D	549	Water and sediment as issuing from bore
E	550	Water after passing gas through for fifteen hours

No. 544.—Sample consisted of a mixture of water, heavy oily matter, and cotton waste.

The oily substance was separated from sediment, &c., and tested, with the following results:—

(*a*) *Film Test.*—Iridescent oily films are produced.

(*b*) *Sulphur.*—The oil contains a definite quantity of sulphur compounds, suggesting that the oil is not a refined product.

(*c*) Nitrogen compounds were proved to be present though in what percentage it is impossible to state, owing to smallness of sample submitted. The presence of nitrogenous bodies would indicate that the sample of oil is not a refined product, but probably belongs to the crude oils.

(*d*) The oil was tested for asphaltenes. Although only a small quantity of sample was available, the presence of asphaltene was proved.

(*e*) *Saponification Test.*—The oil resists saponification, indicating the presence of mineral oil.

As extracted, the oil consists of a heavy brownish-coloured, viscous, odourless oil, which produces a yellowish-brown solution with volatile organic solvents.

The solution has a dark [illegible]n fluoresence. The oil is classed as a heavy mineral oil, and is probably a crude oil.

No. 544x.—This sample consisted of a piece of cotton waste which had been used to wipe the rods from bore hole.

When treated with organic solvents this produced a yellowish oily residue. A blank test on a sample of the clean waste also gave an oily residue.

L.E.D. No. 1, Parish of Colquhoun.

Gas Analysis. No. 546/24 (see p. 27)

Carbon dioxide (CO_2)	0·19
Unsaturated hydrocarbons (C_nH_{2n})	0·05
Oxygen (O_2)	0·90
Carbon monoxide (CO)	Nil
Hydrogen (H_2)	Nil
Methane (CH_4)	93·74
Ethane (C_2H_6)	Nil
Sulphuretted hydrogen (H_2S) ..	Nil
Nitrogen (N_2)	5·12
Total	100·00

From its chemical analysis this gas is classed as a "dry" natural gas and consists mainly of methane. Its calculated calorific value is 998 B.T.U. (gross) per cubic foot.

Field absorption tests should be made by passing a measured volume of the gas through an absorption fluid, which would catch any gasoline, &c., if present.

No. 547. (*c*) *Pump Water.*—The sample contains a minute trace of some greasy, oily substance. Quantity present not large enough for determination.

No. 548.—(*d*) Water and sediment taken 13th August, 1924; depth, 1,076 feet.

Oil Tests—

(*a*) *Steam Distillation.*—Negative results.

(*b*) *Extraction with Solvents.*—A faint trace of some greasy residue was obtained. The quantity present was not large enough for determination.

No. 549.—(*e*) Water and sediment issuing from bore taken 14th August, 1924; depth, 1,080 feet.

This sample contains a small percentage of a yellowish coloured oily residue, which resembles the sample described in No. 544.

No. 550. *Gas.*—Owing to a mishap with gas analysis apparatus this sample could not be treated; it will be reported on at a later date.

3 & 4

L.E.D. No. 1, PARISH OF COLQUHOUN.

Water and Natural Gas Analysis.

Samples .. Artesian water and natural gas
Locality .. Bore 1, Lake Bunga, Lakes Entrance
Sender .. J. C. Watson, Geological Survey Laboratory

Acting under instructions I visited the site of Bore 1, Lake Bunga, Parish of Colquhoun, on 10th May to carry out field tests on the natural gas and water which have been issuing from the bore-hole during the past three (3) years. For the field tests and work at the bore I took the following apparatus :—

(*a*) Simmance-Abady gas calorimeter.
(*b*) 1–10 light dry gas meter.
(*c*) Gas washing bottles and absorbents for gasoline tests.
(*d*) Emanation electroscope.
(*e*) Sample bottles, &c.

The object of my visit was to perform the following field tests :—

1. To determine rate of flow of gas per day.
2. To determine, over an extended period, the heating value of the natural gas.
3. To test the natural gas for the presence of light oils and to determine whether the gas is " dry " or " wet."
4. To test the gas for radio-activity.
5. To determine the rate of flow of the artesian water.
6. To collect samples for analysis.

No. 521—*Artesian Water.*

The flow of water from the bore-hole was very constant during my visit. Several determinations, made at different times, gave a return equal to 1,200 gallons per hour.

The water is quite warm to the touch, and a thermometer immersed in the flowing stream registered 95° F. As this temperature is close to blood heat, it provides a pleasant medium for bathing, &c. The water has a faint characteristic odour, resembling that of weak sulphuretted hydrogen.

Physical properties—

Colour	Water white
Odour	Faint, resembling sulphuretted hydrogen
Sediment ..	Nil
Turbidity ..	Nil
Taste	Sweet, palatable
Reaction to litmus	Alkaline

Chemical analysis—

	Grains per gall.	Parts per 100,000.
Calcium carbonate ..	1·3	1·85
Magnesium carbonate ..	0·8	1·10
Sodium carbonate ..	35·4	50·57
Sodium sulphate ..	Nil	Nil
Sodium chloride ..	71·7	102·40
Magnesium chloride ..	Nil	Nil
Calcium sulphate ..	Nil	Nil
Insoluble matter ..	Nil	Nil
Magnesium sulphate ..	Nil	Nil
Total solids	109·2	155·92

The mineral salts in solution, mainly carbonates and chlorides of sodium, are present in sufficient quantity to class the water as valueless for irrigation. The presence of sodium carbonate gives the water certain softening properties which would enable its use for household purposes. It should be a suitable water for stock.

No. 522—*Natural gas.*

(*a*) *Volume of flow.*

The gas was allowed to pass through a ten-light dry meter for a period of 24 hours, with the following result :—

	Cubic feet.
Meter reading before test (10 a.m. 16.5.27) ..	6,500
Meter reading after test (10 a.m. 17.5.27) ..	7,520
Gas measured (one day)	1,020

The flow of gas under present conditions is, therefore, equal to 372,300 cubic feet per annum.

It is unfortunate that a strong flow of artesian water was struck at about the same level as the gas zone (1,070 feet). Probably the presence of this water and the pressure has prevented a stronger flow of gas. At present the gas well could be described as " flooded."

(*b*) *Calorific value of gas.*

The Simmance-Abady gas calorimeter gave the following values :—

Date.	Time.	B.T.U. (gross) per cubic foot.
13.5.27 ..	11 a.m.	898
	11.30 a.m.	875
	12 noon	893
	12.30 p.m.	897
	1 p.m.	897
	2.30 p.m.	896
	3.15 p.m.	893

Average calorific value equals 892 B.T.U. per cubic foot.

The heating value of this gas is very high when compared with ordinary town gas. The ratio in B.T.U. per cubic foot is approximately as follows :—Ordinary town gas 1 to 1·7 for Bunga natural gas.

Using the heating value and cost of the town gas as supplied by the Metropolitan Gas Company in Melbourne as a standard, the commercial value of the natural gas at present flowing into the atmosphere at Lake Bunga is equivalent to £233 per annum.

If occurring in sufficient quantity this natural gas would be an ideal fuel for industrial purposes, such as glass-making, brick pottery, and lime kilns, cement manufacture, &c., also for household uses, such as lighting, cooking stoves, &c.

(*c*) *Test for gasoline in natural gas.*

The value of a natural gas for gasoline depends upon the presence of the higher hydrocarbons ethane, propane, butane, &c. Gases containing these compounds show a higher percentage of carbon than methane gas, naturally increase the luminosity and making the gas suitable for the recovery of carbon black.

The higher hydrocarbons determine whether a gas is " wet " or " dry." Their presence, indicated by certain treatment such as compression, absorption, refrigeration, &c., results in the recovery of a volume of light oils from a known volume of the treated gas.

The natural gas at Lake Bunga was made to pass through various absorbent mediums for periods extending up to 24 hours. The different absorbents were placed under seal and brought to the Geological Survey Laboratory for steam distillation. In each case the result obtained was negative, definitely proving that the gas was free from gasoline, and could be classified as a " dry " natural gas.

(*d*) *Test for radio-activity.*

Owing to the damp atmosphere at the bore site, it was impossible to obtain a steady natural leak of the electroscope. This test on the field had to be abandoned. On a later visit to the vicinity (24.8.27) I collected another sample of the gas, which was brought to the Geological Survey Laboratory and tested as soon as possible after collecting.

With a constant natural leak in the instrument, the gas was drawn into the ionization chamber of the emanation electroscope and examined. As the result of this test, I have to report that the gas gave a distinct positive test, indicating the presence of radio-active properties.

The chemical composition of the gas, as determined by previous analyses at the Laboratory, is given as follows :—

No.	524/24	546/24
Carbon dioxide (CO_2)	0·20	0·19
Unsaturated hydrocarbons (C_nH_{2n})	Nil	0·05
Oxygen (O_2)	Nil	0·90
Carbon monoxide (CO)	Nil	Nil
Methane (CH_4)	81·25	93·74
Ethane (C_2H_6)	Nil	Nil
Sulphuretted hydrogen (H_2S) ..	Nil	Nil
Hydrogen (H_2)	Nil	Nil
Nitrogen (N_2)	18·55	5·12
Total	100·00	100·00

The gas burns with a pale reddish-blue flame capped with a slight luminous tip. The luminosity being very slight, the gas would have no value for the manufacture of carbon black.

Possible uses of the natural gas—

1. Fuel for industrial and household purpose.
2. Lighting—towns and homes.
3. It probably would be of value for the preparation of substitution compounds, such as chloroform, carbon tetrachloride, methyl alcohol, formaldehyde, &c., &c. Methane gas can be chlorinated by passing chlorine gas into it under proper conditions, at high temperatures, and in the presence of catalysts. The value of this natural gas for the abovementioned suggestions could only be determined by research work.

PARISH OF GLENCOE.

Bore 1.

Position.—From the south-west corner of allotment 48, section A, 2 chains west.

Surface level, 269 feet.

Strata.	Thickness. ft.	in.	Depth struck. ft.	in.
Sand	2	0	0	0
Clay, sandy	81	0	2	0
Sand and lignite fragments ..	14	0	83	0
Clay, ligneous	4	0	97	0
Clay	15	0	101	0
Sand	3	0	116	0
Brown coal	2	0	119	0
Clay	10	0	121	0
Brown coal	15	0	131	0
Clay	3	0	146	0
Clay, sandy	3	0	149	0
Sand	21	0	152	0
Brown coal	22	0	173	0
Clay	23	0	195	0
Clay, sandy	6	0	218	0
Sandy drift with a little pyrites ..	66	0	224	0
Clay, ligneous	1	0	290	0
Brown coal	38	0	291	0
Clay	37	0	329	0
Depth bored			366	0

Fresh water standing at 116 feet.

Bore No. 1, Parish of Glencoe.

Proximate Analyses of Brown Coal cores.

Bore No.	Depth.	Moisture.	Volatile Hydro-carbon.	Fixed Carbon.	Ash.	Lab. No.
	feet.	per cent.	per cent.	per cent.	per cent.	
1	138–146	22·40	23·50	31·75	22·35	203
	175–183	33·95	25·05	29·05	11·95	204
	183–193	36·95	20·10	32·25	10·70	205
	291–301	37·15	24·70	26·50	21·65	206
	301–311	36·20	26·50	28·10	9·20	207
	311–328	36·15	25·65	27·35	10·85	208

PARISH OF JUMBUNNA EAST.

For bores 1 and 2, see Annual Report for 1891; 3, Annual Report for 1892; 4 to 7, Annual Report for 1895; 8 to 19, Annual Report for 1900; 20, Annual Report for 1901; 21 to 24, Annual Report for 1902; 25 to 27, Annual Report for 1903; 28 to 30, Annual Report for 1910; 31 to 34, Annual Report for 1918; 35 to 40, Boring Records for 1919–1922.

Bore 41.

This bore was put down from the bottom of a privately owned bore on Gleeson's lease. The old bore was reamed out to 105 feet.

Position.—At the south-east corner of allotment 63.

Surface level, 570 feet.

Strata.	Thickness. ft.	in.	Depth struck. ft.	in.
Mudstone with small sandstone bands	28	0	105	0
Black coal	0	6	133	0
Clod, black	0	8	133	6
Mudstone	0	10	134	2
Sandstone	98	0	141	0
Mudstone	42	0	239	0
Black coal	0	3	281	0
Mudstone	0	9	281	3
Mudstone with sandstone bands ..	29	0	282	0
Sandstone	20	0	311	0
Depth bored			331	0

Bore 42.

Position.—5 chains west of bore 41.

Strata.	Thickness. ft.	in.	Depth struck. ft.	in.
Soil	3	0	0	0
Sandstone, yellow	19	0	3	0
Sandstone, blue	5	0	22	0
Sandstone	33	0	27	0
Mudstone	5	0	60	0
Sandstone	12	0	65	0
Sandstone with hard bands ..	27	0	77	0
Mudstone	6	0	104	0
Sandstone with mudstone bands ..	15	0	110	0
Sandstone	5	0	125	0
Mudstone, dark	3	0	130	0
Mudstone, broken	18	0	133	0
Mudstone, soft	9	0	151	0
Sandstone	34	0	160	0
Sandstone with hard bands ..	31	0	194	0
Sandstone, very hard	7	0	225	0
Sandstone	13	0	232	0
Mudstone, broken	18	0	245	0
Mudstone with sandstone bands ..	17	0	263	0
Sandstone, broken	9	0	280	0
Mudstone	3	0	289	0
Clod, black	2	9	292	0
Black coal	0	3	294	9
Mudstone with small sandstone bands	8	0	295	0
Sandstone, hard and soft bands ..	17	0	303	0
Sandstone, hard	16	0	320	0
Depth bored			336	0

HISTORY OF WELL

Boola Boola Petroleum NL (1921) drilled the Boola Boola No.1 well ... ...IT WAS DRY!!!. The promoters had more confidence than success. If there is any payable oil at Boola Boola it is certainly elusive. Such is the oil industry.

Mr Vern Langhorne, a local identity at Port Albert, wrote to the Victorian Mines Department on 27th June 1923 about the likelihood of oil in Gippsland. Earlier, in 1922, Mr G W Shirrefs, who was engaged in prospecting for silver-lead between Buchan and Nowa Nowa, decided to search for oil. Later, Shirrefs and his partner, Mr Duncan, leased a drilling outfit and crew. On 5th July 1924 the Lake Bunga No.1 was spudded. On 25th July 1924 Lake Bunga No.1 **STRUCK OIL AT 1070 FEET.** Analysis of the Lake Bunga oil by Mr J C Watson, Chief Chemist of the Mines Department, showed it to be a mineral base heavy crude. This marked the first confirmed discovery of an oil accumulation in Australia.

The oil exploration history of the onshore Gippsland Basin really began accidentally in 1924, when a well drilled for water near Lakes Entrance found indications of oil. This led to the discovery of a small Lakes Entrance oil pool which between 1924 and 1956 produced 1300 cubic metres or 15.7 ^{o}APIW oil. This is the only oil that has been produced so far in onshore Gippsland.

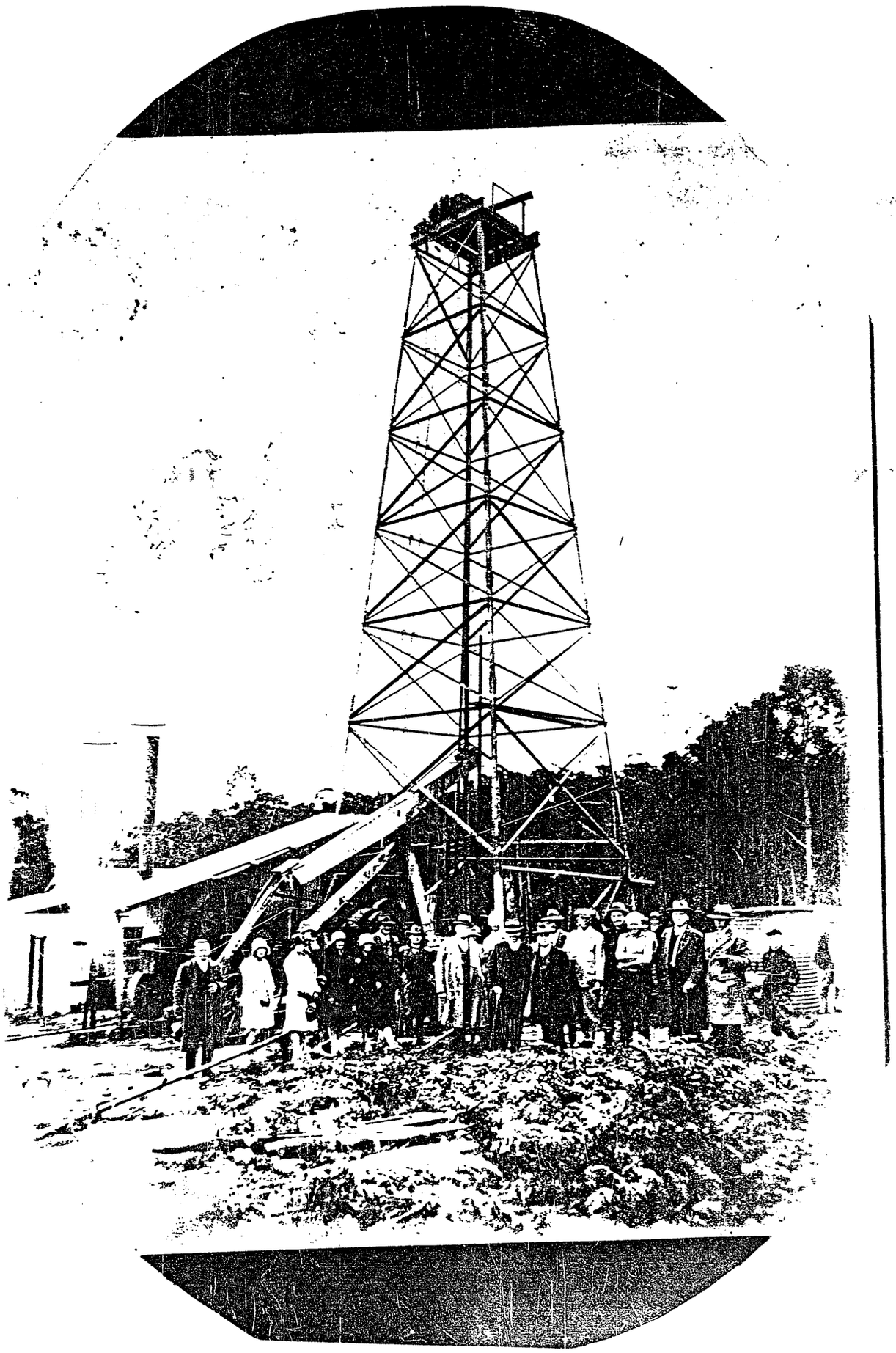
Since then the Lake Bunga area located in the heart of the Gippsland Coast has been the host for numerous oil wells. Subsequent discoveries of oil have been made, principally the Lakes Entrance oil field, ~~which up to December 1936 had produced 90,931 gallons of crude oil~~. from the 35 private bores in this field 111,283 gallons of crude oil were produced in the 16 year period 1924 to 1940.

The impact of the Second World War created a large demand for oil. Australia was a country with no local crude oil supplies and totally dependent upon imports. This focussed attention onto Gippsland and exploration and development was accelerated.

In July 1941 two American oilmen Messrs Leo Ranney and C O Fairbanks were invited to Australia by the Australian Government. They visited Lakes Entrance. In 1942 the Commonwealth and the Victorian governments joined forces to implement the Lakes Entrance oil development project. Under the National Security (Minerals) Regulations, the "Ranney Well Oil Shaft" was sunk on lease No.139 held by the Austral Oil Drilling Syndicate (subsequently Lakes Oil Ltd.).* By June 1945 the shaft reached a depth of 1,117 feet 3 inches to the top of the "concrete base". The sandstone was under such pressure (600 pounds psi) that there was imminent danger of ~~pressure~~ flooding and loss of life on the site sufficient to warrant the committee heading the project to send Mr H J Cook to USA. A Los Angeles geologist, Mr Pemberton, supported Mr Cook's report as to the unsuccessful rating of the Ranney Wells in USA by stating that there was no chance of a successful outcome to the work at Lakes Entrance - thus the project ceased.

* The Ranney wells scheme involved sinking a circ shaft some 3.6 m in diameter into the sandstone reservoir. ~~Once this was reached a~~ the shaft gradually increased in diameter to produce a work chamber ~~in diameter~~ with a floor some 6 m in diameter. by the time it reached the reservoir. From this floor holes are drilled a spoke like manner through which the oil is extracted.

Loka Bunga - 1. 1924
?



PE602071

This is an enclosure indicator page.
The enclosure PE602071 is enclosed within the container PE906137 at this location in this document.

The enclosure PE602071 has the following characteristics:

ITEM_BARCODE	= PE602071
CONTAINER_BARCODE	= PE906137
NAME	= Lithological Log
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Lithological Log, no.1,(enclosure from Well Summary) for Lake Bunga 1
REMARKS	= Blue Print
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W365
WELL_NAME	= Lake Bunga-1
CONTRACTOR	= Lakes Entrance Development Co
CLIENT_OP_CO	= Lakes Entrance Development Co

(Inserted by DNRE - Vic Govt Mines Dept)

PE602072

This is an enclosure indicator page.
The enclosure PE602072 is enclosed within the container PE906137 at this location in this document.

The enclosure PE602072 has the following characteristics:

ITEM_BARCODE	= PE602072
CONTAINER_BARCODE	= PE906137
NAME	= Lithological Log
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Lithological Log, no. 2,(enclosure from Well Summary) for Lake Bunga 1
REMARKS	= Blue Print
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W365
WELL_NAME	= Lake Bunga-1
CONTRACTOR	= Lakes Entrance Development Co
CLIENT_OP_CO	= Lakes Entrance Development Co

(Inserted by DNRE - Vic Govt Mines Dept)