



Natural Resources and Environment

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LAKES ENTRANCE OIL SHAFT CORRESPONDENCE AND REPORTS

1940 to 1950

W 434

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

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REPORT TO THE COMMONWEALTH GOVERNMENT BY DR H. C. RACCAFF,
ASSISTANT COMMONWEALTH GEOLOGIST ON OIL POSSIBILITIES,
ON OIL POSSIBILITIES, LAKES ENTRANCE AREA,
EAST GIPPSLAND, VICTORIA.

(Issued 5th September 1940) 909551 002

This report summarises available information bearing on oil possibilities in the Lakes Entrance Area, East Gippsland. As it is desired to keep the report as concise as possible no reference is made to the history of the area, and previous reports are not referred to in detail. The boring data which forms the basis for most of the report has been carefully checked with officials of the Victorian Mines Department. Their unstinted help is gratefully acknowledged. Thanks are also due to Austral Oil Drilling Syndicate N.L. for making available results of production and rising tests.

Stratigraphy. The stratigraphy or order of rock sequence of the area is provided by the drilling records of the Victorian Mines Department and of Companies which have operated in the area. A succession of Tertiary beds has been proved, ranging up to 1500 feet in thickness, which can be broadly subdivided on the basis of colour and lithology as follows:-

1. Light coloured, marly beds with abundant polyzoa and large shelly fossils.
2. Brown, fine-grained, silty sandstone with abundant small flakes of mica.
3. Dark green, fine-grained, glauconitic sandstone, commonly with abundant pellets of limonite.
4. Fine-grained, micaceous sandstone.

Precise information as to some of the rock types penetrated by the drills is given in other official records; some, together with detailed palaeontological descriptions, in the reports of the Commonwealth Palaeontologist, Miss Crespin.

The following more detailed sequence, proved by the recently completed bore near the Pilot Station, Lakes Entrance (Govt. No. 4, Parish of Colquhoun) has been supplied by Miss Crespin:-

- | | |
|----|--|
| | Recent - 5 feet |
| 1. | Pleistocene to Upper Pliocene - 10 feet down to 90 feet |
| | Lower Pliocene (Kalimnan) - 100 feet down to 160 feet |
| | Upper Miocene - 174 feet |
| | Middle Miocene - 184 feet down to 798 feet |
| | Lower Miocene - 799 feet down to 1140 feet |
| | B3 Zone - 799 feet - 853 feet |
| | B2 Zone - 854 feet - 908 feet |
| | B1 Zone - 909 feet - 1140 feet |
| | Upper Oligocene - 1150 feet down to 1441 feet |
| 2. | Micaceous Series - 1150 feet - 1427 feet |
| 3. | Glauconite Series - ? 1429 feet - ? 1441 feet
(Main Glauconite beds) (exact limits not available) |
| 4. | Lower Oligocene - 1441 feet down to 1498 feet |
| | Granite - 1508 feet 6 inches. |

The numbers 1, 2, 3 and 4 at the left hand side of the above, indicate how the palaeontological units correspond to those based on colour and lithology. The above does not give a typical section of the main glauconite beds, which, in the Lakes Entrance Area, are usually about 30 feet thick.

The lowest sandstones (No. 4) are not always present. The maximum thickness of these beds recorded in the Lakes Entrance area is about 70 feet (in the Pilot Station Bore). From this point they appear to thin northwards and eastwards. It is known from boring records that they thicken to the westward, and are equivalent, in part at least, to the brown coal beds of the Morwell district.

The Tertiary beds rest upon a basement of metamorphosed sediments and granitic rocks, which appear at the surface as inliers in the younger beds at a distance of eight miles north-north-west of Lakes Entrance. A very good idea of their lithology is given by the material used on the retaining walls near the Pilot Station. It is to be noted that the granites and old sediments both contain mica. This mineral is very abundant in the old sediments.

It may be noted here that the Austral Oil Syndicate places some reliance on the views of F. Chapman and N. Milstein, that, in places, there is a considerable thickness of granitic wash developed between the Tertiary beds, described above, and the basement. It does not seem possible to reconcile this view with the known facts, but a conclusive test will be provided by the bore, which will shortly be commenced by Austral Oil, and for the sinking of which, Commonwealth and State Governments have advanced £1,500.




Fig. 1 shows all the bores put down in the East Gippsland Tertiary Basin east of the Tambo river. It is to be regretted that it is ~~not~~ known definitely how many of these bores reached bedrock, but a great number of them have reached the top of the main glauconite beds, and have thus revealed the approximate inland limit of the area of their deposition. This inland limit probably marks, in the main, a line along which the glauconite wedges out on the basement and thus gives quite a good picture of the general shape and mode of development of the Tertiary Basin.

The area proved to be underlain by glauconite is about 30 square miles.

Structure. The general, simple basin structure of the area has long been recognised and there have now been sufficient bores put down to reveal any modification of that structure which may have been developed. The structure is best shown by drawing contours on some well defined horizon, preferably one closely related to the oil showings, such as the glauconite beds. A map giving structure contours on the top of the glauconite is given in Fig. 2. It shows that the glauconite, in general, is rising inland in a direction nearly normal to the coast line. The amount of rise is very gentle, being about 150 feet per mile. Superimposed on this regional dip are local structures, the only ones of any significance being an anticline with shallow synclines bordering it. The axis of the anticline crosses the North Arm and trends approximately meridionally, close to Oil Search Bores No. 1 and No. 2.

Mr. Milstein has recently completed a structural map, based on a magnetometric survey of the Lakes Entrance area for the Austral Oil Syndicate. On this map he shows (in addition to the structures revealed by boring) a small anticline to the east of Foster's bore, the axis of which trends about N 15° W and which pitches to the South. The bore about to be commenced with Government assistance will test the validity of this determination.

Distribution of oil showings. Significant oil showings have been restricted to glauconite horizons and there appear to be no really important recordings other than those from the main glauconite beds near the base of the Tertiary section. These beds are usually about 30 feet thick, but the true thickness of the oil-bearing portions has never been established. It is known that even in the area of

maximum yields, oil is not uniformly distributed throughout the glauconite section, and in some instances it has been observed to be restricted to limited sections thereof.

The examination of the cores recently obtained and to be obtained should give some measurements bearing on this vital factor, together with determinations of porosity, permeability and saturation. Pending completion of this work these aspects are not discussed in this report.

The intercalation of glauconitic in micaceous beds, and the association of oil showings with glauconite, appear to be an expression of a relationship which has been strikingly demonstrated as an active geological process at the present day.

In addition to defining the area of deposition of the glauconite, the boring records enable the delimitation of the area of proved oil showings in the main glauconite beds, as indicated in Fig. 1.

It will be seen that the area thus defined is a roughly quadrilateral one of about 8 square miles. In part, its boundaries are approximately concentric to that of the boundary of the glauconite, and it might have been expected to extend much further westward, but so much boring has been done in that direction that the potential oil-bearing area may now be considered as fairly closely defined.

There is a lack of qualitative information on oil yields but such as is available suggests that the relatively larger yields are restricted to a still smaller zone within the area of 8 square miles, possibly not exceeding 4 square miles.

It seems probable that the oil is indigenous to the glauconite and that there is a gradually decreasing porosity outwards from the zone of maximum yields.

It appears therefore, that so far as the Lakes Entrance area is concerned its potentialities as an oil producing region are almost certainly restricted to an area of about 8 square miles and quite probably to an area of about 4 square miles in the vicinity of Lakes Entrance. The next aspect to be considered, therefore, is the results of drilling in this area.

Production and Rising Tests. To date, showings of oil have been noted in thirty bores put down in the Lakes Entrance district, but for most of them quantitative figures are not available. Production tests have been made at Foster's, Inray and Mid-West No. 2 bores. Mac's No. 2 (which is an artesian well) is being allowed to flow and the oil saved by decantation. No figures have been obtained with regard to this well so far.

Inray. This well was drilled to near the base of the glauconite and plugged to hold back water under the direction of the Oil Advisory Committee.

Bailing tests extending over 400 days gave a production of about 5 gallons per day. (Note: none of these figures relates to completely water-free oil and are therefore maximum figures under the particular conditions employed).

Rising tests were commenced in September, 1939, since when no bailing has been done, the fluid column in the bore being allowed to rise, and the level measured at weekly intervals. The rate of rise at the commencement of the test was about 4 feet per day but by June 10th, 1940, it had gradually decreased to about 2 feet per day. The test shows that the well is slowly reaching equilibrium with the pressure elements of its environment and as this

balance is approached, the rate is naturally decreasing. The pressure elements are probably made up mainly of the rock pressure of the sediments and the height of the water column in other holes. There are no grounds for believing the rise to be due to a pressure leak from a deeper reservoir.

By way of illustration it may be mentioned that when water is struck in boring, irrespective of rock type or geological structure, it always rises in the hole.

What is meant by this mb

Mid-West No. 2. Bailing tests between August and December, 1937, gave an early production of 6 gallons oil per hour increasing to 1 gallon for the last three months of the test, i.e. say 24 gallons per day.

From the same mb

From July, 1938, to July, 1940, bailing tests have been made three or four times per week for a yield of 2.5 gallons per hour or 5.5 gallons per day, i.e. about the same as from the Imray Well.

From the same mb

Fosters. Pumping and bailing tests were in progress from August, 1938, to April, 1938. The average daily production of fluid was approximately 6,500 gallons per day yielding about 1.5 per cent of oil or approximately 100 gallons per day, equivalent to somewhat less than three barrels (of 35 Imperial gallons each) per day. Separation of oil from the oil-water emulsion, obtained by pumping, was effected by the addition of hydrochloric acid.

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Bailing tests were also made between April and June, 1940, for a daily production of about 9 gallons per day. In June an attempt was made to shut off the bottom water by cementing. This was partially successful in increasing the percentage of oil to water, the oil yield per day remaining at approximately 9 gallons.

These results seem to show that the oil sands were or had become water flushed.

Pumping increased the yield, but the operations were far from economic for the single well under test.

The amount of gas present as revealed by demonstration at the Mid-West No. 2 and Mac's No. 2 bores is very small and it is clear that gas pressure is an unimportant factor in this area.

It cannot be too strongly stressed that these yields are very low, especially when it is remembered that they represent the maximum yields so far demonstrated as obtainable, there being no large initial flush production to offset the high capital expenditure which would be necessary in any production scheme.

Type of Oil. The type of oil won is a heavy grade asphaltic base oil, capable of yielding diesel fuel, lubricating oil and bitumen. Its value on the open market has never been accurately determined.

Artesian Water. The Lakes Entrance district is an artesian basin. The first bore put down in the area (Lakes Entrance Development No. 1) is still flowing and the township takes its supply from another bore (No. 1 Government Parish of Gelquhoun) and which had an initial flow of 150,000 gallons per day.

This water is of unusually high quality, being suitable for domestic use.

The main zone of artesian water closely underlies the oil-bearing glauconite. It has always been difficult to

separate the two, but the results obtained from the Imray well suggest that there is a real separation between the oil and water sands and it seems probable that it is the micaceous sands which immediately underlie the glauconite which form the aquifer though some flooding of the glauconite has probably occurred since boring operations commenced.

There can be no question that this water would be a real hazard if shaft sinking were contemplated. The danger is aggravated by the absence of shales above and below both oil and water sands.

Drilling in Relation to Some Theoretical Considerations.

(1) Generally speaking, traps for oil are of two kinds, structural and stratigraphical. The only structural trap defined in the Lakes Entrance area is the gentle anticline, referred to above, the axis of which trends meridionally across North Arm near Oil Search Bores No. 1 and No. 2.

A stratigraphical trap may also be present. If there is any movement of oil through the glauconite it should be up the dip i.e. northwards, leading to a concentration of oil marginal to the area in which oil has been proved present.

There is not enough quantitative evidence available to be able to say whether either or both of these factors have operated.

If structure has affected oil accumulation, the production from Oil Search Bores No. 1 and 2 should have been relatively higher than adjacent bores, but here again figures are not available.

If a site can be selected which combines both these factors, that site should indicate what the maximum possible production from a bore in the Lakes Entrance area may be. A bore situated in portion 89 D, Parish of Colquhoun (peninsula, opposite mouth of Frenchman's Creek) would meet these conditions. If situated near sea level the depth to be drilled would probably not exceed 1000 feet and the cost £500 to £1000 according to the type of plant used.

(2) I am informed that the Austral Oil Syndicate is about to commence drilling the hole about 15 chs. N.E. of Foster's Bore for which State and Commonwealth Governments have between them advanced £1500. This bore will show:-

- (i) whether the small anticlinal structure determined magnetometrically by Mr. Milstein, exists;
- (ii) if it exists, whether it has had any effect on oil accumulation;
- (iii) whether a noteworthy thickness of granitic wash exists below the main glauconite beds;
- (iv) if the wash exists, whether it is oil-bearing.

It is presumed that samples from the bore will be sent to the Commonwealth Palaeontologist for examination and that from the time the bore enters the glauconite there will be Government supervision of the drilling.

Continuous cores should be taken from the top of the glauconite to the completion of the hole; cuttings will not give a satisfactory result.

Present Position of Investigations. These are, briefly:-

(1) Government scout drilling plants are sinking two holes in the Lakes Entrance area, one near the southern end of Lake Bunga and one about a mile N.W. of Lakes Entrance.

(2) Austral Oil Drilling Syndicate are about to commence putting down a bore (with Government assistance) about 15 chs. N.E. of Foster's bore.

(3) Cores of the glauconite are being taken and placed in sealed containers preparatory to examination for oil content, porosity, permeability and saturation. Delay in commencing this work is due to the fact that a porosimeter which is being made to the order of Commonwealth Oil Refineries and which is being lent by that Company to the Victorian Mines Department for some of the determinations, is not yet available and it is not advisable to open the containers until all the work can proceed concurrently.

Summary.

1. The Lakes Entrance district is underlain by a Tertiary sequence not exceeding 1500 feet in thickness.

2. The structure is the simple basin type with some gentle subsidiary flexures.

3. The significant oil showings have all been recorded from the one group of glauconite beds (glauconite series of Victorian Geological Survey).

4. The glauconite beds have been proved to extend over an area of about 30 square miles, but showings of oil are restricted to an area of about 8 square miles within the larger area. The larger oil yields appear to be restricted to a still smaller area of about 4 square miles.

5. On present evidence the potentialities of the Lakes Entrance Area as an oil producing region are almost certainly restricted to this area of 8 square miles, and very probably to the smaller area of 4 square miles.

6. The oil encountered is a heavy grade asphaltic base type.

7. Artesian water, with rate of flow up to 150,000 gallons per day from bores, occurs immediately below the main glauconite beds.

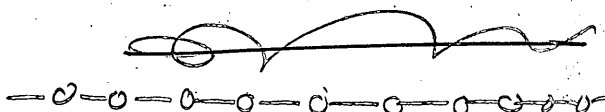
8. Thirty bores have been put down in the proved oil-bearing area for small yields unaccompanied by any high initial production.

9. A bore put down in portion 89 D, Parish of Colquhoun would effectively test whether there has been any noteworthy migration of oil leading to accumulation controlled by structure and lithology.

10. It is considered that the idea that granitic wash underlies the Tertiary section is not soundly based, but that this point will be decided beyond doubt if the bore about to be put down N.E. of Foster's bore is carried to bedrock, and adequate cores obtained therefrom, from the top of the glauconite to the bottom of the hole.

Conclusion and Recommendation. It is impossible to view the prospects of the Lakes Entrance area very optimistically, but for the reasons given, and with the object of leaving no possibility of proving the area overlooked, it is recommended that the bore referred to under (9) be put down as part of the Scout drilling programme and that the cores obtained be put in sealed containers and examined as arranged for other bores, now in progress.

It has been suggested that oil might be produced from the Lakes Entrance area by "repressuring", unit pumping or by working from a vertical shaft. A consideration of these possibilities should, it is considered, be delayed pending completion of tests in progress or projected. There are many enquiries which must be made before any idea can be formed as to the economics of these proposals. It must be emphasised that most of the literature on working oil sands from shafts (apart from the methods adopted in France and Germany which probably are too dangerous to adopt under Gippsland conditions) refer to suggestions and experiments only, and not to actual operations, which have been tried and proved successful under different kinds of conditions.



LAKES ENTRANCE OIL SHAFT.

Algonquin
854/2009
809551 009

Notes taken from H.J. Cook's reports to Controller
Minerals Production. (H.J. Cook was appointed
Supervisor of Lakes Entrance Oil project as from
7th. September, 1942)

Lithological Aspects:

Shaft sinking commenced on 10th. September, 1942.

- 160' Sinking through marl. It is moist but makes practically no water.
- 208' Start of systematic sampling so that each sample covers 4 feet of shaft wall vertically.
- 220' (about) 1st. occurrence, in odd patches of polyzoal limestone. Then patches increased in frequency until at present (254') the formation is wholly polyzoal. There are, however, persistent thin bands of marl right throughout the whole mass.
- 253' A small fissure where water is coming in crystal clear in runnels about as thick as one's thumb.
- 228' - 268' Pure polyzoal limestone.
- 268' - 288' Heaviest water bearing ground.
- 308' The compact polyzoal limestone has disappeared and at 308' in a mixture of marl and sporadic make of limestone. No sharp line of demarcation level at top and bottom of limestone.
No new water encountered after 288'.
- 312' In marl and polyzoal mixed together.
- 314' Passed out of polyzoal limestone into marl. This passage quite marked as polyzoal is lighter in colour than the marl. The marl itself is largely made up of lime replacements of polyzoal and consequently is very gritty. I believe that the so called marl in which we are sinking is very largely polyzoal limestone discoloured with marl.
- 308' - 314' Small exposure of polyzoal limestone.
- 314' - 348' Dark grey marl very like the country net above the polyzoal limestone.
- 400' Country unchanged - a strong compact shelly marl, dark grey in colour.
- 314' - 468' In marl with shell fragments and polyzoal remains, the only noticeable differences being in the amount and coarseness of the limey fragments.
- 470' Coherent polyzoal limestone is making its appearance, this is not the pure white porous type of limestone encountered higher up, but is much greyer and carries enough marl to make it almost impervious.

- 466' In this interval somewhere an unusual number of limestone concretions which are commonly spherical and vary in size from a cricket ball to a football.
- 468' - 508' In mainly dark grey marl with several small bands (about 8") of polyzoal limestone. In addition there are small patches of lighter coloured polyzoal limestone showing in places. The concretionary isolated boulders of sand limestone (~~400'~~) which put in an appearance at about 400' are still present.
- 535' Shaft water began showing an inky discolouration and a search of material excavated showed small makes of black soft mineral which was determined at the Bairnadales School of Mines as pyrites.
- 560' Mixed polyzoal and marl. H₂S met with.
- 566' - 570' Fretting ground.
- 588' H₂S still encountered.
- 548' - 576' In this lift some caving ground present as friable country about 2' thick and charged with H₂S gas.
- 596' - 601' 3 soft bands present with plentiful H₂S gas and several bands of water.
- 576' - 612'
At 580' Bad ground encountered with plentiful H₂S gas. Then there was 22' of green polyzoal limestone broken by 2 bands of soft gassey (H₂S) ground. Then 6' of pure white polyzoal followed by dry green marl without water. There were several water bands in the polyzoal.
- 612' - 616' Methane encountered as gas bubbles. This existence disappeared in 5 days. H₂S also has died down.
- 0' - 616' 2 Main water horizons. 240' - 313' in polyzoal and 590' - 612' in polyzoal, most from 602' and not from the green glauconitic polyzoal above it.
- 616' - 633' Country shown much variety, there was a continuation for 1 foot of the friable ground before encountered, then about 6 feet of stron polyzoal followed by 5' of very green marl, then a layer of mixed polyzoal and green marl whilst in the bottom (633') is grey marl.
- 636' - 642' grey marl.
- 642' - 656' Green blocky marl with traces of oil on cleavages.
- below 656' Band of polyzoal succeeded by green marl again.

- 666' Floor of shaft rose 12"-15" and cracked, water came in and rose 10' in 15 minutes.
- 80' Very hard band
- 682' Water band. Water is coming in from 15" of very porous coral rock or polyzoal which needed explosives. Below this is polyzoal limestone with increasing proportion of light green marl. Water bubbles freely with gas.
- 708' Dark grey marl heavily charged with the calcareous remains of polyzoal. Soft.
- 712' - 740' Dark grey soft marl.
- 740' - about 750' Polyzoal limestone slowly merging into a pale green marl-polyzoal mixture
- about 752' Small water band with a little gas.
- 752' - 756' Soft greenish clayey marl.
Bottom rises at 1" per hour.
- 760' a 9" band of strong polyzoal - broken.
- 776' " " " " - "
- 792' Muddy marl and broken polyzoal began to rise through the break in the centre of the shaft bottom.
- 784' - 796' Alternating bands of polyzoal limestone about 8" thick and narrower bands of very soft clayey marl. (Test bore in shaft bottom is 816'. Augered to 26'6").
- 816' - 820' Alternating bands of soft polyzoal limestone and layers of soft muddy marl. These bands are from 4" to 8" thick.
Gas present in meagre quantities.
- 852' - 880' Fewer distinct polyzoal layers in the marl
- 880' - 907' No polyzoal bands and entirely compact dark grey marl fossils present.
- 900' Rock temperature 82° showing a gradient of 3°F. per 100 ft.
- 910' Hard bands of polyzoal were met.
- 954' Signs that the change into the micaceous series is approaching. There are occasional brown layers showing mica. A gradual change.
- 995' Still definite marl bands in the micaceous
- 1021' Hard band 6"-10" thick and thins out to nothing as it approaches the east side of shaft.
- about 1023' A single large boulder about 14" thick.
- 1038' Hard boulder
- 1046' " " (4) It was about 10" thick and composed of very compact tough limestone.
- 1046' Oily films plentiful

- 1060' 5th hard band. The band or boulder 20"-24" thick and nowhere less than 20". Slightly domed in centre.
- 1076' Hard band consists of boulders and is 10" thick.
- 1093' Hard band 10" thick.
- 1101' " " 6" thick
- 1121' " " " ")
- 1164' " " 6" ")
- 1173' " " 4" ") Cores from hole spudded
- 1185' " " " ") at 1173'3" i.e. shaft
- 1200' Glauconite struck) bottom.
- Concreted shaft to 1156'.
- 1143' Hard band 6" thick and not continuous across shaft.
- 1152' A long branch-like piece of hard limestone 6 feet long and up to 8" diameter.
Shaft extended from 1156' by a 5' x 4' wing
- 1182-3 Sand band. No gas. Band irregular and tough 4" - 9" thick.
- 1197'6" Ground dry and tight no glauconite visible.
Driving Nth. and Sth. commenced at 1204'
Top of glauconite expected between 1198'-1199'.

North face of drive.

Drive 7' high - 6' wide.

- At 5' in : Face of drive homogeneous glauconite, no sign of bedding or banding or any system of cleavages. Oil in showing in the face as isolated uncorrelated spots some 6 or 7 in all, from which oily gas bubbles exude. These very slowly drip down the face making an oil stained area. The oily bubbles come from restricted areas of not more than 1 or 2 square inches. Face appears all sandy glauconite. Rock face temperature 86°F.
- At 7' in : Number of oily spots increased to 17. Many of these spots failed to reappear when cleaned off. Face appears, especially its upper part, to be part of the Micaceous well coloured with glauconite. There were 2 persistent drops of water in this face.
- At 8' in : Face showed considerably more oil. Heads started to appear.
- At 10'in : Heads well developed, the pin points of oil had disappeared and oil was showing only on the cleavages of the heads.
- At 12'in : The face showed a very big increase in oil almost sufficient for measurement; here again the oil was on the cleavage of heads only.

11' in : A blocky lump of stone, about 30 lb. lying
between 2 heads was taken to the surface.
In situ this was very oily. The
expose area of this lump was alive with
gassy oil bubbles and before long the
stone was as wet with oil as if it had been
dipped in oil. After about an hour the bubbles
ceased but the stone was still oily.

CEH

COMMONWEALTH OF AUSTRALIA.

909551 014

DEPARTMENT OF THE INTERIOR,
CANBERRA, A.C.T.

30 AUG 1940



Dear Sir,

In continuation of my letter of the 28th August, I forward herewith the two maps which accompanied the report of Dr. H.G. Raggatt on the Oil Possibilities of the Lakes Entrance Area, Gippsland.

A further complete copy of the report is also enclosed.

Yours faithfully,

(J.A. Carrodus) *JB*
Secretary.

The Secretary for Mines,
Mines Department,
Treasury Gardens,
MELBOURNE. C.2.

COMMONWEALTH OF AUSTRALIA.

909551 015

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CANBERRA, A.C.T.

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Yours faithfully,

J.A. Carrodus

(J.A. Carrodus) *JAC*
Secretary.

The Hon. E.J. Hogan, M.L.A.,
Minister for Mines,
MELBOURNE.

RANNEYWELLS

for the

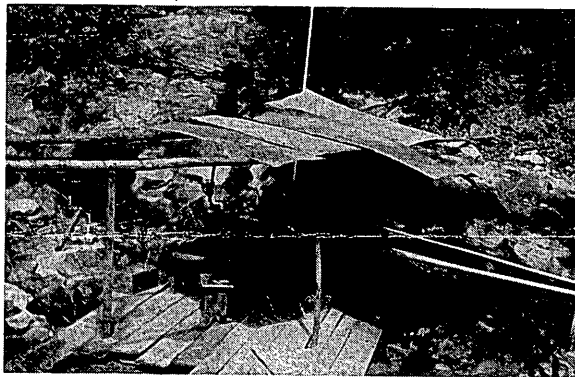
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PRODUCTION OF OIL

History

Ranneywells are an outgrowth of the Ranney Oil Mining Process. The first successful oil mine in this country was dug in Texas in the early 1920's by Leo Ranney. It comprised a shaft down to the oil sand, tunnels parallel to the producing formation and a short well every 10 feet to tap off the oil. The patents on this method were sold to Standard Oil Development Company. Because of the dead work involved in driving criss-cross tunnels under an oil sand, Mr. Ranney spent several years developing tools and methods for drilling *horizontally*—wells all in pay and flowing by gravity to a central mine shaft. From the days of the Drake well innumerable attempts have been made to accomplish this result. But the first horizontal oil wells ever drilled were those that Mr. Ranney projected into the First Cow Run Sand in Morgan County, Ohio.

The first oil well so drilled (1937) was into a sand outcrop on the bank of Havener Run—802 feet long, with its far end one foot above the mouth. Later a branch was drilled from this well to a length of 953 feet. Special methods of loading and shooting were devised. The shot succeeded in shattering the rock for 45 feet on each side of the well, and cracking the sand from top to bottom.



The World's First Horizontal Oil Well, Drilled into the First Cow Run Sand Outcrop in Morgan Co., Ohio

The second Ranneywell installation (for oil) comprised a shaft and a circle of 16 radial wells. Here were developed the "rod pullers," to move the tools in and out without uncoupling. From this shaft 6,000 feet of horizontal wells were drilled, to property lines. Although the average oil saturation was only 15%, these wells paid for their drilling in less than three years.

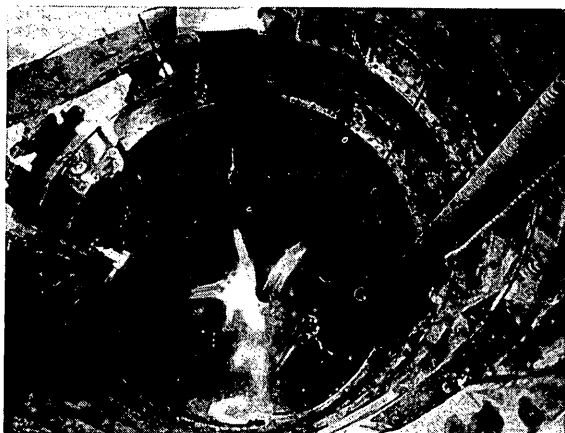
WATER. Shafts and 8" to 10" horizontal wells are now widely used in the production of ground water. For example, Ranneywells now provide 25% of all the water required by all the powder plants of the United States, operating at full capacity—some 560,000,000 gallons daily from 51 shafts and their 80,000 feet of radiating horizontal wells. These wells, both for water and oil, are covered by many patents and patent applications.

RANNEYWELLS PROJECT AT FRANKLIN, PA. This installation is being made for a group of producers and refiners operating as Venango Development Corporation, under license from Mr. Ranney, in the First Venango Sand, near Two-Mile Run. Contractor, Alfred B. Swinerton, San Francisco; Contractor's Manager, Ben Harris; Designér and Technical Director, Leo Ranney; Technical Assistants, R. and C. O. Fairbank; Operating Committee, A. J. Saxe, C. N. Pfohl and W. Shoemaker.

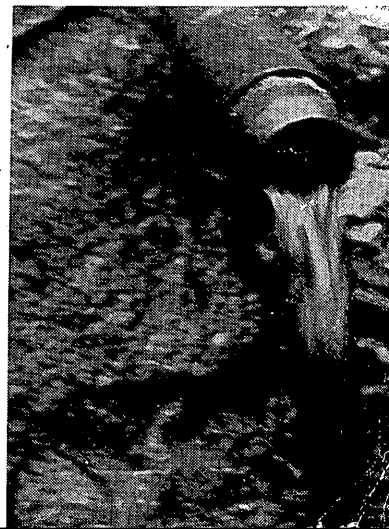
SHAFT. Depth 429 feet to the bottom of the work chamber; inside diameter, 8 feet; built entirely of steel and concrete, 14 inches thick. Immured pipes carry compressed air, vacuum, water, oil, wires, ventilation. Fresh air moves constantly down the shaft.

WORK CHAMBER. The shaft is enlarged at the bottom, within the sand body, to a diameter of 27 feet. It is circular, of monolithic construction, only steel and concrete being used. The walls, floor and roof are 18 inches thick, the rafters being heavy railroad rails with their lower ends buried in rock. Steel port-holes, through which wells are being drilled, were cast in the wall. Neither gas, oil nor water is allowed to enter the chamber from the wells.

Oil Flowing from the First Horizontal Oil Well after the Flow Settled



The World's First Horizontal Gravel-Walled Water Wells, Installed by Mr. Ranney for the Metropolitan Water Board, London, England, in 1934

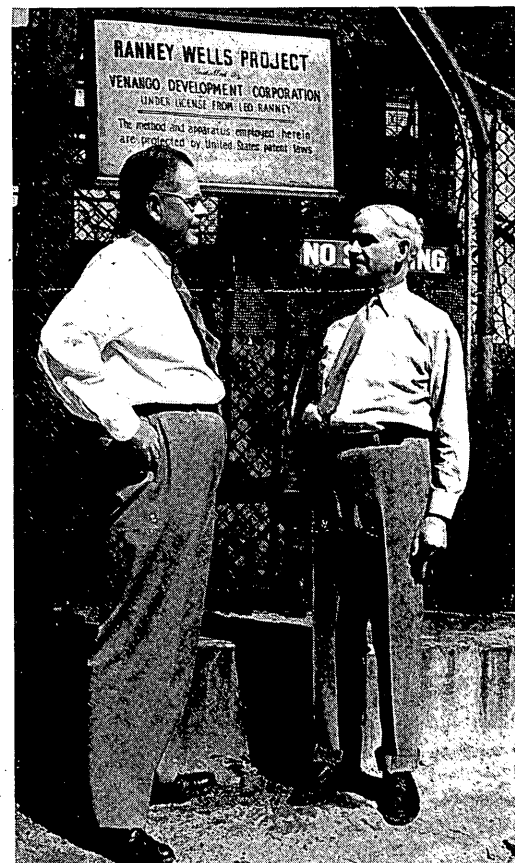


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DRILLING. The First Venango Sand is extremely variable in texture, hardness and oil content. Saturation averages about 20%. The rock changes laterally, often within a few inches, from an open sandstone to quartz conglomerate in which black diamonds drill only 3 feet before wearing off. The first pair of horizontal wells were drilled with diamond bits, approximately to property lines, 2,234 feet northeast and 2,355 feet southwest. At the far end, one well was lifted 16 inches and the other 24 inches above the mouth.

After completion of the first pair of wells, roller bits were employed, the diameter being 4 inches. This change reduced drilling costs by 50%. Drilling speed varies from 1" to 6" per minute. No whipstocks are used in maintaining the desired elevation of the wells.

The cost per foot of drilling and casing horizontal wells is about the same as the cost per foot of drilling and casing vertical wells; but the sand exposure per drilling dollar spent averages 40 to 50 times as great. In normal times the total cost of a relatively shallow Ranneywell installation will approximate \$500 per acre, but from the time one fourth of the wells are completed, receipts from the sale of oil produced would be expected to complete the installation.



Robert E. Allen, Director of Public Relations, American Petroleum Institute, and Leo Ranney at the Top of the Shaft at Franklin.

The Shaft in Morgan County, where the "Two at a Time" Method of Drilling Was Developed.

SURFACE EQUIPMENT. The headframe, 26 feet high, is of steel, designed to carry 200 tons. The fan house is of brick, the power house of steel and concrete. The air compressor capacity is 250 cu. ft. per minute; air receivers are outside the building. The lifting machinery is equipped with all known safety devices.

SAFETY PROVISIONS. Complete emergency and first-aid supplies and fire extinguishers are kept both above and below ground—these include such specialties as gas detectors, gas masks, hard hats and rubber gloves. The hoist carries a "dead man's" brake and automatic stop. The cage is of steel and is equipped with safety dogs and an overwind cutoff. There is a landing every 20 feet along the steel ladder to the shaft bottom. The telephone and all underground motors and lights are explosion proof. The air under ground is completely changed every 4 minutes, through an exhaust pipe cast in the wall. Suction pipes connected to the well casings carry off any gas encountered in drilling. In case of a heavy gas flow, drilling will be done through stuffing boxes. All oil runs through pipes to enclosed tanks.

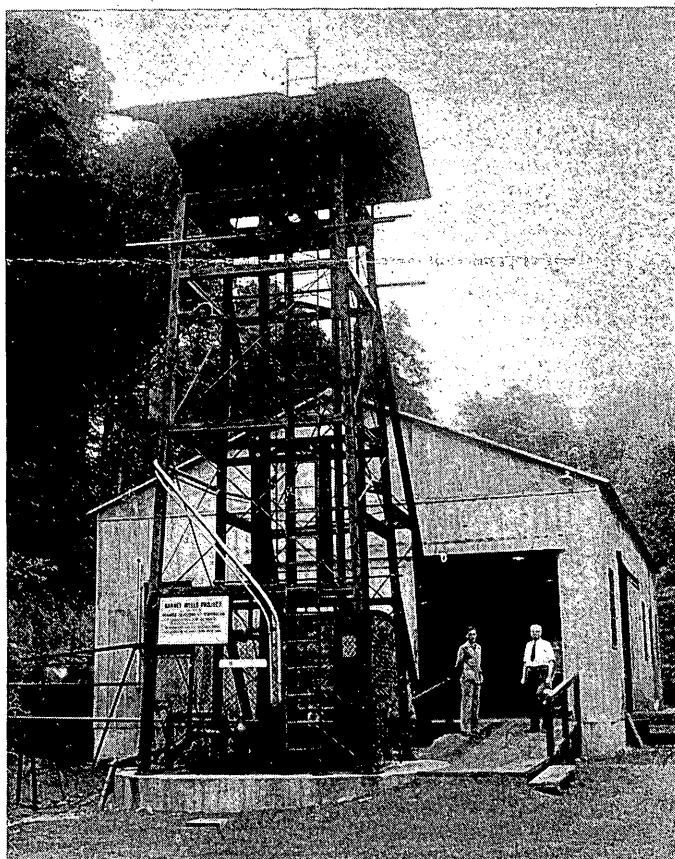
UNDERGROUND EQUIPMENT. The "rod pullers," drilling machine, special drilling tools, hole-surveying instruments and fluid-lifting equipment were designed by Mr. Ranney and made under his direction. The "rod pullers" move the drill rods, with drilling tools on both ends, out of one hole and into the corresponding hole on the opposite side of the work chamber, at the rate of 100 feet per minute. This "two at a time" drilling method was developed especially to drill Ranneywells.

WELL PLAN. The plan provides for 24 wells, 4 inches in diameter (12 inches after shooting), with an average length of 2300 feet, all in the producing horizon. Only 100 feet of wrought casing is used in each well, the pipe being grouted in under pressure. The wells are cored all the way. These radial wells will tap 400 acres, opening up about 56,000 linear feet of producing hole, an exposure equal to 2,800 vertical wells in the 20-foot substratum to be worked. Such vertical wells, if drilled, would require drilling through 1,200,000 feet of barren rock, and would consume 240 miles of 6-inch steel casing.

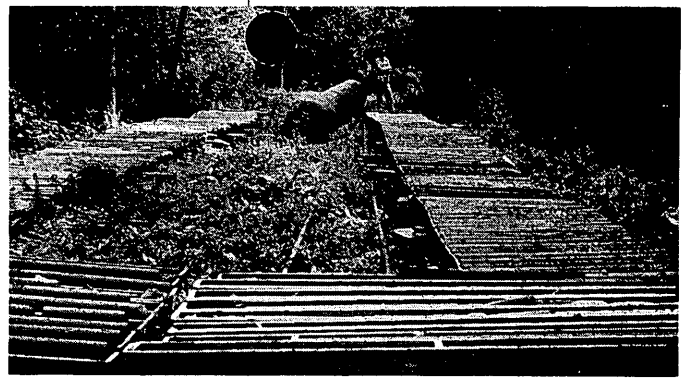
SHOOTING. The first two wells were shot simultaneously, to within 400' of the shaft, with 2½-inch duPont 80% hi-velocity gelatine and a line of TNT. The shots were 3,900 feet long and weighed approximately 12,000 pounds—by many times the largest and longest shot ever fired in an oil well. Before the blast was fired, 600 lbs. of dry ice was evaporated in the work chamber to make a fire impossible. The shot rattled windows 3 miles away. There was no caving or blocking of the holes, though about 3,000 cu. ft. of pulverized sand was removed after the shot. It is estimated that the shot cracks extend about 40 feet to the right, to the left and upward from the wells. DuPont engineers supervised the shooting.

PRODUCTION. In spite of war-time delays, 7 months out of 14, for lack of equipment, as of September 2, 1944, between 9 and 10 acres of the project had been subject to gravity drainage for 160 days and a vacuum for 20 days. This lease had been producing for 80 years (1 well to 4 acres) and during all this time had produced less than 640 barrels of this heavy oil per acre—an average of 8 barrels per year, or 1 gallon per day, per acre. By 1940 only ½ gallon daily per acre was being recovered.

During the 6-month period ending Sept. 2, 1944, the Ranneywells produced as much oil per acre tapped as the vertical wells produced in 28 years—or 56 times the rate of vertical-well production in 1940. Had the property been developed initially by Ranneywells, the 80 years' production could have been had in less than 2 years.



Head Frame, Fan House and Power House at Two Mile Run



Part of the Core from Two Franklin Wells—4650 feet of Core Taken in a Straight Line and on the Same Level.

When all 24 horizontal wells are completed, one man can operate the 400-acre property by pushing a button that controls the pump, the oil flowing out of the wells by gravity. Total lifting cost, including generous allowances for wages, power and emergencies, will be less than 25c per barrel of oil produced. Lifting costs for vertical wells in this field run from \$2 to \$3 per barrel. The oil is heavy, containing no gas, gasoline or kerosene.

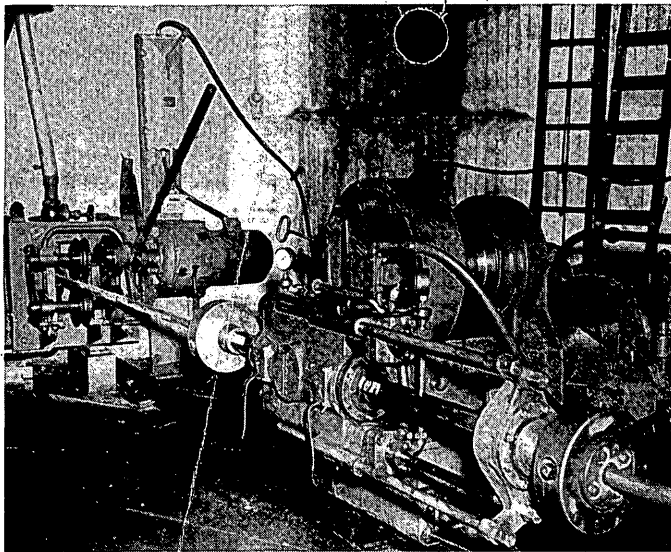
Within 2 or 3 years after the 24 wells of this project are shot and put on full production, it is estimated that profits from the sale of oil will liquidate the initial investment, in spite of excessive war-time costs.

With a viscous oil in a tight sandstone, with no gas or field pressure to move it—a low saturation—a past production record of only 8 barrels per acre per year—a sand where repressuring and water flooding had both failed—the Franklin project has proved Ranneywells successful under the worst possible conditions.

CONSERVATION. For the same sand exposure Ranneywells, both in drilling and operating, use only 1/10 of the man power and 1/10 of the horse power required by vertical wells—and only 1/16 as much steel per barrel of expected oil recovery.

NOTES. Horizontal wells tap many pools of oil that lie hidden behind barriers of impermeable rock—trapped oil that vertical wells would reach only by chance . . . In the East, during 80 years of operation, primary vertical wells have recovered only 15% to 20% of the original oil. In the Pennsylvania Grade fields alone more than 6 billion barrels, still in the ground, challenge the ingenuity of the engineers of the industry. The known oil fields of this country contain from 70 to 150 billion barrels of “engineers’ oil,” unrecoverable by present methods . . . The vertical driller may spend 98% of his time in barren rock on the way down, and only 2% (one week out of the year) in the pay sand—while the horizontal driller, always in the pay, does the year’s productive work in one week. . . . Production starts as soon as the first pair of wells are completed and soon carries the cost of development.

ADAPTABILITY. Ranneywells are not limited to a mine shaft as a means of reaching the oil sand. In some California fields the dipping sand outcrops, saturated with



One of the Two Rod Pullers and the Horizontal Drilling Machine in the Franklin Shaft. Note the 4" Suction Pipe Above the Well to Carry Away any Gas Encountered.



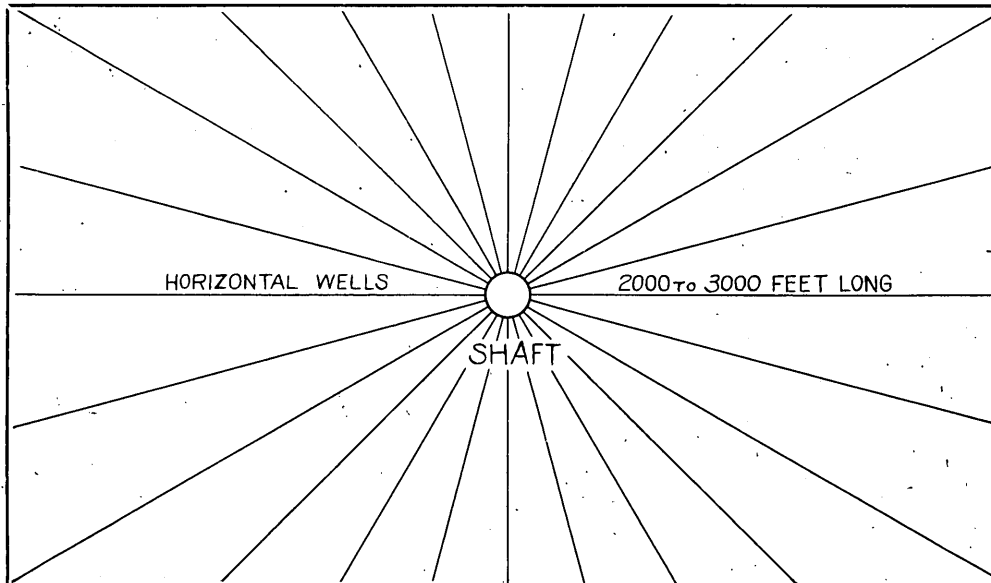
A Ranneywell for a War Plant. Flowing 212,000 Barrels of Water a Day. (Note: This 8" well is one of a circle of 10, radiating from a shaft. The total normal capacity of this one shaft is 64,000,000 gallons of water per day. All Ranneywells, whether for oil, water or gas, are based on the same principles - maximum exposure of the producing formation, gravity flow and multiple-well production by one pump.)

heavy oil almost to the edge. There inclined tunnels will be driven down dip in the shale below the oil sand, and at 200-foot intervals along the tunnels horizontal wells will be drilled in opposing pairs, curved up into the sand, then extended a half mile along the strike. Since the sand is unconsolidated, the wells will be lined with perforated liners. Hot gas may be forced into alternate wells to reduce the viscosity and drive the oil to adjacent producing wells. Some California sands are 300 feet thick and contain 200,000 barrels of oil per acre . . . The Ranneywell method is particularly adaptable to the shallow "tar sands" of California, containing some 12 billion barrels of heavy oil not now listed as reserves.

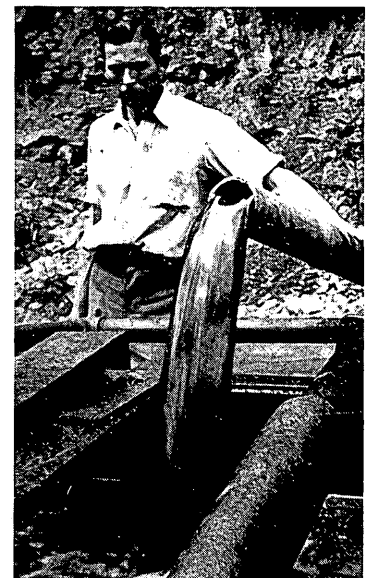
The Commonwealth of Australia, under Mr. Ranney's direction, is now sinking a 1200-foot shaft, from the bottom of which a tunnel will extend down dip, just above the oil sand, to the ocean. Parallel Ranneywells, each 4,000 feet long, will be drilled from this tunnel. Plans call for some 700,000 linear feet of such wells, equal in sand exposure to more than 20,000 vertical wells. The undersea extension of the field can be drilled from the extended tunnel, and the whole field, covering thousands of acres, miles under the ocean, operated from one hoisting shaft.

CONTRACTORS. Patent licenses are issued and complete Ranneywell installations are made, including sinking shafts, installing equipment, drilling horizontal wells and placing them on production, by RANNEYWELLS, a Division of ENGINEERS LIMITED, 225 Bush Street, San Francisco 4, California. Alfred B. Swinerton is Managing Director and Leo Ranney Director of Operations. The Swinerton organization holds the world's record for pipe line construction—350 miles of 10" welded line (including pump stations) in 70 days.

FOR OTHER DATA, See Oil & Gas Jour., April 13 and 20, 1939, January 23, 1941, April 9, 1942; Transactions, A. I. M. E., 1925; The Lamp, June, 1925; The Oil Weekly, January, 1941; The Petroleum Engineer, June 1939; The Financial Post (Canada), September 28, 1940; Petroleum World, July, 1939, January 1941; Canadian Oil & Gas, April, 1941; Oil City Derrick, February 5 and 7, 1942; Business Week, April 11, 1942; Producers Monthly, May, 1942; Independent Monthly, June, 1942; Life Magazine, Nov. 16, 1942; Mining & Metallurgy, January, 1943; National Petroleum News, July 7, 1943; New York Times, April 12, 1942; January 17, 1943; Peele, Mining Engineers' Handbook, 1941; Oil & Gas Jour., Oct. 14, 1943, Sept. 23, 1944; Oil Weekly, Nov. 29, 1943, Sept. 18, 1944; Time, Dec. 6, 1943; Nat. Pet. News, Sept. 13, 1944; The Rig & Reel, Oct., 1944; The Derrick, Sept. 9, 1944; U. S. Bureau of Mines, R. I. 3779 "Horizontal Drilling for Oil in Pennsylvania", 68 pages on the Franklin project.



Ranneywells on a Rectangular Lease, Tapping 160 to 640 Acres



Ben Harris, Watches a 100-barrel Flow of Oil Being Delivered into a Tank on the Surface

THE RECOVERY OF NATURAL GAS FROM COAL.

GAS

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by Leo Ranney

Technical Consultant, Ranney Water Collector Corp., Columbus, Ohio.

When natural production from an eastern oil field becomes no longer profitable, there is still left in the ground from 80 to 85 per cent of the original oil content. That is worth recovering by "secondary" methods. When gas wells cease to produce naturally, the field is well gone and only a very small percentage of the original gas is left in the pores of the sand, it is hardly worth trying to capture.

So natural gas is really a wasting asset. Since it is the most nearly perfect of all natural fuels, it is the most heavily drawn upon - and is the one fuel that will be missed more than any other when it is gone. In the East that day is not far off. Each year hundreds of eastern gas wells are being pulled and abandoned. A large percentage of the natural gas used in Ohio is imported from other states - and in Pennsylvania and New York natural gas lines are being filled with lower-grade manufactured gas. To transport natural gas from Texas costs about 2 cents per thousand cubic feet per hundred miles of transit.

We have been and are a wasteful people. In the old days the eastern oil fields were drilled only for oil. When gas was found it ~~it~~ brought only curses from the driller. So gas wells were allowed to "flow open" for weeks and months on end, in the hope that they would "blow into oil" - which they often did. After a billion dollars' worth of this valuable fuel had been wasted, some dreamer got the idea that the gas might be saved. Now in the East, hardly a cubic foot of gas is allowed to waste from an oil well.

But today approximately 500 million cubic feet of natural gas is being wasted every twenty-four hours from our coal mines, mostly in the East where it is badly needed. And whoever suggests its recovery and use is likely to be considered visionary or crazy. This natural gas is methane - the deadly firedamp of the coal mines - with a heat value of 1,000 British thermal units per cubic foot.

Some of the coal seams of Ohio, West Virginia and Pennsylvania contain from 800 to 2,000 cubic feet of methane per ton of coal in place. This gas is slowly exuded into the mine workings from the coal face. Some of our mines produce as much as 6,000,000 cu. ft. of methane per day, and the cost of ventilating such mines may exceed 10 cents per ton of coal mined. In one case 27 tons of air must be blown through the workings for each ton of coal produced.

During 1940 in the United States some 275 miners lost their lives in mine explosions. Because of just one mine explosion (from gas) in Ohio a few years ago, the Industrial Commission has paid to date well over a million dollars to the families of the men destroyed - and is still paying. This case is only one of dozens. Each year mine owners meet and spend days discussing better fans, better brattices, better methods of diluting the gas. But never a word about recovering the gas from coal in advance of mining operations. What would we think of the medical profession if their whole attention were absorbed in methods of treating disease - with not a thought given to removing the cause or killing the germ?

GREAT GAS FIELDS.

A careful study must lead to the conclusion that the greatest gas fields of the East exist in our coal deposits. In West Virginia a coal seam in one field contains upwards of two trillion cubic feet of sorbed methane - 2,000 cu. ft. per ton of coal in place, and 22 million cubic feet per acre. This free gas adds nothing to the value of the coal, because it never reaches the market.

How can a ton of coal contain 2,000 cu. ft. of gas? Certainly not in the crevices and pores. It is held in the coal itself by intermolecular sorption. But methane (the wildest hydrocarbon gas)

and solid carbon are so far apart in the scale that the equilibrium in which the methane is held is most unstable. The two are hard to "mix". It has been found that the most practical method of upsetting this equilibrium and releasing the gas is by a reduction of pressure - the application of a partial vacuum to the coal. Some mines have been known to increase their exudation of firedamp by a million cubic feet a day because of such an insignificant thing as a low barometer.

The main problem then is to distribute a vacuum into the body of coal to pull the gas out, through porous streaks, seams, "bleeders" and fissures. Research has indicated that the average bituminous coal seam is as permeable as the average gas sand, and that a high vacuum will pull methane through 400 feet of average coal.

The problem of distributing the vacuum has at last been solved by our ability to drill long horizontal holes - 4,000 to 5,000 feet long in coal - and to control the elevation of the hole at any depth, to follow the contour of the coal seam. Such holes may be drilled from mine workings out into virgin coal, the holes being a mile long and being spaced about 800 feet apart. Each hole is cased at the mine and with 400 feet of pipe, grouted in. A high vacuum is then applied to the accessible end of the casing - which transforms each horizontal hole into a large gas well.

Neither during drilling or operating is any free gas allowed to enter the mine air. Drilling is done through stuffing boxes, and vertical holes from the surface down to the horizontal well casings contain pipes to conduct the gas vertically to the surface of the ground. The vacuum pump is on the surface.

If we assume that a partial vacuum will pull gas through 400 feet of coal, on each side of a horizontal well there, a block of coal 800 feet wide is affected by each well - approximately 2 acres for each 100 feet of well length. Then a well 4,000 feet long would drain gas from 80 acres. In some coal seams the influence of a vacuum would extend farther, in others not so far. But if this may be considered average, then in our most gaseous coal seams, a maximum of 1,590,000,000 cu. ft. of gas would be drawn upon by each horizontal well.

PROMISE OF PROFIT.

No matter how desirable a humanitarian development may be, if it is an innovation that is to be widely adopted at once, it should also promise a profit to the coal operators. The overall cost of producing gas from these horizontal wells in a gassy seam is estimated at 5 cents or less a thousand cubic feet. The selling price would vary from 15 cents to 25 cents a thousand, depending upon who the customer is. A recovery of 50 million cubic feet should more than liquidate the cost of each well, and the operating cost from then on should be about 2½ cents a thousand cubic feet.

The percentage of recovery of this free methane by the application of a vacuum must vary with the free gas content, and the permeability and solidity of the coal. In recently exposed coal faces in going mines between 90 and 95 per cent of the sorbed methane has vanished into the air of ventilation - without the application of a vacuum.

In ordinary mining and marketing operations the gas is gone long before the coal reaches the furnaces. So the removal of methane from coal in place has no effect on market values. In the average coal it may be assumed that a vacuum will recover from 75 to 90 per cent of the sorbed gas. Then de-gasification becomes directly profitable.

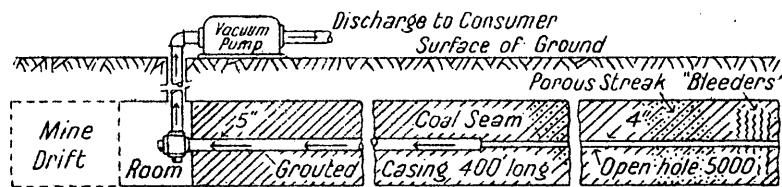
The indirect profit to the operator lies in the elimination of occasional ventilating shafts, reduced ventilation costs in future mining operations, reduced compensation insurance rates, reduced taxes, a smaller number of damage suits (after a major disaster these often total over a million dollars) - all because by de-gasification

the coal may be made at least partially non-gaseous.

Of far greater importance, to the householder, to industry and to the State, is the fact that the recovery of coal gas in advance of mining operations will release a new national asset of great value that was not known to exist - and will save the lives of thousands of miners during the years to come.

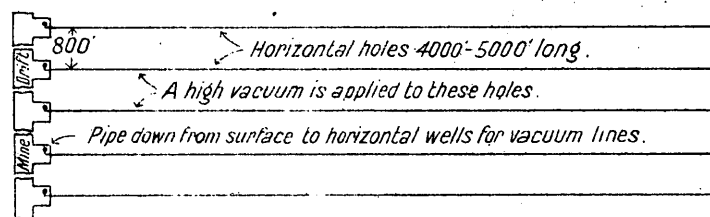
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METHOD OF DEGASIFYING COAL IN PLACE.

Horizontal gas wells are drilled into virgin coal from mine workings. A high vacuum is pulled on the casing of each well to release the firedamp (natural gas). No free gas enters the workings.



Plan View

SPACING OF HORIZONTAL GAS WELLS IN COAL SEAMS.

These wells follow a predetermined course, or may be made to follow undulations in the bed. The method of drilling is the same as that used in drilling horizontal oil wells.

THE WORLD'S LARGEST WATER WELL

by Leo Ranney.

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The wastes of the Mojave Desert of California are peopled by rattlesnakes, scorpions and road runners. The scattered greasewood, sage brush and shadscale cling tenaciously to life under a boiling sun. Only once in the year do the groves of joshua trees seem glad to live - and then they burst into a bloom fit for the Garden of Eden.

But in the south center of this seemingly useless ocean of sand is a long line of poplar and willow trees. And the desert rat knows them as indicators of water within 25 or 30 feet of the surface. The fact is that here is an underground river dammed by a hidden dyke into a buried lake. Enough water lies 50 feet underground to transform the barren surface into miles of gardens.

Under most of the populated parts of the earth these invisible rivers and lakes are ready to give life - man's problem is to get the water to the surface in an economic and unfailing supply. How to do this most efficiently has been a major problem from time immemorial. The farmer does it to his own satisfaction simply because his house and his stock consume but little. But with the growth of cities, irrigation projects and great industries the problems may become acute.

CERTAIN CHARACTERISTICS OF GROUND WATER DEPOSITS.

In most cases ground water lies in relatively thin sheets. Replenishment of withdrawals at any given point (except where abstraction is made from the sand and gravel of river beds) must be by lateral filtration to the well. Therefore, the collecting area of the water screen should be as large as possible, to reduce the rate of flow through the aquifer.

Where hardness of ground water is a problem, the nearer the surface the point of abstraction, the softer will be the water produced. Therefore, the bottom of the water deposit should not be drawn upon where it can possibly be avoided.

Most water-bearing sands and gravels contain silt, and this silt and fine sand are carried along when the velocity of the moving water passes a critical point. Therefore the rate of flow towards and into the means of abstraction should be as low as possible to avoid sanding up and plugging of the screens.

Where the water is hard, any noticeable reduction of pressure at the point of abstraction may cause a release of carbon dioxide gas, which in turn results in a precipitated deposit of lime, magnesium and iron to form a conglomerate rock that chokes the collecting screens. Therefore, the drawdown in a pumping well should be as little as may be humanly possible.

PROBLEMS OF VERTICAL WELLS.

Most of the problems of vertical wells may be summed up in one major or parent problem. And that is that the effective length of the screen is limited by the thickness of the aquifer. For example, if a water-bearing sand or gravel is only 15 feet thick, it is utterly impossible to sink a vertical screen pipe there-into with more than 15 feet in contact with the sand body. Of course the collecting circumference of the vertical well can be somewhat increased by building a gravel wall around the screen.

Difficulties might never arise if the vertical wells were always pumped at only a small fraction of their capacity - so that the rate of flow through the screen openings would always be kept below .03 of a foot per second. But, to save the cost of a seeming

surplus of wells, this is almost never done. An excessive rate of abstraction causes a rate of flow through the gravel beyond the critical velocity, with the resulting silting up or encrustation of the well screen.

DEVELOPMENT OF THE WATER COLLECTOR.

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To the writer it seemed that the only practical way to provide a length of screen pipe greater than the thickness of the sand was to install horizontal screens, not limited in number and not limited in length except by property lines and his ability to project the pipes. In other words, instead of one vertical well, a plurality of gravel-walled horizontal wells emptying into one shaft. Such a glorified well or Water Collector has the collecting capacity of a vertical well as large as the area emptying directly into the horizontal screen pipes. For example, if these pipes are projected 250 feet from the shaft, then the Collector has approximately the effectiveness of an open well 500 feet in diameter. Projection to be accomplished at any desired level in the sand.

Two major problems presented themselves at once: First, to be able to project screen pipes as large as 8 inches or 10 inches in diameter several hundred feet into sand or gravel, when ordinarily they might be expected to collapse within 20 feet. Second, to place a gravel pack, in situ, around each screen pipe throughout its entire length. Both of these ends were attained by one invention - the digging head and sand-discharge assembly associated with the screen pipe during projection.

Without going into burdensome details of construction, the digging head on the forward end of each pipe removes the fine material from the path of the screen pipe and at the same time digs a channel for the pipe to follow. The gravel stones in the formation are pushed aside and packed along the screen pipe.

To illustrate the action of the digging head, in the installation made by the writer for the Metropolitan Water Board of London, England, the inside diameter of the screen pipes was only 7 inches - but 2 cubic feet of fine material was removed for each foot of pipe projected. In the Canton, Ohio, installation 3 cubic feet of fine material was extracted for each foot of pipe installed. All the Canton gravel packs, radiating from the shaft like spokes in a wheel, each pack drained by its own pipe, contain some 80,000 cubic feet of gravel - deposited in situ by the above method. The gravel lies loosely, that adjacent to the pipe having a porosity of 35% to 45%.

In the common gravel-walled well the gravel pack is referred to as a filter. This is correct. The gravel filters out the fine sand in the water moving rapidly towards the well. But the gravel packs in the Water Collector are not filters, since the water moves so slowly that it carries no fine sand to be filtered out. In the Canton installation the velocity of the water entering the gravel bed around each screen pipe is about .002 of a foot, or 1/40 of an inch per second. Such water carries no fine sand. Therefore, the only purpose of the gravel is to support the water-bearing sand and to hold it away from the screen pipe.

THE RANNEY WATER COLLECTOR AT CANTON, OHIO.

This glorified well was installed by the Timken Roller Bearing Company, for themselves, under the superintendence of Mr. C. M. Maratta, Plant Maintenance Engineer.

The shaft of the Collector is 147.5 feet deep, 12.5 in diameter inside, with a shoe 15.5 feet in outside diameter. The bottom 20 feet, containing the "portholes," is lined with $\frac{1}{2}$ inch welded boiler plate and backed by reinforced concrete 18 inches thick and another steel plate $\frac{1}{4}$ of an inch thick. Thirty-six 10-inch "portholes" were provided in 3 staggered circles for the projection of 36 eight-inch screen pipes therethrough.

Each porthole was made of extra-heavy 10-inch pipe, welded

to the inner and outer steel coverings of the concrete, and had a shoulder turned in the inside of the outer end. Against this shoulder was driven from the outside a 2-inch oak disc or plug to close the port during sinking of the shaft. The inner edge of each porthole was flanged to receive a 10-inch gate valve, and on this flange was bolted a $\frac{1}{2}$ -inch steel plate for safety and protection. The water table was 38 ft. below the top of the ground.

The shaft or caisson was sunk by digging material from the center. As the caisson settled it was built up on the surface. At the top the reinforced concrete wall is 6-inches thick. Weight of the liner also diminished towards the top to $\frac{1}{8}$ inch in thickness. When the shaft had reached the desired depth a concrete plug was poured in the bottom - then, for the first time, the shaft was unwatered. No compressed air was used in sinking. Except for the portholes, there was nothing new about the shaft - the same method of sinking is universally used by contractors.

PROJECTING THE SCREEN PIPES.

The screen pipes of the Ranney Water Collector at Canton are of $\frac{3}{8}$ inch Toncan metal, in $7\frac{1}{2}$ foot lengths, 8-inches in inside diameter, beveled on the ends by welding together into a continuous tube. The metal was punched in the flat with 1,150 slots, $\frac{1}{4}$ " by $1\frac{1}{2}$ " in each length. In all, 430,000 slots. Each section of pipe contains 3 square feet of open hole in its perforations, a little less than 20% of its outside area.

The total area of open hole of the perforations in all the 2,800 feet of screen pipe amounts to 1,120 square feet. To place anything like this length of pipe in a vertical well in any known aquifer would of course be impossible. Each foot of this total length of pipe lies 100 feet below the water table - another accomplishment impossible in a vertical well.

The first step in projecting a screen pipe was the removal of the porthole plate from its flange and attaching thereto a strong rubber stuffing box shaped like a silk "top-hat", with the "top" pointed away from the center of the shaft. Against the brim of the "top-hat" was bolted a 10-inch gate valve, through which the pipes were pushed. Projection was from a stirrup between two hydraulic jacks capable of delivering a pressure of 150 tons.

The cast steel digging head, like a great spear, was forced through the oak block in the outer end of the porthole, destroying the block like matchwood. Sand and silt were delivered from the interior of the digging head to the center of the shaft by a double-extra-heavy 2-inch pipe in $7\frac{1}{2}$ foot sections. The annular space between the screen pipe and the sand-discharge pipe was kept closed by a specially built sliding packer, designed to hold back the pressure of the 100 foot head of water in the ground. The sliding packer never passes beyond the shaft wall in either direction.

When a section of screen pipe had been pushed in almost flush with the gate valve, the jacks were withdrawn, a new section of sand-discharge pipe added, then a new section of screen pipe welded to the projecting end of the last section, the sliding packer moved back $7\frac{1}{2}$ feet, and pressure was again applied by the jacks. Sand and silt were delivered in a solid 2-inch stream from the side of the driving block which transmitted pressure from the jacks to the screen pipe. These fines were pumped from the sump in the bottom of the shaft to the surface.

When a screen pipe had been projected to the desired distance, the sand-discharge pipe was disconnected from the digging head by a left-hand thread and withdrawn; the sliding packer was removed; the gate valve was closed and the jacking equipment moved to the next porthole.

The lengths of the separate horizontal wells or screen pipes was limited by property lines, the longest one being 175 feet in length. In favorable material the pipes could be projected several hundred feet. Stones as large as 8 inches in diameter (as indicated

by the shaft excavation) may be loosened and pushed aside by the action of the digging head, but thick banks of clay may not be passed through without jetting.

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In difficult ground containing large clay balls and other obstructions, a water jet may sometimes be used. In jetting thus, the hose containing high pressure water is attached to the connection in the side of the driving block, and through this to the sand-discharge pipe in the center of the screen pipe. The sand-discharge pipe carries the jet water to the hollow center of the digging head, then through slots therein against the material in the path of the screen pipe to be jetted.

Where the head of water in the ground is too low to flush the sand from the sand-discharge pipe, a suction (of the eductor type) has been applied thereto to speed up the flow away from the digging head.

When all the screen pipes of the Canton installation had been projected to the desired length, the valve stems were extended upward to a circular working platform above the water table. Each valve stem weighs 300 pounds, and is supported by Timken roller thrust bearings.

PERFORMANCE.

On completion of the Collector, before 4 of the gate valves could be opened the water in the shaft had risen to the ground water table, the average rate of flow from only these 4 of the horizontal wells, out of a total of 36, being 22,000 gallons per minute, or at the rate of 32,000,000 gallons daily, under an average head of 50 feet.

The Collector has now had a year's trial. The drawdown in the shaft during normal production of 12,000,000 gallons per day is about 7 feet below the original water table before the pumps are started. But from the performance of the London Collector we may assume that the normal pumping level in the shaft is only a few inches below the static level immediately outside the shaft.

The velocity of water through the screen openings at this rate of production is about .015 feet per second - less than 1/5 of an inch. This compares with a former velocity as high as 3 feet per second through the screen openings of the now unused gravel-walled wells in the same area. Because of the abundant replenishment in this preglacial river valley, the general water table is not lowered a few hundred feet from the shaft.

With such a low velocity of water into the screen pipes, it is doubtful whether encrustations will form on the screens in 2 or 3 generations, whereas in the former wells encrustations almost completely stopped the flow within a few years. It is reported that a saving of many thousands of dollars a year is effected because the Collector water is softer than that from wells, since it is taken from a higher horizon than that tapped by the wells, some of which were 220 feet deep.

THEORETICAL CAPACITY.

Assuming that sufficient pumping capacity could be installed in the Ranney Water Collector at Canton, a careful search of the records of ancient and modern wells indicates that it has a possible emergency capacity several times as great as any other true water well ever built by man.

To lower the pumping level in the shaft by 100 feet would require the production of the enormous total of some 168,000,000 gallons of water per day - four million barrels. More than 100,000 gallons per minute. Flowing through a 12-inch pipe, this stream would have to move at the rate of 3 miles a minute - three times as fast as the midnight express.

The industries of Canton, Ohio, use about 40,000,000 gallons of water daily, the city itself some 15,000,000 gallons - all of this

from wells. All other wells in the city could suddenly fail, this Water Collector could furnish water enough in the emergency to supply the city and all her industries - and have a surplus capacity sufficient for another city of 1,000,000 inhabitants.

POSSIBLE APPLICATIONS OF THE METHOD.

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Obviously, the Water Collector is applicable to locations in which ground water occurs at reasonable depths, either in sand or gravel formations. In sand a substitute is provided for the radiating gravel beds. When the water-bearing material is sandstone, open holes are drilled horizontally into the sand rock from the shaft bottom, by means of diamond drills. Such holes may be from 1,000 to 2,000 feet in length. In drilling horizontal oil wells in sandstone the writer has developed a method of maintaining the level of holes or curving them upward or downward, to depths as great as the equipment is capable of attaining.

In London the production of the Collector is equal to that of 40 wells in the same locality and formation.

Many factors, too numerous for discussion here, enter into consideration of a Collector for any given location, but, generally, the basic factors are the local value of water and the cost of producing it by other methods.

Water Collectors are suggested especially for locations where water may be drawn from the gravel underlying lakes or streams. The first benefit from such an application lies in the elimination of costly intakes that are always an item of expense to maintain and frequently to rebuild. With this elimination of open intakes there vanishes a source of possible pollution. Neither ice, oil, garbage nor driftwood can reach or pollute the horizontal screens of a Collector many feet below the bottom of a lake or stream, nor can any flood wash them out. Their span of life is the same as that of the nickel cast iron of which they are built.

Costly filters, always a burden to operate, but necessary where raw water is drawn from a stream, disappear with the intakes. Often the filters alone would cost twice as much as a complete Collector which would deliver water free of sand and silt. And this water would be much purer bacteria-logically than the raw water, since it would be filtered naturally through many feet of sand and gravel.

Water Collectors are not affected by accumulations of silt in the stream bed above the screen pipes. Backwash pipes are provided to thoroughly wash the silt from the bottom of the stream and from the underlying gravel. Backwashing is accomplished in a few hours by simply turning valves, without any interference with normal production. As the silt is washed upward into the stream it is carried away by the current.

Collector water may be many degrees cooler than raw river water, and softer than well water in the same general area. In manufacturing plants this uniformly cool water, for use in condensers and elsewhere, may increase plant capacity and reduce circulation costs. It should often meet the growing requirements of air conditioning, where cool water is required.

As regards the receding water table that worries many communities, practically the same installation is adaptable for charging surplus or flood water into deeper gravels to raise the ground water level. Such a plan is now being considered in London for charging flood water of the Thames through 100 feet of London clay, down into the 600 feet of porous chalk beneath the city. Such recharging could be done at the rate of 500 to 1,000 million gallons daily. This would eliminate the vulnerability of the weakest point in the defence of London - her water supply. At present, her great, shallow, open reservoirs are shining marks for enemy airplanes, which in one midnight raid could render her stored water unpotable.

The methods used by the Water Collector are so new and so radically different from those which it may replace that it will be years before its various applications will be discovered. And, like the drilling of wells, improvements will be developed therein that will make the process economic and desirable in situations where its use may not now seem to be justified.

909551 029

RANNEY WATER COLLECTOR CORP.

No. 1 La Salle Street,

CHICAGO.

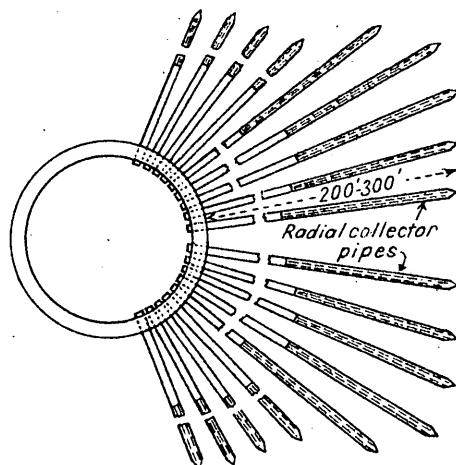
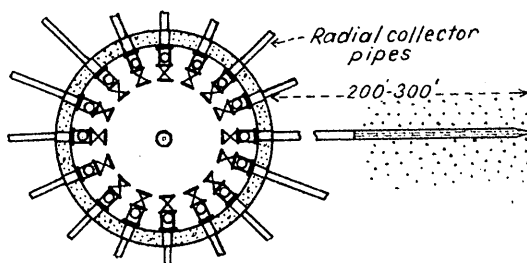
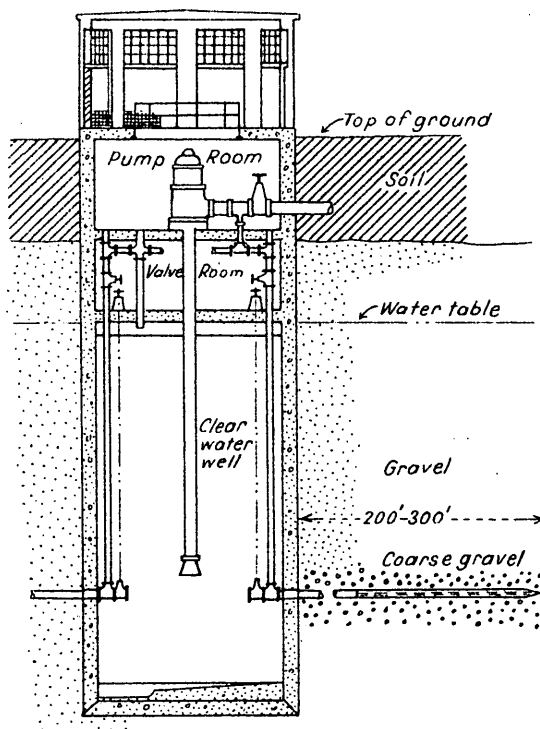
LEO RANNEY,

MCCONNELSVILLE, OHIO.

...- V ...-

— WATER —

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Cross section and plan of Collector showing screen pipes.

NINTH ANNUAL PETROLEUM CONFERENCE

Robinson, Illinois, June 7, 1941.

909551 031

HORIZONTAL WELLS ARE ALL IN PAY --- AND FLOW BY GRAVITY.

By - LEO RANNEY *

Oil men have always been dreamers. Without their dreams and visions there would be no oil industry today. For 80 years some of their dreams have been :- no dry holes; no hundreds or thousands of feet of barren rock to drill through, to reach 10 or 20 feet of pay; wells that extend laterally for thousands of feet, always in oil sand; wells that flow after the field pressure is gone; recovery of 65 to 80 per cent of the oil content of the sand, instead of 15 or 20 per cent; the elimination of derricks and field powers; no shackle or sucker rods; no casing or tubing; no pulling or cleaning jobs after the wells are completed; nothing in an oil well to be replaced or repaired; one man-size pump that will pump a thousand acres of production; one man instead of ten to operate a whole section of land.

These dreams, with many others, have come true - and are handed to you in one basket, all combined in one development. Quite naturally, this development is not to be applied to wildcat operation or to oil sands 5,000 feet deep. But for secondary recovery in hundreds of shallower developed and depleted fields, where considerable quantities of residual oil are known to exist, the feasibility and practice of drilling and operating horizontal wells are brought to your attention.

The vital point of such a development is and always has been absolute control of the drilling bit, and the ability to turn the well up or down at will. In drilling some 7,500 feet of horizontal oil wells, always under control, it is believed that the technique has been fairly well mastered. In fact, turning a hole to follow a predetermined course presents no greater difficulty at 3,000 feet than at 100 feet from the mouth - no whipstocks are used. A surveying instrument has been developed, integral with the core barrel, that automatically surveys the hole whenever a core is taken.

DRILLING HORIZONTALLY FROM A SHAFT IN S.E. OHIO.

In the Ohio experiment 6 wells were drilled horizontally from a shaft in the First Cow Run Sandstone. These 3-inch wells were drilled in opposite pairs, half of them to property lines. While a 50-foot core was being pulled from one well, the drill rods (and duplicate tools) were being run into the opposite well. This was accomplished by a new machine, known as the "rod puller", which moves the rods at the rate of 100 feet per minute. The drill rods, in 10-foot lengths, were not disconnected until both wells were completed. In deep holes this cuts drilling time at least 75%.

In all the drilling operation the tools were never stuck or frozen; the holes were surveyed every 50 feet, and corrected when necessary; there were no fishing jobs; two men operated the drilling machine, with 20 horse power; during all the experimental period, including stops and shutdowns for supplies, the average rate of drilling was 55 feet per 7-hour shift; when tools and supplies were on hand, often more than 100 feet of hole was drilled per shift. To the south the bottom of the sand was level and the holes were flat, but to the north the sand was wavy, and the holes followed the waves. The mixture of oil and return drill water passed through a separator; the oil was saved in a closed tank, then pumped to the surface. During the entire experiment no man suffered even a minor accident; tests by a methane detector in the center of the work chamber never showed over 1/10 of 1% of gas; ventilation was by a blower on top and 8-inch suction

pipe. The cost drilling, including experimentation, was 90c per foot of hole; casing record, 100 feet of light 3½" pipe grouted in each well.

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From a study of one and a half miles of horizontal cores, we are convinced that an oil sand contains much more oil than usual core analyses indicate. Also, it is apparent, at least in the First Cow Run Sand, that because of lateral irregularities in texture, many pools of oil are trapped against recovery by vertical wells. The only method that occurs to us by reaching this trapped oil is by drilling horizontal wells through these isolated small pools.

Vertical wells in the First Cow Run Sand are not supposed to produce commercially until after being shot. As a test, No. 1 horizontal well from the shaft bottom was allowed to flow by gravity. After it had filled 400 barrels of storage, it was producing 5 barrels of oil per day, in spite of a saturation of about 15% (Fettke analysis), and a rock pressure of only 20 ounces.

HORIZONTAL SHOOTING.

The greatest surprise in connection with the Ohio operation was the effect of the horizontal shot in the outcrop well. Although new results were expected, the observed effects were hardly believed to be possible. Sedimentary deposits are often laid down like leaves in a book, and sand grains lie with the flattest side down, their axes being parallel with the bed. In vertical shooting, the rock must be torn apart, against the grain - in horizontal shooting the major breaks are "with the grain". Bedding planes are opened up above and beside the shot, and resulting stresses shatter the rock above and to both sides of the well. Seismographic measurements indicated that the ground above the shot (250 feet of rock overburden) was lifted 1½ inches, which undoubtedly cracked the oil rock vertically with many cracks clear across the sand bed.

Long horizontal shots stem themselves. When the length of the shot is 5,000 to 10,000 times the diameter, the first 100 feet exerts a tremendous pressure (and stem) against all the rest. And the longer the shot, the greater the accumulation of pressure, the more effective the shot - and the more effectively the well cleans itself. Because of the enormous cumulative pressure, exerted parallel with the bedding planes, and the advancing nature of the explosion, it is doubtful whether a horizontally shot well will ever be bridged over by the shot.

When, in following the radial pattern to develop the whole of this property, it became necessary to close in the outcrop well and drill two radial horizontal wells through the shot area, the full lateral effect of the explosion was discovered. All water of circulation was lost 45 feet from the shot well - on both sides. For 40 feet on each side, core recovery was only 25%, and the core was in short biscuits - instead of the usual 30- to 50-foot lengths of our 100% core recovery. Since this happened in both transverse holes, it may be assumed that the rock was shattered laterally and vertically for a width of 75 or 80 feet. All this with a shot only 2¼" in diameter.

SANDING UP.

In vertical wells any sand, sediment or parafin that occurs must fall to the bottom of the well and pile up against the sand face, to retard the flow of oil. But in a horizontal well most of the loose material and parafin are carried out by the stream, and that which is not, simply lies along the side of the hole, with practically no effect on production. To date, no piece of rock larger than a pinhead has been discovered in the shot hole, and the tools run freely to the far end.

LENGTH OF WELLS.

Insofar as controlling the elevation and direction of the horizontal hole is concerned, this may be done easily at any depth. The limit of possible length may be determined by the strength of the drilling machine. Forty horsepower is sufficient for 2,500-foot lengths. At present, in an average oil sand, the practical limit may be considered as 3,000 to 3,500 feet; in a coal seam (to degasify the coal)

where friction is much less, a length of 5,000 feet would not offer difficulties. If the wells are from 3,000 to 3,500 feet long, from 800 to 1,000 acres may be worked from one shaft. Twenty-four to 30 of such wells would expose from 72,000 to 105,000 feet of producing sand - the equivalent of 3,000 to 5,000 vertical wells in a sand 20 feet thick - something heretofore unheard or undreamt of in the business of producing oil. Of course only experience will tell the number and length of wells most profitable to drill in one operation.

WARNING UP THE OIL.

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When a vacuum of 22 points was pulled on the old outcrop well (after it had been shot), the temperature of the oil produced dropped from 53 degrees (earth temperature there) down to 46 degrees. This must also happen when a high vacuum is pulled on vertical wells. Such an effect not only increases the viscosity and reduces the gravity of the oil, but hastens the deposition of parafin.

One experiment recommended for further trial is the injection of hot gas at the sand face - in the mouth of a horizontal well. Previous attempts to apply heat to a producing sand have failed, partly because of barren rock that must be heated up before heat reaches the oil sand. In the old outcrop well hot gas was injected under 10 pounds of pressure for 7 hours, and then the well was closed. The next day the first gas recovered from the well had a temperature of 81 degrees. The well was produced daily - until at the end of the week the oil recovered still had a temperature of 57 degrees. In a shaft operation, after every other well has been converted to a pressure well, the pressure medium could easily be warmed up before injection. Because of the great exposure of sand, it is probable that a pressure of around 30 pounds per square inch would suffice, but of course more experience is needed.

THE SHAFT.

In Pennsylvania Grade fields, engineers believe that shafts for horizontal wells may profitably be sunk to depths of 2,000 feet, but there are many suitable fields available less than 1,000 feet deep. On work now under consideration turnkey bids have been made at \$55 to \$75 per linear foot for shafts 400 feet deep, 8 feet in diameter in the clear (or 8' x 10' rectangular) lined with one foot of concrete. The circular work chamber in the sand is also lined and floored with concrete. Bids for excavating the chamber run around \$5 per cubic yard, and for placing the concrete from \$25 to \$35 per yard. Pipes cast in the concrete shaft walls serve as conduits for air, gas oil, water and wires.

DEVELOPMENT AND PRODUCTION COSTS.

Assuming a depth of 400 feet, estimate the cost of the shaft at about \$25,000; work chamber, hoist, cage, fans and pump at \$15,000; drilling rig, tools and other equipment at \$15,000 - then the bare cost of getting ready to drill is \$55,000. Add 10%, and if the area to be worked is 800 acres, this pre-drilling cost is less than \$30 per acre. For the moment assume that drilling will cost \$1 per foot; then the first pair of 3,000-foot wells would cost \$6,000. Total cost of shaft, equipment and two wells, \$66,500. In round figures, say \$75,000 which includes \$13,500 for emergencies, engineering and overhead.

If physical conditions have recommended the location, it may be expected that each 100 feet of hole will produce 1/16 of a barrel of oil per hour, or 1 1/2 barrels per day. This amounts to 90 barrels daily for the two wells. This estimate assumes that the rock pressure is 20 ounces - if it is more than 2 pounds per square inch, a larger production might be expected. With oil at present prices, production should pay for complete development of the property. Total capital advanced should be well under \$100,000.

The cost of pumping fluid from the shaft will be less than 1c per barrel. From a property worthy of development in this fashion, a recovery of 5,000 to 8,000 barrels per acre should be expected. It would be difficult to foresee an overall development and production

cost as high as 50c per barrel, even in the thin and tight sands of the eastern fields. If labor is to be a problem in the future, it should be borne in mind that the operation of horizontal wells requires about one-fourth the number of men necessary to operate the same property when produced by vertical wells.

909551 034

DEGASIFICATION OF COAL THROUGH HORIZONTAL GAS WELLS DRILLED THEREIN.

The firedamp in coal mines is only natural gas (methane) with a heat value approaching 1,000 B.t.u.'s. This gas is held in the coal body itself by intermolecular sorption - in a very unstable equilibrium. It may be released and recovered by a partial vacuum, which may be applied to the virgin coal through long horizontal holes into the seam - from used or unused mine workings. Some coals in Ohio, Pennsylvania and West Virginia contain as much as 300 to 2,000 cu.ft. of free, sorbed methane per ton of coal in place. One seam is known to contain 22,000,000 cu.ft. per acre, most of which can be recovered for less than 1/4 the cost of piping gas from Texas. The coal mines of this country are now wasting in the air of ventilation about 500 million cubic feet of methane each 24 hours. In the degasification of unmined coal, three important results are attainable: a profit on the gas recovered, reduced ventilating costs in future mining operations and greatly reduced hazards to miners.

HORIZONTAL WATER WELLS.

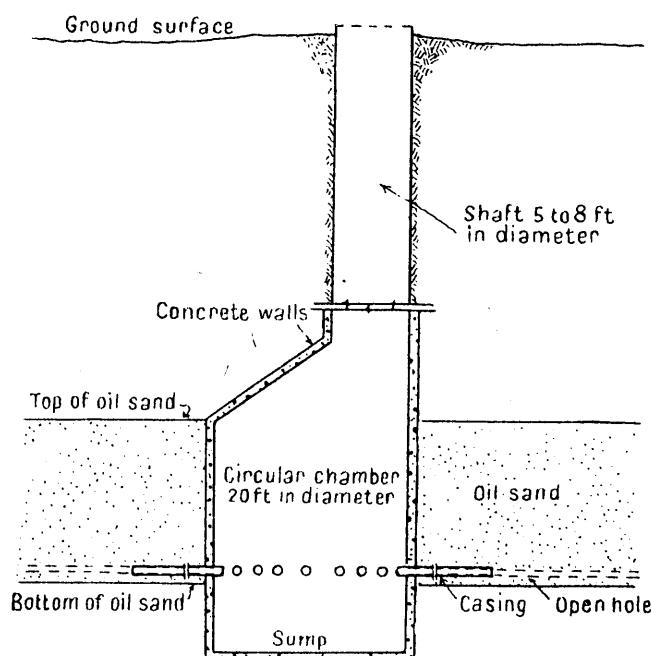
The widest application of the horizontal well idea is now being made in the production of ground water from beds of sand and gravel. Approximately 15,000 feet of 8-inch horizontal water wells have been installed, one installation alone having produced 15 million gallons of water daily for the past 4 years. The underlying principle is always the same - the exposure of the largest possible area of producing formation.

IN CONCLUSION.

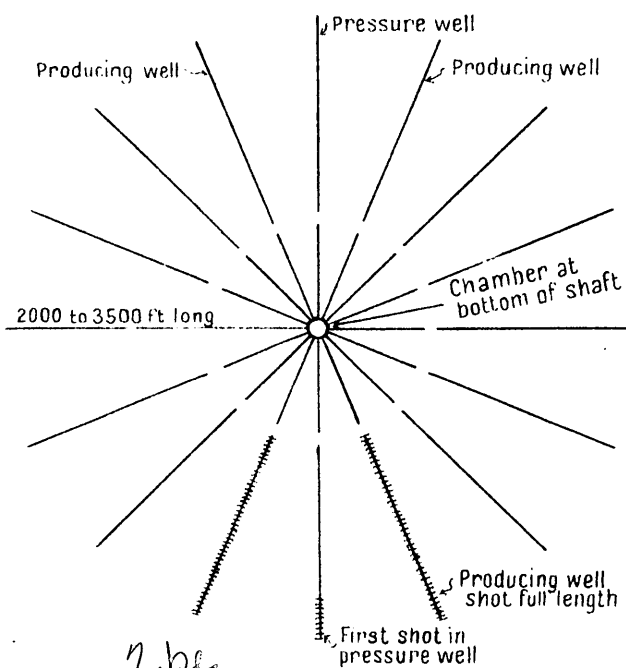
The subject of drilling and operating horizontal wells is so new and so broad that in this paper it has been possible to touch upon only a few of the highlights. A geologic treatise on the revelations of the horizontal cores taken would fill a volume. The explosives engineer could write a book on the effects of horizontal shots. The production engineer would find one volume too small to cover producing and repressuring horizontal wells. If this development is to follow the precedent set by vertical drilling, new books will be required every few years - and past experience may be only the beginning of an entirely new technique in the business of producing oil.

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Shaft of small diameter, preferably concrete lined, with drilling chamber at bottom, from which radiating horizontal wells are drilled. If the field has a natural water drive, the wells are near the top of the sand - otherwise near the bottom. No gas, oil or water is allowed to enter the shaft. Gas detectors have not shown as much as $\frac{1}{2}$ of 1% of gas in the air in the center of the work chamber. Pipes for the passage of gas, oil, water and wires are embedded in the shaft walls.



Horizontal wells are drilled in opposite pairs from the work chamber at the bottom of the shaft. The number depends upon their length and upon the sand body. The wells are drilled level or at any desired inclination. Depending upon length of wells, from 500 to 1,000 acres may be worked from each shaft. Sand exposure in a sizeable operation should be from 40,000 to 80,000 linear feet - the equivalent of 2,000 to 4,000 vertical wells.

1. LOCATION: This report deals with the possibility of commercial development of oil deposits to be found in the Lakes Entrance district, Parish Colquhoun, Counties of Tanjil and Tambo, approximately two hundred miles easterly from Melbourne, Victoria.
2. GENERAL GEOLOGY: The general geology of this district has been ably covered by Dr. H. G. Raggatt, Miss Irene Crespín and Mr. I. C. H. Croll as detailed in the appended reports. Briefly, the general succession in descending order is: (a) sands and gravels; (b) marls and soft sandstones; (c) Bryzoal, marls and limestones; (d) micaceous marls with hard limestone bands; (e) glauconitic sandstone; (f) basal sands.
3. PREVIOUS DEVELOPMENT: Since the drilling of the first well in 1924 at the head of Lake Bunga, fifty-one bores have been sunk within an area of approximately seventy-five square miles, about forty-four having been put down in an area of fifteen square miles. Thirty-six bores have given a show of oil, of which thirty were put down within a triangular area five miles long and approximately three miles wide; twenty-eight were drilled in an area two and a half miles long and one and a quarter miles wide. In approximately the centre of this tract is the greatest concentration of wells, because of the better oil showings obtained in that locality (see map appended hereto).

(a) Results obtained: While great variation has been recorded in the yields of oil from the different wells in the smallest area above-mentioned, the quantities of oil produced have run from 4.9 to 110 gallons per day.

(b) Characteristics of oil: The oil is of 17 degrees Baume gravity, of asphaltic base and contains no gasoline or kerosene. Gas oil (light fuel oil) content is 15%, lubricating oil 72%, bitumen 13%. Practically no gas occurs with the oil and no sulphur is found.

The oil is now being sold at the well at a price of 17/6d. (\$3) per barrel. It is likely that if enough of this crude could be produced for the operation of one still, a higher value might be realised.

The oil is suitable for rough lubrication purposes as it comes from the well, and if filtered through fullers earth would be suitable for finer lubrication, but probably not satisfactory for continuous use in motor cars unless refined.

4. CHARACTERISTICS OF OIL SAND AND OF UNDERLYING AND OVERLYING STRATA:

The oil sand is a glauconitic sandstone with a variable porosity, but which probably averages around 20% of voids. It consists of alternating layers of sandstone and oil-mud veins from 1 to 2 inches in thickness.

Very little work has been done on saturation because of lack of laboratory facilities, but personal observation of some of the cores as they came from the wells by Dr. Raggatt, Mr. Binney and Mr. Croll revealed oil exuding both from some of the sandstone and all of the mud veins. It is not known whether the oil which comes into the well comes from the oil-mud veins or the sandstones - it could come from either or both. The top of the glauconitic sandstone appears to be regular; the average thickness of the glauconite (from conflicting information available) appears to be approximately 35 feet.

Overlying the glauconitic sandstone is a bed of micaceous marl which extends upwards for a distance of approximately 15 feet to a hard limestone band about one foot thick. Above this band the marl continues with occasional similar bands

of varying thickness.

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Immediately underlying the glauconite is a bed of unconsolidated fine sand filled with fresh water under a head of approximately 100 feet above sea level. The top of these sands is approximately 1,130 feet below sea level. The Government No. 1 Well near the Entrance has been flowing for several years and providing drinking water for the town. Some oil and very small quantities of gas are still being produced with the water. This water has a total hardness of 1400 parts per million and a temperature of approximately 100°F. It may be assumed that the oil sands have a similar temperature. In case a natural water flood can be developed by manipulation of the horizontal wells, this relatively high temperature would be beneficial, particularly since the oil is of low gravity.

5. OBSERVATIONS ON WELLS ALREADY DRILLED: Because of the fact that all wells except Imray Well (No. 26 on plan herewith) were drilled through the glauconite and into the artesian water sands; it was extremely difficult to make any accurate observations on those wells as to the relative percentage of oil and water produced. However, in the Imray well, which was drilled only 21 feet into the glauconite, the fluid has been rising for 695 days; the rate of rise at first was 5 feet (5.4 gallons) per day, total height of the column in the hole was 1164 feet and the top of the column stood at 110 feet from the surface. The column was still rising on July 13th this year. The fluid column consisted of 173 feet of water and 991 feet of oil (1100 gallons by measurement in tanks). It appears, therefore, that the fluid produced was approximately 85 per cent oil. Because of the fact that the fluid rose in the well to the height attained and would undoubtedly have risen, in time, to about 100 feet above sea level, it is indicated that instead of being termed a "low pressure" field, Lakes Entrance might more properly be called a low permeability field. From these observations it is indicated that there is a possibility that the hydrostatic head existing below the oil sand can be turned to advantage in proper operation of horizontal wells into a natural water drive, to flush the oil into the wells.

Observations were also made at wells Nos. 11, 19, 21, 30 and 31. From these observations and tests there was nothing to indicate that any one of these wells might not have behaved as did the Imray well, if the bores had stopped in the glauconite instead of being drilled into the water sands below.

6. PAST EXPERIENCE: Ordinarily, in making a study of an oil field to consider the practicability of employing horizontal drilling methods therein, there is available a complete record of porosity, permeability, structure, saturation, productivity, water content and other vital information with respect to the oil sand. In this case, because of the lack of accurate information on all of these points, it is necessary to draw upon past experience in various oilfields of the United States, Canada and South America.

In most oil fields the sandstone is continuous vertically and may contain bands of consolidated material other than oil sand. At Lakes Entrance layers of oil sand are separated by bands of oil-mud, as above stated.

Usually, the waters associated with oilfields are saline. In only one other oil field of consequence, namely, the Kern River Field of California, is all the bottom water and connate water fresh, as in this case.

It has been our experience that where vertical wells are capable of producing in excess of five gallons of oil a day from a sand of this thickness (30 feet), the field is susceptible to development by secondary methods. It has also been our experience that when a column of oil will rise more than 500 feet in a standing

well in a sand of this thickness the field may be profitably developed by secondary methods of recovery.

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7. METHOD OF DEVELOPMENT: Under ordinary circumstances we would consider this field susceptible of profitable development, even with oil at a lower price than is commanded by oil produced at Lakes Entrance - but under present circumstances, when it is of such vital importance to Australia in connection with national defence, it is our recommendation that the field be developed immediately and that the method hereinafter described should be employed.

The installation referred to comprises a circular, vertical shaft of 8 feet inside diameter, lined with a concrete wall 1 foot thick extending down to the oil-bearing horizon and ending in a circular chamber approximately 25 feet in diameter, from which horizontal wells are drilled to great length in the oil-bearing formation. This method is more fully described and illustrated in the attached publication issued by the Illinois-Indiana Petroleum Association.

The location selected for the shaft is between the Imray (No. 26) and Foster (No. 31) wells at a site disclosed to Dr. Raggatt.

8. ESTIMATED COST:

To cost of shaft	£40,000
" cost of construction of work chamber	10,000
" power line	1,000
" head frame, shaft house, pumps, ventilating equipment, hoist, cage, etc.	10,000
" drilling machine, drill rods, rod pullers, accessories and spares	10,000
" freight, engineering, supervision, etc... ..	5,000
" drilling 20,000 feet of hole @ 9/- (\$1½) per foot	10,000
" dehydration, delivery of oil, incidentals	5,000
" contingencies and unforeseen developments	9,000

	£100,000
	=====

The above estimate does not include the total amount of drilling (approximately 50,000 feet) since it is considered that oil produced from 20,000 feet of hole will pay for the rest of the development.

9. PROBABLE RECOVERY: As pointed out above, there are insufficient data available to make accurate estimates of the probable recovery of oil from the 400-acre area to be tapped by the proposed installation.

The usual method involves consideration of the thickness of the oil bearing formation, the percentage of voids in the same, the oil saturation of these voids, and the estimated percentage of such oil that may be recovered.

Considering all the data available and our observations, we assume that the average thickness of the oil-bearing horizon is 30 feet; that the average porosity is about 20 per cent; that the average saturation is 25 per cent and that the recovery expected will be not less than 25 per cent. If the oil-mud veins only may be considered as productive, it is assumed that the oil-mud layers aggregate a column approximately 6 feet high, that the effective porosity of the same should be about 25 per cent and the oil saturation in excess of 80 per cent. Another method of calculating the oil content is formed by observations of the quantity of oil produced from the wells already drilled.

Whichever of these methods of calculation is employed the results are essentially the same, namely, an oil content of approximately 400 barrels per acre foot, or 11,600 barrels per acre. As-

suming a recovery of 25 per cent, the amount of oil recovered from the 400 acres would be approximately 1,160,000 barrels.

At the present selling price of oil, the money received from approximately 100,000 barrels would return the initial investment and the receipts from 115,000 barrels would cover the entire cost of fully developing the 400 acres mentioned.

10. SUGGESTED POLICIES:

- (a) Whatever machinery is set up for operating the property, authority should be vested in one person to manage the development.
- (b) The shaft should be sunk by an Australian contractor.
- (c) An American contractor should be engaged to drill the horizontal wells, probably on a cost plus 10 per cent basis.
- (d) Such drilling and any subsequent developments and the operation of the wells to be under the supervision of either or both of us. This is suggested to ensure the proper application of the method, proper location and length of the horizontal wells and the best suited methods in producing the oil.
- (e) A royalty of two per cent of the selling price or value of the oil to be charged to the operating company and paid into a fund to assist in the carrying out of a Commonwealth Geological Survey.
- (f) The licence to use the Ranney method should provide for proper control by the Commonwealth Government over future development and exploration. (One object of conditions in the licence would be to prevent the organisation of other companies to drill or sell shares promiscuously and not at all until such time as the success of the proposed installation has been demonstrated).

11. SUGGESTED STEPS TO BE FOLLOWED:

- (a) Arrange for accepting rights to use and sub-licence the proposed methods, under the Australian patents to be granted.
- (b) To complete the organisational set-up to operate the property.
- (c) Arrange for the purchase of drilling machinery, rodpullers, etc., securing priorities in manufacture and delivery of same in the United States of America, investigation of geochemical and soil analysis (for determining the limits of the field), investigation of methods for breaking down emulsion, securing analyses of cores now being taken back and of five gallon samples of oil by United States of America and Canadian laboratories and such other services as may be required as the programme proceeds. This might include the investigation of methods for core analysis with the idea that such analyses would shortly be conducted in this country.

These services to continue during the horizontal drilling operations and the operation of the horizontal wells.

- (d) Arrange for sinking of shaft, excavation of work chamber and installation of all necessary shaft equipment.
- (e) Arrange for an American contractor to undertake the drilling.
- (f) If desired, arrange for Mr. Ranney to return to Australia to supervise completion of the work chamber and commencement of horizontal drilling.

(SGD.:) CHARLES O. FAIRBANK (SGD.:) LEO RANNEY,
 Petrolia, Ontario, Canada. 44 East Broad Street,
 Columbus, Ohio, U.S.A.

R A N N E Y W E L L S P R O J E C T

909551 040

VENAGO DEVELOPMENT CORPORATION
News-Herald Building
1161 Liberty Street
Franklin, Pennsylvania

Commonwealth of Australia
War Supplies Procurement
1700 Massachusetts Avenue
Washington, D.C.

Gentlemen:

Answering your telephone conversation of this morning, please find enclosed two (2) copies of the Mining and Metallurgy article to which you referred.

With regard to the degasification experiments being carried on in Southern West Virginia, where coal seams are being degasified in advance of mining operations - these are not my operations, but some work being done by a coal company before adopting the more extensive horizontal-well development. In other words, the few wells drilled from the surface and placed under a partial vacuum will indicate, at a small cost, whether the methane gas sorbed in the coal can be made to travel through the fissures to an open hole, by a reduction of pressure.

According to the Compressed Air Institute, the sole purpose of removing this gas is to reduce the hazards of future mining operations in the immediate vicinity, and at the same time reduce the cost of ventilation. Insofar as I know, the gas is not being marketed.

These vertical wells down into the coal seam vary in depth from 100 to 1,000 feet, depending upon the thickness of the overburden, and are equal to the top of the seam. In a year's time these wells exhaust from the coal about 50% of the occluded gas, or about 1,000 cu. ft. of methane per ton of coal in place, or roughly 10,000,000 cu. ft. per acre. You understand that each vertical well can expose only the coal thickness.

As a commercial proposition (for the sale of gas) these wells could hardly be expected to be successful, since some 36 wells would be required per each 600 acres. The cost of each well with its accessories would amount to some \$4,000 - say \$150,000 total for the tract. Then the cost of large pipes (instead of a separate blower for each well) would make the whole operation an enormous pipe line job. And a separate vacuum installation for each well be prohibitive.

To pull the gas 400 feet through the coal would require a vacuum of upwards of 15 inches of mercury - some 7 pounds, or a half atmosphere possibly up to 20 inches of mercury. An ordinary "blower" can hardly be expected to do this - the job would call for a real vacuum pump.

In view of this, it is necessary for the operators to locate their vertical wells close together, in the experiment, to recover half the gas in a reasonable time. Of course the future saving in mine-ventilation cost may amount to 10¢ per ton of coal mined, a fair profit on the coal. This is charged to operating expense, so reducing taxes. In Australia, we are interested in the gas, as such, and there is worth \$1 per Mef.

Sincerely yours,

(Signed) LEO RANNEY.

OIL & GAS

THE RECOVERY OF NATURAL GAS FROM COAL.

oil

by Leo Ranney
Technical Consultant, Ranney Water Collector Corp., Columbus, Ohio.

909551 041

When natural production from an eastern oil field becomes no longer profitable, there is still left in the ground from 80 to 85 per cent of the original oil content. That is worth recovering by "secondary" methods. When gas wells cease to produce naturally, the field is well gone and only a very small percentage of the original gas is left in the pores of the sand, it is hardly worth trying to capture.

So natural gas is really a wasting asset. Since it is most nearly perfect of all natural fuels, it is the most heavily drawn upon - and is the one fuel that will be missed more than other when it is gone. In the East that day is not far off. Year hundreds of eastern gas wells are being pulled and abandoned. A large percentage of the natural gas used in Ohio is imported from other states - and in Pennsylvania and New York natural gas lines are being filled with lower-grade manufactured gas. To transport natural gas from Texas costs about 2 cents per thousand cubic feet per hundred miles of transit.

We have been and are a wasteful people. In the old days the eastern oil fields were drilled only for oil. When gas was found it ~~it~~ brought only curses from the driller. So gas wells were allowed to "flow open" for weeks and months on end, in the hope that they would "blow into oil" - which they often did. After a billion dollars' worth of this valuable fuel had been wasted, some dreamer got the idea that the gas might be saved. Now in the East, hardly a cubic foot of gas is allowed to waste from an oil well.

But today approximately 500 million cubic feet of natural gas is being wasted every twenty-four hours from our coal mines, mostly in the East where it is badly needed. And whoever suggests its recovery and use is likely to be considered visionary or crazy. This natural gas is methane - the deadly firedamp of the coal mines - with a heat value of 1,000 British thermal units per cubic foot.

Some of the coal seams of Ohio, West Virginia and Pennsylvania contain from 800 to 2,000 cubic feet of methane per ton of coal in place. This gas is slowly exuded into the mine workings from the coal face. Some of our mines produce as much as 6,000,000 cu. ft. of methane per day, and the cost of ventilating such mines may exceed 10 cents per ton of coal mined. In one case 27 tons of air must be blown through the workings for each ton of coal produced.

During 1940 in the United States some 275 miners lost their lives in mine explosions. Because of just one mine explosion (from gas) in Ohio a few years ago, the Industrial Commission has paid to date well over a million dollars to the families of the men destroyed - and is still paying. This case is only one of dozens. Each year mine owners meet and spend days discussing better fans, better brattices, better methods of diluting the gas. But never a word about recovering the gas from coal in advance of mining operations. What would we think of the medical profession if their whole attention were absorbed in methods of treating disease - with not a thought given to removing the cause or killing the germ?

GREAT GAS FIELDS.

A careful study must lead to the conclusion that the greatest gas fields of the East exist in our coal deposits. In West Virginia a coal seam in one field contains upwards of two trillion cubic feet of sorbed methane - 2,000 cu. ft. per ton of coal in place, and 22 million cubic feet per acre. This free gas adds nothing to the value of the coal, because it never reaches the market.

How can a ton of coal contain 2,000 cu. ft. of gas? Certainly not in the crevices and pores. It is held in the coal itself by intermolecular sorption. But methane (the wildest hydrocarbon gas)

ANALYSIS OF EXPENDITURE OF AUSTRAL OIL DRILLING SYNDICATE
IN RELATION TO LAKES ENTRANCE AREA.

909551 042

Leases, Licences, Options, Agreements, &c. (includes £717 from General Development Account)	£6,365	
<u>Deduct</u> expenditure not applicable to Lakes Entrance area	<u>1,001</u>	£5,364
Purchase of freehold property at Lakes Entrance from South Australian Oil Corporation (£4,473 still owing)	2,201	
Interest paid under contract of sale	<u>1,122</u>	3,323
Purchase of plant, &c:		
Plant (present book value)	5,770	
Truck " " "	40	
Furniture " " "	83	
Casing Foster's & Imray bores (present book value).	<u>848</u>	
	6,741	
<u>Add</u> depreciation written off	<u>1,330</u>	
Total cost of plant, &c. (This includes £4,336 paid to S.A. Oil Co. and £1,200 paid to Midwest Co.)		8,071
Wages paid		7,098
Field Superintendent's salary		579
Rent paid -		
S.A. Oil Co. for plant	677	
Midwest Co. " "	126	
For Depot at Lakes Entrance	<u>34</u>	837
Motor maintenance		564
Purchase of -		
Stores	553	
Drums	38	
Acid	427	
Water	18	
Fuel	<u>374</u>	1,410
Cartage		171
Fees paid for technical advice -		
Palaeontologist (F.Chapman)	643	
Geophysicist (M.Milstein)	500	
Research	<u>40</u>	1,183
Directors' fees		2,249
Acting Managing Director's salary and part legal manager's salary (these were not kept in separate accounts in early stages of company)		3,793
Legal Manager		791
Office rent		493
Advertising, Printing, &c.		328
Legal Expenses.. .. .		324
Rates and Taxes		42
Insurance		278
Travelling Expenses		753
General Expenses		797
Payments for services rendered		562
Brokerage and Preliminary Expenses		227
Underwriting and Commission		120
Legal expenses (flotation of new company)		322

		£39,679
		=====

AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY.

BALANCE SHEET AS AT 28th FEBRUARY, 1942.

LIABILITIES

Nominal Capital:			
10,000 shares at £5 each	..	£50,000. 0. 0	
Less Unallotted Capital:			
1,053 shares at £5 each	..	5,265. 0. 0	
Subscribed Capital	..	44,735. 0. 0	
Less instalments unpaid	..	<u>939. 0. 0</u>	
Paid up Capital	..	..	£43,796. 0. 0
Sundry creditors	..	..	2. 6
Commonwealth Government (advance)	..	<u>1,238. 3. 9</u>	1,238. 6. 3

ASSETS

Cash in bank:			
Fixed deposit	..	..	£3,000. 0. 0
Current A/c	..	..	<u>1,354. 4. 6</u>
Sundry Debtors	..	..	..
Drums	..	..	..
Oil	..	..	..
Plant at cost, less depreciation	..	5,769.17. 4	
Casing, Foster's Bore and Imray Well, at cost less depreciation	..	848. 1. 5	
Truck at cost, less depreciation	..	<u>39.13. 9</u>	
Furniture at cost, less depreciation	..	..	6,657.12. 6
Freehold property (at cost)	..	6,674. 4.10	82.19. 7
Owing under contract of sale	..	<u>4,473. 0. 0</u>	2,201. 4.10
Leases and Licences, Options, Agreements, &c.	..	..	5,648. 0. 3
Brokerage and Preliminary Expenses (at cost)	..	..	227. 9. 5
Underwriting and Commission	..	..	120. 0. 0
New Company (legal expenses) (at cost)	..	..	322. 1. 9
Investigations, Research and General Development Account	..	..	25,170.17. 5

£45,034. 6. 3

£45,034. 6. 3

COPY.

909551 044

Minister for Supply and Development,
CANBERRA.

16th April, 1942.

Dear Mr. Hogan,

I desire to refer to discussions which I had with you and Mr. Dunstan on 10th April last in regard to the Lakes Entrance Oil Project, and to forward herewith for your information a copy of a letter which I have this day addressed to Mr. Dunstan in this regard. You will see that this letter indicates that the proposals which we agreed upon were accepted by the Federal Cabinet.

Yours sincerely,

(SIGNED:) JOHN BEASLEY

Hon. E. J. Hogan, M.L.A.,
Minister of Mines,
Treasury Gardens,
MELBOURNE.

Cabinet decision of 27th April, 1942.

Re Development of Lakes Entrance Oilfield: "The proposal as submitted by the Minister and Premier as the result of the Conference with the Commonwealth approved. Cost of work £150,000 Commonwealth to provide £112,500, State Government £37,500."

(SGD.) G. CARTER

28/4/1942

COPY.

909551 045

16th April, 1942.

Dear Mr. Dunstan,

I desire to refer to discussions which I had with you and Mr. Hogan on 10th April last in regard to the Lakes Entrance Oil Project, and to inform you that I have now had an opportunity of placing the proposals in this regard, which we then agreed upon, before the Federal Cabinet. These proposals which I set out hereunder for the purposes of confirmation were :-

1. That the area (Lease No. 139) be resumed by the Commonwealth under the National Security (Minerals) Regulations.
2. That the Project be developed as a Government enterprise, the Commonwealth providing £112,500 and the Victorian £37,500, making a total of £150,000 altogether, such expenditure to include amounts already made available in advance by the Commonwealth to cover preparatory work in connection with the sinking of the shaft.
3. That the Project be placed under the direct control of the Commonwealth Controller of Minerals Production by virtue of the powers reposed in him under the National Security (Minerals) Regulations. The Controller to consult with officers of the Department of Mines of Victoria as necessary.
4. That subject to Departmental consultation, with the Approval of the Minister, the Controller be granted spending powers up to the limit of funds provided, i.e. £150,000.
5. That as far as possible the shaft be sunk on a contract basis and that where this is not practicable a "Labour and Supervision" arrangement be entered into.
6. That the equity of the Austral Oil Drilling Syndicate or Lakes Oil Ltd., whichever is the holder of the Lease when it is resumed, be accepted as the equivalent of £25,000 and that these interests be informed that they will be entitled to a share of the profits of the enterprise in proportion to what this amount bears to the total capital invested, such total capital to include value of plant supplied by the Governments, e.g., if the total capital, including value of plant employed in the enterprise, amounted to £200,000 including the £25,000 equity of the Austral Oil Drilling Syndicate, the Syndicate would be entitled to $12\frac{1}{2}$ per cent of the nett profits.

For the purposes of record, I should be grateful if you would confirm this arrangements at your convenience.

Yours faithfully,

(SIGNED:) JOHN BEASLEY.

Hon. A.A. Dunstan, M.L.A.,
Premier of Victoria,
MELBOURNE.

COPY.

AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY.

1st May, 1942.

R.H. Cumming, Esq.,
Delegate to the Treasury of the Commonwealth of Australia,
London Circuit,
CANBERRA. A.C.T.

909551 046

Dear Sir,

In response to your telephone message received yesterday morning, we took all steps to be in a position to have Lakes Oil Limited registered on receipt of your confirmation of permission to issue £50,000 worth of shares to Austral Company, subject to those shares being held in escrow. We were disconcerted to receive your telephone message this morning to say that the Consent had been withheld for the reason that we were withholding information.

This Company is withholding no information from you whatever. Unhappily we are not informed as to what the Commonwealth or State Government's attitude is towards this development other than to know that these Governments are going to provide the whole of the finance necessary to complete the implementation of the Ranney-Fairbank report as was stated when we made our application. We thought we had made the position very plain to you that the desire to register the new company was to enable us to comply with the repeated implied conditions that have been so frequently stressed by the Government - for instance - that the Government has felt some diffidence in carrying out any negotiations with a No Liability Company with its rather crude Rules and Regulations.

As you know, the "company to be formed" has completed its Memorandum and Articles of Association in such a manner that should it be decided at any time in the future to obtain the co-operation of the public, subject to the Consent of the Capital Issues Board, the new company would be in a position to act. Our major endeavour to register this Company has been to give effect to what we believe to be the Government's wishes, and it is a matter of great concern to us to find that our attempts to comply with these conditions should not be acceded to.

To register a company by the issue of signatory shares only, the company would have no assets and would not be in the position to carry on the negotiations with the Commonwealth Government. If the Commonwealth and State Governments now have some scheme in mind whereby they propose to deal with the Austral Company, then there can be no object whatever in forming Lakes Oil Limited at this stage, but there will be the great disability that we will not have our own house in order to enable us to give effect to the so frequently expressed desires of the Government. I do, however, want to make the position very plain that no one associated with this Company has at any time withheld any information in its possession. On the other hand, information essential to this Company at this stage is being withheld from it. We on our part have done our best in both Commonwealth and State spheres to obtain information, but without success.

In view of the fact that the Company in its application has not asked for permission to issue shares to the public and does not require the permission for any speculative aspect of the case, @@@ but purely for the purposes above enumerated, I am advised that there is no legal reason why the Company's application should not be granted, particularly as the shares are to be held in escrow, and it is a matter of importance for us to know as to whether your Board is exercising its powers under the National Security (Capital Issues) Regulations, and if so, under what clause and section?

Yours faithfully,
(Sgd.) C.S. DEMAINE
Managing Director.

P.S.: From earlier correspondence you will know that if permission is given to issue the Vendor shares and register the company, that it will forthwith be converted to a Proprietary Company.

COMMONWEALTH OF AUSTRALIA.

Canberra. 909551 047
15th May, 1942.

Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street, MELBOURNE, C.1.

Dear Sir,

PETROLEUM OIL SEARCH AT LAKES ENTRANCE.

I refer to previous correspondence and negotiations between the Company's representatives and representatives of the Commonwealth and the State of Victoria, and desire to confirm that in view of your Company's inability to raise the necessary capital for the development of the project for petroleum production at Lakes Entrance, the proposals under which the Commonwealth and the State of Victoria were to advance moneys to the Company have lapsed and are now completely abandoned.

In the circumstances, it has now been decided that the Commonwealth should take over the control of the proposed enterprise and all mining operations with the view of production of petroleum products.

Action has accordingly been taken under the National Security (Minerals) Regulations and a copy of the Order made by the Controller of Minerals Production is forwarded for your information. The effect of the Order is that your Petroleum Prospecting Licence No. 139 is suspended during the period of possession of the land by the Commonwealth and the use is taken by the Commonwealth of all the Company's machinery, plant, etc.

It is proposed that the Company will be entitled during the period of the Commonwealth's control and operation to share in the net profits of the enterprise in the proportion which the assessed value of the Company's interests bears to the total capital investment. Such total capital investment shall be ascertained at each respective date of declaration of net profit and shall be the sum of the assessed value of the Company's ownerships and interests and the capital moneys expended or incurred by the Commonwealth and the State of Victoria at the appropriate date after including all plant, equipment and moneys provided or supplied to the Company by the Commonwealth and the State prior to the date hereof. For the purpose of ascertainment of the Company's proportion, the value of the Company's ownerships and interests is hereby assessed at £25,000 and on the basis that the Company is the beneficial owner of all the machinery, plant, etc., now situate upon the land covered by the said licence and which is being utilised in prospecting for or producing petroleum products, (the value of any of such plant etc. not owned or paid for by the Company shall be deducted from such amount.) Such amount is to be adopted as the basis for calculating the proportion of net profit to which the Company will be entitled.

The Commonwealth also reserves the right to purchase outright at any time all the Company's property and interests whatsoever for the said sum of £25,000; in lieu of exercising this right, the Commonwealth may be prepared to negotiate with the Company for the surrender of the enterprise to the Company upon payment by the Company of a fair and reasonable price representing the benefit (from both a capital and an income point of view) which has accrued or may accrue to the Company by reason of the development of the project and the expenditure of moneys by the Commonwealth on the improvements effected as a result of the Commonwealth's operations.

The above constitute the basic principles of the Commonwealth's proposal and I shall be glad if you will intimate your agreement by returning the duplicate-original copy of this memorandum, forwarded herewith, with the Company's seal duly affixed thereto.

Yours faithfully,

(Sgd.) J. MALCOLM NEWMAN,
Controller of Minerals Production.

THE COMMON SEAL OF AUSTRAL OIL DRILLING SYNDICATE N.L. }
was hereunto affixed by order of the Directors in the }
presence of :

COMMONWEALTH OF AUSTRALIA.

909551 048

NATIONAL SECURITY (MINERALS) REGULATIONS.

O R D E R.

In pursuance of regulation 6 of the National Security (Minerals) Regulations I, JAMES MALCOLM NEWMAN the Controller of Minerals Production appointed under the said Regulations DO HEREBY on behalf of the Commonwealth:

- (a) take possession of the land described in the Schedule hereto for the purpose of the production of petroleum products;
- (b) authorise the use of the said land for and in connection with the production of petroleum products by any person employed or engaged in that behalf by the Commonwealth to such extent and in such manner as such person requires for the said purposes; and
- (c) requisition the use of all machinery equipment and plant (whether as a fixture or otherwise) and all other appliances and apparatus now situate upon the said land in respect of which the Austral Oil Drilling Syndicate No Liability of Melbourne in the State of Victoria has at the date of this Order any title or interest and which is being utilised in prospecting for or producing petroleum products.

Sg mill

SCHEDULE.

ALL THAT piece of land comprising eight decimal point twenty-five ~~acres~~ (8.25) in respect of which Licence to Prospect for Petroleum No. 139 was given to the said Austral Oil Drilling Syndicate No Liability on the 1st day of November 1941 in pursuance of the provisions of the Mines (Petroleum) Acts of the State of Victoria and which is indicated by green color on the plan annexed to the said Licence.

DATED this fifteenth day of May 1942.

(Sgd.) J. MALCOLM NEWMAN,
Controller of Minerals Production.

Handwritten notes and signatures at the bottom of the page, including a large signature and the number 6 (2) (1).

C O P Y.

COMMONWEALTH OF AUSTRALIA.

909551 049
Department of Supply and Development,
Century Building,
125 Swanston Street,
MELBOURNE, C.1.

BY HAND:

18th May, 1942.

Dear Mr. Hogan,

Mr. Beasley, who is in Canberra, has asked me to transmit to you the following message which he has received from Mr. J. M. Newman, the Controller of Minerals Production.

"In accordance with Cabinet decision I issued an order under National Security (Minerals) Regulations on Friday last, 15th May, resuming oil lease held by Austral Oil Drilling Syndicate N.L. at Lakes Entrance. In company with Dr. Raggatt and Demaine made an inspection of the property over weekend. Both Dr. Raggatt and I were favorably impressed with the set up of operations and with the prospects generally. We feel that Demaine is entirely responsible for the efficient way in which the work has been carried out and that it is important that his drive and enthusiasm should be retained to carry the work to completion. I, therefore, recommend that Demaine be appointed as supervisor as from the date of resumption of lease, i.e. 15th May, 1942, at a salary of £1,000 per annum. Raggatt supports this recommendation."

Mr. Beasley would be grateful for your comments and advice on the proposal made by Mr. Newman to appoint Mr. C. S. Demaine as supervisor of the Lakes Entrance project.

Yours faithfully,

(SGD.) A. V. SMITH

S e c r e t a r y.

The Hon. E. J. Hogan, M.L.A.,
Minister for Mines,
Department of Mines,
Treasury Gardens,
MELBOURNE. C.2.

COPY.

Premier's Department,
MELBOURNE.
20th May, 1942.

909551 050

Dear Mr. Beasley,

I desire to acknowledge the receipt of your letter of 16th instant, furnishing copy of an Order made under the National Security (Minerals) Regulations, together with a copy of a communication addressed by the Controller of Minerals Production to the Austral Oil Drilling Syndicate, in relation to control of the project for petroleum production at Lakes Entrance.

It is noted that the Victorian Government's share in net profits will be assessed in the proportion which the State's contribution bears to the total capital investment.

Yours faithfully,

A. A. DUNSTAN,

Premier.

The Hon. J.A. Beasley, M.H.R.,
Minister of Supply & Development,
Parliament House, CANBERRA. A.C.T.

Minister for Supply &
Development,

(Written at) Parliament House,
CANBERRA, A.C.T.
16th May, 1942.

My dear Premier,

re LAKES ENTRANCE OIL FIELD.

I refer to previous correspondence and discussions in this matter and forward for your information copy of an Order made under the National Security (Minerals) Regulations, together with a copy of a letter sent by the Controller of Minerals Production to the Company.

In relation to the £37,500 to be contributed by the State to the enterprise, I desire to confirm that the State's interest will be assessed at this amount or such other amount as may be contributed by the State and that the State will be entitled to share in net profits in the proportion which the State's contribution bears to the total investment in the enterprise. The total capital investment is to be ascertained as set out in the letter to the Company.

Yours sincerely,

(SIGNED:) JOHN BEASLEY.

The Hon. A. A. Dunstan, M.L.A.,
Premier of Victoria,
Premier's Department,
Treasury Gardens,
MELBOURNE. C.2.

42/1748

Dear Mr. Beasley,

I desire to acknowledge the receipt of your letter of 16th instant, furnishing copy of an Order made under the National Security (Minerals) Regulations, together with a copy of a communication addressed by the Controller of Minerals Production to the Austral Oil Drilling Syndicate, in relation to control of the project for petroleum production at Lakes Entrance.

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Yours faithfully,

A. A. DUNSTAN,

Premier.

The Hon. J.A. Beasley, M.H.R.,
Minister of Supply & Development,
Parliament House, CANBERRA. A.C.T.

Minister for Supply &
Development,

(Written at) Parliament House,
CANBERRA, A.C.T.
16th May, 1942.

My dear Premier,

re LAKES ENTRANCE OIL FIELD.

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Yours sincerely,

(SIGNED:) JOHN BEASLEY.

The Hon. A. A. Dunstan, M.L.A.,
Premier of Victoria,
Premier's Department,
Treasury Gardens,
MELBOURNE. C.2.

COPY.

42/1748.

Premier's Department,
MELBOURNE.
20th May, 1942.

Dear Mr. Beasley,

909551 051

I desire to acknowledge the receipt of your letter of 16th instant, furnishing copy of an Order made under the National Security (Minerals) Regulations, together with a copy of a communication addressed by the Controller of Minerals Production to the Austral Oil Drilling Syndicate, in relation to control of the project for petroleum production at Lakes Entrance.

It is noted that the Victorian Government's share in net profits will be assessed in the proportion which the State's contribution bears to the total capital investment.

Yours faithfully,

A. A. DUNSTAN,

Premier.

The Hon. J.A. Beasley, M.H.R.,
Minister of Supply & Development,
Parliament House, CANBERRA, A.C.T.

Minister for Supply &
Development,

(Written at) Parliament House,
CANBERRA, A.C.T.
16th May, 1942.

My dear Premier,

re LAKES ENTRANCE OIL FIELD.

I refer to previous correspondence and discussions in this matter and forward for your information copy of an Order made under the National Security (Minerals) Regulations, together with a copy of a letter sent by the Controller of Minerals Production to the Company.

In relation to the £37,500 to be contributed by the State to the enterprise, I desire to confirm that the State's interest will be assessed at this amount or such other amount as may be contributed by the State and that the State will be entitled to share in net profits in the proportion which the State's contribution bears to the total investment in the enterprise. The total capital investment is to be ascertained as set out in the letter to the Company.

Yours sincerely,

(SIGNED:) JOHN BEASLEY.

The Hon. A. A. Dunstan, M.L.A.,
Premier of Victoria,
Premier's Department,
Treasury Gardens,
MELBOURNE, C.2.

192
1748

909551 052

Century Building,
Swanston Street,
MELBOURNE, C.1.

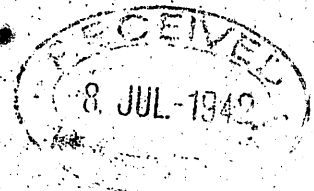
4th July, 1942.

Dear Mr. Dunstan,

I desire to refer to your letter of 24th June, 1942, relative to the Lakes Entrance oil project, and to inform you that the paragraph to which you refer, contained in letter of 15th May addressed to the Managing Director, Austral Oil Drilling Syndicate N.L. by Mr. J. H. Newman, Controller of Minerals Production, reserving to the Commonwealth the right to purchase outright at any time all the Company's property and interests whatsoever for the sum of £25,000, was inserted more particularly to protect the interests of the Commonwealth and the State if we appear to reach a stage when the legislation under which this project was resumed is no longer valid.

As you know, the project was resumed under the National Security Act, and due to the lapsing of that Act, a stage might well be reached where the Commonwealth and the State, without the passage of new legislation, would no longer be able to exercise control over the enterprise or to establish an equity commensurate with the financial and other risks which the Governments accepted.

Yours sincerely,



(JOHN BEASLEY)

The Hon. A. A. Dunstan, M.L.A.,
Premier of Victoria,
Premier's Department,
MELBOURNE, C.2.

Secretary for Mines
for the information of the Honble.
the Minister.

*Noted
E. J. D.
10/7/42*

J. Carter
Secretary,
Premier's Department
7/7/42

40/1
20/1

MATTERS FOR CONSIDERATION WHEN MEETING THE CONTROLLER OF MINERALS PRODUCTION.

90385 053

all
3
34
35
36
37

1. The present financial position as regards advances of £25,000, is as follows:-

(a) Certificates issued - Nos. 1 to 43 totalling,

£13,319. 4. 11

Note: These Certificates include:-

Quoted

Issues were made in Feb 42

Approved

Mr. Bayley

No. 34, Field Costs,	2566. 17. 9	x
No. 35, Snider Construction Co.	500. 0. 0	
36, Administration,	152. 8. 4	x
37, Profession Charges,	1,059. 2. 9	x

(x To Austral Company) £2,558. 8. 10

The above amount of £13,319.4.11 does not include the Hire of drilling plant, boilers, truck, hoist, buildings, tools and accessories, to be assessed by agreement - say,

500. 0. 0

(b) Authority is required to pay these Certificates.

2. The present known commitments are:-

Bayley & Grimster:

Electrician's expenses &c. 8 weeks at £20.0.0, and materials £100 (approx.),

£260. 0. 0

Bendigo Machinery Co.:

Air Receivers,
Cage altered,
S.H. ropes,

100. 0. 0
73. 0. 0
40. 0. 0

213. 0. 0

Cameron & Sutherland:

Concrete Mixer,

360. 0. 0

C. O. R.:

6 drums diesel fuel,

12. 0. 0

Dahlsons Pty. Ltd.:

Galv. iron for storage tanks, say,

30. 0. 0

Inglis Smith:

Steel ropes, approx.,

85. 0. 0

McPhersons Pty. Ltd.:

2 - Vibrators @ £79.16.0 each,

£159.12. 0

3 coils @ £6.9.0 coil,

20. 7. 0

179.19. 0

Ruston & Hornsby:

Sundry goods as per Invoice No. 854,

12.12. 5

Erector - 8 weeks @

£20, approx.,

160. 0. 0

172.12. 5

Southern States Drilling:

147" casing & freight, approx.,

120. 0. 0

Welch Perrin:

Deep bore pumping plant,

130.10. 2

1,563. 1. 7

Carried forward,

£15,382. 6. 6

Antreas Branch

Dr. 1/2

Same - 1/2

375 feet

2 weeks
from now
the
they

30 June 45
90 July

909551 054

From 3/6/42:

Brought forward,

£15,382. 6. 6

Austral Company's Field Costs,

£141.14. 4

" " Administration

108. 2. 2

costs,

From 17/6/42:

Professional Charges,

120. 0. 0

Snider Construction Company

at say £400, per week,

400. 0. 0

769.16. 6

3. The Commonwealth Government, through the Contracts Board has paid for plant obtained from Batlow in N.S.W.,

8,958. 0. 0

Thus the total expenditure incurred plus the known commitments, amounts to -

£25,110. 3. 0

4. To consider a contract basis for the Snider Construction Company.

5. To arrange the necessary priority for plant requirements.

6. To discuss the office accommodation required, where situated and staff requirements.

7. The Manager's position and travelling arrangements.

8. To discuss the need or otherwise for permanent representation on the field.

9. To consider appointment of an engineer in charge of power house and general plant and maintenance.

10. To consider entering into a contract for firewood.

11. Sundries:-

Electric welder,

Austral Oil Company's stock,

Bingle Machinery Co. PASS

Sewerage £60

Fencing and protection of works,

Pilot Well drilling and cost basis regarding same,

Emergency standby electric supply from State

Electricity Commission as per their proposal,

at a cost of £440.

Blower, 10 hp - 12 hp

2 hoists, Contractor

Cannif Grouting machines and sundry materials.

Telephones,

Miners' lamps,

First aid equipment,

Piping,

Dom construction,

Boilers.

Car + Root
14/6 a day
or dry
P 17k
Scale

M SMITH

100 tons

£350

£200

£1000

no corner

10 KW See plans

£440

£70

£50

£100

val in Clerk's house

Contractors

* Camp
subsite used

SMITH

Barry
Pinner

VISIT WHEN?

Half a mile

Comedy

10 KW

Mud

Kate

not clear

Site
Sight
Sight
Sight

Blower

Blower

16th June, 1942.

909551 055

STATEMENT OF COSTS INCURRED BY AUSTRALOIL

DRILLING SYNDICATE NO LIABILITY.

(A) In giving effect to instructions dated 24th December, 1941:-

1. Labour and materials on field as per Certificate No. 34 herewith,	£566.17. 9
2. Administration and general as per account herewith,	432. 8. 4
3. Hire of drilling plant, boilers, truck, hoist, buildings, tools and accessories, to be assessed by agreement - say -	500. 0. 0
4. <u>Snider Construction Co.</u> - as per Certificate and account herewith,	500. 0. 0
5. <u>Lincolne & Demaine</u> - Engineering charges, 5% on cost - Certificates Nos. 1 to 34 plus costs of diesel plant and compressor (£2,958),	961.17. 9
Architect's fees and draftsman's time,	97. 5. 0
	<u>£3,058. 8.10</u>

(B) In technical work in developing the undertaking to the stage reached on 24th December, 1941, professional services from March, 1936, to 24th December, 1941 - 1770 working days (part time) at £2.2.0 per day.

£3,717. 0. 0
£3,717. 0. 0

MINES DEPARTMENT,
Melbourne, C.2.
10th July, 1942.

1/TS

MEMORANDUM FOR THE HONORABLE THE PREMIER:

909551 056

I have to report that I attended yesterday the first meeting of the departmental Executive (consisting of Mr. J. Malcolm Newman, Chairman Commonwealth Controller of Minerals Production, Mr. A. C. Smith, Department of Supply and Development, and myself) dealing with the expenditure of £150,000 by the Commonwealth and State Governments on the Lakes Entrance Oil Project. Mr. Sutcliffe, Accountant, Department of Supply and Development and Mr. C. S. Demaine were also present.

Since 24th December last, Mr. Demaine has been supervising the work carried out at the site and for this purpose has had a sum of £25,000 made available by the Commonwealth Government (from the joint sum of £150,000) to meet the expenditure. A copy is attached of a statement of the position presented to the meeting by Mr. Demaine from which it will be seen that the total expenditure already incurred, plus the known commitments amounts to £25,110.3.0.

In relation to a number of the items, Mr. Demaine was informed that the Committee could not sanction payment and at its request Mr. Demaine is presenting a memorandum for submission to the Minister for Supply and Development in relation to these items. In this connection you will recollect the State Government has agreed that the Commonwealth Government shall control the carrying out of the work on this field.

It is intended that the departmental Executive Committee will visit the field on Tuesday next and inspect the work that has been carried out to date and following this visit a further report will be submitted to you.

It may be added that Mr. C. S. Demaine has not yet accepted the offer of an appointment as Supervisor at a salary of £750 per annum. He has however been informed by Mr. Newman that unless a reply is furnished within a week, other steps will be taken to fill the position.

(Sgd.) GEO. BROWN,

S e c r e t a r y.



All Communications should
be addressed

SECRETARY FOR MINES.

Telephone: F0234.

WK:TS

909551 057
MINES DEPARTMENT,

TREASURY GARDENS,

MELBOURNE, C.2.

13th July, 1942.

MEMORANDUM FOR THE SECRETARY:

On 10th July, 1942, I visited the Lakes Entrance Oilfield. Mr. Stewart of the Snider Construction Company was in charge, Messrs. Demaine & Clarke not being present at the time of my visit.

The following particulars are submitted :-

Surface equipment:

Head Frame & Sky shaft, not completed.
Boilers (2) in position but not built in or housed over.
Diesel generating set 400 H.P., installed and ready for use.
Switch Board, nearing completion.
Electric Winder, in position.
Electric driven Air Compressor, in position.
Steam Winder on the job, but not erected, foundations prepared.
Steam driven Air Compressor, in position.
Winding ropes and gear, not yet installed.
Concrete floors in engine house, under construction.

Shaft:

Site, about midway between the Imray and Foster bores.
Sinking: Shaft has been collared and sunk to a depth of about 14'6". Using reinforced concrete up to 3'6" in thickness and finished off to 12ft. in diameter. (Note: Mr. Stewart supplied these measurements).

Pilot bore:

Mr. Smith in charge from whom the following data was obtained.
Site, about 100 ft. N.W. of shaft site.
Depth: 328 feet.
To 65 feet in sand, clay and gravel
"240 " grey marl
" 325 " polyzoal limestone
" 328 " grey marl.

H. Kingston

CHIEF MINING INSPECTOR.

COPY.

909551 058

Premier's Department,

MELBOURNE, C.2.

15th July, 1942.

Dear Mr. Beasley,

I desire to acknowledge the receipt of your letter of the 11th July, relative to the Lakes Entrance oil project.

The Victorian Government is not disposed to vary the conditions which were agreed upon at the Conference which you had with the Minister of Mines and myself on the 10th April, and which were set out in detail in your letter to me dated the 16th April.

However, as indicated to you in my letter of the 24th June, I wish to again point out that it was never suggested that the Commonwealth should be given the right at any time to acquire compulsorily the Company's equity for the sum of £25,000. I do feel that further consideration should be given to this particular provision.

Yours faithfully,

(Sgd.) A. A. DUNSTAN,

Premier.

The Honorable J. Beasley, M.P.,
Minister for Supply and Development,
Century Building,
Swanston Street,
MELBOURNE. C.1.

Extract from Memo for the Premier
from Secretary for mines
dated 20th July, 1942

Memo concerns visit to shaft #

909551 059

"Shaft:

Site, about midway between the Imray and Foster's bores.
Sinking: Shaft has been collared and sunk to a depth of about
14'6". Using reinforced concrete up to 3'6" in
thickness and finished off to 12ft. in diameter."

TELEPHONE :

F 0234 (26 LINES).

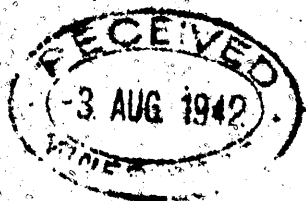
PREMIER'S DEPARTMENT,

MELBOURNE, C.2.

WJJ/IG.

42/1748.

909551 060



30th JULY, 1942.

Dear Mr. Beasley,

I have your letter of the 27th July with further reference to the question of the resumption of the oil property of the Austral Oil Drilling Syndicate N.L. at Lakes Entrance.

During the discussions I had with you I pointed out quite definitely that the equity to be given to the Company should be assessed at a reasonable amount, and I expressed opposition to the sum being fixed at more than £25,000. I still adhere to that view. At the same time, however, I would point out that there is a great difference between giving the Company a proportionate share in the concern irrespective of whether it subsequently turns out successful or not and inserting a provision which gives the Government the right to take over the Company's share at a fixed sum should the venture prove an outstanding success.

If the sum of £25,000 is considered to be the Company's equity at the present time when the enterprise has not been proved than if the Government desire complete ownership they should take over the Company's interest at this valuation at this juncture and accept the risks associated with it. (I am not however advocating this course).

I may add that my Colleague (Mr. Hogan) is in agreement with the views which I have set out above.

Yours faithfully,

Forwarded, by direction, to the
Secretary for Mines
for the information of the Honble.
the Minister.

*See by
Minister
J.A.*

The Honble. J.A. Beasley, M.P.,
Minister for Supply & Development,
Century House,
139, Swanston Street,
MELBOURNE, C.1.

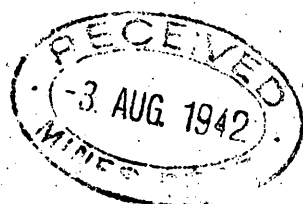
J. G. Taylor
Secretary, 1/8/42
Premier's Department

42

ackd
30/7/42

1942

909551 061



Century Building,
Swanston Street,
MELBOURNE, C.1.

27th July, 1942.

29 JUL Recd

Dear Mr. Donstan,

I desire to refer to your letter of 15th July, 1942, in which you set out the views of your Government in connection with the resumption of the oil property of the Austral Oil Drilling Syndicate N.L. at Lakes Entrance, and to inform you that I am somewhat surprised at the change of attitude expressed in the concluding paragraph of your letter.

I note that you now feel that further consideration should be given to the provision under which the Commonwealth, acting on behalf of both Governments, is to have the right at any time compulsorily to acquire the Company's equity for a sum of £25,000. This contrasts rather sharply with the attitude which you adopted during the discussions which preceded the resumption of the property. My recollection of this was - and it corresponds with the impression gained by Mr. W. Smith of my Department who was present at the discussions - that you held strong views on the question of fixing the equity of the Company prior to the resumption of the property, rather than to leave the matter for future bargaining and possible litigation. For this reason we proceeded to fix the equity at the equivalent of £25,000. In effect, we placed a value on the Company's assets. If the value of these assets is enhanced by any action which our Governments might subsequently take, surely the Governments are entitled to the increment.

In any case, if the value of the Company's assets is to be left for determination in the light of the success or otherwise of the enterprise, we would be placed in a position which you originally desired to avoid.

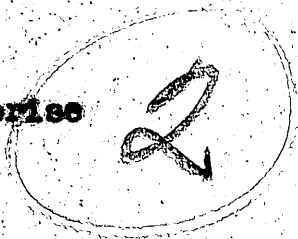
As I indicated to you in my letters of 4th and 11th July, the purpose of the provision under which the Commonwealth reserves the right to purchase the Company's equity at any time for a sum of £25,000, is to safeguard the interests of both Governments when National Security legislation lapses. It is obvious, therefore, that this provision must be made, and the question for determination is as to what amount should be payable in this regard. I am of opinion that this should bear a direct relationship to the value which we have now placed upon the assets, and I should be glad to have your confirmation in the light of the foregoing, that you share this opinion.

Yours faithfully,

(John Beasley)

The Hon. A.A. Donstan, M.L.A.,
Premier of Victoria,
Premier's Department,
MELBOURNE, C.2.

**Second Meeting of Lakes Entrance Oil Enterprise
Executive Committee.**

**Members:**

- Mr. J. Malcolm Newman, Chairman.
Mr. George Brown, Secretary, Department of
Mines of Victoria.
Mr. A. C. Smith, Department of Supply and
Development.

*Call of
eg*

909551 062

Notes on Proceedings.

1. Report by Mr. Demaine. Report submitted by Mr. Demaine dated 9th August, 1942, showing the progress of operations was read and received.
2. Insurance. It was decided to seek a Treasury ruling as to whether the Commonwealth and State would carry their own insurance, including workmen's compensation and war damage, and whether they would also carry such insurances in respect of contractors employed on the job. Mr. Brown intimated that the Commonwealth had already been advised that the State carried its own insurance.
3. Specification of Shaft. Mr. Newman reported that he had examined the specification submitted by Mr. Demaine and had found it satisfactory. Copies would be circulated to members. It was agreed that Mr. Demaine should be paid a fee of £62.10.0 for the preparation of the specification.
4. Priority Number. Mr. Smith undertook to approach the Chief of Staff Committee with a view to obtaining a priority number for the enterprise.
5. Plans. Mr. Newman explained that the plans were generally satisfactory. It was agreed by members that tenders should be called to start with at any rate in Victoria only, and that appropriate advertisements should be inserted in the three morning papers in Melbourne, broadly describing the work and indicating that plans and specifications could be inspected at the Department of Supply and Development, Swanston Street.
6. Fee of Snider Construction Company. Mr. Demaine undertook to ascertain what variation, if any, in the amount of fee was required by the Snider Construction Company in connection with the shaft sinking work to be carried out pending the settlement of tenders.
7. Fuel Oil and Lubricating Oil for Generating Plant. Proposals made by Mr. Demaine in this regard were approved.
8. Miscellaneous Items of Plant. Letter dated 17th August received from Mr. Demaine in this regard was considered by the Committee, which approved of the purchase of various items of plant mentioned therein.
9. It was agreed that the Committee should meet again to consider further matters at 9 a.m. on Friday, 21st August, 1942.

20th August, 1942.

20/8/42.

909551 063

SECRETARY, DEPT. OF THE TREASURY, FROM SECRETARY, DEPT. OF SUPPLY AND DEVELOPMENT.

LAKES ENTRANCE OIL ENTERPRISE. AS YOU KNOW THIS ENTERPRISE HAS BEEN RESUMED BY THE COMMONWEALTH GOVERNMENT AND IS BEING FINANCED WHOLLY BY COMMONWEALTH AND VICTORIAN GOVERNMENTS. LIKE COMMONWEALTH, VICTORIAN GOVERNMENT CARRIES ITS OWN INSURANCE. WOULD APPRECIATE RULING AS TO WHETHER ANY INSURANCE COVER IS TO BE TAKEN OUT, INCLUDING WORKMEN'S COMPENSATION AND WAR DAMAGE. ARE CONTRACTORS EMPLOYED ON THE JOB TO TAKE OUT INSURANCES OR WOULD THE WHOLE OF THIS BE CARRIED BY COMMONWEALTH AND STATE?

Third Meeting of Lakes Entrance Oil Enterprise
Executive Committee.

20th and 21st August, 1942.
- - - - -

Members:

Mr. J. Malcolm Newman, Chairman,
Mr. Geo. Brown, Secretary, Department
of Mines, Victoria,
Mr. A. C. Smith, Department of Supply
and Development.

Notes on Proceedings.

1. The Shaft: Mr. Newman explained that he had arranged for Messrs. Keast and Anderson of the Zinc Corporation to report on the design of the shaft. Mr. Anderson, who is a specialist in this particular work, came to Melbourne and discussed the matter with Messrs. Snider and Demaine. After such discussions, Mr. Anderson expressed himself as generally in agreement with the ideas expressed by Mr. Snider. A formal report was, however, now awaited. It was decided that upon the receipt of the report, Mr. Anderson be suitably thanked for the services which he has rendered in this regard. Consideration was also given to the question as to what payment should be made to Mr. Snider for the work which he has carried out in preparation of the plans and general scheme covering the shaft sinking. It was intimated that his work called for wide knowledge, intense study and imagination. Results had, apparently, been successful, but planning had occupied some considerable time. It was, therefore, decided that Mr. Snider should be paid a fee of £500 in this regard.
2. Purchase of Alternator: Mr. Demaine recommended that an alternator be purchased to provide an alternative power supply at a cost, with ancillary equipment, of £310. It was decided that this was necessary and that the Contracts Board should make the necessary arrangements for the procurement of an alternator with due regard to the price factor.
3. Appointment of Engineer-electrician: It was decided that Mr. Demaine should procure the services of an engineer-electrician for Lakes Entrance at a salary of from £400 to £450 per annum.
4. Purchase of Motor Car: As it is necessary to make frequent trips between Melbourne and Lakes Entrance, it was decided that enquiries should be made with a view to obtaining a suitable car, fitted with a gas producer, for this purpose. Mr. Demaine mentioned that Stokoe Motors had a Willys 1939 model fitted with a gas producer, which was the only one known to be available at a price of £577. It was felt, however, that this price was too high and that the Department should arrange for the procurement of a vehicle through the Army or, if necessary, for the improvement of this Willys at a price considered to be reasonable.
5. Expenditure incurred by Austral Oil: The Committee decided that it would consider any claims furnished by Austral Oil covering expenditure incurred, in connection with the enterprise, subsequent to the 15th May, 1942, when the property was resumed by the Controller of Minerals Production. It was felt, however, that the Committee was not in a position to deal with ~~claims~~ claims covering the period anterior to this date. Mr. Demaine stated that there were several items of this kind and the Committee suggested to him that he prepare full information in regard to them, when the Committee would submit them to the Minister.

6. Production of Oil from existing and new bores:

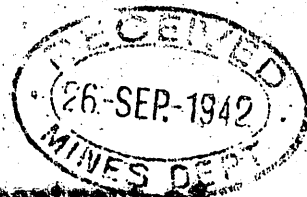
Consideration was given to the question as to whether some action could be taken to provide oil for the surfacing of aerodrome runways well in advance of any anticipated output from the Ranney-Fairbank horizontal drilling process. Mr. Demaine stated that, subject to experiments being carried out in the shooting of the Imray and No. 8 well, it should be practicable to produce quite a substantial quantity of oil which could be used for this purpose.

Mr. Brown dissented from this view.

It was decided, however, that the whole matter should be investigated by Dr. Raggatt and Mr. Baragwanath with a view to seeing whether it was desirable to put forward a scheme to the Minister in this connection.

21st August, 1942.

Fourth Meeting of Lakes Entrance Oil Enterprises
Executive Committee, held in Melbourne on
22nd September, 1942.

Members:

Mr. J. H. Newman, Chairman.
Mr. George Brown, Secretary, Department of
Mines, Victoria.
Mr. A. C. Smith, Department of Supply and
Development.

In Attendance:

Mr. G. Sutcliffe, Accountant, Department of
Supply and Development.
Mr. H. J. Cook, Supervisor of the Enterprise.

1. Report by Mr. Cook: Mr. Cook reported that he had visited the field and had made a preliminary inspection. He had certain observations to make as a result of this inspection, and these observations formed the subject of discussion. There was some diversity of view as to the possibilities of the project, but it was agreed that it should be carried to completion as early as possible - the main job lying ahead is the sinking of the shaft.

2. Tenders for the construction of the shaft: Mr. Cook informed members that tenders had been invited on the 14th September and that they close on the 28th September, 1942. It was agreed that when the tenders came to hand they should be opened by Messrs. Smith and Cook, and that results should be reported to other members preparatory to the formulation of proposals in this regard.

3. House for Supervisor: Mr. Cook reported that he had been successful in obtaining an option over a furnished house at a rental of 35/- per week, but he would require a little additional furniture in the shape of one linen chest and three wardrobes. It was agreed that tenancy of this house should be secured and that the additional furniture should be purchased.

4. Drilling Crew: It was agreed that the drilling crew should be placed under the control of the Snider Construction Company; that that Company should pay the men and claim reimbursement from the Commonwealth. It was noted that the services of Mr. E. Smith had been loaned to Dr. Baggett in connection with the Callands Coal deposit, and it was decided that steps would be taken to avoid any duplication of payment in this regard.

5. Finance: Accounts covering pilot drilling and administrative expenditure received from the Austral Oil Drilling Company covering the period since 3rd June, received consideration. The following were passed for payment -

Drilling	=	£373. 16. 6
Administrative Expenditure	=	£ 71. 4. 4.

Included in the administrative expenditure was an item covering portion of salary of the Managing Director. In this connection it was felt that the Managing Director would probably ask for payment of salary in addition to the sum claimed. The item was, therefore, deleted pending elucidation of this matter.

Accounts of Snider Construction Company - The following accounts covering shaft sinking were passed for payment subject to certification by Mr. Cook:-

Certificate No. 52, week ended 11/9/42 = £300.17.11
 Certificate No. 53, " " 18/9/42 = 130.15.8

The Accountant, Mr. Sutcliffe, explained to the meeting that certain expenditure had been incurred since December last in respect of electrical generating plant and preparatory shaft sinking operations. This expenditure was covered by Ministerial approval, but from an audit point of view he would like to have confirmation of payments by the Committee. It was therefore decided formally to confirm payments totalling £22,698. 13. 6 in this regard.

6. Location of Supervisor: It had been agreed at the inception, that the Supervisor, Mr. Cook, would be permanently located at Lakes Entrance. Mr. Cook explained that he would need to devote a little time to the procurement of plant and equipment, and to dealing with tenderers and tenders before taking up residence at Lakes Entrance. This the Committee agreed was desirable, and Mr. Cook stated that he would proceed to Lakes Entrance some time during the week commencing 29th September.

7. Matters discussed by Mr. Cook with Mr. Demaine:

- (a) Inventory of material: Mr. Cook explained that there was very little in the way of plant and material, except the drilling plant, but he would make an inventory of this at an early date as practicable.
- (b) Drawings: Mr. Cook stated that after taking advice from the Architects' Association, Mr. Demaine had declined to make available tracings of the shaft plans. Further drawings would, however, be provided at schedule prices as required. The Committee agreed that this conformed with the accepted procedure.
- (c) Freehold of property: Mr. Cook stated that Mr. Demaine had drawn his attention to the fact that the shaft, engine house etc., were located on freehold ground belonging to the Austral Oil Drilling Syndicate and that the Commonwealth, therefore, had no right to enter upon this ground. The feeling of the meeting was that the Resumption Order fully covered this. The Principal Legal Officer confirmed this view, and Mr. Brown promised to take the matter up with the Crown Solicitor for Victoria, with a view to obtaining further confirmation.

It was agreed, however, that even if Mr. Demaine's statement was correct, the matter could readily be met by the issue of a further order under the National Security (Minerals) Regulations.

(COPY)

909551 068

SUMMARY OF AMOUNTS ACTUALLY EXPENDED IN CONNECTION
WITH LAKES ENTRANCE MINE -

	£.	s.	d.
Ruston & Hornsby	905.	1.	8
Snider Construction Co.	9,491.	0.	4
Bendigo Machinery Co.	3,371.	2.	4
Southern Cross Windmills & Engines Pty. Ltd.	181.	13.	6
Dickson Primer, Pty. Ltd.	109.	17.	2
Southern States Drilling Co.	291.	10.	4
Bingle Machinery Co.	94.	10.	0
Bayley & Grimster Ltd.	285.	11.	9
Commonwealth Oil Refineries	25.	11.	6
Inglis Smith & Co.	63.	2.	3
Shell Co. of Australia	15.	1.	0
Lincoln & Demaine	62.	10.	0
Miller & Co.	14.	1.	11
L. V. Lansell Co.	7.	10.	0
A. P. Sutherland	3.	5.	0
G. M. Seward & Sons	1.	1.	0
Dixon Drum Can Co. Pty. Ltd.		13.	9
Hinchinbrook Shire Council	6,500.	0.	0
Burma Malay Tin Co.	1,275.	0.	0
Australian Oxygen & Industrial Gases Pty. Ltd.		10.	0
	<u>£22,698.</u>	<u>13.</u>	<u>6</u>
Snider Construction Company, account for week ending 11th September, 1942	300.	17.	11
Snider Construction Company account for week ending 18th September, 1942	130.	15.	8

CONFIRMED FOR PAYMENT.

(COPY)

THE CONTROLLER
MINERALS PRODUCTION.

909551 069

Accounts as under have been paid in connection with the Lakes Entrance project on the certificate of Mr. C. S. Demaine, Managing Director, Austral Oil Syndicate N.L. :-

It is suggested that the Committee might formally approve of these payments.

(Sgd.) G. G. Sutcliffe

Accountant.

Name	Service	Amount
Ruston & Hornsby	Provision of Diesel Oil Plant	238. 7. 7
"	"	526.16. 4
"	"	66. 7.1
"	"	31.11. 4
"	"	16.13. 9
"	"	25. 5. 7
"	"	2. 4. 5
	at Contracts Board-charges being checked	20. 2. 5
		158.12. 5
		<u>£1086. 0.11</u>
Snider Construction Co. Pty. Ltd.	Payment of Contracts for provision of Mining Plant	122.19. 0
"	"	103.18.4
"	"	299. 4. 9
"	"	207. 9. 3
"	"	287. 9. 9
"	"	951.19. 1
"	"	326. 2.11
"	"	338. 9. 7
"	"	566.18. 7
"	"	332.18.11
"	"	639. 8. 3
"	"	419. 9. 4
"	"	385.19. 4
"	Preliminary work, research & design	500. 0. 0
"	Payment of contract for provision of Mining Plant	271.17.11
"	"	369.13. 5
"	"	<u>357. 9. 0</u>
	carried forward	£6,481. 7. 5

Name	Service	Amount
	Brought Forward	6481. 7. 5
Snider Construction Co. Pty. Ltd.	Payment of Contracts for provision of Mining Plant	270. 1. 0
"	"	479. 0. 6
"	"	374. 0. 7
"	"	638.15. 4
"	"	291.18. 3
"	"	289. 7.10
"	"	372. 1. 6
"	"	294. 7.11
		<u>£9491.0. 4</u>
Bendigo Machinery & Trading Co.	Provision of Mining Plant	1185. 0. 0
"	"	1650. 0. 0
"	"	145. 0. 0
"	"	105.10.10
"	"	206. 4. 7
"	"	32. 0. 5
"	"	7.10. 0
"	"	39.16. 6
		<u>£3371. 2. 4</u>
Southern Cross Windmills & Engines Pty. Ltd.	"	167.10. 0
"	"	14. 3. 6
		<u>181.13. 6</u>
Dickson Primer Pty. Ltd.	"	69. 0. 0
"	"	1.10. 0
		<u>39. 7. 2</u>
		<u>109.17. 2</u>
Southern States Drilling Co. Pty. Ltd.	"	177. 4. 9
"	"	114. 5. 7
		<u>291.10. 4</u>
Bingle Machinery Co.	Purchasing Agent & Valuator	94.10. 0
Bayley & Grimster Pty. Ltd.	Electric Installation	143.12.10
"	"	141.18.11
		<u>285.11. 9</u>
Commonwealth Oil Refineries	Supplies of Deisel oil	12.15. 9
"	"	12.15. 9
		<u>25.11. 6</u>
Inglis Smith & Co.	Supply of material for Mining Plant	63. 2. 3
Shell Co. Ltd.	Supply of Oil	15. 1. 0
Lincoln & Demaine	Preparation of Specification and conditions of contract for sinking shaft	62.10. 0
Miller & Co.	Material for Mining Plant	14. 1.11
L. V. Lansell	Material for Mining Plant	7.10. 0
A. P. Sutherland	"	3. 5. 0
G. M. Seward & Sons	"	1. 1. 0
Dixon Drum & Can Co. Pty. Ltd.	"	13. 9
		<u>£15,104. 2. 9</u>
Less amount not yet paid (Ruston & Hornsby)		180.19. 3
		<u>£14,923. 3. 6</u>

909551 071

ADDITIONAL AMOUNTS :-

Hinchinbrook Shire Council, Qld. (Electric Generator Set)	6,500. 0. 0
Burma Malay Tin Co. (Air Compressor & Gantry)	<u>1,275. 0. 0</u>
	<u>£22,698. 3. 6</u>
Austral Oxygen & Industrial Gases Pty. Ltd. Statement of Account June, 1942	10. 0
Snider Construction Company - account for week ending 11th September, 1942	300.17.11
Snider Construction Company, account for week ending 18th September, 1942	130.15. 8

CONFIRMED FOR PAYMENT

C O P Y.

LAKES ENTRANCE OIL PROJECT.



THE CONTROLLER OF MINERALS PRODUCTION,
CANBERRA.

909551 072

On Tuesday, 8th instant, I called on Mr. C. S. Demaine, and presented a letter from the Secretary advising that I have been appointed Supervisor of the above project. Amongst the points raised were the following -

(1) Inventory of material. At present there is no inventory in existence of material held by the Austral Oil Syndicate. They have a copy of an inventory made in 1939, of material taken over from the South Australian Oil Company. This is out of date, but much of it has been disposed of by normal usage and some by sale long prior to May, 1942.

Mr. Demaine says that E. Smith, an employee of the Company who is now with Dr. Raggatt, knows all the possessions of the Syndicate and could complete the inventory.

(2) Drawings: Mr. Demaine agrees that we have purchased the drawings relative to the plant, and to the shaft, but says that the tracings belong to the people who made them, and they will supply copies at schedule rates. I pointed out that we thought we owned these tracings, having paid for them. He replied that he was not sure of the point, and would confirm it later.

(3) Staff: At present there are four men on the pay roll who have been paid up to August 28th. I agreed that we should continue the present arrangement of employing these men until their usefulness or otherwise was determined.

(4) Freehold of Property: Mr. Demaine says that the shaft, head frame, engine house and other buildings are located on freehold ground belonging to Austral Oil Syndicate and has not been taken over by the Government. I have advised Mr. George Brown's Secretary of this, and he says he will look into it and will advise what, if anything, is to be done.

(J. J. Cook)
S u p e r v i s o r,
Lakes Entrance Oil Project.
9/9/1942.

COPY FOR - MR. GEORGE BROWN,
SECRETARY,
DEPARTMENT OF MINES.
MELBOURNE. C.2.

NOTES ON FIFTH MEETING OF THE LAKES ENTRANCE
ADMINISTRATIVE EXECUTIVE.

Held in Melbourne on Tuesday, 6th October, 1942.

909551 073

Present:

Mr. G. Lindsey Clark, Deputy of the Controller
of Minerals Production
CHAIRMAN.

Mr. George Brown, Secretary, Department of
Mines, Victoria.

Mr. A. G. Smith, Department of Supply and
Development.



In Attendance:

Mr. George Sutcliffe, Accountant, Department
of Supply and Development

Mr. H. J. Cook, Supervisor, Lakes Entrance
Oil Project.

1. Tenders for the Sinking of the Shaft: The meeting was a special one convened for the particular purpose of considering tenders received for the sinking of the shaft which had closed on 28th September. Messrs. Smith and Cook, who had opened the tenders, reported that one tender only had been received and that was from the Snider Construction Company. Copies of the tender had been placed before members, and came up for detailed discussion.

The total price quoted by the Snider Construction Company for the sinking of the first 200 ft. of the shaft amounted to £7000, or the equivalent of £35 per foot. The Company had, however, submitted an alternative proposal on a basis of field costs plus 15 per cent, such 15 per cent to cover travelling expenses and cost of office administration. The Company made the suggestion that if the amount payable on the cost basis amounted to less than the tendered price, the Company should be entitled to a bonus equivalent to 1/3rd of the difference between actual costs including 15 per cent paid to the Company, and the tendered price.

The Committee did not favour the cost percentage basis if a reasonable fixed price could be secured, but the amount of £7,000 was considered to be unreasonable. It was recognised also that while competitive quotations had been invited, one quotation only had been received, and to this extent competition had been excluded.

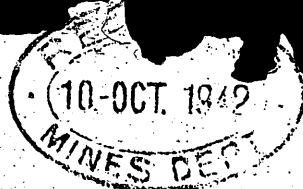
After full consideration of the matter, it was decided:-

"That Messrs Lindsey Clark and H. J. Cook should have discussions with the Snider Construction Company with a view to seeing whether a more reasonable price could be secured.

In this connection it was felt that anything over £30 per foot could be regarded as excessive."

2. Finance: The following accounts were passed for payment:-

Avery and Anderson	£5. 5. 0
Golden City Agricultural Implements	£90. 0. 0
Bayley & Grimster Pty. Ltd.	£144. 1. 1
Snider Construction Co.	84. 2. 10
" " " " A/c No. 32	300. 17. 11
" " " " " " 33	150. 15. 8



The following orders were confirmed:-

909551 074

Requisition			
No.		Articles	Amount
T.S.f.	MP. 689	1500' Wire Rope $\frac{3}{4}$ "	247. 10. 8
"	" 704	1 - Concrete Mixer	360. 0. 0
"	" 708	500' Wire Rope $\frac{3}{4}$ "	17. 7. 0
"	" 710	1 drum Silicate of Soda	6. 15. 0
"	" 711	2 drums Calcium Chloride	3. 0. 0
"	" 735	1 set Horse Drills (3/16" to 1")	4. 0. 0
"	" 736	2 lengths ea. 60' $\frac{1}{2}$ " Air Hose	12. 0. 0
"	" 745	1 sump pump & 50' Air Hose etc.	36. 10. 0
"	" 748	130' - 3" Canvas Hose & fittings	38. 13. 0

A Contract has been let for 400 tons of firewood at £60 per 100 tons, the first 100 tons to be delivered immediately

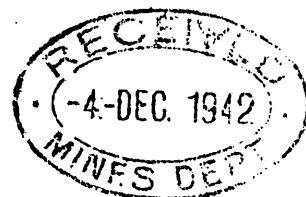
240. 0. 0

9th October, 1942.

909551 075

LAKES ENTRANCE OIL ENTERPRISE EXECUTIVE COMMITTEE.

Notes on Meeting held in
Melbourne on 2nd December,
1942.



PRESENT:

Mr. J. Malcolm Newman, Controller of Minerals
Production - Chairman.
Mr. George Brown, Secretary, Department of Mines
of Victoria. Members.
Mr. A.C. Smith, Department of Supply and Shipping.

IN ATTENDANCE.

Mr. A.K. Forbes } representing the Accountant,
Mr. H. Long } Dept. of Supply and Shipping.
Mr. H.J. Cook, Supervisor, Lakes Entrance Oil Project.

1. ACCOUNTS.

Accounts as per attached schedules Nos. 3, 4, 5 and 6
were approved for payment.

2. SUPERVISOR'S REPORT.

Consideration was given to a report made by the super-
visor, Mr. H.J. Cook, who explained that the shaft had now been
put down to a depth of 170', and that the present rate of progress
was at the rate of about 20' per week.

Mr. Cook explained the various methods with which he
was experimenting for the purpose of combating intrusion of water,
and the Committee expressed itself as generally in agreement with
the programme which he had under way.

Mr. Cook said that difficulty was being experienced in
obtaining supplies of steel required for the shaft. He stated
that priority B allotted to the project was not high enough to
ensure deliveries of steel. The Committee therefore asked Mr. Smith
to go into this matter with a view to seeing what could be done to
meet the position.

3. CONTINUATION OF CONTRACT BEYOND 200 FEET.

Dealing with water pressures, Mr. Cook expressed the
opinion that these were likely to be encountered at a depth of
somewhere between 200 and 250 feet. Under the contract, the Snider
Construction Company would carry on the shaft on the present basis
of £30 per foot, but additional expenditure involved in the sealing
off of water would have to be met on a cost plus basis, amounting to
cost plus 15% on labor charges, and 10% on material costs. The
Committee agreed to this arrangement.

4. PLANT AND EQUIPMENT.

Mr. Cook explained the difficulties which were being
experienced in obtaining necessary plant and equipment, and drew
attention to one item in particular, which was a pump complete

with electric motor which had been procured from Mr. A.G. Matthews of Gibraltar Mine, Adelong. This pump appeared to have been mislaid somewhere in transit. Investigations made while the meeting was in progress disclosed that the pump had been delivered to Thompsons at Castlemaine for reconditioning, and this Company could promise delivery at Lakes Entrance by 23rd December.

5. PUMPS AND PUMPING STATIONS.

Mr. Cook stated that in order to provide the maximum safety margin and to deal with water likely to be encountered, permanent pumping stations would be necessary at intervals of 400' down the shaft, that is to say, a pumping station would be required at 400', one at 800' and another at 1200'. He explained that the necessary pumping gear could be obtained from Bendigo, and that the cost of each set would amount to from £350 to £400. These sets would be capable of pumping 12,000 to 15,000 gallons per hour. The Committee agreed that this pumping equipment should be procured.

6. INSPECTION OF PROJECT.

The Committee decided that as the work was now well advanced, an inspection would be desirable. It was therefore decided that members should visit Lakes Entrance for this purpose, leaving Melbourne on Tuesday, 8th December, 1942.

LAKES ENTRANCE OIL PROJECT.

909551 077

ACCOUNTS FOR APPROVAL.

NO. 3.

Requisition No.	Articles	Amount		
		£.	s.	d.
TS.1 M.P.812	3 Swivel Door Trucks etc.	75.	0.	0
" " 815	1 Secondhand Chain and Bucket Elevator etc.	88.	0.	0
" " 862	3 Miner's Cap Lamps etc.	20.	0.	0
" " 863	1 Mine Telephone with batteries etc. } 2 Surface Telephones " " " }	33.	0.	0
" " 864	1 J.B.5 Jackhammer to take 7/8 steel } 1/2 ton 7/8" hollow drill steel for above } (approx)	130.	0.	0
" " 879	400 tons Firewood	240.	0.	0
" " 880	1 Electric motor 3 H.P. 960 R.P.M. etc. } fitted with 4" Flat Pulley and } Slide rails }	20.	0.	0
" " 890	2 sets of half couplings for driving disc for V.C.B. Air Compressor	7.	0.	0
" " 891	1 Gardner Duplex Pump	80.	0.	0
		<hr/>		
		£693.	0.	0
		<hr/> <hr/>		

909551 079

Finance Authority	Details	Amount.																
TS.1 H.P.1100	First progress payment on Tender dated 13/10/42	£1595. 17. 9																
Snider Construction Company Certificate No. 38.	Reimbursement of payments made by Snider Construction Company -																	
	<table> <tr> <td>Hoffman Brick & Tile Co.</td> <td>16. 7</td> </tr> <tr> <td>O. Crawford</td> <td>2. 11. 9</td> </tr> <tr> <td>Bell's Transport</td> <td>2. 4. 0</td> </tr> <tr> <td>C. Bowly</td> <td>4. 6. 0</td> </tr> <tr> <td>John Sharp & Sons Pty. Ltd.</td> <td>12. 14. 9</td> </tr> <tr> <td>W. Casey & Co. Pty. Ltd.</td> <td>43. 18. 2</td> </tr> <tr> <td>J.C. Dahlsen Pty. Ltd.</td> <td>88. 13. 4</td> </tr> <tr> <td>L.T. Freeman</td> <td><u>9. 8. 4</u></td> </tr> </table>	Hoffman Brick & Tile Co.	16. 7	O. Crawford	2. 11. 9	Bell's Transport	2. 4. 0	C. Bowly	4. 6. 0	John Sharp & Sons Pty. Ltd.	12. 14. 9	W. Casey & Co. Pty. Ltd.	43. 18. 2	J.C. Dahlsen Pty. Ltd.	88. 13. 4	L.T. Freeman	<u>9. 8. 4</u>	164. 12. 11
Hoffman Brick & Tile Co.	16. 7																	
O. Crawford	2. 11. 9																	
Bell's Transport	2. 4. 0																	
C. Bowly	4. 6. 0																	
John Sharp & Sons Pty. Ltd.	12. 14. 9																	
W. Casey & Co. Pty. Ltd.	43. 18. 2																	
J.C. Dahlsen Pty. Ltd.	88. 13. 4																	
L.T. Freeman	<u>9. 8. 4</u>																	
TS.1 H.P.1130	Reimbursement Snider Construction Company - wages etc.	155. 14. 5																
" " 1137	Second progress payment under Contract 13/10/42	1040. 0. 0																
" " 1310	Dismantling 3" Thompson Pump at Gibraltar Mine, N.S.W.	10. 1. 6																
Austral Oil Drilling Syndicate Certificate No.77	Supply and delivering to rail, Lakes Entrance Oil Field - 6 sets circular form work etc.	<table> <tr> <td></td> <td><u>210. 0. 0</u></td> </tr> <tr> <td></td> <td>£3206. 6. 7</td> </tr> </table>		<u>210. 0. 0</u>		£3206. 6. 7												
	<u>210. 0. 0</u>																	
	£3206. 6. 7																	

COPY

COMMONWEALTH OF AUSTRALIA

909551 080

Department of Supply and Shipping
Century Building
125 Swanston Street
Melbourne. C.1.
23rd December, 1942.

CONFIDENTIAL.

Dear Sir,

I forward herewith for your information and for the information of your Premier and Minister for Mines, copy of a memorandum dated 10th December, 1942, setting out a decision reached by Federal Cabinet on 18th December, in connection with the Lakes Entrance Oil enterprise.

You will see, in the concluding paragraph, that subject to discussion with your Government and subject also to the nomination of a representative acceptable to both Governments, the Company may be represented on the Departmental Executive. I should be grateful if this matter could be discussed with your Premier and Minister for Mines with a view to furnishing their views in this regard at as early a date as possible.

Yours faithfully,

(Signed) A. V. Smith

S e c r e t a r y.

The Secretary,
Department of Mines,
MELBOURNE. C.2.

COPY

COMMONWEALTH OF AUSTRALIA.

909551 081

Prime Minister's Department,
Canberra.

19th December, 1942.

MEMORANDUM to:-

The Secretary,
Department of Supply and Shipping.

Agendum No. 403 - Lakes Entrance Oil Enterprise.

At a meeting of Full Cabinet held on 18th December, 1942, a memorandum by the Minister for Supply and Shipping in relation to the above matter was considered.

Cabinet approved that:-

1. The amount of the Austral Oil Drilling Syndicate N.L. Company's equity in the Lakes Entrance Oil Enterprise be the equivalent of 35,000 one-pound shares; no approval be given at present to an increase of the Company's equity beyond 35,000 one-pound shares even though capital in excess of £150,000 be required. The Minister, however, was authorised by Cabinet to discuss this point with the Company at an appropriate time;
2. the Government maintain its right to purchase the property outright if so desired.

Approval was given, however, to the principle of the fixation by arbitration of an equitable price when such had to be considered.

With regard to representation of the Company on the departmental executive Cabinet approved that the Minister for Supply and Shipping discuss with the Victorian Government this matter of representation should it be possible to get a person suitable to both Governments to act as the Company's representative.

(Sgd.) F. Strahan

Secretary to Cabinet

(Written at) Parliament House,
CANBERRA, A.C.T.

18th March, 1942.

Dear Mr. Hogan,

I desire to refer to discussions which Mr. A. C. Smith of my Department had with you yesterday in connection with the development of the Lakes Entrance Oil Field on lines recommended by Messrs. Ranney and Fairbank. During those discussions Mr. Smith outlined to you the position as it exists at present. Briefly this is:-

- (1) The Austral Oil Drilling Syndicate N.L. has intimated that in view of the Government's limitation of profits, it is impracticable to approach the public for the necessary subscriptions to enable the development of this field to be undertaken.
- (2) In order to avoid delays in development, the Commonwealth had accepted responsibility for the retention of the services of Messrs. Ranney and Fairbank; the provision of electric generating plant estimated to cost £10,000, and for the ordering of drilling equipment from U.S.A. under Lease Lend. In addition to this, expenditure of up to £15,000 had been authorised on a shaft sinking programme.

As you know, it was originally decided that the Commonwealth would provide by way of loan to a company to be formed for the purpose of the development of this field, a sum of £33,333, subject to your Government finding £16,667 on a similar basis and the company itself finding £50,000. This arrangement is, however, no longer practicable.

As indicated to you during the discussions mentioned, our Governments are now faced with the adoption of one of the following four alternatives:-

- (1) The abandonment of this development;
- (2) Deferring development until after the war;
- (3) Consenting to the registration of a company, to be known as Lakes Oil Limited, which would not ask for public subscriptions but would act as agent for our Governments in connection with the construction and management of the Lakes Entrance oil enterprise; or
- (4) The assumption of control of the enterprise by our Governments, with a view to development with all possible expedition.

/Some

The Hon. E.J. Hogan, M.L.A.,
Minister for Mines,
Treasury Gardens,
MELBOURNE, C.2.

Some diversity of opinion exists as to the prospects of discovery of oil in commercial quantities in this area, but the fact is that we have been advised by two leading oil technologists that the prospects are favorable. In these circumstances, particularly in view of the present war situation and the imperative need for the development of indigenous sources of supply of oil, an obligation rests upon our Governments to ensure that this work is carried out as quickly as possible, either by private enterprise or by the Governments themselves. With this view I understand you are in accord. Private enterprise has intimated that it is unable to carry out operations, and the responsibility therefore falls upon the Governments.

The proposal that a company, to be known as Lakes Oil Limited, be registered for the express purpose of acting as the constructing and managing agent does not commend itself to me, nor, I understand, to you.

The question of the basis and method of co-operation remains therefore to be resolved. In this connection, I believe you are prepared to recommend that your Government provide a sum of £50,000 subject to the Commonwealth Government providing a sum of £150,000, making £200,000 altogether for the development of the field. I am informed that you will place this before your Cabinet on Monday next, 23rd March, and I much appreciate your co-operation in this regard.

The form of control to be instituted by our Governments will need some consideration. As you probably know, Regulations were recently brought down known as the National Security (Minerals) Regulations, under which the Commonwealth would have power, if you are agreeable, to resume these oil leases. These Regulations also provide for the appointment of a Controller of Minerals Production. Mr. J. M. Newman, a well-known and successful mining engineer, is filling this position. If Mr. Newman will be acceptable to your Government, I offer the suggestion that the Lakes Entrance enterprise be brought within the scope of these Regulations for the purposes of control and administration. This would involve acceptance of the necessary responsibility by Mr. Newman.

It is thought that an arrangement of this kind would facilitate matters and make for speed in development. This, I know you will agree, is essential at the present stage.

I understand that you expressed yourself as opposed to any arrangement which would involve the employment of day labor by the Governments, and to the performance of work on a cost-plus basis. If the proposal involving control by Mr. Newman is acceptable to you, I will convey these views to him. I have no doubt that from a practical point of view, contracts can be let covering shaft sinking as well as other operations, and that staff requirements would, in the main, be limited to supervisory and administrative officers.

Yours sincerely,

John Brasley
(JOHN BRASLEY)

LAKES ENTRANCE OIL PROJECT.

Minutes of Meeting of Departmental Executive
held at Lakes Entrance on 4th March, 1943.

70 pgs read + discuss
12/9/43

PRESENT: Mr. J. M. Newman, Controller of Minerals Production, Chairman.
Mr. George Brown, Secretary, Department of Mines, Victoria.
Mr. A. C. Smith, Department of Supply and Shipping.
Mr. H. J. Cook, Supervisor of the Project.

909551 084

1. Pilot Bore: Mr. Cook informed the meeting that the pilot bore had now been taken down to a depth of 325 ft., but it was impossible to get any further due to general cementing up. It was therefore his intention to draw the casing and to put a fresh bore down about 16 ft. away from the existing bore. This could be done fairly quickly, and would easily catch up and pass the shaft sinking operations. This proposal was agreed to, and it was also agreed that Mr. Brown should ask Mr. Binney to visit Lakes Entrance in three weeks' time for the purpose of advising Mr. Cook in regard to pilot bore operations, particularly in regard to water shut off.

2. Special Equipment: (a) Methane detector. Mr. Cook informed the meeting that the Mines Inspector had asked that a methane detector be procured and put into use in connection with shaft sinking operations, and he thought also that in the interests of safety such a device was necessary. Mr. Brown undertook to ascertain where this detector could be procured and to advise Mr. A. C. Smith in this regard.

(b) Pneumatic Coal Borers: Mr. Cook explained that he required one machine with two sets of augers used in the Maitland Mines. Mr. A. C. Smith undertook to make enquiries of the Commonwealth Coal Commission with a view to seeing whether this equipment could be procured.

(c) Pneumatic electric lamps: Mr. Cook explained that it was necessary to install some self-contained lighting for safety purposes, and he was desirous, therefore, of obtaining some pneumatic electric lights. Mr. Brown promised that he would consult Mr. Kingston with a view to advising whether these could be procured.

3. Thickness of Shaft Walls: Mr. Cook explained that the plans as originally drawn had provided for a thickness of 3 ft. of concrete in places. In his opinion this was unnecessary, but he would like to know the views of the Committee on the matter. Reference was made to the fact that the Committee had been advised in the earlier stages by Mr. Struan Anderson of the Zinc Corporation, who had had wide experience in shaft sinking operations, and it was therefore decided that he should be invited to visit Lakes Entrance for the purpose of offering his opinion as to the thickness of the shaft walls.

4. Electric Shot Firing Equipment and 15 k.w. Alternator: Mr. Cook stated that both these, which were necessities in connection with shaft sinking operations, had been ordered from Messrs. Bayley and Grimster. He asked that steps be taken to hasten delivery. This Mr. A. C. Smith promised he would do.

5. Extension of Contract with Snider Construction Company: Mr. Cook stated that the original contract was on the basis of £30 per foot for 200 ft., subject to the understanding that if favourable sinking conditions persisted below that depth, the contract would be extended to determine the footage. As a matter of fact it would be practicable to proceed on this basis to a depth of 308 ft., subject to the

acceptance of sealing off operations as an extra on a cost plus basis. This extra had up to date amounted to £427 and the total to 308 ft. would be under £1000.

The feeling of the Committee was that so far the Snider Construction Company had done a good job and in view of the fact that the Company already had its plant and equipment on the job, it would be contrary to the best policy to invite fresh tenders for the sinking below a depth of 308 ft. if a reasonable arrangement could be come to with the Snider Construction Company, particularly bearing in mind that when tenders were originally called there was only one tenderer, i.e. the Snider Construction Company. In these circumstances, Mr. Cook was asked to negotiate with the Snider Construction Company and with the Principal Legal Officer, with a view to putting forward proposals for submission to both the Commonwealth and State Ministers.

Note: The shaft is now down to a depth of 291 ft. and has been concreted to a depth of 268 ft.

6. Pneumatic Spades: Mr. Cook explained that better progress would be made with sinking operations if one or two pneumatic spades were procured. It was decided that Mr. A. C. Smith should consult Messrs. Pengelly and Fleetwood of the Machine Tools Directorate and the Allied Works Council, respectively, in regard to the supply of these.

7. Ranney Method: Protracted discussion ensued in regard to the Ranney method of horizontal boring and its probable effect upon water pressures. Mr. Cook expressed some apprehension concerning the resisting powers of glauconite to the very high water pressure likely to be encountered, particularly if the water were tapped through inaccurate drilling or if the glauconite was fractured by shooting. Mr. Cook stated that according to his computations, the pressure on the shaft chamber would be 600 lbs. to the square inch, or 27000 tons on the 25 ft. chamber. Mr. Newman expressed the view that the answer to this might be a tapering off of the shaft towards the chamber, and for the construction of a chamber of much less extensive size. The main point at the moment seemed to be to have proper tests carried out in the glauconite for shear and crushing. Mr. Brown promised that he would take this matter up with the University with a view to arranging for the tests to be carried out; Mr. Brown also intimated that he would endeavour to obtain the temperatures of the glauconite and furnish this information to Mr. Cook. — Ans. 94°

8. Miners: Mr. Cook stated that four additional miners were needed and Mr. A. C. Smith promised to take this up with the Manpower Authorities with a view to securing the services of these men.

9. Supervisor's House: Mr. Cook intimated that his house had been sold and some question of eviction might arise. It was, however, pointed out that under the Regulations he would need to be found equivalent accommodation somewhere else before such a question would arise; furthermore, the house was taken in the name of the Commonwealth, so that no doubt cognizance would be taken of this. Mr. Cook was asked if anyone was suffering any hardship. He replied in the negative. It was therefore left that he should advise Mr. A. C. Smith of any further movement in this matter.

10. Salary of Supervisor: Mr. Cook drew attention to the fact that when he accepted the position of Supervisor, it was subject to the clear understanding that if he proved to be suitable within three months, his salary would be raised from £750, the amount which he received on appointment, to £1000 per annum. The minutes of meetings record this. Members of the Committee agreed with Mr. Cook that £1000 per annum more correctly represented the value of the position which he was filling than £750. It was therefore decided that in view of the fact that Mr. Cook had rendered satisfactory service, and bearing in mind that he had filled his present position for more than

three months, a recommendation should be made to the Ministers that his salary be raised to \$1000 per annum as from 1st March, 1943.

11. Information Required from Dr. Faggatt: The Controller promised that he would endeavour to obtain replies from Dr. Faggatt to questions raised by Mr. Cook in his letter No. 11 of 8th February, 1943.

12. Water Supply: Mr. Cook expressed some doubt as to the adequacy of water supply from the bore, but he pointed out that with any reasonable luck the dam ought to operate as a very effective standby. It was therefore decided that this matter should come up for consideration later if it were found to be necessary. A sample of the water from the shaft was taken to Mr. H. J. Harris of Sulphate Pty. Ltd. for testing.

13. Finance: Requisitions as per attached schedules Nos. 7 and 8 were approved by the Committee and the schedules were duly endorsed by the Chairman.

Departmental Executive,
Lakes Entrance Oil Project/

909551 087

The following Requisitions for supplies for Lakes
Entrance Oil Project are submitted for your authorisation.

(Sgd.) P. J. Scanlan

for Controller of Minerals Production.

Reqn. No.	Articles	Amount
T.S.1 M.P. 192 (8)	2 Dunlop Wedgeropes 81B	12. 0
192 (9)	Servicing & supplying material for Gas Producer on Truck No C.12658	1.12. 8
192 (6)	1 bottle ea. Oxygen & Acetylene	1. 0. 0
192 (7)	3 V belts for Centrifugal Pump	1.10. 0
1313	Pipes, fittings, etc.	85. 0. 0
1342	1 S/h. I.R. L29 Clag Digger & Pick	38. 0. 0
1360	6 Globe Valves & 2 Plug Cocks	6. 0. 0
1390	1 Starter for 30 h.p. motor	37. 0. 0
1391	7 x 44 gals. Oil	102. 0. 0
1393	12 Electric Light Globes	1.10. 0
1445	2 (s/h) Thompson 3" Three Stage Centrifugal Pumps etc. }	2150. 0. 0
	1 (new) ditto Pump }	
1449	1 coil (12 ft) 1½" "Tuxeen" Packing	4. 0. 0
1450	14 ft. x 3 ft. I.R. Matting	5. 0. 0
1485	1 Plug Cock	3. 0. 0
1524	1 s.h. "Stardelta" Starter for 30 h.p. motor	8. 0. 0
1525	Spares for high pressure Grouting pump	91. 0. 0
1538	Pipe fittings etc.	5. 0. 0
1602	36 Reducing bushes 1½" to 1"	2. 2. 0
1618	1 Electric Blower for Gas Producer on Truck No. C.12658	12. 0. 0
1623	3 Miners Waterproof Coats	5. 0. 0
1624	Wood bits	4. 0. 0
1625	Hex. nuts and washers	6. 0. 0
		<u>£2569. 6. 8</u>

APPROVED

(Sgd.) J. Malcolm Newman

4/3/43

LAKES ENTRANCE.

Departmental Executive,
Lakes Entrance Oil Project.

909551 088

The following Requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorisation.

(Sgd.) P. J. Scanlan

for Controller of Minerals Production.

Reqn. No.	Articles	Amount
T.S.1. No. M.P. 1622	1 high speed Grouting Injector	38. 0. 6
1646	7.33 tons Diesel Fuel Oil	} 48 drums 146. 0. 0
	.68 " " " " " " " "	
1658	15' 3 1/2" Hose	5. 0. 0
1659	4 - 15' lengths armoured Hydraulic Hose	75. 0. 0
1660	Air Hose Connections etc.	10. 0. 0
1667	Valve, Tees, etc.	8. 0. 0
1683	2 Geartex Spur Pinions	22. 0. 0
1694	Fuel Oil	178. 0. 0
1709	Resistance Grids	5. 0. 0
1727	2 - 10' lengths Hex 1" Hollow Rock Drill Steel	2. 0. 0
1730	Cost of dismantling, reconditioning, supplying new parts and re-assembling 3/4" - 3 stage class G Sinking pump	105. 0. 0
1757	1 doz. 300 W.230/240V. G.E.S. Case Lamps	3. 0. 0
1764	1 drum Carbide 15/25 (2 cwts.)	2. 0. 0
1781	I.R. Air Hoist, Pipes, Flanges	147. 0. 0
1873	2 Sump Pumps size 35 Ingersoll-Rand	142. 0. 0
1903	2 Ball Bearings No. 510618 for C.P. No. 4 Sump Pump	2. 5. 0
1907	54 drums Fuel Oil	178. 0. 0
		<u>£1008. 5. 6</u>

APPROVED. (Sgd.) J. Malcolm Newman

4/3/43

COPY

AUSTRAL OIL DRILLING SYNDICATE P.L.

422 Collins Street, Melbourne.

909551 089

23rd March, 1943.

Hon. J. A. Beasley, M.P.,
Minister for Supply and Shipping,
CANBERRA. A.C.T.

Dear Sir,

In further reference to your letters of 28th January and 18th February, we understand that your statement regarding the Company's equity "in the event of more capital being required for this project than is at present provided" means that our equity of £35,000 is to be in relationship to an expenditure of £150,000 to be incurred by the Commonwealth and State Governments for the implementation of the Ranney-Fairbank report. We will be glad to receive your confirmation in this regard.

Regarding the value of the ownerships and interests of this Company in the Lakes Entrance Oil Enterprise, it is suggested that the third sentence in the fourth paragraph of the letter of 15th May, 1942, from the Controller of Minerals Production has inadvertently been worded so as to allow of a deduction from the assessed value of these ownerships and interests that would be unjust and cannot have been intended.

That sentence says that the assessed value is arrived at on the basis that the Company is the beneficial owner of all the machinery, plant, etc. situate at the date of the letter upon the land covered by Petroleum Prospecting Licence No. 139 and which is being utilised in prospecting for or producing petroleum products (the value of any such plant etc. not owned or paid for by the Company to be deducted from such amount.)

Prior to the date of this letter, the Company's expenditure had been examined in detail by officers of the Commonwealth and State, and the Company understands that it was arising out of that examination that the assessed value of the Company's interest was reached. That expenditure had gone in part to provide plant, machinery, etc. which was then on the licence. In addition, the Commonwealth and State had, since the previous December, been providing plant and machinery which also was on the licence, and whose value at that date was probably £20,000. In addition, the Company had incurred costs which were not taken into account.

The Company understands that the object of the stipulation I have quoted was to ensure that the Company's own machinery and plant on the field was actually paid for and unencumbered, and to a stipulation that, if this was not so, a deduction should be made, the Company, of course, takes no objection. That is not to say that the Company agrees with the Government's methods of determining what it refers to as the Company's equity.

But the words used are capable of permitting of the deduction also of the value of machinery and plant provided by the Commonwealth and State. This would have the effect of reducing the assessed value by that value or by a sum of £20,000. I am sure this cannot have been intended and I should be obliged by having your confirmation of this view.

Regarding the right to purchase the enterprise, my Company's Directorate thinks that discussion of this should be postponed until the question arises.

The Directors suggest that the basis for the reversion to the Company should be agreed on. Speaking generally, it is suggested that this should be that the Company will refund to the Government the capital costs incurred by the Commonwealth and State Governments as at the date of the reversion to the Company.

Regarding the Company's representation, I am directed to inform you that this Directorate's views are that the Company should have a responsible voice in the direction and management of this undertaking. Therefore the Directorate suggests that it shall have two representatives of which Mr. C.S. Demaine, the Managing Director of the Company, should be one, together with one other person to be nominated by the Company, which representatives should have the right to appoint approved alternative representatives.

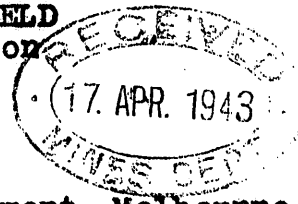
The Board's decision to the above effect, has been arrived at after careful consideration and it believes that this representation now asked for will be to the advantage of the successful completion of this undertaking.

Yours faithfully,

(Sgd.) C. S. Demaine.

Managing Director.

NOTES ON MEETING OF DEPARTMENTAL EXECUTIVE HELD
AT 409 COLLINS STREET, MELBOURNE AT 11 a.m. ON
THURSDAY, 15TH APRIL, 1943.



Present: Mr. J. Malcolm Newman, Chairman
" G. Brown, Secretary, Mines Department, Melbourne
" A. C. Smith, Department of Supply and Shipping

In Attendance: Mr. A. K. Forbes, Accountant
Mr. H. J. Cook, Supervisor.

1. Shaft Sinking Contract: The Executive had before it, proposals made by Mr. H. J. Cook the Supervisor, for an extension of the contract with the Snider Construction Company to cover a further footage of 200 feet, making 508 feet altogether. The proposed contract contained provisions which could be continued and applied until the shaft was brought to completion at a depth of 1200 ft. After detailed consideration of the proposals, the Executive decided -

To recommend to the Ministers that the proposals made by Mr. Cook be approved.

Note: The Executive's recommendation took the form of a minute addressed to the Ministers.

2. Expenditure: as per attached schedule No. 9 totalling £1497 was passed for payment.

3. Services of Messrs. Ranney and Fairbank: The question as to whether any authority was given for an extension of the term of retention of the services of Messrs. Ranney and Fairbank was raised. It was pointed out that Cabinet had approved of their retention for a period of six months from August 1941, subject to the payment of certain specified fees and allowances. Vouchers now coming to hand from New York indicate that their fees etc. are still being paid, and a cablegram has been despatched asking for particulars of the authority covering such expenditure. Members of the Executive indicated that they had no knowledge of any extension of the arrangement.

4. Payments to Austral Oil Drilling Syndicate: The Accountant reported that an amount of £737.11.2 had been paid to the Austral Oil Drilling Syndicate N.L. in respect of services rendered.

5. Claim by Lincolne and Demaine: A claim (Certificate No. 81) covering professional charges by Lincolne and Demaine amounting to £2299.4.5 came before the Executive. The view of the Executive was that the Austral Oil Drilling Syndicate should have carried out the whole of the work covered by this claim and that in these circumstances no liability should be admitted. It was decided, however, that before communicating this decision to the Company, the Commonwealth Crown Law Authorities should be consulted.

6. Effect of water on Concrete: Consideration was given to a point which had arisen concerning the possible effect of the water with chemical content upon the concrete. Some apprehension was expressed that this chemical content might have the effect of gradually dissolving the concrete over a period. It was therefore decided that Mr. Cook should carry out experiments to determine precisely what the effect was likely to be as the matter was regarded as being of outstanding importance.

The Departmental Executive,
Lakes Entrance Oil Project.

909551-092
Schedule No. 9.

The following Requisitions for supplies for Lakes
Entrance Oil Project are submitted for your authorisation.

(Sgd.) P.J. Scanlan

for Controller of Minerals Production.

Reqn. No.	Articles	Amount
T.S.1. M.P. 2020	Parts for I.R. Sump Pump etc.	£9. 0. 0
2045	6 Piston Rings - Pt. No. T60/28 for Holman Compressor	2. 0. 0
192 (11)	Oxygen acetylene	1. 0. 0
2101	2 Valves for Auto voltage regulator	34. 0. 0
2131	4 Ball Bearings & 4 Cock Packing Rings	4. 0. 0
2150	Parts for Compressor Holman T60S	19. 0. 0
2145	Spares for Sump Pump	8. 0. 0
2171	2 Fafuir Ball Races	4. 0. 0
2211	Swell joint drill and casing	73. 0. 0
2213	Firewood	1000. 0. 0
2251	18 tons fuel oil 108 drums	277. 0. 0
2081	200' Steam Pipe	8. 0. 0
2305	Spacing sleeve blanking off sleeve	5. 0. 0
2351	2 cwt. Carbide	4. 0. 0
2352	2 boxes $\frac{5}{8}$ " Tuxeen	3. 0. 0
2373	2 ammeters - 0-50 50-150	8. 0. 0
2381	Phillips C1 valves	1. 0. 0
2377	1 Bicycle	12. 0. 0
2370	Repairs to oil switch for electric pump	10. 0. 0
2386	1 ton soda ash, 1 cwt. sodium aluminate	15. 0. 0
		<u>£1497. 0. 0</u>

APPROVED. (Sgd.) J. M. Newman

15.4.43

DEPARTMENT OF SUPPLY AND SHIPPING

TELEPHONE: F 9411

TELEGRAMS: "SUPDEV"

CENTURY BUILDING,

125 SWANSTON STREET,

MELBOURNE, C.1

In Reply Quote.....M.6/3.....



12th May, 1943.

Dear Mr. Brown,

I forward herewith copies of correspondence exchanged with Mr. C. S. Demaine, Managing Director, Austral Oil Drilling Syndicate N.L. relative to the resumption of that Company's oil property at Lakes Entrance.

You will see that in Clause (d) of the Minister's letter to the company, reference is made to the basis of reversion of the enterprise to the company. It appears to be necessary to cover this particular aspect in the formal agreement so as to provide for eventualities which may arise in the future. The present position is that there is no question of reversion of the enterprise to the Company unless and until the Governments notify their intention of not exercising the right of purchase or acquisition.

I should be glad to know what the views of your Government are on this matter and what is considered to be a reasonable basis of the reversion of the enterprise to the company.

Yours faithfully,

A. V. Smith
(A. V. Smith)
S e c r e t a r y.



LAKE ENTRANCE OIL PROJECT.

THE SECRETARY:

The attached draft letter to the Managing Director, Austral Oil Drilling Syndicate N.L. has been prepared by the Principal Legal Officer, with the exception of the latter portion dealing with the representation of the Syndicate in the management of the enterprise. The Principal Legal Officer's draft has been varied in the light of action recently taken in this regard.

In preparing this draft the Principal Legal Officer has drawn attention to the following important points:

- (1) If the expenditure of the Commonwealth and the State amounts to only £100,000 and not £150,000 as at present envisaged, is the Syndicate to receive a correspondingly greater proportion of the profits? On the present basis the Syndicate is entitled to 35/185ths of the profits - $\frac{£35,000}{£185,000}$ - whereas if the total Government expenditure amounts to £100,000, the share might be 35/135ths or $\frac{£35,000}{£135,000}$.

Note: Perhaps it might be desirable to defer consideration of this matter until we have a clearer picture of what the expenditure is likely to amount to and what results are likely to be. The Syndicate has not raised this point.

- (2) It is essential to get the Syndicate's agreement to the terms of the resumption Order, including the provision under which the Commonwealth may purchase the Syndicate's interest outright either at a figure to be mutually agreed upon or to be determined by arbitration, or otherwise at the end of the war the project would revert to the Syndicate, which would be entitled to the benefits of all the expenditure of the Commonwealth on the site which was not represented by removable assets; e.g. it would have the benefit of the shaft which is now being constructed and is the main item of expenditure.
- (3) The Syndicate suggests that the basis of reversion to it should be agreed upon. Generally speaking, it is suggested that the Syndicate should refund to the Governments the capital costs incurred by them as at the date of reversion to the Syndicate. The enterprise would not revert to the Syndicate unless the Commonwealth notified its intention of not exercising its right of purchase. It is thought some provision should be made now to meet an eventuality of this kind, and the views of the Government of Victoria are being sought in regard to it. When these are to hand a formal submission will be made for consideration by the Minister. In the meantime, it is desirable that we should proceed as far as possible towards the finalisation of the formal agreement with the Syndicate.

(A. C. SMITH)
6/5/43.

Shipping.
~~XXXXXXXXXX~~

May, 1943.

The Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street,
MELBOURNE. C.1.

Dear Sir,

I refer to your letter of 23rd March, 1943, and desire to reply to the points raised by you as follows:

- (a) The Syndicate's equity, namely, the value of the Syndicate's ownerships and interests in the Lakes Entrance Oil Enterprise, for the purpose of allocation of profit, was assessed at the sum of £35,000 on the basis that the separate total aggregate investment of the Commonwealth and the State did not exceed £150,000. Therefore, in the event of the total aggregate expenditure of the Commonwealth and the State not exceeding £150,000, the Syndicate would be entitled to $\frac{35}{155}$ ths of any profit derived from the enterprise. In the event of the total aggregate investments of the Commonwealth and the State exceeding £150,000, I have, as you have previously been advised, been authorized by Cabinet to discuss with you the basis of the relationship which the Syndicate's equity should bear to the aggregate Commonwealth and State investments, but such discussion does not imply at this stage either a favorable or an unfavorable decision so far as the Syndicate is concerned.
- (b) With regard to the third sentence of the fourth paragraph of letter dated 15th May, 1942, from the Controller of Minerals Production, it is advised that the objective of this provision was to ensure that in arriving at the value of the ownerships and interests of the Syndicate, as represented by it and as examined by officers of the Commonwealth and the State, such ownerships and interests were in fact the Syndicate's property and unencumbered. The further objectives of the provision, of course, were that in the event of any of such ownerships or interests being encumbered, a deduction would be made in the Syndicate's assessed equity to the extent to which the Commonwealth met or would be obliged to meet any liability arising out of the encumbrance. It was not and is not intended that the provision should relate to Commonwealth or State property on the site or to any property on the site purchased by the Syndicate on behalf of the Commonwealth with authorized funds made available to the Syndicate by the Commonwealth or the State.
- (c) With regard to the seventh paragraph in your letter, it is not clearly understood whether you are referring to the right of the Commonwealth to purchase the enterprise or the possibility of the Syndicate purchasing the assets etc. resulting from the Commonwealth's and State's investments. If - as is assumed - you referred to the former, you will recall as conveyed in my letter of 28th January, 1943, the approval of full Cabinet was to the effect that, whilst the Commonwealth should retain its right to purchase the enterprise outright, nevertheless, the determination of the price to be paid by the Commonwealth to the Syndicate for the capital value of the

/Syndicate's

Syndicate's ownership and interests should, if it were not possible to arrive at mutual agreement be referred to arbitration and neither the Syndicate nor the Commonwealth was in any way to be bound by the assessment of the Syndicate's assets for profit purposes at £35,000. The Government, of course, insists on retaining this right in the terms of the full Cabinet approval.

- (d) The suggestion of the Syndicate's Directors in relation to the basis of any reversion of the enterprise to the Syndicate is noted. The question of reversion would not arise unless and until the Commonwealth notified its intention of not exercising its right of purchase or acquisition. Further consideration is being given to this matter.
- (e) As to the Syndicate's representation on the management of the enterprise, this matter is receiving further consideration and a communication will be addressed to you in regard to it at an early date as possible.

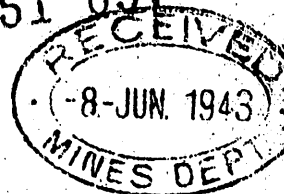
It appears, therefore, that there are only two matters to be dealt with at this stage which are at present outstanding, namely the question of reversion of the enterprise to the Syndicate and representation of the Syndicate on the management of the enterprise. Pending a settlement of these matters, I should be glad to have confirmation that all other aspects have now been satisfactorily disposed of in order that preparation of the formal agreement as between the Syndicate and the Commonwealth may be proceeded with.

Yours faithfully,

(J. A. HENNESSY)
Minister for Supply and Shipping.

LAKE ENTRANCE OIL PROJECT.

Meeting of Departmental Executive held at Lakes Entrance on Thursday, 3rd June, 1943.

1. Engineering Aspects of the Project.

A discussion took place concerning the strengths of sandstones and factors of safety, assuming that artesian water is met with over the whole of the area. Mr. H.J. Cook, the Supervisor of the project, dealt with the matter at length, and expressed certain views, as also did Mr. Newman. It was decided after further discussion that as this matter was of such vital importance in connection with the success or otherwise of the project, that Mr. Cook should be authorised to go into the matter thoroughly with Mr. John Laing, an eminent consulting engineer, and to seek advice also from the University of Melbourne.

2. The Shaft.

After an inspection of the shaft, the Committee expressed concurrence in the view advanced by Messrs. Cook and Snider that they should carry out further cement sealing with a view to getting the shaft as dry as possible. It was anticipated that this could be completed in a matter of hours, and that sinking operations could then be resumed.

3. The Pilot Bore.

An inspection was made of pilot bore operations, and it was ascertained that it had now been taken down to a depth of 450', and that water pressures below 300' were unimportant. Consideration was, however, given to the question of taking cores, and Mr. Cook was asked to make arrangements to do this in conjunction with Mr. Binney of the Victorian Mines Department.

4. Finance.

Accounts as per attached schedule, No. 10, were passed for payment.

4/6/43.

909551 098

1:DS

18th May, 1943.

MEMORANDUM FOR THE HONORABLE THE MINISTER:

I have received from Mr. A. V. Smith, Secretary, Department of Supply and Shipping, a letter dated 12th May in which the views of the Victorian Government are requested as to the basis of reversion to the Austral Oil Company of the enterprise at Lakes Entrance.

I suggest that a suitable basis might be -

- (1) That the enterprise should not in any circumstances revert to the Company unless the joint Governments notified the Company that they did not intend to exercise their right of purchase.
- (2) In the event of such a notification being forwarded to the Company, that the basis of purchase by the Company should be that of having the price fixed by mutual agreement, or in the event of agreement not being reached, then by resort to Arbitration.

I should be glad to receive advice on this point, so that I may inform Mr. Smith accordingly.

S e c r e t a r y .



The Departmental Executive,
Lakes Entrance Oil Project.

909551 099

The following Requisitions for supplies for Lakes Entrance oil project are submitted for your authorisation.

J. Malcolm Newman
for Controller of Minerals Production.

Requisition No.	Articles	Amount
M.P. 2411	600 x 16 8ply Truck Type	6. 0. 0
2439	1 Clay Digger, 2 Flat Picks 177, Extension Handle	57. 0. 0
2441	Parts for T.60 S Stationary Compressor	25. 1. 0
2455	4 only 3" Pipe Bend, Galv. 4 only 4" Pipe Bend Galv.	9. 0. 0
2507	4 only 3" Pipe Bends and 4 only 4" pipe bends	7. 0. 0
2596	Electrical Installation, inc. Switch Board, Alternator & Voltage Control 15' screwed Conduit 1" wires etc. Wages etc.	115. 0. 0
2626	3 only axes 4 1/2" 3 only axes 5 lbs.	5. 0. 0
2642	54 Drums Fuel Oil	177. 0. 0
2671	1 only Air Circuit Breaker	23. 0. 0
2701	1 only Valve Guide V.B. 28 complete with fitting	13. 0. 0
2712	12 only E. S. 150 Watt lamp	2. 0. 0
2766	27 tons Fuel Oil = 162 Drums	410. 0. 0
2790	100' 1 1/2" Steam Pipe	4. 0. 0
2844	1 only Cylinder Oxygen and acetylene	1. 0. 0
2866	Add amount, M.P. 2766, .0.3343	122. 0. 0
		<u>897. 1. 0</u>

APPROVED Sgd. J. Malcolm Newman.

Controller of Minerals Production

Lakes Entrance Oil Project PO 1202 28

1

Mr Parryman
main dept.

Lakes Entrance

10th July 43

Hubb.

909551 100

ES

I am porting you a sample of the only rock formation (with exception of the polyzoal) so far encountered.

At 358' in the shaft is a narrow horizon of sporadic small boulders all rounded and apparently water worn. I should think they are black marble but have no means of testing. I hope this specimen may be of interest to you.

In addition to the shaft samples taken each 4' we are collecting a barrel load of excavated material daily and laying it out on the surface so that there is already a fair amount of material here to interest a palaeontologist.

Haas
Ruffin
Ruffin

W. J. Wood

909551 101

Minutes of Meeting of Lakes Entrance Oil Executive
Committee held at Lakes Entrance on 8th September,
1943.



PRESENT: Mr. J. Malcolm Newman, Chairman.
Mr. A.C. Smith, Department of Supply and Shipping.
Mr. W. Kingston, Chief Inspector of Mines of Victoria,
alternate for Mr. G. Brown, Secretary for Mines.
Mr. H.J. Cook, Supervisor, Lakes Entrance Oil Project.

1. Accounts.

Accounts as per attached schedules Nos. 11, 12 and 13 were passed for payment.

2. Contract with the Snider Construction Company.

The Committee had before it Mr. H.J. Cook's report No. 41 dealing with the extension of the contract for shaft sinking with the Snider Construction Company to cover footage from 508 feet to 708 feet, and in the light of views expressed in Mr. Cook's report and amplified orally by him at the meeting, the Committee approved of the extension of the contract on the lines proposed.

The relevant excerpt from Mr. Cook's report No. 41 dealing with the shaft is attached hereto.

It was arranged that the Controller should sign the contract which had been prepared by the Principal Legal Officer.

3. The Pilot Bore.

Mr. Cook explained that he was not able to obtain sufficient quantities of 6" casing to complete the pilot bore, and he therefore desired to procure 1200' of 5" casing. It was agreed that this casing was essential in order to determine water pressures and to test gas. It was ascertained that delivery of the casing was promised about the end of October, and action being taken for the procurement of such casing was confirmed by the Committee.

4. Boilers.

Mr. Cook sought confirmation of action which he had taken to procure an additional boiler to operate as a standby at a cost of about £545. The Committee confirmed the action which had been taken in this regard.

5. Ventilating fan and motor.

Mr. Cook sought confirmation of action which he had taken to procure a ventilating fan and motor at a cost of approximately £70. It was generally agreed that this fan was an essential and in fact Mr. Kingston emphasised that it was an absolute necessity. Action taken by Mr. Cook was therefore confirmed.

Some discussion centered round the question as to whether the fan duct 21" x 9" was large enough to provide the necessary volume of air as the shaft deepened. Mr. Kingston had some doubts about this and the matter was left for Mr. Cook to investigate further with a view to submitting appropriate recommendations.

6. Gas in the Shaft.

It was ascertained that the pilot bore had disclosed the presence of methane gas at a depth of about 680'. Ways and means of dealing with this when it was encountered in the shaft were discussed at some length. It was decided that Mr. Cook

should arrange to analyse the gas so that the matter could have some further consideration. In the meantime it was decided to procure a methane gas detector which would signal the presence of gas. In this connection Mr. Haddon of the Mines Department was co-operating closely with Mr. Cook. It was also decided to proceed with the purchase of three Willson gas masks for use by miners.

7. Laing's Report on the Shaft.

A report dated 2nd September, 1943, furnished by Mr. John A. Laing, dealing with the shaft and methods of meeting water pressures, copy of which is attached, was discussed at length by the Committee. It was decided that a copy of this report, together with the plan prepared by Mr. Laing, should be forwarded to Mr. Ranney for his observations and comments, and that he should be asked for information as to the latest development of the Ranney process which was being used at Franklin, U.S.A. by the Vengeance Oil Corporation. It was also decided to seek further information in connection with these developments from the U.S. Bureau of Mines through the Australian Legation at Washington, reference being made to Bulletin 351 prepared by Mr. George S. Rice of the Bureau.

The Committee considered that it was desirable that Mr. Cook should prepare a report dealing generally with the progress of operations at Lakes Entrance which should be furnished to Mr. Ranney together with Mr. Laing's report.

8. Disposal of Accumulated Oil etc.

The Committee had before it some recommendations made by Dr. Raggatt following upon the receipt by him of greases prepared by Mr. Fairbank from Lakes Entrance oil. Amongst the recommendations made by Dr. Raggatt was one to the effect that consideration should be given to the question of disposal of accumulated oil at Lakes Entrance. The Committee felt, however, that it would not be wise to make any disposal arrangements until continuity of supplies could be maintained. It was also decided in regard to a further recommendation made by Dr. Raggatt to the effect that tests be carried out by C.S. & I.R. on the greases, to defer action for the present.

9. Classification of Clerk.

The Committee had before it an application made by Mr. B. Smith, who fills the position of clerk at Lakes Entrance, for classification of his position. The Committee decided, however, that this was a matter which should be dealt with by the Departmental Staff authorities. It was left, therefore, for Mr. Cook to submit the application to the Department covered by his recommendations.

10. Flood Lighting of Shaft.

Mr. Cook sought confirmation of action which he had taken to procure six pneumatic electric lamps for flood lighting of the shaft. It was agreed that procurement of these lamps was a matter of urgency and the action taken by Mr. Cook was endorsed.

11. Safety Provisions.

In dealing with this matter, the Chairman expressed the view that it was most appropriate that Mr. Kingston should have been present at this meeting for the purpose of reviewing closely the various provisions in operation in connection with the shaft. Mr. Kingston made a close examination of these and promised that he and his officers would assume responsibility for ensuring that the most up-to-date and modern practices were followed.

It was explained that the men had been prohibited from

riding on the sides of the kibble and had been told that in future they must travel in the kibble. Although it was agreed that there was no great necessity for body straps, Mr. Cook was asked to make it clear to the men that these straps were available for use if required.

12. General Review of Operations.

The Committee made a general inspection of the work which was being carried out and expressed satisfaction with the progress which was being made, as well as the general lay-out of the job.

COPY

SCHEDULE NO. 11

The Departmental Executive
Lakes Entrance Oil Project.

909551 104

The following Requisitions for supplies for Lakes Entrance Oil Project submitted for your authorisation.

Sgd. P.J. Scanlan.

for Controller of Minerals Production.

Requisition No.	Articles	Amount
T.S.1 M.P. 2969	6 only 2 $\frac{1}{2}$ -3" Reducing Nipples and 12 bushes	7 0 0
2978	1 only coarse Emery wheel	1 0 0
3000	Supply of labor and installations etc.	56 0 0
3002	Stainless steel pump shaft	50 0 0
3003	240 ft. 3" x 4 ply Rubber Delivery Hose	59 0 0
3069	4 only Bags Bentonite	4 0 0
3107	Pipe Flanges Bolts etc.	41 0 0
3139	1 doz. 100 watt lamps 6 only 200 watt lamps	2 0 0
3156	Fitting standard coupling flange to alternators etc.	27 0 0
3166	3 only Pick Retainer Springs	2 1 0
3202	2 only sump pumps, ball bearings etc.	184 0 0
3203	1 " Batch Hopper etc.	30 0 0
3223	1 " Bottle oxygen and acetylene Tobin Bronze Rods	1 0 0
		<hr/>
		£464 1 0
		=====

APPROVED. J. MALCOLM NEWMAN.
8/9/43.

The Departmental Executive,
Lakes Entrance Oil Project.

909551 103

The following requisitions for supplies for Lakes
Entrance Oil Project are submitted for your authorisation.

Sgd. P.J. Scanlan.

for Controller of Minerals Production.
2/9/43.

Reqn. No.	Articles	Amount
M.P. 3306	2 only drums Carbide	£7. 0. 0
3443	1 " Thyratrone	17. 0. 0
3448	4 " Double throw switches	
	6 " 5 amps	<u>1. 0. 0</u>
		£25. 0. 0
		=====

APPROVED.

J. MALCOLM NEWMAN.
8/9/43.

The Departmental Executive,
Lakes Entrance Oil Project.

909551 106

The following requisitions for supplies for Lakes
Entrance Oil Project submitted for your authorisation:-

Sgd. P. J. Scanlan

for Controller of Minerals Production
2/9/43.

Reqn. No.	Articles	Amount
TS. 1 M.P. 1961	6 only Miners Lamps	24. 0. 0
3649	1 only set Exciter Brushes	1. 0. 0
3684	$\frac{1}{2}$ " , $\frac{3}{4}$ " 1" Black piping	3. 0. 0
3690	1 only 5 h.p. Electric motor	20. 0. 0
3696	2 " 16' lgth. Boiler tubing, 3" outside 10 gauge	3. 0. 0
3717	Rubber thigh boots & knee boots	12. 0. 0
3723	6 sets of liners for Circular framework	34. 0. 0
3738	2 qts. Chevrolet Green Duco & Thinners	2. 0. 0
3742	1 only s/h. Lancashire Jackass boiler	545. 0. 0
3765	1 only Pulley 4" x $5\frac{1}{2}$ x 3.5/32	2. 0. 0
3766	2 doz. No. 1 Shuttle cocks	3. 0. 0
3771	2 only Special F.G. 154 Thyatron Valves	37. 0. 0
3772	3-5/6 tons = 23 drums Diesel fuel oil	43. 0. 0
		<u>£729. 0. 0</u>
		=====

APPROVED. J. MALCOLM NEWMAN
8/9/43.

909551 107

Shaft: At the moment sinking is in progress from 468' to 508'.

When the shaft had been sunk and concreted to 468' the men were taken off the Snider Contract and were put on to driving a pump chamber at 460'. The pump chamber is 41' long and has sufficient space for pump and a cistern 23' x 4'6" x 6'. Unlike the pump chamber at 220' the ground at 460' required timbering and in addition it was found necessary to concrete the floor of the cistern to prevent it from puddling into mud with the incoming shaft water. These two jobs - timbering and concreting - have added a few days to the time required to make the chamber. In addition there was considerable difficulty in drilling the 3" drainage bore hole from the 464' level into the bottom of the cistern so as to facilitate periodical clean up of accumulated mud etc. The difficulty was caused by meeting an unusual number of limestone concretions which are commonly spherical and vary in size from a cricket ball to a football. The shaft steel has since been put in from 428' to 468'. This 40' section was completed in 15 days.

Some trouble was caused by the swinging kibble striking the angle irons in the shaft; this is very dangerous to the men working below. Sufficient timber has been ordered to run 8" x 1½" stringers on the inner face of these angle irons from top to bottom of the shaft. This will prevent the lip of the kibble catching under the angles. When this is done the kibble will be confined between the shaft skids and the 8" x 1½" timber.

Extension of Contract: The existing contract finishes at 508', i.e. at the bottom of the present lift and, amongst other provisions allows of a continually reducing price until a rate of progress equal to 90' in 28 days is attained. In signifying his willingness to proceed with the contract the Contractor has asked that this be amended to 80' in 28 days which makes the minimum price £28.10.0 per foot in place of £25.10.0 when 90 ft. are completed in 28 days. The reason for this request is that the miners will not work on a sliding scale contract but demand a fixed price. The price in force at the moment is £7.10.0 per foot, that is to say they get £300 for each forty feet lift and obviously earn more per shift the faster they work. The Contractor on the other hand gets less per foot the faster the work is done until the point is reached when the miners absorb all the profit because the reduced amount of wages paid to the surface workers for shorter time worked does not compensate for the reduced contract rate which was based on a reducing total wage bill embracing both surface and underground labour.

I have arranged for the contract agreement to be prepared on these terms because I see no prospect of shifting the miners from the fixed price basis to a sliding scale basis which they distrust.

.....

JOHN A. LAING,

Capel Court,
375 Collins Street,
MELBOURNE.

909551 108

2nd September, 1943.

The Controller of Minerals Production,
Department of Supply and Shipping,
409 Collins Street,
MELBOURNE. C.I.

Dear Sir,

LAKES ENTRANCE OIL PROJECT

Following several discussions with Mr. H. J. Cook I now have pleasure in submitting hereunder my report on the design and construction of a Working Chamber at the base of the shaft now being sunk in connection with the above work.

The chief features affecting the construction of a working chamber include;

- (1) Its position at the base of a shaft of 12 feet overall diameter and 1200 feet deep
- (2) Its inside diameter of 30 feet
- (3) The desirability of sinking the chamber as far as is considered safe into the stratum of oil bearing glauconite from which the oil is to be recovered and which is some 35 feet thick and lying in a plane approximately horizontal in one direction and dipping about 1 in 30 in a direction at right angles.
- (4) The underside of the glauconite is subjected to a hydrostatic pressure of approximately 600 lbs. per sq. inch.
- (5) The stratum of glauconite is impervious under the heavy pressure; it is probably jointed in vertical planes of little shear strength at intervals of about 30'.
- (6) The bores show that the material beneath the glauconite is very fine grained.
- (7) One piece of glauconite core material tested for compression strength showed that a crushing strength of 1350 lb. per sq. inch could be expected under normal conditions.
- (8) No. 10 Bore is considered as being typical of the glauconite, deposit and this discloses that it is made up of a series of harder and softer layers in which are interspersed throughout the whole depth some 14 or more layers of still softer material about 1 inch in thickness.

In addition to the foregoing information Mr. Cook supplied me with complete data obtained from No. 10 Bore and together we visited the Geological Museum where Mr. Baragwanath and other officers of this Department kindly made available for our inspection samples of the material obtained from this bore and also showed us samples of the material underlying the glauconite.

The glauconite is at present impervious and the problem is to construct the floor of the working chamber within such limits of area and penetration into the glauconite that there is no possibility of an upward fracture of the stratum when the stabilising weight of the overburden is removed in the process of making space for the working chamber.

In addition, it is equally important to ensure that such movement of the glauconite stratum as must inevitably take place must be so inappreciable as not in any way to interfere with its present impervious nature.

As already indicated, the glauconite overburden is 1200' deep. This will transmit a downward load on the top of the glauconite of at least 60 tons per square foot. The net upward pressure of the water is 36.5 tons per square foot, consequently the overburden is more than ample to resist the water pressure.

Immediately however the overburden is removed to make room for the chamber, the water pressure becomes unbalanced and over an area of 30 feet diameter it amounts to a total upward force of 26,000 tons.

This huge force must be diverted or spread diagonally to the underside of the walls of the working chamber which must provide the necessary stabilising force. This diversion of the net upward force must be accomplished by one of the following means: (1) by virtue of the natural strength of the stratum of glauconite, (2) by this strength augmented in some manner or (3) by modifying the design of the working chamber in such a manner that the amount of upward force of the water to be spread diagonally through the glauconite is greatly reduced.

I understand that a proposal coming under heading (2) has been made. In this the material underlying the glauconite vertically under the chamber is impregnated and hardened with cement grout or solidified with chemical solution. This will increase the resistance of the glauconite to the heavy water pressure tending to cause upward movement when the stabilising overburden already referred to has been removed.

To enable this proposal to become effective it would be necessary to treat a volume of material in the shape of an inverted dome at least 10 feet thick at the centre and approximately 40 feet in diameter. This hardened material would also have to be rendered impervious and made integral with the glauconite, otherwise the water would still reach the underside of the glauconite and exert exactly the same pressure as if the hardened material did not exist.

In my opinion it would be impossible to ensure any degree of impermeability to material ~~DOX XXXXXXLXX~~ treated in the manner proposed, and it is certain that after the process was completed, full hydrostatic pressure would be applied to the underside of the glauconite. Under the circumstances it is difficult to see what advantage could be gained by this method of treatment because the original conditions are entirely reproduced. In any event it would be a most serious & costly problem: owing to the fine close grained nature of the underlying material it would be most difficult to penetrate it to any depth.

Neither does it appear to me to be a feasible proposal to attempt to construct a floor of reinforced concrete or structural steel on top of the glauconite capable of resisting a force of 26000 tons.

In view of these conclusions I am suggesting a modification of the design of the working chamber as indicated on the attached blue print. The general diameter of the working chamber is maintained at 30', but a number of buttressing walls are introduced and these will have the effect of reducing the floor span from 30' to 20' and in this way the total upward force of water to be resisted and spread diagonally by the stratum of glauconite is also reduced from 26,000 tons to 11,500 tons. This reduction in upward force and span will

enable the glauconite to be penetrated to a depth of at least 6 feet.

The proposal has the further advantage that the method of construction is safe in that the work is carried out in 12 self-contained sections, each section being completed and made safe before another section is commenced.

The method of procedure proposed when the shaft is completed to the level F - F shown on the drawing is as follows:

A winze is put in, in a direction corresponding to the sloping wall of the chamber and carried down to the glauconite and a further 6' into the stratum. The excavation must be wide enough to permit of a floor section of approximately 6' x 7'10" to 5'3" being put in and concrete wall carried up as shown in Sectional Plan E-E and half Section D-D. The concrete work is carried up as indicated at other Half Section in drawing, care being taken to insure that the concrete is stepped back and left horizontal on top and that is well packed in, leaving no cavities. In this way the concrete is carried up to meet the base of the shaft, the upper portion being one of the sections shown as Sectional Plan C-C.

When the first section is completed, another section is ~~commenced~~ commenced beside the first by excavating as before: down to the glauconite and 6' into it. Concreting of this section can then be commenced and completed as in the former case and so on, until the whole work of 12 sections is complete. The central hill left is then excavated and an inverted dome of concrete laid to strengthen the floor. The final construction is shown in section A-A.

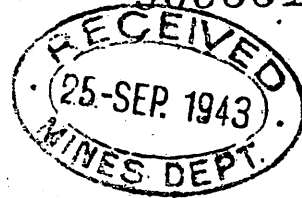
There remains the question of the intrusion of the buttress walls into the chamber. As pointed out, the full clear diameter of 30' is still available and I am suggesting that the matter be gone into to ascertain if there are any vital objections to the design. If there are none I believe it is the safest method to adopt. The sizes of concrete shown on the drawing are approximate only and have been left to be finally determined if and when the proposal meets with approval.

Yours faithfully,

(Sgd.) JOHN A. LAING.

Mr. Kingdon
Mr. Kingdon
27/9

909551 111



AIR MAIL.

24th September, 1943.

The Secretary,
Australian Legation,
WASHINGTON, D.C. U.S.A.

(for transmission through the Secretary, Department
of External Affairs)

I forward herewith the following documents for sub-
mission to Mr. Leo Ranney:-

- (1) A letter dated 21st September to Mr. Ranney from
Mr. H.J. Cook, the Supervisor of the Lakes Entrance
Oil Project.
- (2) A report by Mr. John A. Laing, a well-known consulting
engineer of Melbourne, together with relevant plan
dealing with the work chamber at the bottom of the
shaft.

It would be much appreciated if these documents could
be delivered to Mr. Ranney as early as possible and if comments
which he will make on them could be despatched to us by air mail.

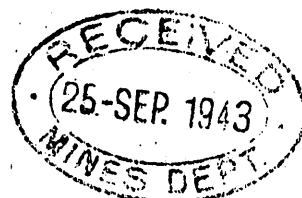
(A. V. Smith)
Secretary.

COPY FOR: MR. BROWN.

P.O. Box 38,
Lakes Entrance,
Victoria, Australia.
21st September, 1943.

909551 112

Leo Ranney, Esq.,
44 East Broad Street,
Columbus,
OHIO, U.S.A.



LAKES ENTRANCE OIL PROJECT.

Dear Sir,

In July 1941 you reported on the possibilities of developing the Lakes Entrance Oil Field and the following is by way of a progress report setting out what has been done to date to implement your recommendations.

1. The project is in the charge of Mr. J. Malcolm Newman, Controller of Minerals Production for the Commonwealth of Australia, and Mr. H.J. Cook is the Supervisor on the field, where the work is in the hands of the Snider Construction Company.
2. A shaft head frame, power plant, winding engines etc. have been erected at the site selected, and shaft sinking is in progress.
3. The approved design calls for a circular concrete lined shaft of 10' (ten feet) internal diameter with one foot thick walls giving an outside diameter of 12' (twelve feet). Extending inwards from the walls are two concrete protuberances cast integrally with the shaft walls. One of these houses a 21" x 9" air duct and 2 four inch pipes, whilst the other houses 2 six inch and 3 three inch pipes. This arrangement allows the walls to develop their fullest possible strength.
4. The shaft is furnished with structural steel sets spaced at 4' centres vertically, and by means of wooden dividers and skids, is arranged for two compartment haulage. By removal of the central divider and its two attached skids a single cage 6'9" by 3'9" may be used in place of the two smaller cages. The distance between skid faces when used as a single compartment shaft would be 7'3" and the full width available 4'0".
5. Shaft sinking proper began in October 1942 and to this date the shaft has been sunk and concreted to 548'. The present rate of progress is roughly two feet per day.
6. The sinking has not so far been attended by any outstanding difficulty. The ground stands well and lengths of 40' can be concreted at one operation. Heavy water was encountered as expected between 250' and 300'. Attempts to seal the water bearing ground itself by injection methods were not successful. It was found however that by back grouting behind the concrete walls a very satisfactory seal off could be effected and this method is used wherever water is encountered.
7. A pilot bore hole near the shaft has been drilled to give prior information of ground conditions and water occurrences and from it we know that there are various dangers and difficulties ahead, e.g. at 560' there is a water band of moderate volume charged with sulphuretted hydrogen gas. At 600' there is a 6' band of polyzoal limestone carrying a fairly large volume of very high pressure water, whilst at 680' and onward methane gas is plentiful.
8. The foregoing paragraph sets out the difficulties at present known which will be met in the course of shaft sinking itself, but there is another trouble ahead which is causing

considerable anxiety. Immediately underlying the glauconite oil bearing sandstone is a bed of unconsolidated fine sand filled with fresh water at a pressure of about 600 lbs. per square inch. This water pressure we feel to be a very serious menace to the successful construction of a work chamber in the glauconite itself. The danger presented by this high pressure water and its attendant unconsolidated fine sand is such that no risk can be allowed of its breaking in and sweeping the shaft with water and sand. If it once breaks in there will be no method of removing it, and starting again, and the enterprise will be lost. These remarks, of course, apply with equal force, if the water and sand should be allowed free ingress at any stage in our operations.

9. With the hazard presented by this water in mind, we have sought the assistance of Mr. John A. Laing, M.C.E., Consulting Engineer of Melbourne, in preparing a design for a work chamber at the bottom of the shaft. We enclose a copy of Mr. Laing's report together with a print showing what he suggested. We would much appreciate your early comments on these so that we shall know how to proceed. You will note that a penetration of six feet into the glauconite is permissible.

10. We have under consideration the idea of sinking the work chamber, not off the bottom of the shaft, but from the end of a short crosscut at a suitable level above the glauconite. There would be a suitable chamber at the end of the crosscut equipped with a small air hoist. The ground would be broken and raised in small kibbles discharging into trucks suitable for haulage in the main shaft cages. We shall be pleased if you will think over this idea and let us know if there is anything repugnant to you.

11. Some months ago we received from you blue prints covering your operations at Venango, Franklin, Pennsylvania, where, we understand, the work you are doing is very similar to that on which we are engaged at Lakes Entrance, and the conditions alike except that in the Venango enterprise you are not troubled by artesian water in close proximity to the oil sand. If, as we think, your work there is much more advanced than our own, we hope you will be able to give us the benefit of your experience for our guidance at Lakes Entrance.

Yours faithfully,

Sgd. H. J. COOK.

Copy for
Mr Brown

909551 114

***** F 0234
K:DB

5th October, 1943.

Dear Sir,

Following the recent visit to the mine by the district Inspector, Mr. Hadden, and his subsequent report to me, I am summarising herewith the requirements, from a safety standpoint, which we consider should be put in hand without delay.

1. The installation of the 4,000 C.F.M. Ventilating Fan immediately.
2. The provision of an airway, additional to the existing 21" x 9" duct, by partitioning off a portion of the shaft of at least 5 square feet in area outside the winding compartments and on the same side as the existing duct, as outlined at the last meeting of the Executive Committee.
3. The provision of a suitable outlet leading from this airway to the fan and fitted with hinged explosion doors at surface.
4. The proposed canvas air extension pipes to bottom are not favored on account of their liability to collapse in suction, and forced air current should not be used where inflammable gases are present. Rigid galvanised iron air pipes should be used instead.
5. There should be at least four men, in addition to the Mine Manager, trained in the detection of inflammable gas by means of a flame safety lamp. One of these men should be available on each working shift, and he must also carry out all shot firing. The alternative to training these men would be to employ qualified shot firers to carry out necessary examinations and shot firing. The knowledge required of these men should be equivalent to that of a shot firer in a safety-lamp mine. The testing with a flame safety lamp should be additional to the Detectors which it is proposed to install.

As the shaft is now down to 556 feet, the next 40 feet lift should meet noxious gas, and at 680 feet onwards fairly large quantities of inflammable gas are to be expected.

In view of this, it is our opinion the above matters require immediate attention in order that the sinking programme does not meet with interruption.

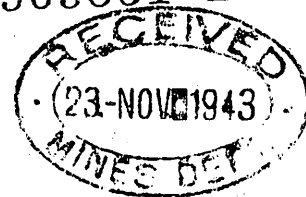
Yours faithfully,

Chief Mining Inspector.

H. J. Cook, Esq.,
Supervising Engineer,
Lakes Entrance Oil Project,
Myer Street, LAKE ENTRANCE.

LAKES ENTRANCE OIL PROJECT EXECUTIVE
COMMITTEE.

909551 116



Notes on meeting held at Lakes Entrance
on 17th November, 1943.

Present:

Mr. J. Malcolm Newman, Controller of Minerals Production, Chairman.
Mr. W. Baragwanath, representing Secretary, Mines Department.
Mr. P. J. Scanlan, representing Executive Officer, Minerals.

- (1) Accounts as per schedules 14 and 15 were passed for payment. Sniders Construction Company's account for £159/4/10 paid in respect of Workers Compensation Insurance Premiums for its employees for the time engaged on construction and the Pilot Bore was also passed for payment.
- (2) Mr. Cook reported progress to date. The shaft is down to 616'. Water has been encountered in this lift at approximately 2500 gals. an hour. This has been dealt with successfully.
- (3) Procedure regarding the Pilot bore was discussed and it is proposed to go down to the micaceous zone, test the gas, seal off the 6" casing and bale the hole out.
- (4) Ranney's cabled proposals were discussed at length. These are regarded by Mr. Cook as being very good and a much better method than that previously submitted. Mr. Cook has drawn up a schedule showing rough estimates based on his conjecture of what Ranney's scheme means. These will later be submitted in writing.
- (5) Prior to the meeting Mr. Cook and Mr. Snider of the Snider Construction Company conducted a party of visitors over the installation. These were Mr. Spiker, American Vice Consul, Colonel Stewart, Military Attache to the American Legation, and Mr. L. Zapf, Commercial Attache to the American Legation. All displayed a keen interest in the job and expressed their appreciation of the opportunity of visiting the Project.


(P. J. SCANLAN)
20/11/1943

COPY FOR: MR. GEORGE BROWN.



SCHEDULE NO. 14

The Departmental Executive,
Lakes Entrance Oil Project.

909551 117

The following Requisitions for supplies for Lakes
Entrance Oil Project are submitted for your authorisation.

Sgd. P.J. Scanlan.

for Controller of Minerals Production.
4/10/43

TS.1. MP.	3832	5" Casing (1200')	300.	0.	0
	3851	1.44 gall drum Steam cylinder oil 600 W	15.	0.	0
	3852	1 only drum carbide	4.	0.	0
	3923	Goods specified on TS.1 MP.3772	32.	7.	5
	3929	Special 3 & 4 core cable end boxes etc.	42.	0.	0
	3952	1 only 25 h.p. Crompton Parkinson motor	57.	0.	0
	3953	1 steel plate ball bearing exhaust fan	29.	0.	0
	3954	3 only Willson Universal gas masks	68.	0.	0
	3980	4 only 68 C.V. Belts	3.	0.	0
	4004	162 drums of diesel fuel oil	532.	0.	0
	4015	54 " " " "	177.	0.	0
	4055	Parts for Kelly & Lewis engine, No.4694. type VG.	20.	0.	0
	4060	24 only 150 watt E.S. Case lamps	4.	0.	0
			<u>£1283.</u>	<u>7.</u>	<u>5</u>

Up to Sept. 24th

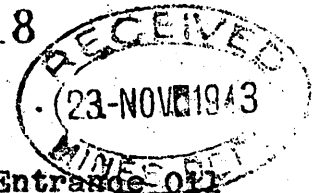
APPROVED. (Sgd.) J. Malcolm Newman
17/11/43.

I certify that the above expenditure was necessary for the execution
of the programme approved by the Controller.

SCHEDULE NO. 15.

The Departmental Executive,
Lakes Entrance Oil Project.

909551 118



The following requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorisation.

Sgd. P.J. Scanlan.

for Controller of Minerals Production.
3/11/43.

Requisition No.	Articles	Account
T.S.1 M.P. 4132	Shackles & Pins and Monkey Shoes	£18. 5. 0
4135	6 only Valve Plates Part No. T.60-119	9. 0. 0
4161	100' 2" Steam pipe	5. 0. 0
4162	1 only Thyration valve	17. 0. 0
4163	6 doz. Shuttle cocks	9. 0. 0
4169	1 only Willson gas mask	22. 10. 0
4203	1 cylinder oxygen acetylene	1. 0. 0
4212	12 only G.E.S. Lamps 200 watts	3. 0. 0
4351	Pipe sockets, steam pipe etc.	25. 0. 0
4352	Check valves etc.	6. 0. 0
4355	Spares for Holman T.60 S Compressor	83. 0. 0
4359	2 Ball Bearings for 35 sump pump etc.	8. 0. 0
4360	Air Line Lubricator No. 4	2. 0. 0
		<hr/>
		£208. 15. 0

Up to Oct. 28th.

APPROVED (Sgd.) J. Malcolm Newman
17/11/43.

HORIZONTAL WELLS MAY REVOLUTIONIZE
SECONDARY RECOVERY

by C.O. FAIRBANK

909551 119

Improved methods used at Pennsylvania installation prove that horizontal holes can be drilled 2000 feet or more from central chamber and their elevation controlled as desired at any point.

The story of horizontal wells is the story of a man—a man who would never give up—one to whom the oil companies would listen attentively—and then for years remain respectfully inactive. For many years Leo Ranney was the only advocate of horizontal drilling, and the only one who knew how to do it. But now that he has demonstrated his methods for the third time, and has drilled more than 12,000 feet of his oil wells, petroleum engineers believe that horizontal wells may revolutionize secondary recovery, and make commercially available a large part of the 70 billion barrels of oil still known to be in the ground—the petroleum that Donald Knowlton, PAW director of Production, calls "engineers' oil."

The Ranney well installation at Franklin, Pennsylvania, has proven that horizontal holes can be drilled 2000 or 3000 feet, or even farther, and, knowing their elevation at any point, they can turn them up or down at will. The first pair of wells in the Franklin installation of the Venango Development Corporation are approximately level with the mouth at 1500 feet, and from there on slant slightly upward. At 2000 feet each well is about 12 inches above the starting point.

The 8-foot diameter Franklin shaft is 429 feet deep, ending in a 27-foot circular work chamber in the oil sand. From a level one foot above the bottom of the sand stratum to be worked 24 wells are to be drilled, like spokes of a wheel, out to property lines. All wells will flow by gravity to an enclosed tank, and one big pump will lift the fluid to the surface.

Nothing could be simpler or more logical. But the circular, hollow monolith of concrete 429 feet deep, with 12 pipes and 24 portholes cast in the walls, the steel headframe, the steel cage, the hoist, fan, fan house, 75-horsepower air compressor—all machinery electrically driven—are a far cry from the first horizontal well drilled into the outcrop of the First Cow Run Sand on the bank of Havener Run, in Morgan County, Ohio, in 1937. There some visiting engineers and geologists of the industry, who came to see, told the inventor in no uncertain terms that he was visionary, and was just wasting his time.

In the minds of these advisors there were two sufficient reasons for their counsel: 1. They opined that neither he nor anybody else could drill more than 200 feet horizontally, since it had never been done; 2. Even if drilled, the well would produce nothing, since the oil saturation was only 15 percent. But the well was drilled to a length of 802 feet, the end being 2 inches above the mouth, and (a branch well was even drilled) was carried to 953 feet, between vertical wells long since abandoned.

After the well was drilled the same 200 kibitzers dolefully advised that it could not be shot—but, it was successfully shot. That shot made headlines. After blowing for a half hour, the well began flowing a casing full of oil. After 6 weeks it was still delivering 7 barrels daily; and when 2 years had lapsed that foolish well was still pouring out 3 barrels of Pennsylvania Grade every 24 hours.

120

The second attempt involved a shaft 37 feet deep, 400 feet from the outcrop and 800 feet from the old crop well. There Ranney developed "rod pullers" to shuttle the drill rods out of No. 1 hole, on one side of the shaft, and into No. 2 hole on the opposite side, at the rate of 100 feet per minute. On each end of the drill rod was a 50-foot jointed core barrel and a diamond bit, so when a core was pulled from No. 1 hole, the machine was reversed to cut a like core in No. 2. Drilling was usually at the rate of 1 foot per minute, except in the hard streaks. There 6 wells were drilled to property lines. These have paid for their drilling, and are still flowing oil.

Rarely in the past has a new idea, especially a revolutionary one, of an independent inventor been put to practical application—and Ranney has not been an exception to the rule. He met difficulties that would have floored the ordinary man—lack of funds, lack of equipment, lack of personnel, failing eyesight, mistakes made and corrected, by which he profited in further development of his idea. During the past 6 years he alone has made more progress in horizontal drilling than the whole oil industry made in vertical drilling in its first 40 years.

Ranney's theory has been that whatever the fluid to be recovered from the earth, the larger and more extensive the exposure of the producing horizon, the greater would be the flow. He had already applied the horizontal well theory to the production of water, first for the Metropolitan Water Board of London, England; then, in 1935, he gave a new water supply to Lisbon, Portugal. The Paris Ranney project, to furnish 1 billion gallons of water daily, had only been started when the French people dropped everything to prepare for the war that they knew was coming. Returning to this country, he began to make installations for industries, cities and war plants. Some 50 shafts have been sunk and more than 50,000 feet of Ranney-wells drilled for the production of potable water—their normal capacity is twice as great as the gallonage of all the world's oil wells. One shaft alone has a normal capacity of $1\frac{1}{2}$ million barrels daily. Life Magazine, November 16, 1942, carried 4 pages of pictures of Ranneywells.

While horizontal water wells are usually in loose sand or gravel, the Franklin oil wells are in a sandstone as hard as a banker's eye—in fact, the first Venango is purported to be the hardest drilling sand in Pennsylvania. The first 100 feet of each well is cased with $3\frac{1}{2}$ inch pipe, grouted in; but the rest of the 3-inch holes are left uncased, clear to the boundaries of the 400 acre tract being worked. On the same level the wells pass through hundreds of changes in sand texture, from solid quartzite to open sand with a permeability of 5000 millidarcys—often within a distance of 10 feet. Now we know why poor wells and dry holes may be drilled in the center of a proven field. The cores of the first 2 wells, almost 5000 feet long, are crossed by more than 2000 bedding planes, at all angles. The industry has presumed that oil sands were somewhat uniform laterally.

It probably seldom occurs to the vertical-well driller that on the average less than 2 percent, of his time is spent in the pay sand—and 98 percent, of it is spent in barren and unproductive rock that he must penetrate to reach the sand he is after—the only horizontal of any value whatever. Only 1 week out of a whole year spent in the pay! Since the horizontal driller is always in the oil sand, he accomplishes a year's productive work in 1 week. More than that, he never has to uncouple his drill rods until he has drilled 5000 feet of oil sand. Translated into manpower, that means something in war time—and with labor becoming more and more of a problem, it may be an important consideration when the war is over.

All visitors at Franklin, from engineers to oil company executives, have one question in common—"How are the holes kept level? What keeps gravity from pulling down towards the center of the earth his 7 tons of drill rods and core barrels?" The complete answer to that question would fill a volume. The holes are under constant survey, and should they drop an inch, they are turned up in a few minutes, without the use of whipstocks. The 8 Ranneywells now drilled were lifted many times. At 1500 feet from the shaft they are within $1/16$ of 1 degree of level with the mouth; at 2000 feet they are slightly above the starting point, and they are held at the level to the end.

909551 121

The whole oil industry, the Bureau of Mines and the PAW are awaiting the results of the ~~shots~~ shooting of these two Franklin wells in the First Venango Sand--considered to be the hardest sand to drill and produce in the whole area, the sand in which both water flooding and repressuring had failed. Advanced negotiations are in progress to operate in other fields--so, when other projects are started, it is quite apparent that the main bottleneck will be trained personnel, since this type of drilling is different from any other. However, ~~a~~ green men who will follow instructions (which differ with each type of sand), who understand machinery and who are super-careful can learn the art in a few months. Experienced drillers must forget many things--and this is not always easy. In an hour's time a driller can ruin a \$5000 hole by failing to follow procedures laid down.

Though the case has been proven--that these wells can be drilled--the big day at Franklin will be the day when DuPont's ~~shots~~ Bickel presses down the handle that will fire the 14,000 pounds of 80 percent hi-velocity gelatine and TNT that fill the two Ranneywells within 400 feet of the shaft. The 2 1/2 inch sticks are rammed into 8 foot aluminum tubes and pushed into the holes, 40 feet at a time. This will be by many times the biggest and longest shot ever fired in an oil well. From Ranney's Ohio experience, he predicts that the holes will clean themselves, that the wells will be greatly enlarged, that the rock will be broken for about 40 feet on each side of the shot and that cracks will be formed to the top of the sand.

One look ~~at~~ will give the petroleum engineer a reason for the present satisfactory performance of the wells--before shooting. A 20 foot substratum of sand is being worked, and the sand exposure in these two wells is equal in length of more than 200 vertical wells--even in this sand, even before the wells are shot, one would expect some production from 200 wells. However, the entire exposure of these two holes is only a foot above the bottom of the sub-stratum being worked--an advantage of course unattainable in vertical wells.

Horizontal wells are known not only in this country, Europe and North Africa--they are now being installed for the Commonwealth of Australia, under the personal direction of Ranney. A shaft in the Lakes Entrance Oil Field is now concreted for more than half its 1200-foot depth, in preparation for the horizontal holes to be drilled 4000 feet out into the oil-bearing glauconite. ~~at~~ If that productive monocline extends out under the ocean, as some Australian geologists believe, horizontal wells will be drilled from a tunnel driven on top of the glauconite, 1500 feet below the wildest and roughest body of water in the world--the Tasman Sea.

This versatile man's inventions are also being used, under his direction, for the recovery of natural gas (methane, firedamp) from the coal seam underlying the City of Sydney. The gas so recovered ~~is~~ is being packed in high-pressure drums and used to drive automobiles and U.S. Army trucks about the city. The octane rating of this fuel, by the way, is 150. Drilling machinery is now being made here to send to Sydney to increase that methane production. Incidentally, some of the coal seams of our West Virginia contain as much as 20 million cubic feet of natural gas per acre, from 80 percent. to 90 percent. of which probably could be recovered by Ranneywells.

The major problems of horizontal drilling have been solved; the next step is its application to other sands, most of them easier to produce from and easier to drill, and many of them where shooting ~~is~~ not be necessary. But today the eyes of the oil world are riveted on little Two Mile Run in the Venango County that gave birth to the oil industry, in the hope that its rebirth may occur in the same county. And six billion barrels of Pennsylvania Grade oil--companies with \$400,000,000 invested in these fields--farmers whose fortunes underlie a million proven acres--all are awaiting the story that will be told when that explosive charge, almost a mile long, jars the foundations of Two Mile Run as they have not been jarred since the Sinclair herd of registered dinosaurs played leapfrog in the early morning.

6th December, 1943.

PENNSYLVANIA.

909551 122

Horizontal Wells Make 33 Barrels of Oil Daily.

Leo T. Ranney, designer of the new horizontal-shafted oil well, announced that the two horizontal shafts of his well at Two-Mile Run near Franklin, Pennsylvania, are producing 33 barrels of oil daily, with a predicted steady production of 20 barrels daily per horizontal well, as against previous production of 1/10 of a barrel per day by vertical oil wells in the district. The first horizontal well blew in November 25 after 1200 pounds of 80 percent high velocity gelatin and TNT were packed into the two 2350 foot horizontal wells to within 400 feet of the underground work chamber. This was said to be the longest line of shot ever used. Ranney estimated that the blast created pressure of more than a million pounds per square inch. He hopes to drain from the Venango first sand, through which the horizontal shafts extend, oil that would have to be obtained by 200 vertical wells.

Work will begin immediately on other wells, which will total 24, to be mined horizontally from the 429 foot vertical shaft. This shaft is 8 feet in diameter and drops down to the work chamber, a concrete room 27 feet in diameter and 55 feet in height.

PENNSYLVANIA

Horizontal Well Test Waits
Cleanout after Shot

Venango Development Corporation's horizontal well installation at Two Mile Run, near Franklin, Pennsylvania, was shot late Thanksgiving Day. It will be a couple of days before the 429-foot mine shaft can be cleared of gas and debris. The two horizontal wells that were shot extend 2350 feet from the shaft through oil-bearing sands.

GIPPSLAND OIL COMPANY LIMITED,

113, QUEEN STREET,

MELBOURNE.

909551 124

8th MARCH 1944

TO SHAREHOLDERS ONLY.

At the request of the Board of Directors, the following extracts from a report issued by Mr C. O. Fairbank, and published in the American Oil Journal of the 29th November 1943 are submitted for your guidance and consideration.

Mr C. O. Fairbank and Mr Leo. Ranney are the two experts recently brought to Australia by the Commonwealth Government to report on the Oil fields in Gippsland.

Mr Ranney has demonstrated his horizontal drilling method for the third time, and has drilled more than 12000 feet of oil wells. Petroleum Engineers believe that horizontal wells may revolutionize secondary recovery and make commercially available a large part of the 70 billion barrels of oil still known to be in the ground. The Ranney well installation at Franklin Pennsylvania, U. S. A. has proven that horizontal holes can be drilled 2000 or 3000 feet or even further from the Central Chamber, and knowing their elevation at any point they can turn them up or down at will. In vertical well drilling less than 2 per cent of the time is spent in the Oil sand, and 98 per cent of it is spent in barren and unproductive earth that must be penetrated to reach the oil sand. This means that only one week out of a whole year is spent in the oil sand. Since the horizontal drills always in the oil sand it accomplishes a years productive work in one week. More than that the drill rods do not have to be uncoupled until they have drilled 5000 feet of oil sand. Translated into Manpower that means something in war time, and with labor becoming more and more of a problem, it may be an important consideration when the war is over. Horizontal wells are known not only in America, Europe and North Africa- they are now being installed for the Commonwealth of Australia under the personal direction of Mr Ranney. This versatile man's inventions are also being used under his direction for the recovery of natural gas (methane firedamp) from the coal seam underlying the City of Sydney. The gas so recovered is being packed in high pressure drums and used to drive Automobiles and the U. S. Army trucks about the City. Drilling machinery is now being made in America to send to Sydney to increase the methane production. The major problems of horizontal drilling have been solved. A shaft in the Lakes Entrance (Gippsland) Oil field is now concreted for more than half its 12 00 foot depth in preparation for the horizontal holes to be drilled 4000 feet out into the oil bearing glauconite. If that productive monoline extends out under the ocean, horizontal wells will be driven on top of the glauconite, 1500 feet below the wildest and roughest body of water in the world - The Tasman Sea."

These extracts from the "Oil Journal" (Original being available for inspection at Company's office) should convey to you the vast potentiality of our Company's field in Gippsland. For security reasons we are prohibited from publishing progress reports of the development taking place in Gippsland, other than to advise you that operations in accordance with plans submitted by Messrs Ranney & Fairbank are being adhered to, the work being carried out by selected tradesmen working in three shifts 24 hours per day, 7 days a week under the supervision of an approved Engineer from Burma.

This report has been fully endorsed by the Directors, and is forwarded to you in order to give shareholders every possible opportunity to secure any further available share capital before the results of the shaft sinking operations at Gippsland are publicly released.

BY ORDER OF THE BOARD.

W. J. PALMER

SECRETARY

COPY

MINES DEPARTMENT,
Treasury Gardens,
MELBOURNE. C.2.
20 Bent Street,
WONTHAGGI.
12/2/44.

Secretary for Mines,

Dear Sir,

909551 125

Report on Lakes Entrance Oil Shaft.

I made my periodical visit of inspection to the Lakes Entrance Oil Shaft on Thursday, the 10/2/44 and report as follows --

Mr. Cook, the Supervisor went on leave that day but I had an opportunity of discussing various matters with him on Wednesday night. Surface Plant - This is in good order and condition, with the exception of the top landing or Brace, where a fence is required around the shaft opening, and some flooring boards require to be replaced. Mr. Clarke is to have this attended to.

Shaft - Sinking is now down to 664', with the ground not holding as well as formerly, temporary timbering being required at some points in order to hold the ground until concreting can be done. This temporary timbering is quite satisfactory.

Ventilation - Since my last visit the duct of the small Fan has been joined into the duct of the large Fan at a point near the surface and the small duct has been closed. This will allow the small ~~fan~~ fan to draw through the larger opening right from the shaft bottom, and through a reduction in velocity and friction will make for better efficiency.

Quantity of Air - Anemometer readings showed that the small Fan was passing approx. 2700 cubic feet of air per minute and that the big Fan was passing approx. 6800 cubic feet per minute. As this Fan is not running at its full capacity, this quantity can probably be increased.

Magazine - This is in quite satisfactory order.

Safety Grippers on Riders - These should be tested at the stated times and the result of the tests entered in a report book as required under the Mines Act.

Provision of approved Safety Lighting in Shaft - As the shaft is now down to 664' and when the present lift is completed will be only @ 10' above the point where Methane Gas was found in the Pilot Bore, the use of the present Electric Flood light cannot be continued for much longer.

Yours sincerely,

(Sgd.) G. HADDEN.

Inspector of Mines.

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Handwritten notes:
No 11
For your info.
G.D.
7/1/44



20 Bent Street,
Wonthaggi.
MINES DEPARTMENT,
TREASURY GARDENS
MELBOURNE G2

All Communications should
be addressed
SECRETARY FOR MINES.
Telephone: F0234.

11th March, 1944.

The Secretary for Mines.

Dear Sir,

909551 126

In company with Mr. Kingston, Chief Inspector, I made an inspection of the Lakes Entrance Oil Project's shaft on Thursday and Friday, the 9th and 10th of March, and make the following report -

SHAFT:

Concreting of the shaft was just completed to 676' and the "formes" were being taken off. As soon as the shaft steel is in place it is proposed to cut the new Plat near the shaft bottom. In order to give ready access to the shaft bottom during the sinking of each 40' lift it is proposed to use a number of 10' lengths of temporary ladders from the last ladder stage in the shaft, to the bottom. These ladders will hook on to each other and with the chain ladder (already in use) will give men access to the permanent ladders in the event of a failure of the winder.

SAFETY ATTACHMENTS:

A series of tests were made of the "Monkeys". These were not satisfactory and indicate that regular tests should be made. After adjustments were made one set acted but the other set was not able to hold the bucket. Mr. Clark is taking this set off at once for adjustment and when these are done will use it in place of the other set while it is over-hauled. This requires doing at once, as without the "Monkeys" there is no means of holding the buckets in the event of any mishap to the rope.

WINDING ROPE:

As the winding ropes are subjected to varying static loads, due to the picking up of the "Monkey" off its stops, we think it requires reshoeing at more frequent intervals than the ordinary winding ropes. Mr. Clark is going to have this done as soon as possible.

DEISEL GENERATOR SETS:

The auxilliary generator set is now in running order and will provide sufficient power to run the large fan at all times should there be a breakdown in the main generator.

SECOND BOILER:

The installation of the second Boiler is almost completed. When this is done, the one now in use will be closed down for over-haul and testing.

"RING-ROSE GAS DETECTOR":

The "Ringrose" Gas Detector has come to hand and as soon as it has been assembled and tested, will be put into use.

909551 127

GENERAL:

Owing to the amount of water in the shaft bottom it was not possible to make any Gas tests during our visit, and the reports show that none has been detected in the shaft so far. While it would appear that there was probably some gas given off with the burst of water at 666', there is also satisfaction in knowing that the ventilation was adequate to render it harmless, as no trace could be found either on a safety lamp or the M.S.A. Detector. Everything else was quite satisfactory.

Yours faithfully,

(Signed) G. HADDER.

Inspector of Mines.

154
LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE.

909551 128

MINUTES OF MEETING OF LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE COMMITTEE HELD AT LAKES ENTRANCE ON 30TH MARCH, 1944.

Present: Mr. J. Malcolm Newman, Controller of Minerals Production.
(Chairman.)
Mr. George Brown, Secretary, Department of Mines,
Victoria.
Mr. A. C. Smith, Executive Officer - Minerals,
Department of Supply & Shipping.
Mr. H. J. Cook, Superintendent, Lakes Entrance
Oil Project.

.....

1. MINUTES - The minutes of the previous meeting held on 20th January, 1944, were confirmed.
2. ACCOUNTS - Accounts as per schedules Nos. 18 and 19, copies of which are attached, were passed for payment. Totals amount to £596 and £1882.10.0 respectively. In addition, a claim presented by John A. Laing for professional services in connection with the construction of the working chamber and the sealing of the concrete shaft against methane gas, amounting to £67, was also passed for payment. NOTE: Original copies of the schedules, duly signed by the Controller of Minerals Production, together with Mr. Laing's account, also signed by the Controller, are attached to the Accountant's copy of these Minutes.
3. PROGRESS REPORT - Mr. Cook reported that the shaft had been taken down to a depth of 676 ft. and had been concreted to the bottom. He stated that the next lift would be 40 ft. and it was proposed to back seal the water band. Experience in connection with this lift would be a guide to future operations. The shaft was making water at the rate of 1200 gallons per hour.

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The Chairman raised the question as to whether it would not be prudent to carry out boring operations ahead of sinking in the shaft. Mr. Cook said there was something to be said for and against this. The objection to it would be that we would "buy" water for the 40 ft. lift, but it could be supported on the grounds that it was possible that boring would disperse accumulated gas, whereas the gas might come up if boring were not done over a wider surface in a rush. In the circumstances, it was decided to seek the advice of Mr. Hadden on the question of boring ahead and to be guided by him in this regard. Mr. Cook thought it might be desirable to bore, perhaps, 9 ft. ahead of the shaft sinking but not deeper.

Discussion also centered round the sinking of the plat and the difficulties which had been encountered in this regard. The Chairman expressed the view that the main need was to secure the services of miners who were experienced in this type of mining. He thought that the accident which occurred was largely due to the inexperience of the men in this particular type of work.

Mr. Cook stated that due to the accident, they were now short of miners, but were endeavouring to secure men from Ballarat. He felt, however, that it would not be possible to do this until after Easter.

On the question of labour generally, Mr. Cook indicated that difficulties were being experienced. Owing to the type of country which they were going through, contract arrangements could not be applied, and wages did not provide an incentive to miners to put forward their best efforts. He was, however, endeavouring to find some solution to this, but it would obviously be difficult to do so until better ground was encountered.

4. THYER'S REPORT - Mr. Thyer of the Minerals Resources Survey had made a report dealing with the oil content of the glauconite. In this report Mr. Thyer had shown that contrary to Mr. Ranney's anticipations the saturation of the glauconite was nil. Mr. Cook, however, expressed the view that the oil mud veins carried the oil and that the oil would come in quite freely from these veins if they had continuity. It was felt that they had.

It was decided that the pilot ^{hole} should be used to the best advantage to elucidate this matter. It was decided also to core continuously from above the sandstone.

The Committee expressed the view that Mr. Cook should carry out Mr. Thyer's recommendations as far as it was deemed desirable to do so, and that in this connection he should utilise the services of officers of the Mines Department of Victoria where necessary.

5. ELECTRICITY SUPPLY - Some discussion centered round the question of the supply of electrical power by the S.E.C. All that appeared to be necessary in order to make this power available was the running of one additional wire over a distance of about eight or nine miles, and the Committee was unable to comprehend why this was not done instead of installing an expensive generating plant. In any case, it was considered even at this stage if the installation could be inexpensively arranged, and it was thought that it could be, it should be carried out and the power plant should be retained as a standby only. It was decided, therefore, that Mr. Cook should make enquiries into this matter and, if necessary, should visit Melbourne for the purpose of consulting the S.E.C. on the matter.
6. INSPECTION OF SHAFT - In company with Mr. Cook the Chairman carried out an inspection of the shaft and particularly of the plat.

January, 1944.

Schedule No. 18.

The Departmental Executive,
Lakes Entrance Oil Project.

909551 130

The following requisitions for supplies for Lakes
Entrance Oil Project submitted for your authorisation.

(Sgd.) P. J. Scanlan

for Controller of Minerals Production
8/3/44

Reqn. No.	Articles	Amount
3229	Overhauling 6 Atomisers	7. 0. 0
4890	6 Recharges No. 1 size Simplex Fire Extinguishers	1. 0. 0
4891	45 gals. Gargoyle Oil	15. 0. 0
4926	1 - 3 ton Newlex Hydraulic Jack	4. 0. 0
4936	2 Security Filters, 20 lbs. Hemp Fibre	2. 0. 0
4957	Cast Iron Damper Door & Frame	8. 0. 0
5038	1 drum = 1 cwt. Sodium Aluminate	4. 0. 0
5065	1 top cover plate for Junk piston & 2 only - 1 set piston rings	5. 0. 0
5059	Spares for No. 4 C.P. Sump Pump	11. 0. 0
5062	Fitting 1" nut and tail connections to hose	3. 0. 0
5063	2 only 15' lengths armoured hose	7. 0. 0
5084	162 - 44 gal. drums diesel fuel oil	525. 0. 0
5085	12 lamps 200 watt, 2 doz. lamps 100 watt	4. 0. 0
		<u>£596. 0. 0</u> =====

I certify that the above expenditure was necessary for execution of the
programme approved by the Controller.

Approved.....(Sgd.) J. Malcolm Newman

Controller.

February, 1944.

Schedule No. 19

The Departmental Executive,
Lakes Entrance Oil Project.

909551 131

The following Requisitions for Supplies for Lakes Entrance Oil
Project submitted for your authorization.

(Sgd.) P. J. Scanlan

for Controller of Minerals Production.
2/3/1944

Requisition No.	Articles	Amount
5081	2000 Tons Firewood 5' Lengths	1500. 0. 0
5101	1 S.H. Cameron Sinking Pump	166. 0. 0
5115	4 Ball Races	2. 0. 0
5107	1 Cleaning Frame & 2 Flue Doors	25. 0. 0
5164	Goods specified on T.S.1 M.P. 4763 Additional amount required	5. 0. 0
5165	Additional amount required on T.S.1 M.P. 2345 & 2345/1	123. 0. 0
5169	1 only 10 H.P. Motor & 2 only Slide Rails	20. 0. 0
5170	300' x 1" Black Pipe	5. 0. 0
5175	1 only Motor Pulley, 1 Pump & 12 V. Belts	20. 0. 0
5178	2 Cyls. Oxygen & 1 Acetylene	1. 0. 0
5207	2 Bicycle tubes 28 x 1 $\frac{3}{8}$, 1 Repair Outfit	10. 0
5214	40' 1 $\frac{1}{2}$ " 6 Ply Steam Hose	7. 0. 0
5237	Additional Amount required on T.S.1 M.P.4360	1. 0. 0
5244	Parts for McDonald Diesel Engine M.192	7. 0. 0
		<hr/>
		£1882.10. 0
		=====

I certify that the above expenditure was necessary for execution of
the programme approved by the Controller.

APPROVED..... (Sgd.) J. Malcolm Newman

Controller.

Secretary for Mines.

Dear Sir,

909551 132

Report on Lakes Entrance Oil Project.
(Inspection made on the 20th and 21st April.)Head gear and Shaft equipment:

This was all in good order and condition. Tests were made of the Safety Catches on the Riders and after adjustment these were satisfactory, suspending the buckets with a fall of 2". To be of the maximum benefit these tests should be made at intervals of not less than a fortnight so that any faults are quickly detected and rectified.

Power Plant:

The new Boiler is now in operation and when steaming at its working pressure of 120 lbs shows slight signs of leakage at a few of the rivets in the end plates and also on two plugs which have been screwed into the end plates. As soon as the overhaul of the Deisel set is completed it is proposed to overhaul the other boiler, and at the same time the new boiler should be put under hydraulic test and the faulty rivets either caulked or replaced and also the reason for the plugs be ascertained and a better job be made of them.

Lighting in Shaft:

It has been suggested by Mr. Clarke and Mr. Cook that a Transformer be installed on the surface to reduce the voltage used for lighting in the shaft to 25 volts. One reason for this is the fact that the shaft is approaching a depth where inflammable gas is likely to be met, and so far there is no signs of the Turbo-Generator Lamps which were ordered for use then, and the other is the lessened danger of shock from the lower voltage to be used, and in such a wet shaft this is a big factor. While the lower powered lamps are not going to constitute "Safety Lamps" should the presence of Gas require their use, the lowered voltage will certainly make for safer working.

660' Plat:

Owing to the amount of water in the shaft I was not able to make as full an inspection of this Plat as I would have liked in view of the accident which occurred there. It is completed and the Pump was being installed.

Accident:

While at the shaft I saw Mr. McInerney, one of the men who were in the accident, and on my way back I called at the Bairnsdale Hospital and saw Mr. Cox, who is still an inmate, and who is suffering from an injury to his wrists. From what they, and the Manager told me it would appear that blasting had so weakened the roof that it collapsed, throwing the last two sets of timber toward the face of the drive and partly burying the men. Phillips, the other man was the least buried, and after getting free, came to the surface and gave the alarm. Steps were at once taken to free the other two men. McInerney being brought to the surface after one hour and Cox after three hours, Dr. Searles of Bairnsdale was on the surface and after seeing McInerney allowed him to go home, and after an examination on Cox, sent him to Hospital.

Pilot Bore:

The pilot Bore is now down to 1013' and is again showing some traces of inflammable gas, but now in the same quantities as before.

Yours faithfully,

(Signed) G. HADDEN.

Inspector of Mines.

FOR YOUR
INFORMATION.

7/8
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4x

COPY

20 Bent Street 309551 133

WONTHAGGI.

22nd May, 1944.

The Secretary for Mines.

Dear Sir,

Report on Lakes Entrance Oil Project.

I made an inspection of the above works on Wednesday, the 17th May and report as follows -

SURFACE PLANT:

The two Boilers have been dismantled and cleaned and a hydraulic test put on them, and are in satisfactory condition. The winding ropes on the steam winder have had 6' cut off them and have been re-capped. The steam winder is being overhauled at present, winding being carried on with the electric winder. All other surface plant is in good order.

BELOW GROUND:

The shaft was sunk to 708', and the strata being met with has changed considerably. Where previously no temporary lining was required, now it has to be put in at once, and the need for skilled miners for this work is at once apparent, a need which these in charge are finding great difficulty in satisfying. The Sump, where swelling ground was breaking the timber, has had more and heavier timber put in it and should now stand all right. Where the water is coming from the layer of Coral formation in the shaft at 683', there is also a quantity of Gas being given off, but not sufficient to pollute the air.

Yours faithfully,

(Signed) G. A. HADDEN.

Inspector of Mines.

m. Sargunathan



All Communications should
be addressed
SECRETARY FOR MINES.
Telephone: F0234.

MINES DEPARTMENT,
TREASURY GARDENS,
MELBOURNE, C.2.

COPY

20 Bent Street,
Wonthaggi,
14th June, 1944.

Secretary for Mines.

909551 134

Dear Sir,

In consequence of the serious accident to
Mr. Daniels, a shaft-sinker, at Lakes Entrance Oil Shaft,
I visited there last week and report as follows:-

ACCIDENT -

This occurred through the "monkey" when coming
to rest on the stop at the bottom of the skids, not pro-
perly disengaging, with the result that the driver, J. Ema,
let out approximately 4 ft. of slack rope. Daniels reached
over to pull the knocker line, causing the rope-shoe to dis-
engage, and the resulting drop of 4 ft. tipped him out of the
bucket, a distance of about 10 ft. to the bottom, resulting
in a fractured right forearm. On testing, it was found that
the rope shoe would some times catch when the bucket was
canted, so it was decided to counter-sink the top of the
cross-member of the "monkey" to stop any chance of a similar
occurrence.

SURFACE PLANT -

This was all in good order, the Steam winder being
again in use for winding.

SHAFT -

Sinking is again in progress below the 712 ft.
section of concreting, and is progressing satisfactorily.

LIGHTING IN SHAFT -

The Pneumatic Electric Lamps for use in the shaft
have come to hand, and their use below ground will complete
the safety precautions necessary for work where there is
likely to be inflammable gas.

The inspection was made on Tuesday, 6th June, 1944.

Yours faithfully,

(Signed) G. HADDEN,

Inspector of Mines.

Baragwanath
For your information
G. Hadden
12/7/44

COPY

909551 135

20 Bent Street,
Wonthaggi,
10/7/44.

REPORT ON LAKES ENTRANCE OIL SHAFT

The Secretary for Mines,
MELBOURNE, C.2.

Dear Sir,

In company with Mr. Kingston, Chief Inspector of Mines, I made an inspection of the above shaft on the 6th and 7th of this month.

MAGAZINE: There is a considerable amount of explosives in the magazine, and as there has been practically none used in the shaft for the last three or four months, steps should be taken to dispose of it, and fresh supplies could be procured when required. Unless well stored this type of explosive deteriorates, with a consequent increase in the liability to mis-fire when used.

SURFACE PLANT: This is all in good order, with the exception of the Electric Compressor, where a broken holding down bolt was being replaced.

SHAFT: Concreting of the shaft is completed to 756 ft., and the steel work and skidding was being finished, after which the sump was to be cleaned before the men went back into the shaft bottom. A discussion was held relative to the provision of "over-wind" safety attachments on the Steam Winder, and signal bells are to be put on the indicators at once, and an endeavour is to be made to fit a suitable trip gear to the winder to lessen the danger of an overwind.

Yours fait fully,

(Signed) G. HADDEN,

Inspector of Mines.

20 Bent Street,
Wonthaggi,
14/8/44

17-AUG-1944

Secretary For Mines,

Dear Sir,

909551 136

I made an inspection of the Lakes Entrance Oil Projecton Thursday and Friday, the 10th & 11th of August, and report as follows-

Surface Plant, - This was all in good order and condition.

Underground,- The shaft is now down to approx 796' and very difficult sinking conditions are being encountered. These were met with at about 8' below the last concreting, and when I left the shaft on Thursday approx 180 buckets of debris had been sent to th surface without advancing the position of the shaft bottom. In the ordinary course this would mean an advance of about 7' of sinking. The reason for the up-thrust is hard to account for, as there is only a limited amount of Gas making in the bottom, and practically no water. While the centre of the shaft appears to breaking, there is very little evidence of the same happening to the sides, the temporary lining the showing no more than the usual amount of weight. While below I made tests in the shaft bottom for inflamm-able gas, but there was not enough making to give a reading on the "Ring-rose" Detector, which will automatically register when ther is 1 $\frac{1}{2}$ % of gas in the main body of air. Mr Clark is at present on his holidays and Mr W.Ray is acting in his place.

Pilot Bore,- The pilot bore is very close to the top of the Glauc-onite, and a careful watch is being kept by Miss Crespin to deter- mine the position for sealing off the casing.

Yours Faithfully_

G. Hadden

Inspector of Mines.

COPY

909551 137

Mineral Resources Survey,
Census Building,
City, Canberra. A.C.T.

In reply please quote 104.

4th September, 1944.

MEMORANDUM:

Mr. A. C. Smith,
Dept. of Supply & Shipping,
409 Collins Street,
MELBOURNE VIC.

LAKES ENTRANCE.

I have received a copy of cable No. 810 from the Australian Legation, Washington.

No doubt the Departmental Committee will consider this cable and the terms of Cabinet approval for further expenditure on the Lakes Entrance project. In view of this, I think it would be as well for me to put on paper that during my recent visit to Lakes Entrance, Mr. Cook and I discussed some of the problems which have arisen and will arise in the sinking of the shaft and that on all essential points we hold similar views.

1. The continual rupturing of the bottom of the shaft can be explained in terms of simple mechanics. Any point within the earth's crust which is at rest is in equilibrium, that is, the forces acting downwards and upwards at any such point are equal. The downward force at any point is equal to the weight of the column of rock above it, less any other factor which reduces this force. Therefore, the removal of a column of rock above any point has the same effect as increasing the upward vertical force. If the rocks are sufficiently strong this change of conditions has no visible effect, but where the rocks are extremely weak, as they are at Lakes Entrance, they rupture and move vertically up the shaft.

2. It is obviously of major importance to know whether the shaft can be continued right to the glauconitic sandstone or, if not, to what point can it be carried with safety.

3. In view of what is happening in the shaft and in the pump chamber, it seems to me that the revised plan of driving a long gallery parallel to the dip may have to be abandoned in favour of the original scheme, as the cost of keeping the galleries and work chambers open may be prohibitive.

Orig. scheme - long chamber in glauconite.

4. The solution of these problems is distinctly a matter for engineers. We may be able to help and any help we can give will, of course, be given willingly. For instance, as the rock below the shaft bottom ruptures, it rises and comes into the shaft. If this material were sampled and examined periodically, we might be able to say from what depth below the shaft it is coming. If, for any reason, it is considered desirable to sink a second pilot hole, this hole should be cored commencing at the depth the shaft has reached when the bore is put down. With this information our predictions would have more value than they will have, based on present evidence.

(Sgd) H. G. RAGGATT.
Director.

20 Bent Street,
Wonthaggi,
9th Sep, 1944.

114
(10-001-184
MINES DEPT

Report of Inspection of the Lakes Entrance Oil Shaft, made on
Thursday, the 5th of September, 1944.

909551 138

Surface Plant and Machinery,

This was all in good condition, and
well maintained.

Shaft buckets and safety appliances,

Apart from one of the Riders
these were all in good order. The Rider on the West side had
developed a crack in one of its cross members, and Mr Clark had
it dismantled, and was repairing it. These repairs were completed
while I was there, and it is in use again.

Shaft,

Sinking was in progress, and was at approx 878 ft, the
ground, while soft, was not swelling to any very great extent.
The boring of a hole some feet in advance of the bottom may be
having a beneficial effect, as the gas, which previously was
bubbling over a fairly wide area of the bottom, now appears to be
coming from two or three well defined blowers approx in the
middle of the shaft, and close to this borehole. The miners say
that in the last hole they put down the Auger was again blown
out of the hole. This in my opinion shows that besides the Gas
that is contained in the pores of the strata, there are small
pockets, and when these are met with in boring, the forces
released are sufficient to blow the Auger out of the hole as
described. While below ground I took two samples of air in the
shaft bottom, and am forwarding them to Mr Field for Analysis.
So far it has not been possible to get a Gas reading on any of
the instruments in the Shaft bottom, and this analysis will show
whether there is any small percentage of Gas present in the body
of Air

Secretary For Mines,
Treasury Gardens,
MELBOURNE.

Yours faithfully,

G. Hadde

Inspector of Mines.

FIRST PRODUCTION REPORT ON HORIZONTAL OIL WELLS
INDICATES BRIGHT FUTURE.

The story for which the oil industry has waited with interest for several months may now be written - at least the first chapter.

909551 139

It is the story of the production of the horizontal wells of the Ranneywell installation of Venango Development corporation at Two Mile Run, near Franklin. Operators who have heard it listen with interest, and find it difficult to take their eyes off the 3-inch look-box at the well mouth, where the stream of liquid rushes through.

The sight is indeed gratifying to Leo Ranney, technical advisor on the project and inventor of the drilling method in use, who, after 25 years of oil development along unconventional lines, hopes to convince the industry, that the ultimate in methods of oil recovery may grow out of his revolutionary horizontal wells.

PRODUCTION IS REVEALED.

The production story, as told by Mr. Ranney, briefly is this:

With only 10 acres of the 400 acres tract of Venango Development corporation subjected to gravity drainage by these Ranneywells for a period of 180 days ending September 2, with only one of the now producing wells shut, and with 15 points of vacuum applied to the installation for only the last 20 days, production during the six months period has averaged 28 gallons of oil per acre tapped per day. This is 56 times as much oil per acre per day as was produced by the vertical wells on the lease, under 25 points of vacuum, pumping 24 hours per day, in 1940 and 1941.

During the 20 days after vacuum was first applied, production measurably increased, Mr. Ranney said, although the full value of the increase has not been accounted for in the 6-month comparison. It is anticipated that when the 24 wells of the Venango installation have been completed, shut and placed on full production for one year, having become "settled", they will produce as much oil per acre in one year as the vertical wells, at the 1940 rate, would recover in 50 years.

At present, Mr. Ranney said, under 21 points of vacuum the horizontal wells are delivering 126 times as much oil per acre per day as the vertical wells, under 25 points of vacuum, produced in 1940.

FIELD PRODUCING 80 YEARS.

The Franklin heavy oil field was discovered in 1859 and the 400 acre lease of the Venango Development corporation, on the Grant and Grant property, has been producing oil for 80 years. During all of this time, the oil recovered has amounted to a total of 640 barrels per acre. This is an average of 8 barrels per acre per year, or less than one gallon per acre per day. In 1940 and 1941, the years taken by Mr. Ranney for comparison with the horizontal wells, the production of this 400 acres amounted to 1,800 barrels per year, or about one-half gallon per acre per day. Some 100 wells were drilled on the lease, one well to each four acres.

"In secondary recovery of oil, the actual number of barrels per day produced is less important than the recovery cost per barrel and the rate of recovery, as compared with the methods previously employed," Mr. Ranney said.

"If horizontal wells had been drilled initially, the 80 years production on this lease could have been obtained in less

than two years. The horizontal wells have produced as much oil per acre in six months as would have been recovered by vertical wells, at the 1940 rate, in 28 years. And the horizontal wells pass within 10 to 100 feet of several old vertical wells, where presumably, the sand has been fairly well stripped of oil."

Continuing his discussion of the project and the outlook for the development, Mr. Ranney said:

ONLY ONE PUMP NEEDED.

909551 140

"Barrels of oil produced is not the whole story. To compare with the 100-vertical-well development on this 400 acres, only one pump will operate the 24 wells radiating from the shaft, and this will be operated by one man, by pressing a button. The cost of multiple powers, shackle rods, vacuum lines, flow lines, jacks, sucker rods, cups, working barrels, pumps and the expense of pulling and cleaning will be eliminated. It is anticipated that one year after completion the 24 wells will 'settle' to a total production of 240 barrels per day.

"The actual cost of producing oil from the old vertical wells (averaging about 1/8 of a barrel of oil and 5 barrels of water per day) exceeded \$3 per barrel. In operating the horizontal wells, allowing \$15 per day for wages, \$5 per day for upkeep, \$200 per month for power and \$100 per month for contingencies, the field lifting cost will be under 15c per barrel. Deducting the 1/8 royalty, leaving a net of 210 barrels per day, the net income of the property at the present price of the oil (\$4.38 per barrel) would be \$880 per day or \$321,000 per year. Without the 75c subsidy the net (at \$3.63 per barrel) would be \$730 per day or \$266,000 per year. Even at half the expected rate of recovery, the payout time would be much shorter than could be expected of a vertical-well development in any Pennsylvania grade field.

PRICE COMPARISON GIVEN.

As a further comparison, assume - Penn Grade oil at \$3 per barrel; average production from vertical wells, 1/2 barrel per day per well (on each 4 acres); average 1/8 of a barrel per acre per day; average field profit \$1 per barrel; then the net profit per acre per day is 12¢. With an average production from horizontal wells of only .6 of a barrel per acre per day, and a net field profit of \$2.75 per barrel, the net Ranneywell profit would be \$1.65 per acre per day. One half that would be welcomed by the industry.

"Under normal conditions, in spite of the difficult drilling, the entire cost of the Franklin project would be approximately \$500 per acre. By the time 1/4 of the wells in such a project are completed, the net value of the oil currently sold will be more than sufficient to carry the development to completion.

"In considering the above horizontal well figures, it should be borne in mind that this property has produced only 8 barrels per acre per year for the past 80 years. Better results could be expected in a field where the sand has been more productive. The Franklin heavy oil has a viscosity (Saybolt) of 280 at earth temperature, contains no gas, gasoline or kerosene - the only natural expulsive force is gravity, which would be much more effective on oil of lower viscosity. However, this Ranneywell should enjoy a long life.

ROLLER BITS NOW USED.

"In previous Ranneywell installations in the First Cow Run sand in Ohio, borts diamond bits were used exclusively. In that softer sand, with no pebbles present, often a bit would cut from 200 to 300 feet of hole at the rate of 100 feet per shift.

But in the First Venango sand at Franklin, containing many lenses of pebbly quartzite, even black diamonds would often wear off in drilling 3 feet. The relative high cost led the project manager, Ben Harris, to try roller bits, the net result of which was a 50% reduction in drilling cost. The rate of drilling a 4-inch hole depends upon the hardness of the rock at a given point. In spots where the Franklin formation contains no large quartz pebbles a run of 50 feet per shift is often obtained.

909551 141

"The cost per foot of drilling 4-inch horizontal wells has now been reduced, even in this hard rock, to a figure comparative with drilling, casing and equipping vertical well. However, if vertical drilling is reduced to a basis of cost per foot of productive formation tapped, the comparison is much different. For example, if a vertical well 1,000 feet deep penetrates 20 feet of oil sand, and the complete well costs \$3,000 then the cost per foot of productive sand is \$150. In a horizontal well installation the cost of equipping (with pump and flow lines) and casing (100 feet of pipe being used in each well) amounts to about 10 cents per foot of hole in a 50,000-foot development from one shaft.

FACTORS IN LOWER COST.

"The two most important factors to account for the low cost per foot of oil sand exposed are these: The Ranney method of 'two at a time' drilling, where the drill rods are shuttled from one drilling well into the opposite drilling well (without uncoupling the rods); and the fact that all 52 weeks of the year are spent drilling in the oil sand - as against one or two weeks of the year that the vertical driller spends in the producing formation.

"In the Two Mile Run development horizontal wells 1 and 2 were drilled to 2,234 feet and 2,355 feet respectively - approximately to property lines. Three thousand nine hundred feet of these wells were shot with about 12,000 pounds of DuPont 80% hi-velocity gelatine and TNT on Thanksgiving Day, 1943. Necessary hollow rods for cleaning these wells and drilling additional holes were not obtainable until March, 1944. Then the shot wells were cleaned out, some 3,000 cu. ft. of sand being removed by gravity, but they could not be put on full production until necessary pumps arrived, in August. Then an unplugged old vertical well, discovered near No. 1 horizontal well, was found to be flooding the flat well with upper fresh water. The offending well is now being plugged, while No. 2 horizontal well is now on production, under vacuum.

DRILLING PLAN OUTLINED.

"To provide oil to help carry the cost of development it was decided to start drilling the 24 wells around the circle to a depth of 1,000 feet and to place them on production, unshot, as soon as completed. When this is done, each pair of opposite wells will be deepened to property lines, with only one pair of drilling wells off production at any time. Four additional wells have now been drilled to the 1,000 feet length and are being placed under vacuum. It is estimated that shooting the wells increases production about 40%, so at least alternate wells eventually will be shot, to property lines.

"Of course there is much to be learned in the adaptation of the Ranneywell method to any particular field. When all the 24 wells from the shaft have been completed (and possibly before) the application of pressure may be tried in alternate (unshot) horizontal wells, using air or gas. If successful, this would be expected to increase the rate of recovery. While a water flood might succeed in a Ranneywell in some other field, it is out of the question in the Franklin heavy field.

"This installation affords an excellent opportunity for the ~~total~~ use of heat in alternate (pressure) wells to warm up the oil in place and so reduce its viscosity and thus increase the rate of withdrawal. The Ranney patents cover the recycling of hot air or gas, under pressure, over a steam radiator in each horizontal pressure well and distributing the heat by convection. By this method no heat is lost to unproductive rock. The method may not prove to be successful, but the Ranneywell installation provides a better opportunity to try it than can ever be found in vertical wells. If it does succeed, the rate of recovery and the expected ultimate recovery should be greatly increased."

LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE.

909551 143

MINUTES OF MEETING OF LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE COMMITTEE HELD AT LAKES ENTRANCE ON 15TH SEPTEMBER, 1944.

New return pls
JK

Present: MR. J. MALCOLM NEWMAN, Controller of Minerals Production (Chairman).
MR. F. P. F. FIELD, Chemist and Assayer, Department of Mines, Victoria, alternate for Mr. G. Brown, Secretary for Mines.
MR. A. C. SMITH, Executive Officer - Minerals, Department of Supply and Shipping.
MR. H. J. COOK, Superintendent, Lakes Entrance Oil Project.
MR. H. TEMPLE WATTS, Petroleum Engineer.

- (1) MINUTES - The minutes of the previous meeting held on 13th July, 1944 were confirmed.
- (2) FINANCE - Mr. Smith informed the meeting that the total provision for the project had been increased from £150,000 to £200,000 - £150,000 to be provided by the Commonwealth and £50,000 by the State of Victoria - and that approval had been given to the conclusion of the new Agreement with the Snider Construction Company which, in fact, was signed by the Chairman on 12th September.

It was indicated that expenditures on the project to 31st July, 1944, amounted to \$57,475.

Accounts as per schedules Nos. 24 and 25, copies of which are attached hereto, were passed for payment.

Mr. Cook explained that difficulty was being experienced in obtaining concrete aggregate and that some adjustment of the contract may be necessary in consequence thereof. He indicated that the price of this aggregate might be increased by as much as \$1 per foot. The matter was, however, left for determination by the Chairman when, and if, the position referred to by Mr. Cook arose.

- (3) PRESENT POSITION OF SHAFT - Mr. Cook reported that the shaft had been carried to a depth of 536 feet and had been concreted to 516 feet; also that no surplus ground was at present being dug. This showed that no upward movement was occurring.

Considerable discussion then centered round the question of the movement of ground, in which the Committee had the benefit of Mr. H. Temple Watts' views. Mr. Cook expounded as his theory that this was due entirely to incompetent structure and was not associated with either gas

or water pressures. Mr. Temple Watts expressed agreement with this view. Mr. Newman, however, was not wholly in agreement with the theory; he was apprehensive lest gas played some part in this movement. Mr. Newman admitted, however, that the arguments advanced in support of Mr. Cook's theory had much to support them.

The main question for consideration was whether boring should be continued in the shaft in advance of sinking so as to reduce to a minimum risks of accident. Mr. Newman asked both Messrs. Cook and Temple Watts whether, in view of the theory which had been advanced, they considered that there was any necessity for advance boring. In reply to this Mr. Temple Watts stated that although gas under high pressure had not manifested itself to date there was, nevertheless, no guarantee that it would not do so as the shaft progressed. For this reason he thought that in the interests of safety, boring should be continued although to a lesser depth than formerly. With this view Mr. Cook concurred and it was agreed to drill 10 feet in advance of sinking at a time, it being understood that sinking would not, at any time, be carried to a greater depth than within 2 feet of structure which had been penetrated by the drill. It was also to be understood that when hard formations were encountered drilling should be continued until such formations were completely penetrated.

- (4) DR. RAGGATT'S MEMO OF 4TH SEPTEMBER - In Dr. Raggatt's memo. of 4th September he had advanced certain theories in connection with the rupturing of the bottom of shaft; these theories were in line with theories held by Messrs. Cook and Temple Watts and are, therefore, disposed of under (3) above. In this memo. Dr. Raggatt dealt also with the question of abandoning the plan of driving a long gallery parallel to the dip in favour of the original scheme of constructing a chamber in the glauconite. The view of the Committee, however, was that consideration of this matter would be premature at the present stage. Mr. Cook, however, stated that the construction of a work chamber in the glauconite appeared to be entirely out of the question because of pressures which would be encountered, amounting to something like 45 tons to the square foot, and he could, therefore, see no alternative but to construct short drives at, say, 1,100 feet and to put out drills from these.

The general feeling of the Committee was that some further advice should be sought from Mr. Ramsay in regard to these and other matters. It was, therefore, decided that Mr. Ramsay should be furnished with the fullest possible information concerning progress which had been made and the problems which had been encountered to date. Mr. Ramsay should also be asked for advice on the effect which variations of the programme would have on the mechanics of his scheme. For example, he should be asked whether he could cope with a situation where shaft sinking might have to be abandoned within 100 feet of the glauconite, thereby involving substantial dip in his otherwise horizontal bore. In this connection his attention should particularly be drawn to Mr. Cook's reports 97 and 98, as well as to other documents, and a check should be made as to whether Mr. Ramsay had actually received a copy of Mr. Cook's report No. 87.

- (5) RESULTS OF RANNEY MET. DIS. IN U.S.A. - The Committee had before it copies of cablegrams received from the Australian Legation in Washington outlining the views of the U.S. Bureau of Mines on operations undertaken by Mr. Ranney at Venango. It was clear from these cablegrams that results to date had neither confirmed nor condemned the Ranney process. It was noted the Bureau had promised to forward a copy of its report on this matter as soon as it was published.
- The Committee felt some consideration might need to be given to the question of sending an officer to U.S.A. to see for himself results which had been obtained, and to form a close assessment of the value of this process, because after all, the success of the Lakes Entrance project depended entirely upon the efficiency of the Ranney process.
- (6) HORIZONTAL DRILLING EQUIPMENT FROM U.S.A. - Memorandum dated 14th August, 1934, from Director General, Australian War Supplies Procurement, dealing with this matter was before the Committee. From that memorandum it seemed clear that the U.S. Authorities would not agree to the supply of this equipment for cash at the present time, but that further and sympathetic consideration would be given to this matter later, bearing in mind the progress of war operations, when it might be possible to supply the equipment coincident with the completion of the shaft.
- (7) PILOT BORE OPERATIONS - The Committee inspected the pilot bore and examined the small quantity of oil which the bore was ~~yielding~~ ^{producing} amounting to a couple of pints per day, and an examination was also made of cores. Mr. Field took samples of the oil for analysis. Mr. Cook promised to tabulate results and to furnish these at regular intervals.
- (8) OFFER OF ASSISTANCE MADE BY AUSTRAL OIL DRILLING SYNDICATE - This offer, made in the Company's letter of 23rd August and in previous correspondence, was considered by the Committee but the offer was not favourably received. In the opinion of the Committee acceptance of the offer would involve conflict of interest and it was most improbable that information which could be supplied by Mr. Demaine, the Company's proposed representative, would add to the sum of knowledge already available to the Committee. Moreover there was the question of payment for Mr. Demaine's services and it was felt that in the circumstances expenditure in this regard would not be justified.
- (9) REQUEST BY AUSTRAL OIL DRILLING SYNDICATE FOR FULL REPORT ON PROGRESS OF WORK - This request was brought before the Committee but the view of the Committee was that it was a matter for the Government to decide whether such information should be furnished in view of the fact that the Company had issued a writ against the Commonwealth, and bearing in mind also that it had a case before the Minerals Compensation Board.
- (10) ELECTRICAL SUPPLY - The Committee considered correspondence which had been exchanged with the State Electricity Commission of Victoria relative to the supply of electricity for the project and Mr. Cook was authorized to accept the offer made by the Commission and to proceed with arrangements for the installation of this supply.

C O P Y L

909551 146

The Departmental Executive,
Lakes Entrance Oil Project.

SCHEDULE NO. 24.
July, 1944.

The following Requisitions for supplies for Lakes Entrance Oil Project, are submitted for your authorisation.

(Sgd.) P.J. SCANLAN 26/8/44.

Reqn. No.	Articles	Amount
TS1 No. 5828	2 Emery Wheels 10" x 1½"	3. 0. 0
5831	4 Brushholder Insulated Studs	2. 0. 0
5843	6 Cyls. Oxygen	1. 0. 0
5867	2 only 60' Lengths 3" x 4 Ply Delivery Hose	30. 0. 0
5868	Parts for C.P. Shining Vibrator	8. 0. 0
5889	2 only Hoffman Bearings	2. 0. 0
5943	12 " 3" Pipe Bends (Steam)	6. 0. 0
5965	5 lbs. Sealite Plastic Gland Packing	3. 0. 0
5966	8 only Plunger Washers	3. 0. 0
5972	1 " 6" x 4" x 6" Blake Duplex Dump	75. 0. 0
5974	162 only 44 gal. drums diesel fuel oil and drums	525. 0. 0
5975	Spares for 3" 4 Stage Class E.E. Centri- fugal pump	47. 0. 0
5976	3 only 3" vertical gunmetal check valves	5. 0. 0
5977	1 " Duplex Outside Packed Steam Pump	85. 0. 0
5983	Replacement parts for No.4 C.P. Sump Pump	20. 0. 0
5986	2 only Indicator Dial Bells	7. 0. 0
5988	1 " Rotor Spindle and Ball Race	10. 0. 0
6008	4 " Lengths 2" x 4 ply Hose	41. 0. 0
6024	Spares for 3" Four Stage Centrifugal Pump	16. 0. 0
6025	4 only Hoffman Bearings R.L.S. 13 1½" x 3¼" x ¾"	4. 0. 0
		<u>£893. 0. 0</u>

I certify that the above expenditure was necessary for execution of the programme approved by the Controller.

A P P R O V E D (Sgd.) J. MALCOLM NEWMAN.
Controller.

C O P Y.

AUGUST, 1944.

SCHEDULE NO. 25.

The Departmental Executive,
Lakes Entrance Oil Project.

909551 147

The following Requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorization.

(Sgd.) P.J. SCANLAN 4/9/44.
for Controller of Minerals Production.

REQN. NO.	ARTICLES	AMOUNT
MP. 6038	1 only 3" six stage class "E.C." centf. pump etc.	£435. 0. 0
6057	2 only Core Catchers for Baker Core Barrel	3. 0. 0
6058	4 " Hoffman Bearings 1 1/2" x 3 1/4" x 3/4"	4. 0. 0
X 6065	Addl. amount reqd. on S.O. 2294 TS. 1 MP. 1961	107. 0. 0
6075	1400 tons Firewood	980. 0. 0
6088	162 x 44 gal. drums Diesel Fuel Oil & Drums	525. 0. 0
6119	Renewals for 3" four stage Class E.C. Centf. pump	12. 0. 0
6120	do. do. do.	39. 0. 0
6187	4 cyl. oxygen, 1 cyl. acetylene, 8-lb. 3/16 bronze rods	2. 0. 0
6209	1 gal. No. 2 Staylastic black	1. 0. 0
6220	1 only 6A Rectifier tube	3. 0. 0
6236	4 " 4 1/2 lb. plumb axes	4. 0. 0
		<u>£2115. 0. 0</u>

X Pneumatic Miners Lamps - Imported from U.K.

I certify that the above expenditure was necessary for execution of the programme approved by the Controller.

APPROVED (Sgd.) J. MALCOLM NEWMAN.
Controller.

- (11) STATEMENT BY MR. RANNEY - Mr. Cook drew attention to a statement apparently prepared by Mr. Ranney, and which was handed to Mr. Beasley in Washington, dealing with the prospects of recovery of oil in the Lakes Entrance area. The Committee felt that this statement did not represent the correct position and that action should be taken to obtain Mr. Haggatt's views in regard to it.

At the conclusion of the meeting Mr. Newman made an inspection of the shaft and expressed himself as satisfied with the work being done and the general progress being made.

11

(COPY)

COMMONWEALTH OF AUSTRALIA

909551 149

Department of Supply and Shipping.

Mineral Resources Survey,
Census Building,
City, CANBERRA.

104.003718

19th September, 1944.

Mr. A. C. Smith,
Executive Officer - Minerals,
Department of Supply and Shipping,
409 Collins Street,
MELBOURNE. C.I. Victoria.

I refer to your memorandum of 15th September with which you forwarded copy of a statement handed to Mr. Beasley by Mr. Ranney, and on which you ask for my comments.

I have seen this statement before and discussed it somewhat informally with Mr. Cook. Curiously enough, looking at this statement rather critically, my impressions are not as unfavourable as they were when I looked at it casually. In discussing it, a lot depends upon knowing the circumstances in which it was written and whether it was written for any special purpose. For instance if this were a statement prepared by someone who was trying to sell an idea or float a company and it was being handed to a prospective investor as a true summary, it could be described as, in some particulars, a carelessly written statement and one might even call it misleading. However, I imagine it was a statement merely prepared by Ranney, rather hurriedly and without access to documents, for Mr. Beasley's information.

In the first paragraph under the heading (1) the figure 8,000 should be 15,000. The rest of this paragraph is a matter of opinion and Ranney's hypothesis is one of several which have been put forward by other people. It is an opinion only and does not require comment.

The second paragraph under the heading (2) contains two statements which are badly worded. One is "most wells good for $\frac{1}{2}$ barrel to 2 or 3 barrels daily". Within an area of 7 square miles surrounding the proposed Ranneywell Installation 32 wells have been drilled, all of which yielded oil. There are records of yield from 14 of these, 10 of which are considered reliable. The following information on yield is available from records of these 10 bores:-

(a) Bailing (6 wells)	...	Average 8.24 gallons per day Maximum 1 barrel per day.
(b) Pumping (5 wells)	...	Average 26.8 gallons per day Maximum $2\frac{1}{4}$ barrels per day.

Ranney does not say whether he refers to yield by bailing or pumping, but it will be seen that his statement is approximately correct if pumping yields are meant. The obvious weak point here is that the average of results obtained from five wells is taken and given as if it applied to a large proportion of the 50 wells he mentions.

The other statement to which exception might be taken is, "Analyses of the cores of the oil sand by the Victorian Geological Survey indicate that oil is present in commercial quantities in the glauconitic sandstone." Anyone reading this quickly might take it to mean that the opinion expressed was officially held in Australia and based on detailed data. However

I think it may also be looked at as merely expressing Ranney's opinion. The sentence would have read better as follows:
 "Some analyses of the cores of the oil sand had been done by the Victorian Geological Survey. These results indicate, in my opinion, that oil etc."

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The only other statement I note which appears to call for comment is the last sentence under the numbered paragraph (2), namely that the total flush production of the wells indicated is expected to exceed 12,000 barrels of oil per day.

I have never been prepared to make an estimate of the amount of oil which it may be expected will be recovered from the installation at Lakes Entrance. We all know, and Ranney expressly referred to it, that there is not enough basic data available upon which to make the usual estimate of oil content of the sand and probable recovery. However, Ranney and Fairbank, who had had experience of production from fields in which the yield from individual wells was small, said that on their experience Lakes Entrance could be developed on a commercial basis. It is probable that Ranney may have arrived at his figure, 12000 barrels, on the following basis:

The information available from the Imray Well, which has given a low but consistent yield of oil over several years, added to the fact that the sands have a very low permeability suggests that the small but consistent flow of oil in that well has come from a relatively small area (that statement in my opinion is quite sound). He may have gone on from this point and concluded that the average yield per horizontal foot of oil sand will not be less than the average yield per vertical foot.

We do not know what thickness of the glauconitic sandstone it is necessary to penetrate to give the average yield of 8.24 gallons but we do know that the whole thickness of the sandstone is not oil-bearing and taking four alternatives the following figures of prospective yield may be obtained.

Thickness of glauconitic sandstone	Gallons per foot per day.	Production in barrels per day (168 wells each of average length 4000 ft.)
26	.317 $\left(\frac{8.24}{26}\right)$	6,080 $\left(\frac{168 \times 4000 \times .316}{35}\right)$
20	.412	7,900
15	.618	11,850
10	.824	15,800

To go beyond this in comment leads to many "ifs". If the inference in the last sentence of the indented paragraph above is reasonable the rest follows logically enough.

If most of the oil occurs over a comparatively limited vertical zone and the horizontal holes can be kept in this zone, there can be little doubt that our answer is low, not high. If other conditions pertain the result will depend upon the efficacy of methods which may be adopted to induce drainage into the horizontal wells. I cannot usefully comment on that aspect but Ranney has a fund of experience to draw upon and he must have data bearing on this point from the Venango undertaking.

(Sgd.) H. G. Raggatt

Director.

LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE.



Minutes of Meeting of Lakes Entrance Oil Departmental Executive Committee held at 409 Collins Street, Melbourne at 3 p.m. on 26th September, 1944.

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- Present: Mr. J. Malcolm Newman, Controller of Minerals Production (Chairman).
- Mr. George Brown, Secretary, Department of Mines, Victoria.
- Mr. A. C. Smith, Executive Officer (Minerals), Department of Supply & Shipping.
- Mr. H. J. Cook, Supervisor, Lakes Entrance Oil Project.

1. MINUTES:

The minutes of the previous meeting held on 13th September, 1944, were confirmed.

2. REPORT TO MINISTERS ON FUTURE OF ENTERPRISE:

The Committee had before it a draft report prepared by Mr. H. J. Cook, which dealt briefly with the history of the project; with the future of operations and with the question as to whether an arrangement should be reached under which the project might be handed back to the Austral Oil Drilling Syndicate N.L.

The Committee agreed in principle that a report somewhat on these lines should be made to the Ministers, but the feeling was that the report should be couched in such terms as to leave it entirely for the Ministers to decide as to whether or not action should be initiated with the object of handing the project back to the Company concerned, the Austral Oil Drilling Syndicate N.L.

3. AUSTRAL OIL DRILLING SYNDICATE v. THE COMMONWEALTH (Case before Compensation Board (Minerals)).

The Committee considered the claim made by the Austral Oil Drilling Syndicate N.L. and a case prepared in rebuttal thereof by Messrs. H. J. Cook and A. C. Smith, and expressed itself as fully in agreement with the case as prepared.

4. STATEMENT SUBMITTED TO MR. BEASLEY BY MR. RAGGATT:

At meeting of the Committee held on 13th September, it was decided that this statement should be submitted to Dr. Raggatt for his comments. This action had been taken and Dr. Raggatt's comments were placed before the Committee. The feeling of the Committee was that Dr. Raggatt's reasoning was not considered to be adequate justification for the information supplied by Mr. Ranney.

5. OTHER BUSINESS: Pilot Bore.

The Committee had before it, Mr. Cook's last report No. 100 and devoted its attention particularly to the Pilot Bore operations. Mr. Cook explained that the Pilot Bore

Mr. Raggatt's comments for 13/9/44

X

X

had been cored to 7 ft. and was yielding 9.5 pints of oil daily and about 55 pints of water. According to Mr. Field's analysis, which was before the Committee, the oil contained 30% of water and the water contained .08 per cent of oil.

Mr. Cook explained that cores so far obtained had been sealed and sent to Dr. Faggatt for examination and report. These appeared to have very little strength and his view was that unless the rest showed glauconitic sandstone of much greater strength, the question of the depth to which the shaft should be taken would need to receive particular and very close consideration.

The meeting terminated at 5 p.m.

CONFIRMED.

(Chairman)

20 Bent Street,
Wonthaggi,
21st September, 1944.

Mr. Baragwanath

REPORT OF INSPECTION MADE ON THURSDAY, 909551 153
14th SEPTEMBER, 1944, ON THE
LAKES ENTRANCE OIL SHAFT.

Surface Machinery and Plant: This was all in good order and well maintained.

Safety Appliances in Shaft: Tests were made of the "Riders" on both buckets and proved satisfactory, a maximum fall of 2" being registered on each.

I was successful in procuring from Mr. G. Broome, of the State Coal Mine, some information about types of over-wind gear that can be fitted to the Steam winder, and have handed them to Mr. Cook, along with the name of a Victorian firm of Engineers, who have built the last two winders in use at the State Coal Mine, and who would probably advise on, and instal, some form of over-wind prevention devise to the winder. Until this is done, there will always be the danger of pulling the bucket into the head-gear with a full head of steam on the Engine.

S h a f t: Sinking was proceeding, the bottom being at approximately 842 feet, and in strata which, although still very soft, was not rising to any great extent. There were two fairly large and continuous blowers of gas showing in the shaft bottom, as well as many isolated bubbles. On my next visit I propose to take some samples of the main body of air in the shaft bottom for analysis to determine the percentage of gas, if any, in it. So far there has been none recorded on any of the gas testers used. While there, Mr. Cook, Mr. Clark, and myself discussed the swelling or rising of the strata in the shaft bottom, and the probable reasons for it. While perhaps this is not within the province of my duties, Mr. Cook asked that I put my theories on it in my current report, to which I acceded.

There are, in our opinion, two theories for these risings; (1) pressure due to the weight of the superincumbent strata, and (2) pressure due to the expansion of the gases contained in the strata beneath and adjacent to the shaft. While Mr. Cook favors the first of these, I favor the second, and will give my reasons for so doing. For some hundreds of feet now there has been quite an appreciable quantity of gas being given off in the shaft bottom. While this has at no time ~~been~~ been enough to create any danger, it would by virtue of its properties of expansion exert a considerable force on the strata comprising the shaft floor. This strata has very little strength, and as the gas would be contained originally at relatively high pressure, (Gas was able to enter the pilot bore against a water head of approximately 700', representing a pressure of approximately 300 lb. per sq. inch) and as this pressure was gradually reduced by lowering the shaft bottom, a point would eventually be reached where the strength of the overlying strata was so low that the gas would obey Boyle's law of expansion. The weakness of the strata would cause this to be a progressive process, the gas in reality acting as a slow rending explosive, fracturing the ground in its weakest places (the centre of the shaft bottom) and slowly escaping into the atmosphere. Had the strata on the other hand been strong, then we probably would have witnessed sudden outbursts of gas into the shaft as we pierced the cavities containing it.

/It should be ...

It should be borne in mind that in speaking of the cavities that contain the gas it should not be expected that they are large enough to be seen with the naked eye; in reality they are simply the pores of the structure. There have been at least two occasions when the whole of the water disappeared from the shaft bottom, probably into the cracks made by the expanding gases. On another occasion, an auger hole 3" in diameter was bored for a distance of 17' below the floor of the shaft, and some unknown force pushed it a distance of 15' out of the hole. As it had been found necessary to use the winder to pull the auger out previously, it will be realised that a force of some magnitude had acted on it on this occasion. In my opinion this is consistent with the theory of gas expansion being the cause.

In the present case there would be an auger hole with a diameter of 3" as against, in the ~~case of~~ case of the shaft, a diameter of 12', approaching the Gas. The thickness of strata required to withstand a given gas pressure would in that case be considerably less, and when the point of rupture was finally reached, the expanding gases would act as though in a cylinder, driving the auger up the hole until a point was reached where the strength of the surrounding strata was low enough to allow further expansion to take place, when the force of the gas would fracture the shaft bottom. It would appear as though this was what did happen, as the miners who were below at that time said that the shaft floor appeared to be heaving.

When Mr. Cook went below, he reported that everything was normal, although there was a fair amount of gas bubbling in the shaft floor. Another significant fact is, that although the strata is, if anything, softer than that above, there is very little swelling in it. This may be due to the release of pressure through the auger hole, and, if so, may point the way to the overcoming of one of the major difficulties so far encountered.

Yours faithfully,

(signed) G. HADDEN,

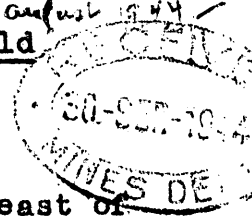
Inspector of Mines.

The Secretary for Mines,
Treasury Gardens,
MELBOURNE, C.2.

W. A. B.
M. M. MOYNEY
M. BEASLEY
The Lakes Entrance, Victoria, Australia, Oil Field

and the Ranneywell Installation.

908551 155



1. The Lakes Entrance oil field, 200 miles east of Melbourne, on Ninety Mile Beach, was discovered some 20 years ago. The best part of the field, as indicated by past bores, is about 8000 feet wide, and extends from the Tasman Sea inland 2 1/2 miles. Since no source bed (always necessary for an oil deposit) has been discovered in the bores, it is believed that the source bed lies under the ocean, indicated that the field extends out under the sea--how far, of course nobody knows.

About 50 wells have been drilled, most wells good for 1/2 barrel to 2 or 3 barrels daily. Analyses of the cores of the oil sand by the Victoria geological Survey indicate that oil is present in commercial quantities in the glauconite sandstone. However, the sand grains are so fine that the permeability of the sand is low and the oil does not flow readily into the wells. Each vertical well exposes only 30 feet of the producing sand. To produce the oil at a reasonable cost per barrel, it is necessary to expose a much greater length of producing sand than vertical wells are able to do. Therefore, a Ranneywell installation, exposing many thousand times the sand area (in horizontal bores) is indicated.

2. Proposed Ranneywell Installation. This project involves a concrete-lined shaft, 10 feet in diameter and 1200 feet deep; a concrete-lined tunnel tangent to the shaft, just above the oil sand, running up-dip to the north and down-dip to the south to and under the sea. At intervals of 200 feet along this tunnel concrete-lined drilling stations are installed. From each drilling station a pair of opposing wells are drilled outward, curved downward into the oil sand, then leveled off just below the top of the sand and drilled out horizontally to approximately 4000 feet in each direction. The oil-sand exposure of each pair of horizontal bores will be equivalent in length to the exposure afforded by 266 vertical wells. The program shown in the accompanying sketch calls for 84 pairs of horizontal wells, or more than 650,000 feet of horizontal bore--equal to the linear sand exposure of more than 20,000 vertical wells. Production starts with the completion of the first pair of horizontal wells. By the time the second or third pair are drilled, the value of production is expected to more than carry the daily cost of all operations. Since the drill chambers are offset from the tunnel, drilling and tunneling operations will be carried on simultaneously. The total flush production of the wells indicated is expected to exceed 12,000 barrels of oil per day.

3. Attention is called to the fact that recent improvements in machinery and technique make it possible to develop the entire field from one operating shaft, instead of sinking a number of shafts. The saving of time and cost by reason of this improvement will be obvious.

4. The total quantity of steel consumed in this installation is expected to be less than 2 ounces per barrel of expected oil recovery--against about 4 pounds of steel per barrel in vertical drilling. Barring unexpected difficulties, for this entire development less than 100 tons of steel will be used.

FIRST
DRAFT.

CO. 2/28/44
R/44

THE MINISTER:

LAKES ENTRANCE OIL PROJECT.

909551 156

This submission has reference to the Resumption

Order of the Controller of Minerals Production whereby control of operations in connection with the production of Mineral Oil at Lakes Entrance was vested in him.

1. The Resumption Order covered all the holdings of the Austral Oil Drilling Syndicate N.L. (hereinafter referred to as "the Company"), which would be useful to the furtherance of a project whereby the production of mineral oil might be brought to a successful issue.
2. The Order was made because of an intimation by the Company that conditions at the time of the resumption made it impossible to raise sufficient funds to prosecute the business. The urgency of the matter was beyond dispute and the order was completely justified by the state of emergency then existing.
3. Despite protracted negotiations carried on for a period of more than two (2) years, the Company has never intimated its agreement with the conditions of the resumption and there has been, and still is, a feeling of resentment by the Company against the Controller. This resentment has taken practical form in that, at the moment, two actions are pending. One of these is a High Court case and the other a claim for compensation under the National Security Regulations.
4. Active operations are being conducted at Lakes Entrance but the date on which production of oil might be expected to

begin cannot be forecast with any certainty.

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The shaft for

oil production is now 852 ft. deep and may be required to be sunk to nearly 1,200 ft. In addition the supply of equipment from America may not be possible until the strain of War Production in that country lessens. This indicates that any Lakes Entrance production will be too late to aid our war effort.

5. The Resumption Order was made in May 1942 when conditions in Australia were very different from those obtaining at present. The Resumption Order at that time was fully justified, but if a similar Order were made today it could not be justified as necessary to Australian national welfare.

6. The foregoing being admitted it is clear that the time has come to consider the reversion of the resumed property to the Company and the conditions under which the reversion should be made.

7. It is accepted that the Governments of the Commonwealth and of Victoria are anxious to assist in any project likely to lead to the successful economic production of mineral oil. For this reason the conditions suggested herein for the return of the property to the Company are generous, but not unduly so.

8. The Lakes Entrance Project is based on what is now referred to as the Ranney method. This method of oil recovery has not had wide application and, at the time when operations commenced at Lakes Entrance, there was not a single Ranney

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Leave No. 10

installation in any way comparable with it. The work at Lakes

Entrance is truly pioneer work. As a consequence the enterprise must be speculative and further than that, because of adverse natural conditions of ground and water pressures, is indeed hazardous. This is not the type of venture which a nominally conservative and prudent controller of public monies would engage. However, the need for petroleum productions was so great that any possible source warranted the expense of a trial.

9. After two (2) years work it does not appear that the project is any less speculative or hazardous. It is under these conditions that it is proposed to revert the Project to the Company.

10. At date rather less than £100,000 has been spent and an order for £23,000 worth of American machinery is being steered through the priority channels of the American Petroleum Administration for War. Any estimate of the total money necessary to bring the project to a producing stage must of necessity be vague. The total amount of £200,000 has been set down so that if the Company were to carry on the work it would need this amount of money, less the amount already expended or guaranteed by the Governments. The sum would be £200,000, less £123,000 or, say, £75,000.

11. The Capital Issues Board would be required to permit the Company to raise, say, £100,000, and in view of the risky nature

of the business any restrictions on the rate of profit would require to be raised.

12. As regards the £123,000 expended by the Governments the following course is recommended:-

- (a) Any plant, machinery or equipment which has been purchased by, or on behalf, of the Governments with their funds shall remain the property of the Governments except as provided hereunder. The Company would have the full use of this so long as it was engaged in active operations.
- (b) The £123,000 expended by the Governments would be regarded as an interest free loan to the Company repayable out of profits. 50% of the profits earned would be used for amortisation of this loan by the Company.
- (c) When the loan had been completely repaid then the Company would be the owners of all plant, etc. beforementioned.
- (d) In the event of the Company ceasing active operations before repaying the loan then the shaft and five (5) acres of ground around it would revert to the Governments, together with the plant and equipment mentioned above.

13. It will be perceived that the suggestion is, in effect, that the Governments made an interest free loan to the Company of the monies jointly expended by them up to the date of reversion.

The advantages gained by the governments by this course of action

are:-

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- (a) A limit will have been set by the Governments to their financial obligations in an endeavour to produce oil in this field.
- (b) The private enterprise of the Company will, all going well, receive the reward to which it is justly entitled, but not before the Governments have been repaid for their assistance.
- (c) They will have given practical assistance to the establishment of a new and important industry in this country.

909551 161
20 Bent Street,
Wonthaggi,
9th October, 1944.

REPORT OF INSPECTION OF THE LAKES ENTRANCE OIL SHAFT,
MADE ON THURSDAY, 5th OCTOBER, 1944.

SURFACE PLANT AND MACHINERY:

This was all in good condition, and well maintained.

SHAFT BUCKETS AND SAFETY APPLIANCES:

Apart from one of the Riders these were all in good order. The ~~000~~ Rider on the West side had developed a crack in one of its cross members, and Mr. Clark had it dismantled, and was repairing it. These repairs were completed while I was there, and it is in use again.

S H A F T:

Sinking was in progress, and was at approximately 878 feet; the ground, while soft, was not swelling to any very great extent. The boring of a hole some feet in advance of the bottom may be having a beneficial effect, as the gas, which previously was bubbling over a fairly wide area of the bottom, now appears to be coming from two or three well defined blowers approximately in the middle of the shaft, and close to this borehole. The miners say that in the last hole they put down the Auger was again blown out of the hole. This in my opinion shows that besides the Gas that is contained in the pores of the strata, there are small pockets, and when these are met with in boring, the forces released are sufficient to blow the Auger out of the hole as described. While below ground I took two samples of air in the shaft bottom, and am forwarding them to Mr. Field for analysis. So far it has not been possible to get a Gas reading on any of the instruments in the shaft bottom, and this analysis will show whether there is any small percentage of gas present in the body of air.

Yours faithfully,

(Signed) G. HADDEN,

Inspector of Mines.

The Secretary for Mines,
Treasury Gardens,
MELBOURNE.



COMMONWEALTH OF AUSTRALIA.

909551 162

DEPARTMENT OF SUPPLY AND DEVELOPMENT,
Shipping,
Century Building,~~WESTERN HOUSE~~, 125 Swanston Street,~~31XWILKINSON STREET~~
12~~th~~ October, 1944.
MELBOURNE, C.I.The Honourable J. A. Beasley, M.P.,
Minister for Supply and Shipping.

In reply quote No.

The Honourable J. A. Kennedy, M.L.C.,
Minister for Mines of Victoria.

Dear Sirs,

In our letter to you of 30th June, 1944, we set out the position, as it then existed, in respect of the Lakes Entrance oil project, and drew particular attention to certain aspects of this enterprise. Briefly these were -

- (i) That oil may not be recovered in commercial quantities.
- (ii) That due to high and ever increasing water and ground pressures and to the presence of explosive gas in the shaft, it may not be possible to complete the project; and
- (iii) that even if the shaft were completed it may not be possible to procure the horizontal drilling equipment either from U.S.A. or by manufacture in Australia.

2. Since writing you on 30th June, there have been certain developments to which we think it desirable to draw your attention. Before proceeding to do this, however, it is appropriate that we should briefly recapitulate the circumstances leading up to the entry, by the Governments of the Commonwealth and Victoria, upon this project.

3. In view of the importance of the discovery of oil in commercial quantities in Australia, and bearing in mind that the Lakes Entrance field offered some possibilities in this regard, action was taken by the Commonwealth Government, during 1940, to procure the services of oil technologists from U.S.A. to report on this field. The assistance of the U.S. Bureau of Mines was enlisted for this purpose and the Bureau selected Messrs. Ranney and Fairbank. These gentlemen came to Australia and reported on the field in 1941. The cost of this investigation was borne entirely by the Commonwealth Government.

4. Messrs. Ranney and Fairbank recommended a novel plan of operations, which involved the sinking of a shaft to a depth of about 1200 ft. in place of the orthodox method of obtaining oil from vertical drill holes. From the bottom of the shaft horizontal oil wells were to be used for oil production. At the time the report was made, this method had had very small application in any part of the world, so that the Lakes Entrance project was, in effect, a pioneer effort. The method has come to be known as the "Ranney" process.

5. Following upon the receipt of this report, the Austral Oil Drilling Syndicate N.L. indicated its desire to take steps to implement the recommendations made by Messrs. Ranney and Fairbank. This Company was offered a loan of \$50,000 - Commonwealth Government £33,333 and the Victorian Government £16,667 - subject to the Company itself raising a like amount.

6. In December, 1941, Japan entered the war. Early in 1942 the Austral Oil Drilling Syndicate intimated that, in view of the Government's proposal to limit profits, it was impracticable to approach the public for the necessary subscriptions. In view of this, and bearing in mind the then great urgency for the supply of oil, it was decided to resume the Company's holdings under the National Security (Minerals) Regulations, to enable the Governments themselves to endeavour to carry out the recommendations made by Messrs. Ranney and Fairbank. Two Orders were, therefore, issued for this purpose by the Controller of Minerals Production dated 15th and 27th May, 1942.

7. Prior to the issue of these Resumption Orders, it was established that the Austral Oil Drilling Syndicate had expended a sum of £39,679 in connection with this project. The Company was, therefore, after some negotiation, informed on 13th May, 1943, that for the purpose of allocation of profit its equity was assessed at £35,000. On this basis, as the estimated expenditure by the Governments was then put at £150,000, the Company would receive $\frac{35}{150}$ of any profit derived from the enterprise. The Company was also told that in the event of the total aggregate investments of the Commonwealth and the State exceeding £150,000, discussions would take place with the Company concerning the relationship that the Company's equity would bear to the aggregate investments. This offer, which your Committee considers a most liberal one, was not accepted by the Company.

8. We have already referred to the conditions which prevailed in Australia when this property was resumed. Some emphasis should be laid on these: Japan had entered the war and Australia faced the greatest crisis in her history: oil was, therefore, a vital necessity, and in these circumstances any action which could be taken to produce oil was thoroughly justified, regardless of economic considerations. even though prospects of success might have been slender.

9. So much for the historical background: we now come to the position as it exists today.

10. The Company has launched an action against the Commonwealth in the High Court for the recovery of certain moneys in connection with the enterprise, and it has also presented a claim for compensation to the Compensation Board (Minerals) in respect of the resumption of its holdings by the Commonwealth. It is probable that the High Court case will not be heard before February 1945 but the Compensation claim is set down for hearing by the Board on 15th November next.

11. The shaft has now been taken down to a depth of 852 ft. complete with concrete and the conditions of shaft sinking referred to in our letter of 30th June still apply. Indeed we are of opinion that as the shaft deepens, these conditions may become more difficult. As we pointed out in paragraph 9 of our letter of 30th June, the difficulties associated with this project were fairly well known before it was undertaken, so that what we are meeting with now was more or less anticipated.

12. The latest advice from the Director-General, Australian War Supplies Procurement, Washington, concerning the supply of horizontal drilling equipment from U.S.A. is to the effect that our application has been denied. The denial is based on the fact that the critical materials involved are more urgently required elsewhere. It has, however, been suggested that we resubmit our case in three or four months time, when the Director-General feels confident that favourable action will

be taken. In our letter of 30th June we indicated that the shaft would take rather more than twelve months to complete, so that the supply of horizontal drilling equipment should come within the time schedule.

13. While the importance of the discovery of oil in commercial quantities in Australia still remains we feel that it can be said that the urgency of supply for war purposes is not now great in strong contrast to the position which we faced when this property was resumed in May, 1942. For this reason the Governments may desire some modification of policy in respect of the enterprise.

14. The considered opinion of the Departmental Executive is that commercial production, if any, cannot commence before a lapse of at least eighteen months and more probably two years. Having this in view and bearing in mind the progress of the war, the questions come into prominence as to what are the Governments' tenure and rights in respect of this property.

15. It has been pointed out on a number of occasions that when the National Security Act lapses six months after the war ends, this property automatically reverts to the original holders, the Austral Oil Drilling Syndicate N.L. The Company has repeatedly referred to this in correspondence, but it has not raised the point that it will not have any obligation to repay Government expenditure. The Company is, however, probably quite well aware of this. It might be possible to move some of the plant and equipment before the National Security Act lapses, but the value of this would represent a fraction only of the total expenditure, which has been mainly incurred in the sinking of the shaft.

16. It seems to your Committee that a stage has been reached when the position should be stabilised in one way or another. In this connection, there appear to be three courses open to the Governments. These are -

- (a) To reach something amounting to a partnership arrangement with the Company, under which the Company would accept an equity entitling it to share in any profits derived from the project.
- (b) To acquire the property under the Commonwealth Lands Acquisition Act; or
- (c) to make an arrangement with the Company now to take over the property and to accept an obligation to repay Government expenditure out of profits.

17. Previous attempts to establish a partnership arrangement with the Company have not succeeded and we are, therefore, not encouraged to think that further negotiations in this regard will have any more favourable result.

18. If the property were acquired under the Commonwealth Lands Acquisition Act, such acquisition would, we are informed by the Principal Legal Officer, cover both land and mineral rights. The practice in a case of this kind is to endeavour to establish the Company's equity by negotiation but, if this is not practicable, the matter automatically reverts to the Court.

19. The Governments may desire to adopt proposal (c), i.e. to arrange now for the Company to take over the property. If it is desired to do this, the following proposals might form a basis for negotiations:-

- (i) The total expenditure by the Governments should be established as at a certain date and such expenditure might be regarded as an interest free loan to the Company forming a first charge against 50% of the profits derived from the enterprise. **NOTE:** These terms are analogous to those which applied to advances formerly made under the Petroleum Oil Search Acts.
- (ii) That during the currency of the loan, the Governments should have a lien over the plant and equipment, leases and other assets of the Company; and
- (iii) that permission should be granted to the Company to raise capital for the enterprise.

20. These conditions may, at first sight, appear to be too liberal, but it should be borne in mind that a royalty of 5 per cent of the gross value of petroleum produced is payable to the Government of Victoria in respect of all oil produced in the State, provided the average daily production of all producing wells on any particular lease area exceeds 100 gallons for each well. On the other hand, the Commonwealth's taxation powers enable it to derive substantial advantages from the profitable operation of oil properties. Further, as already pointed out, the enterprise is most speculative and if it is prosecuted to a successful conclusion, investors would be entitled to a higher reward for their enterprise than would investors in less speculative ventures.

Yours faithfully,

J. Malcolm Newman

(J. Malcolm Newman)
Chairman

George Brown

(George Brown)

A. C. Smith

(A. C. Smith)

Lakes Entrance Oil Executive Committee.

CHEMICAL LABORATORIES

Departments of Agriculture, Health, and Mines,
Victoria.

Phone: F 0234.

Lakes
State Laboratories,

GISBORNE STREET,

909551 166

MELBOURNE, C.2.

14th October, 19 44.

REPORT ON SAMPLES Nos.M.633-634/1944.

Samples ... Mine Air.
Locality ... Lakes Entrance.
Sender ... G.Hadden,
Inspector of Mines.

Sample No.633 - Main body of air from shaft, 4/10/44.

" 634 - Sump bottom " " " " "

ANALYSIS.

	<u>No.633</u>	<u>No.634</u>
CO ₂	0.10 %	0.10 %
CH ₄	0.05 %	0.10 %
O ₂	20.40 %	20.55 %

J. F. Field

CHEMIST & ASSAYER, MINES SECTION.

DEPARTMENT OF SUPPLY AND SHIPPING.

LAKES ENTRANCE OIL PROJECT.

Commonwealth reply to the case of the Austral
Oil Drilling Syndicate to be heard by the Com-
pensation Board (Minerals).

For the purpose of convenience this case is divided into two parts: the first part deals with the more or less recent history of the enterprise and of negotiations and discussions with the Company, and the second part deals seriatim with the particular items which comprise the Company's claim.

(a) Historical:

Historical information is furnished for several reasons, the most important of which are to provide what might be termed "background" information: to establish that consequent upon the resumption of the property, the Commonwealth Government made, on behalf of the Government of Victoria and itself, an offer to the Company of what was regarded as a fair and reasonable equity in the enterprise, based upon the Company's actual capital investment in it; and to establish beyond doubt that had the Company itself been able to carry out the necessary operations, it would have adopted a similar course to that adopted by the Commonwealth and Victorian Governments. The latter point is mentioned, particularly because the Company claims compensation in respect of alleged loss of profits from the development of various wells on the property.

2. In December 1938, the Commonwealth Oil Advisory Committee comprising Drs. Arthur Wade and Keith Ward, submitted a report entitled "The Problem of the Commercial Production of Oil at Lakes Entrance" (copy attached). The main recommendation contained in this report was that what is known as a "repressuring programme" should be undertaken on the Lakes Entrance oil field involving concentration of flow, rather than development of a number of individual wells. The Committee did, however, say that in its opinion existing interests were not equipped either financially or technically to perform the operations necessary to carry its proposal into effect.

3. In view of this particular reference to the interests concerned and to the evident lack of knowledge of problems associated with the field, Dr. H. G. Raggatt, who was appointed Commonwealth Geological Adviser soon after the Commonwealth Oil Advisory Committee had made its report, recommended to the Minister for the Interior, who was then responsible for the search for natural oil, that steps be taken to obtain the services of oil technologists from overseas to advise the Commonwealth Government in regard to this field. This proposal was adopted and the Australian Minister in Washington was accordingly asked to approach the U.S. Bureau of Mines with a view to obtaining the services of a suitable man or men. The outcome of this was that Messrs. Ranney and Fairbank came to Australia and reported on the field in 1941. It should be emphasized that the cost of this investigation was borne entirely by the Commonwealth Government.

4. Messrs. Ranney and Fairbank recommended a new plan of operations which involved the sinking of a shaft, instead of bores as previously, to a depth of about 1200 ft. and the adoption of horizontal drilling methods not previously attempted in

Australia, and which had not anywhere reached a stage of commercial production.

5. Prior to the presentation of the report of Messrs. Ranney and Fairbank, the Austral Oil Drilling Syndicate had secured a large measure of unification of control of the field and, as might have been anticipated, this report did much to stimulate enthusiasm on the part of the Company.

6. The Company approached the Governments of the Commonwealth and Victoria for financial assistance to implement what has come to be known as the "Ranney" Report. It was agreed that the Governments would jointly make a loan to the Company of £50,000 - Commonwealth Government £33,333 and Victorian Government £16,667. It was also decided, this was in November 1941, that the Governments would accept responsibility, pending the raising of capital by the Austral Oil Drilling Syndicate, for the ordering of horizontal drilling equipment from U.S.A., for the retention of the services of Messrs. Ranney and Fairbank and for the provision of a suitable electric generating plant, the latter to cost £40,000. In December, 1941, approval was given for a further advance to the Company of £15,000 to cover preliminary work in connection with the shaft. The Company was, therefore, advanced a sum of £25,000 to cover the cost of immediate operations, such sum to be regarded as portion of the £50,000 provided by the two Governments, pending action on the part of the Company to raise its share of capital. It was made clear at the outset that the Company was to provide pound for pound with the Governments making a total of £100,000 which was Ranney's estimated cost of development up to a producing stage.

7. The point is again emphasized that the Commonwealth bore the whole of the cost of the investigation undertaken by Messrs. Ranney and Fairbank to provide what is regarded as the "know-how" and, in addition to this in order to expedite development, the Governments carried the Company by provision of capital pending the raising of private capital.

8. Early in 1942, the Austral Oil Drilling Syndicate intimated that, in view of the Government's limitation of profits, it was impracticable to approach the public for the necessary subscriptions. In view of this, and bearing in mind the then great urgency for the supply of oil, it was decided to resume the Company's holdings under the National Security (Minerals) Regulations. Two Orders were, therefore, issued for this purpose by the Controller of Minerals Production dated 15th and 27th May, 1942.

9. Prior to the issue of the Resumption Orders a Committee comprising Messrs. Newman, Farr and Smith and Dr. Raggatt was asked to investigate the Company's operations with the object of enabling the Governments to determine what equity the Company had in the enterprise. This Committee submitted a report on 8th April, 1942, in which it traversed the history of past operations and presented an analysis of expenditure by the Austral Oil Drilling Syndicate (copy of which is attached). This indicated that up to that date the Company had expended a sum of £39,679.

10. Following on the receipt of this Report, the Governments decided to offer the Company an equity equivalent to 25,000 £1 shares in the enterprise. This was not acceptable to the Company and the matter came up for further consideration. As a result of this on 13th May, 1943, the Company was informed that for the purpose of allocation of profit its equity was assessed at £35,000. On this basis, as the estimated expenditure by the Governments was put at £150,000, the Company would receive 35% of any profit derived from the enterprise. The Company was also told that in the event of the total aggregate

investments of the Commonwealth and the State exceeding £150,000 discussions would take place with the Company concerning the relationship that the Company's equity would bear to the aggregate investments. This, however, has not been accepted by the Company.

11. It will be noted that the Company's total expenditure amounted to £39,679 and the Governments were willing to recognise that £35,000 of this, almost the total amount, had been expended in the proper development of the field. In the case of developmental work, this is a very high proportion to allow and it will be seen, by reference to the analysis of expenditure attached hereto, that the Governments adopted an exceedingly liberal attitude.

12. Since the Company's holding was resumed, the enterprise has been controlled by what is known as a Departmental Executive, representative of both Governments. The personnel of this Executive comprises Mr. J. M. Newman, Controller of Minerals Production (Chairman), Mr. George Brown, Secretary, Department of Mines, Victoria and Mr. A. C. Smith, Department of Supply and Shipping. Mr. H. J. Cook was appointed Supervisor of the project as from September, 1942. All along the Company has striven for representation on this Executive and was offered one representative in the person of Mr. C. McKay. This, however, was rejected and instead the Company asked for two representatives. This was declined on the ground that the Governments had preponderance of capital investment and the Victorian Government alone, which now has £50,000 invested, is content with one representative.

13. The Company's claim includes items in respect of interest on capital invested in land and loss of profit. In regard to the latter, the extraordinary statement appears that profit is calculated as from the 15th November, 1944.

14. It should be borne in mind that had the Company been able to continue operations on its own account, there is no doubt that it would have followed much the same procedure as has been adopted by the Governments. There is no doubt either that it would not have been able to make progress if, indeed, it had been able to make progress equal to that made by the Governments. The Contractors, the Snider Construction Company, who were in fact selected by the Company, were retained by the Governments and because of their satisfactory work are still on the job. It can be taken, therefore, that development has proceeded on sound lines and the Commonwealth Government has exercised its powers to the full to obtain manpower and materials. It is most doubtful whether private interests, even with the full assistance of the Commonwealth Government, could have done so well in these respects.

15. In view of the foregoing, it is not clear how the Company could have any claim for interest on capital invested in the project or how it could have any claim for loss of profit. It was recognised by the Departmental Executive and its technical advisers from the very inception of operations that the project was highly speculative and would be particularly hazardous. There is no guarantee, even after development has proceeded for two years, that the project will be carried to a successful producing and profit earning stage. The shaft is still a long way off completion and the hazards are known to be so great that no estimate of the date of completion can reasonably be given.

(b) The Company's Claims:

16. In considering this claim it must be repeated that the Governments have offered the Company an equity equivalent to \$35,000 for the purpose of determining profit and this offer still stands. This represents a recognition by the Governments of the value of the Company's holdings at the time of the resumption of the property. This surely supplants the claim now submitted which, it is thought, would not have differed had no equity been recognized by the Governments. For example, in what way would the claim differ from its present form if the Governments had simply dispossessed the Company and confiscated its land and plant?

17. If the equity which has been conceded by the Governments has value in the eyes of the Austral Oil Drilling Syndicate, why has the Company not set this value down and deducted the amount of its present claim from it? If it has no value in the eyes of the Company, why has it so persistently sought an increase in the equity?

18. The detailed items comprised in the claim will now be dealt with seriatim:-

(E)(a) Interest on value of land, shire rates, land tax and noxious weeds destruction.

19. Freehold consists of 182 acres, of which the Governments are using 5.1 acres. The area in excess of 5.1 acres is open for access and use by the Company at any time as the legal interpretation of the purport of the Resumption Order is that it covers only those portions of the Company's property which the Controller, at his discretion, may use at any time for the production of petroleum. In effect, what is not used is not resumed and the point is that 5.1 acres only have been used. The Company has in fact collected fees being proceeds of sale of wattle bark taken from the freehold. This has been done rightly without reference by the Company to the Controller, and shows a definite recognition by the Company that it enjoys the freehold of the land outside the shaft site.

20. These details are furnished to clarify the position in respect of the items specified. A matter of principle, however, is involved. It is reasonable to assume that if the Company had been able to raise capital it would have proceeded with development instead of the Governments, and would itself have borne interest on the value of land and would have paid the other charges referred to. If the equity is regarded as reasonable it surely supplants these items.

(1)(b) Premiums payable by claimant to Western Australian Insurance Company in respect of Prospecting Licences.

21. In this instance again, surely the equity supplants the claim. The Company would have needed to meet these charges if it had operated the property.

(1)(c) Loss due to inability to work six existing wells on land within Petroleum Prospecting Licence 139.

22. The approximate amount of oil which could be obtained from these wells is 25 gallons per day. Such a small quantity is uneconomic to equip, process, handle and sell. No profit could arise from dealing with it and, in fact, had the Company attempted such a proceeding it would have inevitably involved the Company in loss.

(1)(d) Relative to machinery, buildings, equipment and plant taken over by the Governments.

23. In connection with machinery, buildings, equipment and plant, certain re-arrangements and repairs have been made but the whole of this still remains on the property. Certain consumable stores have been utilised as follows:-

- 4 barrels of crude oil have been taken and used in shaft sinking operations of which one barrel is in hand.
- 4 barrels of crude oil were used for road surfacing some two years ago, the road being within the lease.

The approximate valuation of this oil is \$1 per barrel or a total altogether of \$9.

Had this oil not been used more expensive oil would have had to have been obtained from elsewhere, thus increasing the cost of the enterprise.

24. The cost of all these assets would surely be included in the Company's expenditure as per statement attached upon which the equity was based and here again the equity would supplant the claim.

(11)(a) Claim for use of technical data or, alternatively, for loss by the claimant of the right to use such data.

25. It is observed from the analysis of expenditure attached that an amount of \$1,183 was paid in respect of fees for technical advice. This compares with \$24,843.41.6, which the Company now claims as having expended on technical data. There are apparent inconsistencies.

26. The Governments have at no time been furnished with technical data by the Company nor have they had access to it in any way by virtue of the resumption of the Company's holding. Further, the Departmental Committee has not considered that the Company was in a position to add to the sum of knowledge already available to it, or which could be drawn upon, if desired, without cost.

27. As for the Company's claim for loss due to its inability to apply technical data, this is surely frivolous and does not call for any special comment.

(11)(b) Loss of anticipated profit from oil winning operations.

28. Reference has already been made to the absurd suggestion that profits should commence as from 15th November, 1944. It is unnecessary to repeat this. No estimate can be provided by anyone as to what profits, if any, are likely to be derived from the enterprise. Until this can be established a claim for profits would have no basis. As already stated, the Governments have offered the Company an equity of \$35,000 and this assumes that the Company will rank pro rata with the Governments in any profits which may accrue from development. This is considered to be a liberal offer and supplants any claim which the Company now propounds.

(11)(c) - (1) 25% Share of net proceeds of oil production

29. The offer which has been made by the Governments to the Company amounts to approximately 19%, which is based upon actual

financial provisions and is, therefore, an accurate assessment of the Company's equity. In no circumstances could the Governments agree, where expenditure of public moneys is involved, to the granting to any individual of a greater share in profits than that to which he is justly entitled - the illegality of such an arrangement is beyond dispute.

(c) - (2) Refund of a sum of \$2,741,007.

30. This matter is dealt with in a separate statement. It is questionable whether this is a matter which comes within the ambit of the Compensation Board (Minerals).

(c) - (3) Representation in the direction and management of the undertaking.

31. This has been dealt with in the foregoing.

(11)(d) - (1) Royalty of 15% on all oil produced

32. A proposal of this description cannot be entertained under any consideration because it is quite conceivable that oil would be produced at a loss. An absurd position might arise where the Company may have an action against the Governments for not continuing to produce at a loss in order that the Company might make a profit thereby evicting the taxpayer.

(11)(d) - (2) and (3).

33. These have already been dealt with.

(11) Such other amount of compensation as it may be entitled in law to receive.

34. Until it can be determined whether the enterprise can succeed or not, this question is beyond the limits of human determination.

.....

35. In conclusion it is remarked that wartime urgency induced the Governments to enter upon this project with the full knowledge and appreciation of the fact that the enterprise was highly speculative, possessed many natural difficulties, its prospects of success were not bright and the chances of establishing a remunerative business were never better than highly remote. The Company now seeks to capitalise the stringency of war; a liberal offer has been made to it but this was not accepted. Instead, the Company hopes to exact something more from the taxpayers of Australia in respect of an enterprise which presents, at this stage, no features upon which any assessment of its worth can be made.

36. It is strange that the Company's claim does not make any reference to the equity which was offered by the Governments. One can only deduce from this that either the Company considers the offer inadequate or that it would prefer a cash settlement rather than to share with the Governments the risks inherent in this venture.

37. It must be borne in mind that any distribution of cash which might be made to the Company would come from public funds, because the enterprise has not yet made any profit nor can any prediction be made at this stage as to when or whether any profit will be derived from it. If the Company's claim for cash

payments succeeds it might be assumed that such cash would be used for the payment of dividends to shareholders.

38. A further point which should be taken into consideration is that the enterprise, when under the Company's control, was a losing proposition, proving a constant drain upon the resources of shareholders, and apparently the only possible prospect of converting it into a remunerative enterprise is by following the plan of operations now being adopted, which derives from the Commonwealth's action in obtaining the services of experts from U.S.A. in respect of which it bore the total cost.

ANALYSIS OF EXPENDITURE OF AUSTRAL OIL DRILLING SYNDICATE
IN RELATION TO LAKES ENTRANCE AREA.

Leases, Licences, Options, Agreements, &c. (includes £717 from General Development Account)	£6,365	909551 174
<u>Deduct</u> expenditure not applicable to Lakes Entrance area	<u>1,001</u>	£5,364
Purchase of freehold property at Lakes Entrance from South Australian Oil Corporation (£4,473 still owing)	2,201	
Interest paid under contract of sale	<u>1,122</u>	3,323
Purchase of plant, &c:		
plant (present book value)	5,770	
Truck " " "	40	
Furniture " " "	83	
Casing Foster's & Imray bores (present book value).	<u>848</u>	
	6,741	
<u>Add</u> depreciation written off	<u>1,330</u>	
Total cost of plant, &c. (This includes £4,336 paid to S.A.Oil Co. and £1,200 paid to Midwest Co.) .. .. .	.. ..	8,071
Wages paid .. .. .	.. ..	7,098
Field Superintendent's salary .. .. .	.. ..	579
Rent paid -		
S.A. Oil Co. for plant	677	
Midwest Co. " "	126	
For Depot at Lakes Entrance	<u>34</u>	837
Motor Maintenance .. .. .	.. ..	564
Purchase of -		
Stores	553	
Drums	38	
Acid	427	
Water	18	
Fuel	<u>374</u>	1,410
Cartage .. .. .	.. ..	171
Fees paid for technical advice -		
Palaeontologist (F.Chapman)	643	
Geophysicist (M.Milstein)	500	
Research	<u>40</u>	1,183
Directors' fees .. .. .	.. ..	2,249
Acting Manager Director's salary and part legal managers salary (these were not kept in separate accounts in early stages of company) .. .. .	.. ..	3,793
Legal Manager .. .. .	.. ..	791
Office Rent .. .. .	.. ..	493
Advertising, Printing, &c. .. .. .	.. ..	328
Legal Expenses.. .. .	.. ..	324
Rates and Taxes .. .. .	.. ..	42
Insurance .. .. .	.. ..	278
Travelling Expenses .. .. .	.. ..	753
General Expenses .. .. .	.. ..	797
Payments for services rendered .. .. .	.. ..	562
Brokerage and preliminary Expenses .. .. .	.. ..	227
Underwriting and Commission .. .. .	.. ..	120
Legal expenses (flotation of new company) .. .. .	.. ..	<u>322</u>

		£39,679
		=====

C O P Y FOR MR. BARAGWANATH

909551 175

The Secretary for Mines,
Treasury Gardens,
MELBOURNE, C.2.

Mining Inspector's Office,
20 Bent Street,
Wonthaggi,

4th November, 1944.

REPORT ON INSPECTION OF THE LAKES ENTRANCE OIL SHAFT,
MADE ON THURSDAY, 2nd OF NOVEMBER, 1944.

SURFACE PLANT AND MACHINERY:

Railings are @ required around the gravel platform and on the elevated tramline running from the cement shed to the concrete mixer. Mr. Clarke is to have this attended to. Everything else is quite satisfactory.

S H A F T:

Sinking is completed to 916 ft. and the miners were completing the steel work when I was there.

When this is completed, it is proposed to construct a Plat at this level, using one bucket for debris, and putting the bailing tank on the other side to keep the water down. While this is being done, it is proposed to pull the Diesel Plant down for an overhaul. This is very necessary as the position of the shaft now, is such as makes it very necessary that adequate power is available for the ventilation and pumping when required.

GRAVEL QUARRY:

In company with Mr. Cook, Snider, and Henham, I made an inspection of the gravel @@@ quarry on the North Arm, from which they have been getting the concrete gravel. As the gravel is deteriorating and the quarry is becoming dangerous to work, it is proposed to get the rest of their supplies from another pit. The dangerous conditions arise from the fact that control of the pit is shared by the Forests Commission and the Public Works Department, who allow any one to take gravel on the payment of the necessary fee, but apparently they do not exercise any supervision as to the safe conditions of the pit.

(Signed) G. HADDEN,
Inspector of Mines.

C O P Y

Mining Inspector's Office,
20 Bent Street,
Wonthaggi,

11th December, 1944.

REPORT OF INSPECTION OF THE LAKES ENTRANCE OIL SHAFT

Made on Thursday and Friday, the 7th and 8th of December, 1944.

909551 176

SURFACE PLANT AND MACHINERY:

Advantage is being taken of slackness of underground work to go over all the surface plant. I spoke to the Acting Manager, Mr. Ray, about having a suitable guard put on the small circular saw. He is going to bring it under Mr. Clark's notice.

M A G A Z I N E:

All the explosive that was passed as suitable for use by the Explosives Inspector, has been sold, and that which he condemned (approx, 9 cases) is to be destroyed as soon as possible.

S H A F T:

There has been no sinking done since my last visit, the only underground work carried out in that time being the cutting of the new plat at the 900' level. Trouble has been encountered here with swelling ground similar to that encountered on the last plat, where the pressure on the timber had to be relieved by cutting over at the sides and top of the drive. This trouble may be lessened perhaps by adopting the method of timbering used in coal mines in swelling ground. Instead of using a square set of timber, the sill piece is left out and the legs are put on sole pieces instead and are spread at the bottom. When the swelling commences these legs are pushed into the floor by the top pressure, and are forced in at the bottom by the side pressure. If the drive has been made larger in the first place, no cutting over is necessary, as when the maximum swelling is reached there is still adequate room, and the square sets with their sill pieces can be put in as "liners". By this method the original timber is usually saved from destruction.

D R I V E R S:

Owing to various reasons, the number of drivers on the job was down to one when I was there. As it was necessary to use the winder for bailing while the ~~Diesel~~ Diesel was out of commission, I agreed with Mr. Cook that two of the surface employes, Mr. Beveridge and Mr. Woods, who have had some experience on the winder should be allowed to bail water when there were no men in the shaft. I saw both of them winding water, and was ~~satisfied~~ satisfied that they could do the job. As soon as certificated drivers are available, they would take over the job.

(Signed) G. HADDEN,

Inspector of Mines.

The Secretary for Mines,
~~Secretary~~
Treasury Gardens,

MELBOURNE, C.2.

909551 177
J. H. CURNOW & SON

AUCTIONEERS

Real Estate and Insurance Agents

Sworn Valuator

CORNER MITCHELL AND QUEEN STREETS
BENDIGO

BENDIGO,
CORNER MITCHELL & QUEEN STS.
MELBOURNE,
31 QUEEN STREET

TELEPHONES:
BENDIGO 103 (2 LINES)
MELB. MU1118

MACHINERY AUCTIONEERS (Special Dept.) 31 Queen Street, Melbourne

Valuation
16th November, 1944.

J. W. Binney Esq.,
Mines Department,
Treasury Gardens,
MELBOURNE.

Dear Sir,

Enclosed herewith copy of letter
forwarded to Secretary, Department of Supply and
Shipping on 16th November, 1944.

Yours faithfully,

J. H. Curnow
For J. H. CURNOW & SON.

Enc:

909551 178

16th November, 1944.

The Secretary,
Department of Supply & Shipping,
409 Collins Street,
MELBOURNE. C.I.

Dear Sir,

Following the letter of 10th inst. received by the Secretary for Mines from the Commonwealth Crown Solicitor, I have to report that under your instructions I visited Lakes Entrance with Mr. J. W. Binney of the Mines Department and inspected Plant and Equipment used by the Commonwealth and being the property of the Austral Oil Drilling Syndicate N.L. The items inspected were pointed out to me by Mr. Binney and Mr. E. R. Smith and values were placed on each lot. Apart from the Boring Plant and accessories, Diesel Engine, 2 Steam Engines and Buildings the balance comprises piping, fittings, consumable stores and small equipment all of which are now in use on the plant in operation by the Commonwealth for the sinking of the shaft.

In my opinion the Buildings, Piping and small equipment will have to be purchased as handing back would be most complicated. The boring Plant and Engines could be leased and handed back in good condition.

From enquiries made I was given to understand that most of the buildings which were removed from various parts of the lease were poor and on re-erection are now in much better shape and condition.

My valuation as at the 15th May, 1942, of the Equipment in question is Two Thousand Five Hundred and Ninety Pounds, Seven Shillings and Six Pence (£2,590. 7. 6).

Yours faithfully,

C O P Y.

J. H. CURNOW & SON.

Auctioneers,

BENDIGO.

909551 179

J. W. Binney, Esq.,
Mines Department,
Treasury Gardens,
MELBOURNE.

16th November, 1944.

Dear Sir,

Enclosed herewith copy of letter forwarded to the Secretary, Department of Supply and Shipping on 16th November, 1944.

Yours faithfully,

(Signed) H. J. Lowe.
For J. H. CURNOW & SON.

J. H. CURNOW & SON.

BENDIGO.

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Yours faithfully,

(Signed) J. H. CURNOW & SON.

C O P Y.

J. H. CURNOW & SON.

Auctioneers,

BENDIGO.

909551 180

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Treasury Gardens,
MELBOURNE.

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Following the letter of 10th inst. received by the Secretary for Mines from the Commonwealth Crown Solicitor, I have to report that under your instructions I visited Lakes Entrance with Mr. J. W. Binney of the Mines Department and inspected Plant and Equipment used by the Commonwealth and being the property of the Austral Oil Drilling Syndicate N.L. The items inspected were pointed out to me by Mr. Binney and Mr. E. R. Smith and values were placed on each lot. Apart from the Boring Plant and accessories Diesel Engine, 2 Steam Engines and Buildings the balance comprises piping, fittings, consumable stores and small equipment all of which are now in use on the plant in operation by the Commonwealth for the sinking of the shaft.

In my opinion, the Buildings, Piping and small equipment will have to be purchased as handing back would be most complicated. The boring Plant and Engines would be leased and handed back in good condition.

From enquiries made I was given to understand that most of the buildings which were removed from various parts of the lease were poor and on re-erection are now in much better shape and condition.

My valuation as at 15th May, 1942, of the Equipment in question is two thousand, five hundred and ninety pounds, seven shillings and six pence. (£2,590/7/6.)

Yours faithfully,

(Signed) J. H. CURNOW & SON.

909551 181

24th November, 44.

REPORT ON SAMPLES Nos. N.673-674/1944.

Samples ... Waters.
 Locality ... Lakes Entrance.
 Sender ... H.J. Cook,
 Supervisor,
 Lakes Entrance Oil Project.

DESCRIPTION.

No.673 Bore hole - separated from oil.
 674 Shaft. - leakage from various horizons.

ANALYSIS.

copied for Bore hole 74

		673.	674
		Parts per 100,000.	
Chlorides	(Cl)	45	30
Carbonates	(CO ₃)	42	nil
Bicarbonates	(HCO ₃)	27	48
Sulphates	(SO ₄)	trace	15
Lime	(CaO)	"	3
Magnesia	(MgO)	"	7
Oxide of Iron	(Fe ₂ O ₃)	3	nil.

HYPOTHETICAL COMBINATION.

Sodium chloride	(NaCl)	74	49
" carbonate	(Na ₂ CO ₃)	74	nil
" Bicarbonate	(NaHCO ₃)	32	32
" sulphate	(Na ₂ SO ₄)	trace	22
Calcium bicarbonate	(Ca(HCO ₃) ₂)	"	9
Magnesium "	(Mg(HCO ₃) ₂)	"	25
Ferrous "	(Fe(HCO ₃) ₂)	7	nil
Total Solids in Solution		187	137

COMMENTS.

The use of Sample No.674 for boiler feed purposes would be dangerous on account of the soluble salts causing temporary and permanent hardness with detrimental effect of scale formation on boiler plates. A preliminary treatment using hydrated lime would be required to remove the objectionable salts principally Bicarbonates of lime and magnesia.

J. L. Kelly

CHEMIST & ASSAYER, MINES SECTION.

LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE.

909551/182

Minutes of meeting of Lakes Entrance Oil Departmental Executive Committee held at Lakes Entrance on 29th November, 1944.

Present: Mr. J. Malcolm Newman	Controller of Minerals Production (Chairman)
Mr. George Brown,	Secretary, Department of Mines, Victoria.
Mr. A. G. Smith,	Executive Officer (Minerals), Department of Supply & Shipping.
Mr. H. J. Cook	Supervisor, Lakes Entrance Oil Project.

.....

1. **MINUTES:** The minutes of the previous meeting held on 26th September, 1944, were confirmed.
2. **ACCOUNTS:** Accounts as per Schedules 26 and 27, copies of which are attached, covering total expenditure of £32 and \$1578. 10. 0 respectively, were passed for payment.
3. **MR. COOK'S REPORT FOR MR. RANNEY:** Copy of Mr. Cook's report of 17th November, 1944, addressed to the Controller of Minerals Production dealing with various points raised by Mr. Ranney was placed before the meeting. The report was studied in detail and discussion ensued in regard to it. In reply to a question, Mr. Cook made it clear that he could not determine the depth to which the shaft could be sunk until he had had experience of the micaceous formation through which the shaft would need to be sunk. Note: Mr. Cook's report was despatched to Mr. Ranney on 21st November, 1944.

Mr. Cook said that he would like to have more information from Mr. Ranney about pre-grouting in soft ground and he had asked Mr. Ranney to furnish this information.

The Committee also had before it, Mr. Ranney's letter of 7th October, 1944, addressed to the Secretary, Department of Supply and Shipping, which was dealt with in Mr. Cook's report of 17th November.

The Committee expressed appreciation of the manner in which Mr. Cook had presented his report for transmission to Mr. Ranney, and affirmed the desirability of obtaining information on pre-grouting of soft ground to enable a decision to be made concerning the depth to which the shaft should be sunk, and the method of making openings for horizontal drilling.

4. **PILOT BORE:** The Committee noted that the pilot bore had been taken down to a depth of 1211'8" and that the daily oil production remained stable at about five gallons per day. Mr. Cook also made a statement concerning the oil-water ratio and the probable origin of water, and undertook, at the request of the Chairman, to furnish a report on this matter in due course.

5. **ENGINE DRIVERS:** Mr. Cook stated that the position in regard to engine drivers had become desperate. It had been found impossible to get men, with the result that three drivers employed on the work had been obliged to perform long hours of overtime over a protracted period. As a consequence these men have intimated that they are not prepared to carry on without some respite and, in these circumstances,

Mr. Cook advised the Committee that he would not be in a position to resume sinking until the services of more engine drivers were procured; in normal circumstances he would be ready to resume sinking in about five days. Some further time could, however, be occupied in endeavouring to stabilise the plat at the 900 ft. level. Some of the men were entitled to holidays and if further engine drivers could not be obtained, the men would be allowed to take their holidays. Note: The plat at the 900 ft. level was inspected by the Committee and members were impressed with the importance of this plat in connection with the obtaining of information in relation to opening out for horizontal drilling.

The Committee had before it a letter dated 23rd November from the Snider Construction Company which dealt with the question of offering engine drivers a living away from home allowance of 32/6 per week, much on the same lines as carpenters receive. The company showed that if this allowance were paid to four drivers (the full complement of drivers) in addition to ordinary wages of £7.11.0 per week, the total cost would amount to £42.16.1 per week as compared with the amount at present being paid to drivers in respect of ordinary wages and overtime, which amounted to £53.8.3. per week.

Both Messrs. Snider and Cook assured the Committee that if the living away from home allowance were paid to drivers, other employees would not make claims for such an allowance, nor would they have any grounds to support such claims.

In the circumstances, and bearing in mind that operations would have to be suspended altogether, involving disbandment of personnel if engine drivers could not be procured and having in mind that the only way of inducing drivers to accept positions was to pay them a living away from home allowance of 32/6 per week, the Committee agreed that this payment should be made, particularly in view of the fact that such an arrangement would be much less costly than that which was then operating.

5. GRAVEL. The action taken by Messrs. Snider and Cook to obtain supplies of gravel was confirmed by the Committee.

6. Bore Cores: Mr. Cook again drew attention to the fact that bore cores had been sent and were continuing to be sent to Dr. Raggatt in Canberra for examination and report, but up to date no report had been received. In these circumstances, the Committee decided to ask Dr. Raggatt to expedite the furnishing of reports which were regarded as of importance in connection with future operations.

The meeting terminated at 11.30 a.m.

CONFIRMED

.....

(Chairman)

September 1944.

SCHEDULE NO. 26

909551 184

The Departmental Executive,
Lakes Entrance Oil Project.
.....

The following Requisitions for supplies for
Lakes Entrance Oil Project, are submitted for your authorisation.

(Sgd.) P. J. Scanlan

12/10/44

Reqn. No.	Articles	Amount
T.S. & H.P. 6276	1 only 1 K.W. 240/32 V. Transformer etc.	£14. 0. 0
6342	2 Asbestos packed blow through cocks 1/2" for attachment to Boiler Gauge glass mountings	3. 0. 0
6350	Repairs to 5 H.P. Motor	15. 0. 0
		<hr/>
		£32. 0. 0

APPROVED. (Sgd.) J. Malcolm Newman

H. J. Cook

29/11/44

October, 1944.

H.F. 25

Schedule 27.

The Departmental Executive,
Lakes Entrance Oil Project.
.....

909551 185

The following requisitions for supplies for Lakes
Entrance Oil Project are submitted for your authorisation.

(Sgd.) P. J. Scanlan

2/11/44

Requ. No. T.S. 1 N.P.	Articles	Amount
6343	Overhaul of one VEB atomiser	£2. 0. 0
6377	162 only 44 gal. drums Diesel Fuel Oil & Drums	525. 0. 0
6378	1 only Penburthy Injector for boiler	6. 0. 0
6380	24 " C. I. firebars 2'2 1/2" long	6. 0. 0
6400	Barrister's fees, Austral Oil Drilling Syndicate v. Commonwealth Government	32. 10. 0
6406	6 ea. 1/2" x 18" & 1/2" x 16" Boiler gauge glasses	1. 0. 0
6418	8 lbs. Austral Tobin bronze bearing rods 3/16	1. 0. 0
6419	24 only Edison Screw Lamps 150 watt	3. 0. 0
6440	15 prs. Rubber Thigh Boots & 4 prs. Rubber Knee Boots	22. 0. 0
6455	1400 tons Firewood	980. 0. 0
		<hr/>
		£1578. 10. 0

APPROVED.

(Sgd.) J. Malcolm Newman

(Sgd.) R. J. Cook

29/11/44



All Communications should
be addressed
SECRETARY FOR MINES.
Telephones: ~~02220222~~ F 0234
GH:DS

MINES DEPARTMENT,
TREASURY GARDENS,
MELBOURNE. C.2.
12th November, 1945.

REPORT OF VISIT TO
LAKES ENTRANCE OIL SHAFT
ON THURSDAY, 8TH NOV.

909551 136

SURFACE EQUIPMENT:

All in good order and condition. A new winding rope has been put on the western drum of the steam winder, but so far has not been used.

SHAFT AND SHAFT EQUIPMENT:

All shaft equipment is in good order and well maintained.

The small timber winze has been sunk to 1204 ft. 6 in., and one winding compartment has been skidded to allow the bucket to run through to that depth. *(48' occ. fr.)*

A timber lined level has been driven approximately 15 ft. 6 in. north and 6½ ft. south, making a level approximately 27 ft. long, 7 ft. high, and 6 ft. wide.

This level shows no sign of crush similar to that met with in the sump at the 900 ft. level.

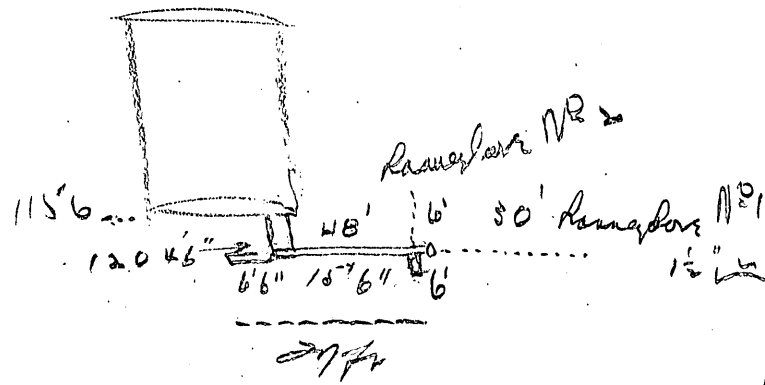
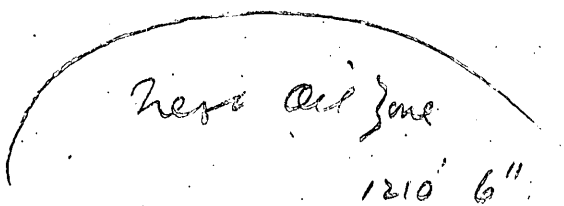
Small trial horizontal holes have been drilled in the northern and eastern faces and drainage tests are being made of the amount of oil coming from them.

A further small winze approximately 6 ft. in depth is being put down in the end of the northern drive to cut the next oil zone at 1210 ft. 6 in. This should be the total depth that the shaft and winzes should be taken, as no accurate information is available as to the correct thickness of the glauconite at this spot.

E. Stadden

Chief Mining Inspector.

The Secretary,
Mines Department,
MELBOURNE, C.2.



MINUTES OF MEETING OF LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE COMMITTEE HELD AT LAKES ENTRANCE ON 20TH AND 21ST NOVEMBER, 1945.

909551 187

....

PRESENT:

- MR. J. MALCOLM NEWMAN, Controller of Minerals Production, (Chairman).
- MR. GEORGE BROWN, Secretary, Department of Mines, Victoria.
- MR. A. C. SMITH, Executive Officer - Minerals, Department of Supply and Shipping.

IN ATTENDANCE:

- MR. H. J. COOK, Supervisor of the Project
- MR. L. NOAKES, Geologist, Mineral Resources Survey.
- MR. D. E. THOMAS, Geologist, Department of Mines, Victoria.

.....

1. MINUTES:

The minutes of the previous meeting held on 24th October, were confirmed.

2. FINANCE:

Accounts as per attached Schedule 39 were passed for payment.

3. PROGRESS OF OPERATIONS:

The progress of operations was discussed at length. Mr. Cook stated that the "pot hole" which was put down in the north drive took the total depth to 1212 ft. or to approximately 14 ft. within the oil sands. Mr. Hadden, the Chief Inspector of Mines, Victoria, would not consent, on the grounds of safety, to operations going any deeper.

Mr. Cook referred to estimates furnished by Dr. Raggatt and his staff, which indicated a possible maximum recovery from a circular area 2000 ft. in diameter within the top 19 ft. of the oil sands, of 20,000 barrels of oil. According to Mr. Cook the maximum value of this oil would be £20,000 and recovery would take from four to six years. As against this, he estimated that drilling would cost £20,000 and maintenance a further £40,000, making a total altogether of £60,000 thus showing that the project was entirely uneconomic.

Considerable discussion centered around the question as to whether the pilot bore, which had already been taken to 23ft. within the oil sands should be deepened by a further 5ft. with the object of obtaining precise information as to what oil lay above the water horizon. Information available from other bores suggested that the oil sands were 30ft. 4 ins. thick so that if the pilot bore were taken to 28ft. the margin would be 2ft. 4 ins. between the bore and the water.

Mr. Newman favoured the carrying out of this operation, but was opposed by Messrs. Brown, Cook and Smith on the grounds that if the water were pierced, the Austral Oil Drilling Syndicate would probably bring an action for damages, and on the grounds also that if oil was present in this lower section of the oil sands, there was no known method of extracting it by horizontal drilling and, in any case, the Chief Inspector of Mines of Victoria, would oppose mining operations in this area because of the grave risks to life which would be involved.

Mr. Newman emphasised that the Syndicate's claim for damages, if one were made, would be based upon the letting of the water into the oil sands thus spoiling the chance of obtaining oil and, if this were done, the Syndicate's case would be untenable because already the water horizon had been pierced in other areas contiguous to the pilot bore. In any case, operations in the shaft showed that such a contention would have no foundation in fact.

It was pointed out, however, that irrespective of what technical opinion might be brought to bear in support of any action taken by the Committee, recent cases in which the Commonwealth had figured showed that the Courts would probably award compensation to the Syndicate.

Both Messrs. Brown and Smith expressed the opinion that if action were to be taken to deepen the pilot bore, it could only be done with the knowledge and agreement of the Governments of the Commonwealth and Victoria.

It was admitted by members of the Committee that it would be an advantage to obtain the fullest information concerning occurrences of oil in the lower part of the oil sands, but there would be no practical purpose in doing this unless means were found by which any oil so found could be extracted.

4. COST OF PRESENT OPERATIONS:

Mr. Cook stated that the monthly cost of present operations amounted to about £1200 for wages and £300 for power and oil, or a total altogether of £1500.

The Departmental Executive,
Lakes Entrance Oil Project.

909551 189

The following requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorisation.

J. J. J.
19-11-45

Reqn. No.	Articles	Amount		
MP. 7201	Amount required to the cost of 1400 tons of firewood, etc.	980.	0.	0
7207	Amount for cost of supply Cable Installation etc.	76.	0.	0
7208	Rewinding (1) 3 h.p. motor serial No. A ² -40	7.	0.	0
7216	1 only Piston Part No. 200 for model 175 Clay Digger	3.	0.	0
7239	3 doz. 230V 100W B.C. Globes	3.	0.	0
		<u>£1069.</u>	0.	0

APPROVED.....
[Signature]

[Handwritten initials]

5. INVENTORY OF PLANT, EQUIPMENT AND STORES:

Mr. Cook stated that much of this information had already been compiled and that he was taking steps to complete it.

6. VISIT OF MR. C. HUDSPETH TO LAKES ENTRANCE:

The Committee decided that Mr. C. Hudspeth should be asked to visit Lakes Entrance in the event of any decision being arrived at involving penetrating the glauconite at greater depth. It was felt that his advice would be of great value.

The meeting terminated at 11.30 a.m. on 21st November, 1945.

CONFIRMED.

.....
(Chairman)

29th November, 1945.

W 434

STATE LABORATORIES,
Melbourne Street,
Melbourne C.2.

909551 191

27th November, 45.

Report on Sample No. M.432/1945.

sample ... Natural Gas.
locality ... Lakes entrance.
sender ... Secretary for Mines,
Melbourne.

The sample was collected from sealed bore hole at bottom of shaft, Lakes entrance.

Analysis.

Carbon dioxide	(CO ₂)	0.20 %
Methane	(CH ₄)	98.80 %
Oxygen	(O ₂)	0.20 %
Nitrogen	(N)	0.80 %
Total		<u>100.00 %</u>

J. F. Lidd

Chemist & Assayer, Mines Section.



Robert Devison
Min & Res. Secy.

All communications should be addressed

SECRETARY FOR MINES.

Telephones: ~~0234~~ F 0234

1:DS

MINES DEPARTMENT,

TREASURY GARDENS,

MELBOURNE. C.2.

30th November, 1945.

909551 192

MEMORANDUM FOR THE HONORABLE THE MINISTER:

Lakes Entrance Oil Project

I attach for your information a file of papers in reference to the Lakes Entrance Oil Project.

Briefly, the position at Lakes Entrance is that, following a visit from Messrs. Ranney and Fairbank, of U.S.A., in July, 1941, arrangements were made for the Commonwealth and State Governments to jointly carry out a developmental scheme at Lakes Entrance. This consisted of sinking a circular shaft, of ten feet internal diameter, with a substantial concrete wall, to the glauconitic sandstone, from which the oil exudes. From the bottom of the shaft, horizontal drilling operations were to be carried out in the anticipation that the oil field could be efficiently tapped in this manner. The cost of these operations is being borne by the Commonwealth and this State, in the proportion of £150,000 having been allotted by the Commonwealth Government for this work, and £50,000 by the State Government. The expenditure to date is approximately £150,000. The enterprise is supervised by an Executive Committee of three, appointed by the Commonwealth and State Governments, viz:-

- J. Malcolm Newman, Commonwealth Controller of Mineral Production;
- A. C. Smith, Department of Supply and Shipping;
- Geo. Brown, Secretary, Mines Department, Vic.

The depth of the main shaft is at present 1156 ft., and from the bottom a winze has been sunk to a depth of 1204 ft. 6 in. At this depth, a drive has been extended for a short distance, and from it a small winze has been sunk to a depth of eight feet. The bottom of this winze would, therefore, be 1212 ft. 6 in. from the surface. Diamond drilling from the bottom of the main shaft has shown that the glauconitic sandstone extends to a depth of 1223 ft. There is thus a 10 ft. 6 in. strip of sandstone at least before artesian water is reached. The Chief Mining Inspector is not prepared to allow any further sinking of the main shaft or winze, in view of the risk involved from the artesian water.

and for some
unknown distance
beyond.

Following dissatisfaction in relation to correspondence with Mr. Ranney, the Supervisor of the Oil Project, Mr. H. J. Cook, visited U.S.A. in the early part of this year, and obtained from a Consulting Oil Geologist, Mr. J. R. Pemberton, of Los Angeles, California, a report on the project. Mr. Pemberton, whose standing in the oil world is in the highest grade, in his report concludes that -

"The Lakes Entrance project is doomed to failure regardless of what type of development is applied, simply for the reason that an entirely insufficient and inadequate supply of oil exists within the area to warrant consideration."

/On ...

On 1st August, 1945, I submitted to the then Minister of Mines (the Hon. J. A. Kennedy, M.L.C.) a memorandum (attached) in relation to this matter, recommending that the Lakes Entrance project be abandoned and the assets realised, but that, before this were carried into effect, the Executive Committee be authorised to ascertain what proposals, if any, the Austral Oil Drilling Syndicate, N.L., might have to make. Cabinet, on 6th August, 1945, agreed with this recommendation.

I have to-day had a consultation with Mr. A. C. Smith, Executive Officer, Minerals Directorate, Department of Supply and Shipping, who has advised me that the Commonwealth Cabinet dealt with this matter within the last few days, and decided that consideration of the recommendations of Mr. A. C. Smith and Mr. Malcolm Newman (which were similar to the recommendations approved by the Victorian Cabinet in August last) should be deferred pending further discussion with the Victorian Government.

An urgent situation has, however, arisen, which requires that the matter should be finalised at the earliest practicable date, viz., that the Chief Inspector of Mines of this Department is not prepared to allow the shaft to be sunk to any greater depth, because of the risk of artesian water penetrating through the strata of glauconitic sandstone above it and flooding the shaft. In these circumstances, the Supervisor of the project is faced with the position that, after a few days, he cannot find essential work for the staff employed. I therefore repeat my previous recommendation regarding the abandonment of the enterprise and realisation of the assets, subject to ascertaining what proposals, if any, the Austral Oil Drilling Syndicate may have to make, and in addition recommend that the State Government agree that the Lakes Entrance oil project should be placed upon a caretaker basis at once, so far as staff is concerned, pending finalisation of the matter by the Commonwealth Government.

*Approved by Cabinet
W. W. Keane
Minister for Mines
3/12/45*

J. A. Kennedy
Secretary.



All Communications should
be addressed
SECRETARY FOR MINES.
Telephone: F0234.

1:DS

909551 194
MINES DEPARTMENT,

TREASURY GARDENS,
MELBOURNE, C.2.

1st August, 1945.

MEMORANDUM FOR THE HONORABLE THE MINISTER:

A copy is attached of a memorandum from the Executive Committee of the Lakes Entrance Oil Project forwarding copy of a report dated 31st July from Mr. H. J. Cook, Supervisor of the Project, who has just returned from America after making inquiries following unsatisfactory communications from Mr. Ranney, whose system is in process of being installed at Lakes Entrance. From this report and cables received from Mr. Cook while in the United States, it is clear that a stage has been reached where consideration must be given to abandoning the project altogether.

I am advised by Mr. A. C. Smith, Department of Supply and Shipping, that the Commonwealth members of the Executive Committee are recommending to the Commonwealth Government that, in the circumstances, the enterprise be abandoned and the assets realised, but that, before this is actually put in hand, the Committee be authorised to ascertain what proposals, if any, the Austral Oil Drilling Syndicate, N.L., may have to make. I am in agreement with these suggestions, and recommend accordingly.

Cabinet 6/8/45
Referred back to
Committee as suggested
J. K. [unclear]
Min of Mines

[Signature]
Secretary.

MU6731

TELEPHONE: ~~XXXX~~

TELEGRAMS: "SUPDEV"

DEPARTMENT OF SUPPLY AND SHIPPING

409 Collins Street,

~~XXXXXXXXXXXX~~~~XXXXXXXXXXXX~~

In Reply Quote.....

31st July, 1945.

MELBOURNE. C.1

Senator the Hon. W. P. Ashley,
Minister for Supply and Shipping.

The Hon. J. A. Kennedy,
Minister for Mines, Victoria.

SIGNED
COPI

Dear Sirs,

On 1st March last we recommended that Officers be sent to U.S.A. for the purpose of obtaining the latest information concerning drilling equipment and witnessing results of horizontal boring operations in that country, with a view to a clearer assessment of the possibilities of the Lakes Entrance Oil Project. We were particularly prompted to do this because of information which we had acquired in the process of operations concerning -

- (1) quantities of oil available;
- (2) the physical difficulties and hazards in carrying out shaft sinking and excavating of chamber in preparation for the horizontal drilling;
- (3) doubts as to the efficacy of the Ranney horizontal drilling process because of unsatisfactory replies received from Mr. Ranney in response to enquiries made of him; and
- (4) doubts of our ability to obtain horizontal drilling equipment from U.S.A.

2. It was subsequently agreed that Mr. H.J. Cook, the Supervisor of the Project, should visit U.S.A. for this purpose, and that as Dr. H. G. Raggatt, the Director, Commonwealth Mineral Resources Survey, would also be in America at the same time, Mr. Cook could consult with him as required. Mr. Cook left Australia by air on the 16th May and returned here on 27th July.

3. Mr. Cook has now submitted his report, copy of which is attached hereto. Copy of his diary is also attached as well as copy of report by Consulting Oil Geologist, J. R. Pemberton of Los Angeles, California.

4. It will be seen that Mr. Pemberton states that the Lakes Entrance Oil Project is doomed to failure under any system of production because oil is not available in commercial quantities.

5. As a result of his investigations Mr. Cook recommends the adoption of one of two courses. These are -

- (1) to cease operations and liquidate the venture, or
- (2) to cease operations and let the project stand with a view to operations being resumed at some later date if and when horizontal drilling methods are perfected, and shaft sinking technique is developed to a stage where the dangerous and difficult problems associated with this venture can be coped with.

6. Mr. Cook's report is of such far reaching impact and of such an unequivocal nature that your Executive Committee feels that it cannot continue to function without Ministerial direction as to future policy.

7. For your information it is advised that the shaft has now been sunk to a depth of 1,133 feet, and by early in September it is expected that it will have reached approximately 1,160 feet. For the time being this is the safe limit of sinking operations.

Yours faithfully,

J. Malcolm Newman

 (J. MALCOLM NEWMAN) Chairman.

George Brown

 (GEORGE BROWN)

A. C. Smith

 (A. C. SMITH) Members.

LAKES ENTRANCE OIL EXECUTIVE COMMITTEE.

409 Collins St.,

XXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

31st July, 1945.

The Controller of Minerals Production,
Department of Supply & Shipping,
MELBOURNE.

Dear Sir,

LAKES ENTRANCE OIL PROJECT.

In accordance with instructions, I proceeded to America and there made investigations into various matters connected with the abovenamed project. I left Australia on 16th May and arrived back on 27th July, 1945.

Attached to this letter are:-

1. A copy of my diary in which various interviews and investigations are recorded. This was written at various dates and as early as possible while the matter was fresh in my mind.
2. A copy of the report prepared by oil consultant Pemberton of Los Angeles. Great care was exercised in the selection of this consultant in order to forestall any criticism of his bona fides. His credentials are attached at the end of his report.

My investigations have revealed -

- (a) There is no successful application of the Ranney method for oil recovery in America.
- (b) There is no evidence that controlled horizontal drilling is possible by using the Ranney equipment. By "controlled drilling" is meant ability to make a hole change direction at will. All indications are that there is no control particularly when holes are more than 1,000 feet long. In any case, until some satisfactory method of horizontal hole survey is developed and proved, the position of any hole, long or short, is a matter of speculation. This rules out attempts to drill inclined and subsequently flattened holes from the present shaft bottom.
- (c) The pressure injection of cement, referred to as "cement grouting", into unconsolidated sands has not been developed sufficiently to warrant forecasts that it can be done with successful results. Attempts made to date have required very specialised apparatus and highly trained personnel.
- (d) The Ranney method, or idea, of obtaining commercial production of oil by horizontal drilling into oil sands is still held to have possibilities. Opinion in America was to the effect that the Venango field, where it failed, was a difficult field to start on. This applies even more strongly to the Lakes Entrance field.
- (e) The report prepared by oil geologist Pemberton of Los Angeles is unequivocal in its finding. As will be seen by perusal of his credentials, Pemberton occupies a distinguished position as a consultant. He states clearly what has been hinted at by so many of the

authorities contacted in the U.S.A. that there is no chance of a successful outcome to the work now in hand at Lakes Entrance, simply because there is not sufficient oil present there. This is, in fact, a considerable understatement, and the writer was caused considerable embarrassment by outspoken comments making our efforts at Lakes Entrance appear almost fanciful; however, an explanation of the impact of war on Australia's economy in 1942 showed that our attempts had some justification.

- (f) There is no doubt that the step of consulting approved geologists should have preceded all other activities at Lakes Entrance, and, in fact, it was felt that this had been well covered when Ranney was called in from America for consultation with our Mineral Resources Survey. Ranney was recommended by the head of the United States Bureau of Mines, and this should have been sufficient, but as an officer of the American Institute of Mining & Metallurgy said "instead of putting ourselves in the hands of a consultant, we fell into the hands of a promoter".

FUTURE POLICY

1. In view of the above findings, I recommend that all expenditure at Lakes Entrance cease forthwith, and that the plant be realized and the monies obtained be offset against past expenditure.

2. If, for any reasons, it be decided to disregard the foregoing recommendation then the following steps are necessary -

- (a) To find the experts who can do horizontal controlled drilling. Dr. Raggatt has information that this was actually done as a special secret war activity. When the procedure is released for public use and the information verified and the equipment made available, it can be said there may be a solution to this problem which was found to be far from solution after inspecting Ranney's operations in America.
- (b) No satisfactory method of horizontal drill hole survey has yet been developed. When it is developed and tested, it will be time to start drilling and not before.
- (c) To sink the shaft sufficiently far to enable horizontal drilling to be done is dependent on finding a method of consolidating the water bearing ground below the Lakes Entrance oil sand. Enquiries in America have tended only to confirm that cement injection grouting in sand is a specialists job and that the outcome is uncertain. This opinion is given after personal inspection of grouting operations at Shasta Dam in California and consultations with the Halliburton Oil Well Cementing Company of Los Angeles.

3. We are not ready to proceed with any one of the steps set out in paragraph 2 above and, if they are undertaken, it will be a case of pioneering with inadequate resources and equipment.

4. Finally, if the whole project be not abandoned now and assets realised, then I recommend that all expense be stopped, the plant left where it is, the shaft allowed to fill with water. Later when the problems set out in paragraph 2 have been solved elsewhere, the property will still be there available for exploitation.

In the meantime, the property at Lakes Entrance will not deteriorate but will be ready for use by those who know how. This might not be the case if inexperienced efforts are made now to push it to finality.

I repeat, that in my view, there is no justification for any further expenditure of public monies.

(Sgd) H. J. COOK

Supervisor.
Lakes Entrance Oil Project.

EXTRACT FROM
 WHO'S WHO IN ENGINEERING
 A BIOGRAPHICAL DICTIONARY
 OF
 THE ENGINEERING PROFESSION
 1937

Editor
 Winfield Scott Downs, Litt.D.

(Fourth Edition)

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New York City.

1937.

PEMBERTON, John Roy, Petr. Geologist and Engineer, Oil Empire for Central Committee of California Oil Producers, 530 West 6th St., Los Angeles, Calif.
 Petroleum Geologist and Engineer; b. Los Angeles, Calif., Sept. 22, 1884, s. Em. S. and Elizabeth (Hampton) Pemberton; ed. Stanford Univ., A. B. 1909. Kappa Alpha, Sigma Xi; m. Edith Barnett, Jan. 25, 1916, San Bernardino, Calif.; John R., Jr.; div., Aug. 11, 1934; m. Alice Rawlins, Aug. 12, 1936, Los Angeles, Calif.; ch. John Rawlins, Field Asst., Stanford, 1908-09; temporary field asst. U. S. G. S., 1908; Instr., Stanford Univ., 1910; land classification for Argentine Govt., 1911-15; Ventura Refg. Co., Los Angeles, 1915-16; assoc'd. with W. R. Hamilton and allied interests in oil producing business in Midcontinent, 1917-2; geologist for E. L. Bohany, Los Angeles, 1925-31; Oil Empire for California oil producers, 1932 to date; Vice-pres., Dale Service Co.; Sect.-treas., Master Separator and Valve Co., mem. Am. Ornithologists Union, Cooper Ornithological Club, Seismological Soc. Amer., A. A. P. C., A. I. M. & M. E., Amer. Geog. Soc., Cal. Acad. Sciences, San Diego Zoological Soc., Amer. Pet. Inst. Rec.; ocean cruising, motion pictures. Hobbies; ornithology, stamps. Rep. Southern Meth.

Supplementary data 1937 to 1945.

Continued as Oil Empire for California Oil Producers until May 1940.
 Consulting Petroleum Geologist and Engineer to date.

Dale Service Company of which he acted as Vice-president in 1937 was dissolved in 1942. Master Separator and Valve Company also dissolved.
 President Cement Patents, Inc.--1939 to date.

During latter period when engaged in consulting practice clients among others have been

General Petroleum Company, subsidiary of Socony Vacuum Company.

Tide Water Associated Oil Company.

Los Nietos Company.

Belridge Oil Company.

Signal Oil and Gas Company.

Molsa Land Company.

City of Los Angeles.

State of Washington

United States Department of Navy.

" " " of the Treasury.

United States Department of the Interior.

A TRIBUTE TO

JOHN R. PEMBERTON.

OIL UMPIRE FOR CALIFORNIA OIL PRODUCERS -

for the years 1932 to 1940

Seldom does an entire industry of a State attest the leadership of an individual within its ranks. Such leadership is attainable only through the moral qualifications of honesty, integrity, sympathy, sincerity and business qualification for organization and administration with experience and understanding of the industry.

In J. R. "Bill" Pemberton the oil industry found these qualities combined with ability, determination and energy, coupled with unusual engineering and technical skill. In 1932 he was chosen Oil Umpire to direct the industry back to stability; to check the waste resulting from excessive and unrestricted production; to overcome the conflict that had developed between various groups of operators; to develop and administer a workable system of proration which would best conserve the oil resources of the State; to protect the stripper well from the flush wells, the oil well from the new well, and to supply the producers with unbiased factual information relative to the industry.

These and many other constructive objectives were accomplished and voluntary curtailment made a success, not through the use of arbitrary rules or dictatorial regulations, but by the equitable solution of each problem after careful analysis with an unswerving fairness to all. Thus each producer came to recognize the Oil Umpire as his counselor and knew him as a friend.

To this the oil producers of the State testify, through their duly elected representatives on the Central Committee of California Oil Producers and extend their sincere appreciation for a difficult work well done.

Belridge North
Belridge South
Lost Hills
(Sgd) MAX. S. APP.

Buena Vista
Elk Hills
(Sgd) D. STARK

Mount Rose
Round Mountain
Coffee Canyon
(Sgd) E. J. N. MILLER

Poso Creek
Fruitvale
Korn Front
Korn River
(Sgd) LOYD MILLIGAN

For the oil producers of:

Aliso Canyon
Capitan
Newhall-Potrero
Elwood
Padre Canyon
Rincon
San Miguelito
(Sgd) L. L. AUDERT

Ventura Avenue
(Sgd) ROBERT BENSON

Wilmington Town Lot
(Sgd) W. O. PING

Playa del Rey
Potrero
El Segundo
Los Angeles
Lawdale
(Sgd) L. C. KELLY

Huntington Beach New
Huntington Beach Old
(Sgd) M. A. JACIENS.

Coles Levee

Canal

Paloma

Strand

Richfield Western

Ten Section

(Sgd) R.O. MONTGOMERY

Coalinga East

Coalinga West

(Sgd) R.S. FISHER

Coalinga Nose

Coalinga Northeast

(Sgd) R. S. LYALL

Kettleman Hills

(Sgd) J.H. SARGENT

Domingues

(Sgd) E. LYALL

Wheeler Ridge

Edison

Mountain View

Arvin

Grapevine

(Sgd) RON M. COLLUM

Midway

McKertrick

(Sgd) H.T. OWEN

Santa Maria Valley

(Sgd) W. H. HEONGEN

Cato Ridge

Cat Canyon

Lampoo

Casnalie

Orcutt

Los Flores

(Sgd) W. G. GIBS

Torrance-Hermosa

(Sgd) O. ROBT. BURNS

Santa Barbara

Summerland

Conejo-Oxnard

Sargent

Half Moon Bay

Santa Paula-Newhall

And Others

(Sgd) SAM P. MULLENB

Alamitos Heights

Seal Beach

(Sgd)

Brea- Olinda

Richfield

Chino

Kraemer

Coyote East

Coyote West

Puente

Yonba Linda

(Sgd) LAWRENCE VANDER LACK

Wilmington-Long Beach Area

(Sgd)

Inglewood

(Sgd) WARNER CLARK

Long Beach

(Sgd) MILBUR GARRISON

Montebello

Whittier

(Sgd) F. W. BIEGLIN

Rosecrans - Athens

(Sgd) W. C. CHALEY

Santa Fe Springs

(Sgd) M. WILHELM

Greeley

Rio Bravo

Wasco

(Sgd) WM. KECK JR.

9th July, 1945.

Arrived New York evening of 4th from Washington; reported to 61 Broadway and contacted Hawby of Zinc Corporation, who was helpful with contacts in the absence of C. S. Boyd, who is in San Francisco where I hope to meet him later.

I find that the West Coast is more suitable than New York for mining engineers, but nevertheless met some useful men. Amongst these was Mr. Chester Naramore, of the Petroleum Division of the American Institute of Mining & Metallurgical Engineers. I discussed Lakes Entrance with him and the Ranney method. Like many other petroleum engineers, he is of the opinion that oil production is unlikely unless there is free gas present to force the oil to leave its reservoir rock. He admits that some production can be obtained by water drive in favourable localities. He scots the idea that the acid bottle survey of horizontal holes has an accuracy of even 1°.

I led the talk round to Ranney and found that he was not held in high esteem. In fact the inference from what was said was much stronger than this. He told me that Ranney had presented several papers to the Petroleum Division of the A. I. M. M. E. who had refused to publish them. I enquired the reason and the opinion given was because the Ranney method was "too easy".

I got much advice from Mr. Naramore on cementing. He advised working from the surface without pumps and relying on the head of heavy grout to produce the necessary pressure. He suggested four grout holes with a slight splay. He emphasised the necessity for using only tested pipes and valves.

So far I have been unable to locate the Francois Cementation Co., but have contacts with the Gardner Denver Co. in San Francisco who supply pumps etc.

On Friday 8th proceeded to Philadelphia to see in company with Raggatt and Rayner to interview G. L. Kothny of the Sperry Sun Hole Surveying Co. Several subjects were discussed in an interview lasting several hours. Most of these subjects

will be reported by Maggatt and Rayner. Mr. Kothny said that because there was no call for it, they had not developed apparatus for survey of horizontal holes, but had concentrated on vertical hole work. Mr. Kothny gave the order of accuracy of the acid bottle survey method as used by Ranney as 20 or 30. He said this method had gone out of use many years ago.

Mr. Kothny was extremely outspoken about Ranney whom he obviously holds in the lowest regard. He said that in his opinion Ranney keeps within the law, but does things that others would not do.

He says Ranney always holds something back for use later to his own advantage.

I find I have one note not previously recorded of a conversation with Winspur of Aust. War Procurements, Washington. This is in reference to the firm order for \$14,000 worth of equipment from Engineers Ltd. He told me we might be liable for any reasonable expenses Engineers Ltd. had incurred on account of this order, which will now be definitely cancelled.

21st June - Left New York 12th June en route to Minneapolis passing through Chicago to see A. B. Calhoun a mining engineer whom I know personally. Unfortunately he was in failing health and unable to help much with advice in reference to our L.P. problems.

Came on to San Francisco, a most uncomfortable trip and arrived 10 hours late on evening 19th June.

On reporting to 206 Sansome St., found urgent messages from Ranney asking for a meeting.

I saw Ranney next morning, 21st June, and he asked to discuss the shaft with W. Newsome, engineer of Engineers Ltd.

This left me in an awkward position because I did not know if Winspur had written him the decision in reference to the \$69,000 order.

Naturally I kept off the subject until Ranney asked outright if we were going ahead with it. I replied that my personal opinion was that to go ahead with design of drilling equipment before knowing how we could bottom the shaft or even if we could bottom, it was not prudent business and that I should

certainly advise to this effect.

Ranney's next approach was an enquiry if we did not propose to use horizontal drilling what did we propose to use? I said I had no suggestions and enquired if they had any? Ranney then said that as we would have to use horizontal drilling anyway, they had better go ahead with the design and order anyway. At this juncton, I had to be quite firm and told them that my advice to the executive would be against placing any order now and that I did not authorize any activity in this respect.

It seemed to me from the tone of the conversation that Winspur probably had written and that Ranney was trying to edge himself in again. To safeguard against this, I repeated even more firmly my attitude saying that I did not and would not authorize any activity in respect of the drilling equipment order. I shall wire Winspur and find out what action he has taken in response to the cable from Australia which we discussed over the phone when he said he would write Ranney and tell him of the decision from Australia not to proceed with the order for drill equipment.

On 20th I contacted Reynolds of Gardner Denver Co. and discussed cement grouting in sand. He said that from his knowledge this was a very difficult proposition as the results obtained were most uneven, but that he would take me out to the Shasta Dam to see the man who had been responsible for one of the most complex grouting jobs undertaken in America. He said he could not promise success, but this man knew as much as anybody on the subject.

After some delays I was able to get in touch with C. S. Boyd of Kennecott Copper. Mr. Boyd is now living some distance outside San Francisco and I have arranged to see him on my return from the Shasta Dam.

25th June, 1945: Met Fisher of Zinc Corporation who joined me in trip arranged by Gardner Denver representative Kenneth Reynolds of S.F. to visit Shasta Dam where cement grouting

was in progress. This dam is near the town of Hedding where I met R. H. Myers who is grouting specialist. Before proceeding to the dam, we discussed the Lakes Entrance problem. Myers confirmed that sand grouting was matter of extreme difficulty and that there was no guarantee of a successful outcome. In particular at Lakes, it would be unwise to allow grout into the oil sand. If we had solid rock in the glauconite, the situation would not be so bad because the upper parts of the grout holes could be stopped off with a packer and grout admitted only to the bottom portion. The procedure at Lakes will be to drill holes nearly through the glauconite and cement casing into them. This will have the effect of keeping grout away from the oil sand. The holes will then be drilled through the cement left in bottom of hole and injection started in a short length, say, 6 feet, of open hole. This injection to be continued until refusal or prohibitive pressures.

The hole will be allowed to stand then drilled again a further 6 feet and injection repeated as before. This process will be repeated until a total of about 30 feet has been completed. Holes will be spaced about four feet and each second hole grouted to start with. When these have been completed drill intermediate holes to test success of grouting. It is not expected that an hydraulic seal will be made on to bottom of glauconite, but joint will be sufficiently strong to prevent heavy inflow of water and sand.

Myers says very fine sand is not so difficult to grout as coarse sand, but there is still difficulty in making the cement spread evenly as it always tends to form big blobs joined together by narrow pipes.

Myers thinks the job is one of extreme difficulty requiring patience, a good crew and good equipment, and there is no guarantee of successful outcome.

On 25th met Mr. C. S. Boyd, of Kennecott Copper Co. We discussed the Lakes Entrance problem, but Mr. Boyd said it was outside his experience and that he had not heard of a similar problem.

Mr. Boyd thought we should try to get an experienced crew and good equipment. The oil well people do well cementing jobs, but these are not similar to ours where it is required to consolidate a wide area of ground.

29th June - Left San Francisco morning of 27th for Los Angeles. Arrived in evening and next morning called on Davis of our L.A. office and then spent some hours with Mr. E. Wheeler of the Halliburton Well Cementing Co. These people are experts in dealing with water and bad ground problems in oil wells and in addition have applied their special technique to some civil engineering problems on the surface. They have not had any shaft experience.

Mr. Wheeler confirmed what I had learned about the difficulties of sand grouting, and said that he thought there was a chance of success with their specialized technique of spreading the grout.

In this method, a hole is first drilled to the depth desired and casing is cemented into it with a special fast setting cement which they supply. When the casing is in place they shoot steel bullets through the casing at the required depths and then force in grout. As the bullets make holes in all directions, the grout leaves the casing in a like number of directions and has a better chance of consolidating an area of ground instead of channelling off in a single direction.

When one length of casing has been grouted, more holes are shot higher up until the whole length of casing is completed. Casings are spaced quite close together - about 5 ft.

I asked Mr. Wheeler write me in Melbourne quoting alternatively for the equipment to do the job and for providing both crew and apparatus to do it. This will come by early mail to Melbourne.

Mr. Wheeler also mentioned a new drilling technique whereby a hole is put down vertically and then turned at right angles into the oil sand. He said he thought this had been done successfully, but did not know if oil yields were up to expectations.

He promised to let me know as full particulars as possible about this, but unfortunately did not remember the name of the operators.

In Mr. Wheeler's opinion, secondary recovery of oil in U.S.A. would not develop until the country was shorter of oil than it is at present. He did not know of the Renney method. Mr. Wheeler asked if we had worked out the economics of our project. I explained it was a wartime measure and he thought that possibly explained so large an expenditure for such little prospect of production.

2nd July - Cancelled my place on plane leaving S.D. on 2/7/45 and returned L.A. for consultations. Discussed choice of consultant with Davis of C.A.W.S.P. and also with Halliburton. Quickly got choice down to two men, Arnold and Pemberton, and as former was out of town chose latter whose report is attached. This took full time with Pemberton till 9th July, then returned to Halliburtons for further talks and quotes re cementation. These people very polite but difficult to make them give full attention as they are more than busy in U.S.A. and Australia so far away, and also they do not have faith in economics of our proposition.

From H. J. COOK, Minerals Section, Department of Supply & Shipping.
Arrived San Diego, 18th May, 1.30 p.m.
Left " " 19th May, 9.00 a.m.
Arrived Dallas 19th May, 6.15 p.m.
Left " 20th May, 8.00 a.m.
Arrived Washington 20th May, 5.00 p.m.

On arrival in Washington I was met by Raggatt and Rayner and had accommodation at the Lee Sheraton Hotel.

Raggatt told me he had been unable to contact Ranney either in Petrolia or Santa Barbara but had wired asking for Ranney's telephone in Petrolia. The answer to this wire came on Monday and both Raggatt and I spoke to Ranney in Petrolia. We arranged to speak to him again next day to settle a meeting place. We spoke again next day and arranged to meet him in Venango on Sunday, 26th May, which meant leaving Washington Saturday the 25th.

I reported arrival to 1700 Mass. Ave., Australian War Supplies Procurement, and arranged to see Winspur who is handling the procurement of our drilling equipment.

Winspur told me there was no advance on situation as disclosed in letters dated 23rd January to Ranney in answer to his dated 6th January. (These letters are on Australian files).

We found that complete drill equipment order D 6373 had been cancelled and firm order was not to be placed until new equipment had been proved successful in U.S.A.

We also found that a definite order No. D 8339 for #11465 had been placed with Engineers Ltd. for drill head, rod-pulling gear, etc. I enquired if this order had a priority and was being proceeded with but the answer could not be given off hand.

Next day, Tuesday 22nd, Raggatt, Rayner and I interviewed heads of the U.S. Bureau of Mines, R.R. Sayers,

Director; Julihn, Chief Engineer; and H. Catell, whose Department deals with horizontal drilling. I found that C.W. Elder Jr., who had done the actual investigation on Venango, had been called into the Army.

Mr. Catell informed me that the Venango project had been completely abandoned because there was no oil production.

I propose to see Mr. Catell again and discuss Lakes Entrance with him.

On 23rd May I saw Winspur again re priorities for the drilling equipment and found that Dr. Hague, Chief of the British Petroleum Mission, through whom all British Oil Equipment orders pass, had decided that no priority would be sought for any order until we were in a position to place a full and complete order. The rules allow of only 3 amendments to any order which has a priority and that these amendments may not increase the order by more than 20% of its value.

At this date all action to obtain a priority is in suspense. This means that no order at all has been placed and that even order D 8339 is quite inoperative because it has no priority.

I discussed situation with Winspur and decided to confer with Ranney before taking any action. In the meantime, I shall try to see Dr. Hague so as to become familiar with the routine of piloting an order through the various channels.

24th May.

Called on Dr. Hague and found that he was remarkably well informed about Lakes Entrance and its possibilities.

I was informed that Standard Oil had taken Ranney under their wing for 3 years when he first publicised his ideas. They then dropped him. It is thought that this connection with Standard Oil gave Ranney the prestige warranting the recommendation of the Bureau of Mines to Australian Government.

As regards priorities for our equipment I was informed that although the war situation is much improved, the situation

regarding the supply of anything requiring tubular steelwork is still very difficult and we stand no hope against such properties as those in Burma or Tarakan, for example, which are proved producers and, of course, domestic and war requirements are ahead of all others.

The possibility of using the drilling equipment of the abandoned Venango venture was discussed. The apparent danger in this idea is that the equipment was considered unsuitable otherwise Ranney would not have cancelled our order for similar gear. There will be a temptation to buy this because it is available at once, only to find later that it is of no value to us.

25th May.

Earlier I had asked for an appointment with Mr. Catell, Chief of the Bureau of Mines, Department of Petroleum and Natural Gas. This meeting took place yesterday afternoon and took 3 hours. It was attended by 6 heads of Sub Branches including the head of the Mining Branch, Mr. Gardiner.

I started with the history of Lakes Entrance, the general geology, and the war situation leading up to the request by the C. of A. Government for advice from the U.S. Bureau of Mines for the services or name of a man who could come to Australia and report on the possibilities of Lakes Entrance. Nothing was offered by the meeting in justification or otherwise of Ranney's nomination. In some quarters it was obviously a surprise that the nomination came from the Bureau.

The next subject discussed was the data I had brought with me concerning the oil sand at L.E. yields, gas pressures, saturations, etc.

The "oil saturation" in the sand was the real point of interest. Secondary recovery of oil in U.S.A. fields is a very live subject and the men at this meeting obviously were familiar with every development and proposal in this connection. I gathered that the way they view it is this - The porosity of the sand is a measure of its capacity for holding oil and the saturation is a measure of the extent to which this capacity is availed of in

nature to form an oil storage.

For example a sand might have 10% porosity and 90% saturation or an oil index of $0.1 \times 0.9 = .09$ or, say 30% porosity and 30% saturation - that is $0.3 \times 0.3 = .09$. The amount of oil stored in nature per unit of sand is the same in each case but the amount likely to be available for extraction is very different. The reason for this is that it has been found impossible to strip an oil sand of its oil below a saturation of 15%. When this is applied to the two apparently equal value sands mentioned above the available oil or oil index becomes -

$$0.1 \times (.90 - .15) = 0.1 \times 0.75 = .075$$

and in the second example

$$0.3 \times (.30 - .15) = .3 \times .15 = .045$$

so that the amount of oil likely to be recovered in the first place is nearly double of that in the second although the amount of oil originally present is the same in each instance.

Our best saturation at Lakes Entrance is 14% which is to say that we have no extractable oil because our saturation is too low. One of the members present put it this way, "What you are trying to do is to extract values from the tailings dump".

The general opinion of the meeting was that a successful outcome at Lakes Entrance was unlikely.

At this stage the meeting broke up and Mr. Gardiner, the mining chief, and I retired to discuss the mining problems with which we are confronted.

The first point raised was "soft ground cement grouting". Mr. Gardiner had never heard of this and did not believe that grouting could be effective in plastic ground.

Quite independently he suggested that a too close approach into the glauconite would result in its rupture and in flooding of the shaft. When he heard that there was possible 90' of water bearing country between the sand and bed rock he said he could not suggest offhand a method for dealing with it.

The next subject was the horizontal openings or drives from which horizontal drilling was to be carried on. He thought that the suggested openings, 10 feet diameter in the clear, were much too big and, in our plastic ground, extraordinarily expensive of construction both in time and money.

26th May

Called on Mr. Winspur of War Supplies Procurement to discuss action re priorities and arranged that on my return from Oil City, a man from his office should accompany Thompson of Dr. Hague's staff and myself to negotiate with the P.A.W.

I learned that the unsigned letter which we discussed in Australia and which stated that we expected a daily yield of 12000 Bbls. from Lakes Entrance had been written ^{by Ranney} to support our original priority claim before the P.A.W.

We decided that there was no need to rush in and repudiate these figures but that if called on to substantiate them we would admit that further knowledge and experience suggested they should be scaled downwards.

Mr. Winspur told me that the P.A.W. were very well informed indeed on oil production possibilities in all parts of the world and loose statements were dangerous.

Left Washington 6.50 p.m. 26th and arrived Oil City 9.50 a.m. Sunday 27th where we were met by Ranney.

After arranging our programme Ranney asked for a private discussion with Raggatt. Raggatt informed that he told Ranney that he would not discuss anything connected with our business without me and the discussion was confined to some points connected with Ranney's patent rights in Australia.

In general talks re the Venango venture Ranney said that quarrels between members of the Venango Corporation were the cause of delays in getting the venture on to a production basis.

Ranney did not inform us that all active development had ceased but repeated that internal dissension was the cause of the present unsatisfactory condition of affairs.

In the afternoon we drove out (8 miles) to the shaft site and made a general inspection. The surface plant is very simple. Electric power comes in from a supply line and is used for hoists, compressor and pumps whenever these are in use.

There was one man engaged full time and another was hired for two 6 hour shifts weekly. This man was very dissatisfied.

The shaft hoist is arranged like an elevator in a tall building and works on push button control.

The shaft (8' dia.) is very like our own except there is only one cage which moves very slowly.

On the floor of the work chamber, 27' diameter, and very spacious indeed, we found only a few pipe connections and two or three pumps. The drill and rod puller had been removed after drilling two long holes and four short ones. I gathered that the drill was out in September, 1944. The pipe and pump arrangements allowed of vacuum being applied to three holes only and there was no production without vacuum. This applies to surface holes also and is considered normal for the field.

The holes in use are 700', 500' and 1000' long respectively or a total of 2200', of which 100' in each hole is cased off making a net length of 1900' of hole available for oil production. The two long holes 2300' each do not produce. Mr. Ranney said that this was because one of them had drilled into an old unsealed well and was water flooded. I asked why this had killed both holes and Ranney said that the water from one side had gone round to the other hole. This seems wrong to me because the three producing holes should have been just as badly affected and were not. I suspect that both these long holes dipped down into the water logged lower horizon of the oil sand. It was admitted that the long holes have dips and hollows in their contours and that the survey of them was not satisfactory. Ranney told me that he could do acid bottle surveys accurate to $1/32$ of one degree for vertical dip. I cannot credit this and think an accuracy of one degree would be the best possible expectation.

An official of U.S. Mines Bureau agrees and thinks that Ranney's insistence that all improvements in drilling technique should belong to him personally froze out one operator who had an improved survey method in course of development.

Whatever be the reason, the ^{two} long holes gave negligible oil production.

The three short holes were put on production for our benefit, that is to say the vacuum pump was applied. This made a production of fluid at the rate, in my visual estimation, of about 3 gallons per minute. The amount of oil was very low indeed. I think probably 200 of water to 1 of oil. I mentioned this to Ranney who did not deny it but said their average when operating properly was about 40 to 1 and sometimes 20 to 1.

I enquired about actual production at that time and was informed that they estimated they were getting 75 Bbls. per fortnight or say 5 Bbls. per day. This was not confirmed but was stated to be a reliable estimate. This works out to $\frac{5 \times 35}{1900} = 0.09$ gallons of oil per foot of open hole per day.

Ranney told me that peak production had been obtained last September when ~~\$~~2670 worth of oil had been sold in one month. That is to say four times as much as the present daily rate. I learned later that this was due to striking a particularly good patch which ran well for some time and then eased off.

I enquired why pumping was limited to twelve hours weekly if the yield would be proportional to the time pumped? There was no definite answer to this and I learned from U.S. Bureau that optimum production was obtained in this way.

In wandering round the surface I found a large pile of badly bent and worn drill rods and learned that drilling, particularly in the long holes, had presented many

severe difficulties and that wear on the rods had been excessive and further that the rods in use were unsuitable and buckled under the compression load sometimes necessary to bring a hole back to level.

Another difficulty as yet unsolved was in removal of cuttings from the hole. These lie in the hollow sections of the hole and abrade the tools and rods as they rotate. Further the cuttings make removal of the rods and tools a matter of great difficulty. There were two untried suggestions to overcome these troubles.

1. To drill with mud fluid and ensure positive removal of the cuttings.
2. To use a drill with reverse water flow and so wash the cuttings down the hollow centre of the rods instead of round the outside.

As I lack experience in drilling my opinion on the merits of these suggestions is of no value but I do say with confidence that the drilling technique as used at Venango is unsatisfactory and unsuitable to Australian conditions where experienced drillers and modern drilling aids are not so plentiful as in America.

My general impression was that the shaft installation was sound but more expensive than necessary. I could see no reason for the great size of the work chamber.

The cost of the work at Venango to date was not stated accurately but was admitted as \$300,000 or as much as we have spent at Lakes Entrance where we certainly have a great deal more to show for our money.

I learned later that the drilling of production holes had been stopped by the directors in August '44 but drilling staff had been kept on for some time doing nothing. These men had actually done a little more drilling as late as September '44 since when no further production hole has been made.

To all intents and purposes the property at the time of our visit was in the hands of caretakers who were also making as much production as possible.

I asked Ranney if he would introduce us to some of the directors of the

Venango Corporation. He agreed but said that all they would tell us was that there was no oil in the area.

Visited Mr. Messer representing one large shareholder, viz. Quaker State Oil Co. Present were Ranney, Raggatt, Messer and Cook. I opened saying that we had found the project in the hands of caretakers and if it were successful and making money this would not be the case.

Mr. Messer said there had been troubles in inducing all shareholders to put in more money. The directors wished for a big company to take it over. I gathered that Ranney thought there was some chance of this succeeding. Messer said that the two long wells have dips in them which trap the oil.

Ranney and Messer had discussion on value of shooting holes. Ranney was for it, Messer against.

Messer says the 4 short holes are better than the long ones because they look up hill and drain easily.

It was agreed that producing vertical wells in the oil tract, with vacuum, produce 7 gallons per day. Messer gave his opinion that the project would pay with 24 wells each 1000 ft. but would not amortize capital expenditure.

We then saw Mr. Brewster, director of South Penn and Pennzoil oil companies. He said holes only 1/6 finished but that no further action was contemplated. The present holders hope to sell out.

Both Messer and Brewster were very "cagey" and anything but frank in discussion. I put this down to three causes (1) The presence of Ranney at the meeting (2) The fact that they are now sellers (3) There had been and probably still was much quarrelling between all concerned.

We then visited an official of the Bureau of Mines who asks that his name be not associated with our reports. Ranney was absent for the greater part of this meeting.

This man (who is occupying the position formerly held by C.W. Elder Jr.) is of the opinion that Ranney has not got control of the hole when drilling exceeds 1000' in depth.

He informed us that two of the holes in the shaft have tools or rods stuck in them. This was totally new to me but Raggatt told me he had gathered something of the sort from somebody. Ranney did not say any-

thing about this either at the shaft or later when Raggatt and I kept the conversation on drilling troubles. I, personally, found this very disturbing.

The official thinks that mud should have been used in the hole instead of water to solve the problem caused by the drill cuttings. He also states that when oil saturation is reduced to 25% it is considered final in some fields; that is to say further production will not be obtained when saturation reaches this figure.

Also says that if Venango project could get more oil by pumping more than 12 hours weekly they would certainly do so. They were most likely on optimum production by present arrangement.

Further states that Venango Corporation offered to donate the show to Bureau of Mines on condition that latter would carry it to completion. Bureau refused.

At this stage the production, porosity, and saturation figures relating to Lakes Entrance were studied and official stated his view that if our saturation figures were correct we could not possibly get any production whatever, and, as a consequence, because our laboratory technique was good then our core samples could not be representative of the oil sand. He agreed that core samples in the Venango field were taken by Baker barrel and were like our own samples as described by Raggatt. He agreed that new samples now being taken by diamond drill at Lakes Entrance would probably give better results.

28th May.

Continued the discussion with Ranney of the various questions which form part of my agenda. Questions No. 1 to No. 5 concern work chamber or tunnelling. Ranney said Venango chamber had been unnecessarily large and he would be satisfied with an opening 18' or 20' inside diameter. This puts a different complexion on Lakes Entrance troubles where such a chamber could probably be built.

Ranney said that the chief disadvantage of work chamber stopping above the glauconite was loss of oil in the dead cone because this would be an untapped area.

Question No. 7 concerns the diameter of the proposed tunnels and does not now arise. In any case they could be made just large enough to admit necessary machines. Question 8 concerns our production results from

Pilot Hole and other data from Lakes Entrance. In Ranney's opinion productive zones will not lie in same horizon in oil sand but will certainly vary. Says there is no proof that productive zone will always be only 3' in thickness or limited to an average of 3' but if it were, then the oil yield would be proportional to thickness of oil saturated zone. He says he made a mistake in Australia in estimating a recovery of 25% only of oil and should have changed this to 50%.

Ranney says an estimate of "rate of production" is too hazardous to forecast.

Question No. 9 asks if Ranney, in the light of his Venango experience, would care to amplify or amend his Lakes Entrance estimates. In reply he says there are so many variables both at Venango and Lakes Entrance that it would be almost impossible to make an estimate because a steady production has not been maintained on any vertical hole for a long continued period.

Ranney says his estimates were made on a study of cores which were oil saturated for the full thickness of the glauconite. These cores came from No. 10 Lakes Entrance bore hole.

In reply to question No. 10 which asked if we were suffering "water drive" or "Water invasion" at Lakes Entrance Ranney said it might be either. In the U.S.A. when water oil ratio becomes 100:1 the operation becomes un-economic. Probably the same applies to Lakes Entrance.

Question 11 concerned the cause of pressure in the oil sand at Lakes Entrance. Ranney says this is not due to gas pressure but to water pressure and this water may come down from the outcrop or up through the sand from the artesian. In either case the pressure is due to the elevation of the intake outcrop.

Question 12 concerned application of cementation to glauconite. Ranney states that much depends on the strength of the temporary seals. Care must be taken to prevent rupture.

The evidence from our diamond drill hole now being drilled should be used to arrive at a decision.

Ranney says that unless mud streaks are fluid filled then pregrouting inside the glauconite is out of the question.

In addition Ranney discussed the old oil field at Petrolia, Canada, where oil is only 100' from surface. I asked why this had no Ranney-wells seeing that Fairbanks owns the field. Ranney said an installation from the surface, was, in fact, proposed.

When in Oil City and Franklin everybody insisted that we should visit Bradford and see the water drive field. We were not interested in water drive but in the presence of A.J. Saxe, production engineer of South Penn Oil Co., Bradford, who was engineer in charge of Venango project and knew more about it than anybody else.

After going through Pittsburg and stopping there one night we went up to Bradford (31st May, 1945) by road and met A.J. Saxe and Schumacher by appointment. These men were delightfully frank and answered all questions put to them.

Having discussed the matter together, Raggatt and I found we had different opinions as to what drilling had in fact been done at Venango. Saxe was able to clear this up and gave the following figures:-

2 holes each 2300'	=	4600'
4 holes each 1000'	=	4000'
2 holes each 600'	=	1200'
2 holes each 800'	=	<u>1600'</u>
		<u>11400'</u>

If the oil production figure of 5 Bbls. daily be applied to this length of hole instead of to 1900' of hole the yield per foot per day becomes $\frac{5 \times 35}{11400}$ imperial gallons. = 0.015 gals per foot per day. The two long holes produced nothing but water in enormous quantities.

This enormous quantity turned out to be about 100 Bbls. per day, say 3500 gallons. A quantity quite unimportant to a miner but impressive to an oil man.

One of the wells ran into a good patch and made 6 Bbls. oil per day for some days and then dropped off. General production averaged about 40 gallons water to one gallon oil. Ranney's air chamber method of raising oil was not satisfactory and a cheaper arrangement would do quite well.

One horizontal hole drilled into an old vertical well and let in a lot of water. By cementing off various vertical wells from the surface some of the water coming into the horizontal wells was sealed off.

Saxe says tools were lost in one hole and there was a "twist off" of the end of the string of tools in another hole.

There was then a long discussion on the related subjects:- 'Control of direction of hole in drilling' and 'Surveying of holes'. It is obvious that without accurate surveying control of drilling direction is out of the question and the whole business becomes conjecture or "anybody's guess".

Agreed that control of the hole beyond 1000' in depth was either difficult or impossible.

Rod-pullers designed by Ranney had failed for various reasons.

The use of mud fluid in holes to remove cuttings had been proposed. Some were for and some against. No decision had been reached.

At Venango light drill rods were used with diamond bits to get advantage of more flexible rods in order to change direction of hole.

In my view this is as broad as it is long as the more flexible rods allow or even encourage the hole to wander at times when changes of direction are not being attempted. Finally 3 3/8" rods were used in a 3 7/8" hole. This gained in rigidity but lost in attempts to change direction.

We then discussed Ranney's statement to me that he had control to 1/32 of 1 degree of vertical arc, or say 0° 2'. Saxe does not accept this figure and says actual location of the hole in vertical plane is unknown.

In horizontal plane a drift to the right has been assumed because of direction of rotation of the tools.

Ranney's acid bottle survey of 2300' hole shows a drop of 8' in the total length--that is an angle in the vertical direction of $0^{\circ} 12'$. Personally I am unable to accept this degree of accuracy with the method used.

Saxe accepts that accuracy of survey is greatly in doubt and that no satisfactory method was in use. Saxe's opinion is that Hughes type rock bit is cheaper and better than diamond bit which can, however, always be used at any time a core is required. In any case continuous cores are not sufficiently valuable to warrant use of diamonds.

Reverse water circulation was tried in holes to remove cuttings but joints in the rods inhibited removal despite water pressure of 200 lbs. per sq. inch being used.

First drill rods used were standard B2 rods. They now recommend rods 2 5/8" O.D. with walls $\frac{1}{2}$ " thick.

The validity of Ranney's patents is questioned and another operator is challenging Ranney with an installation on similar lines to his. This is F.C. Thomas, 1224 Linwood Boulevard, Kansas City, Missouri (near Paoli).

There is a man G.L. Kothny of the Sun Oil Company, Philadelphia, recognized as last authority in hole surveying. He appears to be with the Sperry Sun or Sun Sperry technical group. He may even have satisfactory apparatus already developed. Hole surveying is so important, particularly at Lakes Entrance, that a contact with this man is indicated.

My personal opinion of Ranney is that he has hypnotized himself into absolute belief that what he thinks should happen in his wells does in fact happen and that he is incapable of accepting contrary evidence.

Raggatt and I then returned to Washington on the 1st June and I prepared a cable to Supply and Shipping, Canberra. I discussed this with Winspur of Aust. War Supplies Procurement and in its final form it reads as follows (see attached copy).

Before leaving Ranney I discussed with him the chances of getting an experienced drilling crew to come to Australia. Although none was now available he thought the position would ease as more men became experienced in his method.

LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE.



MINUTES OF SPECIAL MEETING OF LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE COMMITTEE HELD AT MELBOURNE ON 30TH NOVEMBER, 1945.

....

909551 224

PRESENT:

Mr. George Brown,

Secretary, Department of Mines,
Victoria.

Mr. A. C. Smith,

Executive Officer - Minerals,
Department of Supply and Shipping.

IN ATTENDANCE:

Mr. H. J. Cook,

Supervisor of the Project

Mr. G. Hadden,

Chief Inspector of Mines,
Victoria.

(Mr. J. Malcolm Newman was in Queensland and was unable to attend.)

FUTURE OF OPERATIONS AT LAKES ENTRANCE:

Mr. A. C. Smith explained that he had convened a special meeting for the purpose of considering a situation which had arisen following upon an intimation by Mr. Cook to the effect that he could not usefully employ men under conditions of safety at Lakes Entrance after 8th December, 1945. In view of this, it seemed essential that both Governments should be advised immediately of the position. If the Governments agreed, Mr. Cook would commence to place the project on a maintenance basis as from 8th December.

Both Messrs. Brown and Smith interrogated Mr. Cook closely on the question of horizontal drilling and Mr. Cook made it clear that even if a shaft were taken down to the bottom of the oil sands, it would be necessary to come up to the present level to conduct horizontal drilling in order to avoid the grave risk of penetrating the water horizon.

Mr. Hadden supported Mr. Cook: he stated that operations had now been carried to the limit of safety requirements, and he could not authorise the carrying of the shaft deeper than the present level, 1156 ft.

In the circumstances, Messrs. Brown and Smith undertook to have the matter placed before their respective Governments with a view to getting a direction on future policy.

Mr. Cook stated that about half the labour force of 22 men were local people, and were anxious to get back to their normal avocations: the balance of the men, mainly miners, were anxious to return to Bendigo from whence they came. The placing of the project on a maintenance basis would, therefore, not impose hardship upon the men.

CONFIRMED.

.....

3rd December, 1945.

COPY FOR MR. BROWN

1:DS

4th December, 1945.

Dear Sir,

With reference to the Lakes Entrance Oil Project, I am directed by the Minister of Mines (the Hon. W. G. McKenzie, M.L.A.,) to advise you that State Cabinet yesterday approved of recommendations to the effect that this enterprise should be abandoned and the assets realised, subject ~~first~~ to ascertaining what proposals, if any, the Austral Oil Drilling Syndicate may have to make; in addition, Cabinet agreed that the Lakes Entrance Oil Project should be placed upon a caretaker basis at once, so far as staff is concerned, pending consideration of the matter by the Commonwealth Government.

Yours faithfully,

S e c r e t a r y .

The Secretary,
Department of Supply and Shipping,
409 Collins Street, MELBOURNE.

M.6/37

909551 226

24th December, 1945.

The Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street,
MELBOURNE. C.1.

Dear Sir,

I am directed to inform you that the Commonwealth and Victorian Governments have made certain decisions in relation to the Lakes Entrance oil project involving, amongst other things, the liquidation of their assets there to the best advantage. Before steps are taken to implement these decisions, arrangements will be made for representatives of both Governments to discuss the matter with representatives of your Syndicate, with a view to ascertaining whether the Syndicate has any proposals to make.

In this connection, I confirm the verbal arrangements which have already been made for discussions to take place at 2.30 p.m. on Tuesday, 15th January, 1946. It is proposed that these discussions be held in my office at the above address.

Yours faithfully,

(G. T. Chippindall)
S e c r e t a r y

Amended to Sec

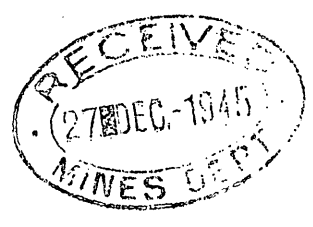
TELEPHONE: F 9411
TELEGRAMS: "SUPDEV"

DEPARTMENT OF SUPPLY AND SHIPPING
409 Collins Street,

~~XXXXXXXXXXXXXXXXXXXX~~
~~XXXXXXXXXXXXXXXXXXXX~~

In Reply Quote M.6/37

MELBOURNE, C.1



24th December, 1945.

The Secretary,
Mines Department,
Treasury Gardens,
MELBOURNE. C.2.

Dear Sir,

I desire to refer to your letter of 4th December, 1945, in which you conveyed the decision reached by your Government in connection with the Lakes Entrance oil project, and to inform you that this matter was dealt with by the Federal Cabinet on 17th December last, when the following decisions were reached -

- (1) That steps be taken to liquidate the venture to the best advantage.
- (2) That before steps are taken to effect liquidation the matter be discussed with the Austral Oil Drilling Syndicate, with a view to ascertaining whether the Syndicate has any proposals to make before liquidation arrangements are put in train: the Government of Victoria to join with the Commonwealth in these discussions.
- (3) That if the Austral Oil Drilling Syndicate ~~makes application for an advance from Commonwealth sources pending the raising of capital, such application be not approved for the reasons that the project is not favourably regarded either on technical or economic grounds; and~~
- (4) that ~~if the Austral Oil Drilling Syndicate seeks authority to raise capital, the matter be decided in the usual way by the Capital Issues Board in the light of the fullest information available in regard to the project.~~ Note: The Board would be supplied with a copy of Agendum No. 694A, which contains full information in regard to the project.

*Amended
7:30 pm
Tues
15/12
Chippindall
Jan*

In this connection, I confirm telephonic discussions which took place with you today, when you expressed agreement with the terms of advice which should be conveyed to the Austral Oil Drilling Syndicate, and a copy of the letter addressed to the Syndicate is forwarded herewith for your records.

Yours faithfully,

G. T. Chippindall

(G. T. Chippindall)
Secretary

909551 228

The Departmental Executive,
Lakes Entrance Oil Project.

The following Requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorization.

Reqs. No.	Articles	Amount
TSI No. 6475 6480 6501 6503	1 only Ajax Selfloading Bulldozer Pump Size A4 Spares for 6 VEB Engine Parts for 6 VEB 2 sets 1/2" Whitworth Taps	55 - - 4 - - 9 - - 1 - -
		<hr/> <u>79</u> <hr/>

I certify that the above expenditure was necessary for execution of the programme approved by the Controller.

APPROVED

RF. 25DECEMBER 1944SCHEDULE NO. 22

The Departmental Executive,
Lakes Entrance Oil Project.

The following Requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorization.

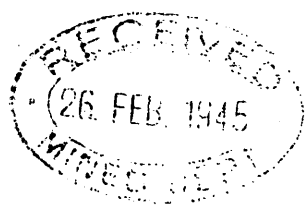
Reqn. No.	Articles	Amount
TSI No. 6592	5 only Special 4 core cable end boxes	12
6592	2 " 5 gal. drums castor oil	5
6593	162 drums Diesel oil. 162 drums (returnable)	508
6594	5 only wedge ropes 813	1
6595	4 cylinders Oxygen, 1 cylinder acetylene	2
6601	12 only 24 volt 75 watts edison single coil lamps	1
6606	Parts for 5" Centrifugal pump	5
6617	1 only EH 6312 A Ball bearing	2
6626	4 " Leather plunger buckets for Ajax 400 pump	1
6630	Rental of premises at Lakes Entrance	104
		6641

APPROVED

me BIK
Be return *RB* *st*
(COPY)

909551 230

EXTERNAL AFFAIRS.



The Secretary,
Department of Supply and Shipping,
125 Swanston Street,
MELBOURNE.

Letter from Mr. Ranney and one copy enclosed
herewith. Kindly forward copy, as requested, to Mr. H. J.
Cook. The second copy has been forwarded to Dr. H. G.
Raggatt

(Sgd.) J. Hood

Acting Secretary,
Dept. of External Affairs.
13.2.45

COPY FOR MR. BROWN

(COPY)

909551 231

AUSTRALIAN LEGATION,
WASHINGTON, D.C.

24th January, 1945.



Dear Department,

We enclose herewith a letter dated the 26th of December, 1944, from Mr. Leo Ranney to Mr. A. V. Smith, together with two copies which Mr. Ranney asked us to forward to Dr. H. G. Raggatt and Mr. H. J. Cook.

Three copies of what Mr. Ranney has described as "descriptive reprints" are also enclosed.

Yours sincerely,

(Sgd.) A. S. Watt

CHANCERY

Department of External Affairs,
Canberra, A.C.T.,
AUSTRALIA.

MINUTES OF MEETING OF LAKES ENTRANCE OIL DEPARTMENTAL
EXECUTIVE COMMITTEE HELD AT LAKES ENTRANCE ON
THURSDAY, 1ST MARCH, 1945.

Present: MR. J. MALCOLM NEWMAN, Controller of Minerals
Production (Chairman).
MR. GEORGE BROWN, Secretary, Department of
Mines, Victoria.
MR. A. C. SMITH, Executive Officer - Minerals,
Department of Supply and
Shipping.
In Attendance: MR. H. J. COOK, Supervisor, Lakes Entrance
Oil Project.
MR. G. HADDEN, Inspector of Mines, Depart-
ment of Mines, Victoria.

- (1) MINUTES - The minutes of the previous meeting held on 26th January, 1945 were discussed at some length. Divergency of opinion existed as to whether work carried out on the Pilot Bore yielded fuller information than had been obtained from other bores which were put down in the locality. It was eventually decided that the Chairman should discuss the matter with Mr. Baragwanath and that the minutes of the meeting should be amended in any way thought to be desirable as a result of such discussions. NOTE: These discussions took place in Melbourne on 2nd March, 1945 and it was mutually agreed that the reference to the Pilot Bore should read inter alia:-

"the information available from the Pilot Bore is more detailed than has been obtained previously but is, in general, similar".

The minutes were thereupon confirmed.

- (2) ACCOUNTS - Accounts as per Schedules 30 & 31, copies of which are attached, covering total expenditure amounting to £85 and £527 respectively were passed for payment.
- (3) FUTURE PROGRAMME - The Committee had before it copies of Mr. Cook's weekly reports, as well as a letter from Mr. Ranney dated 26th December, 1944, and memorandum from the Director-General, Australian War Supplies Procurement, Washington dated 4th December, 1944.

Mr. Cook's report No. 118, dated 12th February, which was accompanied by a copy of a report by Mr. G. Hadden dated 6th February, dealt particularly with the depth to which the shaft could be taken without risk to workmen, and such matters as the construction of a work chamber at the bottom of the shaft or, alternatively, construction of drives heading north and south.

/Memorandum

909551 233

Memorandum from the Director-General, War Supplies Procurement, dated 4th December, 1944 indicated that drilling plant would need to be redesigned in view of the fact that the shaft may be stopped 100 ft. above the oil sands, and stated that the redesigned plant would require to be tested in U.S.A. before despatch to this country.

Mr. Ranney's letter of 26th December, 1944 dealt with results obtained by horizontal drilling in the Franklin Heavy field; the application of pre-grouting to the Lakes Entrance field and water pressure problems, but made no reference to the redesigned plant. In contradistinction Mr. Ranney appears to have reached the conclusion that the shaft would be taken to the top of the oil sands, the depth of which is 1,200 feet.

From consideration of these reports and correspondence it was clear to the Committee that a critical stage had now been reached involving the taking of decisions in the light of the best technical advice available. Unfortunately Mr. Ranney had so far not been able to contribute towards a solution of the problem which actually amounted to a question as to how close we can approach the oil sands without imperilling the enterprise and endangering the lives of men. The oil sands lie at a depth of about 1,200 feet and Mr. Cook expressed the greatest diffidence, on the grounds of safety, about taking the shaft to any greater depth than 1,100 feet. In this he was substantially supported by Mr. Hadden. Mr. Newman, who is a mining engineer of wide experience, agreed that, without further knowledge of the amount of artesian water underlying the oil sands and of the physical properties of the oil sands and the strata immediately overlying them, the opinions of Messrs. Cook and Hadden must be respected.

In this connection Mr. Cook drew particular attention to the fact that at a depth of 666 ft. water pressure of 270 lbs. per square inch broke through 16 feet of ground and flooded the shaft until brought under control. This ground through which the water broke was stronger than that indicated by the Pilot Bore to lie immediately above the glauconite or oil sands. According to Mr. Cook the inference to be drawn from this is that if 270 lb. water will break through 16 feet, then 600 lb. artesian water will break through 35 feet or, if the ground is weak, through still more. Water pressure below the oil sands is 600 lbs. to the square inch.

In the light of these views the Chairman expressed serious apprehension concerning the success of the venture. He felt that if the shaft could not be taken any nearer than to within 100 feet of the oil sands horizontal drilling equipment could not be expected to yield the results which it might have been expected to yield if drilling were carried out from within, or just above, the oil sands themselves.

The Committee felt that much more information was needed to enable a determination of this problem. Information coming to hand from U.S.A. was quite inconclusive and it was important and urgent that much fuller information should be obtained to enable the project to be brought

/to

to completion. The shaft is now down to a depth of 996 feet and sinking to 1,100 feet, which Mr. Cook regards as a safe depth, will occupy between 70 to 80 days dependent upon sinking conditions. The further information referred to should, therefore, be obtained within this period or otherwise operations may have to be suspended altogether.

The Committee considered the question as to whether Mr. Ranney ought to come to Australia at this stage, or alternatively whether Messrs. Newman and Cook should visit U.S.A. for the purpose of obtaining the latest information concerning equipment, and witnessing the results of horizontal boring operations in that country. It was felt that far more useful information would be obtained at this stage if Messrs. Newman and Cook were to visit U.S.A. In addition to the equipment problem it was essential that first hand information should be obtained on actual horizontal drilling operations. In view of this the Committee decided to recommend to the Ministers concerned that Messrs. Newman and Cook visit U.S.A. at the earliest possible date, and that the visit be of as short duration as possible to enable the results to be applied without delay at Lakes Entrance. It was important to bear in mind that the problem is not a geological one but is essentially an engineering problem.

The Committee also decided to enlist the assistance of the Professor of Physics of the Melbourne University, and to obtain advice from Mr. McLelland who was an accepted authority on reinforced concrete work. Mr. A.G. Smith undertook to contact the Professor of Physics and to pave the way for discussions with Mr. Cook.

Mr. Cook undertook to prepare a full reply to Mr. Ranney's letter of 26th December.

The meeting terminated at 1.30 p.m.

CONFIRMED.

.....
(Chairman)

C O P Y.

909551 235

MINING INSPECTOR'S OFFICE,
WONTHAGGI.

7th March, 1945.

Report on the Lakes Entrance Oil Shaft made on Thursday,
1st March, 1945.

Surface Plant and Equipment:

This is all in good order and condition.

Shaft:

The shaft has been carried down to a depth of 996 feet and the work of concreting same was in progress when I was there. The Manager reported that the ground being sunk through was still good from the point of view of sinking. There was a small amount of ~~swelling~~ swelling of the bottom and a small amount of side pressure was developing, depending to an extent on the time the strata was open to the air. As the Executive Committee was at the shaft during my visit, the opportunity was availed of to discuss how near to the artesian water it would be wise to carry the sinking. In the absence of any reliable data as to the strength of the present strata and also the glauconite, and the known fact of the artesian pressure, it was decided that the sinking should stop at 1100 feet, pending further enquiries from Mr. Ranney, as to the method to be adopted in dealing with the remainder of the shaft.

Shaft Equipment:

This was all in good order and condition.

Yours faithfully,

(Signed) G. Hadden,

Inspector of Mines.

SUBJECTS FOR DISCUSSION WITH RANNEY AND FOR INVESTIGATION IN AMERICA.



1. Depth of Shaft. It has been accepted that it is safe to take the shaft to 1100' but no decision has yet been reached as to how much nearer the shaft may approach the glauconite with safety nor what measure can be adopted to make the approach either closer or safer.

909551 236

The Canberra report on the cores taken from the Pilot Hole is required as early as possible to assist in this matter.

NOTE: We are in touch with Messrs. Boyle Bros. Ltd. to take a core from 1100' into the glauconite.

2. It is safe to penetrate with a small hole, say 6" diameter, not only as far as the glauconite, but two-thirds of the way through it without fear of the artesian water bursting through. But it is not safe to take an opening the size of the shaft excavation, 14' diameter, anywhere near so close.

The smaller the opening the deeper it may go with safety, the larger the opening the more ground must be left as a protection from the bottom pressure.

For these reasons Ranney in his letter of 12th November, 1943 put forward his tunnelling scheme which demanded 10' diameter tunnels (14' diameter excavations) in place of a 25' diameter work chamber (about 35' diameter excavation).

3. Our experience with horizontal openings at 660' and at 990' indicated clearly that such openings would be expensive to build and to maintain.

4. Consequent on this a reversion was made to the work chamber idea, but on closer examination, this was found to have two serious disadvantages:

Firstly, it could not approach so closely to the glauconite as the narrower opening required by a drive or tunnel, and secondly, in the type of country we know to exist between 1100' and the glauconite, it would be extraordinarily difficult, if not impossible, to construct.

5. In view of the above, we are forced back to facing the tunnelling expedient. Tunnels could probably be constructed by the use of cast iron or precast concrete tubing of specially heavy section. This would be expensive, probably costing £60-£70 per foot for materials alone. However, it has the advantage that only a comparatively short length of it would need to be completed at the outset, in order to drill one or two pairs of Ranney wells. From these wells, sufficient data would be obtained to establish the economics of the business.

6. On discussion of the above with Ranney, we could go on to discuss the effect on the Ranney system of having to stop the shaft some distance above the glauconite. Produce Pilot Hole "rise" tests to show that moderate back pressure does not stop production.

We would seek Ranney's assistance in obtaining technical authoritative help in deciding closeness of approach to the glauconite.

7. Suggest to Ranney that his 10' diameter tunnels are too large and discover the minimum possible.

8. Ranney has been provided with details and a summary of the results of production tests on our Pilot Hole. These show only very limited oil production zones. We must advise

Ranney that, in the opinion of the officials of the Mines Department of Victoria, the results obtained in that hole are typical of the whole field. In support of this we can produce the production figures of Imray Well, which are identical as regards oil, but which does not produce quite so much water as Pilot Hole.

If, as we have cause to believe, the production zone at Lakes Entrance is limited to about 3' of oil sand near the centre of the glauconite, it will be necessary to discuss the effect of this on:-

- (a) Drilling of Ranney Wells.
- (b) Oil Production Rate.
- (c) Estimate of final Production reasonably to be expected.

Ranney's estimated production based on 30' of oil bearing sand. Will the above data, new to Ranney, affect his estimate of rate or total quantity?

9. In the light of his experience at Venango, would Ranney consider amplifying or amending his Lakes Entrance estimate?

10. The water/oil ratio should be discussed with Ranney particularly in reference to Imray Well, where, after the production of only about 2,000 gallons of oil this ratio has changed as follows:-

1941	1	Water to 4.536 oil
1945	1	Water to 3.866 oil
1945	1	Water to 3.0 oil (latest balings)

Is this water drive or water invasion?

11. Discuss with Ranney the cause of pressure in our oil sand.

12. Discuss cementation with Ranney. Would not high pressure grout in the horizontal cleavages of the glauconite do more harm than good?

Discuss Ranney's relief hole.

13. Re Venango. We should enquire if Ranney made preliminary estimates of either rate of oil yield or total oil yield for Venango project, and, if so, in what measure have these estimates been realised?

14. Get all possible figures from U.S. Bureau of Mines and Venango corporation on production results, etc.

15. Discuss with George S. Rice, of U.S. Bureau (Bulletin 351) position at Lakes Entrance.

16. Consult with Francois Ltd. protection from bottom water pressure.

17. Follow up latest Ranney ventures at Coalinga, Fresno Country; and in Kansas, and enquire results of use of modified Ranney equipment for drilling horizontal holes.

18. Enquire at Australian Legation and elsewhere probable date of delivery of our own drilling plant.

C O P Y.

MINING INSPECTOR'S OFFICE.
20 Bent Street,
W O N T H A G G I.
909551 238

18th April, 1945.

Report on inspection of the Lakes Entrance Oil Shaft,
Made on Thursday, the 12th April, 1945.

Surface plant and equipment.

This is all in good order and condition.

Shaft.

The sinking of the shaft had been taken down to 1064 feet, and preparations were being made to concrete the last 12 feet. @@ At this depth the first hard band that has extended wholly across the shaft bottom was encountered. This was apparently about one foot in thickness and of hard limestone. Even though so much harder than the other strata, it was nevertheless fractured in the centre, due apparently to the upthrust of the shaft floor, which Mr. Clark estimates to be approximately 12 inches in 24 hrs. While this rise is not yet very great, it is an indication of the caution that is required in dealing with the artesian water problem, as it in itself is capable of rupturing these @@@@ hard bands, which were thought to be going to be a bulwark against the water pressure.

Shaft Equipment.

This is all in good order and condition.

Yours faithfully,
(Signed) G HADDEN.

Inspector of Mines.

SECRETARY FOR MINES,
Treasury Gardens,
Melbourne.

C O P Y.

MINING INSPECTOR'S OFFICE.

20 Bent Street,

W O N T H A G G I.

909551 239
21st May, 1945.

Report on Inspection of Lakes Entrance Oil Shaft, made on
Thursday, 17th April, 1945.

Surface plant and Equipment.

This is in good order and condition. The S. E. O. were completing the connecting up of the power lines from Yallourn, and they proposed to make the first test of the installation on Friday, the 19th inst.

Shaft.

This is now down to 1108 feet, and concreting of this 12 feet was in progress. The next sink will be the final until the completion of the diamond drilling which is to be carried out in the shaft bottom. Care will require to be exercised in these operations, as the log of the Pilot Bore shows that gas was plentiful at 1150', and it would be quite possible to release appreciable quantities at short notice through the small bore. As long as the necessary precautions are strictly observed there should be no difficulty in dealing with any position that arises.

Yours faithfully,

(Signed) G. HADDEN.

Inspector of Mines.

C O P Y.

909551 240
MINING INSPECTOR'S OFFICE,

20 Bent Street,

WONTHAGGI.

13th June, 1945.

Report on inspection of the Lakes Entrance Oil Shaft, made
on the 7th and 8th of June, 1945.

Surface Equipment,

This is all in good order and is well
maintained. The Power from =Yallourn is coupled up and is
now in use.

Shaft,

This is now at 1116 feet, and sinking has been
suspended temporarily to allow a diamond drill hole to be
bored down into the Glauconite. The drilling equipment was
on the job and was being assembled. I arranged with Mr.
Clark and Mr. Noakes to give me a ring when the cores of the
ground from the shaft bottom to the glauconite were avail-
able @ for inspection and I will then make a trip for that
purpose.

Yours sincerely,

(Signed:) G. HADDEN.

Inspector of Mines.

Secretary for Mines,
Treasury Gardens,
MELBOURNE. C.2.

LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE.

MINUTES OF MEETING OF LAKES ENTRANCE OIL DEPARTMENTAL
EXECUTIVE COMMITTEE HELD AT LAKES ENTRANCE ON WEDNES-
DAY AND THURSDAY 27TH AND 28TH JUNE, 1945.

.....

909551 241

PRESENT:

MR. J. MALCOLM NEWMAN,	Controller of Minerals Pro- duction (Chairman).
MR. GEORGE BROWN,	Secretary, Department of Mines, Victoria.
MR. A. C. SMITH,	Executive Officer - Minerals, Department of Supply and Shipping.

IN ATTENDANCE:

MR. W. RAE,	Acting Supervisor, Lakes Entrance Oil Project.
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IN ATTENDANCE PART OF TIME:

MR. G. HADDEN,	Chief Inspector of Mines, Victoria.
MR. E. NOAKES,	Geologist, Mineral Resources Survey.

.....

1. MINUTES:

The minutes of the previous meeting held on
1st March, 1945, were confirmed.

2. BUSINESS ARISING OUT OF THE MINUTES:

At the last meeting it was decided to con-
sult certain authorities including, the Professor of Physics
of Melbourne University, in regard to the strength of the
strata lying below a depth of 1,150 ft. On further con-
sideration, however, the view was taken that it would be
preferable to consult a small Technical Committee comprising
Mr. Hudspeith a leading civil engineer; Mr. Snider, Snider
Construction Company; Mr. Clarke, Mine Manager at Lakes
Entrance; Mr. Hadden, Chief Inspector of Mines of Victoria
and Mr. W. Rae, Acting Supervisor. As a preliminary to
such consultation it was essential, however, to bore and
core from the bottom of the shaft, i.e. 1117ft., to and
through the glauconite or oil sands. This boring was
undertaken by Boylee Bros. who encountered considerable
difficulties, due to the type of ground and other factors.
The result has been that the work has taken longer than
was anticipated, but it should be completed within about
a week.

3. BORING:

Reference is made in 2 to the progress of
boring. This work was closely inspected as were the cores,
and discussed at length with the drillers and with Messrs.
Noakes, Hadden, Rae and Clarke.

Mr. Newman asked for a definite expression of opinion from Mr. Hadden as to whether in the light of evidence so far produced by boring he would support the carrying of the shaft to 1,163 ft. A similar question was asked of Mr. Clarke but both asserted that they could not sponsor such a proposal because of doubts concerning the strength of the strata. Mr. Clarke considered that any expression of view would be impossible before coring of the glauconite had been done. It would then be necessary for the Technical Committee referred to in 2 to pronounce upon the matter in the light of all the factors involved.

Mr. Hadden mentioned that, under similar conditions in a coal mine, a shaft of the size of that at Lakes Entrance could not be taken to within more than 120 ft. of the water level; the permissible size of a shaft under such conditions would be 8 square feet. He emphasized, however, that the Coal Mining Act did not apply to this project, but Mr. Newman drew attention to the fact that the circumstances were analogous, and in view of this the Committee would be held to be culpable, in the event of accident, if it persisted in the driving of the shaft to the glauconite, except on reassurances from the best experts available. It was decided, therefore, that the matter must await the views of the Technical Committee.

4. MR. COOK'S REPORT:

The Committee had before it cablegrams exchanged with Mr. R. J. Cook who was in U.S.A. and a copy of Mr. Cook's diary. The feeling of the Committee was, however, that it did not appear that Mr. Cook had obtained full information as to means of approaching the glauconite, or in regard to oil production. It was decided, therefore, that he should be cabled asking him to devote more time to obtaining the fullest information in regard to both these matters, and that with this object in view he should defer his return to Australia - he had planned to leave San Diego on 2nd July. NOTE: Draft cablegram was duly submitted to the Secretary, Department of Supply and Shipping, in this regard after its terms had been approved by both Messrs. Newman and Brown.

5. PROSPECTS OF THE ENTERPRISE:

The question was raised as to what the views of the Committee were on the subject of continuation of operations in the light of disquieting advices furnished by Mr. Cook. After discussion of all aspects the view was unanimously expressed that, having taken the project to its present stage, a responsibility devolved upon the Governments of the Commonwealth and Victoria to ensure that attempts to produce oil in commercial quantities were persisted in either by Governments or by private enterprise. It was realized that this might involve experimentation and improvisation and that as a result there might be some hiatus in operations.

6. PLACING OF PROJECT ON MAINTENANCE BASIS:

In view of the possibility of a hiatus in development, postulated in (5), consideration was given to what would be necessary to place the project on a

maintenance basis. It was noted that the shaft was making water at the rate of 1,700 gallons per hour, and this would need to be baled at regular intervals, involving employment of engine drivers and miners. After investigating this position it was thought that as a preliminary arrangement, subject to review later, the following personnel would be required:-

2 Engine drivers	£24	per week
2 Miners	£23	" "
1 Foreman	£14	" "
Firewood for boilers	£16	" "
Total	£77	per week

say, allowing for contingencies, £80 per week.

At present 22 men are employed on this project and the Committee recognised that, if this labour force were disbanded, there would be almost insuperable difficulties in getting it together again. This aspect would need to be kept closely in mind in considering maintenance proposals.

7. ACCOUNTS:

Accounts as per Schedules 32, 33 and 34, copies of which are attached, covering expenditure amounting to £268; £82.18.1; £1,326.0.0 were passed respectively for payment.

The meeting terminated at 12 noon on 28th June, 1945.

CONFIRMED.

.....
(Chairman)

29th June, 1945.

The Departmental Executive,
 Lakes Entrance Oil Project.

909551 244

The following Requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorization.

4/4

Reqn. No.	Articles	Amount
6805	6 3" Pipe Tees, & 4" Pipe Tees	11 - -
6811	24 doz. Ore sample bags	7 - -
6812	1400 $\frac{1}{2}$ " 6 x 19 flex gal. wire	25 - -
6824	10 sheets 6' x 2'6" x 22 gauge gal. iron	5 - -
6835	2 5 gal. drums, Castor Oil	5 - -
6838	12 2.5 volts 0.75 and 1.0 waps Globes	2 - -
6846	12 miners pneumatic lamps	187 - -
6851	6 304K Repair ball races	5 - -
6855	2 81B Wedge ropes	1 - -
6858	8 lbs. 1/8" Austral Bronze breaking rods	1 - -
6869	24 C.I. Fire bars 3'2 $\frac{1}{2}$ " long	6 - -
6872	1 metal case V.E.B. large end bearing No. 935	7 - -
		595

I certify that the above expenditure was necessary for the execution of programs approved by the Controller.

APPROVED

SCHEDULE NO. 33

April, 1945

MF.25

The Departmental Executive,
Lakes Entrance Project.

909551 245

The following requisitions for supplies for
Lakes Entrance Oil Project are submitted for your authorisation.

Apr 2/5

Reqn. No.	Articles	Amount
6880	3 cylinders Oxygen, 1 cylinder acetylene	52. 0. 0
6881	120' $\frac{3}{4}$ " Galv. Piping	2. 0. 0
6882	1 6 volt 13 plate battery	3. 0. 0
6894	Rental of Villa	8. 15. 4
6901	1 only 5" diam. Pressure Gauge 0-100 lbs.	2. 0. 0
6910	Parts for 3" Four Stage EC Centrifugal Pump	8. 0. 0
6912	6 only 4" x 5" Leather Plunger Buckets	1. 0. 0
6916	1 " A4 Ajax Pump	50. 0. 0
6917	Parts for A4 Ajax Pump	5. 0. 0
6925	Serviceing Gas Producer 012658	1. 4. 9
		<hr/>
		£82. 18. 1

APPROVED

The Departmental Executive,
Lakes Entrance Oil Project,

909551 246

The following requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorisation.

AS 5/6

Req. No.	Articles	Amount
NP. 6893	Overhaul one atomiser for 6VEB Engine	2. 0. 0
6929	Blanket req. firewood	980. 0. 0
6954	3 Plug valves, 1 box lubricant	11. 0. 0
6939	15 tons Diesel fuel oil	261. 0. 0
6941	6 only 760/116 valve cushion plates	11. 0. 0
6944	50 " E40V 150W Mazda lamps	7. 0. 0
6949	2 "Norma" Hoffman 5C10 Bearings	1. 0. 0
6951	3 only 4 1/2 lb. Plumb axes	3. 0. 0
6954	Replacements for A4 Bulldozer Pump	14. 0. 0
6955	1 only D4 Birko Soldering iron	2. 0. 0
6957	6 doz. shuttlecocks	9. 0. 0
6980	2 cyl. Oxygen, 3 cyl. acetylene	3. 0. 0
6984	3 sets dies for 107 1/2 OS	8. 0. 0
6987	3 only Chance Glasses D Lens 4 1/2" x 2"	1. 0. 0
6992	4 - 14 lb. tins Arsen - 56 lbs.	3. 0. 0
6994	3 only 1/2" Globe Valves	6. 0. 0
7005	2 drums each 70 lbs. 45° Glucose	4. 0. 0
		<hr/>
		£1326. 0. 0
		<hr/>

APPROVED

1702 RIK
LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE.

MINUTES OF SPECIAL MEETING OF LAKES
ENTRANCE OIL DEPARTMENTAL EXECUTIVE
COMMITTEE, HELD IN MORNBOURNE ON 5TH
JULY, 1945.



909551 247

PRESENT:

MR. J. MALCOLM NEWMAN, Controller of Minerals Production,
(Chairman).
MR. GEORGE BROWN, Secretary, Department of Mines,
Victoria.
MR. A. G. SMITH, Executive Officer - Minerals,
Department of Supply and
Shipping.

IN ATTENDANCE:

MR. F. B. SNIDER, Snider Construction Company.
MR. G. HADDEN, Chief Inspector of Mines,
Victoria.
MR. C. HUDSPETH, Civil Engineer
MR. A. B. CLARKE, Mine Foreman, Lakes Entrance
Oil Project.
MR. W. RAE, Acting Supervisor, Lakes En-
trance oil project.
MR. L. NOAKES, Geologist, Mineral Resources
Survey.

(1) Report by Technical Committee:

The Chairman stated that the purpose of the meeting was to consider a report submitted by a Technical Committee, comprising Messrs. Snider, Hadden, Hudspeth, Clarke and Rae, on the question as to whether further shaft sinking operations could safely be continued at the Lakes Entrance oil project; it was also desired to discuss certain aspects of the matter with technical officers in view of the risks inherent in this project.

The Technical Committee made it clear that shaft sinking could proceed another 40 ft. giving a total depth of about 1160 ft., pending a decision concerning the type of work chamber and pending the results of compression and shearing tests of glauconite. The Technical Committee expressed the view, in the light of results obtained by boring operations, that this could be done with safety.

The Technical Committee intimated that it was proposed to hold a further meeting after the receipt of test certificates with the object of advising on the future plan of operations.

The whole matter was discussed at length with technical officers and cores were inspected by members of the Executive Committee which expressed satisfaction with the results achieved by boring operations and with the views set out by technical officers.

Mr. Snider informed the Committee that the cleaning up of the shaft and the sinking of a further 40 ft. would occupy a minimum period of two months. Mr. Cook should have returned to Australia before the expiration of this period.

(2) The Pilot Bore:

Discussion centered round the question as to whether it was desirable that action should be taken to bore right through the glauconite to obtain more precise information concerning water pressures beneath it; also with the object of obtaining cores, if possible, in the artesian basin. The Committee reached the conclusion that this would be very desirable and that the information which might be derived from these operations may be of considerable value. It was decided, therefore, to use the pilot bore adjacent to the mine for this purpose, and Mr. Rae was instructed to put the work in hand. This bore has already been taken down some distance into the glauconite.

.....

(Copies of the Technical Committee's report of 3rd July, together with drilling summary and columnar section of glauconite in printed form are attached hereto.)

MINUTES OF MEETING HELD AT LAKE'S ENTRANCE
ON 3RD JULY, 1945.

PRESENT:

MESSERS. HADDEN, HUDSPETH, RAE, CLARKE,
AND SNIDER.

Following inspection of the cores and after discussion with Mr. Hoakes it was agreed that -

- (1) Shaft sinking may be proceeded with down to a depth of 40 feet lower than the existing finished shaft with safety. This is as low as we consider it safe to sink pending a decision with regard to the type of chamber that may be decided upon.
- (2) Compression and vertical shear tests be made from glauconite cores taken from three selected places. One series of tests to be made at Canberra, and second series to be made at a selected Melbourne laboratory.
- (3) after receipt of the test certificates a further meeting to be held to determine basis of design of shaft and chamber.

(Sgd.) Eric B. Snider

G. Hadden

C. Hudspeth

A. B. Clarke

W. Rae

C O P Y

H A L L I B U R T O N

OIL WELL CEMENTING COMPANY

909551 250

Duncan, Oklahoma,
July 26, 1945.

Mr. H. J. Cook,
Department of Supply and Shipping,
409 Collins Street,
Melbourne, C.4.,
Victoria, Australia.

Dear Sir,

It certainly was a disappointment to me that your inquiry arrived during my absence, as I would like very much to have at least talked to you on the telephone about this project.

Studying the information that has been forwarded to me I am still wondering about a few pertinent questions which are as follows:

- (1) The diameter of the shaft.
- (2) Is the troublesome sand described completely unconsolidated?
- (3) What is the screen analysis of the sand?
- (4) What is the temperature of the water in the sand?

In studying Mr. Wheeler's suggestion that the shaft be stopped at 1130 feet, I think this a very good idea as you will certainly need this much over-burden to hold the sand down when grout is being pumped into it. In regard to Mr. Wheeler's suggestion that the holes be drilled into the quick sand and then grout-pipe placed in these holes and cemented or grouted in place with a quick set mixture of Calseal and cement - I do not approve of this procedure, at least on the first hole. I believe the procedure of drilling the hole directly into water sand and then attempting to grout the pipe into place with the water flowing may be very dangerous. If just one of these holes was to get out of control it might be a very difficult job to get it under control. As an alternative to Mr. Wheeler's suggestion I would drill to a point approximately 5 feet above the quick sand and set casing and cement it back to the top before drilling into the water sand. Then drilling would proceed inside of the cemented casing and a control head could be placed on top of this casing, thus allowing this hole to be controlled at all times and not run the risk of flooding your shaft. If after drilling one hole into the sand it is found that it could be completely controlled without this extra casing above the water sand then this practice could be abandoned.

The problem of solidifying and making impermeable a fine sand is not a simple problem. After the desired number of grouting pipes have penetrated the water bearing sand to the desired depth, openings in these pipes are made by shooting bullets through the pipe and injecting the grout mixture out through these holes into the water sand. The problem with these fine sands is that the cement particles are too large to enter the interstitial space between the sand grains and seal the sand completely. It is for this reason that within the past few years the oil fields have begun to use true solutions to seal the sands instead of the water-cement mixture. This allows all the openings between the sand

/grains ...

grains to be filled with a solution that solidifies, therefore making the sand completely impermeable to the flow of water. This can be classified as chemical grouting. It has been my experience in these fine sands that when cement is pumped into the sand it merely fractures or parts the sand, but I believe in your case, for safety, it would require the complete solidification of the sand below the oil sand. This is the reason that I must know the size of your shaft in order to figure the volume of sand that will be required to be solidified because this "chemical grout" material is expensive and rather hard to obtain.

The equipment required to do this work would be:

- (1) A standard Halliburton cementing unit either truck mounted or skid mounted.
- (2) A grouting gun perforating unit.

The cost of this pump unit would be approximately \$12,000.00 if skid mounted, and if truck mounted it would be approximately ~~@@@~~ \$10,000.00 plus the cost of the truck on which it is mounted. The cost of the gun perforating unit would be approximately \$5,000.00. This would include 3000 bullets and powder loads. It must be remembered that these are only tentative prices, and may change when the procedure on the job is definitely decided upon.

It would require definite technical supervision in the event the "chemical grout" is pumped into the sand. If the cement grout is pumped into the sand technical supervision would not be required, but I believe this supervision would pay dividends in the speed with which the job could be accomplished. A man experienced in the operation of the equipment is an asset on any job.

The cost of the men would be \$150.00 per day plus all of their expenses from the time they leave Duncan, Oklahoma, until they return. This would include the following men:

- (1) An ~~an~~ experienced grouting supervisor.
- (2) Chemist to control the "chemical grout."
- (3) Experienced equipment operator.

This is very indefinite, but I believe after you have answered the questions that we can give you more definite answers, and also we will be able to set up experiments to prove if this sand can be sealed and if it can be sealed what materials would be required to do the job.

Very truly yours,

(Signed) TOM LENAHAN.

C O P Y

909551 252
Mines Department,
Melbourne,

13th August, 1945.

REPORT OF INSPECTION OF THE
LAKES ENTRANCE OIL PROJECT MADE ON
7th AUGUST, 1945.

SURFACE EQUIPMENT:

This was all in good order and condition.

SHAFT AND SHAFT EQUIPMENT:

The shaft has been deepened to 1140 feet, and the last section of concrete was being poured on Wednesday. The placing of the shaft steel, etc., would be finished by the next day, and the sinking of the last 16 ft., to 1156 ft., would be commenced. It is estimated that this will take approximately 16 days to complete. When this is completed, a further conference will be necessary, as this is the depth to which the Sub-committee approved the sinking, pending the results of the crushing and shear tests of the glauconite samples which were taken from the Diamond drill hole. Since the resumption of sinking from 1116 feet, there has been little or no swelling of the ground in the shaft bottom. Everything else is in good order.

Yours faithfully,

(Signed) G. HADDEN,

Chief Mining Inspector.

C O P Y.

P.O. Box 38,
Lakes Entrance.

28th August, 1945.

MINUTES OF MEETING HELD AT LAKES ENTRANCE

4 p.m. 27th August.

909551 253

SUBJECT: Extension of sinking of Lakes Entrance shaft below 1156 ft.

PRESENT: Messrs. J. M. Newman (presiding)
E. Snider
A. B. Clark
G. Hadden
H. J. Cook

Written expressions of opinion by Mr. G. Hudspeth of 20th August, and by Mr. H. J. Cook of 17th August were read to the meeting.

Mr. Snider said that in his opinion the shaft could be advanced with safety to the top of the glauconite.

Mr. Clark said he did not like to proceed further than the present depth of 1156 feet. He agreed that if the shaft were made smaller it would be safe to sink deeper.

Mr. Hadden said he was not prepared to carry on with present sized shaft below 1156 feet. A smaller shaft could go deeper.

Mr. Newman said that in the light of expected oil yields the question of horizontal drilling was ~~now~~ now relatively unimportant, but he would like to see the shaft go down deep enough to make an examination of the glauconite possible, and to do some actual driving in the glauconite.

The extension of the shaft by means ~~of~~ of a smaller opening having been agreed, there was then a lengthy discussion on the size and form of this opening. An opening 5' x 4' in the clear of heavy timber was agreed on. This is to be so arranged as to provide an extension of one of the main haulage compartments of the big shaft.

Mr. Cook said there was no very accurate information of the actual thickness of glauconite lying above the artesian water and that he would like to see the Pilot Hole drilled clean through the glauconite until the artesian water came in. If a considerably different development of the glauconite were found from what was expected, this might modify decisions as to how far the shaft could go.

The main argument against such a course was that artesian water might be introduced into the oil sand and so impede oil recovery. Mr. Newman agreed to raise the subject with Austral Syndicate either through the executive committee or counsel, and report ~~at~~ their reactions.

AGREED ACTION.

- 900551 254
1. Sinking of the full @@@@ sized shaft to be suspended at 1156 ft. and a smaller shaft 5' x 4' in the clear, be started in the bottom.
 2. The Pilot Hole be got ready for drilling right through the glauconite and any @@@@ unusual results reported if they had a bearing on depth to which big shaft could be sunk.
 3. The Contractor was not to dissipate his labour force, and proposed programme could proceed under clause 12 of general conditions of contract.

(Signed:)) H. J. COOK.

Messrs. Snider, Clark, Hadden and myself, all being together, agreed that the above accurately records the meeting.

DEPARTMENT OF SUPPLY AND SHIPPING.

.....

Mineral Resources Survey,
CANBERRA.

17th October, 1945.

MEMORANDUM for:-The Secretary,
Department of Supply and Shipping,
MELBOURNE. VIC.LAKES ENTRANCE PROJECT.

Following completion of their investigations of the cores recovered from the bore in the Lakes Entrance shaft, Messrs. Thyer and Noakes have completed the draft of a report. This draft has been discussed with the authors by Messrs. Nye, Temple Watts and myself. The authors' conclusions following this discussion are set out in the attached statement. Their full report will be forwarded as soon as possible.

The following comments are based largely on reports by Messrs. Thyer and Noakes on the Shaft bore, the Pilot bore, and their observations of the Imray bore.

1. The Ranney-Fairbank report recommended the sinking of a vertical shaft at Lakes Entrance and the development of a tract of 400 acres around the shaft by Ranneywells. Horizontal wells approximately 2,000 ft. long were proposed.
2. Evidence from vertical wells suggests that the whole of the area within the tract is oil-bearing.
3. In the Pilot and Shaft bores the oil occurs in three thin zones separated by layers of impermeable sandstone. In the Pilot bore, of 34 inches included in the three zones, only 10 inches were composed entirely of oil-bearing sandstone and it is believed that most of the oil produced came from this 10 inches. The permeability of the remaining 24 inches of sandstone appears too low to allow any appreciable flow into the hole.
4. Evidence from other bores indicates that oil also occurs in the lower part of the glauconitic sandstone. This oil zone has not been penetrated by the Pilot, Shaft and Imray bores and is not taken into account in the following estimates. For various reasons it is considered virtually non-recoverable under present circumstances.
5. The estimates given below, presuppose that the shaft can be carried to a depth which will allow the drilling of controlled horizontal holes in the main oil zone. If this is not possible recoveries will be less than stated hereunder.
6. There seems little doubt that horizontal holes could be drilled with fair control and without great difficulty up to 1,000 ft. in length but the evidence available indicates that the drilling of longer holes under control is difficult and therefore relatively costly.

7. Ranney and Fairbank estimated that 2,900 barrels per acre would be recoverable and that a total quantity of 1,160,000 barrels could be recovered from the tract (400 acres) which they recommended should be developed.

8. If the results obtained from the Pilot, Imray and Shaft bores are fairly applicable to the whole area, an estimate of total oil content of 1,400 barrels per acre is considered reasonable. It is considered that not more than and probably less than 20% of the oil contained in an area of 2,000 ft. diameter can be recovered. Similarly it is considered that not more than and probably less than 15% of the oil contained in an area of 4,000 ft. diameter can be recovered, i.e. the estimated recovery per acre will be from 210 to 280 barrels. This means that there would be a total oil content of 100,000 barrels of oil within an area of 70 acres (1,000 ft. radius) and 560,000 barrels within an area of 400 acres (2,350 ft. radius). The estimated recovery from the smaller tract of 70 acres is 20,000 barrels and from the larger of 400 acres, 84,000 barrels.

9. It has been estimated that oil from the shaft could be sold for 6d. per gallon, or let us say £1 per barrel. Thus the estimated recoverable oil will be worth from £20,000 to £60,000 according to the size of the tract which can be developed. Admitting that there is still not sufficient evidence upon which to base accurate estimates, the figures given above are likely to be of the right order. They would need to be considerably in error to make any significant difference to the economics of the project.

10. As approximately £140,000 has been expended on the project and further expenditure will be required to reach the producing stage, it is concluded that the project must be uneconomic.

11. Thus if work is continued by the Commonwealth, it will be primarily to obtain information on the field and on the technique and efficiency of horizontal wells. It is generally conceded that the method of producing oil by horizontal drilling has possibilities, but there is little reliable data available. If it were found practicable to drill a trial horizontal hole in one of the oil zones, the evidence obtained would be valuable to the petroleum industry. Consideration might be given to this suggestion but it is realised that the cost might be out of proportion to the value of the information obtained.

Reliable data on the occurrence of oil in the lower part of the glauconitic sandstone would be useful and could be obtained cheaply by deepening the Pilot bore.

(Sgd.) H. G. Raggatt

D i r e c t o r .

Encl.

Arthur S. ...

LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE.

909551 257

MINUTES OF MEETING OF LAKES ENTRANCE OIL DEPARTMENTAL EXECUTIVE COMMITTEE HELD IN MELBOURNE ON 24TH OCTOBER, 1945.PRESENT:

MR. J. MALCOLM NEWMAN, Controller of Minerals Production (Chairman).
 MR. GEORGE BROWN, Secretary, Department of Mines, Victoria.
 MR. A. C. SMITH, Executive Officer - Minerals, Department of Supply and Shipping.

IN ATTENDANCE:

MR. H. J. COOK, Supervisor of the Project.

1. MINUTES:

The minutes of the previous meetings held on 27th and 28th June, and on 5th July, 1945, were confirmed.

2. FINANCE:

Accounts as per schedules 36, 37 and 38, attached, covering expenditure amounting to £2,776, £71, and £89 respectively were passed for payment. In addition an account submitted by Mineral Drillers Pty. Ltd. for boring at Lakes Entrance, amounting to £439. 7. 9, was also passed for payment as well as an account from Mr. C. J. Hudspeth for professional services amounting to £64. 4. 0.

3. PROGRESS OF OPERATIONS:

The progress of operations was discussed at length. The Supervisor reported that the 5' x 4' winze extension of the shaft had been sunk to a depth of 1,204 ft. 6 ins. and that driving operations to the North had started; no serious difficulties were being met with.

The Chairman strongly urged that a hole of small dimensions be put down from the drive to penetrate the top oil bearing strata which lies within a depth of 6 ft. below the drive, with the object of obtaining more precise information as to the possibilities of oil production. Mr. Cook indicated that this would be done provided the Chief Inspector of Mines was agreeable. Mr. Brown concurred in the proposal.

4. THE FUTURE OF THE PROJECT:

The Committee gave consideration to draft Cabinet minute which had been prepared dealing with the future of the project. Mr. Brown intimated that his Government had decided, on grounds of policy, to liquidate the project, but before doing so to undertake discussions in conjunction with representatives of the Commonwealth and the leaseholders, the Austral Oil Drilling Syndicate.

Mr. Newman strongly urged that the fullest information be obtained in regard to the possibilities of oil recovery before any steps towards liquidation were taken. If the Governments did not carry out this work he urged that opportunity be given to the leaseholders to carry it out.

Mr. Newman emphasised that it would be a great pity to have carried out all this work without obtaining conclusive information when we had approached so near to a point where it should be possible to obtain this information.

The meeting terminated at 4.30 p.m.

CONFIRMED.

.....
(Chairman).

29th October, 1945.

The Departmental Executive,
Lakes Entrance Oil Project.

909551 259

The following requisitions for supplies for Lakes
Entrance Oil Project are submitted for your authorisation.

Reqn.	Article	Amount
TS.1 7073	Con Rod Keeper Plate	1. 0. 0
7094	6 10 amp. 96A SPDT Ringrip Switches	1. 0. 0
7075	Extensions Electricity etc., Lakes Entrance	1160. 0. 0
7076	Radiator for 1930 Morris Cowley Truck	5. 0. 0
7079	4 only 3" Rubber Valves, 4 only Springs for No. 4 Ajax Pump	1. 0. 0
7095	100 yd. coil 7/029 T.R.S. Cable	4. 0. 0
7096	6 - 8 oz. reels Friction Tape	1. 0. 0
7102	Blanket Req. Electric Light, Power etc. 6 mths.	1600. 0. 0
7103	1 Connection Rod etc. for A4 Pump	3. 0. 0
		<u>£2776. 0. 0</u>

A P P R O V E D

The Department Executive,
LAKES ENTRANCE OIL PROJECT.

909551 260

The following requisitions for supplies for Lakes Entrance Oil Project are submitted for your authorisation.

Reqn.	Articles	Amount
TS1. 7144 7161	Adjusting Brakes etc. Chevrolet C.12658 1500' Black Wire Rope, 6/7 Construction	7. 0. 0 <u>64. 0. 0</u> <u>£71. 0. 0</u>

I certify that the above expenditure was necessary for the execution of the programme approved by the Controller.

A P P R O V E D

September, 1945.

The Department Executive,
Lakes Entrance Oil Project,
LAKES ENTRANCE.

909551 261

The following requisition for supplies for Lakes Entrance Oil Project are submitted for your authorisation.

Reqn. No.	Articles	Amount
MP. 7171	48 C.I. Fire Bars	£17. 0. 0
7172	1 only 360 Hoffman Ball Bearing	2. 0. 0
7174	1 " 10 h.p. A.G.E. SC. Motor	30. 0. 0
7183	36 C.I. Fire Bars 2'2 1/2" long	9. 0. 0
7184	Repairs to 5 h.p. Electric Motor	10. 0. 0
7185	3 coils 7/064 VIR Electric Cables	12. 0. 0
7188	1 right & left hand fig. 39 Glass Mounting	9. 0. 0
		<u>£89. 0. 0</u>

A P P R O V E D

909551 262
2nd March, 1946.

Dear Sir,

~~14th~~ Referring to your letter of
~~14th~~ February respecting the Lakes Entrance
Oil Project, I have to advise you that this
matter has been considered by the Victorian
Government, which agrees to the proposal con-
tained in your memorandum of 14th February,
addressed to the Secretary, Department of
the Treasury, with the proviso that the
right of the Austral Oil Drilling Syndicate
to carry on the Project without any further
obligations to the Commonwealth or State
Government shall not exclude the Syndicate
from its obligations to the Victorian Govern-
ment under the Victorian Mines (Petroleum)
Acts.

Yours faithfully,

S e c r e t a r y .

G. T. Chippindall, Esq.,
Secretary,
Department of Supply and Shipping,
409 Collins Street, MELBOURNE.

909551 263

1:DS

25th March, 1946.

Dear Sir,

I have received your letter of 21st March (M.6/37) with accompanying draft letter, which it is proposed to forward to the Managing Director of the Austral Oil Drilling Syndicate.

The terms of the letter have been discussed with the Minister of Mines (the Hon. W. G. McKenzie, M.L.A.), and I am to advise you that, while no definite objection is made to the conditions of sale, the Minister suggests that, having regard to the length of time that has elapsed since construction work ceased at the shaft, and also to the cost still involved in keeping the shaft dewatered, the time allowed for settlement (Par. (2) (a)) might be reduced from six weeks to four weeks from Monday, 25th March.

If this suggestion is agreed to, it would probably be necessary to reduce the time limit in Par. (2) (b) from 28 days to, say, 14 or 21 days.

In Par. (2) (c), it is suggested that the word "withdraw" could preferably be substituted for the word "redraw."

Yours faithfully,

Secretary.

G. T. Chippindall, Esq.,
Secretary,

Department of Supply and Shipping,
409 Collins Street, MELBOURNE.

*Approved by
Minister 15/3/46
G.T.*

COMMONWEALTH OF AUSTRALIA.

TELEPHONE: F 9411

TELEGRAMS: "SUPDEV"

909551 264

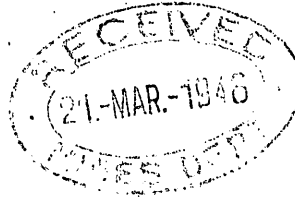
DEPARTMENT OF SUPPLY AND SHIPPING,
409 Collins Street,

~~XXXXXXXXXXXX~~

~~XXXXXXXXXXXX~~

MELBOURNE C.1

In Reply Quote M.6/37



21st March, 1946.

The Secretary,
Department of Mines,
Treasury Gardens,
MELBOURNE. C.2.

Dear Sir,

I desire to refer to your letter of 2nd March, 1946, in which you indicated the views of your Government concerning the disposal of plant, equipment etc. at the Lakes Entrance oil project to the Austral Oil Drilling Syndicate, and to forward herewith draft of a letter, which has been prepared in conjunction with Commonwealth legal officers, which it is proposed to address to the Managing Director, Austral Oil Drilling Syndicate in this regard.

I should be glad to know whether you have any amendments to propose, or if the letter as drafted expresses your views and those of your Government.

Yours faithfully,

G. T. Chippindall
(G. T. Chippindall)
Secretary

909551 265

1:DS

4th February, 1946.

Dear Sir,

I have received with thanks your letter of 1st February enclosing a copy of the detailed inventory and valuation prepared by Messrs. J. H. Curnow & Son in relation to the Lakes Entrance Oil Project.

Yours faithfully,

S e c r e t a r y .

G. T. Chippindall, Esq.,
Secretary,
Department of Supply and Shipping,
409 Collins Street, MELBOURNE.



*See memo
25/2/46*

All Communications should
be addressed
SECRETARY FOR MINES.
Telephones: Cent. 6360; F2131.

MINES DEPARTMENT,
TREASURY GARDENS,

MELBOURNE. C.2.
22nd February, 1946.

1:DS

909551 266

MEMORANDUM FOR THE HONOURABLE THE MINISTER:

With reference to the Lakes Entrance Oil Project, Cabinet, on 3/12/1945, approved of a recommendation regarding abandonment of the enterprise and realisation of the assets, subject to any offer which the Austral Oil Drilling Syndicate might care to make.

Following a conference, on 15/1/46, with representatives of the Austral Syndicate, at the office of the Secretary, Department of Supply and Shipping, an inventory was compiled by Messrs. J. H. Curnow & Sons, showing a total value of all plant and equipment amounting to £16,620/16/4. The Austral Syndicate, in a letter dated 12/2/1946 to the Secretary, Department of Supply and Shipping, has now inquired whether -

"on the payment to the Governments of the value of the plant set out on the inventory (subject to our having the opportunity to check this inventory), the Company will have the right to carry on the project without any further liability to the Commonwealth or State Government."

The Secretary, Department of Supply and Shipping, advised the Secretary to the Department of the Commonwealth Treasury, on 14th February, that his Department is -

"subject to concurrence of the Government of Victoria, disposed to inform the Syndicate that its offer would be accepted, conditional upon the Syndicate foregoing all and any claims against the Governments."

I recommend that the Secretary, Department of Supply and Shipping, be informed that the Victorian Government agrees that, on payment of the value of the plant set out in the inventory, the Company will have the right to carry on the project without any further obligations to the Commonwealth or State Government, except those imposed by the Victorian Mines (Petroleum) Acts, but that this acceptance be conditional upon the Company agreeing to forego any claims against the respective Governments.

Cabinet Decision

*Please refer to memo to
Confer with Power to act*

*W. G. Kenne
22/2/46*

Leo Down
Secretary.

Approve
JG

1:DS

22nd February, 1946.

MEMORANDUM FOR THE HONOURABLE THE MINISTER:

With reference to the Lakes Entrance Oil Project, Cabinet, on 3/12/1945, approved of a recommendation regarding abandonment of the enterprise and realisation of the assets, subject to any offer which the Austral Oil Drilling Syndicate might care to make.

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"subject to concurrence of the Government of Victoria, disposed to inform the Syndicate that its offer would be accepted, conditional upon the Syndicate foregoing all and any claims against the Governments."

I recommend that the Secretary, Department of Supply and Shipping, be informed that the Victorian Government agrees that, on payment of the value of the plant set out in the inventory, the Company will have the right to carry on the project without any further obligations to the Commonwealth or State Government, except those imposed by the Victorian Mines (Petroleum) Acts, but that this acceptance be conditional upon the Company agreeing to forego any claims against the respective Governments.

S e c r e t a r y .

909551 268

1:DS

18th February, 1946.

Dear Sir,

I have received your letter of 14th February (M6/37) forwarding copy of a letter received from the Managing Director, Austral Oil Drilling Syndicate, in relation to the Lakes Entrance Oil Project, and will advise you as early as practicable as to the views of the Victorian Government on the proposals made by the Syndicate.

Yours faithfully,

S e c r e t a r y .

G. T. Chippindall, Esq.,
Secretary,
Department of Supply and Shipping,
409 Collins Street,
MELBOURNE, C.1.

COMMONWEALTH OF AUSTRALIA.

MU6731.

TELEPHONE : ~~XXXX~~

TELEGRAMS : "SUPDEV"

909551 269

DEPARTMENT OF SUPPLY AND SHIPPING,
409 Collins Street,

~~XXXXXXXXXXXX~~

~~XXXXXXXXXXXX~~

MELBOURNE C.1

In Reply Quote M6/37.




14th February, 1946.

Dear Sir,

I forward herewith for your information copy of a letter received from the Managing Director, Austral Oil Drilling Syndicate, dated 12th February, dealing with the Lakes Entrance Oil Project, together with copy of memorandum addressed to the Secretary, Department of the Treasury, of to-day's date, and would appreciate the views of your Government on the proposals made by the Syndicate.

Yours faithfully,


(G. T. CHIPPINDALL)
Secretary.

The Secretary,
Mines Department,
Treasury Gardens,
MELBOURNE, C. 2.

C O P Y.

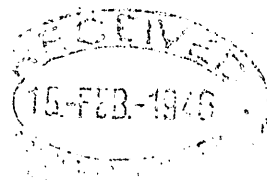
AUSTRAL OIL DRILLING SYNDICATE N.L.,

422 Collins Street,

909551 270

MELBOURNE, 12th February, 1946.

The Secretary,
Department of Supply and Shipping,
125 Swanston Street,
MELBOURNE, C.1.



Dear Sir,

We are in receipt of a copy of the inventory and valuation which has been made by Messrs. J.H. Curnow & Son.

It is our intention to call our shareholders together as soon as we know the date on which the decision of the Capital Issues Board is likely to be made and we desire to be in a position to inform the shareholders that we have advised that both the Commonwealth and State Governments have decided to liquidate the project and that on the payment to the Governments of the value of the plant set out on the inventory (subject to our having the opportunity to check this inventory) the Company will have the right to carry on the project without any further liability to the Commonwealth or State Governments.

We will be obliged if you will inform us promptly regarding this matter.

We believe that the inventory sets out the items which are the property of the Commonwealth and State Governments but we are not able to check this until such time as we have an opportunity to visit Lakes Entrance, as we hope to do in the near future.

Yours faithfully,

for AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY

(Sgd.) C. G. DEMAINE
Managing Director.

MU6731.
XXXX

409 Collins Street,
XXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXX

M6/37.

909551 271

14th February, 1946.

RECEIVED
15 FEB 1946

MEMORANDUM for -

The Secretary,
Department of the Treasury,
CANBERRA, A. C. T.

I desire to refer to Cabinet Agenda No. 694B dealing with the Lakes Entrance Oil Project from which you will see that any proposals made by the Austral Oil Drilling Syndicate were to be dealt with, so far as the Commonwealth was concerned, by the Treasurer and the Minister for Supply and Shipping, and to forward herewith a copy of a letter received from the Managing Director of the Syndicate, dated 12th February, in which the question is asked as to whether the Government would be prepared to accept the value of the plant set out in an inventory prepared by the well known valuers, Messrs. J. H. Curnow & Son, in full satisfaction of their equity in the project. Copies of the inventory and covering letter from Messrs. J. H. Curnow & Son, dated 31st January, are also enclosed herewith.

This matter is being taken up with the Government of Victoria but, in the meantime, I would appreciate your views in connection with it.

You will see that Cabinet agreed that the project should be liquidated to the best advantage and it would seem, therefore, that the wishes of Cabinet would be met by acceptance of an amount covering full valuation of plant, buildings and equipment. Substantial expenditure was incurred on the construction of the shaft but this would have no value unless there is a probability that its construction would lead to the recovery of oil in commercial quantities. In the opinion of the Government's technical advisers there is no prospect of recovery of oil in commercial quantities.

In the circumstances this Department is, subject to concurrence of the Government of Victoria, disposed to inform the Syndicate that its offer would be accepted conditional upon the Syndicate forgoing all and any claims against the Government.

(G. T. CHIPPINDALL)
Secretary.

C O P Y.

J. H. CURNOW & SON,

31 Queen Street,

909551 272

MELBOURNE, 31st January, 1946.

The Secretary,
Department of Supply & Shipping,
409 Collins Street,
MELBOURNE.

Dear Sir,

LAKES ENTRANCE OIL PROJECT.

In accordance with your instructions we made an inspection of the Machinery, Plant, Buildings & Equipment of this Project at Lakes Entrance and we now enclose the Inventory and our valuation. The valuation is based on what we consider the items may realize at the present time by public auction.

In our letter of the 17th inst. we gave an opinion after perusing the inventory of the main items and we would like to point out that in our present valuation we have considered only the removal values of the items and have not taken into account freight, cartage, installation charges, foundations or concrete works and if this were taken into consideration the complete plant as it stands would be worth around the figure indicated in our first estimate.

We further desire to point out that this valuation is based on all items included in the inventory being offered for sale at the same opportunity and that the figures would be adversely affected should any privileged buyer be permitted to take selected items from this list at the estimated values and leave the remainder.

In other words, the gross value would be adversely affected if "the eyes were picked out" of the sale lots offered.

Yours faithfully,

(Sgd.) C. J. CURNOW
P.P. J. H. CURNOW & SON.

INVENTORY AND VALUATION OF MACHINERY PLANT,
BUILDINGS & EQUIPMENT at the OIL PROJECT,
LAKE ENTRANCE

made by

909551 273

J. H. CURNOW & SON, Machinery Auctioneers
& Valuers, 31 Queen Street,
MELBOURNE.

MATERIAL.

Store-Room
Bin No.

1.	1 - 1" Safety Valve	
	3 - 1" Check Valves	
	1 - 1" Brass Main Cock (new)	
	1 - 1" Low Pressure Stop Cock	
	1 - 3/4" Stop Cock	
	1 - 3/4" Tank Tap	
	1 - 1/2" Tank Tap	
	2 - 1/2" Check Valves	
	1 - 3/4" Low Pressure Stop Cock	
	6 - 3/4" Wheel Valves	
	5 - 1/2" High Pressure Stop Cocks	
	3 - 1/2" Wheel Valves	
	1 - 1/4" Needle Valve	
	1 - 1/4" Wheel Valve	
	5 - 1/2" Stop Cocks	
	Sundry Scrap Valves	
2.	3 - 3" Foot Valves	
	1 - 3" Strainer	
	1 - 2" Strainer	
	1 - 1" Strainer	
3.	1 - 4" Gost Valve (John) (New)	
	2 - 2" Brass Packed Stop Cocks	
	1 - 1 1/2" ditto	
	7 - 1" Stop Cocks	10. 0. 0
4.	2 - 3" Tank Connections (new)	
	3 - 2" ditto	
	Carried Fwd.	10. 0. 0

(Cont'd) 2 - 1" Tank Connections

1 - 2½" Hose Connection

5.10. 0

5. 2 Reducing Sockets 4" to 3"

5 ditto 3" to 2"

2 " 2½" to 2"

5 " 2" to 1½"

3 " 2" to 1½"

8 " 2" to 1"

1 " 1½" to 1"

3 " 1" to ¾"

2 " 1" to ½"

1 " ¾" to ½"

1 " 1" to ¾"

3 " ½" to ¾"

6. 3 - ½" Plain Nipples

4 - 1" ditto

2 - 2" "

1 - 4" Hexagon Nipple

3 - 3" ditto

1 Brass " 3" to 2½"

3 - 2½" Hexagon Nipples

6 - 2" "

7 - 1½" "

1 " 1½" to 1½"

1 " 1½" to 1½"

10 - 1" "

1 - ¾" "

3 - ½" "

1 - ¾" "

7. 1 - 3" Bronze 4-way Gate Valve Screwed ends (new)

1 - 3" ditto

9 - 2" Wheel Valves

2 - 2" Plug Cocks

1 - 1½" Wheel Valve (new)

2 - 1½" ditto

- (Cont'd). 2 - 1 1/2" Wheel Valve (new)
- 2 - 1" ditto
- 1 - 3/4" "
- 1 - 1/2" "

909551 275

12. 4. 0

- 8. 10 - 1 1/2" "
- 1 - 2" Plug Cock
- 3 - 1 1/2" Wheel Valves
- 17 - 1" ditto
- 5 - 3/4" "

7.10. 0

- 9. 12 - 2" to 1 1/2" Cross (new)
- 2 - 2" to 1" " "
- 1 - 2" "
- 4 - 1 1/2" "
- 1 - 2" to 1 1/2" "
- 2 - 1 1/2" to 1/2" Tee Piece
- 1 - 1 1/2" to 1" "
- 5 - 1 1/2" Cross (Railway fittings)
- 5 - 1 1/2" Tee Piece "
- 1 - 1 1/2" Elbow

- 10a. 5 - 4" Galvd. Tee Pipe fittings (new)
- 6 - 3" ditto "
- 2 - 3" ditto
- 3 - 2 1/2" ditto
- 1 - 2" ditto "
- 1 - 2" ditto
- 1 - 1" ditto

5.10. 0

- 1 - 1 1/2" Wheel Valve
- 1 - 1" ditto (new)
- 1 - 1/2" "
- 1 - 1/2" Stop Cock
- 10b. 5 - 1" Spuds
- 8 - 1/2" "
- 6 - 1/2" "
- 6 - Air Hose Clamps (new)
- 6 - ditto

Brought Fwd.

40.14. 0

10b. (Cont'd) 5 - $\frac{1}{2}$ " Hose End Nipples (new)

- 1 - $\frac{1}{4}$ " ditto
- 1 - 1" "
- 1 - 1" Hexagon Nipple
- 2 - $\frac{1}{2}$ " ditto
- 2 - $\frac{1}{2}$ " Water Cocks (new)
- 1 - $\frac{1}{2}$ " ditto

11. 1 - 6" to 3" Hexagon Bush

- 4 - 4" to 3" ditto
- 7 - 3" to 2 $\frac{1}{2}$ " "
- 1 - 3" to 2" "
- 1 - 2 $\frac{1}{2}$ " to 2" "
- 2 - 4" to 2" "
- 1 - 2 $\frac{1}{2}$ " to 2" Brass Bush (new)
- 1 - 2 $\frac{1}{2}$ " to 2" ditto
- 11 - 2" to 1 $\frac{1}{2}$ " Bush
- 5 - 2" to 1" " (new)
- 5 - 2" to 1" "
- 3 - 2" to $\frac{1}{2}$ " "
- 30 - 1 $\frac{1}{2}$ " to 1" " Galvd. (new)
- 9 - 1 $\frac{1}{2}$ " to 1" " Black Iron (new)
- 16 - 1 $\frac{1}{2}$ " to 1" " ditto
- 1 - 1 $\frac{1}{2}$ " to 1 $\frac{1}{2}$ " " (new)
- 1 - 2" to 1 $\frac{1}{2}$ " "
- 1 - 2" to 1" "
- 2 - 1 $\frac{1}{2}$ " to 1 $\frac{1}{2}$ " "
- 2 - 2" to $\frac{1}{2}$ " "
- 1 - 1 $\frac{1}{2}$ " to 1" "
- 2 - 1 $\frac{1}{2}$ " to 1" "
- 1 - $\frac{3}{4}$ " Hexagon Nipple
- 2 - 1" to $\frac{1}{2}$ " Bush (new)
- 12 - 1" to $\frac{1}{2}$ " Bush
- 6 - 1" to $\frac{1}{2}$ " "
- 1 - 1" Hexagon Nipple
- 1 - 1" to $\frac{1}{2}$ " Bush
- 18 - $\frac{1}{2}$ " to $\frac{1}{2}$ " Bush

Carried fwd.

2. 5. 0
42. 19. 0

Brought Fwd.

42.19. 0

- 12.
- 1 - 2" Tee (new)
 - 1 - 2" "
 - 2 - 1½" "
 - 1 - 1½" "
 - 8 - 1" "
 - 3 - ¾" " (new)
 - 2 - ¾" "
 - 6 - ½" " (new)
 - 12 - 1/2" Tee
 - 8 - ¾" "
 - 2 - ¾" "
 - 1 - 1" Cross
 - 1 - ¾" "
 - 1 - 1" "
 - 1 - 1" to ¾" Tee
 - 3 - 1½" to ¾" "
 - 1 - 1½" to 1" "

- 13.
- 3 - 2" Galvd. Round Elbows (new)
 - 2 - 2" ditto
 - 4 - 1½" "
 - 1 - ¾" Elbow
 - 4 - 1½" Galvd. Round Elbows
 - 10 - 1" Elbow
 - 7 - 1" Bend
 - 8 - ¾" "
 - 2 - ¾" "
 - 6 - ¾" "
 - 5 - ½" " (new)
 - 1 - ½" "
 - 5 - ¾" Round Elbow
 - 3 - ¾" ditto
- 14.
- 2 - 3" Round Elbows (new)
 - 1 - 3" ditto
 - 4 - 2½" " (new)

2.10. 0

Carried Fwd.

45. 9. 0

Brought Forward

45. 9. 0

14. (Cont'd) 1 - 2" Bend (new)
 6 - 2" " (new)
 3 - 1½" "
 2 - 1½" Socket
 3 - 1½" Bend
 1 - 1½" Socket
 5 - 1" Bend N. & P. Ends
 1 - ¾" Round Elbow "

15. 1 - 3" Nipple & 2 check nuts
 17 - 1½" Check Nuts
 1 - 2" ditto
 Sundry short Pipe Ends.

16. 4 - 4" Socket (new)
 8 - 3" "
 6 - 2½" " (new)
 20 - 2" "
 5 - 1½" "
 2 - 1" "
 4 - ¾" "
 1 - ½" "
 7 - ¾" " (new)
 11 - ½" "

17. 7 - 3" Union Coupling
 1 - 2" ditto (new)
 4 - 2" "
 5 - 1½" "
 2 - 1½" " Brass (new)
 1 - 1½" "
 7 - 1" "
 1 - ¾" " (new)
 1 - ¾" "
 2 - ¾" " (new)
 3 - ¾" "
 2 - 2½" Brass Hose Couplings (new)
 Sundry Scrap

Carried fwd.

6. 0. 0
 51. 9. 0

18.	12 - 3" Bends (new)	
	10 - 3" Sockets	
	3 - 3" Bends	
	3 - 3" Sockets	
	1 - 3" Flange	
19.	5 - 4" Sockets	
20.	14 - 3" Flanged Pipe Couplings (Bored)/	
21.	10 - 4" Flanged Pipe Couplings (Bored)	
22.	18 - 4" Flanged Pipe Couplings (Bored) (new)	
23.	3 - 2" Flanged Pipe Couplings (Plain) (new)	
	1 - 2" ditto (Bored)	
24.	1 - 4" Cast Iron Steam Couplings (Bored) (new)	
	2 - 4" ditto (Bored)	
	1 - 2½" " (Bored) (new)	
	2 - 3" Flanged Couplings (Bored) (new)	7.17. 6
25.	1 - 2½" Flanged Coupling (Bored)	
	1 - 1½" ditto (Plain)	
	1 - 1½" ditto (Bored)	
	4 - 1" ditto (Bored)	
	1 - 4" Socket	
26.	1 - 4" Flanged Wheel Valve (out of order)	
27.	1 - 3" Foot Valve & Strainer	
	1 - 2½" Bend	
	18" of 2½" Pipe	
	1 - 2½" Socket	
	1 ½ 2½" Round Elbow	
	12" of 3" Pipe with 3" Flange and 1 3" to 2" tee piece	
28.	5 - 4" Bends (new)	
	3 - 4" "	
	4 - 4" Sockets (new)	4. 0. 0
29.	1 Length ½" Air Hose 34½ ft. fitted with Spud Conn.	
30.	" ½" " " 24½ ft. ditto	
31.	" ½" " " 50 ft. "	
32.	" ½" " " 58½ ft. "	
33.	" ½" " " 52 ft. "	

8.

		Brought Fwd.	63. 6. 6
34.	1 Length $\frac{1}{2}$ " Air Hose 22 ft. fitted with Spud Conn.		
35.	5 Lengths $\frac{1}{2}$ " " " total 43 ft.	ditto	
36	2 Lengths Water Hose total 26 ft.	ditto	
37	1 Length $\frac{1}{2}$ " Water Hose 13 ft.	ditto	27. 0. 0
38.	3 Coils each 100yd. Cable 7/064 (new)		18. 0. 0
39	3 Coils used 7/064 Cable	}	5. 0. 0
40	2 " " " "		
41	1 Coil 7 Strand 12 gauge Knocker Line (new)		3. 0. 0
42	1 $\frac{1}{2}$ cwt. Lead		1. 1. 0
43	58 Assorted Insulators	}	4. 0. 0
44	48 Insulator Pins		
45	12 Galvd. Spouting Brackets (new)	}	1. 5. 0
46	8 Galvd. Down Pipe Brackets (new)		
	Quantity Scrap Electric Cable		
47	1 Spool (300 ft.) Rubber Covered Lighting Flex and one Lamp		2.10. 0
48	4 Coils Galvd. 7 Strand Wire (new)		
49	3 lbs. $\frac{1}{2}$ " Hydraulic Packing		
50	5 lbs. $\frac{1}{2}$ " " "		
51	$\frac{1}{2}$ lb. $\frac{1}{2}$ " " "		
52	300 ft. Rubber Covered Lighting Cable		
53	600 ft. Lead Covered Telephone U.G. Cable		
54	10 lb. $\frac{5}{16}$ " Greasy Hemp Pump Packing		
	3 lb. $\frac{1}{2}$ " ditto		
	2 lb. $\frac{1}{2}$ " ditto		
55	Quantity assorted Scrap Pump Packing		10.15. 0
56	12 - 6" G.I. Sockets (new)		1. 4. 0
	4 - 4" ditto (new)		
57	4 Gallons Separator Oil		14. 0
58	1 - 4" Gate Valve Flanged (new)		6. 0. 0
59	Fittings for Bulldozer Pump at No. 5 Plant comprising		
	3 - 2" Wheel Valves		
	2 - 2" Tee Pieces		
	3 - 2" Hexagon Nipples		
	1 - 2" Bend		
	1 - 2" Barrel Union		
	$\frac{1}{2}$ ft. of 2" Pipe		
60	<u>Valued with Pump</u> 16 Links for Elevator Chain (new)		
61	10 Wire Rope Clamps		
62	1 - 2" Tee Hinge		
	2 - 12" Strap Hinge		
63	4 - 1 $\frac{1}{2}$ " Earth Boring Augers complete with cranks		
64	1 - 4 gallon bailing bucket		<u>3.17. 0</u>

Carried Fwd.

147.12. 6.

65.	1 - 4" Plug Valve	}	1.15. 0
66.	1 - 2 1/2" Plummer Block		
67.	1 - 3" Gate Valve (new)		4. 1. 6
68.	1 - 3 1/2" Globe Valve (Gunmetal) Flanged ends		3.10. 0
69.	1 - 4" Gate Valve Flanged ends		3.10. 0
90.	1 - 4" ditto		3.10. 0
71.	44 ft. 1 1/2" - 3/4" Boring Rods	}	2.10. 0
72.	32 ft. - 1/2" Blow Pipe		
73.	11 ft. 8" - 3/4" " "		
74.	1 - V.76 Fan Belt		
75.	1 (Gates) No. 6 x 66 Fan Belt		
76.	6 Multi V. Belt B. 105 (new)		
77.	ditto		
78.	2 Dunlop Wedgerope 84 B. No	(new)	
	2 ditto		
79.	1 - 1/2" Float Valve		
80.	1 Ammeter (Siemens Bros.) Range 20-100 amps (out of order)		8.15. 0
81.	1 Voltmeter Range 0-500 Volts		1.10. 0
82.	3 gallons K.B. 30 Transformer Oil		1. 1. 0
83.	1 3" - 4" C.I. Matching piece flanged		15. 0
84.	1 gallon Clear Air Drying Insulating Varnish		10. 0
85.	600 ft. Lead Covered Telephone Cable		10. 0. 0
86.	1 W & B Float Switch Style F.S. 2		1.10. 0
87.	1 Box containing spares for Bulldozer Pump No. 4 viz. 1 Brass Cylinder Sleeve (new) 1 ditto 1 Counter Shaft small gear wheel 1 Main Gear wheel eccentric & spindle 8 Leather Buckets (new) 10 Valves (new) 2 Valve Springs (new) 2 Leather Plates 1 Centre Washer 2 countershaft Bearings (new) 2 Main shaft bearings (new)		12. 0. 0
88.	1 - 2 Pole Switch Coil control		
89.	1 - 2 pole Switch (out of order)		
90.	1 - 2 pole Knife Switch (new)		
91.	1 - 300 amp. 3 pole Switch overload breaking control		
92.	4 - Pot ends small (new)		
93.	1 Pot end Large (new)		
94.	1 Junction box (new)		

		Brought Fwd.	
95.	1 Electric Cable Clamp (new)	}	218.15. 0
96.	1 Telephone (out of order)		3.15. 0
97.	3 Slate Terminal Plates (new)		
98.	1 - 9" Snatch Pulley Block	}	
99.	9ft. - Octagon Hand Steel $\frac{1}{2}$ " 9ft. - ditto $\frac{3}{8}$ "		3. 0. 0
100.	1 - 30 amp. Switch	}	
101.	2 - 24" Slide Rails		
102.	1 Ammeter range 0-50 amps (out of order)		1.17. 6
103.	1 Ammeter range 0-150 amps (out of order)	}	
104.	1 Electric Lamp Shade (enamelled) with 50 ft. cable		
105.	1 - 9" Grooved Pulley take $\frac{1}{2}$ " Rope		2.10. 0
106.	1 Injector by Brown (new)		4. 0. 0
107.	1 - 4" diam. Pulley 4" face 1" bore	}	
108.	1 Air Line Lubricator		
109.	1 Box Miscellaneous Electric Conduit Fittings		3.17. 6
110.	2 - 12" Enamelled Lamp Shades (new) 3 - 12" ditto		2.10. 0
111.	1 Carton Electric Wiring (scrap)	}	
112.	1 Box Sundry Electrical Fittings (scrap)		
113.	13 ft. of $\frac{1}{2}$ " Electric Conduit		1.12. 6
114.	1 - 4" Hydraulic Check Valve flanged ends (new)		5.10. 0
115.	1 - 4" Hydraulic Check Valve		5.10. 0
116.	1 - 6" Globe Valve	}	
117.	1 - 4" to 3" Flanged ends reducing matching piece length $\frac{1}{2}$ ft.		
118.	Approx. 25 ft. Brass Spring Wire		5. 2. 6
119.	5" x 4" Skids $\frac{13}{14}$ pts. 182 ft. $\frac{16}{17}$ " 272 "		3. 0. 0
120.	Black Corrugated Iron 368-9 ft. sheets		82.16. 0
121.	Flat Iron sheets 17 gauge, 8/6 ft. 4" x 2ft.2"	}	
122.	Flat Iron Sheets 17 gauge, 29/6ft. x 10"		
123.	Mild Steel Bar 5" x 1" 21 ft. } new 4" x 1" 54 ft. }		15.10. 0
124.	10 sets Circles 4" x 1" Mild Steel 12 ft. dia. 370 ft. complete with fish plates	}	
125.	Mild Steel Forms for circular shaft 10 ft. dia. complete with angle iron braces 6 sets 4 ft. high each		
126.	36 pieces steel form 4 ft. high		30. 0. 0
127.	1 Trolley 23" gauge, 9" wheels Pedestal bearings platform body 5 ft. x 4 ft. tongue & grooved hardwood $\frac{1}{2}$ " thickness		3. 0. 0

Carried Fwd.

392. 6. 0

128.	1 Gravel washing platform 19ft. x 18 ft. built of 6" x 2" hardwood with 3" x 2" railing	10. 0. 0	
129.	Steel Balls approx. 2 ton 3 cwt. with fittings & equipment	30. 0. 0	
130.	3" Angle Iron Circles 12 sets approx. 360 ft. with Lot 124, 125, 126		
131.	Timber (new) 6/1½	7/15 5/20 9/4 5/10	
132.	" " 4/1	5/16	
133.	" " 7/1½	5/12 1/10	
134.	" " 3/2	8/11	
135.	" " 4/3	1/9 2/16 1/12	
136.	" " 4/1½	2/10 1/16	
137.	" " 6/2	1/8 5/16	
138.	" " 6/3	2/9	
139.	" " 4/2	6/9 1/13	
140.	" " 5/4	3/14 1/12	
141.	" (used) 6/1½	10/10 6/7	
142.	" " 7/1½	2/8	20. 0. 0
143.	1 Gravel Bin 18 ft. x 11ft. x 9 ft. 6 x 1½ Hardwood Frame 32 - ½" Bolts about 10 ft. lengths Centre Partition 6 x 1½ Hardwood Complete with 2 Steel Chutes		
144.	1 Concrete Mixing Shed 15ft. x 8 ft. 4 x 1½" Hardwood Frame Outside Walls Fibrolite 6 sheets Roof 10 sheet Corr. Galv. Iron Floor 8 x 1½ Hardwood		
145.	1 Elevator Sump Housing 9 ft. x 6½ ft. Hardwood 8" x 1½" 1 Mild Steel Plate gravel chute		
146.	1 Gravel retaining wall 20ft. x 8 ft., 8" x 2" Hardwood	70. 0. 0	
147.	1 Telephone Cabinet 4 ft. x 28" x 6" Frame Hardwood 3" x 1" Walls Corr. Zinc Annealed sides	3.10. 0	
148.	5 - 12 ft. Ladders	4.10. 0	
149.			
150.	1050 Bricks		
151.	650 Firebricks	10. 0. 0	
152.	Conduit Wiring Transmission Lines globes and shades throughout Project comprising		

152 (Cont'd)

- (a) 2830 ft. Wiring
(b) 370 ft. Conduit
(c) 90 Insulators
(d) 17 Lamp Shades

	Transmission wire from Powerhouse to Pump site, 3 wire 7/.064 with pole and insulators	50. 0. 0
153.	1200 ft. $\frac{1}{2}$ " Wire Rope	10. 0. 0
154.	1 Baker Core Barrel	15. 0
155.	Approx. 13 tons Diesel Fuel Oil	100. 0. 0
156.	Telephone posts, Insulators and wire approx. $\frac{1}{2}$ mile, Managers Office to Residence <u>Valued with Lot 152.</u>	
157.	2 Axes	1. 0. 0
158.	40 ft. $\frac{1}{2}$ " Heavy Hose (new)	3. 0. 0
159.	1 Pneumatic Pick (minus Chuck) C.L. L-29	15. 0. 0
160.	2 Lengths 2 $\frac{1}{2}$ " Shertin; total length 22 ft.	
161.	$\frac{1}{2}$ mild steel square 50 ft.	
	$\frac{3}{8}$ " ditto 24 ft.	
	$\frac{1}{4}$ " ditto 15 ft.	
	$1\frac{1}{2}$ " x $\frac{1}{2}$ " " 95 ft.	
	2" x $\frac{3}{16}$ " " 40 ft.	
	2" x $\frac{1}{2}$ " " 9 ft.	
	2 $\frac{1}{2}$ " x $\frac{1}{2}$ " " 6 ft.	
	3" x $\frac{1}{2}$ " " 12 ft.	
	$1\frac{1}{2}$ " x $\frac{1}{2}$ " " 52 ft.	
	1" x $\frac{1}{2}$ " " 32 ft.	
	$1\frac{1}{2}$ " x $\frac{1}{2}$ " " 12 ft.	
	$1\frac{1}{2}$ " x $\frac{5}{16}$ " " 80 ft.	
	3" x $\frac{1}{2}$ " " 18 ft.	
	2 $\frac{1}{2}$ " x $\frac{5}{16}$ " " 18 ft.	
	2 x $\frac{5}{16}$ " " 18 ft.	
	2 x $\frac{1}{2}$ " " 36 ft.	
	$1\frac{1}{2}$ " x $\frac{5}{16}$ " " 36 ft.	
	$1\frac{1}{2}$ " x $\frac{3}{8}$ " " 15 ft.	
	Sundries Scrap	
	$1\frac{1}{2}$ " Round 12 ft.	
	$\frac{1}{2}$ " " 47 ft.	
	$\frac{1}{4}$ " " 32 ft.	
	$\frac{3}{8}$ " " 36 ft.	6. 0. 0
162.	2 - 3" Earth Boring Augers (in Braceman's shed)	3. 0. 0
163.	Quantity assorted Scrap Hose (outside Storeroom)	4. 0. 0
164.	Angle Iron 3" x 3" x 5 ft. 21 pieces (under cement shed) <u>Valued with Lot 125 & 126</u>	
165.	Galv. Pipe 3" Length 252 ft.	21. 0. 0
166.	Galv. " 4" " 160 ft.	20. 0. 0
167.	Black " 4" " 55 ft.	6. 0. 0
168.	1 cwt. $\frac{1}{2}$ " x $3\frac{1}{2}$ " Bolts and Nuts (new)	
169.	$1\frac{1}{2}$ cwt. $\frac{1}{2}$ " x $3\frac{1}{2}$ " Bolts & Nuts	
170.	8 lb. 2 x $\frac{1}{2}$ " Fish Bolts	
171.	$\frac{3}{4}$ cwt. $\frac{1}{2}$ " x $3\frac{1}{2}$ " Bolts	
172.	140 - $\frac{3}{8}$ " Square Washers	
173.	320 - $\frac{1}{2}$ " Hexagon Nuts & Bolts (new)	
	44 - $\frac{1}{2}$ " Square " "	
		<u>3.15. 0</u>

Carried Fwd.

783.16. 0

		Brought Fwd.	
174.	1 cwt. $1\frac{1}{2}$ " x $\frac{1}{2}$ " Bolts (new)		
175.	Miscellaneous Bolts $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1 "		
176.	1 cwt. $\frac{1}{2}$ " Round Iron Spikes Length 11"		2.12. 6
177.	Round Iron Hangers (Concrete retaining wall)		
	42 - $\frac{1}{2}$ " Lengths 5 ft. 6"		
	49 - $\frac{1}{2}$ " " 3 ft. 0"		
	12 - $\frac{1}{2}$ " " 4 ft. 0"		
	14 - $\frac{1}{2}$ " " 2 ft. 0"		
178.	Round Iron Hangers (Carpenters shed)		
	10 - $\frac{1}{2}$ " Lengths 6 ft. 0"		3. 0. 0
179.	1 Amplifier		10. 0. 0
180.	$\frac{1}{2}$ " Galv. Pipe 10 x 10 ft. Lengths - 200 ft.		
	5 x 20 ft.		2.10. 0
181.	1" " " 5 x 20 ft. " - 160 ft.		3. 6. 8
182.	$\frac{1}{2}$ " " " 1 x 20 ft. } - 26 ft.		6. 6
	1 x 6 ft.		
183.	1" Black Iron 26 x 20ft. lengths - 520 ft.		8.13. 4
184.	2" ditto 1 x 26ft. " - 20 ft.		19. 6
185.	$1\frac{1}{2}$ " " 14. x 20 ft. " - 280 ft.		7. 0. 0
186.	$1\frac{1}{2}$ " Pipe 2 x 6 ft.) " - 30 ft.		15. 0
	2 x 9 ft.)		
187.	1" Hollow Hexagon Drill Steel 19 x 24 ft. lengths approx. 12 cwt.		43. 4. 0
188	1 set Oster Pipe dies 3" - 4"		8.10. 0
189.	1 set Twist Drills $\frac{3}{8}$ " - 1" - 1/16"		2. 0. 0
190.	1200 ft. 3 core lead covered double wire armoured cable <u>Valued with Electric Pumps</u>		
191.	1200 ft. 5" Casing Swelled Joint		135. 0.0
192.	960 ft. 6" Casing Swelled Joint		132. 0.0
193.	325 ft. 8" Casing Swelled Joint		131. 0.0

ENGINE ROOM

194.	1 only Steam Driven straight line Air Compressor by Taylor Horsfield, Bendigo Steam Cylinder 15" dia. Air Cylinder 13 $\frac{1}{2}$ ". Crank Shaft 4 $\frac{1}{2}$ " x 3" x 3". 2 balanced flywheels each 5 ft. 10" dia. by 4 $\frac{1}{2}$ " face. Variable expansion valve gear, slipper guides. Unit self contained on Cast Iron Bedplates 13'3" x 3'0". Complete with Stop Valves, lubricators, steam lines to boiler and Air line to Receiver. Approx. cap. 350 cubic feet of free air.	300.	0.0
195.	1 only Horizontal double acting steam driven boiler. Feed Pump by "Worthington", Size 6" x 4 $\frac{1}{2}$ " x 6" Stroke Complete with water piping, steam piping and lubricator.		
196.	1 only Penberthy type Injector	65.	0. 0
197	1 only Horiz. First Motion Winding Engine - Steam Driven - by J. & W. Weems Scotland. 16" cylinders by 30" stroke. Drum shaft 5" dia. fitted with forged disc cranks bored trunk guides, fitted with 2 Cast Iron loose drums each 7'6" dia. 6" flanges, wood between flanges 24". 24" dia. jaw clutches. Drums are fitted with Air and Steam controlled brakes.		

Carried Fwd.

1639.18.6.

- 197 (cont'd) Unit is complete with Link motion reversing gear
2 dial indicators fitted with warning bells, stop
valve, lubricators and steam piping to Boiler.
1500 ft. 700. 0. 0
- 198 Steel Winding Rope $\frac{1}{2}$ " 6/7 Langs Lay }
199. 1800 ft. Steel Winding Rope $\frac{1}{2}$ " 6/7 Langs Lay } 60. 0. 0

BOILER HOUSE

200. 1 only
Lancashire Jackass Boiler by A. Roberts & Sons,
Bendigo, 16 ft. length x 7'6" dia. shell plate
 $\frac{1}{2}$ " end plates $\frac{1}{2}$ " flanged, butt strapped double
rivetted horizontal seams $3\frac{1}{2}$ " x $2\frac{1}{2}$ " pitch, single
rivetted circular seams $2\frac{1}{2}$ " pitch, two flues each
2'9" dia. x 8'0" long fitted with Adamson's joints
water-bridge and uptake 88 tubes 3" dia. 8'0" Long
including 14 stay tubes. Boiler is further stayed
with 2" through stays each end, compensating ring
around manhole, nipples rivetted to boiler for
mountings. Boiler is fitted with furnace doors,
firebars and usual mountings - working pressure
120 lb. 450. 0. 0
201. 1 only Lancashire Jackass Boiler - 15 ft. length
x 7'0" dia. M.D. 59K, $\frac{5}{8}$ " shell, butted strapped
and treble rivetted $\frac{3}{4}$ " ends, 88 - 3" tubes in-
cluding 18 stay tubes. Double Cylindrical welded
furnaces each 8'0" long x 2'8". Water bridges and
uptake. Boiler complete with pressure gauges and
mountings - Working Pressure 120 lb. 400. 0. 0

ENGINE ROOM.

202. 1 only Ruston & Hornsby Diesel Engine - 360 h.p.
size 6, Class VEB, No. Z.00176, 500 r.p.m.
Forced Feed Lubricator.
- This is direct coupled to 312 FVA Alternator 415/440
volts 435/410 amps, 250 k.w. at 500 Revs. 50 periods
Alternator manufactured by Lancashire Dynamo &
Crypto Pty. Ltd. No. 147732.
- On same shaft is a D.C. Exciter 64 volts 70 amps
4.5 k.w. 500 r.p.m. This provides continuous
current, size D60 No. 147733.
- The two units above are self contained on Cast Iron
bedplates.
- 1 only Double Cylinder Air Compressor size 3 x $3\frac{1}{2}$
Vee belt Drive by Electric Motor is provided for
compressed air starting. This is connected to one
(1) Ruston & Hornsby Air Receiver No. B. 26253.
Tested to 600 lb. to the square inch for a working
pressure of 300 lb. Fitted with safety valve, pres-
sure gauge and stop valves. In addition there is a
full tank capacity 130 galls. 1-2" Kelly & Lewis Cen-
trifugal Water Circulating Pump. Vee belt driven
by Electric motor. Following spares are in stock -
(included switchboards to operate unit & cooling
tower),
1 Big end Bearing, 1 Main Bearing, 2 Valve Cages,
6 Valves, 1 Fuel Pump, 6 Piston Rings, 6 Valve
Springs, 1 Atomiser, 1 Timing change. Assorted
Spanners and other tools 5500. 0. 0
203. Model T. 60 S Holman Vertical two-stage Air Com-
pressor. Electrically driven. Bore 12" x 9"
Stroke $6\frac{1}{2}$ ", Dis. 612 CFPM 7 Vee Belt drive to a
125 h.p. Electric motor by A.G.E. 415 volts, 1450

203 (Cont'd)

r.p.m. 167 amps, 50 cycle, 3 phase Serial No. 49279, 1 W & B Starter 400 volts, 50 cycle, 125 h.p. Compressor equipped with pressure gauges, lubricator stop valve and pipe line to air receiver, 1 guard rail. Cap. 650 cub. ft.

1000. 0. 0

204.

Double Drum electric winder by the Austral Otis Engineering Co. Ltd., mounted on welded steel girder frames. The drums are both loose and are of heavy cast iron construction 3 ft. 10 $\frac{1}{2}$ " dia. over wood lagging x 16" face. Flanges 7" deep. Foot brakes fitted on each drum. The drum shaft is 6" dia. of the best quality steel running in heavy 6" Plummer Blocks.

The first motion is of double helical cut special steel running in totally enclosed oil bath. The second motion gear is a special steel pinion in cast steel gear wheel.

Solenoid brake with 2" drum, incorporating a flexible coupling and operated by a 3 phase solenoid fitted with oil regulating dash pot. The indicators are of the dial type operated direct from the drums through cut bearing. Motor by AGE 70 h.p. with a speed of 965 r.p.m. full load, 3 phase 50 cycle 415 volts.

Unit complete with control gear, mounted on slate panel with equipment.

Driver's instrument panel is provided with 1 volt meter and 1 ammeter emergency start and stop push button.

Master controller is of the drum type and provides automatic and manual acceleration, is fitted with spring return so that the Controller returns to the neutral position should the operator for any reason remove his hand from same.

The winch is fitted with limit switches of self replacement type, fitted to the dials of the Indicators which automatically cut off current and apply brake at pre-determined points.

Creeping speed Resistor, double pole contactor to be used in conjunction with existing starting resistance and providing a speed of approx. 25 per cent of the present rope speed.

600. 0. 0

205.

The drums are each fitted with 1500 ft. 3/4" dia. x 6/7 block steel wire rope

50. 0. 0

PUMPS IN ENGINE ROOM.

206.

Worthington Duplex steam pump 4 $\frac{1}{2}$ " x 4" at Water end x 5" Steam end

20. 0. 0

207.

Duplex Steam Pump by Blake - 4 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " x 4" - 1 $\frac{1}{2}$ " Suction 1 $\frac{1}{2}$ " delivery

20. 0. 0

208.

A.4 Ajax Bulldozer Pump complete with spare parts

45. 0. 0

PUMPS - At Water Dam

209.

Fairbank Morse Duplex Steam Pump 5 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " x 5" - Suction 2 $\frac{1}{2}$ " delivery 1 $\frac{1}{2}$ "

35. 0. 0

210

In Yard opposite Wood Stacks

Cameron Vertical steam sinking pump - Size 9A 12" x 6" x 13" - Steam 1 $\frac{1}{2}$ " Suction 3", Exhaust 2 $\frac{1}{2}$ " and delivery 3". Pump fitted with set of hard rubber valves.

50. 0. 0

211.

In Roller House.

Knowles High Pressure Pump - 6" Steam cylinders, 3 $\frac{1}{2}$ " water, 6" Stroke outside packed

30. 0. 0

211a.

Duplex outside packed Pump 6" x 3 $\frac{1}{2}$ " x 6"

30. 0. 0

Carried Fwd.

10,619.13. 6

212. In No. 4 Flat in Shaft
Duplex outside packed steam pump 6" x 3 1/2" x 6" 30. 0. 0
213. 3" - 4 stage Centrifugal Pump by Thompson with motor starter, cable switchgear, and fittings. Motor 30 h.p. 44 amp. 415 volt etc. 1 spare impeller shaft complete with impellers, bearings etc.
2 - 4" Thompson 3 stage Centrifugal Pumps. 2
Primary Resistor starters with Press Button Control.
1 incoming power panel consisting of 1 - 600 AMP oil circuit breaker, 1 Ammeter, 1 Voltmeter, 1 Recording Meter 1" - 3" Isolating Switch, Busbars etc. all mounted on suitable panel.
2 Valve assemblies containing stop valve, retention valve and bypass valve 2 lengths of shaft cable (approx. 450 ft. each) 4 core. Each with 62 h.p. Motor.
(ITEM 190 INCLUDED HERE).
On Sluice Dump.
Thompson Sinking Pump 3" - 4" 3 stage 200 G.P.M. 230' head, 1450 r.p.m. with Parkinson 30 h.p. Motor 415 volt 3 phase. 1,500. 0. 0
214. In Engine Room.
3" - 6 stage Class B.C. Centrifugal pump complete with flexible coupling of rubber sheathed pin type and combination baseplate of welded steel. Construction to discharge 4000 G.P.M. against 900 ft. head. Base plate for 62 h.p. Motor.
1 complete Rotating element comprising:-
1 mild steel shaft and keys
6 bronze impellers
5 bronze distance sleeves
2 bronze lantern rings
2 Cast iron glands
5 Cast iron diaphragm plates
1 Balancer comprising cast iron plate, gun metal friction and bronze disc.
6 bronze sealing rings
1 half coupling
4 Roller Bearings each comprising
3 Cast iron covers with felt rings
2 mild steel Collars
2 mild steel Sleeves and 2 mild steel nuts.
6 Hard Bronze shaft sleeves for the suction end
3 Hard bronze shaft sleeves for the delivery end
8 Roller bearings. 400. 0. 0
- 214a. Blake Duplex Pump 6" x 4" x 6" 35. 0. 0
215. Ajax Self-oiling Bulldozer Pump Size A4 20. 0. 0
216. Ingersoll Rand Air Hoist Type KU 450 shaft - 7/16" flexible rope 55. 0. 0
217. On Pump at Dam Site.
Wall mounting protected type. Automatic Primary Resistance Starter with definite time exhilaration with 31 TL overload releases, with one station of start stop push buttons suitable for 30 h.p. motor, 415 volt, 50 cycles 10. 0. 0
218. In Auxiliary Engine Room.
McDonald Imperial Super Diesel Crude Oil Engine 45-50 h.p. M. Type Horizontal single cylinder low compression solid injection 2 stroke cycle valveless engine with balanced crankshaft mounted on heavy duty

218 (Cont 'a)

roller bearing. Renewable cylinder liner, automatic forced feed lubrication air cleaner and outer bearing mounted on 15" channel iron frame. Driving Pulley 20" dia. 12" face. 30 gall. fuel tank, exhaust pipe and silencer Engine, No. 192M.

This engine is coupled with a 10 Vee Belt drive to Alternator driving pulley 20" dia. by 10 1/2" face, 10 Wedgeropes No. 158C.

219.

220.

Bayley & Grimster Alternator Output 25 K.V.A. power factor. .85 volts 400/430 speed 1000 rpm Salient hole type, revolving field direct coupled exciter
1 Alternator Vee Belt Pulley 10" dia. x 11" face.
1 Alternator Control Panel consisting of polished Zelemite approx. 4' x 2' x 3/4" mounted on substantial angle iron frame arranged for floor and wall mounting fitted with following gear -
1 Voltmeter of 400 volts 6" M.I.
1 Ammeter of 40 amps 6" M.I. Exciter
1 Field Regulator
1 Iron clad switch fuse T.P. 60 amps

221.

10 only Wedgeropes 158C.

730. 0. 0

222.

1 1/4" x 1 1/8" Spanner & Sundries

1.10. 0

In Store Room

223.

10 h.p. McColl Electric Motor 1430 rpm. 415 volt, 50 cycle, 3 phase. Frame 60501 Type Rating 060 continuous - 2 slide rails

30. 0. 0

224.

3 h.p. Lancashire Dynamo & Crypto Ltd. Electric Motor 960 r.p.m., 3 phase 415 volts, 50 cycle

15. 0. 0

In Engine Room

Crompton & Parkinson Electric Motor 2.75 H.P. 415 Volts, 5 amps, 3 phase, 50 cycle, 940 rpm with Alternating Set

Crompton & Parkinson Electric Motor on 2 inch Pump 2.75 h.p. 415 volts, 4.5 amps, 3 phase, 50 cycle, 1420 rpm with Alternating Set.

Outside Boiler Room

225.

60 ft. (approx.) Smoke Stack of heavy boiler plate

25. 0. 0

226.

Boiler shell, arranged as exhaust steam feed water heater.

227.

Inside Engine Room

2 ton Morris chain Block & Grawl, fitted with traversing gear of Rolled Steel Joists 49'6" x 23'4" x 12'0".

100. 0. 0

228.

Regulator 8 Day open faced clock made by Ansonia Clock Co.

3. 0. 0

229.

First Aid Stretcher

4. 0. 0

230

Battery Charger complete with rectifying valve. Ammeter and adjusting resistances

10. 0. 0

231

Yale Spur Geared 2 ton Chain Block

12.10. 0

232

Pipes in Stock

58 lengths 20 ft. (approx.) 6" dia. Pipes

174. 0. 0

233

At Shaft Site

Main Blasting Box complete with padlock

234

Short Circuiting boxes complete with padlocks

5. 0. 0

235

236. 6 Miners' cap lamps N.L.P. & Type N.C.L.O with Batteries. 20. 0. 0

909551 290

Blacksmith's Shop

237. 1 1/2" dia. steel shafting 1 straight cut compression shaft coupling - 30 ft.
 3 only starting Collars 1 1/2" dia.
 5 only adjustable ball socket bracket hangers and bearings for 1 1/2" dia. shaft 5. 0. 0

238. Electric welder 7 KVA Standard Voltage 40. 0. 0

239. oxy Acetylene torch complete with welding and cutting attachments 3. 0. 0

Pneumatic Tools etc.

240. Air line lubricator for No. 4 C.P. Pump 2. 0. 0

241. Wood borer 'Ingersoll head' CW2 45. 0. 0

242. Consolidated Pneumatic Tool Coy's. Pneumatic Vibrator 25. 0. 0

243. Ingersoll Head J4-55 Jack Hammer 50. 0. 0

244. Ingersoll head JB 4 Jackhammer 35. 0. 0

245. C.P. No. 4 Sump Pump 30. 0. 0

246. ditto (new) 81. 0. 0

247. Edson Clay digger 40. 0. 0

248. Ingersoll No. 75 Clay Digger 30. 0. 0

249. 3 No. 177 Flat Picks 9. 0. 0

250. Extension handle for clay digger 9. 0. 0

251. Pneumatic Clay Digger 10. 0. 0

252. Ingersoll head L. 29 Pneumatic Digger with pick 25. 0. 0

253. I.R. No. 35 Sump Pump 30. 0. 0

254. I.R. No. 25 Sump Pump 20. 0. 0

255. C.P. No. 4 " " 25. 0. 0

256. Parts for No. 35 I.R. Sump Pump 15. 0. 0

Spares for I.R. Sump Pump

257. 2 No. 2 82 Housing Nuts }
 258. Governor Part No. 421 for 35 Sump Pump } 2. 17. 6
 259. Low head Impeller No. 1. 413 for 25 Sump Pump 5. 0. 0
 260. Impeller Hub bushing for 35 Sump Pump, & in all }
 261. Motor key part No. 70. for 35 Sump Pump } 6. 10. 0
 262. 3 Governor Valves for 35 Sump Pump 2. 12. 6
 263. 2 Governor Valve Springs for 35 Sump Pump 11. 6

In Enclosure near Office

264. 6 Side Tipping Trucks, 1 cubic yard capacity 30. 0. 0

265. 3 Mine Kinkles 15. 0. 0

266. High speed Grouting Injector 7. 10. 0

Carried for
(P. T. O)

14. 31. 15. 0

267.	1 Governor Valve Spring seat part for 35 Sump Pump, 4 shims for 35 Sump Pump, 5 Ball races for 35 Sump Pump and 3 Ball races new departure for 35 Sump Pump.	
268.	2 Impellers for 4 C.P. Sump Pumps, 7 Oil seals, 6 cases wear rings and one spindle coupling and 7 Cover wear rings all for C.P. Sump Pump 1 drive spindle, 6 sets screws and ball bearings	909551 291 13. 10. 0
<u>In Steam Room.</u>		
269.	2 lengths 3" wire bound hose is all 30' 6"	6. 10. 0
270.	30 ft. of 1 1/2" dia. steam hose	
271.	3" Suction Hose, 15 1/2 ft.	
272.	4" Suction Hose, 15 ft.	
273.	3" Rubber Hose, 60 ft.	
274.	2" Rubber Hose, 47 ft.	17. 0. 0
275.	6 - 3/4" Boiler Tubes each 12 ft.	9. 5. 0
276.	5/16" wire rope approx. 1500 ft.	24. 15. 0
277.	4 Wilson Universal Gas Masks	72. 0. 0
278.	Transformer 240/32 Volts provided with taps to give 32 v. at the 1000ft. level and tap to give 32 v. at the 2000ft. level.	13. 12. 0
279.	2 - 3" Boiler Tubes each 16ft.	3. 0. 0
280.	2" Newman Milliken Lubricated Plug Valve	3. 0. 0
281.	3"Minimax" Acid Fire Extinguishers	10. 0. 0
282.	6 Ditch Lamps and 5 sets of Tools	60. 0. 0
<u>At Shaft.</u>		
283.	1 Down Pressure Fan 12 x 10 discharge, fitted with Vee Pulley, designed to deliver 4000 cfm at 13" Water gauge, speed 2200 rpm driven by 23 h.p. Crompton Westinghouse Motor 4400 rpm. 445 V, 3 Phase, 50 cycle with slide rails, auto transformer starter	60. 0. 0
284.	Down 7" Ball Bearing Fan with V Pulley designed to deliver 2000 cfm at 12" water gauge speed 2150 rpm driven by 10 h.p. Motor 3 phase, 50 cycle 445 V. and complete with Starter.	40. 0. 0
285.	Steel Ropet Leg 55 ft. high complete with braces ladder ways, 2 knuckle lines and pit head pulleys 7ft 6" dia.	350. 0. 0
286.	Chain and Bucket Elevator complete with Timber framework, centres 25 ft. buckets 8" x 6" x 4"	40. 0. 0
287.	Horiz. Air Receiver 23ft x 3ft 6" double rivetted fitted with stop cock, blow off cock, 1/2" plate w.p. 150 lb.	50. 0. 0
288.	Safety cage 6'6" by 3'6" x 38" between skids	12. 10. 0
289.	2 Bailing Tanks 6 ft. x 3ft 6" x 38" between skids	50. 0. 0
290.	20" Circular Saw Bench	10. 0. 0
291.	3 h.p. McColl Electric Motor 3 Phase 50 cycle 1440 rpm with Starter, Slide rails, wedgerope pulley and ropes.	15. 0. 0

292.	3 Swivel Door Lining Trucks 4' x 2'9" x 21" 2 ft. gauge.	25. 0. 0
293.	3/8" Flex. wire rope on Crab Winch, 1200 ft.	6. 0. 0
294.	Concrete Mixer, 2 Bag Capacity, complete with water tank Loading Flipper and discharge chute. Direct coupled to 10 h.p. Slip Ring Motor 3 phase, 50 cycle, 415 Volts (4 transport wheels available to make unit portable)	909551 292 145. 0. 0
295.	Chev. Utility Truck 1941 model	300. 0. 0
296.	Pumping Jack with Drive rods and Bruce Plunger Pump.	40. 0. 0
297.	<u>Boiler & Engine Room.</u> Cable and Skillion Roof overall measurements 74 ft. x 51 ft., Hardwood Frame, sides and roof fibrolite, concrete floor, 13 windows, 2 sky- lights, 1 door folding door and fitted with work bench and cupboards, with attached bicycle shed 15' x 9'	400. 0. 0
298.	<u>Diesel Engine Room.</u> Change House, and Bathrooms. Engine Room 13' x 12' Change Room etc. 23' x 22' Hardwood Framework Corrugated iron roof, Fibrolite sides, 7 windows, 2 Doors and Sliding Door, fitted with 6 Showers, 2 washbasins, Lockers, clothes rack.	50. 0. 0
299.	Drying Boiler 8' x 4'	5. 0. 0
300.	Carpenter Shed 21ft x 8ft Corrugated Iron Cable Roof	20. 0. 0
301.	Work Bench	4. 0. 0
302.	<u>Blacksmith's Shop</u> 20' x 28' Corrugated Iron Roof, Hardwood Framework.	40. 0. 0
303.	Corrugated Iron Latrines 13' x 9'	20. 0. 0
304.	Supervisor's Office 14'8" x 14'8" Cable Fibrolite Roof Fibrolite walls	40. 0. 0
305.	Office Table	4. 0. 0
306.	2 Chairs	2. 0. 0
307.	Desk	1.15. 0
308.	Workbench	}
309.	Washbasin & Tap		1.10. 0
310.	Scales & Weights	2. 0. 0
311.	Telephone	1. 0. 0
312.	Clerks Office 14'8" x 9' Corrugated iron walls and Roof	12.10. 0
313.	Workbench and Cupboard	2. 0. 0

Carried Forw. (P.T.O.) 16,365.12.0

314.	Office Table	2. 0. 0
315.	Office Chair	1. 0. 0
316.	Cement Shed 29' x 15' Corrugated Iron Gable Roof	50. 0. 0
317.	<u>Shirley Home's Office</u> 12' x 10' constructed of Corrugated Iron	15. 0. 0
318.	Copyboard	10. 0
319.	Office Table	12. 6
320.	Clothes Pegs & stool	1. 0
321.	<u>Dress Room</u> 37' x 12' constructed of Corr. Iron	45. 0. 0
322.	3 Corr. Iron Water Tanks each 2900 Gall. Capacity	37. 10. 0
323.	Skillion attached to Manager's Office - 12' x 5' 6" Corr. Iron Roof Fibrolite sides	10. 0. 0
324.	First aid Cabinet	10. 0
325.	5 h.p. Hobbs Motor, 3 phase 50 cycles, 415 V. 930 rpm.	19. 0. 0
326.	2 Safety Belts	15. 0
327.	Elect. soldering iron	1. 10. 0
328.	3 Switches	8. 4
329.	Inspection Lamp	7. 6
330.	Sundry Electric Light Globes	5. 0
331.	Assorted Electrodes	5. 0. 0
332.	Tin Drums Sodium Silicate and 77 drums calcium oxide	12. 10. 0
333.	Tar Dipper and Oil Dipper	1. 0. 0
334.		
335.	Blacksmith's Anvil	5. 0. 0
336.	Assorted Heavy Chains	1. 5. 0
337.	Sundry Heavy Shackles	1. 0. 0
338.	Assorted Box Spanners	2. 0. 0
339.	Lunch Copyboard	1. 10. 0
340.	2 Safety monkeys fitted with safety grips	30. 0. 0
341.	3 lengths heavy hardwood each 14' long	1. 10. 0
342.	Fencing surrounding the mine	20. 0. 0
		<u>16,620. 16. 4</u>

R. & O. S.

(Sgt.) C. CUNYON
P.P. J. H. CUNYON & SON
(30/1/46).

COMMONWEALTH OF AUSTRALIA

909551 294

DEPARTMENT OF SUPPLY AND SHIPPING
409 Collins Street,

~~CENTRAL BUILDINGS~~

~~125 SWANSTOCKS STREET~~

MELBOURNE, C. 1

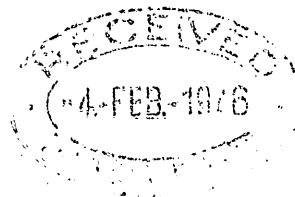
TELEPHONE: F 9411

TELEGRAMS: "SUPDEV"

In Reply Quote.....

1st February, 1946.

George Brown, Esq.,
Secretary,
Department of Mines,
MELBOURNE. C.2.



Dear Mr. Brown,

Further to my letter of 17th January, relative to the Lakes Entrance oil project, I forward herewith, for your information, copy of detailed inventory and valuation prepared by Messrs. J.H. Curnow & Son in this regard. Copy of the valuation has been forwarded to the Managing Director, Austral Oil Drilling Syndicate N.L. and I also enclose herewith copy of my covering letter to the Syndicate.

Yours faithfully,

A handwritten signature in cursive script that reads "G. T. Chippindall".

(G. T. Chippindall)
Secretary

909551 295

409 Collins Street,

1st February, 1946.

The Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street,
MELBOURNE. C.1.

RECEIVED
14 FEB 1946

Dear Sir,

Further to my letter of 17th January, 1946, dealing with the valuation of machinery, plant, buildings and equipment at the Lakes Entrance oil project, I desire to inform you that a detailed inventory and valuation has now been prepared by Messrs. J. H. Curnow & Son copy of which I have pleasure in forwarding herewith, together with copy of covering letter from Messrs. J. H. Curnow & Son dated 31st January.

Yours faithfully,

(G. T. Chippindall)
Secretary

COPY

J. H. CURNOW & SON

909551 296

31 Queen Street,
MELBOURNE.

31st January, 1946.

The Secretary,
Department of Supply & Shipping,
413 Collins Street,
MELBOURNE.

14-FEB-1946

LAKES ENTRANCE OIL PROJECT

Dear Sir,

In accordance with your instructions we made an inspection of the Machinery, Plant, Buildings & Equipment of this Project at Lakes Entrance and we now enclose the Inventory and our valuation. The valuation is based on what we consider the items may realize at the present time by public auction.

In our letter of the 17th inst. we gave an opinion after perusing the inventory of the main items and we would like to point out that in our present valuation we have considered only the removal values of the items and have not taken into account freight, cartage, installation charges, foundations or concrete works and if this were taken into consideration the complete plant as it stands would be worth around the figure indicated in our first estimate.

We further desire to point out that this valuation is based on all items included in the inventory being offered for sale at the same opportunity and that the figures would be adversely affected should any privileged buyer be permitted to take selected items from this list at the estimated values and leave the remainder.

In other words, the gross value would be adversely affected if "the eyes were picked out" of the sale lots offered.

Yours faithfully,

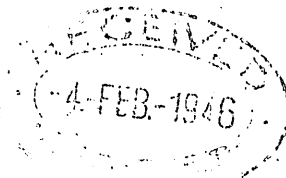
(SGD.) C. J. CURNOW

p.p. J. H. CURNOW & SON.

909551 297

INVENTORY AND VALUATION OF MACHINERY
PLANT, BUILDINGS & EQUIPMENT at the OIL PROJECT
LAKES ENTRANCE made by:

J. H. CURNOW & SON, Machinery Auctioneers
& Valuers, 31 Queen Street,
MELBOURNE.



MATERIAL.

Store-Room
Bin. No.

- | | |
|----|-----------------------------------|
| 1. | 1 - 1" Safety Valve |
| | 3 - 1" Check Valves |
| | 1 - 1" Brass Main Cook (new) |
| | 1 - 1" Low Pressure Stop Cook |
| | 1 - 3/4" Stop Cook |
| | 1 - 3/4" Tank Tap |
| | 1 - 1/2" Tank Tap |
| | 2 - 1/2" Check Valves |
| | 1 - 3/4" Low Pressure Stop Cook |
| | 6 - 3/4" Wheel Valves |
| | 5 - 1/2" High Pressure Stop Cocks |
| | 3 - 1/2" Wheel Valves |
| | 1 - 1/8" Needle Valve |
| | 1 - 1/4" Wheel Valve |
| | 5 - 1/2" Stop Cocks |
| | Sundry Scrap Valves |
| 2. | 3 - 3" Foot Valves |
| | 1 - 3" Strainer |
| | 1 - 2" Strainer |
| | 1 - 1" Strainer |
| 3. | 1 - 4" Gort Valve (John) (New) |
| | 2 - 2" Brass Packed Stop Cocks |
| | 1 - 1 1/2" ditto |
| | 7 - 1" Stop Cocks |
| 4. | 2 - 3" Tank Connections (new) |
| | 3 - 2" ditto |

10. 0. 0.

Carried Fwd.

10. 0. 0.
(P.D)

4. (Cont'd)

2 - 1" Tank Connections

1 - 2½" Hose Connection

5.10. 0.

5.

2 Reducing Sockets 4" to 3"

5 ditto 3" to 2"

2 " 2½" to 2"

6 " 2" to 1½"

3 " 2" to 1½"

8 " 2" to 1"

1 " 1½" to 1"

3 " 1" to ¾"

2 " 1" to ½"

1 " ¾" to ½"

1 " 1" to ¾"

3 " ½" to ¾"

6.

3 - ½" Plain Nipple

4 - 1" ditto

2 - 2" "

1 - 4" Hexagon Nipple

3 - 3" ditto

2 Brass " 3" to 2½"

3 - 2½" Hexagon Nipple

6 - 2" "

7 - 1½" "

1 " 1½" to 1½"

1 " 1½" to 1½"

10 - 1"

1 - ¾" "

3 - ½" "

1 - ¾" "

7.

1 - 3" Bronze 4-way Gate Valve Sorewed ends (new)

1 - 3" ditto

9 - 2" Wheel Valves

2 - 2" Plug Cocks

1 - 1½" Wheel Valve (new)

2 - 1½" ditto

7. (Cont'd). 2 - 1½" Wheel Valve (new)
2 - 1" ditto
1 - ¾" "
1 - ½" " 12. 4. 0.
8. 10 - 1½" "
1 - 2" Plug Cock
3 - 1½" Wheel Valve
17 - 1" ditto
6 - ¾" " 7.10. 0.
9. 12 - 2" to 1½" Cross (new)
2 - 2" to 1" " "
1 - 2" "
4 - 1½" "
1 - 2" to 1½" "
2 - 1½" to ½" Tee Piece
1 - 1½" to 1" "
6 - 1½" Cross (Railway fittings)
5 - 1½" Tee Piece "
1 - 1½" Elbow
- 10a. 5 - 4" Galvd. Tees Pipe fittings (new)
6 - 3" ditto "
2 - 3" ditto
3 - 2½" ditto
1 - 2" ditto "
1 - 2" ditto
1 - 1" "
1 - 1½" Wheel Valve
1 - 1" ditto (new)
1 - ½" "
1 - ½" Stop Cock 5.10. 0.
- 10b. 5 - 1" Spuds
8 - ¾" "
6 - ½" "
6 - Air Hose Clamps (new)
6 - ditto

10b. (Cont'd) 5 - $\frac{1}{2}$ " Hose End Nipples (new)
 1 - $\frac{3}{4}$ " ditto
 1 - 1" "
 1 - 1" Hexagon Nipple
 2 - $\frac{1}{2}$ " ditto
 2 - $\frac{1}{2}$ " Water Coeks (new)
 1 - $\frac{1}{2}$ " ditto

11.

1 - 6" to 3" Hexagon Bush
 4 - 4" to 3" ditto
 7 - 3" to 2 $\frac{1}{2}$ " "
 1 - 3" to 2" "
 1 - 2 $\frac{1}{2}$ " to 2" "
 2 - 4" to 2" "
 1 - 2 $\frac{1}{2}$ " to 2" Brass Bush (new)
 1 - 2 $\frac{1}{2}$ " to 2" ditto
 11 - 2" to 1 $\frac{1}{2}$ " Bush
 5 - 2" to 1" " (new)
 5 - 2" to 1" "
 3 - 2" to 1" "
 30 - 1 $\frac{1}{2}$ " to 1" " Galvd. (new)
 9 - 1 $\frac{1}{2}$ " to 1" " Black Iron (new)
 16 - 1 $\frac{1}{2}$ " to 1" " ditto
 1 - 1 $\frac{1}{2}$ " to 1 $\frac{1}{2}$ " " (new)
 1 - 2" to 1 $\frac{1}{2}$ " "
 1 - 2" to 1" "
 2 - 1 $\frac{1}{2}$ " to 1 $\frac{1}{2}$ " "
 2 - 2" to $\frac{3}{4}$ " "
 1 - 1 $\frac{1}{2}$ " to 1" "
 2 - 1 $\frac{1}{2}$ " to 1" "
 1 - $\frac{3}{4}$ " Hexagon Nipple
 2 - 1" to $\frac{1}{2}$ " Bush (new)
 12 - 1" to $\frac{1}{2}$ " Bush
 6 - 1" to $\frac{3}{4}$ " "
 1 - 1" Hexagon Nipple
 1 - 1" to $\frac{3}{8}$ " Bush
 18 - $\frac{1}{2}$ " to $\frac{3}{8}$ " Bush

2. 5. 0.

Carried fwd. (P.T.O.) 42.19. 0.

12.

- 1 - 2" Tee (new)
- 1 - 2" "
- 2 - 1 1/2" "
- 1 - 1 1/2" "
- 8 - 1" "
- 3 - 1/2" " (new)
- 2 - 1/2" "
- 6 - 1/2" " (new)
- 12 - 1/2" "
- 8 - 3/4" "
- 2 - 1/2" "
- 1 - 1" Cross
- 1 - 1/2" "
- 1 - 1" "
- 1 - 1" to 3/4" Tee
- 3 - 1 1/2" to 1/2" "
- 1 - 1 1/2" to 1" "

13.

- 3 - 2" Galvd. Round Elbows (new)
- 2 - 2" ditto
- 4 - 1 1/2" "
- 1 - 3/4" Elbow
- 4 - 1 1/4" Galvd. Round Elbows
- 10 - 1" Elbow
- 7 - 1" Bend
- 8 - 1/2" "
- 2 - 3/4" "
- 6 - 3/4" "
- 5 - 1/2" " (new)
- 1 - 1/2" "
- 5 - 3/4" Round Elbow
- 3 - 1/2" ditto

2.10. 0.

14.

- 2 - 3" Round Elbows (new)
- 1 - 3" ditto
- 4 - 2 1/2" " (new)
- 1 - 2" Bend (new)
- 6 - 2" " (new)

Carried fwd.
Brook (P.T.O.)

45. 9. 0.

14. (Cont'd). 3 - 1½" Bend
 2 - 1½" Socket
 3 - 1½" Bend
 1 - 1½" Socket
 5 - 1" Bend M & F Ends
 1 - ¾" Round Elbow "
15. 1 - 3" Nipple & 2 check nuts
 17 - 1½" Check Nuts
 1 - 2" ditto
 Sundry Short Pipe ends
16. 4 - 4" Socket (new)
 8 - 3" "
 6 - 2½" " (new)
 20 - 2" "
 5 - 1½" "
 2 - 1" "
 4 - ¾" "
 1 - ½" "
 7 - ⅝" " (new)
 11 - ⅜" "
17. 7 - 3" Union Coupling
 1 - 2" ditto (new)
 4 - 2" "
 5 - 1½" "
 2 - 1¼" " Brass (new)
 1 - 1½" "
 7 - 1" "
 1 - ¾" " (new)
 1 - ⅝" "
 2 - ½" " (new)
 3 - ⅜" "
 2 - 2½" Brass Hose Couplings (new)
 Sundry Scrap

6. 0. 0.

Carried fwd.
(P.T.O.)

51. 9. 0.

18. 12 - 3" Bends (new)
 10 - 3" Sockets
 3 - 3" Bends
 3 - 3" Sockets
 1 - 3" Flange
19. 5 - 4" Sockets
20. 14 - 3" Flanged Pipe Couplings (Bored)
21. 10 - 4" Flanged Pipe Couplings (Bored)
22. 18 - 4" Flanged Pipe Couplings (Bored) (new)
23. 3 - 2" Flanged Pipe Couplings (Plain) (new)
 1 - 2" ditto (Bored)
24. 1 - 4" Cast Iron Steam Couplings (Bored) (new)
 2 - 4" ditto (Bored)
 1 - 2½" " (Bored) (new)
 2 - 3" Flanged Couplings (Bored) (new) 7.17. 6.
25. 1 - 2½" Flanged Coupling (Bored)
 1 - 1½" ditto (Plain)
 1 - 1½" ditto (Bored)
 4 - 1" ditto (Bored)
 1 - 4" Socket
26. 1 - 4" Flanged Wheel Valve (out of Order)
27. 1 - 3" Foot Valve & Strainer
 1 - 2½" Bend
 12" of 2½" Pipe
 1 - 2½" Socket
 1 - 2½" Round Elbow
 12" of 3" Pipe with 3" Flange and 1 3" to 2" tee piece.
28. 5 - 4" Bends (new)
 3 - 4" "
 4 - 4" Sockets (new) 4. 0. 0.
29. 1 Length ½" Air Hose 34½ ft. fitted with Spud Conn.
30. " ½" " " 24½ ft. ditto
31. " ½" " " 50 ft. "
32. " ½" " " 58½ ft. "
33. " ½" " " 52 ft. "

34.	1 Length $\frac{1}{2}$ " Air Hose 22 ft. fitted with Spud Conn.		
35.	5 Lengths $\frac{1}{2}$ " " " total 43ft.	ditto	
36.	2 Lengths Water Hose total 26ft.	ditto	
37.	1 Length $\frac{1}{2}$ " Water Hose 13 ft.	ditto	27. 0. 0.
38.	3 Coils each 100yd. Cable 7/064 (new)		18. 0. 0.
39.	3 Coils used 7/064 Cable	}	
40.	2 " " " "		5. 0. 0.
41.	1 Coil 7 Strand 12 gauge Klocker Line (new)		3. 0. 0.
42.	1 $\frac{1}{2}$ cwt. Lead		1. 1. 0.
43.	58 Assorted Insulators	}	
44.	43 Insulator Pins		4. 0. 0.
45.	12 Galvd. Spouting Brackets (new)	}	
46.	8 Galvd. Down Pipe Brackets (new)		1. 5. 0.
46.	Quantity Scrap Electric Cable		
47.	1 Spool (300ft) Rubber Covered Lighting Flex and one Lamp		2.10. 0.
48.	4 Coils Galvd. 7 Strand Wire (new)	}	
49.	3 Pibs. $\frac{1}{8}$ " Hydraulic Packing		
50.	5 lbs. $\frac{3}{8}$ " " "		
51.	$\frac{1}{2}$ lb. $\frac{1}{4}$ " " "		
52.	300 ft. Rubber Covered Lighting Cable		
53.	600 ft. Lead Covered Telephone U.G. Cable		
54.	10 lb. 5/16" Greasy Hemp Pump Packing		
	3 lb. $\frac{3}{8}$ " ditto		
	2 lb. $\frac{1}{4}$ " ditto		
55.	Quantity assorted Scrap Pump Packing			10.15. 0.
56.	12 - 6" G.I. Sockets (new)		
	4 - 4" ditto (new)		1. 4. 0.
57.	4 Gallons Separator Oil		14. 0.
58.	1 - 4" Gate Valve Flanged (new)		6. 0. 0.
59.	Fittings for Bulldozer Pump at <u>No.5 Plant</u> comprising		
	3 - 2" Wheel Valves		
	2 - 2" Tee Pieces		
	3 - 2" Hexagon Nipples		
	1 - 2" Bend		
	1 - 2" Barrel Union		
	$1\frac{1}{2}$ ft. of 2" Pipe		
	<u>Valued with Pump</u>		
60.	16 Links for Elevator Chain (new)	}	
61.	10 Wire Rope Clamps		
62.	1 - 2" Tee Hinge		
	2 - 12" Strap Hinge		
63.	4 - 1 $\frac{1}{4}$ " Earth Boring Augers complete with cranks		
64.	1 - 4 gallon bailing bucket			3.17. 0.

65.	1 - 4" Plug Valve	)	1.15. 0.
66.	1 - 2½" Plummer Block)	
67.	1 - 3" Gate Valve (new)		4. 1. 6.
68.	1 - 3½" Globe Valve (Gunmetal) Flanged ends		3.10. 0.
69.	1 - 4" Gate Valve Flanged ends		3.10. 0.
70.	1 - 4" ditto		3.10. 0.
71.	44 ft. 1½" - 5/8" Boring Rods)	
72.	32 ft. - 1/2" Blow Pipe	)	2.10. 0.
73.	11ft. 8" - 5/8" " ")	
74.	1 - V.76 Fan Belt)	
75.	1 (Gates) No.6 x 66 Fan Belt		
76.	6 Multi V Belt B.105 (new)		
77.	ditto		
78.	2 Dunlop Wedgrope 81 B. N4		
	2 ditto (new)		
79.	1 - 3/4" Float Valve		
80.	1 Ammeter (Siemens Bros.) Range 20-100 amps (out of Order)		8.15. 0.
81.	1 Voltmeter Range 0-500 Volts		1.10. 0.
82.	3 gallons K.B. 30 Transformer Oil		1. 1. 0.
83.	1 3" - 4" G.I. Matching piece flanged		15. 0.
84.	1 gallon Clear Air Drying Insulating Varnish		10. 0.
85.	600 ft. Lead Covered Telephone Cable		10. 0. 0.
86.	1 W & B Float Switch Style F.S. 2		1.10. 0.
87.	1 Box containing spares for Bulldozer Pump No.4 viz. 1 Brass Cylinder Sleeve (new)		
	1 ditto		
	1 Counter Shaft small gear wheel		
	1 Main Gear wheel eccentric & Spindle		
	2 Leather Buckets (new)		
	10 Valves (new)		
	2 Valve Springs (new)		
	2 Leather Plates		
	1 Centre Washer		
	2 countershaft Bearings (new)		
	2 main shaft bearings (new)		12. 0. 0.
88.	1 - 2 Pole Switch Coil control		
89.	1 - 2 pole Switch (out of order)		
90.	1 - 2 pole Knife Switch (new)		
91.	1 - 300 amp. 3 pole Switch overload breaking control		
92.	4 - Pot ends small (new)		
93.	1 Pot end Large (new)		
94.	1 Junction box (new)		16. 5. 0.

95.	1 Electric Cable Clamp (new))	
96.	1 Telephone (out of order)	)	3.15. 0.
97.	3 Slate Terminal Plates (new))	
98.	1 - 9" Snatch Pulley Block)	
99.	9ft - Octagon Hand Steel $\frac{3}{4}$"	)	3. 0. 0.
	9ft - ditto $\frac{1}{2}$ ")	
100.	1 - 30 amp. Switch)	
101.	2 - 24" Slide Rails)	
102.	1 ammeter range 0-50 amps (out of order)	)	1. 17. 6.
103.	1 Ammeter range 0-150 amps. (out of order))	
104.	1 Electric Lamp Shade (enamelled) with 50 ft. Cable)	
105.	1 - 9" Grooved Pulley take $\frac{1}{2}$ " Rope	)	2.10. 0.
106.	1 Injector by Brown (new)	)	4. 0. 0.
107.	1 - 4" diam. Pulley 4" face 1" bore)	
108.	1 Air Line Lubricator)	
109.	1 Box Miscellaneous Electric Conduit Fittings	)	3.17. 6.
110.	2 - 12" Enamelled Lamp Shades (new))	
	3 - 12" ditto	)	2.10. 0.
111.	1 Carton Electric Wiring (scrap))	
112.	1 Box Sundry Electrical Fittings (scrap))	
113.	13ft of $\frac{3}{4}$ " Electric Conduit	)	1.12. 6.
114.	1 - 4" Hydraulic Check Valve flanged ends (new)	)	5.10. 0.
115.	1 - 4" Hydraulic Check Valve	)	5.10. 0.
116.	1 - 6" Globe Valve)	
117.	1 - 4" to 3" flanged ends reducing matching piece length $1\frac{1}{2}$ ft.)	
118.	Approx. 25 ft Brass Spring Wire	)	5. 2. 6.
119.	5" x 4" Skids 13/14 pts. 182 ft.)	
	16/17 " 272 "	)	3. 0. 0.
120.	Black Corrugated Iron 368-9 ft. Sheets	)	82.16. 0.
121.	Flat Iron Sheets 17 gauge, 8/6ft. 4" x 2ft 2")	
122.	Flat Iron Sheets 17 gauge, 29/6ft. x 10")	
123.	Mild Steel Bar 5" x 1" 21ft.) new)	
	4" x 1" 54ft. )	)	15.10. 0.
124.	10 sets Circles 4" x 1" Mild Steel 12ft. dia. 370 ft. complete with fish plates)	
125.	Mild Steel Forms for circular shaft 10ft. dia. complete with angle iron braces 6 sets 4ft. high each)	
126.	36 pieces steel form 4ft length ^{high}	)	30. 0. 0.
127.	1 Trolley 23" gauge, 9" Wheels Pedestal bearings Platform body 5ft. x 4ft. tongue & grooved hardwood $\frac{3}{4}$ " thickness.	)	3. 0. 0.
	Carried fwd.	)	(392. 6. 0.)

Brought fwd.

392. 6. 0.

128.	1 Gravel washing platform 19ft. x 18ft. built of 6" x 2" hardwood with 3" x 2" railing.	10. 0. 0.
129.	Steel Rails approx. 2 ton 3 cwt. with fittings & equipment	30. 0. 0.
130.	3" Angle Iron Circles 12 sets approx. 350 ft.	
	with Lot 124, 125, 126.	
131.	Timber (new) 6/1 1/2	
	7/15	
	5/20	
	9/4	
	5/10	
132.	" " 4/1	5/16
133.	" " 7/1 1/2	5/12 1/10
134.	" " 3/2	8/11
135.	" " 4/3	1/9 2/16 1/12
136.	" " 4/1 1/2	2/10 1/16
137.	" " 6/2	1/8 5/16
138.	" " 6/3	2/9
139.	" " 4/2	6/9 1/13
140.	" " 5/4	3/14 1/12
141.	" (used) 6/1 1/2	10/10 6/7
142.	" " 7/1 1/2	2/8
143.	1 Gravel Bin 18ft x 11ft x 9ft	
	6 x 1 1/2" Hardwood Frame	
144.	32 - 1/2" Bolts about 10ft lengths	
	Centre Partition 6 x 1 1/2" Hardwood	
	Complete with 2 Steel Chutes	
144.	1 Concrete Mixing Shed 15ft x 8ft	
	4 x 1 1/2" Hardwood Frame	
	Outside Walls Fibrelite 6 sheets	
	Roof 10 sheet Corr. Galv. Iron	
	Floor 8 x 1 1/2" Hardwood	
145.	1 Elevator Sump Housing	
	9ft x 6ft Hardwood 8" x 1 1/2"	
	1 Mild Steel Plate gravel chute	
146.	1 Gravel retaining wall 20ft x 8ft, 6" x 2" Hardwood	70. 0. 0.
147.	1 Telephone Cabinet 4ft x 28" x 6"	
	Frame Hardwood 3" x 1"	
	Walls Corr. Zinc Annealed sides	3.10. 0.
148.	5 - 12 ft Ladders	4.10. 0.
149.		
150.	1050 Bricks	
151.	650 Firebricks	10. 0. 0.
152.	Conduit Wiring Transmission Lines globes and shades throughout Project comprising:	

(P.T.O.)

Carried fwd.

540. 6. 0.

152 (Cont'd)	(a) 2850 ft. Wiring		
	(b) 370 ft. Conduit		
	(c) 90 Insulators		
	(d) 17 Lamp Shades		
	Transmission wire from Powerhouse to Pump site, 3 wire 7/.064 with pole and insulators		50. 0. 0.
153.	1200 ft. $\frac{3}{8}$ " Wire Rope		10. 0. 0.
154.	1 Baker Core Barrel		15. 0.
155.	Approx. 13 tons. Diesel Fuel Oil		100. 0. 0.
156.	Telephone posts, Insulators and wire approx. $\frac{1}{2}$ mile, Managers Office to Residence Valued with Lot 152		
157.	2 Axes		1. 0. 0.
158.	40 ft. $\frac{1}{2}$ " Heavy Hose (new)		3. 0. 0.
159.	1 Pneumatic Pick (minus Chuck) C.L. L.29		15. 0. 0.
160.	2 Lengths $2\frac{1}{2}$ " Shafting total length 22ft	}	
161.	$\frac{1}{2}$ " mild steelsquare 50ft.		
	$\frac{3}{4}$ " ditto 24ft.		
	1" " 15ft.		
	1" x $\frac{1}{2}$ " " 95ft.		
	2" x $\frac{3}{16}$ " " 40ft.		
	2" x $\frac{1}{2}$ " " 9 ft.		
	2" x $\frac{1}{2}$ " " 62ft.		
	3" x $\frac{1}{2}$ " " 12ft.		
	1" x $\frac{1}{2}$ " " 52ft.		
	1" x $\frac{1}{2}$ " " 32ft.		
	1" x $\frac{1}{2}$ " " 12ft.		
	1" x $\frac{5}{16}$ " " 80ft.		
	3" x $\frac{1}{2}$ " " 18ft.		
	2" x $\frac{5}{16}$ " " 18ft.		
	2" x $\frac{5}{16}$ " " 18ft.		
	2" x $\frac{1}{2}$ " " 36ft.		
	1" x $\frac{5}{16}$ " " 36ft.		
	1" x $\frac{1}{2}$ " " 15ft.		
	Sundries Scrap		
	1" Round 22ft.		
	2" " 47ft.		
	$\frac{1}{2}$ " " 32ft.		
	$\frac{3}{4}$ " " 36ft.		6. 0. 0.
162.	2 - 3" Earth Boring Augers (in Braceman's shed)		3. 0. 0.
163.	Quantity assorted Scrap Hose (outside Storeroom)		4. 0. 0.
164.	Angle Iron 3" x 3" x 5ft. 21 pieces (under cement shed) Valued with Lot 125 & 126		
165.	Galv. Pipe 3" Length 252 ft.		21. 0. 0.
166.	Galv. " 4" " 160 ft.		20. 0. 0.
167.	Black " 4" " 55 ft.		6. 0. 0.
168.	1 cwt. $\frac{3}{4}$ " x $3\frac{1}{2}$ " Bolts and Nuts (new)	}	
169.	1 $\frac{1}{2}$ cwt. $\frac{3}{4}$ " x $3\frac{1}{2}$ " Bolts & Nuts		
170.	8 lb. 2 x $\frac{1}{2}$ " Fish Bolts		
171.	$\frac{1}{2}$ cwt. $\frac{3}{4}$ " x $3\frac{1}{2}$ " Bolts		
172.	140 - $\frac{3}{4}$ " Square Washers		
173.	320 - $\frac{1}{2}$ " Hexagon Nuts & Bolts (new)		
	44 - $\frac{1}{2}$ " Square		
	Carried fwd.		3.15. 0. 783.16. 0.

174.	1 cwt. 1 $\frac{3}{8}$ " x $\frac{1}{2}$ " Bolts (new)	
175.	Miscellaneous Bolts $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ "	}
176.	1 cwt. $\frac{1}{2}$ " Round Iron Spikes Length 11"		2.12. 6.
177.	Round Iron Hangers (Concrete retaining wall)	
	42 - $\frac{7}{8}$ " Lengths 5ft. 6"	
	49 - $\frac{5}{8}$ in " 3ft. 0"	
	12 - $\frac{3}{8}$ " " 4ft. 0"	
	14 - $\frac{5}{8}$ in. " 2ft. 0"	
178.	Round Iron Hangers (Carpenters shed)	}
	10 - $\frac{7}{8}$ " Lengths 6ft. 0"		3. 0. 0.
179.	1 Amplifer	10. 0. 0.
180.	$\frac{3}{4}$ " Galv. Pipe 10 x 10ft Lengths - 200 ft.	
	5 x 20ft	2.10. 0.
181.	1" " " 8 x 20ft " - 160 ft.	3. 6. 8.
182.	$\frac{1}{2}$ " " " 1 x 20ft)	- 26 ft.
	1 x 6ft )		6. 6.
183.	1" Black Iron 26 x 20ft. Lengths - 520 ft.	8.13. 4.
184.	2" ditto 1 x 26ft. " - 20 ft.	19. 6.
185.	1 $\frac{1}{2}$ " " 14 x 20ft. " - 280 ft.	7. 0. 0.
186.	1 $\frac{1}{2}$ " Pipe 2 x 6 ft.) " - 30 ft.	15. 0.
	2 x 9 ft.)	
187.	1" Hollow Hexagon Drill Steel 19 x 24ft. lengths approx. 12 cwt.	43. 4. 0.
188.	1 set Oster Pipe dies 3" - 4"	8.10. 0.
189.	1 set Twist Drills $\frac{5}{8}$ " & 1" - 1/16	2. 0. 0.
190.	1200 ft. 3 core lead covered double wire armoured cable Valued with Electric Pumps	
191.	1200ft. 5" Casing Swelled Joint	135. 0. 0.
192.	960 ft. 6" Casing Swelled Joint	132. 0. 0.
193.	325 ft. 8" Casing Swelled Joint	131. 0. 0.

ENGINE ROOM

194.	1 only Steam Driven straight line Air Compressor by Taylor Horsefield, Bendigo Steam Cylinder 15" dia. Air Cylinder 13 $\frac{3}{4}$ ". Crank Shaft 4 $\frac{3}{4}$ " x 3' x 3". 2 balanced flywheels each 5ft 10" dia. by 4 $\frac{1}{2}$ " face. Variable expansion valve gear, slipper guides. Unit self contained on Cast Iron Bedplates 13'3" x 3'0". Complete with Stop Valves, lubricators, steam lines to boiler and Air line to Receiver. Approx. cap. 350 cubic feet of free air.	300. 0. 0.
195.	1 only Horizontal double acting steam driven boiler. Feed Pump by "Werthington", Size 6" x 4 $\frac{1}{2}$ " x 6" Stroke Complete with water piping, steam piping and lubricator.	
196.	1 only Penberthy type Injector	65. 0. 0.
197.	1 only Horiz. First Motion Winding Engine - Steam Driven - by J. & W. Weems Scotland. 16" cylinders by 30" stroke. Drum shaft 8" dia. fitted with forged disc cranks bored trunk guides, fitted with 2 Cast Iron loose drums each 7'6" dia. 6" flanges, wood between flanges 24". 24" dia. jaw chutches. Drums are fitted with Air and Steam controlled brakes.	

- 197 (Cont'd) Unit is complete with Link motion reversing gear
2 dial indicators fitted with warning bells, stop
valve, lubricators and steam piping to Boiler.
1500 ft. 700. 0. 0.
198. Steel Winding Rope $\frac{7}{8}$ " 6/7 Langs Lay)
199. 1800 ft. Steel Winding Rope $\frac{7}{8}$ " 6/7 Langs Lay) 60. 0. 0.

BOILER HOUSE

200. 1 only
Lancashire Jackass Boiler by A. Roberts & Sons,
Bendigo, 16ft. length x 7'6" dia. shell plate
 $\frac{5}{8}$ " end plates $\frac{5}{8}$ " flanged, butt strapped double
rivetted horizontal seams $3\frac{1}{2}$ " x $2\frac{1}{2}$ " pitch, single
rivetted circular seams $2\frac{1}{2}$ " pitch, two flues each
2'9" dia. x 8'0" long fitted with Adamsen's joints
water-bridge and uptake 88 tubes 3" dia. 8'0" Long
including 14 stay tubes. Boiler is further stayed
with 2" through stays each end, compensating ring
around manhole, nipples rivetted to boiler for
mountings. Boiler is fitted with furnace doors,
firebars and usual mountings - working pressure
120 lb. 450. 0. 0.
201. 1 only Lancashire Jackass Boiler - 15ft. length
x 7'0" dia. M.D. 59K, 5/8" shell, butted strapped
and treble rivetted 3/4" ends, 88 - 3" tubes in-
cluding 18 stay tubes. Double Cylindrical welded
furnaces each 8'0" long x 2'8". Water bridges
and uptake. Boiler complete with pressure gauges
and mountings - Working Pressure 120 lb. 400. 0. 0.

ENGINE ROOM.

202. 1 only Ruston & Hornsby Diesel Engine - 360 h.p.
size 6, Class VEB, No. 2.00176, 500 r.p.m.
Forced Feed Lubricator.
203. This is direct coupled to 312 KVA Alternator 415/440
volts 435/410 amps, 250 k.w. at 500 Revs. 50 periods
Alternator manufactured by Lancashire Dynamo &
Crypto Pty. Ltd. No. 147732.
- On same shaft is a D.C. Exciter 64 volts 70 amps
4.5 k.w. 500 r.p.m. This provides continuous
current size D60 No. 147733.
- The two units above are self contained on Cast Iron
bedplates.
204. 1 only Double Cylinder Air Compressor size 3 x 3 $\frac{1}{2}$
Vee belt Drive by Electric Motor is provided for
compressed air starting. This is connected to one
(1) Ruston & Hornsby Air Receiver No. B. 25255.
Tested to 600 lb. to the square inch for a working
pressure of 300 lb. Fitted with safety valve,
pressure gauge and stop valves. In addition there
is a full tank capacity 150 galls. 1-2" Kelly &
Lewis Centrifugal Water Circulating Pump. Vee belt
driven by Electric motor. Following spares are in
stock - (included switchboards to operate unit &
Cabling tower)
1 Big end Bearing, 1 Main Bearing, 2 Valve Cages,
6 Valves, 1 Fuel Pump, 6 Piston Rings, 6 Valve
Springs, 1 Atomiser, 1 Timing change,
Assorted spanners and other tools. 5500. 0. 0.
205. Model T, 60 S Holman Vertical two-stage Air Com-
pressor. Electrically driven. Bore 12" x 9"
Stroke 6 $\frac{1}{2}$ ", Dis. 612 CFPM 7 Vee Belt drive to a
125 h.p. Electric motor by A.C.E. 415 Volts,
1460 r.p.m. 167 amps, 50 cycle, 3 phase Serial
No. 49279, 1 W & B starter 400 volts, 50 cycle,
Carried Forward (P.T.O.) 8749.13. 6

203 (Cont'd)	125 h.p. Compressor equipped with pressure gauges, lubricator stop valve and pipe line to air receiver, 1 guard rail. Cap. 650 cub.ft.	1000. 0. 0.
204.	<p>Double Drum electric winder by the Austral Otis Engineering Co. Ltd., mounted on welded steel girder frames. The drums are both loose and are of heavy cast iron construction 3 ft. 10$\frac{1}{2}$" dia. over wood lagging x 16" face. Flanges 7" deep. Foot brakes fitted on each drum. The drum shaft is 6" dia. of the best quality steel running in heavy 6" Plummer Blocks.</p> <p>The first motion is of double helical cut special steel running in totally enclosed oil bath.</p> <p>The second motion gear is a special steel pinion in cast steel gear wheel.</p> <p>Solenoid brake with 2" drum, incorporating a flexible coupling and operated by a 3 phase solenoid fitted with oil regulating dash pot.</p> <p>The indicators are of the dial type operated direct from the drums through cut bearing. Motor by AGE 70 h.p. with a speed of 965 r.p.m. full load, 3 phase 50 cycle 415 volts.</p> <p>Unit complete with control gear, mounted on slate panel with equipment.</p> <p>Driver's instrument panel is provided with 1 volt meter and 1 ammeter emergency start and stop push button.</p> <p>Master controller is of the drum type and provides automatic and manual acceleration, is fitted with spring return so that the Controller returns to the neutral position should the operator for any reason remove his hand from same.</p> <p>The winch is fitted with limit switches of self replacement type, fitted to the dials of the Indicators which automatically cut off current and apply brake at pre-determined points.</p> <p>Creeping speed Resistor, double pole contactor to be used in conjunction with existing starting resistance and providing a speed of approx. 25 per cent of the present rope speed.</p>	600. 0. 0.
205.	The drums are each fitted with 1500 ft. 3/4" dia. x 6/7 block steel <u>wire rope</u> .	40. 0. 0.

PUMPS IN ENGINE ROOM.

206.	Worthington Duplex steam pump 4 $\frac{1}{2}$ " x 4" at Water end x 5" Steam end	20. 0. 0.
207.	Duplex Steam Pump by Blake - 4 $\frac{1}{2}$ " x 3 $\frac{3}{4}$ " x 4" - 1 $\frac{1}{2}$ " suction 1 $\frac{1}{2}$ " delivery	20. 0. 0.
208.	A.4 Ajax Bulldozer Pump complete, with spare parts.	45. 0. 0.

PUMPS - At Water Dam

209.	Fairbank Morse Duplex Steam Pump 5 $\frac{1}{2}$ " x 3 $\frac{1}{2}$ " x 5" - Suction 2 $\frac{1}{2}$ " delivery 1 $\frac{1}{2}$ "	35. 0. 0.
210.	<u>In Yard opposite Wood Stacks</u>	
	Cameron Vertical steam sinking pump - Size 9A 12" x 6" x 13" - Steam 1 $\frac{1}{2}$ " Suction 3", Exhaust 2 $\frac{1}{2}$ " and delivery 3". Pump fitted with set of hard rubber sleeves. valves.	50. 0. 0.
211.	<u>In Boiler House.</u>	
	Knowles High Pressure Pump - 6" Steam cylinders, 3 $\frac{1}{2}$ " water, 6" Stroke outside packed.	30. 0. 0.
211a.	Duplex Outside Packed Pump 6" x 3 $\frac{1}{2}$ " x 6" <u>Carried fwd.</u>	30. 0. 0. 10,619.13. 6.

In No.4 Plat in Shaft.

212. Duplex outside packed steam pump 6" x 3 $\frac{1}{2}$ " x 6" 30. 0. 0.
213. 3" - 4 stage Centrifugal Pump by Thompson with motor starter, cable switchgear, and fittings. Motor 30 h.p. 44 amp. 415 volt etc. 1 spare impeller shaft complete with impellers, bearings etc. 2 - 4" Thompson 3 stage Centrifugal Pumps. 2 Primary Resistor starters with Press Button Control. 1 incoming power panel consisting of 1 - 600 AMF oil circuit breaker, 1 Ammeter, 1 Voltmeter, 1 Recording Meter 1' - 3" Isolating Switch, Busbars etc. all mounted on suitable panel. 2 Valve assemblies containing stop valve, retention valve and bypass valve 2 lengths of shaft cable (approx. 150 ft. each) 4 core. Each with 62h.p. Motor.
- 1 on surface and 1 at No.2 Plat.
- On Sluice Pump.
Thompson Sinking Pump 3" - 4" 3 stage 200 G.P.M. 230' head, 1450 r.p.m. with Parkinson 30 h.p. Motor 415 volt 3 phase. 1500. 0. 0.

In Engine Room.

214. 3" - 6 stage Class E.C. Centrifugal pump complete with flexible coupling of rubber sheathed pin type and combination baseplate of welded steel. Construction to discharge 4000 G.P.H. against 900 ft. head. Base plate for 62h.p. Motor. 1 complete Rotating element comprising:-
- 1 mild steel shaft and keys
 - 6 bronze impellers
 - 5 bronze distance sleeves
 - 2 bronze lantern rings
 - 2 Cast iron glands
 - 5 case iron Diaphragm plates
 - 1 Balancer comprising cast iron plate, gun metal friction and bronze disc
 - 6 bronze sealing rings
 - 1 half coupling
 - 4 Roller Bearings each comprising
 - 3 Cast iron covers with felt rings
 - 2 mild steel Collars
 - 2 mild steel Sleeves and 2 mild steel nuts.
 - 6 Hard Bronze shaft sleeves for the suction end
 - 3 hard bronze shaft sleeves for the delivery end
 - 8 roller bearings
400. 0. 0.
- 214a. Blake Duplex pump 6" x 4" x 6" 35. 0. 0.
215. Ajax Self-oiling Bulldozer Pump Size A4 20. 0. 0.
216. Ingersoll Rand Air Hoist Type NU 450 shaft - 7/16" flexible rope 55. 0. 0.

On Pump at Dam Site.

217. Wall mounting protected type. Automatic Primary Resistance Starter with definite time exhilaration with 31 TL overload releases, with one station of start stop push buttons suitable for 30 h.p. motor, 415 volt, 50 cycles. 10. 0. 0.

In Auxiliary Engine Room.

218. McDonald Imperial Super Diesel Crude Oil Engine 45-50 h.p. M. Type Horizontal single cylinder low compression solid injection 2 stroke cycle valveless engine with balanced crankshaft mounted on heavy duty roller bearing. Renewable cylinder liner, automatic forced feed lubrication air cleaner and outer bearing mounted on 15" channel iron frame. Driving Pulley 20" dia. 12" face. 30 gall. fuel tank, exhaust pipe and silencer Engine, No. 192 M. Carried fwd. (P.T.O.) 12,669.13. 6.

218. (Cont'd)	This engine is coupled with a 10 Vee Belt drive to Alternator driving pulley 20" dia. by 10 $\frac{1}{2}$ " face, 10 Wedgeropes No. 158C.	
219.		
220.	Bayley & Grimster Alternator Output 25 K.V.A. power factor. .85 Volts 400/430 speed 1000 rpm Salient hole type, revolving field direct coupled exciter 1 Alternator Vee Belt Pulley 10" dia. x 11" face. 1 Alternator Control Panel consisting of polished Zelemite approx. 4' x 2' x $\frac{3}{4}$ " mounted on substantial angle iron frame arranged for floor and wall mounting fitted with following gear - 1 Voltmeter of 400 volts 6" M.I. 1 Ammeter of 40 amps 6" M.I. Exciter 1 Field Regulator 1 Iron clad switch fuse T.P. 60 amps	
221.	10 only Wedgeropes 158C	730. 0. 0.
222.	1 $\frac{1}{2}$ " x 1 $\frac{1}{8}$ " Spanner & Sundries	1.10. 0.
<u>In Store Room</u>		
223.	10 h.p. McColl Electric Motor 1430 rpm. 415 volt, 50 cycle, 3phase. Frame 60501 Type Rating 060 continuous - 2 slide rails.	30. 0. 0.
224.	3 h.p. Lancashire Dynamo & Crypto Ltd. Electric Motor 960 rpm , 3 phase 415 volts, 50 cycle.	15. 0. 0.
<u>In Engine Room</u>		
	Crompton & Parkinson Electric Motor 2.75 H.P. 415 Volts , 5 amps, 3 phase, 50 cycle, 940 rpm. with Alternating Set	
	Crompton & Parkinson Electric Motor on 2 inch Pump 2.75 h.p. 415 volts, 4.5 amps, 3 phase, 50 cycle, 1420 rpm, with Alternating set	
<u>Outside Boiler Room</u>		
225.	60ft. (approx) Smoke Stack of heavy boiler plate	25. 0. 0.
226.	Boiler shell, arranged as exhaust steam feed water heater.	15. 0. 0.
227.	<u>Inside Engine Room</u> 2 ton Morris chain Block & Cawl, fitted with traversing gear of Rolled Steel Joists 49'6" x 23'4" x 12'0"	100. 0. 0.
228.	Regulator 8 Day open faced clock made by Ansonia Clock Co.	3. 0. 0.
229.	First Aid Stretcher	4. 0. 0.
230.	Battery Charger complete with rectifying valve. Ammeter and adjusting resistances.	10. 0. 0.
231.	Yale Spur Geared 2 ton Chain Block	12.10. 0.
232.	<u>Pipes in Stock.</u> 58 lengths 20 ft. (approx) 6" dia. Pipes	174. 0. 0.
233.	<u>At Shaft Site</u> Main Blasting Box complete with padlock)	
234.	Short Circuiting boxes complete with padlocks)	5. 0. 0.
235.	Carried fwd.	13,724. 13. 6.

236.	6 Miners' cap lamps N.I.P.E. Type N.C.I.O. with Batteries.	20. 0. 0.
<u>Blacksmith's Shop</u>		
237.	1½" dia. steel shafting 1 straight cut compression shaft coupling - 30ft. 3 only Shafting Collars 1½" dia. 5 only Adjustable Ball socket bracket hangers and bearings for 1½" dia. shaft	5. 0. 0.
238.	Electric Welder 7 KVA Standard Voltages	40. 0. 0.
239.	Oxy Acetylene Torch complete with welding and cutting attachments	3. 0. 0.
<u>Pneumatic Tools etc.</u>		
240.	Air Line Lubricator for No. 4 C.P. Pump	2. 0. 0.
241.	Wood borer "Ingersoll Rand" CCW2	45. 0. 0.
242.	Consolidated Pneumatic Tool Coy's Pneumatic Vibrator	25. 0. 0.
243.	Ingersoll Rand JA-55 Jack Hammer	50. 0. 0.
244.	Ingersoll Rand JB 4 Jackhammer	35. 0. 0.
245.	C.P. No.4 Sump Pump	30. 0. 0.
246.	ditto (new)	81. 0. 0.
247.	Holman Clay digger	10. 0. 0.
248.	Ingersoll No. 75 Clay Digger	30. 0. 0.
249.	3 No.177 Flat Picks	9. 0. 0.
250.	Extension handle for clay digger	9. 0. 0.
251.	Pneumatic Clay Digger	10. 0. 0.
252.	Ingersoll Rand L.29 Pneumatic Digger with Pick	25. 0. 0.
253.	I.R. No. 35 Sump Pump	30. 0. 0.
254.	I.R. No.25 " "	20. 0. 0.
255.	C.P. No.4 " "	25. 0. 0.
256.	Parts for No.35 I.R. Sump Pump	15. 0. 0.
<u>Spares for I.R. Sump Pumps</u>		
257.	2 No.2 82 Housing Nuts)	
258.	Governor Part No.424 for 35 Sump Pump)	2.17. 6.
259.	Low head Impeller No. L. 143 for 25 Sump Pump	5. 0. 0.
260.	Impeller Hub Bushing for 35 Sump Pump, 4 in all)	
261.	Rotor key part No. 70. for 35 Sump Pump)	6. 10. 0.
262.	3 Governor Valves for 35 Sump Pump	2.12. 6.
263.	2 Governor Valve Springs for 35 Sump Pump	11. 6.
<u>In Enclosure near Office.</u>		
264.	6 Side Tipping Trucks, 1 cubic yard capacity	30. 0. 0.
265.	3 Mine Kibbles	15. 0. 0.
266.	High speed Grouting Injector	7.10. 0.
		Carried fwd. (P.T.O.)
		14,383.15. 0.

267.	1 Governor Valve Spring seat part for 35 Sump Pump, 4 shims for 25 Sump Pump, 5 Ball Races for 35 Sump Pump and 3 Ball races new departure for 35 Sump Pump.	
268.	2 Impellers for 4 C.P. Sump Pumps, 7 Oil Seals, 6 cases wear rings and one spindle coupling and 7 Cover wear rings all for C.P. Sump Pump 1 drive spindle, 6 sets Screws and Ball bearings	13.10. 0.
	<u>In Store room.</u>	
269.	2 lengths $\frac{5}{8}$ " Wire bound hose in all 30' 6"	6.10. 0.
270.	40 ft. of $1\frac{1}{2}$ " dia. steam hose.	
271.	3" Suction Hose, 15 $\frac{1}{2}$ ft.	
272.	4" Suction Hose, 15 ft.	
273.	3" Rubber Hose, 60 ft.	
274.	2" Rubber Hose, 47 ft.	17. 0. 0.
275.	6 - 3 $\frac{1}{2}$ " Boiler Tubes each 12 ft.	9. 5. 0.
276.	5/16" Wire Rope approx. 1500 ft.	24.15. 0.
277.	4 Wilson Universal Gas Masks	72. 0. 0.
278.	Transformer 240/32 Volts provided with taps to give 32 V. at the 1000ft. Level and tap to give 32 v. at the 2000ft. level.	13.12. 0.
279.	2 - 3" Boiler Tubes each 16ft.	3. 0. 0.
280.	2" Newman Milliken Lubricated Plug Valve	3. 0. 0.
281.	3 "Minimax" Acid Fire Extinguishers	10. 0. 0.
282.	6 D40M Lamps and 5 sets of Tools	60. 0. 0.
	<u>At Shaft.</u>	
283.	1 Dawn Pressure Fan 12 x 10 discharge, fitted with Vee Pulley, designed to deliver 4000 cfm at 13" Water gauge, speed 2200 rpm driven by 25 h.p. Crompton Parkinson Motor 1400 rpm. 45 V, 3 Phase, 50 cycle with slide rails, auto transformer starter	60. 0. 0.
284.	Dawn 7" Ball Bearing Fan with V Pulley designed to deliver 2000 cfm at 12" water gauge speed 2850 rpm driven by 10 h.p. Motor 3 phase, 50 cycle 415 V. and complete with Starter.	40. 0. 0.
285.	Steel Poppet Legs 55 ft. high complete with braces ladder ways, 2 knocker lines and pit head pulleys 7ft 6" dia.	350. 0. 0.
286.	Chain and Bucket Elevator complete with Timber framework, centres 25 ft. buckets 8" x 6" x 4"	40. 0. 0.
287.	Horzi. Air Receiver 23ft x 3ft 6" double rivetted fitted with stop cock, blow off cock, 1/2" plate w.p. 150 lb.	50. 0. 0.
288.	Safety cage 6'6" by 3'6" x 38" between skids.	12.10. 0.
289.	2 Bailing Tanks 6ft x 3ft 6" x 38" between skids	50. 0. 0.
290.	20" Circular Saw Bench	10. 0. 0.
291.	5 h.p. McGill Electric Motor 3 Phase 50 cycle 1440 rpm with Starter, Slide rails, wedgerope pulley and ropes.	15. 0. 0.
	Carried fwd.	
	(P.T.O.)	
		15,243.17. 0.

292.	3 Swivel Door Mining Trucks 4' x 2'9" x 21" 2ft. gauge.	25. 0. 0.
293.	3/8" Flex. Wire rope on Crab Winch, 1200 ft.	6. 0. 0.
294.	Concrete Mixer, 2 Bag Capacity, complete with water tank Loading Tipper and discharge chute. Direct coupled to 10 h.p. Slip Ring Motor 3 phase, 50 cycle, 415 Volts (4 transport wheels available to make unit portable)	145. 0. 0.
295.	Chev. Utility Truck 1941 model	300. 0. 0.
296.	Pumping Jack with Draw rods and Brass Plunger Pump.	40. 0. 0.
297.	<u>Boiler & Engine Room.</u> Cable and Skillion Roof overall measurements 74 ft. x 51 ft., Cable & Skillion Roofs, Hardwood Frame, sides and roof fibrolite, concrete floor, 18 windows, 2 Skylights, 4 doors Folding door and fitted with work bench and cupboards, with attached bicycle shed 15' x 9'	400. 0. 0.
298.	<u>Diesel Engine Room.</u> Change House, and Bathroom. Engine Room 18' x 12' Change Room etc. 28' x 22' Hardwood Framework Corrugated iron roof, Fibrolite sides, 7 Windows, 2 Doors and Sliding Door, fitted with 6 Showers, 2 washbasins, Lockers, Clothes rack.	50. 0. 0.
299.	Drying Boiler 8' x 4'	5. 0. 0.
300.	Carpenter Shed 21ft x 8ft Corrugated Iron Cable Roof	20. 0. 0.
301.	Work Bench	4. 0. 0.
302.	<u>Blacksmith's Shop</u> 20' x 28' Corrugated Iron Roof, Hardwood Framework.	40. 0. 0.
303.	Corrugated Iron Latrines 13' x 9'	20. 0. 0.
304.	Supervisor's Office 14'8" x 14'8" Gable Fibrolite Roof Fibrolite Walls	40. 0. 0.
305.	Office Table	4. 0. 0.
306.	2 Chairs.	2. 0. 0.
307.	Desk.	1.15. 0.
308.	Workbench)	
309.	Washbasin & Tap)	1.10. 0.
310.	Scales & Weights	2. 0. 0.
311.	Telephone	1. 0. 0.
312.	Clerks Office 11' 8" x 9' Corrugated iron walls and Roof	12.10. 0.
313.	Workbench and Cupboard	2. 0. 0.

314.	Office Table	2. 0. 0.
315.	Office Chair	1. 0. 0.
316.	Cement Shed 29' x 15' Corrugated Iron Gable Roof	40. 0. 0.
317.	<u>Shift Boss's Office</u> 12' x 10' constructed of Corrugated Iron.	15. 0. 0.
318.	Cupboard	10. 0.
319.	Office Table	12. 6.
320.	Clothes Pegs & Stool	1. 0.
321.	<u>Store Room</u> 37' x 12' constructed of Corr. iron	45. 0. 0.
322.	3 Corr. Iron Water Tanks each 2500 gall. Capacity	37.10. 0.
323.	Skillion attached to Manager's Office - 14' x 6'6" Corr. Iron Roof Fibrolite sides	10. 0. 0.
324.	First aid Cabinet	10. 0.
325.	5 h.p. Hebeo Motor, 3 Phase 50 cycles, 415 V. 930 rpm.	19. 0. 0.
326.	2 Safety Belts	15. 0.
327.	Elect. Soldering iron	1.10. 0.
328.	3 Switches	8. 4.
329.	Inspection Lamp	7. 8.
330.	Sundry Electric Light Globes	5. 0.
331.	Assorted Electrodes	5. 0. 0.
332.	Tin Drums Sodium Sylicate and 77 drums calcium chloride	12.10. 0.
333.	Tar Dipper and Oil Dipper	1. 0. 0.
334.		
335.	Blacksmith's Anvil	5. 0. 0.
336.	Assorted Heavy Chains	1. 5. 0.
337.	Sundry Heavy Shackles	1. 0. 0.
338.	Assorted Box Spanners	2. 0. 0.
339.	Lunch Cupboard	1.10. 0.
340.	2 Safety monkeys fitted with safety grips	30. 0. 0.
341.	3 lengths heavy hardwood each 14' long	1.10. 0.
342.	Fencing surrounding the mine.	20. 0. 0.

 £16,620.16. 4

E. & O. E.

p.p.


 J. H. CURNOW & SON.

(30/1/46)

LAKES ENTRANCE OIL PROJECT

Notes on discussions with representatives of the Austral Oil Drilling Syndicate held at Century Building, 125 Swanston Street, Melbourne, at 2.30 p.m. on 15th Jan., 1946

Present:

Mr. G.T. Chippindall in the Chair.

Mr. A.C. Smith, Department of Supply and Shipping.

Mr. George Brown, Secretary, Department of Mines, Victoria, representing the Victorian Government.

Mr. W.J. Parr, Department of Mines, Victoria, representing the Victorian Government.

Col. G.I. Stevenson, Chairman, Austral Oil Drilling Syndicate N.L.

Mr. G.S. Desaine, Managing Director, Austral Oil Drilling Syndicate N.L.

Mr. W.J.L. Humphris, Director, Austral Oil Drilling Syndicate N.L.

Mr. Chippindall explained to representatives of the Syndicate the decisions of the Governments of the Commonwealth and Victoria in relation to the above project, and made reference to a letter which had been sent to the Managing Director of the Syndicate in this regard, dated 24th December, 1945. Mr. Chippindall said that both Governments had decided that the project was to be liquidated to the best advantage, but before taking action to this end, the Austral Oil Drilling Syndicate was to be asked whether the Syndicate had any proposals to make. The purpose of the meeting was, therefore, to ascertain what proposals, if any, the Syndicate had to offer.

Col. Stevenson said that the Syndicate would like to know whether the Governments would make plant and equipment available at a valuation to be agreed, on the basis of a loan to the Syndicate free of interest, and subject to such loan being covered by a debenture over the assets of the Syndicate.

Mr. Chippindall stated that the Commonwealth Government had made it clear that no loans were to be made to the Company, and he did not, therefore, think that this proposition would be acceptable. Mr. Brown also expressed himself adversely. The question was then raised by Mr. Humphris as to whether the Syndicate would be given terms in which to pay for the assets. He explained that it would take some time to raise capital, and without such capital the Syndicate would not be in a position to effect purchase.

Mr. Chippindall suggested that the Syndicate ought first to ascertain whether the Capital Issues Board, which was the authority concerned, would approve of the raising of capital as this was an essential pre-requisite to the discussion of any proposals for the purchase of plant and equipment.

Col. Stevenson /

Col. Stevenson then asked what was the valuation on a break-up basis of plant and equipment. Mr. Smith stated that no actual valuation had been made, but the break-up value would probably be of the order of £20,000 to £50,000.

It was eventually decided that Messrs. J.H. Curnow & Son should be asked to make a valuation in total of plant and equipment to enable the Syndicate to formulate ideas as to capital requirements, and to enable it to make an application to the Capital Issues Board. It was made clear, however, that this valuation would be subject to some variation, either up or down, when opportunity offered to make a detailed valuation later on. This would involve the completion of the inventory which was in process of being compiled. Col. Stevenson, on behalf of the Syndicate, expressed agreement with this. Mr. Chippindall said that an effort would be made to obtain this valuation within the course of the next few days. Mr. Brown expressed agreement with the procedure proposed, and with the engagement of Messrs. J.H. Curnow & Son for the purpose.

Mr. Chippindall stated that the Capital Issues Board would be supplied with full information in regard to the project, and that the decision in respect of the raising of capital would rest entirely with the Board.

The question of maintenance was raised by the Syndicate, but no discussion ensued on the technical aspects of this. Mr. Chippindall explained, however, that the Governments did not desire to continue to meet recurring expenditure of somewhere about £100 per week in this regard and, indeed, even if they were agreeable to meet such expenditure, it was extremely doubtful whether key men, particularly engine-drivers, could be induced to remain on the works in view of the uncertainty as to the future. In reply to a question by Mr. Humphris whether the Government would guarantee that no damage would be caused in the shaft if water were allowed to accumulate, Mr. Chippindall stated that, while the technical advisers of the Department were confident that damage would not be caused, no such guarantee would be given. Mr. Chippindall emphasized that the shaft had been put down at the expense of the Governments and not of the Syndicate.

909551 320

409 Collins Street,
XXXXXXXXXX
XXXXXXXXXXXX

M.6/37

17th January, 1946.

The Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street,
MELBOURNE. C.1.

Dear Sir,

I desire to refer to discussions which took place between representatives of the Commonwealth and Victorian Governments and your Syndicate on 15th January last, and to the request that your Chairman, Mr. Stevenson, then made to be supplied with information concerning the realisable value of plant and equipment at the Lakes Entrance oil project, and to inform you that as arranged J. H. Curnow & Son have now been consulted on this matter. I feel that I cannot do better than to forward you copy of a letter which I have just received from J. H. Curnow & Son dealing with the realisable value of plant and equipment.

When the detailed valuation is to hand, a copy will be made available to you, and if we are advised by J. H. Curnow & Son while this valuation is being made that there will be an appreciable change in the figures now supplied you will also be promptly informed. In the meantime, however, it is thought that the information already available should suffice for the purpose of formulating your application to the Capital Issues Board.

Yours faithfully,

(G. T. Chippindall)
S e c r e t a r y

(COPY)

J. H. CURNOW & SON.

...

31 Queen Street,
MELBOURNE.

909551 321

17th January, 1946.

The Secretary,
Dept. Supply & Shipping,
409 Collins Street,
MELBOURNE.

Dear Sir,

Following on my discussion yesterday with Mr. H. J. Cook and Mr. A. C. Smith regarding the realisable value of plant and equipment at the Lakes Entrance Oil Project I desire to inform you that after considering the Inventory of the main items of plant and equipment I estimate that the realisable value would be between £22,000 and £25,000.

As arranged I will visit the Project on Tuesday next, 22nd January, and will then proceed to make a detailed valuation of the plant and equipment. If I find, during the course of this examination, that there is likely to be a considerable change in the above figures I would advise you immediately.

Yours faithfully,

(Sgd.) C. J. Curnow

J. H. CURNOW & SON

909551 322

1:DS

15th January, 1946.

MEMORANDUM FOR THE HONORABLE THE MINISTER:

Referring to the attached copy of a memorandum submitted to the Honorable the Premier on 14th January in relation to the Lakes Entrance Oil Project, I have to state that a meeting was held this afternoon at the office of Mr. G. T. Chippindall, Secretary, Department of Supply and Shipping. In addition, there were present, representing the Austral Oil Drilling Syndicate, N.L., Colonel Stevenson, Mr. Humphries, and Mr. Demaine. The Mines Department was represented by Mr. W. J. Parr, Chief Clerk, and myself; an additional representative of the Commonwealth Government was Mr. A. C. Smith, Executive Officer, Mineral Production Branch, Department of Supply and Shipping.

After full discussion, it was agreed that the Commonwealth authorities should obtain, within the next few days, a valuation of the Lakes Entrance plant (to be followed later by a detailed inventory) for submission to the Austral Oil Syndicate, which would then, with a knowledge of the approximate amount of capital necessary to finance the venture, submit an application to the Capital Issues Board for permission to raise this sum.

When the Capital Issues Board gives a decision on the application, we will be advised accordingly by the Austral Oil Syndicate, and negotiations will be continued at that point.

S e c r e t a r y.

909551 323

1:DS

23rd January, 1946.

Dear Mr. Chippindall,

I have to acknowledge with thanks receipt of your letter of 17th January (M.6/37), and accompanying documents in relation to the Lakes Entrance Oil Project.

Yours faithfully,

S e c r e t a r y .

G. T. Chippindall, Esq.,
Secretary,
Department of Supply and Shipping,
409 Collins Street, MELBOURNE.

COMMONWEALTH OF AUSTRALIA

TELEPHONE: F 9411

TELEGRAMS: "SUPDEV"

DEPARTMENT OF SUPPLY AND SHIPPING
409 Collins Street,

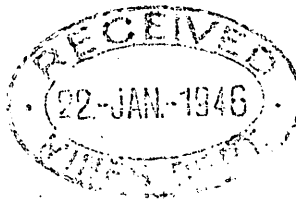
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In Reply Quote M.6/37

MELBOURNE, C. 1

George Brown, Esq.,
Secretary,
Department of Mines,
MELBOURNE. C.2.



17th January, 1946.

909551 324

Dear Mr. Brown,

Further to discussions which took place on 15th January last with representatives of the Austral Oil Drilling Syndicate concerning the Lakes Entrance oil project, I now forward herewith for your information copies of the following:-

- (1) Memorandum to the Capital Issues Board dated 17th January, 1946.
 - (2) Letter to the Managing Director, Austral Oil Drilling Syndicate dated 17th January, 1946;
- and
- (3) brief notes on discussions which took place on 15th January, 1946.

Yours sincerely,

G. T. Chippindall
(G. T. Chippindall)
Secretary

909551 325

409 Collins Street,
~~XXXXXXXXXXXX~~
~~XXXXXXXXXXXX~~

M.6/37

17th January, 1946.

MEMORANDUM for:-The Commonwealth Actuary,
Capital Issues Board,
CANBERRA. A.C.T.

I forward herewith copies of Cabinet Agenda 694A and 694B, dealing with the Lakes Entrance oil project, together with copy of a brochure containing copies of various reports in this regard, and desire to inform you that Cabinet reached the following decisions in this connection on 17th December last:-

- (1) That steps be taken to liquidate the venture to the best advantage.
- (2) That before steps are taken to effect liquidation the matter be discussed with the Austral Oil Drilling Syndicate, with a view to ascertaining whether the Syndicate has any proposals to make before liquidation arrangements are put in train: the Government of Victoria to join with the Commonwealth in these discussions.
- (3) That if the Austral Oil Drilling Syndicate makes application for an advance from Commonwealth sources pending the raising of capital, such application be not approved for the reasons that the project is not favourably regarded either on technical or economic grounds; and
- (4) that if the Austral Oil Drilling Syndicate seeks authority to raise capital, the matter be decided in the usual way by the Capital Issues Board in the light of the fullest information available in regard to the project. Note: The Board would be supplied with a copy of Agendum No. 694A, which contains full information in regard to the project.

Discussions took place between representatives of the Commonwealth and Victorian Governments and the Austral Oil Drilling Syndicate on 15th January last, when representatives of the Syndicate intimated that an application would be made to your Board at an early date for permission to raise capital for this project, and my present purpose in addressing you is, therefore, to provide you with the fullest information to enable this application to be considered as a matter of urgency.

Pending a decision on the question of raising capital and submission of proposals by the Syndicate, the Governments are keeping the project on a maintenance basis involving expenditure of somewhere about £100 per week, and it is desired to terminate these activities at as early a date as possible.

(G. T. Chippindall)
Secretary

1:DS

15th January, 1946.

Dear Mr. Premier,

I submit for your consideration
.. copy of a memorandum addressed to the Hon.
the Minister of Mines, who is at present
absent in Canberra. This matter has
relation to a memorandum submitted to you
yesterday in regard to the Lakes Entrance
Oil Project and boring for oil in Victoria.

Yours faithfully,

S e c r e t a r y .

The Hon. J. Cain, M.L.A.,
Premier of Victoria,
MELBOURNE, C.2.

DRAFT

The Managing Director,
Austral Oil Drilling Syndicate,
422 Collins Street,
MELBOURNE. C.I.

Dear Sir,

909551 326

Lakes Entrance Oil Field Orders made under
National Security (Minerals) Regulations

I refer to previous correspondence and particularly your letter of 12th February 1946 on this subject and desire to inform you that the Governments have given final consideration to the matter.

Accordingly I am now directed to advise you of the decisions arrived at as follow:-

(1) Subject to the provisions of paragraph (2) hereunder the Orders made in respect of the project under the National Security (Minerals) Regulations will be revoked at the date of settlement. This action will involve as from the date of the Revocation Order the rescission of the Commonwealth's rights and obligations and the revival in favour of the Syndicate of such rights and obligations as it had under the Victorian Mines (Petroleum) Acts. and

(2) The Governments will sell and the Syndicate will purchase from the Commonwealth the plant, equipment and other assets listed on the said Inventory for the sum £16,620.16. 4 subject to the following conditions, viz.,

- (a) Payment of the sum of £16,620.16. 4 shall be made to the Commonwealth within 6 weeks from the date of this letter.
- (b) the Syndicate shall notify me within 28 days from the date of this letter of the date on which it is prepared to make payment and settlement will take place at 4 p.m. on that date from which time the property in the plant, equipment and other assets shall vest in the Syndicate and be at its risk entirely.
- (c) the Syndicate waives all claims or demands against the Commonwealth and the State of Victoria or either of them in respect of any

*These
Orders
relates to
resumption
of the area
by the
Govt*

Check

action taken or things done under or in pursuance of the National Security (Minerals) Regulations, agrees to redraw the claim for compensation made by it and now registered with the Compensation Board (Minerals) and agrees not to make or pursue any other claim or demand.

- (d) the said plant, equipment and other assets are to be taken as is where they lie and no warranty is given that they or any of them are fit for any purpose and any warranties or conditions implied by law are negated.
- (3) The Syndicate shall acknowledge that the offer by the Governments to it of priority to purchase the plant, equipment and other assets in situ shall not be claimed or construed by it in any way as implying that the Governments ~~do~~ believe that ^{oil} it is likely to be recovered at the Lakes Entrance oil field in commercial quantities but that such offer has been made solely on the grounds of the Syndicate's association with the project.
- (4) In its future activities at the Lakes Entrance Oil Field the Syndicate of course will be governed by the Victorian Mines (Petroleum) Acts and other relevant legislation and its rights and liabilities will be governed by the relevant general law applicable to all such activities.
- (5) Subject to paragraph (4) hereof and to the purchase of the plant, equipment and other assets in accordance with paragraph (2) the Syndicate will be at liberty to carry on the project without any other liability to the Commonwealth or State Government.

Kindly advise as soon as possible whether the Syndicate accepts the offer made herein and is prepared to give the acknowledgment requested.

Yours faithfully,

(G. T. Chippindall)
S e c r e t a r y

485 Bourke Street,

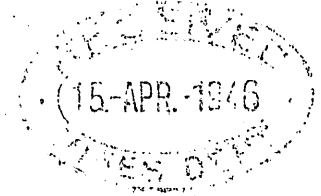
BY HAND.

XXXXXXXXXXXX
XXXXXXXXXXXX

M.6/37

12th April, 1946.

The Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street,
MELBOURNE. C.1.



Dear Sir,

I desire to refer to your letter of 5th April, 1946, in acknowledgement of mine of 29th March, 1946, dealing with the Lakes Entrance oil project, and to inform you that the various matters to which you have referred are dealt with seriatim hereunder:-

1. Electricity Supply:

The Governments have paid all charges in connection with this, but there is a minimum monthly charge of £10.10.10 whilst the supply is connected. There would be no objection to your viewing the relevant agreement with the State Electricity Commission.

2. Snider Construction Company:

The services of this Company have been retained on a cost plus basis for maintenance work. There is no other contract outstanding in respect of construction work.

3. Claims against the Commonwealth and State of Victoria:

The plant, equipment and other assets have been offered to the Syndicate in situ at a break-up valuation of £16,620.16.4, and when the possession orders have been revoked the effect will be that your Syndicate will obtain the full benefit of the Governments' efforts, and expenditure of approximately £140,000 for the mere sum of £16,620.16.4. In return the Governments feel that they are entitled to expect that your Syndicate would at least accept the conditions stipulated in paragraph 2(c) of my letter of 29th March, so that the Governments would be finally finished with the transaction. In the particular circumstances, I fail to appreciate any suggestion of pressure, and the Governments desire me to advise that they insist upon acceptance of terms specified in paragraph 2(c) as a condition precedent to any sale of plant, equipment and other assets to your Syndicate for the sum mentioned.

I should be glad to have your further advice in this regard within five days of the date of this letter in order that the Governments may proceed to dispose otherwise of its assets if the Syndicate is not prepared to buy on the terms offered.

Yours faithfully,

(Sgd) G. T. CHIPPINDALL
(G. T. Chippindall)
S e c r e t a r y

909551 329

1/1

12th April, 1946.

Dear Sir,

I have received your letter of 12th April (M. 6/37) in relation to the Lakes Entrance oil project, and have to confirm my telephone intimation to the effect that I have discussed your draft letter to the Austral Oil Drilling Syndicate with the Minister of Mines (the Hon. W.G. McKenzie, M.L.A.) who is in agreement with the views expressed.

Yours faithfully,

S e c r e t a r y .

G. T. Chippindall, Esq.,
Secretary,

Department of Supply and Shipping,
485 Bourke Street, MELBOURNE, C.1.

COMMONWEALTH OF AUSTRALIA.

TELEPHONE : F 9411

TELEGRAMS : "SUPDEV"

DEPARTMENT OF SUPPLY AND SHIPPING,

485 Bourke Street,

~~CENTRAL TELEGRAPH~~

~~DEPARTMENT OF SUPPLY AND SHIPPING~~

MELBOURNE C.1

BY HAND.



12th April, 1946.

909551 330

In Reply Quote M.6/37

Urgent

The Secretary,
Department of Mines,
Treasury Gardens,
MELBOURNE. C.2.

Dear Sir,

I desire to refer to your letter of 25th March, 1946, dealing with the Lakes Entrance oil project, and to forward herewith, for your information, and comments, copies of the following:-

- (1) Copy of letter to the Managing Director, Austral Oil Drilling Syndicate N.L. dated 29th March, 1946.
- (2) Copy of reply to letter of 29th March from the Managing Director, Austral Oil Drilling Syndicate dated 5th April; and
- (3) draft of reply which it is proposed to make to letter of 5th April from the Managing Director, Austral Oil Drilling Syndicate.

The reply to letter of 5th April has been drafted in conjunction with our legal officers, and it is desired, if possible, to hand this reply to the Managing Director, Austral Oil Drilling Syndicate today. I should be grateful, therefore, if you would advise by telephone or otherwise whether you are in agreement with the terms of the reply.

Yours faithfully,

G. T. Chippindall
(G. T. Chippindall)
Secretary

485 Bourke Street,

~~XXXXXXXXXXXX~~

~~XXXXXXXXXXXXXXXXXXXX~~

M.6/37

29th March 1946

The Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street,
MELBOURNE. C.1.

909551 331

Dear Sir,

Lakes Entrance Oil Field - Orders
made under National Security (Minerals) Regulations.

....

I refer to previous correspondence and particularly your letter of 12th February, 1946, on this subject and desire to inform you that the Governments have given final consideration to the matter.

Accordingly I am now directed to advise you of the decisions arrived at as follow:-

- (1) Subject to the provisions of paragraph (2) hereunder the Orders made in respect of the project under the National Security (Minerals) Regulations will be revoked at the date of settlement. This action will involve as from the date of the Revocation Order the rescission of the Commonwealth's rights and obligations, and the revival in favour of the Syndicate of such rights and obligations as it had under the Victorian Mines (Petroleum) Acts.
- (2) The Governments will sell and the Syndicate will purchase from the Commonwealth the plant, equipment and other assets listed on the said Inventory for the sum £16,620.16.4 subject to the following conditions, viz -
 - (a) payment of the sum of £16,620.16.4 shall be made to the Commonwealth within six weeks from the date of this letter;
 - (b) the Syndicate shall notify me within 28 days from the date of this letter of the date on which it is prepared to make payment and settlement will take place at 4 p.m. on that date from which time the property in the plant, equipment and other assets shall vest in the Syndicate and be at its risk entirely;
 - (c) the Syndicate waives all claims or demands against the Commonwealth and the State of Victoria or either of them in respect of any action taken or things done under or in pursuance of the National Security (Minerals) Regulations,

agrees to withdraw the claim for compensation made by it and now registered with the Compensation Board (Minerals) and agrees not to make or pursue any other claim or demand;

- (d) the said plant, equipment and other assets are to be taken "as is" where they lie and no warranty is given that they or any of them are fit for any purpose and any warranties or conditions implied by law are negatived.
- (3) The Syndicate shall acknowledge that the offer by the Governments to it of priority to purchase the plant, equipment and other assets in situ shall not be claimed or construed by it in any way as implying that the Governments believe that oil is likely to be recovered at the Lakes Entrance oil field in commercial quantities but that such offer has been made solely on the grounds of the Syndicate's association with the project.
- (4) In its future activities at the Lakes Entrance oil field the Syndicate of course will be governed by the Victorian Mines (Petroleum) Acts and other relevant legislation and its rights and liabilities will be governed by the relevant general law applicable to all such activities.

Kindly advise as soon as possible whether the Syndicate accepts the offer made herein and is prepared to give the acknowledgment requested.

Yours faithfully,

(G. S. Chippindall)
S e c r e t a r y

(COPY)

AUSTRAL OIL DRILLING SYNDICATE
N.L.

422 Collins Street,
MELBOURNE.

5th April, 1946.

G. T. Chippindall, Esq.,
Secretary,
Department of Supply and Shipping,
485 Bourke Street,
MELBOURNE. C.1.

909551 332

Dear Sir,

We thank you for your letter dated 29th March, delivered to us by hand that day. This has now received my Board's consideration.

There would, however, appear to be one or two matters arising from your letter that will need to be clarified and on which your immediate advice would be appreciated.

Firstly, we are not aware as to what contracts you have with anyone regarding this project which we would have to carry on. For instance, we do not know whether you have paid all the charges regarding the high tension electric supply. Then again, we would like to know from you the basis of the contracts, if any, that you have with the Snider Construction Company or anyone else, in relation to construction work or otherwise.

We would add that one of the matters that is causing us some difficulty is the failure to date of the Capital Issues Board to have granted us permission to form the new company. This aspect is receiving my Board's further attention.

We note that you include a condition in paragraph 2(c) whereby the Syndicate shall waive all claims against the Commonwealth and the State of Victoria, including the withdrawal of the compensation claim at present pending. It would appear that your condition is unrelated to the subject matter of our negotiations with you. If as a result of the Commonwealth's past actions we have proper legal grounds for making claims against the Commonwealth, then we submit that we should be left to pursue them if so advised. There would appear to be no reason why a Government should seek to bargain us out of any just rights to compensation as a term of selling us the plant.

Whether we do or do not prosecute the present or any other claim, or decide not to pursue same should be a matter to be determined on by us and our advisers without pressure and we venture to think that on consideration you will agree as a matter of the principles of public administration this should be so. May we take it that this condition is not pressed? We accept the option to purchase the plant offered to us in your letter of 29th March. It will be much appreciated if your reply to these enquiries could be received within the next seven days.

Yours faithfully,

for AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY.

(Sgd.) C. S. Demaine

485 Bourke Street,
XXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX

M.6/37

909551 333

12th April, 1946.

The Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street,
MELBOURNE. C.1.

Dear Sir,

I desire to refer to your letter of 5th April, 1946, in acknowledgement of mine of 29th March, 1946, dealing with the Lakes Entrance oil project, and to inform you that the various matters to which you have referred are dealt with seriatim hereunder:-

1. Electricity Supply:

The Governments have paid all charges in connection with this, but there is a minimum monthly charge of £10.10.10 whilst the supply is connected. There would be no objection to ~~you~~ viewing the relevant agreement with the State Electricity Commission. 3000

2. Snider Construction Company:

The services of this Company have been retained on a cost plus basis for maintenance work. There is no other contract outstanding in respect of construction work.

3. Claims against the Commonwealth and State of Victoria:

7/13
2
I.N.O.
The plant, equipment and other assets have been offered to the Syndicate in situ at a break-up valuation of £16,620.16.4, and when the possession orders have been revoked the effect will be that your Syndicate will obtain the full benefit of the Commonwealth's efforts, and expenditure for the mere sum of £16,620.16.4. 2 ✓ 1 ✓ M In return the Governments feel that they are entitled to expect that your Syndicate would at least accept the conditions stipulated in paragraph 2(c) of my letter of 29th March, so that the Governments would be finally finished with the transaction. In the particular circumstances, I fail to appreciate any suggestion of pressure, and the Governments desire me to advise that they insist upon acceptance of terms specified in paragraph 2(c) as a condition precedent to any sale of plant, equipment and other assets to your Syndicate for the sum mentioned.

I should be glad to have your further advice in this regard within five days of the date of this letter in order that the Governments may proceed to otherwise dispose of its assets if the Syndicate is not prepared to buy on the terms offered.

Yours faithfully,

(G. T. Chippindall)
S e c r e t a r y

COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF SUPPLY AND SHIPPING

485 Bourke Street,

~~ELKCMHRYXEDKDKCINEX~~

~~115 SWANSTON STREET.~~

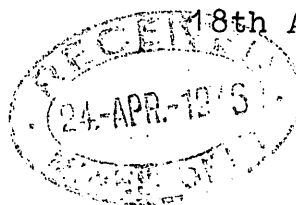
MELBOURNE. C.1

TELEPHONE: F 9411

TELEGRAMS: "SUPDEV"

In Reply Quote N. 6/37

The Secretary,
Department of Mines,
Treasury Gardens,
MELBOURNE. C. 2.



18th April, 1946.

909551 334

Dear Sir,

Further to my discussions with you on 12th April last dealing with the Lakes Entrance oil project, I forward herewith, for your information, copy of communication which has been received from the Austral Oil Drilling Syndicate N.L. dated 17th April in this regard.

Yours faithfully,

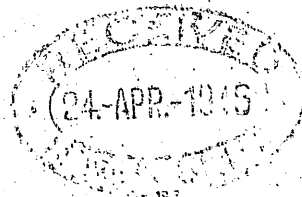
G. T. Chippindall
(G. T. Chippindall)
Secretary

(COPY)

AUSTRAL OIL DRILLING SYNDICATE N.L.
422 Collins Street,
Melbourne.

17th April, 1946.

G. T. Chippindall, Esq.,
Secretary,
Department of Supply and Shipping,
485 Bourke Street,
MELBOURNE. C.1.



909551 335

Dear Sir,

Your letter of 12th April was only received at this office on 15th April, and we are obliged for the information set out under headings 1 and 2 thereof. As to heading 3, we do not take the same view as you as to the Governments' insistence on this condition, but as we have felt constrained to accept it, no useful purpose would be achieved by further comment.

We intended our letter of 5th April to be an absolute acceptance of the option and conditions contained in your letter of 29th March. However, to place the matter beyond all doubt, we now state that we accept the option contained in that letter, and repeated in your letter of 12th April, and the several conditions set out in such letters.

In accordance with paragraph 2(b) of such letter, we hereby notify you that we are considering making payment on the 9th day of May, 1946, being a date within six weeks of the 29th March, as required by paragraph 2 (a) of the letter.

Yours faithfully,

for AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY

(Sgd.) C. S. Demaine

Managing Director.

*H/br
9 May
1946*

COPY FOR MR. GEORGE BROWN

485 Bourke Street,
XXXXXXXXXXXX
XXXXXXXXXXXX

9th May, 1946.

The Managing Director,
Austral Oil Drilling Syndicate N.L.,
422 Collins Street,
MELBOURNE. C.1.

RECEIVED
(10 MAY 1946)
909551-336

Dear Sir,

Herewith is forwarded as arranged engrossments (in triplicate) of Agreement drawn along the lines settled at conference on 7th May for execution by your Company. These documents have already been executed on behalf of the State, and the Commonwealth undertakes to have the same executed by the Controller of Minerals Production and ratified by the Minister of State for Supply and Shipping forthwith after settlement.

Settlement is to be at the office of the Crown Solicitor's Liaison Officer, 83 William Street, Melbourne, at 4 p.m. today. The purchase moneys will, of course, be handed over by bank cheque and at the same time a signed copy of the Order of Revocation will be handed to you.

Yours faithfully,

ATB

(G. T. Chippindall)
Secretary

Copy of Perm (Original in file in W. Smith's Room) received from Mr. A. C. Smith, Rep. of Supp.

AGREEMENT made the thirteenth day of May One thousand nine

hundred and forty-six BETWEEN the COMMONWEALTH OF AUSTRALIA (hereinafter called "the Commonwealth") of the first part the STATE OF VICTORIA (hereinafter called "the State") of the second part and AUSTRAL OIL DRILLING SYNDICATE NO LIABILITY whose registered office is situate at 422 Collins Street Melbourne in the State of Victoria (hereinafter called "the Company") of the third part:

909551 337

WHEREAS under and by virtue of the provisions of an Order made under the National Security (Minerals) Regulations on the Fifteenth day of May One thousand nine hundred and forty-two as amended by the provisions of an Order made under the said Regulations on the Twenty-seventh day of May One thousand nine hundred and forty-two (which Order as amended is hereinafter called "the Order") the Commonwealth - inter alia - took possession of the land in respect of which licence to Prospect for Petroleum No. 139 was given to the Company on the First day of November One thousand nine hundred and forty-one and requisitioned the use of all machinery equipment and plant (whether as a fixture or otherwise) and all other appliances and apparatus then situate upon the said land in respect of which the Company had any title or interest and which was being utilised in prospecting for or producing petroleum AND PURSUANT to the Order used the said land and machinery and other assets of the Company and in addition executed certain works and installed and set up certain machinery equipment and plant thereupon for the production of petroleum products all of which was done at the cost of the Commonwealth (subject to certain financial arrangements as between the Commonwealth and the State).

AND WHEREAS the Commonwealth has, at the request and in consideration of the Company agreeing to purchase from the Commonwealth the whole of the assets of the Commonwealth on the site and in their present condition including the stock materials machinery equipment plant and other property set out

in an Inventory and Valuation made by J.H. Currow and Son of 51 Queen Street Melbourne aforesaid Machinery Auctioneers and Valuers and for the purposes of identification signed by G. Currow under date the Thirtieth day of January One thousand nine hundred and forty-six (which assets are the property of the Commonwealth and are hereinafter collectively called "the plant") on terms hereinafter appearing and to enter into such release as is hereinafter contained, revoked the Order by Revocation of Order bearing even date herewith (hereinafter called "the Revocation").

909551 338

NOW IT IS HEREBY AGREED as follows:-

1. The Company shall -
 - (a) accept the return by the Commonwealth of all of the Company's machinery equipment plant and other property (or balance thereof) requisitioned under and by virtue of the Order in the situation state and condition in which the same is in at the date hereof; and
 - (b) withdraw all claims or demands for compensation or otherwise heretofore made against the Commonwealth and the State or either of them and without limiting the generality of the foregoing the claim for compensation made by the Company and now registered with the Compensation Board under the National Security Act and Regulations.
2. The Commonwealth shall sell to the Company and the Company shall purchase from the Commonwealth the plant in situ with all faults (if any) for the sum of Sixteen thousand six hundred and twenty pounds sixteen shillings and four pence (£16,620.16. 4) which shall be payable by the Company to the Commonwealth on or before the execution hereof.
3. The Company in order to effectuate its aforesaid promise and for the consideration aforesaid HEREBY RELEASES AND DISCHARGES the Commonwealth and/or the State from and in respect of all and any claims or liability whatsoever under or arising

out of or in respect of the Order and Revocation or any of the provisions of the Order and Revocation and from all actions proceedings claims suits and demands whatsoever under or arising out of the Order and Revocation and all or any acts or acts of omission by or on behalf of the Commonwealth at all times or any time during the operation of the Order and all or any acts or acts of omission of or on behalf of the Commonwealth under or in pursuance of the National Security (Minerals) Regulations.

4. Subject to compliance by the Company with the terms of this Agreement the Commonwealth and the State respectively hereby release and discharge the Company from and in respect of all or any liability whatever directly under or arising out of or in respect of anything done or omitted to be done by the Company in respect of the Order up to the time of its revocation. This release shall not relate to any liability on the part of the Company prior to the making of the Order.

5. The Company acknowledges that no onus (legal or otherwise) shall hereafter rest or be upon the Commonwealth or the State or their respective instrumentalities to assist or further in any way the activities of the Company.

IN WITNESS whereof the parties hereto have executed this Agreement the day and year first above written.

SIGNED SEALED AND DELIVERED by
HAROLD GEORGE BAGGATT the Controller of Minerals Production
for and on behalf of the
Commonwealth in the presence of:

909551 339

SIGNED SEALED AND DELIVERED by
THE HONORABLE William George
McKenzie Minister of State for
Mines of the State of Victoria for
and on behalf of the State of Victoria
in the presence of:

W. G. MCKENZIE

(L.S)

Geo. BROWN. J.P.

THE COMMON SEAL of AUSTRAL OIL
DRILLING SYNDICATE NO LIABILITY
was herewith affixed by authority
of the Directors in the presence
of:

1 (Seal) 908551 340

G. I. STEVENSON Director

C. S. DEMAINKE Director

I hereby ratify and confirm the
above Agreement.

Dated this day of May
One thousand nine hundred and
forty-six.

SIGNED by WILLIAM PATRICK ASHLEY
Minister of State for Supply and
Shipping for and on behalf of the
Commonwealth in the presence of:

DATED

1946.

909551 341

COMMONWEALTH OF AUSTRALIA

STATE OF VICTORIA

-and-

AUSTRAL OIL DRILLING SYNDICATE
NO LIABILITY

STEVENSON

C. STEVENSON

A G R E E M E N T

H.F.E. WHITLAM,
Commonwealth Crown Solicitor,
Crown Solicitor's Liaison Office,
83 William Street,
Melbourne.

...

Lake Erie

FINAL

909551 342

Final transaction re
Cleveland State Railway
shaft venture - both
books cease & on:

9th May 1946 Cleveland

City pays Row & Co Smith
repor of supply for books
cheque for £16,620-16-4

being valuation of
known (structures) of plant
& equipment at the
shaft, Lake Erie.

Leo Brown
11-5-1946

ILLINOIS-INDIANA PETROLEUM ASSOCIATION

Ninth Annual Petroleum Conference

Robinson, Illinois, June 7, 1941

378 199606

Horizontal Wells Are All In Pay ---And Flow By Gravity

By LEO RANNEY★

Oil men have always been dreamers. Without their dreams and visions there would be no oil industry today. For 80 years some of their dreams have been:- no dry holes; no hundreds or thousands of feet of barren rock to drill through, to reach 10 or 20 feet of pay; wells that extend laterally for thousands of feet, always in oil sand; wells that flow after the field pressure is gone; recovery of 65 to 80 per cent of the oil content of the sand, instead of 15 or 20 per cent; the elimination of derricks and field powers; no shackle or sucker rods; no casing or tubing; no pulling or cleaning jobs after the wells are completed; nothing in an oil well to be replaced or repaired; one man-size pump that will pump a thousand acres of production; one man instead of ten to operate a whole section of land.

These dreams, with many others, have come true—and are handed to

*Petroleum Engineer. 44 East Broad Street, Columbus, Ohio, and Morro Bay, California. The methods described herein are covered by numerous patent applications.

you in one basket, all combined in one development. Quite naturally, this development is not to be applied to wildcat operations or to oil sands 5000 feet deep. But for secondary recovery in hundreds of shallower developed and depleted fields, where considerable quantities of residual oil are known to exist, the feasibility and practice of drilling and operating horizontal wells are brought to your attention.

The vital point of such a development is and always has been absolute control of the drilling bit, and the ability to turn the well up or down at will. In drilling some 7,500 feet of horizontal oil wells, always under control, it is believed that the technique has been fairly well mastered. In fact, turning a hole to follow a predetermined course presents no greater difficulty at 3,000 feet than at 100 feet from the mouth — no whipstocks are used. A surveying instrument has been developed, integral with the core barrel, that automatically surveys the hole whenever a core is taken.

DRILLING HORIZONTALLY FROM A SHAFT IN S. E. OHIO

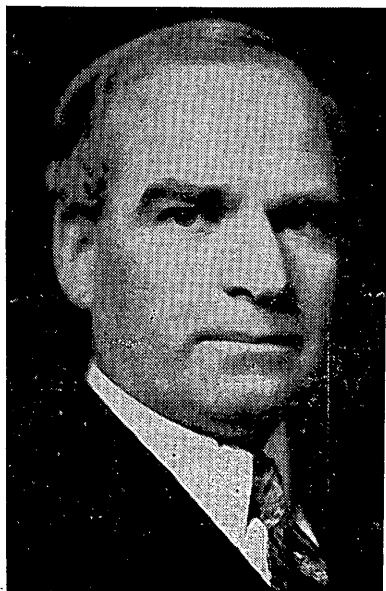
In the Ohio experiment 6 wells were drilled horizontally from a shaft in the First Cow Run Sandstone. These 3-inch wells were drilled in opposite pairs, half of them to property lines. While a 50-foot core was being pulled from one well, the drill rods (and duplicate tools) were being run into the opposite well. This was accomplished by a new machine, known as the "rod puller", which moves the rods at the rate of 100 feet per minute. The drill rods, in 10-foot lengths, were not disconnected until both wells were completed. In deep holes this cuts drilling time at least 75%.

In all the drilling operation the tools were never stuck or frozen; the holes were surveyed every 50 feet, and corrected when necessary; there were no fishing jobs; two men operated the drilling machine, with 20 horse power; during all the experimental period, including stops and shutdowns for supplies, the average rate of drilling was 55 feet per 7-hour shift; when tools and supplies were on hand, often more than 100

feet of hole was drilled per shift. To the south the bottom of the sand was level and the holes were flat, but to the north the sand was wavy, and the holes followed the waves. The mixture of oil and return drill

tilation was by a blower on top and and 8-inch suction pipe. The cost of drilling, including experimentation, was 90c per foot of hole; casing record, 100 feet of light 3½" pipe grouted in each well.

were hardly believed to be possible. Sedimentary deposits are often laid down like leaves in a book, and sand grains lie with the flattest side down, their axes being parallel with the bed. In vertical shooting, the rock



LEO RANNEY

water passed through a separator; the oil was saved in a closed tank, then pumped to the surface. During the entire experiment no man suffered even a minor accident; tests by a methane detector in the center of the work chamber never showed over 1/10 of 1% of gas; ven-

From a study of one and a half miles of horizontal cores, we are convinced that an oil sand contains much more oil than usual core analyses indicate. Also, it is apparent, at least in the First Cow Run Sand, that because of lateral irregularities in texture, many pools of oil are trapped against recovery by vertical wells. The only method that occurs to us of reaching this trapped oil is by drilling horizontal wells through these isolated small pools.

Vertical wells in the First Cow Run Sand are not supposed to produce commercially until after being shot. As a test, #1 horizontal well from the shaft bottom was allowed to flow by gravity. After it had filled 400 barrels of storage, it was producing 5 barrels of oil per day, in spite of a saturation of about 15% (Fettke analysis), and a rock pressure of only 20 ounces.

HORIZONTAL SHOOTING

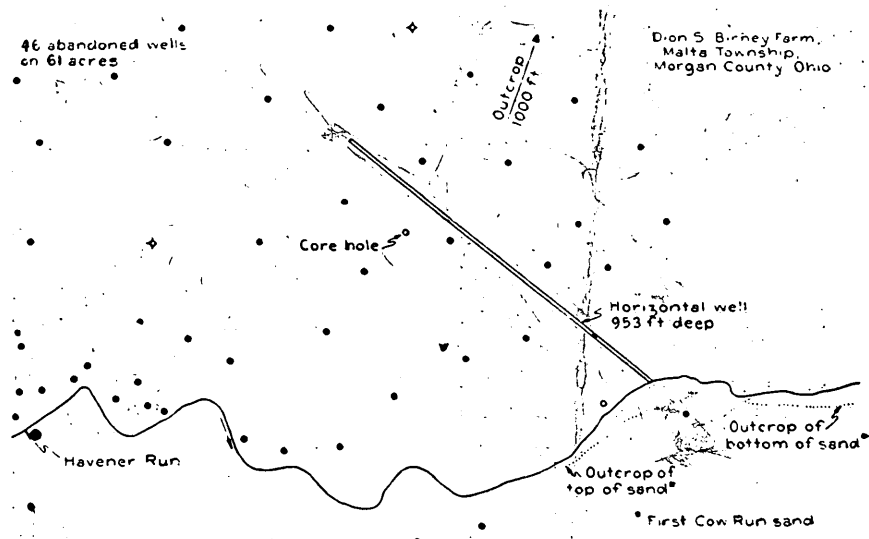
The greatest surprise in connection with the Ohio operation was the effect of the horizontal shot in the outcrop well. Although new results were expected, the observed effects



Mouth of the Outcrop Well. Drill rods were pulled out in 60-foot lengths.

must be torn apart, against the grain—in horizontal shooting the major breaks are "with the grain". Bedding planes are opened up above and beside the shot, and resulting stresses shatter the rock above and to both sides of the well. Seismographic measurements indicated that the ground above the shot (250 feet of rock overburden) was lifted 1½ inches, which undoubtedly cracked the oil rock vertically with many cracks clear across the sand bed.

Long horizontal shots stem themselves. When the length of the shot is 5,000 to 10,000 times the diameter, the first 100 feet exerts a tremendous pressure (and stem) against all the rest. And the longer the shot, the greater the accumulation of pressure, the more effective the shot—and the more effectively the well cleans itself. Because of the enormous cumulative pressure, exerted parallel with the bedding planes, and the advancing nature of the explosion, it is doubtful whether a hori-



Plan view of the first horizontal oil well ever drilled, on the Dion S. Birney farm, Morgan County, Ohio. One branch, 953 feet long, extends among old vertical wells, abandoned after having dropped off to 1/10 of a barrel per day.

zontally shot well will ever be bridged over by the shot.

When, in following the radial pattern to develop the whole of this property, it became necessary to close in the outcrop well and drill two radial horizontal wells through the shot area, the full lateral effect of the explosion was discovered. All water of circulation was lost 45 feet from the shot well—on both sides. For 40 feet on each side, core recovery was only 25%, and the core was in short biscuits—instead of the usual 30- to 50-foot lengths of our 100% core recovery. Since this happened in both transverse holes, it

may be assumed that the rock was shattered laterally and vertically for a width of 75 or 80 feet. All this with a shot only $2\frac{1}{4}$ " in diameter.

SANDING UP

In vertical wells any sand, sediment or parafin that occurs must fall to the bottom of the well and pile up against the sand face, to retard the flow of oil. But in a horizontal well most of the loose material and parafin are carried out by the stream, and that which is not, simply lies along the side of the hole, with practically no effect on production. To date, no piece of

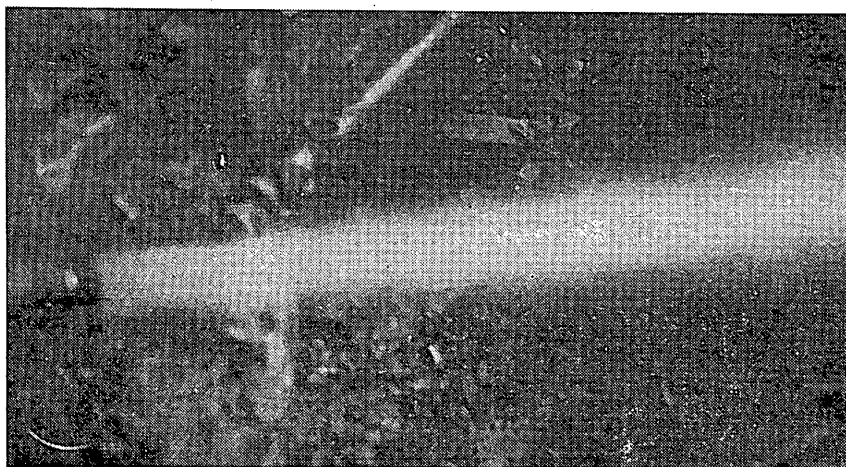
rock larger than a pinhead has been discovered in the shot hole, and the tools run freely to the far end.

LENGTH OF WELLS

Insofar as controlling the elevation and direction of the horizontal hole is concerned, this may be done easily at any depth. The limit of possible length may be determined by the strength of the drilling machine. Forty horsepower is sufficient for 2,500-foot lengths. At present, in an average oil sand, the prac-



1000 feet of $2\frac{1}{8}$ -inch core from one horizontal well. Though the hole was level, note lateral variations in the sandstone—in texture and saturation. Note cross bedding planes.

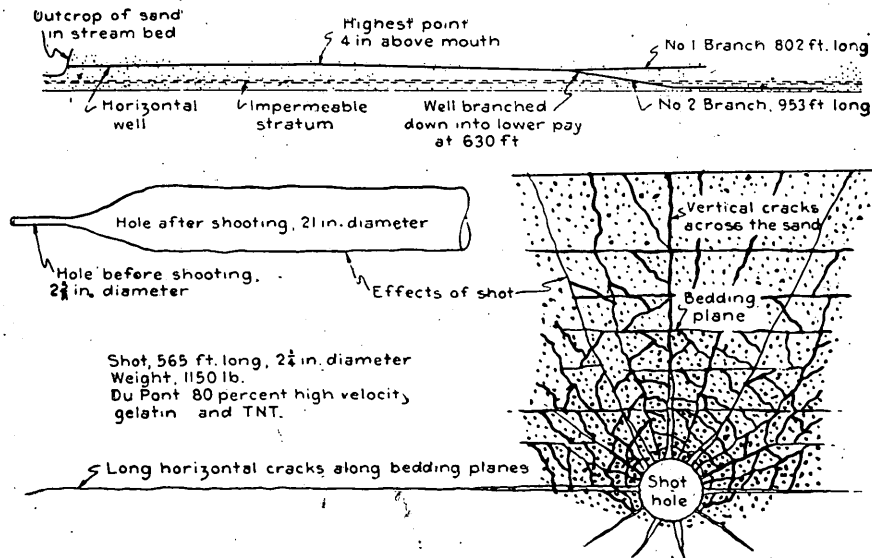


Shooting the outcrop well with 1150 pounds of DuPont 80% high velocity gelatine and a line of TNT. The hole blew gas and steam for 15 minutes before the oil came. The shot was $2\frac{1}{4}$ inches in diameter and 565 feet long. The 250 feet of rock overburden was lifted $1\frac{1}{2}$ inches, and later horizontal holes drilled through this shot hole revealed that the sandstone was shattered for 40 feet on each side of the shot well. DuPont engineers on the job, F. D. Bickell and Bob Earich.



Oil flowing from the 3-inch casing of a horizontal well. Previous core analyses had shown a sand saturation of only 15% at this location.

tical limit may be considered as 3,000 to 3,500 feet; in a coal seam (to degasify the coal) where friction is much less, a length of 5,000 feet would not offer difficulties. If the wells are from 3,000 to 3,500 feet long, from 800 to 1000 acres may be worked from one shaft. Twenty-four to 30 of such wells would expose from 72,000 to 105,000 feet of producing sand—the equivalent of 3,000 to 5,000 vertical wells in a sand 20 feet thick—something heretofore unheard or undreamt of in the business of producing oil. Of course only experience will tell the number and length



Profile of the first horizontal oil well. End of #1 branch is level with the mouth. Below, effects of a horizontal shot, as revealed by holes drilled later through the shot area.

of wells most profitable to drill in one operation.

WARMING UP THE OIL

When a vacuum of 22 points was pulled on the old outcrop well (after it had been shot), the temperature of the oil produced dropped from 53 degrees (earth temperature there) down to 46 degrees. This must also happen when a high vacuum is pulled on vertical wells. Such an effect not only increases the viscosity and reduces the gravity of the oil, but hastens the deposition



Oil flowing from the casing of #1 horizontal well 2 days after the shot.

of parafin. One experiment recommended for further trial is the injection of hot gas at the sand face—in the mouth of a horizontal well. Previous attempts to apply heat to a producing sand have failed, partly because of



Washing pulverized sandstone from a horizontal well by gravity, after a shot. The wash water is more than 50% sand.

barren rock that must be heated up before heat reaches the oil sand. In the old outcrop well hot gas was injected under 10 pounds of pressure for 7 hours, and then the well was closed. The next day the first gas recovered from the well had a

temperature of 81 degrees. The well was produced daily—until at the end of the week the oil recovered still had a temperature of 57 degrees. In a shaft operation, after every other well has been converted to a pressure well, the pressure medium could easily be warmed up before injection. Because of the great exposure of sand, it is probable that a pressure of around 30 pounds per square inch would suffice, but of course more experience is needed.

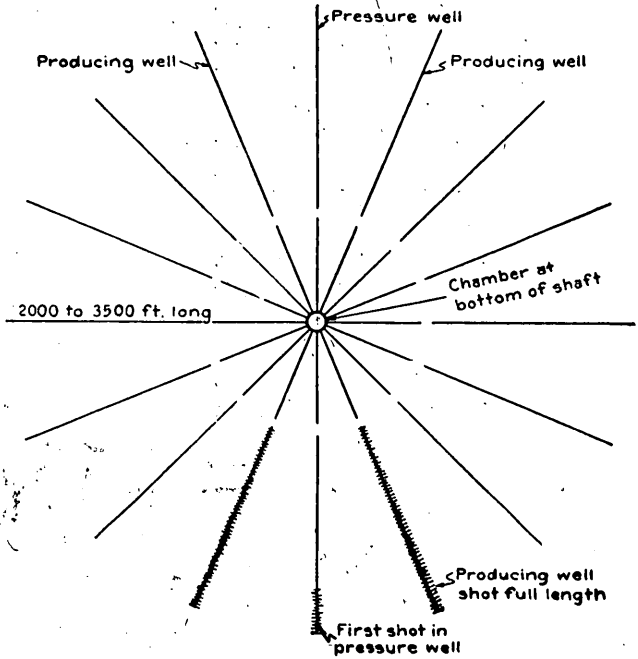
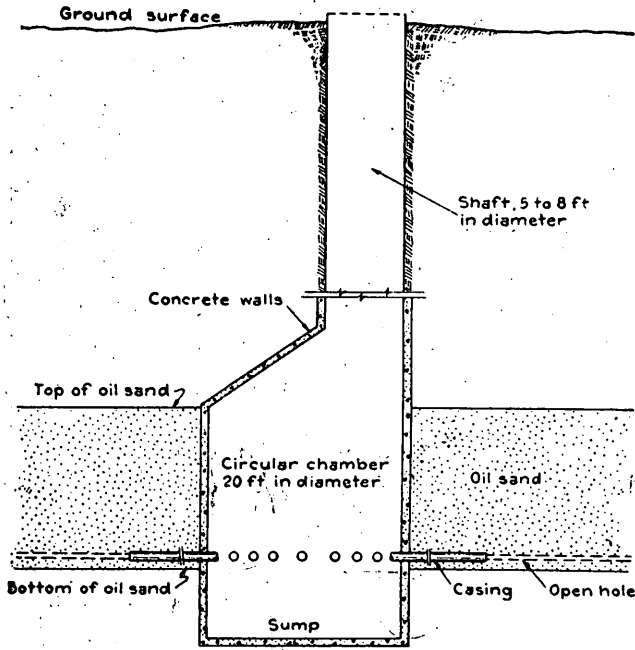


One of the piles of sand washed by gravity from a shot horizontal well. More than 250 barrels washed out in 2 shifts. No piece of rock was found larger than a pinhead.

THE SHAFT

In Pennsylvania Grade fields, engineers believe that shafts for horizontal wells may profitably be sunk to depths of 2000 feet, but there are many suitable fields available less than 1000 feet deep. On work now under consideration turnkey bids have been made at \$55 to \$75 per linear foot for shafts 400 feet deep, 8 feet in diameter in the clear (or 8'x10' rectangular) lined with one foot of concrete. The circular work chamber in the sand is also lined and floored with concrete. Bids for excavating the chamber run around \$5 per cubic yard, and for placing the concrete from \$25 to \$35 per

7c



Shaft of small diameter, preferably concrete lined, with drilling chamber at bottom, from which radiating horizontal wells are drilled. If the field has a natural water drive, the wells are near the top of the sand—otherwise near the bottom. No gas, oil or water is allowed to enter the shaft. Gas detectors have not shown as much as 1/2 of 1% of gas in the air in the center of the work chamber. Pipes for the passage of gas, oil, water and wires are embedded in the shaft walls.

Horizontal wells are drilled in opposite pairs from the work chamber at the bottom of the shaft. The number depends upon their length and upon the sand body. The wells are drilled level or at any desired inclination. Depending upon length of wells, from 500 to 1000 acres may be worked from each shaft. Sand exposure in a sizeable operation should be from 40,000 to 80,000 linear feet—the equivalent of 2,000 to 4,000 vertical wells.

yard. Pipes cast in the concrete shaft walls serve as conduits for air, gas, oil, water and wires.

rig, tools and other equipment at \$15,000—then the bare cost of getting ready to drill is \$55,000. Add 10%, and if the area to be worked is 800 acres, this pre-drilling cost is

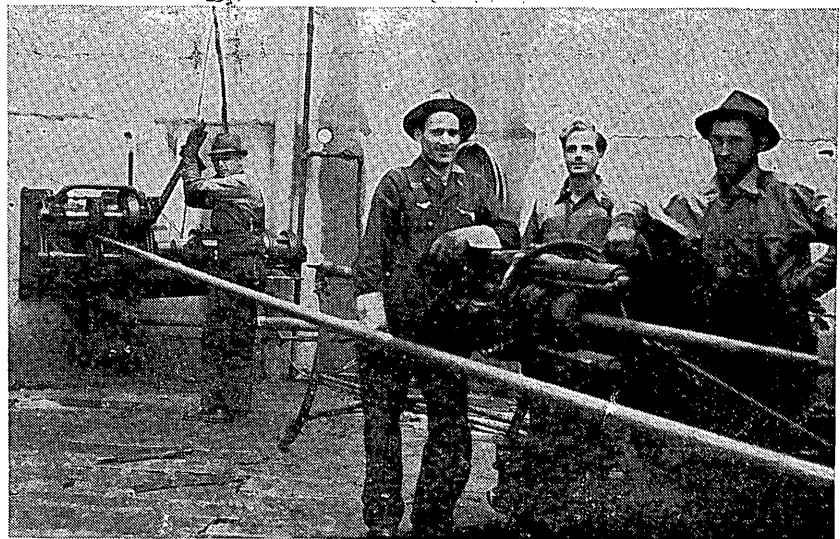
less than \$80 per acre. For the moment assume that drilling will cost \$1 per foot; then the first pair of 3000-foot wells would cost \$6000. Total cost of shaft, equipment and

DEVELOPMENT AND PRODUCTION COSTS

Assuming a depth of 400 feet, estimate the cost of the shaft at about \$25,000; work chamber, hoist, cage, fans and pump at \$15,000; drilling



The exposed sand face on the side of the work chamber (before concrete lining was placed). Note bedding planes, stratification and lack of horizontal uniformity. The sand is brownish from oil, which oozes out in some places and sometimes trickles down the sand face.



"Drilling two wells at a time". Pulling 50 feet of core from one well while running another set of tools and the drill rods into the opposite well. This is done by the newly developed "rod puller" which moves the tools at the rate of 100 feet per minute. Drill rods are not disconnected until both wells have been drilled to the desired length. Drilling machine is moved back (hydraulically) while tools are being moved. Compressed air motors are recommended as the best power for all machines in the work chamber.

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two wells, \$66,500. In round figures, say \$75,000 which includes \$13,500 for emergencies, engineering and overhead.

If physical conditions have recommended the location, it may be expected that each 100 feet of hole will produce 1/16 of a barrel of oil per hour, or 1 1/2 barrels per day. This amounts to 90 barrels daily for the two wells. This estimate assumes that the rock pressure is 20 ounces—if it is more than 2 pounds per square inch, a larger production



Oil flowing from a partially completed horizontal well, at a depth of 860 feet, after the tools had been withdrawn. The flow continued until drilling was resumed. The mouth of this well was only 200 feet from the outcrop of the oil sand.

might be expected. With oil at present prices, production should pay for complete development of the property. Total capital advanced should be well under \$100,000.

The cost of pumping fluid from the shaft will be less than 1c per barrel. From a property worthy of development in this fashion, a recovery of 5,000 to 8,000 barrels per acre should be expected. It would be difficult to foresee an overall development and production cost as high as 50c per barrel, even in the thin and tight sands of the eastern fields. If labor is to be a problem in the future, it should be borne in mind that the operation of horizontal wells requires about one-fourth the number of men neces-



The hook-up of 6 horizontal wells in the work chamber. Wells #1, #3 and #5 are shown—#2, #4 and #6 are on the opposite side of the chamber. The flow line is a header connected to the casings, carrying the oil by gravity to the reciprocating pump that pumps the fluid to the separator tank on the surface. The cost of elevating the fluid is less than 1c per barrel. Later, #3 well (shown in the center) will be converted to a pressure well to receive hot gas under a pressure of about 30 pounds.

sary to operate the same property when produced by vertical wells.

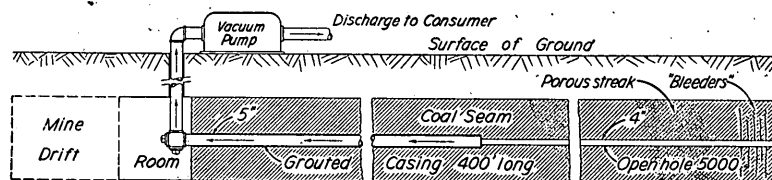
DEGASIFICATION OF COAL THROUGH HORIZONTAL GAS WELLS DRILLED THEREIN

The firedamp in coal mines is only natural gas (methane) with a heat value approaching 1000 B.t.u.'s. This gas is held in the coal body itself by intermolecular sorption—in a very unstable equilibrium. It may be released and recovered by a partial vacuum, which may be applied to the virgin coal through long horizontal holes into the seam—from used or unused mine workings. Some coals in Ohio, Pennsylvania and West Virginia contain as much as 300 to 2,000 cu.ft. of free, sorbed

methane per ton of coal in place. One seam is known to contain 22,000,000 cu.ft. per acre, most of which can be recovered for less than 1/4 the cost of piping gas from Texas. The coal mines of this country are now wasting in the air of ventilation about 500 million cubic feet of methane each 24 hours. In the degasification of unmined coal, three important results are attainable: a profit on the gas recovered, reduced ventilating costs in future mining operations and greatly reduced hazards to miners.

HORIZONTAL WATER WELLS

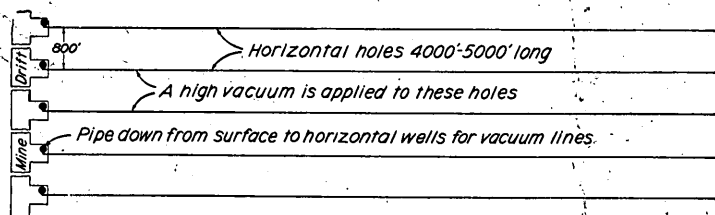
The widest application of the horizontal well idea is now being made in the production of ground water



Horizontal gas wells in coal seams to recover the firedamp—which is only natural gas (methane). In coal these holes may be drilled 4,000 feet long, from present workings or shafts, out into virgin coal. Gassy coal may contain from 300 to 2,000 cu.ft. of absorbed methane per ton of coal in place. No free gas enters the mine workings, either during drilling or operating the holes. These wells are cased for about 400 feet, the rest of the hole being open, and a high vacuum is pulled on the accessible end of the casing.

from beds of sand and gravel. Approximately 15,000 feet of 8-inch horizontal water wells have been installed, one installation alone having produced 15 million gallons of water daily for the past 4 years. The

underlying principle is always the same—the exposure of the largest possible area of producing formation.



Plan view of horizontal gas wells drilled in a coal seam. The average coal is about as permeable as the average gas sand. Long horizontal holes tap all the porous streaks, fissures and "bleeders", and may be shot with a light shot for greater exposure of the coal face. It is believed that coal seams may be made substantially non-gaseous for future mining operations.

IN CONCLUSION

The subject of drilling and operating horizontal wells is so new and so broad that in this paper it has been possible to touch upon only a few of the highlights. A geologic treatise on the revelations of the horizontal cores taken would fill a volume. The explosives engineer could write a book on the effects of horizontal shots. The production engineer would find one volume too small to cover producing and re-

pressuring horizontal wells. If this development is to follow the precedent set by vertical drilling, new books will be required every few years—and past experience may be only the beginning of an entirely new technique in the business of producing oil.



Methane gas from coal—an experiment conducted by the author near McConnellsville, Ohio. This night picture shows a blaze 35 feet high. Cost of production in this instance is less than 2c per thousand cubic feet. The heat value of methane is about 1000 B.t.u.'s per cubic foot. It is believed that coal seams containing as little as 300 cu.ft. per ton of coal in place may be profitably degasified. Each 4000-foot hole will draw upon the gas in 80 acres of coal. Some West Virginia seams contain as much as 22,000,000 cu.ft. of methane per acre. Extraction of free methane has no effect on the heat value of the coal.

For more complete recent data on the methods referred to above, see:

- Canadian Oil & Gas (Toronto) April, 1941
- Ohio State University Engineering News, April, 1941, June, 1941
- Oil & Gas Journal, Jan. 23, 1941, April 20, 1939, April 13, 1939
- Oil Weekly, January 20, 1941
- Petroleum World, February, 1941; July, 1939
- The Financial Post (Canada) September 28, 1940
- The Petroleum Engineer, June, 1939; August, 1938
- American City, December, 1940, November, 1936
- Gas Age Record, June 15, 1935
- Engineering News Record, January 6, 1938 and other issues
- Construction Methods (N.Y.) 1941
- DuPont (Technical) Magazine
- Esso Oilways
- Various A.I.M.E. reports, and others.

18-570
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DRILLING REQUISITION

Project LAKES ENTRANCE OIL SHAFT		Project No	
Project Officer B R THOMPSON		Section OIL & GAS DIVISION	
Telephone No Ext 6539275			
Reason for drilling infill shaft.		909551 350	
<p>To investigate the possibility of infilling the top sump of the shaft with earth spoil. Provided that the concrete capping of the shaft is sufficiently strong this could be accomplished using the Department's equipment. It should be filled under the supervision of the Mining Division inspectors.</p>			
Drilling on behalf of Oil & Gas Division		Funded by	
No. of holes	Av. depth	Total metrage	Rig type
Location (parish, allotment etc, plan attached) Colquhoun		Land Tenure Private - Roy Kent (Owner) Permission to drill Obtained from Required from	
Geological Summary (include details of formation tops, mineral intersections, sampling requirements etc)			
<p>The shaft is concrete lined and 7 ft diameter to a depth of 1198 ft deep. It is capped by a concrete layer at about 12 ft from the surface. There are a number of holes (7) in this capping into the water filled shaft, these may need capping. The strength and security of the capping cannot be guaranteed.</p>			
Completion requirements			
Signed / /19 Project Officer			
Recommendation			
Section Head / /19 Director / /19			
Drilling report			
Drilling Engineer / /19			
Approved on following terms and conditions			
Secretary / /19			
Drilling Branch to Record			
Plant No	Costing Card	Advise Applicant	

*Mr. Clark
As fill with
Lakes Entrance previous
to 6/7*



909551 351
MINES DEPARTMENT,
TREASURY GARDENS,
MELBOURNE, C.2.

All Communications should
be addressed
SECRETARY FOR MINES.
Telephone: F0234.

GH.1

4th July, 1946.

MEMORANDUM FOR THE SECRETARY.

I made a visit of inspection to the Austral Oil Companies shaft at Lakes Entrance on Wednesday 3rd July and report as follows:-

Mr. Clark reports that the electric pumps have been put back in the shaft and pumping is being carried out to keep water under control.

The pilot bore has been deepened to an overall depth of 1,227 feet and is now standing at this depth.

	Bore was restarted from	1,222' 6"
May 11th	Cored	1' - 0"
" 16th	" "	1' - 0"
" 17th	" "	1' - 0"
" 19th	" "	6"
" 20th	" "	1' - 0"

Total depth 1,227' - 0"

At this point there was a big increase in the water and oil flow.

May 21st Cored 6"

This was a coarse sand and was where the heavy flow of water and oil was coming from

May 22nd Cored 6"

Total 1,228' - 0"

The total depth of hole at May 22nd was 1,228 ft. and bore is now standing at this depth. It took 4 days from May 20th when the heavy water was struck for it to fill the bore hole to the surface. From this it would appear that the effective thickness of glauconite at the bore-hole site is 28 ft. and any plan to strengthen the area below the proposed work chamber will take this thickness as a basis for calculations.

G. Hadden

Chief Mining Inspector.

(COPY)

LAKES OIL LIMITED

909551 352

LAKES ENTRANCE,

20th October, 1947.

Mr. Demaine,

Dear Sir,

Following your phone call Friday I contacted Mr. James.

We left Paynesville 1 p.m. Saturday and arrived at the mud island at 2.45, this is situated about 300 feet off shore, past Pelican Point approximately $\frac{1}{4}$ mile from The Bluff.

The existing island is approx. 150 ft. long and 40 ft. wide running a few degrees west of north and east of south.

Tide was normal and a piece of mud about 4 ft. by 3 ft. protruded 2 ft. above the water, the rest of the island had been washed away with the strong westerly which blew on Thursday, was an average of 1 ft. 6 ins. below surface, normal depth of the Lake is 12 - 16 feet.

Mud is soft but banded and was able to stand on some of the firmer bands and push the auger straight down, no sign of gas in the several holes we made and no fluorescence is noticeable on sample of mud collected.

Would consider it surface mud forced up by gas pressure which must be at a considerable depth.

After yesterday's blow I think the remaining protrusion would be washed away.

Yours faithfully,

(Sgd.) A. B. CLARKE

Extracts from letter from Lakes Oil Ltd.
to Secretary, Mines dept.
dated 21st. October 1947.

This letter is primarily concerned with operations
conducted on the Pilot Bore alongside the Oil shaft.

909551 353

Extracted are comments made concerning the shaft itself.

" So far as the drilling from the work chamber is concerned, preparatory exploratory drilling is likely to be started from the base of the work chamber inside the next fortnight. All drilling when once casing is set in the top of the glauconite, will be in the glauconite and we presume that in this near horizontal drilling your Department will not require cores or logs."

original signed by C.S.Demaine.

LAKES OIL LIMITED

909551 354

REGISTERED OFFICE: ROOM 15, THIRD FLOOR
TEMPLE COURT, 422 COLLINS STREET
MELBOURNE, C.1



4th August, 1948.

The Secretary,
Department of Mines,
Treasury Gardens,
MELBOURNE, C.2.

Dear Sir,

MONTHLY REPORT (JULY).

Since our last report dated 30th June, we would advise that drilling of near horizontal holes is proceeding as previously referred to.

We are continuing to find extra thicknesses of glauconite than was expected.

Progressively interesting yields of oil are being obtained from the top of what is believed to be the lower producing zone.

Additional pressure tests are now being undertaken. Laboratory tests have proceeded throughout the month and will be continued.

Yours faithfully,
For LAKES OIL LIMITED,

Managing Director.

*Secy
to the
Mr Warden
9/8/48
R. J. J. as
report.
5/8*

LAKES OIL LIMITED

REGISTERED OFFICE: ROOM 15, THIRD FLOOR
TEMPLE COURT, 422 COLLINS STREET
MELBOURNE, C.1



13th September, 1948.

909551 355

George Brown, Esq.,
Secretary,
Department of Mines,
Treasury Gardens,
MELBOURNE, C.2.

Dear Sir,

We enclose herewith copy of circular
to our shareholders which is being posted
to them today.

We trust that this will be accepted
as being our monthly report to your Depart-
ment.

Yours faithfully,
For LAKES OIL LIMITED,

Managing Director.

1. Mr Potger ✓
2. Mr Thomas ✓
3. Mr Cunney ✓
4. " Windsor ENC. *MW* 15/9/48
to file, JS
2/9
14/9

(CIRCULAR)

LAKES OIL LIMITED

909551 356

Telephone: MU 2666

Registered Office:
Room 15, 3rd Floor,
422 Collins Street,
MELBOURNE. C.I.
13th September, 1948.

NOTICE TO SHAREHOLDERS:

Since the beginning of this year, exploratory drilling has been proceeding from the work chamber, construction of which was completed last December. Near horizontal drilling has been carried out and in the aggregate over 1,000 feet of glauconite has been drilled. When the glauconite is drilled into, oil starts to show.

Six holes have been drilled radially at an angle of about 18° below horizontal. Six other holes have been drilled radially at a steeper angle and another hole has been drilled more nearly vertically. The pressure gradients within the glauconite have been recorded. Exploratory work is still proceeding.

In the Laboratory set up on the field, extensive core analyses and other tests have been and are being carried out. Regular tests of oil recovery from the various exploratory holes have been recorded and it has now been established that a higher producing zone exists near the bottom of the glauconite. A "closed in" pressure has been recorded to 450 lbs. per square inch and higher "closed in" pressures are expected.

The exploratory drilling has established the existence of considerable quantities of oil in the area being developed. The initial yield from the drilling which taps three acres, exceeds 150 barrels per month. With the use of directional drilling, it is estimated that 300 to 400 acres could be tapped from the present shaft and that if this is done, the estimate of production by Messrs. Ranney and Fairbank should not be unreasonable. Production approaching their estimate would be satisfactory to the Company.

The Directors therefore are of the opinion that the results obtained from the exploratory drilling are such as to warrant the Company proceeding with the further development of the project and plans are being prepared for submission to shareholders.

By Order of the Board,

J. K. LITTLE

Secretary

8th October, 1951.

**CONFERENCE TO DISCUSS THE ACTIVITIES OF
LAKES OIL LIMITED
SINCE THEY TOOK OVER FROM THE COMMONWEALTH
ON 4TH OCTOBER, 1946.**

PRESENT:

Mr. C.S. Demaine, Professor E.S. Hills Professor E.A. Rudd	}	Lakes Oil Limited
Mr. F.B. Nye Mr. Temple-Watts	}	Bureau of Mineral Resources
Dr. N. Boutakoff, Dr. D.E. Thomas, Chairman	}	Mines Department, Victoria.

First item on the Agenda was costing. Mr. Demaine presented itemized costing of operations. These are to be regarded at present as confidential.

MR. TEMPLE WATTS asked for the amount of fuel oil in hand and details of production and consumption.

MR. DEMAINE stated these details are included in the figures given. The oil on hand today is just over 30,000 gallons. Some oil of course is being sold. Total production to 11th September 1951 was 145,364 gallons. The rates of recovery in recent months have been:-

April	.....	4,520 gallons
May	.....	4,540 gallons
June	.....	4,050 gallons
July	.....	3,400 gallons
August	.....	5,660 gallons
Up to September 11th	.....	4,670 gallons

This oil contains less than 0.25% water. He drew attention to the fact that the figure 674 under "Increase in stock of oil on hand" is hypothetical.

MR. TEMPLE WATTS requested elucidation of this point and Mr. Demaine offered to supply more detailed figures, as well as the amount on hand on October 1950 and October 1951.

MR. TEMPLE WATTS pointed out that the Commonwealth were present only as observers.

DR. THOMAS stated that Mr. Demaine and his advisers were present to give any information that was requested.

MR. NYE. What is the main submission that is to be made at this meeting?

DR. THOMAS stated that the idea of the Conference was the discussion of the problems that would arise if financial assistance was again requested by the Company. At present there is no submission to be considered.

MR. DEMAINE summarised events leading to their request for this Conference. A previous application had been turned down which leaves the Company faced with the necessity for closing down the shaft and sealing all the holes drilled. At present production is at a loss but we hope that the Company can present a case which will justify some financial assistance.

PROFESSOR RUDD. The work done so far is not a complete test of the possibilities of this field and much further work is necessary. If work ceases, the tests already done, as well as the shaft, will be lost. Actually oil is being produced although the quantities are small, and this is the only producing field in the whole of Australia. Some of the figures suggest that a continuation of the drilling may eventually give a commercial field.

MR. NYE. What is the idea behind the continuation of drilling?

PROFESSOR RUDD. Some of the longer holes show improved yields and it is felt that by putting bores out further, the results will be justified. The present state of drilling is definitely incomplete.

Mr. Demaine produced plans showing the drilling from the shaft up to date, with the two types - the horizontal short holes and the longer directionally drilled "D" holes. Copies of these would be available on request by the Government Departments concerned. The "A", "B" and "C" holes are the short horizontal holes, while the "D" holes go out over 1,000 feet. Details of most of these have been submitted to the Mines Department. (See letter 25th September, 1951, from Mr. Demaine to Mr. R.R. Neal).

PROFESSOR RUDD. Even the "D" holes would have tested only a small percentage of the area that can be tapped from the shaft.

MR. DEMAINE pointed out that there are 48 eight-inch port holes at the base of the shaft, leaving room for far more boring than has been done. Much time has been wasted in learning the technique of this directional drilling.

MR. TEMPLE WATTS. What are the diameters of these holes?

MR. DEMAINE. "D" holes 2½", "A", "B" and "C" 1½".

PROFESSOR MILLS remarked on the differences in production of various holes so that it would be difficult to say that so many feet of drilling would give a certain average. There is a possibility that continued boring would give a higher percentage of more productive sand.

MR. TEMPLE WATTS wished to know the ratio of oil to total fluid and the length of the most productive hole.

MR. DEMAINÉ. September figures are 9,390 gallons of wet oil and the analysis showed that this contained 18% of water.

DR. BOUTAKOFF. For how long has this drilling been carried out?

MR. DEMAINÉ. Since the Company started which is over six years ago. Most of the first two years were spent in constructional work.

DR. BOUTAKOFF said that 6 1/2 years has been a fair test and production would have to be increased enormously to make the project a financial success.

MR. DEMAINÉ replied that they have not been drilling all the time and the increase in production that can be obtained by further boring has a chance of making it financially successful.

MR. NYE. When did drilling start?

MR. DEMAINÉ. 1948 and the first holes were entirely exploratory inside the 200 foot diameter around the shaft.

MR. NYE. When did long holes start?

MR. DEMAINÉ.
"D" 10 - November 1949
"D" 6 - January 1950
"D" 12 - April 1950

These are the dates as I recollect them but they can be checked from the office records if necessary.

MR. NYE. When did they first yield?

MR. DEMAINÉ. You get some yield immediately the holes are in the glauconite.

DR. BOUTAKOFF drew attention to the production per average length of the holes, which would mean that about 13 1/3rd acres have been tapped. Also compared the production with that estimated by the report of the Bureau based on the three holes - the Pilot, the Inray and the Shaft. (The variation of different holes and the bases of these estimates were then discussed and the variability of individual holes emphasized. As the lower part of the glauconite was richer in oil, the results of that report cannot be fully accepted as a fair average).

MR. DEMAINÉ. "D" 12 had the best yield. April 1950 - 54.4 pints. December 1950 - outer distance of 99 1/2 feet, 16,000 pints per 24 hours. These jumps occur at critical spots.

DR. THOMAS. Is there a relationship between yield and total footage bored?

MR. DEMAINÉ gave the following examples of the variability:-

"B" 2 at 56 feet (open hole) gave 9 to 10 pints per 24 hours

at 83.7 feet, 129 pints per 24 hours

at 91.5 feet gave 278 pints per ²⁴ hours

and at this point, great variability of production is evident, various tests giving 340, 240, 227, 222 and 206 pints per 24 hours, so that in the various parts of the same bore we get results from 56.1 pints per foot of hole to 3.5 pints per foot of hole. The average for open holes is apparently somewhere around the .33 pints per foot of open hole but flush production varies from 1 to 6 pints per foot. The production on the 1st October was about 500 gallons per day. "D" 12 gave a tremendous quantity of water and produced roughly 4 barrels of oil per day. The variability is taken to be the occurrence of lenses or jointing in the glauconite. It can be generally stated that the oil in the upper part of the glauconite is water free but the lower part contains much water.

MR. NYE. Do your figures apply only to dry oil?

MR. DEMAINÉ. Yes, but it should be remembered that the oil itself is accompanied by a big quantity of water. Owing to the variability of results it would be difficult to give you accurate figures but the details of all the tests carried out, which are voluminous, can be inspected and checked in our office.

DR. BONTAROFF. The total area that can be commanded from the shaft is small and would in no way be representative of conditions over the whole of this oil field in Gippeland. Is this test to be regarded as the aim of a Company or merely as a research programme?

PROFESSOR HILLS suggested that the variability is due either to the porous lenses or to zones of jointing.

MR. DEMAINÉ. This variability is one of the reasons why the estimates of the Bureau cannot be accepted. They were based on bores which penetrated the glauconite to a depth of 21 feet in the Pilot bore, giving 3 to 4 gallons per day, but when this was deepened to 30 feet, there was an appreciable increase in rate of flow, when it reached 30 gallons per day.

MR. TEMPLE WATTS. The large quantity of water associated with the oil near the base of the glauconite is important economically. Taking the figures for the month of August, production was 138 gallons per day - with a 2½" diameter hole 10 cubic feet of glauconite would average .434 gallons of oil. The Mines Department figure for vertical bores per 10 cubic feet of glauconite is 1 to 1.8 gallons. The conclusions to be drawn from these results are obvious.

MR. DEMAINÉ. With respect to the proportions of oil and water, latest methods of retardation may be of help with the deepening of the bores.

MR. TEMPLE WATTS. Doubt whether technique of fluid retardation would be applicable to this field.

PROFESSOR RUDD expressed his opinion that the Lakes field was comparable with the marginal areas of other Oil-bearing fields.

MR. TEMPLE WATTS. Can you guarantee that if you continue operations you can solve all the difficulties and give the answer to the problems of this field.

PROFESSOR RUDD. Until the tests are completed they would not be in a position to answer the problems.

MR. NYE. Maintained that monthly tests should give a fair indication of future results.

MR. DEMAINE. It was thought that production would be about one pint per foot per hole drilled but production is below this. Port holes are in position for extra drilling up to 50,000 feet. We are now getting 9 to 10 barrels per day from 6,700 feet. It is reasonable to assume that production would be increased six or seven fold if this total distance had been drilled.

PROFESSOR RUDD said the obvious location for carrying out any additional experimental work of this type would be from the bottom of the shaft. Such experimental work could include use of explosives in these holes.

MR. DEMAINE. This question has been submitted to the Mines Department who replied that there is the possibility of shattering the glauconite and letting water into higher horizons, and that they are averse to this procedure - although how this could take place in view of the Bureau's report that the glauconite is 100% saturated, is difficult to conceive.

DR. BOUTAKOFF. The oil would be flushed out.

PROFESSOR HILLS. There is no doubt that the shaft can be used for future experimental work as all the possibilities have not been investigated, and if one of these is favourable, the project can be a financial success.

PROFESSOR RUDD. What alternatives would there be to the closing of the shaft? Once the shaft is closed, none of these tests can be carried to conclusion, and the whole capital expenditure, as well as the shaft itself, would be lost.

DR. THOMAS. Abandonment of work at present would not of necessity mean the loss of the shaft, as it is concrete lined.

MR. NYE. What would be the object of filtering and retardation?

MR. DEMAINE. It has been proved that the highest producing parts are closely associated with water. In some of our tests dry oil up to 80% has frequently burst out into the shaft but this unfortunately is followed by water.

MR. TEMPLE WATTS. I still fail to see that conditions would be suitable for filter and liquid retardation.

PROFESSOR HILLS. It should always be borne in mind that all this work is more or less of an experiment.

DR. BOUTAKOFF. A very costly experiment. As it has very little chance of success, it is doubtful whether it should be supported.

PROFESSOR RUDD. Do not agree. It must be remembered that there is a reasonable chance of economic success.

PROFESSOR HILLS. It should be realised that if three new holes produced a little above the average, the experiment would be a financial success and surely some help is justified.

PROFESSOR RUDD. Work on radium deposits in South Australia cannot be said at present to be a commercial success and yet a great deal of Government money is being spent in fully testing this and surely the same should apply to the Lakes Entrance oil field.

DR. BOUPAKOFF. When everything is considered, the information obtained in the shaft would apply only to a small part of Gippsland. He would much prefer to see the money spent in putting down more vertical holes to obtain facts about the field as a whole.

MR. TEMPLE WATTS. What is the selling price per gallon of your oil?

MR. DEMAYNE. 1/10 per gallon on the field, which is about the same price as oil fuel obtained from Melbourne. This is 306/- per ton at present.

MR. TEMPLE WATTS. Your production at present then would return between £7 and £8 per day. How many men on an average are employed?

MR. DEMAYNE. 14 men employed.

MR. NYE. What is the evidence of increased production from these horizontal holes?

MR. DEMAYNE. This is brought out by the figures in September - approximately 9,000 gallons of wet oil (containing 18% water) while in April production was only 4,520 gallons.

MR. TEMPLE WATTS. What is the increased water flow for this period?

MR. DEMAYNE. The proportion of water to oil has remained fairly constant over this period so that increased oil flow results in increased water flow. If all the fluid was allowed to enter the shaft, our pumps could not cope with this quantity.

MR. DEMAYNE. We are pumping at present about 60,000 gallons per day and the pumping cost is at present 1/- per thousand gallons and from this we obtain 9 to 10 barrels of oil.

PROFESSOR RUDD. The original scheme meant the extension of this drilling programme and it is obvious that insufficient holes have been drilled to obtain anything like the maximum capacity of the prospected area.

MR. NYE. Is there not a factor of time? Is there any information as to the fall-off in the flow of some of these holes?

PROFESSORS HILLS AND RUDD. As the experiments are incomplete, this information is not available.

MR. NYE. Extension of drilling would probably mean quicker extinction of oil.

PROFESSOR RUDD. It should be realized that with radial drilling, the longer the holes the greater the distance between their ends. In many of the vertical holes oil is still being obtained, although they were drilled 30 years ago.

MR. DENAINE. The Company envisages only asking for a grant of \$30,000 a year for two years. At the end of this time we believe that we will have gained much valuable information and that our production will reach 50 barrels a day, which will pay all operation costs.

DR. BOUTAKOFF. What method do you propose to employ to increase your production to your estimated figure?

MR. DENAINE. By drilling more footage into areas which indicate some structural control, according to Professor Hills, and using the filter and retardation methods.

PROFESSOR HILLS. Apart from the variability in flow due to the more porous lenses and jointing, the structural contour at the base of the glauconite indicates a minor structure in the vicinity of the shaft. To a Company on a small production, even a minor structure would be of great importance. Very little work has been done to prove whether this structure exists or not. It might be done by seismic work. It should be emphasized that there are insufficient controls from drilling to determine the structure, but some of the better producing holes in this locality are definitely associated with it.

MR. DENAINE. Some of the holes towards this structure seem to be better than others but this is not so in all cases.

MR. NYE. What happens in the holes drilled down deep? How do you control these holes and do they give more water than the others?

MR. DENAINE. This does not apply to all of them. We have experimented with pressure gauging on these holes, and while the hole is fairly horizontal near the top of the glauconite, there is no increase in pressure, but when the holes dip down into the glauconite, there is an increase of pressure.

MR. TEMPLE CATTE. There is no doubt that the maximum oil is very close to the water. In the case of Bore No. 8, there seems little doubt that the oil in the base of sandstone was carried by the water. This being so, there seems to be a definite relationship between quantity of water and oil recovered so that oil can be recovered from vertical drill holes far more cheaply than from the horizontal boring from the bottom of the shaft.

MR. DENAINE. From previous discussions and published reports, the amount of money spent by Governments and other private companies in oil search is very high and does not approach the money expended at Lakes Entrance.

DR. BOUTAKOFF. This experiment was dropped first of all in 1944 and results to date have failed to show it to be profitable.

MR. NYE. That is quite right. That is the way the investigations and recommendations went and they have not been proved wrong.

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PROFESSOR RUDD. Perhaps Mr. Temple Watts could suggest some further experiments that should be carried out in the bottom of the shaft. The amount of money to be spent in the next two years is very small compared with prospecting work in other parts of the world, especially as there is such definite hope of increasing production here.

MR. TEMPLE WATTS. It seems to be the purpose of the methods of filtration and retardation to prevent the rise of fluid in the form of a cone into an oil dome and that can hardly be envisaged in the case of the Lakes Entrance field. Here we do not have water, gas, oil-doming, and if the flow of water is retarded, there will be a corresponding decline in oil production. In the absence of definite structures, increased flow of oil is difficult to conceive.

PROFESSOR RUDD. There is no doubt that there is a close relationship between the water and the oil, and even the development of minor structures would result in a much greater concentration of oil.

PROFESSOR HILLS. There is reason to believe that these minor structures are present in this field.

MR. TEMPLE WATTS. Would you suggest that you could determine structural condition by horizontal boring?

PROFESSOR RUDD. Yes, I think so. Local structures no doubt could be proved by this method.

MR. TEMPLE WATTS. Owing to the difficulties of accurate surveying and our lack of knowledge of the exact structure, I doubt whether horizontal boring will be of help in this problem. The vertical boring shows that the structures here, if present, are very small ones.

PROFESSOR HILLS. It is known that the structures are small and horizontal drilling would be as important as vertical. Perhaps seismic surveys would be of help.

DR. BOUTAKOFF. Do you think a structure of a few feet would lead you to expect an increased yield of 15 times the present production?

PROFESSOR HILLS. These minor structures at least would not necessitate a very big footage or the boring of much additional water.

MR. NYE. I agree that this is not a normal oil field occurrence.

DR. BOUTAKOFF. As the glauconite is so impervious, water drive as far as the glauconite is concerned need not be considered.

MR. TEMPLE WATTS. The close association of oil and water is shown by the fact that you cannot obtain pure water in this field. You will always get a percentage of oil in your water.

MR. DEMAINE. No, in some cases pure water was obtained.

MR. NYE. Why not drill vertically into the oil-bearing zone? Proposals for increased production should be clarified.

PROFESSOR HILLS. The problem confronting the Company is whether to shut down immediately or whether, if assisted, they can carry on with their experiments from this shaft. Work in outside areas can then be deferred.

MR. NYE. Work similar to that being carried on surely would not apply to these outside areas. This work has already been going on for five years.

PROFESSOR HILLS. The Company has spent large sums on work of National significance and its operations may become self-supporting.

MR. NYE. Any application from the Company should specify their exact programme and be supported by detailed evidence of the work already accomplished.

MR. DENAHUE. My instructions from the Board are to close down the shaft, and cement for shutting off the bores has been ordered. It is hoped that the Mines Department will assist us in procuring this material. Before this was done, an application for a grant was made. We were justified in doing this, as we can proudly claim to be producing oil; for example, in the last few days we have sold 10,000 gallons, which leaves us with about 20,000 gallons still on hand. Our operations have created interest all over the world and the cessation of activities is going to have a detrimental effect on oil search in Australia. The request for assistance by this Company is small when compared with other subsidies paid by the Commonwealth Government. Some help should be given to instal additional bores and to carry on with our programme of drilling. The grant we requested was on a sliding basis, and we also need technical advice and some assistance so that our programme can be completed. While the proposition is not payable at present, the extra boring we think will make this project self-supporting.

PROFESSORS HILLS AND RUDD. This opinion is supported.

MR. TRIPLE WATER. Would the technical advisers to the Company make similar recommendations to the shareholders?

MR. DENAHUE. There are difficulties in increasing the capital of the Company owing to an agreement with Capital Issues. We feel that as the Company has already spent such a large sum of money, some recognition of this work should be made by the Government by way of a grant.

PROFESSOR HILLS pointed out that his report to the Company was a purely geological one.

MR. NYE. Would the Company's advisers recommend them to go on with the proposition? Any application by the Company should be accompanied by the recommendation of their consultants. An application merely to keep work in the shaft going until the geophysical work had been completed, would need further support.

PROFESSOR HILLS. Even the State's idea of testing the beds beneath the glauconite is not a simple proposition. The geology here is quite complex, as sandstones and limonitic band have been recorded in several of the vertical bores from this district.

ADDENDUM TO NOTES ON CONFERENCE
TO DISCUSS ACTIVITIES OF LARGES OIL LTD.
HELD ON 4TH OCTOBER, 1951.

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Mr. Demaine draws attention to the following corrections:-

PAGE 4.

For "of the same bore we get results from 56.4 pints per foot" should be substituted ".14 pints per foot".

In the same paragraph "'p' 12 gave a tremendous quantity of water and produced roughly 4 barrels of oil per day" should read "produced at the rate of 47 barrels".

NOTES ON DEPUTATION TO THE MINISTER OF MINES
(THE HONORABLE G. C. MOSS, M.L.A.), ON 20th
FEBRUARY, 1951, FROM REPRESENTATIVES OF LAKES

OIL LIMITED

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Present: The Honorable G. C. Moss, M.L.A.,
Minister of Mines.
Mr. Rex R. Neal, Secretary for Mines.
Major-General C. S. Steele, Chairman,
Lakes Oil Limited.
Mr. C. S. Demaine, Managing Director,
Lakes Oil Limited.
Mr. W. J. L. Humphris, Director,
Lakes Oil Limited.

MR. STEELE: I wish to briefly outline what we are doing at Lakes Entrance. We are Directors of Lakes Oil Limited, which Company commenced operations about 4 years ago, having bought a concrete shaft 1150 feet deep by 10 feet in diameter from the Commonwealth Government. The Commonwealth Government constructed the shaft, but it was subsequently abandoned by them.

We have deepened the shaft by about 50 feet, to a total depth of 1200 feet, and built on to the bottom of it a work chamber, an oil store room, and a room which contains ventilation equipment. We have proceeded with horizontal drilling, which is new in this country, and have consequently encountered many difficulties.

About two years ago we called in the Robert H. Ray Corporation to make a geophysical survey of the area to determine the exact position of an oil deposit. From this survey, and also on the opinion of Dr. Bentakoff and other geologists, it is considered that the shaft should have been placed at the top of the hill, whereas it is now on the side of the hill.

However, we are getting oil, and getting it in greater quantities than any other Company at present operating in Australia.

Summarised, the position is that our Company has deepened the shaft, successfully used horizontal drilling, and had a geophysical survey made of the area. However, we are running out of money, most of which has been supplied by Mr. Cecil H. McKay, who has been very helpful.

MR. DEMAINE: There are some points that I think require a little bit of amplification. First major point is that in all the work and the millions of pounds that have been spent in Australia in the search for oil, this Company alone has succeeded in producing oil.

MR. MOSS: How much have you produced?

MR. DEMAINE: This Company has produced about 100,000 gallons, but from the Lakes Entrance area this Com

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and its predecessor have produced about 1,000 tons.

One thing that is not understood politically and by the public is that oil production starts in a very small way, and that the conception that oil in America is obtained from huge gushers is not correct as regards constant production. The average production of oil is about 18 barrels of oil per well per day. In some cases it is only 1 barrel of oil per well per day.

At the Lakes we are producing between 6 and 7 barrels per day from the shaft. We could produce more, judging from the results of surveys, but pumping difficulties and the question of separation of oil and water are holding us up.

The general policy of assisting to produce oil in Australia has been aided by the Government, in that in 1920 the Commonwealth Government offered a reward of £50,000 to any Company that could produce 50,000 barrels of oil, and continue producing it in commercial quantities. In 1938 the reward was removed and replaced by the Oil Search Act, whereby the Commonwealth and State Governments provided £250,000 to aid the search for oil, but under the terms of the Act, no assistance was given to the production of oil, but only for the search for it.

But the Commonwealth and State did give assistance to a Company associated with this Company by way of a subsidy of £1 for every £2 spent in exploration work. A total of £1,300 was received. This is the only financial assistance received from any Government.

Since we came into being 4 years ago, we have spent approximately £185,000, and our resources at present, without additional calls, are very limited, being an amount between £12,000 and £15,000.

The point I want to make is that this work is exploratory work, which we think is of national importance and we think the time is coming when your Government might consider making a recommendation to the Commonwealth that a reward should be made to assist in the production of oil rather than the search for oil, which are two distinct processes.

The Commonwealth Government is at present, at the request of your Department, re-examining the possibility of Gippsland and is carrying out extensive geophysical, magnetometric, gravimetric and seismological surveys.

There is one other point, and that is that there is some misconception about the quality of the oil. It is referred to as being poor quality oil and the reason is that there is no free petrol in it, but it contains about 20% diesel fuel, 60% lubricating oil, and 20% bitumen.

It is oil precisely of this type that is being imported from Dutch New Guinea and is being used by Vacuum Oil. The Vacuum Company's refinery down here is ideal for treating this oil, for the production of diesel fuel, lubricating oil and bitumen, and you will realise that these three products are vital from the national point of view.

MR. MOSE: What do you do with your oil?

MR. DENAINE: At the present time we are selling it as fuel oil in 10 and 20 drum lots to local users,

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some of which goes to two butter factories at Bairnsdale, and larger quantities are used in the production of ink. Research is now being carried out to use this oil for special purposes.

Occasionally our stocks so accumulate that we cannot get rid of it through these sources, and then the Vacuum Company sends road freighters and they take it to Bairnsdale, from whence it is forwarded by rail to Altona.

MR. STEELE: We do not want to give the wrong impression. Our production is only minute compared with the total quantity of oil used in Australia, but we think we are capable of producing more. We think that there is justification for what we have done, even though it is considered that the well should be at the top of the hill instead of where it is at present.

MR. MOSS: Is it possible to determine the exact position of the oil?

MR. DEMAINE: No one really knows where to put a shaft. You can only try and determine the best position by geological and geophysical surveys.

MR. STEELE: I think our main concern at the moment is that we do not want to be placed in the position of having to abandon the scheme when the Commonwealth Government is making farther investigations and might produce further valuable knowledge, and therefore we wish to be able to carry on until the investigations are completed.

MR. DEMAINE: With this in view, it is suggested that a reward should be paid according to the amount of oil produced. At present we are producing 6 to 7 barrels per day. At this rate the reward, which would be on a sliding scale, would need to be very high, as much as 7/-, 8/- or 9/- per gallon while we are producing only 5, 6 or 7 barrels of oil per day. The sliding scale would operate in such a way that as oil production increased up to 50 barrels per day, and revenue increased, the rate of reward would be decreased accordingly, and possibly not required at all if we could obtain contracts for the sale of our oil with present consumers.

We require a reward on what we are producing today to meet the deficiency of what it is costing to produce oil and what we are getting for it.

However, it must be understood that the reward basis is merely a suggestion.

MR. MOSS: The point to this is that the Commonwealth would say that you want a reward on something you have been producing for years.

MR. DEMAINE: We think the reward should be on the daily production now.

MR. MOSS: The Commonwealth will consider that you should get a reward for something you will do, not for something you are doing now.

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MR. STEELE: If we continue drilling at the rate of 150 feet per week, which is the present rate, it will cost approximately £500 per week. Without some assistance, our money will peter out and it is in the national interest that it does not finish.

MR. MOSS: I consider that the Commonwealth would give a reward only on the basis of production after 300 gallons per day. They will certainly question the time when the reward is to commence. However, if they accept the principal this can then be determined.

MR. DEMAINE: We think that this reward, if it is established, should start out on 5 barrels per day. Of course, such a benefit could also be given to any other Company if it is accepted.

MR. STEELE: Even though money is running out, we are getting more oil every day, and it may be some time before it will be a paying proposition. It may even be necessary to drill in some other location. The fact is that our results have been better than any other oil venture.

MR. DEMAINE: About the question of reward. With the present state of knowledge we have, and presuming that we did not get more oil per day, all we would want would be £25,000 a year with a time limit of two years. If we do not make a success of it by then, let it go.

MR. HUMPHREYS: I cannot add anything to what has already been said except that I would not attach too much importance to the method of reward. Financial assistance is needed pending the completion of our investigations. How they grant this will have to be worked out if the Commonwealth is interested.

MR. MOSS: In the first place I want to say that I am quite favourable to the proposition you have put up. I realise that oil is a very important commodity and of great importance to the nation.

The fact is established that you are the only Company which has produced oil in Australia and I think the Commonwealth will be very interested in its development. I will be pleased to confer with the Premier on the proposal you have placed before me.

No. 1 point is financial assistance. How it is worked out is a matter for determination later on, but I will confer with the Premier, if you wish, with a view of the Premier of Victoria making representations to the Prime Minister on the question of asking Mr. Casey if he would have a look at this particular problem of yours with a view to giving some financial help. This is the basis of what you are asking me to do, and I think it would be better to put it on a Premier to Prime Minister level rather than for me to make an approach direct to Mr. Casey.

MR. STEELE: If you do that you have our very grateful thanks and it is just within the bounds of possibility you may have the grateful thanks of your country.

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MR. NEAL: I do not think that there is much I can say. We are naturally very interested in the oil at the Lakes and we would hate to see the work stopped, especially at this stage when interest is being shown by the Bureau of Mineral Resources under Dr. Raggatt. As Mr. Demaine states, the ground work is already under way and they will be in the air making surveys very shortly, although it may take up to 2 years before we can interpret the results of this investigation. Geologists are of the opinion that the shaft is not in the right spot. Dr. Boutakoff states it should be up the hill, but until the work is completed at the 1200 ft. level with the horizontal drill, we would hate to see it close down. Departmentally, we want to see the Company continue.

This closed the deputation, and Mr. Steele thanked Mr. Moss and Mr. Neal for receiving the deputation so favourably.

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NB:ER

24th January, 1951.

REPORT ON THE ADVISABILITY OF
A GRANT TO LAKES OIL LTD.

Introduction:

Lakes Oil Ltd. have approached this Department on the subject of obtaining a grant to enable them to continue operations. It was requested that a recommendation from this Department be made to the Commonwealth Government, asking them to take up the matter.

Urgency of the Transaction:

From information supplied to the writer by Mr. C.S. Demaine, Managing Director of Lakes Oil Ltd., the position of the Company is such that the application cannot be delayed until the results of the Commonwealth Geophysical exploration campaign, about to start in Gippsland, are available. The final results may not be available for at least another year.

Grant on a Sliding Scale:

Mr. C.S. Demaine points out that at present the daily production of the Company amounts to 151 gallons of oil, which brings a daily income of \$6.18.0. The total daily expenditure of the Company amounts to £71.0.0., leaving a daily deficit of \$64.0.0. It is hoped to increase the daily production and the following table, submitted by Mr. C.S. Demaine, shows the theoretical relationship between daily production, daily income and daily expenditure:-

	<u>Daily Production</u> Gallons	<u>Daily Income</u>	<u>Daily Expenditure</u>	<u>Deficit</u>	<u>Profit</u>
At present	151	\$6.18.0.	£71.0.0.	\$64.0.0.	N11
If increas- ed to ...	300	£13.0.0.	£71.0.0.	£55.0.0.	N11
" "	600	£26.0.0.	£71.0.0.	£45.0.0.	N11
" "	1200	£52.0.0.	£71.0.0.	£20.0.0.	N11
" "	1800	£78.0.0.	£71.0.0.	nil	£7.0.0.

Should the Company be unable to increase its daily production, the amount of the maximum deficit would be:-

\$64 x 365 = £23,360 yearly

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The request is that the grant should operate on a sliding scale proportional to the deficit. The question, therefore, whether an outright grant should be made, or whether a loan on a sliding scale relative to production should be agreed upon, or whether no financial help should be given the Company, revolves around the ability of the Company to raise their production along the lines submitted above. This, in turn, depends upon the potential productivity of the field.

At the present time, the Gippeland field is obviously a hopelessly non-commercial proposition. The fact that it happens to be the only producing field on this Continent, makes it certainly very interesting from a historical or scientific standpoint. However, this distinction cannot redeem the fact that, up to the present, the field has proved to be a persistent drain on the pocket of the public. The quality of the oil is extremely poor, making it unsuitable for automotive purposes. Most of its yield consists in lubricating oil and heavier products. The field can, therefore, not claim to be a proposition of major national importance.

Potential Productivity of the Field:

When the question of a loan on Mr. Demaine's basis is considered on the strength of the figures submitted, the following facts should be kept on mind:-

A more than tenfold daily production from the present shaft is necessary in order to cancel the present daily deficit. This calculation only takes care of balancing the budget; it in no way wipes out the very extensive past debt, nor does it make the Company financially sound. For the Company to become a paying proposition, the daily production should be greatly in excess of 1,800 gallons per day, when only a \$7.0.0. daily credit is shown on a present-day expenditure basis. In a few years time this expenditure may be considerably in excess of \$71.0.0.

The question then boils down to whether the production from the present shaft can be increased more than tenfold.

Hopes in this respect have lately been running high, mainly on the basis of the performance of bore D 1B. In the period from the 19th to the 21st December 1950, D 1B yielded 629 gallons in 16 tests, extending over seven hours and twenty minutes. The best tests, the earlier ones, were 67 gallons of oil in 30 minutes from 289 gallons of water. But the worst tests, which are the two last yields, amounted to only 8 gallons of oil from 311 gallons of water in 20 minutes and 3 gallons of oil from 317 gallons of water in 20 minutes.

These figures suggest a progressively increasing water invasion and it seems a fairly consistent occurrence in the area drained by the shaft. Probably the most optimistic but least conservative estimates for future increase in production from the holes radiating from the shaft, should not exceed the 500 gallons daily production mark and would consequently be far below the figure needed to make the proposition even modestly commercial. Our opinion is based on the following considerations:-

Geology of the Reservoir rock:

Porosity and permeability in the glauconite are extremely variable and inconsistent. Sampling of the rock

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and behaviour of the wells so far drilled, seem to indicate that vermicular and more or less lenticular areas exist within the glauconite, capriciously distributed throughout the reservoir rock. These "shoe-strings" are composed of a more porous glauconite irregularly distributed in an otherwise very poor reservoir rock, consisting of a considerably less pervious glauconitic sandstone. Some of these less cemented channels reach to the base of the glauconite, whereas others may either communicate with them or form quite independent lenses. Into such channels and lenses we think the oil tends to accumulate, at the expense of the much denser surrounding material.

Mr. C.S. Demaine thinks and the writer agrees with him, that the base of the glauconite, where it directly rests on the water-logged sands with no intervening clay seal, is a very irregular surface. The greater accumulation of oil seems to exist at or very near this contact within the glauconite. Above this basal and maximum accumulation zone, which is very narrow, good impregnation seems restricted to the "shoe string" lenses postulated above. It largely depends on the communication of these lenses with the base of the glauconite.

Holes have been drilled in every direction around the shaft and, although many intermediate holes are still awaiting their turn, it is not very probable that they can much alter the overall picture based on the existing wells which fairly well cover the area accessible from the shaft. This picture is not very encouraging. It seems to indicate that the performance of each hole largely depends on two factors:

- (1) On the amount of vermicular saturated lenses which the hole has tapped, whether perpendicularly or, better, longitudinally to their ever-varying trends.
- (2) On whether or not it has managed to stop short of the water sands which directly support the oil-impregnated glauconite. If a hole reaches the very base of the glauconite, it taps a relatively large amount of oil and, at the same time lets in water from below.

It does not seem that this overall picture is susceptible of much change in the future and, consequently, it does not seem at all likely that the remaining holes are apt to change much the overall production figures in the present shaft.

Origin of the Oil:

The idea that the glauconite itself may be the source rock seems hardly tenable. Source rocks are known from various places in the world and the writer is well acquainted with some. They are bituminous clays or muds, not sand. Various opinions have been expressed regarding the theoretical conditions under which glauconite may form and it seems that conditions, theoretically at least, may vary to some extent. It is well known, however, that one favourable environment for the formation of glauconite is between 20 m. and 80 m. depth, off wind-swept coasts, in agitated water. We have proof in the Gippsland glauconite itself, that it was deposited under conditions of ample aeration. Its fauna, rich in well-developed, healthy looking gastropods, pelecypods, echinoderms and bryozoa, formally contradicts any suggestion of anaerobic conditions in the glauconitic sand environment in which these forms lived. The perfect preservation of their tests precludes all possibility of transport from elsewhere. And well-aerated conditions, in a sandy environment, lacking a clay seal, just do not agree with