W 638

FINAL WELL REPORT
HALLIDAY ENTERPRISES PTY. LTD.
EAST REEVE NO.1

638

W 638

WELL REPORT

COMPANY: Halliday Enterprises Pty. Ltd.

WELL: EAST REEVE NO. 1

LOCATION: Latitude: 38°05'50"S
Longitude: 147°32'51"E
P.E.P. 72 Gippsland Basin (onshore)
VICTORIA, AUSTRALIA

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SUMMARY

The East Reeve No. 1 well was drilled three miles south west of Loch Sport, Victoria at the beach terminus of Track 10 about 300 yards from Ninety Mile Beach. It was located in P.E.P. 72 and drilled under a farm-in arrangement with Woodside Oil N.L. (Woodside-Burmah N.L.) and it's partners.

The objective of the well was to test the Latrobe Group and the top of the underlying Strzelecki Group on a structural closure interpeted from seismic data. The structure extended offshore into the neighboring tenements, VIC/P8. The farm-in arrangement was extended to include the offshore portion of the structure with the tenement holders of VIC/P8, Woodside Oil N.L. etal.

East Reeve No. 1 was spudded on September 14, 1971 with W.L. Sides & Son Pty. Ltd. Failing 1500. The well was suspended at 106 feet pending the arrival of a larger rig. The hole was restarted on January 17, 1972 using Richter Bawden Drilling's Rig M1. The well was plugged and abandoned as a dry hole on February 2, 1972.

Total depth was 5322 feet, driller and 5317 feet Schlumberger. Casing was stuck at 148 feet in loose surface sands. No other fishing or serious lost circulation problems were encountered. Electric logs were rendered difficult to interpet due to salt water being used as drilling fluid.

Two tests were conducted behind 5½ inch casing. Twenty-one perforations were shot over 5 foot intervals from 3890-3895 feet and from 3919-3924 feet. Both tests recovered fresh water with an oil slick. The oil accumulations were not commercial. 1200 feet of 5½ inch production casing was retrieved.

WELL HISTORY

General Data

Well Name:	EAST REEVE NUMBER 1
LOCATION:	Latitude 38°05'50"S Longitude 147°32'51"E
Name and Address of Tenement Holder:	Woodside Oil N.L. 151 Flinders Street, MELBOURNE, Victoria 3000
Petroleum Tenement:	P.E.P. 72 (onshore) Victoria
District:	Gippsland Basin
Total Depth:	Driller: 5322' (KB) Schlumberger: 5317' (KB)
Date Drilling Commenced:	September 14, 1971
Date Well Suspended:	September 15, 1971 at 106'
Date Well Restarted:	January 17, 1972
Date Well Abandoned:	February 2, 1972
Drilling time to Total Depth:	8 days
Elevations:	Ground Level: 5 feet Kelly Bushing: 18 feet
Status:	Plugged and abandoned.

Drilling Data

Name and Address of Drilling Contractor: Richter Bawden Drilling Pty. Ltd.
Princess Gate Building
Flinders Street,
MELBOURNE, Victoria 3000

Drilling Plant: Rig M1, National 110DE
Capacity 16,000 feet
Motors: 3, PTS-6 Superiors

Mast: Lee C. Moore, Cantilever, 960,000 lb. capacity

Pumps: 1 National N1100, Duplex, 7¼" x 16", compound drive
1 Emsco D1000. Duplex, 7¾" x 18", compound drive

Blowout Preventors: 1 Cameron U 5000 lb. 13-5/8"
1 G.K. 5000 lb. 13-5/8" W.P. hydril
TESTING: 1 Schaffer E 900 Series 6" Double Gate

Hole Sizes: 17½" to 148'
12¼" to 1007'
8¾" to 5322'

Casing and Cement:

Setting Depth (KB)	148'	987'	4472'
Size	13-3/8"	9-5/8"	5½"
Weight	54.5 lb.	40 & 47 lb.	26,20,17, & 15.5 lb.
Grade	J55	J55	N 80, J55
Thread	Buttress	8 Round, Buttress	8 Round
Shoe and Collars	Guide	Guide, float coll	Guide, Float Coll
Centralizers	One	One	Three
Cement	170 sxs w/ 2%Ca	370 sxs, 2%CaCl	420 sxs w/½% retard
Cement method	Dowell, cmt head	Dowell, cmt head	Dowell, cmt head

Drilling Mud: Fresh water gel, salt water to 170,000ppm added below 3,000' to 4,000'.

Water Supply: Hauled by tanker

Drilling Mud Additives:

Gel	266 sacks	Supercol	7 sacks
Caustic Soda	3 drums	Cellucol	1 box
Qbroxin	3 sacks	Dextrid	2 lbs.

Perforating: Test No. 1 3919-24' 21 shots, Schlumberger shaped c.
Test No. 2 3890-95' 21 shots, Schlumberger s. charges

Plugs: Plug No. 1 4515-4615 10 sxs. cmt.
Plug No. 2 3905' Baker bridge plug set w/ Schlumberger
Plug No. 3 3715-3850' 15sxs. cmt.
Plug No. 4 900-1100'20sxs.cmt.
Plug No. 5 surface 8 sxs. cmt.

Fishing: Recovered stuck drill pipe w/17½" bit from 148' by washing out slumped sand w/ 2-7/8" tubing around annulus

Lost Circulation: Several truck loads of drilling fluid were lost slowly in the zone 3900-4700' throughout drilling below 3900'. The thief zones were the sands of the Latrobe Group. Drilling fluid losses were at no time rapid enough to affect drilling.

Bits:

NO.	SIZE	MAKE	TYPE	IN	OUT	FTAGE	HOURS	CONDITION
1	17½	HTC	OSC	0	148	148	3	1-1-1
2	12¼	HTC	OSC	148	1007	857	10	1-1-1
3	8½	HTC	X3A	1007	2400	1393	8¾	1-1-1

Bits (cont'd):

NO.	SIZE	MAKE	TYPE	IN	OUT	FTAGE	HOURS	CONDITION
4	8½	HTC	X3A	2400	4093	1693	18¼	n.a.
5	8½	HTC	X1G	4093	4772	679	12	n.a.
6	8½	HTC	X1G	4772	5237	465	15¼	8-8-1
7	8½	HTC	X3A	5237	5322	85	5½	5-2-1

FORMATION EVALUATION

Coring: 20 Sidewall cores, taken by Schlumberger

Testing: Two tests were conducted behind 5½" casing. Both zones were swabbed in through 2-7/8" tubing and after removal of drilling fluid both flowed fresh water with an oil slick.
Test No. 1: 3919-3924 feet, 21 perforations
Test No. 2: 3890-3895,feet, 21 perforations
Both zones were allowed to flow until clear formation water was obtained. The oil slicks in both cases were very minor. Resistivity of the formation waters were both 1.5 ohms. @ 75°. Both zones flowed at the rate of approximately 1000 bwpd.

Mudlogging: Hotwire and Chromatograph with Drill Rate by Core Laboratories Australia Ltd.
Logger: D. Sisely

Wireline Logging: Induction Electric - Spontanious Potential and Formation Density - Gamma Ray - Caliper, Gamma Ray - Casing Collar Locator for production tests, perforations, 2 casing cutter runs. by Schlumberger Seaco
Engineers: C. Jenkins and T. Kellog
Intervals: IES-SP 5316-984'
FDC-GR 5316-3800'
Perfs 3919-3924, 3890-3895'
Csg cuts 3400', 1200'

Ditch Samples: 10 foot washed and dried, 150'-5322' (TD)
Distribution: 1 set each to Halliday Enterprises
Woodside-Burmah N.L.
Victorian Mines Dept.

Deviation Surveys:

DEPTH	VERTICAL DEVIATION
673	½°
2400	¾°
3500	1°
4940	1°
5237	1°

Other Surveys: None

WELL EVALUATION

The well was evaluated by cutting samples, mudlog and wireline data, Two specific zones, 3919-24' and 3890-95', were tested behind casing. These two tests resulted in freely flowing fresh water with minor oil slicks. There were no commercial accumulations of hydrocarbons in the well.

GEOLOGY

Geology of the East Reeve Number 1 well was obtained by wireline logs and ditch samples. Formation tops were taken from wireline data. Formation descriptions are of the cuttings derived from ditch samples. All measurements are from the kelly bushing, 13 feet above ground level and 18 feet above sealevel.

From surface to 590 feet occurred Lower Pliocene sands and coquina with minor marl belonging to the Jemmy's Point Formation. The interval from surface to 380 feet was sand, fine grained to granule size, predominately medium to very coarse grained, sub angular to rounded, loose, quartzose with occassional shell or lithic fragments, micaceous, generally clean but with some interbedded brown, silty shale or zones with clay matrix and some traces of carbonaceous debris. The top few feet were reworked by wind.

From 380 feet to 450 feet occurred coquina, predominately pelecypod debris with interbedded silty, light olive-grey clay, minor black lignite and some very fine grained silty, fossiliferous sand. The lowest section of the Jemmy's Point Formation from 450 to 560 feet consisted of loose quartzose, fossiliferous sand, fine to coarse grained, sub angular to sub rounded with minor mica and lignite. The formation may extend to 760 feet.

The Upper Miocene Tambo River Formation was predominately a marly coquina extending from 560 to 760 feet. The coquina consisted of shell and fossil fragments with silt and some sand grains in a light olive-grey marly matrix. It contained minor pyrite and mica. Generally the Tambo River in the local area is more marly and glauconitic. Lithologically the interval 560 to 760 feet in the East Reeve Number 1 well resembles the Jemmy's Point and the Tambo River may be missing in the well. Without more accurate age dating this question cannot be resolved.

The Miocene Gippsland Formation occurred from 760 to 3245 feet. It consisted of principally loose, porous, fragmental, skeletal, cream or light grey limestone with occassional calcite cement. It contained zones of interbedded light grey-green marly and fossiliferous mudstone which became fissile below 2600 feet. There were rare sandy streaks. It contained minor methane gas.

From 760 to 1197 feet the Gippsland Formation was a very loose skeletal limestone with some marl and minor sand with traces of glauconite. From 1197 to 1270 feet it was similar but contained more interbedded soluble marl. Below 1270 feet it was a clean, loose fragmental limestone becoming slightly dirtier from 1900 to 2200 feet, with traces of pyrite. From 2200 to 3190 feet the formation consisted of interbedded porous limestone as above with light grey-green marl and mudstone, very fossiliferous and slightly glauconitic along with common streaks of moderate calcite cemented skeletal limestone. Below 2800 feet this zone became decreasingly cemented and more dirty with increased interbedded shale which was simular to the mudstone above but had became fissile below 2600 feet. The basal zone of the Gippsland Formation from 3190 to 3245 feet was simular to the above but contained better defined interbeds of cemented skeletal limestone and soft, fossiliferous, olive-green shale.

The principal fossil types in the Gippsland Formation were bryzoa, mollusks, forams and echinoids. Minor methane gas "kicks" were recorded across the more porous zones. These reading gradually increased with depth to a maximum of 500 ppm CH_4 at 3200 feet. No flourescence due to hydrocarbons were observed in the formation.

The Oligocene Lakes Entrance Formation is included in the interval 3245 to 3878 feet. From 3245 to 3500 feet it was a soft, grey-green, very fossiliferous, weakly fissile shale with minor pyrite and glauconite. From 3500 to 3800 feet it consisted of a simular shale with increased calcareous content. From 3800 to 3878 feet it was much more silty and very dolomitic with relatively low porousity. Minor methane gas occurred throughout the formation with a maximum of 1000 ppm CH_4 at 3800 feet. The only flourescence was from fossils.

The unconformity at the top of the Latrobe Group occurred at 3878 feet and the formation extended to 4734 feet. The Latrobe was composed of thick, porous sandstone with interbedded coal, shale and siltstone and occassional dolomite bands. It was the principle petroleum target in the well. Very minor methane gas was encountered which was generally associated with the shales and coal. Some sands were stained with a dead waxy residue and contained traces of oil. There were no commercial accumulations of hydrocarbons in the formation.

The Latrobe sands were 10 to 240 feet thick, very fine to fine grained and well sorted to fine-very coarse grained, often pebbly. The grains were mostly quartz with minor carbonaceous and lithic clasts, angular to rounded and loose. There were occassional koalinitic zones and laminations of siltstone. The porousity and permeability were generally excellent. The sands yielded virtually no gas at all but were often stained with a dead waxy residue. Tests of the upper two sands recovered fresh water (Resistivity 1.5 ohms @ 75^{o}) with minor oil slicks.

The coals were dark brown to black, generally sub bituminous grading to lignitic, rarely peaty, slightly pyritic, dirty in part and brittle to soft. The maximum gas was from 4100 to 4200 feet and was up to 1500 ppm CH_4 in the drilling mud. The shales were brown-grey, silty, carbonaceous in part, micaceous and gave gas reading to 1000 ppm CH_4. The siltstone were simular to the shales, laminated often grading to sandstone. The dolomite bands occurred at or near the top of the formation. One five foot dolomite defined the top of the Latrobe, two others occurred at 3910 and 4110 feet.

The oldest formation reached by the well was the Gretaceous Strzelecki Group. It occurred from 4734 feet to total depth at 5322 feet, Only the top portion of the formation was penetrated. The lithology consisted of thick grey sandstone greywackes with interbedded siltstone and shales. The basal 50 feet of the well encountered harder drilling with common fragments of probable volcanic origin. It was not certain whether this interval was Strzelecki Formation containing volcanic fragments or represented some form of igneous activity.

The greywackes were light grey, very fine-fine grained, occassionally medium grained, very clayey, dirty and tight. They were poorly sorted with occassional porous streaks. The sand grains were generally quartzose with common black or varicoloured lithic clasts. The rock at times had a salt and pepper appearance.

The Strzelecki shales were light brown, cream, silty and slightly carbonaceous or buff, silty, sandy and tough. The siltstones were often interlaminated with sandstone, light grey-green, micaceous, dirty or calcareous. The volcanic(?) fragments in the basal section were clear glass with included black specks and irregular red spots. The more porous sections of the Strzelecki gave minor methane gas "kicks", particularly from 4920 to 5140 feet where up to 1000 ppm of CH_4 were recorded.

T A B L E 1

STRATIGRAPHY, EAST REEVE NO. 1, Halliday Enterprises Pty. Ltd.

AGE	FORMATION	LITHOLOGY	DEPTH (of tops) kelly bushing	DEPTH (of tops) ground level	THICKNESS
L. PLIOCENE	Jemmy's Point	Sand, coquina, some marl	13	surface	547+
U. MIOCENE	Tambo River	Coquina	560	547	200
MIOCENE	Gippsland Ls.	Limestone	760	747	2485
OLIGOCENE	Lakes Entrance	Shale	3245	3232	633
L. OLIGOCENE	Latrobe Group	Sand, coal, silt, shale, dolomite	3878	3865	858
GRETACEOUS	Strzelecki Gp.	Greywacke, silt shale, volcanics	4724	4711	n.a.

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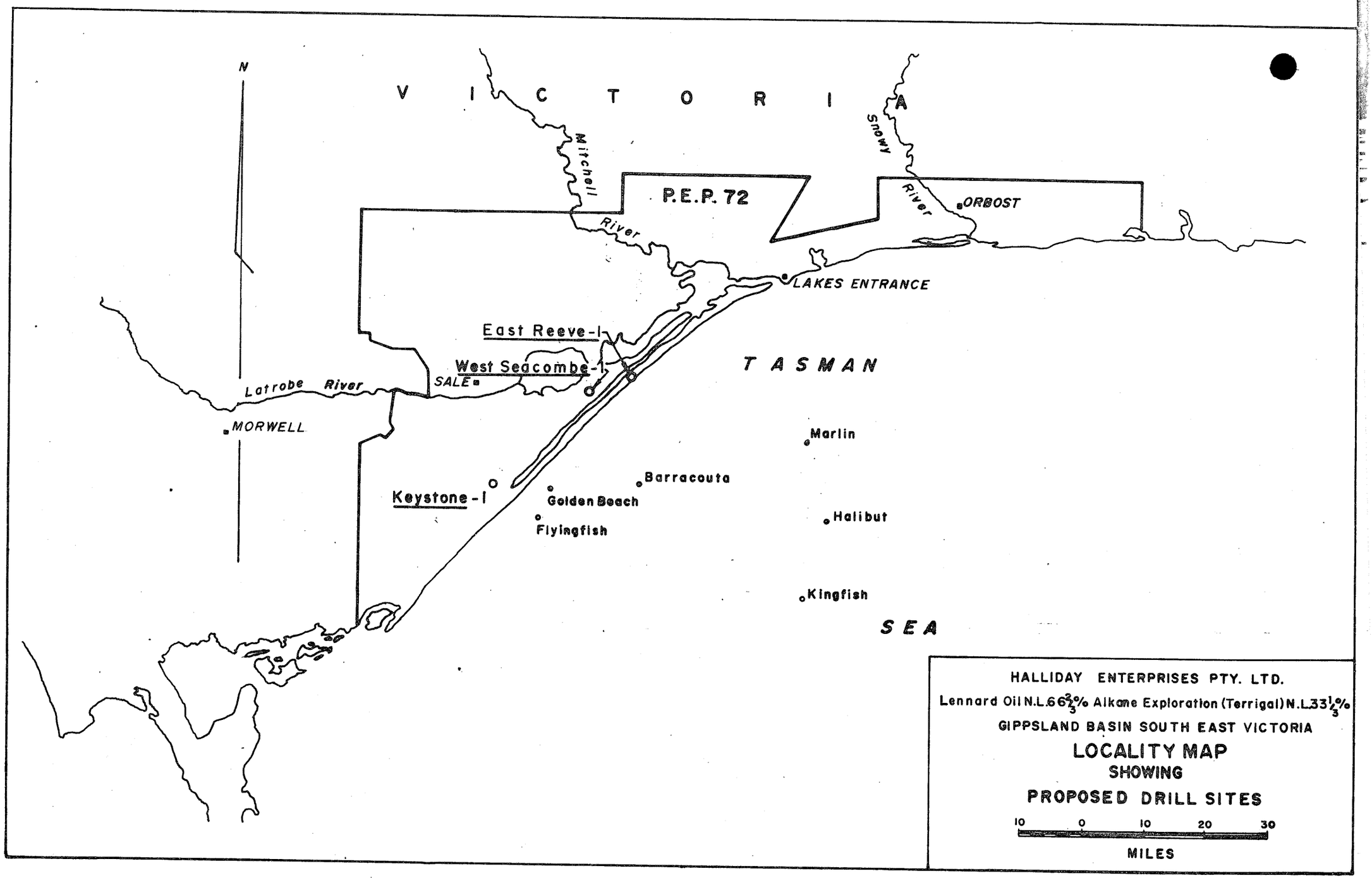
APPENDIX

SIDEWALL CORE DESCRIPTION, EAST REEVE NO. 1

Depths were selected from FDC log; solvent cuts were with acetone were unnoted.

CORE NO.	DEPTH	RECOVERY	DESCRIPTION
20	3900'	1¾"	Sandstone: light grey, very fine grained, very well sorted, sub rounded, soft, friable, occassional patches of possible brown hydrocarbon stain giving light blue-yellow flourescent cut. Sand non-flourescent.
19	3930'	1	Sandstone: brown-grey. medium-coarse, sub-angular- sub rounded, soft, friable, brown hydrocarbon (wax?) stain, rapid yellow flourescent cut, sand non-flourescent.
18	3947'	1	Sandstone: sample completely permeated with drilling fluid, brown, fine grained to granule, predominately coarse grained to granule, sub angular to sub rounded, very friable, brown stain with flourescent cut as above.
17	3960'	1	Sandstone: light grey, fine grained to granular, very friable locally micaceous, occassional coal and lithic fragments, quartzose, patchy faint brown stain, flourescent as above.
16	3997'	1¾	Sandstone: light brown-grey, fine grained to pebbly, predominately coarse grained to granular, angular to rounded, very soft and friable, formation non flourescent, no cut in chlorothene but cut with acetone (faint light yellow)
15	4010'	1	Sandstone: light brown-grey, medium grained to granular, sub angular to rounded, soft and friable, very permeated with drilling fluid, very porous, occassional carbonaceous and lithic grains, no flourescence.
14	4117'	1	Coal: dark brown, brittle, sub bituminous.
13	4135'	1	Siltstone: grading to very fine grained sandstone, light brown-grey, some patchy brown stain, non flourescent, faint yellow-white cut.
12	4190'	1¼	Sandstone: light grey, coarse grained to granular, very soft, friable, well sorted, sub angular to sub rounded, occassional fragments of brown mica and carbonaceous siltstone, rare lithic grains, completely permeated with drilling fluid, no flourescence.
11	4355'	1½	Sandstone: light brown-grey, medium grained to granular, predominately coarse grained, angular to sub rounded, very soft, friable, rare lithic fragments, trace coal grains, completely permeated with drilling fluid, no flourescence, very faint yellow cut.
10	4360'	1¼	Sandstone: light brown-grey, fine grained to pebbly, predominately coarse grained to granular, angular to rounded, soft, friable, poorly sorted, very porous, completely saturated with drilling fluid, no flourescence.
9	4374'	1	Sandstone: brown-grey, fine grained to granular, angular to sub angular, very soft and friable, very poorly sorted, thin carbonaceous lamina 1 mm thick, trace pyrite, no flourescence, no cut with chlorothene, yellow-white cut with acetone.
8	4416'	1¼	Sandstone: light grey, fine grained to granular, bimodal: fine grained and coarse grained, slight clay matrix, trace lithic fragments, angular to sub angular, permeated with drilling fluid in part, minor carbonaceous flecks, no cut.
7	4460	1-1/8	Sandstone: light grey, medium grained to granular, white kaolin matrix, soft, friable, porous to tight, trace carbonaceous material, no flourescence or cut.
6	4518	1-1/8	Sandstone: light grey, medium grained to granular, predominately coarse grained to granular, angular to sub angular, very soft friable, minor white kaolin matrix, no flourescence, faint yellow cut from carbonaceous grains.
5	4556	1	Sandstone: light grey, medium grained to granular, predominately coarse grained, angular to sub angular , very soft and friable, minor lithic grains, minor mud invasion, no flourescence.

CORE NO.	DEPTH	RECOVERY	DESCRIPTION
4	4615'	1¼	Sandstone: light grey, fine to coarse grained, predominately medium to coarse grained, angular to sub angular, white koalin matrix, very soft, friable, trace carbonaceous and lithic grains, no flourescence.
3	4648'	1¼	Sandstone: light grey, fine grained to granular, predominately coarse grained to granular, angular to sub angular, fine carbonaceous grains, 5% lithic grains, trace mica, white kaolin matrix, no flourescence.
2	4686'	1	Siltstone: light brown-grey, laminated, alternating thin silt and black carbonaceous streaks with mica, no flourescence.
1	4708'	¾	Siltstone and Sandstone: laminated siltstone as above grading to sandstone: light grey, very fine to fine grained angular, soft, friable, no flourescence.

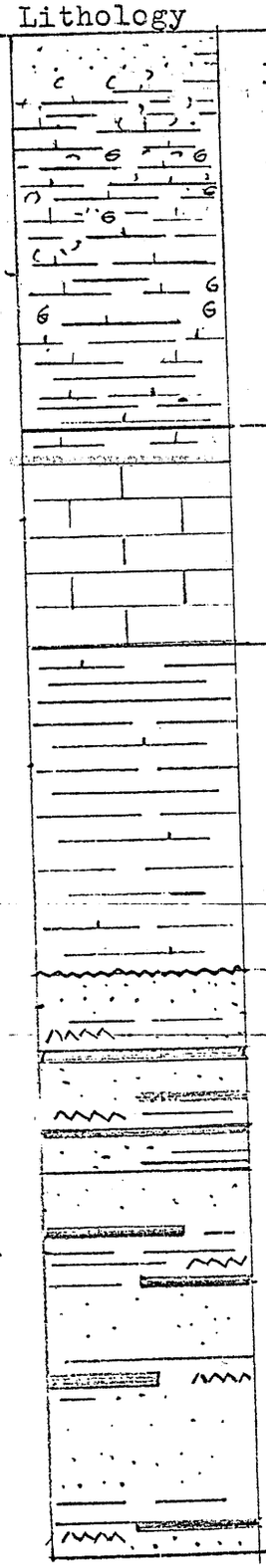

N
V I C T O R I A
Mitchell River
Snowy River
P.E.P. 72
ORBOST
LAKES ENTRANCE
East Reeve-1
West Seacombe-1
SALE
Latrobe River
MORWELL
T A S M A N
Marlin
Barracouta
Keystone-1
Golden Beach
Flyingfish
Halibut
Kingfish
S E A
HALLIDAY ENTERPRISES PTY. LTD.
Lennard Oil N.L. 66⅔% Alkane Exploration (Terrigal) N.L. 33⅓%
GIPPSLAND BASIN SOUTH EAST VICTORIA
LOCALITY MAP
SHOWING
PROPOSED DRILL SITES
10 0 10 20 30
MILES

APPLICATION

HALLIDAY ENTERPRISES PTY LTD

EAST REEVE No 1

STRATIGRAPHIC CHART *BEFORE DRILLING*



FORMATIONS

PLIOCENE

Loose quartz sands and marl (0-400')

grading down to fossiliferous marl

MIOCENE

Marl and limestone

(GIPPSLAND FORMATION)

OLIGOCENE

Calcareous shale

(LAKES ENTRANCE FORMATION)

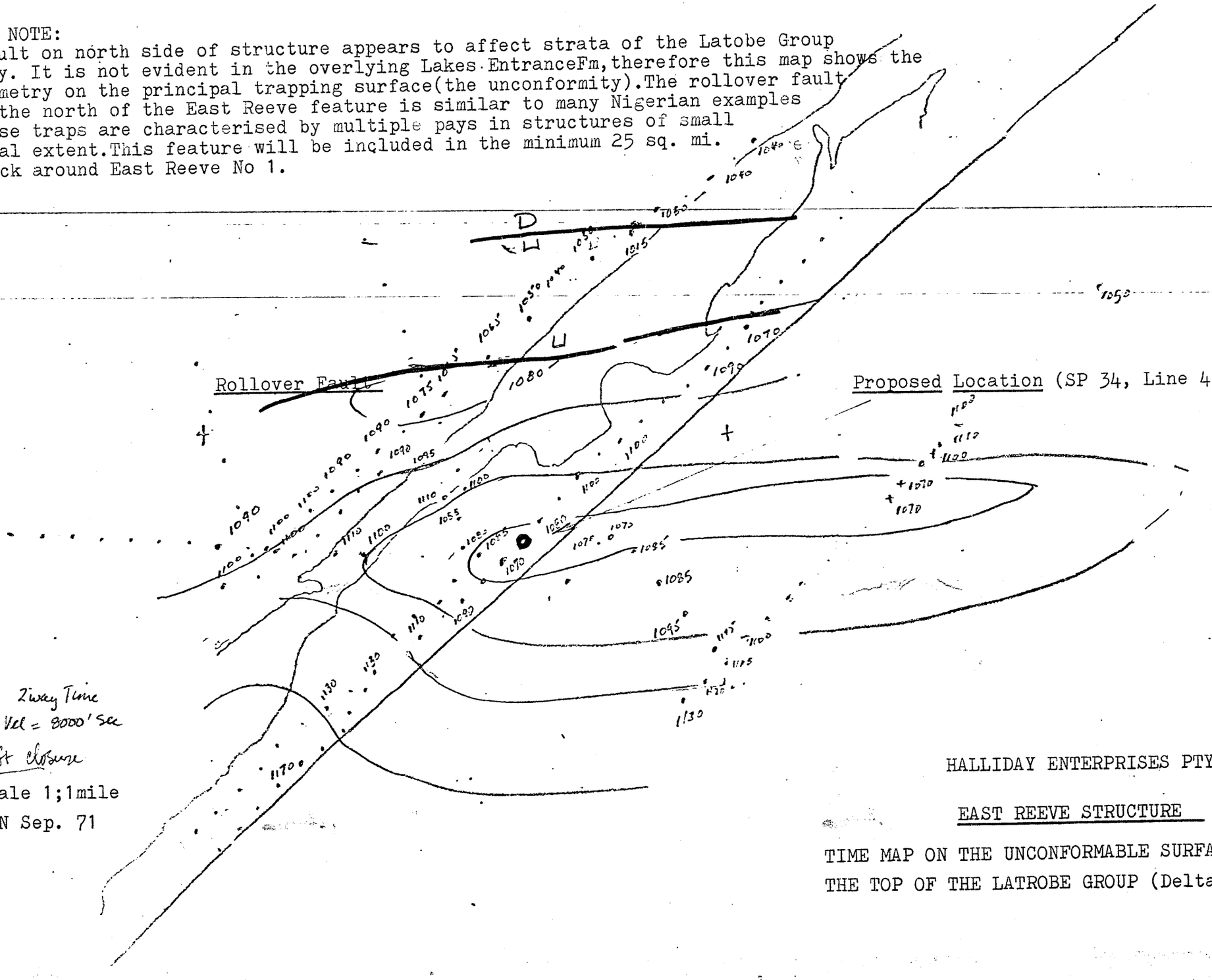
EOCENE and OLDER

Coal, carbonaceous shale and siltstone, porous quartzose sands.

(LATROBE GROUP)

Projected TD 4500 feet

NOTE:
Fault on north side of structure appears to affect strata of the Latobe Group only. It is not evident in the overlying Lakes Entrance Fm, therefore this map shows the geometry on the principal trapping surface (the unconformity). The rollover fault to the north of the East Reeve feature is similar to many Nigerian examples these traps are characterised by multiple pays in structures of small areal extent. This feature will be included in the minimum 25 sq. mi. block around East Reeve No 1.



40 ms 2 way Time
w/ Ave Vel = 8000'/sec
160 ft closure

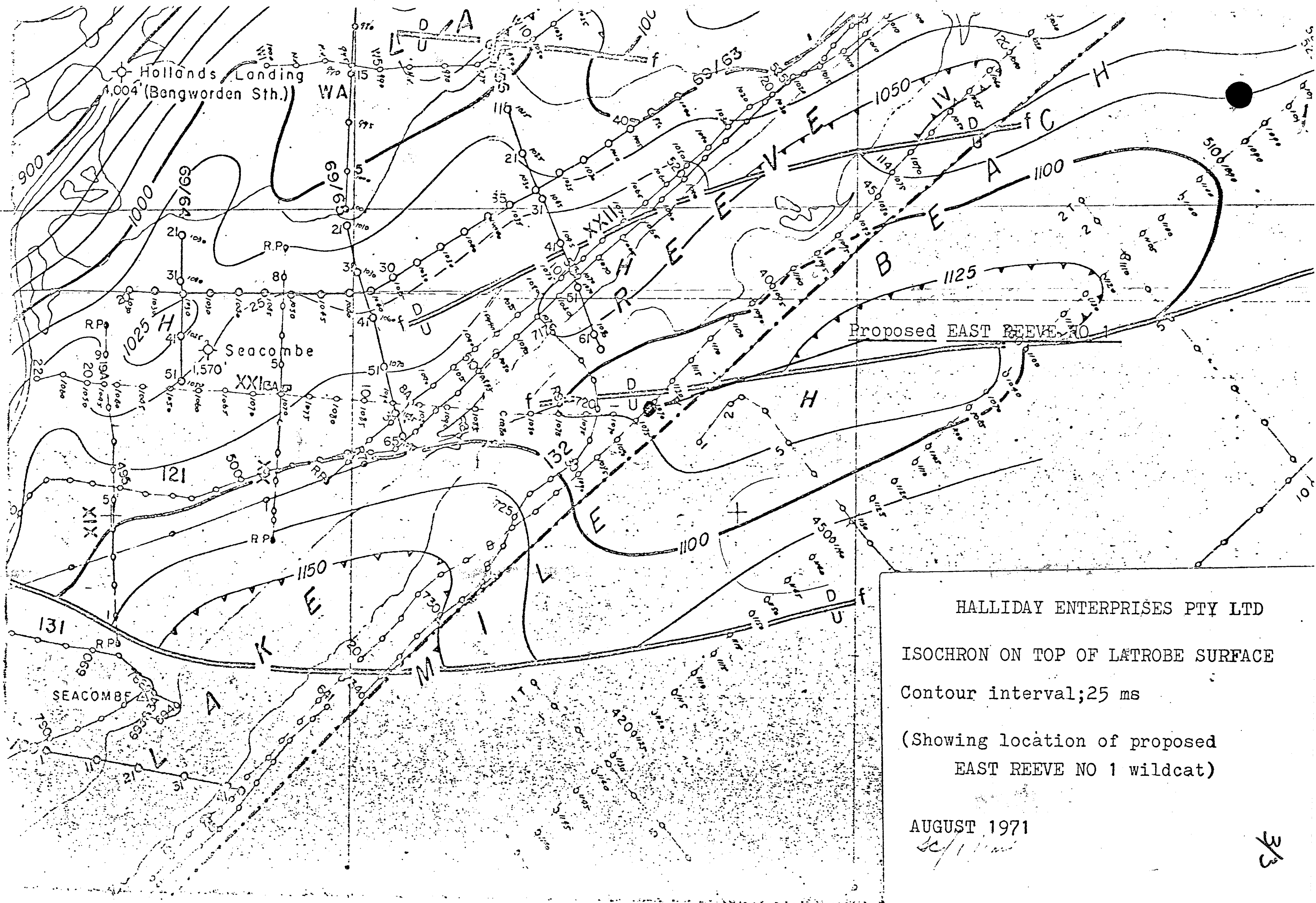
Scale 1;1mile
WHN Sep. 71

HALLIDAY ENTERPRISES PTY LTD

EAST REEVE STRUCTURE

TIME MAP ON THE UNCONFORMABLE SURFACE AT THE TOP OF THE LATROBE GROUP (Delta complex)

9/5



HALLIDAY ENTERPRISES PTY LTD

ISOCHRON ON TOP OF LATROBE SURFACE

Contour interval; 25 ms

(Showing location of proposed
EAST REEVE NO 1 wildcat)

AUGUST 1971

PE601455

This is an enclosure indicator page.
The enclosure PE601455 is enclosed within the container PE902795 at this location in this document.

The enclosure PE601455 has the following characteristics:

ITEM_BARCODE	= PE601455
CONTAINER_BARCODE	= PE902795
NAME	= CoreLab Grapholog Mudlog
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= CoreLab Grapholog Mudlog
REMARKS	=
DATE_CREATED	= 25/01/1972
DATE_RECEIVED	= 03/02/1972
W_NO	= W630
WELL_NAME	= East Reeve-1
CONTRACTOR	= Halliday Enterprises
CLIENT_OP_CO	= Halliday Enterprises

(Inserted by DNRE - Vic Govt Mines Dept)

PE601454

This is an enclosure indicator page.
The enclosure PE601454 is enclosed within the container PE902795 at this location in this document.

The enclosure PE601454 has the following characteristics:

ITEM_BARCODE	= PE601454
CONTAINER_BARCODE	= PE902795
NAME	= Well Completion Log
BASIN	= GIPPSLAND
PERMIT	=
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Well Completion Log
REMARKS	=
DATE_CREATED	= 02/02/1972
DATE_RECEIVED	= 06/04/1972
W_NO	= W630
WELL_NAME	= East Reeve-1
CONTRACTOR	= Halliday Enterprises
CLIENT_OP_CO	= Halliday Enterprises

(Inserted by DNRE - Vic Govt Mines Dept)