302 TQ34/9
77

TQ 3186 4141

Smallfields

3. REDE HALL. Mr. Tebbs.

Bored and communicated by MESSRS. DUKE and OCKENDEN.

Abundance of water, rising 3½ feet above the ground.

		Thickness. Feet.	Depth. Feet.
Well (? old), the rest bored		—	47
[Weald Clay.]	Soft blue rock	32	79
	Hard rock, with veins of clay a few inches thick	66	145
	Softer strata, with sand ...	5	150

6" 42 N.W./W.

Not classifiable in detail.
Probably Weald Clay to about 50
UTW but arg Marcous to about 100
UTW silts with sandstones to about 150.

R.G. 8/1/64.

DATA Bank

Published in W. S. Survey.
p. 175.

1 302/77 **Rede Hall, Burstow (formerly Red Hall Farm).** (Disused) TQ34/9

W.S.S. pp. 123 and 175. Surface +200. Shaft 47; rest bore. Water struck at +160 to +153. Overflowed. R.W.L. +203½. *Dando, 1894.*

WC	...	...	? 50	? 50
UIW	...	...	? 100	150

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS	DEPTH
	WELL (? OLD) THE REST BORED	—	47′
WEALD CLAY	SOFT BLUE ROCK	32′	79′
	HARD ROCK WITH VEINS OF CLAY A FEW INCHES THICK	66′	145′
	SOFTER STRATA	5′	150′

TQ 23 NW/1 TQ23/9

RECORD OF WELL (SHAFT OR BORE)

N.S. 802
T.S.
Ref. 302-TQ23

At Prestwood Farm

Town or Village Ifield County Sussex Six-inch quarter sheet N.W.

Exact site 250 yds. S.E. of Prestwood Farm. 1 mile N.W. of Ifield. in parish of GR 2329 3849 (A rough sketch-map or a tracing from a map is very desirable)

Level of ground surface above sea-level (O.D.) 300 approx. ft. If well starts below ground surface, state how far — ft.

Shaft 37½ ft., diameter — ft. Bore N 98 ft. Diameter of bore: at top 4½ ins.; at bottom 4½ ins.

Details of permanent lining tubes (internal diameters preferred) 4½ I.D from 34'0" to 98'0" perforated from 66'0" to 98'0"

Water struck at depths of (feet) 77'0"

Rest-level of water ~~below~~ above top of well 61 feet. Suction at 84 feet. Yield on 0 hours' ~~days'~~ test 750 gallons per hour (with pump of capacity 750 g.p.h.); depressing water level to ? feet below top. Time of recovery — hrs. Amount normally pumped daily — g.p.h. for — hours.

Quality (attach copy of analysis if available)

Sunk by Duke & Ockenden Ltd for Mr. L. J. Moore.

Information from DUKE & OCKENDEN LTD., WESTMINSTER & LITTLEHAMPTON Date of well June 1944

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.
	Blue Clay & Shale.				
	Drilled & tested on Sussex 3 N.W.E. Still in use. R.W.L. 60 below well Ft. Yield 750 g.p.h. Pump 800 g/2 days. JWJ 6-6-47				

Geological Survey and Museum, South Kensington, London, S.W.7.

For Survey use only

Date received	G.S.M. Office File No.	Site marked on 1" map (use symbol)

1 302/111 Prestwood Farm, Ifield

TQ 23/9

Surface +300. Shaft 37½; rest bore. Lining tubes: 64 x 4½ in from 34 down (perforated 66 to 98). Water struck at +223. R.W.L. +239. Suction +216. Yield 750 g.p.h. (8 h. test). *Dando, June 1944.*
R.W.L. +240. Yield 750 g.p.h. *June 1947.*

WC 98 98

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA.	THICKNESS	DEPTH
W.C.	BLUE CLAY & SHALE		98'

BR XII/64

TQ 23|9 302 302

RECORD OF WELL (SHAFT OR BORE)

1" G.S. Ref. 111 NW.

At PRESTWOOD FARM

Town or Village IFIELD County SUSSEX Six-inch quarter sheet

Exact site 250 yds S.E of Prestwood Farm. 1mle N.W. of Ifield. in parish of (A rough sketch-map or a tracing from a map is very desirable)

Level of ground surface above sea-level (O.D.) 300 approx. ft. If well starts below ground surface, state how far — ft.

Shaft 37½ ft., diameter ft. Bore 98 ft. Diameter of bore: at top 4½ ins.; at bottom 4½ ins.

Details of permanent lining tubes (internal diameters preferred) 4½ I.D from 34'0" to 98'0" perforated from 66'0" to 98'0"

Water struck at depths of (feet) 77'0" TQ 2327 3849

Rest-level of water below ~~above~~ top of well 61 feet. Suction at 84 feet. Yield on 8 hours' ~~days'~~ test 750 gallons per hour (with pump of capacity 750 g.p.h.); depressing water level to ? feet below top. Time of recovery hrs. Amount normally pumped daily g.p.h. for hours.

Quality (attach copy of analysis if available)

Sunk by Duke & Ockenden Ltd for Mr. L. J. Moore. Date of well June 1944.

Information from DUKE & OCKENDEN L^TD., WESTMINSTER & LITTLEHAMPTON

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.
WC	BLUE CLAY & SHALE.			98	
HK xi/64					
	Visited & sited on Sussex 3 N.W. E. Still in use. – R.W.L. 60 below well top. yield 750 g.p.h. Pump 800 g/2 days. HKJ 6-6-47.				
	DATA Bank				

For Survey use only

Date received	G.S.M. Office File No.	Site marked on 1" map (use symbol)

Geological Survey and Museum. South Kensington. London, S.W.7.

(7993) Wt.36064/0349 5,000 12/38 A.&E.W.Ltd. Gp.686

TQ 23 SW/46
TQ23/26
TQ23/SW46

Location of Well

County: SUSSEX
Township Number | Range Number | Section No. | Fraction
HANDCROSS

Street Address and City or Distance and Direction from Road Intersections: EASTERN L.S SOUTHERN E.A. (302)

Show exact location of well in section grid with an "x" — Sketch map of well location

Addition Name
Block Number: TQ 240308
Lot Number

Remarks, Elevation, Source of Data, etc.

10 AOD   BORE DRILLED TO 72.60

Borehole data

Formation Log	Color	Hardness	From	To
SOFT LIGHT BROWN TOPSOIL	BROWN	BW SOFT MED	0	6m
CLAY DRY POWDER	LIGHT BLUE	MED	6m	28.4
Shaley SILTSTONE	Blue/Green	MED	28.4	29.3
SANDSTONE / DAMP	YELLOW/GREY	HARD	29.3	31.7
SANDSTONE / SHALE	YELLOW/GREY	SOFT	31.7	42.4
SHALE / MUDSTONE	PURPLE RED	MED	42.4	57.0
TEST WATER / POOR	BREAK		57.0	—
SANDSTONE / FINE	Chocolate	MED	57.0	58.1
SANDSTONE / SILTY	GREY	MED	58.1	62.0
SANDSTONE / Lignite	Grey/Green	MED	62.0	65.0
GROUND / WATER	—	—	65.0	
SANDSTONE / yellow clay	Yellow	HARD	65	66.0
Sandstone / Red clay	Yellow	HARD	66.0	70.00
Clay/SILTSTONE	Grey	MED	70.0	72.60
			TD	TD

Weald

Contractor Name and Address

Name of Driller: T. S. ELWIN-Holden
State License Number

Property owner's name and address
MR OLIVER GRANT
NEWSTEAD FARM
CARTERS LODGE
HAND CROSS WEST SUSSEX

Well depth: 70M. — Datum point from which all measurements are taken: Ground level

Method of Drilling
[ ] Cable tool [ ] Hollow rod [ ] Driven [ ] Dug
[ ] Direct rotary [x] Air rotary [ ] Bucket auger [ ]
[ ] Reverse rotary [x] Jetted [ ] Flight auger

Use
[ ] Domestic [ ] Public supply [ ] Industrial [ ]
[ ] Irrigation [ ] Municipal [x] Commercial
[ ] Test Well [ ] Heating or cooling [ ] Monitoring

Casing Type
[x] Steel [x] Threaded — Height above/below surface ___
[ ] Galv. [ ] Welded — Drive shoe? Yes ___ No ✓
[x] PVC [ ] Solvent welded
[ ] SS

0 in to 6M STEEL ft Wgt ___ lb/ft Sch. No. ___
0 in to 70M PVC ft Wgt ___ lb/ft Sch. No. ___
___ in to ___ ft Wgt ___ lb/ft Sch. No. ___

Hole diameter: 200MM to 70M ft; 150MM to 2M ft; ___ in to ___ ft

Intake Portion of Well
Screen type: SLOT — or open hole from ___ ft to ___ ft
Manufacturer: BOODE
Material: PVC — Dia. 115 x 125MM
Fittings: 4 x S/S CENTRAL — Length
Set between: 0 M ft and 70M ft — Slot: 1MM FROM 40M
___ ft and ___ ft — Slot: TO 70M
___ ft and ___ ft — Slot
Method of installation

Filter Pack
Source: CEM DAK — Gradation: 6MM
Method of installation: TREMMI — Composition: Rounded Flints
Volume used: 3 M³ — Depth to top of f.p.: 40 M

Grout
Used? [x] Yes [ ] No — Volume used: 300 KG
[x] Neat Cement [ ] Bentonite [ ]
Method of installation: Slurry Poured
Depth: from 0 - 6 M ft to ___ ft
from ___ ft to ___ ft

Development
Method: AIR LIFT JETTING — Duration: 48 hrs
Dates: 12.12.96 — Sand content after ___ hrs: NIL
Chemicals used: NIL

Static Water Level
51-6 M ft [x] below [ ] above grade — GL
Date measured: 14-12-96

Pumping Water Level
52-6 M ft [ ] below [ ] above grade — Date: 15.12.96
After 2-4 hrs — hrs pumping at 1500 PER HR gph

Specific Capacity
1500 GAL PER HR gpm/ft of drawdown at INSTANT hours
Date: 15.12.96

Pump
Date installed: LOWARA 17/12/96 — Type: 12 6S22 M/T
Manufacturer — Model No.
H.P.: 2.2 KW — Volts: 415 — Capacity: 1500 @ 95m (Q24)
Depth of pump intake setting: 68 M — No. of stages: 12
[ ] Oil [x] Water lubrication — Power source
Material of drop pipe: GALV STEEL — bowls
shafting — impellers — Bowl dia.
Column pipe dia.: 2 INS — Length: 68M — Modifications: NIL

Well Head Completion
[ ] Pitless adaptor [ ] Basement offset — Distance above grade: 40CM

Nearest Sources of Possible Contamination
50M ft — Direction: South — Type: CATTLE Slurry PIT
Well disinfected upon completion? [ ] Yes [x] No

Geophysical Logs Run
N/A

Water Quality
Sample taken? [ ] Yes [x] No
Where analyzed

Date well completed: 18-12-96

Bore Back filled To 70m With Shingle pump Installed.
After 48hrs of jetting B/H yield 1500 GALS PER HR.
[illegible] and Pumped clean for 2hrs B/H YEILD 1500 PER HR

23/05/1997 09:04 01903874132 HYDROSERVE DRILLING PAGE 01

TQ23/26

Location of Well

County: SUSSEX
Township: HANDCROSS

Street Address and City or Distance and Direction from Road Intersections: EASTERN L.S SOUTHERN E.A. (302)

Addition Name / Block Number: TQ240308 / Lot Number

Remarks, Elevation, Source of Data, etc.
10 AOD BORE DRILLED TO 72.60

Property owner's name and address
MR OLIVER GRANT
NEUSTEAD FARM
CARTERS LODGE
HAND CROSS WEST SUSSEX TQ23/SW 46

Well depth: 70M. Datum point from which all measurements are taken: Ground level

Method of Drilling: Air rotary; Jetted

Use: Commercial

Casing Type: Steel; PVC; Threaded. Drive shoe? No
8 in to 6M STEEL; 8 in to 70M PVC. Hole diameter 200MM to 70M; 250MM to 6M

Intake Portion of Well
Screen type: SLOT
Manufacturer: BOODE
Material: PVC. Dia. 115 X 125MM
Fittings: 4 X S/S CENTRAL
Set between 0 M ft and 70M ft. Slot 1MM FROM 40M TO 70M

Filter Pack
Source: CEM PAK. Gradation: 6MM
Method of installation: TREMMI. Composition: Rounded Flints
Volume used: 3 M3. Depth to top of f.p. 40 M

Grout
Used? Yes. Volume used 300 KG. Neat Cement
Method of installation: Slurry Poured
Depth: from 0 - 6 M

Development
Method: AIR LIFT JETTING. Duration: 48 hrs
Dates: 12.12.96. Sand content after — hrs NIL
Chemicals used: NIL

Static Water Level: 31.6 M below grade. Date measured: 14-12-96

Pumping Water Level: 52.6 M below. Date 15-12-96. After 2.4 hrs pumping at 1500 PER HR gph

Specific Capacity: 1500 GAL PER HR gpm/ft of drawdown at INSTANT hours. Date 15-12-96

Pump
Date installed: LOWARA 17/12/96. Type: 12 GS 22 M/T
Manufacturer —. Model No.
H.P. 2.2 KW. Volts 415. Capacity 1500 @ 95m (274)
Depth of pump intake setting 68 M. No. of stages 12
Water lubrication
Material of drop pipe: GALV STEEL
Column pipe dia. 2INS. Length 68M. Modifications NIL

Well Head Completion: Distance above grade 40CM

Nearest Sources of Possible Contamination: 60M ft. Direction South. Type Slurry PIT (CATTLE)
Well disinfected upon completion? No

Geophysical Logs Run: N/A

Water Quality: Sample taken? No

Date well completed: 18-12-96

Borehole data

Formation Log	Color	Hardness	From	To
TOPSOIL SOFT LIGHT BROWN	BROWN	BW SOFT MED	0	6m
CLAY DRY POWDER	LIGHT BLUE	MED	6m	28.4
Shaley SILTSTONE	Blue/Green	MED	28.4	29.3
SANDSTONE/DAMP	YELLOW/GRN	HARD	29.3	31.7
SANDSTONE/SHALE	YELLOW/GRY	SOFT	31.7	42.4
SHALE/MUDSTONE	PURPLE RED	MED	42.4	57.0
TEST WATER/POOR	BREAK		57.0	—
SANDSTONE/FINE	CHOCOLATE	MED	57.0	58.1
MUDSTONE/SILTY	GREY	MED	58.1	62.0
MUDSTONE/Lignite	Grey/Green	MED	62.0	65.0
SECOND/WATER		—	65.0	
SANDSTONE/yellow clay	yellow	HARD	65	66.04
sandstone/Red clay	yellow	HARD	66.04	70.00
Clay/SILTSTONE	Grey	MED	70.0	72.60
			TD	TD

WEALD

Contractor Name and Address

Name of Driller: T. J. ELWIN-Holden
State License Number

Bore Back filled To 70m With Shingle pump Installed.
After 48hrs of jetting B/H yield 1500 GALS PER HR.
Completed and Pumped clean for 2hs B/H YEILD 1500 PER HR

Appendix B
Seismic Interpretation

A review of available seismic lines in the area has helped to confirm the nature of the faults, orientation of and thicknesses of geological strata within the vicinity of the Proposed Development site. The locations of the four seismic lines used are displayed in Plate 1. Plate 2 to Plate 4 present the three seismic lines of TWLD-90-15, TWLD-90-13 and TWLD-90-26 respectively with the relative location of the site indicated. Seismic line TWLD-90-21 has been used in assistance of unit interpretation and is presented in Plate 5.

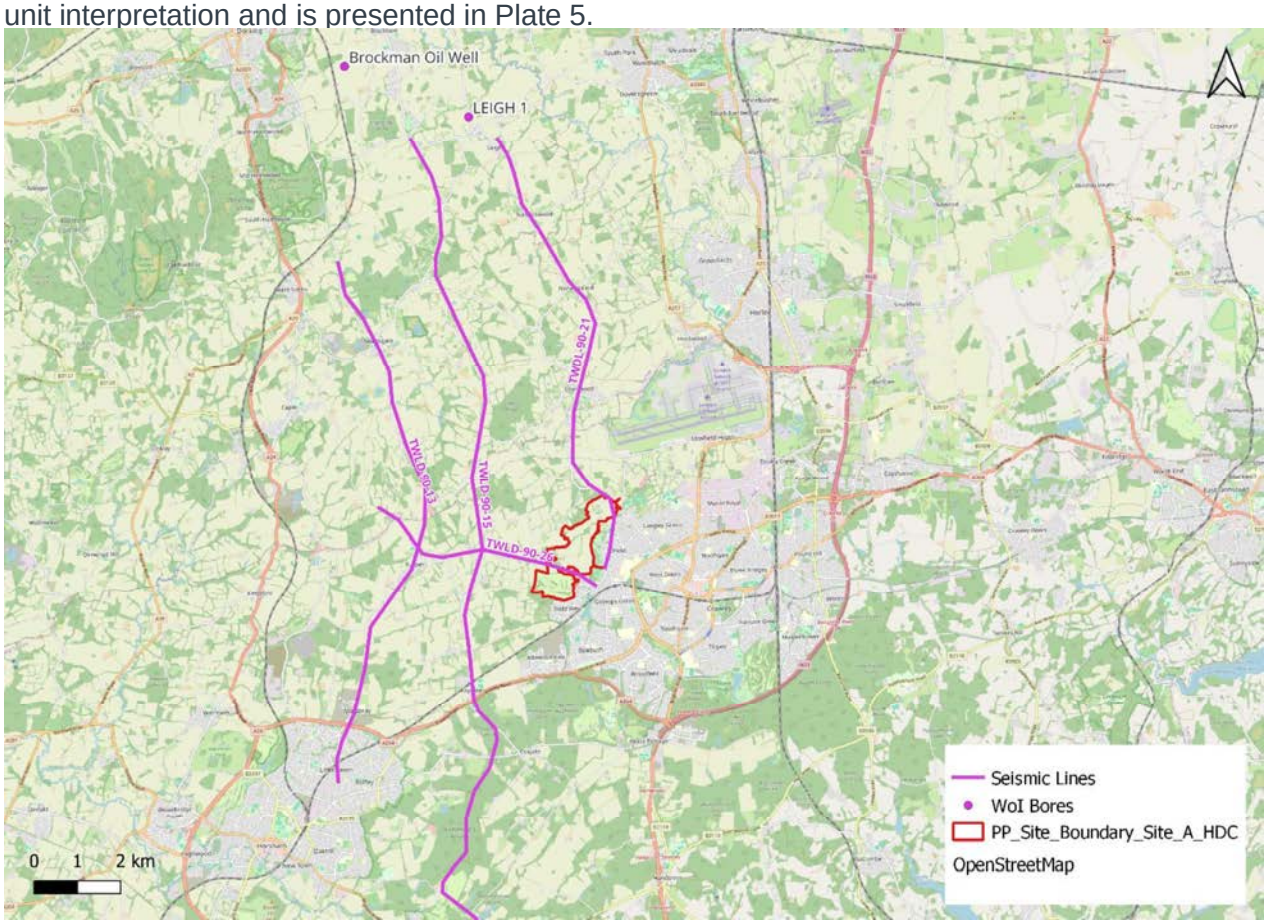


Plate 1 – Seismic Lines Locations and reference boreholes.

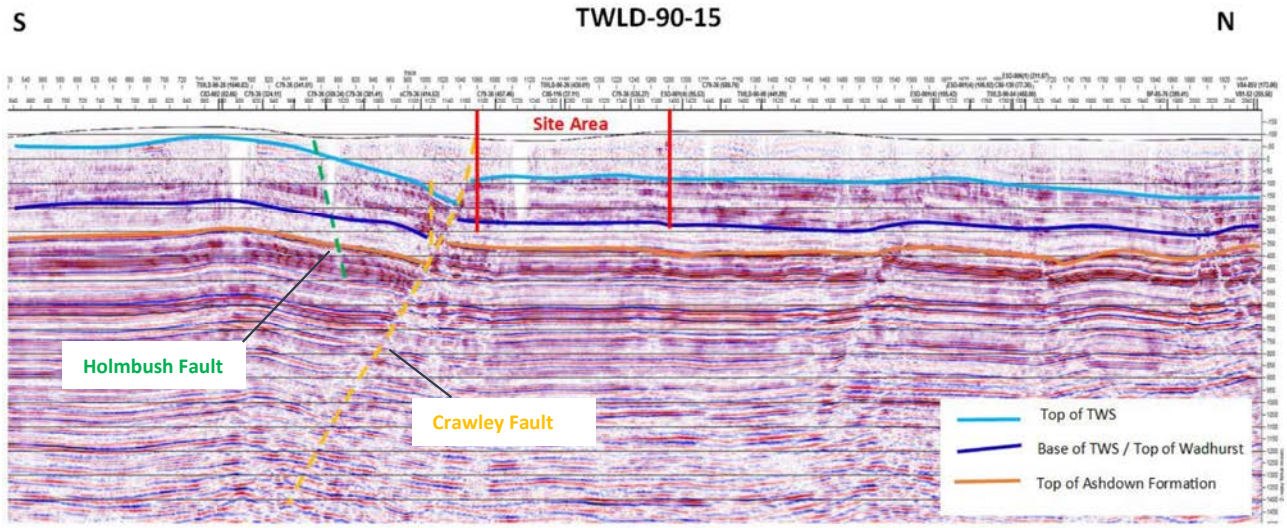


Plate 2 – South-North Seismic Line TWLD-90-15

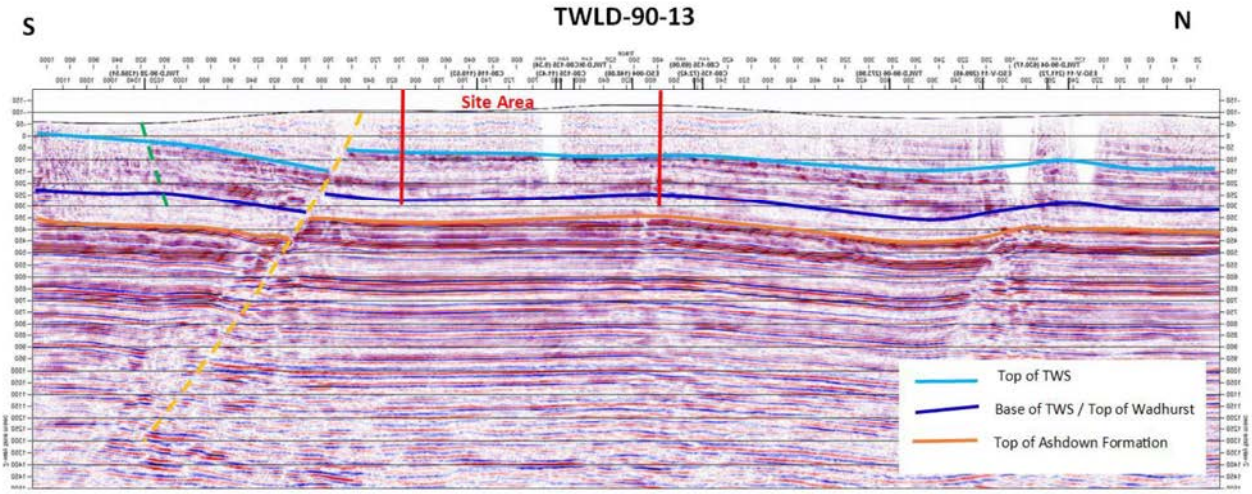


Plate 3 – South-North Seismic Line TWLD-90-13

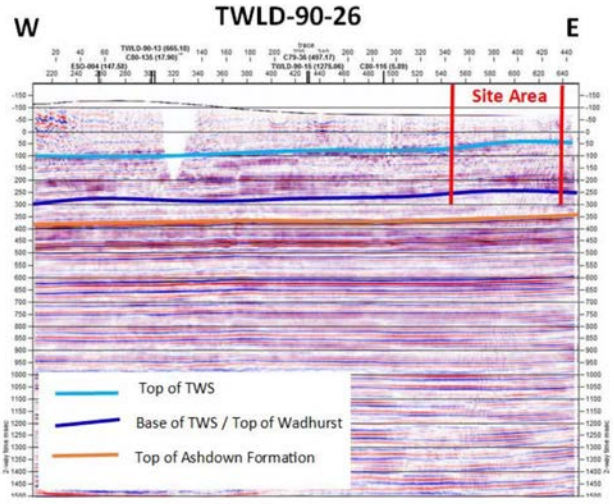


Plate 4 - West-East Seismic Line TWLD-90-26

From the figures above the location of the Crawley Fault (coloured yellow) can be clearly seen. It is confirmed by the seismic lines that the Crawley Fault passes through the southern section of the Site through to the surface. The throw (60-80 m) of the Crawley fault is also confirmed to be to the south by the seismic data indicates an increased throw of Plate 2. The Holmbush Fault is harder to depict from the seismic sections and it is therefore likely that the throw on this fault is minimal directly south of the Site location. Faults are confirmed as high angled normal faults (steeper than shown within the seismic sections because the horizontal scale is exaggerated compared to the vertical scale by 2.5 times).

To the west of the Site (Plate 3) the Crawley Fault appears further to the south and at a higher angle. The throw of the Crawley fault seems similar (60-80 m) between the two lines that are ~1.5 km apart.

The westerly dip of the beds forming the Weald Anticline can be clearly seen in Plate 4. Along the seismic line the strata have a 50 m change in elevation over 5.3 km confirming relative dip to the west. This is equal to a dip of 0.54 degrees. Note that this is unlikely
to be the steepest angle of dip, as it is not fully orientated with the true dip direction. The BGS Map Sheet 302 shows a dip of between 2 and 3 degrees to the northwest for the outcropping UTWSM to the east of the site. Plate 4 indicates that there is a change in the depth of the interpreted TWSF from approximately 100 mgbl to the east of the Site, to approximately 120 mbgl to the west of the Site. The depth to the base of the TWSF is more consistent beneath the Site, however, at approximately 310 mbgl to the east and to the west of the Site. There is therefore an indication that possibly the total thickness of the Tunbridge Wells Sand
is greater to the east of the Site than the west of the Site (approximately 210 m verses 190 m respectively).

The stratigraphic formation strata contacts displayed in the Plates above are interpreted from the seismic interpretation below for TWLD-90-21 (Plate 5) and the geological log from borehole Leigh 1 and Brockman Oil Well (shown below), which are at the northern end of seismic lines TWLD-90-15 (Plate 2) and TWLD-90-21 respectively. The boreholes are presented in Appendix A and confirm the unit boundaries/ depths interpreted for Plate 2 to Plate 5.

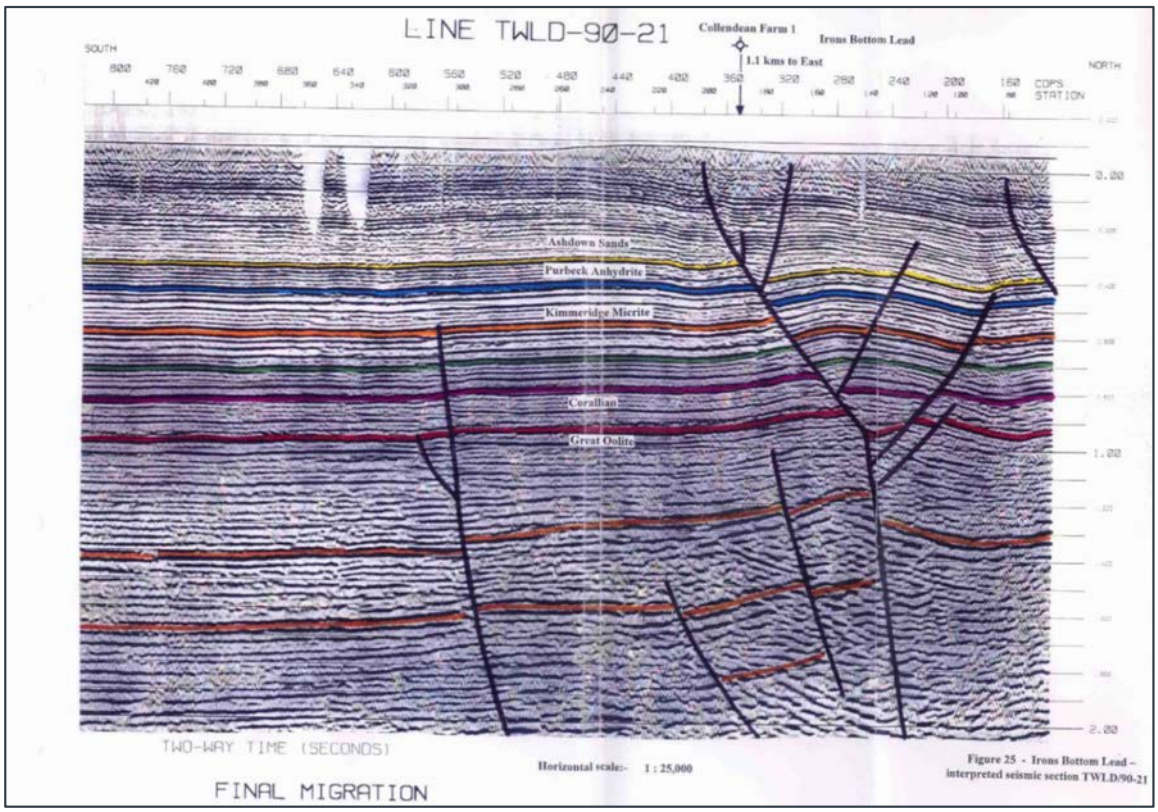


Plate 5 – Seismic interpretation of key lithological units in the Crawley area from TWLD-90-21

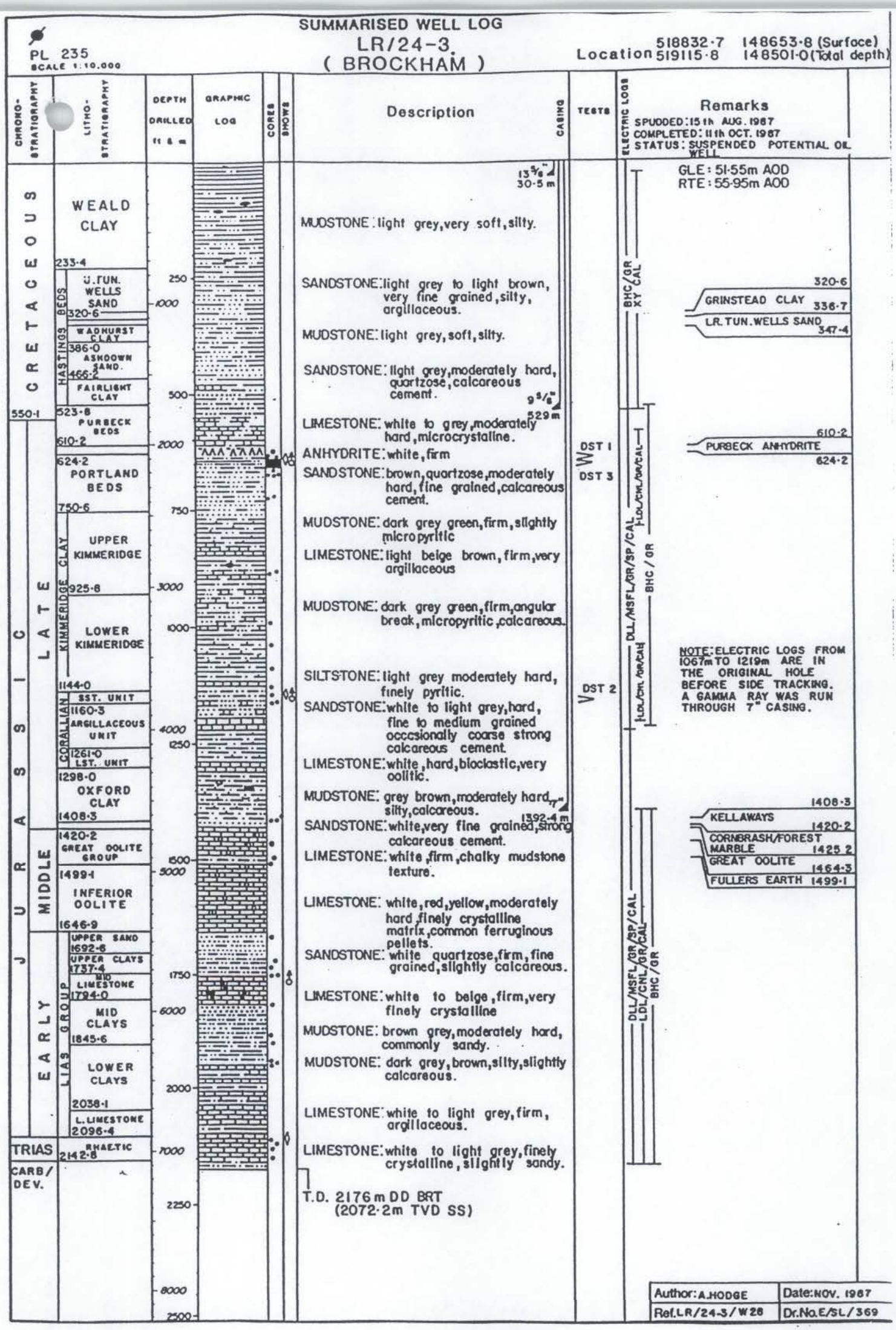

SUMMARISED WELL LOG
LR/24-3
(BROCKHAM)
PL 235
SCALE 1:10,000
Location 518832·7 148653·8 (Surface)
519115·8 148501·0 (Total depth)
CHRONO-STRATIGRAPHY
LITHO-STRATIGRAPHY
DEPTH DRILLED ft & m
GRAPHIC LOG
CORES
SHOWS
Description
CASING
TESTS
ELECTRIC LOGS
Remarks
SPUDDED: 15th AUG. 1967
COMPLETED: 11th OCT. 1967
STATUS: SUSPENDED POTENTIAL OIL WELL
GLE: 51·55m AOD
RTE: 55·95m AOD
CRETACEOUS
WEALD CLAY
233·4
U. TUN. WELLS SAND
320·6
HASTINGS BEDS
WADHURST CLAY
386·0
ASHDOWN SAND
466·2
FAIRLIGHT CLAY
523·8
PURBECK BEDS
610·2
624·2
PORTLAND BEDS
750·6
UPPER KIMMERIDGE CLAY
925·8
LOWER KIMMERIDGE CLAY
1144·0
SST. UNIT
1160·3
ARGILLACEOUS UNIT
1261·0
LST. UNIT
1298·0
OXFORD CLAY
1408·3
CORALLIAN
KIMMERIDGE
550·1
JURASSIC
LATE
1420·2
GREAT OOLITE GROUP
1499·1
INFERIOR OOLITE
1646·9
MIDDLE
UPPER SAND
1692·6
UPPER CLAYS
1737·4
MID LIMESTONE
1794·0
MID CLAYS
1845·6
LOWER CLAYS
2038·1
L. LIMESTONE
2096·4
LIAS GROUP
EARLY
TRIAS
RHAETIC
2142·8
CARB/DEV.
250
1000
500
2000
750
3000
1000
4000
1250
5000
1500
6000
1750
7000
2000
2250
8000
2500
13⅜" 30·5 m
MUDSTONE: light grey, very soft, silty.
SANDSTONE: light grey to light brown, very fine grained, silty, argillaceous.
MUDSTONE: light grey, soft, silty.
SANDSTONE: light grey, moderately hard, quartzose, calcareous cement.
9⅝" 529 m
LIMESTONE: white to grey, moderately hard, microcrystalline.
ANHYDRITE: white, firm
SANDSTONE: brown, quartzose, moderately hard, fine grained, calcareous cement.
MUDSTONE: dark grey green, firm, slightly micropyritic
LIMESTONE: light beige brown, firm, very argillaceous
MUDSTONE: dark grey green, firm, angular break, micropyritic, calcareous.
SILTSTONE: light grey moderately hard, finely pyritic.
SANDSTONE: white to light grey, hard, fine to medium grained occasionally coarse strong calcareous cement.
LIMESTONE: white, hard, bioclastic, very oolitic.
MUDSTONE: grey brown, moderately hard, silty, calcareous.
7" 1392·4 m
SANDSTONE: white, very fine grained, strong calcareous cement.
LIMESTONE: white, firm, chalky mudstone texture.
LIMESTONE: white, red, yellow, moderately hard, finely crystalline matrix, common ferruginous pellets.
SANDSTONE: white quartzose, firm, fine grained, slightly calcareous.
LIMESTONE: white to beige, firm, very finely crystalline
MUDSTONE: brown grey, moderately hard, commonly sandy.
MUDSTONE: dark grey, brown, silty, slightly calcareous.
LIMESTONE: white to light grey, firm, argillaceous.
LIMESTONE: white to light grey, finely crystalline, slightly sandy.
T.D. 2176 m DD BRT
(2072·2m TVD SS)
DST 1
DST 3
DST 2
BHC/GR XY CAL
DLL/MSFL/GR/SP/CAL
LDL/CNL/GR/CAL
BHC/GR
320·6
GRINSTEAD CLAY
336·7
LR. TUN. WELLS SAND
347·4
610·2
PURBECK ANHYDRITE
624·2
1408·3
KELLAWAYS
1420·2
CORNBRASH/FOREST MARBLE
1425·2
GREAT OOLITE
1464·3
FULLERS EARTH
1499·1
NOTE: ELECTRIC LOGS FROM 1067m TO 1219m ARE IN THE ORIGINAL HOLE BEFORE SIDE TRACKING. A GAMMA RAY WAS RUN THROUGH 7" CASING.
Author: A. HODGE
Date: NOV. 1967
Ref. LR/24-3/W28
Dr. No. E/SL/369

Figure 2.2

I.G.S. SOUTHERN REGION - Borehole Reference Information

Signed: R.G. Dingwall
Date: 10/2/76

REGISTRATION NO: 6in. quarter sht. TQ24NW | Accn no. 2 | Suffix

TQ24NW/2

A Name of borehole: LEIGH NO 1

B Basic information:

Nat. Grid Reference (within 100 km square): Easting 2170 | Northing 4751 | Accuracy 5
O.D. level (in metres): 58.8 | Accuracy 2

Known to nearest:- metre - 6; 10 metres - 5; 100 metres - 4
Known to nearest:- .01 m - 4; .1 m - 3; 1.0 m - 2; 10.0 m - 1

Confidential (C) or Non-Confidential (N): C
Underground (U) or Surface (S): S
Vertical, down (1) Inclined, down (2) Horizontal (3) Inclined, up (4) Vertical, up (5): 1
Drilling method: T
Purpose: H

Declassified

Year: 1967
Origin: ESSO
V. reliable (4) Av. reliability (3) Unreliable (2) V. unreliable (1): 4
Geologist: CDMP

Borings Dept. accn no. CN-: 16446
One inch sheet: 286
Hydro. Dept. well no.:
EGU accn. no.:
Type of ref.:
Other reference:

C Other data: Detailed log; Graphic log: 1; NGS bh. field map; County bh. field map: 1; Sample descrip.; List of specimens: 1; Grading; Geotech. data; Strata to Pal.; Rept. from Pal.

Specimens to Pet.; Rept. from Pet.; Mineralogy; Hydro. data; Coal pet.; Geochem.; Geophys.; Publications; Other, as specified

Other remarks and amendments :-
Specimens in Borings Dept. BDB 3883-4042

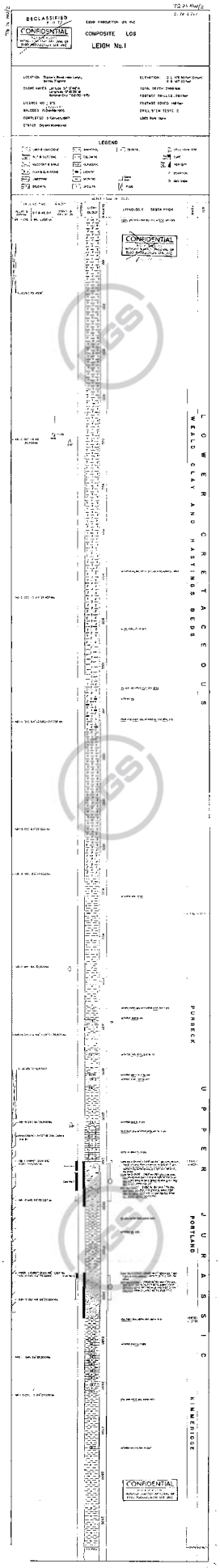
REGISTRATION NO: 6in. quarter sht. TQ24NW | Accn no. 2 | Suffix

Signed: TCL
Date: 23/3/76 Sheet 1 of 1

Header record: D | Author of strat. COMP | Year 1 | Other strat. classns (Y or N) | Imperial or Metric depths (I or M) M

Succession records :- TQ24NW/2

Accn no. of rock unit	Litho-strat	Chrono-strat Lwr	Chrono-strat Upr	Depth to base Feet / Metres	Ins / Dec. metres	1st component	Relation	2nd component	Relation	3rd component	Stratigraphy (Clear text)
1	W	KU	KB	47	2.4	MDST		SLST			
2	PB	JU	KZ	64	0.1	SDST		MDST			
3	PL	JP		74	6.8	LMST					
4	KC	JD		90	1.9	MDST					
5	END										


DECLASSIFIED
CONFIDENTIAL
COMPOSITE LOG
LEIGH No. 1
LEGEND
CONFIDENTIAL
LOWER CRETACEOUS
WEALD CLAY AND HASTINGS BEDS
PURBECK
UPPER JURASSIC
PORTLAND
KIMMERIDGE
CONFIDENTIAL

TQ 24 NW/2

Dr. E.R. Shephard-Thorne

Esso Leigh No.1. B.H.

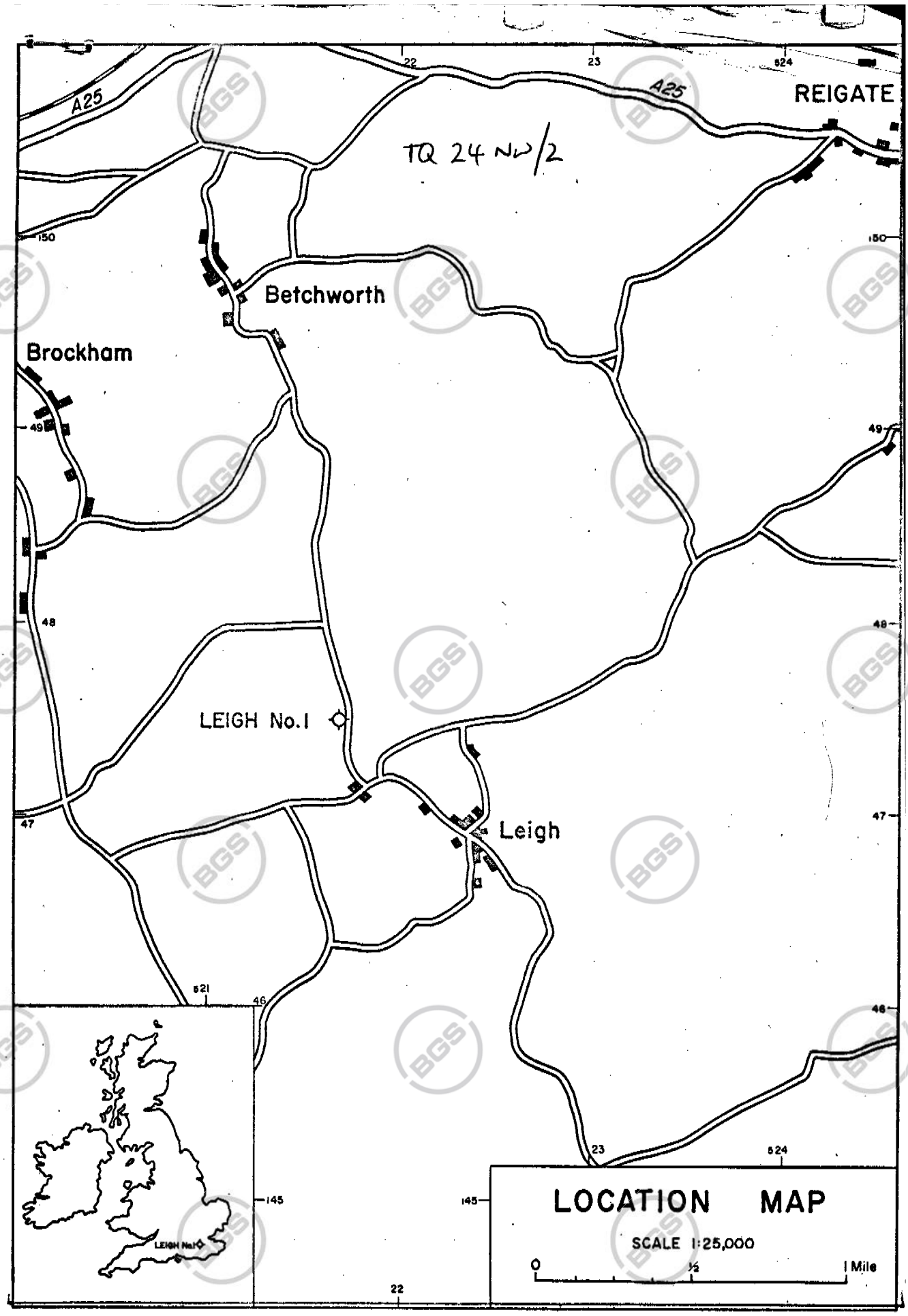
1. (a) Ref. your minute of 10th Feb. I would be pleased to have a copy of the composite log, at your convenience, as it may help the interpn. of our other geophysical data for the area when we eventually get round to tackling it.

(b) I understand that an attempt was made at one stage to get some geophys. logs in the borehole but that the first tool got stuck & the work was abandoned.

2. Did you, following our conversation some time ago, extract any seismic data from Esso? I note that they are now giving up their S.E. England Licence blocks & have been wondering whether to approach them for data before they store it away inaccessibly.

W. Bullerwell
3/3/67.

BGS ID: 584836 : BGS Reference: TQ24NW2
British National Grid (27700) : 521700,147510



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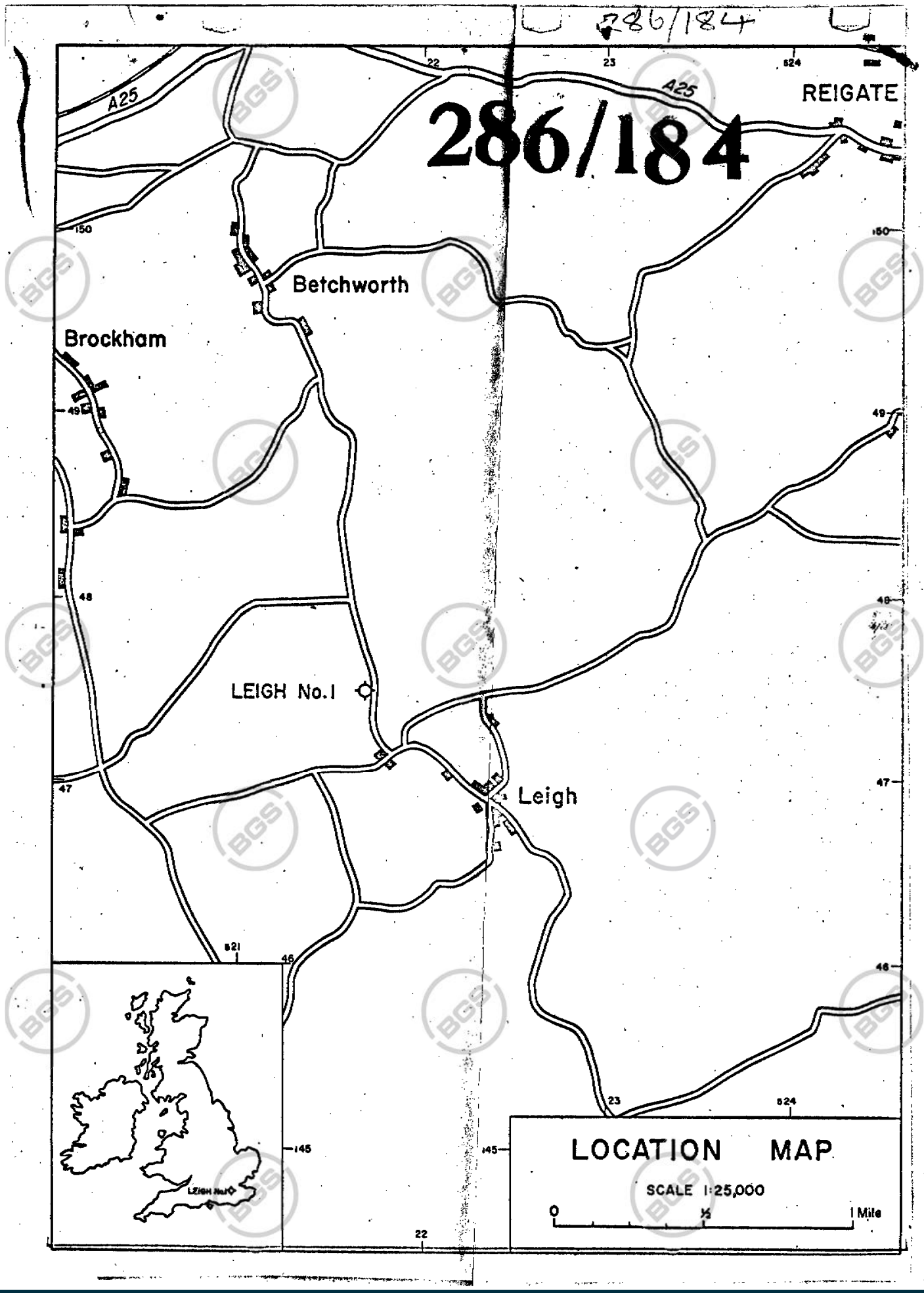
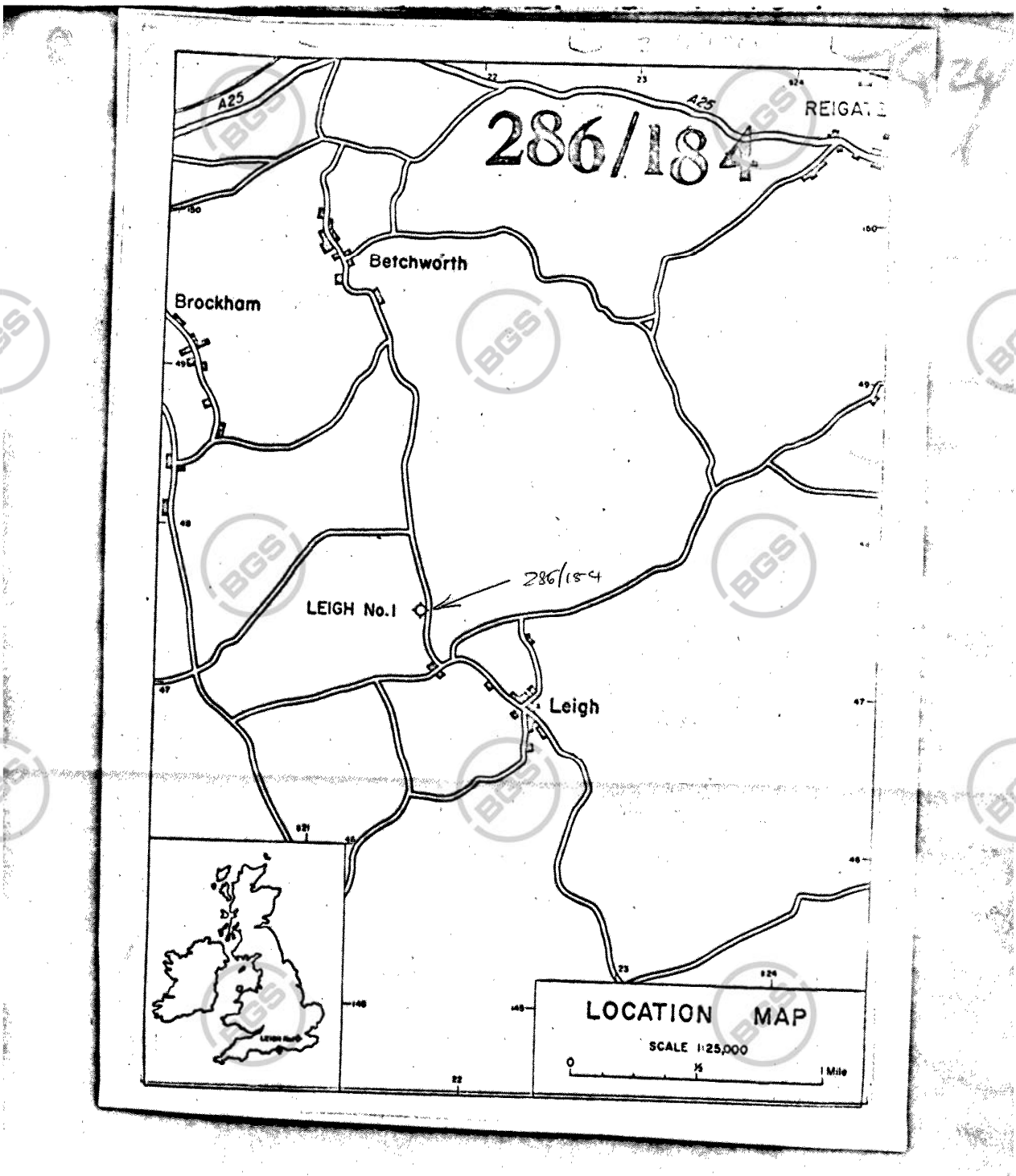
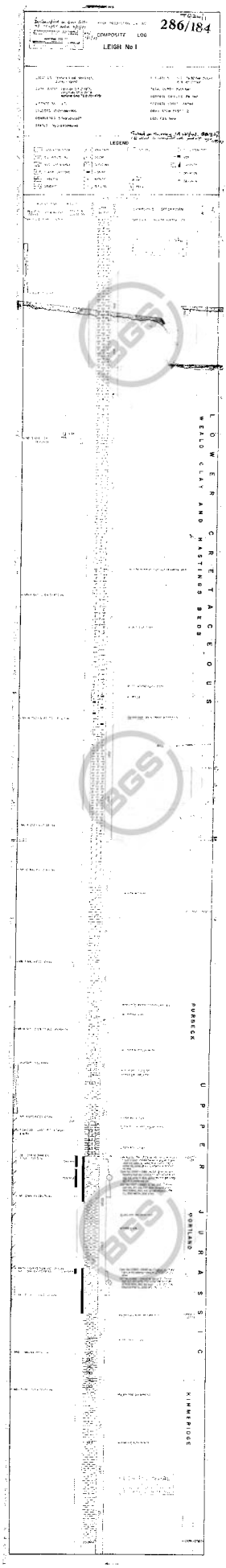
British National Grid (27700) : 521700,147510






286/184
COMPOSITE LOG
LEIGH No 1
LEGEND
LOWER CRETACEOUS
WEALD CLAY AND HASTINGS BEDS
PURBECK
UPPER JURASSIC
PORTLAND
KIMMERIDGE

286/184
TQ24/1

ESSO PRODUCTION U.K. INC.

COMPLETION REPORT

ESSO LEIGH NO. 1.

FEBRUARY 1967

CONTENTS

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CONTENTS - (continued)

LIST OF ILLUSTRATIONS AND ENCLOSURES

ESSO PRODUCTION U.K. INC.

WELL COMPLETION SUMMARY

OPERATIONAL AND STATISTICAL DATA

WELL: Leigh No. 1 **STATUS:** Non producer Plugged and Abandoned

LOCATION:
Latitude: 51° 12' 38" North
Longitude: 0° 15" 44" West

National Grid: TQ 2171 4751

ELEVATION:
Ground: 176.98 feet
Kelly Bushing: 187.23 feet

(Well measurements made from ground level)

DEPTH:
Total Depth: 2959 feet
(Plugged from: 2006 feet to surface)

DATES:
Move Started: 9th December, 1966
Spudded: 13th December, 1966
Reached T.D: 25th December, 1966
Completed: 5th February, 1967

(Plugged and Abandoned)

CONTRACT RIG: Deutsche Erdöl-Aktiengesellschaft

Ideco H-30 Rambler Rig, Semi Trailer Mounted

DRILLING TIME ANALYSIS

	Hours	Percent
Moving in and Rigging up	96	6.70
Drilling	198½	14.0
Coring	30½	2.18
Reaming	13	1.08
Casing and Cementing	29	2.06
Electric Surveys	0	0.0
Completing and Testing	23½	1.56
Repairs	894	63.40
Other Developments (Fishing)	48	3.42
Dismantling	42	3.00
Idle Time	36½	2.60
TOTAL ELAPSED TIME	1411	100.00

(58 days, 19 hours)

Footage Drilled	2959 feet
Footage Cored	148 feet
Total Footage Per Net Day	5.1
Number of Cores Cut	3
Footage Recovered	74 feet
Percent Recovered	50 percent

CASING DESCRIPTION

String	Hole Size (in)	Size (in)	Weight (lbs/ft)	Grade	Thread	Length (ft)	Depth (ft)	Cementation
Conductor	-	9-5/8	36	H-40	(S)	16	8	Cemented by hand approx. 4' below bottom of cellar.
Surface	8¾	7	17	H-40	(S)	486.5	488	110 sx. A.P.I. Class "B" Cement. Returns to surface.

DRILL-STEM TESTS

No.	From	To	Water Cushion	Results
1	2107'	2188'	None	Weak blow increasing to strong steady blow. Would not burn. Recovered 1100' of salt water 45000 Chl., methane 3500, ethane 300 ppm
2	2356'	2409'	None	Weak blow increasing to strong blow. Would not burn. Recovered 2200' of salt water 58,000 ppm Chl., 1200 ppm methane.

MATERIALS USED

Mud Additives and Chemicals:

Bentonite	150 sx.
Weight Material	300 sx.
CMC	10 sx.
Calgon	22 sx.

Cement:

Construction	345 sx.
Oil Well Class "B"	110 sx.

Rock Bits:

Size	Make	Type	No. Used
8¾"	Hughes	OSC-3	1
6¼"	Security	ML4	3
6¼"	Hughes	OSC-1G	6
6¼"	Hughes	OSC	3
6¼"	Hughes	OWV	1
6¼"	Hughes	WR7	1

Core Bits:

Size	Make	Type	No. Used	Footage
6-3/16"	Christensen	Diamond	1*	148

* Only 15% used.

OPERATIONAL SUMMARY

The well was drilled by Deutsche Erdöl-Aktiengesellschaft of Wietze, Germany using an Ideco H-30 Ramble Rig, semi-trailer mounted. The draw works of this rig was powered by GM Twin 6-71 diesel engines under a 95 foot mast on an 8 foot substructure. The rig drilling mud pump was a North and Company 7¼" x 16" powered by a Mercedez Benz 300-h.p. diesel engine.

The rig was moved to the site from Tatsfield. The delay in the move was due to the inability to get police escort. The well was spudded in on 13th December, 1966 at 08.00 hrs.

An 8¾" hole was drilled to 506 feet and 7 inch surface casing run to 488 feet and cemented to the surface using a Halliburton cementing truck.

The hole size was reduced to 6¼ inches and drilled from 506 feet to 2959 feet with 3½" IF drill pipe and 20-4¾ inch O.D. drill collars. There were three cores taken and two drill-stem tests run.

When pulling out of hole on 25th December, 1966 at 09.00 hrs. to change bits the pipe stuck at 2437 feet (T.D. 2959 feet). The drill pipe could not be moved up or down. When breaking connections with tongs and rotary table in order to connect the kelly and attempt to establish circulation to free the drilling bit the rotary table turned to the left due to the torque resulting from the stuck bit. The drilling string backed off at 2006 feet leaving 431 feet of drill collars and the bit in the hole (2006 feet - 2437 feet). It was possible to screw into the fish and back off, however circulation could not be established. A pull of 80 TONS would not release the stuck drill collars. Diesel oil was spotted through the fish and jars run, but with no success. Lost circulation material was mixed with the drilling fluid but returns could not be obtained.

On 27th December, 09.00 hrs. the driller pulled at D.E.A. request approximately 78 TONS to try again to free the fish. The top part of the mast buckled and from this date till 2nd February at 08.00 hrs. the operation was suspended awaiting the repair of the mast. The drill pipe was backed off from the fish by hand and jacked up manually 1 foot above the fish. Drilling fluid circulation was established and maintained for five hours a day during the period awaiting on the repair of the mast.

The mast was returned to the site on 1st February, 1967 at 10.00 hrs. and rigging up commenced. On 2nd February, 1967 at 19.30 hrs. when attempting to pull out the 2006 feet of drill pipe prior to plugging and abandoning, the well became active resulting in a partial blow-out. A Shaffer Drill Pipe Safety valve was immediately installed on the drill pipe and the blow-out preventer closed which controlled the well. The result was that approximately 30 bbls. of gas-cut drilling fluid and water were blown out of the well. A mix of new drilling mud and weight material was prepared and pumped into the well through the drill pipe with a Halliburton Cementing Unit. The hole

./6

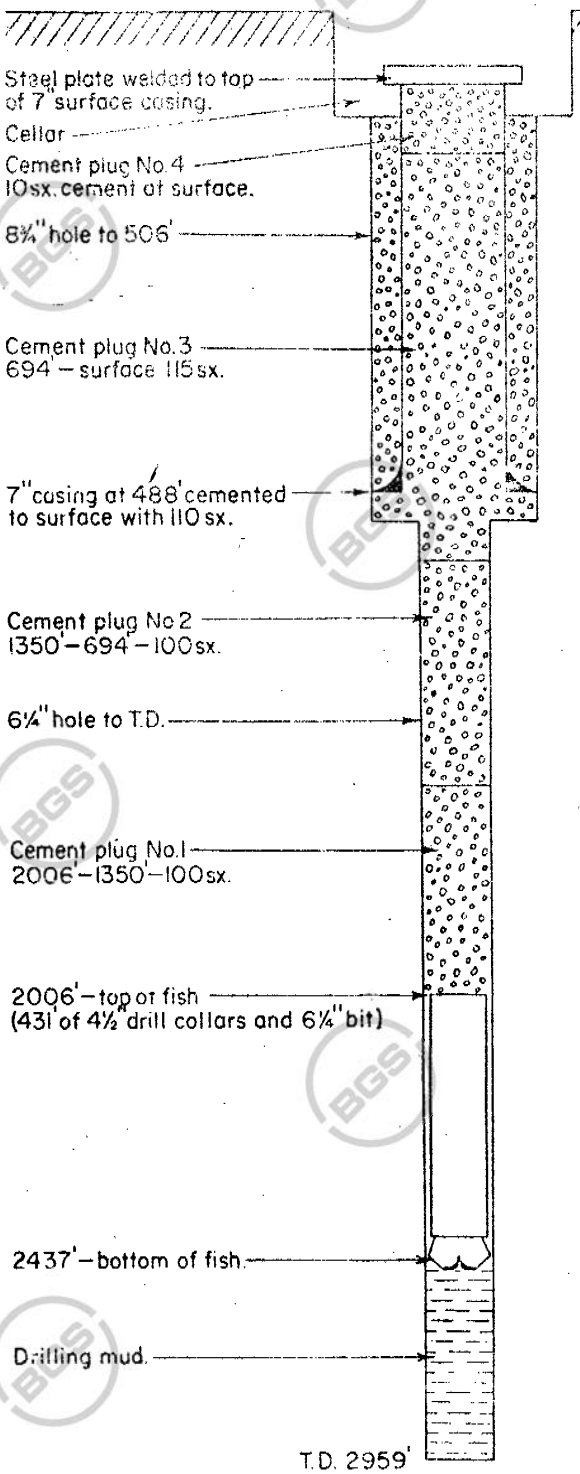
was reamed and cleaned out to the top of the fish (2006 feet) with a 6¼" bit prior to plugging and cementing. The well was plugged with 325 sx. of cement and abandoned 4th February, 1967. The abandonment diagram is included in this report.

Subsequent to the mast being returned to the well site after repair, D.E.A. had only a partial crew (8 people) and the rig did not have adequate lighting equipment to enable working after dark.

BGS ID: 584836 : BGS Reference: TQ24NW2
British National Grid (27700) : 521700,147510

LEIGH No.1 ABANDONMENT DIAGRAM

NOT TO SCALE



BGS ID: 584836 : BGS Reference: TQ24NW2
British National Grid (27700) : 521700,147510

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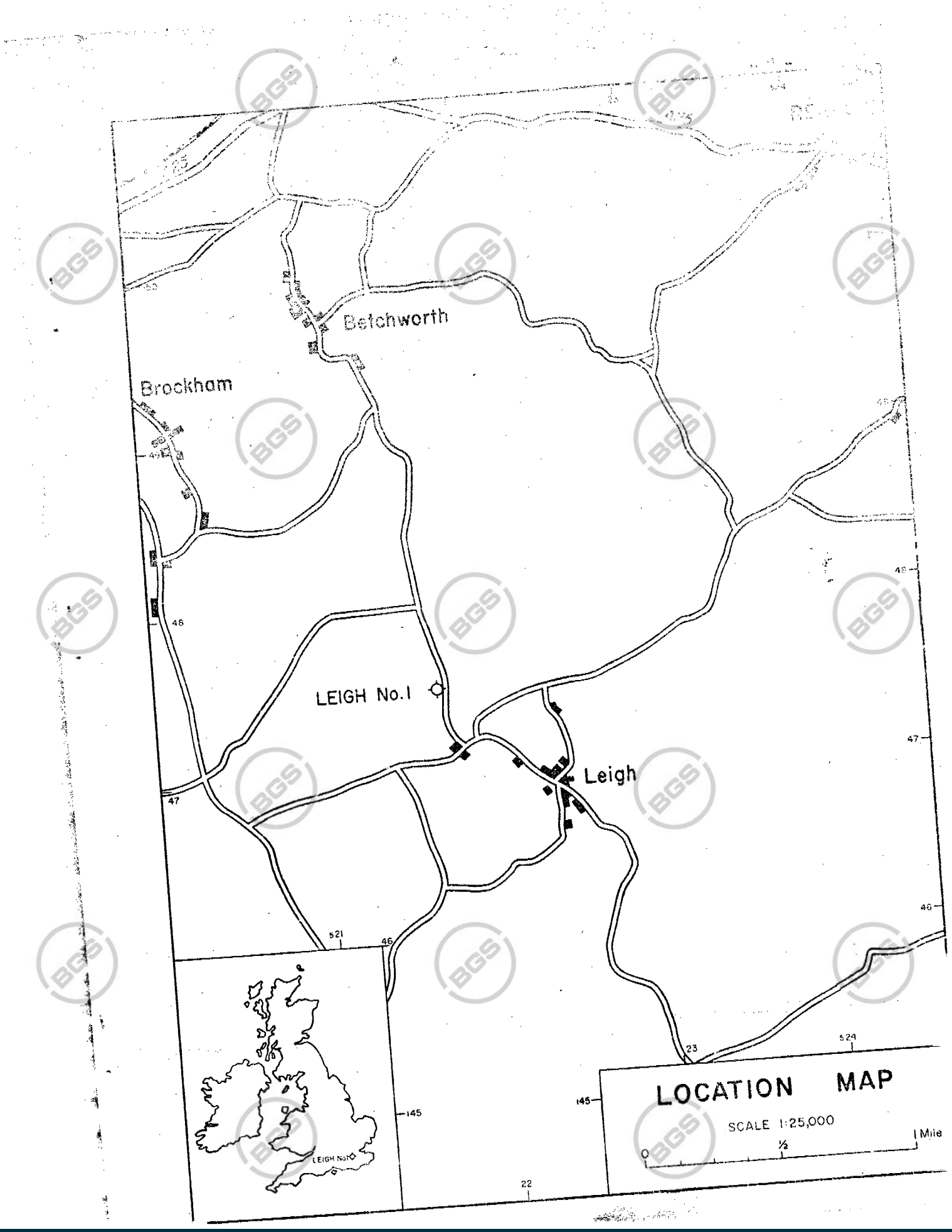
British National Grid (27700) : 521700,147510



GEOLOGICAL AND GEOPHYSICAL DATA

PURPOSE OF DRILLING THE WELL

Leigh No. 1 was drilled to test the Portland and Corallian reservoirs on the Southeast Dorking structure, six miles west of the gas discovery at Bletchingley. This was a budgeted 1966 wildcat, following the 1966 seismic program.

METHODS OF EVALUATION

Introduction

The well was logged by P.E. Blau and J.C. Parmenter. The completion report was written by P.E. Blau (well-site geologist) and J.S. Hubley (consultant well engineer).

Samples

Samples were collected at three-meter or nine-meter intervals, lagged to corrected depth in feet, and screened at 4 mm. (5 mesh) and 0.177 mm. (80 mesh) for geological examination. Three cuts were made for company storage and trade.

Sample quality was satisfactory, but some of the cuttings are contaminated by lost circulation material left in the mud tanks after the last well.

Cores

Three cores were cut to evaluate porosity in the Portland sandstones. Total footage cored was 148 feet and total recovery was 74 feet (50%). The lost footage was caused by the friability of the sandstone and failure of the core catcher while cutting the last core.

Core samples were analyzed by Core Laboratories, Inc., for porosity, permeability, and fluid saturation, and results of the analyses are enclosed as Appendix A. The cores have been delivered to the Geological Survey in London for slabbing; one half will be retained by the Survey and one half shipped to Esso Production Research in Bordeaux for storage and possible later study.

Mud Logging

Mud logging services provided under contract by Baroid with a one-man unit included continuous gas logging of the drilling mud and a graphic record of the drilling rate. The operator also prepared a running well log with graphic presentation of drilling rate, lithology, and mud gas analysis; this log is included as Appendix C. The operator was at the well eight hours a day and on call in emergencies, and the Baroid unit was used by Esso personnel for all geological work.

Mud Logging - (continued)

Performance by the mud-logging contractor was adequate. Previous wells have been logged by Exploration Logging Robertson Limited but they were unable to supply equipment for Leigh No. 1. Baroid received very short notice. The only equipment available was a skid unit designed for continuous manned [illegible] operators on offshore jobs. The unit does not provide for automatic chromatograph analysis of mud gas or immediate display of the drilling rate and is not suitable for one-man operation. The Baroid operator was flown from the United States and was fully competent, but lacked proper equipment for complete logging of the well.

Drill-Stem Tests

Two open-hole drill-stem tests were run by Halliburton Limited in the Portland. Double packers were used in both tests, and flow and shut-in times were determined at the well site to obtain maximum information. All tests were successful (see Appendix B).

Electric Logging

No electric logs were run. Both porous zones in the Portland were evaluated with cores and drill-stem tests before being blocked by the fish, and no other zones of interest were drilled.

EVALUATION OF RESULTS

Stratigraphy

No electric logs were run. Formation tops are based on lithology and drilling rate.

Lower Cretaceous. Surface (+177') to 1550' (-1373'), thickness 1550'.

Weald Clay and Hastings Beds. Surface (+177') to 1550' (-1373'), thickness 1550'.

Claystone, gray and light olive gray, tan, with siltstone, yellow-gray, surface to 780'; with interbedded sandstone, tan, very fine to coarse grained, very poorly sorted, subangular to subrounded, 780-1060'; also with interbedded lignite, 1070-1140'; claystone and mudstone, gray, some skeletal, with interbedded sandstone and siltstone, 1140-1550'.

Upper Jurassic. 1550' (-1373') to 2959' (-2782'), thickness 1409'+.

Purbeck. 1550' (-1373') to 2100' (-1923'), thickness 550'.

Mudstone, some shaly, and claystone, gray; with interbedded siltstone, brown-gray; and detrital-micritic, skeletal detrital, and skeletal limestone, gray to tan; 1550-2025'. Micritic limestone, light gray, with interbedded anhydrite, white to light gray, and grading to dolomitic limestone at base, 2025-2100'.

./12

Stratigraphy - (continued)

Portland. 2100' (-1923') to 2450' (-2273'), thickness 350'.

Sandstone, sodium gray, very fine to fine grained moderately sorted, subangular to subrounded, moderately calcite-cemented, friable, some muddy, some glauconitic, grading to dolomitic glauconitic sandstone and glauconitic sandy dolomite, good intergranular porosity, minor gas show while coring and fetid odor in core 2190-2200'; shale, gray, some skeletal, some micritic, with interbedded sandstone as above, 2200-2350'; glauconitic sandstone, light gray, fine grained, well sorted, subangular to subrounded, friable, good intergranular porosity, no show, 2350-2450'.

Kimmeridge. 2450' (-2273') to 2959' (-2782'), thickness 509'+.

Shaly mudstone, gray, some skeletal, some micritic, with interbedded micritic limestone, light gray.

Oil and Gas Shows

No significant gas show occurred while drilling the well. Details of minor shows in the Purbeck and Portland are given on the Mud Log enclosed as Appendix C. The small blow-out during abandonment of the well probably resulted from gas accumulated in a thin coquina at 1790 feet in the Purbeck.

Drill-Stem Tests

Salt water was recovered from open-hole tests in both zones of the Portland. Detailed reports on the drill-stem tests are included as Appendix B.

Reservoir Characteristics

Reservoir data is based on core analysis and correlation with Collendean Farm No. 1, as no electric logs were run at Leigh No. 1.

Hastings Beds (Lower Cretaceous)

Sandstone, very fine to coarse grained, in the cuttings from 780' to 1060' probably represents the Lower Tunbridge Wells and Ashdown Sands. These intervals have good porosity and produced fresh water on drill-stem test at Collendean Farm No. 1.

Purbeck (Upper Jurassic)

Skeletal limestone (coquina), with some porosity 1785-1792' and minor show (gas while drilling and minor blow-out during abandonment). Not recognized in cuttings and lithology is inferred from a similar interval at Collendean Farm No. 1. A thin sandstone occurs in this zone at Bletchingley along the northern edge of the basin.

Reservoir Characteristics - (continued)

Portland (Upper Jurassic)

Glauconitic sandstone, fine grained, with good intergranular porosity and good permeability 2112-2137' and minor show (some gas in mud while coring, fetid odor in core). Core analysis measured average porosity of 22.3% (range 15.9 to 28.1%) and average permeability 62.5 millidarcies (range 4.5 to 333.0) with average oil saturation 2.3% (range 0.0 to 3.2%). The rest of the core was porous but impermeable and had somewhat higher oil saturation; average porosity overall is 15.4% with average oil saturation 9.3%. The interval produced salt water on test. Net 100' porous sandstone with average 15% porosity, including net 25' porous and permeable with average 22% porosity.

Glauconitic sandstone, fine grained, with good intergranular porosity and good permeability but no show. Core analysis of representative samples measured average porosity 27.4% (range 25.6 to 29.2%) and average permeability 536 millidarcies (range 248 to 825) with oil saturation nil. Salt water was recovered on test. Very little core was recovered, but permeable sandstone with average 25% porosity.

Structure

Leigh No. 1 is located on a faulted anticlinal closure mapped by conventional reflection seismic and 1966 "Vibroseis" work. The closure is bounded by down-to-the-basin (south) faults on trend with and similar to those at Bletchingley. Seismic mapping indicates about 200 feet of closure covering 1560 acres.

Summary

Leigh No. 1 evaluated the prospective Portland sand reservoirs; good porosity was encountered in both zones, but drill-stem tests recovered only salt water. Due to the costs and risks involved in deviating the well, the relatively thin secondary objectives in the Corallian were not penetrated.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

CORE ANALYSIS RESULTS

Company Esso Production U.K. Inc. Formation _____ File UKCA 22.
Well Leigh No. 1. Core Type 1, 2 & 3. Date Report 21 Jan. 1967
Field Wildcat Drilling Fluid _____ Analysts R.F.S. - C.G.
County Surrey State England Elev. _____ Location _____

Lithological Abbreviations

SAND-SD SHALE-SH LIME-LM	DOLOMITE-DOL CHERT-CH GYPSUM-GYP	ANHYDRITE-ANHY CONGLOMERATE-CONG FOSSILIFEROUS-FOSS	SANDY-SDY SHALY-SHY LIMY-LMY	FINE-FN MEDIUM-MED COARSE-CSE	CRYSTALLINE-XLN GRAIN-GRN GRANULAR-GRNL	BROWN-BRN GRAY-GY VUGGY-VCY	FRACTURED-FRAC LAMINATION-LAM STYLOLITIC-STY	SLIGHT-SLT VERY-V WITH-W

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS Air	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS	Liquid
	CORE NO. 1.						
	2099	0.0	9.6	17.4	78.4	Sandy lmst, fn. grn, foss, glauc.	0.0
	2101.5	0.0	7.7	13.9	74.8	a.a.	0.0
	2104	0.0	7.9	13.5	76.2	a.a.	0.0
	2106.5	0.0	5.4	15.9	83.2	a.a., shly, foss.	0.0
	2109	0.0	15.1	10.8	67.6	SS, v. fn. grn., v calc, glauc, foss.	0.0
	2111.5	0.0	16.4	0.0	82.5	a.a.	0.0
	2114	16.0	23.2	2.4	76.6	Sandy lmst, a.a.	13.0
	2116.5	26.0	23.4	3.2	82.0	SS, fn. grn, v calc, glauc, occ. foss. frags.	21.0
	2119	9.7	16.5	0.0	76.1	a.a.	7.5
	2121.5	4.5	18.4	3.2	69.5	a.a.	3.3.

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

File DRA 29 Page No. 2.
Well Leigh No. 1.

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS Air	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS	Liquid
	CORE NO. 2.						
	2129	55.0	26.1	2.8	78.8	a.a.	47.0
	2131.5	333	28.1	Gas Expansion		a.a., fn-med, locally cemented.	303
	2134	14.0	26.6	2.1	81.7	a.a., fn-med.	11.0
	2136.5	42.0	15.9	Gas Expansion		a.a.	35.0
	2139	0.0	10.1	0.0	71.8	a.a.	0.0
	2141.5	0.0	24.2	Gas Expansion		a.a.	0.0
	2144	0.0	23.3	2.4	84.2	a.a.	0.0
	2146.5	0.0	3.4	Gas Expansion		a.a., shly inclusions.	0.0
	2149	0.0	6.6	15.2	72.7	a.a.	0.0
	2151.5	0.0	14.8	Gas Expansion		a.a.	0.0
	2154	0.0	18.6	5.4	82.8	SS/sh, calc, glauc.	0.0
	2156.5	0.0	15.0	Gas Expansion		a.a.	0.0
	2159	0.0	13.7	11.8	79.0	a.a.	0.0
	2161.5	0.0	5.9	Gas Expansion		a.a.	0.0
	2164	0.0	8.6	7.8	77.6	Lmst finely Xline vugular.	0.0
	2166.5	654	24.6	Gas Expansion		SS fn-med grn, calc, glauc.	624

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

File MCA 29. Page No. 3.
Well Leigh No. 1.

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS Air	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE OIL	RESIDUAL SATURATION PER CENT PORE TOTAL WATER	SAMPLE DESCRIPTION AND REMARKS	Liquid
CORE NO. 3.							
A	248	25.6	0.0	80.7	a.a.		220
B	825	29.2	0.0	79.3	a.a.		785
C	0.0	2.1	Gas Expansion			Lmst-sandy lmst.	0.0

TQ24/1

ESSO PETROLEUM CO.

DRILL STEM TEST REPORT

WELL NAME AND LOCATION: Leigh No. 1 Tapner's Road, Nr. Leigh, Surrey, England.	REASONS FOR TEST: Porosity in Portla[illegible] sandstone

FORMATION TESTED: Portland (Upper Jurassic).

D.S.T. NO. Two DATE 23 December 1966 SERVICE CO. Halliburton Limited.

TOTAL DEPTH	2409'	HOLE SIZE	6¼"
TESTED INTERVAL	2356-2409'	WATER CUSHION	None
TOTAL TIME OPEN	17 min.	Double PACKERS @	2350'/2356'
First INITIAL FLOW PRESSURE	886.1 psi	TIME OPENED	08:03/08:49
Second INITIAL FLOW PRESSURE	1075.3		
First FINAL FLOW PRESSURE	1076.9	TIME CLOSED	08:19/08:52
Second FINAL FLOW PRESSURE	1076.3		
Initial SHUT-IN PRESSURE	1076.9	SHUT-IN TIME	60 min.
Final SHUT-IN PRESSURE	1076.3		
Initial HYDROSTATIC MUD PRESSURE	1305.3	CHOKES BH 5/8" TH 1"	
Final HYDROSTATIC MUD PRESSURE	1281.5		

RECOVERY: 60' mud and 2132' GCSW (black, fetid), maximum 58,000 ppm Cl, 1200 ppm methane, 250 ppm ethane.

GENERAL DISCUSSION:

T.O. 14 min. with very strong blow.
T.C. 30 min.
T.O. 3 min. with very weak blow, dead after 2 min.
T.C. 60 min.

Pressures from 3000-lb. bomb, 12-hr. clock, at 1904'.
Shut-in pressures stabilized.

Salinity and HC vapor (in ppm):

2192' above DCIP valve	5,000 Cl	25 C_1	
962' above DCIP valve	53,000	25	
8' above DCIP valve	58,000	1200	250 C_2

TEST WITNESSED AND REPORTED BY: P.E. Blau.

TQ 24/1

Appendix B - 2

ESSO PETROLEUM CO. — DRILL STEM TEST REPORT

WELL NAME AND LOCATION: Leigh No. 1, Tapner's Road, Nr. Leigh, Surrey, England.	REASONS FOR TEST: Porosity in Portland sandstone.

FORMATION TESTED: Portland (Upper Jurassic)

D.S.T. NO. One — DATE 21 December 1966 — SERVICE CO. Halliburton Limited.

TOTAL DEPTH	2188'	HOLE SIZE	6¼"
TESTED INTERVAL	2107-2188'	WATER CUSHION	None
TOTAL TIME OPEN	56 min.	Double PACKERS @	2101'/2107'
First / Second INITIAL FLOW PRESSURE	83.6 psi / 217.9	TIME OPENED	17:56/18:42
First / Second FINAL FLOW PRESSURE	232.0 / 393.6	TIME CLOSED	18:12/19:12
Initial / Final SHUT-IN PRESSURE	939.7 / 916.1	SHUT-IN TIME	30 min.
Initial / Final HYDROSTATIC MUD PRESSURE	1146.7 / 1134.8	CHOKES BH ¾"	TH 1"

RECOVERY: 1115' GCSW, maximum 45,000 ppm Cl, 3500 ppm methane, 300 ppm ethane.

GENERAL DISCUSSION:

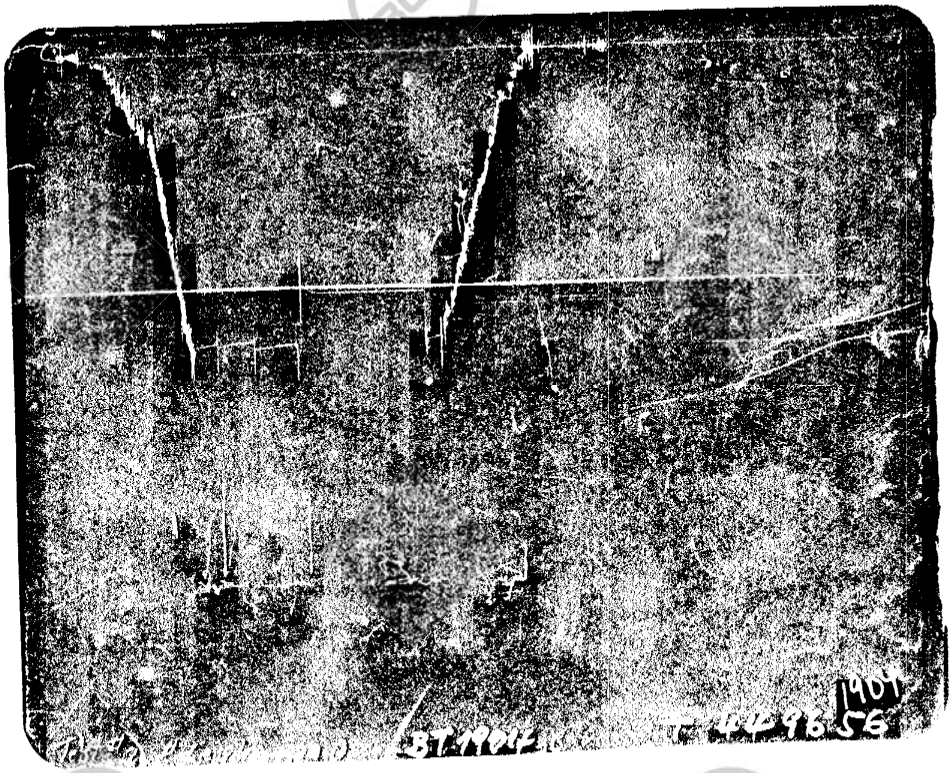
T.O. 16 min. with strong steady blow.
T.C. 30 min.
T.O. 30 min. with strong steady blow.
T.C. 30 min.

Pressures from 3000-lb. bomb, 12-hr. clock, at 2185'.
Shut-in pressures still building.

Salinity and HC vapor (in ppm):

1115'	above DCIP valve	18,000 Cl	1600 C_1	100 C_2
695'	above DCIP valve	41,000	3500	300
8'	above DCIP valve	45,000	2300	300

TEST WITNESSED AND REPORTED BY: P.E. Blau.



Company ESSO Date 22. 12. 66

	Time	atü PSI
Initial Hydro Mud Pressure	–	1305.3
1st Initial Flow	–	886.1
1st Final Flow	14	1075.3
Initial Closed In Pressure	30	1076.9
2nd Initial Flow	–	1076.9
2nd Final Flow	3	1076.9
Final Closed In Pressure	60	1076.9
Final Hydro Mud Pressure	–	1281.5

Ticket No. T 449656
Feld LEIGH
Bohrung No. 1 Test No. 2
BT No. 1904 Teufe 2406'
12 Std. Uhr No.
Temperatur 125°F

	1st Flow Pressure Time Defl. .000"	1st Flow Pressure PSI/atü Temp. Corr.	Initial CIP Time Defl. .000"	Initial CIP PSI/atü Temp. Corr.	2nd Flow Pressure Time Defl. .000"	2nd Flow Pressure PSI/atü Temp. Corr.	Final CIP Time Defl. .000"	Final CIP PSI/atü Temp. Corr.
P0	.000	886.1	.000	1075.3	.000	1076.9	.000	1076.9
P1	.030	1074.1						
P2	.060	1073.0						
P3	.090	1075.3						
P4								
P5					.030	1076.9		
P6								
P7								
P8								
P9								
P10			.200	1076.9			.410	1076.9
	4.66 Minute Intervals		– Minute Intervals		– Minute Intervals		– Minute Intervals	

Remarks:

Company ESSO Date 23. 12. 66

	Time	atü PSI
Initial Hydro Mud Pressure	–	1268.1
1st Initial Flow	–	587.6
1st Final Flow	14	1037.2
Initial Closed In Pressure	30	1040.0
2nd Initial Flow	–	1040.0
2nd Final Flow	3	1040.0
Final Closed In Pressure	60	1040.0
Final Hydro Mud Pressure	–	1244.9

Ticket No. T 449656
Feld LEIGH
Bohrung No. 1 Test No. 2
BT No. 1903 Teufe 2335'
12 Std. Uhr No.
Temperatur 125°F

	1st Flow Pressure Time Defl. .000"	1st Flow Pressure PSI/atü Temp. Corr.	Initial CIP Time Defl. .000"	Initial CIP PSI/atü Temp. Corr.	2nd Flow Pressure Time Defl. .000"	2nd Flow Pressure PSI/atü Temp. Corr.	Final CIP Time Defl. .000"	Final CIP PSI/atü Temp. Corr.
P0	.000	587.6	.000	1037.2	.000	1040.0	.000	1040.0
P1	.030	1031.5						
P2	.066	1027.0						
P3	.100	1037.2						
P4								
P5					.030	1040.0		
P6								
P7								
P8								
P9								
P10			.200	1040.0			.410	1040.0
	4.66 Minute Intervals		– Minute Intervals		– Minute Intervals		– Minute Intervals	

Remarks:

TQ24 1

Flow Time	1st Min. 14	2nd Min. 3	Date 23 Dec. 1966	Ticket Number T449656	Legal Location Sec. - Twp. - Rng.
Closed In Press. Time	1st Min. 30	2nd Min. 60	Kind of Job Open hole Test	Halliburton District G.T. Yarmouth	Lease Name Leigh
Pressure Readings	Field	Office Corrected	Tester H. C. Abbott	Witness B. John Hubley	Well No. 1
Depth Top Gauge	2335 Ft.	No Blanked Off	Drilling Contractor DEA		Test No. 2
BT. P.R.D. No.	1903	12 Hour Clock	Elevation	Top Packer 2351'	Field Area
Initial Hydro Mud Pressure	1263	1268.1	Total Depth 2409'	Bottom Packer 2356'	
Initial Closed in Pres.	1040	1040.0	Interval Tested 2409' — 2356'	Formation Tested Lower Portland	
Initial Flow Pres.	753	1 587.6 2 1040.0	Casing or Hole Size 6¼"	Casing Perfs. Top — Bot. —	
Final Flow Pres.	1040	1 1040.0 2 1040.0	Surface Choke 1"	Bottom Choke ⅝"	
Final Closed in Pres.	1040	1040.0	Size & Kind Drill Pipe 3½" F.F.	Drill Collars Above Tester I.D. - LENGTH 2¼" x 614'	
Final Hydro Mud Pressure	1253	1244.9	Mud Weight 9.8	Mud Viscosity 40	
Depth Cen. Gauge	Ft.	Blanked Off	Temperature 125 °F Est. / °F Actual	Anchor Size & Length ID / OD X	
BT. P.R.D. No.		Hour Clock	Depths Mea. From K.B.	Depth of Tester Valve 2336' Ft.	
Initial Hydro Mud Pres.			Cushion TYPE NONE AMOUNT Ft.	Depth Back Pres. Valve 2331' Ft.	
Initial Closed in Pres.			Recovered 60' Feet of Drlg. Fluid		Mea. From Tester Valve
Initial Flow Pres.		1 2	Recovered 2132' Feet of Salt water slightly		
Final Flow Pres.		1 2	Recovered Feet of gas cut - (58000 ppm)		
Final Closed in Pres.			Recovered Feet of		
Final Hydro Mud Pres.			Oil A.P.I. Gravity	Water Spec. Gravity	
Depth Bot. Gauge	2406 Ft.	Yes Blanked Off	Gas Gravity	Surface Pressure 0 psi	
BT. P.R.D. No.	1904	12 Hour Clock	Tool Opened 8:05 A.M. P.M.	Tool Closed 8:52 A.M. P.M.	
Initial Hydro Mud Pres.	1307	1305.3	Remarks Tool opened with strong steady blow until tool closed at 8:19 A.M. — Reopened tool 8:49 A.M. then with very weak blow dead in two min. Tool closed tool 8:52 A.M. — Pulled loose 9:52 A.M.		
Initial Closed in Pres.	1068	1076.9			
Initial Flow Pres.	1045'	1 886.1 2 1075.3			
Final Flow Pres.	1068	1 1076.9 2 1076.3			
Final Closed in Pres.	1068	1076.3			
Final Hydro Mud Pres.	1291	1281.5			

Lease Owner/Company Name Esso

County Surrey

State U.K.

Owner's District Leigh

FORM 1294-R2--SANDEFER

FORMATION TEST DATA

TQ24/1

Flow Time	1st 16 Min.	2nd 30 Min.	
Closed In Press. Time	1st 30 Min.	2nd 30 Min.	
Pressure Readings	Field	Office Corrected	
Depth Top Gauge	2087 Ft.	No	Blanked Off
BT. P.R.D. No.	1903	12	Hour Clock
Initial Hydro Mud Pressure	1085	1095.0	
Initial Closed in Pres.	892	888.2	
Initial Flow Pres.	275	1	20.2
		2	172.4
Final Flow Pres.	340	1	176.1
		2	345.7
Final Closed in Pres.	864	865.1	
Final Hydro Mud Pressure	1085	1100.5	
Depth Cen. Gauge	Ft.		Blanked Off
BT. P.R.D. No.			Hour Clock
Initial Hydro Mud Pres.			
Initial Closed in Pres.			
Initial Flow Pres.		1	
		2	
Final Flow Pres.		1	
		2	
Final Closed in Pres.			
Final Hydro Mud Pres.			
Depth Bot. Gauge	2185 Ft.	yes	Blanked Off
BT. P.R.D. No.	1904	12	Hour Clock
Initial Hydro Mud Pres.	1140	1146.7	
Initial Closed in Pres.	934	939.7	
Initial Flow Pres.	220	1	83.6
		2	217.9
Final Flow Pres.	388	1	232.0
		2	393.6
Final Closed in Pres.	918	916.1	
Final Hydro Mud Pres.	1140	1134.8	

Date	21 Dec. 1966	Ticket Number	T449655
Kind of Job	Openhole Test	Halliburton District	Gt. Yarmouth
Tester	H. C. Abbott	Witness	John Hubley
Drilling Contractor	DEA		
Elevation		Top Packer	2101
Total Depth	2188'	Bottom Packer	2107
Interval Tested	2188' - 2107'	Formation Tested	Upper Portland
Casing or Hole Size	6 1/4"	Casing Perfs.	Top — Bot. —
Surface Choke	1"	Bottom Choke	3/4"
Size & Kind Drill Pipe	3 1/2" I.F.	Drill Collars Above Tester (I.D. - LENGTH)	2 1/4" X 614
Mud Weight	9.8	Mud Viscosity	40
Temperature	125 °F Est. / °F Actual	Anchor Size & Length	ID OD X
Depths Mea. From	K.B.	Depth of Tester Valve	2086 Ft.
Cushion (Type / Amount)	none Ft.	Depth Back Pres. Valve	2081 Ft.
Recovered	1115' Feet of Salt water (45000 ppm)		
Recovered	Feet of		
Recovered	Feet of		
Recovered	Feet of		
Oil A.P.I. Gravity		Water Spec. Gravity	
Gas Gravity		Surface Pressure	0 psi
Tool Opened	5:56 P.M.	Tool Closed	7:12 P.M.

Meas. From Tester Valve

Remarks: Tool opened with moderate blow increasing to strong in 3 min. Blow steady until closed in at 6:12 P.M. - Re opened tool 6:42 P.M. with weak blow increasing to strong in 2 min. blow stead Closed for FCIP 7:12 P.M. pulled loose 7:45 P.M.

Legal Location Sec. - Twp. - Rng.
Lease Name: Leigh
Well No.: 1
Test No.: 1
Field Area
Lease Owner/Company Name: Esso
County: Surrey
State: U.K.
Owner's District: Leigh

FORM 1294-R2--SANDEFER

FORMATION TEST DATA

Company ESSO Date 21. 12. 66

	Time	~~atü~~ PSI
Initial Hydro Mud Pressure	–	1146.7
1st Initial Flow	–	83.6
1st Final Flow	16	217.9
Initial Closed In Pressure	30	939.7
2nd Initial Flow	–	232.0
2nd Final Flow	30	393.6
Final Closed In Pressure	30	916.1
Final Hydro Mud Pressure	–	1134.8

Ticket No. T 44 96 55
Feld LEIGH
Bohrung No. 1 Test No. 1
BT No. 1904 Teufe 2185'
12 Std. Uhr No.
Temperatur 125°F ~~°C~~

	1st Flow Pressure Time Defl. .000"	1st Flow Pressure ~~PSI/atü~~ Temp. Corr.	Initial CIP Time Defl. .000"	Initial CIP ~~PSI/atü~~ Temp. Corr.	2nd Flow Pressure Time Defl. .000"	2nd Flow Pressure ~~PSI/atü~~ Temp. Corr.	Final CIP Time Defl. .000"	Final CIP ~~PSI/atü~~ Temp. Corr.
P0	.000	83.6	.000	217.9	.000	232.0	.000	393.6
P1	.033	184.3	.019	829.4	.040	278.0	.019	810.5
P2	.066	176.5	.038	868.8	.080	319.4	.038	845.1
P3	.100	217.9	.057	889.3	.120	349.1	.057	864.1
P4			.076	902.7	.160	371.8	.076	877.5
P5			.095	912.9	.200	393.6	.095	887.7
P6			.114	920.0			.114	895.6
P7			.133	926.3			.133	901.9
P8			.152	931.0			.152	906.6
P9			.171	935.8			.171	911.3
P10			.190	939.7			.190	916.1
	5.33 Minute Intervals		3 Minute Intervals		6 Minute Intervals		3 Minute Intervals	

Remarks:

Company ESSO Date 21. 12. 66

	Time	~~atü~~ PSI
Initial Hydro Mud Pressure	–	1095.0
1st Initial Flow	–	20.2
1st Final Flow	16	172.4
Initial Closed In Pressure	30	888.2
2nd Initial Flow	–	176.1
2nd Final Flow	30	345.7
Final Closed In Pressure	30	865.1
Final Hydro Mud Pressure	–	1100.5

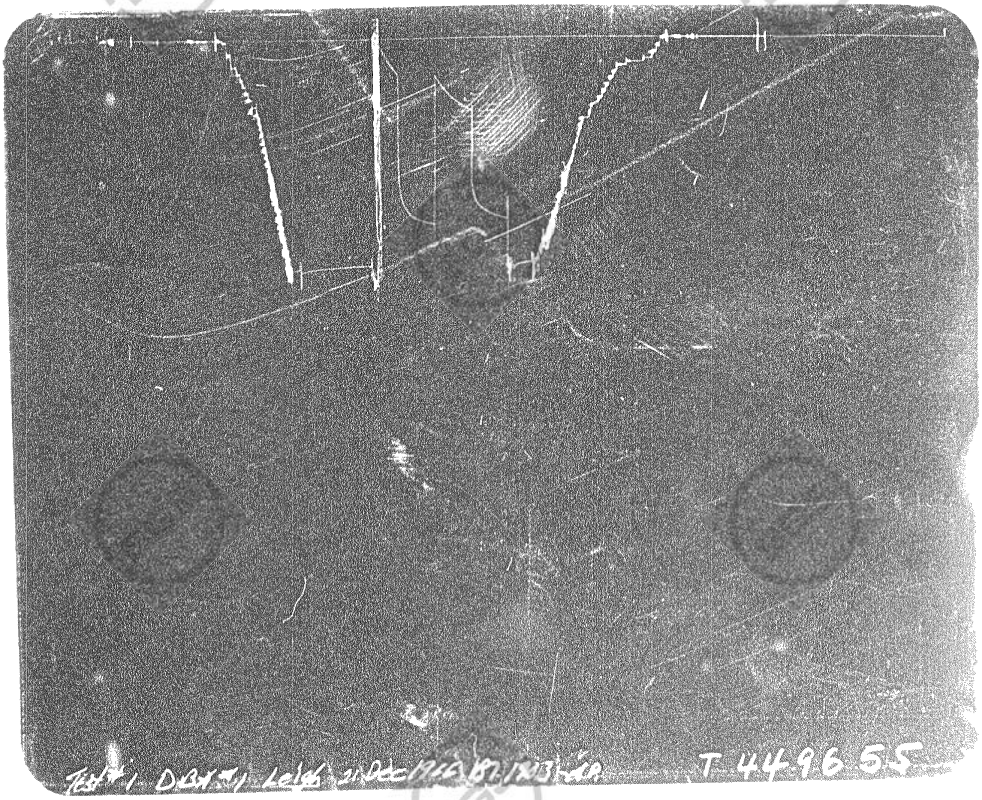
Ticket No. T 44 96 55
Feld LEIGH
Bohrung No. 1 Test No. 1
BT No. 1903 Teufe 2087'
12 Std. Uhr No.
Temperatur 125°F ~~°C~~

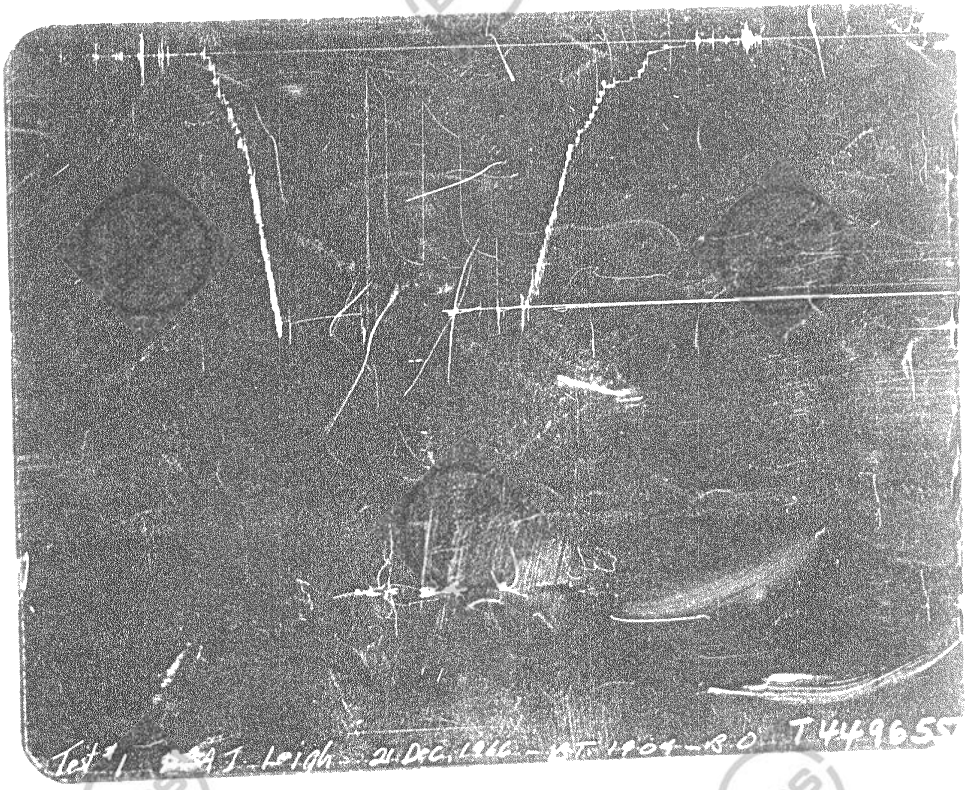
	1st Flow Pressure Time Defl. .000"	1st Flow Pressure ~~PSI/atü~~ Temp. Corr.	Initial CIP Time Defl. .000"	Initial CIP ~~PSI/atü~~ Temp. Corr.	2nd Flow Pressure Time Defl. .000"	2nd Flow Pressure ~~PSI/atü~~ Temp. Corr.	Final CIP Time Defl. .000"	Final CIP ~~PSI/atü~~ Temp. Corr.
P0	.000	20.2	.000	172.4	.000	176.1	.000	345.7
P1	.035	79.8	.019	788.6	.040	230.2	.019	771.1
P2	.070	132.0	.038	821.8	.080	274.2	.038	799.7
P3	.105	172.4	.057	842.1	.120	301.7	.057	816.2
P4			.076	854.0	.160	325.5	.076	828.3
P5			.095	863.3	.200	345.7	.095	837.5
P6			.114	870.6			.114	844.8
P7			.133	876.2			.133	851.3
P8			.152	881.7			.152	856.8
P9			.171	885.4			.171	861.4
P10			.190	888.2			.190	865.1
	5.33 Minute Intervals		3 Minute Intervals		6 Minute Intervals		3 Minute Intervals	

Remarks:

TOP

BGS ID: 584836 : BGS Reference: TQ24NW2
British National Grid (27700) : 521700,147510





Appendix C
Groundwater Quality Data

APPENDIX C - WATER QUALITY RESULTS

Table B-1 Newstead Farm At Handcross TQ23SW46

Determinand	Units	04 December 2023	01 May 2023	08 August 2023	29 December 2023	29 April 2023	13 October 2023	04 July 2023	13 April 2023	02 July 2023	13 May 2023
Lead	µg/l	< 2	< 2	< 2	< 2	< 2	16.7	< 2	< 2	< 2	< 2
Lead, Dissolved	µg/l	< 2	< 2	< 2	< 2	< 0.1	0.508	0.603	< 0.1	< 0.1	< 0.1
pH			8.97			8.98		9.05	9.06	9.02	9
Temperature of Water	°C	11.2	11.6	13.2	10.6	11.5	11.3	15.8	12.7	13	13.2
Conductivity at 25 C	µs/cm	993	974	980	988	982	961	977	968	1022	978
Mercury, Dissolved	µg/l									< 0.01	
Cadmium, Dissolved	µg/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	µg/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Ammoniacal Nitrogen as N	mg/l	0.312	0.309	0.301	0.305	0.311	0.304	0.322	0.33	0.353	0.31
Nitrogen, Total Oxidised as N	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

Determinand	Units	04 December 2023	01 May 2023	08 August 2023	29 December 2023	29 April 2023	13 October 2023	04 July 2023	13 April 2023	02 July 2023	13 May 2023
Nitrate as N	mg/l	< 0.196	< 0.196	< 0.196	< 0.196	< 0.196	< 0.196	0.193	< 0.196	< 0.196	< 0.196
Nitrite as N	mg/l	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	0.0066	< 0.004	< 0.004	< 0.004
Hardness, Total as CaCO3	mg/l	< 3.73	4.38	4.58	3.73	3.86	6.65	3.88	3.86	3.93	3.73
Alkalinity to pH 4.5 as CaCO3	mg/l	467	469	464	458	466	462	473	475	473	470
Sulphide as S	mg/l		< 0.01			< 0.01		0.016	< 0.01	0.019	< 0.02
Bromide	mg/l		0.0567			0.0568		0.0533	0.0468	0.0531	
Chloride	mg/l	17.7	18	17.9	17.9	17.8	18.2	17.8	17.8	18.3	18
Cyanide as CN	mg/l									< 0.005	
Fluoride	mg/l	1.69	1.6	2.05	1.77	1.75	1.76	1.65	1.78	1.55	1.6
Iodide	mg/l		< 0.003			< 0.003		< 0.003	0.003	< 0.003	< 0.003
Orthophosphate, reactive as P	mg/l	0.354	0.349	0.345	0.364	0.343	0.374	0.393	0.349	0.355	0.35
Silica, reactive as SiO2	mg/l	7.52	7.72	7.77	6.9	7.37	7.64	7.44	7.78	7.53	7.9
Sulphate as SO4	mg/l	36.1	34.8	34.7	34.1	35.6	35	36.2	36.3	36.1	35

Determinand	Units	04 December 2023	01 May 2023	08 August 2023	29 December 2023	29 April 2023	13 October 2023	04 July 2023	13 April 2023	02 July 2023	13 May 2023
Sodium, Dissolved	mg/l	238	233	235	251	244	228	234	236	237	240
Sodium	mg/l	238	230	236	232	243	240	246	241	238	230
Potassium, Dissolved	mg/l	0.795	0.838	0.794	0.801	0.745	0.836	0.716	0.944	0.87	0.86
Potassium	mg/l	1.03	0.8	0.714	0.761	0.803	0.785	0.705	0.845	0.855	0.83
Magnesium, Dissolved	mg/l	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Magnesium	mg/l	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Calcium, Dissolved	mg/l	< 1	1.26	1.34	1	1.05	2.17	1.06	1.05	1.08	1
Calcium	mg/l	< 1	1.24	1.1	< 1	1.05	2.34	< 1	< 1	1.09	< 1
Carbon, Organic, Dissolved as C :- {DOC}	mg/l	0.38	0.29	0.34	0.32	0.4	0.27	0.3	0.23	0.33	0.39
Chromium	µg/l	< 0.5	< 0.5	0.59	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
pH : In Situ		9.09	8.98	9.03	8.94	8.97	9.08	9.01	9.1	9.15	9.09

Determinand	Units	04 December 2023	01 May 2023	08 August 2023	29 December 2023	29 April 2023	13 October 2023	04 July 2023	13 April 2023	02 July 2023	13 May 2023
Ionic Balance: Dissolved	%					0.725	-2.1	-2.11	-1.9	-1.41	-0.632
Chloroxuron	µg/l									< 0.01	
Monuron	µg/l									< 0.01	
Zinc, Dissolved	µg/l	< 5	< 5	< 5	< 5	1.18	31.7	14.6	1.52	4.04	0.92
Chromium, Dissolved	µg/l	< 0.5	< 0.5	0.71	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel, Dissolved	µg/l	1.65	< 1	< 1	< 1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzene	µg/l	< 0.1	< 0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Silver	µg/l	< 1	< 1	< 1	< 1						
Aluminium, Dissolved	µg/l	< 10	16.2	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Tin, Dissolved	µg/l					< 2	< 2	< 2		< 2	
Tin	µg/l	< 2	< 2	< 2	< 2						
Arsenic, Dissolved	µg/l									< 1	

Determinand	Units	04 December 2023	01 May 2023	08 August 2023	29 December 2023	29 April 2023	13 October 2023	04 July 2023	13 April 2023	02 July 2023	13 May 2023
Selenium, Dissolved	µg/l									< 1	
Manganese	µg/l	< 10	14.1	12.3	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Iron	µg/l	< 30	< 30	50	< 30	< 30	497	33.6	< 30	< 30	< 30
Iron, Dissolved	µg/l	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30
Cobalt, Dissolved	µg/l					< 1	< 1	< 1		< 1	
Cobalt	µg/l	< 1	< 1	< 1	< 1						
Aluminium	µg/l	11	20.9	39.7	< 10	12.9	< 10	< 10	< 10	< 10	< 10
Antimony	µg/l	< 1	< 1	< 1	< 1						
Boron	µg/l	1030	975	1030	1060	1050	997	1040	1020	1050	1100
Titanium	µg/l	< 2	< 2	< 2	< 2						
Vanadium	µg/l	< 2	< 2	< 2	< 2						
Barium	µg/l	18	17.9	18	16.6	16.3	19.8	16.2	17.3	18.2	17
Strontium	µg/l	21.8	24.4	23	21.9	21.5	27.2	20.8	21.7	23.1	21
Lithium	µg/l	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100
Thallium : Total	µg/l	< 1									

Determinand	Units	04 December 2023	01 May 2023	08 August 2023	29 December 2023	29 April 2023	13 October 2023	04 July 2023	13 April 2023	02 July 2023	13 May 2023
Copper, Dissolved	µg/l	< 1	< 1	< 1	< 1	0.151	3.18	1.07	0.259	0.543	0.19
Copper	µg/l	< 1	< 1	2.07	2.07	3.36	64.5	3.2	< 1	< 1	1
Silver, Dissolved	µg/l					< 1	< 1	< 1		< 1	
Zinc	µg/l	< 5	< 5	< 5	< 5	< 5	284	15.1	< 5	< 5	< 5
Manganese, Dissolved	µg/l	< 10	13.7	12.7	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Nickel	µg/l	2.05	< 1	< 1	< 1	< 1	1.04	< 1	< 1	< 1	< 1
Uranium	µg/l	< 0.5									
Ionic Balance	%	-0.714	-2.48	-0.752	-0.983	0.43	0.503	0.299	-0.897	-1.36	-2.65
Sulphate, Dissolved as SO4	mg/l					34.6	35.4	35.7	36.2	34.5	36
Molybdenum	µg/l	< 3	< 3	< 3	< 3						
Bicarbonate as HCO3	mg/l	570	572	566	559	569	564	577	580	577	573
Oxygen, Dissolved, % Saturation	%	55.9	45.4	43.2	56.2	77.7	44.9	81.2	27	36.8	19.7

Table B-2 Eskimo Ice Crawley

Determinand	Units	05 April 2023	09 October 2023	30 April 2023	16 October 2023	25 April 2023	17 December 2023	27 April 2023	18 October 2023	26 June 2023
Lead, Dissolved	µg/l	0.229	0.1	0.439	0.389	0.214	0.44	1.2	0.21	0.34
pH		8.91		8.91		8.88				
Temperature of Water	°C	10.6	12.5	10.6	13.1	12.4	10.8	11	13.1	15.2
Conductivity at 25 C	µs/cm	837	787	772	783	765	767	758	779	776
Cadmium, Dissolved	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ammoniacal Nitrogen as N	mg/l	0.28	0.282	0.283	0.284	0.278	0.29	0.27	0.28	0.28
Nitrogen, Total Oxidised as N	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Nitrate as N	mg/l	< 0.196	< 0.196	< 0.196	< 0.196	< 0.196	< 0.196	< 0.196	< 0.196	< 0.196
Nitrite as N	mg/l	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Hardness, Total as CaCO3	mg/l	< 3.73	< 3.73	< 3.73	< 3.73	< 3.73	< 3.73	< 3.73	< 3.73	< 3.73

Alkalinity to pH 4.5 as CaCO3	mg/l	353	357	362	302	345	350	360	360	350
Chloride	mg/l	23.7	22.7	23.3	22.7	23.2	23	23	23	23
Fluoride	mg/l	2.11	6.39	7.05	5.13	5.05	4.9	7.8	5	5.9
Orthophosphate, reactive as P	mg/l	0.521	0.523	0.523	0.513	0.52	0.53	0.54	0.53	0.56
Silica, reactive as SiO2	mg/l	7.39	7.51	7.39	7.48	7.21	7.3	7.7	7.4	7.6
Sodium, Dissolved	mg/l	186	186	178	182	186	180	180	180	180
Potassium, Dissolved	mg/l	0.675	0.679	0.712	0.74	0.733	0.71	0.72	0.74	0.73
Magnesium, Dissolved	mg/l	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Calcium, Dissolved	mg/l	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
pH : In Situ		8.9	8.93	8.89	8.84	8.94	8.94	8.95	8.88	8.82
Ionic Balance: Dissolved	%	0.0338	-0.344	-3.27	5.6	0.873	-1.23	-2.32	-2.32	-1.1
Zinc, Dissolved	µg/l	< 0.5	0.889	0.517	< 0.5	0.829	0.8	1.2	3.6	0.96
Chromium, Dissolved	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Nickel, Dissolved	µg/l	< 0.5	< 0.5	0.669	1.03	3.48	2.1	4	4.6	11
Copper, Dissolved	µg/l	< 0.1	< 0.1	0.123	0.181	0.278	< 0.1	0.47	0.12	0.61
Silver, Dissolved	µg/l	< 1								
Manganese, Dissolved	µg/l	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Iron, Dissolved	µg/l	< 30	< 30	< 30	< 30	< 30	< 30	< 30	< 30	43
Aluminium, Dissolved	µg/l	12.7	12.8	< 10	< 10	< 10	< 10	29	< 10	< 10

Appendix D
Discharges

Permit registration no.	Permit holder	Site name	Site address	Site type	Effluent type	Easting	Northing	Start Date	Distance to site (km)
TH/CTCR.0825/001	Mr. D.M. Stass	Stw, Bungalow Adj. Yew Tree Cott	Bungalow Adjacent To Yew Tree Cottage, Rusper Road, Ifield, Sussex	Water treatment (not water company at a private premises)	Sewage - not water company	524100	137100	15/02/1966	< 0.5
TH/TEMP.2797/002	Thames Water Utilities Ltd	Millbank, Crawley	Millbank, Cr, Millbank, Crawley, Millbank, Crawley	Storm Tank/CSO on Sewerage Network (water company)	Sewage - water company	524510	136480	03/09/2010	< 0.5
TH/CASM.0014/001	Mrs Gambien	Wood Cottage	Wood Cottage, Wood Cottage, Ifield Wood, Crawley, West Sussex	Domestic property (single) (incl. farmhouse)	Sewage - not water company	523900	138200	18/08/1999	< 0.5
TH/CASM.0142/001	Premier Inn Hotel Limited	Proposed Filling Station & Hotel	Gossops, Proposed Filling Station & Hotel, Crawley Avenue, Gossops Green, Crawley, Surrey	Shop incl. Garden Centre/Retail Trade(not Motor Vehicle)	Trade	525600	136200	15/09/1999	1.0 to 1.5
TH/CASM.0274/001	Peter Keal	Stumbleholm Lodge and Cottage	Stubleholme, Stumbleholm Lodge And Cottage, Rusper Road, Ifield, Crawley, West Sussex, Rh11 0lq	Domestic property (multiple) (incl. farmhouses)	Sewage - not water company	522800	137380	07/06/2000	0.5 to 1.0
TH/CTCR.1273/001	Mr Jeremy Amos	The Gate Inn	The Gate Inn, The Gate Inn, Ifield, Crawley, Sussex	Food &Beverage Services/Cafe/Restaurant/ Pub	Sewage - not water company	522600	137300	08/05/1972	0.5 to 1.0
TH/CNTM.0014/001	Crawley Borough Council	Willoughby Farm Development	Willoughby F, Willoughby Farm Development, Ifield Avenue, Crawley, West Sussex	Farms (not house)/ Crop & Animal Rearing/Plant Nursery	Miscellaneous	525200	138600	20/01/1992	< 0.5
TH/CATM.3125/001	Mr. M. Gooda	Little Foxes	Little Foxes, Little Foxes, Charlwood Road, Ifield, Crawley, West Sussex	Holiday Accom/Camp Site/Caravan Site/Hotel/Hostel	Sewage - not water company	524250	138900	05/02/1998	< 0.5
TH/CTCR.1673/001	Croudace Homes Limited	Rusper Cabins	Rusper Cabin, Rusper Cabins, Lambs Green, Horsham, West Sussex, Rh12 4rq	Making of Computers/Electronics/ Optical Products	Sewage - not water company	522100	136800	29/07/1980	1.0 to 1.5
TH/CTCR.1956/001	West Sussex County Council	Buchan Country Park	Buchan Count, Buchan Country Park, South Of A264, Faygate, Crawley, Sussex	Sport, Amusement & Recreation/Golf Club/Gym/Theme Pk/Spa	Sewage - not water company	524500	134650	28/02/1983	1.5 to 2.0
TH/CTCR.1254/001	Mr P. K. Muller and Ms T. Stockbridge	1, Cannonbury Villas	1, Cannonbur, 1, Cannonbury Villas, Lambs Green, Rusper, Sussex	Domestic property (single) (incl. farmhouse)	Sewage - not water company	521900	136801	14/02/1972	1.0 to 1.5
TH/CNTM.1385/001	Mr. G. Martin	The Lamb	The Lamb, La, The Lamb, Lambs Green, West Sussex	Food &Beverage Services/Cafe/Restaurant/ Pub	Sewage - not water company	521900	136800	03/06/1994	1.0 to 1.5

Permit registration no.	Permit holder	Site name	Site address	Site type	Effluent type	Easting	Northing	Start Date	Distance to site (km)
TH/CNTW.1214/001	P.J. Brown Civil Engineering	Burlands Farm	Burlands Far, Burlands Farm, Ifield Road, Ifield Wood, Crawley, Sussex	Specialised Construction/Demolition/Painting/Joinery	Trade	524100	139300	27/08/1991	0.5 to 1.0
TH/CTCP.0626/001	Mrs Rosemary Corner| Mr John and Mrs Elaine Tiffin|Mrs S Grant	Chowles, Chowles Court & Barn	Stp, Chowles, Chowles, Chowles Court & Barn, Rusper, Sussex	WwTW (not water co) (not STP at a private premises)	Sewage - not water company	521800	137400	13/02/1969	1.5 to 2.0
TH/CTWC.2423/001	Euro Self Drive Limited|W.B. Floor Machines Limited| et al.	Holmbush Potteries	Holmbush Pot, Holmbush Potteries, Crawley Road, Faygate, Horsham, Surrey	Making of Glass/ Ceramics/Cement/Cutting Stone	Sewage - not water company	523200	134500	09/05/1988	1.5 to 2.0
TH/CTWC.2192/002	Mr. D.R. Shaw	The Vineries Nurseries	The Vineries, The Vineries Nurseries, Lambs Green, Near Rusper, Sussex	Farms (not house)/Crop & Animal Rearing/Plant Nursery	Sewage - not water company	521600	136700	10/02/1992	1.5 to 2.0
TH/CASM.0305/001	Mrs Emma Thomas	Axmas Cottage	Axmas Cot, Axmas Cottage, Rusper Road, Lambs Green, West Sussex, Rh12 4rg	Domestic property (single) (incl. farmhouse)	Sewage - not water company	521600	136400	13/07/2000	1.5 to 2.0
TH/CASM.0304/001	Mr J Sutton	Outaway And Annex	Outaway, Outaway And Annex, Bonnetts Lane, Ifield, Crawley, West Sussex, Rh11 0ny	Domestic property (multiple) (incl. farmhouses)	Sewage - not water company	525350	139350	13/07/2000	0.5 to 1.0
TH/CATM.3674/001	Mrs Jane Vaughan-Smith	Taylin House	Taylin House, Taylin House, Fay Cottage, Faygate Lane, Faygate, West Sussex	Domestic property (single) (incl farmhouse)	Sewage - not water company	521500	135800	10/03/1999	1.5 to 2.0
TH/CNTW.0509/001	Ms Nicolette Lindon-Taylor	Taylin House	Taylin House, Taylin House, Fay Cottage, Faygate Lane, Faygate, West Sussex	Domestic property (single) (incl. farmhouse)	Sewage - not water company	521500	135800	25/05/1990	1.5 to 2.0
TH/CNTM.0155/001	Decision Graphics Uk Ltd	The Shambles	The Shambles, The Shambles, Bonnetts Lane, Ifield, Crawley, West Sussex	Real Estate Activities/ Buying/ Selling/Renting	Sewage - not water company	525400	139550	13/03/1992	0.5 to 1.0
TH/CTCR.1822/001	Terminus Securities Ltd	Bcp Car Park	Bcp Car Park, Bcp Car Park, Charlwood Road, Lowfield Heath, Gatwick, Sussex	Sale of Motor Vehicles/ Maintenance & Repair	Sewage - not water company	525300	139700	10/11/1981	1.0 to 1.5
TH/CTWC.2144/001	William Reed Ltd	Offices	Offices, Bro, Offices, Broadfield Park, Brighton Road, Crawley, Sussex	Undefined or Other	Miscellaneous	526580	134670	01/02/1988	2.5 to 3.0
TH/CTCR.1251/001	Cottesmore (Brighton) Limited	Cottesmore School	Cottesmore S, Cottesmore School, Buchan Hill, Pease Pottage, Crawley, Sussex	Education/Nursery/School /College /Uni./ Training Venue	Sewage - not water company	525200	133600	14/02/1972	2.5 to 3.0
TH/CATM.3161/001	American Golf (Uk) Limited	Cottesmore Golf & Country Club	Cottesmore G, Cottesmore Golf & Country Club, Buchan Hill, Pease Pottage, Crawley, Sussex	Sport, Amusement & Recreation/ Golf Club/ Gym/ Theme Pk/ Spa	Sewage and Trade combined	524300	133300	09/02/1998	3.0 to 3.5
TH/CNTW.1074/001	Mr. M.F. Rogerson	Cottesmore Golf & Country Club	Cottesmore G, Cottesmore Golf & Country Club, Buchan Hill, Pease Pottage, Crawley, Sussex	Sport, Amusement & Recreation/ Golf Club/ Gym/ Theme Pk/ Spa	Sewage - not water company	524300	133300	10/06/1991	3.0 to 3.5
TH/CASM.0165/001	Mr And Mrs Wynniatt-Husey	Faygate House	Faygate, Faygate House, Wimlands Lane, Faygate, West Sussex	Domestic property (single) (incl. farmhouse)	Sewage - not water company	521200	135000	09/11/1999	2.0 to 2.5

Permit registration no.	Permit holder	Site name	Site address	Site type	Effluent type	Easting	Northing	Start Date	Distance to site (km)
TH/CTCR.1171/001	Southern Water Services Limited	Service Reservoir	Service Rese, Service Reservoir, Buchan Hill, Crawley, Sussex	WTW/Water Collection/ Treatment/ Supply	Trade	525300	133400	14/05/1970	3.0 to 3.5
SO/P01885/001	Faygate Business Centre	Faygate Railway Station	P01885, Faygate Railway Station, Faygate Railway Station, Faygate, West Sussex	Land Transport & via Pipelines/ Freight	Sewage - not water company	521600	134400	20/10/1988	2.5 to 3.0
SO/EPRHP3922XF/001	Senior Living (Durrants) Limited	Durrants Village	Durrantsvill, Durrants Village, Agates Yard, Faygate Lane, Horsham, West Sussex, Rh12 4dn	Domestic property (multiple) (incl. farmhouses)	Sewage - not water company	521560	134440	23/05/2011	2.5 to 3.0
TH/EPRQB3493ED/001	Britannia Hotels No.2 Limited	Russ Hill Hotel Stp	Russ Hill, Russ Hill Hotel Stp, Charlwood, Gatwick, West Sussex, Rh6 0el	Holiday Accom/ Camp Site/Caravan Site/Hotel/Hostel	Sewage - not water company	522921	140167	21/09/2020	2.0 to 2.5
TH/CTCR.0713/001	Roband Electronics Plc	Charlwood Works	Charlwood Wo, Charlwood Works, Lowfield Heath Road, Charlwood, Horley, Surrey	Making of Computers/ Electronics/ Optical Products	Trade	524978	140380	21/07/1964	1.5 to 2.0
TH/CTCP.0479/001	Roband Electronics Plc	Factory Premises	Factory Prem, Factory Premises, Factory Premises, Charlwood, Surrey	Making of Computers/ Electronics/ Optical Products	Sewage - not water company	524978	140381	11/03/1965	1.5 to 2.0
TH/CTWC.0680/001	W. H. Brakspear & Sons Limited	Ghyll Manor Hotel	Ghyll Manor, Ghyll Manor Hotel, Rusper, Sussex	Holiday Accom/ Camp Site/ Caravan Site/ Hotel/ Hostel	Sewage - not water company	520600	137200	04/03/1986	2.5 to 3.0
TH/CTWC.3504/001	Crawley Borough Council	55 Flats, Dalewood Gardens	55 Flats, Da, 55 Flats, Dalewood Gardens, Woodfield Road, Northgate, Crawley, West Sussex	Domestic property (multiple) (incl. farmhouses)	Miscellaneous	528000	137800	18/08/1989	2.5 to 3.0
SO/EPRWB3998RF/001	Medivet Group Ltd	Medivet Faygate	Medivet, Medivet Faygate, Tower Road, Faygate, Horsham, Rh12 4sd	Veterinary Activities/ Animal Shelter/ RSPCA	Sewage - not water company	521986	133684	29/11/2022	3.0 to 3.5
TH/CTCR.1768/003	Thames Water Utilities Ltd	Colgate Stw	Colgate Stw, Colgate Stw, Colgate Stw, Sussex	WwTW/ Sewage Treatment Works (water company)	Sewage - water company	523300	133000	01/04/2010	3.0 to 3.5
TH/TEMP.2495/003	Thames Water Utilities Ltd	Colgate Wastewater Treatment Works	Colgate Wwtw, Colgate Wastewater Treatment Works, Colgate, West Sussex, Rh12 4sz	WwTW/ Sewage Treatment Works (water company)	Sewage - water company	523210	133020	29/03/2018	3.0 to 3.5
TH/EPRQB3796NW/001	Thames Water Utilities Ltd	Rusper Sewage Pumping Station	Rusper Sps, Rusper Sewage Pumping Station, Field End, Rusper, Horsham, West Sussex, Rh12 4qz	Pumping Station on Sewerage Network (water company)	Sewage - water company	520180	136584	09/03/2020	2.5 to 3.0
SO/EPRMB3591RL/001	Mr Les Mitchell|Mr Tim Weekes	Wimlands Cottages Stp	Wimlands, Wimlands Cottages Stp, Wimland Road, Faygate, Horsham, West Sussex, Rh12 4ss	Domestic property (multiple) (incl. farmhouses)	Sewage - not water company	520652	134840	19/04/2019	3.0 to 3.5
SO/P00532/005	West Sussex County Council	Middle Hill	P00532, Middle Hill, Middle Hill, Faygate Forest, Faygate, West Sussex, Rh12 4sd	Waste Collection/ Treatment/ Disposal/ Materials Recovery	Trade	521600	133600	01/06/2023	3.0 to 3.5
TH/CTCR.1926/002	Thames Water Utilities Ltd	Charlwood Ps	Charlwood, S, Charlwood Ps, Horley Road, Charlwood, Horley, Surrey, Rh6 0bj	Storm Tank/ CSO on Sewerage Network (water company)	Sewage - water company	524960	140970	07/03/2019	2.0 to 2.5

Permit registration no.	Permit holder	Site name	Site address	Site type	Effluent type	Easting	Northing	Start Date	Distance to site (km)
SO/P11012/001	Saxon Weald Homes Ltd	Colgate S.T.W.	P11012, Colgate S.T.W., Colgate S.T.W., North Street, Horsham, West Sussex	WwTW (not water co) (not STP at a private premises)	Sewage - not water company	523300	132700	15/01/1987	3.5 to 4.0
SO/P10070/002	Peter Ronald Tobutt	Horsham Scouts Districts Campsite	P10070, Horsham Scouts Districts Campsite, Horsham Scouts Districts Campsit, Beacon Hill Campsite, Tower Road, Colgate, Horsham, West Sussex	Holiday Accom/ Camp Site/ Caravan Site/ Hotel/ Hostel	Sewage - not water company	522210	133090	16/10/2002	3.5 to 4.0
SO/P06622R/002	Roffey Park Management (No. 2) Ltd	Roffey Park Estate	P05423, Roffey Park Estate, Forest Road, Colegate, Horsham	Domestic property (multiple) (incl farmhouses)	Sewage - not water company	521310	133330	21/12/2012	3.5 to 4.0
TH/CTWC.1325/001	Tesco Stores Limited	Tesco Superstore	Tesco Supers, Tesco Superstore, Hazelwick Avenue, Crawley, West Sussex	Shop incl Garden Centre/Retail Trade (not Motor Vehicle)	Miscellaneous	528800	137800	18/11/1986	3.5 to 4.0
SO/EPRDB3995AW/001	Mr Ritchie Gatt	The Frog & Nightgown	The Frog, The Frog & Nightgown, Wimland Road, Faygate, Horsham, West Sussex, Rh12 4ss	Food & Beverage Services/ Cafe/ Restaurant/ Pub	Sewage - not water company	520554	133956	14/03/2016	3.5 to 4.0
TH/CTWC.0999/002	David And Julia Roberts	Trumbles Hotel & Restaurant	Trumbles Hot, Trumbles Hotel & Restaurant, Stanhill, Charlwood, Surrey, Rh6 0ep	Holiday Accom/ Camp Site/ Caravan Site/ Hotel/ Hostel	Sewage - not water company	524100	141700	05/06/1991	3.0 to 3.5
SO/P12347/002	Beedingwood Residents Limited	1,2,3,4,5,6 & 7 Beedingwood Drive	P12347, 1, 2, 3, 4, 5, 6 & 7 Beedingwood Drive, Forest Road, Colgate, Horsham, West Sussex, Rh12 4te	Domestic property (single) (incl. farmhouse)	Sewage - not water company	521480	132740	04/01/2011	4.0 to 4.5
TH/TEMP.2831/002	Thames Water Utilities Ltd	Pease Pottage	Pease Pottage	WwTW/ Sewage Treatment Works (water company)	Sewage - water company	526300	132301	03/09/2010	> 4.5
P02374	N/A	N/A	N/A	N/A	Domestic property (single) (incl. farmhouse)	520250	133050	21/12/2012	> 4.5
P11050	N/A	N/A	N/A	N/A	Education/Nursery/ School/ College/ Uni/ Training Venue	520608	133204	14/09/1993	> 4.5
P04853	N/A	N/A	N/A	N/A	Offices Admin + Support	521610	132230	20/05/1994	> 4.5
P10062	N/A	N/A	N/A	N/A	Farms (not house)/ Crop + Animal Rearing/Plant Nursery	524010	131810	19/12/2001	> 4.5
P02517	N/A	N/A	N/A	N/A	Farms (not house)/ Crop & Animal Rearing/ Plant Nursery	518460	137470	29/08/1989	> 4.5
P03619	N/A	N/A	N/A	N/A	Food & Beverage Services/ Cafe/ Restaurant/ Pub	518600	136900	04/07/1991	> 4.5

Permit registration no.	Permit holder	Site name	Site address	Site type	Effluent type	Easting	Northing	Start Date	Distance to site (km)
P06071	N/A	N/A	N/A	N/A	Undefined or Other	518630	137980	22/03/1996	> 4.5
P05370	N/A	N/A	N/A	N/A	Domestic property (single) (incl. farmhouse)	518270	136310	25/05/1994	> 4.5
EPRVB3594WQ	N/A	N/A	N/A	N/A	Domestic property (multiple) (incl. farmhouses)	519196	137510	12/09/2022	> 4.5

N/A – Data not available

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