GEOLOGIC SUMMARY

COMPLETION REPORT

EXTENSION TEST

ESSO 25/10-1

ESSO 25/10-1

Geologic Summary

Contents

I. Introduction 1
- A. Well Designation 1
- B. Well Classification 1
- C. Well Location (map in folder) 1
  - 1) Country 1
  - 2) License 1
  - 3) Coordinates 1
  - 4) Seismic Location 1
  - 5) Waterdepth 1

II. Purpose of Well 1

III. Results of Well 1

IV. Well History 2
- A. General, spud date, completion date, etc. 2
- B. Contractor and rig 2
- C. Casing 2
- D. Mud Program 2
- E. Drilling Problems 2
- F. Coring 3
  - 1) Conventional 3
  - 2) Sidewall 3
- G. Logging 6
  - 1) Baroid (Log in folder) 6
  - 2) Schlumberger 6
  - 3) Velocity Survey 6
- H. Testing 7
  - 1) Production Test Results 7
  - 2) Formation Interval Results 7
- I. Abandonment 7

V. Stratigraphy 8
- A. Table of Stratigraphy 8
- B. Lithologic Descriptions 9
  - 1) Sample descriptions (wellsite) 9
  - 2) Core descriptions (conventional) 19
  - 3) Sidewall core descriptions 33

VI. Reservoirs 44

VII. Conclusions 44

VIII. Completion Log (Log in folder) . . . . . -

ESSO 25/10-1

Geologic History

I. Introduction:

A. Well Designation: Esso 25/10-1

B. Well Classification: Extension Test

C. Well Location:

1) Country: Norway, Jurisdictional waters

2) License: 028

3) Coordinates:

Latitude 59^{o} 11' 22.0"N

Longitude 2^{o} 19' 14.4"E

4) Seismic Location:

Line SC 70, Shotpoint 136

5) Waterdepth: 407 feet

II. Purpose of Well:

To test the crest of a broad, low relief closure mapped on a Lower Eocene seismic reflector. Esso well 25/11-1, drilled 5-1/4 km. to the east on the flank of this closure, encountered thin-bedded, oil-bearing Lower Eocene sands underlain by thicker, water-bearing Paleocene sands. It was anticipated that Esso 25/10-1 would find the Paleocene sands structurally higher and oil-bearing.

III. Results of Well:

Esso 25/10-1 drilled to a total depth of 6861 feet, bottoming in Jurassic Lias sediments. The 421 feet of Lias penetrated consisted primarily of sand and siltstone with some shale. The sands were unconsolidated, carbonaceous, with some indications of dead oil but no fluorescence.

No Cretaceous sediments were encountered in this well. The Paleocene section, 652 feet thick, was composed of sands and shales, with the sand bed thickness ranging from a few feet to about 125 feet. These Paleocene sands were highly porous and permeable, but only the top 17 feet had good oil shows and this section produced water only on wire line formation test. The Paleocene shales were grey to green-grey, waxy, slightly bentonitic and carbonaceous.

The 1694 feet of Eocene drilled was predominantly grey shale with very thin sands developed below a volcanic ash zone near the base. These sands had good oil shows and tested 24.8^{o} - 25.1^{o} API gravity oil on wire line formation tests but were too thin to be considered commercial.

The Oligocene to Recent sediments, 3651 feet thick, were composed of soft clays and unconsolidated sands and silts with no indications of hydrocarbons.

IV. Well History:

A. General

1) Spud date: August 4, 1969

2) Completion date: August 3, 1970

3) Status: Plugged and abandoned

4) Total depth: 6861 feet

B. Contractor and Rig: Glomar Grand Isle

C. Casing:

30 inch at 530 feet
20 inch at 1247 feet
13-3/8 inch at 3427 feet
9-5/8 inch at 4492 feet

D. Mud Program:

Initial drilling from the sea floor to 3271 feet was with sea water and gel. From 3271 feet to the September, 1969 suspended depth of 5733 feet, the mud system consisted of sea water, spersene, XP-20, salinex. After re-entry in July, 1970 and drilling out the cement plugs, a fresh water, spersene XP-20 mud system was used.

E. Drilling Problems:

No problems were experienced in drilling the holes for and running the 30 inch and 20 inch conductor strings. Drilling the 12-1/4 inch hole below the 20 inch shoe was with sea water and, at approximately 2500 feet, partial returns were lost. The hole was displaced to mud with 17 sacks of Mica and 7 sacks of Celloseal at 3271 feet. Drilling continued to 3524 feet where the hole was logged, underreamed, and 13-3/8 inch casing run with no problems.

Drilling then continued to 5156 feet where, while making a connection, the pipe became stuck and circulation was shut off. The drill pipe was subsequently backed off, leaving a fish in the hole consisting of the 12-1/4 inch bit, bumber subs, stabilizers, drill collars and one joint of 5 inch drill pipe. The top of the fish was at 3480 feet and the bottom at 4018 feet.

After two unsuccessful attempts, the fish was finally sidetracked. A 12-1/4 inch sidetracked hole was drilled to 4544 feet and 9-5/8 inch casing cemented at 4492 feet. The well then drilled and cored ahead to 5733 feet at which depth cement plugs were set and operations suspended in October, 1969 due to severe autumn storms. In July, 1970, the well was re-entered. The cement plugs were drilled to 5460 ~~5680~~ feet where the bit kicked off the hard cement into new formation. At this depth coring and drilling the Lower Tertiary resumed and the well was carried down to TD with no further problems.

F. Coring:

1) Conventional

Number	Interval (feet)	Recovery length (feet)	%
1	5462 - 5517	37	67
2	5517 - 5550	32	97
3	5550 - 5605	55	100
4	5605 - 5645	40	100
5	5645 - 5688	35	82
6	5688 - 5705	17	100
7	5705 - 5719	14	100
8	5719 - 5733	14	100
9 (Re-entry)	5680 - 5725	34	76
10	5725 - 5767	31	74
11	5767 - 5799	30	94
12	5799 - 5859	60	100
13	5859 - 5919	60	100

2) Sidewall

Number	(m)	Depth (feet)	Recovery (inches)
1	419	1375	---
2	472	1550	---
3	504	1655	---
4	561	1841	2
5	610	2000	---
6	630	2068	---
7	638	2094	---
8	649	2130	---
9	666	2184	---
10	677	2221	2
11	707	2320	---
12	732	2402	---
13	741	2430	---
14	782	2566	1-3/4
15	[illegible]	2608	1-3/4

	Number	(m)	Depth (feet)	Recovery (inches
	16	803	2634	---
	17	828	2717	1/2
	18	863	2831	---
	19	884	2900	---
	20	899	2950	---
	21	917	3010	---
	22	941	3088	---
	23	988	3243	---
	24	996	3269	---
	25	1014	3328	---
	26	1042	3417	---
	27	1047	3436	---
	28	1068	3505	---
	29	1372	4502	1-3/4
	30	1389	4557	2-1/4
	31	1401	4596	2
	32	1433	4700	2-1/4
	33	1469	4820	2-1/4
	34	1499	4918	2
	35	1527	5010	2
	36	1554	5098	2
	37	1556	5108	2
	38	1584	5197	1-3/4
	39	1614	5295	2-1/4
	40	1631	5350	2-1/4
	41	1646	5400	2-1/4
	42	1649	5410	2-1/4
	43	1652	5420	2
	44	1656	5432	2
	45	1661	5450	2
	46	1664	5460	1-3/4
Re-entry	47	1652	5420	---
	48	1661	5450	---
	49	1670	5480	---
	50	1679	5508	---
	51	1688	5537	---
	52	1701	5582	---
	53	1704	5592	---
	54	1715	5626	1-3/4
	55	1725	5665	---
	56	1733	5685	2

Number	(m)	Depth (feet)	Recovery (inches
57	1735	5691	2
58	1752	5747	---
59	1790	5874	1
60	1803	5916	1-1/2
61	1813	5948	---
62	1823	5980	1-1/4
63	1837	6026	1-1/4
64	1847	6060	---
65	1856	6090	2
66	1861	6106	2
67	1870	6134	1-3/4
68	1875	6152	1-4
69	1884	6181	1-3/4
70	1894	6214	1-1/2
71	1905	6250	1-1/2
72	1906	6252	1/2
73	1912	6272	1-1/4
74	1918	6294	2
75	1923	6310	1-3/4
76	1931	6334	3/4
77	1939	6360	1-1/4
78	1950	6396	1-3/4
79	1954	6412	2
80	1959	6426	1-1/2
81	1962	6436	2
82	1966	6450	1-3/4
83	1974	6475	1-1/4
84	1978	6488	1
85	1982	6504	1-1/4
86	1988	6522	1-1/4
87	1996	6548	1-1/2
88	1998	6556	1-3/4
89	2001	6565	1-1/2
90	2006	6580	1-1/4
91	2014	6609	1-1/4
92	2017	6618	1-3/4
93	2021	6630	1-3/4
94	2020	6641	1/2
95	2031	6662	1-3/4
96	2037	6683	1-1/2
97	2037	6683	---

Number	(m)	Depth (feet)	Recovery (inches)
98	2049	6724	1-1/4
99	2056	6746	2
100	2059	6756	3/4
101	2065	6774	1-3/4
102	2067	6782	1-1/4
103	2076	6812	1-1/2
104	2079	6822	1-1/2
105	2083	6834	1-1/4
106	2085	6840	1-3/4

G. Logging:

1) Baroid

	Interval (feet)
a. Drilling rate	1265 - 6861
b. Lithology (%)	1265 - 6861
c. Cuttings gas	1265 - 6861
d. Mud gas	1265 - 6861
e. Chromatograph	1265 - 6861

2) Schlumberger

Type Log	Depth (feet)	Run Number
a. Induction Electric	1247 - 3524	1
	3418 - 4538	2
	4486 - 5730	3
	5400 - 6858	4
b. BHC Sonic - Gamma Ray	1247 - 3518	1
(Run No. 2 was a check of Run No. 1 in underreamed 17-1/2" hole)	3418 - 4533	3
	4486 - 5720	4
	4490 - 6843	5
c. Gamma Ray	405 - 1247	1
d. Microloterolog -	1248 - 3522	1
Microlog with Caliper	4492 - 6857	2
e. Formation Density	1247 - 3524	1
	4492 - 6858	2
f. Dipmeter	1246 - 3525	1
	4487 - 5731	2
	5400 - 6866	3

3) Velocity Survey

Seismograph Services Ltd. ran a Velocity Survey at TD. A quality control geophysicist from the North Sea Study Group was present to observe the survey. ok

H. Testing:

1) Production Test Results:- None taken

2) Formation Interval Test Results:

Test Number	Depth (feet)	Result
1	5870	Recovered 13,000 cc water. FSIP 2775 psi
2	5834	Recovered 11,000 cc water. FSIP 2700
3	5774	Packer Failure
4	5777	Recovered 4800 cc oil. Seal failure after 9 minutes.
5	5729	Packer Failure
6	5728	Recovered 8250 cc oil. FSIP 2575
7	5582	Recovered 1000 cc oil. Almost immediate seal failure.
8	5580	Tool not set
9	5580	Packer Failure
10	5584	Packer Failure
11	6336	Misfire
12	6336	Packer Failure

Oil recovered on FIT number four was 24.8° API at 60° F and the sulfur content was 0.45%. Oil recovered on FIT number six was 25.1° API at 60° F and the sulfur content was 0.59%.

I. Abandonment:

Cement plug number one (190 sacks of neat cement with 2% $CaCl_2$) was set at 5881 feet and tagged with drill pipe at 5425 feet.

A Baker Model "N" wire line bridge plug was set at 4405 feet and cement plug number two (105 sacks of neat cement with 2% $CaCl_2$) was set from 4405 to 4105 feet.

Cement plug number three (105 sacks of neat cement with 2% $CaCl_2$) was set from 800 - 500 feet.

The well head was blown off three feet below the ocean floor with 24 kilograms of spring gummie explosive. The inspection dive found the ocean floor clear of all obstructions.

V. Stratigraphy:

A. Table of Stratigraphy 25/10-1 (KB 31 feet)

Stratigraphic Unit	Drill Depth (feet)	Subsea Top (feet)	Thickness (feet)
Pliocene/Pleistocene/Recent	439 - 1820	(-408)	1381
Miocene	1820 - 3445	(-1789)	1625
Oligocene	3445 - 4090	(-3414)	645
Eocene	4090 - 5784	(-4059)	1694
Paleocene	5788 - 6440	(-5757)	652
Jurassic - Lias	6440 - 6861 (TD)	(-6409)	421 +

B. Lithologic Descriptions:

1) Sample Descriptions (Wellsite)
1265 - 6860 feet

WELLSITE SAMPLE DESCRIPTIONS

Anchor point samples -

Sand, clear-buff, fine-very fine grained, unconsolidated, poorly sorted, subangular-subrounded, mostly quartz grains, trace of orange and white chert, trace of carbonaceous material. Several large pelecypod shells (3-1/2" wide), some microfossil fragments (forams., etc.). Matrix material -- clay, very dark to light gray-green. Clay and microfossil fragments were very calcareous.

Depth	%	Description
439-1265	-	No samples - returns to sea floor
1265-1290	100	Cement & casing shoe cuttings
1290-1440	80	Cement & casing shoe cuttings
	10	Sand, white, medium coarse grained quartz, subangular - angular, fair sorting, unconsolidated, good porosity - permeability. No show.
	10	Clay, medium gray, non-calcareous, soft -- probably washing away.
	Trace of microfossils and trace of igneous material.	
1440-1500	50	Cement & casing shoe cuttings
	30	Clay as above
	10	Sand as above
	10	Limestone, medium gray-brown, crystalline, very argillaceous, no porosity- permeability. No show.
	Trace of mudstone, tan, silty and trace of shell fragments.	
1500-1710	90	Clay, medium gray, soft, slightly calcareous
	10	Sand, white-tan, fine-very fine grained, quartz, subangular-subrounded, fair sorting, unconsolidated, good porosity - permeability. No show.
	Trace of silt, medium gray, slightly calcareous and trace of fragments.	
1710-2040	90	Clay, medium gray, soft, slightly calcareous, very silty
	10	Sand, white-tan, very fine - medium grained, quartz, subangular,-angular, fair sorting, unconsolidated, good porosity - permeability. No show.
	Trace of microfossils. Poor sample returns.	
2040-2100	90	Silt, medium gray-tan, slightly calcareous
	10	Dark mafic minerals. Poor samples.
2100-2400		Miocene coquina zone at (2100)
	50	Macro-fossil fragments
	50	Silt, medium gray-tan, calcareous, clay matrix (?), trace glauconite, trace dark minerals.
	Trace of sand, light gray, very fine-medium grained, quartz, subrounded, fair sorting, unconsolidated, good porosity- permeability. No show.	

Depth	%	Description
2400-2580	70	Silt, medium gray-tan, very calcareous, trace dark minerals
	30	Macro-fossil fragments Lost 50% returns at 2550. Added LCM.
2580-2790	100	Silt, brown-tan, non-calcareous, trace of lignite granules
	Trace	of shell fragments and trace of green minerals (olivine?
2790-3210	100	Sand, buff, very fine-medium, silty, non-calcareous, angular-subrounded, glauconitic, fair sorting, good porosity-permeability. No show. Large pieces of lignite (?) across shaker intermittently, abundant LCM.
3210-3450	50	Silt, light buff-clear, slightly calcareous
	40	Sand, buff-clear, very fine-coarse unconsolidated trace of orange calcite, trace of glauconite, fair sorting, good porosity-permeability. No show.
	10	Lignite, brown-black, soft.
3450-3524	70	Siltstone, medium-dark brown, carbonaceous, glauconitic, calcareous.
	30	Clay, medium gray.

SIDE-TRACKED HOLE

Depth	%	Description
3520-3700	90	Clay, gray-brown, silty, non-calcareous
	10	Siltstone, tan, non-calcareous, unconsolidated
	Trace	Glauconite
3700-3730	70	Clay as above
	30	Siltstone, dark brown, slightly calcareous, micaceous, very argillaceous, soft.
	Trace	Limestone, chalky, light orange
3730-3850	90	Clay as above
	10	Siltstone, as above
	Trace	Glauconite
	Trace	Pyrite
3850-3910	80	Clay, as above
	20	Siltstone, as above
3910-4000	100	Clay, as above
	Trace	Sand, buff, very fine, clayey, calcareous, glauconitic, fair sorting, sub-angular to sub-rounded, good porosity-permeability. No show.
4000-4060	70	Clay, as above
	20	Sand, buff, fine-very fine grained, sub-angular, clayey, glauconitic, fair sorting, very hard, siliceous, poor porosity- permeability. No show
	10	Siltstone, medium gray, calcareous, argillaceous, firm
	Trace	Quartz grains, white-clear, medium-coarse, sub-rounded, unconsolidated.

Depth	%	DESCRIPTION
4060-4120	70	Clay, light gray-brown, sandy, soft
	20	Sand, buff, very fine-coarse, sub-angular, fair sorting, siliceous, hard, poor porosity-permeability. No show.
	10	Siltstone, medium dark-gray, calcareous, firm
4120-4210	70	Sand, quartz, clear-white, fine-coarse, sub-rounded, poor sorting, unconsolidated. No show.
	30	Clay, as above
	Trace	Siltstone, as above
4210-4330	70	Clay, medium gray-light gray, soft
	20	Sand, as above
	10	Siltstone, as above
	Trace	Shale, medium gray, silty, firm
4330-4480	70	Clay, as above
	30	Shale, medium gray-green, slightly silty, soft
	Trace	Sand, as above
	Trace	Carbonaceous specks
	Trace	Glauconite
4480-4540	70	Clay, as above
	30	Shale, gray-light green, slightly silty, moderately firm
	Trace	Sand, as above
	Trace	Pyrite
4540-4630	100	Shale, gray-brown to light greenish gray, non-calcareous, moderately firm
	Trace	Pyrite
	Trace	Glauconite
4630-4720	80	Clay, light gray-green, slightly silty, sandy, non-calcareous, soft
	20	Shale, as above
4720-4900	50	Clay, buff-greenish gray, non-calcareous, soft
	50	Shale, light green-gray brown, non-calcareous, moderately firm
	Trace	Limestone, light buff, argillaceous
	Trace	Pyrite
4900-5050	70	Shale, medium gray-light gray, non-calcareous, moderately firm
	30	Clay, as above
	Trace	Sand, buff-yellow, fine-very fine, calcareous, sub-rounded, fair sorting, poor porosity-permeability No Show
	Trace	Glauconite

NEW HOLE

5050-5220	100	Shale, as above
	Trace	Clay, as above

Depth	%	Description
	Trace	Limestone, white-gray, crystalline
	Trace	Sand, white-buff, fine-coarse, sub-rounded, poor sorting, calcareous, poor porosity-permeability, No show.
	Trace	Pyrite
5220-5250	60	Shale, medium gray-gray green, non-calcareous, moderately firm.
	40	Clay, as above
5250-5320	90	Shale, as above
	10	Clay, gray-green, non-calcareous, soft.
5320-5440	90	Shale, medium gray-gray green, non-calcareous, moderately firm.
	10	Clay, as above.
	Trace	Limestone, light gray-white, dolomitic, argillaceous
	Trace	Micro-fossils
	Trace	Glauconite
	Trace	Pyrite
	Trace	Quartz grains, clear, fine-very fine, sub-rounded, poor sorting.
5440-5460	90	Shale, as above
	10	Shale, red brown, non-calcareous, soft.
	Trace	Clay, as above.
5460-5470	90	Shale, as above.
	10	Shale, red (as above)
	Trace	Tuff, white-light gray, black specks, soft (??).

Depth correction after steel line measurement:

5473 changes to 5462

5462-5733		Continuous cores 1 through 8 see core descriptions.

PROPRIETARY
EXPLORESSO

ESSO EXPLORATION NORWAY, INC.

25/10-1 RE-ENTRY

WELLSITE SAMPLE DESCRIPTIONS

5460' - 5490'	90 %	Shale, light grey - green - red brown, slightly calcareous, slightly micaceous, firm.
	10 %	Cement, soft.
	Tr.	Sand, very fine, grading to silt, clear, quartzitic, subangular, fair sorting. No Show.
5490' - 5580'	70 %	Shale, as above.
	10 %	Clay, white - light grey, calcareous, soft.
	10%	Sand - Sandstone, clear - light grey, very fine-fine with occasional coarse grains, subangular, fair sorting, calcareous, soft - firm, good stain, bright yellow fluorescence, bright cut.
	10 %	Cement, soft.
5580' - 5610'	60 %	Shale, as above.
	30 %	Clay, as above.
	10 %	Cement, very soft.
	Tr.	Sand, as above with Show, as above.
5610' - 5680'	60 %	Shale, medium grey with red - green mottling, slightly micaceous, slightly calcareous, firm.
	30 %	Clay, as above.
	10 %	Cement, firm.
	Tr.	Silt, clear, slight yellow fluorescence, No Show.
5680' - 5725'		See Core Description No. 9.
5725' - 5767'		See Core Description No. 10.
5767' - 5799'		See Core Description No. 11.

cont'd

5799' - 5859'		See Core Description No. 12.
5859' - 5919'		See Core Description No. 13.
5919' - 5950'	100 %	Shale, light - dark grey green, firm. Much caving --- poor samples.
5950' - 6000'	95 %	Shale, as above, carbonaceous.
	5 %	Sandstone, clear, fine, subangular - subrounded, well sorted, calcareous, hard. No Show.
	Tr.	Limestone, white - buff, soft - firm.
6000' -- 6040'	90 %	Shale, grey green, some finely varved, firm.
	10 %	Sand - Sandstone, as above, fine - coarse, No Show.
	Tr.	Siltstone, buff - brown.
	Tr.	Dolomite, buff - tan, hard.
	Tr.	Limestone, as above.
6040' - 6060'	75 %	Shale, as above.
	25 %	Sand - Sandstone, as above. No Show.
	Tr.	Siltstone, as above.
	Tr.	Limestone, as above.
6060' - 6080'	90 %	Clay, light - medium grey, bentonitic, soft.
	10 %	Shale, as above.
	Tr.	Sand - Sandstone, as above, No Show.
	Tr.	Limestone, as above.
6080' - 6160'	100 %	Clay, as above, silty, sandy.
	Tr.	Shale, dark grey, slightly calcareous, firm.
6160' - 6200'	100 %	Clay, as above.
	Tr.	Shale, as above.
	Tr.	Sand, clear fine - medium, subangular - subrounded, poor sorting, No Show.
6200' - 6260'	90 %	Clay, as above, slightly calcareous.
	10 %	Sand, as above, No Show.
	Tr.	Shale, as above.
	Tr.	Limestone, white, micritic, soft.

cont'd

6260' - 6360'	75 %	Clay, white - light grey, silty, sandy, bentonitic, soft.
	20 %	Shale, light grey - green grey, slightly calcareous, soft.
	5 %	Sand, as above, very fine - medium, No Show.
	Tr.	Limestone, buff - white, micritic.
6360' - 6410'	90 %	Clay, grey white, silty, sandy, bentonitic, soft.
	10 %	Shale, light grey - green grey, slightly calcareous, soft.
	Tr.	Sandstone, as above.
6410' - 6460'	100 %	Clay, as above.
	Tr.	Shale, as above.
	Tr.	Gypsum, white.
6460' - 6500'	100 %	Shale, grey green, firm; grey with carbon material, firm; 30 % red brown, firm.
	Tr.	Sand - Sandstone, fine - coarse grained, subangular - subrounded, poor sorting.
	Tr.	Lignite.
6500' - 6540'	60 %	Shale, as above.
	30 %	Clay, grey white, silty, sandy, very soft.
	10 %	Sand - Sandstone, as above.
	Tr.	Siltstone, as above.
	Tr.	Lignite.
		(Samples very mixed due to trip.)
6540' - 6580'	90 %	Clay, as above.
	10 %	Shale, as above.
	Tr.	Sand - Sandstone, as above.
	Tr.	Lignite.
6580' - 6620'	70 %	Clay, as above.
	20 %	Shale, grey, bluish grey, green grey, red brown, carbon, silty.
	10 %	Sand - Sandstone, as above.
	Tr.	Lignite.

6620' - 6640'	80 %	Clay, as above.
	10 %	Shale, as above.
	10 %	Sand - Sandstone, as above.
	Tr.	Lignite.
6640' - 6660'	90 %	Clay, as above.
	10 %	Shale, as above.
	Tr.	Sand, as above.
	Tr.	Lignite.
6660' - 6720'	90 %	Clay, slightly calcareous, silty, sandy, very soft.
	10 %	Shale, mostly dark grey, trace of green grey and red brown as above.
	Tr.	Sand - Sandstone, as above.
	Tr.	Limestone, buff to tan, micritic, firm to hard.
	Tr.	Lignite.
		(Samples appear to be quite mixed.)
6720' - 6740'	70 %	Clay, as above.
	30 %	Shale, grey, medium grey, grey greenish, red brown, as above.
	Tr.-5 %	Sand, quartz, very fine - coarse, subrounded - subangular, poor sorting, unconsolidated, excellent intergranuler porosity.
	and	Sandstone, quartz, medium grained, subangular, good sorting, calcareous, cement, hard, poor - fair porosity.
	Tr.	Limestone, white, chalky.
	Tr.	Lignite.
		(Samples appear mixed.)
6740' - 6760'	50 %	Shale, as above, calcareous.
	40 %	Clay, as above, clacareous.
	Tr. -5 %	Sand, as above, and Sandstone, as above.
	Tr. -5 %	Limestone, as above.
	Tr.	Lignite.
		(Samples appear mixed.)

cont'd

6760' - 6780'	60 %	Shale, as above.
	20 %	Clay, as above.
	10 - 20 %	Limestone, as above.
	Tr.- 5 %	Sand - Sandstone, as above.
	Tr.	Lignite.
		(Samples appear mixed.)
6790' - 6820'	70 - 80 %	Shale, green grey, carbonaceous, firm; dark grey, Carbonaceous, firm; red brown, firm; yellow brown, firm.
	10 %	Clay, as above.
	Tr.- 10 %	Limestone, as above.
	Tr.- 5 %	Sand - Sandstone, as above.
	Tr.	Lignite.
		(Samples appear very mixed.)
6820' - 6830'	60 - 70 %	Shale, as above.
	30 %	Clay, as above.
	Tr.- 5 %	Sand - Sandstone, as above.
	Tr.- 5 %	Limestone, as above.
6830' - 6860'	60 %	Shale, as above.
	40 %	Clay, as above.
	Tr.- 5 %	Sand - Sandstone, as above.
	Tr.- 5 %	Limestone, as above.
		(Samples appear very mixed.)

2) Core Descriptions (conventional)

Cores Number 1 through 13

ESSO EXPLORATION NORWAY, INC.

WELL 25/10-1

CORE DESCRIPTIONS

Core No. 1 5462 to 5517 feet Cut 55 feet Rec. (bottom?) 37 feet 67%

The recovery is considered to be the bottom 37 ft. since the only mud log shows recorded while coring this interval occurred in the bottom 9 ft. cut (from 5508-5517). This checks with the oil shows in the bottom of the 37 feet recovered.

0-18'	No recovery
18-31'	Shale, brown-red, dolomitic, micaceous, moderately firm
31-32'	Shale, gray-green, slightly micaceous, fissile
32-34'	Shale, brown-red, dolomitic, micaceous, moderately firm
34-35'	Shale, gray-green, slightly micaceous, fissile (Possible slickenside)
35-37'	Shale, brown-red, dolomitic, micaceous, moderately firm with very thin (1/16") olive green ghale laminations.
37-38.5'	Shale, as above with buff-yellow clay inclusions (1/2" dia.), soft
38.5-40'	Shale, blue-gray, micaceous, soft
40-42.5'	Shale, brown-red, dolomitic, micaceous, moderately firm
42.5-43'	Very thin laminae of mica (1/16" - 1/8" thick)
43-44.5'	Shale, brown-red, dolomitic, micaceous, with thin interbeds of gray-green shale.
44.5-45'	Shale, bright green, glauconitic (?), soft
45-46'	Shale, red-brown, dolomitic, micaceous with a 3" mottled band of blue-gray to buff-yellow shale associated with fracturing at a dip of ± 45°. (Possible breccia zone?).
46-46.5'	Shale, as above with fracture filled by siltstone and blue-gray clay.
46.5-47'	Sand, buff-light brown, fine-very fine, slightly glauconitic, very shaley, sub-angular to sub-rounded, fair sorting, good porosity, oil stained, yellow fluorescence, streaming cut. (Possibly brecciated??).
47-47.5'	Shale, as above
47.5-48'	Sand, as above
48-49'	Shale, brown-red, dolomitic, micaceous, firm
49-55'	Shale, green-red, as above, with very thinly (1"-6") interbedded (?) sands, buff-light brown, fine-very fine, slightly micaceous, sub-angular-sub-rounded, fair sorting, good permeability and porosity, oil stained, yellow- blue fluorescence, streaming cut.

<u>NOTE</u>: Entire core was badly fractured and broken -- induced by core barrel? Total net sand is estimated to be 2 ft. Grade 2 show.

Core No. 2 5517-5550 feet Cut 33 feet Rec. 32 feet 97%

0-32' Shale, medium gray-green, slightly micaceous, fissile, dull, moderately firm, with thin (1/4"-6") sand intervals. The sands are light gray-white, fine-very fine, sub-angular, fair sorting, very slightly clayey, slightly dolomitic, slightly siliceous and hard in part, good porosity and permeability, oil stained, yellow-blue fluorescence, streaming cut was found in 1/4" to 6" beds in the following intervals:

15-16'
18-19'
20-21'
27-28'
29-30'

NOTE: Entire core was very badly fractured and broken -- very little could be slabbed. Induced by core barrell -- or faulting? Total net sand estimated is 3 feet. Grade 2 show.

Core No. 3   5550-5605 feet   Cored 55 feet   Recovered 55 feet   Recovery 100

0-16 feet   Shale: medium gray, color banded light gray, soft, well developed fissility, micaceous, dip varying from 16° at the one foot interval to horizontal at the ten foot interval. Contains thin light gray silty bands to a maximum of 1 inch thick.

At 6 feet: A 4 inch thick light brown and gray silty band

At 15 feet: Light gray shaley band 1/4 inch thick is pulled apart on small normal fault. Also a 1-1/2 inch thick light gray mudstone clast is included in the shale. Shale leaks oil locally through the mud sheath.

16-17 feet   Sandstone: light gray, fine-medium grained, poorly sorted matrix is a light brown gray clay, micaceous, occasional fragments and grains of gray shale. Good porosity and permeability. Bright yellow fluorescence with an instant streaming cut. Oil stained.

17-18 feet   Shale: As above. Upper contact disrupted, lower contact irregular and wavy.

18-26 feet   Sandstone: light gray, very fine to medium grained at top, grading to fine to coarse but mainly medium grained at bottom. Lower contact obscure. Oil show as above. Good porosity and permeability.

26-55 feet   Shale: medium gray at top, grading to bluish gray at base. Banded with light gray silt bands 1 to 3 inches thick. Lower 15 feet contains blue gray with minor dark and light gray bands. Calcareous in part.

At 42.5 feet: 1/4 inch thick black carbonaceous band, upper contact wavy and irregular.

At 31 feet: 6 inch graded bed, blue gray, mudstone at top grades to light gray siltstone at base. Many small bands - probably small scale graded bedding.

After slabbing the core the following turbidity current characteristics were noted: Graded bedding, load casts, slump structures, shale inclusions, sharp contacts and groove casts. In addition to the above, but not necessarily characteristics of turbidity, currents, small microfaults were evident. Some of the siltstone in the core appear to be tuffaceous.

Throughout the shale intervals there are numerous microfaults, slump structures and small sand dikes indicating movement while sediments were in a semi-consolidated state.

Total net sand estimated 9 feet.
Grade 1-2 oil show.

Core No. 4 5605-5645 feet 40 feet cut 40 feet recovered Recovery 100 %

0-19 Shale: light gray to blue gray, silty, interbedded with siltstone stringers to one inch thick. The siltstone is calcareous and bleeding oil. Shale laminae dip to 15°.

At 8 feet: Deformed siltstone bedding, intraformational folding.
At 18 feet: 4 inch wide light gray mudstone clast is light gray shale.

19-40 feet Shale: Dark brown gray, silty, becoming more fissile with depth with fewer siltstone interbeds.

At 26.5 feet: One inch thick sandstone dike, brown gray, silty - very fine to medium grained, quartzone, with clay matrix, micaceous, soft and friable, sub-angular to sub-rounded, good porosity and permeability. Even yellow fluorescence, oil stain, odor. Instant streaming cut. This sandstone stringer cuts across the shale laminae. Shale at base of dike is slickensided.

At 30.5 feet: Three to four inch thick sandstone layer - clayey, silty. Show as above. Fair porosity and permeability.

At 36-37 feet: Vertical fracture in core.
At 39 feet: Slickenside.
At 39.5-40 feet: Sand - as above, intermixed with shale. Beds are disrupted. Show as above.

Total net sand 1 foot with grade 1-2 oil show.

The same turbidity current characteristics as in core No. 3 are present in Core No. 4. Also, some of the siltstones in this core appear to be tuffaceous.

Core No. 5 5645 to 5688 feet Cut 43 feet Recovered 35 feet Recovery 82%

0-26 feet — <u>Shale</u>: Medium to dark gray, very fissile, soft with few siltstone bands, laminae dipping 15 to 25°. Abundant joints and slickensided fault surfaces with dip angles from 15° to vertical. Bleeding oil.

26-29 feet — <u>Sand-Shale breccia</u>: Large shale chunks as above. Sand - brown gray, mottled, crumbly, loosely consolidated. The sand is silty, fine to coarse grained, slight clay matrix, unconsolidated, free oil. Excellent porosity & good permeability. Grade I show.

29-31.5 feet — <u>Shale</u>: Dark gray to black, sub fissile to massive, abundant slickensides. Bleeding oil.

31.5-35 feet — <u>Sand-Shale breccia</u>: Similar to above, semi-consolidated, slickensided shale fragments in a sand matrix. Grade I show. Better sand development than breccia above. Excellent porosity and permeability.

Total net sand estimated to be 6 feet. Grade I show.

Core No. 6 5688-5705 feet Cut 17 feet Recovered 17 feet Recovery 100 %

0-4.5 feet <u>Sand-Shale breccia</u>: As in base of core 5. The sand is oil soaked and shale bleeds oil. Shale fragments 1 to 4 inches thick become larger towards base. Abundant slickensides. Probable fault breccia.

4.5-14.5 feet <u>Shale</u>: Dark gray, fissile, broken by joints and faults. Laminae dip 11°. The shale is fairly well lithified. Abundant slickensides. Bleeding oil.

14.5-17 feet <u>Sand</u>: Brown, very fine to medium grained, slightly silty, fair sorting, unconsolidated. Little cement or matrix material. Occasional shale fragments. (Sand-Shale breccia). Excellent porosity and permeability. Grade I show.

Total net sand 6.5 feet. Grade I show.

Core No. 7. 5705-5719 feet Cut 14 feet Recovered 14 feet Recovery 100%

0-6 feet — Sand-Shale breccia: Large shale chunks are medium dark gray. The sand is brown gray, oil stained, a grade I show. The sand ranges from silt to coarse grained but is mainly medium grained and constitutes the matrix of the breccia. Sand is sub-angular to sub-rounded with a fair degree of sorting, slightly micaceous and a small amount of clay matrix material. Good porosity and fair permeability for this section of core.

6-7.5 feet — Shale (loose chunks): Dark gray fissile, fairly soft, abundant slickensided surfaces on large fragments.

7.5-14 feet — Sand-Shale breccia: Recovered core consists of a broken rubble of loose sand and varicolored shale chunks (slickensided) The sand is brown gray, oil stained, and sub-angular to well rounded. It is mainly medium grained with a fair degree of sorting, minor white clay matrix and mica flakes, excellent porosity and permeability. Grade I show. Strong petroliferous odor when core removed from the barrel and brown oil slick on mud released from the core barrel. Better sand development than in breccia immediately above.

Total net sand estimated I2 feet. Grade I show.

Core No. 8 5719 to 5733 feet Cut 14 feet Recovered 14 feet Recovery 100%

0-14 feet **Shale:** Medium dark gray, hard with well developed fissility, non-calcareous, micaceous with abundant very fine microcrystalline masses of pyrite. Light gray to white clay mineral occurs as very fine flecks along fissility; It is non hygroturgid and non-calcareous. Dip $\pm 10^{o}$.

ESSO EXPLORATION NORWAY, INC.

WELL 25/10-1 (Re-Entry)

CORE DESCRIPTIONS

Core No. 9. 5680 ft. to 5725 ft. Cut 45 ft. Recovered 34 ft. (76%)

5680' - 5681'	Sandstone, clear-light gray-brown, very fine-medium, quartzitic, subangular-subrounded, poor sorting, very slightly calcareous, loosely consolidated, apparent good porosity and permeability, excellent stain, bright yellow fluorescence, excellent cut.
5681' - 5682'	Shale, light green-blue gray, waxy, soft, with Sandstone, as above brecciated, fractured, slickensides.
5682' - 5685'	Shale, dark gray-blue gray, slightly calcareous, soft, mixed with Sandstone as above - shattered, slickensides.
5685' - 5686'	Sandstone, as above.
5686' - 5694'	Sandstone, as above with light green-medium blue gray Shales - brecciated, highly fractured, slickensides.
	NOTE: Breccia from 5681' - 5694' is indurated and shows evidence of chaotic plastic flow.
5694' - 5712'	Shale, medium gray, slightly calcareous, soft - fractured, occasional slickensides.
5712' - 5713'	Limestone, medium gray, crystalline, very argillaceous, with pyrite nodules.
5713' - 5714'	Shale, medium gray, slightly calcareous, soft, fractured with inclusions of Sandstone, as above - brecciated.
5714' - 5725'	No Recovery.

NOTE: All Sandstone - Grade I Show.

Sand Thickness - 1/4" to 1'.

Shattering of core occurs where Sandstone is encountered

Apparent Dip - 12° to 14°.

ESSO EXPLORATION NORWAY, INC:

WELL 25/10-1 (Re-Entry)

CORE DESCRIPTIONS

Core No. 10. 5725 ft. to 5767 ft. Cut 42 feet. Recovered 31 ft. (74%)

5725' - 5726'	Sand, clear-light gray-brown, very fine-medium, quartzitic, subangular, poor sorting, excellent permeability and porosity, excellent stain, bright yellow fluorescence, excellent cut.
5726' - 5727'	Sandstone, as above, friable with Shale, medium-dark gray, brittle, fractured - brecciated.
5727' - 5735'	Shale, medium-dark gray, as above. A fossil fish 4"+ in length occurs at 5733.5 feet.
5735' - 5736'	Shale, as above, interbedded with Dolomite, light gray, very calcareous, banded, hard, brecciated, fractured, fault gouge (? oil stained, bright yellow fluorescence, excellent cut - poor porosity.
5736' - 5740'	Shale, as above, with Sandstone, as above - brecciated.
5740' - 5743'	Shale, as above, firm, brittle.
5743' - 5746'	Sandstone, as above, with Shale, as above - brecciated.
5746' - 5748'	Shale, as above, firm with large (1/4" - 1") pyrite crystals. Questionable evidence of fault gouge appears at 5748 feet.
5[illegible]3' - 5749'	Shale, as above, with Sandstone, as above - brecciated.
5749' - 5756'	Shale, as above, firm, fractured, becoming light-medium gray at base. Varved layers of light and dark gray Shale can be seen from 5749' to 5754 feet.
5756' - 5767'	No Recovery.

NOTE: All Sand - Sandstone - Grade I Show

Sand Thickness - 1/4" to 1'.

Most Shale - slickensides.

Occasional fluorescence - oil staining on fractures in Shale, particularly 5749 to 5756 feet.

Apparent Dip - 20° to 40°.

ESSO EXPLORATION NORWAY, INC.

WELL 25/10-1 (Re-Entry)

CORE DESCRIPTIONS

Core No. 11.	5767 feet to 5799 feet. Cut 32 feet. Recovered 30 ft. (94%)
5767' - 5780.5'	Sand-Sandstone, clear-light gray-brown, very fine-medium, some coarse grains, quartzitic, subangular, poor sorting, some Shale, inclusions (1/8"), a 3" slickensided Shale inclusion was noted at 5769 feet, appears excellent porosity and permeability, excellent stain, bright yellow fluorescence, excellent cut. Sand appears finer grained and better sorted at base.
5780.5'- 5783'	Shale, medium-dark gray, brittle, with very thin laminae of Sandstone, as above, shattered, brecciated (?) with numerous slickensides.
5783' - 5797'	Shale, light gray-gray green, brittle, slightly laminated, fractured. A very thin (1/8") lamina of muscovite and Sandstone, as above, occurs at 5796 feet.
5797' - 5799'	No Recovery.

NOTE: All Sand-Sandstone - Grade I Show.

Sand Thickness - 13.5 feet.

Most Shale - Slickensides.

Occasional fluorescence on fractures in Shale.

Apparent Dip - 10°.

ESSO EXPLORATION NORWAY, INC.

WELL 25/10-1 (Re-Entry)

CORE DESCRIPTIONS

Core No. 12. 5799 feet to 5859 feet. Cut 60 feet. Recovered 60 ft. (100%).

5799' - 5829.2'	Shale, gray green, waxy, carbonaceous, even bedded, soft-firm, fractured, (occasional fluorescence along fractures)
5829.2'-5834.5'	Sandstone, gray, fine-medium, quartz and feldspar, subangular-subrounded, well sorted, bimodal, poorly cemented, excellent stain, bright yellow fluorescence, bright cut, excellent porosity and permeability.
5834.5'- 5836.8'	Sand, as above, with muscovite.
5836.8'-5840.5'	Sandstone, as above.
5840.5- 5846.5'	Sand, as above.

NOTE: All Sand-Sandstone (5799 to 5846.5 feet) - GradeI Show.

Apparent Oil/Water contact at 5846.5 feet.

5846.5'-5849'	Sand, as above, with poor to fair spotty fluorescence.
5849' -5854.2'	Sandstone, as above, with poor - fair spotty fluorescence.
5854.2'-5859'	Sand, as above, with fluorescence as above.

NOTE: Apparent Dip - 2° to 11°.

ESSO EXPLORATION NORWAY, INC.

WELL 25/10-1 Re-Entry.

CORE DESCRIPTIONS

Core No. 13 5859 feet to 5919 feet. Cut 60 feet. Recovered 60 ft. (100%)

5859' - 5911'	Sandstone, gray, fine-medium, quartz and feldspar, subangular-subrounded, micaceous, well sorted, bimodal, no fluorescence, very slight stain, very slight cut, excellent porosity and permeability.
5911' - 5913.4'	Shale, gray green, waxy, carbonaceous, firm.
5913.4'- 5915.2'	Sandstone, as above (No Show).
5915.2'- 5919'	Shale, as above.

NOTE: Apparent Dip - 6°.

3) Sidewall Core Descriptions

From 1375 to 6840 feet - Four runs.

Sidewall core descriptions: From 1375 to 3505 feet Shot 28

Recovered 5. Lost 3 bullets - 16 pulled off, 7 shot off

Note: Used Schlumberger soft formation bullets with wide ring, 24 inch wires and 12 gram charge. It is believed that the long 24" wires were the cause of the "pull-offs".

Depth	Recovery	Description
1375	-	No recovery - shot off
1550	-	No recovery - shot off
1655	-	No recovery - shot off
1841	2"	Sand, silty, clayey, light green-gray, fine to very fine grained, soft, loosely consolidated, glauconitic, very calcareous fair sorting, fair porosity and permeability, no show.
2000	-	No recovery - shot off
2068	-	No recovery - shot off
2094	-	No recovery - pulled off
2130	-	No recovery - shot off
2184	-	No recovery - pulled off
2221	2"	Siltstone, clayey, light gray, very soft, no show.
2320	-	No recovery - pulled off
2402	-	No recovery - pulled off
2430	-	No recovery - shot off
2566	1-3/4"	Sand, clayey, light gray-green, fine to very fine grained poorly consolidated, fair sorting, subangular-angular, glauconitic, non-calcareous, poor porosity - permeability, no show.
2608	1-3/4"	Sand, clayey, dark green-gray, fine to very fine grained, soft, fair sorting, subangular to subrounded, glauconitic, slightly calcareous, poor porosity - permeability, no show.
2634	-	No recovery - pulled off
2717	1/2"	Clay, slightly silty and carbonaceous, dark green - gray, soft, glauconitic?
2831	-	No recovery - pulled off
2900	-	No recovery - pulled off
2950	-	No recovery - pulled off
3010	-	No recovery - pulled off
3088	-	No recovery - pulled off
3243	-	No recovery - pulled off

Depth	Recovery	Description
3269	-	No recovery - pulled off
3328	-	No recovery - pulled off
3417	-	No recovery - pulled off
3436	-	No recovery - pulled off
3505	-	No recovery - pulled off

ESSO EXPLORATION NORWAY, INC.

ESSO 25/10-1

Sidewall core descriptions - 4502 to 5460 feet. Shot 20, recovered 18
Two bullets lost

Depth	Recovery	Descriptions
4502	1-3/4"	Shale, medium gray-green to reddish buff, dull, soft. With very small sand stringer, white-light gray, fine-very fine, subangular, fair sorting, very calcareous, carbonaceous specks, good permeability and porosity, slight light blue mineral fluorescence. No show. Some pyrite nodules.
4557	2-1/4"	Shale, medium gray-green, dull, soft.
4596	2"	Clay, medium gray-green, plastic, very soft.
4700	2-1/4"	Shale, medium gray-green to light brown, fissile, dull, calcareous, soft.
4820	2-1/4"	Shale, dark gray-green, slightly calcareous, fissile, dull, soft
4918	2"	Shale, dark gray-green, slightly micaceous (?), calcareous, moderately firm.
5010	2"	Shale, dark gray, slightly micaceous, moderately firm.
5098	2"	Shale, medium gray-green, dull, fissile, moderately firm.
5108	2"	Shale, medium dark gray-green, dull, fissile, soft
5197	1-3/4"	Shale, medium gray-green, dull, slightly micaceous, soft.
5295	2-1/4"	Shale, medium gray-green, dull, fissile, very slightly calcareous, very slightly silty, moderately firm.
5350	2-1/4"	Shale, medium gray-green, dull, moderately firm.
5400	2-1/4"	Shale, dark gray-green, calcareous, very slightly silty, moderately firm.
5410	2-1/4"	Shale, medium gray-green, dull, slightly micaceous slightly calcareous, moderately firm.
5420	2"	Shale, medium gray-green, dull, micaceous, trace pyrite, moderately firm with a shale inclusion, red-brown, soft. Slickensided (?).
5432	2"	Shale, olive gray, dull, fissile, slight trace glauconite (?), moderately firm.
5450	2"	Shale, light gray-green, fissile, slightly calcareous with shale inclusions, red-brown, soft.
5460	1-3/4"	Shale, red-brown, mottled with light gray-green shale. Slickenside (?) or induced by action of core barrel (?).

ESSO EXPLORATION NORWAY, INC.

ESSO 25/10-1 RE-ENTRY

SIDEWALL CORE DESCRIPTIONS : From 6360 feet to 6840 feet. Shot 30. Recovered 29. Lost 1.

Depth	Recovery	Description
6360'	1 1/4"	Siltstone,(or very fine sandstone), light grey, micaceous (muscovite), fine disoriented, lamallae of clay and carbonaceous material.
6396'	1 3/4"	Shale, dark grey and mottled medium grey, slightly bentonitic, firm.
6412'	2"	Shale, dark grey, slightly bentonitic, firm.
6426'	1 1/2"	Shale, blue grey, firm, waxy.
6436'	2"	Shale, dark grey, bentonitic, firm.
6450'	1 3/4"	Clay, yellow grey, very silty, very sandy, with large pebbles of quartz and sandstone (up to 1/8") calcareous, bentonitic, plastic, soft.
6475'	1 1/4"	Sand, quartz and feldspare, fine - coarse grained, subrounded - subangular, poorly sorted, unconsolidated, very fine flakes carbonaceous material, excellent porosity, no stain, no fluorescence, no cut.
6488'	est 1"	Sand, quartz and feldspare, very fine - medium grained, subangular - subrounded, poor sorting, unconsolidated, fair porosity, fine lamallae shale and carbonaceous material.

cont'd

Depth	Recovery	Description
6504'	1 1/4"	Shale, medium light grey, soft, sticky, waxy, plastic.
6522'	1 1/4"	Siltstone, tan and mottled grey, very shaley, micaceous (muscovite), streaks of carbonaceous material and inspissated hydrocarbon.
6548'	1 1/2"	Sand, quartz with feldspare, very fine - fine grained, subangular - subrounded, fair sorting, unconsolidated, excellent porosity, very thin lamallae carbonaceous material and shale (appears as micro - crossbedding.).
6556'	1 3/4"	Sand, quartz with some feldspare, fine grained, subangular, excellent sorting, unconsolidated with flecks carbonaceous material.
6565'	1 1/2"	Sand, quartz and feldspare, very fine - fine grained, subangular, good sorting, inconsolidated, excellent porosity, intergranular porosity, poor stain, no fluorescence, no cut.
6580'	1 1/4"	Siltstone,medium grey, thin lamallae clay, calcareous, bentonitic.
6609'	1 1/4"	Sand, quartz, medium grained, finely dessiminated, pyrite, clayey, subangular, good, unconsolidated, streaks inspissated hydrocarbon and pyrite.
6618'	1 3/4"	Shale, medium grey, soft, silty, micaceous (muscovite), waxy.
6630'	1 3/4"	Shale, dark grey, firm, micaceous (muscovite), waxy.

cont'd

Depth	Recovery	Description
6641'	1/2"	Siltstone, grey, shaley, micaceous (muscovite), flecks of carbonaceous material.
6662'	1 3/4"	Sand, quartz and feldspare, micaceous (muscovite), shaley - clayey, fine grained, subangular - subrounded, good sorting, unconsolidated, excellent porosity, intergranular, poor stain, no fluorescence, no cut, streaks inspissated hydrocarbon and flakes of carbonaceous material.
6683'	1 1/2"	Sand, quartz and feldspare, very shaley, micaceous (muscovite), fine grained, subangular - subrounded, fair sorting, unconsolidated, excellent intragranular porosity, poor staining, no fluorescence, no cut, streaks inspissated hydrocarbon.
6683'		No Recovery.
6724	1 1/4"	Sand, quartz and feldspare, fine grained, subangular to subrounded, good sorting, unconsolidated, excellent intergranular porosity, flecks of carbonaceous material.
6746'	2"	Shale, medium grey with blebs of linonite stained clay, waxy, soft - firm.
6756'	3/4"	Sandstone, quartz with feldspare, very fine - medium grained, micaceous (muscovite), subangular to subrounded, fair sorting, calcite (Whi.) matrix, good induration, poor - fair intragranular porosity, flackes of inspissated hydrocarbon.
6774'	1 3/4"	Sand, quartz and feldspare, fine - coarse (mostly medium grained) grained, subangular, poor - fair sorting, unconsolidated, excellent intragranular porosity.
6782'	1 1/4"	Sand, ARKOSE (Feldspare with quartz), subangular,

cont'd

Depth	Recovery	Description
6782'/cont'd		fine - coarse grained, poor sorting, unconsolidated, excellent intragranular porosity, fair stain, poor cut, no fluorescence, blibs and streaks of inspissated hydrocarbon.
6812'	1 1/2"	Shale, dark grey, micaceous (muscovite), soft, nearly gumbo.
6822'	1 1/2"	Sand, ARKOSE, as above at 6872'.
6834'	1 1/4"	Shale, medium dark grey, sandy, silty, micaceous (muscovite), bentonitic, hard.
6840'	1 3/4"	Sand, quartz and feldspare, fine grained, subangular, good sorting, very poorly compacted, excellent intragranular porosity, poor stain, poor cut, no fluorescence. Streaks inspissated hydrocarbon.

PROPRIETARY EXPLORESSO

ESSO EXPLORATION NORWAY, INC.

ESSO 25/10-1 - RE-ENTRY

SIDEWALL CORE DESCRIPTIONS: From 5420 feet to 6334 feet. Shot 30. Recovered 19. Misfired 11.

Run No. 2

Depth	Recovery	Description
5420'	0	Misfire.
5450'	0	Misfire.
5480'	0	Misfire.
5508'	0	Misfire..
5537'	0	Misfire.
5582'	0	Misfire.
5592'	0	Misfire.
5626'	1 3/4"	Shale, light blue grey, slightly calcareous, soft with very thin laminae of Silt, bright yellow fluorescence and fair cut.
5665'	0	Misfire.
5685'	2"	Shale, light grey, very soft.
5691'	2"	Shale, light grey, micaceous, very soft, with inclusions of Sand, light tan, very fine - fine, subangular, well sorted, friable, good stain, bright yellow fluorescence, excellent cut. BRECCIA (?).

cont'd

Depth	Recovery	Description
5747'	0	Misfire.
5874'	1"	Sand, white, very fine - medium, subangular, poor sorting, No Show.
5916'	1 1/2"	Shale, light grey green, firm.
5948'	0	Misfire.
5980'	1 1/4"	Sand, white, very fine - medium, subangular - subrounded, poor sorting, pale yellow fluorescence, No Show.
6026'	1 1/4"	Sand, white, very fine - medium, quartzitic with some feldspar, subangular - subrounded, poor sorting, pale yellow fluorescence, No Show.
6060'	0	Misfire.
6090'	2"	Shale, light grey green, firm.
6106'	2"	Sand, light grey, very fine - coarse, quartzitic, with some feldspar, conglomeratic, subangular - subrounded, poor sorting, pale yellow fluorescence, No Show.
6134'	1 3/4"	Shale, light grey green, firm.
6152'	Tr.	Shale, as above, with Sand, light grey, very fine, subangular, fair sorting, No Show.
6181'	1 3/4"	Sandstone, light grey, very fine - fine, subrounded, fair sorting, clayey, very soft, pale yellow fluorescence, No. Show.

cont'd

Depth	Recovery	Description
6214'	1 1/2"	Shale, light grey green, firm.
6250'	1 1/2"	Shale, as above, mottled with light grey - purple.
6262'	1/2"	Sand, light grey, very fine - fine, quartzitic with some feldspar, subangular - subrounded, fair sorting, pale yellow fluorescence, No Show.
6272'	1 1/4"	Sand, as above, No Show.
6294'	2"	Shale, light - medium grey, firm.
6310'	1 3/4"	Shale, medium grey, as above.
6334'	3/4"	Sandstone, white, very fine - medium, quartzitic with some feldspar, subangular - subrounded, poor sorting, chalky, soft, with some pyrite inclusions, pale yellow fluorescence, No Show.

VI. <u>Reservoirs:</u>

The Jurassic-Lias, Paleocene, Eocene, Oligocene and Miocene all have potential reservoir sands but, with the exception of the thin Lower Eocene sands, all are water-bearing.
The Lower Eocene oil sands have a net thickness of 42 feet, in beds ranging in thickness from 2 to 19 feet. Porosity ranges in this interval are from 29 to 35%.

VII. <u>Conclusions:</u>

Esso 25/10-1 was drilled on the crest of an Eocene structure up dip from Esso 25/11-1 which had thin, oil-bearing Lower Eocene sands underlain by wet Paleocene sands.
Although the thin-bedded Lower Eocene sands were again oil-bearing in Esso 25/10-1, the thicker Paleocene sands, with porosities ranging from 25 to 35%, came in lower than expected and were water wet.
The thinly-bedded Lower Eocene sands tested 24.8° - 25.1° API gravity oil on FITs but are too thin to be considered commercial. All other potential sand reservoirs were water wet.

LOCATION PLAT

Company: Esso Exploration Norway Inc.

Field No.: 25

Block No.: 10

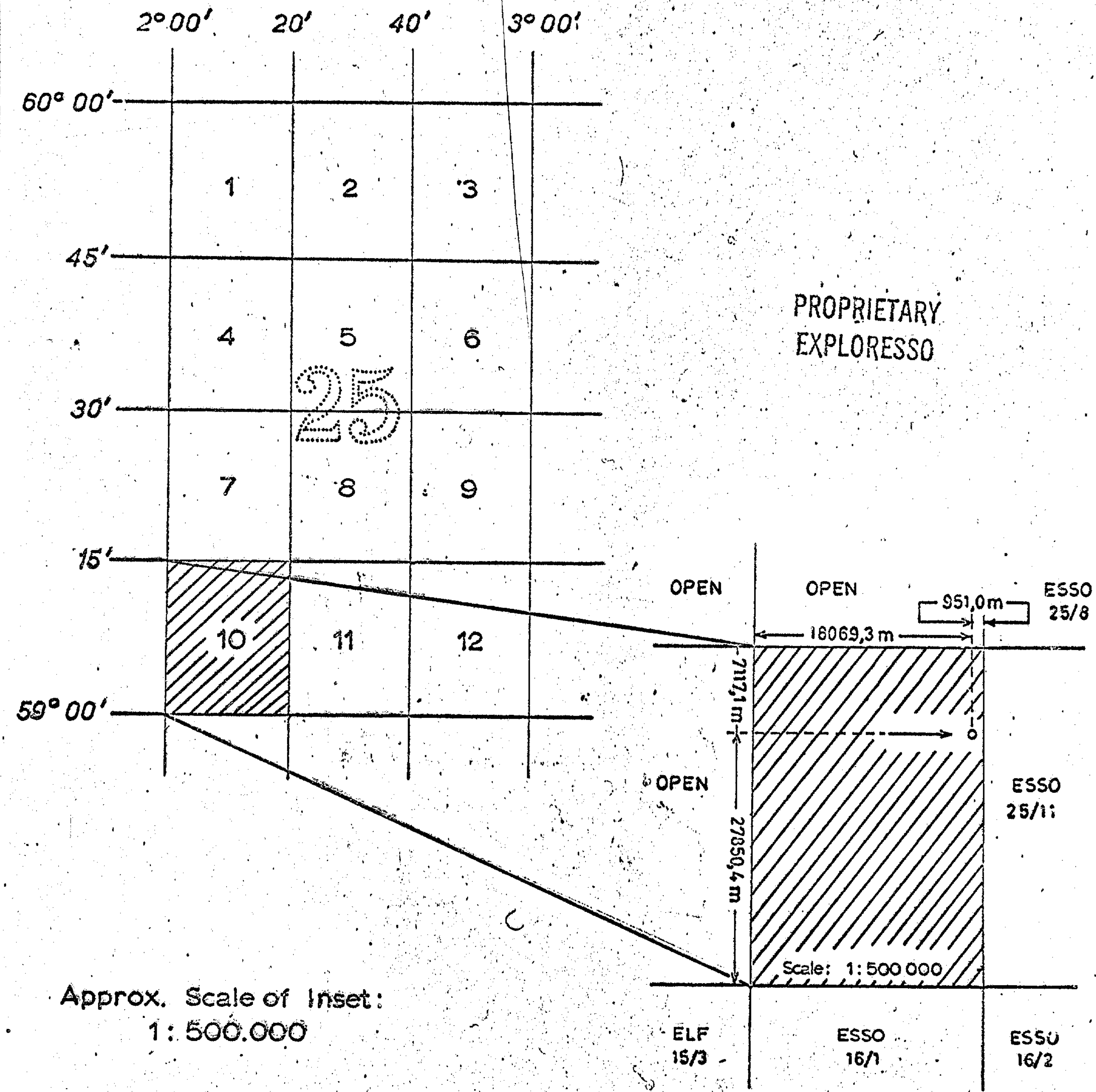
Well No.: Esso 25/10-1

Geographic coordinates:

Latitude: 59° 11' 10" N

Longitude: 2° 19' 00" E

Water depth: 131 m (approx.)



PROPRIETARY
EXPLORESSO

Approx. Scale of Inset:
1:500.000

Date: June, 1969.

[redacted]

PROPRIETARY EXPLORESSO

ESSO EXPLORATION INC.
COMPLETION LOG
Scale 1:500

Well Name		Status	
ESSO EX. NORWAY 25/10-1		Abandoned Oil Well (42 ft net pay)	
Area: North Sea Offshore Norway Grandad Area	Well Classification: F.W.C.	Total Depth: 6861 ft	Deepest Penetration: Jurassic
Location: Lat.: 59°11'22"N Long.: 2°19'14·4"E	Date Spudded: 4 Aug. 1969; Suspended 10 Oct. 1969 at 5733'	Elevation of Datum: 32 ft.	Water Depth: 407 ft.
Prepared by: ESSO EXPLORATION North Sea Study Group; Date: March 1970 A.R.E.; Revised: June 1972 L.J.P.	Re-entered 9 July 1970; Abandoned 3 Aug. 1970; Date operations completed	Casing Data: 30" at 530 ft. 20" at 1247 ft. 13⅜" at 3427 ft. 9⅝" at 4492 ft.	Rig: Glomar Grand Isle; Contractor: Global Marine

NOTE:— Hole was temp. suspended due to severe winter weather on 10th Oct. 1969 at a depth of 5733 ft. The hole was re-entered on 9 July 1970 & abandoned on 3 Aug 1970 at depth of 6861 ft.

LOGS RUN

GR-Sonic	I-E-S	M.L.I.	C.F. Density	High Resolution CDM
R.1 1247'-3518'	R.1 1247'-3524'	R.1 1248'-3522'	R.1 1247'-3524'	R.1 1246'-3525'
R.3 3418'-4533'	R.2 3418'-4538'	R.2 4492'-6857'	R2 4492'-6858'	R.2 4487'-5731'
R.4 4486'-5720'	R.3 4486'-5730'			R.3 5400'-6866'
R.5 4490'-6843'	R.4 5400'-6858'			
NOTE: Run 2 was a check of Run 1 in under reamed 17½" hole.				

Seismic check shots: YES

LITHOLOGIC SYMBOLS
(PROVISIONALLY APPROVED FOR FIELD TESTING)

- CLAY (NONFISSILE) · CLAYSTONE < 03 mm
- CLAY (FISSILE) OR SHALE < 03 mm
- MUDSTONE
- SILT, COURSE (03 06 mm) AND SILTSTONE
- SAND (06 2 mm) AND SANDSTONE
- GRANULE BOULDER (> 2 mm) AND CONGLOMERATE
- QUARTZ
- FELDSPAR
- LITHIC OR ROCK FRAGMENTS
- PYRITE
- SIDERITE
- CHERT
- COAL
- CARBONACEOUS MATTER
- GLAUCONITE
- PHOSPHATE
- VOLCANIC ASH OR BENTONITE
- MICA
- GYPSUM
- ANHYDRITE
- HALITE
- POTASSIUM OR MAGNESIUM SALTS
- LIMESTONE
- DOLOMITIC LIMESTONE & VERY DOLOMITIC
- CALCAREOUS DOLOMITE & VERY CALCAREOUS
- DOLOMITE
- MARL

SPECIFY TYPE OF CARBONATE BY ADDING TO BASIC LIMESTONE OR DOLOMITE SYMBOL THE APPROPRIATE ABBREVIATION AS SHOWN BELOW

- M : MICRITIC LIMESTONE
- G : GRAIN LIMESTONE (FOR GENERAL USE)
- S : SKELETAL LIMESTONE (FRAGMENTED AND NONFRAGMENTED)
- P : PELLETAL LIMESTONE
- F : FRAMEBUILDER LIMESTONE
- O : OOLITIC LIMESTONE
- K : CHALK
- D : DETRITAL LIMESTONE
- L : LUMP LIMESTONE
- m : MICROCRYSTALLINE OR MICROGRAINED < 03 mm

IGNEOUS ROCKS

- IGNEOUS ROCKS IN GENERAL (WRITE OUT THE NAME WHERE THE SPECIFIC TYPE IS KNOWN)

METAMORPHIC ROCKS

- METAMORPHIC ROCKS IN GENERAL (WRITE OUT THE NAME WHERE THE SPECIFIC TYPE IS KNOWN)

- SHOW OR STAIN
- HYDROCARBON CUT
- FLUORESCENCE
- OIL PRODUCTION
- GAS PRODUCTION
- CONDENSATE PRODUCTION

F.I.T. 7 @ 5582

FSIP = 2775 psi
Hyd. pres. = 3700 psi

F.I.T. 2 @ 5834
Reverse fire; rec. 11,000 cc

F.I.T. 8
Misrun - no film