



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-8-79 Time 0600
 Present Depth 16,723' Previous Depth 16,591' Footage 24 Hrs. 132
 Formation(s) SADLEROCHIT Top 14,820'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 16,570-16,700' Sampling Interval 10 ft. Sample Quality good
 Lag Time: 163.6 min. @ 16,660 ft.

Interval	Description	Avg. Drill Rate min./ft.
16,570-16,700'	Sltst and Sh a/a.	10.0-11.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 8-18 Connection - Trip 340 @ 16,510' Peaks -

Mud: Wt. 17.2 Vis 57 W.L. 1.6 ph 11 cc Oil - % Cl₂ 1400 Temp. 109 °F. in 115 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
16,550'	2.39	0.95	17.25
16,600'	2.60	1.06	17.15
16,650'	2.59	1.02	17.14
16,700'	2.57	1.06	17.05

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist DAVE FENEX



HUSKY OIL NPR OPERATIONS, INC.
 U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-9-79 Time 0600
 Present Depth 16,840' Previous Depth 16,717' Footage 24 Hrs. 123'
 Formation(s) SADLEROCHIT Top 14,820'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 16,700-16,820' Sampling Interval 10 ft. Sample Quality poor
 Lag Time: 1.64 min. @ 16,840 ft.

Interval	Description	Avg. Drill Rate min./ft.
16,700-16,820'	Sltst and Sh, a/a.	11-12

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 14-20 Connection nil Trip - Peaks -

Mud: Wt. 17.1 Vis 60 W.L. 1.5 ph 11.0 cc Oil - %Cl₂ 1400 Temp. 110 °F. in 115 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
16,750'	2.52	0.99	16.85
16,800'	2.49	0.99	16.85

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-10-79 Time 0600
 Present Depth 16,871' Previous Depth 16,840' Footage 24 Hrs. 31
 Formation(s) SADLEROCHIT Top 14,820'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 16,820-16,850' Sampling Interval 10 ft. Sample Quality POOR
 Lag Time: 171 min. @ 16,860 ft.

Interval	Description	Avg. Drill Rate min./ft.
<u>16,820-16,850'</u>	<u>Sltst and Sh a/a.</u>	<u>12.0 - 13.0</u>

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 17-24 Cuttings 2-6 Trip 140 @ 16,840' Peaks none
 Mud: Wt 17.1 Vis 59 W.L. 1.4 ph 11.0 cc Oil %Cl₂ 1400 Temp. 108 °F. in 110 °F. out
 Max temp on trip: 115 °F.
 Data Unit:

Depth	Shale Density	De Exponent	Pore Pressure
<u>16,800'</u>	<u>2.49</u>	<u>0.990</u>	<u>16.85</u>
<u>16,850'</u>	<u>2.49</u>	<u>0.965</u>	<u>16.79</u>

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
<u>Washed & Dried Ditch</u>	<u> </u>	<u> </u>	<u> </u>
<u>Unwashed Ditch (Paleo)</u>	<u>16,240-16,600'</u>	<u>1</u>	<u>Bx #52</u>
<u>Unwashed Ditch (USGS)</u>	<u>16,240-16,600'</u>	<u>1</u>	<u>Bx #52</u>
<u>GeoChem (canned)</u>	<u>16,360-16,600'</u>	<u>1</u>	<u>Bx #55</u>
<u>Cores</u>	<u>No.</u>	<u> </u>	<u> </u>



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-11-79 Time 0600
Present Depth 16,923' Previous Depth 16,871 Footage 24 Hrs. 52
Formation(s) SADLEROGHIT/ECHOOKA MBR (?) Top 14,820'/16,850' (?)
Present Activity: Drilling, short trip at 16,917'

LITHOLOGIC DESCRIPTION

Interval Reported 16,850-16,910' Sampling Interval 10 ft. Sample Quality fair
Lag Time: 165 min. @ 16,920 ft.

Interval	Description	Avg. Drill Rate min./ft.
16,850-16,885'	Ss: lt gy - mottled gy, v.f. grn to slty, qtztc w/Qtz over- growths, SA SR, rr pale green glau pels, f. dis mica, v. w. ind, nil intgran por, NOSCF, w/intbdd slitst and Sh a/a.	12 - 21
16,885-16,910'	Ss: dk gy, v.f. grn - slt, v. arg, p. srted, SA-SR, sl calc, f. dis mica, com pale green glau pels (some w/gy, weathered look), nil intgran por, w/Sh intbdd, a/a.	13

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 13-22 Connection 26-28 short trip 32 @ 16,917' cuttings gas: boxes 1-2 units

Mud: Wt. 17.1 Vis 59 W.L. 1.4 ph 11.0 cc Oil %Cl₂ 1400 Temp. 110 °F. in 116 °F. out
Max temp on short trip: 116° F. @ 16,917'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
16,900'	2.52	1.01	16.79

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist DAVE FENEX



HUSKY OIL NPR OPERATIONS, INC.
 U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-12-79 Time 0600
 Present Depth 16,929' Previous Depth 16,923' Footage 24 Hrs. 6'
 Formation(s) SADLEROCHIT/ECHOOKA Top 14,820'/16,775' (?)
 Present Activity: POH to core (Core #15)

LITHOLOGIC DESCRIPTION

Interval Reported 16,910-16,925' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 165 min. @ 16,929 ft. @ 72 strokes/min.

Interval	Description	Avg. Drill Rate min./ft.
16,910-16,925'	Siltst. dk gy. sdy. v. arg. blk. f. dis mica, con pale green glau. grds to ss in pt; w/intr bdd Sh a/a, blk. splintery, f. dis mica, w. ind, pyr nodules.	Not valid, controlled rat

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 6-10 Connection - Trip 45 @ 16,929' Peaks -

Mud: Wt. 17.1 Vis 60 W.L. 1.4 ph 10.5 cc Oil - % Cl₂ 1400 Temp. 108 °F. in 112 °F. out
 Max temp on trip: 114 °F. @ 16,9

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
16,925'	2.55	0.99	16.79

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	15,830-16,900'	2	2 sets, Bx #18
Unwashed Ditch (Paleo)	16,600-16,930'	1	Bx #53
Unwashed Ditch (USGS)	16,600-16,930'	1	Bx #53
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-13-79 Time 0600
 Present Depth 16,959' Previous Depth 16,929' Footage 24 Hrs. 30
 Formation(s) ECHOOKA FM. Top 16,775' (?)
 Present Activity: POH w/Core #15

LITHOLOGIC DESCRIPTION

Interval Reported 16,929-16,959' Sampling Interval _____ ft. Sample Quality _____
 Lag Time: 169 min. @ 16,959 ft. @ 70 strokes/min.

Interval	Description	Avg. Drill Rate min./ft.
16,929-16,959'	Core #15; Cur 30', POH at report time.	14

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 8-11 Connection - Trip 45 @ 16,929' Peaks -

Mud: Wt. 17.1 Vis 65 W.L. 1.2 ph. 10.5 cc Oil _____ % Cl₂ 1400 Temp. 90 °F. in 95 °F. out _____

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
16,925'	2.52	0.97	16.79
16,950'	2.56	0.94	16.70

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist DAVE FENEX

HUSKY

HUSKY OIL & GAS OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

TUNALIK #1 Date 9-14-79 Time 0600
Present Depth 16,988' Previous Depth 16,959' Footage 24 Hrs. 29
Formation(s) ECHOOKA Top 16,775' (?)
Present Activity: Drilling

GEOLOGIC DESCRIPTION

Interval Reported 16,929-16,970' Sampling Interval 10 ft. Sample Quality poor - fair
Time: 174 min. @ 16,960 ft.

Interval	Description	Avg. Drill Rate min./ft.
16,929-16,959	Core #15: Cut 30', Rec. 21'	14.0
	Sltst: dk gy - blk, sdy, v. arg, com large green glau pels, f. dis mica, com blk shiny biotite (?) pels, f. dis pyr, occ pyr nodules, occ slump structures, noncalc, v. hd and brittle, qtztc; 25° apparent dip.	
16,959-16,970'	Sltst: blk, v. arg, a/a.	10 - 12

REQUEST: Sample Transmittal forms.

RECEIVED

SEP 17 1979

DESCRIPTION (Gas and/or Oil)

ONPRA
MENLO PARK

Ditch Gas (Units): Background 8 Connection Trip 50 @ 16,959' Peaks

Wt. 17.1 Vis 51 W.L. 1.4 ph 10.0 cc Oil % Cl₂ 1400 Temp. 94 °F. in 98 °F. out
Max temp on trip: 100°F. @ 16,959'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
16,975'	2.60+	0.86	16.60

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
Chem (canned)	16,929-16,959' (Core #15)	1	
Cores	No. 15	8	

DAVE FENEX



HUSKY OIL OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

TUNALIK #1 Date 9-15-79 Time 0600
 End Depth 17,039' Previous Depth 16,988' Footage 24 Hrs. 51
 Location(s) ECHOOKA Top 16,775' ?
 Well Activity: Drilling

GEOLOGIC DESCRIPTION

Interval Reported 16,970-17,020' Sampling Interval 10 ft. Sample Quality fair
 Time: 169 min. @ 17,039 ft.

Interval	Description	Avg. Drill Rate min./ft.
16,970-17,020	Fred Slstst: med gy, abnt flks biotite and occ muscovite, w/pale green - milky blue mineral of ? feldspar, v.w. ind, qtztc, noncalc, nil por; becoming sdy below 16,970' w/sds lenses and strks, occ Qtz grns w/glassy appearance, abnt wh tripolite Cht and altered feldspar; Sh: dk gy, shiny, micromica.	9.8 - 18.3

FCW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 7 Connection nil short Trip 11 @ 17,008' Peaks 15 @ 17,002'
 Mud: Wt 17.1 Vis 62 W.L. 1.4 ph 10.5 cc Oil - % Cl₂ 1400 Temp. 96 °F. in 99 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Core Pressure
17,000'	2.60	1.06	16.6

Sampled Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

Well _____ TUNALIK #1 _____ Date 9-16-79 Time 0600
Present Depth 17,088' Previous Depth 17,039' Footage 24 Hrs. 49
Formation(s) ECHOOKA _____ Top 16,775'
Present Activity: POH _____

LITHOLOGIC DESCRIPTION

Interval Reported 17,020-17,080' Sampling Interval 10 ft. Sample Quality fair
Logging Time: 170 min. @ 17,088' ft.

Interval	Description	Avg. Drill Rate min./ft.
17,020-17,080'	Intbddd Siltst and Sh: a/a, w/somewhat more abnt feldspar/ triplitic Cht.	13.2 - 26.5

SHOW DESCRIPTION (Gas and/or Oil)

Interval	Description	Quantity

Ditch Gas (Units): Background 6 Connection nil Trip - Peaks none

Mud: Wt. 17.1 Vis 58 W.L. 1.6 ph 10.5 cc Oil - % Cl₂ 1200 Temp. 98 °F. in 118 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,025'	2.59	1.04	16.61
17,050'	2.59	1.00	16.62
17,075'	-	1.08	-

Attached Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-17-79 Time 0600
Present Depth 17,132' Previous Depth 17,088' Footage 24 Hrs. 44'
Formation(s) ECHOOKA Top 16,775'
Present Activity: Drilling

STRATIGRAPHIC DESCRIPTION

Interval Reported 17,080-17,120 Sampling Interval 10 ft. Sample Quality poor - v. poor
Log Time: 171 min. @ 17,125 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,080-17,110'	Sh and Sltst, a/a.	14 - 18
17,110-17,120'	Sh and Sltst a/a, w/tr Ls, v. shly and slty, v. thn and tabular, prob frac fill.	15 - 22
<u>(NOTE AFTER REPORT TIME)</u>		
17,125'	TOP LISBURNE FM: Ls, mottled, brn and gy, sl chalky in pt, arg, mod - w. ind, com calc replaced microfoss, no vis por, no show. Prep to cut Core #16 at 0715 hrs.	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 3-4 Connection - Trip 64 @ 17,088' Peaks -

Mud: Wt. 17.0 Vis 60 W.I. 1.2 ph 10.0 cc Oil - %Cl₂ 1000 Temp. 104 °F. in 108 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Core Pressure
17,075'	2.58	-	16.60
17,100'	2.60	1.08	16.55

Stratigraphic Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	16,690-17,050'	1	Bx #56
Cores	No.		

HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

HUSKY

DAILY GEOLOGICAL REPORT

TUNALIK #1

Date 9-18-79 Time 0600

Current Depth 17,144' Previous Depth 17,132' Footage 24 Hrs. 12'

Location(s) LISBURNE FM. Top 17,125'

Current Activity: Cutting Core #16

GEOLOGIC DESCRIPTION

Interval Reported 17,120-17,134' Sampling Interval 10 ft. Sample Quality fair
Time: 171 min. @ 17,125 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,120-17,125'	Sh and Sltst a/a.	14 - 18
17,125-17,134'	Ls, mottled tan and gy, mod - w. ind, abnt fos debris replaced calc, chalky in pt, nil por, no show.	15 - 32

NEW DESCRIPTION (Gas and/or Oil)

Cuttings gas: 4 units

Gas (Units): Background 8 Connection --- Trip 19 @ 17,135' Peaks ---

Wt. 17.0 Vis 59 W.L. 1.2 ph 10.0 cc Oil --- % Cl₂ 1000 Temp. 88 °F. in 96 °F. out
Max temp on trip: 101°F. @ 17,1

Gas Unit:



HUSKY OIL NTR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-19-79 Time 0600
 Present Depth 17,160' Previous Depth 17,144' Footage 24 Hrs. 16'
 Formation(s) LISBURNE FM. Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,134-17,150' Sampling Interval 10 ft. Sample Quality good
 Log Time: 179 min. @ 17,160 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,134-17,149'	CORE #16, Cut 15', Rec. 11 1/2' (77%)	
17,134-17,137' (3')	- Ls, gy, mottled w/translucent sparry calc, v.f. - f. xl; mod fos w/numerous pelecypods and one brachiopod at 17,134-17,135', all replaced by calc; mod arg, v.w. ind, dns, sil in pt w/partial Cht-like mtx; nil vis por, no show; occ shly ptgs 1/2 - 2" thick w/20° apparent dip.	20.0
17,137-17,141' (4')	- Ls, dk gy, v. arg, grdg to calc Sh, micro - v.f. xl, hd and dns, less sil than above; mod fos with brachiopods (17,137-17,138') and pelecypods; nil por; hdg on ptgs 20°.	20.0
17,141-17,145.5' (4.5')	- Ls, gy, occ mottled w/trnsl sparry calc, mod arg to occ v. arg, v.f. - f. xl to occ med xl; sl - mod fos w/all fos replaced by calc; hd, dns, sl more sil than above, nil por, w/occ shly ptgs a/a.	20.0
17,145.5-17,149 (3.5')	- No recovery.	50 - 126
17,149-17,150'	Ls, a/a in Core #16, becoming v. sil, in pt approaching Cht.	35.4

SHOW DESCRIPTION (Gas and/or Oil)

Peaks on trip at 17,150': 100 units above bottoms up, 31 units at bottoms up.

Cuttings gas: 4 units.

Ditch Gas (Units): Background 4 Connection 80 @ 17,149' Trip 80 @ 17,149' Peaks see above

Mud: Wt. 17.0 Vis 58 W.L. 1.6 ph 10 cc Oil % Cl₂ 1000 Temp. 93 °F. in 97 °F. out
 Max temp on trip: 103°F. at 17,149'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,150'	2.59	1.01	16.50

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	Core #16 (17,134-17,149')	1	
Cores	No. 16 (17,134-17,149')	4	



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-20-79 Time 0600
 Present Depth 17,201' Previous Depth 17,160' Footage 24 Hrs. 41
 Formation(s) LISBURNE FM. Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,150-17,190' Sampling Interval 10 ft. Sample Quality good
 Log Time: 179 min. @ 17,195 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,150-17,170'	<u>Cht and Silica replaced Ls: gy, microxl, sl arg, occ</u> <u>w/blkly frac, rr subconchoidal frac, rr smokey Cht.</u>	30.0 - 38.1
17,170-17,190'	<u>Ls, tan - gy, v.f. xl - f. xl, sl arg, sil, becoming sl fos</u> <u>w/occ pelecypods, w. ind - ind, nil por; w/intbdd Cht and</u> <u>silica replaced Ls a/a, rr smokey Cht a/a.</u>	16.2 - 37.6

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 6-8 Connection - Trip - Peaks -

Mud: Wt. 16.9 Vis 65 W.L. 2.0 ph 10.5 cc Oil - % Cl₂ 1000 Temp. 123 °F. in 127 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
<u>17,175'</u>	<u>2.60+</u>	<u>1.05</u>	<u>16.46</u>
<u>17,200'</u>	<u>-</u>	<u>1.06</u>	<u>16.39</u>

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
<u>Washed & Dried Ditch</u>			
<u>Unwashed Ditch (Paleo)</u>			
<u>Unwashed Ditch (USGS)</u>			
<u>GeoChem (canned)</u>			
<u>Cores</u>	<u>No.</u>		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-21-79 Time 0600
 Present Depth 17,212' Previous Depth 17,201' Footage 24 Hrs. 11
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,190-17,200' Sampling Interval 10 ft. Sample Quality good
 Lag Time: 173 min. @ 17,210 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,190-17,200'	Pred Ls. tan to brn to gy, v.f. - f. xl, sl sil in pt, w/10% silica or Cht a/a.	23.0 - 37.4

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 8-12 Connection _____ Trip 160 @ 17,201' Peaks _____

Mud: Wt. 16.9 Vis 70 W.L. 2.6 ph 10.5 cc Oil _____ % Cl₂ 1000 Temp. 90 °F. in 102 °F. out
 Max temp on trip: 111 °F. @ 17,201'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,200'	2.58	-	-

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-22-79 Time 0600
 Present Depth 17,253' Previous Depth 17,212' Footage 24 Hrs. 41
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,200-17,250' Sampling Interval 10' ft. Sample Quality good
 Lag Time: 173 min. @ 17,231 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,200-17,250'	Ls, gy and gy brn, occ plty, tn, v.f. - f. xl, mod arg, w. ind, sl sil to sil, occ ranging to v. sil, w/silica replaced Ls and Cht a/a.	14.2 - 39.9

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 9-12 Connection Trip Peaks

Mud: Wt. 16.7 Vis 50 W.L. 2.0 ph 10.5 cc Oil % Cl₂ 800 Temp. 121 °F. in 126 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,225'	2.60+	1.06	16.17
17,250'	2.58	1.17	16.12

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-23-79 Time 0600
 Present Depth 17,277' Previous Depth 17,253' Footage 24 Hrs. 24
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Cutting Core #17, have cut 22' at report time.

LITHOLOGIC DESCRIPTION

Interval Reported 17,250-17,255' Sampling Interval 10 ft. Sample Quality good
 Lag Time: 168 min. @ 17,270 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,250-17,255'	Ls and Silica replaced Ls a/a.	32

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 8 Connection - Trip 110 @ 17,255' Peaks -

Mud: Wt. 16.7 Vis 56 W.I. 2.0 ph 10.0 cc Oil % Cl₂ 800 Temp. 99 °F. in 103 °F. out
 Max temp on trip: 108°F. @ 17,255'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,270'		1.05	16.09

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/DNPRRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-24-79 Time 0600
 Present Depth 17,290' Previous Depth 17,277' Footage 24 Hrs. 13
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,255-17,286' Sampling Interval 1 ft. Sample Quality good
 Lag Time: 173 min. @ 17,290' ft.

Interval	Description	Avg. Drill Rate min./ft.
17,255-17,286'	Core #17, Cut 31', Rec. 28'	8 - 40 Avg. 15
17,255 - 17,269' (14')	Sh, lt gy, slty, grdg to sltst, gen v. sil, noncalc, subfis, apparently nonmicaceous; Qtztc, in pt grdg to Qtzt w/v.f. grn to silt size grns which break across the grn.	
17,269 - 17,277' (8')	Sh, lt gy, slty a/a becoming v. sl calc in pt, more slty, grds to Qtzt btm 3', w/some scat pinpoints of calc.	
17,277 - 17,281' (4')	Sh, lt - dk gy, slty a/a, noncalc, less Qtztc than above, some approaching subfis, no apparent mica.	
17,281 - 17,283' (2')	Sh, a/a, becoming v. Qtztc, breaks w/subconchoidal frac across slt sized to v.f. grn Qtz grns.	
17,283 - 17,286' (3')	No recovery.	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 6-8 Connection _____ Trip 124 @ 17,286' Peaks _____

Mud: Wt. 16.7 Vis 55 W.L. 2.0 ph 10.0 cc Oil - % Cl₂ 800 Temp. 100 °F. in 108 °F. out
 Max temp on trip: 112 °F. @ 17,286'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	Core #17 17,255-17,286'	1	
Cores	No. 17, 17,255-17,286'	10	

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-25-79 Time 0600
 Present Depth 17,329' Previous Depth 17,290' Footage 24 Hrs. 39'
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,286-17,320' Sampling Interval 10 ft. Sample Quality good
 Log Time: 171 min. @ 17,329 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,286-17,300'	Sltst: v. arg. grdg to Qtzt, gy and gy-brn, some off-wh to lt gy, generally noncalc, v.w. ind, w/some wh - gy tripolite Cht-or weathered feldspar in matrix.	30.7 - 35.6
17,300-17,320'	Sltst a/a, but w/sl increase in tripolitic Cht - weathered feldspar matrix, and much less sil.	20.5 - 39.3

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 5 Connection _____ Trip _____ Peaks _____
 Mud: Wt 16.6 Vis 68 W.L. 2.0 ph 10.5 cc Oil _____ %Cl₂ 625 Temp. 124 °F. in 130 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,325'		1.16	16.04

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	16,930-17,310'	1	54
Unwashed Ditch (USGS)	16,930-17,310'	1	54
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-26-79 Time 0600
Present Depth 17,340' Previous Depth 17,329' Footage 24 Hrs. 11
Formation(s) LISEBURNE Top 17,125'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,320-17,330' Sampling Interval 10' ft. Sample Quality good
Lag Time: 172 min. @ 17,330 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,320-17,330'	Sltest. a/a.	32.1 - 36.2

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 5 Connection Trip 120 @ 17,331' Peaks

Mud: Wt. 16.6 Vis 62 W.L. 2.0 ph 10.5 cc-Oil - %Cl₂ 625 Temp. 103 °F. in 108 °F. out
Max temp on trip: 112°F. @ 17,331'

Data Unit:

Depth	Shale Density	De Exponent	Pore Pressure
17,340'		1.12	16.04

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-27-79 Time 0600
 Present Depth 17,366' Previous Depth 17,340 Footage 24 Hrs. 26
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Test BOP's

LITHOLOGIC DESCRIPTION

Interval Reported 17,330-17,360' Sampling Interval 10 ft. Sample Quality good
 Log Time: 177 min. @ 17,360 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,330-17,340'	Sltst, a/a, but becomes carb in pt; w/mnr Ss, dk gy - blk, mottled wh and v. pale milky blue (probable feldspar), v.f. grn to slt size particles, arg, w/hvy sil matrix, qtztc, w. ind.	6.6 - 24.3
17,340-17,360'	Pred Sltst and Cht, grdg to qtztc Sltst, and in pt grdg to qtzt, v. sl calc in pt.	30

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4-6 Connection _____ Trip _____ Peaks _____

Mud: Wt. 16.5 Vis 85 W.L. 2.1 ph 10.5 cc Oil - % Cl₂ 600 Temp. 113 °F. in 118 °F. out

Data Unit:

Depth	Shale Density	Dr Exponent	Pore Pressure
17,350'	2.60+	1.17	16.05

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-28-79 Time 0600
Present Depth 17,367' Previous Depth 17,366' Footage 24 Hrs. 1
Formation(s) LISBURNE Top 17,125'
Present Activity: RIE w/new bit.

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
Lag Time: 177 min. @ 17,367' ft.

Interval	Description	Avg. Drill Rate min./ft.

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 5 Connection - Trip 78 @ 17,367' Peaks -

Mud: Wt. 16.5 Vis 86 W.I. 2.4 ph 10.5 cc Oil - % Cl₂ 600 Temp. N/R °F. in N/R °F. out
Max temp on trip: 114 °F. @ 17,367'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-29-79 Time 0600
Present Depth 17,400' Previous Depth 17,367' Footage 24 Hrs. 33
Formation(s) LISBURNE Top 17,125'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,360-17,390' Sampling Interval 10 ft. Sample Quality v. poor - good
Lag Time: 176 min. @ 17,395 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,360-17,380'	* Cht: gy - translucent in pt, conchoidal frac, some silt and sd inclc, in pt, v. sl calc; w/mnr Siltst: sil a/a.	22.7 - 52.1
17,380-17,390'	Cht and Siltst: a/a; w/10% Ls; lt gy, v. slty - grdg to Siltst; chalky matrix, nil por, NOSCF.	25.8 - 28.7
	*Cht occurs as "massive" form and not as apparent replacement of Ls/Siltst as previously reported.	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 6 Connection nil Trip 216 @ 17,367' Peaks 10 @ 17,390

Mud: Wt. 16.5 Vis 67 W.L. 2.0 ph 10.5 cc Oil - % Cl₂ 500 Temp. 117 °F. in 126 °F. out
Max temp on trip: 115 °F.

Data Unit:

Depth	Shale Density	Dc Exponent	Porc Pressure
17,375'	2.59	1.20	16.02

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 9-30-79 Time 0600
 Present Depth 17,406' Previous Depth 17,400' Footage 24 Hrs. 6
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,390-17,400' Sampling Interval 10 ft. Sample Quality good
 Lag Time: 177 min. @ 17,405 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,390-17,400'	Cht: a/a; w/Slst a/a, sl more silicified, approaching Qtzt, tr Qtz, v. pale amber - milky gy, Qtz as probable vein fill material.	30.5 - 34.7

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4 Connection none Trip 288 @ 17,403' Peaks none

Mud: Wt 16.5 Vis 80 W.L 3.0 ph 10.5 cc Oil 0 % Cl₂ 500 Temp 102 °F. in 106 °F. out
 Max temp on trip: 110°F.

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
<u>17,400'</u>	<u>2.59</u>	<u>1.12</u>	<u>16.08</u>

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-1-79 Time 0600
 Present Depth 17,411' Previous Depth 17,406' Footage 24 Hrs. 5
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Circ waiting on orders.

LITHOLOGIC DESCRIPTION

Interval Reported 17,400-17,410' Sampling Interval 10 ft. Sample Quality v. poor
 Lag Time: 177 min. @ 17,412 ft.

Interval	Description	Avg. Drill Rate min./ft.
<u>17,400-17,410'</u>	<u>Cht: a/a w/Slstst a/a, but sl less sil.</u>	<u>26.4 - 35.4</u>

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4-7 Connection Trip Peaks 20 @ 17,405'

Mud: Wt. 16.5 Vis 62 W.L. 2.5 ph 10.5 cc Oil % Cl₂ 500 Temp. 81 °F. in 92 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-2-79 Time 0600
 Present Depth 17,428' Previous Depth 17,411' Footage 24 Hrs. 17
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,410-17,420' Sampling Interval 10 ft. Sample Quality extremely poor
 Lag Time: 178 min. @ 17,425 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,410-17,420'	Chr and Sltst a/a: w/Sh. dk gy. v. slty. micromica (Sh is possible slough from above).	20.8 - 52.2

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4-7 Connection _____ Trip 140 @ 17,412' Peaks _____

Mud: Wt 16.5 Vis 85 W.L. 2.6 ph 10.5 cc Oil - % Cl₂ 700 Temp. 116 °F. in 123 °F. out
 Max temp on trip: 112 °F. @ 17,412'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,425'	2.62	1.20	16.0

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-3-79 Time 0600
Present Depth 17,432' Previous Depth 17,428' Footage 24 Hrs. 4
Formation(s) LISBURNE Top 17,125'
Present Activity: Reaming to btm.

LITHOLOGIC DESCRIPTION

Interval Reported 17,420-17,430' Sampling Interval 10 ft. Sample Quality poor
Log Time: 181 min. @ 17,432 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,420-17,430'	Pred Sltst, essentially a Qtzt, v. calc, in pt, glassy appearance, blk - subconchoidal frac; w/Cht a/a.	51.2 - 56.4

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4-9 Connection - Trip - Peaks -

Mud: Wt. 16.5 Vis 52 W.L. 2.1 ph 10.5 cc Oil % Cl₂ 700 Temp. 98 °F. in 112 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-4-79 Time 0600
 Present Depth 17,477' Previous Depth 17,432' Footage 24 Hrs. 45
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,430-17,470' Sampling Interval 10 ft. Sample Quality good
 Lag Time: 181 min. @ 17,475 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,430-17,450'	Pred sil Slstst a/a w/Cht a/a, but Slstst becoming v. calc, grd to Ls below 17,440'; occ microfoss replaced by Cht, pos fusulinids; w/tr Ls, lt gy, chalky - slty.	17.7 - 95.0
17,450-17,470'	Ls, dk gy, slty, arg, sl - mod sil, occ v. sil, occ chalky, organic (H ₂ S released when crushing ditch spl, dissolving spl in HCl); occ calcite mineralization along closed fracs or vugs; becoming more sil below 17,460', grd in pt to Cht; w/intbdd Cht gy and impure, sl calc, sl slty.	24.6 - 41.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 1-9 Connection - Trip - Peaks 9 @ 17,440'

Mud: Wt 16.4 Vis 64 W.L 2.0 ph 10.5 cc Oil - % Cl₂ 700 Temp. 114 °F. in 123 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,450'	2.57	1.16	15.9
17,475'	-	1.22	15.9

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-5-79 Time 0600
Present Depth 17,484' Previous Depth 17,477' Footage 24 Hrs. 7
Formation(s) LISBURNE #1 Top 17,125'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
Lag Time: 182 min. @ 17,477 ft.

Interval	Description	Avg. Drill Rate min./ft.
	No samples to surface at report time.	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 3 Connection _____ Trip 296 @ 17,477' Peaks _____

Mud: Wt. 16.4 Vis 69 W.L. 2.9 ph 10.5 cc Oil - %Cl₂ 700 Temp. 104 °F. in 115 °F. out
Max temp on trip: 112°F. @ 17,477'

Data Unit:

Depth	Shale Density	Dc Exponent	Core Pressure

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-6-79 Time 0600
 Present Depth 17,538' Previous Depth 17,484' Footage 24 Hrs. 54
 Formation(s) LISBURNE Top 17,125
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,470-17,530' Sampling Interval 10 ft. Sample Quality good
 Lag Time: 181 min. @ 17,537 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,470-17,530'	Fred Ls. lt gy - gy, slty, sl sil, occ chalky, nil por; w/mnr Cht, gy, mostly impure, mixed w/Ls and frequent Sltst incls.	19.7 - 30.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4 Connection - Trip - Peaks -

Mud: Wt 16.2 Vis 96 W.I. 4.2 ph 10.5 cc Oil - %Cl₂ 900 Temp 121 °F. in 128 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Fore Pressure
17,500'	2.59	1.23	15.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	17,050-17,410'	1	Ex #57
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-7-79 Time 0600
Present Depth 17,553' Previous Depth 17,538' Footage 24 Hrs. 15
Formation(s) LISBURNE Top 17,125'
Present Activity: Circ at 17,519'

LITHOLOGIC DESCRIPTION

Interval Reported 17,530-17,540' Sampling Interval 10 ft. Sample Quality good
Lag Time: 181 min. @ 17,553 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,530-17,540'	Ls a/a becoming sl more sil; w/Cht a/a, occ ang - blk., w/Qtz frags clr - yel.	19.8 - 24.8

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4-5 Connection - Trip - Peaks -

Mud: Wt 16.2 Vis 52 W.L. 3.2 ph 10.5 cc Oil - % Cl₂ 900 Temp. 122 °F. in 135 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Form Pressure
17,525'		1.12	15.65
17,550'		1.17	15.80

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-8-79 Time 0600
Present Depth 17,553' Previous Depth 17,553' Footage 24 Hrs. 0
Formation(s) LISBURNE Top 17,125'
Present Activity: Drilling on junk (3 cones) at 17,553'

LITHOLOGIC DESCRIPTION

Interval Reported 17,540-17,550' Sampling Interval 10 ft. Sample Quality v. poor
Lag Time: 181 min. @ 17,553 ft.

Table with 3 columns: Interval, Description, Avg. Drill Rate min./ft.
Interval: 17,540-17,550'
Description: Ls and Chr a/a; w/Sltst, dk gy - blk, mottled blue green w/pos glau, v. sil in pt grdg to Qtzt, in pt v. calc grdg to Ls, w. ind, w/nil vis por.
Avg. Drill Rate: 16.0 - 21.
REQUEST: 1 dozen white business envelopes

SHOW DESCRIPTION (Gas and/or Oil)

Table with 3 columns for gas and oil description data.

Ditch Gas (Units): Background 4-5 Connection - 2 Trips (268 @ 17,553 Peaks) (260 @ 17,553'

Mud: Wt 16.2 Vis 52 W.L 3.8 ph 10.5 cc Oil - % Cl2 900 Temp. 88 °F. in 98 °F. ou

Data Unit:

Table with 4 columns: Depth, Shale Density, Dc Exponent, Pore Pressure

Dispatched Samples:

Table with 4 columns: Type, Interval, No. of Boxes, Set No.
Types include: Washed & Dried Ditch, Unwashed Ditch (Paleo), Unwashed Ditch (USGS), GeoChem (canned), Cores

Geologist GORDON LEGG



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-9-79 Time 0600
 Present Depth 17,617' Previous Depth 17,553' Footage 24 Hrs. 64
 Formation(s) LISBURNE Top 17,125'
 Present Activity: POH for new bit.

LITHOLOGIC DESCRIPTION

Interval Reported 17,550-17,610' Sampling Interval 10 ft. Sample Quality good
 Log Time: 170 min. @ 17,610 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,550-17,580'	Sltest, dk gy - gy, arg, v. sil, v. calc grdg to Ls; w/Cht, gy, impure, calc, in pt slty.	17.0 - 36.0
17,580-17,610'	Sltest, lt gy green, arg, v. calc, grdg to Ls, has green incls (appears to be iron stn Sh); w/buff colored calc mineral along apparent closed frac and/or veins, sft-mod w. ind, v. - nil por, no shows.	7.6 - 10.7

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 8 Connection 16 @ 17,578' Trip 269 @ 17,553' Peaks -

Mud: Wt 16.0 Vis 78 WI 4.4 pH 10.5 cc Oil %Cl₂ 1000 Temp 121 °F. in 126 °F. out
 Max temp on trip: 112°F. @ 17,553'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,575'		1.14	15.70
17,600'		1.01	15.55

Matched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-10-79 Time 0600
 Present Depth 17,657' Previous Depth 17,617' Footage 24 Hrs. 40'
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,610-17,640' Sampling Interval 10 ft. Sample Quality good
 Lag Time: 174 min. @ 17,650 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,610-17,630'	Siltst, gy, gy - green, v. calc, grd to Ls, green Sh matrix, occ streaks hematitic Clay Sh, abnt free calcite.	6.6 - 8.6
17,630-17,640'	Siltst and Calcite, a/a; w/tr Cht, gy, w/subconchoidal frac; and w/mnr Sh, dk gy to blk, micromica, v. carbonaceous to organic, fis.	7.2 - 10.9
	REQUEST: 25 core boxes, HOT	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): 38 @ 0600 hrs.
 Background 5-34 Connection 80 @ 17,642' Trip 304 @ 17,617' Peaks _____

Mud: Wt 16.0 Vis 62 W.L 5.0 ph 10.5 cc Oil _____ % Cl₂ 1100 Temp 108 °F. in 114 °F. out
 Max temp on trip: 116°F. @ 17,617'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
<u>17,625'</u>	<u>-</u>	<u>0.75</u>	<u>16.52</u>
<u>17,650'</u>	<u>reprogrammed parameters</u>	<u>0.90</u>	<u>15.47</u>

Batched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	<u>17,310-17,560'</u>	<u>1</u>	<u>Bx #55</u>
Unwashed Ditch (USGS)	<u>17,310-17,560'</u>	<u>1</u>	<u>Bx #55</u>
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-11-79 Time 0600
 Present Depth 17,740' Previous Depth 17,637' Footage 24 Hrs. 83'
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,640-17,730' Sampling Interval 10 ft. Sample Quality good
 Lag Time: 172 min. @ 17,740 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,640-17,690'	Sltst, green, frequently w/silt-sized frags of wh mineral (prob feldspar), varying amts of xl calcite apparently from vein; p. - mod w. ind; rr red hemititic silt-sized particles.	11.1 - 24.6
17,690-17,720'	Sltst, a/a w/increase in red hemitite, occ f. - crs grn milky SA-SR Qtz; typically w/hemitite veining; Sltst becoming somewhat less calc.	11.3 - 15.9
17,720-17,730'	Sltst, varigated green and hemititic red, occ apple green mineral (appears to pos be a metamorphic mineral?); sl calc w/occ xl calcite.	9.4 - 22.6
REQUEST: DAILY GEOLOGICAL REPORT FORMS		

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 11-12 Connection 20 @ 17,702' Trip _____ Peaks 20 @ 17,700'

Mud: Wt. 15.9 Vis 57 W.L. 5.6 ph 10.5 cc Oil _____ % Cl₂ 1100 Temp. 121 °F. in 127 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent.	Pore Pressure
17,675'		1.04	15.47
17,700'		1.10	15.22
17,725'		1.08	15.42

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No. _____		

GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-12-79 Time 0600
Present Depth 17,749' Previous Depth 17,740' Footage 24 Hrs. 9
Formation(s) LISBURNE #1 Top 17,125'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,730-17,740' Sampling Interval 10 ft. Sample Quality good
Log Time: 175 min. @ 17,745 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,730-17,740'	Siltst, varigated, green and red a/a.	12.0 - 17.2

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 7-12 Connection - Trip - Peaks -
Mud: Wt. 15.9 Vis 56 W.L. 5.4 ph 11.2 cc Oil - % Cl₂ 1100 Temp. 86 °F. in 92 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-13-79 Time 0600
Present Depth 17,811 Previous Depth 17,749 Footage 24 Hrs. 62
Formation(s) LISBURNE Top 17,125'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,740-17,800' Sampling Interval 10 ft. Sample Quality good
Log Time: 161 min. @ 17,795 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,740-17,790'	Sltst: variegated red - green; w/occ transl dk green mineral of prob iron silicate; w/v.f. grn wh oolites; unit becomes pale green and w/o iron stn below 17,780'.	10.3 - 23.7
17,790-17,800'	Sltst: pale green a/a. calc. w/some v.f. grn loose slt and sd grns of Qtz, Cht and iron silicates, SR-WR, 10% wh - off wh Cht; w/v.f. grn, pale green oolites; tr amts of xl, hexagonal clr mineral.	21.7 - 22.1

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): 20 @ 17,764'
Background 8-10 Connection 20 @ 17,795' Trip 549 @ 17,745' Peaks none
504 @ 8600 strks (csg)
Mud: Wt. 15.8 Vis 62 W.L. 6.4 ph 11.2 cc Oil - %Cl₂ 1100 Temp. 121 °F. in 127 °F. out
Max temp on trip: 107°F.

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,750'	-	0.98	15.34
17,775'	-	1.18	15.33
17,800'	-	1.19	15.37

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	<u>17,410-17,770'</u>	<u>1 Bx #58</u>	
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #L Date 10-14-79 Time 0600
 Present Depth 17,858' Previous Depth 17,811' Footage 24 Hrs. 47
 Formation(s) LISBURNE Top 17,125'
 Present Activity: POH for core bbl (programmed strat core)

LITHOLOGIC DESCRIPTION

Interval Reported 17,800-17,850' Sampling Interval 10 ft. Sample Quality good
 Log Time: 162 min. @ 17,857' ft.

Interval	Description	Avg. Drill Rate min./ft.
17,800-17,810'	Ss: green - wh - clr, loose grns of Qtz Cht and iron silicate, v.f. - med grn. p. srted, rd - sa, occ sec Qtz xls; w/Sltst: a/a, w/Cht - silica matrix; w/mnr wh Cht a/a	20.9 - 22.1
17,810-17,830'	Ls: crm - tn, crs xl, some interlocking calcite xls, occ fos hash, occ chalky, nil por; w/mnr Ss and Sltst a/a.	13.9 - 18.8
17,830-17,840'	Pred Ls: tn & gy, slty and arg in pt, microxl - crs xl, some relic microfoss, mod - well ind, nil por; w/Ss and Sltst a/a, becoming v. calc and grdg to Ls.	21.6 - 22.3
17,840-17,850'	Pred Sltst: pale green - gy green, sdv, w/some loose sd and rd Qtz grns, less calc; w/mnr Ls: a/a; w/mnr Cht wh - gy, slty.	14.4 - 18.4

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 9-10 Connection 18 @ 17,827' Trip 544 @ 17,745' Peaks none

Mud: Wt. 15.8 +Vis 68 W.L. 7.2 ph 11.1 cc Oil - %Cl₂ 1100 Temp. 121 °F. in 127 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,828'	-	1.16	15.36
17,850'	-	1.16	15.35

Sorted Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	16,900-17,780'	2, Bx #19	1 & 2
Unwashed Ditch (Paleo)	17,560-17,810'	1, Bx #56	
Unwashed Ditch (USGS)	17,560-17,810'	1, Bx #56	
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-15-79 Time 0600
 Present Depth 17,877' Previous Depth 17,858' Footage 24 Hrs. 19'
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Cutting Core #18, @ 4.5 - 6.5'/hr.

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
 Log Time: 168 min. @ 17,875 ft.

Interval	Description	Avg. Drill Rate min./ft.

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 10 Connection 0 Trip 360 @ 17,858' Peaks -

Mud: Wt 15.8 Vls 68 W.L. 7.5 ph 10.9 cc Oil - % Cl₂ 1100 Temp. 120 °F. in 123 °F. out
 Max temp on trip 120°F. @ 17,858'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
<u>17,875'</u>		<u>1.01</u>	<u>15.30</u>

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-16-79 Time 0600
 Present Depth 17,888' Previous Depth 17,877' Footage 24 Hrs. 11
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Laying down 4 1/2" grade E drill pipe and RIR to drill.

LITHOLOGIC DESCRIPTION

Interval Reported 17,858-17,888' Sampling Interval Core ft. Sample Quality _____
 Lag Time: 172.3 min. @ 17,888 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,858-17,888'	Core #18, Cut 30', Rec. 30'	
17,858 - 17,858.5 (0.5')	Breccia, green - dk green Sltst; chloritic and ang frags Ls (1/8-1/4") tn; w/calcite and fltg blk - green oolites.	27.0
17,858.5 - 17,865 (6.5')	Sltst, green, chloritic, hd, brittle, ang; w/1/8-1/2" blebs. of interlocking calcite xls; and Sh, dk green, grds from ang frag to small 1/8" oolites; w/Cht, blk, ang, w/rr pyr incls.	20.0 - 25.0
17,865 - 17,870 (5.0')	Sltst, a/a w/increase in blk Sh, blebs.	17.0 - 20.0
17,870 - 17,874 (4.0')	a/a w/decrease in number of Sh blebs (increase in size 1/4-1/2")	13.0
17,874 - 17,884 (10.0')	Sltst, a/a w/45% small rdd blebs of Sh; w/lams at 17,882' w/25° dips.	9.0 - 13.0
17,884 - 17,887 (3.0')	Sltst, green, chloritic, ang a/a w/pred oolites (1/8" in dia) dk green; some calcite blebs, rr pyr.	10.0 - 12.0
17,887-17,888' (1')	Sltst a/a; w/lrg 1/2" blebs of interlocking calc xls, tn to beige in color, and common oolites.	12.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 6-13 Connection - Trip 360 @ 17,858' Peaks _____

Mud: Wt. 15.7 Vis 50 W.I. 6.6 ph 10.9 cc Oil _____ %Cl₂ 1100 Temp. 123 °F in 127 °F out
 Max temp on trip: 114 °F @ 17,858'.

Data Unit:

Depth	Shale Density	De Exponent	Pore Pressure
17,875'	-	1.01	15.30

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No. 18 (17,858-17,888')	11	

Geologist DAVE FENEX



HUSKY OIL NPR OPERATIONS, INC.
 U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10/17/79 Time 0600
 Present Depth 17,917' Previous Depth 17,888' Footage 24 Hrs. 29'
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,888-17,910' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 210 min. @ 17,890 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,888-17,910'	Sltst. green chloritic, a/a.	10.0 - 13.7

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 10 Connection 0 Trip 1008 @ 17,888' Peaks
Mud: Wt. 15.7 Vis 50 w.L 7.2 ph 10.8 cc Oil % Cl₂ 1100 Temp. 90 °F. in 100 °F. out
 Max temp on trip: 90 °F.
Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,900'	2.58	1.16	15.29

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-18-79 Time 0600
 Present Depth 17,995' Previous Depth 17,917' Footage 24 Hrs. 78
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 17,910-17,980' Sampling Interval 10 ft. Sample Quality fair
 Log Time: 201 min. @ 17,994 ft.

Interval	Description	Avg. Drill Rate min./ft.
17,910-17,925'	Sltst: green, chloritic, a/a; w/Sltst: purple, siliceous, hd, brittle, arg, w/rr blk incls; w/some tn calcite a/a.	11.0 - 14.0
17,925-17,950'	Orthoqtz: crm, sublithographic, smooth, rr phlogopite, conchoidal frac, hd, brittle.	18.0 - 20.0
17,950-17,980'	Sltst: green, chloritic; w/calcite a/a; w/30% loose Qtz grns, med grn, sr, fair srt.	11.0 - 13.6

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 11.0 - 14.0 Connection 18 @ 17,953' Trip - Peaks none

Mud: Wt 15.7 Vis 50 W.I. 7.4 ph 10.4 cc Oil - % Cl₂ 1100 Temp. 109 °F. in 118 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
17,925'	2.59 (Sltst)	1.02	15.21
17,950'	2.57 "	1.21	15.22
17,975'	2.57 "	1.15	15.22

Spatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

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HUSKEY OPERATIONS, INC.
U.S. GEOLOGICAL SURVEY/ONPRA

DAILY LOGICAL REPORT

TUNALIK #1 Date 10-19-79 Time 0600
 Depth 18,012' Previous Depth 17,995' Footage 24 Hrs. 17
 Interval LISBURNE Top 17,125'
 Locality: RIH w/new bit.

LITHO DESCRIPTION

Reported 17,980-18,010' Interval 10 ft. Sample Quality fair
188 min. @ 18,313

Interval	Description	Avg. Drill Rate min./ft.
17,980-18,010'	Ss: generally unconsolidated in cuttings, med gr, sr-sa, f. - p. srt, becomes more consolidated in pt; w/green - blk sh incls, and w/incis of wh ang Cht, mod ind, arg.	14.0 - 18.0

DESCRIPTION (Gas and/or Oil)

Gas (Units): Background 8-14 Connection 19 Trip - Peaks none
 Wt. 15.7 Vis 54 W.L. 6.8 ph 10.5 % Cl₂ 1100 Temp. 112 °F. in 121 °F. out
 Max temp on trip: 112°F.

Depth	Shale Density	Dc Exponent	Pore Pressure
18,000'	2.56	1.15	15.22

Supplies:

Type	Quantity	No. of Boxes	Set No.



HUSKY OIL & GAS OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

Well TUNALIK #1 Date 10-20-79 Time 0600
Present Depth 18,077' Previous Depth 18,013' Footage 24 Hrs. 64
Formation(s) LISBURNE Top 17,125'
Present Activity: Drilling

STRATIGRAPHIC DESCRIPTION

Interval Reported 18,010-18,060' Sampling Interval 10' ft. Sample Quality fair
Log Time: 201 min. @ 18,025 ft.

Interval	Description	Avg. Drill Rate min./ft.
18,010-18,040'	Ss a/a, abnt calcite incls (up to 30% of spl).	12.0 - 16.0
18,040-18,060'	Ls, calcilitic to intracalcarenitic, lt gy - tm, v.f. - f. xl. hd. dng. rr pyrite incls, nil por. w. intbdd Ss a/a.	12.0 - 16.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 11-15 Connection 15-20 Trip 650 @ 18,012' Peaks 30 @ 18,025'
Mud: Wt. 15.7 Vis 58 W.L. 5.5 pH 10.8 cc Oil - % Cl₂ 1100 Temp. 115 °F. in 121 °F. out
Max temp on trip: 112°F. @ 18,02

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
18,050'	2.61	1.15	15.16

Attached Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Washed Ditch (Paleo)			
Washed Ditch (USGS)			
PetroChem (canned)			
Others	No.		



HUSKY OIL & GAS OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

Well TUNALIK #1 Date 10-21-79 Time 0600
 Present Depth 18,108' Previous Depth 18,077' Footage 24 Hrs. 31
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Prep to RIH w/mill, left stabilizer in hole on trip.

GEOLOGIC DESCRIPTION

Interval Reported 18,060-18,100' Sampling Interval 10 ft. Sample Quality fair
 Logging Time: 202 min. @ 18,108 ft.

Interval	Description	Avg. Drill Rate min./ft.
18,060-18,100'	Sltst: lt gy, calc cmr, v. w. ind, some mnr blk inclis, blkky to smooth; w/Ss (18,082-18,088'), green w/m calcite blebs, pyr inclis a/a.	15 - 18, Ss drilled at 19.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 9-12 Connection 15 @ 18,052' Trip - Peaks -

Mud: Wt. 15.7 Vis 68 W.L. 5.1 ph 10.6 cc Oil % Cl₂ 1100 Temp. 116 °F. in 122 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
18,100'	2.52	1.20	15.17

Attached Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Washed Ditch (Paleo)	17,810-18,100'	1	Bx #57
Washed Ditch (USGS)	17,810-18,100'	1	Bx #57
GeoChem (canned)			
	No.		



HUSKY OPERATIONS, INC.
U.S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-23-79 Time 0600
Present Depth 18,130' Previous Depth 18,108 Footage 24 Hrs. 22
Formation(s) LISBURNE Top 17,125'
Well Activity: Drilling

LITHOLOGIC DESCRIPTION
Interval Reported 18,100-18,125' Sampling Interval 5 ft. Sample Quality fair - good
Time: 200 min. @ 18,125

Interval	Description	Avg. Drill Rate min./ft.
18,100-18,125'	Strat: blk. sl sdy. micromica, rr pyr. sil cnt. v.w. ind. brittle.	32.0 - 43.0

LITHOLOGIC DESCRIPTION (Gas and/or Oil)

Interval	Description

Gas (Units): Background 12-18 Connection 40 @ 18,115' Trip 264 @ 18,108' Peaks -
Wt. 15.8 Vis 59 W.I. 53 ph 10.4 sp GR - % Cl₂ 1200 Temp 118 °F. in 125 °F. out
Max temp on trip: 119°F.

Depth	Shale Density	De Exponent	Pore Pressure

Samples:

Type	Interval	No. of Boxes	Set No.
Dried Ditch			
Ditch (Paleo)			
Ditch (USGS)			
	No.		

DAVE FENEX



HUSKY OIL NTR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-24-79 Time 0600
Present Depth 18,156' Previous Depth 18,130' Footage 24 Hrs. 26
Formation(s) LISBURNE Top 17,125'
Present Activity: RIH w/diamond bit to drill

LITHOLOGIC DESCRIPTION

Interval Reported 18,125-18,145' Sampling Interval 5 ft. Sample Quality fair - good
Lag Time: 201 min. @ 18,156 ft.

Interval	Description	Avg. Drill Rate min./ft.
18,125-18,130'	Sltst: blk. qtztc a/a; grds to v. arg. smooth. v. sil. v. hd and brittle. mnr calcite incl.	43.0
18,130-18,145'	Ss: lt gy - green, generally f. grn, chloritic, qtztc, abnt ers tn calcite blebs, some blk incl, rr pyr; grds to Sltst, lt gy green, smooth, qtztc, v. hd, brittle, blk.	21.0 - 32.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 6-10 Connection - Trip - Peaks -

Mud: Wt. 15.8 Vis 60 W.L. 5.3 ph 10.1 cc Oil - % Cl₂ 1200 Temp. 119 °F. in 125 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
18,150'	2.52	1.38	15.14

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist DAVE FENEX



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-25-79 Time 0600
 Present Depth 18,222' Previous Depth 18,156' Footage 24 Hrs. 66
 Formation(s) LISEURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 18,145-18,210' Sampling Interval 5' ft. Sample Quality fair - poor
 Log Time: 201 min. @ 18,220 ft.

Interval	Description	Avg. Drill Rate min./ft.
18,145-18,155'	Chr: med - dk green, to rr smokey gv, conchoidal frac, hd, brittle.	31.0
18,155-18,210'	Ss: green, v/unconsolidated clr and green loose Qtz grns in pt, sr-sa, p. - f. srt. f. - med grn, blk ferromag minerals, abnt tn calc blebs, rr wh Cht incls, rr ooliths, nil vis por; and Slst a/a, green, chloritic, Qtztc, sl arg, biky, hd and brittle.	12.0 - 27.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 7-14 Connection 14 @ 18,205' Trip 416 @ 18,156' Peaks

Mud: Wt 15.8 Vis 62 W.I. 5.2 ph 9.2 cc Oil _____ % Cl₂ 1200 Temp. 114 °F. in 124 °F. out
 Max temp on trip: 112°F. @ 18,156'

Data Unit:

Depth	Shale Density	De Exponent	Pore Pressure
18,175'	2.48	1.02	15.20
18,200'	2.61	1.18	15.20

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	17,770-18,130'	1	Bx #59
Cores	No.		

DAVE FENEX



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 10-26-79 Time 0600
 Present Depth 18,260' Previous Depth 18,222' Footage 24 Hrs. 38
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 18,210-18,250' Sampling Interval 5 ft. Sample Quality v. poor
 Log Time: 201 min. @ 18,220 ft.

Interval	Description	Avg. Drill Rate min./ft.
18,220-18,230'	Ss and Slst a/a.	14.0 - 27.0
18,230-18,250'	Ss and Slst a/a w/tr Cht, smokey gy.	20.0 - 42.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 7-10 Connection - short Trip 120 @ 18,231' Peaks -

Mud: Wt. 15.8 Vis 95 W.I. 5.0 ph 10.8 cc Oil % Cl₂ 1000 Temp. 119 °F. in 126 °F. out
 Max temp on short trip: 125°F.

Data Unit:

Depth	Shale Density	Dc Exponent	Porc Pressure
18,250'	2.62	1.27	15.22

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist DAVE FENEX



HUSKY OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

Well TUNALIK #1 Date 10-27-79 Time 0600
 Present Depth 18,289' Previous Depth 18,260' Footage 24 Hrs. 29
 Formation(s) LISBURNE Top 17,125'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 18,250-18,280' Sampling Interval 10 ft. Sample Quality v. poor
 Lag Time: 241 min. @ 18,285 ft.

Interval	Description	Avg. Drill Rate min./ft.
18,250-18,280'	Sltst: lt gy, a/a; w/rr Ss: a/a. (Abnt slough of Sh in spls.)	22.0 - 41.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 9-10 Connection nil short Trip 50 @ 18,269' Peaks -

Mud: Wt. 15.8 Vis 80 W.L. 5.0 ph 10.8 cc Oil 0 % Cl₂ 100 Temp. 120 °F. in 128 °F. out
 Max temp on short Trip: 128°F.

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
18,250'	2.62	1.28	15.20
18,275'	2.62	1.28	NA
			(Computer OGS)

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

DAVE FENEX