



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-1-79 Time 06:00
 Present Depth 12,386' PBTD Previous Depth 12,557' Footage 24 Hrs. 0
 Formation(s) KINGAK Top 11,460' (log)
 Present Activity: Logging (Velocity Survey)

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
 Lag Time: _____ min. @ _____ ft.

Interval	Description	Avg. Drill Rate min./ft.		
	Ran the following logs:			
	GR/SP/DLL 8298-12,374'			
	GR/SECS/TTI 8298-12,384'			
	GR/FDC/CNL/CAL 8298-12,387'			
	HDT Dipmeter 8298-12,387' (BET 205°F)			
	Velocity Survey (All available shot-holes were used on this survey)			
<u>FORMATION TOPS (DLL DEPTH)</u>				
Formation	Tunalik #1	Peard #1	Kuerua #1	So. Yeade #1
Pebble Sh	10,632'	6195'	6890'	6475'
Kuparuk Ss	10,902'	6530'	7201'	6716'
Kingak Sh	11,460'	6590'	7304'	6730'

REQUEST: 4 yellow legal pads
3 doz letter size envelopes

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background _____ Connection _____ Trip _____ Peaks _____

Mud: Wt. 16.0 Vis 54 W.L. 13.5 ph 11.0 cc Oil 0 % Cl₂ 17000 Temp. _____ °F. in _____ °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 6-15-79 Time 06:00
 Present Depth 12,597' Previous Depth 12,567' Footage 24 Hrs. 30
 Formation(s) KINGAK Top 11,460'
 Present Activity: RIH w/bit to clean core hole

LITHOLOGIC DESCRIPTION

Interval Reported 12,567-12,597' Sampling Interval core ft. Sample Quality core
 Lag Time: 76 min. @ 12,557 ft.

Interval	Description	Avg. Drill Rate min./ft.
<u>12,567-12,597'</u>	<u>CORE #11, Cut 30', Rec. 50'</u>	
	<u>12,567-12,576.5 (9.5'):</u> Sh, dk gy - blk, v.f. mica, sl sil along Ss lenses & bdg planes, subfis, organic, noncalc, mod - w. ind, irreg wavy lenses and pods of v.f. grn Ss and Sltst; bd occ appears to be from 45° to near vertical (prob slump struc), occ zones along bdg planes bleeding, apparent gas (no odor); one pelecypod shell at 12,571'.	
	<u>12,576.5-12,591 (14.5'):</u> Ss, med gy, v.f. grn, mod w. srted, sl arg, v. sl calc, w. cmt w/sil, SA-SR, v. qtzc in pt, w/some approaching orthoqtzt and breaking across grns; v. w. ind, p. - nil por, occ lenses w/p. por, no show; occ bleeding apparent gas (no odor) along bdg planes (both Ss and intbdd Sh); intbdd and intlam w/Sh a/a; occ small vugs 2 mm in dia, some bleeding apparent gas, no show.	
	<u>12,591-12,597 (6'):</u> Sh a/a w/intbdd and intlam pods and lenses of qtzc Ss a/a.	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 40 Connection 94 @ 12,580' Trip 200 @ 12,567' Peaks 84 @ 12,580'
 (all C₁)

Mud: Wt. 16.1 Vis 50 W.L. 9.5 ph 12.0 cc Oil - % Cl₂ 3300 Temp. 102 °F. in 114 °F. out
 Max temp during trip: 102°F.

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
<u>12,575'</u>	<u>-</u>	<u>0.97</u>	<u>15.5</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>Core #11 12,567-12,597'</u>	<u>1</u>	
<u>Cores</u>	<u>No. 11, 12,567-12,597'</u>	<u>11</u>	

Geologist GORDON LEGG



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-16-79 Time 06:00
 Present Depth 12,610' Previous Depth 12,597' Footage 24 Hrs. 13'
 Formation(s) KINGAK Top 11,460'
 Present Activity: RIH w/BHC/GR tool to log.

LITHOLOGIC DESCRIPTION

Interval Reported 12,597-12,610' Sampling Interval 5 ft. Sample Quality v. poor
 Lag Time: 76 min. @ 12,557 ft.

Interval	Description	Avg. Drill Rate min./ft.
12,597-12,610'	Intbdd Sh and Ss. a/a in Core #11.	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 80 Connection 120 @ 12,600' Trip 600 @ 12,597' Peaks none

Mud: Wt. 16.1 Vis 54 W.L. 9.0 ph 12.0 cc Oil % Cl₂ 3000 Temp. 102 °F. in 110 °F. out
 Max temp 126°F. on trip @ 12,597'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
12,600	--	1.06	15.5

Dispatched Samples:

Type	Interval	No. of Boxes	Ser No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)	12,320-12,590'	1	Bx #39
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



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

DAILY GEOLOGICAL REPORT

WELL TINAJUK #1 Date 6-17-79 Time 06:00
 Present Depth 12,666' Previous Depth 12,610' Footage 24 Hrs. 56
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 12,610-12,650' Sampling Interval 10 ft. Sample Quality poor - v. poor
 Lag Time: 106 min. @ 12,635 ft.

Interval	Description	Avg. Drill Rate min./ft.
12,610-12,650'	Pred Sh: dk gy - blk, noncalc, subfis - blk, occ slty; w/mnr Ss: v. f. grn, slty, grd to Slst: sl calc, p. - nil por, NOSCF.	9.1 - 13.9
	Ran: GR/BHCS prior to RFT from 12,386-12,602'.	
	Ran RFT (Repeat Formation Tester) as follows:	
	Depth Results/PSI	
	Numerous attempts interval 12,543-12,550' (zone of best porosity and zone of potential high pressure gas as defined by BHCS log.) No seal, no pressure or sample obtained.	
	12,585'	No seal
	12,584'	No seal
	12,582.5	No sample recovered, 30 psi
	12,528'	No seal
	12,526'	No seal
	12,525'	No seal
	12,523'	No seal
	12,522'	No seal

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 100 Connection 108 @ 12,635' Trip 140 @ 12,610' Peaks none

Mud: Wt. 15.9 Vis 53 W.L. 9.8 ph 12.0 cc Oil 0 % C12 2800 Temp. 92 °F. in 118 °F. out
 Max temp on trip 102°F.

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
12,600'	2.54		
12,625'	2.48	1.00	15.8
12,650'		1.13	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 6-18-79 Time 06:00

Present Depth 12,793' Previous Depth 12,666' Footage 24 Hrs. 127

Formation(s) KINGAK Top 11,460'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 12,650-12,780 Sampling Interval 10 ft. Sample Quality fair
Lag Time: 93 min. @ 12,800 ft.

Interval	Description	Avg. Drill Rate min./ft.
12,650-12,780'	Sh: dk gy - blk, usually subfis and splty and splintery to blk, organic, occ becoming v. sl slty, and occ v. splintery and fis; w/mnr ss, pred as loose grns, f. grn, SA-SR, clr - frosted.	8.5 - 12.5

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 120 Connection 180 @ 12,729 Trip 1374 @ 12,730' Peaks 170 @ 12,750'
C₁ only

Mud: Wt. 16.0 Vis 57 W.L. 9.9 ph 11.5 cc Oil - %Cl₂ 2500 Temp. 122 °F. in 128 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
12,650'	2.47	-	
12,675'	2.40	1.21	15.51
12,700'	2.30	1.12	15.58
12,725'	2.39	1.22	15.56
12,750'	2.44	1.19	15.55
12,775'	2.42	1.18	15.50

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	<u>12,370-12,730'</u>	<u>1</u>	<u>Bx #44</u>
Cores	No.		

Geologist: GORDON LEGG



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-19-79 Time 06:00
 Present Depth 12,930' Previous Depth 12,793' Footage 24 Hrs. 137
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 12,780-12,910' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 94 min. @ 12,900 ft.

Interval	Description	Avg. Drill Rate min./ft.
12,780-12,830'	Pred Sh, gy - blk, arg, subfis.	8.6 - 9.4
12,830-12,870'	Intbdd Sh w/Sltst, gy - pale brn, sdy, grdg to Ss, v. sl calc, v. arg.	7.0 - 10.2
12,870-12,910'	Pred Sltst, grdg to Ss, brn to gy, arg, v. sdy, occ becoming v. f. grn Ss; w. ind, v. sl calc, sll cmt; p. - nil vis por, no show; w/mar Sh a/a.	5.9 - 11.6
NOTE: Sltst at 12,830' correlates to 120-160' above Kugrua Ss (So. Simpson Ss) with Beard and So. Meade #1.		

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS UNITS	CHROMATOGRAPH (PPM)
12,875'	480	100% C ₁
12,895'	700	100% C ₁

Ditch Gas (Units): Background 175 Connection 420 @ 12,885' Trip 990 @ 12,860' Peaks 700 @ 12,875'
480 @ 12,895'

Mud: Wt. 16.0 Vis 55 W.L. 9.3 ph 11.0 cc Oil % Cl₂ 2300 Temp. 126 °F. in 132 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
12,800'	2.38	1.16	15.53
12,825'	2.44	1.16	15.50
12,850'	2.36	1.17	15.57
12,875'	2.38	1.00	15.60
12,900'	2.40	1.14	15.71
12,925'	2.38	1.10	15.84

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	12,590-12,890'	1	Ex #40
Unwashed Ditch (USGS)	12,590-12,890'	1	Ex #40
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-20-79 Time 06:00
Present Depth 12,988' Previous Depth 12,930' Footage 24 Hrs. 58
Formation(s) KINGAR Top 11,460'
Present Activity: Chg out flow line

LITHOLOGIC DESCRIPTION

Interval Reported 12,910-12,980' Sampling Interval 10 ft. Sample Quality poor
Lag Time: 95 min. @ 12,900 ft.

Interval	Description	Avg. Drill Rate min./ft.
12,910-12,950'	Pred Sltst a/a intbdd w/Sh a/a.	7.6 - 10.9
12,950-12,980'	Pred Sh, intbdd w/decreasing Sltst a/a.	9.6 - 15.5

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 100 Connection 360 @ 12,945' Trip - Peaks 220 @ 12,950'

Mud: Wt. 16.0 Vis. 56 W.L. 9.3 ph. 11.0 cc Oil - % Cl₂ 2300 Temp. 128 °F. in 134 °F. out
Max temp 132 °F. on trip

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
12,950'	2.36	1.21	15.75
12,975'	-	1.22	15.74

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 6-22-79 Time 06:00
Present Depth 13,194' Previous Depth 13,079' Footage 24 Hrs. 115
Formation(s) KINGAK Top 11,460'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 13,070-13,180' Sampling Interval 10 ft. Sample Quality POOR
Lag Time: 102 min. @ 13,195 ft.

Interval	Description	Avg. Drill Rate min./ft.
13,070-13,140'	Sh: gy blk. organic. a/a.	8.3 - 11.3
13,140-13,150'	Sh: a/a; w/Dol: gy - brn. microxl. dns. nil por.	10.4 - 12.3
13,150-13,180'	Sh: a/a w/increase organic and carb material, sl more splintery.	7.9 - 12.7
REQUEST: 40 lids for 1/2 pt cans 1 1-gal can, 4 tops.		

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 20 Connection 240 @ 13,103' Short Trip 440 @ 13,120' Peaks none

Mud: Wt. 16.0 Vis 55 W.L. 7.4 ph 10.5 cc Oil 0 %Cl₂ 2200 Temp. 118 °F. in 134 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
13,100'	2.42	1.22	15.59
13,125'	2.44	1.19	15.59
13,150'	2.42	1.26	15.40
13,175'	2.40	1.17	15.49

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	12,730-13,090'	1, Bx #45	
Cores	No.		

Geologist GORDON LEGG



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-23-79 Time 06:00
 Present Depth 13,237' Previous Depth 13,194' Footage 24 Hrs. 93
 Formation(s) KINGAK Top 11,460'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 13,180-13,285' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 102 min. @ 13,250 ft.

Interval	Description	Avg. Drill Rate min./ft.
13,180-13,240'	Sh: a/a w/Sh lt gy, waxy, sft, w/occ rd, med grn fltg Qtz grns.	7.9 - 14.4
13,240-13,250'	Sh: a/a, w/Dol. tn - gy, sl arg, w/occ carb surks, microxl, dns, hd, subconchoidal frac, nil por. no show.	14.1 - 14.0
13,250-13,270'	Sh: a/a w/increase in lt gy, sity; waxy Sh, w/cir frosted, SR- rd, fltg Qtz grns.	14.4 - 14.0
13,270-13,280'	Sh: a/a w/fltg Qtz grns; and w/occ wh, waxy, chalk-like mineral w/incls of v. f. flakes of Biotite.	14.4 - 15.2
13,280-13,285'	Dol: gy, microxl, dns, hd, sl sity in cr; some milky calc veins and occ w. developed Qtz xls (indicating open vugs or frac), some bleeding from vugs or frac, had 110 units ditch gas associated w/zone (all C ₁)	NR

SHOW DESCRIPTION (Gas and/or Oil)

All C₁

Ditch Gas (Units): Background 10 Connection 56 @ 13,262' Trip 1380 @ 13,231' Peaks 110 @ 13,285'

Mud: Wt 16.1 Vis 57 W.L. 7.5 ph 10.5 cc Oil % Cl₂ 2200 Temp. 126 °F. in 134 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
13,200'	2.47	1.18	15.54
13,225'	2.49	1.22	15.57
13,250'	2.49	1.26	15.40
13,275'	2.56	1.27	15.62

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	12,890-13,190'	1	Ex #41
Unwashed Ditch (USGS)	12,890-13,190'	1	Ex #41
GeoChem (canned)			
Cores	No.		

Geologist GORDON LEGG



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-24-79 Time 06:00
 Present Depth 13,376' Previous Depth 13,287' Footage 24 Hrs. 89'
 Formation(s) KINGAK Top 11,460'
 Present Activity: Circ for spls.

LITHOLOGIC DESCRIPTION

Interval Reported 13,285-13,370' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 105 min. @ 13,350 ft.

Interval	Description	Avg. Drill Rate min./ft.
13,285-13,340'	Sh: a/a.	14.2 - 16.2
13,340-13,350'	Dol: dk gy - brn, slty, grdg to Sltst, arg, blk, dns, nil vis por, no show; w/Sh a/a.	13.2 - 14.6
13,350-13,360'	Sh: a/a.	10.8 - 13.9
13,360-13,370'	Sh: lt gy - dk gy, organic, fis, w/some rd med grn fltz polished Qtz grns: tr -10% v.glau & sideritic Sltst, w/pels and frags lt green glau in dk gy - blk ground mass of siderite; w/Sltst and Clyst a/a.	5.0 - 9.1
<u>Possible Correlation</u>		
13,360' in Tunalik is equivalent to 8530' in Kugrua #1.		

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL DITCH GAS UNITS	CHROMATOGRAPH (PPM)
13,360-13,366'	1060	100% C ₁

Ditch Gas (Units): Background 35 Connection 120 @ 13,356' Trip 1280 @ 13,318' Peaks 1060 @ 13,360-6'

Mud: Wt. 16.0 Vis 55 W.L. 6.9 ph 10.5 cc Oil 2200 % C₁₂ 132 Temp. 132 °F. in 138 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
13,300'	2.48	1.29	15.55
13,325'	2.41	1.27	15.63
13,350'	2.50	1.21	15.80
13,375'	2.52	1.22	15.80

Dispatched Samples:

Type	Interval	No. of Boxes	Ser 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 6-25-79 Time 06:00
Present Depth 13,424' Previous Depth 13,376' Footage 24 Hrs. 48'
Formation(s) KINGAK Top 11,460'
Present Activity: Picking up core bbl for Core #12 (strat core)

LITHOLOGIC DESCRIPTION

Interval Reported 13,370-13,424' Sampling Interval 10 ft. Sample Quality fair
Lag Time: 105 min. @ 13,400 ft.

Table with 3 columns: Interval, Description, Avg. Drill Rate min./ft.
13,370-12,424' Sh: dk gy - blk, fis. arg. as above; w/cnr Sh. pale gy, sft, waxy w/occ fltz polished Qtz grns. 8.7 - 15.5

SHOW DESCRIPTION (Gas and/or Oil)

Table with 3 columns for showing description data.

Ditch Gas (Units): Background 30 Connection 60 @ 12,418' Trip - Peaks -

Mud: Wt. 16.1 Vis 55 W.L. 6.8 ph 10.5 cc Oil % Cl2 2200 Temp. 110 OF. in 134 OF. out

Data Unit:

Table with 4 columns: Depth, Shale Density, Dc Exponent, Pore Pressure. Row 1: 13,400', 2.52, 1.17, 1.23

Dispatched Samples:

Table with 4 columns: Type, Interval, No. of Boxes, Ser. 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 6-26-79 Time 06:00
 Present Depth 13,424' Previous Depth 13,424' Footage 24 Hrs. 0
 Formation(s) KINGAK Top 11,460'
 Present Activity: RIH w/bit to drill

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
 Lag Time: 105 min. @ 13,400 ft.

Interval	Description	Avg. Drill Rate min./ft.

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 20 Connection - Trip 1280 @ 13,424' Peaks _____

Mud: Wt. 16.2 Vis 69 W.L. 7.0 ph 10.5 cc Oil _____ % Cl₂ 2100 Temp. 110 °F. in 134 °F. out _____
 Max temp 124°F. on trip @ 13,424'

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



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-27-79 Time 06:00
Present Depth 13,485' Previous Depth 13,424' Footage 24 Hrs. 61
Formation(s) KINGAR Top 11,460'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 13,424-13,470' Sampling Interval 10 ft. Sample Quality fair
Lag Time: 110 min. @ 13,480 ft.

Interval	Description	Avg. Drill Rate min./ft.
13,424-13,470'	Sh: gy - blk. organic, fis - subfis. a/a; w/increasing amts Sh, lt gy - gy, slty - v. slty; grd to slst, dirty, gy - brn, v. arg; grd to Sh, mod w. ind - sft, frequent pyr, occ broken pelecypod shells.	9.7 - 12.4

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 40 Connection 100 @ 13,450' Trip - Peaks 70 @ 13,450'

Mud: Wt. 16.2 Vis 69 W.L. 5.4 ph 11.0 cc Oil 2100 % Cl 2 Temp. 124 °F. in 130' °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Fore Pressure
13,425'	2.52	1.23	15.85
13,450'	2.54	1.23	16.01
13,475'	2.55	1.21	16.05

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	13,190-13,460'	1	Bx #42
Unwashed Ditch (USGS)	13,190-13,460'	1	Bx #42
GeoChem (canned)	13,090-13,460'	1	Bx #47
Cores	No.		

Geologist GORDON LEGG



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

DAILY GEOLOGICAL REPORT

WELL: TUNALIK #1 Date: 6-28-79 Time: 06:00
Present Depth: 13,600' Previous Depth: 13,485' Footage of Hrs.: 115'
Formation(s): KINGAK Top: 11,460'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported: 13,470-13,590' Sampling Interval: 10 ft. Sample Quality: fair
Lag Time: 113 min. @ 13,600 ft.

Interval	Description	Avg. Drill Rate min./ft.
13,470-13,590'	Fred Slst. gy - brn, mod w. ind - sft, dirty and ara, si greasev appearance when damp, organic w/occ sh a/a.	10.1 - 10.7

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 25 Connection 60 @ 13,481' Trip 640 @ 13,545' Peaks -

Mud: Wt. 16.3 Vis 62 W.L. 5.2 ph 11.0 cc Oil - % Cl₂ 2100 Temp. 128 °F. in 132 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
13,500'	2.52	1.21	16.04
13,525'	2.55	1.22	16.00
13,550'	2.45	1.19	16.00
13,575'	2.43	1.19	16.15
13,600'	-	1.19	16.14

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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-29-79 Time 06:00
Present Depth 13,707' Previous Depth 13,600' Footage 24 Hrs. 107'
Formation(s) KINGAK Top 11,450'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 13,590-13,700' Sampling Interval 10 ft. Sample Quality poor - fair
Lag Time: 113 min. @ 13,700 ft.

Table with 3 columns: Interval, Description, Avg. Drill Rate min./ft.
13,590-13,650' Pred Sltst. a/a w/mor Sh a/a. 8.5 - 12.4
13,660-13,670' Intbdd Sltst, a/a w/Sh, dk gv, v.f., mica, fis - subfis, slty in pt. 8.7 - 10.7
13,670-13,680' Ls, dk brn, v. slty, grd g to Sltst, mod w. ind, occ milky calc from veins or vugs, poor - nil por, no show; w/intbdd Sh and Sltst a/a, about pyr. 13.6 - 14.0
13,680-13,700' Intbdd Sltst and Sh, a/a. 11.3 - 13.2

SHOW DESCRIPTION (Gas and/or Oil)

Empty table for show description.

Ditch Gas (Units): Background 20 Connection 50 @ 13,605' Trip 160 @ 13,667' Peaks 200 @ 13,680'

Mud: Wt. 16.5 Vis 64 W.L. 5.6 ph 11.0 cc Oil %Cl2 2200 Temp. 130 OF. in 134 OF. out

Data Unit:

Table with 4 columns: Depth, Shale Density, Dc Exponent, Pore Pressure
13,625' 2.44 1.20 16.06
13,650' 2.57 1.18 16.10
13,675' 2.49 1.21 16.10
13,700' - 1.24 15.99

Dispatched Samples:

Table with 4 columns: Type, Interval, No. of Boxes, Set No.
Washed & Dried Ditch Interval 12,550-13,650' 2 Bxs Bx #15, Set 1
Unwashed Ditch (Paleo)
Unwashed Ditch (USGS)
GeoChem (canned)
Cores No.

Geologist GORDON LEGG



GEOLOGICAL SURVEY OF ONTARIO
OPERATIONS, INC.

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 6-30-79 Time 06:00

Present Depth 13,778' Previous Depth 13,707' Footage 24 Hrs. 71

Formation(s) KINGAK Top 11,460'

Present Activity: POH for bit.

LITHOLOGIC DESCRIPTION

Interval Reported 13,700-13,775' Sampling Interval 10 ft. Sample Quality fair
Log Time: 113 min. @ 13,700 ft.

Interval	Description	Avg. Drift Rate min./ft.
<u>13,700-13,775'</u>	<u>Sh: dk gy, v.f. mica, shiny, fis and splintery; w/occ Sh:</u> <u>lt gy, sft, lumpy, occ pyr, ptly soluble, sity; w/occ Ls: dk</u> <u>brn, sity and arg, dns, Ls prob represents calc concretions,</u> <u>nil por.</u>	<u>11.3 - 13.3</u>

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Unirs): Background 30 Connection 60 @ 13,761' Trip - Peaks 120 @ 13,715'

Mud: Wt. 16.5 Vis 7.4 W.L. 5.8 ph 11.0 cc Oil 0 % Cl₂ 2200 Temp. 134 OF. in 138 OF. out
Max temp on trip 136°F.

Data Chart:

Depth	Shale Density	Dc Exponent	Pore Pressure
<u>13,700'</u>	<u>2.48</u>	<u>-</u>	<u>-</u>
<u>13,725'</u>	<u>2.54</u>	<u>1.35</u>	<u>16.0</u>
<u>13,750'</u>	<u>2.52</u>	<u>1.37</u>	<u>16.0</u>
<u>13,775'</u>	<u>NA</u>	<u>1.34</u>	<u>16.15</u>

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	<u>13,460-13,750'</u>	<u>1, 3x #43</u>	
Unwashed Ditch (USGS)	<u>13,460-13,750'</u>	<u>1, 3x #43</u>	
GeoChem (anned)			
Cores	No.		

Geologist GORDON LEGG



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-1-79 Time 06:00
 Present Depth 13,830' Previous Depth 13,778' Footage 24 Hrs. 52
 Formation(s) KINGAX Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 13,775-13,820 Sampling Interval 10 ft. Sample Quality fair
 Log Time: 107 min. @ 13,800'

Interval	Description	Avg. Drill Rate min./ft.
13,775-13,820'	Sh: a/a w/occ zones of loose "free" pyr.	11.2 - 16.7

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 100 Connection 560 @ 13,795' Trip 1860 @ 13,778' Peaks 144 @ 13,805'

Mud: Wt. 16.3 Vis 64 W.L. 6.0 pH 11.0 cc Oil 0 % Cl₂ 2200 Temp. 130 °F. in 134 °F. out

Data Unit:

Depth	Shaie Density	Dc Exponent	Pore Pressure
13,725'	2.54	-	-
13,750'	2.52	1.37	16.00
13,775'	2.50	1.34	16.15
13,800'	2.46	1.23	16.08

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	13,460-13,810'	1, Bx #47	
Cores	No.		



USKY OIL & GAS OPERATIONS, INC.
 U.S. GEOLOGICAL SURVEY/CNRA

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-2-79 Time 06:00
 Present Depth 13,919' Previous Depth 13,830' Footage 24 Hrs. 89
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 13,820-13,910' Sampling Interval 10 ft. Sample Quality fair
 Log Time: 103 min. @ 13,900' ft.

Interval	Description	Avg. Drill Rate min./ft.
<u>13,820-13,910'</u>	<u>Sh: gy - blk. occ lt gy a/a.</u>	<u>12.1 - 17.1</u>

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 70 Connection 560 @ 13,792' Trip - Peaks none

Mud: Wt. 16.5 Vis 74 W.L. 6.4 pH 11.0 cc Oil 0 % Cl₂ 2200 Temp. 132 °F. in 136 °F.

Data Unit:

Depth	Shale Density	De Exponent	Pore Pressure
<u>13,825'</u>	<u>2.48</u>	<u>1.25</u>	<u>16.1</u>
<u>13,850'</u>	<u>2.50</u>	<u>1.25</u>	<u>16.18</u>
<u>13,875'</u>	<u>2.53</u>	<u>1.30</u>	<u>16.10</u>
<u>13,900'</u>	<u>2.46</u>	<u>1.30</u>	<u>16.10</u>

Discontinued 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>		



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-3-79 Time 06:00
 Present Depth 14,019' Previous Depth 13,919' Footage 24 Hrs. 100
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 13,910-14,010' Sampling Interval 10 ft. Sample Quality v. poor
 Lag Time: 112 min. @ 14,000' ft.

Interval	Description	Avg. Drill Rate min./ft.
13,910-14,010'	Sh: a/a but generally becoming more calc and occ grdg to ls; lt brn. microxl. sl arg. dns. hd. carb in pt. nil per. NOSCF.	6.5 - 20.1

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 250 Connection 420 @ 13,997' Short 1120 @ 13,977' Trip 864 @ 14,009' Peaks 500 @ 13,990'

Mud: Wt. 16.6 Vis 82 W.L. 5.0 ph 11.0 cc Oil 0 % Cl₂ 2400 Temp. 132 °F. in 140 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
13,925'	2.46	1.32	16.00
13,950'	2.48	1.31	16.18
13,975'	2.48	1.31	16.20
14,000'	2.47	1.29	16.36

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 7-4-79 Time 06:00
Present Depth 14,139' Previous Depth 14,019' Footage 24 Hrs. 120
Formation(s) KINGAK Top 11,460'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 14,010-14,130' Sampling Interval 10 ft. Sample Quality fair
Lag Time: 113 min. @ 14,100 ft.

Interval	Description	Avg. Drill Rate min./ft.
<u>14,010-14,130'</u>	<u>Sh: a/a w/occ zones of loose sbr.</u>	<u>7.0 - 18.3</u>

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 300 Connection 800 @ 14,041' Trip 864 @ 14,109' Peaks 1120 @ 14,111-111'

Mud: Wt. 16.8 Vis 89 W.L. 42 ph 10.5 cc Oil 0 % Cl₂ 2300 Temp. 133 °F. in 138 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
<u>14,025'</u>	<u>2.46</u>	<u>1.32</u>	<u>16.3</u>
<u>14,050'</u>	<u>2.42</u>	<u>1.32</u>	<u>16.33</u>



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-6-79 Time 06:00
 Present Depth 14,246' Previous Depth 14,219' Footage 24 Hrs. 27
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 14,210-14,230' Sampling Interval 10 ft. Sample Quality fair - good
 Lag Time: 113 min. @ 14,200 ft.

Interval	Description	Avg. Drill Rate min./ft.
14,210-14,230'	Sh: gy - blk, v.f. mica, occ sub-metallic luster, calc, fis - splintery.	9.1 - 15.5

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 200 Connection 240 @ 14,226' Trip 1300 @ 14,219' Peaks none
 Mud: Wt 17.0 Vis 56 w.L. 4.2 ph 11.0 cc Oil 0 % Cl₂ 2000 Temp 132 °F. in 138 °F. out
 Max temp on trip 142°F.

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,225'	2.51	1.15	16.53

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 7-7-79 Time 06:00

Present Depth 14,262' Previous Depth 14,246' Footage 24 Hrs. 16'

Formation(s) KINGAK Top 11,460'

Present Activity: Reaming to btm.

LITHOLOGIC DESCRIPTION

Interval Reported 14,230-14,250' Sampling Interval 10 ft. Sample Quality fair - good
 Lag Time: 117 min. @ 14,250 ft.

Interval	Description	Avg. Drill Rate min./ft.
14,230-14,250'	Sh: a/a.	15.7 - 18.5

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 100 Connection 648 @ 14,203' Trip NA Peaks none

Mud: Wt. 17.0 Vis 62 W.L. 4.2 ph 11.0 cc Oil 0 % Cl₂ 2000 Temp. 132 °F. in 138 °F. out
 Max temp on trip 138 °F.

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,250'		1.36	16.54

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 7-8-79 Time 06:00
Present Depth 14,368' Previous Depth 14,262' Footage 24 Hrs. 106'
Formation(s) KINGAK Top 11,460'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 14,250-14,350' Sampling Interval 10 ft. Sample Quality fair
Lag Time: 114 min. @ 14,300 ft.

Interval	Description	Avg. Drill Rate min./ft.
14,250-14,350'	Sh: dk gy - blk. fis, occ slty; grd to v. arg Slat: tr of lt gy tuffaceous material, pyr, mica, occ pyritized forams.	8.0 - 11.0
	REQUEST: Lith Log Films	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 200 Connection 400 Trip 1560 @ 14,262' Peaks none

Mud: Wt. 17.1 Vis 61 w.l. 4.8 ph 10.0 cc Oil _____ % Cl₂ 2200 Temp. 122 °F. in 128 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,250'	2.50	-	-
14,300'	2.45	1.25	16.61
14,325'	2.43	NR	16.71
14,350'	-	1.15	-

Dispatched Samples:

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

Geologist RICH NELSON



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-9-79 Time 06:00
 Present Depth 14,391' Previous Depth 14,368' Footage 24 Hrs. 23
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 14,350-14,380' Sampling Interval 10' ft. Sample Quality fair
 Lag Time: 113 min. @ 14,380' ft.

Interval	Description	Avg. Drill Rate min./ft.
14,350-14,370'	Sh: med - dk gy, firm, hd, mod calc, slty, fis; w/mnr Slstst; med - dk gy bra, arg, calc.	12.0 - 15.0
14,370-14,380'	Sh: med - dk gy, firm, sl calc, becoming less slty than above; w/tr Slstst a/a.	14.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 80 Connection _____ Trip 800 @ 14,384' Peaks -

Mud: Wt 17.1 Vis 70 W.L. 4.2 ph 10 cc Oil - % Cl₂ 2300 Temp. 118 °F. in 130 °F. out
 Max trip temp 128 °F. @ 14,384'

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,350'	2.50	1.15	16.7

Dispatched Samples:

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

Geologist RICH NELSON



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-10-79 Time 06:00
 Present Depth 14,444' Previous Depth 14,391' Footage 24 Hrs. 53
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 14,380-14,430' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 118 min. @ 14,440 ft.

Interval	Description	Avg. Drill Rate min./ft.
14,380-14,430'	Sh: dk - v. dk gy, occ slty, hd, pyritic, mica.	20.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 60 Connection 110 Trip - Peaks 80 @ 14,380'

Mud: Wt. 17.1 Vis. 71 W.L. 5 ph. 10.5 cc Oil 0 % Cl₂ 2000 Temp. 112 °F. in 129 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,400'	2.54	1.24	16.7

Dispatched Samples:

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

Geologist RICH NELSON



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-11-79 Time 06:00
Present Depth 14,460' Previous Depth 14,444' Footage 24 Hrs. 16
Formation(s) KINGAK Top 11,460'
Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 14.430-14.450' Sampling Interval 10 ft. Sample Quality fair
Lag Time: 118 min. @ 14.450 ft.

Interval	Description	Avg. Drill Rate min./ft.
14.430-14.450'	Sh: dk gy, hd, slty, pyr, mica and sl calc.	18.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 80-100 Connection - Trip 2480 @ 14,450' Peaks none

Mud: Wt. 17.1 Vis 65 W.L. 4.8 ph 10.0 cc Oil 0 % Cl₂ 2100 Temp. 113 °F. in 124 °F. out
Max temp on trip: 129 °F.

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,450'	2.54	1.34	16.72

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	14,040-14,370'	1, Bx #45	
Unwashed Ditch (USGS)	14,040-14,370'	1, Bx #45	
GeoChem (canned)			
Cores	No.		

Geologist RICH NELSON



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-12-79 Time 06:00
 Present Depth 14,536' Previous Depth 14,460' Footage 24 Hrs. 76'
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 14,450-14,520' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 148 min. @ 14,520 ft.

Interval	Description	Avg. Drill Rate min./ft.
14,450-14,520'	Sh: med - dk gy, hd, sl calc, occ sltv, tr lt gy Sh (tuffaceous?); tr sltst, brn, arg, DYT, w/occ DYT fos.	14.0
	<u>REQUEST: can clips</u>	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 65 Connection 100 @ 14,505' Trip - Peaks 140 @ 14,485'

Mud: Wt. 17.3 Vis 64 W.L. 4.8 ph 9.5 cc Oil 0 % C1₂ 2500 Temp. 129 °F. in 131 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,500'	2.47	1.20	16.9

Dispatched Samples:

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

Geologist RICH NELSON



DAILY GEOLOGICAL REPORT

WELL: TUNALIK #1 Date 7-13-79 Time 06:00
 Present Depth 14,622' Previous Depth 14,536' Footage 24 Hrs. 86
 Formation(s) KINGAK Top 11,460'
 Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 14,520-14,610' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 138 min. @ 14,620 ft.

Interval	Description	Avg. Drill Rate min./ft.
14,520-14,530'	Sh: a/a, w/Ss: med - crs grn, SA-SR, Qtz, tr calcite, occ Cht grns.	12.0 - 15.0
14,530-14,570'	Sh: dk - v. dk gy, firm - hd, mod calc; w/tr Sltst: v. calc. firm, occ w/rd Qtz grns.	16.0 - 20.0
14,570-14,610'	Sh: a/a, w/10% Sltst: med - dk gy, firm - hd, mod - v. calc; w/occ thin zones lt green glau pels, w/occ f. grn, w. rd Qtz grns; w/5% Ls: med gy, microxl to occ crs xl phosphate ? shell material; w/tr ants chalky ls.	18.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 80 Connection 110 @ 14,567' ^{Short} Trip 430 @ 14,554' Peaks none

Mud: Wt. 17.8 Vis 65 W.L. 4.2 ph 10.5 cc OH 0 % Cl₂ 2600 Temp. 136 °F. in 140 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,550'	2.39	1.18	17.2

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	14,170-14,530'	1, Bx #49	
Cores	No.		

Geologist RICH NELSON



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-14-79 Time 06:00
 Present Depth 14,664' Previous Depth 14,662' Footage 24 Hrs. 42'
 Formation(s) KINGAK/SHUBLIK (?) Top 11,440'/14,570' (?)
 Present Activity: Circ spls up

LITHOLOGIC DESCRIPTION

Interval Reported 14,610-14,660' Sampling Interval 10 ft. Sample Quality fair
 Lag Time: 166 min. @ 14,660 ft.

Interval	Description	Avg. Drill Rate min./ft.
14,610-14,630'	Sh: v. dk gy, sl calc, w/abnt f. mica and thn zones lt green glau pels; intbdd w/Ls, lt gy, chalky, sl por, w/abnt pelecypod shell frags, and Ls, med - dk gy, micritic, hd, arg, w/abnt dk gy pelecypod shell frags.	14.0
14,630-14,660'	Sh: a/a becoming more slty downward, com pyr and fine mica; rr ls a/a.	9.13

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): 100 circulating 1124 @ 14,661'
Background 160 drilling Connection 1840 @ 14,630' Trip - Peaks -

Mud: Wt. 18.0 Vis 60 W.L. 3.9 ph 10.5 cc Oil - % Cl₂ 2700 Temp. 139 °F. in 140 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,600'	2.42	1.15	17.3
14,650'	2.54	1.15	17.6

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	13,660-14,590'	2	Bx #16
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No.		

Geologist RICH NELSON



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-15-79 Time 06:00
Present Depth 14,726' Previous Depth 14,664' Footage 24 Hrs. 62
Formation(s) KINGAK/SHUBLIK (?) Top 11,460'/14,570' (?)
Present Activity: Circ and mix mud

LITHOLOGIC DESCRIPTION

Interval Reported 14,660-14,720' Sampling Interval 10 ft. Sample Quality poor - fair
Lag Time: 153 min. @ 14,725 ft.

Interval	Description	Avg. Drill Rate min./ft.
14,660-14,690'	Sh: v. dk gy. sl - mod calc; some lt gy chalky Ls; tr dk gy. hd. calc Mdst w/dk gy shell frags.	10.0 - 12.0
14,690-14,720'	Sh: a/a w/Slstst, v. dk gy, mod calc, hd, v. arg; w/tr lt gy chalky Ls a/a.	9.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): 2520 @ 14,722'
610 @ 14,692'
Background 360 drilling Connection 1224 @ 14,661' Trip - Peaks

Mud: Wt 18.1 Vis 65 W.L. 3.1 ph 10.0 cc Oil - % Cl₂ 2600 Temp. 128 °F. in 132 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
14,700'	2.49	1.06	18.0

Dispatched Samples:

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

Geologist RICH NELSON



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

DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-16-79 Time 06:00
 Present Depth 14,726' Previous Depth 14,726' Footage 24 Hrs. 0
 Formation(s) SHUBLIK ? Top 14,570' ?
 Present Activity: Circ and cond mud; lost partial returns; well started flowing; gained 60 bbls in 7 hrs.; lost 25 bbls over 4 hrs.

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
 Lag Time: 153.5 min. @ 14,726 ft.

Interval	Description	Avg. Drill Rate min./ft.

SHOW DESCRIPTION (Gas and/or Oil)

Max gas 1200 units during flow.

Ditch Gas (Units): Background 40-60 Connection _____ Trip _____ Peaks _____
 Mud: Wt 18.2 in 18.1 out 60 Vis 2.9 W.L. 10.0 cc Oil 0 % Cl₂ 2600 Temp 116 °F. in 130 °F. out 17.7 ppg during flow

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 RICE NELSON



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-17-79 Time 06:00
 Present Depth 14,726' Previous Depth 14,726' Footage 24 Hrs. 0
 Formation(s) SHUBLIK ? Top 14,570'?
 Present Activity: Circ and cond mud.

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
 Lag Time: 153.5 min. @ 14,726 ft.

Interval	Description	Avg. Drill Rate min./ft.

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 280 Connection _____ Short Trip 4000 (All C₁) Peaks _____

Mud: Wt 18.1+ Vis 63 W.L. 2.7 ph 10.0 cc Oil 0 % Cl₂ 2300 Temp. 126 °F. in 130 °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)	<u>14,380-14,720'</u>	<u>1, Bx #46</u>	
Unwashed Ditch (USGS)	<u>14,380-14,720'</u>	<u>1, Bx #46</u>	
GeoChem (canned)			
Cores	No.		

Geologist RICH NELSON



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-18-79 Time 0600
 Present Depth 14,726' Previous Depth 14,726' Footage 24 Hrs. 0
 Formation(s) SHUEBLIK (?) Top 14,570' (?)
 Present Activity: Circ and cond mud.

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
 Lag Time: _____ min. @ _____ ft.

Interval	Description	Avg. Drill Rate min./ft.

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background _____ Connection _____ Trip _____ Peaks _____
Mud: Wt. _____ Vis _____ W.L. _____ ph _____ cc Oil _____ % Cl₂ _____ Temp. _____ °F. in _____ °F. out

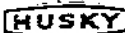
Data Unit:

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 RICH NELSON



DAILY GEOLOGICAL REPORT

WELL TUNALIK #1 Date 7-19-79 Time 0600
 Present Depth 14,726' Previous Depth 14,726' Footage 24 Hrs. 0
 Formation(s) KINGAK Top 11,460'
 Present Activity: RIH w/new open-ended bit.

LITHOLOGIC DESCRIPTION

Interval Reported _____ Sampling Interval _____ ft. Sample Quality _____
 Lag Time: _____ min. @ _____ ft.

Interval	Description	Avg. Drill Rate min./ft.

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 2000-80 Connection - Trip - Peaks _____

Mud: Wt 18.2± Vis 70 W.L. 2.8 ph 10.0 cc Oil 0 % Cl₂ 1900 Temp. _____ °F. in _____ °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 RICH NELSON