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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-21-79 Time 0600

Present Depth 4268' Previous Depth 4047' Footage 24 Hrs. 221

Formation(s) FORTRESS MTN Top Surface

Present Activity: Drilling; Deviation Survey; 8½° at 4197'

LITHOLOGIC DESCRIPTION

Interval Reported 4030-4260' Sampling Interval 10 ft. Sample Quality good
Lag Time: 81 min. @ 4260 ft.

Interval	Description	Avg. Drill Rate min./ft.
4030-4060'	Sh: med gy - gy brn, firm, slty, micromica, intbdd w/Sltst: med gy, firm.	4.5
4060-4090'	Ss: med gy - lt gy, v.f. - f. grn, mod hd, sl calc, arg; grds to Sltst: med gy, mod hd, sl carb; intbdd w/Sh: a/a.	5.5
4090-4190'	Sltst: med dk gy, firm - mod hd; occ grdg to arg Ss and intbdd w/Sh: med - dk gy, mod hd, sl slty, noncalc, rr brn - wh calcite, tr gilsonite, occ slickensided.	5.7
4190-4260'	Sh: dk gy, mod hd, sl slty, noncalc, com slickensides, intbdd w/Sltst: med gy, mod hd, w/tr - 10% Ss: med gy, f. grn, sl calc, w/occ tripolite Cht specks.	6.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	
4060'	104	14800	3200	1900	800	

Cuttings gas: 24 @ 4060'

Ditch Gas (Units): Background 10 Connection nil Trip nil Peaks a/a

Mud: Wt. 9.4 Vis 42 W.L. 8.2 ph 8.0 cc Oil 0 % Cl_2 200 Temp. 97 °F. in 103 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
4050'	2.51	1.64	8.8
4100'	2.55	1.75	8.8
4150'	2.57	1.73	8.8
4200'	2.58	1.79	8.8
4250'	2.58	1.77	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	3400-4130'	2, Bx #5	1 & 2
Unwashed Ditch (Paleo)	3900-4160'	1, Bx #15	
Unwashed Ditch (USGS)	3900-4160'	1, Bx #15	
GeoChem (canned)	3780-4080'	1, Bx #12	
Cores	No.		

Geologist DAVE YOUNG

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 8-7-79 Time 0600

Present Depth 5749' Previous Depth 5632' Footage 24 Hrs. 117'

Formation(s) FORTRESS MTN/OKPIKRUAK Top Surface

Present Activity: Tripping in w/bit to drill

LITHOLOGIC DESCRIPTION

Interval Reported 5610-5740' Sampling Interval 10 ft. Sample Quality good
Lag Time: 81 min. @ 5748 ft.

Interval	Description	Avg. Drill Rate min./ft.
5610-5620'	Sh: a/a, med - dk gy, mod hd - firm, slty.	6.0
5620-5680'	Sltst: med - dk gy, in pt sl calc, intbdd w/Sh a/a.	5.2
5680-5740'	Sh: dk gy, mod hd, sl slty; tr Sh, lt gy, pyr; tr gillsonite; intbdd w/Sltst a/a at 5620'; thn Ss bd at 5730', lt gy, v.f. - f. grn, mod hd, calc, carb, NOSCF.	6.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	
5710'	85	5000	1000	100	Tr	

Ditch Gas (Units): Background 66 Connection 120 @ 5716' Trip - Peaks -

Mud: Wt. 9.9 Vis 43 W.L. 8.0 ph 9.5 cc Oil - % Cl_2 400 Temp. 105 °F. in 108 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
5650'	2.59	1.83	9.1
5700'	2.60	1.82	9.1

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	5350-5630'	1	Bx #21
Unwashed Ditch (USGS)	5350-5630'	1	Bx #21
GeoChem (canned)			
Cores	No.		

Geologist DAVE YOUNG

8/79

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE Date 8-6-79 Time 0600

Present Depth 5632' Previous Depth 5356' Footage 24 Hrs. 276'

Formation(s) FORTRESS MTN/OKPIKRUAK Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 5356-5610' Sampling Interval 10 ft. Sample Quality good
Lag Time: 78 min. @ 5632 ft.

Interval	Description	Avg. Drill Rate min./ft.
5356-5420'	Ss: lt gy to gy brn, v.f. - f. grn, sl calc, in pt fri, highly arg, NOSCF; intbdd w/Sltst, med gy, mod hd; Sh, dk gy to gy brn, slty, sl calc.	4.0
5420-5610'	Sh (predominantly), dk gy to gy to brn, mod hd to firm, sl slty, w/occ calc vein fill; intbdd w/mnr Sltst, med gy, mod hd; occ thn Ss strg, lt gy to med gy, v.f. grn, mod hd, arg, rr crinoid columnals and rr fltg Qtz grns (crs grn to grnl).	5.0

GAS DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4
5440'	320	42000	18000	500	Tr

Trip Gas (Units): Background 106 Connection 100 @ 5466' Trip 256 @ 5356' Peaks a/a

Mud: Wt. 9.9 Vis 40 W.L. 8.0 ph 10 cc Oil % Cl_2 400 Temp. 103 °F. in 106 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
5400'	2.57	1.57	8.8
5450'	2.59	1.62	8.8
5500'	2.60	1.70	8.8
5550'	2.57	1.81	8.8
5600'	2.58	1.83	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	5100-5350'	1	Bx #20
Washed Ditch (USGS)	5100-5350'	1	Bx #20
Geochem (canned)	5160-5280	1	Bx #16
Cores	No. 5, (5340-5356')	6	

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8/78

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

DAILY GEOLOGICAL REPORT

Well LISBURNE #1 Date 8-5-79 Time 0600

Present Depth 5356' Previous Depth 5321' Footage 24 Hrs. 35

Formation(s) FORTRESS MTN/OKPIKRUAK undiff. Top Surface

Present Activity: Drilling

GEOLOGIC DESCRIPTION

Interval Reported 5300-5356' Sampling Interval 10 ft. Sample Quality good
Lag Time: 75 min. @ 5356 ft.

Interval	Description	Avg. Drill Rate min./ft.
5300-5340'	Sltst: med gy, mod hd, sl calc; intbdd w/& grdg to Ss: med gy, v.f. grn - slty, highly arg.	4.2
5340-5356'	Core #5, Cut 16', Rec. 16' (100%)	34.0
	5340-5354.2 - Sh: dk gy, mod hd, sl slty, sl calc, highly frac and slickensided, w/occ pyr lenses and Sltst strgs.	
	5354.2-5354.5'- Ss: tn, med - crs grn, w/tn colored calcite cmt, rr nondescript fos, pyr, w/SR clr Qtz and tn colored altered Cly material, excel structural dip of 30°, calcite fill frac w/ dip 70°, no por, fair gas odor on fresh break, no stn, sl yel cut fluor.	
	5354.5-5356.0'- Sh: a/a 5340-5354.2'.	

GAS DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM)				
		C_1	C_2	C_3	C_4	
5354'	94	15,000	5000	Tr	Tr	

Peak cuttings gas: 20 units @ 5350'

Ditch Gas (Units): Background 88 Connection nil Trip 150 @ 5340', 258 @ 5356' Peaks a/a

Mud: Wt. 9.8 Vis 42 W.L. 8.0 ph 10.0 cc Oil - % Cl_2 400 Temp. 88 °F. in 100 °F. out

Gas Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
5350'	2.59	1.80	8.8

Collected Samples:

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

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8/78

HUSKY

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

DAILY GEOLOGICAL REPORT

Well: LISBURNE #1 Date: 8-4-79 Time: 0600

Present Depth: 5321' Previous Depth: 5021' Footage 24 Hrs.: 300

Formation(s): FORTRESS MTN/OKPIKRUAK Top: Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported: 4990-5300' Sampling Interval: 10 ft. Sample Quality: good
Log Time: 65 min. @ 5300 ft.

Interval	Description	Avg. Drill Rate min./ft.
4990-5010'	Sltst: lt gy, mod hd, w/calc cmt; grds in pt to v.f. Ss.	3.0
5010-5160'	Pred Sh: med dk gy, mod hd, sl slty, noncalc, slickensided; intbdd w/Sltst: med gy, sl calc, mod hd; w/occ strgs Ss: lt gy, v.f. grn, w/wh - clr - green SA Qtz and Cht grns, occ tripolitic; w/rr strgs lt gy - blk Sh; tr dd oil stn.	3.0
5160-5280'	Sltst: med - lt gy, mod hd, in pt calc; intbdd w/Sh: dk gy, sl slty, slickensides, w/thn bds Ss: lt gy, v.f. grn.	4.0 (2.5 - 7.0)
5280-5300'	Ss: lt gy - gy brn, v.f. slty, mod hd, sl fri, highly arg, carb, w/Qtz grns pred, NOSCF.	4.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	
5205'	70	5000	1400	400	Tr	

Peak Cuttings Gas: 44 units @ 5230'

Ditch Gas (Units): Background 24 Connection nil Trip - Peaks a/a

Mud: Wt. 9.8 Vis 54 W.L. 8.8 ph 10 cc Oil - % Cl_2 400 Temp. 111 °F. in 114 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
5100'	2.57	1.62	8.8
5150'	2.60	1.67	8.8
5200'	2.60	1.72	8.8
5250'	2.59	1.80	8.8
5300'	2.59	1.74	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	4130-5050'	2, Bx #6	1 & 2
Unwashed Ditch (Paleo)	4800-5100'	1, Bx #19	
Unwashed Ditch (USGS)	4800-5100'	1, Bx #19	
Geochem (canned)	4800-5160'	1, Bx #15	
Cores	No.		

Geologist: DAVE YOUNG

8/78

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 8-3-79 Time 0600

Present Depth 5021' Previous Depth 4651' Footage 24 Hrs. 370'

Formation(s) FORTRESS MTN/OKPIKRUAK Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 4630-4990' Sampling Interval 10 ft. Sample Quality good
Lag Time: 68 min. @ 4980 ft.

Interval	Description	Avg. Drill Rate min./ft.
4630-4700'	Sh: med - dk gy, and lt green - gy, sl slty, com slickensides; w/intbdd Sltst, med gy, mod hd, micromica; w/thn strgs Ss lt green - gy and brn - gy, v.f. grn, NOSCF; tr hd micritic Ls.	3.0
4700-4930'	Pred Sh a/a w/thn bds Sltst and strgs Ss and dolomitic Ls; at 4830' ang Cht frags in lt green Sh with occ dd oil stn.	3.5
4930-4990'	Sltst: med gy, firm - mod hd, sl carb; intbdd w/Sh, med gy, med - dk gy, mod hd, sl slty, noncalc; tr dk brn subfis pyr Sh; tr lt gy - green pyr Sh; tr drusy calc; mnr dd oil stn on calc and lt gy - green Sh w/sl cut fluor.	3.5

SHOW DESCRIPTION (Gas and/or Oil)

	UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	
4860'	70	200	50	Tr	

Ditch Gas (Units): Background 20-25 Connection 48 @ 4800' Trip - Peaks -

Mud: Wt. 9.3 Vis 43 W.L. 8.5 ph 11 cc Oil - % Cl_2 500 Temp. 100 °F. in 110 °F. out

Pore Pressure

Depth	Shale Density	Dc Exponent	Pore Pressure
4650'	2.58	1.66	8.8
4700'	2.62	1.63	8.8
4750'	2.58	1.53	8.7
4800'	2.58	1.58	8.8
4850'	2.57	1.64	8.7
4900'	2.56	1.66	8.7
4950'	2.56	1.75	8.7
5000'	2.56	1.67	8.7

Dimarched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Washed Ditch (Paleo)	4510-4800'	1	Bx #18
Washed Ditch (USGS)	4510-4800'	1	Bx #18
Hydrocarbon (canned)	4440-4800'	1	Bx #14
Other	No.		

Geologist: DAVE YOUNG

5/78

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

DAILY GEOLOGICAL REPORT

WELL LIBURNE #1 Date 8-2-79 Time 0600

Present Depth 4651' Previous Depth 4551' Footage 24 Hrs. 100

Formation(s) FORTRESS MTN/OKPIKRUAK (undiff) Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 4540-4630' Sampling Interval 10 ft. Sample Quality good
Lag Time: 62 min. @ 4600 ft.

Interval	Description	Avg. Drill Rate min./ft.
4540-4570'	Sltst: med - dk gy, mod hd, sl carb, rr pyr nodules; intbdd w/thn bds of Sh, med - dk gy, slty, slickensided.	5.0
4570-4600'	Sh: med - dk gy, firm, mod hd, noncalc, slty, micromica; tr lt green Sh, w/thn bds Sltst a/a; tr drusy calc w/occ dd oil stn.	3.5
4600-4630'	Sh and Sltst a/a w/10% Ss, lt green - gy, v.f. grn, mod hd, carb, tr tripolitic Cht; tr Ls, brn, hd, micritic.	4.0
	REQUEST: Mylar film base for well log DST Report forms.	

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	
4600'	34	

Ditch Gas (Units): Background 15 Connection Trip 204 @ 4586' Peaks a/a

Mud: Wt. 9.1 Vis 39 W.L. 12.0 ph 11.0 cc Oil % Cl_2 400 Temp. 81 °F. in 85 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
4550'	2.60	1.60	8.8
4600'	2.59	1.67	8.8

Dispatched Samples:

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

Geologist DAVE YOUNG

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL: LISBURNE #1 Date: 8-1-79 Time: 0600

Present Depth: 4551' Previous Depth: 4514' Footage 24 Hrs.: 37

Formation(s): FORTRESS MTN/OKPIKRUAK Top: Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported: 4510-4540 Sampling Interval: 10 ft. Sample Quality: good
Lag Time: 62 min. @ 4541 ft.

Interval	Description	Avg. Drill Rate min./ft.
4510-4520'	Sltst: med gy, mod hd.	4.0
4520-4540'	Sltst: med - dk gy, mod hd, sl carb; in pt grdg to Sh: med - dk gy, slty, mod hd, calc, tr Cht.	3.0 - 6.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 7 Connection nil Trip 22 @ 4510' Peaks none

Mud: Wt. 9.0 Vis 38 W.L. 16.0 ph 9.0 cc Oil 0 % Cl_2 1000 Temp. 81 °F. in 84 °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: DAVE YOUNG

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL: LISBURNE #1 Date 7-31-79 Time 0600

Present Depth 4510' Previous Depth 4510' Footage 24 Hrs. 0

Formation(s): FORTRESS MTN Top Surface

Present Activity: WOC

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. 9.5 Vis 38 W.L. 9.5 ph 9.0 cc Oil _____ % Cl_2 _____ 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 _____

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL: LISBURNE #1 Date 7-30-79 Time 0600

Present Depth 4510' Previous Depth 4510' Footage 24 Hrs. 0

Formation(s) FORTRESS MTN Top Surface

Present Activity: Repair BOP's

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. 9.5 Vis 38 W.L. 9.5 ph 9.0 cc Oil 0 % Cl_2 200 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 _____

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL: LISBURNE #1 Date 7-29-79 Time 0600

Present Depth 4510' Previous Depth 4510' Footage 24 Hrs. 0

Formation(s): FORTRESS MTN Top Surface

Present Activity: Nippling up 13 3/8" BOP's.

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 _____ % Cl_2 _____ 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 _____

8/78

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL: LISBURNE #1 Date 7-20-79 Time 0600

Present Depth 4047' Previous Depth 3906' Footage 24 Hrs. 141

Formation(s) FORTRESS MTN Top surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 3895-4030' Sampling Interval 10 ft. Sample Quality good
Lag Time: 111 min. @ 4040 ft.

Interval	Description	Avg. Drill Rate min./ft.
3895-3900'	Sh: med gy, gy brn, mod hd.	9.0
3900-3910'	CORE #4, Cut 10', Rec. 9' (90%)	
	3900-3909' - Sh: green - gy - gy brn, subfis; intbdd w/Sltst: med gy, hd, in pt grdg to Ss: v.f. grn, w/abnt SR lith clasts ranging in size from-pbl - cbl, clasts are pred. Sltst/graywacke, slickensided, w/poorly defined dip at 80°, abnt closed frac w/dk ? dd oil stn, no fluor, no cut.	35.0
	3909-3910' - No recovery.	
3910-3960'	Sh: a/a intbdd w/Sltst: med gy: and Ss: lt gy, v.f. grn.	4.0
3960-3970'	No spl, bypass shakers.	4.0
3970-4020'	Sltst: med gy, in pt grdg to Ss: v.f. grn, intbdd w/Sh: a/a	4.5
4020-4030	Pred Sh: a/a w/Sltst: a/a.	4.5

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4
4025	96	12000	2100	1100	500

Cuttings gas: 20 @ 4020'

Ditch Gas (Units): Background 50 Connection nil Trip 80 @ 3910' Peaks a/a

Mud: Wt 9.4 Vis 41 W.L. 8.1 ph 8.0 cc Oil 0 % Cl_2 200 Temp. 89 °F. in 94 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
3950'	2.51	1.56	8.8
4000'	2.48	1.66	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No. 4, 3900-3910'	3	

Geologist DAVE YOUNG

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-19-79 Time 0600

Present Depth 3906' Previous Depth 3831' Footage 24 Hrs. 75

Formation(s) FORTRESS MTN Top Surface

Present Activity: Cutting Core #4

LITHOLOGIC DESCRIPTION

Interval Reported 3810-3895' Sampling Interval 10 ft. Sample Quality good
Lag Time: 151 min. @ 3905 ft.

Interval	Description	Avg. Drill Rate min./ft.
3810-3817'	Sh: med gy, firm, sl slty, sl carb, slickensides; intbdd w/Sltst: med gy, sl carb.	7.0
3817-3855'	30% Cht: lt green - gy - mottled brn - tn - wh - trnsl; w/Sh: dk brn, sil, thn bdd, mod hd, subfis, tr dd oil stn, no fluor, no cut.	10.0
3855-3870'	Pred Sh: med gy - gy - brn, mod hd, noncalc, sl slty, sl pyr; w/tr Sh: lt green and Sh mottled brn, slickensides, w/10% Cht pbl cgl: SA-SR, brn, sil matrix.	7.0
3870-3895'	Sh: a/a, blky, sil, intbdd w/Sltst: gy - brn, mod hd, w/thn Ss strgs, lt gy, f. grn, hd, sil; w/Cht: a/a and occ dis pyr.	8.3

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	
3840'	36	5400	900	500	100	

Cuttings gas 22 units @ 3890'

Ditch Gas (Units): Background 20 Connection nil Trip 26 @ 3712' Peaks a/a

Mud: Wt. 9.3 Vis 47 W.L. 7.6 ph 8.0 cc Oil 0 % Cl_2 200 Temp. 102 °F. in 108 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
3850'	2.51	1.62	8.8
3900'	2.50	1.75	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	3700-3900'	1, Bx #14	
Unwashed Ditch (USGS)	3700-3900'	1, Bx #14	
GeoChem (canned)			
Cores	No.		

Geologist DAVE YOUNG

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-4-79 Time 06:00

Present Depth 1577' Previous Depth 1527' Footage 24 Hrs. 50

Formation(s) NUKA Top 702' (log)

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 1525-1570' Sampling Interval 10 ft. Sample Quality good
Lag Time: 35 min. @ 1575 ft.

Interval	Description	Avg. Drill Rate min./ft.
1525-1554'	Intbdd Sltst, Clyst a/a, and Ss; Ss: lt - med gy, sl S&P, v.f. - f. grn, SR, mod srtd, mod cmt calc, rr crm colored grns, pos tripolite Cht, rr - scat, w. rd phosphate grns and carb material, nil por, calcite filled frac w/blk tarry oil, yel spl fluor, pale yel cut fluor.	13.3
1554-1558.8'	CORE #1, Cut 4.7, Rec. 4' (85%) Clyst/Sh: dk gy, hd, blky, w/occ rr carb material, micro-pyritic, micromica, core highly frac and slickensided.	18.9
1559-1570'	Clyst: a/a in Core #1; w/Ss; a/a (1525-1554').	15.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 2-4 Connection nil Trip 4 Peaks none

Mud: Wt. 9.0 Vis 38 W.L. 16.0 ph 9.0 cc Oil 0 % Cl_2 1000 Temp. 90 °F. in 93 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
1550'	2.55	1.34	8.65

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No. 1, 1554-1558.8'	2	

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-3-79 Time 06:00

Present Depth 1527' Previous Depth 1515' Footage 24 Hrs. 12

Formation(s) NUKA Top 702' (log)

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 1515-1525' Sampling Interval 10 ft. Sample Quality good
Lag Time: 17 min. @ 1525 ft.

Interval	Description	Avg. Drill Rate min./ft.
1515-1525'	Sltst: med - dk gy, hd, arg, blky; intbdd w/Clyst: med - dk gy, hd, blky, slty; w/loose v. crs - granular Qtz grns; clr - smokey, rd - w. rd.	11.2

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4 Connection 0 Trip 15 @ 1515' Peaks nil

Mud: Wt. 9.1 Vis 54 W.L. 13.0 ph 9.5 cc Oil 0 % Cl_2 200 Temp. 81 °F. in 82 °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 RAY WERMEYER

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-2-79 Time 06:00

Present Depth 1515' Previous Depth 1515' Footage 24 Hrs. 0

Formation(s) NUKA Top 720'

Present Activity: Nipple up 20"

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 _____ % Cl_2 _____ 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.		

RAY WERMEYER

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-1-79 Time 06:00

Present Depth 1515' Previous Depth 1515' Footage 24 Hrs. 0

Formation(s) NUKA Top 720'

Present Activity: Nipple down 30", prep to nipple up 20"

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. 9.1 Vis 40 W.L. 9.0 ph 8.0 cc Oil 0 % Cl_2 200 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.		

HUSKY

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

DAILY GEOLOGICAL REPORT

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

Present Depth 1515' Previous Depth 1515' Footage 24 Hrs. 0

Formation(s) NUKA Top 720'

Present Activity: Wait on cement.

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. 9.1 Vis 44 W.L. 9.0 ph 8.0 cc Oil 0 % Cl_2 200 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

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-29-79 Time 06:00

Present Depth 1515' Previous Depth 1515' Footage 24 Hrs. 0

Formation(s) NUKA Top 720

Present Activity: Rigging down csg tools.

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. 9.2 Vis 45 W.L. 12.0 ph 8.0 cc Oil 0 % Cl_2 300 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 _____

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL: LISBURNE #1 Date 6-28-79 Time 06:00

Present Depth 1515' (17½") Previous Depth 1515' Footage 24 Hrs. 49' of 26"

Formation(s) NUKA Top 720' sample, 702' log

Present Activity: Circ and cond hole for 20" csg.

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/DIL 1509-129'	
	GR/BHCS/TTI 1502-129'	
	Schlumberger TD 1515'	
	Max log temp. 102°F.	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 1 Connection 0 Trip 0 Peaks 0

Mud: Wt. 9.1 Vis 46 W.L. 10 ph 8.0 cc Oil 0 % Cl_2 300 Temp. 88 °F. in 90 °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 RAY WERMEYER

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-18-79 Time 0600

Present Depth 3831' Previous Depth 3697' Footage 24 Hrs. 134'

Formation(s) FORTRESS MTN Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 3690-3810' Sampling Interval 10 ft. Sample Quality good
Lag Time: 106 min. @ 3780 ft.

Interval	Description	Avg. Drill Rate min./ft.
3690-3740'	Sh: med gy - gy brn, mod hd, sl slty, slickensided, in pt subfis; tr lt gy - green Sh.	7.5
3740-3760'	Sltst: med gy, mod hd, in pt grdg to v.f. grn Ss w/scat wh tripolitic Cht.	7.0
3760-3810'	Sh: med gy, firm, sl slty, slickensided, w/tr free calc, in pt sl carb, pos tr dd oil stn; tr lt gy - green Sh, rr Cht pbls; intbdd w/thn Sltst strgs; occ pyr.	7.2
	REQUEST: GeoChem Labels Fine Pt. BIC pens	

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	CHROMATOGRAPH (PPM)			
		C_1	C_2	C_3	C_4
3810'	40 units	5700	900	400	200

Ditch Gas (Units): Background 30 Connection nil Trip 36 @ 3712' Peaks

Mud: Wt 9.3 Vis 44 W.L. 7.8 ph 8.0 cc Oil % Cl_2 300 Temp. 103 °F. in 106 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
3700'	2.52	1.91	8.9
3750'	2.52	1.58	8.9
3800'	2.48	1.56	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	3480-3700'	1	Bx #13
Unwashed Ditch (USGS)	3480-3700'	1	Bx #13
GeoChem (canned)	3420-3780'	1	Bx #11
Cores	No.		

Geologist DAVE YOUNG

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-17-79 Time 06:00

Present Depth 3697' Previous Depth 3562' Footage 24 Hrs. 135'

Formation(s) FORTRESS MTN Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 3540-3690' Sampling Interval 10-5 ft. Sample Quality good
Lag Time: 87 min. @ 3995 ft.

Interval	Description	Avg. Drill Rate min./ft.
3540-3560'	Sh: med gy - gy brn - gy green, mod hd, noncalc; intbdd w/Sltst: med gy - gy green, hd.	6.0
3560-3628'	Sh: gy brn - med gy - tr lt gy, noncalc, sl slty, in pt subfis; intbdd w/Sltst: a/a; w/tr Ss strgs, med gy, v.f. - med grn, S&P, w/rr Cht pbls.	7.5
3628-3660'	Sh: dk brn - brn - blk, v. sil; w/Sh: med gy - gy brn, w/5-10% Cht Cgl: w/pbls and frag in Sh matrix; w/occ Cht that appears massive and bdd; lt gy - brn mottled - milky, dis pyr, w/occ wh calcite as vein and frac fill	10.0 - 21.0
3660-3690'	Sh: gy brn - med gy, mod hd, subfis, noncalc, micromica, sl slty, intbdd w/Sltst: a/a w/occ tripolite Cht.	10.0
	REQUEST: GeoChem Labels	

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	
3575'	20	3200	300	100	Tr	

Ditch Gas (Units): Background 5 Connection nil Trip nil Peaks 28 @ 3650'

Mud: Wt. 9.2 Vis 47 W.L. 7.8 ph 8.0 cc Oil - % Cl_2 300 Temp. 98 °F. in 102 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
3600'	2.53	1.54	8.9
3650'	2.52	1.84	8.9

Dispatched Samples:

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

Geologist DAVE YOUNG

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-16-79 Time 06:00

Present Depth 3562' Previous Depth 3448' Footage 24 Hrs. 114

Formation(s) FORTRESS MTN Top surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 3440-3540' Sampling Interval 10 ft. Sample Quality good
Lag Time: 75 min. @ 3556 ft.

Interval	Description	Avg. Drill Rate min./ft.
3440-3480'	Sltst: med gy, gy to brn, mod hd; intbdd w/Sh med - dk gy, gy - brn, mod hd, sl slty, sl micromica, w/rr pyr nodules.	5.2
3480-3510'	Sh: med gy to lt gy, gy - brn, mod hd, noncalc, sl slty, sl sil, rr calc frac fill; intbdd w/thn bds Sltst a/a.	5.5
3510-3540'	Sh: med gy, gy green, gy brn, mod hd, noncalc, sl slty, rr slickensides, calc frac filling, sl carb; intbdd w/Sltst, med gy to gy green, hd, sl carb.	5.0

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS UNITS	CHROMATOGRAPH (PPM)				
		C_1	C_2	C_3	C_4	
3465'	26	3800	500	200	Tr	~

Ditch Gas (Units): Background 16 Connection nil Trip 40 @ 3556' Peaks a/a

Mud: Wt. 9.2 Vis 45 W.L. 7.2 ph 8.0 cc Oil - % Cl_2 300 Temp. 104 °F. in 113 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
3450'	2.56	1.52	8.9
3500'	2.54	1.47	8.9
3550'	2.54	1.46	8.9

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	3230-3480'	1	Bx #12
Unwashed Ditch (USGS)	3230-3480'	1	Bx #12
GeoChem (canned)			
Cores	No.		

Geologist DAVE YOUNG

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-15-79 Time 06:00

Present Depth 3448' Previous Depth 3208' Footage 24 Hrs. 240

Formation(s) FORTRESS MTN. Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 3200-3440' Sampling Interval 10 ft. Sample Quality good
Lag Time: 75 min. @ 3440 ft.

Interval	Description	Avg. Drill Rate min./ft.
3220-3290'	Sltst: med gy, mod hd, in pt w/wh tripolitic Cht; intbdd w/Sh, med gy - gy brn, mod hd - firm; w/tr-20% Ls, brn, hd, arg - slty, micritic.	5.0
3290-3360'	Sh: med gy, mod hd, slty, slickensided, w/tr Ls a/a, and occ calc frac filling; intbdd w/mnr Sltst a/a.	5.0
3360-3440'	Sltst: a/a at 3220'; intbdd w/Sh gy brn to gy, firm, in pt subfis, mod hd, sl slty, w/rr thn Ls strgs a/a.	5.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	
3380'	46	7000	1000	500	200	

Ditch Gas (Units): Background 25 Connection - Trip - Peaks 46 @ 3380'

Mud: Wt. 9.3 Vis 45 W.L. 7.4 ph 8.0 cc Oil - % Cl_2 300 Temp. 100 °F. in 106 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
3250'	2.52	1.54	8.8
3300'	2.57	1.48	8.8
3350'	2.57	1.48	8.9
3400'	2.53	1.45	8.9

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	2700-3400'	2	Bx #4
Unwashed Ditch (Paleo)	2990-3230'	1	Bx #11
Unwashed Ditch (USGS)	2990-3230'	1	Bx #11
GeoChem (canned)	2770-3420'	2	Bx #9 & 10
Cores	No.		

Geologist DAVE YOUNG

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-27-79 Time 06:00

Present Depth 1515' (17½") Previous Depth 1515' Footage 24 Hrs. 0

Formation(s) NUKA Top 720'

Present Activity: Opening 17½" hole to 26" at 1462'

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 4-15 Connection _____ Trip _____ Peaks _____

Mud: Wt. 9.2 Vis 54 W.L. 10.0 ph 8.0 cc Oil 0 % Cl_2 300 Temp. 78 °F. in 93 °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)	1280-1510'	1 Bx #4	
Unwashed Ditch (USGS)	1280-1510'	1 Bx #4	
GeoChem (canned)	1170-1500'	1 Bx #4	
Cores	No.		

Geologist RAY WERMEYER

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-14-79 Time 06:00

Present Depth 3208' Previous Depth 3055' Footage 24 Hrs. 153

Formation(s) FORTRESS MTN Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 3040-3200' Sampling Interval 10 ft. Sample Quality good
Lag Time: 63 min. @ 3200 ft.

Interval	Description	Avg. Drill Rate min./ft.
3040-3080'	Sh: med - dk gy, hd, noncalc, slty, in pt grdg to Sltst w/tr tan-brn-orng Cly, some calc frac fill.	7.0 - 9.0
3080-3130'	Sh: a/a w/Ss lt gy, v.f. - f. grn, S&P, gy, wh, blk w/tripolitic Cht; 10-20% Ls, brn, hd, arg, micritic w/com calc frac fill.	7.0 - 10.0
3130-3180'	Sh: gy brn to med gy, firm - mod hd, noncalc, slty, slickensided, rr calc filled fracs, w/thin intbds Sltst and Ss a/a.	7.0
3180-3200'	Sltst: med gy, mod hd, w/com wh tripolitic Cht, intbdd Sh, gy - brn, sl slty, noncalc.	5.5

SHOW DESCRIPTION (Gas and/or Oil)

	DITCH GAS	CHROMATOGRAPH (PPM)			
		C_1	C_2	C_3	C_4
3100'	40 units	5400	1000	500	200

Ditch Gas (Units): Background 10 Connection - Trip 50 @ 3136' Peaks a/a

Mud: Wt. 9.4 Vis 58 W.L. 7.6 ph 8.0 cc Oil - % Cl_2 200 Temp. 91 °F. in 98 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
3100'	2.61	1.83	8.8
3150'	2.61	1.86	8.8
3200'	2.52	1.63	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	2770-3060'	1	Bx #9
Cores	No.		

Geologist DAVE YOUNG

8/7

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL: LISBURNE #1 Date 7-13-79 Time 06:00

Present Depth 3055' Previous Depth 2990 Footage 24 Hrs. 65

Formation(s) FORTRESS MTN. Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 2980-3040' Sampling Interval Core - 10 ft. Sample Quality good
Lag Time: 92 min. @ 3050 ft.

Interval	Description	Avg. Drill Rate min./ft.
2980-2990'	Sh & Sltst: a/a	5.5
2990-3000'	CORE #3, Cut 10', Rec. 9' (90%)	
	2990-2991' - Sltst: med gy, hd, w/intlam Sh: dk gy, hd, bdg at approx 40°, near vertical frac w/slickensides and occ calcite fill.	30.0
	2991-2999' - Sh: med - dk gy, hd, slty, slickensides, near vertical frac w/occ calcite fill, no apparent bdg.	30.0
	2999-3000' - No recovery.	30.0
3000-3010'	Sh: a/a, w/occ thin bds Sltst: a/a	8.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4
3035'	35	4400	800	300	Tr

Cuttings gas units: 14 @ 3020'

Ditch Gas (Units): Background 20 Connection nil Trip 50 @ 3000' Peaks 35 @ 3035'

Mud: Wt. 9.4 Vis 54 W.L. 9.0 ph 8.0 cc Oil 0 % Cl_2 200 Temp. 84 °F. in 88 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
3000'	2.60	1.81	8.8
3050'	2.61	1.81	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)			
Cores	No. 3, 2990-2999'	3	

Geologist DAVE YOUNG

8/79

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-12-79 Time 06:00

Present Depth 2990' Previous Depth 2845' Footage 24 Hrs. 145'

Formation(s) FORTRESS MTN Top Surface

Present Activity: Coring (cutting Core #3)

LITHOLOGIC DESCRIPTION

Interval Reported 2830-2980' Sampling Interval 10 ft. Sample Quality good
Lag Time: 90 min. @ 2990 ft.

Interval	Description	Avg. Drill Rate min./ft.
2830-2890'	Ss: lt gy, v.f. - v. crs grn, occ v.f. grn S&P, SA-SR, w/lt gy - wh - brn - blk - green Cht and rock frags, abnt brn calcite cmt, occ dis and clusters of pyr, nil por, NOSCF; intbdd w/Sltst: med gy, mod hd and Sh: med gy, mod hd, sl slty, w/occ small Cht pbls.	6.0
2890-2970'	Sh, Sltst and Ss: a/a.	5.0
2970-2980'	Sh: med gy, mod hd.	5.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM)				
		C_1	C_2	C_3	C_4	
2860'	40	5200	1000	600	200	

Cuttings Gas Peak 26 units @ 286

Ditch Gas (Units): Background 30 Connection nil Trip nil Peaks a/a

Mud: Wt. 9.4 Vis 40 W.L. 8.4 ph 8.0 cc Oil - % Cl_2 120 Temp. 86 °F. in 89 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
2850'	2.60	1.67	8.8
2900'	2.60	1.71	8.8
2950'	2.60	1.74	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	2700-2980'	1, Bx #10	
Unwashed Ditch (USGS)	2700-2980'	1, Bx #10	
GeoChem (canned)			
Cores	No.		

Geologist DAVE YOUNG

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-11-79 Time 06:00

Present Depth 2845' Previous Depth 2671' Footage 24 Hrs. 174'

Formation(s) FORTRESS MTN. Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 2650-2830' Sampling Interval 10-5 ft. Sample Quality good
Lag Time: 85 min. @ 2840 ft.

Interval	Description	Avg. Drill Rate min./ft.
2650-2660'	Sltst: med gy, med hd, noncalc; intbdd w/Sh: med gy, sl slty, noncalc.	5.0
2660-2740'	Ss: grdg to Cgl Ss: lt gy, med - crs - v. crs grn, p. srtd, w/green - gy - brn - wh - smokey Cht grns, Ang-SA-SR, in pt w/brn calcite cmt, hd, tt, NOCF, rr tr gilsonite on calcite as frac fill; in pt w/f. dis pyr in intbdd Sltst & Sh a/a.	4.0 - 8.0
2740-2830'	Sh: med gy, mod hd, sl slty, intbdd w/Sltst a/a and Ss: lt gy, f. - crs grn, in pt f. grn, p. srtd, occ S&P, w/Sltst and/or brn calcite matrix, occ euhedral xls of calcite, rr dd oil stn, NOCF, tt.	3.5 - 6.0
	REQUEST 1. Fine point pens 2. GeoChem can labels	

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM)				
		C_1	C_2	C_3	C_4	
2740'	46	7200	1800	400	100	

Ditch Gas (Units): Background 36 Connection nil Trip 57 @ 2727' Peaks 46 @ 2740'
Cuttings Gas peak - 7 @ 2710'

Mud: Wt. 9.4 Vis 47 W.L. 8.6 ph 8.0 cc Oil 0 % Cl_2 120 Temp. 86 °F. in 90 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
2700'	2.60	1.65	8.8
2750'	2.61	1.60	8.8
2800'	2.59	1.62	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	2010-2700'	2. Bx #3	1 & 2
Unwashed Ditch (Paleo)	2410-2700'	1. Bx #9	
Unwashed Ditch (USGS)	2410-2700'	1. Bx #9	
GeoChem (canned)	2400-2760'	1. Bx #8	
Cores	No.		

Geologist DAVE YOUNG

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-10-79 Time 06:00

Present Depth 2671' Previous Depth 2440' Footage 24 Hrs. 231

Formation(s) FORTRESS MTN. Top Surface *

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 2430-2650' Sampling Interval 10 ft. Sample Quality good
Lag Time: 82 min. @ 2670 ft.

Interval	Description	Avg. Drill Rate min./ft.
2430-2500'	Sh: med gy - dk gy, mod hd, com slickensided; intbdd w/Sltst: med gy, mod hd, sl carb, w/occ tr Ss.	4.0
2500-2520'	Sh: becoming gy - brn, mod hd, sl slty, noncalc, w/specks ? tripolite; intbdd w/ Sltst: a/a w/rr calcite vein fill ? w/v. rr blk dd oil stn.	4.0 - 5.0
2520-2650'	Sltst: med gy, mod hd - hd, occ sl carb, sl calc, intbdd w/and grdg to Sh: med gy, mod hd, sl slty, w/rr calcite veins or frac fill.	5.0
	NOTE: After review of paleo, lith, core data & surface geology, interpreting Kfm from surface to present TD.	

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4
2540'	42	5500	1900	1400	Tr

Ditch Gas (Units): Background 16 Connection nil Trip nil Peaks 42 @ 2540'

Mud: Wt 9.3 Vis 40 W.L. 7.6 ph 8.0 cc Oil 0 % Cl_2 250 Temp. 106 °F. in 110 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
2450'	2.59	1.67	8.8
2500'	2.59	1.55	8.8
2550'	2.61	1.51	8.8
2600'	2.60	1.53	8.8
2650'	2.60	1.57	8.8

Dispatched 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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8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-9-79 Time 06:00

Present Depth 2441' Previous Depth 2219' Footage 24 Hrs. 222'

Formation(s) FORTRESS MTN. ? Top 2020'

Present Activity: POH for bit.

LITHOLOGIC DESCRIPTION

Interval Reported 2210-2430' Sampling Interval 10 ft. Sample Quality good
Lag Time: 54 min. @ 2440 ft.

Interval	Description	Avg. Drill Rate min./ft.
2210-2330'	Sh: gy - brn, gy, sl slty, firm - hd, noncalc; intbdd w/Sltst: med gy, hd, sl calc; w/thin bds Ss: lt gy - green - blk, S&P, w/tripolitic Cht specks.	5.0
2330-2360'	Ss: lt gy, S&P, f. - v.f. grn, mod hd, sl calc, w/gy - clr - blk - green Cht and tripolitic Cht, nil por, NOSCF, tr gilsonite ?, w/Sh gy - gy brn, noncalc, sl mica; w/tr xl calcite as frac ? fill.	6.0 - 7.0
2360-2430'	Sh: gy - brn, noncalc, mod hd, slickensides com, tr calcite a/a; intbdd w/thin Sltst: gy, hd.	7.0 - 8.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	
2385'	18	3400	Tr	Tr	

Ditch Gas (Units): Background 4 Connection nil Trip nil Peaks 18 @ 2385'

Mud: Wt. 9.5 Vis 45 W.L. 9.6 ph 8.0 cc Oil 0 % Cl_2 250 Temp. 116 °F. in 120 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
2250'	2.47	1.64	8.8
2300'	2.59	1.68	8.8
2350'	2.59	1.67	8.8
2400'	2.58	1.68	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	1950-2410'	2, Bx #7 & 8	1
Unwashed Ditch (USGS)	1950-2410'	2, Bx #7 & 8	2
GeoChem (canned)	2085-2400'	1, Bx #7	
Cores	No.		

Geologist DAVE YOUNG

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-8-79 Time 06:00

Present Depth 2219' Previous Depth 2091' Footage 24 Hrs. 128

Formation(s) FORTRESS MTN. ? Top 2020'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 2090-2210' Sampling Interval 10 ft. Sample Quality good
Lag Time: 46 min. @ 2210 ft.

Interval	Description	Avg. Drill Rate min./ft.
2090-2100'	Ss: lt gy, hd, sl calc, arg; intbdd w/Sh: med gy, hd.	5.5
2100-2140'	Cgl: lt green - gy, w/varicolored Cht and rock frags (green - gy - tn - brn - wh - blk), SA-Ang, v. hd, sl calc - sil cmt; intbdd w/Ss: gy, f. - med grn, arg, sl tripolitic; w/Sh: med gy, hd, noncalc; Sh: lt gy, slty, sl calc; w/tr Ls: tn.	6.0 - 7.0
2140-2160'	Sltst: med gy, firm, intbdd w/Ss: lt gy, f. - med grn, rr tr blk carb material, sl calc, NOSCF.	5.0
2160-2210'	Pred Sh: dk gy - med gy - occ lt gy, hd, sl carb, in pt slty; grdg in pt to Sltst.	5.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 2 Connection nil Trip 10 @ 2095' Peaks 6 @ 2125'

Mud: Wt. 9.2 Vis 38 W.L. 8.0 ph 8.0 cc Oil 0 % Cl_2 250 Temp. 100 °F. in 103 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
2100'	2.56	1.61	8.7
2150'	2.50	1.73	8.8
2200'	2.52	1.75	8.8

Dispatched Samples:

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

Geologist DAVE YOUNG

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-7-79 Time 06:00

Present Depth 2091' Previous Depth 2042' Footage 24 Hrs. 49

Formation(s) FORTRESS MTN Top 2020'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 2020-2090.5 Sampling Interval 10' - core ft. Sample Quality good
Lag Time: 40-60 min. @ 2090 ft.

Interval	Description	Avg. Drill Rate min./ft.
2020-2075'	Cgl: varicolored gy - green, mottled, w/frag Sh, Cht and Qtz, SR-Ang, in pt v. crs grn - gran, sil cmt w/tr calc material, hd, no por, tr gilsonite ?; intbdd w/Sh: med gy.	4.0 - 6.0
2075-2090.5	CORE #2 , Cut 15.5', Rec. 15.5' (100%)	
	Ss: - dk gy, f. - med - crs - pebbly matrix w/Sh and Ls clasts up to 6" diameter, p. srtd, no apparent bd to near vertical bd, fracs at 45°, tr of patchy blk asphaltic oil on frac and rr "vugs", also tr brn oil on frac planes w/good yel spl fluor, bright yel cut fluor, no effective por (2-5%)	9.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 6 Connection nil Trip nil Peaks 16 @ 2050'

Mud: Wt. 9.1 Vis 37 W.L. 8.4 ph 9.0 cc Oil 0 % Cl_2 300 Temp. 101 °F. in 106 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
2050'	2.51	1.56	8.7

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	1800-2085'	1, Bx #6	
Cores	No. 2 , 2075-2090.5'	6	

Geologist RAY WERMEYER/DAVE YOUNG

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-6-79 Time 06:00

Present Depth 2042' Previous Depth 1827' Footage 24 Hrs. 215

Formation(s) NUKA Top 702' (log)

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 1810-2020 Sampling Interval 10 ft. Sample Quality good
Lag Time: 66 min. @ 2020 ft.

Interval	Description	Avg. Drill Rate min./ft.
1810-1980'	Intbdd Sh, Sltst and Ss a/a.	4.4
1980-2020'	Pred Sh: med gy a/a, w/some Sh: dk - v.dk brn, in pt mottled dk brn - wh, firm - hd, rr sft, blky, micromica, calc, w/occ calcite veinlets, v. slty; w/mnr Ss: a/a; tr Clyst: v. pale green, hd, in pt sil, tr Cht: pale green, tr pyr.	3.4

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 5-12 Connection 0 Trip 14 @ 2008' Peaks none

Mud: Wt 9.1 Vis 35 W.L. 9.0 ph 9.0 cc Oil 0 % Cl_2 400 Temp. 115 °F. in 120 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
1850'	2.56	1.64	8.70
1900'	2.59	1.62	8.72
1950'	2.59	1.60	8.72
2000'	2.56	1.68	8.70

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	1170-2000'	2. Bx #2	1 & 2
Unwashed Ditch (Paleo)	1750-1950'	1. Bx #6	1
Unwashed Ditch (USGS)	1750-1950'	1. Bx #6	2
GeoChem (canned)			
Cores	No.		

Geologist RAY WERMEYER

8/73

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 7-5-79 Time 06:00

Present Depth 1827' Previous Depth 1577' Footage 24 Hrs. 250'

Formation(s) NUKA ? Top 702' (log)

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 1570-1810' Sampling Interval 10 ft. Sample Quality good
Lag Time: 39 min. @ 1800 ft.

Interval	Description	Avg. Drill Rate min./ft.
1500-1810'	Intbdd Clyst, Sltst and Ss w/rr Ls strgs; Sltst: brn - gy, blky, speckled w/carb material, w/crm colored tripolitic Cht, micropyritic, v.f. sdy, occ sl dolomitic; Clyst/Sh: brn - gy, a/a; Ss: lt - med gy, v.f. - f. grn, occ w/crs grns, speckled S&P, in pt carb, rr - scat tripolitic Cht, rr glau, in pt altered, scat ? phosphate pels, mod w. srtd, mod w. cmt, calc, p. - nil por, NOSCF; Ls: calcilutitic, bf - lt brn, dns, hd, blky.	2.6 - 5.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 3 Connection 0 Trip 0 Peaks none

Mud: Wt. 9.2 Vis 38 W.L. 10.0 ph 9.5 cc Oil 0 % Cl_2 700 Temp. 113 @ 1800' °F. in 118 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
1600'	2.53	1.42	8.65
1650'	2.58	1.43	8.68
1700'	2.58	1.50	8.65
1750'	2.53	1.55	8.69
1800'	2.56	1.67	8.70

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	1510-1750'	1. Bx #5	1
Unwashed Ditch (USGS)	1510-1750'	1. Bx #5	2
GeoChem (canned)	1500-1800'	1. Bx #5	
Cores	No.		

Geologist RAY WERMEYER

8/78

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-26-79 Time 06:00

Present Depth 1515' Previous Depth 1400' Footage 24 Hrs. 115'

Formation(s) NUKA Top 720'

Present Activity: Circ @ 06:00, prep to open hole to 26" (1400-1515') while waiting on weather to move Schlumberger crew on location.

LITHOLOGIC DESCRIPTION

Interval Reported 1390-1515' Sampling Interval 10 ft. Sample Quality good
Lag Time: 60 min. @ 1500 ft.

Interval	Description	Avg. Drill Rate min./ft.
1390-1515'	Inthdd Sltst, Clyst, & Ss Sltst and Clyst a/a. Ss generally a/a, but v. locally becoming sl glau. below 1500' becoming v. lt gy and v. calc.	4.5 - 10.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 10 Connection 0 Trip 20 @ 1400' Peaks

Mud: Wt. 9.1 Vis 52 W.L. 10 ph 8 cc Oil - % Cl_2 300 Temp. 107 °F. in 113 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
1400'	2.55	1.36	8.65
1450'	2.57	1.29	8.65
1500'	2.56	1.37	8.65

Dispatched Samples:

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

Geologist RAY WERMEYER

HUSKY

HUSKY OIL NPR OPERATIONS, INC.
U.S. GEOLOGICAL SURVEY (NPRA)

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-25-79 Time 06:00

Present Depth 1400' Previous Depth 1264' Footage 24 Hrs. 136'

Formation(s) NUKA Top 720'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 1250-1390' Sampling Interval 10 ft. Sample Quality good
Lag Time: 57 min. @ 1390 ft.

Interval	Description	Avg. Drill Rate min./ft.
1250-1390'	Intbdd Sltst, Clyst, Ss: Sltst, brn - gy, occ med dk gy, blky, arg, firm - hd, v.f. sdy, locally v. rr mica, rr med - crs ang Cht grns, v. rr thin lam of anthraxolite (black asphaltite); Clyst, brn - gy, occ med - dk gy, in pt smooth, blky, firm - hd; Ss, med gy, v.f. - f. grn, SR, mod w. srtd, in pt sl arkosic, mod w. cmtd, locally tr ang Cht, rr blk anthraxolite in lams and filling pores, p. - v.p. por, no shows.	10.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 8 Connection Trip Peaks

Mud: Wt 9.1 Vis 54 W.L. 10 ph 8 cc Oil % Cl_2 250 Temp. 112 °F. in 118 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
1300'	2.56	1.39	8.65
1350'	2.53	1.37	8.65

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	1030-1280'	1	Bx #3
Unwashed Ditch (USGS)	1030-1280'	1	Bx #3
GeoChem (canned)			
Cores	No.		

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-16-79 Time 06:00

Present Depth 664' Previous Depth 564' Footage 24 Hrs. 100

Formation(s) SHUBLIK/SIKSIKPUK Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 564-660 Sampling Interval 10 ft. Sample Quality good
Lag Time: 26 min. @ 660 ft.

Interval	Description	Avg. Drill Rate min./ft.
564-660'	Clyst, Mudst, Sltst, dk brn, pale green, occ med - dk gy, hd, blky, chty, in pt micromica, in pt. sil, rr fos casts, rr pyr, in pt sl dol, w/tr -15% varicolored Cht.	
	REQUEST: Calcimeter	

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4 Connection - Trip - Peaks 10 @ 630'

Mud: Wt. 9.0 Vis. 36 W.L. 12.8 ph 9.0 cc Oil ____ % Cl_2 100 Temp. 106 °F. in 108 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
600'	2.48	1.39	8.3
650'	2.48	1.22	8.3

Dispatched Samples:

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

Geologist: RAY WERMEYER

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-15-79 Time 06:00

Present Depth 564' (17½") Previous Depth 550' Footage 24 Hrs. 14

Formation(s) SHUBLIK/SIKSIKPUK Top surface

Present Activity: Tripping, opened hole to 26" to 558'

LITHOLOGIC DESCRIPTION

Interval Reported 550-564' Sampling Interval 10 ft. Sample Quality good
Lag Time: 21 min. @ 560 ft.

Interval	Description	Avg. Drill Rate min./ft.
550-564'	Clyst, Sh and Ls: Clyst: med gy, blky, firm - hd, in pt chty, in pt plty; Sh: red - brn, firm, blky, hd, in pt waxy, plty, w/Sh: med gy, blky, hd, waxy; w/trs Ls: calcilutitic, v. lt. gy - wh, hd, blky, dns.	4.0

SHOW DESCRIPTION (Gas and/or Oil)

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

Mud: Wt. 9.0 Vis 38 W.L. 12.4 ph 9.0 cc Oil 0 % Cl_2 100 Temp. 108 °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.		

Geologist RAY WERMEYER

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-14-79 Time 06:00

Present Depth 550 Previous Depth 445 Footage 24 Hrs. 105

Formation(s) SIKSIKPUK/SHUBLIK Top Surface

Present Activity: POH

LITHOLOGIC DESCRIPTION

Interval Reported 445-550 Sampling Interval 5' & 10' ft. Sample Quality good
Lag Time: 21 min. @ 550 ft.

Interval	Description	Avg. Drill Rate min./ft.
445-550	Intbdd Sh, Sltst, and Clyst; Sh, dk gy, becoming dk brn to red brown, in pt slty, in pt mica, blky, sl pyr; Sltst, v. dk brn, becoming red brn, blky, in pt waxy and plty, hd, sl dol; Clyst, lt green - v. lt gy, blky, in pt waxy, occ chty; tr v. lt gy - green cht, hd.	8.0

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 10-15 Connection - Trip - Peaks none

Mud: Wt. 8.9 Vis 34 W.L. 12 ph 9.0 cc Oil - % Cl_2 100 Temp. 108 °F. in 112 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
150'	2.48	1.08	8.3
240'	2.53	1.14	8.3
360'	2.55	1.19	8.3
450'	2.51	1.23	8.3
500'	2.47	1.48	8.3
550	2.46	1.66	8.3

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	130-450'	1	Bx #1
Cores	No.		

Geologist RAY WERMEYER

8/7

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-13-79 Time 06:00

Present Depth 445' Previous Depth 389' Footage 24 Hrs. 56

Formation(s) SHUBLIK/SIKSIKPUK Top Surface

Present Activity: Trip for new btm hole assembly; survey: 2 1/2° @ 429'

LITHOLOGIC DESCRIPTION

Interval Reported 380-445 Sampling Interval 30 ft. Sample Quality good
Lag Time: 12 min. @ 440 ft.

Interval	Description	Avg. Drill Rate min./ft.
380-445'	Sh: med gy - dk gy - dk gy brn, occ plty, occ smooth, occ blky, slty, subconchoidal frac, occ cherty, waxy; intbdd w/Sltst: med gy - v.dk gy brn, blky, hd, sil appearance, occ micromica, in pt sl sdy.	4.5

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 0-4 Connection nil Trip nil Peaks none

Mud: Wt. 9.1 Vis 35 W.L. 36 ph 9.0 cc Oil 0 % Cl 100 Temp. NR °F. in NR °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 RAY WERMEYER

8/78

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-12-79 Time 06:00

Present Depth 389' Previous Depth 129' Footage 24 Hrs. 260

Formation(s) SHUBLIK/SIKSIKPUK Top surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 130-360 Sampling Interval 30 ft. Sample Quality good
Lag Time: 11 min. @ 385 ft.

Interval	Description	Avg. Drill Rate min./ft.
130-330'	Clyst/Sh: lt green - lt and dk gy, blocky, firm - hd, waxy - soapy, w/in pt subconchoidal frac, rarely dolomitic - calc, plty, rarely siliceous - chty, occ micromica, rr hd and blk dead hydrocarbon on fracs, tr calcite; tr Ls: bf, calcilutitic, hd, dns, w/occ maroon Clyst: firm - hd, blky, subconchoidal frac.	3.0 (Controlled)
330-360'	Sh: dk gy, firm, blky, occ rr microfos, w/intbdd Sltst: dk gy - blk, blky, firm - hd, mica, occ v. finely sdy, rr pyr, tr Sltst	4.0 (Controlled)

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 0 Connection 0 Trip 0 Peaks none

Mud: Wt. 8.8 Vis 36 W.L. - ph 10.0 cc Oil 0 % Cl_2 200 Temp. 96 °F. in 106 °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 RAY WERMEYER

8/78

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-11-79 Time 06:00

Present Depth 129' (30" csg shoe) Previous Depth 129' Footage 24 Hrs. 0

Formation(s) SHUBLIK ? Top Surface

Present Activity: Tripping for bit after cleaning out cmt.

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. 8.6 Vis 44 W.L. - ph 10.5 cc Oil _____ % Cl_2 30 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 RAY WERMEYER

6/78

HUSKY

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U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 5-31-80 Time 0600

Present Depth PBTD 7230' Previous Depth _____ Footage 24 Hrs. _____

Formation(s) SHUBLIK Top _____

Present Activity: Running DST #4 (1.5 hrs. into 2nd flow period)

LITHOLOGIC DESCRIPTION

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

Interval	Description	Avg. Drill Rate min./ft.
	Preliminary Description DST #4	
	1st FP (2 hrs.): Opened tool w/strong blow and 40 psi FWHP thru 1/4" choke increasing to 220 psi GTS in 28 min, pressure declined 65 psi at end of period. Shut in well for 224 min.	

GAS OCCURRENCE/SHOWS

INTERVAL	Total Gas Units	Cuttings Gas Units	Background Gas Units Before	Background Gas Units After	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	C_5

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

Mud: Wt. 10.2 Vis 40 W.L. 6.0 ph 9.5 cc Oil - % Cl_2 250 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 DAVE YOUNG

8/78

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DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-2-80 Time 0600

Present Depth PBTD 1853' Previous Depth _____ Footage 24 Hrs. _____

Formation(s) _____ Top _____

Present Activity: Prep to nipple down, see attached for Summary DST #4.

LITHOLOGIC DESCRIPTION

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

Interval	Description	Avg. Drill Rate min./ft.

GAS OCCURRENCE/SHOWS

INTERVAL	Total Gas Units	Cuttings Gas Units	Background Gas Units Before	Background Gas Units After	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	C_5

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

Mud: Wt. _____ Vis _____ W.L. _____ ph _____ cc Oil _____ % Cl_2 _____ 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 _____

8/78

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U.S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-24-79 Time 06:00

Present Depth 1264' Previous Depth 1189' Footage 24 Hrs. 75'

Formation(s) NUKA Top 720'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 1189-1250' Sampling Interval 10 ft. Sample Quality good

Lag Time: 47 min. @ 1260 ft.

Interval	Description	Avg. Drill Rate min./ft.
1189-1230'	Intbdd Sltst, Clyst, and mnr Ss: Sltst, gy - brn, firm - hd, arg, in pt sl dol, and in pt v. f. arkosic; Clyst, gy brn, firm - blky; Ss, gy, v.f. grn, mod srtd, SA-SR, w. cmtd, v. sl dol, arkosic w/f. scat blk mineral, p. por, no show.	8.6
1230-1250'	Intbdd Sltst, Clyst, and Ss: Sltst and Clyst a/a becoming dk gy brn; Ss a/a, no longer arkosic.	12.8

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 4 Connection 0 Trip 10 @ 1189' Peaks -

Mud: Wt. 9.2 Vis 46 W.L. 10 ph 8.0 cc Oil ____ % Cl_2 100 Temp. 93 °F. in 98 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
1200'	2.57	1.37	8.65
1250'	-	1.25	8.41

Dispatched Samples:

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

Geologist RAY WERMEYER

HUSKY

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

WELL LISBURNE #1 Date 6-23-79 Time 06:00

Present Depth 1189' (17½" hole) Previous Depth 1098' (17½" hole) Footage 24 Hrs. 88' - 26" hole

Formation(s) NUKA Top 720'

Present Activity: RIH w/26" bit to open 1186-1189'

LITHOLOGIC DESCRIPTION

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

Interval	Description	Avg. Drill Rate min./ft.
	RAN SURVEY EVERY 200'	
	DEPTH / ANGLE / DIRECTION	
	146' / 1/4° / N65W	
	238' / 1° / N45W	
	425' / 3 3/4° / N38W	
	612' / 5° / N30W	
	800' / 4 1/4° / N30W	
	983' / 3 3/4°	

SHOW DESCRIPTION (Gas and/or Oil)

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

Mud: Wt 9.3 Vis 50 W.L. 11 ph 8.0 cc Oil _____ % Cl_2 100 Temp. 98 °F. in 106 °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 RAY WERMEYER

8/78

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U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-22-79 Time 06:00

Present Depth 1189' Previous Depth 1189' Footage 24 Hrs. 262' of 26"

Formation(s) NUKA Top 720

Present Activity: Open 17 1/2" hole to 26" to 1096'

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 5-10 Connection - Trip - Peaks none

Mud: Wt. 9.3 Vis 47 W.L. 12.0 ph 8.0 cc Oil 0 % Cl_2 100 Temp. 106 °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.		

Geologist RAY WERMEYER

HUSKY

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U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 6-21-79 Time 06:00

Present Depth 1189' (17½") 836' (26") Previous Depth 1189' Footage 24 Hrs. 0': 278'

Formation(s) NUKA Top 720

Present Activity: Opening 17½" hole to 26" at 836'

LITHOLOGIC DESCRIPTION

Interval Reported none 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 10-14 Connection 0 Trip 0 Peaks none

Mud: Wt. 9.2 Vis 48 W.L. 11.5 ph 8.5 cc Oil 0 % Cl_2 100 Temp. 110 °F. in 119 °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)	810-1170'	1	Bx #3
Cores	No.		

Geologist RAY WERMEYER

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL: LISBURNE #1 Date 6-20-79 Time 06:00

Present Depth 1189' Previous Depth 1026' Footage 24 Hrs. 163'

Formation(s) NUKA Top 720'

Present Activity: Trip for hole opener

LITHOLOGIC DESCRIPTION

Interval Reported 1020-1189' Sampling Interval 10' ft. Sample Quality good
Lag Time: 38 min. @ 1189 ft.

Interval	Description	Avg. Drill Rate min./ft.
1020-1189'	Intbdd Sltst, Clyst and occ (up to 10%) v.f. grn arkosic Ss a/a.	5.2

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 20 Connection 0 Trip 7 @ 1072' Peaks 30 @ 1105'

Mud: Wt. 9.3 Vis 40 W.L. 12.4 ph 8.5 cc Oil ____ % Cl_2 100 Temp. 112 °F. in 120 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
1050'	-	1.66	8.7
1100'	2.52	1.52	8.5
1150'	2.51	1.54	8.6

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	90-1130'	2	1 & 2
Unwashed Ditch (Paleo)	700-1030'	1	
Unwashed Ditch (USGS)	700-1030'	1	
GeoChem (canned)			
Cores	No.		

Geologist RAY WERMEYER

8/7