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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-21-79 Time 0600

Present Depth 7779' Previous Depth 7690' Footage 24 Hrs. 89'

Formation(s) LISBURNE Top 7400'

Present Activity: Tripping, RIH w/bit at report time.

LITHOLOGIC DESCRIPTION

Interval Reported 7680-7775' Sampling Interval 5 ft. Sample Quality good
Lag Time: 127 min. @ 7770 ft.

Interval	Description	Avg. Drill Rate min./ft.
7680-7775'	Dolomite: brn - wh mottled, crs xl, hd; and Dol brn, micro - crs xl, locally sl calc, local Cht nodules, tr rr Cht replacement; w/local (10%) patches brn crs xl Dol w/fair intxl and vug por; rr crinoid debris, NOSCF.	9.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	BACKGROUND GAS (UNITS)	CHROMATOGRAPH (PPM) C_1	C_2	C_3	
7725'	70	55	8800	200	Tr	

Ditch Gas (Units): Background 55 Connection — Trip Cuttings peak 52 @ 7725' Peaks a/a

Mud: Wt. 11 Vis 67 W.L. 6.5 ph 8.5 cc Oil % Cl_2 450 Temp. 101 °F. in 103 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure	Autocalcimeter Calc / Dol
7700'	2.57	1.58	9.36	4 / 52
7750'	2.58	1.49	9.35	10 / 65

Dispatched Samples:

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

Geol. DAVE YOUNG

8/78

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE No. 1 Date 11-22-79 Time 06:00

Present Depth 7920 Previous Depth 7779 Footage 24 Hrs. 141'

Formation(s) Lisburne Top 7400'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 7775-7900 Sampling Interval 5 ft. Sample Quality good
Lag Time: 130 min. @ 7910 ft.

Interval	Description	Avg. Drill Rate min./ft.
7775-7900'	DOLO: brn-wht, mottled, hd, med xl, rhombic and mosaic; also DOLO; brn, hd, microxl, w poor vis porosity in approx. 10% of spl, interxln and vuggular, non-connected, NOSCF; rr SLTST and SH stringers, med gy; w/occ nodular CHT, wht, translucent, some tan and mottled; rr crinoid remains.	5.5 - 13.0

SHOW DESCRIPTION (Gas and/or Oil)

DEPTH	TOTAL GAS	BACKGROUND GAS	CHROMATOGRAPH PPM C_1	C_2	C_3	
7890'	70 units	62 units	8800	300	tr	

Ditch Gas (Units): Background 62 Connection NIL Trip 104 @ 7779' Peaks

Mud: Wt. 11 Vis 64 W.L. 6.8 ph 8.5 cc Oil % Cl_2 450 Temp. 101 °F. in 104 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	PORE PRESS. ~~Pore Pressure~~	Calc/DOLO
7800	2.52	1.47	9.46	4/80
7850	2.55	1.47	9.65	10/80
7900	2.46	1.50	9.75	10/70

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	7580 - 7880	1	Bx 29
Unwashed Ditch (USGS)	7580 - 7880	1	Bx 29
GeoChem (canned)	7470 - 7830	1	Bx 23
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 11-5-79 Time 0600

Present Depth 6789' Previous Depth 6789' Footage 24 Hrs. 0

Formation(s) FORTRESS MTN/OKPIKRUAK Top surface

Present Activity: Washing and reaming back to btm, prep to drill ahead

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. 11 Vis 75 W.L. 9.8 ph 8.5 cc Oil – % Cl_2 500 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

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE No. 1 Date 11-23-79 Time 06:00

Present Depth 8015' Previous Depth 7920' Footage 24 Hrs. 95'

Formation(s) Lisburne Top 7400'

Present Activity: POH to run logs.

LITHOLOGIC DESCRIPTION

Interval Reported 7900'-8015' Sampling Interval 5 ft. Sample Quality good
Lag Time: 132 min. @ 8015 ft.

Interval	Description	Avg. Drill Rate min./ft.
7900-7930'	DOLO: brn-wh-gy, mottled, microxtall; w/ DOLO: macroxtal, hd, mosaic; w/strgs SS: dk brn, f. grn, med hd, dolomitic, argill; w/strgs of SLTST & SH; med gy, mod hd, NOSCF.	7.0
7930-8015'	DOLO: brn-wh, mottled, macroxtal, w/mosaic of f.-med. xtals, & rhobohedral xtals; DOLO: non-mosaic; & w/ DOLO: brn-gy brn, hd, macroxtal, in pt sl cherty; w/thin SH & CHT strgs; CHT (≈ 10%);tan-gy-dk gy-smokey, tt-v. poor Ø & rr small vugs, rr intraxtal Ø, NOSCF, rr crinoids.	9.0 (5.0 - 14.0)

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS BACKGROUND GAS	CHROMATOGRAPH - PPM C_1	C_2	C_3	
8005	90	10400	200	tr.	

Ditch Gas (Units): Background 77 Connection NIL short Trip 136 @ 8015' Peaks a/a cutting gas: 50 @ 8050'

Mud: Wt. 11.0 Vis 67 W.L. 7.2 ph 8.5 cc Oil 0 % Cl_2 450 Temp. 100 °F. in 108 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Press.	Calc/DOLO
7950	2.52	1.44	9.70	3/72
8000	2.59	1.48	9.62	0/85

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	6770-8010	2 (#9)	1 & 2
Unwashed Ditch (Paleo)	6880-8010	2	1
Unwashed Ditch (USGS)	6880-8010	2	2
GeoChem (canned)			
Chert samples	Surf. - 8010'	1	

Geologist Dave Young

8/78

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-24-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408' (log)

Present Activity: Logging; running Velocity Survey at report time, tool failed after 3 shots, repairing tool.

LITHOLOGIC DESCRIPTION

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

Interval	Description	Avg. Drill Rate min./ft.
	Ran the following logs:	
	Log / Depth / Max Temp	
	DIL/GR/SP - 4509-8024'	
	FDC/CNL/GR/CAL - 4509-8024' 126°F.	
	BHC/GR - 4509-8024'	
	HRD (Dipmeter) - 4509-8024' 124°F.	
	Velocity Survey - Shot 3 shots, tool failed, repairing tool at report time.	
	1. 4500' - good	
	2. 6170' - good	
	3. 6895' - good	
	4. 7395' - tool failed	
	Formation / Depths	
	Shublik 6945'	
	Lisburne 7408'	

SHOW DESCRIPTION (Gas and/or Oil)

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

Mud: Wt. 11 Vis 68 W.L. 7.2 ph 8.5 cc Oil - % Cl_2 450 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)			
Dry (Chem Scanned)			
Cores	No.		

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HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-25-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408' (log)

Present Activity: Completed logging, laying down bottom hole assembly at report time.

LITHOLOGIC DESCRIPTION

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

Interval	Description	Avg. Drill Rate min./ft.
	Completed logging run as follows:	
	Velocity Survey - repaired tool, shot last 2 shots (4500', 8020')	
	Sidewall cores - shot 45, recovered 30, left 2 bullets in hole.	

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.		

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HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE Date 11-26-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408' (log)

Present Activity: Run 9 5/8" csg.

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)			
Geo-Chem (canned)			
Cores	No.		

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-27-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408'

Present Activity: POH w/5" drill pipe.

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. 11.0 Vis 65 W.L. - ph 8.5 cc Oil _____ % Cl_2 450 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 OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-28-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408' (log)

Present Activity: Rig up 10,000 psi 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. 10.9 Vis 65 W.L. 10.0 ph 8.5 cc Oil 0 % Cl_2 450 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 11-29-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408'

Present Activity: Nipple up BOP

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. 10.9 Vis 62 W.L. 10.0 ph 8.5 cc Oil - % Cl_2 450 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.		

Final _____

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-6-79 Time 0600

Present Depth 6849' Previous Depth 6781' (corr. TD) Footage 24 Hrs. 68

Formation(s) FORTRESS MTN/OKPIKRUAK Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 6781-6840' Sampling Interval 10 ft. Sample Quality good
Lag Time: 108 min. @ 6850 ft.

Interval	Description	Avg. Drill Rate min./ft.
6781-6840'	Sltst: med gy, mod hd, sl carb, intbdd w/Sh: med gy - lt gy - green - occ dk gy in pt, w/small siderite incls, rr litho-clasts, rr pyr incls and lenses, occ contorted bdg, tr pelecypods.	15.0
	REQUEST: All paleo reports from 4000-6773'	

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	
6795'	45	8200	700	

Ditch Gas (Units): Background 24 Connection nil Trip 260 @ 6781' Peaks 45 @ 6795', 116 @ 6840'

Mud: Wt. 11.0 Vis 65 W.L. 7.5 ph 8.5 cc Oil 0 % Cl_2 500 Temp. 82 °F. in 81 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
6800'	2.03	1.65	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

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-7-79 Time 0600

Present Depth 6923' Previous Depth 6858' Footage 24 Hrs. 74

Formation(s) FORTRESS MTN/OKPIKRUAK Top Surface

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 6840-6920' Sampling Interval 10 ft. Sample Quality good
Lag Time: 113 min. @ 6920 ft.

Interval	Description	Avg. Drill Rate min./ft.
6840-6920	Sh: dk - med gy, firm - hd, com w/dis and lenticular pyr,	16.0
	occ calcite filled veins, occ slickensides; intbdd w/Sltst:	(7.0 - 30.0)
	med gy, mod hd, pyrtic, w/tr - 10% Cht: blk - crm, w/dis	
	pyr.	

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	
6850'	50	5000	100	

Ditch Gas (Units): Background 12 Connection nil Trip - Peaks a/a

Mud: Wt. 11.0 Vis 64 W.L. 7.0 ph 8.5 cc Oil 0 % Cl_2 450 Temp. 90 °F. in 89 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
6820'	2.03	1.66	8.98

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

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-8-79 Time 0600

Present Depth 6983' Previous Depth 6923' Footage 24 Hrs. 60'

Formation(s) SHUBLIK (?) Top 6945' (?)

Present Activity: Tripping, POH at report time.

LITHOLOGIC DESCRIPTION

Interval Reported 6920-6980' Sampling Interval 10-5' ft. Sample Quality good
Lag Time: 114 min. @ 6984 ft.

Interval	Description	Avg. Drill Rate min./ft.
6920-6940'	Sh: dk gy, med gy, hd, com pyr, w/com calcite filled veins; intbdd w/Sltst: med gy, hd, pyritic; w/tr-10% Cht, blk and crm.	21.0
6940-6950'	Sh: a/a; w/Ls, tn - brn, hd, microxl, sl dol, w/calcite filled fracs, occ dd oil stns on frac faces, in pt pyritic, NOSCF; and mnr Cht, crm, blk, mottled.	14.0
6950-6980'	Ls (30-50%): tn - brn, hd, dns, dol, microxl, w/rd fos ghosts, and/or prob [redacted] com calcite filled veins; intbdd w/Sh: [redacted] pyritic, splintery; and Sh, blk, hd, sil, NOSCF.	12 - 20

SHOW DESCRIPTION (Gas and/or Oil)

Ditch Gas (Units): Background 10 Connection — Trip — Peaks —

Mud: Wt. 11 Vis 65 W.L. 6.5 ph 8.5 cc Oil - % Cl_2 400 Temp. 89 °F. in 91 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
6984	2.62	1.64	8.8

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	6770-6980'	1	Bx #26
Unwashed Ditch (USGS)	6770-6980'	1	Bx #26
GeoChem (canned)			
Cores	No.		

Geologist DAVE YOUNG

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HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-9-79 Time 0600

Present Depth 6983' Previous Depth 6983' Footage 24 Hrs. 0

Formation(s) SHUBLIK (?) Top 6945'

Present Activity: Changing out Hydrill element; failed on BOP test while tripping at 6983'

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. 11.0 Vis 63 W.L. 6.5 ph 8.5 cc Oil - % Cl_2 400 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

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-10-79 Time 0600

Present Depth 7027' Previous Depth 6983' Footage 24 Hrs. 44

Formation(s) SHUBLIK(?) Top 6845'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 6980-7020' Sampling Interval 5 ft. Sample Quality good
Lag Time: 116 min. @ 7030 ft.

Interval	Description	Avg. Drill Rate min./ft.
6980-6995'	Ls: tn - brn - gy, hd, dns[redacted] tr brecciated; intbdd	15.0
	w/Sh: dk - med gy, mod hd - hd, in pt sil, tr Cht: blk - brn.	
6995-7020'	Sh: dk gy - med gy, pyr, sil, becoming highly sil at 7010',	15.0
	in pt w/conchoidal frac; thn strgs Ls: tn, hd, microxl,	(8.0 - 24.0)
	w/Cht dk gy - tn.	

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	
6998'	28	2000	100	

Ditch Gas (Units): Background 10 Connection nil Trip 200 @ 6983' Peaks a/a
Cuttings gas: 28 @ 6990'

Mud: Wt. 10.9 Vis 59 W.L. 6.8 ph 8.5 cc Oil 0 % Cl_2 450 Temp. 90 °F. in 89 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
7000'	2.62	1.42	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

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-11-79 Time 0600

Present Depth 7116' Previous Depth 7027' Footage 24 Hrs. 89

Formation(s) SHUBLIK Top 6945'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 7020-7105' Sampling Interval 5 ft. Sample Quality good
Lag Time: 120 min. @ 7110 ft.

Interval	Description	Avg. Drill Rate min./ft.
7020-7105'	Sh: dk gy, hd, sil, sl calc, subconchoidal - blky, w/calcite filled frac; w/occ thn strgs Ls: tn, microxl, hd; and Sltst: med gy, mod hd; tr [redacted]OSCF, (see gas show description below).	8.0 (5.0 - 30.0)

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	
7060'	1150	230,000	55,000	2500	500	

Cuttings gas: 90 units @ 7070'

Ditch Gas (Units): Background 20 Connection nil Trip short 80 @ 7103' Peaks a/a

Mud: Wt. 11.0 Vis 62 W.L. 6.7 ph 8.5 cc Oil - % Cl_2 450 Temp. 90 °F. in 92 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
7100	2.48	1.24	8.9

Dispatched Samples:

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

DAVE YOUNG

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HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 11-12-79 Time 0600

Present Depth 7206 Previous Depth 7116 Footage 24 Hrs. 90

Formation(s) SHUBLIK Top 6945'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 7105-7200' Sampling Interval 5 ft. Sample Quality good
Lag Time: 122 min. @ 7203 ft.

Interval	Description	Avg. Drill Rate min./ft.
7105-7120'	Sh: dk gy, hd, sil; intbdd w/Sh: med - lt gy - gy brn [redacted]	12.0
	[redacted]	
7120-7150'	Sh: dk gy, hd - mod hd, slty, pyr, blky; intbdd w/Sh: med - lt gy; and Sltst: med - dk gy, mod hd, occ flky, w/contorted microlam; tr Ss: lt gy, v.f. grn, mod hd, [redacted] tr dd oil stn, NOCF.	12.0
7150-7200'	Sltst: dk gy - med gy, mod hd, occ calc and pyr, intbdd w/Sh a/a at 7120-7150'; and Ss (tr-10%): gy - brn - lt gy, v.f. grn, arg; w/Ls (tr-10%): tn, microxl, hd, w/mottled dd oil stn, NOCF; rr Cht: tn.	17.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	
7130'	18	1000	80	

Cuttings gas: 28 @ 7160'

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

Mud: Wt. 10.9 Vis 63 W.L. 6.6 ph 8.5 cc Oil 0 % Cl_2 450 Temp. 100 °F. in 102 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
7150'	2.58	1.60	8.9
7200'	2.58	1.75	8.9

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	6750-7110'	1 (#21)	
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 11-30-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408' (log)

Present Activity: Rig up to test BOPE

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. 10.9 Vis 6.2 W.L. 10.0 ph 8.5 cc Oil 0 % Cl_2 450 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 OIL NPR OPERATIONS, INC.
U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-1-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408'

Present Activity: POH to run CBL

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. 10.8 Vis 65 W.L. 9.6 ph 11.0 cc Oil 0 % Cl_2 450 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 12-10-79 Time 0600

Present Depth 8560' Previous Depth 8465' Footage 24 Hrs. 95

Formation(s) CLASTIC SEDIMENTS/LISBURNE Top 8250'/8403'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8455-8555' Sampling Interval 5 ft. Sample Quality good
Lag Time: 62 min. @ 8560 ft.

Interval	Description	Avg. Drill Rate min./ft.
8455-8475'	Pred Sh: dk gy brn to blk, in pt sil, hd, w. compacted: w/mnr Ls, wh, in pt mottled lt to dk gy brn, in pt calcilutitic, com fos hash, in pt rexlized, becoming crs xl, in pt arg, dol, nil por, no shows; and Dol mottled wh and brn, in pt chty, in pt sucrosic, loc fos ghosts; and Cht, v. dk brn - blk, conchoidal - subconchoidal frac.	6.5
8475-8510'	Pred Dol: v. dk brn, in pt mottled tn and brn, macroxl, in pt microxl, sl calc: w/mnr intbdd Ls, Cht, and Sh.	9.0
8510-8555'	Pred Sh: a/a, w/mnr thn Ls intbds (5') a/a; mnr Cht and Dol a/a, rr gilsonite in por space of Dol.	7.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	
8455'	39	380	Tr	

Ditch Gas (Units): Background 14 Connection 0 Trip 13 @ 8475' Peaks a/a

Mud: Wt 10.2 Vis 46 W.L. 5.4 ph 10.0 cc Oil - % Cl_2 350 Temp. 84 °F. in 85 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8450'	2.58	1.88	9.65
8500'	2.58	1.71	9.65
8550'	2.58	1.86	9.70

Unspatched Samples:

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

RAY WERMEYER

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-11-79 Time 0600

Present Depth 8616' Previous Depth 8560' Footage 24 Hrs. 56

Formation(s) LISBURNE Top 8403'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8555-8610' Sampling Interval 5 ft. Sample Quality good
Lag Time: 63 min. @ 8600 ft.

Interval	Description	Avg. Drill Rate min./ft.
8555-8570'	Pred Cht, v. dk brn - blk, gy, occ mossy (30-60% of spl); w/Ls, wh, occ mottled wh and gy (calcilutite), in pt chalky, in rexlized, in pt crs xl (20-50% of spl); and Dol, v. dk brn - blk, in pt sil, in pt sl calc, dns, hd (40% of spl); w/mnr Sh, v. dk gy - blk, blky, hd, w. ind, in pt sil.	8.4
8570-8590'	Cht a/a (50-60%) w/Dol, v. dk gy - blk, sucrosic, f. xl, arg, occ w/gilsonite filling pores, rr fos ghosts, sl calc, hd, nil por, no shows.	9.0
8590-8610'	Pred Sh, v. dk brn - blk a/a w/mnr Sh brn, hd, blky, w. ind, w/mnr Cht and Dol a/a.	13.6

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	BACKGROUND GAS	CHROMATOGRAPH (PPM) C_1	C_2
8600'	14 units	8 units	120	Tr

Ditch Gas (Units): Background 8 Connection 0 Trip 9 @ 8569' Peaks a/a

Mud: Wt 10.2 Vis 47 W.L. 5.9 ph 10.0 cc Oil - % Cl_2 350 Temp. 84 °F. in 86 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8600'	2.59	1.85	9.66

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	8290-8550'	1	Bx #32
Unwashed Ditch (USGS)	8290-8550'	1	Bx #32
GeoChem (canned)	8190-8550'	1	Bx #26
Cores	No.		

Geologist RAY WERMEYER

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HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-12-79 Time 0600

Present Depth 8696' Previous Depth 8616' Footage 24 Hrs. 80'

Formation(s) LISBURNE/CLASTICS Top 8403'/8593'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8610-8690' Sampling Interval 5 ft. Sample Quality good
Lag Time: 62 min. @ 8650 ft.

Interval	Description	Avg. Drill Rate min./ft.
8610-8620'	Sh (55%): blk, hd, arg, and Sh gy brn, hd, occ gilsonite veinlets; Cht (15%) varicolored w/occ gilsonite veinlets, Dol (20%), blk, microsucrosic, v.f. xl, blk, hd, occ gilsonite; and Clyst (10%), med gy, firm, sft when wet.	21.4
8620-8675'	Shly Clyst (60-70%), med gy, firm - hd, locally chty, waxy appearance, appears slickensided and crushed, in pt w/gilsonite veinlets; mnr Sh, blk, hd a/a; occ siderite veinlets 8640-60'; tr Qtz grns, crs - v. crs, sr, sl frosted, occ frac @ 8635'; tr pyr.	17.2
8675-8690'	Sh: blk, hd, a/a (70-90%), rr gilsonite filled veinlets, slickensided and crushed appearance, rr calc; mnr Sh gy brn and Clyst a/a.	12.6

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	BACKGROUND GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3
8685'	40 units	8 units	180	30	tr

Ditch Gas (Units): Background 8 Connection - Trip - Peaks 26 @ 8680'

Mud: Wt. 10.2 Vis 48 W.L. 6.3 ph 9.5 cc Oil - % Cl_2 350 Temp. 90 °F. in 92 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8650'	2.64	2.16	9.60

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 12-13-79 Time 0600

Present Depth 8732' Previous Depth 8696' Footage 24 Hrs. 36'

Formation(s) LISBURNE/CLASTICS Top 8403'/8593'

Present Activity: Cutting Core #8 (cut 8730-8732' at report time).

LITHOLOGIC DESCRIPTION

Interval Reported 8690-8730' Sampling Interval 5' ft. Sample Quality good
Lag Time: 70 min. @ 8730 ft.

Interval	Description	Avg. Drill Rate min./ft.
8690-8710'	Sh (40-70%): gy brn, hd, w. ind, in pt micromica, in pt sil, occ calcite filled veins, occ f. xl pyr; w/Sh (20-30%): blk, earthy, slty, tr gilsonite veinlets, tr siderite; and Sh (5-30%): med gy, v. rr pale gy green, waxy, w/gilsonite veinlets, tr Cht; and Ls, wh, becoming tn to brn, hd, sil, in pt dol.	17.0
8710-8730'	Sh (30-70%): gy brn becoming tn - brn a/a; w/Sh (15-45%) blk a/a; and Sh (10-20%) grdg to Clyst, med gy, locally gy - tn, rr siderite veinlets.	17.6

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3
8725'	54 units	18 units	920	84	10

Ditch Gas (Units): Background 18 Connection 0 Trip 28 @ 8730' Peaks a/a

Mud: Wt. 10.2 Vis 49 W.L. 6.1 ph 9.5 cc Oil ____ % Cl_2 350 Temp. 90 °F. in 95 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8700'	2.63	2.16	9.55

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

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE Date 12-14-79 Time 0600

Present Depth 8783' Previous Depth 8732' Footage 24 Hrs. 51'

Formation(s) LISBURNE/CLASTICS Top 8403'/8593'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8730-8780' Sampling Interval 5' ft. Sample Quality good
Lag Time: 66 min. @ 8780 ft.

Interval	Description	Avg. Drill Rate min./ft.
8730-8740'	Core #8 (Cut 10', Rec. 8.5, 85%).	15.4 - 47.9
		Avg: 28.7
	Sh: intbdd dk gy brn and blk, hd, w. compacted, in pt sil, in pt earthy, slickensided and frac throughout; local com - abnt gilsonite in veinlets and fracs; good 52° dips at 8732'.	
8740-8780'	Intbdd Sh: gy brn - brn, med gy, and blk a/a, slickensided, loc gilsonite a/a and occ siderite veinlets.	11.5

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	BACKGROUND GAS	CHROMATOGRAPH (PPM) C_1	C_2
8735'	120 units	10 units	200	Tr

Ditch Gas (Units): Background 10 Connection 0 Trip 35 @ 8740' Peaks 34 @ 8735'

Mud: Wt. 10.2 Vis 49 W.L. 5.9 ph 9.0 cc Oil - % Cl_2 350 Temp. 82 °F. in 83 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8750'	2.61	2.01	9.61

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	8550-8760'	1	Bx #33
Unwashed Ditch (USGS)	8550-8760'	1	Bx #33
GeoChem (canned)			
Cores	No. 8 , (8730-87.38.5')	4	

RAY WERMEYER

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-15-79 Time 0600

Present Depth 8954' Previous Depth 8783' Footage 24 Hrs. 171

Formation(s) LISBURNE; CLASTICS Top 8403'; 8593'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8780-8955' Sampling Interval 5 ft. Sample Quality good
Lag Time: 72 min. @ 8900 ft.

Interval	Description	Avg. Drill Rate min./ft.
8780-8800'	Sh: brn - gy - blk; Sh (Clyst): med gy, a/a; w/Sh: v. dk gy, hd, blky, w. compact, tr Qtz grns; clr - sl milky, sr at 8785-8795'; w/Sltst: blk, sft, v. arg, organic (?), pos phosphatic pels.	8.8
8800-8890'	Pred Sltst: v. dk brn - blk, v. arg, organic, pos phosphatic pels, sft - firm, blky; grds to Slty Sh: v. dk brn - blk, firm - hd, micropyr.	5.3
8890-8955'	Sh: v. dk brn - blk, micropyr, hd, blky, in pt v. slty, pos phosphatic pels, rr calcite veinlets; mnr Sltst: gy - tn - gy brn, v. arg, calc, hydratable; occ tr Ls: wh - dk brn, mottled, dolomitic, arg, blky, firm; occ Sh: gy brn, hd, blky, rr siderite veins and pels, micropyr.	9.0

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	C_4	
Sltst 8804'	168 units	2800	280	100	Tr	3.8
Sltst 8825'	180 units	2400	290	50	-	4.6
Peak 8860'	352 units	860	200	100	-	4.4

Ditch Gas (Units): Background 24 Connection nil Trip - Peaks 240 @ 8825', 352 @ 8860'

Mud: Wt. 10.4 Vis 47 W.L. 6.4 ph 9.0 cc Oil - % Cl_2 350 Temp. 90 °F. in 93 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8800'	2.50	1.95	9.80
8850'	2.39	1.66	9.88
8900'	2.23	1.60	10.00
8950'	2.41	1.86	10.01

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	8010-8900'	2	1 & 2 (#10)
Unwashed Ditch (Paleo)	8760-8950'	1 (#34)	
Unwashed Ditch (USGS)	8760-8950'	1 (#34)	
GeoChem (canned)	8550-8820'	1 (#27)	
Cores	No.		

RAY WERMEYER

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-16-79 Time 0600

Present Depth 9052' Previous Depth 8954' Footage 24 Hrs. 98

Formation(s) LISBURNE; CLASTICS Top 8403'; 8593'

Present Activity: Testing BOP's

LITHOLOGIC DESCRIPTION

Interval Reported 8955-9052' Sampling Interval 5 ft. Sample Quality good
Lag Time: 73 min. @ 9050 ft.

Interval	Description	Avg. Drill Rate min./ft.
8955-9010'	Sh: blk - gy brn - gy - dk brn, hd, in pt slty, in pt micropyr, occ calcite veins, occ gilsonite, occ siderite veins and pels; intbdd w/Clyst: gy - green gy, smooth, hd, occ slickensided, occ gilsonite, w/siderite a/a; occ intbdd Sltst: speckled blk and wh, firm, v. calc, in pt organic, pos phosphate pels, v. arg.	9.1
9010-9052'	Intbdd Sh and Ls; Sh: dk brn - brn - blk, firm - hd, in pt slty, occ (?) phosphate pels, occ gilsonite, micropyr; intbdd w/Ls (5-20%): (pos xlized Mdst): lt brn, sil, rr pyr, w/some fos hash; intbdd w/Ls (15-40%): bf - mottled gy, rexlized, hd, dns, rr fos hash, relic fos structures, rr tn phosphate pels; w/mnr Dol at 9045-9050': mottled lt - dk brn, hd, abnt fos hash.	8.5

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	CHROMATOGRAPH (PPM)			
		C_1	C_2	C_3	
8965'	180 units	1400	200	Tr	5.8

Ditch Gas (Units): Background 22 Connection 0 Trip 0 Peaks a/a

Mud: Wt. 10.6 Vis 48 W.L. 6.4 ph 9.0 cc Oil 0 % Cl_2 350 Temp. 92 °F. in 95 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9000'	2.53	1.89	10.14
9050'	2.58	1.91	10.14

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

8/79

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE Date 12-17-79 Time 0600

Present Depth 9117' Previous Depth 9052' Footage 24 Hrs. 65

Formation(s) CARBONATES; CLASTICS Top 8403'; 8593'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 9052-9105' Sampling Interval 5' ft. Sample Quality good
Lag Time: 74 min. @ 9100 ft.

Interval	Description	Avg. Drill Rate min./ft.
9052-9085'	Ls: tn - lt brn, sil; w/Ls: bf, a/a; w/Sh: dk gy brn - brn, hd, w. ind. rr siderite, rr fos casts, pos Monotis, in pt slty; occ Sh: blk, pyr, in pt earthy - hd; w/Cht blk - dk brn.	7.8
9085-9105'	Sh: blk, a/a; Sh: brn - gy brn, a/a; w/Sltst: v. dk brn - blk, v. arg, firm, pos organic mat, circulated break at 9090-9100', in Sltst, nil por, NOSCF.	3.6 - 5.2

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	CHROMATOGRAPH (PPM)			
		C_1	C_2	C_3	
Sltst @ 9100'	184 units	540	80	Tr	3.6

Ditch Gas (Units): Background 25 Connection nil Trip 64 @ 9050' Peaks a/a

Mud: Wt. 10.7 Vis 47 W.L. 5.9 ph 9.0 cc Oil 0 % Cl_2 350 Temp. 85 °F. in 88 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9100'	2.58	1.84	10.18

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 12-18-79 Time 0600

Present Depth 9173' Previous Depth 9117' Footage 24 Hrs. 56

Formation(s) CLASTICS Top 8593'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 9105-9173' Sampling Interval 5' ft. Sample Quality good
Lag Time: 76 min. @ 9150 ft.

Interval	Description	Avg. Drill Rate min./ft.
9105-9173'	Sh: blk, becoming v. dk brn to blk, and Sltst, blk, becoming v. dk brn to blk, organic, a/a; w/mnr Cht blk and brn; and Sh gy, hd, subfis; mnr Clyst, gy brn, becoming lt gy, w/occ siderite and gilsonite veinlets; locally tr Ls, lt brn, rexlized micrite, v.f. xl, sl dol, hd, dns.	10.2

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	CHROMATOGRAPH (PPM)			
		C_1	C_2	C_3	
9110'	60 units	500	50	Tr	

Ditch Gas (Units): Background 18 Connection - Trip - Peaks 120 @ 9125'

Mud: Wt. 10.8 Vis 48 W.L. 6.0 ph 9 cc Oil ____ % Cl_2 350 Temp. 90 °F. in 92 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9150'	2.57	1.82	10.32

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 12-19-79 Time 0600

Present Depth 9313' Previous Depth 9173' Footage 24 Hrs. 140

Formation(s) CLASTICS Top 8593'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 9173-9305' Sampling Interval 5 ft. Sample Quality good
Lag Time: 76 min. @ 9300 ft.

Interval	Description	Avg. Drill Rate min./ft.
9173-9210'	Pred Sh: blk, loc micropyr, in pt v. slty, organic, v. crs ribbed mollusk shell frags and impressions; intbdd w/Sltst, v. dk brn - blk, v. arg, organic and loc Clyst, lt gy to brn gy, firm, in pt slickensided; and Cht blk, v. dk brn.	11.4
9210-9240'	Sh: blk; w/intbdd Cht blk a/a.	11.4
9240-9255'	Pred Sh: a/a; w/intbdd Sltst, v. dk brn, pos arg; w/Cht blk to v. dk brn a/a.	11.4
9255-9305'	Pred Sltst: a/a; rr fos hash; becomes pred Sh w/Cht a/a toward base; v. mnr Dol, dk brn, v.f. xl, microsucrosic, arg, pos w/some arg mat, tr pyr.	10.4

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	BACKGROUND GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3	
9280'	72 units	39 units	750	50	Tr	

Ditch Gas (Units): Background 39 Connection 140 @ 9235' Trip 208 @ 9173' Cuttings Peaks 28 @ 9270'

Mud: Wt. 10.8 Vis 48 W.L. 5.0 ph 9.0 cc Oil - % Cl_2 300 Temp. 89 °F. in 93 °F. ou

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9200'	2.58	1.93	10.27
9250'	2.55	1.84	10.26
9300'	2.53	1.75	10.14

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	8960-9180'	1	Bx #35
Unwashed Ditch (USGS)	8960-9180'	1	Bx #35
GeoChem (canned)	8820-9180'	1	Bx #28
Cores	No.		

HUSKY

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-2-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. 0

Formation(s) LISBURNE Top 7408'

Present Activity: RIH w/bit to clean out hole.

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. 10.6 Vis 48 W.L. 9.8 ph 11.0 cc Oil 0 % Cl_2 450 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.		

Signed: DAVE YOUNG

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-20-79 Time 0600

Present Depth 9422' Previous Depth 9313' Footage 24 Hrs. 109'

Formation(s) CLASTICS (SHUBLIK ?) Top 8593'

Present Activity: Trip for bit

LITHOLOGIC DESCRIPTION

Interval Reported 9305-9422' Sampling Interval 5' ft. Sample Quality good
Lag Time: 77 min. @ 9400 ft.

Interval	Description	Avg. Drill Rate min./ft.
9305-9335'	Sh and Sltst, blk, in pt dol; w/Cht a/a; v. mnr Dol, dk brn, v.f. xl, microsucrosic, arg, pos some organic residue.	11.1
9335-9370'	Sltst, v. dk brn, dol, hd, v. arg; and Sh, v. dk brn, hd, slty; w/Cht dk brn, and mnr Dol a/a; some Clyst lt gy, becoming lt brn, firm - hd, occ gilsonite and siderite veinlets.	9.0
9370-9422'	Sh, v. dk brn - blk a/a and Sh brn, hd, dns, w. compacted, becoming gy brn, smooth w/gilsonite veinlets; Cht, blk to gy; mnr Dol, lt gy - bf, in pt sft, some rexlized fos hash; and mnr Sltst.	11.0

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL DITCH GAS	BACKGROUND GAS	CHROMATOGRAPH (PPM) C_1	C_2	C_3
9350'	150 units	36 units	2500	60	10

Ditch Gas (Units): Background 36 Connection 0 Trip 0 Peaks 24 @ 9385'

Mud: Wt. 10.8 Vis 46 W.L. 5.6 ph 9.0 cc Oil - % Cl_2 250 Temp. 90 °F. in 93 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9350'	2.65	1.83	10.28
9400'	2.65	1.84	10.25

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	9190-9410'	1	Bx #36
Unwashed Ditch (USGS)	9190-9410'	1	Bx #36
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 12-21-79 Time 0600

Present Depth 9500' Previous Depth 9422' Footage 24 Hrs. 78

Formation(s) CLASTIC (SHUBLIK ?) Top 8593'

Present Activity: Circulate drilling break. Spls from break indicate sft Sltst, NOSCF, no gas.

LITHOLOGIC DESCRIPTION

Interval Reported 9422-9495' Sampling Interval 5 ft. Sample Quality good
Lag Time: 76 min. @ 9450 ft.

Interval	Description	Avg. Drill Rate min./ft.
9422-9455'	Intbdd Sltst: v. dk brn, firm, loc sft, sl dol, pos organic, occ phosphate pels, v. arg, occ some rexlized fos hash; w/Sh: v. dk brn, blky, hd, micropyr; occ Sh: brn, hd, subfis - fis.	9.4
9455-9480'	Sh and Sltst: a/a; w/mnr Clyst: lt gy, sl waxy, hd; & mnr Dol: wh, sft, (rexlized lime mud), micropyr; occ Clyst: sil, hd.	10.0
9480-9495'	Pred Sltst: v. dk brn, sft - firm, phosphate pels (?), pyr, in pt hydratable, sl dol; w/mnr Sh: blk and Clyst: pale green,	12.4

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	CHROMATOGRAPH (PPM) C_1	C_2
9445'	110 units	1300	50

Ditch Gas (Units): Background 38 Connection 70 @ 9465' Trip 222 @ 9422 Peaks 118 @ 9440'

Mud: Wt. 10.9 Vis 48 W.L. 5.6 ph 9.0 cc Oil 0 % Cl_2 200 Temp. 85 °F. in 88 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9450'	2.64	1.83	10.35

Dispatched Samples:

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

RAY WERMEYER

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE No. 1 Date 12/22/79 Time 06:00

Present Depth 9624 Previous Depth 9500 Footage 24 Hrs. 124

Formation(s) clastics (Shublik?) Top 8593'

Present Activity: Drilling.

LITHOLOGIC DESCRIPTION

Interval Reported 9500 - 9615' Sampling Interval 5 ft. Sample Quality good
Lag Time: 81 min. @ 9600 ft.

Interval	Description	Avg. Drill Rate min./ft.
9500-9540'	Intrbd Sh, dk gy brn, brn, and blk; w/Sltst, dk brn and blk, in pt. mottled wht and gy, calc; and Clyst, lt. gy-gy, calc.	13.8
9540-9575'	Pred. Cly, dk brn, v. soft, slty, water soluable; w/ Clyst, a/a; and Cht, gy; and Sh, blk to dk brn a/a.	9.3
9575-9615'	Sh, blk-dk brn; w/mnr Clyst, lt. gy-gy.brn; and Cly, a/a; mnr Cht, brn below 9605'	10.4

SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	Background Gas	CHROMATOGRAPH (PPM) C_1	C_2
9520'	40 units	28 units	300	50

Ditch Gas (Units): Background 28 Connection 0 Trip 0 Peaks -

Mud: Wt. 10.9 Vis 48 W.L. 5.8 ph 9.0 cc Oil - % Cl_2 300 Temp. 89 °F. in 93 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9500'	2.65	1.91	10.33
9550'	2.65	1.95	10.33
9600'	2.64	1.94	10.26

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	9180' - 9540'	1	Bx 29
Corex	No.		

Rex Hermeyer

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U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12- 3-79 Time 0600

Present Depth 8015' Previous Depth 8015' Footage 24 Hrs. -

Formation(s) LISBURNE Top 7408'

Present Activity: Drilling cmt to 7979', test csg.

LITHOLOGIC DESCRIPTION

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

Interval	Description	Avg. Drill Rate min./ft.
	Ran CBL Log: 7910' - surface	

SHOW DESCRIPTION (Gas and/or Oil)

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

Mud: Wt. 10.6 Vis 63 W.L. 10.0 ph 11.0 cc Oil 0 % Cl_2 450 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

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-4-79 Time 0600

Present Depth 8045' Previous Depth 8015' Footage 24 Hrs. 30'

Formation(s) LISBURNE Top 7408'

Present Activity: Cutting Core #7 (Top at 8038')

LITHOLOGIC DESCRIPTION

Interval Reported 8015-8038' Sampling Interval 5 ft. Sample Quality good
Lag Time: 56 min. @ 8030 ft.

Interval	Description	Avg. Drill Rate min./ft.
8015-8025'	Dol: wh - lt gy, mottled, hd calc, w/relic crinoid stems, (prob bioclastic packstone), sl - nil intgran por w/mnr small vugs, NOSCF.	14.0
8025-8038'	Dol: gy - brn, hd, arg, f. xl; grds in pt to Sh: gy brn, dolomitic, tr lt gy Cht, NOSCF.	12.0

~~SHOW DESCRIPTION~~ (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	
Peak @ 8025'	20	200	Tr	

Ditch Gas (Units): Background 14 Connection nil Trip 26 @ 8038' Peaks a/a

Mud: Wt. 10.2 Vis 42 W.L. 10.0 ph 11.0 cc Oil - % Cl_2 400 Temp. 100 °F. in 108 °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

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U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-5-79 Time 0600

Present Depth 8090' Previous Depth 8045' Footage 24 Hrs. 45

Formation(s) LISBURNE Top 7408'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8038-8085' Sampling Interval Core & 5' ft. Sample Quality good
Lag Time: 70 min. @ 8080 ft.

Interval	Description	Avg. Drill Rate min./ft.
8038-8068'	Core #7, Cut 30', Rec. 30' (100%)	24.0
	8038 - 8045.4 - Sh: gy brn, Dol, sil, hd.	
	8045.4 - 8068.0 - Dol: gy - brn - wh, sl calc, w/scat p-p vugs, sl - fair sour gas odor, bleed some gas from Dol mtx, rr scat blk residual dd oil stn, no spl fluor, no cut; rr ptly open vert frac, rr p. preserved crinoid stems in lower pt interval, large (0.5 - 5.0 cm) Dol vugs at 8066.0 - 8066.5', apparent bdg as based on p. developed rock cleavage 30°, tr dd oil stn on some frac and bdg.	
8068-8085'	Dol: gy - brn - wh, mottled; grds to Dol: gy - brn, arg; and Sh: gy brn, hd, sil, tr dd oil stn, NOCF.	9.0

~~SHOW DESCRIPTION~~ (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2
8075'	18	300	Tr

Peak cuttings gas: 18 @ 8075'

Ditch Gas (Units): Background 12 Connection - Trip 18 @ 8068' Peaks a/a

Mud: Wt. 10.2 Vis 48 W.L. 9.2 ph 10.5 cc Oil 0 % Cl_2 350 Temp. 84 °F. in 92 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure	Calc / Dol
8050'	2.75 @ 8085'	1.74	9.64	1 / 65

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
GeoChem (canned)	7830-8040'	1 (Bx #24)	
Cores	No. 8038-8068'	11	

Geologist DAVE YOUNG

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U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-6-79 Time 0600

Present Depth 8180' Previous Depth 8090' Footage 24 Hrs. 90'

Formation(s) LISBURNE Top 7408'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8085-8170' Sampling Interval 5' ft. Sample Quality good
Lag Time: 75 min. @ 8175' ft.

Interval	Description	Avg. Drill Rate min./ft.
8085-8120'	Dol: tn - wh, sl mottled, pelletal ghosts (prob a dolomitized pelletal packstone); in pt has blk oil residue in pore space; loc brn - gy, arg; and brn - wh crinoidal packstone; tt, NOSCF.	8.0
8120-8130'	Cht: wh, milky to trnsl, tr microfos.	7.0
8130-8170'	Dol: gy - brn, med xl, arg, w/rr crinoids, NOSCF; loc patches of dk gy dolomitic Sh.	11.0

SHOW DESCRIPTION (Gas and/or Oil)

	UNITS TOTAL GAS	UNITS BACKGROUND GAS	CHROMATOGRAPH (PPM) C_1	C_2	
8105'	22	14	180	Tr	

Ditch Gas (Units): Background 14 Connection - Trip 15 @ 8170' Peaks -

Mud: Wt. 10.2 Vis 47 W.L. 5.8 ph 10.5 cc Oil ____ % Cl_2 350 Temp. - °F. in - °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	PORE PRESSURE	CALC / DOL
8100'	2.57	1.66	9.80	0 / 68
8150'	-	1.72	9.80	10 / 84

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

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U. S. GEOLOGICAL SURVEY/ONPRA

DAILY GEOLOGICAL REPORT

WELL LISBURNE Date 12-7-79 Time 0600

Present Depth 8287' Previous Depth 8180' Footage 24 Hrs. 107'

Formation(s) LISBURNE Top 7408'

Present Activity: Tripping for bit.

LITHOLOGIC DESCRIPTION

Interval Reported 8170-8275' Sampling Interval 5 ft. Sample Quality good
Lag Time: 77 min. @ 8275' ft.

Interval	Description	Avg. Drill Rate min./ft.
8170-8235'	Dol: dk gy brn, mottled in pt. marcosucrosic, med - crs xl, hd, arg, dns: w/mnr Dol wh, pelletoidal, hd, dns, nil vis por, NOSCF; and mnr (10%) Sltst, v. dk gy - blk, hd, blky.	11.0
8235-8245'	Ls: lt gy - bf, mottled, dolomitic, f. xl, hd, dns, arg, in pt pelletoidal, nil vis por; and Dol, dk gy - brn, a/a; and Sltst a/a, increasing from 10-40%.	15.0
8245-8270'	Ls: dk gy brn, hd, v.f. xl, dns, rr crinoid debris, arg, nil por, NOSCF; and Dol, gy - brn a/a; Sltst, a/a 10-20%.	11.0
8270-8280'	Dol, Ls, and Sltst, a/a; w/mnr Ss, clr to mottled green, some apparent glauconite grns, f. grd, dns, hd, tt, no shows.	8.0

SHOW DESCRIPTION (Gas and/or Oil)

	UNITS TOTAL DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	
8250'	130	120	Tr	

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

Mud: Wt. 10.2 Vis 49 W.L. 6.2 ph 10.5 cc Oil - % Cl_2 350 Temp. 84 °F. in 86 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8200'		1.56	9.77
8250'		2.07	9.78

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	8010-8280'	1	Bx #31
Unwashed Ditch (USGS)	8010-8280'	1	Bx #31
GeoChem (canned)	8140-8190'; Core	1	Bx #25
Cores	No.		

Geologist RAY WERMEYER

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE Date 12-8-79 Time 0600

Present Depth 8315' Previous Depth 8287' Footage 24 Hrs. 28

Formation(s) LISBURNE/CLASTIC SEDIMENTS Top 7408'/8250'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8280-8310' Sampling Interval 5 ft. Sample Quality good
Lag Time: 70 min. @ 8310 ft.

Interval	Description	Avg. Drill Rate min./ft.
8280-8285'	Sltst: grdg to Sh, dk gy to blk, blky, hd.	8.5
8285-8510'	Ss: gy to mottled green, some clr; qtztc to qtzt, v.f. - f. grn, mod w. srt, hd, w. cmt, sl dol, scat green glau, nil por, no shows; w/ intbdd Sltst grdg to Sh, dk gy to blk a/a; tr Sh, brn - dk brn, hd, blky.	15.0

SHOW DESCRIPTION (Gas and/or Oil)

	PEAK UNITS DITCH GAS	CHROMATOGRAPH (PPM) C_1	C_2	
8305'	8	60	Tr	

Ditch Gas (Units): Background 6 Connection 0 Trip 8 @ 8287' Peaks a/a

Mud: Wt. 10.2 Vis 50 W.L. 6.3 ph 10.5 cc Oil ____ % Cl_2 350 Temp. 84 °F. in 86 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8300'	2.56	1.94	9.67

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
[illegible]			
[illegible]	No.		

RAY WERMEYER

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE #1 Date 12-9-79 Time 0600

Present Depth 8465' Previous Depth 8315' Footage 24 Hrs. 150

Formation(s) LISBURNE/CLASTICS/LISBURNE Top 7408'/8250'/8403'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 8310-8455' Sampling Interval 5 ft. Sample Quality good
Lag Time: 71 min. @ 8450 ft.

Interval	Description	Avg. Drill Rate min./ft.
8310-8325'	Ss: gy, speckled green, some clr, qtztc to qtzt, v.f. - f. grn, mod srt, hd, w. cmt w/sil, sl dol, scat green glau, nil por; intbdd w/Sh, in pt grds to Sltst, dk gy - blk, hd, blky, slty, mica.	11.0
8325-8410'	Intbdd Sh and Ss a/a, Ss in v. thn strgs and pods; and Sltst gy brn, hd, blky, mica, arg; w/tr Cly gy - tn, sft, rr glau, slty.	11.0
8410-8455'	Ls: v. lt gy - wh, in pt mottled - wh - dk gy, calcilutitic in pt, firm - brittle, scat fos ghosts, pelletoidal, dol, pvr, poor chalky por; w/Sh intbds, dk gy - blk, hd, blky, micromica, slty; and Cht, dk brn - blk, v. hd.	10.0 - 20.0

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	BACKGROUND GAS	CHROMATOGRAPH (PPM) C_1	C_2	
8305'	13 units	8 units	110	Tr	

Ditch Gas (Units): Background 8 Connection 0 Trip 0 Peaks a/a

Mud: Wt. 10.2 Vis 48 W.L. 5.8 ph 10.5 cc Oil - % Cl_2 350 Temp. 86 °F. in 87 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
8350'	2.61	2.04	9.70
8400'	2.64	2.00	9.58

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)			
Unwashed Ditch (USGS)			
Core (Cleaned)			
Core	No.		

RAY WERMEYER

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE No. 1 Date 12/23/79 Time 06:00

Present Depth 9656' Previous Depth 9624' Footage 24 Hrs. 32'

Formation(s) clastics (Shublik?) Top 8593'

Present Activity: Drilling

LITHOLOGIC DESCRIPTION

Interval Reported 9624-9645 Sampling Interval 5 ft. Sample Quality good
Lag Time: 78 min. @ 9650 ft.

Interval	Description	Avg. Drill Rate min./ft.
9624-9630'	Sh, gy brn, dk brn, and Clyst, lt gy to gy brn a/a; w/ mnr Clyst, pale green, hd, sil, rr micropyritic; and Cly, wht, soft, bentonitic (?).	29.0
9630-9645'	Pred Clyst, pale green a/a; w/mnr Cly, wht a/a; mnr Sltst grdg to Sh, dk brn, hd, blky.	16.8

SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	Background	CHROMATOGRAPH (PPM) C_1	C_2
9635'	10 units	9 units	200	100

Ditch Gas (Units): Background 9 Connection 0 Trip 58 @ 9628' Peaks 0

Mud: Wt. 10.9 Vis 48 W.L. 5.8 ph 8.5 cc Oil ____ % Cl_2 350 Temp. 89 °F. in 91 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9650'	2.65	1.98	10.25

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

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

DAILY GEOLOGICAL REPORT

WELL Lisburne No. 1 Date 12/24/79 Time 06:00

Present Depth 9728 Previous Depth 9656 Footage 24 Hrs. 72

Formation(s) clastics (Shublik?) Top 8593

Present Activity: Cutting core #9.

LITHOLOGIC DESCRIPTION

Interval Reported 9645'-9728' Sampling Interval 5 ft. Sample Quality good
Lag Time: 80 min. @ 9725 ft.

Interval	Description	Avg. Drill Rate min./ft.
9645-9665	Sh., clystn., and cly a/a; w/mnr Ss, qtzitic, clear, v.f. grnd, mod w. srtd, hd, mod w. cmtd w/sil, dolomitic, w/scat bright green grns (glauconite?)	18.3
9665-9670	Ss., qtzitic a/a; w/tr Ls, white, chalky, dolo, arg, sft-firm; and Sh, gy brn and dk gy to blk a/a; w/tr Dolo, wht, mottled buff to dk brn, med - v. crs xln, sucrosic-macro-sucrosic, arg, hard.	3.4
9670-9720	Dolo Ls, wht, becoming mottled wht-dk brn, f.-med xln, in pt. sucrosic, in pt. arg, occ rexled fos hash, including rexled Crinoid frags; v. mnr dk brn, w. compacted Sh, w/occ gilsonite; and Cht, mottled v. lt.-dk brn, subconchoidal frac, com-abund dk brn organic inclus.	6.4
9720-9728	Pred Cht, abund mottled lt to dk brn a/a w/some blk cht, mnr dolo Ls a/a.	10.0

SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	Background Gas	CHROMATOGRAPH (PPM) C_1	C_2
9664-9674	176 units	52 units	1850	50

Ditch Gas (Units): Background 52 Connection - Trip - Peaks a/a

Mud: Wt. 10.9 Vis 50 W.L. 5.6 ph 8.6 cc Oil - % Cl_2 250 Temp. 91 °F. in 94 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9700	2.69	1.73	10.23

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 No. 1 Date 1-2-80 Time 0600

Present Depth 10,422' Previous Depth 10,292' Footage 24 Hrs. 130'

Formation(s) Lisburne Top 9665'

Present Activity: Drilling.

LITHOLOGIC DESCRIPTION

Interval Reported 10,280' - 10,410' Sampling Interval 5' ft. Sample Quality good
Lag Time: 87 min. @ 10,390' ft.

Interval	Description	Avg. Drill Rate min./ft.
10,280-10,410'	Dolo, mottled and streaked wht and dk brn to blk, occ blk; and Dolo, wht a/a, abund gilsonite; w/mnr Sh, v. dk brn to blk, hd, gilsonite; mnr Cht a/a; w/ v. local Ls, mottled white and dk gy to blk, sft, arg, chalky.	10.5

SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	Background Gas	CHROMATOGRAPH (PPM) C_1	C_2
10,375'	59 units	35 units	9000	200

Ditch Gas (Units): Background 35 Connection 0 Trip 0 Peaks 0

Mud: Wt. 10.4 Vis 48 W.L. 6.0 ph 8.5 cc Oil - % Cl_2 Temp. 94 °F. in 96 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
10,300	2.60	1.73	10.25
10,350	2.48	1.75	10.25
10,400	2.55	1.74	10.14

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	10,100-10,300	1	Bx 40
Unwashed Ditch (USGS)	10,100-10,300	1	Bx 40
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 No. 1 Date 1-3-80 Time 0600

Present Depth 10,557' Previous Depth 10,422' Footage 24 Hrs. 135'

Formation(s) Lisburne Top 9665'

Present Activity: Drilling.

LITHOLOGIC DESCRIPTION

Interval Reported 10,410 - 10,550' Sampling Interval 5 ft. Sample Quality good
Lag Time: 89 min. @ 10,550 ft.

Interval	Description	Avg. Drill Rate min./ft.
10,410-10,550'	DOLO: mottled and streaked wht and blk, loc wht and v. dk brn, in pt v. sil (less sil below 10,515'), f. - med. xln, occ v. crs xln, hd, v. loc, sft streaks and veins, w blk gilsonite material, v. rr crinoid frags; w/mnr Sh,blk, brn, earthy, occ scat dolo rhombs, loc micro-pyritic; and mnr Cht, pred brn, occ varicolored.	10.3
	Request: spl transmittal forms	

SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	Background gas	CHROMATOGRAPH (PPM) C_1	C_2	
10,495'	75 units	33 units	14,000	500	

Ditch Gas (Units): Background 33 Connection - Trip - Peaks -

Mud: Wt. 10.5 Vis 49 W.L. 5.8 ph 8.5 cc Oil - % Cl_2 200 Temp. 94 °F. in 96 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
10,450'	2.47	1.70	10.13
10,500'	2.50	1.74	10.09
10,550'	2.54	1.84	9.95

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 No. 1 Date 1-4-80 Time 0600

Present Depth 10,684' Previous Depth 10,557' Footage 24 Hrs. 127

Formation(s) Lisburne Top 9665'

Present Activity: Drilling.

LITHOLOGIC DESCRIPTION

Interval Reported 10,550' - 10,670' Sampling Interval 5 ft. Sample Quality good
Lag Time: 93 min. @ 10,680 ft.

Interval	Description	Avg. Drill Rate min./ft.
10,550-10,580'	DOLO: brn, calc, loc some blk, f. - med xln, rr crs xln, v. hd, in pt sil; and Sh, rr micropyr; v. mnr Cht.	17.5
10,580-10,625'	LS; tan-brn, some mottled buff and dk brn, in pt. dolo, firm, pred. rexlzd lime mud, arg, v.f.- micro xln, some rexlzd fos hash, rr crinoid frags; and Sh, brn, sl dolo w/ scat rr euhedral calcite xls.	12.1
10,625-10,670'	DOLO; brn, calc, rr mottled brn and wht, f. - med xln, in pt crypto xln, hd, occ.scat rexlzd fos frags, occ calcite veins; and Sh, brn, hd, rr blk.	9.9

SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	Background	CHROMATOGRAPH (PPM) C_1	C_2
10,616'	320 units	31 units	63,000	200

Ditch Gas (Units): Background 31 Connection 0 Trip 0 Peaks 0

Mud: Wt. 10.5 Vis 47 W.L. 5.8 ph 8.5 cc Oil 0 % Cl_2 200 Temp. 94 °F. in 97 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
10,600'	2.56	1.90	10.15
10,650'	2.53	1.87	10.12

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 No. 1 Date 12/25/79 Time 06:00

Present Depth 9753 Previous Depth 9728 Footage 24 Hrs. 25'

Formation(s) clastics (Shublik ?)/ Lisburne Top 8593' / 9665'

Present Activity: Circulating @ shoe cutting mud wt.; lost circ. @ 9753'.

LITHOLOGIC DESCRIPTION

Interval Reported 9728'-40' Sampling Interval 5 ft. Sample Quality good
Lag Time: 107 min. @ 9753 ft.

Interval	Description	Avg. Drill Rate min./ft.
9728'-9738'	Core #9, Cut 10', recovered 10'	15-65, Avg. 46.6
	9728.0-9734.8, Dolo, v. dk brn, v.f. xln, micro-sucrosic, v. bituminous (?), v. hd. scat bk Cht nodules and rr beds to 1", scat rexlzd shell frags, rr crinoid frags, scat frags sealed w/bituminous matter w/ 25-30 degree dips; fracs and cavity @ 9728' lined w/euhedral calcite and Qtz xls, abund hairline calcite seal fracs, p. intregran Ø, No shows.	
	9734.8-9738.0 Ls, sl. dolo, mottled lt.-dk brn, v. crs. xln, v. hd, rr rexlzd crinoid frags, loc v. arg, occ slickensided fracs 10-35 degree dips; high angle calcite sealed frac @ 9736.5' dipping 65 degrees.	
9738-9740'	Ls, v. dk brn, v.f. xln, sl dolo, sucrosic, abund bituminous (?) matter, v. hd, p.-nil Ø, No shows; and Ls, mottled tan and brn, sl dolo, v. crs xln as in base Core #9. Nil Ø, no show.	

SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	CHROMATOGRAPH (PPM) C_1
9740'	100 units	200

Ditch Gas (Units): Background 19 Connection 0 Trip 20 @ 9738' Peaks -

Mud: Wt. 10.7 Vis 42 W.L. 9.8 ph 8.5 cc Oil - % Cl_2 250 Temp. 74 °F. in 79 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9750	-	1.70	10.25

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch			
Unwashed Ditch (Paleo)	9410-9650	1	Bx 37
Unwashed Ditch (USGS)	9410-9650	1	Bx 37
GeoChem (canned)	9540-9738	1	Bx 30
Cores	No. 9 - 9728-9738	4	

Geologist Ray Wermeyer

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE No. 1 Date 12/26/79 Time 06:00

Present Depth 9823' Previous Depth 9753' Footage 24 Hrs. 70'

Formation(s) Lisburne Top 9665'

Present Activity: Drilling.

LITHOLOGIC DESCRIPTION

Interval Reported 9740-9815' Sampling Interval 5' ft. Sample Quality good
Lag Time: 79 min. @ 9820 ft.

Interval	Description	Avg. Drill Rate min./ft.
9740-9753'	Lost circ, no samples recovered.	19.0
9753-9760'	Pred cavings, interpreted as Ls, v. dolomitic, mottled tan to brn, some wht and gy, rexlzd lime mud to v. crs xln, in pt v. crs fos debris, in pt arg; tr euhedral calcite xls, and Sh, blk to v. dk brn, sl dolomitic, hd, well compacted.	11.0
9760-9815'	Dolomitic Ls, mottled tan and brn, becoming dk brn, gen, a/a but becoming less dolomitic below 9790'; w/Ls, wht, chalky, crypto xln, sft-firm, occ rexlzd fos debris, in pt arg, poss v. low chalky porosity, no shows; and Ls, mottled wht and blk below 9810', pred lime mud, rr scat fos debris, rr crinoid (?) frags; occ free euhedral calcite xls; mnr Sh, dk brn to blk a/a; v. rr calcite sealed veins.	8-10

SHOW DESCRIPTION (Gas and/or Oil)

	TOTAL GAS	BG Gas	CHROMATOGRAPH (PPM) C_1	C_2
9759'	240 units	55 units	700	20

Ditch Gas (Units): Background 55 Connection 0 Trip 0 Peaks 0

Mud: Wt. 10.5 Vis 54 W.L. 6.8 ph 8.5 cc Oil - % Cl_2 200 Temp. 77 °F. in 79 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9800'	2.62	1.73	10.25

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE No. 1 Date 12/27/79 Time 06:00

Present Depth 9895' Previous Depth 9823' Footage 24 Hrs. 72

Formation(s) Lisburne Top 9665'

Present Activity: Drilling.

LITHOLOGIC DESCRIPTION

Interval Reported 9815'-9890' Sampling Interval 5 ft. Sample Quality good
Lag Time: 81 min. @ 9890 ft.

Interval	Description	Avg. Drill Rate min./ft.
9815-9880'	Ls, wht and Ls mottled lt and dk brn, and Sh, blk, a/a; w/ com Cht, tan, glassy, becoming intrbd w/ Ls mottled wht and blk, v. arg, dolo, hd, abund rexlzd fos frags including crinoid frags, med-crs xln; and Dolo , blk and wht, calcareous, hd, med xln, arg, loc com fos frags including crinoid frags.	10.5
9880'-9890'	Cht, tan, mottled tan and dk brn, in pt glassy; w/mnr Dolo, mottled wht and blk a/a, v. hd; v. sil, w/well preserved dolo rhombs, f.-crs xln, microsucrosic.	9.6

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SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	Background Gas	CHROMATOGRAPH (PPM) C_1	C_2
9885'	88 units	41	400	tr

Ditch Gas (Units): Background 41 Connection 0 Trip 3400 @ 9836' Peaks a/a

Mud: Wt. 10.5 Vis 50 W.L. 6.4 ph 8.5 cc Oil - % Cl_2 250 Temp. 78 °F. in 80 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9850'	2.62	1.75	10.26

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

DAILY GEOLOGICAL REPORT

WELL LISBURNE No. 1 Date 12/28/79 Time 06:00

Present Depth 9963' Previous Depth 9895' Footage 24 Hrs. 68'

Formation(s) Lisburne Top 9665'

Present Activity: Drilling.

LITHOLOGIC DESCRIPTION

Interval Reported 9890-9955 Sampling Interval 5' ft. Sample Quality good
Lag Time: 84 min. @ 9955 ft.

Interval	Description	Avg. Drill Rate min./ft.
9890'-9955'	Pred Dolo, buff, mottled wht-brn, mottled wht - blk, and v. dk brn, f.- med xln, occ crs xln, micro to macro sucrosic, hd, in pt sil and arg; w/ Dolo , v. sil, tan, v. hd, micro xln, micro sucrosic; w/mnr Sh (10%) blk, v. dk brn, scat com dolo rhombs, loc micropyritic, in pt earthy, v. rr v.f. ribbed fos cast; mnr Cht tan, in pt glassy.	12.8

SHOW DESCRIPTION (Gas and/or Oil)

Depth	Total Gas	Background Gas	CHROMATOGRAPH (PPM) C_1	C_2	
9940'	60 units	45 units	12,000	500	

Ditch Gas (Units): Background 45 Connection - Trip 320 @ 9896' Peaks a/a

Mud: Wt. 10.5 Vis 48 W.L. 6.0 ph 8.5 cc Oil - % Cl_2 200 Temp. 89 °F. in 93 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
9950'	2.56	1.73	10.28

Dispatched Samples:

Type	Interval	No. of Boxes	Set No.
Washed & Dried Ditch	8905'-9920'	1	Bx 11 Sets 1 &2
Unwashed Ditch (Paleo)	9650'-9890'	1	Bx 38
Unwashed Ditch (USGS)	9650'-9890'	1	Bx 38
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 No. 1 Date 12/29/79 Time 0600

Present Depth 10,026' Previous Depth 9963' Footage 24 Hrs. 63'

Formation(s) Lisburne Top 9665'

Present Activity: Tripping in w/new bit.

LITHOLOGIC DESCRIPTION

Interval Reported 9955-10,020' Sampling Interval 5 ft. Sample Quality good
Lag Time: 85 min. @ 10,025' ft.

Interval	Description	Avg. Drill Rate min./ft.
9955'-10,020'	Dolo: mottled bf-v. dk brn, occ lt-dk gy, f.-med xtal, in pt crypto xtal, rr cr xtal, in pt sucrosic, rr crinoid frag, occ abund dolo rhombs, in pt sil, arg; w/ Cht: lt tan, in pt glassy, occ rhomb ghosts.	12.0
	Request: yellow legal pads	

SHOW DESCRIPTION (Gas and/or Oil)

	Total Gas	CHROMATOGRAPH (PPM) C_1	C_2
9970'	90	18,000	200

Ditch Gas (Units): Background 44 Connection nil Trip nil Peaks a/a

Mud: Wt. 10.5 Vis 49 W.L. 5.6 ph 8.5 cc Oil - % Cl_2 200 Temp. 90 °F. in 93 °F. out

Data Unit:

Depth	Shale Density	Dc Exponent	Pore Pressure
10,000	-	1.50	10.31

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