

WELL : 2/7-3X
 FIELD : Eldfisk 12 APR. 1972 - 11 OKT. 1972 - 182 Days

H. P. Co. - NORWAY
 WELL RECAP

		Gyp-CMC Lignosulfonate	Gyp-CMC Lignosulfonate	Lignosulfonate	Sat. Salt Lignosulfonate	
1	MUD TYPE					
2	MUD WEIGHT	PPG 12.0-14.3	14.3-14.6	14.6-16.9	16.9	12.0-16.9
3	INTERVAL EXAMINED	ft 1580'-5250	5250-10,482	10,482-13,800	13,800-14,300	1580-14,300
4	TOTAL FOOTAGE	ft 3670	5232	3318	500	12,720
5	HRS DRILLING	hrs 76.5	118.5	331.5	29.5	556
6	PENETRATION (4÷5)	ft/hr 48.0	44.2	10.0	16.9	22.9
7	MUD COST ^{CURRENT} (1973)	\$ 104,010	46,790	78,574	19,087	248,461
8	MUD COST/FT (7÷4)	\$/ft 28.34	8.94	23.68	38.17	19.53
9	HRS. CONDITIONING HOLE	hrs 22.5	-	-	-	22.5
10	CONDITIONING COST (9X Rig Cost)	\$ 42,750	-	-	-	42,750
11	CONDITIONING COST/FT (10÷4)	\$/ft 11.65	-	-	-	
12		25 APR. 1972	09 MAI 1972	01 JUNI 1972	18 JUNI 1972	18 JUNI 1972
13	ROTATING COST (5XRIG COST)	\$ 145,350	225,150	629,850	56,050	1,056,400
14	ROTATING COST/FT (13÷4)	\$/ft 39.60	43.03	189.83	112.10	83.05
15	FISHING HRS	hrs -	-	-	-	-
16	FISHING COST (15X RIG COST)	\$ -	-	-	-	-
17	FISHING COST/FT (15÷4)	\$/ft -	-	-	-	-
18	TOTAL COST (7+10+13+16)	\$ 292,110	271,940	708,424	75,137	1,347,611
19	TOTAL COST/FT (18÷4)	\$/ft 79.59	51.98	213.51	150.27	105.94
20	COMMENTS			Core		

RIG COST = \$1900/HR. 17 1/2" 12 1/4" 8 1/2" 6" 65 Days



**BAROID DIVISION
NATIONAL LEAD COMPANY**

DRILLING MUD RECORD

COMPANY Phillips Pet. Co.

STATE Norway

CASING PROGRAM: 20 inch at 1582 ft.

WELL 217-3x

COUNTY N. Sea

inch at _____ ft.

DATE 18-4-72

CONTRACTOR I. D. C.

LOCATION Eldfisk

inch at _____ ft.

STOCKPOINT Stavanger

BAROID ENGINEER H. Ruffing-Brown-Press-Witt

SEC _____ TWP _____

RNG _____

TOTAL DEPTH 17300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION			SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT	
				cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %	Water %	Solids %		
4-72	Cont.																						Raise viscosity above 35 sec Necessary to rig side constantly to prevent barite from settling.
19-4-72	1582	12.0	35	7.8	1	Nil	-	-	10.5	11	10	2	0	0	21,000	1580	-	8	4	82	14	Drilled cement & shoe with water displaced hole with mud & started delq. clay. Begin getting mud rings at 1582'	
	1800	11.3	49	24.2	3	Te	-	-	10.8	18	9	7	2	6	20,000	2040	-	9	3	82	15	Small gas kick at 1800'. Pumped wt to 12.0. Lost approx 100 bbl mud cleaning flow line and shakers. Necessary to acid water to build vat.	
	1980	12.0	40	10.5	2	1/4	-	-	10.2	10	7	7	1	3	20,000	2400	-	5	3	81	16		
20-4-72	2430	12.4	43	20.2	3	1/4	-	-	9.7	14	10	9	2	10	21,500	2500	-	3	2	81	17	Delq. sit sticky clay with severe mud rings. Lost approx 700 bbl cleaning flow line & shakers. Unable to prevent rings, reducing production. As increasing pump pressure begin to get solids increase to essure to run water in shoe constantly to keep serious from plugging up. Added app to keep clay from dispersing. Unable to get any excess Gpm. Lost at 2065' without trouble. In- creased wt to 12.0.	
	2820	13.0	52	8.4	2	1/4	-	-	9.5	31	20	22	2	17	25,000	2760	-	27	6	72	22		
	3020	13.0	60	14.2	3	1/2	-	-	9.4	25	14	22	7	14	22,000	2240	-	23	5	71	24		
21-4-72	3360	13.5	48	11.5	2	1/2	-	-	9.8	26	15	21	5	11	24,500	2820	-	45	4	71	25	Delq. clay with several mud rings. Added Q-Brown to re- duce viscosity & yield point. Necessary to add water constantly to clean shakers.	
	3700	13.3	60	14.0	2	1/4	-	-	9.5	29	19	21	14	15	21,000	2400	-	31	4	70	26		



**BAROID DIVISION
NATIONAL LEAD COMPANY**

DRILLING MUD RECORD

COMPANY Phillips Pet. Co. STATE NORWAY CASING PROGRAM: 20 inch at 1582 ft.
 WELL 217-3x COUNTY N. Sea _____ inch at _____ ft.
 DATE 21-4-72 CONTRACTOR I.D.C. LOCATION Eldfisk _____ inch at _____ ft.
 STOCKPOINT STAVANGER BAROID ENGINEER N. Ruppel - Brown SEC _____ TWP _____ RNG _____ TOTAL DEPTH 14,300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION		SAND %	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Cake 2nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10 min	Cl ppm	Ca ppm	SO ₄ ppm	Alk PF	Oil %	Water %	Solids %	
4-72 cont.	3953	13.3	48	10.1	2	1/4	-	-	10.0	27	23	9	2	24	21,500	1880	-	5	3	71	26	Necessary to add large amt of barite to maintain mud wt. Operate D.D. shaker to remove drill solids & centrifuge to recover barite.
22-4-72	4153	14.2	49	10.3	2	1/4	-	-	9.8	28	21	14	5	25	24,000	2480	-	45	2	70	28	Bad mud rings at 4042, 4120 & 4260. Plugged flow line at 4260 screens. Lost approx 100 lbs. Triped at 4267 without success. R.I.A. badly ballooning. After trip large clay chunks blocked flow line. Dumped sand traps. Lost approx 100 lbs. mud.
23-4-72	1343	14.2+	54	8.3	2	1/4	-	-	9.5	31	26	9	3	27	21,500	2320	-	3	3	70	27	Tripped to lost Circ. out large mass of clay "balls"
	11675	14.3	82	7.1	2	1/2	-	-	9.0	42	32	21	7	28	22,500	2120	-	15	5	67	28	Went to 4675 at approx 40' or less. Necessary to wash shaker screens considerably to keep them clean. Run out of barite maintaining mud wt. Pulled to casing @ 4675.
	4787	14.4+	38	3.0	1	1/4	-	-	9.2	22	19	7	1	4	21,500	1400	-	32	5	68	27	Went to 4675 at approx 40' or less. Necessary to wash shaker screens considerably to keep them clean. Run out of barite maintaining mud wt. Pulled to casing @ 4675.
24-4-72	4787	14.1	42	3.3	1	1/4	-	-	9.7	26	21	9	1	9	21,500	1520	-	41	5	68	27	Went to 4675 at approx 40' or less. Necessary to wash shaker screens considerably to keep them clean. Run out of barite maintaining mud wt. Pulled to casing @ 4675.
	4787	14.2	55	4.7	2	1/4	-	-	10.0	36	31	9	1	17	22,000	2280	-	56	8	67	29	Received log. In muds cut mud out as much as possible. Run to 4.3. Circ. line clean & then pulled to slip to wait for more barite.
25-4-72	250	14.3	53	7.5	2	2/5			8.8	30	25	10	2	21	25,000	2400		13	7	62	31	Cond. hole for logs.
26-4-72	"	14.6	52	7.6	2	1/2			8.5	31	24	14	2	22	"	"		10	7	62	31	Logs OK. Trip OK.



BAROID DIVISION
NATIONAL LEAD COMPANY

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DRILLING MUD RECORD

COMPANY Phillips Pet. Co STATE Norway CASING PROGRAM: 20 inch at 1582 ft.
 WELL 2/7-3x COUNTY U. Sea 13 3/8 inch at 5250 ft.
 DATE _____ CONTRACTOR I.D.C. LOCATION Eldfisk _____ inch at _____ ft.
 STOCKPOINT Standard BAROID ENGINEER U. Rulling - Brown SEC _____ TWP _____ RNG _____ TOTAL DEPTH 14,300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION		SAND %	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Cake 32nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %	Water %	Solids %	
4-72	5950	14.6	53	8.0	2	1.0			8.9	34	28	13	2	23	25m	3600		25	7	32	31	Cond. for csng. run O.K.
25-4-72	5950	14.3	48	6.2	2	7.0			11.0	30	25	10	1	12	"	"		1.0	6	64	30	W.O.C. - Nipple up
29-4-72	5297	14.3	46	6.2	2	"			11.8	32	27	10	0	12	28m	"		1.0	6	64	30	Delq. and some balling
30-4-72	6600	14.5	51	7.6	2	5.0			10.0	29	21	12	1	13	"	2400		1.60	7	63	30	Detergent added - sticky
1-5-72	8050	14.5	52	7.7	2	7.5			9.8	32	24	14	1	12	"	2600		.55	6	65	29	Much water req. some deag.
	8900	14.4	51	8.2	2	1.0	-	-	8.9	31	21	20	1	26	28,000	2600		.1	6	65	29	during trip.
2-5-72	9076	14.6	55	9.2	2	1.0	-	-	8.8	30	21	19	2	25	28,000	2600		.1	6	65	29	Circ. delq. bk @ 9354' Tannu- don chalc. Mud gas cut. P.H. fine core barrel. Tight hole first 4 holds. No trouble going back to bot. Circ. bats-up. Mud badly gas cut. Much caving shale during bats-up.
3-5-72	9388	14.7	65	9.2	2	1/2	-	-	10.9	42	35	15	2	13	26,500	1600		.8	5	64	31	Coring barrel jammed after cutting 34' 30 thousand lbs. deep 4 holds. off bot. Had trouble at 9354 when going in. fine core #2. Circ. bats-up. Mud gas cut. Abdot cuttings & and cavings. Cored to 9429'.
	9389	14.6	56	8.7	2	1/2	-	-	11.0	36	31	9	1	9	25,000	1000		.9	4	66	30	Tight hole first 2 holds. Re. 4' core. Dumped 300 lbs. receive mud to lighten deck load.
	9429	14.7	68	7.2	2	1/2	-	-	10.8	48	42	12	2	15	22,000	1000		.85	5	63	32	Dumped sand traps during trip. Run-in-hole for core. 3 less trip gas & cuttings. High pressure. Cored to 9480' Trip for 12 1/4" bit to open 1/2" 132" hole. No trouble. Trying to maintain wt. 14.6-14.7 to control caving shale. Operating D.D. shaker with 5-mesh screen.
4-5-72	9442	15.0	60	6.4	2	1/2	-	-	10.6	45	40	10	2	12	21,500	1160		.7	4	65	31	Dumped sand traps during trip. Run-in-hole for core. 3 less trip gas & cuttings. High pressure. Cored to 9480' Trip for 12 1/4" bit to open 1/2" 132" hole. No trouble. Trying to maintain wt. 14.6-14.7 to control caving shale. Operating D.D. shaker with 5-mesh screen.
	9480	14.6	56	7.3	2	1/2	-	-	10.2	40	35	10	1	15	22,000	1560		.45	4	66	30	Dumped sand traps during trip. Run-in-hole for core. 3 less trip gas & cuttings. High pressure. Cored to 9480' Trip for 12 1/4" bit to open 1/2" 132" hole. No trouble. Trying to maintain wt. 14.6-14.7 to control caving shale. Operating D.D. shaker with 5-mesh screen.
	9480	14.6	59	7.8	2	1/2	-	-	10.6	35	31	8	1	15	22,000	1480		.72	5	65	30	Dumped sand traps during trip. Run-in-hole for core. 3 less trip gas & cuttings. High pressure. Cored to 9480' Trip for 12 1/4" bit to open 1/2" 132" hole. No trouble. Trying to maintain wt. 14.6-14.7 to control caving shale. Operating D.D. shaker with 5-mesh screen.



BAROID DIVISION
NATIONAL LEAD COMPANY

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DRILLING MUD RECORD

COMPANY Phillips Pet. Co.

STATE NORWAY

CASING PROGRAM: 20 inch at 1582 ft.

WELL 2/7-3x

COUNTY N. Sea

13 3/8 inch at 5250 ft.

DATE _____

CONTRACTOR I.D.C.

LOCATION Eldfisk

_____ inch at _____ ft.

STOCKPOINT Stovanger

BAROID ENGINEER M. Rulling - Braun

SEC _____ TWP _____ RNG _____

TOTAL DEPTH 14,300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION		SAND %	SALT		pH	VISCOSITY			FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT			
				cc	Cake 32nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk PF	Oil %		Water %	Solids %	
5-72	9488	14.6	57	7.8	2	1/2	-	-	10.4	40	35	10	2	13	23,000	1480	-	.6	4	66	30	Cut core #4. Circ. before starting very little coming. Stuck pipe while casing at 9488. Traced pipe & cased to 9510. Rec. 5' of core.	
	9510	14.5	67	5.6	2	1/2	-	-	10.8	50	43	14	2	14	22,500	1560	-	.85	6	63	31	Maintaining vlt. with centrifuge. Necessary to keep vlt. of 40 in suction pt. to keep new line vis below bar.	
	9545	14.6	57	6.9	2	1/2	-	-	10.6	43	38	10	2	13	21,500	1680	-	.7	6	64	30	Delq. chalky limestone becoming harder & cherty. Maintaining vlt. with centrifuge. Use of Reserve mud to maintain vlt.	
6-5-72	9794	14.6	56	6.8	2	1/2	-	-	10.7	41	36	10	2	15	21,500	1360	-	.77	5	64	31	Very little drag during trip to shale casing.	
	9945	14.7	54	7.6	2	1/2	-	-	10.3	42	36	12	2	16	22,000	1420	-	.52	5	64	31	Delq. limestone. Run degasser while delq. to keep mud free of gas & air. Operating centrifuge on active mud system to control viscosity & maintain vlt. without adding barite & water.	
	10,019	14.5	60	7.4	2	1/2	-	-	9.9	40	35	11	2	20	21,500	1500	-	.4	4	65	31	Delq. limestone. Trip for new bit without trouble. T.D. 10' 14" hole at 10,482. 15' old surface trip had 12 stds of light hole coming free. Run back to bit & cased hole for 2 1/2 hrs. Then began "E" logging. No trouble.	
7-5-72	10,180	14.6	55	6.8	2	1/3	-	-	10.5	40	34	12	2	18	21,500	1120	-	.7	5	63	32	Necessary to work 7 stds before coming free. Run back to bit & cased hole for 2 1/2 hrs. Then began "E" logging. No trouble.	
		14.7	59	6.4	2	3/4	-	-	10.0	44	37	14	2	21	22,000	1240	-	.5	4	63	33		
8-5-72	10,440	14.7	49	5.8	2	3/4	-	-	10.4	33	28	10	2	10	22,000	960	-	.65	5	63	32		
	10,482	14.6	51	7.1	2	3/4	-	-	10.1	33	27	10	2	15	22,500	960	-	.55	4	64	32		
9-5-72	Logging	-	No	problems	Getting	to	Bottom																
10-5-72	10,489	14.7	45	7.0	2	3/4	-	-	10.0	27	24	10	1	10	23,000	1240		.35	4	65	31	Cond. Hole to run casing.	
11-5-72	Run casing	-	No	problems	Lost	595	bbls.	Mud	circ.	&	temp.	got	95%	back	after								Disp. cement



**BAROID DIVISION
NATIONAL LEAD COMPANY**

DRILLING MUD RECORD

COMPANY Phillips Pet. Co.

STATE Norway

CASING PROGRAM: 20 inch at 1582 ft.

WELL 2/7-3x

COUNTY M. Sør

13 3/8 inch at 5200 ft.

DATE _____

CONTRACTOR I.D.C.

LOCATION Eldfisk

9 5/8 inch at 6447 ft.

STOCKPOINT Stavanger

BAROID ENGINEER H. Ruffing - Braun

SEC _____ TWP _____ RNG _____

TOTAL DEPTH 14,300 ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND		SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Coke 32nd	%	NaCl ppm	Cl ppm	cp		Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %	Water %	Solids %		
3-79	10,440	14.7	44	5.8	2	.50	-	-	11.8	28	26	4	1	3	22,000	800	-	1.5	4	66	30	Dred. to shoe	
10-5-79	Pressure	Build up	Build up	Build up	Build up	Build up	13 3/8	1/2	9 5/8	-	Log	AND	W.O.	O.									
14-5-79	10,540	14.7	43	4.6	2	.50	-	-	11.5	32	27	9	1	3	23 m	920	-	1.4	4	66	30	Dred. ANN. O.K	
15-5-79	10,610	14.8	42	4.3	2	.50	-	-	11.8	33	28	10	1	4	24 m	460	-	1.8	4	66	30	" " dia bit	
16-5-79	10,774	14.7	43	4.5	2	1 1/2	-	-	11.9	30	25	10	1	5	25,000	440	-	1.8	4	66	30	Dred. limestone with log bit. Wipe trip at 10,774 ft. Folds. no drag. Start increasing ing mud wt. to 15 ppg by 11,500 ft. Begin operating centrifuge in active system to reduce viscosity & solid content. Re- ning. D.D. shaker & degasser continuously while drilling.	
	10,986	14.6	47	4.8	2	1 1/2	-	-	11.5	35	29	12	1	10	25,000	440	-	1.5	4	66	30		
	11,140	14.7	60	5.9	2	3/4	-	-	11.0	62	51	23	4	15	24,000	320	-	1.0	3	65	32		
7-5-79	11,246	14.9	55	4.9	2	3/4	-	-	11.2	58	46	23	3	17	24,000	100	-	1.4	4	64	32	Dred. shale. Inmation change at 10,350. No hole trouble.	
	11,355	14.9	61	5.3	2	3/4	-	-	11.9	54	44	20	3	19	23,500	80	-	2.0	4	64	32	Wipe trip every 30 hours. Operating degasser, D.D. shaker & centrifuge while drilling.	
	11,472	14.9	66	6.2	2	3/4	-	-	11.0	52	41	23	4	24	23,500	100	-	1.25	4	64	32	Dred. shale with iron. Dred. rate rate to 12 1/2 line. Dred. rate trip at 11,507. Hole bit not take any fluid. In hole for 40 After dred a hole with mud Gained 45 bbls in pit volume well on choke. Depth 11,507 cut to 8 ppg. Increased mud wt. to 15.3-15.4. Dreded to 11,538 Well began to flow increased wt. to 15.7 wt cut to 12.6 at 11,538 line. Dreded to 11,538. Started trip for bit change. Well would act	
7-79	11,523	15.2	60	4.9	2	3/4	-	-	10.0	57	45	24	4	26	22,500	160	-	.6	4	63	33		
	11,538	16.1	58	5.0	2	1/2	-	-	9.0	48	36	24	6	26	22,500	360	-	.2	3	60	37		

Gain 45 bbls
↑ MW
well flow
↑ MW



BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD RECORD

COMPANY Phillips Det. Co. STATE Norway CASING PROGRAM: 20 inch at 1520 ft.
 WELL 2/7-3x COUNTY N. Sea. 13 3/8 inch at 5200 ft.
 DATE _____ CONTRACTOR T. D. C. LOCATION Eldfisk 9 5/8 inch at 10,447 ft.
 STOCKPOINT Stavanger BAROID ENGINEER V. Ruffing - Braun SEC _____ TWP _____ RNG _____ TOTAL DEPTH 14,300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION			SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT	
				cc	cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %	Water %	Solids %		
5-72	Cont.																						take fluid Roused mud wt. to 16-16.2 P.O.H. without trouble. Mud cut by trip gas to 8.5ppg after trip. Maintain wt at 16-16.3 C.K.
4-5-72	11,630	16.2	50	5.3	2	1/2	-	-	9.9	39	32	14	4	20	22,500	100	-	65	3	60	37	Dtg. shale. Maintaining mud wt. at 16-16.3. Requiring constant firing reserve mud to keep wt while adding water & diesel. Operating D.D. shaker & deaerator while dng. Gas over 2 ass. units but wt. keeps well steady.	
	11,742	16.3	49	6.2	2	1/4	-	-	9.9	37	29	16	4	20	22,500	60	-	65	3	59	38		
	11,856	16.0	50	6.0	2	1/4	-	-	10.6	38	28	20	5	24	23,000	60	-	60	4	60	36		
30-5-72	11,942	16.2	53	6.5	2	1/4	-	-	10.4	40	30	20	4	20	23,000	60	-	1.7	3	60	37	Dtg. shale & siltstone. Trip at 11,942. Failed after 12 std. hrs. to maintain. Roused wt to 16.4 & tripped with only max. of 2 ass. lbs. deaer for one std. Trip gas cut mud wt. to 13.9 & fluid knocked over bell nipple.	
	11,993	16.2	53	7.4	2	1/4	-	-	10.0	40	29	22	6	21	23,000	40	-	1.2	5	58	37		
5-72	12,041	16.2	52	6.4	2	1/4	-	-	11.0	35	26	18	7	20	23,000	40	-	2.0	4	58	38	Dtg. shale & siltstone. Operating deaerator while dng. to keep gas & from lowering mud wt.	
	12,086	16.4	42	6.4	2	TR.	-	-	10.0	29	23	12	5	13	24,000	80	-	.7	4	58	39	Unable to control yield point & gets with thinner (specimen)	
	12,143	16.4	45	7.2	2	TR.	-	-	9.1	33	23	20	11	20	23,000	80	-	2.5	4	58	38	Can not get filtrate below 6cc. Dtg. rate reduced to 2-6 l/hr with button bit.	
20-5-72	12,161	16.4	55	6.9	2	TR.	-	-	10.5	47	36	22	11	25	24,000	40	-	1.7	3	60	37	Dtg. shale. Where trip at 12,225. No trouble. Mud wt. cut to 13.0	
	12,228	16.4	49	6.8	2	TR.	-	-	10.0	36	25	22	7	21	23,500	40	-	1.45	3	59	38	but deaerator prevent gas from reducing wt. at suction pt. Some gas & air remains in mud because	
	12,272	16.5	46	7.3	2	TR.	-	-	9.7	33	23	20	8	23	23,000	40	-	.8	2	59	39		



BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD RECORD

COMPANY Phillips Pet. Co.

STATE Norway

CASING PROGRAM: 20 inch at 1532 ft.

WELL 2/7-3x

COUNTY N. Sea

13 3/8 inch at 5200 ft.

DATE _____

CONTRACTOR I.D.C.

LOCATION Eldfisk

9 5/8 inch at 10,447 ft.

STOCKPOINT Sdauanger

BAROID ENGINEER Pulling - Braun

SEC _____ TWP _____ RNG _____

TOTAL DEPTH 14,300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION			SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Cake 32nd	%	NaCl ppm	Cl pom		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %	Water %	Solids %	
5-72	13,052	16.4	46	4.4	2	-	-	-	11.5	38	29	19	1	15	30,000	480	-	1.0	4	61	35	Delq. with dia. bit. No trouble encountered increased gas.
	13,217	16.5	47	5.6	2	-	-	-	11.3	38	27	22	1	20	31,000	520	-	1.3	4	59	37	Started raising mud wt.
	13,290	16.7	47	6.0	2	-	-	-	11.0	40	27	25	1	18	31,000	560	-	1.0	4	58	38	Maintaining 4# mica in mud to prevent loss.
29-5-72	13,350	16.7	47	5.8	2	-	-	-	11.5	37	27	20	1	16	31,000	520	-	1.5	4	58	38	Delq. shale Added 4 ppb walnut with mica to help prevent more loss with in- creased mud wt. Operating centrifuge & depressure while drilling.
	13,435	16.7	47	5.4	2	-	-	-	11.5	40	26	29	1	30	31,000	480	-	1.3	4	58	38	Operating centrifuge on active system. Trip for new bit at 13,636. Severe drag between 11,900 & 11,800. Lost slurry from junk basket.
	13,510	16.6	48	5.3	2	-	-	-	11.5	35	25	20	1	20	31,000	520	-	1.2	4	58	38	Delq. abd. Maintaining 2# bit L.C.P. (Fix mica & walnut) Operating centrifuge on active system. Trip for new bit at 13,636. Severe drag between 11,900 & 11,800. Lost slurry from junk basket.
30-5-72	13,560	16.7	47	4.2	2	-	-	-	11.6	39	24	30	-	-	31,000	480	-	1.6	4	58	38	Delq. abd. Maintaining 2# bit L.C.P. (Fix mica & walnut) Operating centrifuge on active system. Trip for new bit at 13,636. Severe drag between 11,900 & 11,800. Lost slurry from junk basket.
	13,596	16.7	47	4.0	2	-	-	-	11.3	38	27	22	1	22	31,000	520	-	1.2	4	58	38	Delq. abd. Maintaining 2# bit L.C.P. (Fix mica & walnut) Operating centrifuge on active system. Trip for new bit at 13,636. Severe drag between 11,900 & 11,800. Lost slurry from junk basket.
31-5-72	13,636	16.7	58	3.5	1	-	-	-	10.0	50	31	39	15	34	29,500	320	-	0.5	3	59	38	Finished trip for bit edge Circ. out trip was before delq. Had wt. cut to 12.5 wt Flowline. Maintained wt. at 16.7 in suction pit. Dumped sand traps. Lost 65 lbs. Trip for bit edge at 13,636.
	13,680	16.7	58	3.2	1	-	-	-	10.5	49	33	32	15	25	27,000	100	-	0.8	3	59	39	Finished trip for bit edge Circ. out trip was before delq. Had wt. cut to 12.5 wt Flowline. Maintained wt. at 16.7 in suction pit. Dumped sand traps. Lost 65 lbs. Trip for bit edge at 13,636.
1-6-72	13,886	16.7	55	3.0	1	-	-	-	9.8	46	32	29	15	25	26,500	80	-	0.35	3	59	38	Finished trip for bit edge Circ. out trip was before delq. Had wt. cut to 12.5 wt Flowline. Maintained wt. at 16.7 in suction pit. Dumped sand traps. Lost 65 lbs. Trip for bit edge at 13,636.
	13,760	16.6	53	3.1	1	-	-	-	10.8	55	28	54	30	34	26,000	80	-	0.9	3	58	39	Delq. shale & sand with dia. bit. Delq. occurs at 13,742 accompanied with flow line possibility broken formation Circ. out samples Chlorides increased to 4000 ppm from

LCM

lost
GS



**BAROID DIVISION
NATIONAL LEAD COMPANY**

16

DRILLING MUD RECORD

COMPANY Phillips Pet Co STATE Norway CASING PROGRAM: 30 inch at 1592 ft.
 WELL 2/7-3x COUNTY H. Sea 13 3/8 inch at 5200 ft.
 DATE _____ CONTRACTOR I.D.C. LOCATION Eldfisk 9 5/8 inch at 10,447 ft.
 STOCKPOINT Stavanger BAROID ENGINEER Ruffing - Braum SEC _____ TWP _____ RNG _____ TOTAL DEPTH 14,300 ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		pH	VISCOSITY			FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT			
				cc	Cake 32nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %		Water %	Solids %	
J	13,800	16.6+	52	3.0	1	-	-	-	10.9	41	25	32	18	26	35,000	80	-	.95	3	58	39	ation salt Delg. to 13,800. Cond mud & P.O.H. for "E" logs.	
3-6-72	13,800	16.7	46	3.5	1	U.C.	-	-	10.9	32	21	23	10	20	29,000	100	-	1.1	3	59	38	Run one "E" log & then P.O.H. to circ. mud gas cut mud wt. cut to 8.7 at flow line. Time train 10.7 wt. at section pit	
	13,800	16.7	45	3.0	1	U.C.	-	-	11.3	32	23	19	7	14	28,000	40	-	1.7	2	59	39	Run one "E" log & cool mud. Run another log after circ. 4 hrs. Had severe sticking problems. Necessary to pull 4500 lb. to keep hole open to cond. mud.	
3-6-72	13,800	16.7	45	3.7	2	U.C.	-	-	10.7	32	22	20	10	18	28,000	120	-	1.0	3	58	34	Run two logs. First log had sticking problems. Necessary to pull 5000 lb. to free hole. Kirc. out gas cut mud wt. cut to 11.6. Cond. mud 4 hrs. & P.O.H. Run 2 "E" logs. No trouble.	
4-6-72	13,800	16.7	49	3.8	2	U.C.	-	-	10.7	36	24	25	12	22	27,000	60	-	1.0	3	59	38	Kirc. for more logs	
5-6-72	13,800	16.7	46	3.2	1	U.C.	-	-	10.0	34	23	23	13	18	26,500	80	-	.5	3	59	38	Run two logs. First log had sticking problems. Necessary to pull 5000 lb. to free hole. Kirc. out gas cut mud wt. cut to 11.6. Cond. mud 4 hrs. & P.O.H. Run 2 "E" logs. No trouble.	
6-6-72	"	16.7	45	3.1	1	U.C.	-	-	10.8	34	23	20	12	15	26,000	60	-	1.1	3	59	38	Kirc. for more logs	
7-6-72	"	16.7	45	3.1	1	U.C.	-	-	10.5	29	27	5	1	6	27,000	60	-	.80	3	60	37	" " " "	
8-6-72	"	16.7+	46	3.5	1	U.C.	-	-	10.6	30	25	16	1	10	29,000	200	-	.60	3	60	37	Kirc. for casing raised wet due to gas	
9-6-72	"	16.8+	49	3.1	1	U.C.	-	-	10.5	29	23	12	1	10	30,000	600	-	1.1	3	60	37	P.O.H. for casing Smooth - last mud cement.	
10-6-72	R	U	N		L	I	M	E	R														
11-6-72	13,800	16.7+	50	5.0	2	50	-	-	11.2	29	25	8	1	8	"	"	-	1.1	3	61	36	log W.O.C.	
12-6-72	13,800	16.7	"	3.2	1	.5	-	-	11.5	30	25	10	1	9	38,000	"	-	1.5	3	61	36	Began saturate volume	
	Ran	13,760'	7" Liner																				
12-6-72	13,700	16.7+	50	6.0	2	1/2	-	-	11.8	38	35	6	1	10	182,000	280	-	2.2	2	58	40	Increased mud wt. to 16.9 to prevent gas kick.	



BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD RECORD

COMPANY Phillips Pet. Co.

STATE Norway

CASING PROGRAM: 13³/₈ inch at 5200 ft.

WELL 2/7-3x

COUNTY N. Sea

9³/₈ inch at 6447 ft.

DATE _____

CONTRACTOR I.D.C.

LOCATION Eldfisk

7 line inch at 13,760 ft

STOCKPOINT Sjavanger

BAROID ENGINEER Ruffing Braun

SEC _____ TWP _____ RNG _____

TOTAL DEPTH 14,300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION		SAND		SALT		pH			VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Coke 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pt	Oil %	Water %	Solids %				
5-72	13843	16.8	51	5.6	2	1/2	-	-	11.5	46	40	11	1	9	182,000	20	-	1.9	2	59	39	Delay on junk from side well core bullets. Circ. base trip			
	13876	16.8	56	5.9	1	1/2	-	-	11.0	57	51	12	2	10	182,000	20	-	1.4	2	56	42	before trip. No Gas. System sat. at 187,000 ppm. Cl. 5.0			
	14000	16.8+	53	5.1	1	1/2	-	-	10.5	50	43	13	2	10	182,000	20	-	1.1	2	58	40	salt in mud. Clay content to pph			
15-6-72	14046	16.9	55	5.8	1	1/2	-	-	10.2	54	48	12	1	11	182,000	20	-	0.9	2	57	41	Circ. cut before & after trip No gas. No trouble. Unable to prevent filtrate from increasing.			
	14173	16.8+	53	8.6	2	1/2	-	-	9.8	47	41	12	1	12	181,500	20	-	.75	1	58	41	Slight rise in pit level suggests water leak but unable to locate No indication of water flow.			
16-6-72	14300	16.8	49	7.2	2	1/2	-	-	9.6	45	40	10	1	10	182,000	20	-	.65	1	57	42	Encountered deep in mud wt. No gas. No indication of water flow. No sign of water leak. Slight increase in wt. losses saw to cut back & circ. to to control wt. & filter to			
17-6-72	14300	16.9	56	5.9	2	1/2	-	-	9.5	52	44	17	2	20	181,500	20	-	.5	1	57	42	Finished setting casing plug in bot. of 7" line. Started out at hole had begun flowing through pipe. Started circ. through center holding 275" back press. Lost approx. 120 bbls mud. Dropped back press to 225 psi. Reopen			
	13760	17.1	51	6.0	2	1/2	-	-	10.5	45	34	12	2	22	183,000	20	-	1.1	2	58	40	but returns. Stopped pump. Had 230 psi on annulus. 2000 pps devil pipe. mixed 10H & pump some around to top of line. Closed choke & pumped 6 bbl into formation. Special method Well was dead but hole would			

LOST
120 bbls

LCM



BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD RECORD

COMPANY Phillips Pet. Co.

STATE Norway

CASING PROGRAM: 13 3/8 inch at 5200 ft.

WELL 2/7-3x

COUNTY N. Sea

9 5/8 inch at 6,447 ft.

DATE _____

CONTRACTOR I.D.C.

LOCATION Eld Risk

7 1/2 inch at 13,760 ft.

STOCKPOINT Slavanger

BAROID ENGINEER Rutting - Braun

SEC _____ TWP _____ RNG _____

TOTAL DEPTH 14,300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION		SAND %	SALT		pH	VISCOSITY			GELS				FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Cake 32nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk PF	Oil %	Water %	Solids %			
	10,050	16.8	67	6.0	2	1/2	-	-	10.3	61	52	20	2	13	176,000	20	-	1.0	1	57	42	not stand full. P.O.H. to 4500. Filled drill pipe with water. No loss. Cut mud wt. to 16.5 in pit & filled hole. Tool bit to fill hole. No loss. Circ. O.K. P.O.H.		
18-6-72	16.9	59	59	5.9	2	1/2	-	-	10.0	55	47	16	2	10	169,000	16	-	.85	1	58	41	7 picked-up bit & csg. scrapper. Staged in hole O.K. Cleaned out pipe O.K. Bal mud at 16.9. Started out. Pipe came wet. Circ. lost-up wt dropped to 16.6 P.B. to bot. Circ. & csg. wt. 16.6 P.O.H. O.K. Pick-up and run on wire line. Could not see pass. 13,570 P.T.H. with csg. scrapper.		
19-6-72	16.9	56	56	5.6	2	1/2	-	-	9.8	60	53	13	1	9	171,500	20	-	0.8	1	58	41	Finished cleaning out 7" hose. Bal mud wt. at 16.9. Started out. Pipe came wet. P.T. Kelly cor. & started circ. mud wt. dropped to 16.6. Increased wt. to 16.9. P.O.H. & picked-up references P.T. Set retainers at 3,730. Press up on formation. Held 25 psi. Press up on csg. & seals down last appens. Rebuilt. Wash. L.C.M. pull.		
20-6-72	10,174	17.0	45	5.6	2	5	-	-	9.6	42	37	11	1	9	156,000	20	-	.7	1	58	41	lost circ. top hole. spot LCM pull. 2.5. Top		
21-6-72	10,350	17.0	45	5.5	2	5	-	-	9.5	40	35	11	1	9	156,000	20	-	.6	1	58	41	perl. & squeeze		
22-6-72	10,350	17.1	46	5.6	2	5	-	-	9.8	41	36	11	1	9	160,000	20	-	.65	1	58	41	" " " "		
23-6-72	5,900	16.5	44	10.0	2	5	-	-	9.5	32	23	11	1	12	150,000	240	-	.5	1	61	38	perl. & squeeze		
24-6-72	5,125	14.4	46	15.2	2	T.R.	-	-	9.6	33	27	10	1	16	110,000	590	-	.4	-	62	38	" " " "		



**BAROID DIVISION
NATIONAL LEAD COMPANY**

DRILLING MUD RECORD

COMPANY Phillips Pet Co STATE Norway CASING PROGRAM: 13 3/8 inch at 5200 ft.
 WELL 2/7-3x COUNTY V. Sea 9 5/8 inch at 10,447 ft.
 DATE _____ CONTRACTOR I. D. C. LOCATION Eldfisk 7 line inch at 13,700 ft.
 STOCKPOINT Stavanger BAROID ENGINEER Brown - Rolling SEC _____ TWP _____ RNG _____ TOTAL DEPTH 14,300 ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND	SALT		PH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT	
				cc	Cake 32nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %	Water %	Solids %		
2-6-72	5150	16.8	50	16.4	2	T.R.	-	-	10.0	32	28	12	1	25	85,000	520	-	.40	-	66	34	Raise wt. to drill two	
24-6-72	5200	16.8	55	16.6	2	T.R.	-	-	10.0	37	30	15	1	30	85,000	520	-	.40	-	66	34	Retriever & test casing Circ. after delg & test	
27-6-72	5100	16.8	45	8.0	2	T.R.	-	-	11.0	36	29	15	1	20	80,000	400	-	1.0	-	65	35	Drilled out cement plug at 5100' Tested 9 5/8" casing leak at well head	
25-6-72	-	16.9	50	8.8	2	1/2	-	-	10.0	46	36	20	2	34	71,000	160	-	.65	-	66	34	Repairing well head. Check mud in pit. Clean sand traps	
29-6-72	-	16.8	48	8.4	2	1/2	-	-	10.1	45	36	18	3	26	69,000	160	-	.75	-	66	34	Repairing 9 5/8" well head. Checked mud in pit.	
30-6-72	-	16.8	46	8.1	2	1/2	-	-	10.0	42	35	15	2	26	67,000	160	-	.72	-	66	34	Repairing well head. Check mud in pit.	
1-7-72	-	16.8	45	7.5	2	1/4	-	-	10.0	36	30	12	2	20	60,000	160	-	.75	-	68	32	Attempted to test casing patch. Would not hold. Spotted with pill & squeezed. No results. Cut 9 5/8" casing below patch & set new one. Used water to cut casing. Some leaked into mud.	
2-7-72	-	16.8	46	7.8	2	T.R.	-	-	10.5	38	30	17	2	24	60,000	160	-	.9	-	68	32	Slipped up & tested casing locate leak at mud line suspension. Squeezed cement at 285' reported 1500# on annulus & 1500# back pressure.	
3-7-72	285	16.6	48	9.0	2	T.R.	-	-	9.5	55	35	20	3	25	46,000	200	-	.4	-	67	33	W/O.C. necessary to build up mud vol. because of losses while testing casing. Added barite & chemicals to maintain mud properties.	
4-7-72	285	16.9	46	10.0	2	"	-	-	11.8	35	26	17	5	38	38,000	70	-	1.9	-	67	33	Delg. Retamer	
5-7-72	5200	16.8	46	9.8	2	"	-	-	11.5	40	32	17	1	25	38,000	80	-	1.5	-	"	"	"	Cement
6-7-72	9100	16.8	48	10.0	2	"	-	-	11.8	40	32	18	1	25	37,000	120	-	1.6	-	66	34	Peel & squeeze	
7-7-72	9100	16.9	45	16.2	2	"	-	-	11.5	30	22	17	1	20	39,000	300	-	1.0	-	66	34	Circ. for Retamer	



**BAROID DIVISION
NATIONAL LEAD COMPANY**

14

DRILLING MUD RECORD

COMPANY Phillips Pet. Co. STATE Norway CASING PROGRAM: 13 3/8 inch at 5000 ft.
 WELL 2/7-3x COUNTY N. sea 9 5/8 inch at 2447 ft.
 DATE _____ CONTRACTOR I. O. C. LOCATION Eldfisk 7 1/2 inch at 13,760 ft.
 STOCKPOINT Stavanger BAROID ENGINEER Brown - Ruffing SEC _____ TWP _____ RNG _____ TOTAL DEPTH 11,300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION		SAND %	SALT		pH	VISCOSITY			GELS				FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Cake 32nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %	Water %	Solids %			
1-7-72	8800	14.4	45	10.0	2	T.R.	-	-	10.5	30	22	18	1	10	45,000	1520	-	.30	0	75	25	Reduce wt for sq.		
2-7-72	9000	14.3	42	9.8	2	"	-	-	10.8	30	22	17	1	10	"	1560	-	.40	0	75	25	Wire before half net.		
3-7-72	9100	14.4	48	9.4	2	"	-	-	11.5	30	23	16	1	10	"	"	-	.13	0	75	25	Delay net.		
4-7-72	9702	14.4	48	20.0	3	T.R.	-	-	11.0	31	25	12	1	20	45,000	1600	-	1.0	0	74	26	Deballasted at 9702 & attempted to set bridge plug at 9702.		
5-7-72	9565	14.4	49	22.0	3	T.R.	-	-	10.0	25	22	6	1	9	45,000	1360	-	.7	0	74	26	Failed, mud plug at 9565 & squeezed w/250 sp cm. Deballasted at 9533 & set bridge plug at 9533.		
13-7-72	9480	14.4	45	20.1	3	T.R.	-	-	10.2	25	20	10	1	10	40,000	1120	-	.53	0	74	26	Finished squeeze at 9480. Deballasted at 9445-9482, set bridge plug at 9470, squeezed down & set & reversed.		
14-7-72	9420	14.2	42	19.2	3	T.R.	-	-	10.3	21	18	7	1	10	37,500	600	-	.65	0	75	25	Deballasted from 9420-9480. Set bridge plug at 9380, squeezed & reversed out. Delayed up bit & 3.42 hrs.		
15-7-72	9330	14.3	42	19.2	3	T.R.	-	-	10.1	24	19	11	2	30	38,000	400	-	.64	0	72	28	Delay net setback & set. Dropped and reap. Effort to to control vis.		
17-7-72	9563	14.4	56	22.7	4	T.R.	-	-	12.0	28	21	15	6	51	38,000	200	-	2.7	0	73	27	Dis. and & bridge plug.		
17-7-72	10048	14.4	50	25.6	4	T.R.	-	-	12.0	24	17	14	10	55	40,000	240	-	2.75	0	72	28	Washed clean up afternoon.		
18-7-72	9800	14.3	43	18.6	4	T.R.	-	-	12.0	25	18	13	2	30	40,000	260	-	2.60	0	73	27	Wired to test at 9800.		
19-7-72		"	"	"	"	"	-	-	"	"	"	"	"	"	"	"	-	"	"	"	"	Wired - log & test 10 &		
20-7-72	10,000	14.3	46	12.3	2	O	-	-	11.5	33	26	14	1	16	37,000	900	-		0	73	27	Wire to post & test.		
21-7-72		S																				T.T.		
22-7-72		A																					DST	
23-7-72		M																					DST	
24-7-72		E																					DST	
25-7-72	pit	14.3	43	10.2	2	T.R.	-	-	11.5	27	23	8	1	10	37,000	900	-	1.0	0	73	27	D.S.T #1		
26-7-72	pit	14.3+	43	12.2	2	T.R.	-	-	10.6	29	25	8	1	16	36,000	480	-	.72	0	73	27	Card mud & attempted to run.		
27-7-72	"	14.4	41	14.8	3	T.R.	-	-	10.2	28	23	9	1	17	36,000	480	-	.55	0	72	28	Set bridge plug & reverse at pressure mud to 10,000 ft.		



BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD RECORD

COMPANY Phillips Pet. Co. STATE Norway CASING PROGRAM: 13 3/8 inch at 5800 ft.
 WELL 2/7-3x COUNTY U. Sea 9 5/8 inch at 447 ft.
 DATE _____ CONTRACTOR I. D. C. LOCATION Eldfisk 7" L. inch at 13,760 ft.
 STOCKPOINT Stavanger BAROID ENGINEER BRAUN - Ruffing SEC _____ TWP _____ RNG _____ TOTAL DEPTH 14,300 ft.

DATE	DEPTH	WEIGHT	VISCOSITY	FILTRATION		SAND			SALT		pH			VISCOSITY			GELS		FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Cake 32nd	%	NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pt	Oil %	Water %	Solids %					
2-7-72	Pit	14.4	44	13.5	3	TR	-	-	10.5	27	22	10	2	20	36,000	320	-	.68	0	72	25	Prepare for D.S.T. #2				
29-8-72	"	14.4	43	14.1	3	TR	-	-	10.7	28	24	8	1	25	34,500	380	-	.85	0	72	28	D.S.T. #2				
30-8-72	"	14.3	43	14.5	3	TR	-	-	10.6	27	24	6	2	20	34,500	360	-	.8	0	72	28	D.S.T. #2				
31-7-72	"	14.3	43	14.2	3	TR	-	-	10.5	26	23	6	1	17	34,500	360	-	.7	0	72	28	D.S.T. #2 treated mud				
1-8-72	"	14.4	43	11.4	2	"	-	-	11.0	28	24	7	1	18	34,000	100	-	1.0	0	72	28	overvising out very thick mud				
2-8-72	"	"	"	11.2	"	"	-	-	11.2	27	23	8	1	25	"	"	-	1.1	0	72	28	no mud cake nearly pumped				
3-8-72	"	"	45	11.0	"	"	-	-	11.0	30	25	10	1	25	"	"	-	"	"	"	"	"	lost Tank 2000 gals to 1000 gals			
4-8-72	"	14.4	44	11.0	"	"	-	-	"	"	"	"	"	"	"	"	-	"	"	"	"	"	Squeeze Dept. test			
5-8-72	"	14.4	44	11.3	"	"	-	-	11.0	34	28	14	1	35	33,000	400	-	.8	0	72	28	Kill well squeeze				
6-8-72	"	14.4	48	11.0	"	"	-	-	11.0	27	23	8	1	30	32,000	480	-	.8	0	72	28	Dept. - G.I.H. to test				
7-8-72	"	"	"	"	"	"	-	-	"	"	"	"	"	"	"	"	-	"	"	"	"	"	Testing			
8-8-72	"	14.5	49	16.5	3	"	-	-	11.0	21.5	26	11	"	30	26,000	750	-	1.0	0	"	"	"	D.S.T. 4 test			
9-8-72	"	14.5	49	15.8	3	"	-	-	10.8	30.5	26	10	1	25	26,000	800	-	.9	0	72	29	kill well				
10-8-72	"	14.5	50	15.0	3	"	-	-	10.8	"	25	11	1	28	26,000	800	-	.9	0	71	29	Squeeze Dept.				
11-8-72	"	14.4	45	16.5	3	"	-	-	10.8	25	24	6	1	25	29,000	800	-	.8	0	72	28	Test #5				
12-8-72	"	14.3	44	16.5	3	TR	-	-	10.8	28	25	6	1	25	29,000	800	-	.8	0	72	25	"				
13-8-72	"	14.3	44	16.4	3	TR	-	-	10.8	28.5	25	7	1	26	29,000	800	-	.8	0	72	28	"				
14-8-72	"	14.5	48	17.5	3	TR	-	-	10.5	32	27	10	1	28	28,000	500	-	.7	0	72	28	kill well				
15-8-72	"	14.5	45	18	3	TR	-	-	10.6	31	26	10	1	26	29,000	450	-	.7	0	72	28	Squeeze Dept. - G.I.H. to kill				
16-8-72	"	"	46	17.1	"	"	-	-	11.5	30	26	9	1	30	"	660	-	1.2	0	72	28	Retainers + cement Dept. test				
17-8-72	"	"	45	16.6	"	"	-	-	12.3	28	25	6	1	20	"	840	-	1.8	0	72	28	Drill out + cement				
18-8-72	"	"	46	17.2	"	"	-	-	12.4	26	23	6	1	20	"	860	-	1.8	0	72	"	"				
19-8-72	"	"	45	16.3	"	"	-	-	12.3	"	"	"	"	"	"	"	-	1.7	"	"	"	"	"			
20-8-72	"	"	47	17.2	"	"	-	-	12.0	24	20	8	"	25	"	980	-	1.2	"	"	"	"	Resqueeze			
21-8-72	"	"	"	17.6	"	"	-	-	"	26	22	8	"	25	"	1040	-	1.2	"	"	"	"	Drill out + cement			
22-8-72	"	14.5	46	17.0	3	TR	-	-	12.4	25	22	6	"	20	"	1200	-	1.5	"	"	"	"	"			
23-8-72	"	17.0	48	17.5	3	TR	-	-	11.5	29	29	12	5	18	29,000	1000	-	1.9	0	64	36	Raise mud at 4110 ft. to 4000 ft. Plug + cement at top of zone				
24-8-72	"	17.0	55	14.8	3	TR	-	-	11.5	47	49	15	5	20	29,000	400	-	1.1	0	64	36	Lay down 5" or + mud plug 3000 ft. Drill on junk Test at 4000 ft.				
25-8-72	"	17.1	53	14.0	3	TR	-	-	11.5	47	40	14	5	20	29,000	520	-	1.1	0	63	37	Latched on to fish + cement plug. Washed + reamed to 4110 ft.				



BAROID DIVISION
NATIONAL LEAD COMPANY

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DRILLING MUD RECORD

COMPANY PHILLIPS Pet. Co. STATE NORWAY CASING PROGRAM: 13 3/8 inch at 5200 ft.
 WELL 217-3x COUNTY N. Sec 9 7/8 inch at 6447 ft.
 DATE _____ CONTRACTOR F.O.C. LOCATION ELL'sk 7" L inch at 13760 ft
 STOCKPOINT ADIDUOR BAROID ENGINEER Braun-Ruffing-Ross-Witt SEC _____ TWP _____ RNG _____ TOTAL DEPTH 14300 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION		SAND %	SALT		pH	VISCOSITY			GELS				FILTRATE ANALYSIS				RETORT ANALYSIS			REMARKS AND TREATMENT
				cc	Cake 32nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk Pf	Oil %	Water %	Solids %			
7-72		17.0	53	14.8	3	TR	-	-	11.0	-	38	15	5	20	39,000	400	-	.9	0	62	38	Trip out of hole. T.H. + mud top of hole. Trip up in open hole.		
27-8-72		17.0	48	13.8	3	TR	-	-	10.8	-	35	13	3	20	38,000	300	-	.7	0	63	37	Reverse circ. Trip out of hole. Rig up + running 7" casing.		
28-8-72		17.0	48	12.2	3	TR	-	-	10.5	-	35	12	2	20	38,500	700	-	.6	0	65	35	Run 7" casing to 10,124 + connected to top of 7" casing.		
29-8-72		17.0	47	12.2	3	TR	-	-	10.5	-	35	12	2	20	38,500	700	-	.6	0	65	35	W.O.C.		
30-8-72		17.0	45	11.2	2	TR	-	-	10.2	-	32	9	2	20	37,500	760	-	.51	0	65	35	W.O.C. Application up to 10,124.		
31-8-72		17.0	45	10.8	2	TR	-	-	10.2	-	33	10	2	19	37,500	840	-	.5	0	64	36	Wiped up B.O.P. Debris out. Bridge plug and very thick below bridge plug.		
1-9-72		17.0	55	9.8	2	TR	-	-	10.8	-	39	16	2	20	36,000	280	-	.85	0	63	37	Reamed + washed 45' out of casing. T.H. W.O.C. test to test casing.		
2-9-72		17.0	45	11.2	2	TR	-	-	10.3	-	28	10	2	19	36,000	200	-	.55	0	63	37	Tested casing at 7500 psi. Leak at tie back point. Set bridge plug + squeeze 400 psi. cont.		
3-9-72		17.1	49	13.6	3	TR	-	-	10.5	-	29	15	6	40	34,000	840	-	.6	0	62	32	Drilled out bridge plug + cont. Run to test at casing. Very difficult to break case due to high viscosity. Cont. mud + prepared to test casg.		
4-9-72		17.1	45	12.9	3	TR	-	-	10.6	-	29	9	3	23	34,500	380	-	.67	0	63	37	Tested casg at 7500 psi. O.K. Made dummy run at test hole.		
5-9-72		17.1	47	12.1	3	TR	-	-	10.5	-	36	12	2	16	36,000	360	-	.6	0	63	37	Attempt to test 20' down. no leak. Trip in hole at 10,000 psi.		
6-9-72		17.1	47	9.7	3	TR	-	-	10.4	-	36	12	2	16	36,000	360	-	.6	0	63	37	Make dummy run at test hole. Tested development at 10,000 psi.		
7-9-72		17.1	47	10.0	3	TR	-	-	10.2	-	36	12	2	16	35,500	400	-	.6	0	63	37	Run C.B.I. twice.		
8-9-72		17.0	48	11.5	3	TR	-	-	10.2	-	36	13	2	15	35,000	400	-	.6	0	64	36	Run cementing gun. Leak in hole with test fluid. Mud would not set. (Test).		



BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD RECORD

COMPANY Phillips Pet. Co. STATE Norway CASING PROGRAM: 13 3/8 inch at 5200 ft.
 WELL 2/7-3x COUNTY N. Sea 9 5/8 inch at 12447 ft.
 DATE _____ CONTRACTOR I.D.C. LOCATION Eldfisk 7" L inch at 13760 ft
 STOCKPOINT Stavanger BAROID ENGINEER Braun - Ruffing - Ross - Witt SEC _____ TWP _____ RNG _____ TOTAL DEPTH 13600 ft.

DATE	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec	FILTRATION		SAND %	SALT		pH	VISCOSITY			GELS		FILTRATE ANALYSIS				RETOUR ANALYSIS			REMARKS AND TREATMENT
				cc	Coke 32nd		NaCl ppm	Cl ppm		cp	Pv	Yp	in	10min	Cl ppm	Ca ppm	SO ₄ ppm	Alk PF	Oil %	Water %	Solids %	
7-72		17.0	49	11.5	3	TR	-	-	10.0	-	36	14	2	15	35,000	400	-	.55	0	64	36	Run Shimzeger junk basket make up test tool + trip in hole Tool would not set Per. out way and circulate regular way.
12-9-72		17.0	48	11.6	3	TR	-	-	10.0	-	36	14	2	15	35,000	400	-	.55	0	64	36	Made six runs with Set Junk basket.
11-9-72		17.1	48	12.7	3	TR	-	-	9.8	-	38	13	2	18	31,000	400	-	.5	0	64	36	Made up + trip in hole with test tool. Ran short test + pulled out of hole. Trip in hole to 13,550 will set + junk sub.
12-9-72		17.1	48	12.9	3	TR	-	-	9.6	-	38	14	2	18	31,000	480	-	.45	0	65	35	Lost wireline junk basket in hole. R.I.H. w/ cement + retrieved fish.
13-9-72		17.0	45	11.3	3	TR	-	-	9.3	-	28	9	2	22	36,000	520	-	.25	0	64	36	run w/wireline junk basket failed to get below bottom. Picked-up junk basket + R.I.H. open-ended + reverse circ. to clean out hole. Trouble main- taining vit. Necessary to add barite.
14-9-72		17.1	45	13.5	3	TR	-	-	10.2	-	29	11	4	26	33,000	380	-	.65	0	64	36	Finished sand mud + picked test tools. Put well on test.
15-9-72		17.1	46	12.0	3	TR	-	-	10.8	-	30	13	5	23	32,000	280	-	.9	0	64	36	Finished test. Set bridge plug at 13,354 Perforated at 13,300 for squeeze job.
16-9-72		17.1	45	11.5	3	TR	-	-	11.0	-	28	11	3	19	32,000	240	-	1.0	0	64	36	Set bridge plug at 13,500 WOC for 12 hrs + started deq plug. Got water in mud. Necessary to build up wt + vis.
17-9-72		16.8	50	16.9	3	TR	-	-	10.5	-	29	14	13	30	31,000	340	-	.62	0	63	37	Finished deq plug. Good mud. Perforated w/ R.I.H. open-ended Reverse circ. to clean hole.