



BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 30 MAY 19 68

Operator PHILLIPS PETR CO	Contractor ODECO	Rig No. O VIKING
Address STAVANGER	Address RIG	Spud Date 25 FEB
Report for Mr. FETTERS	Report for Mr. D'ORSAY	Sec. Twp. Rng.

Well Name and No. 7-11-1X	Field or Block No. 7-11	County, Parish or Offshore Area N-SEA	State/Province NORWAY
Operation	Casing	Mud Vol. Bbl.	Circulation Data
Depth 102048	Surface in. @ Ft.	Hole Pits 810 200	Pump Size 7 1/2 18 in.
Bit Size in. No. 8 1/2	Intermediate in. @ Ft. 9 7/8 102048	Total Circulating Vol. 1010	Bbl./Cyc.
Drill Pipe Size 5	Production or Liner in. @ Ft.	In Storage	Cyc./Min. 52
Drill Collar: Size Length 6 1/2 723		Wt. of Stored Mud	Bbl./Min. 14.2
			Annular Vel. Ft./Min.
			Opp DP Opp Col. 310
			Stand Pipe Press, psi 900
			Circulating Bottom Up, Min. 53
			Circulating Total, Min. 75

DRILLING FLUID SPECIFICATIONS

Type SALT SATUR	Weight 12-122	Vis. 40-45	Filtration N-C	Operator's Written Operator's Rep.	Authority: <input type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily 26.98 71	Mud Cost Cumulative 152,688 33
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other **L066000**

MUD PROPERTIES

Time 1130 a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - 12.2	Plastic Viscosity, cp @ _____ °F	/
Viscosity, Sec./qt API @ _____ °F	40	Yield Point, lb/100 sq ft	
Filtrate, ml, API	NIL	Gels, lb/100 sq ft., 10 Sec./10 min.	
Filtrate, API HT-HP @ _____ °F		Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>		Alkalinity, API { Pf, cc N/50 H2SO4 Pm, cc N/50 H2SO4	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl2 <input type="checkbox"/>	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/> gpg <input type="checkbox"/> filtrate <input type="checkbox"/> electrode <input type="checkbox"/> mud <input type="checkbox"/> indicator <input type="checkbox"/>	145,000	Oil..... % by Vol	
pH	7	Water..... % by Vol	
Solids..... % by Vol		Liquid phase, Vol % oil/water	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED USE

	15 BENTONITE	30 MAY
	6 FLOSALE	
	120 SALT	
	3.5 MT BAKITE	

COMMENTS
CEMENT PLUG @ 10240
Build 120 BBLs volume
losing 3-4 BBLs per hr.
through Flex joint.

BAROID SALES ENGINEER		TELEPHONE
NAME	MAURIE STELZER	MOBILE
HOME ADDRESS	STAVANGER	HOME 56474
STORE ADDRESS	North Sea Exp	STORE 20012

THIS COPY TO OIL COMPANY
THE RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE WITHOUT ASSUMPTION OF ANY LIABILITY BY NATIONAL LEAD COMPANY OR ITS AGENTS, AND ARE STATEMENTS OF OPINION ONLY.



BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 29 MAY 19 68

Operator <u>PHILLIPS PETRO CO</u>	Contractor <u>ODECO</u>	Rig No. <u>0 VIKING</u>
Address <u>STAVANGER</u>	Address <u>RIG</u>	Spud Date <u>25 FEB</u>
Report for Mr. <u>FETTERS</u>	Report for Mr. <u>D'ORSAY</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1Y</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N-SEA</u>	State/Province <u>NORWAY</u>
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Operation <u>DEEP BRIDGE PLUG</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>10248</u>	Surface in. @ Ft.	Hole Pits <u>810 200</u>	Pump Size <u>7 1/2 X 18</u>	Opp DP Opp Col. <u>310</u>
Bit Size in. No. <u>8 1/2</u>	Intermediate in. @ Ft. <u>9 7/8 10248</u>	Total Circulating Vol. <u>1010</u>	Bbl./Cyc.	Stand Pipe Press, psi <u>3000</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <u>52</u>	Circulating Bottom Up, Min. <u>55</u>
Drill Collar: Size Length <u>6 1/2 723</u>		Wt. of Stored Mud	Bbl./Min. <u>14.2</u>	Circulating Total, Min. <u>75</u>

DRILLING FLUID SPECIFICATIONS

Type <u>SATUR SALT</u>	Weight <u>12.7</u>	Vis. <u>40-45</u>	Filtration <u>50-800</u>	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>2025.20</u>	Mud Cost Cumulative <u>149 989 52</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other LOGGING

MUD PROPERTIES

Time <u>4:30</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>12.4</u>	Plastic Viscosity, cp @ _____ °F	<u>24</u>
Viscosity, Sec./qt API @ _____ °F	<u>39</u>	Yield Point, lb/100 sq ft	<u>17</u>
Filtrate, ml, API	<u>120</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>4/12</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>3300</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>6</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ <u>20</u> Pm, cc N/50 H ₂ SO ₄ <u>00</u>	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>25</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>—</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>155,000</u>	Oil..... % by Vol	
pH electrode <input checked="" type="checkbox"/> indicator <input type="checkbox"/>	<u>9</u>	Water..... % by Vol	
Solids..... % by Vol		Liquid phase, Vol % oil/water	<u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>15 FLOSAI</u>	<u>0.50 P</u>
	<u>25 BENTONITE</u>	<u>29 MAY</u>
	<u>190 SALT</u>	
	<u>20 MT BARITE</u>	
	<u>5 MILATEX</u>	

COMMENTS
BRIDGE PLUG SAT @ 750
DRILLING PLUG
LOGGING 3 BBL'S PER HR
@ MUD RISER.
BUILD 200 BBL'S VOLUME

BAROID SALES ENGINEER		TELEPHONE
NAME	<u>MAURICE STELZER</u>	MOBILE
HOME ADDRESS	<u>STAVANGER</u>	HOME <u>56474</u>
STORE ADDRESS	<u>NORTH SEA EXP</u>	STORE <u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 25 MAY 68

Operator <u>PHILLIPS PETR CO</u>	Contractor <u>O DECO</u>	Rig No. <u>OUKING</u>
Address <u>STAVANGER</u>	Address <u>RIL</u>	Spud Date <u>25 FEB</u>
Report for Mr. <u>CUSTER</u>	Report for Mr. <u>D'ORSAI</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-14</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area	State/Province <u>NORWAY</u>
Operation <u>CIRCULATING</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>10300</u>	Surface in. @ Ft.	Hole Pits <u>810 400</u>	Pump Size <u>7 1/2</u> X <u>18</u> in.
Bit Size in. No. <u>8 1/2</u>	Inter-mediate <u>9 3/4</u> @ <u>10248</u> Ft.	Total Circulating Vol. <u>1200</u>	Bbl./Cyc.
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <u>52</u>
Drill Collar: Size Length <u>6 1/2 223</u>		Wt. of Stored Mud	Bbl./Min. <u>14.2</u>
			Annular Vel. Ft./Min.
			Opp DP <u>310</u> Opp Col.
			Stand Pipe Press, psi <u>1500</u>
			Circulating Bottom Up, Min. <u>55</u>
			Circulating Total, Min. <u>90</u>

DRILLING FLUID SPECIFICATIONS

Type <u>SALT WATER</u>	Weight <u>12-13</u>	Vis. <u>40-45</u>	Filtration <u>N-C</u>	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily	Mud Cost Cumulative <u>14796432</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other LOGGING

MUD PROPERTIES

Time a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>12.6</u>	Plastic Viscosity, cp @ _____ °F	<u>25</u>
Viscosity, Sec./qt API @ _____ °F	<u>43</u>	Yield Point, lb/100 sq ft	<u>16</u>
Filtrate, ml, API	<u>9.5</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>4/10</u>
Filtrate, API HT-HP @ _____ °F	<u>-</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>3500</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>6</u>	Alkalinity, API	<u>2</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>25</u>	Alkalinity, API } Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	<u>170,000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	
pH electrode <input type="checkbox"/> indicator <input type="checkbox"/>	<u>9.5</u>	Oil % by Vol	
Solids % by Vol	<u>-</u>	Water % by Vol	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>-</u>	Liquid phase, Vol % oil/water	<u>1</u>
		Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>170 SALT</u>
	<u>50 MT BAROID</u>
	<u>15 BENTONITE</u>
	<u>15 FLOZAL</u>
	<u>20 SORA-ASH</u>

COMMENTS
SET CEMENT PLUG
TREAT CEMENT CONTAMUD.
BUILD 200 BBLs Volume

BAROID SALES ENGINEER		TELEPHONE
NAME	<u>MAURICE STELZER</u>	MOBILE
HOME ADDRESS	<u>STAVANGER</u>	HOME <u>56474</u>
STORE ADDRESS	<u>NORTH SEA EPL</u>	STORE <u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date ²⁴ 23 May 1969

Operator Phillips Pet Co		Contractor ODECO		Rig No. Vikings	
Address Stavanger		Address Rig		Spud Date 25 Feb	
Report for Mr. Custer		Report for Mr. D. Orsby		Sec. Twp. Rng.	
Well Name and No. 7-11-1X		Field or Block No. 7-11		County/Parish or Offshore Area N. Sea	
State/Province Norway		Operation Circulating		Casing	
Depth 13034		Mud Vol. Bbl. 490		Circulation Data	
Bit Size in. 8 1/2 No. 98		Hole 500 Pits 500		Annular Vel. Ft./Min. 310	
Intermediate 9 1/8 in. @ 10248 Ft.		Total Circulating Vol. 1490		Pump Size 7 1/2 X 18 in.	
Drill Pipe Size 5		In Storage —		Opp DP. 310 Opp Col.	
Drill Collar: Size Length		Wt. of Stored Mud —		Stand Pipe Press. psi 69	
				Circulating Bottom Up, Min. 69	
				Circulating Total, Min. 105	

DRILLING FLUID SPECIFICATIONS

Type Salt. Sat.	Weight 13.0	Vis. 45	Filtration 6-8	Operator's Written Rep. <input checked="" type="checkbox"/>	Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily 15	Mud Cost Cumulative 42
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time 11:15 a.m. <input type="checkbox"/> p.m. <input checked="" type="checkbox"/>	Temp. Mud — °F	Mud Sample Taken <input type="checkbox"/>	Flowline <input checked="" type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present 13.2	Plastic Viscosity, cp @ — °F	30	
Viscosity, Sec./qt API @ — °F	43	Yield Point, lb/100 sq ft	15	
Filtrate, ml, API	13.0	Gels, lb/100 sq ft., 10 Sec./10 min.	3/7	
Filtrate, API HT-HP @ — °F	3/32	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	440	
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	3/32	Alkalinity, API <input type="checkbox"/> Pf, cc N/50 H ₂ SO ₄	Nil	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol.	0.25	<input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄	Z	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	195000	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	—	
pH electrode indicator <input type="checkbox"/> filtrate <input type="checkbox"/> mud <input type="checkbox"/>	7.0	Oil..... % by Vol	—	
Solids..... % by Vol	—	Water..... % by Vol	—	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	—	Liquid phase, Vol % oil/water	1	
Rm @ 56° F	0.09	Electrical Stability, volts	—	
		Total hardness epm	120	

ADDITIVES IN MUD

MATERIALS RECOMMENDED Used

	10 F. Mica
	10 F. Walnut
	20 Sx. Sodium sulfite
	5 M.T. Paraglyte

COMMENTS
 - Mud check at "bottoms up" after logging. Preparing to set cement plug for testing.
 - Failed to get plug. Circulated cement out to set second plug.

BAROID SALES ENGINEER		TELEPHONE
NAME Devlin	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 21 May 19 68

Operator <u>Phillips Pet.</u>	Contractor <u>ODECO</u>	Rig No. <u>Viking</u>
Address <u>Stavanger</u>	Address <u>As</u>	Spud Date <u>25 Feb</u>
Report for Mr. <u>Caster</u>	Report for Mr. <u>Belford</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1X</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. Sea</u>	State/Province <u>Norway</u>
Operation <u>Coring</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>13034</u>	Surface in. @ Ft.	Hole Pits <u>990 600</u>	Pump Size <u>6 7/8 X 18</u>
Bit Size in. No. <u>8 1/2</u>	Intermediate <u>9 1/8 in. @ 10248</u>	Total Circulating Vol. <u>1590</u>	Bbl./Cyc. <u>.224</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>—</u>	Cyc./Min. <u>26</u>
Drill Collar: Size Length	Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>5.8</u>	Annular Vel. Ft./Min. <u>125</u>
			Opp DP <u>125</u>
			Stand Pipe Press. psi <u>169</u>
			Circulating Bottom Up. Min. <u>169</u>
			Circulating Total. Min. <u>275</u>

DRILLING FLUID SPECIFICATIONS

Type <u>Salt Sol.</u>	Weight <u>13.0</u>	Vis. <u>45</u>	Filtration <u>6-8</u>	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>2825 27</u>	Mud Cost Cumulative <u>156947 27</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>2:00</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>13.0</u> <u>13.0</u>	Plastic Viscosity, cp @ _____ °F	<u>7</u> <u>20</u>
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>46</u> <u>46</u>	Yield Point, lb/100 sq ft	<u>7</u> <u>8</u>
Filtrate, ml, API	<u>5.2</u> <u>5.8</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>7</u> <u>2/6</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>7</u> <u>380</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>7</u> <u>N.I</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>—</u> <u>0.25</u>	Lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>7</u> <u>Z</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/> gpg <input type="checkbox"/> gpg <input type="checkbox"/>	<u>135000</u> <u>190000</u>	Oil..... % by Vol	<u>7</u> <u>6</u>
pH electrode <input checked="" type="checkbox"/> filtrate <input type="checkbox"/> indicator <input checked="" type="checkbox"/> mud <input type="checkbox"/>	<u>7.0</u>	Water..... % by Vol	<u>7</u> <u>78</u>
Solids..... % by Vol	<u>16</u>	Liquid phase, Vol % oil/water	<u>7</u> <u>7</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>Z</u>	Electrical Stability, volts	<u>7</u> <u>Z</u>
<u>Am @ 64</u>	<u>0.08</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED - used

	<u>260 Sulf</u>
	<u>15 Flocel</u>
	<u>8 Drispac</u>
	<u>25 MT Baryte</u>

COMMENTS
 - Losing 3 bbls/hr. @ flex joint, Built
 220 bbls. volume in pits.
 - Coring. Failed to recover core due
 mechanical failure of core barrel

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 19 May 1967

Operator <u>Phillips Pet. Co</u>		Contractor <u>ODELO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Ry</u>		Spud Date <u>25 Feb</u>	
Report for Mr. <u>Custler</u>		Report for Mr. <u>Redford</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N. Sea</u>	
State/Province <u>Norway</u>		Operation <u>Drilling</u>		Casing	
Depth <u>12940</u>		Mud Vol. Bbl. <u>980</u>		Circulation Data	
Bit Size in. <u>3 1/2</u> No. <u>36</u>		Pits <u>650</u>		Annular Vel. Ft./Min. <u>3205</u>	
Inter-mediate <u>9 1/8</u> in. @ <u>10278</u> Ft.		Total Circulating Vol. <u>1630</u>		Opp DP <u>3000</u> Opp Col.	
Drill Pipe Size <u>5</u>		Bbl./Cyc. <u>.224</u>		Stand Pipe Press, psi <u>3000</u>	
Production or Liner		Cyc./Min. <u>42</u>		Circulating Bottom Up, Min. <u>105</u>	
Drill Collar: Size <u>6 1/2</u> Length <u>770</u>		Wt. of Stored Mud <u>—</u>		Bbl./Min. <u>370</u> <u>9.3</u>	
				Circulating Total, Min. <u>175</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Sat. Salt</u>	Weight <u>13.0</u>	Vis. <u>40-45</u>	Filtration <u>6-8</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>2153</u>
						Mud Cost Cumulative <u>134121</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0600</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>12.0</u> °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>13.0</u>	<u>12.94</u>	Plastic Viscosity, cp @ _____ °F	<u>26</u> <u>26</u>
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>44</u>	<u>46</u>	Yield Point, lb/100 sq ft	<u>20</u> <u>10</u>
Filtrate, ml, API	<u>6.8</u>	<u>6.4</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>3/5</u> <u>4/9</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u>	<u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>380</u> <u>380</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u>	<u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄	<u>N.I</u> <u>N.I</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>0.5</u>	<u>—</u>	{ Pm, cc N/50 H ₂ SO ₄	<u>7</u> <u>7</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>191000</u>	<u>192000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>7</u> <u>7</u>
pH electrode <input type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.0</u>	<u>7.0</u>	Oil..... % by Vol	<u>7</u> <u>7</u>
Solids..... % by Vol	<u>16</u>	<u>7</u>	Water..... % by Vol	<u>77</u> <u>77</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u>	<u>7</u>	Liquid phase, Vol % oil/water	<u>1</u> <u>1</u>
<u>Am @ 62°</u>	<u>0.09</u>	<u>7</u>	Electrical Stability, volts	<u>7</u> <u>7</u>
<u>HT @ 13000'</u>	<u>8860</u>	<u>7</u>	Total hardness epm	<u>120</u> <u>120</u>

ADDITIVES IN MUD + Cost

<u>20 M.T. Baryte</u>	<u>DC-5507</u> <u>12</u>
<u>15 Sx. CMC</u>	<u>TIC-139628</u> <u>20</u>
<u>5 Sx. Dispac</u>	
<u>2 Drums Bit Lube</u>	
<u>30 Sodium Sulfate</u>	

MATERIALS RECOMMENDED used

<u>5 Sx. Sultex</u>
<u>170 Sx. Salt</u>
<u>20 M.T. Baryte</u>
<u>90 Sx. Sodium Sulfate</u>
<u>30 bbls. Diesel</u>

COMMENTS Drilling ahead & weighting up to 13.0 15/gal.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 18 May 1968

Operator <u>Phillips Pet. Co.</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Nig</u>		Spud Date <u>25 Feb</u>	
Report for Mr. <u>Custel</u>		Report for Mr. <u>Redford</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish, or Offshore Area <u>N. Sea</u>	
State/Province <u>Norway</u>		Operation <u>Drilling</u>		Casing	
Depth <u>12500</u>		Mud Vol. Bbl. <u>960</u>		Circulation Data	
Surface in. @ Ft.		Hole <u>960</u> Pits <u>600</u>		Pump Size <u>674 X 18</u> in.	
Bit Size in. <u>8 1/2</u> No. <u>35 RA</u>		Total Circulating Vol. <u>1500</u>		Bbl./Cyc. <u>227</u>	
Intermediate <u>9 3/8</u> in. @ <u>10248</u> Ft.		In Storage <u>—</u>		Cyc./Min. <u>45</u>	
Production in. @ Ft.		Wt. of Stored Mud		Bbl./Min. <u>10</u>	
Drill Pipe Size <u>5</u>		Stand Pipe Press. psi <u>1700</u>		Circulating Bottom Up, Min. <u>96</u>	
Drill Collar Size <u>6 1/2</u> Length <u>170</u>		Circulating Total, Min. <u>156</u>			

DRILLING FLUID SPECIFICATIONS

Type <u>Salt Stented</u>	Weight <u>12.0</u>	Vis. <u>40-45</u>	Filtration <u>6-8</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>20</u>	Mud Cost Cumulative <u>131968</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0330 a.m.</u> <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>100</u> °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>12.14</u> <u>12.1</u>	Plastic Viscosity, cp @ _____ °F	<u>20</u> <u>21</u>
Viscosity, Sec./qt API @ _____ °F	<u>43</u> <u>41</u>	Yield Point, lb/100 sq ft	<u>6</u> <u>4</u>
Funnel	<u>6.3</u> <u>6.6</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>1/2</u> <u>1/2</u>
Filtrate, ml, API	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>560</u> <u>460</u>
Filtrate, API HT-HP @ _____ °F	<u>2/32</u> <u>7/32</u>	Alkalinity, API { PF, cc N/50 H ₂ SO ₄ <u>Nil</u> <u>Nil</u> Pm, cc N/50 H ₂ SO ₄	<u>2</u> <u>7</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>0.5</u> <u>0.5</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>7</u> <u>7</u>
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>177000</u> <u>183000</u>	Oil..... % by Vol	<u>7</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>7.0</u> <u>7.0</u>	Water..... % by Vol	<u>79</u>
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> mud <input checked="" type="checkbox"/>	<u>14</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>7</u>
Solids..... % by Vol	<u>—</u> <u>—</u>	Electrical Stability, volts	<u>2</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>0.08</u> <u>—</u>	Total hardness cpm	<u>100</u> <u>—</u>
<u>Rme 64°F</u>	<u>7880</u> <u>—</u>		
<u>H.H @ 12500'</u>			

ADDITIVES IN MUD

MATERIALS RECOMMENDED *used*

	<u>160 Sacks Salt</u>
	<u>10 MT. Barite</u>
	<u>15 Sacks Dispac</u>
	<u>30 Sacks CMC</u>
	<u>2 Drums Bit Lube</u>

COMMENTS Drilling. Getting some increase in cuttings. Possibility of drilling some salts. Only minor variations seen in chloride content.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date **17 MAY 19 68**

Operator PHILLIPS PETRO		Contractor O DECO		Rig No. 0 VIKING
Address STAVANGER		Address RIL		Spud Date 25 FEB
Report for Mr. CUSTER		Report for Mr. DORSA-I		Sec. Twp. Rng.
Well Name and No. 7-11-1V		Field or Block No. 7-11	County, Parish or Offshore Area N-SEA	State/Province NORWAY
Operation Drilling	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth 12350	Surface in. @ Ft.	Hole 960 Pits 600	Pump Size 63/4 X 18 in.	Opp DP 220 Opp Col.
Bit Size in. 8 1/2 No. 35	Inter-mediate in. @ Ft. 9 1/4 @ 10248	Total Circulating Vol. 1560	Bbl./Cyc. 224	Stand Pipe Press, psi 1800
Drill Pipe Size 5	Production or Liner in. @ Ft.	In Storage —	Cyc./Min. 4.5	Circulating Bottom Up, Min. 96
Drill Collar: Size 6 1/2 Length 723		Wt. of Stored Mud —	Bbl./Min. 9.98	Circulating Total, Min. 156

DRILLING FLUID SPECIFICATIONS

Type SOLUR SALT	Weight 11.9-12	Vis. 40-44	Filtration 6-8	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily 3015 72
						Mud Cost Cumulative 129,499 20

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other **LOGGING**

Time 0230 a.m. <input type="checkbox"/> p.m. <input type="checkbox"/> Temp. Mud 65:30 °F 230		MUD PROPERTIES		Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present -	12	12.1	12.1	Plastic Viscosity, cp @ _____ °F 20 18 7
Viscosity, Sec./qt API @ _____ °F		43	59	75	Yield Point, lb/100 sq ft 5 2
Filtrate, ml, API		8.1	10.6	5.4	Gels, lb/100 sq ft., 10 Sec./10 min. 0/0 1/1
Filtrate, API HT-HP @ _____ °F		—	—	—	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/> 410 460
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>		2	3	2	Alkalinity, API <input type="checkbox"/> Pf, cc N/50 H ₂ SO ₄ NIL NIL
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> salt solids % by Vol		.50	—	.5	<input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄ Z 7
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>		175,000	175,000	178,000	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>
pH electrode <input checked="" type="checkbox"/> filtrate <input checked="" type="checkbox"/>		7.2	7.0	7	Oil..... % by Vol 6
Solids..... % by Vol		10	7	7	Water..... % by Vol 84
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>					Liquid phase, Vol % oil/water 1
RM @ 60°F		.09			Electrical Stability, volts
HT @ 12300		7662			

ADDITIVES IN MUD

MATERIALS RECOMMENDED

18 MT BAROID	3 DRISPA L
162 SALT	7 C M L
15 FLOC-GIL	3 AKTA FLO-S
15 MILA	
4 BITLU BE	

COMMENTS
DRILLING

BAROID SALES ENGINEER		TELEPHONE	
NAME	M. Stelzer + D. Devlin	MOBILE	
HOME ADDRESS		HOME	
STORE ADDRESS		STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 16 May 1968

Operator <u>PHILLIPS PETR CO</u>		Contractor <u>ODECO</u>		Rig No. <u>0 VIKING</u>	
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>	
Report for Mr. <u>MEGAN</u>		Report for Mr. <u>DORSAI</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N-SEA</u>	
State/Province <u>NORWAY</u>		Mud Vol. Bbl. <u>960</u>		Circulation Data <u>634 18</u>	
Operation <u>Drilling (TRIP OUT)</u>		Surface in. @ Ft. <u>12 200</u>		Annular Vel. Ft./Min. <u>226</u>	
Depth <u>12 200</u>		Hole Pits <u>700</u>		Pump Size <u>6 3/4 X 18</u>	
Bit Size in. <u>8 1/2</u> No. <u>34</u>		Intermediate in. @ Ft. <u>9 5/8 10248</u>		Opp DP <u>3000</u>	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.		Stand Pipe Press, psi <u>3000</u>	
Drill Collar: Size Length <u>6 1/2 723</u>		Total Circulating Vol. <u>1660</u>		Circulating Bottom Up, Min. <u>100</u>	
		In Storage <u>—</u>		Circulating Total, Min. <u>174</u>	
		Wt. of Stored Mud		Bbl./Min. <u>9.6</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>SOLUBLE SALT</u>	Weight <u>11</u>	Vis. <u>40-44</u>	Filtration <u>4-7cc</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>2520</u>	Mud Cost Cumulative <u>126,483</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0730</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>1200</u> °F	Mud Sample Taken <u>240</u>	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>	
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>12.1</u> <u>12</u> <u>11.9</u>	Plastic Viscosity, cp @ _____ °F	<u>19</u>	<u>18</u>	<u>20</u>
Viscosity, Sec./qt API @ _____ °F	<u>41</u> <u>40</u> <u>44</u>	Yield Point, lb/100 sq ft	<u>5</u>	<u>5</u>	<u>6</u>
Funnel, _____ °F	<u>10.4</u> <u>10</u> <u>9.5</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>0/0</u>	<u>0-0</u>	<u>0-2</u>
Filtrate, ml, API	<u>—</u> <u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> ppm <input type="checkbox"/>	<u>410</u>	<u>400</u>	<u>400</u>
Filtrate, API HT-HP @ _____ °F	<u>2</u> <u>2</u> <u>2</u>	Alkalinity, API	<u>NIL</u>	<u>NIL</u>	<u>NIL</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>.35</u> <u>.35</u> <u>.50</u>	} Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>2</u>	<u>2</u>	<u>2</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>170,000</u> <u>160,000</u> <u>162,000</u>		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>		
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	<u>7</u> <u>7</u> <u>7.3</u>	Oil..... % by Vol	<u>6</u>		
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input type="checkbox"/> mud <input type="checkbox"/>	<u>11</u>	Water..... % by Vol	<u>83</u>		
Solids..... % by Vol	<u>.08</u>	Liquid phase, Vol % oil/water	<u>1</u>		
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Electrical Stability, volts			

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

	<u>50</u>	<u>SALT</u>	<u>18 MT BAROID</u>
	<u>9</u>	<u>CMC</u>	<u>15 BLOC-GEL</u>
	<u>5</u>	<u>DAISAL</u>	
	<u>56</u>	<u>FLOSAL</u>	
	<u>56</u>	<u>BENTONITE</u>	

COMMENTS

Drilling
Last 100 BBLs mud.
Building volume 200 BBLs

BAROID SALES ENGINEER

TELEPHONE

NAME <u>MAURILE STELZER</u>	MOBILE
HOME ADDRESS <u>STAVANGER</u>	HOME <u>56474</u>
STORE ADDRESS <u>NORTH SEA EXPL</u>	STORE <u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 15 MAY 19 68

Operator <u>PHILLIPS PETRO CO</u>		Contractor <u>O DECO</u>		Rig No. <u>O, VIKING</u>	
Address <u>STAVANGER</u>		Address <u>RIL</u>		Spud Date <u>25 FEB</u>	
Report for Mr. <u>MEGAN</u>		Report for Mr. <u>D'ORSAY</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1Y</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N-SEA</u>	
State/Province <u>NORWAY</u>		Mud Vol. Bbl.		Circulation Data	
Operation <u>DRILLING</u>		Casing		Annular Vel. Ft./Min.	
Depth <u>12050</u>		Surface in. @ Ft.		Hole Pits <u>930 750</u>	
Bit Size in. <u>8 1/2</u> No.		Inter-mediate <u>7 7/8 10248</u> in. @ Ft.		Pump Size <u>6 3/4 X 18</u> in.	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.		Total Circulating Vol. <u>1680</u>	
Drill Collar: Size <u>6 1/2</u> Length <u>723</u>		Wt. of Stored Mud		Bbl./Cyc. <u>224</u>	
				Cyc./Min. <u>38</u>	
				Stand Pipe Press, psi <u>2700</u>	
				Circulating Bottom Up, Min. <u>109</u>	
				Circulating Total, Min. <u>798</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>SUR SALT</u>	Weight <u>11.9-12</u>	Vis. <u>40-44</u>	Filtration <u>6-10</u>	Operator's Written Operator's Rep.	Authority: <input type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input checked="" type="checkbox"/>	Mud Cost Daily <u>417.85</u>	Mud Cost Cumulative <u>123,903.37</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other 2066126

MUD PROPERTIES

Time <u>0600</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>1500</u> °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present -	Plastic Viscosity, cp @ _____ °F	<u>18</u>	<u>17</u>
Viscosity, Sec./qt API @ _____ °F	<u>12</u> <u>12</u>	Yield Point, lb/100 sq ft	<u>5</u>	<u>4</u>
Funnel	<u>40</u> <u>38</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>0/0</u>	<u>0/0</u>
Filtrate, ml, API	<u>7.5</u> <u>8</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>390</u>	<u>390</u>
Filtrate, API HT-HP @ _____ °F	<u>-</u> <u>-</u>	Alkalinity, API <input type="checkbox"/> Pf, cc N/50 H ₂ SO ₄ <input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄ <input type="checkbox"/>	<u>7</u>	<u>7</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2</u> <u>2</u>	Ib/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>7</u>	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> All solids % by Vol	<u>.50</u> <u>.30</u>	Oil..... % by Vol	<u>7</u>	
Salt ppm <input checked="" type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>189,100</u> <u>152,000</u>	Water..... % by Vol	<u>83</u>	
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input type="checkbox"/> mud <input type="checkbox"/>	<u>7</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>1</u>	
Solids..... % by Vol	<u>10</u>	Electrical Stability, volts		
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>.07</u>			
<u>R.M. @ 62° F</u>				

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>2 MT BAROID</u>
	<u>14 BENTONITE</u>
	<u>14 FLOSAI</u>
	<u>1 DRISPAI</u>
	<u>2 CMC</u>

COMMENTS <u>DRILLING</u> <u>LOST 180 BBLs MUD</u> <u>BUILD 400 BBLs</u>	BAROID SALES ENGINEER		TELEPHONE
	NAME <u>MAURICE STELZER</u>		MOBILE
	HOME ADDRESS <u>STAVANGER</u>		HOME <u>56474</u>
	STORE ADDRESS <u>NORTH SEA EXPL</u>		STORE <u>20012</u>
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BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 14 May 19 68

Operator <u>PHILLIPS PETR CO</u>		Contractor <u>O DECO</u>		Rig No. <u>O Viking</u>	
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>15 FEB</u>	
Report for Mr. <u>MEGAN</u>		Report for Mr. <u>D'ORSAY</u>		Sec. Twp. Rng.	

Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N-SEA</u>		State/Province <u>NORWAY</u>	
Operation <u>DRILLING TRIP</u>		Casing		Mud Vol. Bbl.		Circulation Data	
Depth <u>11960</u>		Surface in. @ Ft.		Hole Pits <u>930 640</u>		Pump Size <u>6 3/4 X 18</u> in.	
Bit Size in. <u>8 1/2</u> No. <u>34</u>		Inter-mediate <u>9 5/8 10248</u>		Total Circulating Vol. <u>1530</u>		Bbl./Cyc. <u>224</u>	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.		In Storage		Cyc./Min. <u>46</u>	
Drill Collar: Size <u>6 1/2</u> Length <u>723</u>		Wt. of Stored Mud		Bbl./Min. <u>10.3</u>		Annular Vel. Ft./Min. <u>149</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>SOUR SALT</u>	Weight <u>11.9-12</u>	Vis. <u>40-44</u>	Filtration <u>6-10</u>	Operator's Written Operator's Rep. <input type="checkbox"/> <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>10.57.22</u>	Mud Cost Cumulative <u>123,485.52</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other Logging

MUD PROPERTIES

Time <u>0600</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>230</u> °F	Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>	
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>12.1</u>	<u>12.</u>	Plastic Viscosity, cp @ _____ °F	<u>17</u>	<u>16</u>
Viscosity, Sec./qt API @ _____ °F	<u>48</u>	<u>40</u>	Yield Point, lb/100 sq ft	<u>4</u>	<u>4</u>
Filtrate, ml, API	<u>9.4</u>	<u>9</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>0/0</u>	<u>0-0</u>
Filtrate, API HT-HP @ _____ °F	<u>-</u>	<u>-</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>380</u>	<u>380</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2</u>	<u>2</u>	Alkalinity, API <input type="checkbox"/> PF, cc N/50 H ₂ SO ₄ <input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄ <input type="checkbox"/>	<u>7</u>	<u>7</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>.40</u>	<u>.50</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>		
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>188000</u>	<u>185000</u>	Oil..... % by Vol	<u>8</u>	
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input checked="" type="checkbox"/> mud <input type="checkbox"/>	<u>7</u>	<u>7</u>	Water..... % by Vol	<u>82</u>	
Solids..... % by Vol	<u>10</u>		Liquid phase, Vol % oil/water	<u>1</u>	
Seeds, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>			Electrical Stability, volts		
<u>R.M. @ 59° F</u>	<u>.09</u>				

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>2 MT BAROID</u> <u>4 DRIS PAC</u> <u>9 CMC</u> <u>3 AKTAFLO-S</u>
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COMMENTS <u>DRILLING</u>	BAROID SALES ENGINEER		TELEPHONE	
	NAME <u>MAURILE STELZER</u>		MOBILE	
	HOME ADDRESS <u>STAVANGER</u>		HOME <u>56474</u>	
	STORE ADDRESS <u>NORTH BIA EYR</u>		STORE <u>20012</u>	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 13 May 1968

Operator <u>PHILLIPS PETRO CO</u>		Contractor <u>O DECO</u>		Rig No. <u>OVIKING</u>
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>
Report for Mr. <u>SEA BUCKEN</u>		Report for Mr. <u>D'ORSAY</u>		Sec. Twp. Rng.
Well Name and No. <u>7-11-1Y</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N-30E</u>	State/Province <u>NORWAY</u>
Operation <u>Drilling & Trip</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>11980</u>	Surface in. @ Ft.	Hole Pits <u>925 800</u>	Pump Size <u>63/4 X 18</u>	Opp DP Opp Col. <u>190</u>
Bit Size in. <u>8 1/2</u> No. <u>33</u>	Inter-mediate in. @ Ft. <u>9 5/8 10248</u>	Total Circulating Vol. <u>1625</u>	Bbl./Cyc. <u>.224</u>	Stand Pipe Press, psi <u>2200</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <u>38</u>	Circulating Bottom Up, Min. <u>108</u>
Drill Collar: Size <u>8 1/2</u> Length <u>723</u>		Wt. of Stored Mud	Bbl./Min. <u>8.5</u>	Circulating Total, Min. <u>191</u>

DRILLING FLUID SPECIFICATIONS

Type <u>STUR SALT</u>	Weight <u>11.9-12</u>	Vis. <u>40-44</u>	Filtration <u>8-10</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>190.55</u>
					Mud Cost Cumulative <u>122,428.30</u>	

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other LOGGING

MUD PROPERTIES

Time	a.m.	p.m.	Temp. Mud °F	Mud Sample Taken	Flowline	Pit
Weight of Mud	lb/gal	lb/cu ft	Present <u>12.1</u>	Plastic Viscosity, cp @ _____ °F	<u>19</u>	
Viscosity, Funnel	Sec./qt	API @ _____ °F	<u>44</u>	Yield Point, lb/100 sq ft	<u>6</u>	
Filtrate, ml, API			<u>8</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>0/1</u>	
Filtrate, API HT-HP @ _____ °F			<u>—</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>390</u>	
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>			<u>2</u>	Alkalinity, API <input type="checkbox"/> Pf, cc N/50 H ₂ SO ₄ <input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄ <input type="checkbox"/>	<u>7</u>	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol			<u>.50</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>		
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	gpg <input type="checkbox"/>	gpg <input type="checkbox"/>	<u>184000</u>	Oil..... % by Vol	<u>8</u>	
pH electrode <input checked="" type="checkbox"/> indicator <input type="checkbox"/>	filtrate mud <input type="checkbox"/>		<u>7</u>	Water..... % by Vol	<u>81</u>	
Solids..... % by Vol			<u>11</u>	Liquid phase, Vol % oil/water	<u>1</u>	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>				Electrical Stability, volts		
<u>RM @ 58° F</u>			<u>.09</u>			

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>2 MT BAROID</u>
	<u>1 SK DAISAL</u>

COMMENTS <u>DRILLING</u>	BAROID SALES ENGINEER		TELEPHONE	
	NAME	<u>MAURICE STELION</u>	MOBILE	
	HOME ADDRESS	<u>STAVANGER</u>	HOME	<u>56474</u>
	STORE ADDRESS	<u>NORTH SEA OYPL</u>	STORE	<u>20012</u>

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NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 11 MAY 1968

Operator PHILLIPS PETR Co	Contractor ODECO	Rig No. O-Viking
Address STAVANGER	Address RIG	Spud Date 25 FEB
Report for Mr. SEABERN	Report for Mr. D'ORSAY	Sec. Twp. Rng.

Well Name and No. 7-11-LY	Field or Block No. 7-11	County, Parish or Offshore Area N-SEA	State/Province NORWAY
Operation Drilling	Casing	Mud Vol. Bbl.	Circulation Data
Depth 11 800	Surface in. @ Ft.	Hole Pits 925 800	Pump Size 6 3/4 X 18 in. Opp DP 184 Opp Col.
Bit Size in. No. 8 1/2 32	Inter-mediate in. @ Ft. 9 7/8 10248	Total Circulating Vol. 1725	Bbl./Cyc. 224 Stand Pipe Press, psi 2800
Drill Pipe Size 5	Production or Liner in. @ Ft.	In Storage	Cyc./Min. 37 Circulating Bottom Up, Min. 99
Drill Collar: Size Length 6 1/2 723		Wt. of Stored Mud	Bbl./Min. 8.3 Circulating Total, Min. 189

DRILLING FLUID SPECIFICATIONS				Authority:	Mud Cost Daily 1631 20
Type STUR SALT	Weight 11.9-12	Vis. 40-44	Filtration 9-10	Operator's Written Operator's Rep. <input type="checkbox"/>	Mud Cost Cumulative 121,064 11
				<input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/>	
				<input checked="" type="checkbox"/> Other	

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other **LOGGING**

MUD PROPERTIES

Time 0800 a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud 140 °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present		Plastic Viscosity, cp @ _____ °F	18 17 19
Viscosity, Sec./qt API @ _____ °F	12 12 12.1		Yield Point, lb/100 sq ft	4 4 5
Funnel	39 37 40		Gels, lb/100 sq ft., 10 Sec./10 min.	0/0 0-0 0-0
Filtrate, ml, API	8.8 8.4 7.8		Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	390 380 380
Filtrate, API HT-HP @ _____ °F	- - -		Alkalinity, API { Pf, cc N/50 H ₂ SO ₄	2 2 2
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	2 2 2		{ Pm, cc N/50 H ₂ SO ₄	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	.50 .50 .40		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	181000 179000 17500		Oil % by Vol	8 8
pH electrode <input checked="" type="checkbox"/> indicator <input type="checkbox"/>	7 7 7		Water % by Vol	82 81
Solids % by Vol	10 11		Liquid phase, Vol % oil/water	1
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>			Electrical Stability, volts	
RM @ 60°F .08				
HH @ 11				

ADDITIVES IN MUD	MATERIALS RECOMMENDED USED
	60 SALT
	2 MT BAROID
	60 SOLTIX
	9 FLOSAK
	20 BBL DIESEL

COMMENTS DRILLING DIFFICULTY RAISING WIRELIFT BUILD ISOBALS Volume	BAROID SALES ENGINEER	TELEPHONE
	NAME MAURICE STELZER	MOBILE
	HOME ADDRESS STAVANGER	HOME 56474
	STORE ADDRESS NORTH SEA EXPL	STORE 20012

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 10 MAY 1968

Operator <u>PHILLIPS PETR CO</u>		Contractor <u>O DECO</u>		Rig No. <u>0 VIKING</u>	
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>	
Report for Mr. <u>SEA BOURN</u>		Report for Mr. <u>REDFORD</u>		Sec. <u> </u> Twp. <u> </u> Rng. <u> </u>	
Well Name and No. <u>7-11-1Y</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N-SEA</u>	
State/Province <u>NORWAY</u>		Mud Vol. Bbl. <u>920 700</u>		Circulation Data <u>(BEFORE TRIP) (A/TOP)</u>	
Operation <u>Drilling (TRIPFORIT)</u>		Casing <u> </u>		Annular Vel. Ft./Min. <u>A FTRH</u>	
Depth <u>11724</u>		Surface in. @ Ft. <u> </u>		Pump Size <u>6 3/4 18</u>	
Bit Size in. <u>8 1/2</u> No. <u>31</u>		Intermediate in. @ Ft. <u>9 7/8 10248</u>		Epp DP <u>210</u> App Col. <u>184</u>	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft. <u> </u>		Total Circulating Vol. <u>1620</u>	
Drill Collar: Size <u>6 1/2</u> Length <u>723</u>		Wt. of Stored Mud <u> </u>		Bbl./Cyc. <u>224</u>	
				Cyc./Min. <u>42 37</u>	
				Stand Pipe Press, psi <u>3000 3000</u>	
				Circulating Bottom Up, Min. <u>98</u>	
				Circulating Total, Min. <u>177</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>SATUR SALT</u>	Weight <u>11.9-12</u>	Vis. <u>40-44</u>	Filtration <u>9-10</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>4619 64</u>
						Mud Cost Cumulative <u>119,432 91</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0800</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>12000</u>	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present -			
Viscosity, Sec./qt API @ <u> </u> °F	<u>12.1</u> <u>12.1</u> <u>12.1</u>	Plastic Viscosity, cp @ <u> </u> °F	<u>22</u> <u>23</u> <u>22</u>	
Funnel, ml, API	<u>41</u> <u>43</u> <u>41</u>	Yield Point, lb/100 sq ft	<u>6</u> <u>7</u> <u>5</u>	
Filtrate, ml, API	<u>7.9</u> <u>8</u> <u>8.1</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>0/1</u> <u>0-2</u> <u>0-0</u>	
Filtrate, API HT-HP @ <u> </u> °F	<u>-</u> <u>-</u> <u>-</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>380</u> <u>380</u> <u>370</u>	
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2</u> <u>2</u> <u>2</u>	Alkalinity, API	<u>7</u> <u>7</u> <u>7</u>	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>.50</u> <u>.50</u> <u>.50</u>	} Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄		
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>190000</u> <u>188000</u> <u>185000</u>		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	
pH electrode <input checked="" type="checkbox"/> indicator <input type="checkbox"/>	<u>7.1</u> <u>7.1</u> <u>7</u>	Oil..... % by Vol	<u>7</u>	<u>8</u>
Solids..... % by Vol	<u>12</u> <u> </u> <u>12</u>	Water..... % by Vol	<u>81</u>	<u>80</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Liquid phase, Vol % oil/water	<u>1</u>	
<u>Rm @ 66° F</u>	<u>.09</u> <u>60%</u> <u>.08</u>	Electrical Stability, volts		
<u>HH @ 11800</u>	<u>7309</u>			

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

	<u>14 MT BAROID</u>
	<u>11 CMC</u>
	<u>4 DRISPAL</u>
	<u>20 FLOSAL</u>
	<u>50 SALT</u>

COMMENTS DRILLING AHEAD

BAROID SALES ENGINEER		TELEPHONE	
NAME	<u>MAURILE STELZER</u>	MOBILE	
HOME ADDRESS	<u>STAVANGER</u>	HOME	<u>56474</u>
STORE ADDRESS	<u>NORTH SEA EYPL</u>	STORE	<u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 9 MAY 1968

Operator <u>PHILLIPS PETRO CO</u>		Contractor <u>O DECO</u>		Rig No. <u>O. VIKING</u>
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>
Report for Mr. <u>SEABORN</u>		Report for Mr. <u>REDFORD</u>		Sec. Twp. Rng.
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N-SEA</u>	State/Province <u>NORWAY</u>
Operation <u>Drilling</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>11615</u>	Surface in. @ Ft.	Hole Pits <u>920 750</u>	Pump Size <u>6 3/4 X 18</u> in.	Opp DP <u>198</u> Opp Col. <u>385</u>
Bit Size in. <u>8 1/2</u> No. <u>3</u>	Inter-mediate in. @ Ft. <u>9 5/8 10248</u>	Total Circulating Vol. <u>1670</u>	Bbl./Cyc. <u>224</u>	Stand Pipe Press, psi <u>3000</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>100</u>	Cyc./Min. <u>40</u>	Circulating Bottom Up, Min. <u>103</u>
Drill Collar: Size <u>6 1/2</u> Length <u>723</u>		Wt. of Stored Mud <u>12</u>	Bbl./Min. <u>8.9</u>	Circulating Total, Min. <u>187</u>

DRILLING FLUID SPECIFICATIONS

Type <u>SURF SALT</u>	Weight <u>11.9 12</u>	Vis. <u>40.44</u>	Filtration <u>9-10cc</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>4100.00</u>
						Mud Cost Cumulative <u>117,913.07</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other LOGGING

MUD PROPERTIES

Time <u>0900</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>120.0</u> °F <u>170.0</u> °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>	
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present -	Plastic Viscosity, cp @ _____ °F	<u>18</u>	<u>17</u>	<u>18</u>
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>11.9 12 12</u>	Yield Point, lb/100 sq ft	<u>5</u>	<u>4</u>	<u>6</u>
Filtrate, ml, API	<u>38 37 43</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>0/1</u>	<u>0-0</u>	<u>0-0</u>
Filtrate, API HT-HP @ _____ °F	<u>10.8 11.2 8</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>380</u>	<u>380</u>	<u>390</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>- - -</u>	Alkalinity, API <input type="checkbox"/> Pf, cc N/50 H ₂ SO ₄ <input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄ <input type="checkbox"/>	<u>7</u>	<u>7</u>	<u>7</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>2 2 2</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>			
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>.35 .35 .35</u>	Oil..... % by Vol	<u>7</u>		
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input type="checkbox"/> mud <input type="checkbox"/>	<u>174000 177000 170000</u>	Water..... % by Vol	<u>81</u>		
Solids..... % by Vol	<u>7.1 7.1</u>	Liquid phase, Vol % oil/water	<u>1</u>		
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>12</u>	Electrical Stability, volts			
<u>RM @ 60°F .079</u>					
<u>HH @ 11600 7226</u>					

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

ADDITIVES IN MUD 	MATERIALS RECOMMENDED USED <u>14 BBLs BITULUBE</u> <u>174 SALT 3 DRISPA</u> <u>50 SOLTIX 7 CMC</u> <u>20 BBLs DIESEL</u> <u>3 AKTA FLO-S</u>
----------------------------------	---

COMMENTS

DRILLING

ADDING CMC & DRISPA FOR FILTRATE CONTROL.

BUILDING VOLUME.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>MAURICE STELZER</u>	MOBILE	
HOME ADDRESS <u>STAVANGER</u>	HOME <u>56474</u>	
STORE ADDRESS <u>NORTH SEA EXP</u>	STORE <u>20012</u>	

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NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 8 MAY 1968

Operator PHILLIPS PETRO CO	Contractor ODECO	Rig No. OVIKING
Address STAVANGER.	Address RIG	Spud Date 25 FEB
Report for Mr. SEA BURN	Report for Mr. REDFORD	Sec. Twp. Rng.

Well Name and No. 7-11-1X	Field or Block No. 7-11	County, Parish or Offshore Area N-SEA	State/Province NORWAY
Operation DRILLING	Casing	Mud Vol. Bbl.	Circulation Data
Depth 11566	Surface in. @ Ft.	Hole Pits 910 700	Pump Size 6 3/4 X 1 1/2
Bit Size in. No. 8 1/2 29	Inter-mediate in. @ Ft. 9 5/8 10248	Total Circulating Vol. 1610	Bbl./Cyc. .224
Drill Pipe Size 5	Production or Liner in. @ Ft.	In Storage	Cyc./Min. 40
Drill Collar: Size Length 6 1/2 723		Wt. of Stored Mud	Bbl./Min. 8.9

DRILLING FLUID SPECIFICATIONS

Type TUR SALT	Weight 119-12	Vis. 40-44	Filtration 9-10cc	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other	Mud Cost Daily 933.94	Mud Cost Cumulative 113713.02
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other **LOGGING**

MUD PROPERTIES

Time 0500	Temp. Mud 194.0 F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present -	Plastic Viscosity, cp @ _____ °F	24 21 20
Viscosity, Sec./qt API @ _____ °F	12 12.1 21	Yield Point, lb/100 sq ft	12 8 6
Funnel,	45 44 47	Gels, lb/100 sq ft., 10 Sec./10 min.	116 1-4 0-2
Filtrate, ml, API	10 11 8.4	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	380 380 7
Filtrate, API HT-HP @ _____ °F	- - -	Alkalinity, API	7 7 7
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	2 2 2	} Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	7 7 7
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	.50 .40 .35		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	185000 184000 178000	Oil..... % by Vol	6
pH electrode <input checked="" type="checkbox"/> indicator <input type="checkbox"/>	7 7 7	Water..... % by Vol	81
Solids..... % by Vol	13	Liquid phase, Vol % oil/water	1
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	.07	Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

	74 SALT
	21 FLO-SAL
	21 BENTONITE
	7 HT BAROID

COMMENTS
DRILLING
ADDING CMC + DRISPA
FOR FILTRATE CONTROL.
SALTING UP.

BAROID SALES ENGINEER		TELEPHONE
NAME	MARILE STELZER	MOBILE
HOME ADDRESS	STAVANGER	HOME 56474
STORE ADDRESS	NORTH SEA RIG	STORE 20012

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 7 MAY 19 68

Operator <u>PHILLIPS PETRO CO</u>		Contractor <u>ODECO</u>		Rig No. <u>O. VIKING</u>
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>
Report for Mr. <u>SEABURN</u>		Report for Mr. <u>RED FORD</u>		Sec. Twp. <u>Rng.</u>
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N-SEA</u>	State/Province <u>NORWAY</u>
Operation <u>DELL (CIRPEA/BIB)</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>11460</u>	Surface in. @ Ft.	Hole <u>900</u> Pits <u>650</u>	Pump Size <u>6 3/4</u> X <u>18</u> in.	Opp DP <u>197</u> Opp Col.
Bit Size in. <u>8 1/2</u> No. <u>28</u>	Inter-mediate <u>9 5/8</u> in. @ <u>10248</u> Ft.	Total Circulating Vol. <u>1550</u>	Bbl./Cyc. <u>224</u>	Stand Pipe Press, psi <u>3000</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>-</u>	Cyc./Min. <u>40</u>	Circulating Bottom Up, Min. <u>102</u>
Drill Collar: Size <u>6 1/2</u> Length <u>630</u>		Wt. of Stored Mud <u>-</u>	Bbl./Min. <u>8.9</u>	Circulating Total, Min. <u>175</u>

DRILLING FLUID SPECIFICATIONS

Type <u>SATUR SALT</u>	Weight <u>11.9</u>	Vis. <u>40</u>	Filtration <u>9-10cc</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>40</u>
						Mud Cost Cumulative <u>112,779.45</u>

EQUIPMENT

Shale Shaker ~~DD Shaker~~ Desander ~~Degasser~~ Centrifuge Other LOGGING.

MUD PROPERTIES

Time <u>0200</u> <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>100.0</u> °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>11.9</u> <u>11.9</u> <u>11.9</u>	Plastic Viscosity, cp @ _____ °F	<u>19</u>	<u>17</u>
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>39</u> <u>37</u> <u>43</u>	Yield Point, lb/100 sq ft	<u>6</u>	<u>5</u>
Filtrate, ml, API	<u>9</u> <u>9.4</u> <u>102</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>0/1</u>	<u>0/1</u>
Filtrate, API HT-HP @ _____ °F	<u>-</u> <u>-</u> <u>-</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>400</u>	<u>390</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2</u> <u>2</u> <u>2</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>2</u>	<u>2</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>.50</u> <u>.50</u> <u>.50</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>		
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	<u>178000</u> <u>164000</u> <u>162000</u>	Oil..... % by Vol	<u>6</u>	
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input type="checkbox"/> mud <input type="checkbox"/>	<u>7</u> <u>7</u> <u>7</u>	Water..... % by Vol	<u>82</u>	
Solids..... % by Vol	<u>12</u>	Liquid phase, Vol % oil/water	<u>1</u>	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>.08</u>	Electrical Stability, volts		
<u>R.M. @ 58°F</u>				

ADDITIVES IN MUD

MATERIALS RECOMMENDED USE D

	<u>13 CMC</u>
	<u>6 DRISPAK</u>
	<u>4 FLOSAK</u>
	<u>4 BENTONITE</u>
	<u>1 MT BAROID</u>

COMMENTS

DRILLING
ADDING FLOSAK & BENTONITE
FOR VISCOSITY ADDING SALT

BAROID SALES ENGINEER

TELEPHONE

NAME <u>MAURICE STELIER</u>	MOBILE
HOME ADDRESS <u>STAVANGER</u>	HOME <u>56474</u>
STORE ADDRESS <u>NORTH SEA EXP</u>	STORE <u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 5 MAY 19 68

Operator <u>PHILLIPS PEIRCO</u>	Contractor <u>ODECO</u>	Rig No. <u>0 VIKING</u>
Address <u>STAUNGER</u>	Address <u>RIG</u>	Spud Date <u>25 FEB</u>
Report for Mr. <u>Boyd</u>	Report for Mr. <u>REDFORD</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1X</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N-S-E-A</u>	State/Province <u>NORWAY</u>
Operation <u>TRIP FOR BIT</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>11330</u>	Surface in. @ Ft.	Hole Pits <u>860 700</u>	Pump Size <u>6 3/4 X 18</u>
Bit Size in. No. <u>2 1/2</u>	Inter-mediate in. @ Ft. <u>978 102 48</u>	Total Circulating Vol. <u>1460</u>	Bbl./Cyc. <u>224</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>100</u>	Cyc./Min. <u>43</u>
Drill Collar: Size Length <u>6 1/2 630</u>		Wt. of Stored Mud <u>12</u>	Bbl./Min. <u>9.5</u>
			Annular Vel. Ft./Min. <u>212</u>
			Stand Pipe Press, psi <u>3000</u>
			Circulating Bottom Up, Min. <u>90</u>
			Circulating Total, Min. <u>153</u>

DRILLING FLUID SPECIFICATIONS				Authority:		Mud Cost Daily
Tyr <u>SUR SALT</u>	Weight <u>12</u>	Vis. <u>40-48</u>	Filtration <u>10 OR LESS</u>	Operator's Written Rep. <input type="checkbox"/>	Drilling Contractor <input checked="" type="checkbox"/>	<u>1425 65</u>
				Operator's Rep. <input type="checkbox"/>	Other: <input type="checkbox"/>	Mud Cost Cumulative <u>110,401 65</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other 20661MG

MUD PROPERTIES										
Time <u>0645</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>1300 F</u>	Sample Taken <u>2400</u>	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>						
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present -				Plastic Viscosity, cp @ _____ °F	<u>22</u>	<u>23</u>	<u>20</u>		
Viscosity, Sec./qt API @ _____ °F	<u>12</u>	<u>12.1</u>	<u>12.1</u>		Yield Point, lb/100 sq ft	<u>10</u>	<u>11</u>	<u>10</u>		
Funnel, ml, API	<u>46</u>	<u>47</u>	<u>46</u>		Gels, lb/100 sq ft., 10 Sec./10 min.	<u>116</u>	<u>2-6</u>	<u>1-5</u>		
Filtrate, API HT-HP @ _____ °F	<u>7.4</u>	<u>11.2</u>	<u>9.6</u>		Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>410</u>	<u>380</u>	<u>380</u>		
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2</u>	<u>3</u>	<u>3</u>		Alkalinity, API	<u>7</u>	<u>7</u>	<u>7</u>		
Sand Content <input checked="" type="checkbox"/> Sand only <input type="checkbox"/> All solids % by Vol	<u>.50</u>	<u>.40</u>	<u>.40</u>		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>					
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	<u>161000</u>	<u>188000</u>	<u>186000</u>		Oil..... % by Vol	<u>7</u>				
pH electrode <input checked="" type="checkbox"/> filtrate <input type="checkbox"/>	<u>7.2</u>	<u>7.1</u>	<u>7.1</u>		Water..... % by Vol	<u>80</u>				
indicator <input type="checkbox"/> mud <input type="checkbox"/>					Liquid phase, Vol % oil/water	<u>1</u>				
Solids..... % by Vol	<u>13</u>				Electrical Stability, volts					
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>										
<u>RM @ 60°F</u>	<u>.07</u>									

ADDITIVES IN MUD	MATERIALS RECOMMENDED USED
	<u>340 SALT</u>
	<u>2MT BAROID</u>
	<u>2 DESID</u>
	<u>20 SOLTEY</u>
	<u>100 BBLs DIESEL</u>

COMMENTS <u>Drilling, adding CMC</u> <u>DRISPAK FOR FILTRATE</u> <u>CONTROL. SALTING UP</u>	BAROID SALES ENGINEER	TELEPHONE
	NAME	MOBILE
	HOME ADDRESS	HOME
	STORE ADDRESS	STORE
	<u>MAURICE STELZER</u>	<u>56474</u>
	<u>STAUNGER</u>	<u>24012</u>
	<u>NORTH SEA EXP</u>	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 4 MAY 19 68

Operator <u>PHILLIPS PETR Co</u>		Contractor <u>O DECO</u>		Rig No. <u>0 VIKING</u>
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>
Report for Mr. <u>Boyd</u>		Report for Mr. <u>REDFORD</u>		Sec. Twp. Rng.
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. SEA</u>	State/Province <u>NORWAY</u>
Operation <u>DRLG</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>11193</u>	Surface in. @ Ft.	Hole Pits <u>850 700</u>	Pump Size <u>6 3/4 X 18</u> in.	Opp DP <u>205</u> Opp Col.
Bit Size in. <u>8 1/2</u> No.	Inter-mediate in. @ Ft. <u>9 5/8 10248</u>	Total Circulating Vol. <u>1550</u>	Bbl./Cyc. <u>224</u>	Stand Pipe Press, psi <u>3000</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <u>40</u>	Circulating Bottom Up, Min. <u>96</u>
Drill Collar: Size <u>6 1/2</u> length		Wt. of Stored Mud	Bbl./Min. <u>9</u>	Circulating Total, Min. <u>174</u>

DRILLING FLUID SPECIFICATIONS

Type <u>SALT</u>	Weight <u>12.0</u>	Vis. <u>40-50</u>	Filtration <u>10cc/100ml</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>3135.85</u>
						Mud Cost Cumulative <u>108,976.00</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other 206616

MUD PROPERTIES

Time <u>0645</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>120</u> °F <u>1700</u>	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present		Plastic Viscosity, cp @ _____°F	<u>21 21 21</u>
Viscosity, Sec./qt API @ _____°F	<u>12.1 12.1 12</u>		Yield Point, lb/100 sq ft	<u>9 10 8</u>
Funnel	<u>43 41 44</u>		Gels, lb/100 sq ft., 10 Sec./10 min.	<u>1/4 1-5 0-3</u>
Filtrate, ml, API	<u>6.8 6 7.1</u>		Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>400 400 410</u>
Filtrate, API HT-HP @ _____°F	<u>- - -</u>		Alkalinity, API { PF, cc N/50 H ₂ SO ₄	<u>2 2 2</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2 2 2</u>		{ Pm, cc N/50 H ₂ SO ₄	<u>- 2 2</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>.50 .50 .50</u>		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>- - -</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>91000 104000 132000</u>		Oil..... % by Vol	<u>2 7</u>
Salt gpg <input type="checkbox"/> Chloride gpg <input type="checkbox"/>			Water..... % by Vol	<u>84 81</u>
pH electrode <input type="checkbox"/> fillrate <input checked="" type="checkbox"/>	<u>7.2 7.2 7.2</u>		Liquid phase, Vol % oil/water	<u>1</u>
pH indicator <input checked="" type="checkbox"/> mud <input type="checkbox"/>			Electrical Stability, volts	
Solids..... % by Vol	<u>14 12</u>			
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>				
<u>RM @ 54°</u>	<u>.123</u>			

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

	<u>37 DESCO</u>
	<u>2 CML</u>
	<u>17 DRISPAL</u>
	<u>208 SALT</u>
	<u>3 AKTAFLO-S</u>

COMMENTS

(TRIP FOR BIT)
DRILLING AHEAD ADDING SALT.
ADDING DIESEL + SOLTIX.

BAROID SALES ENGINEER

TELEPHONE

NAME <u>MAURICE STELZER</u>	MOBILE
HOME ADDRESS <u>STAVANGER</u>	HOME <u>56474</u>
STORE ADDRESS <u>NORTHSEA EXP</u>	STORE <u>20012</u>

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BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 3 May 1968

Operator <u>Phillips Pet. Co.</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Riz</u>		Spud Date <u>25 Feb</u>	
Report for Mr. <u>Mega</u>		Report for Mr. <u>Refford</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N. Sea</u>	
State/Province <u>Norway</u>		Casing <u>Daily Trip (for bit)</u>		Mud Vol. Bbl. <u>850</u>	
Depth <u>11057</u>		Surface in. @ Ft. <u>850</u>		Pits <u>600</u>	
Bit Size in. <u>8 1/2</u> No. <u>8 1/2</u>		Intermediate in. @ Ft. <u>9 1/8</u>		Total Circulating Vol. <u>1450</u>	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft. <u>10248</u>		Bbl./Cyc. <u>1224</u>	
Drill Collar: Size Length		In Storage <u>—</u>		Cyc./Min. <u>43</u>	
		Wt. of Stored Mud <u>—</u>		Bbl./Min. <u>9.6</u>	
				Annular Vel. Ft./Min. <u>224</u>	
				Stand Pipe Press. psi <u>3000</u>	
				Circulating Bottom Up, Min. <u>89</u>	
				Circulating Total, Min. <u>151</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Salt</u>	Weight <u>12.0</u>	Vis. <u>40-50</u>	Filtration <u><10cc</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>62</u>
						Mud Cost Cumulative <u>105890</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0600 a.m.</u> <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>1200</u> °F <u>2000</u>	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>12.2</u> <u>12.2</u> <u>12.1</u>	Plastic Viscosity, cp @ _____ °F	<u>16</u>	<u>18</u>
Viscosity, Sec./qt API @ _____ °F	<u>44</u> <u>48</u> <u>43</u>	Yield Point, lb/100 sq ft	<u>14</u>	<u>11</u>
Filtrate, ml, API	<u>11.8</u> <u>10</u> <u>8</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>8/27</u>	<u>4/15</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>380</u>	<u>400</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3/32</u> <u>3</u> <u>2</u>	Alkalinity, API { Pf, cc N/50 H2SO4	<u>Nil</u>	<u>NIL</u>
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>0.5</u> <u>.50</u> <u>.50</u>	{ Pm, cc N/50 H2SO4	<u>2</u>	<u>2</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>89000</u> <u>85000</u> <u>84000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl2 <input type="checkbox"/>		
pH electrode <input type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.0</u> <u>7.</u> <u>7.2</u>	Oil..... % by Vol	<u>2</u>	
Solids..... % by Vol	<u>15</u>	Water..... % by Vol	<u>83</u>	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u>	Liquid phase, Vol % oil/water	<u>1</u>	
<u>Rm @ 56°F</u>	<u>0.12</u>	Electrical Stability, volts		

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>42 Sx. Descos</u>
	<u>228 Sx Salt</u>
	<u>2 M.T. Bayte</u>

COMMENTS Drilling ahead & adding salt. No major problems controlling flow properties. Adding Durspac to assist in filtration control

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	HOME ADDRESS	MOBILE	HOME
STORE ADDRESS		STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

STAV

DRILLING MUD REPORT

Date 2 May 19 68

Operator <u>Phillips Pet. Co.</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Ryg</u>		Spud Date <u>25 Feb</u>	
Report for Mr. <u>Megan</u>		Report for Mr. <u>Douglas</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County Parish or Offshore Area <u>Norway</u>	
Operation <u>Drilling (Temp for bit)</u>		Mud Vol. Bbl.		Circulation Data	
Casing		Mud Vol. Bbl.		Annular Vel. Ft./Min.	
Depth <u>10410</u>		Surface in. @ Ft. <u>840 600</u>		Pump Size <u>6 3/4 X 1 1/2</u> in. Opp DP <u>192</u> Opp Col.	
Bit Size in. <u>8 1/2</u> No.		Intermediate <u>9 1/2</u> in. @ <u>10248</u> Ft.		Total Circulating Vol. <u>1440</u> Bbl./Cyc. <u>.224</u>	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.		In Storage <u>—</u> Cyc./Min. <u>40</u>	
Drill Collar: Size Length		Wt. of Stored Mud <u>—</u>		Bbl./Min. <u>8.9</u>	
				Stand Pipe Press, psi <u>3000</u>	
				Circulating Bottom Up, Min. <u>95</u>	
				Circulating Total, Min. <u>161</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Salt</u>	Weight <u>12.0</u>	Vis. <u>40-50</u>	Filtration <u><10cc</u>	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>32</u>	Mud Cost Cumulative <u>103885</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0030</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pits <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>12.0</u> <u>12.1+</u>	Plastic Viscosity, cp @ _____ °F	<u>19</u> <u>17</u>
Viscosity, Sec./qt API @ _____ °F	<u>45</u> <u>46</u>	Yield Point, lb/100 sq ft	<u>16</u> <u>23</u>
Filtrate, ml, API	<u>9.0</u> <u>9.6</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>7/32</u> <u>12/40</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>380</u> <u>7</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3/32</u> <u>3/32</u>	Alkalinity, API { PF, cc N/50 H ₂ SO ₄ <u>Nil</u>	<u>7</u>
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>0.5</u> <u>0.5</u>	{ Pm, cc N/50 H ₂ SO ₄ <u>Z</u>	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>57000</u> <u>70000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>3</u>
pH electrode <input checked="" type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.0</u> <u>7.0</u>	Oil..... % by Vol	<u>81</u>
Solids..... % by Vol	<u>16</u> <u>7</u>	Water..... % by Vol	<u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u> <u>—</u>	Liquid phase, Vol % oil/water	<u>—</u>
<u>Rm @ 64°F</u>	<u>0.15</u> <u>—</u>	Electrical Stability, volts	<u>—</u>

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>248 Sx. Salt</u>
	<u>38 Sx. Desco</u>
	<u>3 MT. Baryte</u>

COMMENTS <u>Drilling ahead & adding salt, seawater, + Desco. Yield point & gels increasing while mixing, but not severely. Viscosity breaking back somewhat on circulation through holes during trips.</u>	BAROID SALES ENGINEER		TELEPHONE
	NAME <u>Devlin</u>		MOBILE
	HOME ADDRESS		HOME
	STORE ADDRESS		STORE

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BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 1 May 1968

Operator <u>Phillips Pet. Co</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Ryg</u>		Spud Date <u>25 Feb.</u>	
Report for Mr. <u>Megard</u>		Report for Mr. <u>D. Dorse</u>		Sec. Twp. Rng.	
Well Name and No. <u>70-11-1X</u>		Field or Block No. <u>7-11</u>		County/Parish or Offshore Area <u>N. Sea</u>	
Operation <u>Trip for bit</u>		Mud Vol. Bbl.		Circulation Data	
Casing		Annular Vel. Ft./Min.		Opp DP <u>202</u> Opp Col.	
Depth <u>10795</u>		Surface in. @ Ft. <u>835</u> Pits <u>600</u>		Pump Size <u>6 3/4 x 18</u> in.	
Bit Size in. <u>8 1/2</u> No.		Intermediate <u>9 5/8</u> in. @ <u>10248</u> Ft.		Total Circulating Vol. <u>1435</u>	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.		Bbl./Cyc. <u>224</u>	
Drill Collar: Size Length		In Storage <u>—</u>		Cyc./Min. <u>41</u>	
		Wt. of Stored Mud <u>—</u>		Bbl./Min. <u>9.1</u>	
				Stand Pipe Press. psi <u>8000</u>	
				Circulating Bottom Up, Min. <u>91</u>	
				Circulating Total, Min. <u>158</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Salt</u>	Weight <u>12.0</u>	Vis. <u>40-50</u>	Filtration <u>< 10cc</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>486.76</u>
						Mud Cost Cumulative <u>101946.95</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0600</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present: <u>12.17</u> <u>12.17</u> <u>12.04</u>	Plastic Viscosity, cp @ _____ °F	<u>20</u>	
Viscosity, Sec./qt API @ _____ °F	<u>38</u> <u>43</u> <u>47</u>	Yield Point, lb/100 sq ft	<u>5</u>	
Filtrate, ml, API	<u>6.2</u> <u>6.8</u> <u>6.8</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>3/4</u>	
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>400</u>	
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H2SO4	<u>N.I</u>	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>0.75</u> <u>0.75</u> <u>0.75</u>	{ Pm, cc N/50 H2SO4	<u>2</u>	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>22000</u> <u>28000</u> <u>56000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl2 <input type="checkbox"/>	<u>4</u>	
pH electrode <input type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.0</u> <u>7</u> <u>7</u>	Oil..... % by Vol	<u>80</u>	
Solids..... % by Vol	<u>16</u> <u>7</u> <u>7</u>	Water..... % by Vol	<u>1</u>	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u> <u>7</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>—</u>	
<u>Amc 66°</u>	<u>0.34</u> <u>7</u> <u>7</u>	Electrical Stability, volts	<u>—</u>	

ADDITIVES IN MUD

MATERIALS RECOMMENDED used

	<u>4 Sx. Dorspac</u>
	<u>4 M.T. Bakte</u>

COMMENTS
Saturating mud slowly with salt by adding moderate amount each turn or bit.
Recommended complete breakover in casing all at one time.

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	MOBILE		
HOME ADDRESS	HOME		
STORE ADDRESS	STORE		

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 30 April 1968

Operator <u>Phillips Pet. Co.</u>	Contractor <u>ODECO</u>	Rig No. <u>Viking</u>
Address <u>Stavanger</u>	Address <u>Rig</u>	Spud Date <u>25 Feb.</u>
Report for Mr. <u>Seaboard</u>	Report for Mr. <u>D. Orsney</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1X</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. Sea</u>	State/Province <u>Norway</u>
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Operator <u>Trip for bit (D.C.)</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min
Depth <u>10578</u>	Surface in. @ Ft.	Hole Pits <u>830 600</u>	Pump Size <u>674</u> in.	Opp DP <u>142</u> Opp Col.
Bit Size in. No. <u>8 1/2</u>	Inter-mediate <u>9 1/2</u> in. @ <u>70248</u> Ft.	Total Circulating Vol. <u>1430</u>	Bbl./Cyc. <u>.229</u>	Stand Pipe Press, psi <u>3000</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>—</u>	Cyc./Min. <u>40</u>	Circulating Bottom Up, Min. <u>43</u>
Drill Collar: Size Length	Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>8.9</u>	Circulating Total, Min. <u>161</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>12.0</u>	Vis. <u>40</u>	Filtration <u>2100</u>	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>332.00</u>	Mud Cost Cumulative <u>101461.20</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0530</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>12.1</u> <u>12.14</u>	Plastic Viscosity, cp @ _____ °F	<u>22</u>
Viscosity, Sec./qt API @ _____ °F	<u>39</u> <u>38</u>	Yield Point, lb/100 sq ft	<u>4</u>
Filtrate, ml, API	<u>6.4</u> <u>6.0</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>3/6</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>420</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>N.I</u>
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>0.75</u> <u>0.75</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>2</u>
Salt ppm <input checked="" type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/> gpg <input type="checkbox"/> gpg <input type="checkbox"/>	<u>22000</u> <u>22000</u>	Oil % by Vol	<u>4</u>
pH electrode <input checked="" type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.25</u>	Water % by Vol	<u>80</u>
Solids % by Vol	<u>16</u>	Liquid phase, Vol % oil/water	<u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u>	Electrical Stability, volts	
<u>None 65°</u>	<u>0.35</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED used.

	<u>2 1/2 MT. Barite</u>
	<u>3 Sacks Dolpac</u>

COMMENTS <u>Drilling ahead.</u>	BAROID SALES ENGINEER		TELEPHONE	
	NAME <u>Devlin</u>		MOBILE	
	HOME ADDRESS		HOME	
	STORE ADDRESS		STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 29 April 1968

Operator <u>Phillips Pet. Co</u>	Contractor <u>ODECO</u>	Rig No. <u>Viking</u>
Address <u>Stavanger</u>	Address <u>Rig</u>	Spud Date <u>25 Feb.</u>
Report for Mr. <u>Seabourh</u>	Report for Mr. <u>DD</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1X</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>Mt. Sea</u>	State/Province <u>Norway</u>
Operator <u>Deo Drilling</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>10420</u>	Surface in. @ Ft.	Hole <u>816</u> Pits <u>600</u>	Pump Size <u>6 3/4 x 18</u> in.
Bit Size in. <u>8 1/2</u> No.	Inter-mediate <u>9 1/2</u> in. @ <u>10248</u> Ft.	Total Circulating Vol. <u>1416</u>	Bbl./Cyc. <u>.224</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>—</u>	Cyc./Min. <u>40</u>
Drill Collar: Size Length	Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>8.9</u>	Circulating Bottom Up, Min. <u>92</u>
			Circulating Total, Min. <u>158</u>

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>12.0</u>	Vis. <u>40</u>	Filtration <u>< 100µ</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>36</u> <u>1645</u>	Mud Cost Cumulative <u>101129 30</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0400</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present: <u>12.1</u> <u>12.1</u>	Plastic Viscosity, cp @ _____ °F	<u>21</u> <u>7</u>
Viscosity, Sec./qt API @ _____ °F	<u>40</u> <u>40</u>	Yield Point, lb/100 sq ft	<u>5</u>
Filtrate, ml, API	<u>7.2</u> <u>6.8</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>3/8</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>380</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>N.I</u> <u>2</u>
Sand Content <input type="checkbox"/> Sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>0.75</u> <u>0.75</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>4</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>21000</u> <u>21000</u>	Oil..... % by Vol	<u>80</u>
pH electrode <input type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.5</u> <u>7</u>	Water..... % by Vol	<u>—</u>
Solids..... % by Vol	<u>16</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u> <u>—</u>	Electrical Stability, volts	
<u>Am @ 60°</u>	<u>0.34</u> <u>—</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>15 Sx. Soda ash</u>	<u>10 Mt. Baryte</u>
	<u>6 Sx Desco</u>	
	<u>9 Sx Drispac</u>	
	<u>10 Sx Soltex</u>	
	<u>50 Bbls. Diesel</u>	

COMMENTS Drilling ahead. Treated for cement contamination.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 28 April 1968

Operator <u>Phillips Pet. Co</u>		Contractor <u>ODECO</u>		Rig No. <u>Yuking</u>	
Address <u>Stavanger</u>		Address <u>Rig</u>		Spud Date <u>25 Feb.</u>	
Report for Mr. <u>Seaborn</u>		Report for Mr. <u>D Orsay</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County Parish or Offshore Area <u>N. Sea</u>	
State/Province <u>Norway</u>		Operation <u>Drilling (Imp)</u>		Casing	
Mud Vol. Bbl.		Circulation Data		Annular Vel. Ft./Min	
Depth <u>10248</u>		Surface in. @ Ft.		Hole <u>794</u> Pits <u>600</u>	
Pump Size <u>6 3/4 X 18</u>		Opp DP <u>192</u>		Opp Col.	
Bit Size in. <u>8 1/2</u> No.		Inter-mediate <u>9 5/8</u> in. @ <u>10248</u> Ft.		Total Circulating Vol. <u>1394</u>	
Bbl./Cyc. <u>.224</u>		Stand Pipe Press. psi <u>3000</u>		Circulating Bottom Up, Min. <u>40</u>	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.		In Storage <u>—</u>	
Cyc./Min. <u>40</u>		Circulating Total, Min. <u>153</u>		Bbl./Min. <u>8.9</u>	
Drill Collar: Size Length		Wt. of Stored Mud <u>—</u>		Bbl./Min. <u>8.9</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>12.0</u>	Vis. <u>40</u>	Filtration <u><10cc</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>50</u>	Mud Cost Cumulative <u>87</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0600</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>12.0</u> <u>12.0</u> <u>12.1</u>	Plastic Viscosity, cp @ _____ °F	<u>18</u>	
Viscosity, Sec./qt API @ _____ °F	<u>40</u> <u>40</u> <u>41</u>	Yield Point, lb/100 sq ft	<u>4</u>	
Filtrate, ml, API	<u>11.2</u> <u>9.4</u> <u>8.0</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>3/9</u>	
Filtrate, API HT-HP @ _____ °F	<u>3/32</u> <u>—</u> <u>2/32</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>520</u>	
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3/32</u> <u>2/32</u> <u>2/32</u>	Alkalinity, API	<u>N.I</u>	
Sand Content <input checked="" type="checkbox"/> sand only <input type="checkbox"/> all solids % by Vol	<u>1.25</u> <u>—</u> <u>1.0</u>	} PF, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>7</u>	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>22000</u> <u>—</u> <u>7</u>		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>7</u>
pH electrode <input checked="" type="checkbox"/> indicator <input type="checkbox"/>	<u>7.5</u> <u>—</u> <u>7</u>	Oil..... % by Vol	<u>2</u>	
Solids..... % by Vol	<u>16</u> <u>—</u> <u>7</u>	Water..... % by Vol	<u>82</u>	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u> <u>—</u> <u>—</u>	Liquid phase, Vol % oil/water	<u>1</u>	
<u>Rm @ 57°</u>	<u>0.34</u> <u>—</u> <u>—</u>	Electrical Stability, volts	<u>—</u>	

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>5 Sacks Duespac</u>
	<u>12 M.T. Dargtd</u>

COMMENTS Cutting mud weight back to 12.0 lb/gal prior to drilling out.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date APRIL 21 19 67

Operator PHILLIPS PETR CO	Contractor ODFLO	Rig No. VIKING
Address STAVANGER	Address RIG	Spud Date 25 FEB
Report for Mr. FETTERS	Report for Mr. REDFORD	Sec. Twp. Rng.

Well Name and No. 7-11-1X	Field or Block No. 7-11	County, Parish or Offshore Area N-SEA	State/Province NORWAY
Operation Drilling	Casing	Mud Vol. Bbl.	Circulation Data
Depth 10280	Surface in. @ Ft.	Hole Pits 1500 650	Pump Size 6 3/4 X 18
Bit Size in. No. 12 1/4 15	Intermediate in. @ Ft. 13 1/2 (644)	Total Circulating Vol. 2250	Bbl./Cyc. 224
Drill Pipe Size 5	Production or Liner in. @ Ft.	In Storage	Cyc./Min. 60
Drill Collar: Size length 7 1/4 -	Wt. of Stored Mud	Bbl./Min. 18.2	Circulating Total, Min. 170

DRILLING FLUID SPECIFICATIONS

Type SEA WATER	Weight 13	Vis. 50	Filtration 1000	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily 4226.30	Mud Cost Cumulative 98,412.34
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other **1066mg**

MUD PROPERTIES

Time 2200 a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - 13.1	Plastic Viscosity, cp @ _____ °F	25
Viscosity, Sec./qt API @ _____ °F	68	Yield Point, lb/100 sq ft	35
Filtrate, ml, API	6	Gels, lb/100 sq ft., 10 Sec./10 min.	14/25
Filtrate, API HT-HP @ _____ °F	-	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	440
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	2	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	NIL
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> All solids % by Vol	2	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	2
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	22000	Oil..... % by Vol	2
pH electrode <input type="checkbox"/> indicator <input checked="" type="checkbox"/>	7.3	Water..... % by Vol	77
Solids..... % by Vol	21	Liquid phase, Vol % oil/water	1
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED USE

	32 MT BARTIF
	47 SKS DESCO

COMMENTS
NORMAL DRILLING

BAROID SALES ENGINEER		TELEPHONE
NAME	MAURICE STELZER	MOBILE
HOME ADDRESS	STAVANGER	HOME 56474
STORE ADDRESS	N-SEA Explorer	STORE 20012

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688c

BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 20 April 1968

Operator Phillips Pet. Co. Contractor ODECO Rig No. Viking
Address Stavanger Address Rng Spud Date 25 Feb
Report for Mr. Fetters Report for Mr. Rolford Sec. Twp. Rng.

Well Name and No. 7-11-1X Field or Block No. 7-11 County, Parish or Offshore Area N. Sea State/Province Norway
Operation Drilling Casing Mud Vol. Bbl. Circulation Data Annular Vel. Ft./Min.
Depth 10170 Surface in. @ Ft. Hole 1580 Pits 600 Pump Size 6 3/4 X 18 in. Opp DP 105 Opp Col.
Bit Size in. 12 1/4 No. Inter-mediate 1 3/4 in. @ 6441 Ft. Total Circulating Vol. 2180 Bbl./Cyc. 1224 Stand Pipe Press. psi 3000
Drill Pipe Size 5 Production or Liner in. @ Ft. In Storage Cyc./Min. 57 Circulating Bottom Up, Min. 125
Drill Collar: Size Length Wt. of Stored Mud Bbl./Min. 12.6 Circulating Total, Min. 173

DRILLING FLUID SPECIFICATIONS

Type Seawater Weight 13.0 Vis. 50 Filtration 100 Authority: Operator's Written Operator's Rep. [checked] Drilling Contractor [checked] Other: []
Mud Cost Daily 50 2614.50
Mud Cost Cumulative 94186.50

EQUIPMENT

Shale Shaker [checked] DD Shaker [] Desander [] Degasser [checked] Centrifuge [checked] Other []

MUD PROPERTIES

Time 0430 a.m. [checked] p.m. [] Temp. Mud 134 F 130.0 Mud Sample Taken Flowline [checked] Pit []
Weight of Mud lb/gal [checked] lb/cu ft [] Present 13.0 13.0 Plastic Viscosity, cp @ 25 30
Viscosity, Sec./qt API @ 69 63 Yield Point, lb/100 sq ft 25 35
Funnell, ml, API 6.0 5.8 Gels, lb/100 sq ft., 10 Sec./10 min. 25/35 15-25
Filtrate, API HT-HP @ 420 430 Calcium Ion; ppm [checked] epm []
Cake, 32nd In. API [checked] HT-HP [] 2 2 Alkalinity, API } Pf, cc N/50 H2SO4 Nil Nil
Sand Content [] Sand only [checked] all solids % by Vol 2.0 2 } Pm, cc N/50 H2SO4 2 2
Salt ppm [] Chloride ppm [checked] 22000 21500 lb/bbl lime [] gyp [] CaCl2 []
pH electrode [checked] indicator [checked] 7.5 7.3 Oil % by Vol 2 2
Solids % by Vol 21 20 Water % by Vol 77 78
Solids, av. sp. gr. [] ppb low gr. [] 0.34 Liquid phase, Vol % oil/water 1
Electrical Stability, volts

ADDITIVES IN MUD

MATERIALS RECOMMENDED

Used APRIL 19 20 MT. Bayte 41 5x. Desob 2 DES 2A C
USED APRIL 20 140 DES 40
AT BAR 3 DES

COMMENTS Drilling ahead - some difficulty controlling flow properties

NAME Devlin TELEPHONE
HOME ADDRESS HOME
STORE ADDRESS STORE

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BAROID DIVISION
NATIONAL LEAD COMPANY

1060 STAV

DRILLING MUD REPORT

Date 19 April 1968

Operator <i>Phillips Pet. Co</i>	Contractor <i>ODECO</i>	Rig No. <i>Viking</i>
Address <i>Stavanger</i>	Address <i>Ryg</i>	Spud Date <i>25 Feb</i>
Report for Mr. <i>Fetters</i>	Report for Mr. <i>Redford</i>	Sec. Twp. Rng.

Well Name and No. <i>7-11-1X</i>	Field or Block No. <i>7-11</i>	County, Parish or Offshore Area <i>N. Sea</i>	State/Province <i>Norway</i>
Operation <i>Drilling</i>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <i>10000</i>	Surface in. @ Ft.	Hole 1580 Pits <i>600</i>	Pump Size <i>6 3/4 X 18</i> in.
Bit Size in. No. <i>12 1/4</i>	Inter-mediate <i>13 3/8</i> in. @ <i>6441</i> Ft.	Total Circulating Vol. <i>2180</i>	Bbl./Cyc. <i>.224</i>
Drill Pipe Size <i>5</i>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <i>59</i>
Drill Collar: Size Length	Wt. of Stored Mud	Bbl./Min. <i>13.1</i>	Annular Vel. Ft./Min.

DRILLING FLUID SPECIFICATIONS				Authority:	Mud Cost Daily <i>6128.33</i>
Type <i>Seawater</i>	Weight <i>13.0</i>	Vis. <i>50</i>	Filtration <i>10cc</i>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Mud Cost Cumulative <i>91571.54</i>
				Drilling Contractor <input checked="" type="checkbox"/>	
				Other: <input type="checkbox"/>	

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES			
Time <i>0530</i> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <i>130</i> °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present: <i>12.9</i> <i>12.9</i>	Plastic Viscosity, cp @ _____ °F	<i>25</i> <i>7</i>
Viscosity, Sec./qt API @ _____ °F	<i>68</i> <i>72</i>	Yield Point, lb/100 sq ft	<i>35</i> <i>7</i>
Funnel	<i>6.0</i> <i>6.2</i>	Gels, lb/100 sq ft., 10 Sec./10 min.	<i>23/32</i> <i>7</i>
Filtrate, ml, API	<i>—</i> <i>—</i>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<i>400</i> <i>400</i>
Filtrate, API HT-HP @ _____ °F	<i>2/32</i> <i>2/32</i>	Alkalinity, API { PF, cc N/50 H ₂ SO ₄	<i>N.1</i> <i>7</i>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<i>2</i> <i>2</i>	{ Pm, cc N/50 H ₂ SO ₄	<i>7</i>
Sand Content <input type="checkbox"/> Sand only <input checked="" type="checkbox"/> all solids % by Vol	<i>22000</i> <i>22000</i>	Ib/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<i>2</i>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<i>7.5</i> <i>7</i>	Oil..... % by Vol	<i>77</i>
pH electrode <input checked="" type="checkbox"/> filtrate <input type="checkbox"/>	<i>21</i> <i>7</i>	Water..... % by Vol	<i>1</i>
Solids..... % by Vol	<i>—</i> <i>—</i>	Liquid phase, Vol % oil/water	<i>—</i>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<i>5</i> <i>7</i>	Electrical Stability, volts	<i>—</i>
<i>Me. Blue capacity</i>	<i>2.5</i> <i>7</i>		
<i>Est. ppb. Bentonite</i>	<i>0.36</i> <i>7</i>		
<i>Run @ 67°F</i>			

ADDITIVES IN MUD	MATERIALS RECOMMENDED <i>used</i>
	<i>15 Mt. Dwyer</i>
	<i>140 Sx Descol</i>
	<i>3 Drums Actaflo-S</i>
	<i>2 Sx. Dispac</i>

COMMENTS *Difficulty controlling visco - looks like bentonitic drill solids causing difficulty.*

BAROID SALES ENGINEER		TELEPHONE
NAME	<i>Devlin</i>	MOBILE
HOME ADDRESS		HOME
STORE ADDRESS		STORE

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 18 April 1967

Operator <u>Phillips Pet. Co</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Rig</u>		Spud Date <u>25 Feb</u>	
Report for Mr. <u>Fetter</u>		Report for Mr. <u>Dvorsky</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N. Sea</u>	
State/Province <u>Norway</u>		Operation <u>Drilling</u>		Casing	
Mud Vol. Bbl.		Circulation Data		Annular Vel. Ft./Min.	
Depth <u>7840</u>		Surface in. @ Ft.		Hole Pits <u>1540 600</u>	
Pump Size <u>6 3/4 X 18</u>		Opp DP <u>113</u>		Opp Col.	
Bit Size in. <u>12 1/4</u> No.		Inter-mediate <u>13 3/8 @ 6444</u> Ft.		Total Circulating Vol. <u>2140</u>	
Bbl./Cyc. <u>224</u>		Stand Pipe Press. psi <u>300</u>		Drill Pipe Size <u>5</u>	
Cyc./Min. <u>61</u>		Circulating Bottom Up. Min. <u>113</u>		Production in. @ Ft.	
In Storage <u>—</u>		Circulating Total Min. <u>157</u>		Drill Collar: Size Length	
Wt. of Stored Mud <u>—</u>		Bbl./Min. <u>13.6</u>		570	

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>13.0</u>	Vis. <u>50</u>	Filtration <u>10 cc</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>50</u> <u>1291</u>	Mud Cost Cumulative <u>21</u> <u>85443</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0600</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>13.1</u> <u>13.0</u>	Plastic Viscosity, cp @ _____ °F	<u>25</u> <u>26</u>
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>60</u> <u>70</u>	Yield Point, lb/100 sq ft	<u>25</u> <u>30</u>
Filtrate, ml, API	<u>7.0</u> <u>7.4</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>18/26</u> <u>23/31</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>420</u> <u>400</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { PF, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>M.1</u> <u>7</u>
Sand Content <input type="checkbox"/> Sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>1.25</u> <u>1.25</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>Z</u> <u>Z</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>22000</u> <u>22000</u>	Oil..... % by Vol	<u>2</u>
pH electrode <input checked="" type="checkbox"/> indicator <input type="checkbox"/>	<u>7.5</u> <u>7.5</u>	Water..... % by Vol	<u>77</u> <u>L</u>
Solids..... % by Vol	<u>21</u> <u>Z</u>	Liquid phase, Vol % oil/water	<u>/</u> <u>L</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>0.35</u> <u>Z</u>	Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED used

	<u>10 Mt. Bunte</u>
	<u>20 Descal</u>

COMMENTS Drilling ahead. Difficulty controlling viscosity.

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	HOME ADDRESS	MOBILE	HOME
STORE ADDRESS	STORE		

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 16 April 1968

Operator <u>Phillips Pet. Co.</u>	Contractor <u>ODECO</u>	Rig No. <u>Uking</u>
Address <u>Stavanger</u>	Address <u>Ryg</u>	Spud Date <u>25 Feb 68</u>
Report for Mr. <u>Seabour</u>	Report for Mr. <u>D'ousay</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1X</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>M. Sec</u>	State/Province <u>Norway</u>
Operation <u>Trip for bit, cleaning</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>9688</u>	Surface in. @ Ft.	Hole Pits <u>1350 600</u>	Pump Size <u>6 3/4 X 18</u>
Bit Size in. No. <u>12 1/4</u>	Inter-mediate <u>13 3/4 @ 6444</u>	Total Circulating Vol. <u>1950</u>	Bbl./Cyc. <u>224</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <u>63</u>
Drill Collar: Size Length	Wt. of Stored Mud	Bbl./Min. <u>13.8</u>	Circulating Bottom Up, Min.

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>13.0</u>	Vis. <u>50</u>	Filtration <u>Low</u>	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>2137.50</u>	Mud Cost Cumulative <u>85611.16</u>
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EQUIPMENT

Shale Shaker 0600 DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>13.0</u> <u>13.1</u>	Plastic Viscosity, cp @ _____ °F	<u>23</u>
Viscosity, Sec./qt API @ _____ °F	<u>52</u> <u>56</u>	Yield Point, lb/100 sq ft	<u>27</u>
Filtrate, ml, API	<u>9.0</u> <u>9.4</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>19/26</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>400</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API } Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>N.I</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>1.25</u> <u>—</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>Z</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	<u>21000</u> <u>21000</u>	Oil..... % by Vol	<u>2</u>
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> mud <input type="checkbox"/>	<u>7.5</u> <u>7</u>	Water..... % by Vol	<u>78</u>
Solids..... % by Vol	<u>20</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u> <u>—</u>	Electrical Stability, volts	<u>—</u>
<u>Rm @ 64</u>	<u>0.35</u> <u>2</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED Used

	<u>27 Descro</u>
	<u>20 M.T. Baryte</u>

COMMENTS
Took Core #2. Trip w/ bit to beam rat hole.

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	HOME ADDRESS	MOBILE	HOME
STORE ADDRESS		STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 15 April 1968

Operator <u>Phillips Pet. Co.</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Ry</u>		Spud Date <u>25 Feb</u>	
Report for Mr. <u>Seaborn</u>		Report for Mr. <u>D. W. Sney</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County/Parish or Offshore Area <u>North Sea</u>	
State/Province <u>Norway</u>		Operation <u>Coring</u>		Casing	
Depth <u>9660</u>		Mud Vol. Bbl. <u>1350</u>		Circulation Data	
Bit Size in. No. <u>—</u>		Hole Pits <u>600</u>		Annular Vel. Ft./Min. <u>76</u>	
Inter-mediae <u>1 3/8</u> in. @ <u>6444</u> Ft.		Total Circulating Vol. <u>1950</u>		Opp DP <u>76</u> Opp Col.	
Drill Pipe Size <u>5</u>		In Storage <u>—</u>		Stand Pipe Press. psi <u>1800</u>	
Drill Collar: Size Length		Wt. of Stored Mud <u>—</u>		Circulating Bottom Up, Min. <u>146</u>	
				Circulating Total, Min. <u>210</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>13.0</u>	Vis. <u>50</u>	Filtration <u>100</u>	Authority: <input checked="" type="checkbox"/> Operator's Written Rep. <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other	Mud Cost Daily <u>1439.50</u>
					Mud Cost Cumulative <u>21437.66</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0400</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>13.0+</u> <u>13.0</u>	Plastic Viscosity, cp @ _____ °F	<u>20</u>	7
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>53</u> <u>54</u>	Yield Point, lb/100 sq ft	<u>26</u>	
Filtrate, ml, API	<u>9.6</u> <u>9.2</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>19/17</u>	
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>400</u>	
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { PF, cc N/50 H ₂ SO ₄	<u>N.I.</u>	
Sand Content <input type="checkbox"/> Sand only <input checked="" type="checkbox"/> All solids % by Vol	<u>1.25</u> <u>7</u>	{ Pm, cc N/50 H ₂ SO ₄	<u>7</u>	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>21000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>		
pH electrode indicator <input checked="" type="checkbox"/>	<u>7.5</u>	Oil..... % by Vol	<u>2</u>	
Solids..... % by Vol	<u>20</u>	Water..... % by Vol	<u>78</u>	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u>	Liquid phase, Vol % oil/water	<u>1</u>	
<u>Rm @ 64°</u>	<u>0.35</u>	Electrical Stability, volts		

ADDITIVES IN MUD

MATERIALS RECOMMENDED Used

	<u>31 Sx. Desoo</u>
	<u>7 M.T. Bante</u>

COMMENTS Cutting Core #2. Good recovery on core I.

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	MOBILE		
HOME ADDRESS	HOME		
STORE ADDRESS	STORE		

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 14 April 68

Operator <u>Phillips Pet. Co</u>	Contractor <u>ODECO</u>	Rig No. <u>Viking</u>
Address <u>Stavanger</u>	Address <u>Ry</u>	Spud Date <u>25 Feb</u>
Report for Mr. <u>Scabouin</u>	Report for Mr. <u>D'Orsay</u>	Sec. Twp. Rng. <u>V</u>

Well Name and No. <u>7-11-1X</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. Sea</u>	State/Province <u>Norway</u>
Operation <u>Coring</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>9600</u>	Surface in. @ Ft.	Hole Pits <u>1510 600</u>	Pump Size <u>6 3/4 X 18</u> in.
Bit Size in. <u>—</u> No.	Inter-mediate <u>13/16</u> in. @ <u>6444</u> Ft.	Total Circulating Vol. <u>2110</u>	Bbl./Cyc. <u>1.224</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>—</u>	Cyc./Min. <u>38</u>
Drill Collar: Size Length	Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>8.6</u>	Circulating Total, Min. <u>246</u>

DRILLING FLUID SPECIFICATIONS

Type <u>Sewater</u>	Weight <u>13.0</u>	Vis. <u>50</u>	Filtration <u>Low</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>4457.25</u>	Mud Cost Cumulative <u>79998.44</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0600 a.m.</u> <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>13.0</u> <u>13.0</u>	Plastic Viscosity, cp @ _____ °F	<u>25</u> <u>7</u>
Viscosity, Sec./qt API @ _____ °F	<u>55</u> <u>54</u>	Yield Point, lb/100 sq ft	<u>30</u>
Filtrate, ml, API	<u>9.4</u> <u>10.0</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>20/29</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>480</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ <u>N.I</u> Pm, cc N/50 H ₂ SO ₄ <u>Z</u>	<u>Z</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>1.0</u> <u>7</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>2</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	<u>21000</u> <u>7</u>	Oil..... % by Vol	<u>81</u>
pH electrode <input type="checkbox"/> indicator <input type="checkbox"/>	<u>7.5</u> <u>7</u>	Water..... % by Vol	<u>1</u>
Solids..... % by Vol	<u>19</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>—</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>0.34</u> <u>7</u>	Electrical Stability, volts	<u>—</u>

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>37 Desco</u>
	<u>50 M.T. Baryte</u>

COMMENTS Coring. Maintaining 13.0 lb/gal mud.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 13 April 19 68

Operator <u>Phillips Pet. Co</u>		Contractor <u>DDECO</u>		Rig No. <u>Viking</u>
Address <u>Stavanger</u>		Address <u>Ryg</u>		Spud Date <u>25 Feb</u>
Report for Mr. <u>Seaborn</u>		Report for Mr. <u>Dorsay</u>		Sec. Twp. Rng.
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. Sea</u>	State/Province <u>Norway</u>
Operation <u>Drilling</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>9500</u>	Surface in. @ Ft.	Hole <u>1500</u> Pits <u>600</u>	Pump Size <u>6 1/4 X 18</u> in.	Opp DP <u>148</u> Opp Col.
Bit Size in. <u>12 1/4</u> No.	Inter-mediate <u>13 3/8</u> @ <u>6444</u> Ft.	Total Circulating Vol. <u>2100</u>	Bbl./Cyc. <u>0.224</u>	Stand Pipe Press. psi <u>3000</u>
Drill Pipe Size <u>5</u>	Production in. @ Ft.	In Storage <u>—</u>	Cyc./Min. <u>81</u>	Circulating Bottom Up, Min. <u>83</u>
Drill Collar: Size Length		Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>18.1</u>	Circulating Total, Min. <u>116</u>

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>13.0</u>	Vis. <u>50</u>	Filtration <u>10 cc</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>50</u>	Mud Cost Cumulative <u>36</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0500</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>12.8</u> <u>12.9</u> <u>13.0</u>	Plastic Viscosity, cp @ _____ °F	<u>20</u> <u>7</u> <u>22</u>
Viscosity, Sec./qt API @ _____ °F	<u>55</u> <u>64</u> <u>61</u>	Yield Point, lb/100 sq ft	<u>17</u> <u>7</u> <u>26</u>
Filtrate, ml, API	<u>8.4</u> <u>8.6</u> <u>9.0</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>15/27</u> <u>7</u> <u>18/30</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u> <u>—</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>480</u> <u>7</u> <u>7</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>7/32</u> <u>7/32</u> <u>7/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>M1</u> <u>7</u> <u>7</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>1.0</u> <u>7</u> <u>1.0</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>Z</u> <u>7</u> <u>7</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	<u>21000</u> <u>7</u> <u>21000</u>	Oil..... % by Vol	<u>2</u> <u>7</u> <u>7</u>
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input type="checkbox"/> mud <input type="checkbox"/>	<u>7.5</u> <u>7</u> <u>7</u>	Water..... % by Vol	<u>81</u> <u>7</u> <u>7</u>
Solids..... % by Vol	<u>19</u> <u>7</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>1</u> <u>7</u> <u>7</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>0.36</u> <u>7</u> <u>7</u>	Electrical Stability, volts	<u>—</u> <u>7</u> <u>7</u>
<u>Rm @ 70°</u>			

ADDITIVES IN MUD

MATERIALS RECOMMENDED Used

	<u>60 MT Baryte</u> <u>75 Sr. Desdo</u>
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COMMENTS Drilling ahead. Weighting to 13.0 lb/gal.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date ¹⁰⁵⁰ 12 April 19 68

Operator <i>Phillips Pet. Co.</i>		Contractor <i>ODWCO</i>		Rig No. <i>Neking</i>	
Address <i>Stavanger</i>		Address <i>Ryg</i>		Spud Date	
Report for Mr. <i>Seabrook</i>		Report for Mr. <i>Redford</i>		Sec. Twp. Rng.	
Well Name and No. <i>7-11-1X</i>		Field or Block No. <i>7-11</i>	County, Parish or Offshore Area <i>N. Sea</i>		State/Province <i>Norway</i>
Operation <i>Drilling</i>	Casing	Mud Vol. Bbl.	Circulation Data		Annular Vel. Ft./Min.
Depth <i>9300</i>	Surface in. @ Ft.	Hole <i>1460</i> Pits <i>600</i>	Pump Size <i>6 1/4 X 18</i>		Opp DP <i>113</i> Opp Col.
Bit Size in. <i>12 1/4</i> No.	Inter-mediate <i>13 3/8</i> in. @ <i>6444</i> Ft.	Total Circulating Vol. <i>200</i>	Bbl./Cyc. <i>224</i>		Stand Pipe Press, psi <i>3000</i>
Drill Pipe Size <i>5</i>	Production or Liner in. @ Ft.	In Storage <i>—</i>	Cyc./Min. <i>63</i>		Circulating Bottom Up, Min. <i>104</i>
Drill Collar: Size Length	Wt. of Stored Mud <i>—</i>	Bbl./Min. <i>13.8</i>		Circulating Total, Min. <i>146</i>	

DRILLING FLUID SPECIFICATIONS

Type <i>Seawater</i>	Weight <i>12.6</i>	Vis. <i>50</i>	Filtration <i>1000</i>	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <i>39</i> <i>8462</i>	Mud Cost Cumulative <i>69209.36</i>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <i>0600</i> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	<i>12.6</i> <i>12.6</i> <i>12.7</i>	Plastic Viscosity, cp @ _____ °F	<i>28</i> <i>7</i> <i>7</i>
Viscosity, Sec./qt API @ _____ °F	<i>96</i> <i>90</i> <i>84</i>	Yield Point, lb/100 sq ft	<i>37</i>
Filtrate, ml, API	<i>7.6</i> <i>7.4</i> <i>8.0</i>	Gels, lb/100 sq ft., 10 Sec./10 min.	<i>24/31</i>
Filtrate, API HT-HP @ _____ °F	<i>—</i> <i>—</i> <i>—</i>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<i>380</i>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<i>2/32</i> <i>2/32</i> <i>2/32</i>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<i>Nil</i>
Sand Content <input checked="" type="checkbox"/> Sand only <input type="checkbox"/> <input checked="" type="checkbox"/> all solids % by Vol	<i>1.0</i> <i>7</i> <i>7</i>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<i>7</i>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/> gpg <input type="checkbox"/> gpg <input type="checkbox"/>	<i>21000</i>	Oil..... % by Vol	<i>2</i>
pH electrode <input checked="" type="checkbox"/> filtrate <input checked="" type="checkbox"/> indicator <input checked="" type="checkbox"/> mud <input checked="" type="checkbox"/>	<i>7.5</i>	Water..... % by Vol	<i>80</i>
Solids..... % by Vol	<i>18</i>	Liquid phase, Vol % oil/water	<i>1</i>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<i>0.35</i>	Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<i>60MT Baryte</i>	<i>10 sa. Starch</i>
	<i>101 Sx Desclo</i>	
	<i>10 Soltex</i>	
	<i>11 Drispac</i>	
	<i>2 Actoflo-S</i>	

COMMENTS *Drilling aheads increasing weight. Difficulty controlling viscosity due to solids*

BAROID SALES ENGINEER		TELEPHONE
NAME <i>Devlin</i>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 11 April 19 68

Operator <u>Phillips Pet. Co</u>		Contractor <u>ODECO</u>		Rig No. <u>Wiking</u>	
Address <u>Stavanger</u>		Address <u>Ryg</u>		Spud Date <u>25 Feb</u>	
Report for Mr. <u>Seaboufu</u>		Report for Mr. <u>Raldford</u>		Sec. Twp. Rng. <u></u>	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N. Sea</u>	
State/Province <u>Norway</u>		Operation <u>Drilling</u>		Casing	
Mud Vol. Bbl. <u>1400</u>		Circulation Data		Annular Vel. Ft./Min. <u>113</u>	
Depth <u>8800'</u>		Surface in. @ Ft. <u>1400</u> Pits <u>600</u>		Pump Size <u>6 3/4 X 18</u> in.	
Opp DP <u>113</u>		Opp Col.		Bit Size in. <u>12 1/4</u> No.	
Inter-mediate <u>13 3/8</u> in. @ <u>6444</u> Ft.		Total Circulating Vol. <u>2000</u>		Bbl./Cyc. <u>224</u>	
Stand Pipe Press, psi <u>3000</u>		Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.	
In Storage <u>—</u>		Cyc./Min. <u>62</u>		Circulating Bottom Up, Min. <u>70</u>	
Wt. of Stored Mud <u>—</u>		Bbl./Min. <u>13.8</u>		Circulating Total, Min. <u>145</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>12.5</u>	Vis. <u>50</u>	Filtration <u>10 cc</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>46</u>
						Mud Cost Cumulative <u>60747.12</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0100</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>—</u> °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>12.5</u> <u>12.5</u> <u>12.5</u>	Plastic Viscosity, cp @ <u>—</u> °F	<u>35</u> <u>7</u> <u>32</u>
Viscosity, Sec./qt API @ <u>—</u> °F	<u>107</u> <u>110</u> <u>105</u>	Yield Point, lb/100 sq ft	<u>40</u> <u>7</u> <u>38</u>
Funnel, <u>—</u>	<u>11.6</u> <u>8.8</u> <u>8.4</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>24/27</u> <u>7</u> <u>24/30</u>
Filtrate, ml, API	<u>—</u> <u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>520</u> <u>7</u> <u>7</u>
Filtrate, API HT-HP @ <u>—</u> °F	<u>3/32</u> <u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ <u>Nil</u>	<u>7</u> <u>7</u> <u>7</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>1.0</u> <u>7</u> <u>7</u>	{ Pm, cc N/50 H ₂ SO ₄ <u>2</u>	<u>7</u> <u>7</u> <u>7</u>
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>21000</u> <u>7</u> <u>7</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>1</u> <u>7</u> <u>7</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>7.5</u> <u>7</u> <u>7</u>	Oil..... % by Vol	<u>81</u> <u>7</u> <u>7</u>
pH <input type="checkbox"/> electrode <input checked="" type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>18</u> <u>7</u> <u>7</u>	Water..... % by Vol	<u>1</u> <u>7</u> <u>7</u>
Solids..... % by Vol	<u>—</u> <u>7</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>1</u> <u>7</u> <u>7</u>
Secus, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>0.38</u> <u>7</u> <u>7</u>	Electrical Stability, volts	<u>1</u> <u>7</u> <u>7</u>
<u>Am @ 68°</u>	<u>0.38</u> <u>7</u> <u>7</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>32 Descow (5x)</u>
	<u>8 Descpac</u>
	<u>13 Formaldehyde</u>
	<u>15 Soda ash</u>
	<u>110 MT Baroid</u>

COMMENTS Weighting up while drilling
Difficulty controlling solids &
viscosity.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 10 April 1968

Operator <u>Phillips Pet. Co</u>		Contractor <u>ODECO</u>		Rig No. <u>Uking</u>
Address <u>Stavanger</u>		Address <u>Ry</u>		Spud Date <u>25 Feb</u>
Report for Mr. <u>Seaburn</u>		Report for Mr. <u>Redford</u>		Sec. Twp. Rng.
Well Name and No. <u>7-11-IX</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. Sea</u>	State/Province <u>Norway</u>
Operation <u>Drilling</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>7220</u>	Surface in. @ Ft.	Hole <u>1300</u> Pits <u>600</u>	Pump Size <u>6 3/4 X 18</u> in.	Opp DP <u>120</u> Opp Col.
Bit Size in. <u>12 1/4</u> No.	Inter-mediate <u>13 3/8</u> in. @ <u>6444</u> Ft.	Total Circulating Vol. <u>1900</u>	Bbl./Cyc. <u>65.224</u>	Stand Pipe Press, psi <u>3000</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <u>65</u>	Circulating Bottom Up, Min. <u>90</u>
Drill Collar: Size Length		Wt. of Stored Mud	Bbl./Min. <u>14.5</u>	Circulating Total, Min. <u>131</u>

DRILLING FLUID SPECIFICATIONS

Fluid <u>Seawater</u>	Weight <u>11.8</u>	Vis. <u>50</u>	Filtration <u>10 cc</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>10212.02</u>	Mud Cost Cumulative <u>51842.72</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0500</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>11.8</u> <u>12.0</u> <u>12.3</u>	Plastic Viscosity, cp @ _____ °F	<u>23</u> <u>7</u> <u>25</u>
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>75</u> <u>80</u> <u>92</u>	Yield Point, lb/100 sq ft	<u>29</u> <u>7</u> <u>28</u>
Filtrate, ml, API	<u>10.0</u> <u>10.2</u> <u>10.2</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>10/22</u> <u>7</u> <u>18/29</u>
Filtrate, API HT-HP @ _____ °F	<u>2/5</u> <u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>560</u> <u>7</u> <u>7</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3/32</u> <u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄	<u>N.I</u> <u>7</u> <u>7</u>
Sand Content <input type="checkbox"/> Sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>1</u> <u>1.0</u> <u>—</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>Z</u> <u>7</u> <u>7</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>21000</u> <u>7</u> <u>21000</u>	Oil..... % by Vol	<u>1</u> <u>7</u> <u>7</u>
pH electrode <input checked="" type="checkbox"/> filtrate <input type="checkbox"/>	<u>7.5</u> <u>7</u> <u>7</u>	Water..... % by Vol	<u>83</u> <u>7</u> <u>7</u>
Solids..... % by Vol	<u>16</u> <u>7</u> <u>7</u>	Liquid phase, Vol % oil/water	<u>1</u> <u>7</u> <u>7</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u> <u>7</u> <u>7</u>	Electrical Stability, volts	<u>—</u> <u>7</u> <u>7</u>
<u>Run @ 60°</u>	<u>0.35</u> <u>7</u> <u>7</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>38 Desco</u> <u>37 Soltex</u> <u>14 Drispac</u> <u>8 Actiflo-5</u> <u>88 M.T. Baryte</u>
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COMMENTS Weighting up & drilling ahead.
Difficulty controlling solids & viscosity

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 9 April 1968

Operator <u>Phillips Pet. Co.</u>	Contractor <u>ODECO</u>	Rig No. <u>Uking</u>
Address <u>Stavanger</u>	Address <u>As</u>	Spud Date <u>25 Feb.</u>
Report for Mr. <u>Seaboard</u>	Report for Mr. <u>Redford</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1x</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. Sea</u>	State/Province <u>Norway</u>
Operation <u>Drilling</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>2400'</u>	Surface in. @ Ft.	Hole Pits <u>1210 600</u>	Pump Size <u>6 1/4" X 18 in.</u>	Opp DP <u>111</u> Opp Col.
Bit Size in. <u>12 1/4</u> No.	Inter-mediate <u>1 3/8" @ 6444</u> Ft.	Total Circulating Vol. <u>1810</u>	Bbl./Cyc. <u>—</u>	Stand Pipe Press. psi <u>3000</u>
Drill Pipe Size <u>5</u>	Production in. @ Ft.	In Storage <u>—</u>	Cyc./Min. <u>62</u>	Circulating Bottom Up, Min. <u>40</u>
Drill Collar: Size Length		Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>13.4</u>	Circulating Total, Min. <u>135</u>

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>11.8</u>	Vis. <u>50</u>	Filtration <u>low</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>3824.26</u>
						Mud Cost Cumulative <u>71630.10</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0530</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>				
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>11.6</u> <u>11.7</u>	Plastic Viscosity, cp @ _____ °F		<u>30</u>	<u>7</u>		
Viscosity, Sec./qt API @ _____ °F	<u>65</u> <u>78</u>	Yield Point, lb/100 sq ft		<u>30</u>	<u>7</u>		
Filtrate, ml, API	<u>16.4</u> <u>12.4</u>	Gels, lb/100 sq ft., 10 Sec./10 min.		<u>20/31</u>	<u>7</u>		
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>		<u>660</u>	<u>640</u>		
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄		<u>Nil</u>			
Sand Content <input type="checkbox"/> Sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>.75</u> <u>.75</u>	Pm, cc N/50 H ₂ SO ₄		<u>7</u>			
Salt ppm <input type="checkbox"/> gpg <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/> gpg <input type="checkbox"/>	<u>21000</u> <u>21000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>		<u>7</u>			
pH electrode indicator <input checked="" type="checkbox"/>	<u>7.0</u> <u>7</u>	Oil..... % by Vol		<u>2</u>			
Solids..... % by Vol	<u>17</u> <u>7</u>	Water..... % by Vol		<u>81</u>			
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>0.35</u> <u>7</u>	Liquid phase, Vol % oil/water		<u>1</u>			
<u>hmc 68°</u>		Electrical Stability, volts					

ADDITIVES IN MUD

MATERIALS RECOMMENDED Added

<p><u>49 Desco</u></p> <p><u>30 Starch</u></p> <p><u>7 Soltex</u></p> <p><u>30 M.T. Baryte</u></p>	
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COMMENTS Weighting up D. difficulty controlling viscosity due to solids building up.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 28 Mar 1968

Operator <u>Phillips Pet. Co</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Ris</u>		Spud Date	
Report for Mr. <u>Seaborn</u>		Report for Mr. <u>Redford</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County Parish or Offshore Area <u>N. Sea</u>	
State/Province <u>Norway</u>		Mud Vol. Bbl.		Circulation Data	
Operation <u>Circ.</u>		Casing		Annular Vel. Ft./Min	
Depth <u>6512</u>		Surface <u>20</u> in. @ <u>1520</u> Ft.		Hole <u>2060</u> Pits <u>600</u>	
Bit Size in. <u>7 7/8</u> No.		Inter-mediate in. @		Pump Size <u>6 3/4 X 1 1/2</u> in.	
Drill Pipe Size <u>5</u>		Production or Liner in. @		Bbl./Cyc. <u>—</u>	
Drill Collar: Size Length		In Storage		Stand Pipe Press. psi <u>2300</u>	
		Wt. of Stored Mud		Circulating Bottom Up, Min. <u>93</u>	
				Circulating Total, Min. <u>118</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>11.8</u>	Vis. <u>60</u>	Filtration <u><10</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>Nil</u>
						Mud Cost Cumulative <u>62</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0830</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>0900</u> °F	Mud Sample Taken	Flowing <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>11.7</u> <u>11.8</u>	Plastic Viscosity, cp @ _____ °F	<u>23</u> <u>25</u>
Viscosity, Sec./qt API @ _____ °F	<u>65</u> <u>70</u>	Yield Point, lb/100 sq ft	<u>24</u> <u>28</u>
Filtrate, ml, API	<u>10.4</u> <u>10.0</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>14/25</u> <u>18/30</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>320</u> <u>87</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄	<u>Nil</u>
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>1.0</u> <u>1.0</u>	{ Pm, cc N/50 H ₂ SO ₄	<u>2</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>	<u>22000</u> <u>7</u>	Ib/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>3</u>
pH electrode <input type="checkbox"/> indicator <input type="checkbox"/>	<u>7.0</u>	Oil..... % by Vol	<u>80</u>
Solids..... % by Vol	<u>17</u>	Water..... % by Vol	<u>—</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>0.36</u>	Liquid phase, Vol % oil/water	<u>1</u>
		Electrical Stability, volts	

ADDITIONS IN MUD Materials Used

28 Mar.
50 MT - Barite Daily - 4197³⁰
4 Drum Aktal - 37420¹²
10 Starch

MATERIALS RECOMMENDED

~~55 MT Barite~~ Nil
~~4 Actal~~

COMMENTS Raising mud weight to run casing. Running 13 3/8 casing

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	HOME ADDRESS		MOBILE
STORE ADDRESS		HOME	
		STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 27 Mar. 19 68

Operator <u>Phillips Pet. Co.</u>	Contractor <u>ODECO</u>	Rig No. <u>Viking</u>
Address <u>Stavanger</u>	Address <u>Ryg</u>	Spud Date <u>25 Feb</u>
Report for Mr. <u>Seaborn</u>	Report for Mr. <u>Redford</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1X</u>	Field or Block No. <u>7-11</u>	County Parish or Offshore Area <u>Ni Sea</u>	State/Province <u>Norway</u>
Operator <u>Lagging</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>6342</u>	Surface <u>20</u> in. @ <u>1520</u> Ft.	Hole <u>2060</u> Pits <u>600</u>	Pump Size <u>6 3/4</u> X <u>1 3/4</u> in.
Bit Size in. <u>1 7/8</u> No.	Inter-mediate in. @ Ft.	Total Circulating Vol. <u>2660</u>	Bbl./Cyc. <u>—</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>—</u>	Cyc./Min. <u>105</u>
Drill Collar: Size Length	Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>1160</u>	<u>26.3</u>

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>11.2</u>	Vis. <u>60</u>	Filtration <u><10cc</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>1081</u>	Mud Cost Cumulative <u>33223</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>6:30</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>11.2</u>	Plastic Viscosity, cp @ _____ °F	<u>18</u>	
Viscosity, Sec./qt API @ _____ °F	<u>55</u>	Yield Point, lb/100 sq ft	<u>18</u>	
Filtrate, ml, API	<u>9.0</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>8/17</u>	
Filtrate, API HT-HP @ _____ °F	<u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>340</u>	
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u>	Alkalinity, API	<u>Nil</u>	
Sand Content <input type="checkbox"/> Sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>6.75</u>	PF, cc N/50 H ₂ SO ₄	<u>7</u>	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>22000</u>	Pm, cc N/50 H ₂ SO ₄	<u>7</u>	
pH electrode <input checked="" type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.0</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>3</u>	
Solids, % by Vol	<u>16</u>	Oil, % by Vol	<u>3</u>	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u>	Water, % by Vol	<u>81</u>	
<u>R_m @ 60°</u>	<u>0.32</u>	Liquid phase, Vol % oil/water	<u>1</u>	
		Electrical Stability, volts		

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>140 MT Barite</u>
	<u>4 Actiflo 45</u>

COMMENTS logging after raising mud weight

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	MOBILE		
HOME ADDRESS	HOME		
STORE ADDRESS	STORE		

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 26 Mar 1968

Operator <u>Phillips Pet Co.</u>		Contractor <u>ODECO</u>		Rig No.
Address <u>Stavanger</u>		Address <u>Ris</u>		Spud Date
Report for Mr. <u>Seaburn</u>		Report for Mr. <u>Redford</u>		Sec. Twp. Rng.
Well Name and No. <u>7-11-K</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. Sea</u>	State/Province <u>Norway</u>
Operation <u>Circ.</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>6512</u>	Surface <u>20</u> in. @ <u>1520</u> Ft.	Hole <u>2060</u> Pits <u>600</u>	Pump Size <u>4 7/8 X 18</u> in.	Opp DP <u>93</u> Opp Col.
Bit Size in. <u>17 1/2</u> No.	Inter-mediate in. @	Total Circulating Vol. <u>2660</u>	Bbl./Cyc. <u>—</u>	Stand Pipe Press. psi <u>1900</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @	In Storage	Cyc./Min. <u>105</u>	Circulating Bottom Up, Min. <u>79</u>
Drill Collar: Size Length		Wt. of Stored Mud	Bbl./Min. <u>26.3</u>	Circulating Total, Min. <u>100</u>

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>11.2</u>	Vis. <u>60</u>	Filtration <u><10cc</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>79.80</u>
						Mud Cost Cumulative <u>23142</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0700</u> a.m. <input type="checkbox"/> p.m. <input checked="" type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input checked="" type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>11.2</u>	Plastic Viscosity, cp @ _____ °F	<u>14</u>
Viscosity, Sec./qt API @ _____ °F	<u>65</u>	Yield Point, lb/100 sq ft	<u>20</u>
Filtrate, ml, API	<u>9.6</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>12/21</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>340</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u>	Alkalinity, API { PF, cc N/50 H ₂ SO ₄ <u>N.I</u> Pm, cc N/50 H ₂ SO ₄ <u>7</u>	
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>1.0</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>2</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>22000</u>	Oil..... % by Vol	<u>3</u>
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> mud <input checked="" type="checkbox"/>	<u>7.0</u>	Water..... % by Vol	<u>81</u>
Solids..... % by Vol	<u>16</u>	Liquid phase, Vol % oil/water	<u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u>	Electrical Stability, volts	
<u>Rm @ 64° F</u>	<u>0.32</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED

	<u>15 Paraformaldehyde</u>
--	----------------------------

COMMENTS
Raising mud weight to log of run casing

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY
DRILLING MUD REPORT

Date 24 Mar 1968

Operator <u>Phillip Pet. Co.</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>
Address <u>Stavanger</u>		Address <u>Ris</u>		Spud Date <u>25 Feb</u>
Report for Mr. <u>Meyer</u>		Report for Mr. <u>Medford</u>		Sec. Twp. Rng.
Well Name and No. <u>7-11-K</u>		Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N. Sea</u>	State/Province <u>Norway</u>
Operation <u>Reaming</u>	Casing	Mud Vol. Bbl.	Circulation Data	Annular Vel. Ft./Min.
Depth <u>5800' (6500')</u>	Surface <u>20 in. @ 1520 Ft.</u>	Hole <u>(5800')</u> Pits <u>600</u>	Pump Size <u>7 1/2 X 18 in.</u>	Opp DP <u>102</u> Opp Col.
Bit Size in. <u>17/32</u> No.	Inter-mediate in. @ Ft.	Total Circulating Vol. <u>2430</u>	Bbl./Cyc.	Stand Pipe Press, psi <u>2300</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage <u>—</u>	Cyc./Min. <u>49/51</u>	Circulating Bottom Up, Min. <u>60 (5800')</u>
Drill Collar: Size Length		Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>27.6</u>	Circulating Total, Min. <u>88</u>

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>9.55</u>	Vis. <u>60</u>	Filtration <u><10cc</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>4842.20</u>	Mud Cost Cumulative <u>21283.22</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0630</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>150</u> °F	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present: <u>9.7</u> <u>9.74</u>	Plastic Viscosity, cp @ _____ °F	<u>20</u> <u>16</u>
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>75</u> <u>62</u>	Yield Point, lb/100 sq ft	<u>26</u> <u>22</u>
Filtrate, ml, API	<u>3.9</u> <u>4.6</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>7/20</u> <u>9/23</u>
Filtrate, API HT-HP @ _____ °F	<u>2/32</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>360</u> <u>7</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ <u>N.I</u>	<u>Z</u>
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>0.75</u> <u>1.0</u>	{ Pm, cc N/50 H ₂ SO ₄	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>22000</u> <u>7</u>	Ib/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>4</u>
pH electrode <input type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.0</u>	Oil..... % by Vol	<u>86</u>
Solids..... % by Vol	<u>10</u>	Water..... % by Vol	<u>7</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u>	Liquid phase, Vol % oil/water	<u>1</u>
<u>Rm @ 62°</u>	<u>0.32</u>	Electrical Stability, volts	
<u>H.H. @ 6500'</u>	<u>3280</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED Used,

	<u>Pure formaldehyde - 30 Sx</u> <u>Drispac - 60 Sx</u> <u>Flucel - 30 Sx</u> <u>Desco - 20 Sx</u>
--	---

COMMENTS light hole when pulling pipe to log.

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	HOME ADDRESS	MOBILE	HOME
STORE ADDRESS		STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 23 Mar 1968

Operator <u>Phillips Pet. Co.</u>		Contractor <u>ODFECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Rig</u>		Spud Date <u>20 Feb</u>	
Report for Mr. <u>Megan</u>		Report for Mr. <u>Redford</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-11</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N. Sea</u>	
State/Province <u>Norway</u>		Operation <u>Drilling</u>		Casing	
Depth <u>6400</u>		Mud Vol. Bbl. <u>2060</u>		Circulation Data	
Surface in. @ <u>1520</u> Ft.		Hole Pits <u>600</u>		Annular Vel. Ft./Min. <u>92</u>	
Bit Size in. No.		Total Circulating Vol. <u>2660</u>		Pump Size <u>7 1/2 X 18</u> in.	
Intermediate in. @		Bbl./Cyc.		Opp DP <u>92</u> Opp Col.	
Production or Liner in. @		In Storage		Stand Pipe Press. psi <u>2100</u>	
Drill Pipe Size <u>5</u>		Wt. of Stored Mud		Circulating Bottom Up, Min. <u>83</u>	
Drill Collar: Size Length		Bbl./Min. <u>25</u>		Circulating Total, Min. <u>107</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>9.5</u>	Vis. <u>60</u>	Filtration <u>< 1000</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>6150.25</u>
						Mud Cost Cumulative <u>16741.02</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>0200</u> <u>0630</u> °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>9.6+</u> <u>9.6+</u>	Plastic Viscosity, cp @ _____ °F	<u>7</u> <u>22</u>
Viscosity, Funnel, Sec./qt API @ _____ °F	<u>100</u> <u>102</u>	Yield Point, lb/100 sq ft	<u>7</u> <u>36</u>
Filtrate, ml, API	<u>6.4</u> <u>4.6</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>1</u> <u>9/30</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>—</u> <u>320</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>2/32</u> <u>2/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ / Pm, cc N/50 H ₂ SO ₄	<u>—</u> <u>Nil</u>
Sand Content <input type="checkbox"/> Sand only / <input checked="" type="checkbox"/> all solids % by Vol	<u>0.75</u> <u>0.75</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>—</u> <u>2</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>7</u> <u>22000</u>	Oil..... % by Vol	<u>—</u> <u>4</u>
pH electrode <input checked="" type="checkbox"/> filtrate <input checked="" type="checkbox"/>	<u>7</u> <u>7.0</u>	Water..... % by Vol	<u>—</u> <u>85</u>
Solids..... % by Vol	<u>—</u> <u>11</u>	Liquid phase, Vol % oil/water	<u>—</u> <u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u> <u>—</u>	Electrical Stability, volts	<u>—</u> <u>—</u>
<u>Rm @ 60°F</u>	<u>—</u> <u>0.32</u>		
<u>H.H. @ 6400'</u>	<u>—</u> <u>3210</u>		

ADDITIVES IN MUD

MATERIALS RECOMMENDED Used

	<u>Diesel - 205 bbls</u>	<u>Bentonite - 7 Sx.</u>
	<u>Saltex - 71 Sx</u>	<u>Actaflo-5 - 3 bbls.</u>
	<u>Dispac - 40 Sx.</u>	<u>Baryte - 5 MT.</u>
	<u>Flodal - 38 Sx.</u>	
	<u>Floegel - 16 Sx</u>	

COMMENTS Drilling ahead

BAROID SALES ENGINEER		TELEPHONE
NAME <u>Devlin</u>	MOBILE	
HOME ADDRESS	HOME	
STORE ADDRESS	STORE	

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BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 22 MAR 19 68

Operator <u>Phillips Pet. Co.</u>		Contractor <u>ODECO</u>		Rig No. <u>0 Viking</u>	
Address <u>Stavanger</u>		Address <u>Rog</u>		Spud Date <u>25 FEB</u>	
Report for Mr. <u>Megan</u>		Report for Mr. <u>Rolford</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N. Sea.</u>	
State/Province <u>Norway</u>		Mud Vol. Bbl.		Circulation Data	
Operation <u>Drilling & Reaming</u>		Casing		Annular Vel. Ft./Min.	
Depth <u>5500</u>		Surface in. @ <u>20</u> Ft. <u>1520</u>		Hole Pits <u>1760</u> <u>600</u>	
Bit Size in. No. <u>1 7/8</u>		Inter-mediate in. @		Pump Size <u>7 1/2</u> X <u>18</u> in.	
Drill Pipe Size <u>5</u>		Production or Liner in. @		Opp DP <u>8.5</u> Opp Cd	
Drill Collar: Size Length		Total Circulating Vol <u>2360</u>		Stand Pipe Press. psi <u>2200</u>	
		In Storage <u>—</u>		Circulating Bottom Up, Min. <u>7.5</u>	
		Wt. of Stored Mud <u>—</u>		Circulating Total, Min. <u>101</u>	
		Cyc./Min. <u>40/45</u>			
		Bbl./Min. <u>23.5</u>			

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>9.5</u>	Vis. <u>60</u>	Filtration <u><15</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily
						Mud Cost Cumulative

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0930</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>110</u> °F	Mud Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present -		Plastic Viscosity, cp @ _____ °F	
Viscosity, Sec./qt API @ _____ °F	<u>9.5</u>	<u>9.6</u>	<u>9.7</u>	<u>13</u>
Funnel, _____ °F	<u>58</u>	<u>63</u>	<u>95</u>	<u>17</u>
Filtrate, ml, API	<u>10.4</u>	<u>14.4</u>	<u>8.0</u>	<u>7/8</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u>			<u>8-10</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3</u>	<u>3</u>	<u>2</u>	<u>9/25</u>
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>.75</u>	<u>.50</u>	<u>0.75</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>21000</u>	<u>22000</u>	<u>Z</u>	<u>440</u>
pH electrode <input type="checkbox"/> filtrate <input checked="" type="checkbox"/> mud <input type="checkbox"/>	<u>7</u>	<u>7.3</u>	<u>Z</u>	<u>450</u>
Solids, _____ % by Vol	<u>10</u>			Alkalinity, API <input type="checkbox"/> Pf, cc N/50 H ₂ SO ₄ <input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄ <input type="checkbox"/>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>				<u>.00</u>
				<u>.04</u>
				Oil..... % by Vol
				<u>3</u>
				Water..... % by Vol
				Liquid phase, Vol % oil/water
				<u>1</u>
				Electrical Stability, volts

ADDITIVES IN MUD

MATERIALS RECOMMENDED

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COMMENTS
WASH 45 OFT TO BOTTOM.
AFTER BB BURNER SUB TRIP (LEAK).
1 PUMP DOWN. HOLE
TIGHT AND FILL ON CONNECTION'S

BAROID SALES ENGINEER		TELEPHONE	
NAME	<u>Stelzer & Devlin</u>	MOBILE	
HOME ADDRESS		HOME	
STORE ADDRESS		STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 21 MAR 1968

Operator <u>PHILLIPS PETR CO</u>	Contractor <u>O. D. E. C. O.</u>	Rig No. <u>O. VIKING</u>
Address <u>STAVANGER</u>	Address <u>RIG</u>	Spud Date <u>25 FEB</u>
Report for Mr. <u>MEGAN</u>	Report for Mr. <u>REDFORD</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1X</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>N-SEA</u>	State/Province <u>NORWAY</u>
Operation <u>Drilling</u>	Casing <u>30 450</u>	Mud Vol. Bbl. <u>1625 800</u>	Circulation Data <u>7 1/2 18</u>
Depth <u>5450</u>	Surface in. @ Ft. <u>20 1520</u>	Hole Pits <u>1625 800</u>	Pump Size <u>7 1/2 18</u>
Bit Size in. No. <u>17 1/2 4</u>	Inter-mediate in. @ Ft.	Total Circulating Vol. <u>2425</u>	Bbl./Cyc.
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <u>40-45</u>
Drill Collar: Size Length <u>18 7 1/4</u>	Wt. of Stored Mud	Bbl./Min. <u>23.5</u>	Circulating Total, Min. <u>110</u>

DRILLING FLUID SPECIFICATIONS				Authority:	Mud Cost Daily <u>2968.22</u>
Type <u>SEA WATER</u>	Weight <u>9</u>	Vis. <u>40</u>	Filtration <u>15</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Mud Cost Cumulative <u>10290.27</u>
				<input type="checkbox"/> Drilling Contractor <input type="checkbox"/>	
				<input type="checkbox"/> Other:	

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other LOGGING

MUD PROPERTIES			
Time <u>6:00</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>230</u>	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>9.4</u>	<u>9.5</u>	Plastic Viscosity, cp @ _____ °F <u>15</u> <u>20</u>
Viscosity, Sec./qt API @ _____ °F	<u>41</u>	<u>75</u>	Yield Point, lb/100 sq ft <u>15</u> <u>35</u>
Filtrate, ml, API	<u>16.2</u>	<u>1.2</u>	Gels, lb/100 sq ft., 10 Sec./10 min. <u>7/8</u> <u>18-25</u>
Filtrate, API HT-HP @ _____ °F		<u>-</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/> <u>450</u> <u>440</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3</u>	<u>3</u>	Alkalinity, API } PF, cc N/50 H ₂ SO ₄ <u>1.00</u> <u>1.00</u>
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>.75</u>	<u>.75</u>	Alkalinity, API } CCN/50 H ₂ SO ₄ <u>1.05</u> <u>1.03</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>21000</u>	<u>22000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/> <u>-</u> <u>-</u>
pH electrode <input type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.3</u>	<u>7</u>	Oil % by Vol <u>7</u> <u>4</u>
Solids % by Vol	<u>9</u>	<u>11</u>	Water % by Vol <u>84</u> <u>85</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>			Liquid phase, Vol % oil/water <u>1</u>
<u>RM @ 52°</u>	<u>.12</u>		Electrical Stability, volts

ADDITIVES IN MUD

MATERIALS RECOMMENDED

5 MT BAROID 21 SOLTEY
26 DRISPAL 110 BBLs DIESEL
38 FPO GEL 5 FORMALDEHYDE
FISCO
3 AKTAFLO-S

COMMENTS

TRIP. WORK ON PUMPS
DRILLING 4800-5450.
TRIP. TOCHAUKE BUNGER SOB.

BAROID SALES ENGINEER		TELEPHONE
NAME	<u>MAURILE STELZER</u>	MOBILE
HOME ADDRESS	<u>STAVANGER</u>	HOME <u>56474</u>
STORE ADDRESS	<u>NORTH SEA EXP</u>	STORE <u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date MAR 20 1968

Operator <u>PHILLIPS PET CO</u>		Contractor <u>O DELCO</u>		Rig No. <u>OWIKING</u>	
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>	
Report for Mr. <u>MEGAN</u>		Report for Mr. <u>DORSAY</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>N-SEA</u>	
State/Province <u>NORWAY</u>		Casing <u>30 450</u>		Mud Vol. Bbl. <u>1430 700</u>	
Operation <u>DRILLING</u>		Surface in. @ Ft. <u>20 1520</u>		Circulation Data	
Depth <u>4800</u>		Hole Pits <u>1430 700</u>		Annular Vel. Ft./Min. <u>100</u>	
Bit Size in. No. <u>17 1/2 4</u>		Inter-mediate in. @ Ft.		Pump Size <u>7 1/2 X 18</u>	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.		Opp DP <u>100</u>	
Drill Collar: Size Length		Total Circulating Vol. <u>2130</u>		Opp Col. <u>100</u>	
		In Storage		Stand Pipe Press, psi <u>2700</u>	
		Wt. of Stored Mud		Circulating Bottom Up, Min.	
				Circulating Total, Min. <u>276</u>	

DRILLING FLUID SPECIFICATIONS

SEA-WATER	Weight <u>9</u>	Vis. <u>40</u>	Filtration <u>15</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>108.935</u>
						Mud Cost Cumulative <u>7321.50</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other 2066ING.

MUD PROPERTIES

Time <u>0600</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>1130 F 2300</u>	Sample Taken	Flowline <input type="checkbox"/>	Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present - <u>9.1 9.6 10</u>	Plastic Viscosity, cp @ _____ °F	<u>10 12 11</u>	
Viscosity, Sec./qt API @ _____ °F	<u>42 52 43</u>	Yield Point, lb/100 sq ft	<u>15 18 15</u>	
Filtrate, ml, API	<u>14.8 21 17</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>8/15 14/20 10/14</u>	
Filtrate, API HT-HP @ _____ °F	<u>- - -</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>420 450 450</u>	
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3 4 3</u>	Alkalinity, API <input type="checkbox"/> PF, cc N/50 H ₂ SO ₄	<u>- - -</u>	
Sand Content <input type="checkbox"/> sand only <input type="checkbox"/> all solids % by Vol	<u>.50 .75 .75</u>	<input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄	<u>2.00 1.20 .90</u>	
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>22000 21000 22000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>- - -</u>	
pH electrode <input type="checkbox"/> indicator <input type="checkbox"/>	<u>7 7 7</u>	Oil..... % by Vol	<u>4 2 3</u>	
Solids..... % by Vol	<u>7 12</u>	Water..... % by Vol	<u>89 85</u>	
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Liquid phase, Vol % oil/water		
<u>R.M @ 500</u>	<u>.54</u>	Electrical Stability, volts		

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

<u>SHOT Down 14 Days</u>	<u>75 FLOC-GEL</u>
<u>WOW.</u>	<u>75 FORMALDEHYDE</u>
<u>MID IN HOLE SOGGED</u>	<u>60 DESCO</u>
	<u>80 BBLs DIESEL</u>

COMMENTS
WASH & REAMING
14 90 - 4000 14 HRS.

BAROID SALES ENGINEER		TELEPHONE	
NAME	<u>MAURILE STELZER</u>	MOBILE	
HOME ADDRESS	<u>STAVANGER</u>	HOME	<u>56474</u>
STORE ADDRESS	<u>NORTH SEA EXPL</u>	STORE	<u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 14 MAR 19 68

Operator <u>PHILLIPS PETR CO</u>	Contractor <u>O DECO</u>	Rig No. <u>O. VIKING</u>
Address <u>STAVANGER</u>	Address <u>RIG</u>	Spud Date <u>25 FEB</u>
Report for Mr. <u>SEA BOURN</u>	Report for Mr. <u>DORSAY</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1V</u>	Field or Block No.	County, Parish or Offshore Area	State/Province
Operation <u>WAITING ON WT</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>4032</u>	Surface in. @ <u>30</u> Ft. @ <u>450</u>	Hole Pits <u>1190 900</u>	Pump Size <u>7 1/2 18</u>
Bit Size in. No. <u>17/16 4</u>	Inter-mediate in. @ <u>30</u> Ft. @ <u>1520</u>	Total Circulating Vol. <u>2090</u>	Bbl./Cyc.
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min. <u>92</u>
Drill Collar: Size Length	Wt. of Stored Mud	Bbl./Min. <u>25.7</u>	Circulating Total, Min. <u>40</u>

DRILLING FLUID SPECIFICATIONS

Type <u>SEA WATER</u>	Weight <u>9-9.1</u>	Vis. <u>40</u>	Filtration <u>15</u>	Operator's Written Operator's Rep.	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other:	Mud Cost Daily <u>575.40</u>	Mud Cost Cumulative <u>6232.15</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other LOGGING

MUD PROPERTIES

Time <u>2:00</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>8.9</u>	Plastic Viscosity, cp @ _____ °F	<u>12</u>
Viscosity, Sec./qt API @ _____ °F	<u>40</u>	Yield Point, lb/100 sq ft	<u>9</u>
Filtrate, ml, API	<u>14.4</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>6/12</u>
Filtrate, API HT-HP @ _____ °F	<u>-</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>410</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3</u>	Alkalinity, API	<u>1.00</u>
Sand Content <input checked="" type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol	<u>2.5</u>	Alkalinity, API { Pf, cc N/50 H2SO4	<u>2</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>21500</u>	Pm, cc N/50 H2SO4	
pH electrode <input checked="" type="checkbox"/> indicator <input type="checkbox"/>	<u>7</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl2 <input type="checkbox"/>	
Solids, % by Vol	<u>6</u>	Oil, % by Vol	<u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Water, % by Vol	<u>93</u>
		Liquid phase, Vol % oil/water	<u>1</u>
		Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

	<u>15 FLOXAL</u>
	<u>40 FLOXSTARH</u>
	<u>10 FORMALDEHYDE</u>

COMMENTS
Build back volume - 500 BBLs

BAROID SALES ENGINEER		TELEPHONE	
NAME	<u>MAURICE STELZER</u>	MOBILE	
HOME ADDRESS	<u>STAVANGER</u>	HOME	<u>56474</u>
STORE ADDRESS	<u>STAVANGER</u>	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 14 MAR 19 68

Operator <u>PHILLIPS PETR CO</u>		Contractor <u>O DECO</u>		Rig No. <u>O. VIKING</u>	
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>	
Report for Mr. <u>SEA BOURN</u>		Report for Mr. <u>DORSAY</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1V</u>		Field or Block No.		County, Parish or Offshore Area	
State/Province		Casing		Mud Vol. Bbl.	

Operation <u>WAITING ON WT</u>		Circulation Data		Annular Vel. Ft./Min.	
Depth <u>4032</u>	Surface in. @ <u>30</u> Fr. <u>450</u>	Hole Pits <u>1190</u> <u>900</u>	Pump Size <u>7 1/2</u> in. <u>18</u>	Opp DP <u>94</u>	Opp Col.
Bit Size in. <u>17/16</u> No. <u>4</u>	Inter-mediate in. @ <u>20</u> Fr. <u>1520</u>	Total Circulating Vol. <u>2090</u>	Bbl./Cyc.	Stand Pipe Press, psi <u>2600</u>	
Drill Pipe Size <u>5</u>	Production or Liner in. @ Fr.	In Storage <u>—</u>	Cyc./Min. <u>92</u>	Circulating Bottom Up, Min. <u>40</u>	
Drill Collar: Size Length	Wt. of Stored Mud <u>—</u>	Bbl./Min. <u>25.7</u>	Circulating Total, Min. <u>55</u>		

DRILLING FLUID SPECIFICATIONS

Type <u>SEAWATER</u>	Weight <u>9.9</u>	Vis. <u>40</u>	Filtration <u>15</u>	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>575.40</u>
						Mud Cost Cumulative <u>6232.15</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other LOGGING

MUD PROPERTIES

Time <u>2:00</u> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>8.9</u>	Plastic Viscosity, cp @ _____ °F	<u>12</u>
Viscosity, Sec./qt API @ _____ °F	<u>40</u>	Yield Point, lb/100 sq ft	<u>9</u>
Filtrate, ml, API	<u>14.4</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>6/12</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u>	Calcium Ion; ppm <input checked="" type="checkbox"/> epm <input type="checkbox"/>	<u>410</u>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>	<u>3</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ <u>1.00</u> Pm, cc N/50 H ₂ SO ₄ <u>2</u>	
Sand Content <input type="checkbox"/> sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>2.5</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	
Salt ppm <input type="checkbox"/> gpg <input checked="" type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/> gpg <u>21500</u>		Oil..... % by Vol	<u>1</u>
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input checked="" type="checkbox"/> mud <input type="checkbox"/>	<u>7</u>	Water..... % by Vol	<u>93</u>
Solids..... % by Vol	<u>6</u>	Liquid phase, Vol % oil/water	<u>1</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

	<u>1.5 FLOXAL</u>
	<u>40 FLOXSTARCH</u>
	<u>10 FORMALDEHYDE</u>

COMMENTS
Building Volume
500 BBLs

BAROID SALES ENGINEER		TELEPHONE
NAME <u>MAURICE STELZER</u>	MOBILE	
HOME ADDRESS <u>STAVANGER</u>	HOME <u>56474</u>	
STORE ADDRESS <u>STAVANGER</u>	STORE	

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 5 Mar 1967

Operator <u>Phillips Pet. Co.</u>		Contractor <u>ODECO</u>		Rig No. <u>Viking</u>	
Address <u>Stavanger</u>		Address <u>Rig</u>		Spud Date <u>25 Feb</u>	
Report for Mr. <u>Megard</u>		Report for Mr. <u>Dorson</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>North Sea</u>	
State/Province <u>Norway</u>		Operation <u>Drilling</u>		Casing <u>30 450</u>	
Depth <u>1950</u>		Surface <u>20 in. @ 1520 Ft.</u>		Mud Vol. Bbl. <u>640 600</u>	
Bit Size in. <u>1 7/8</u> No. <u>3</u>		Inter-mediate in. @ Ft.		Circulation Data	
Drill Pipe Size <u>5</u>		Production or Liner in. @ Ft.		Pump Size <u>7 1/2 X 18</u> in.	
Drill Collar: Size Length		Wt. of Stored Mud		Annular Vel. Ft./Min. <u>94</u>	
				Opp DP <u>94</u> Opp Col.	
				Stand Pipe Press, psi <u>2600</u>	
				Circulating Bottom Up, Min. <u>25</u>	
				Circulating Total, Min. <u>49</u>	

DRILLING FLUID SPECIFICATIONS

Type <u>Seawater</u>	Weight <u>9.0</u>	Vis. <u>40</u>	Filtration <u>15</u>	Operator's Written Operator's Rep. <input checked="" type="checkbox"/>	Authority: <input checked="" type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily <u>432.36</u>	Mud Cost Cumulative <u>4260.45</u>
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time <u>0600</u> a.m. <input checked="" type="checkbox"/> p.m. <input type="checkbox"/>	Temp. Mud <u>1200</u> °F <u>800</u>	Mud Sample Taken	Flowline <input checked="" type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	<u>8.8</u> <u>9.0</u> <u>9.1</u>	Plastic Viscosity, cp @ _____ °F	<u>6</u> <u>8</u> <u>10</u>
Viscosity, Sec./qt API @ _____ °F	<u>40</u> <u>43</u> <u>40</u>	Yield Point, lb/100 sq ft	<u>20</u> <u>20</u> <u>16</u>
Filtrate, ml, API	<u>36.0</u> <u>22.0</u> <u>18.0</u>	Gels, lb/100 sq ft., 10 Sec./10 min.	<u>8/12</u> <u>10/15</u> <u>10/18</u>
Filtrate, API HT-HP @ _____ °F	<u>—</u> <u>—</u> <u>—</u>	Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	<u>400</u> <u>—</u> <u>400</u>
Cake, 32nd In. API <input checked="" type="checkbox"/> HT-HP <input type="checkbox"/>	<u>4/32</u> <u>4/32</u> <u>3/32</u>	Alkalinity, API { Pf, cc N/50 H ₂ SO ₄	<u>N.I</u> <u>—</u> <u>N.I</u>
Sand Content <input type="checkbox"/> Sand only <input checked="" type="checkbox"/> all solids % by Vol	<u>0.75</u> <u>1.0</u> <u>0.5</u>	{ Pm, cc N/50 H ₂ SO ₄	<u>Z</u> <u>—</u> <u>Z</u>
Salt ppm <input type="checkbox"/> Chloride ppm <input checked="" type="checkbox"/>	<u>21000</u> <u>7</u> <u>22000</u>	lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	<u>—</u> <u>—</u> <u>—</u>
pH electrode <input checked="" type="checkbox"/> indicator <input checked="" type="checkbox"/>	<u>7.2</u> <u>7</u> <u>7.0</u>	Oil..... % by Vol	<u>2</u> <u>—</u> <u>3</u>
Solids..... % by Vol	<u>6</u> <u>—</u> <u>7</u>	Water..... % by Vol	<u>92</u> <u>—</u> <u>91</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>	<u>—</u> <u>—</u> <u>—</u>	Liquid phase, Vol % oil/water	<u>1</u> <u>—</u> <u>7</u>
<u>Rm @ 56° F</u>	<u>0.51</u> <u>—</u> <u>—</u>	Electrical Stability, volts	<u>—</u> <u>—</u> <u>—</u>

used 5 Mar + cost

ADDITIVES IN MUD

<u>200 Starch</u>	
<u>225 Bbls. Diesel</u>	
<u>Daily Cost - 1396.00</u>	
<u>Total Cost - 5656.45</u>	

MATERIALS RECOMMENDED Used.

<u>25 Flocal</u>	
<u>100 Zeogel</u>	
<u>9 brand</u>	

COMMENTS
lost circulation under shoe in shell bed. Healed itself with cuttings while drilling. Reducing filtrate while drilling.

BAROID SALES ENGINEER		TELEPHONE	
NAME <u>Devlin</u>	HOME ADDRESS <u>Stavanger</u>		MOBILE <u>36813</u>
STORE ADDRESS <u>Stavanger</u>			STORE <u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY
DRILLING MUD REPORT

Date 29 FEB 1968

Operator <u>PHILLIPS PETRO Co</u>	Contractor <u>O DECO</u>	Rig No. <u>0 VIKING</u>
Address <u>STAUNGER</u>	Address <u>RIG</u>	Spud Date <u>25 FEB</u>
Report for Mr. <u>SEABURN</u>	Report for Mr. <u>REDFORD</u>	Sec. Twp. Rng.

Well Name and No. <u>7-11-1Y</u>	Field or Block No. <u>7-11</u>	County, Parish or Offshore Area <u>OFFSHORE</u>	State/Province <u>NORWAY</u>
Operation <u>Drilling</u>	Casing	Mud Vol. Bbl.	Circulation Data
Depth <u>1500</u>	Surface in. @ Ft. <u>30 450</u>	Hole Pits <u>1020 200</u>	Pump Size X in. <u>7 1/2 18</u>
Bit Size in. No. <u>2 6 1/2</u>	Intermediate in. @ Ft.	Total Circulating Vol. <u>18</u>	Bbl./Cyc. <u>280</u>
Drill Pipe Size <u>5</u>	Production or Liner in. @ Ft.	In Storage	Cyc./Min.
Drill Collar: Size Length	Wt. of Stored Mud	Bbl./Min.	Circulating Total, Min.

DRILLING FLUID SPECIFICATIONS				Authority:	Mud Cost Daily
Type <u>HIGH ULS</u>	Weight <u>8.8</u>	Vis. <u>150+</u>	Filtration <u>NO CONTROL</u>	Operator's Written Rep. <input type="checkbox"/>	<u>1762.22</u>
<u>SEA WATER</u>				Drilling Contractor <input type="checkbox"/>	Mud Cost Cumulative
				Other: <input type="checkbox"/>	<u>4728.59</u>

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other Logging

MUD PROPERTIES

Time 0400 p.m. Temp. Mud °F Mud Sample Taken Flowline Pit

Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>8.8</u>	Plastic Viscosity, cp @ _____ °F
Viscosity, Sec./qt API @ _____ °F	<u>164</u>	Yield Point, lb/100 sq ft
Filtrate, ml, API		Gels, lb/100 sq ft., 10 Sec./10 min. <u>/</u>
Filtrate, API HT-HP @ _____ °F		Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>		Alkalinity, API { Pf, cc N/50 H ₂ SO ₄
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol		{ Pm, cc N/50 H ₂ SO ₄
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>
ppm <input type="checkbox"/> electrode <input type="checkbox"/> filtrate <input type="checkbox"/>		Oil..... % by Vol
pH indicator <input type="checkbox"/> mud <input type="checkbox"/>		Water..... % by Vol
Solids..... % by Vol		Liquid phase, Vol % oil/water <u>/</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Electrical Stability, volts

ADDITIVES IN MUD	MATERIALS RECOMMENDED <u>USED</u>
	<u>464 ZEOGEL</u>
	<u>25 FLOSAL</u>
	<u>6 LIME</u>

COMMENTS
SPOTTED 1100 BBLS
HIGHLIS MUD TO RUN
20" CASIN

BAROID SALES ENGINEER		TELEPHONE
NAME	<u>MAURILE STELZER</u>	MOBILE
HOME ADDRESS	<u>STAUNGER</u>	HOME <u>56474</u>
STORE ADDRESS	<u>N. SEA EXPLOR</u>	STORE <u>20012</u>

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BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD REPORT

Date 28 FEB 68

Operator <u>PHILLIPS PETR CO</u>		Contractor <u>O DECO</u>		Rig No. <u>O. VIKING</u>	
Address <u>STAVANGER</u>		Address <u>RIG</u>		Spud Date <u>25 FEB</u>	
Report for Mr. <u>SEABURN</u>		Report for Mr. <u>REDFORD</u>		Sec. Twp. Rng.	
Well Name and No. <u>7-11-1X</u>		Field or Block No. <u>7-11</u>		County, Parish or Offshore Area <u>OFFSHORE</u>	
State/Province <u>NORWAY</u>		Operation <u>Drilling</u>		Casing	
Depth <u>1480</u>		Surface in. @ <u>30</u> Ft. <u>450</u>		Mud Vol. Bbl. <u>1020</u> Pits <u>800</u>	
Bit Size in. <u>2 1/2</u> No. <u>5</u>		Intermediate in. @ <u>30</u> Ft. <u>450</u>		Circulation Data Pump Size <u>7 1/2 X 18</u> in.	
Drill Pipe Size <u>5</u>		Production or Liner in. @ <u>30</u> Ft. <u>450</u>		Annular Vel. Ft./Min. <u>280</u>	
Drill Collar: Size Length		In Storage		Opp DP Opp Col.	
		Wt. of Stored Mud		Stand Pipe Press, psi	
		Bbl./Min.		Circulating Bottom Up, Min.	
				Circulating Total, Min.	

DRILLING FLUID SPECIFICATIONS

Type HIGH VIS Weight 8.8 Vis. 150 F Filtration NO CONTROL

Authority: Drilling Contractor Other:

Mud Cost Daily 891.23
Mud Cost Cumulative 2,265.87

EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time 3:30 a.m. p.m. Temp. Mud °F _____ Mud Sample Taken _____ Flowline Pit

Weight of Mud lb/gal <input type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present <u>8.8</u>	Plastic Viscosity, cp @ _____ °F
Viscosity, Sec./qt API @ _____ °F	<u>152</u>	Yield Point, lb/100 sq ft
Filtrate, ml, API		Gels, lb/100 sq ft., 10 Sec./10 min. <u>/</u>
Filtrate, API HT-HP @ _____ °F		Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>		Alkalinity, API { Pf, cc N/50 H ₂ SO ₄ Pm, cc N/50 H ₂ SO ₄
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>		Oil..... % by Vol
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input type="checkbox"/> mud <input type="checkbox"/>		Water..... % by Vol
Solids..... % by Vol		Liquid phase, Vol % oil/water <u>/</u>
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Electrical Stability, volts

ADDITIVES IN MUD	MATERIALS RECOMMENDED USED
	<u>293 ZEOGEL</u>
	<u>12 FLOSAL</u>
	<u>8 LIME</u>

COMMENTS

SPOTTING HIGH VISCOSITY MUD FOR CONNECTION WHITE DRILLING 2 1/2" HOLE SPOTTED 100 BBLs MUD. TO RUN CASING.

BAROID SALES ENGINEER		TELEPHONE
NAME <u>MAURICE STILZER</u>	MOBILE	
HOME ADDRESS <u>STAVANGER</u>	HOME <u>56474</u>	
STORE ADDRESS <u>N-SEA EXPLOR</u>	STORE <u>20012</u>	

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DRILLING MUD REPORT

Date **27 FEB 1968**

Operator PHILLIPS PETR CO		Contractor ONECO		Rig No. 0 VIKING	
Address STAVANGER		Address RIG		Spud Date 25 FEB	
Report for Mr. SEA BURN		Report for Mr. REDFORD		Sec. Twp. Rng.	
Well Name and No. 7-11-2X		Field or Block No. 7-11		County, Parish or Offshore Area OFFSHORE	
State/Province NORWAY		Operation WAITING ON CEMENT		Casing	
Depth 533		Mud Vol. Bbl. 60		Circulation Data	
Bit Size in. 2 1/2 No. 1		Hole Pits 800		Pump Size 2 1/2 X 1 1/2 in.	
Drill Pipe Size 5		Total Circulating Vol. 860		Annular Vel. Ft./Min.	
Drill Collar: Size Length		In Storage		Opp DP Opp Col.	
		Wt. of Stored Mud		Stand Pipe Press, psi	
				Circulating Bottom Up, Min.	
				Circulating Total, Min.	

DRILLING FLUID SPECIFICATIONS

Type SEA WATER	Weight 8.8	Vis. 150 f	Filtration NO CONTROL	Operator's Written Operator's Rep. <input type="checkbox"/>	Authority: <input type="checkbox"/> Drilling Contractor <input type="checkbox"/> Other: <input type="checkbox"/>	Mud Cost Daily 1689.54	Mud Cost Cumulative 2174.64
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EQUIPMENT

Shale Shaker DD Shaker Desander Degasser Centrifuge Other

MUD PROPERTIES

Time 11:30 a.m. <input type="checkbox"/> p.m. <input checked="" type="checkbox"/>	Temp. Mud °F	Mud Sample Taken	Flowline <input type="checkbox"/> Pit <input type="checkbox"/>
Weight of Mud lb/gal <input checked="" type="checkbox"/> lb/cu ft <input type="checkbox"/>	Present 8.8	Plastic Viscosity, cp @ _____ °F	
Viscosity, Sec./qt API @ _____ °F	172	Yield Point, lb/100 sq ft	
Filtrate, ml, API		Gels, lb/100 sq ft., 10 Sec./10 min.	/
Filtrate, API HT-HP @ _____ °F		Calcium Ion; ppm <input type="checkbox"/> epm <input type="checkbox"/>	
Cake, 32nd In. API <input type="checkbox"/> HT-HP <input type="checkbox"/>		Alkalinity, API <input type="checkbox"/> Pf, cc N/50 H ₂ SO ₄ <input type="checkbox"/> Pm, cc N/50 H ₂ SO ₄ <input type="checkbox"/>	
Sand Content <input type="checkbox"/> Sand only <input type="checkbox"/> all solids % by Vol		lb/bbl lime <input type="checkbox"/> gyp <input type="checkbox"/> CaCl ₂ <input type="checkbox"/>	
Salt ppm <input type="checkbox"/> Chloride ppm <input type="checkbox"/>		Oil..... % by Vol	
pH electrode <input type="checkbox"/> filtrate <input type="checkbox"/> indicator <input type="checkbox"/> mud <input type="checkbox"/>		Water..... % by Vol	
Solids..... % by Vol		Liquid phase, Vol % oil/water	/
Solids, av. sp. gr. <input type="checkbox"/> ppb low gr. <input type="checkbox"/>		Electrical Stability, volts	

ADDITIVES IN MUD

MATERIALS RECOMMENDED USED

	303 ZEOCEL
	60 FLOSAF
	7 LIME

COMMENTS **Build 800 BBLs
At VIS MOD TO
DRILL 26 1/2" Hole.**

BAROID SALES ENGINEER		TELEPHONE	
NAME MAURICE STELZER	HOME ADDRESS STAVANGER	MOBILE	HOME 56474
STORE ADDRESS N. SEA EXPL		STORE 20012	

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March 1, 1968

INTER-OFFICE CORRESPONDENCE / SUBJECT: NOR/D&P/Well 7/11-IX - Mud Program

File: P-4-Bo-12-68

TO: A. T. Crump

FROM: O. K. Bodine

In the revised mud program for the subject well transmitted by a letter to Mr. T. J. Jobin from A. T. Crump dated February 19, 1968, you have specified Drispac* and starch in a 1:4 ratio (page 2 (e)) and that before drilling cement ((i)) to treat the mud with 1 lb/bbl sodium sulfate.

This is a very good procedure for a saturated salt water; however for a sea water mud, I recommend that you use Drispac only. If another material is needed use Driscose*. If starch is used in a sea water mud a preservative will be required.

In a saturated salt mud sodium sulfate is the best treatment for drilling cement. In a sea-water mud, I recommend treating with sodium bicarbonate.

OKB:sc

*A Trademark

cc: R. L. Young
L. H. Hoelscher
T. J. Jobin
H. M. Barrett
F. J. Shell
P. L. Pope

PHILLIPS PETROLEUM CO.

RECEIVED

MAR 1 1968

STAVANGER

ATC/CJS
SO-049-68

Stavanger, February 19, 1968

Mr. T.J. Jobin,
OSLO OFFICE

NOR/D&P/Well 7/11-1X

Enclosed herewith please find our revised Mud Program for Well 7/11-1X Norway. This Mud Program supersedes that which is attached to the Drilling Prospectus previously submitted.

Original Signed by
A. T. CRUMP

A.T. CRUMP

cc: H.H. Heikkila
T.L. Sandridge,
S.S. Warner,
H.M. Barrett,
F.J. Shell,
O.K. Bodine,
L.H. Hoelscher.

MUD PROGRAM

36" Hole - (465' RKB)

Hole Volume - 250 bbls
Density - 8.8 ppg
Viscosity - +150 sec
Filtration - No control

This section of the well should be drilled with sea water and with returns to the sea floor. Slugs of high viscosity mud must be pumped into the hole if hole filling becomes a problem. When drilling is completed and prior to running casing, a high viscosity sea water mud equal to twice the hole volume will be pumped into the hole.

The viscous mud should be prepared as follows:

- a) Sea water
- b) 15 - 26 ppb Zeogel
- c) 3 - 4 ppb Flosal
- d) Small amount of lime (to provide increased Geletion)

26" Hole - (1500' RKB)

Hole Volume - 810 bbls
Density - 8.8 ppg
Viscosity - +150 sec
Filtration - No control

The drilling and use of mud in this section of hole will be identical to the 36" section. The amount of mud to spot prior to running casing will be determined by maximum pit volume. This volume should be 900 to 1000 bbls.

17½" Hole - (6500' RKB)

Hole Volume - 2000 bbls
Density - 9.0 - 9.5 ppg
Viscosity - 40 - 45 sec
Filtration - Less than 15 cc
pH - 7.0

Tests of formation samples circulated from Well 16/11-1X show that the Tertiary shales are insensitive to a saturated sodium chloride solution and diesel oil. The tests also show that the shales are only slightly affected by sea water. The use of a saturated salt mud in the 17½" hole would present a major logistics problem; thus, the compromise to a sea water-diesel oil mud has been made.

The mud should be prepared as follows:

- a) Sea water
- b) 4% Diesel oil
- c) 5 lbs Soltex per barrel diesel oil. The Soltex is added to assist in emulsifying the diesel oil. The Soltex and diesel oil should be mixed prior to adding the mixture to the mud system.
- d) 5 to 10 ppb bentonite. The bentonite may not be required after drilling commences since analysis of the Tertiary Shales shows them to contain a high percentage of montmorillonite (bentonite).
- e) Add sufficient Drispac and starch in a 1:4 ratio to control filtration loss to less than 15 cc. When the static bottom hole temperature reaches 250 °F, substitute tech grade CMC for starch in the same 1:4 ratio. This ratio should be varied to obtain the desired viscosity control. (Drispac gives much higher viscosity than CMC.)
- f) DMS may prove to be necessary to stabilize the filtration properties by desorbtion of Drispac from clay solids.
- g) Desco may be used as required for thinning.
- h) Provide additional cutting carrying capacity, as required, by the addition of 1-5 ppb Flosal.
- i) Before cementing and drilling cement the system should be treated with 1 lb/bbl sodium sulfate.

In the event shale sloughing becomes a severe problem, the mud density should be increased to 13.5 ppg. If this does not solve the problem, the 13.5 ppg mud system is to be covered to a saturated sodium chloride mud.

12 1/4" Hole - (± 10500')

Hole Volume - 1600 bbls
 Density - 10.0 - 10.5 ppg
 Viscosity - 40 - 45 sec
 Filtration - ±10 cc
 pH - 7.0

The 12 1/4" hole should be drilled with the same mud system as above in drilling the 17 1/2" hole. Anticipated hole problems should be similiar to the 17 1/2" hole except a greater probability exists of encountering high pressure zones that will require increased mud densities.

8 1/2" Hole - (± 15000' RKB)

Hole Volume - 1200 bbls
 Density - 10.0 - 10.5 ppg
 Viscosity - 40 - 45 sec
 Filtration - ±10 cc
 pH - 7.0

The 8½" hole should be drilled initially with the same type mud used to drill the 17½" and 12 1/4" holes. As soon as salt is encountered the mud is to be converted to a salt saturated system having the following properties:

- Density - 10.8 - 11.0 ppg
- Viscosity - 38 - 42 sec
- Filtration - 10 cc
- pH - 7.0

Before adding Drispac and starch/CMC to reduce the water loss, the calcium ion should be reduced to about 400 ppm using sodium sulfate.

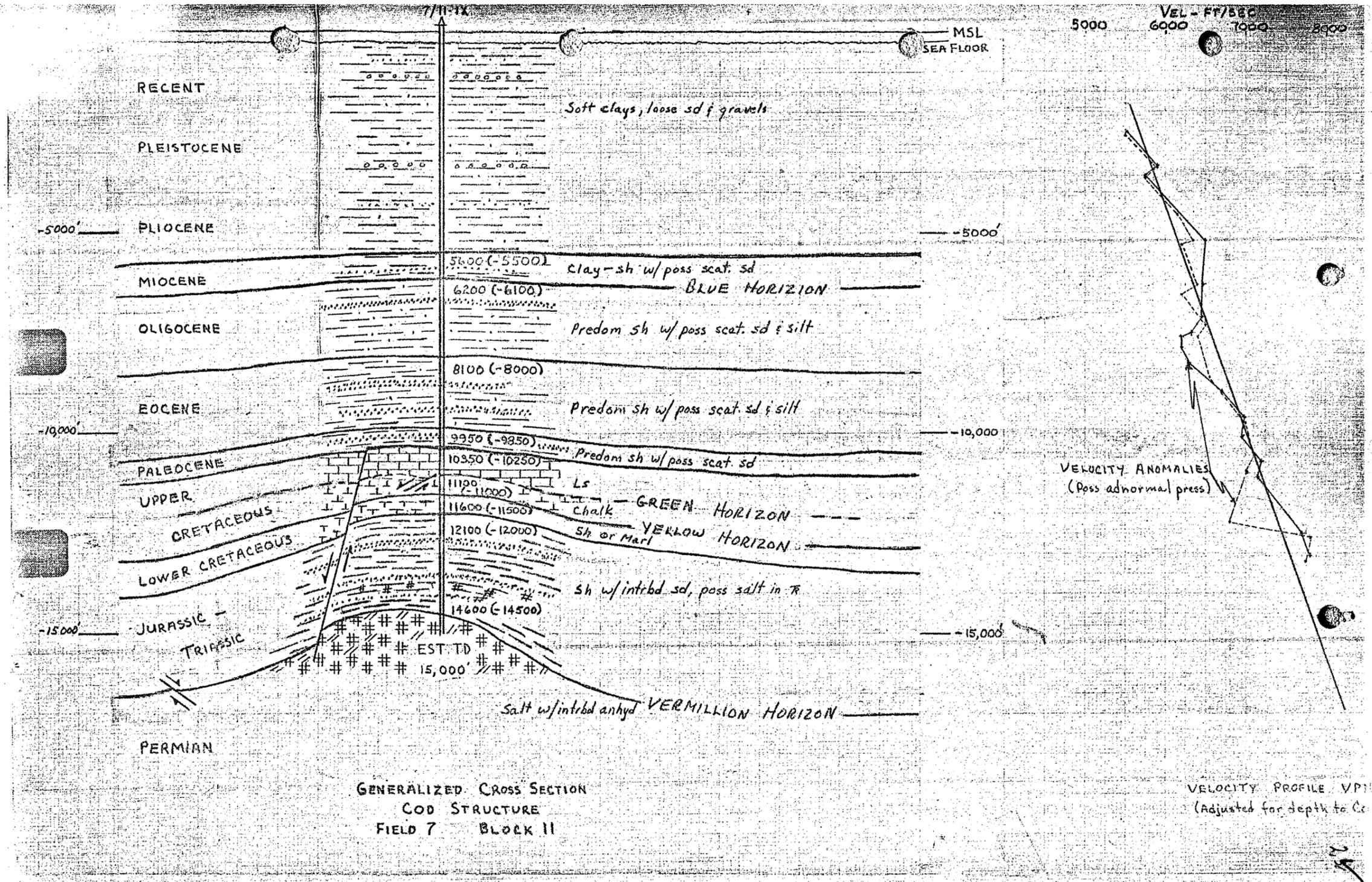
After the system has been saturated with sodium chloride and the calcium ion has been treated to 400 ppm, add sufficient magnesium sulfate to saturate the fluid phase. Solubility charts for magnesium sulfate in a saturated sodium chloride - sodium sulfate solution are not available. Therefore, the mud engineers must run pilot tests to determine the quantity of magnesium sulfate required. The following theoretically calculated solubility table is presented for the mud engineers information only, and is not to be used for anything other than a guide:

Temperature:

Solubility:

<u>°C</u>	<u>MgSO₄ · 7H₂O</u> lb/bbl sat. salt. water
0	207
10	214
20	225
30	228
40	232
50	255
60	278
70	301
80	326
90	349
100	398

When magnesium sulfate is used, care should be taken to keep the pH below 9 and to keep a high concentration of sodium sulfate. If the pH begins to increase in spite of the mud chemistry, treat with lignite. DO NOT USE CAUSTICIZED LIGNITE.



N O T E G R A M

May 2, 1968

In re: Norway

File: P-4-Bo-22N-68

To: A. T. Crump ✓

From: O. K. Bodine *OKB*

In studying the drilling mud reports up to April 15, the cause of the high gels and high yield point I believe was because of high bicarbonate alkalinity. Of course, caustic soda additions are the answer to this problem. Sea water muds, weighted or dispersed, should normally have a filtrate alkalinity 0.5 to 1.0 with the pH about 9 to 10.

Saturated salt muds should be run at pH 7. Sodium sulphate should be used to treat out calcium.

While you are running the sea water mud and you still have some difficulty controlling flow properties or gels, treating the mud with 0.1 to 0.5 lb/bbl sodium chromate or sodium dichromate may be very helpful.

OKB:hls

cc: R. L. Young
T. J. Jobin
H. M. Barrett



BAROID DIVISION
NATIONAL LEAD COMPANY

DRILLING MUD RECORD

COMPANY Phillips Pet. Co. STATE Norway CASING PROGRAM: 30" @ 450'
 WELL 7-11-1K COUNTY 7-110 20" inch at 1500 ft.
 DATE 1 July 1968 CONTRACTOR ODECO LOCATION North Sea 13 5/8 inch at 6512 ft.
 STOCKPOINT Stavanger BAROID ENGINEER Devlin + Stelzer SEC _____ TWP _____ RNG _____ TOTAL DEPTH 13034 ft. 9 5/8 inch at 10248 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 %				
26 Feb	461	8.6	150																					- Drilling 36" hole	
27 Feb	533	8.8	172																						- Drilling 26" hole.
28 Feb	1480	8.8	152																						- Drilling 26" hole. Spotting slugs.
29 Feb	1510	8.8	164																						- Spotted 1100 lbs. for casing.
5 Mar	1950	8.8	40	36.0	4	.75			7.2	6	20	8	12	21000	400				Nil	2	92	6		- Drilling	
14 Mar	4032	8.9	40	14.4	3	.25			7.0	12	9	6	12	21500	410				"	1	93	6		- W.O.W.; Build volume	
20 Mar	4032	9.1	42	14.8	3	.50			7.0	10	15	8	15	22000	420				"	4	89	7		- Mud sourced. Wash + ream	
"	"	9.6	52	21.0	4	.75			7.0	12	10	14	20	21000	450				"	2					1500-4000; 14 hours
"	4800	10.0	43	17.0	3	.75			7.0	11	15	10	14	22000	450				"	3	85	12			- Drilling
21 Mar	5450	9.4	41	16.2	3	.75			7.3	15	15	7	8	21000	450				"	7	84	9			- Drilling; Work on pumps
"	5450	9.5	75	12.0	3	.75			7.0	20	35	18	25	22000	440				"	4	85	11			- Trip for bumper sub.
22 Mar	5450	9.5	58	10.4	3	.75			7.0	13	17	7	8	21000	440				"	3	87	10			- Reaming tight hole
23 Mar	6400	9.6	100	4.6	2	.75			7.0	22	36	9	30	22000	320				"	4	85	11			- Drilling
24 Mar	6512	9.7	75	3.9	2	.75			7.0	20	26	7	20	22000	360				"	4	86	10			- Reaming tight hole
25 Mar	6512	9.7	62	4.6	2	1.0			7.0	16	22	9	16	22000	360				"	4	86	10			- Increasing density to log
26 Mar	6512	11.2	65	9.6	2	1.0			7.0	14	20	12	21	22000	340				"	3	81	16			- Logging + running density
28 Mar	6512	11.7	65	10.4	2	1.0			7.0	23	24	14	25	22000	320				"	3	80	17			- Increasing density, running csq.
9 April	6512	11.6	64	16.0	3	1.0			7.5	25	32	12	28	22000	640				"	2	81	17			- Drilling out of 13 3/8 csq.
9 April	7400	11.6	65	16.4	3	.75			7.0	30	30	20	31	21000	660				"	2	81	17			- Drilling + weighting up; difficulty
10 April	7720	11.8	75	10.0	3	1.0			7.5	23	29	13	22	21000	560				"	1	83	16			- controlling viscosity
11 April	8800	12.5	107	11.6	3	1.0			7.5	35	40	20	27	21000	520				"	1	81	18			- Drilling
12 April	9300	12.5	96	7.6	2	1.0			7.5	28	37	24	31	21000	380				"	2	80	18			- Drilling
13 April	9500	12.8	55	8.4	2	1.0			7.5	20	17	15	27	21000	480				"	2	81	19			- Drilling
14 April	9600	13.0	55	9.4	2	1.0			7.5	25	30	20	27	21000	480				"	2	81	19			- Coring
15 April	9660	13.0	53	9.6	2	1.25			7.5	20	26	19	27	21000	400				"	2	78	20			- Coring
16 April	9688	13.0	52	9.0	2	1.25			7.5	23	27	18	26	21000	400				"	2	78	20			- Reaming
17 April	9700	13.0	57	10.2	3	1.25			7.0	25	27	22	29	22000	420				"	2	77	21			- Coring
18 April	9840	13.1	60	7.0	2	1.25			7.5	25	25	18	26	22000	420				"	2	77	21			- Drilling; M.E. blue @ 25 ppb.
19 April	10000	12.9	68	6.0	2	2.0			7.5	25	35	23	32	22000	400				"	2	77	21			- Bentonite
20 April	10170	13.0	69	6.0	2	2.0			7.5	25	25	25	35	22000	420				"	2	77	21			- Drilling
21 April	10280	13.1	68	6.0	2	2.0			7.3	25	35	14	25	22000	440				"	2	77	21			- Drilling
22 April	10300	13.0	61	6.1	2	2.0			7.2	24	31	15	22	22000	420				"	2	77	21			- Logging + running 9 5/8 casing.



BAROID DIVISION NATIONAL LEAD COMPANY

DRILLING MUD RECORD

COMPANY _____ STATE _____ CASING PROGRAM: _____ inch at _____ ft.
 WELL _____ COUNTY _____ _____ inch at _____ ft.
 DATE _____ CONTRACTOR _____ LOCATION _____ inch at _____ ft.
 STOCKPOINT _____ BAROID ENGINEER _____ SEC _____ TWP _____ RNG _____ TOTAL DEPTH _____ 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 %	
28 April	10248	12.0	40	11.2	3	1.25			7.5	18	9	3	9	22000	520		Nil	2	82	16	Drilling out of 9 5/8 casing	
29 April	10420	12.1	40	7.2	2	.75			7.5	21	5	3	8	22000	380		"	4	80	16	Drilling	
30 April	10578	12.1	39	6.4	2	.75			7.5	22	4	3	6	22000	420		"	4	80	16	Drilling	
1 May	10795	12.1	38	6.2	2	.75			7.0	20	5	3	9	22000	400		"	4	80	16	Drilling	
2 May	10910	12.0	45	9.0	2	.50			7.0	19	16	7	32	57000	380		"	3	81	16	Drilling & salting up	
3 May	11057	12.2	44	11.8	3	.5			7.0	16	14	8	27	89000	380		"	2	83	15	Drilling & salting up	
4 May	11193	12.1	43	6.8	2	.5			7.2	21	9	1	4	91000	400		"	2	84	14	Drilling & salting up	
5 May	11290	12.0	46	7.4	2	.4			7.2	22	10	1	6	161000	410		"	7	80	13	Drilling & salting up.	
		12.1	47	11.2	3	.4			7.1	23	11	2	6	188000	380		"				Adding Dispac & CMC	
6 May	11400	12.1	40	6.2	2	.4			7.1	20	7	0	1	183000	390		"	7	81	12	Drilling	
7 May	11460	11.9	39	9.0	2	.5			7.0	19	6	0	1	178000	400		"	6	82	12	Drilling	
8 May	11566	12.0	45	10.0	2	.5			7.0	24	12	1	6	185000	380		"	6	81	13	Drilling	
9 May	11615	11.9	38	10.8	2	.35			7.1	18	5	0	1	174000	380		"	7	81	12	Drilling	
10 May	11724	12.1	41	7.9	2	.5			7.1	22	6	0	1	190000	380		"	7	81	12	Drilling	
11 May	11800	12.0	38	8.8	2	.5			7.0	18	4	0	0	181000	390		"	8	82	10	Drilling	
12 May	11900	12.1	39	7.8	2	.4			7.0	18	5	0	0	174000	390		"	8	81	11	Drilling	
13 May	11940	12.1	44	8.0	2	.5			7.0	19	6	0	1	184000	390		"	8	81	11	Drilling	
14 May	11980	12.1	40	9.4	2	.4			7.0	17	4	0	0	188000	380		"	8	82	10	Drilling	
15 May	12050	12.0	40	7.5	2	.5			7.0	18	5	0	0	189000	390		"	7	83	10	Drilling host 100 blks.	
16 May	12190	12.1	41	10.4	2	.35			7.0	19	5	0	0	170000	410		"	6	83	11	Drilling host 100 blks.	
17 May	12250	12.0	43	8.1	2	.5			7.2	20	5	0	0	175000	410		"	6	84	10	Drilling	
18 May	12500	12.1	43	6.3	2	.5			7.0	20	6	1	2	177000	560		"	7	79	14	Drilling & weighting up.	
19 May	12940	13.1	44	6.8	2	.5			7.0	26	10	3	5	191000	380		"	7	77	16	Logging at 13025'	
21 May	13034	13.0	46	5.8	2	.25			7.0	20	8	2	6	190000	380		"	6	78	16	Collaring.	
																					Testing; mud riser + flex joint leaking; losing mud while testing.	

