

NORSK HYDRO A.S

FINAL WELL REPORT

WELL 30/6-9R

LICENCE 053

May 1990

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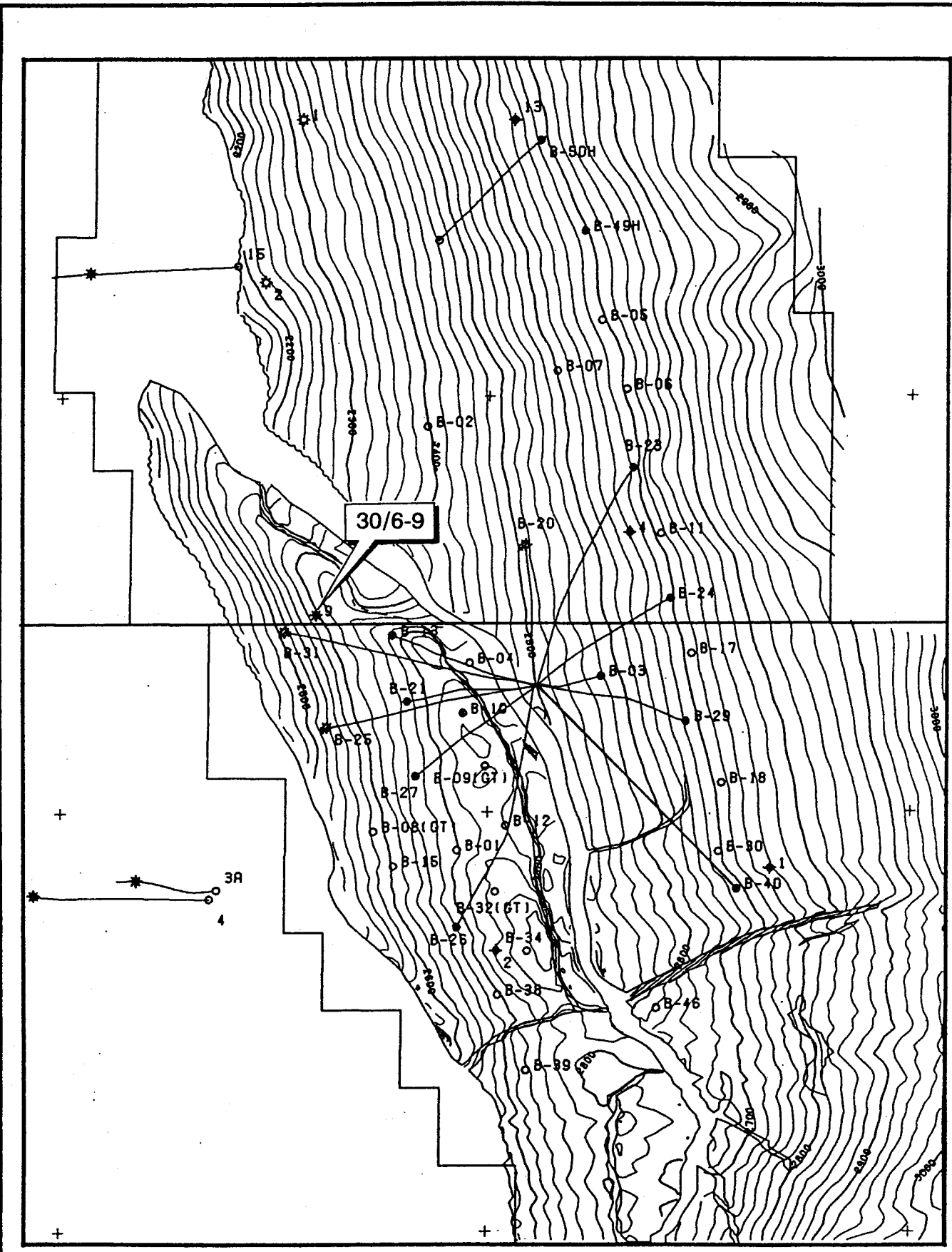
1. PREFACE

Licence 053 was awarded the Statoil/Elf/Hydro group on April 6, 1979 with Statoil as operator. From April 1, 1982 Norsk Hydro Production a.s took over as operator. The licence includes the block 30/6 on the Norwegian Continental Shelf.

The group consist of the following companies:

Den Norske Stats Oljeselskap a.s	50.00 %
Elf Aquitaine Norway A/S	13.33 %
Norsk Hydro Production a.s	12.50 %
Mobil Norway a.s	10.00 %
Saga Petroleum a.s	7.50 %
Total	6.67 %

The well 30/6-9 was drilled by Norsk Hydro Production a.s on behalf of the group in 1982. The well was left temporary abandoned and the permanent abandonment was carried out in May 1990.



FIGURE

LOCATION MAP
BASE BRENT LEVEL
30/6-9

 HYDRO

2. POSITIONING AND ANCHORING OF THE RIG

The position of well 30/6-9 was:

Geographical

60°30'02.5" N

02°46'53.4" E

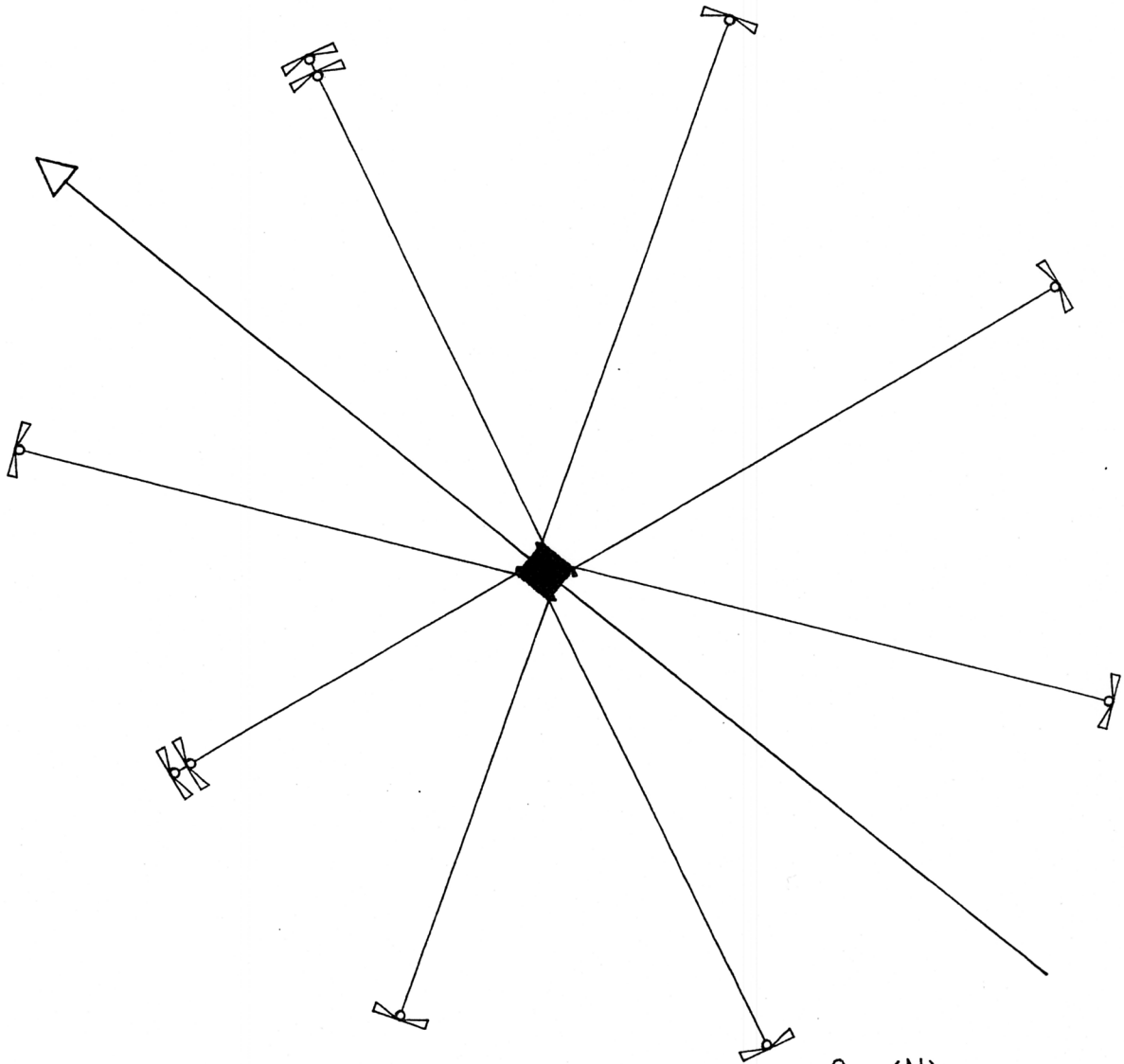
Before the rig moved into the area a transponder was placed on the wellhead and Syledis was used on the rig for navigation.

The rig was anchored with a rig heading of 310°. The anchors were run in a 45° pattern.

When tensioning the anchors, anchor no. 1 and 7 slipped and piggy back anchors were run on these two anchors.

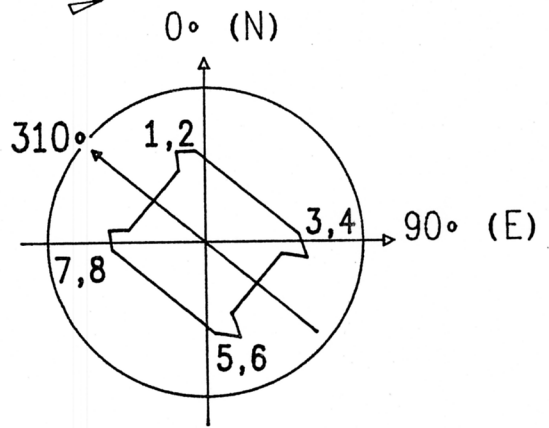
All anchors were pretensioned to 1600 kN.

The mooring line pattern is shown in fig B-1, next page.



0 200 400 M

ANCHOR NO	DIRECTION DEGREES	LENGTH METERS
1	335	1248
2	20	1334
3	60	1333
4	105	1317
5	155	1198
6	200	1067
7	240	899
8	285	1227



Norsk Hydro
Drilling Department

Date:19900529

MOORING LINE PATTERN
POLAR PIONEER
30/6-9R

3. OPERATING RESUME

3.1 Summary permanent abandonment

All depths are measured depth RKB.

Polar Pioneer left the TOGI location on May 7th 1990 and arrived at location 30/6-9R at 02:00 hrs on May 8th.

After running all anchors, piggy back on no. 1 and 7, the corrosion cap was retrieved.

The BOP and the marine riser were run, and the BOP was tested.

A bridgeplug set at 403 m was drilled out with a 8 1/2" bit. With the bit at 2292 m the hole was displaced to 1.33 NaCl brine. After pulling out with the bit, a 9 5/8" casing cutter assembly was made up and the 9 5/8" casing was cut at 2282 m to squeeze cement into the 9 5/8" x 13 3/8" annulus.

A cement stinger was run on open ended drill pipe and a 5 m³ cement plug was set from 2282 to 2153 m. A negative attempt to establish injection rate was done.

The 9 5/8" and 13 3/8" casing was cut at 862 m to squeeze cement into 13 3/8" x 20" annulus. A 12 m³ cement plug was set, but no injection rate was established.

A 200 m top cement plug was set from 380 m to 180 m before the BOP and riser were pulled.

The 9 5/8", 13 3/8", 20" and 30" casing was cut with explosives at 135 m, 5 m below seabed, and the wellhead and the permanent guide base were retrieved.

The temporary guide base was then retrieved using a temporary guide base retrieving tool.

The anchors were pulled and the Polar Pioneer left location 30/6-9R on May 12th at 17:00 hrs.

Well status after permanent P&A
ref. fig. 2 on the following page.

1. 30", 20", 13 3/8" and 9 5/8" casing cut at 135 m.
2. Top cement plug from 380 m to 180 m.
3. 9 5/8" and 13 3/8" casing cut through at 862 m.
4. Cement plug in 9 5/8" casing from 858 m to 570 m.
5. 9 5/8" casing perforated at 2282 m.
6. Cement plug in 9 5/8" casing from 2282 to 2151 m.
7. Perforations from 2461 m to 2458 m.
8. Perforations from 2499 m to 2496 m.
9. Perforations from 2545 m to 2540.5 m and 2538 m to 2535.5 m.
10. Perforations from 2549.1 m to 2548.5 m.
11. Perforations from 2557 m to 2552 m.
12. Perforations from 2613.5 m to 2610.5 m.
13. Perforations from 2618.1 m to 2617.5 m.

WELL STATUS ALL DEPTHS WITH REFERENCE TO RKB POLAR PIONEER

SEABED AT 130m

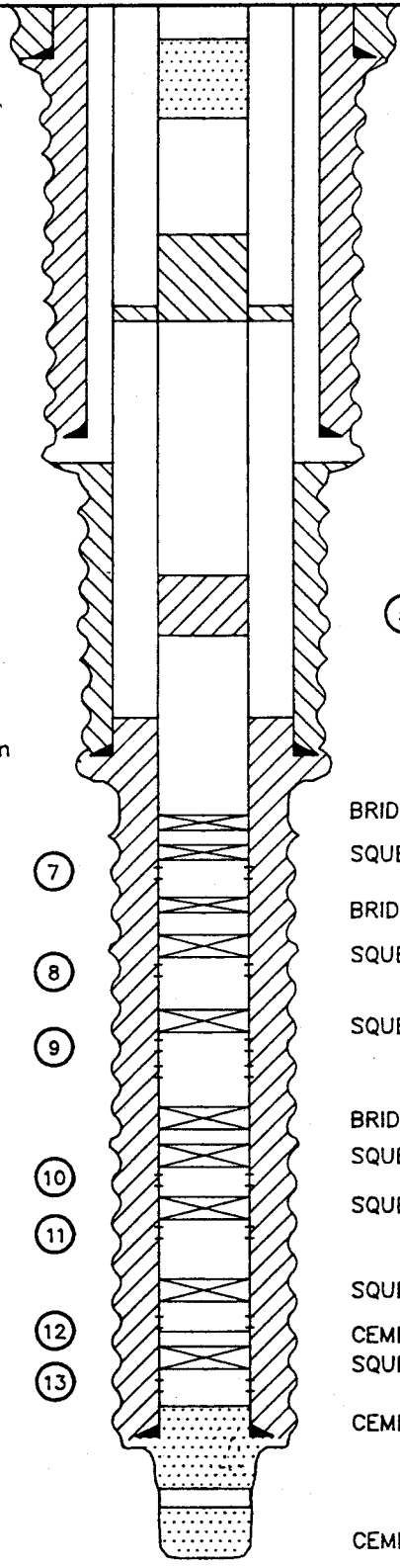
30" CASING SHOE AT 216.5m

20" CASING SHOE AT 958m

13 3/8" CASING SHOE AT 2382m

9 5/8" CASING SHOE AT 2736m

TD AT 3474m



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BRIDGE PLUG AT 2443m

SQUEEZE PACKER AT 2454m

BRIDGE PLUG AT 2488m

SQUEEZE PACKER AT 2492m

SQUEEZE PACKER AT 2531m

BRIDGE PLUG AT 2646.5m

SQUEEZE PACKER AT 2547.5m

SQUEEZE PACKER AT 2551m

SQUEEZE PACKER AT 2605m

CEMENT PLUG FROM 2615.5m TO 2617m

SQUEEZE PACKER AT 2617m

CEMENT PLUG FROM 2789m TO 2688m

CEMENT PLUG FROM 3474m TO 2993m

FIGURE

B-2

PERMANENT PLUG AND
ABANDONMENT

WELL 30/6-9



BT0623AD90

((((ooo)	Daily report				Date	
	System : BORE				14/5-1990	
Norsk Hydro	Well: 30/6-9R	Casing Size (in):	30	20	13 3/8	9 5/8
	Setting depth m,MD:		219	960	2384	2738
						3

Report number	Mid. depth m,MD	Est. Pore Pressure (SG)	Mud Dens. (SG)	Stop time	Short Summary
1	0	0		20:00 24:00	On TOGI pull-in operation. The rig was in transit to location 30/6-9R.
2	0	0	1.33	02:30 19:00 24:00	Arrived at location 30/6-9R at 02:17 hrs Dropped the anchors and tensioned to 1600 KN. Ran and landed the BOP. Overpull tested to 200 KN.
3	2282	0	1.32	01:30 06:00 08:00 11:30 16:30 19:00 22:30 24:00	Picked up the diverter and laid down the riser handling equipment. Ran in the hole with modified test plug and tested the BOP to 35 bar and 345 bar. Acoustic tested on the yellow pod and tested the surface equipment to 35 bar and 345 bar. Pulled out of the hole with the BOP test tool. Made up 8 1/2" bit and junk sub and ran in the hole to 403 m. Drilled the bridge plug at 403 m and flow checked. Continued to run in the hole to 1200 m. Broke the circulation at 1200 m, 1620 m and 2292 m. Circulated 1.33 rd NaCl and dumped the old mud. Pulled out of the hole and laid down the bit and the junk sub. Picked up and tested the casing cutter. Picked up the marine swivel and ran back in the hole. Cut the 9 5/8" casing at 2282 m.
4	145	0	1.32	01:30 07:30 11:00 16:00 17:00 17:30 21:00	Circulated bottoms up and flow checked. Pulled out of the hole and laid down the cutters and the marine swivel. Ran back in the hole with 3 1/2" open ended stinger to 2282 m. Tested the lines to 200 bar and attempted to establish injection rate. Mixed and pumped fresh water and cement slurry followed by brine. Pulled out to 2100 m and reverse circulated. Pulled out of the hole and picked up and tested the casing cutter. Ran in the hole with the cutter to 862 m. Cut the 9 5/8" casing and the 13 3/8" casing at 862 m. Circulated bottoms up while rotating 120 rpm. Pulled out of the hole and laid down

((((ooo) -----	D a i l y r e p o r t -----				Date 14/5-1990
Norsk Hydro	Well: 30/6-9R System : BORE				3
	Casing Size (in):	30	20	13 3/8	9 5/8
	Setting depth m,MD:	219	960	2384	2738

Report number	Mid. depth m,MD	Est. Pore Pressure (SG)	Mud Dens. (SG)	Stop time	Short Summary
					the cutter and the marine swivel. Ran in the hole with the 3 1/2" open ended stinger to 858 m.
				24:00	Tested the lines to 168 bar and made an attempt to establish injection rate.
5	0	0		01:30	Circulated 100 strokes and pulled out of the hole.
				03:00	Made up the washing tool and ran in the hole. Washed the BOP and pulled out of the hole.
				12:00	Rigged up for pulling the riser and BOP. Unlatched at 05:10 hrs and landed on forklift at 09:10 hrs. Stand back the BOP and laid down riser running equipment.
				15:00	Rigged up and ran explosives on the sandline. Deballasted the rig 4 meters and moved 50 meters forward. Detonated the charge and moved the rig back to location. Deballasted the rig to drilling draft.
				18:30	Made up the 18 3/4" retrieving tool, bumper sub and the jar.
				19:30	Slipped and cut the drilling line.
				21:00	Repaired the hydraulic cylinder on the main brakes on the drawworks.
				24:00	Ran and screwed the retrieving tool into the wellhead and retrieved same.
6	0	0		07:30	Pulled the permanent guide base and landed it on the fork. Moved the permanent guide base to the skid area. Ran in with the wash tool and washed the temporary guide base. Pulled out and made up the running tool.
				10:30	Positioned the rig. Stabbed into the temporary guide base and pulled it out. Started to deballast the rig to transit.
				17:00	Anchor handling. Left location at 17:00 hrs. Final report well 30/6-9R.

2.3 Time distribution

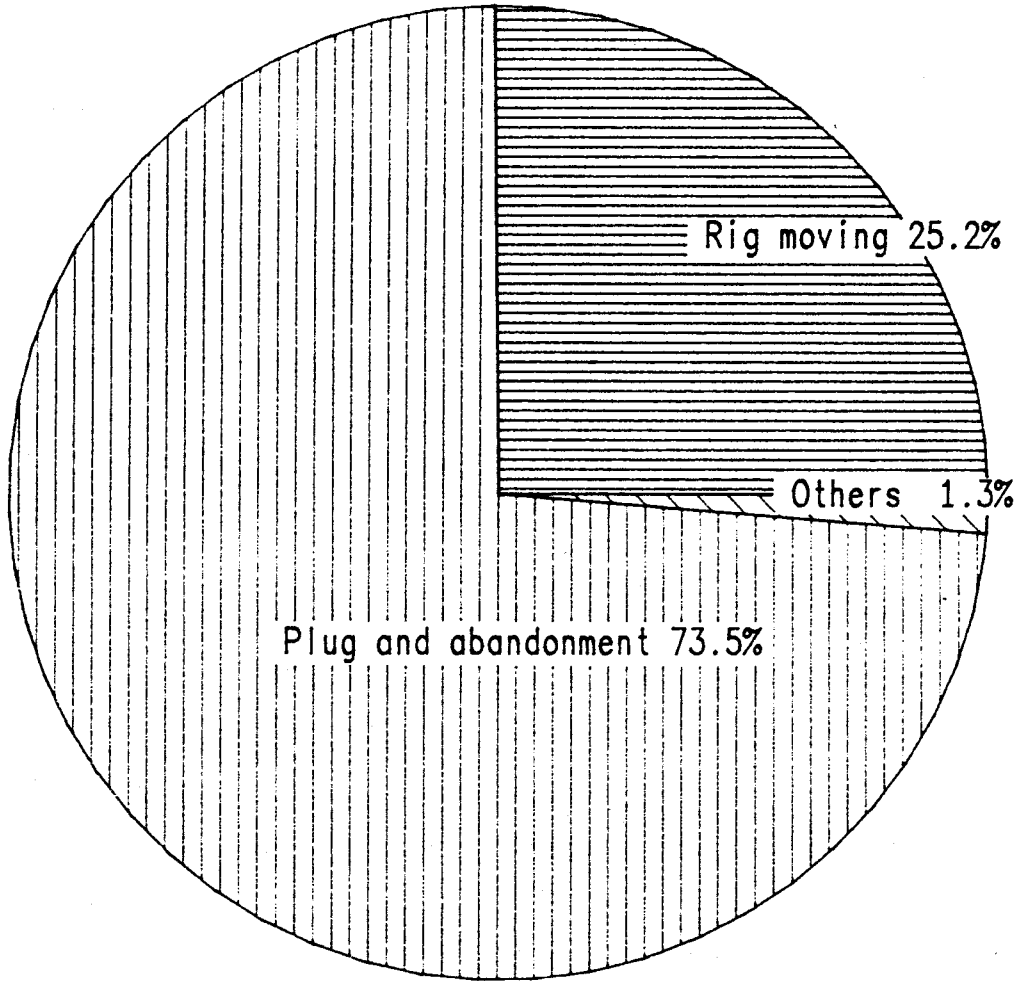
The total time to move the rig, perform anchor handling, permanent plug and abandon the well was 117 hours, 4.9 days.

The time distribution is shown in Tab. B-1 and fig. B-2.

The operations can be broken down into the following main groups:

- Moving and positioning of the rig 1.2 days
- Abandon the well 3.6 days
- Lost time 0.1 days

((((ooo) ----- Norsk Hydro	Time distribution		Date
	----- System : BORE Depth: 2292 m,MD		14/5-1990
Well : 30/6-9R Rig: POLAR PIONEER			7
Phase:	Mobili	Demobi	SUM
1 Rig moving	6.5		6.5
2 Mooring	23.0		23.0
3 Skidding			0.0
4 Jacking			0.0
SUM Rig moving	29.5	0.0	29.5
98 Tripping		27.5	27.5
99 Circ and cond mud/hole		7.0	7.0
100 Perforating			0.0
101 Cement plug		8.0	8.0
102 Mechanical plug			0.0
103 Squeezing			0.0
104 Cutting		2.5	2.5
105 Equipment recovery		25.5	25.5
106 Slip and cut drilling line		1.0	1.0
107 Other		14.5	14.5
SUM Plug and abandonment	0.0	86.0	86.0
123 Wellhead/BOP equipment repai			0.0
124 Moving equipment repair			0.0
125 Drilling equipment repair		1.5	1.5
127 Formation eval equip repair			0.0
129 Production test equip repair			0.0
132 Completion downhole equip.re			0.0
133 Completion X-mas tree eq. re			0.0
134 Completion tubing hanger eq.			0.0
136 Workover downhole equip. rep			0.0
137 Workover X-mas tree equip.re			0.0
138 Workover tubing hanger eq.re			0.0
140 Wellservice downhole equip.r			0.0
141 Wellservice X-mas tree eq.re			0.0
142 Wellservice tubing hanger eq			0.0
144 Plug and abandon equip repai			0.0
146 Downtime equipment repair			0.0
SUM Repair	0.0	1.5	1.5
SUM Total	29.5	87.5	117.0



TIME REPORTED (HRS): 117 OF TOTAL 117

Others:

Downtime : 1.3 %



Norsk Hydro
Drilling Department

Date:19900514

TIME DISTRIBUTION

WELL: 30/6-9R

4. MATERIAL REPORT

Table B-2	Cement reports
Table B-3	Bit record
Table B-4	Mud material consumption

((((ooo)		C e m e n t r e p o r t s					Date 30/5-1990	
Norsk Hydro		System : BORE						
		Well: 30/6-9R						
		Cement contractor: BJ HUGHES						
		Data from table 16					11	
Type of Job	Depth Bot. m,MD	Slurry Volume (m3)	Slurry Density (SG)	Compress. Strenght (Bar/hrs)	Thickening Time (hrs)	Cement/ Additive name	Compo- sition 1/100kg	Total used (l)
PLUG	2282	5.00	1.90	140/12		Cement Freshwater D-19 D-31LN	44.34 0.50 1.33	2063 2882 33 86
PLUG	858	12.00	1.90	130/12		Cement Freshwater	45.35	4984 7120
PLUG	380	7.60	1.90	40/12		Cement Seawater A-7L	43.20 5.33	3016 4104 506

((((ooo) Norsk Hydro	Bit record		Date 14/5-1990	Date 14/5-1990
	Well: 30/6-9R	System : BORE		
Data from table 4.			5	5

BIT NUMBER	Size (in)	Manu fact urer	Trade Name	Serial number	IADC Code	Nozzles diameter (.../32")	BHA no.	Depth out m,MD	Bit meter (m)	Drill time (hrs)	Rot. hours (hrs)	ROP (m/h)	Rotation min/max (rpm)	Total bit revol.	Weight min/max (KN)	Flow min/max (m3/h)	Wear			Remarks	
																	T	B	G		Other
1	8 1/2	HTC	XDV	011VK	215		1	403	0	1.60	1.60	0.0	30/70	2310	110/153	53/72	3	3	0	40 BT	Bridg.plug

Table B-3

Bit record

((((ooo) ----- Norsk Hydro	M u d c o n s u m p t i o n -----		Date 23/5-1990
	Well: 30/6-9R Mud company: PROMUD	System : BORE	
			13
			Actual used

Plug and Abandon

BRINEWATE	Kg	2650
NACL POWDER	Kg	66750
PRODEFOAM	Kg	25
XANVIS	Kg	400
XC POLYMER	Kg	325
NACL BRINE	l	100000
PROPAC	l	208

NORSK HYDRO a.s.
DRILLING SECTOR

COST REPORT NO.: 1
DATE: 06.06.90

WELL : 30/6-9R
LICENS : 104
RIG : Polar Pioneer
DEPTH :
RIG RATE : NOK 331.500
EXCHANGE : USD 1 = NOK 6.50
ACCOUNT : UDS2N09P
START DATE : 07.05.90
REPORT DATE : 31.05.90
DAYS USED : 4.875
DAYS PLANNED : 6.000

ESTIMATED COST (NOK 1.000)

EQUIPMENT & WORK DESCRIPTION	ACTUAL TO DATE	BUDGET
401 Site survey	0	0
402 Resurvey	0	0
403 Location clean up	0	0
404 Positioning	200	0
CLASS 40 SITE SURVEY & POSITIONING COSTS	200	0
410 Rig rate & reimbursables	1,987	2,628
411 Drill bits, drill tools & coring	25	55
412 Wellheads	0	120
413 Casing & casing services	75	250
414 Cement & cementing services	103	130
415 Mud & mud services	552	170
416 Wireline logging & MWD	0	100
417 Test tool rental & services	85	60
418 ROV	103	100
419 Other costs	244	570
CLASS 41 RIG CONTROLLABLE COSTS	3,174	4,183
420 Supply vessels	839 1)	1,100
421 Standby vessel	98	280
423 Helicopter	59	160
424 Other transport	24	50
CLASS 42 TRANSPORTATION COSTS	1,020	1,590
CLASS 43 WAREHOUSE COSTS	169	590
CLASS 44 DRILLING SUPERVISION ON/OFFSHORE	130	570
450 Onshore geol. supervision	0	0
451 Offshore geol. supervision	0	0
452 Standard studies geology	0	0
453 VSP	0	0
454 Onshore reservoir assistance	0	0
CLASS 45 OTHER NH EXPLORATION COSTS	0	0
CLASS 4 WELL COSTS TOTAL	4,693	6,933

1) Incl. anchor handling.