3

COMPLETION REPORT
WELL 6407/6-2

PL 092
STATOIL/MOBIL/BRITOIL

TABLE OF CONTENTS

IV MARINE REPORT

1. Weather and anchor tension
2. Navigation report

V ENCLOSURES

1. Completion log

REPORT RESPONSIBILITY:
BOR: O. Theodorsen
UND: V. Larsen

I GENERAL INFORMATION

I GENERAL INFORMATION

1. Well data record

a)	Well designation	:	6407/6-2
b)	Well classification	:	Wildcat
c)	Well location	:	Beta structure
	I) Country	:	Norway, Haltenbanken
	II) Licence	:	PL 092
	III) Latitude	:	64° 42' 29.56" N
	Longitude	:	07° 40' 32.59" E
	VI) Seismic location	:	Shotpoint No. 750
		:	Line No. ST 8402-123
	V) Water depth	:	221 m

d) Rig data

	I) Rig name	:	West Vanguard
	II) RKB - MSL	:	22 m

2. Purpose of well

The primary objective of this well was to test possible hydrocarbon accumulations in sandstones of Middle Jurassic age in the Beta structure.

TD

3. Results of the well

The well was exposed to a blow-out at 524 m RKB.

4. Well history

a) General

	I) Spud date	:	4 October 1985
	II) Rig released	:	6 October 1985
	III) Status	:	Blow-out

b) Contractors

I)	Drilling platform	:	West Vanguard
II)	Drilling contractor	:	K/S Smedvig Drilling Comp. II
III)	Cementing	:	B.J. Hughes
IV)	Casing	:	Troms Oilfield Services
V)	MWD logging	:	Exlog
VI)	Mud logging	:	NPS
VII)	Mud contractor	:	Promud A/S
VIII)	Supply boats	:	From Statoil "Supply boat pool"
IX)	Helicopters	:	Lufttransport A/S
X)	Rig position contractor	:	A/S Geoteam
XI)	Diving	:	Scandive A/S

c) Casing

I) 30" at 318 m KB

d) Mud logging services supplied

I) Type of service-unit

NPS, ADT-unit

II) Equipment

Tape data recording
XY plotter printer
CRT display
Engineering programmes
Chromatograph
H_2S
Mud density
Hours on bit
FID Gas detector
Torque
Pit vol. total
Pressure/flow
WOB/RPM

Pump Stroke speed/counters
Mud conductivity
Show evaluation
Formation density
Formation factor
Calcimetry

III) Collected samples

Wet samples:
7 sets at 10 m intervals to TD

Dry samples:
2 sets at 10 m intervals to TD

All samples were stored in the shale shaker room, and were lost during the blow-out.

II GEOLOGICAL REPORT

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1. Description of lithology through the well

No data from West Vanguard was available for this report, and the following description is based on the reconstruction by the wellsite geologists, a few hours after the blow-out.

All samples were lost during the blow-out, and due to some problems with a multiplexer, the MWD-log was not transcripted. The stored MWD-data, wellsite sample descriptions and mudlogging data were later confiscated by the investigating committee.

Period	:	Quarternary
Age	:	Pleistocene?
Interval	:	323 - 524 m
Thickness	:	+ 201 m

Lithology

The section down to 323 m was not sampled (returns to seabed).

The interval 323 - 524 m is within the Sula Group. The lithology is sandy clay with pebbles and macro- and microfossils. Two sandlayers were encountered at 505 - 508 m and 520 m - TD, respectively.

The clay is described as very sandy to silty, soft, sticky, pyritic, partly glauconitic, calcareous, with abundant foraminiferas, locally bivalves, scapopodes and ostracodes.

Pebbles are predominantly quartzite, mica schist, amphibolite and claystone.

The sandlayer at 505 m is 3 m thick, and very fossil iferous, with up to 50 % shell fragments. The sand is clear quartz with some mafic minerals, fine to very coarse, poorly sorted, subangular to subrounded, loose and glauconitic.

III DRILLING REPORT

III 1. SUMMARY

III 1 SUMMARY WELL 6407/6-2

The drilling rig West Vanguard was transferred from well 7121/5-1 to well 6407/6-2.
Start: 28th of September at 2100 hrs.
Finish: The well was exposed to a blow out the 6th of October at 2255 hrs. From this point the well is to be regarded as terminated as far as normal drilling modem is concerned.
Total time consumption (all drilling phase): 194 hrs.

III 2. DRILLING OPERATIONS IN INTERVALS

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Well 6407/6-2 was spudded in at 1330 hrs the 4th of October. The water depth was 221 m.

The final position was:
N 64 deg 42 min 29.56 sek
E 07 deg 40 min 32.59 sek
24 m from intended location in direction 160 deg.

ANCHORHANDLING:

One hour was spent on repairing anchorwinch no.5. 17.5 hrs were spent on anchorhandling. First anchor was dropped at 1830 hrs 3 rd of October. All anchors were pull-tested to 190 mt. Anchor no.2 had to be reset before pulltesting ok.

36" HOLE SECTION: 243 - 316 m:

Drilled 17-1/2" pilot hole down to 323m, pumped high viscous pills at each connection to clean hole. Attempted to stab in with 17-1/2" bit, 26" H.O. and 36" H.O. Failed. Had to move rig 1 m in 030 deg. direction to enable stabbing in. Opened up to 36" hole down to 316 m. Had powerfailure on mantis. Rigged up and ran 30" casing. Stabbed casing and cemented same with shoe at 318 m.

Rigged up and ran pinconnector and marine riser.

STARTING ON 26" HOLE SECTION:

During the 6th of October, 12-1/4" pilot hole was drilled from 323 m down to 524 m. At this point a blow-out occured, and the rig was abandoned.

III 3. EXTRACT OF DAILY ACTIVITIES

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28.09. The rig left location 7121/5-1 at 2100 hrs. Rig on tow to new location 6407/6-2.

29.09. On tow to location.

30.09. On tow to location.

01.10. On tow to location.

02.10. On tow to location.

03.10. On tow to location. Arrived location at 1730 hrs. Lost 1 hour while repairing anchorwinch no. 5. Dropped first anchor (no.5) at 1830 hrs.

04.10. Continued anchor-handling and ballasting rig. Pulltested all anchors as required: Had to reset anchor no.2 before pull-testing ok. Jumped divers and set pinger. Spudded in at 1330 hrs and drilled 17-1/2" pilot hole from 243 to 323 m. Pumped hi-visc pills on each connection. Survey: 3/4 deg - 30 w at 316 m. RIH w/17-1/2" bit, 26" H.O. and 36" H.O. Jumped divers to observe when stabbing in. Attempted to stab in: Failed. Had to move rig 1 m in 030 deg direction to enable stabbing in. Started to open up 17-1/2" hole to 36" hole.

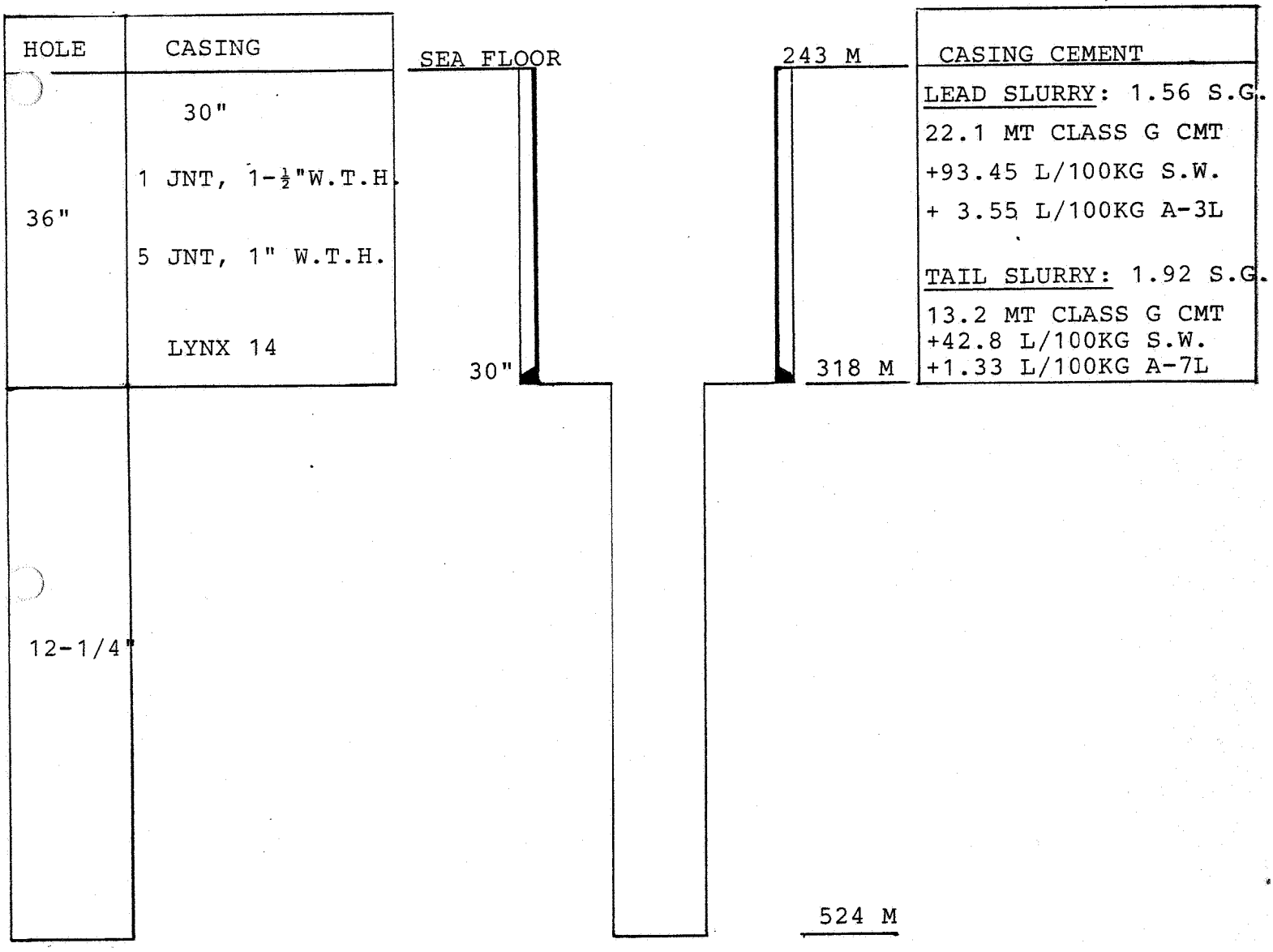
05.10. Continued opening up 17-1/2" pilot hole to 36" hole down to 315 m. Jumped divers to verify 36" hole depth. Had powerfailure on mantis. Pumped 20m^3 spud mud while waiting on divers. Continued opening up 17-1/2" pilot hole to 36" from 315 m to 316 m. Circulated spud mud to clean hole. After wiper trip: Rigged up and ran 30" casing. Ran subsea T.V (mantis down for repair), stabbed 30" casing. Cemented same with shoe at 318 m. Started to run pinconnector.

06.10. Continued running pin connector and marine riser. Drilled 12-1/4" pilot hole from 323 m down to 524 m. At this point of depth (and at about 2255 hrs) a blow out occured, and the rig was abandoned.

III 4. WELL AND SUBSEA SCHEMATIC

RKB - MSL: 22 M

WATER DEPTH: 221 M



III 5. RIG TIME DISTRIBUTION
DRILLING TIME VS. DEPTH
DRILLING COST VS. DETPH

WELL. 6407/6-2

DRILLING TIME V.S. DEPTH

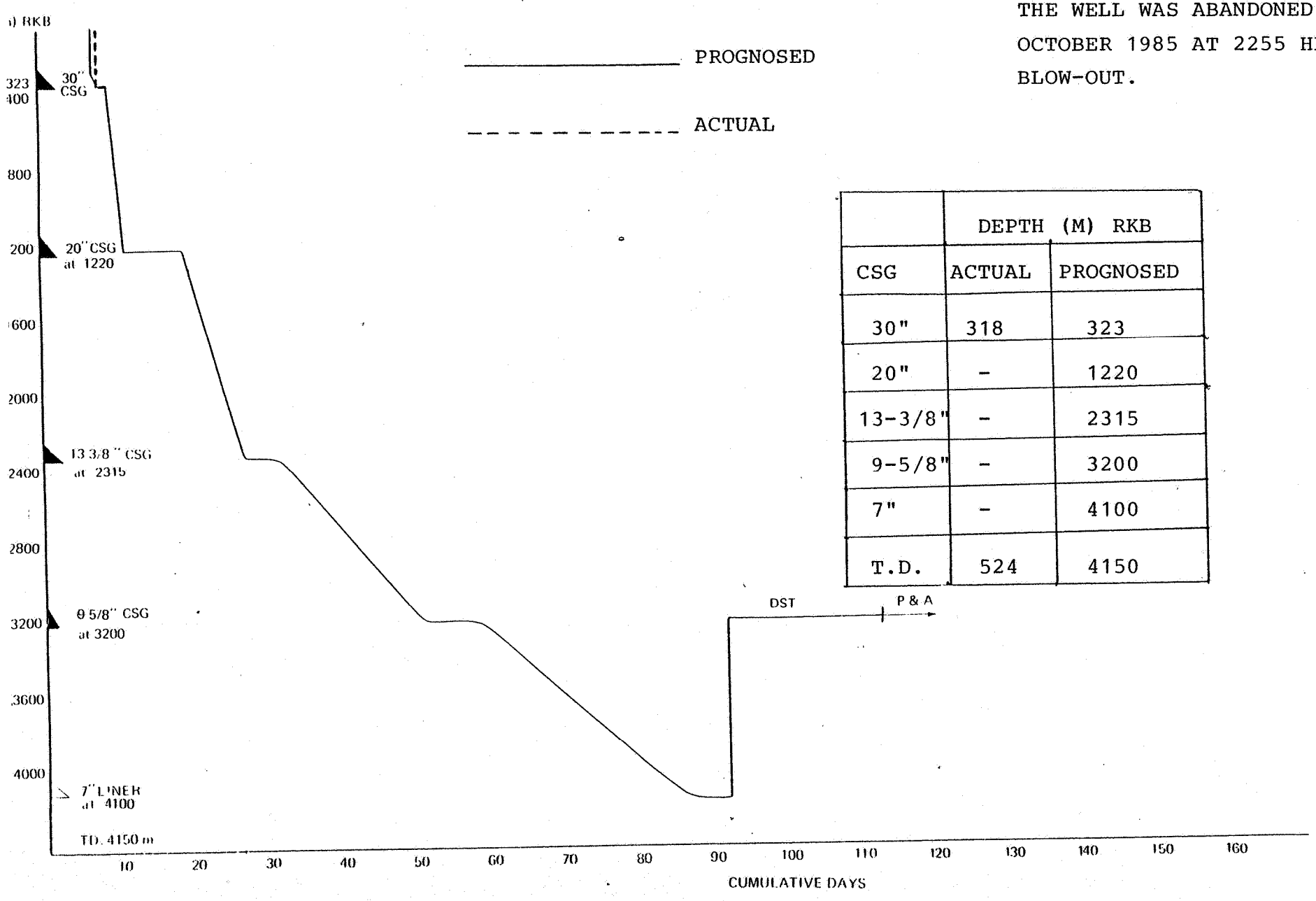
PROGNOSED TIME. 120 DAYS INCLUDING MOVE, 21 DAYS DST AND P & A

RIG: WEST VANGUARD

ACTUAL TIME SPENT ON THIS WELL: 8 DAYS AND 2 HOURS.
THE WELL WAS ABANDONED 6TH OF OCTOBER 1985 AT 2255 HRS DUE TO A BLOW-OUT.

———————— PROGNOSED

– – – – – – – – – – – ACTUAL



CSG	DEPTH (M) RKB	
	ACTUAL	PROGNOSED
30"	318	323
20"	–	1220
13-3/8"	–	2315
9-5/8"	–	3200
7"	–	4100
T.D.	524	4150

DRILLING COST 6407/6-2

THE TOTAL DRILLING COST (UNTIL BLOW-OUT) WAS ABOUT 13.3 MMN kr.

TOTAL RIG TIME DISTRIBUTION FOR WELL 6407/6-2 UNTIL BLOW-OUT.

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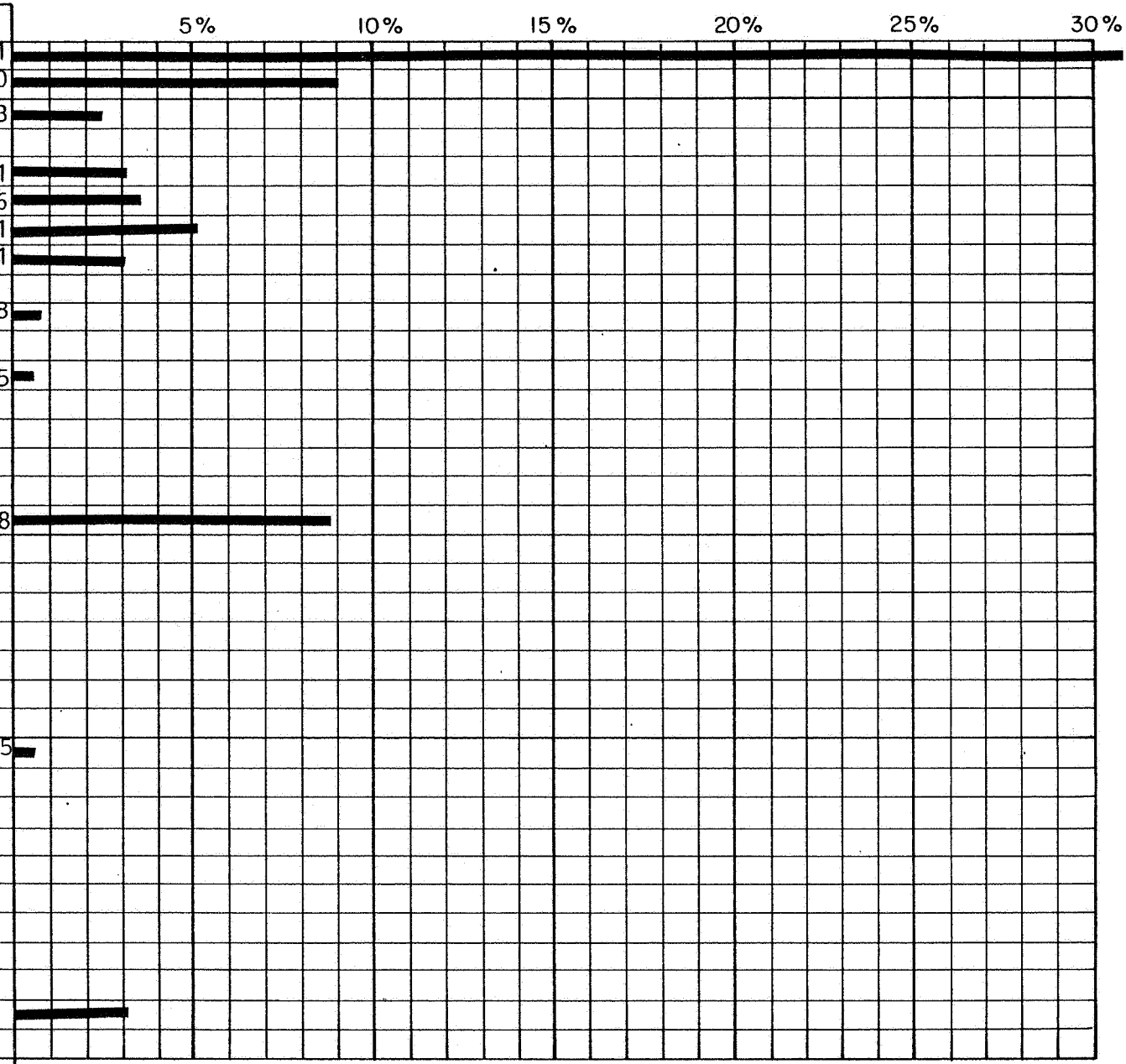
		HRS	%
	Moving	116.5	60.1
	Mooring	17.5	9.0
Drilling operation	Efficient drilling	4.5	2.3
	Other drilling		
	Hole opening	6.0	3.1
	Regular tripping	7.0	3.6
	Casing and cementing	10.0	5.1
	Sub sea eq. and BOP	6.0	3.1
	Abnormal press. detection		
	Cond. and circ.	1.5	0.8
	Reaming		
	Directional survey	1.0	0.5
	Plugging		
	Formation leak-off test		
	Maintenance		
	Other		
	OPERATIONS*	17.0	8.8
Formation Evaluation	Coring		
	El. logging		
	Circ. for samples		
	RFT		
	Production testing		
	Other		
Downtime	Rig repairs	1.0	0.5
	Rig moving		
	Waiting on weather		
	Sub sea eq. and BOP		
	Fishing		
	Lost circulation		
	Well control		
	Hole problems		
	Formation evaluation		
	Diving	6.0	3.1
	Other		
TOTAL		194	100



* OPERATIONS FROM 0600 HRS 06.10.85 TO BLOW-OUT AT 2300 HRS 06.10.85.

III 6. BIT RECORD

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BORKRONEDATA

Brønn nr.: 6407/6-2

Nr.	B. k. Nr.	Diam.	Fabr.	Type	Serie no.	Dyser 1/32"	Dybde ut	Fremdrift	Rot. tid	Total rot.tid	Bore-hast.	V.p.b.	O.p.m.	Pumpe			Tilstand			Anmerkninger
														Trykk	V.grad	v/t	T	B	G	
1	1	17-1/2		X3A	201 NL	3x18	323	80	2.6	-	30.8	1 - 6	50 - 115	186			1	1	I	
2	1RR	17-1/2		"	"	"	316	73	3.8	6.4	18.9	0 - 8	75	221			1	1	I	
		26"		H.O.		3x20														
		36"		H.O.		4x16		OPENED UP 17-1/2" PILOT HOLE TO 36"												
		12-1/4" HOLE WAS DRILLED DOWN TO 524 M. DUE TO THE BLOW-OUT WE HAVE NO DATA FOR THIS SECTION.																		

III 7. SURVEY

Single shot surveys 6407/6-2.

Only two surveys were taken.

Depth:	Survey:
306 M	3/4 degs inclination
316 M	3/4 degs incl. 30 deg W.

III 8. DRILLING FLUID SUMMARY

III 9. EQUIPMENT FAILURE

III 11 EQUIPMENT FAILURE

1. Date: 3 rd of October 1985.

   Repaired anchorwinch no.5. Lost 1 hrs rigtime

2. Date: 5th of October 1985.

   Had powerfailure on mantis.

3. Date: 6th of October 1985

   Had a blow-out. Gas blowing from shallow sand layer.

IV MARINE REPORT

WEATHER AND ANCHORTENSION 6407/6-2

The well was started up and terminated (due to blow-out) in the Autum season.

During the short stay on location, the main windspeed was in the range of 15-25 M/S in direction SSW - SW. Maximum windspeed was 27 M/S measured on the 6th of October comming from SW.

The main wave direction veried between SSW and SW. The overall wave hights were in the range of 2-5 M. Maximum reported wave height was 5-8 M on the 1st of October.

Maximum expeienced anchor tension was 170 tons on anchor no.8 the 5th of October.

LOCATION WEATHER DATA SUMMARY

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WELL: 6407/6-2 RIG: WEST VANGUARD

TIME PERIOD: FROM 28.09. TO 06.10. -1985

READINGS PR. MONTH:

WIND

m/sec. / dir.	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30	> 30	total
N								
NNE								
NE								
ENE								
E								
ESE								
SE								
SSE			1					1
S				1				1
SSW				1	1			2
SW					1 1			2
WSW					1			1
W								
WNW								
NW		1						1
NNW								
total		1	1	2	4			8 / 8

WAVE

height (m) / dir.	0 – 1	1 – 2	2 – 3	3 – 5	5 – 7	7 – 10	> 10	total
N								
NNE								
NE								
ENE								
E								
ESE								
SE								
SSE		1						1
S			1					1
SSW			1	1				2
SW			1	1				2
WSW					1			1
W								
WNW			1					1
NW								
NNW								
total		1	4	2	1			8 / 8

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GEO
JOSO/MT
28.11.85

NAVIGATION REPORT

TO: E. Tveit, GEO

CC: T. Brinch, BOR/Bergen
K. Kjeldstad, BOR/Dusavik
G. H. Mathisen, GEO

FROM: J.O. Solvang, GEO JOSO

RIG MOVE OF "WEST VANGUARD" TO WELL 6407/6-2

1. Final position (Datum ED50)

Geographical coordinates:

Lat. 64° 42' 29.56" N
Lon. 07° 40' 32.59" E

UTM coordinates (UTM-zone 32, cm 9°E):

Northing 7 176 774 N
Easting 436 871 E

Accuracy: +/- 5 meter

Rig heading: 245°

Deviation from intended position: 24 m - 160°

2. Observed Decca Main Chain Readings:

Chain : Trøndelag 4E

Red : J 21.93
Green : C 46.87

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3. Navigation/Position Method

a) Navigation

Syledis navigation system with HP 9845 A computer and plotter.

Contractor: A/S Geoteam, Oslo
Personnel : J. Nerland and I. Scorgie

b) Positioning

MX 1502 satellite positioning system.
Translocation against fixed point at NTH in Trondheim
Contractor: A/S Geoteam, Oslo
Personell : I. Scorgie

4. Duration of Rig Move

Personell and equipment onboard: (Rig west of Andenes)	29 September	85 at 15.45	hou
Started run in 5 km from location:	3 October	85 at 17.45	hou
First anchor dropped (no. 5):	3 October	85 at 19.40	hou
Last anchor dropped (no. 2):	4 October	85 at 10.35	hou
All anchors pretensioned to 180:	4 October	85 at 11.45	hou

5. Techniques/Problems

The operation was performed according to Statoil's procedures without navigational problems.

Syledis position is 13 m in direction 001 degrees from satellite position.