

DRESSER

DRESSER NORWAY A.S.
MAGCOBAR

BP NORWAY, 2/1-8

4.3 (d) MATERIALS CONSUMPTION COMPARISON - PROGRAMMED VERSUS ACTUAL

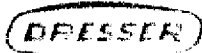
36 "HOLE, 36" CONDUCTOR
SURFACE TO 189 M

MUD TYPE: SPUD TYPE

<u>PRODUCT</u>	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>	<u>COST</u>
BENTONITE	37 M.T.	33 M.T.	+ 4 M.T.	+ 726,84
CAUSTIC SODA	4 SXS	20 SXS (25 KG.)	-16 SXS	- 134,50
SODA ASH		5 SXS (50 KG.)	- 5 SXS	- 51,75
LIME		80 SXS (20 KG.)	-80 SXS	- 282,40
	\$ 6756,91	\$ 6498,78		\$ 258,19 EXTRA COST

	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>
M DRILLED	85	87	- 2
COST PR. M.	\$ 79,49	\$ 74,70	+ \$ 4,79
BBLs MADE	2630	2118	+ 512
COST PR. BARREL	\$ 2,57	3,07	- \$ 0.50
BBL/M	30,94	24,34	+ 6,60

COMMENTS: EXTRA COST DUE TO REQUIREMENT FOR EXTRA VOLUME DURING REAMING IN ORDER TO DRIVE THE CONDUCTOR.



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B.P. NORWAY, 2/1-8

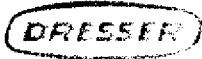
26 " HOLE 20" CSG

189 M to 635 M

MUD TYPE: SEAWATER / BENTONITE

<u>PRODUCT</u>	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>
BENTONITE	40 M.T.	55 M.T.	- 2725.65
CAUSTIC SODA	108 SXS	45 SXS (25 KG)	+ 529,83
SODA ASH	4 SXS	15 SXS (50 KG)	- 113.85
SPERSENE	25 SXS	180 SXS (25 KG)	- 1491,10
CMC H.V	75 SXS	50 SXS (25 KG)	+ 1031,25
BARITE	4 M.T.		+ 296,00
CELPOL REG.	26 SX	(25 KG)	+ 2073,50
DRILLING DETERGENT	11 DRUMS	(55 GAL/DRUM)	+ 2900,59
MAGCONOL	2 DRUMS	(55 GAL/DRUM)	+ 540,00
NUT PLUG FINE	6 SX	(25 KG/SX)	+ 63,00
NUT PLUG COARSE	6 SX	(25 KG/SX)	+ 63,00
MICA FINE	9 SX	(25 KG/SX)	+ 94,50
MICA COARSE	6 SX	(25 KG/SX)	+ 63,00
	<u>\$ 17645,92</u>	<u>\$ 1432,85</u>	<u>\$ 3324,07</u>
			EXTRA COST

	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>
DRILLED	446	432	+ 14
COST PR. M.	\$ 39,56	\$ 33.15	+ \$ 6,41
BELS MADE	5910	6227	-317
COST PR. BBL	\$ 2,99	\$ 2,29	\$ + 0.70
BBL / M	13,25	9,01	+ 4,24



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26" HOLE 20" CSG (continued)

Comments:

BARITE : used for slug

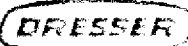
Bentonite: less used owing to use of polymers (inadequate drillwater supplies for prehydrating Bentonite.)

Caustic : slower than expected drilling increased circulating time and the caustic consumption.

Drilling Detergent (Magconol for foaming): treatment was required and effective for bit balling.

Lost circulation material: used to plug leak in conductor pipe.

Solids control: Thule shaker not operational, contributed to overloading desilter, increased dumping necessary to maintain mud density required.



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17 1/2 "HOLE, 13 3/8" CASING
625 M - 2005 M

MUD TYPE: KCl / POLYMER

<u>PRODUCT</u>	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>	<u>COST</u>
BARITE	620	770 M.T.	- 150 M.T.	- \$ 11100.00
POTT. HYDROXIDE	66	100 SXS (25 KG)	- 34 SXS	- 1042,78
KCl	200	750 SXS (50 KG)	- 550 SXS	- 5841,00
KCl (BRINE)	3661	3600 BBLs	+ 61 BBLs	+ 669,17
CELPOL REG.	532	380 SXS (25 KG)	+ 152 SXS	+ 12122,00
CELPOL S.L.	22	80 SXS (25 KG)	- 58 SXS	- 4248,50
XCD - POLYMER	59	40 SXS (50 LB)	+ 19 SXS	+ 4092,79
DRILLING DETERGENT	18	20 DRMS (55 GAL)	- 2	- 527,38
SODA ASH	21		+ 21	+ 217,35
OSIL	1		+ 1	+ 200,00
	<u>\$ 152,100.85</u>	<u>\$ 157559.2</u>		<u>- \$ 5,458.35</u>

	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>
TM DRILLED	1380	1375	+ 5
COST PR. M	\$ 110.20	116,06	- \$ 5.86
BBLs MADE	8249	8413	- 164
COST PER BBL	\$ 18,44	\$ 18,97	- \$ 0.53
BBL/M	5,98	6,12	- 014

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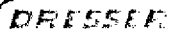
BP. NORWAY, 2/1-8

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17 1/2" HOLE, 13 3/8" CASING (continued)

Comments:

- BARITE : Slower than expected drilling rates helped avoid overloading solids control equipment, thus reducing dilution requirements.
- OSIL : Oxygen scavenger required for corrosion prevention as requested by BP.
- POLYMER : Slower drilling contributed to increased maintenance requirements while circulating.
- SOLIDS : Centrifuges not operative, Thule unit inoperative until 1429 depth.
CONTROL



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BP. NORWAY 2/1-8

12 1/4 "HOLE, 9 5/8" CASING
2005 M - 3888 m

MUD TYPE: KCL / POLYMER

<u>PRODUCT</u>	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>	<u>COST</u>
BARITE	1098	790 MT	+ 308	+ \$ 22792,00
BENTONITE	6	10 MT	- 4	- 726,84
KOH	100	140 SXS (25 KG)	- 40	- 1226,80
KCL BRINE	2148	850 BBLs	+1298	+ 14239,06
KCL SXS	710	200 SXS (50 KG)	+ 510	+ 5416,20
CELPOL REG.	288	300 SXS (25 KG)	- 12	- 957,00
CELPOL SUPERLO	284	100 SXS (25 KG)	+ 184	+ 13478,00
XCD POLYMER	36	60 SXS (25 KG)	- 24	- 5169,84
MAGCO POLYSAL	128	300 SXS (25 KG)	- 172	- 3796,04
BENTONITE (SX)	18 SXS	- (50 KG)	+ 18	+ 162,36
CAUSTIC (NOAH)	99 SXS	- (25 KG)	+ 99	+ 832,59
SPERSENE	294 SXS	- (25 KG)	+ 294	+ 2828,28
SODA ASH	42 SXS	- (50 KG)	+ 42	+ 434,70
DRISPAC SL	49 SXS	- (25 KG)	+ 49	+ 3901,87
SAPP	44 SXS	- (50 KG)	+ 44	+ 3534,52
OSIL	7 DRUMS	- (55 GAL)	+ 7	+ 1400,00
MAGCONOL	2 DRUMS	- (55 GAL)	+ 2	+ 540,00
LIME	108 SXS	- (20 KG)	+ 108	+ 381,24
PIPELAX	8 DRUMS	- (55 GAL)	+ 8	+ 4492,32
MPOC	8 DRUMS	- (55 GAL)	+ 8	+ 5600,00
	<u>\$194971,62</u>	<u>\$ 126815,10</u>		<u>+ \$ 68156,52</u>

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12 1/4" HOLE, 9 5/8" CASING

	ACTUAL	PROGRAMMED	DIFFERENCE
M. DRILLED	1883	1900	- 17
COST PER. M	103,54	66.74	+ 36,80
BBLs MADE	10140	6786	+ 3354
COST PER. BBL	19,23	18,69	+ \$0.54

COMMENTS:

Barite, Soda Ash, Sapp, Spersene: Extra costs due to treatment and eventual replacement of mud used to drill 900 m cement inside 13 3/8" casing.

KCL: extra costs due to maintenance of KCL content and chlorides content at 40000 ppm.

Celpol, Drispac Superlo:

longer than expected drilling time required replenishment of Celpol SL in order to maintain required fluid loss properties.

OSIL: oxygen scavenger as requested.

PIPELAX, MPOC: Required for pills for stuck pipe.

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BP NORWAY 2/1-8

8 3/8 "HOLE, 7" LINER

3888 M - 4151 M

MUD TYPE: KCL / POLYMER

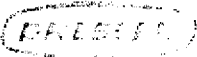
<u>PRODUCT</u>	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>	<u>COST \$</u>
BARITE	197	385 M.T.	-188	- \$ 13912,00
KCL	355	450 SXS (50 KG)	- 95	- 1008,90
CELPOL SL	1	90 SXS (25 KG)	- 89	- 7097,75
XCD POLYMER	8	55 SXS (25 KG)	- 47	- 10124,27
KOH	28	40 SXS (25 KG)	- 12	- 368,04
SODA ASH	7 SXS	(50 KG)	+ 7	+ 72,45
CELPOL REG.	43 SXS	(25 KG)	+ 43	+ 3429,25
DRISPAC SL	32 SXS	(25 KG)	+ 32	+ 2548,16
OSIL	1 DRUM	(55 GAL)	+ 1	+ 200,00
POLYSAL	34 SXS	(25 KG/SX)	+ 34	+ 750,38
	\$ 28,003.63	\$ 53414.35		- \$ 25,510.72

COMMENTS:

BARITE : Less dilution required than anticipated.

POLYMER : Drispac SL substituted for CELPOL SL, XCD not required as anticipated
to maintain rheology.

	<u>ACTUAL</u>	<u>PROGRAMMED</u>	<u>DIFFERENCE</u>
M. DRILLED	263	300	- 37
COST PER. M	\$ 106.48	\$ 181,24	\$ - 74.76
BBLs MADE	1200	2097	- 897
COST PER BBL	\$ 23.34	\$ 25,93	\$ - 2.59



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4.3 (e)

SUGGESTED IMPROVEMENTS AND COMMENTS

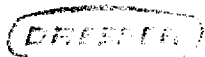
For most of the hole sections the conclusions and recommendations have been stated in the previous sections. For the 26" section and the testing period there are also additional comments made as follows.

26" Section

SEAWATER/BENTONITE

Overall mud costs for this section were approximately 25% (\$3,500) higher than anticipated. This was due to four main factors:

1. Solids control: It is felt that had the use of finer shaker screens been possible, by the operation of the Thule shaker, some overload on the desilters could have been avoided, thus requiring less dilution and dumping.
2. The depletion of drillwater supplies necessitated the use of more expensive polymers near the end of the section.
3. The longer than expected drilling time required the use of more Caustic Soda in order to maintain the pH of the mud in the desired range.
4. The use of Drilling Detergent (with defoamer) became necessary to treat bit balling. This treatment was very effective and undoubtedly reduced drilling time, possibly saving the necessity of a trip to clear the bit.



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SUGGESTED IMPROVEMENTS AND COMMENTS (continued)

Testing Period

Although unsubstantiated by laboratory tests, it seems likely that this mud could not tolerate the conditions encountered during the test programme. (i.e. Bottom hole temperatures of up to 310^oF for extended periods without circulating.) For the future, there are two alternative courses of action suggested to avoid a recurrence of the problem:

1. Before testing, preferably during drilling in order to expose the mud to as much shear as possible, the entire mud system can be converted to "Duratherm". Should this be done, it is suggested that slightly higher concentrations of Bentonite be used, i.e. 15-16 ppb Bentonite instead of 11-12 ppb.
2. Prior to testing a large "Duratherm" pill should be spotted (200 barrels or more) containing an excess (+20 ppb) Bentonite concentration. This option represents the smaller investment in rig time and mud materials and is known to work sufficiently well as seen in test number 2 on this well.

36" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig Contractor: Neddrill Trigon

Hole Section: 36" hole

Last Casing Depth: -

Drilling Depths: From: 103 To: 188m

No. of Days to Drill Section: 3

No. of Bits Used: 1

Mud Type: Spud

Mud Chemical Cost for Section: \$ 6756.91

Mud Engineering Cost for Section: 4 x 350 = \$ 1400.00

Solids Control Cost (Rental/Spares): N/A

Volumes - All volumes should be in barrels.

Mud Volume from Previous Interval: -

New Volume Mixed: 2630 bbls

Mud Dumped at Sand Traps

And Solids Control Equipment: 1606 bbls in viscous pills

Mud Retained for Next Section: 1024

	<u>Estimated</u>	<u>Actual</u>
Volume of Last Casing:	N/A	N/A
Volume of Open Hole	360	351
Surface Volume:	N/A	N/A
Dilution:	N/A	N/A
Total Mud Volume for Section:		2630
Dilution Factor bbl/mt:	N/A	N/A

36" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSMUD CHEMICAL CONSUMPTION AND COSTS FOR SECTION
CALCULATIONS BASED ON MUD VOLUME

Product	Quantity - MT		Concentration - PPB		Cost - US\$		BBL	Cost US\$ Per	
	Estimated	Actual	Estimated	Actual	Estimated	Actual		Meter	Day(3 days)
BENTONITE	33	37	40	37	5.996.43	6723.27	2.55	79.10	2241.09
CAUSTIC	20	4	1/2	1/10	168.20	33.64	.01	.40	11.21
SODA ASH	5	-	1/4	-	57.45	-	-	-	-
LIME	80	-	2	-	282.40	-	-	-	-
TOTAL					6504.48	6756.91	2.56	79.50	2252.30

36" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSAVERAGE DRILLING FLUID PROPERTIES FOR 36" SECTION

	<u>Estimated</u>	<u>Actual</u>
Density, SG	1.05	1.08
Viscosity, Secs.	100+	100+

36" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSSUMMARY OF WELL INFORMATION, TOTAL PRODUCTS USED AND RELATED COSTS

Well No: 2/1-8

Location: 2/1

Drilling Rig/Contractor: Neddrill

Hole Section and Depths: 36" 103(RKB) - 188m

Casing Depths: 36" piled to 193m

Date of Spud: 28 July 1985 Date of T.D.: 30 July 1985

<u>Product</u>	<u>Quantity</u>	<u>Unit Cost</u> <u>US\$</u>	<u>Cost</u> <u>US\$</u>
Bentonite	37 MT	181.71	6723.27
Caustic	4 SX	8.41	33.64

Total Cost of Mud Chemicals

Cost of Mud Engineering Days (4 days) 1400.00

Cost of Solids Control -

Shale Shakers -

Mud Cleaner -

Centrifuge -

Other -

Cost of Solids Control Maintenance
To Include Service Engineers/Spare Parts
(Give Details)

Total Cost of Mud Related Services 8156.91

26" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig Contractor: Neddrill Trigon

Hole Section: 26" hole

Last Casing Depth: 193.3m

Drilling Depths: 26" hole only (no hole opening) From: 189m To: 635m

No. of Days to Drill Section: 3

No. of Bits Used: 1

Mud Type: Seawater/Bentonite 1.06 - 1.12 SG

Mud Chemical Cost for Section: \$ 17645.92

Mud Engineering Cost for Section: 9 x \$ 350.00 = \$ 3150.00

Solids Control Cost (Rental/Spares): N/A

Volumes - All volumes should be in barrels.

A) Mud Volume from Previous Interval: 1024

B) New Volume Mixed: 5910
Losses eg.C) Mud Dumped at Sand Traps
And Solids Control Equipment
and any lost to formation: 6934

D) Mud Retained for Next Section: 0.0 (ie A + B - C)

	<u>Estimated</u>	<u>Actual</u>
Volume of Last Casing:	N/A	670
Volume of Open Hole	N/A	961
Total Mud Volume for Section (B):	6227	5910
Dilution Factor bbl/mt $\frac{(B)}{446}$:	13.96	13.25

26" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSMUD CHEMICAL CONSUMPTION AND COSTS FOR SECTION
CALCULATIONS BASED ON MUD VOLUME

Product	Quantity - MT		Concentration - PPB		Cost - US\$		BBL	Cost US\$ Per	
	Estimated	Actual	Estimated	Actual	Estimated	Actual		Meter	Day (9 days)
BARITE	-	4 mT	-	-	-	296.00	.05	.66	32.89
BENTONITE	55 mT	40 mT	30	14.9	9994.05	7268.40	1.23	16.30	807.60
CAUSTIC	45 SX	108 SX	.42	1.01	378.45	908.28	.15	2.04	100.89
SPERSENE	180 SX	25 SX	.25	.23	1731.60	240.50	.04	.54	26.67
SODA ASH	15 SX	4 SX	-	-	155.25	41.40	.01	.09	4.60
CMC-EHV	50 SX	75 SX	.46	.70	2062.50	3093.75	.52	6.94	343.67
CELPOL REG	-	26 SX	-	.24	-	2073.50	.35	4.60	230.39
DD	-	11 DRUMS	-	.84	-	2900.59	.49	6.50	322.22
MAGIONOL	-	2 DRUMS	-	-	-	540.00	.09	1.21	60.00
NUT PLUG	-	12 SX	-	-	-	126.00	.02	.28	14.00
MICA	-	15 SX	-	-	-	157.50	.03	.35	17.5
TOTAL					\$14321.85	\$17645.92	\$2.99	\$39.56	\$1960.43

26" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSAVERAGE DRILLING FLUID PROPERTIES FOR 26" SECTION

	<u>Estimated</u>	<u>Actual</u>
Density, SG	1.05 - 1.08	1.06 - 1.12
Viscosity, Secs.	45 - 50	40 - 55
PV, cps	5 - 10	8 - 12
YP, lbs/100 sq. ft.	20 - 25	15 - 19
Gel Strengths		
API Fluid Loss		
HP/HT Fluid Loss		
Filter Cake		
PH	9.5 - 10.5	9.5 - 11.5
PF/MF/PM		
Total Hardness		
Chlorides		
Solids Content		
Liquid Content Oil/Water		
Sand Content		
Average Specific Gravity of Solids, SG		2.6
N/K Factors		
Methylene Blue Content		

26" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSSUMMARY OF WELL INFORMATION, TOTAL PRODUCTS USED AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig/Contractor: Neddrill

Hole Section and Depths: 26" 189m- 635m

Casing Depths: 36" piled to 193m, 20" shoe at 625m

Date of Spud: 28 July 1985 (36") Date of T.D.: 7 August 1985
4 Aug. 1986 (26")

<u>Product</u>	<u>Quantity</u>	<u>Unit Cost</u> <u>US\$</u>	<u>Cost</u> <u>US\$</u>
Barite	4 MT	74.00	296.00
Bentonite	40 MT	181.71	7268.40
Caustic	108 SX	8.41	908.28
Spersene	25 SX	9.62	240.50
Soda Ash	4 SX	10.35	41.40
CMC-EHV	75 SX	41.25	3093.75
Celpol REG	26 SX	79.75	2073.50
DD	11 DRUMS	263.65	2900.59
Magionol	2 DRUMS	270.00	540.00
Nut Plug	12 SX	10.50	126.00
MICA	15 SX	10.50	157.50
Total Cost of Mud Chemicals			<u>17645.92</u>
Cost of Mud Engineering Days			<u>3150.00</u>
Cost of Solids Control			<u>-</u>
Shale Shakers			<u>-</u>
Mud Cleaner			<u>-</u>
Centrifuge			<u>-</u>
Other			<u>-</u>
Cost of Solids Control Maintenance To Include Service Engineers/Spare Parts (Give Details)			<u>-</u>
Total Cost of Mud Related Services			<u>20795.92</u>

17 1/2" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig Contractor: Neddrill Trigon

Hole Section: 17 1/2"

Last Casing Depth: 635m

Drilling Depths: 17 1/2" hole From: 635m To: 2005m

No. of Days to Drill Section: 12

No. of Bits Used: 3

Mud Type: KCL/Polymer 1.18 - 1.56 SG

Mud Chemical Cost for Section: \$ 152100.85

Mud Engineering Cost for Section: 15 x \$ 350.00 + 14 x \$ 200 = \$ 8050

Solids Control Cost (Rental/Spares): N/A

Volumes - All volumes should be in barrels.

A) Mud Volume from Previous Interval: 0

B) New Volume Mixed: 8748
Losses eg.

C) Mud Dumped at Sand Traps
And Solids Control Equipment
and any lost to formation: 5968

D) Mud Retained for Next Section: 27,80 (ie A + B - C)

	<u>Estimated</u>	<u>Actual</u>
Volume of Last Casing:	719	730
Volume of Open Hole	1476	1327
Total Mud Volume For Section (B):	8413	8748
Dilution Factor bbl/mt <u>(B)</u> : 1370m	6.14	6.39

17 1/2" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSMUD CHEMICAL CONSUMPTION AND COSTS FOR SECTION
CALCULATIONS BASED ON MUD VOLUME

Product	Quantity - MT		Concentration - PPB		Cost - US\$		BBL	Cost US\$ Per	
	Estimated	Actual	Estimated	Actual	Estimated	Actual		Meter	Day(15 days)
BARITE	770 mT	620 mT			56980.00	45880.00	5.24	33.2	3058.7
KOH	2.5 mT	1.65 mT	+ .5	.41	3067.00	2024.22	.23	1.47	134.95
SODA ASH	-	1.05 mT		.26	-	217.35	.02	.10	14.49
CELPOL R	9.5 mT	13.3 mT	2.5	3.3	30305.00	42427.00	4.84	30.74	2828.44
CELPOL SL	2.0 MT	.55 MT	.25	.14	5860.00	1611.50	.18	1.17	107.43
KCL BRINE	3600 bbls	3661 bbls)	35 ppb	40.2	39492.00	40161.17	4.59	29.10	2677.41
KCL SX	37.5 mT	10.0 mT)			7965.00	2124.00	.24	1.54	141.60
XCD POLYMER	1.0	1.475	+ .25	.37	8616.40	12709.19	1.45	9.21	847.28
OSIL		1 DRUM	-	.04	-	200.00	.20	.14	13.33
DRILLING DETERGENT	20 DRUMS	18 DRUMS	.8	.72	5273.80	4746.42	.54	3.44	316.43
TOTAL					\$159582.20	\$152100.85	\$17.36	\$110.20	\$10140.00

17 1/2" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSAVERAGE DRILLING FLUID PROPERTIES FOR 17 1/2" SECTION

	<u>Estimated</u>	<u>Actual</u>
Density, SG	1.20 - 1.55	1.09 - 1.56
Viscosity, Secs.	45 - 55	42 - 47
PV, cps	10 - 20	8 - 21
YP, lbs/100 sq. ft.	15 - 20	12 - 19
Gel Strengths, lbs/100 sq. ft.	-	2 - 5 / 3 - 35
API Fluid Loss, cc	10	8.4 - 26
HP/HT Fluid Loss	-	-
Filter Cake, 1/32"	-	-
PH	9.5	8.1 - 12.0
PF/MF/PM, cc		.05-.15/.6-.75/.3-.9
Total Hardness, ppm	< 400	320 - 800
Chlorides, mg/L	45-50,000	49-59,000
Solids Content, %	-	7 - 22
Liquid Content Oil/Water. %	-	0/78 - 93
Sand Content, %	-	-
Average Specific Gravity of Solids, SG		2.6 - 3.29
N/K Factors		.4-.65/2.20-.51
Methylene Blue Content, cc	3 - 4	1 - 4.8
n = 3.32 $\log \frac{(\theta 600)}{(\theta 200)}$		
k = $\frac{1.067 \theta 300 \text{ lb-sec}/100 \text{ ft}^2}{(511)^n}$		

17 1/2" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSSUMMARY OF WELL INFORMATION, TOTAL PRODUCTS USED AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig/Contractor: Neddrill Trigon

Hole Section and Depths: 17 1/2" 635m - 2005m

Casing Depths: 20" shoe at 625m, 13 3/8" shoe at 2000m

Date of Spud: 17 1/2" - 11.08.85 Date of T.D.: 17 1/2" - 22.08.85

<u>Product</u>	<u>Quantity</u>	<u>Unit Cost</u> <u>US\$</u>	<u>Cost</u> <u>US\$</u>
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Refer Page 2 of this hole fluid summary.

	Total Cost of Mud Chemicals		<u>154124.41</u>
	Cost of Mud Engineering Days		<u>8050.00</u>
	Cost of Solids Control		<u>-</u>
	Shale Shakers		<u>-</u>
	Mud Cleaner		<u>-</u>
	Centrifuge		<u>-</u>
	Other		<u>-</u>
	Cost of Solids Control Maintenance To Include Service Engineers/Spare Parts (Give Details)		<u>-</u>
	Total Cost of Mud Related Services		<u>162174.41</u>

12 1/4" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig Contractor: Neddrill Trigon

Hole Section: 12 1/4"

Last Casing Depth: 2000m

Drilling Depths: 12 1/4" hole From: 635m To: 2005m

No. of Days to Drill Section: 35

No. of Bits Used: 10

Mud Type: KCL/Polymer 1.58 - 1.68 SG

Mud Chemical Cost for Section: \$ 194971.62

Mud Engineering Cost for Section: 40 x \$ 350.00 = \$ 14000

Solids Control Cost (Rental/Spares): 40 x 380 (centrifuge) = \$ 15200

Volumes - All volumes should be in barrels.

A) Mud Volume from Previous Interval: 2780

B) New Volume Mixed: 10140
Losses eg.

C) Mud Dumped at Sand Traps
And Solids Control Equipment
and any lost to formation: 10049

D) Mud Retained for Next Section: 2871 (ie A + B - C)

	<u>Estimated</u>	<u>Actual</u>
Volume of Last Casing:	1312	982
Volume of Open Hole	894	902
Total Mud Volume For Section (B):	6785	10140
Dilution Factor bbl/mt <u>(B):</u> 1875m	3.60	5.39

12 1/4" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSMUD CHEMICAL CONSUMPTION AND COSTS FOR SECTION
CALCULATIONS BASED ON MUD VOLUME

Product	Quantity - MT		Concentration - PPB		Cost - US\$		BBL	Cost US\$ Per	
	Estimated	Actual	Estimated	Actual	Estimated	Actual		Meter	Day(40 days)
BARITE	790 mT	1098 mT			58460.00	81252.00	7.97	43.2	2031.30
BENTONITE BULK	10 mT	6 mT	8 - 10	1.5	1817.10	1090.26	.11	.58	27.26
BENTONITE SX	-	.9 mT			-	162.36	.02	.09	4.06
CAUSTIC	-	2.445 mT	-	.53	-	832.59	.08	.44	20.81
KOH	35 mT	2.5 mT	+ .5	.54	4293.80	3067.00	.30	1.63	76.68
SPERSENE	-	7.35 mT	-	1.59	-	2828.28	.28	1.50	70.71
SODA ASH	-	2.1 mT	-	.45	-	434.70	.04	.23	10.87
CELPOL R	7.5 mT	7.2 mT	2.5	1.55	23925.00	22968.00	2.25	12.20	574.20
CELPOL SL	2.5 mT	7.1 mT	.50	1.53	7325.00	20803.00	2.04	11.05	520.08
DRISPAC SL	-	1.1 mT	-	.24	-	3901.87	.38	2.07	97.55
KCL SX	10 mT	35.5 mT	35 ppb	26.6	2124.00	7540.20	.74	4.00	188.51
KCL BRINE	850 bbls	2148 bbls			9324.50	23563.56	2.31	12.51	589.09
XCD POLYMER	1.5 mT	.9 mT	+ .25	.19	12924.60	7754.76	.76	4.12	193.87
SAPP	-	2.2 mT	-	.47	-	3534.52	.35	1.88	88.36
OSIL	-	7 DRUMS	-	.24	-	1400.00	.14	.74	35.00
MAGIONOL	-	2 DRUMS	-	.07	-	540.00	.05	.29	13.5
MAGCO POLYSAL	7.5 mT	3.2 mT	5	.69	6621.00	2824.96	.28	1.50	70.62
LIME	-	2.2 MT	-	.47	-	381.24	.04	.20	9.53
PIPELAX	-	8 DRUMS	-	.35	-	4492.32	.44	2.39	112.31
MPOC	-	8 DRUMS	-	.35	-	5600.00	.55	2.97	140.00
TOTAL					\$126815.00	\$194971.62	\$19.23	\$103.54	\$4874.00

12 1/4" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSAVERAGE DRILLING FLUID PROPERTIES FOR 12 1/4" SECTION

	<u>Estimated</u>	<u>Actual</u>
Density, SG	1.58 - 1.62	1.56 - 1.69
Viscosity, Secs.	45 - 55	37 - 66
PV, cps	25 - 30	13 - 32
YP, lbs/100 sq. ft.	12 - 18	8 - 24
Gel Strengths, lbs/100 sq. ft.	-	2 - 14 / 4 - 38
API Fluid Loss, cc		3.9 - 10.1
HP/HT Fluid Loss	15 by CSG	11.6 - 26.0
Filter Cake, 1/32"	-	2
PH	9.5 - 10.5	8.6 - 11.0
PF/MF/PM, cc	-	
Total Hardness, ppm	<u>±</u> 400	.05-.3/.3-1.4/.1-1.0
Chlorides, mg/L	45000+	28 - 69000
Solids Content, %		20 - 24
Liquid Content Oil/Water. %		0/76-80
Sand Content, %		TR
Average Specific Gravity of Solids, SG		3.48 - 3.65
N/K Factors		.66-.74/.75-.25
Methylene Blue Content, cc	3 - 4	1.5 - 7.4
n = 3.32 log $\frac{(\theta 600)}{(\theta 300)}$		

$$k = \frac{1.067 \theta 300}{(511)^n} \text{ lb sec/100 ft}^2$$

12 1/4" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSSUMMARY OF WELL INFORMATION, TOTAL PRODUCTS USED AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig/Contractor: Neddrill Trigon

Hole Section and Depths: 12 1/4" 2005m - 3888m

Casing Depths: 13 3/8" shoe at 2000m, 9 5/8" shoe at 3879m

Date of Spud: 12 1/4" - 27.08.85 Date of T.D.: 12 1/4" - 01.10.85

<u>Product</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Cost</u>
		<u>US\$</u>	<u>US\$</u>

Refer Page 2 of this hole fluid summary.

	Total Cost of Mud Chemicals	<u>194971.62</u>
Cost of Mud Engineering Days		<u>14000.00</u>
Cost of Solids Control		<u>-</u>
Shale Shakers		<u>-</u>
Mud Cleaner		<u>-</u>
Centrifuge		<u>15200.00</u>
Other		<u>-</u>
Cost of Solids Control Maintenance To Include Service Engineers/Spare Parts (Give Details)		<u>-</u>
	Total Cost of Mud Related Services	<u>224171.62</u>

8 3/8" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig Contractor: Neddrill Trigon

Hole Section: 8 3/8"

Last Casing Depth: 3879m

Drilling Depths: 8 3/8" hole From: 3888m To: 4151m

No. of Days to Drill Section: 8

No. of Bits Used: 4 (ie 3 bits plus 1 corehead which was run 3 times)

Mud Type: KCL/Polymer 1.56 - 1-60 SG

Mud Chemical Cost for Section: \$ 28003.63

Mud Engineering Cost for Section: 15 x \$ 350 = \$ 5250

Solids Control Cost (Rental/Spares): 15 x \$ 380 = \$ 5700

Volumes - All volumes should be in barrels.

A) Mud Volume from Previous Interval: 2871

B) New Volume Mixed: 1200
Losses eg.

C) Mud Dumped at Sand Traps
And Solids Control Equipment
and any lost to formation: 2246

D) Mud Retained for Next Section: 1825 (ie A + B - C)

	<u>Estimated</u>	<u>Actual</u>
Volume of Last Casing:	969	891
Volume of Open Hole	74	61
Total Mud Volume For Section (B):	2097	1200
Dilution Factor bbl/mt <u>(B)</u> : 262m	7.97	4.56

8 3/8" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSMUD CHEMICAL CONSUMPTION AND COSTS FOR SECTION
CALCULATIONS BASED ON MUD VOLUME

Product	Quantity - MT		Concentration - PPB		Cost - US\$		BBL	Cost US\$ Per	
	Estimated	Actual	Estimated	Actual	Estimated	Actual		Meter	Day(15 days)
BARITE	385	197			28490.00	14578.00	12.15	55.43	971.87
KOH	1.0	.70	+ .5	1.28	1346.80	858.76	.72	3.27	57.25
SODA ASH		.35		.64		72.45	.06	.28	4.83
CELPOL R		1.075	2	1.97		3429.25	2.86	13.04	228.2
CELPOL SL	2.25	.025		.05	6592.50	73.25	.06	.28	4.88
DRISPAC SL		.80	1	1.47		2548.16	2.12	9.69	169.87
KCL SX	22.5	17.75		32.54	4779.00	3770.10	3.14	14.33	251.34
XCD POLYMER	1.375	.20	+ .25	.37	11847.55	1723.28	1.44	6.55	114.89
OSIL		1 DRUM		.29		200.00	.17	.76	13.33
POLYSAL		.85		1.56		750.38	.63	2.85	50.03
TOTAL					\$53055.85	\$28003.63	\$23.35	\$106.48	\$1866.91

8 3/8" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSAVERAGE DRILLING FLUID PROPERTIES FOR 8 3/8" SECTION

	<u>Estimated</u>	<u>Actual</u>
Density, SG	1.55	1.56 - 1.57
Viscosity, Secs.	45 - 55	42 - 51
PV, cps	35 - 45	18 - 27
YP, lbs/100 sq. ft.	15 - 20	11 - 16
Gel Strengths, lbs/100 sq. ft.		2 - 3 / 8 - 16
API Fluid Loss, cc		3.9 - 4.8
HP/HT Fluid Loss	15 at TD	14.1 - 15.6
Filter Cake, 1/32"		2
PH	9.0	8.5 - 9.1
PF/MF/PM, cc	-	.05-1.0/.4-.8/.2-.7
Total Hardness, ppm		180 - 360
Chlorides, mg/L	40,000	38 - 41000
Solids Content, %		19 - 22.5
Liquid Content Oil/Water. %		0/77.5 - 81
Sand Content, %		TR
Average Specific Gravity of Solids, SG		3.60 - 3.67
N/K Factors		.70-.75/.57-.32
Methylene Blue Content, cc	< 2	1.2 - 2.0
$n = 3.32 \log \frac{(\theta 600)}{(\theta 300)}$		
$k = \frac{1.067 \theta 300}{(511)^n} \text{ lb-sec/100 ft}^2$		

8 3/8" HOLE - SUMMARY OF THE DRILLING FLUIDS AND RELATED COSTSSUMMARY OF WELL INFORMATION, TOTAL PRODUCTS USED AND RELATED COSTS

Well No: 2/1-8

Location: North Sea, Norwegian Sector - southern extremity

Drilling Rig/Contractor: Neddrill Trigon

Hole Section and Depths: 8 3/8" 3888m - 4151m

Casing Depths: 9 5/8" shoe at 3879m, 7" liner shoe at 4146m

Date of Spud: 06.10.86 Date of T.D.: 13.10.85

<u>Product</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Cost</u>
		<u>US\$</u>	<u>US\$</u>

Refer Page 2 of this hole fluid summary.

	Total Cost of Mud Chemicals	<u>28003.63</u>
	Cost of Mud Engineering Days	<u>5250.00</u>
	Cost of Solids Control	<u>-</u>
	Shale Shakers	<u>-</u>
	Mud Cleaner	<u>-</u>
	Centrifuge	<u>5700.00</u>
	Other	<u>-</u>
	Cost of Solids Control Maintenance To Include Service Engineers/Spare Parts (Give Details)	<u>-</u>
	Total Cost of Mud Related Services	<u>38,953.63</u>



DAILY MUD PROPERTIES

Well: B.P. 2/1-8

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DATE	METRE DEPTH	WT.	VIS SEC.	CORR. 115°F		GELS 0 10	pH	FLUID LOSS		CL <input type="checkbox"/> CACL <input type="checkbox"/> NACL <input type="checkbox"/>	ALKALINITY				RETORT			V.G. METER READING @ 115°						8bl CEC	KCL	TOTAL MUD COST				
				PV	YP			100 PSI API	500 PSI 300°F HT-HP		PF	PM	MF	CA ppm	% OIL	% SOL	% WATER	600 R.P.M.	300 R.P.M.	200 R.P.M.	100 R.P.M.	6 R.P.M.	3 R.P.M.							
27.07	-	1.08	96																											4361.04
28.07	139	1.08	100+																											4361.04
29.07	183	1.08	100+																											6359.85
30.07	188	1.08	100+																											6756.91
31.07	188	1.08	100+				S	P	U	D					M	U	D													8147.91
01.08	188																													8874.74
02.08	189	1.06	55	11	19	16	38	11.5	11.6									3	97											9618.40
03.08	189	1.06	54	10	18			11.5	11.0									3	97											9901.90
04.08	215	1.06	55	12	16			10.0	17.2									3	97											10244.43
05.08	373	1.09	41	8	15			10.5	27.5									5	95											15024.12
06.08	536	1.09	43	10	19			10.0	28									5	95								1%			19073.39
07.08	635	1.12	42	8	17			9.5	23.4									7	93								<1%			24402.83
08.08	635	1.12	43	8	17			10.0	26.0									7	93								<1%			24402.83
09.08	635	1.12	42	8	17			10.0	26.0									7	93								<1%			33856.00
10.08	635	1.12	42	8	17			10.0	26.0									7	93								<1%			39877.50
11.08	640	1.18	46	22	12	2	3	12.0	8.8	59K			9	800	-	9	91								4	45				48133.00
12.08	926	1.23	35	17	12	2	3	9.4	8.4	54K	.15	.5	.6	640	-	13	87								12.5	35				55893.-
13.08	1115	1.28	40	16	12	4	20	8.9	9.8	49K	.15	.4	.75	480	-	16	84								21	33				64089.-
14.08	1280	1.30	42	17	13	4	25	8.9	8.7	50K	.15	.4	.7	320	-	16	84								21	35				67013.-
15.08	1429	1.35	42	16	12	5	29	8.6	9.8	51K	.15	.4	.85	400	-	18	82								29	35				81381.-
16.08	1632	1.35	35	18	12	3	11	8.6	8.4	55K	.15	.3	.7	380	-	15	85								21	36				99449.-
17.08	1788	1.41	42	17	12	3	28	8.1	9.4	49K	.15	.3	.7	460	-	17	83								28	37				107801.-
18.08	1788	1.50	42	20	13	4	29	8.5	9.3	49K	.15	.4	.7	400	-	20	80								29	36				117216.-
19.08	1817	1.50	42	20	13	5	35	8.6	10.2	51K	.1	.35	.6	420	-	20	80								32	37				131900.-
20.08	1971	1.56	50	23	14	5	25	8.5	9.5	53K	.05	.35	.8	420	-	22	78								25	38				156019.-
21.08	2005	1.56	47	21	15	5	29	8.4	8.6	53K	.05	.3	.75	440	-	22	78								28	35				161406.-
22.08	2005	1.58	53	25	13	8	29	8.5	9.1	53K	.05	.3	.7	420	-	23	77								30	35				168457.-
23.08	2005	1.59	58	27	15	8	46	8.5	9.0	53K	.1	.2	.7	560	-	24	76								30	35				168457.-

DATE SPUD:

DATE T.O.:

COST:



DAILY MUD PROPERTIES

Well: B.P. 2/1-8

PAGE 2

DATE	DEPTH	WT.	VIS SEC.	CORR. 115°F		GELS		pH	FLUID LOSS		CL <input type="checkbox"/> CACL <input type="checkbox"/> NACL <input type="checkbox"/>	ALKALINITY			CA ppm	RETORT			V.G. METER READING @ 115°					Bbl CEC	KCL ppB	TOTAL MUD COST
				PV	YP	0	10		BECK STRIP <input type="checkbox"/>	100 PSI API		500 PSI 300 °F HT-HP	PF	PM		MF	% OIL	% SOL	% WATER	Res- istivity	Temp	200 R.P.M.	100 R.P.M.			
24.08	2005	1.57	53	24	10	7	10	8.6	9.2	-	53K	1	2	7	520	23	77						30	35	168820.54	
25.08	2005	1.56	50	23	10	6	38	8.6	9.6	-	51K	1	2	7	500	23	77						30	35	176249.53	
26.08	2005	1.56	48	23	9	6	36	8.6	9.6	-	52K	1	2	7	500	23	77	0871	64°C				30	35	189779.27	
27.08	2005	1.57	66	24	15	9	49	9.6	7.9	-	47K	1	1.0	6	640	23	77						30	35	189779.27	
28.08	2005	1.56	59	25	24	21	48	12.0	18.4	-	44K	1.3	8.0	1.8	480	25	75						32.5	30	191996.17	
29.08	2005	1.58	43	13	9	15	36	12.0	24	-	40K	2.3	11.0	3.4	100	24	76						30.0	29	195199.20	
30.08	2005	1.57	40	16	8	14	27	12.0	N/C	-	37K	2.4	14.0	4.0	120	22	78						30		196275.13	
31.08	2005	1.58	51	26	24	2	5	10.6	8.3	-	56K	1	7	4	280	19	81						5	38	211661.06	
01.09	2009	1.58	40	25	18	2	4	12	10.1	-	62K	1.0	4.0	1.6	40	20	80	0702	76°F				5	40	214954.49	
02.09	2345	1.58	43	29	16	2	4	11.0	8.0	-	63K	3	1.5	7	600	22	78	0694	64°F		140		7.5	38	222135.90	
03.09	2365	1.59	50	30	15	2	4	10.5	6.1	-	66K	1	8	6	720	22	78	0642	65°F		204		10.0	34	223848.43	
04.09	2509	1.58	47	30	14	2	10	9.8	5.6	-	69K	1	6	6	760	22	78	0689	68°F		230		10.0	36	231959.53	
05.09	2706	1.58	47	28	16	6	32	9.4	5.7	-	63K	1	3	6	520	24	76	0750	80°F		154		25	35	241793.83	
06.09	2878	1.58	52	26	23	14	45	9.4	6.6	-	55K	05	5	8	400	22	78	0821	80°F		196		37	36	248252.00	
07.09	2894	1.58	45	21	12	3	24	9.0	6.2	-	55K	1	3	8	440	21	79	0811	70°F		240		25	35	255782.00	
08.09	2952	1.58	40	21	12	3	17	10.2	6.2	22	54K	15	8	8	360	21	79	0783	65°F		260		26	33	270704.00	
09.09	2994	1.58	42	28	16	6	27	9.9	5.0	20	54K	1	6	7	280	21	79	0871	65°F		320		25	33	275972.00	
10.09	3000	1.58	45	22	15	4	27	9.7	5.0	20	53K	1	5	8	480	21	79	0859	65°F		240		25	33	277716.00	
11.09	3095	1.58	60	25	20	8	39	8.6	7.0	25	45K	3	1	1.4	320	21	79	0882	65°F		200		23	30	281100.00	
12.09	3171	1.58	38	17	14	6	23	8.8	8.5	26	42K	1	1	1.0	230	21	79	0892	65°F		180		17.5	26	290515.00	
13.09	3196	1.58	38	15	19	8	36	9.2	8.8	26	43K	1	3	6	120	21	79	0957	65°F		160		16	25	296894.00	
14.09	3222	1.58	35	16	10	2	12	8.7	7.0	21	35K	05	3	1.0	200	20	80	109	65°F		140		10	20	303406.00	
15.09	3254	1.58	36	19	11	2	11	8.8	5.5	22	37K	15	3	5	180	20	80	100	65°F		150		11	22	308648.00	
16.09	3344	1.58	39	21	12	2	13	9.0	4.8	16.8	38K	15	4	7	120	20	80	099	65°F		160		12.5	23	313368.00	
17.09	3393	1.58	37	22	11	2	12	9.0	5.0	17.2	35K	15	3	6	160	20	80	101	65°F		160		10	22	316157.00	
18.09	3432	1.58	38	22	11	2	7	9.2	4.8	16.5	37K	1	5	5	140	20	80	102	65°F		150		12.5	22	318629.00	
19.09	3578	1.58	38	21	10	2	17	9.0	5.4	14.8	34K	1	4	6	120	21	79	104	65°F		180		12.5	20	327617.00	
20.09	3660	1.60	37	20	13	4	24	9.2	5.8	20.2	37K	15	5	7	200	21	79	112	60°F		192		12.5	28	328841.62	

DATE SPUD:

DATE T.D.:

COST:



DAILY MUD PROPERTIES

Well: B.P. 2/1-8

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DATE	DEPTH	WT.	VIS SEC.	CORR. 115°F		GELS		pH	FLUID LOSS		CL □ CACL □ NACL □	ALKALINITY				RETORT			V.G. METER READING @ 115°					Bbl CEC	KCL ppb	TOTAL MUD COST	
				PV	YP	0	10		BECK STRIP □	100 PSI API		500 PSI 300 °F HT-HP	PF	PM	MF	CA ppm	% OIL	% SOL	% WATER	RESIS TIV- ITY	TEMP °F	200 R.P.M.	100 R.P.M.				SUL- FITE ppm
21.09	3 723	1.62	38	25	15	4	26	9.8	5.6	17.8	36K	.3	1.0	1.3	100		23	77	.115	61°			230		12.5	28	334005.5
22.09	3 723	1.62	40	21	13	4	27	9.0	4.9	18.0	34K	.15	.6	.9	160	1	23	76	.115	68°			213		10	26	345544.7
23.09	3 723	1.62	39	23	12	3	15	10.0	3.2	15.4	35K	.15	.55	.95	100	2.5	22	75	.114	68°			208		12.5	27	353242.77
24.09	3 723	1.61	40	18	10	2	11	9.0	4.6	18.2	31K	.10	.40	.50	180	2.5	22	75	.130	68°			160		10	27	355523.17
25.09	3 736	1.62	42	24	14	3	17	9.5	4.3	16.2	31K	.1	.7	.6	120	2.5	22	75	.115	72°			230		10	26	357271.7
26.09	3 775	1.62	42	25	14	3	19	9.6	4.7	15.2	34K	.1	.5	.5	180	2.5	23	74.5	.125	70°			258		10	26	359749.96
27.09	3 816	1.62	44	32	18	5	28	9.4	4.8	15.8	31K	.1	.4	.7	240	2.5	23	74	.128	66°			280		14.0	26	364200.12
28.09	3 832	1.64	43	32	15	3	10	9.5	4.3	13.6	29K	.1	.5	.6	200	2	22	76	.139	70°			243		10.0	26	369869.59
29.09	3 844	1.64	43	30	15	3	20	9.4	4.2	11.6	31K	.1	.5	.5	240	2	22	76	.133	70°			230		10.0	25	371494.33
30.09	3 884	1.64	41	27	16	4	23	9.4	4.5	13.8	30K	.1	.4	.5	120	2	22	75.5	.134	70°			258		10.0	24	373587.86
01.10	3 888	1.68	45	26	12	2	12	8.9	4.6	14.2	28K	.1	.3	.4	200	2	23	75	.149	75°			266		7.5	26	376973.02
02.10	3 888	1.69	51	26	13	3	14	8.8	3.2	14.4	28K	.1	.3	.4	160	2	23	75	.133	76°			230		10.0	25	377135.38
03.10	3 888	1.68	47	23	10	2	14	8.5	3.9	15.2	30K	.05	.2	.3	280	2	22	75.5	.135	72°			260		10.0	24	377753.12
04.10	3 888	1.69	45	24	13	3	16	8.5	4.6	16.5	30K	.05	.2	.3	180	0	22	77.5	.135	72°			180		10.0	24	383569.00
05.10	3 888	1.69	48	25	15	3	16	8.7	4.8	17.0	30K	.05	.3	.4	180	0	22	77.5	.135	72°			180		10.0	24	385823.00
06.10	3 898	1.56	45	18	13	2	8	9.5	3.6	14.2	38K	.1	.7	.5	200	0	19	81	.114	65°			160		10.0	22	388936.00
07.10	3 926	1.56	43	18	12	2	9	9.5	3.7	14.5	40K	.1	.7	.5	200	0	19	81	.110	65°			180		7	24	390385.00
08.10	3 953	1.56	44	19	12	2	10	9.0	4.6	15.6	41K	.1	.5	.6	300	0	19	81	.101	65°			220		6	27	392794.00
09.10	3 981	1.56	45	22	14	2	11	9.0	4.2	14.5	40K	.05	.5	.5	280	0	19	81	.101	65°			190		6	26	394979.00
10.10	4 015	1.56	48	27	16	3	15	8.9	4.4	14.8	40K	.05	.3	.7	320	0	19	81	.106	65°			180		6	26	396354.00
11.10	4 051	1.56	46	26	15	3	14	9.0	4.0	14.3	40K	.05	.3	.7	280	0	19	81	.107	65°			160		6	26	401662.00
12.10	4 092	1.56	44	23	14	2	13	9.0	3.9	14.1	40K	.05	.3	.6	360	0	19	81	.115	65°			140		7.5	26	402884.00
13.10	4 151	1.57	43	23	12	3	13	9.1	4.7	14.9	39K	.05	.4	.8	320	0	20	80	.113	65°			200		7.5	25	404730.00
14.10	4 151	1.57	44	21	11	2	12	9.0	4.3	14.5	38K	.05	.4	.8	320	0	20	80	.094	65°			180		7	24	405100.00
15.10	4 151	1.57	44	21	11	2	12	9.0	4.3	14.5	38K	.05	.4	.8	320	0	20	80	.094	65°			180		7	24	405100.00
16.10	4 151	1.57	44	21	11	2	12	9.0	4.3	14.5	38K	.05	.4	.8	320	0	20	80	.094	65°			180		7	24	405840.00
17.10	4 151	1.57	42	21	10	2	12	8.5	4.6	15.0	40K	TR	.2	.6	280	0	20	80	.113	65°			180		7	26	406210.00
18.10	4 151	1.57	41	19	13	3	17	9.4	5.2	15.9	40K	.05	.2	.4	320	0	20	80	.104	64°			120		7.5	26	410208.59

DATE SPUD:

DATE T.O.:

COST:



DAILY MUD PROPERTIES

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DATE	DEPTH	WT.	VIS SEC.	CORR. 115°F		GELS		pH	FLUID LOSS		CL <input type="checkbox"/> CACL <input type="checkbox"/> NACL <input type="checkbox"/>	ALKALINITY			RETORT			V.G. METER READING @ 115°					BM CEC	Kcl	TOTAL MUD COST			
				PV	YP	0	10		BECK STRIP <input type="checkbox"/>	100 PSI API		500 PSI HT-HP	PF	PM	MF	CA ppm	% OIL	% SOL	% WATER	Resistivity	Temp	200 R.P.M.				100 R.P.M.	Sulfite ppm	3 R.P.M.
19.10	4 151	1.58	41	16	12	2	14	9.0	4.7	16.0	40K	.05	.2	.3	360	0	20	80	104	64°F			105		7.5	26	410208.59	
20.10	4 151	1.58	44	17	12	2	16	9.0	5.3	16.8	41K	.05	.2	.3	360	0	20	80	103	69°F			92		7.5	26	410208.59	
21.10	4 151	1.58	43	16	11	2	18	8.8	5.5	17.4	40K	.05	.2	.2	360	0	20	80	102	66°F			92		7.5	26	410208.59	
22.10	4 151	1.57	44	16	14	4	24	10.2	6.2	18.0	40K	.1	.3	.4	240	0	20	80	102	66°F			80		7.5	26	414023.37	
23.10	4 151	1.57	42	15	14	6	24	9.2	6.6	18.0	40K	.1	.2	.3	120	0	20	80	103	67°F			102		7.5	26	416391.37	
24.10	4 151	1.55 ^{5/43}	14	12	5	21	9.0	7.5	20.2	38K	.1	.2	.2	120	0	19.5	80.5	111	67°F			80		7.5	25	416391.37		
25.10	4 151	1.56	43	14	12	7	22	9.1	8.2	22.0	39K	.1	.2	.3	120	0	19	81	111	67°F			90		7.5	25	416391.37	
26.10	4 151	1.55 ^{5/42}	14	12	8	23	9.1	8.6	22.0	40K	.1	.2	.2	200	0	19	81	105	63°F			90		7.5	25	416391.37		
27.10	4 151	1.55 ^{5/43}	14	12	8	24	9.1	8.6	22.0	40K	.1	.2	.2	180	0	19	81	105	63°F			90		7.5	25	416391.37		
28.10	4 151	1.55 ^{5/40}	13	10	6	18	9.0	9.5	25.0	40K	.1	.2	.2	180	0	19	81	100	68°F			77		7.5	25	416391.37		
29.10	4 151	1.57 ^{5/40}	13	9	6	22	8.6	14.0	-	40K	TR	.1	.2	.2	360	0	20	80	111	70°F			51		7.0	24	417253.01	
30.10	4 151	1.60	45	21	17	7	27	9.8	7.8	21.0	37K	.15	.4	.5	200	0	21	79	109	71°F			128		6.0	24	421245.52	
31.10	4 151	1.60	47	21	18	4	21	9.0	6.4	21.0	37K	.15	.2	.3	200	0	21	79	119	60°F			96		6.0	24	421245.52	
01.11	4 151	1.61	48	19	15	4	22	9.4	6.0	20.6	37K	.2	.3	.4	200	0	21	79	124	57°F			102		7.0	24	421245.52	
02.11	4 151	1.60	49	21	18	4	17	8.8	5.8	20.0	35K	.1	.2	.3	260	0	20	80	138	53°F			102		6.5	23	421540.68	
03.11	4 151	1.60	48	23	19	6	27	10.2	4.6	18.0	35K	.2	.6	.6	200	0	20	80	141	57°F			90		6	23	424311.22	
04.11	4 151	1.60	57	23	22	5	14	9.6	4.2	14.3	33K	.25	.5	.6	100	0	20	80	136	60°F			149		6	22	424760.43	
05.11	4 151	1.60	47	22	19	4	18	9.1	6.1	16.8	32K	.2	.4	.4	120	0	20	80	136	60°F			140		6	22	424975.84	
06.11	4 151	1.60	46	23	19	4	16	9.0	4.8	14.8	32K	.2	.4	.4	120	0	20	80	134	60°F			140		6	22	425092.00	
07.11	4 151	1.60	46	23	18	4	20	9.1	6.2	19.0	36K	.1	.1	2.0	120	0	20	80	129	60°F			120		5	22	429379.00	
08.11	4 151	1.60	46	23	18	4	20	9.1	6.2	19.0	36K	.1	.1	2.0	120	0	20	80	129	60°F			120		5	22	430785.00	
09.11	4 151	1.60	47	22	18	4	19	9.1	6.3	19.0	36K	.1	.1	1.8	120	0	20	80	129	60°F			120		5	22	430785.00	
10.11	4 151	1.60	50	20	19	4	17	8.9	6.5	20.0	36K	.1	.1	1.5	140	0	20	80	129	60°F			100		5	22	433019.00	
11.11	4 151	1.60	62	28	20	4	13	8.5	4.2	14.0	36K	TR	TR	1.0	140	0	20	80					100		5	22	433019.00	
12.11	4 151	1.60	62	28	20	4	13	8.5	4.2	14.0	36K	TR	TR	1.0	140	0	20	80					100		5	22	433019.00	
13.11	4 151	1.60	62	28	20	4	13	8.5	4.2	14.0	36K	TR	TR	1.0	140	0	20	80					100		5	22	433019.00	
14.11	4 151	1.60	42	28	15	4	19	9.1	4.0	13.5	34K	.1	.1	1.8	120	0	20	80					100		7	22	434277.00	
15.11	4 151	1.60	46																									435138.64

Mud cost related to depth with days and density graph adjacent

Fig.14

