

WELL SUMMARY - MUD RECAP, PREPARED BY MAGCOBAR

Well 16/8-1 was spudded on September 25, 1976. 36" hole was drilled to 565' and 30" casing was run and cemented. A 17.1/2" hole was drilled to 1,750' and opened to 26". 20" casing was run to 1,722' and cemented. No notable hole problems were encountered during this section of the hole.

A 17.1/2" hole was drilled out from under the 20" casing. A Drispac/Spersene mud was mixed and used from this and the subsequent section of hole. Hole was drilled to 2,750' with center jet bit, pressure loss was encountered at this depth. Bit was pulled and center jet was found to be washed out. Abundant and troublesome gumbo was encountered to 4,352' both flowline and possum belly. Heavy water dilution resulted to maintain volume due to losses, unplugging gumbo from possum belly and flowline. Mud weight was increased to aid logging by Schlumberger. 10 joints of 13.3/8" casing was landed and cemented at 4,309'.

A 12.1/4" hole was drilled out below the 13.3/8" casing. Drilling was halted at 5,316' due to inclement weather. When drilling was resumed, calcium concentrations were found to be unusually high and a resultant precipitation of Drispac was noted, causing a reversal of rheological properties and a lessening of fluid loss control. Cement contaminated barite was found to be responsible. Phosphate additions were made to precipitate cement and heavy additions of thinners were necessitated to stabilize rheological properties. T.D. of 7,550' was reached with no hole problems, an extensive logging program was likewise trouble-free.

Plug and abandonment procedures were begun on October 24 and the Magcobar mud engineer was released.



WELL DATA SHEET

MAG-545-A

OPERATOR <b>CONOCO</b>	SURVEY SEC. <b>T R</b>	CASING SIZE	DEPTH	DRLG. DAYS	BIT SIZE
WELL <b>16/8-1</b>	FIELD <b>OFFSHORE</b>	SURFACE <b>20"</b>	<b>1722'</b>	<b>3</b>	<b>26"</b>
CONTRACTOR <b>ROWAN</b>	COUNTY <b>N. SEA</b>	INTERMEDIATE <b>13 3/8"</b>	<b>4,309'</b>	<b>5</b>	<b>17 1/2"</b>
ENGINEER <b>HIXTON - JOHNSON</b>	STATE <b>NORWAY</b>	PRODUCTION	<b>7550'</b>	<b>7</b>	<b>12 1/4"</b>

DATE	DEPTH	WT.	VISCOSITY		COLR. 115°F		GELS		pH	FLUID LOSS		CL <input checked="" type="checkbox"/> CACL <input type="checkbox"/> NACL <input type="checkbox"/>	ALKALINITY			CA ppm	Mg ppm	RETORT			ACTIVITY		RATIO		# Bbl CEC		
			SEC.	CPS.	PV	YP	0	10		00 PSI API	500 PS 300 °F HT-HP		PF	PM	MF			% OIL	% SOL	% WATER	A <sub>5</sub>	A <sub>m</sub>	OIL	H <sub>2</sub> O			
25/9	457	8.7	100+																								
26	565	8.7	100+																								
27	565	8.7	45																								
28	1750	9.4	40																								
29	1750	9.5	55																								
30	1750	9.5	55																								
1/10	1750	9.5	55																								
2	1750	8.6	4		12	6	2	7	10.0	2		19,000	1.6	2.6		1200											
3	1750	10.1	40		16	23	3	8	10.0	8		19,000	1.0	3.4		720					5	95					
4	1750	10.0	40		16	23	3	8	10.0	8		19,000	1.0	3.4		720					5	95					
5	1750	10.0	40		16	23	3	8	10.0	8		19,000	1.0	3.4		720					5	95					
6	2559	10.8	45		18	25	2	9	10.0	3.5		19,000	.3	1.8		120					9	91					
7	3024	10.8	46		7	25	2	8	10.0	5.0		20,000	.5	1.8		80					10	90					
8	4024	11.0	47		19	35	2	11	10.5	5.5		20,000	.8	2.0		80					10	90					
9	4352	11.0	47		17	23	4	13	10.5	6.0		20,000	.4	1.0		80					10	90					
10	4352	11.6	46		21	25	2	12	10.0	6.0		18,000	.3	.7		100					11	89					
11	4352	11.6	46		21	25	2	12	10.0	6.0		18,000	.3	.7		100					11	89					
12	4352	11.1	42		23	19	2	9	9.5	5.5		20,000	.7	1.0		120					11	89					
13	5450	11.1	45		22	17	2	8	9.5	5.5		20,000	.4	1.1		100					10	90					
14	5613	11.2	47		25	16	2	10	9.5	5.0		20,000	.5	1.0		80					12	88					
15	5613	11.2	47		25	16	2	10	9.5	5.0		20,000	.5	1.0		80					12	88					
16	6213	11.2	53		12	22	15	30	9.0	14.0		20,000	.1	.5	.2	1120					13	87					
17	6213	11.5	42		15	15	5	15	9.5	9.0		20,000	.6	1.0	.8	320					16	84					
18	6600	11.5	49		15	21	10	20	9.5	11.0		20,000	.5	1.0	.9	320					15	85					
19	7192	11.5	58		15	15	15	30	9.5	12.0		20,000	.6	1.1	1.1	400					15	85					
20	7535	11.5	47		15	26	2	20	9.5	9.5		20,000	.5	1.6	1.1	220					15	85					
21	7550	11.5	49		15	20	2	20	9.5	9.0		20,000	.5	1.6	1.1	240					15	85					

DATE SPUD: DATE T.D.: S.H.T. COMPLETION FLUID TYPE: COST: PACKER MUD TYPE: COST:



WELL DATA SHEET

HAG-549-1-A

EQUIPMENT		MAKE		CHOKE (L.P.)		PVT										
DESANDER	<input type="checkbox"/>	DEMCO		CHOKE (SUPER)	<input checked="" type="checkbox"/>	SWACO	FLOW SENSOR	<input checked="" type="checkbox"/> FLO-SHO.								
DESILTER	<input type="checkbox"/>	DEMCO		CLAYJECTOR	<input type="checkbox"/>		ROP	<input checked="" type="checkbox"/> TOTCO								
CENTRIFUGE	<input type="checkbox"/>			FINE SCREEN	<input type="checkbox"/>	MILCHEM	OTHER	<input type="checkbox"/>								
DEGASSER	<input checked="" type="checkbox"/>	SWACO				TOTAL MUD COST:		TOTAL DEPTH:								
	MAGCOBAR	MAGGOGEL	SFERSENE	XP-20	CAUSTIC	SODA ASH	LIME	DRISPAC	DRISPAC	S/L	DESCO	SAPP	C.M.C.	COST	TOTAL MUD COST	REMARKS
26.9		220			4	2	1							3173	3173	Spud
27.9		25	1		1		2							541	3714	Drilling 36" hole
28.9		170			3	2	1							2158	6973	Run 30" csg. - W.O.C.
29.9		180			5	2								2289	9263	Mix 650 bbl mud- Drlg. - Loses due to heavy seas
30.9	204						3							1388	10650	Drlg. - Log - Raise vis. to 55
1.10	334	90			2	1	6							3182	13333	Log
2.10		100			2	1								1360	15193	Run 20' csg.
3.10			24		7	16		28						5027	20221	Run csg.
4.10	784				1	3		4						5218	25439	W.O.W.
5.10						NONE									25439	Run riser & stack
6.10						2	9							1449	26962	R.I.H. - Drlg. out cement
7.10	1881		20		12	8		49						179.7	44910	Drlg. out cement - Drlg.
8.10	538	13	20		30	1		28						2742	52652	Drlg. - Bit trip
9.10	291		10		44		1	18	1	12				5528	58180	Drlg. - Gumbo problems
10.10			28		27			4		4				1760	59971	Drlg. - P.O.H. - Strap out
11.10	948		15		4				2	23				7230	67171	P.O.H. - Log - Increase mud wt. 11.6
12.10	1290													7428	74599	W.O.W.
13.10	89													979	75578	Run 13.3/8" csg.
14.10						NONE									75578	Cmt. csg. - R.I.H. to drlg.
15.10			11		4	9		7	9	19				3767	79576	Drlg.
16.10	1500													8600	88176	W.O.W.
17.10	270													1736	89921	W.O.W. - Ream to btm.
18.10	1410		19		6	30		2	8					18370	100283	Ream - Drlg.
19.10	269		38		6		4	4		4				3101	111918	Drlg.
20.10			90		13		2	1	16	86				6150	116069	Drlg.
21.10	1366	10	13			8	9			21		5		7190	124717	T.D.
22.10																
FINAL COST																



# TOTAL MATERIAL CONSUMPTION

PRODUCT	UNITS	UNIT PRICE	COST
Magcohar	12,294 sx (100 lb)	\$ 5.58	\$ 68,600.52
Magcogel	785 sx (100 lb)	\$ 10.81	\$ 8,485.85
Spersene	334 sx ( 50 lb)	\$ 14.37	\$ 4,799.58
Desco	197 sx ( 25 lb)	\$ 25.52	\$ 5,027.44
Drispac Reg.	150 sx ( 50 lb)	\$ 131.05	\$ 19,657.50
Drispac S/L	43 sx ( 50 lb)	\$ 131.05	\$ 5,635.15
Caustic Soda	202 sx ( 25 kg)	\$ 14.82	\$ 2,993.64
Soda Ash	86 sx ( 50 kg)	\$ 20.00	\$ 1,720.00
Lime	29 sx ( 40 kg)	\$ 6.16	\$ 178.64
Sapp	4 sx (100 lb)	\$ 46.50	\$ 186.00
C.M.C. L/V	5 sx ( 25 kg)	\$ 53.95	\$ 269.75
Aluminum Stearate	1 sx ( 25 kg)	\$ 33.82	\$ 33.82
			<u>\$ 117,587.89</u>
Engineering Services	31 days	\$ 230.00	\$ 7,130.00
Total Material and Engineering Cost for Intervals			<u><u>\$ 124,717.89</u></u>

## MUD COSTS BY INTERVAL

<u>INTERVAL (FT)</u>	<u>DAYS</u>	<u>COST/FT</u>	<u>COST/DAY</u>	<u>TOTAL COST \$</u>
0- 555	4	6.70	929	3,715
555-1,750	5	8.66	2,070	10,349
1,750-4,352	12	22.83	4,950	59,398
4,392-7,550	10	16.09	5,146	51,255