

REPORT CC

MUD ENGINEER'S REPORT
Milpark Drilling Fluids
4 p.

Appendix C

MUD ENGINEER'S REPORT



DRILLING MUD RECAP

Operator BECHTEL PETROLEUM	Legal Location	Elevation/Water Depth	Warehouse Brawley
Well Name and No. State 2-14 R.D.	Field/Offshore Area/Block Salton Sea	Spud Date 08-05-87	Total Mud Cost
Contractor Cal Pac	Rig No. 1	County/Parish Imperial	T.D. Date 8-27-87
TBR Bill Linne	State California	Days to TD 22	Total Depth 7180'
		Milkpark Well No.	

BITS		CASING PROGRAM		TYPE MUD SYSTEM		SOLIDS CONTROL EQUIPMENT		ADDITIONAL INFORMATION			
No.	Size (in)	Depth (ft)	Size (in)	Type	Depth Interval (ft)	Brand/Type/Screen Size	Depth Interval (ft)	Pump Specifications Oilwell 600 Pt 5 1/2" x 8" @95%			
		6000	9 5/8	Kem-Seal/Gel	6000-6970'	4" 12 Cone	6000-7180	Drill Pipe 4 1/2" XH			
				Mil-Temp	6970'-7180'	Desilter		Collars 6"			
						Centrifuge	6000-7180				

DATE (19)	TIME	OPERATION	DEPTH (ft)	WT (ppg)	FUNNEL VISCOSITY (sec/30)		PLASTIC VISCOSITY		YIELD POINT (lb/100HP)	GELS (lb/100HP) 0/10	FILTRATE (ml/30 min)			Cake (32nd in)	Solids (% by Vol.)	Oil (% by Vol.)	Water (% by Vol.)	Sand (% by Vol.)	Methy. Blue (ml/ml mud)	pH	Alkalinity			Chloride mg/l	Calcium mg/l	Circ. Volume (bbl)	Flow Rate GPM	REMARKS
					API@	°F	cp@	°F			API	HT-HP	°F								P _m	P _f	M _l					
8-6	0630		5956	8.5	34	6	5	1/7	7.6		1	1		99	tr	10	9.5			2.5	.5	13600	480			596		
8-7	0600		6049	8.5	30	80	3	80	4	1/5	18.2	2	1 1/2	99	tr	10	9.0			.7	1.1	11500	420			450		
8-12	0600		6133	8.4	30	115	1	120	3	1/4	N/C	film	1	99	tr	10	8.2			.01	.03	19600	2400			995		
8-13	0615		6635	8.4	29	121	1	120	1	1/2	N/C	film	3/4	99 1/2	tr	5	9.0			.1	.2	11000	2080			945		
8-14	0600		6635	8.5	32	111	2	120	3	1/2	11.8	2	1	99	tr	17	9.5			.1	.3	2240	80			1128		
R-15 SET CEMENT PLUG																												
16	0600		2751	8.5	34	107	4		6	3/5	16.2	2	1 1/2	98 1/2	tr	17	8.5			.1	.3	16500	1520			827		
8-17	0700		6537	8.7	43	147	5	120	9	4/13	12.1	2	3	97 1/2	tr	20	10.0			.4	.7	16200	180			848		
8-18	0600		6547	8.7	32	145	5	120	8	3/12	11.4	2	2 1/2	97 1/2	tr	20	9.1			.2	.3	18600	280			845		
8-19	0615		3738	8.7	43	149	6	120	11	3/16	10.8	2	3	97	tr	20	9.5			.3	.5	14200	240			875		
8-20	0600		6744	8.6	38	142	6	120	10	2/11	12.4	2	3	97	1	19	9.5			.3	.6	10500	320			1020		
8-21	0630		4760	8.7	33	142	7	120	12	3/14	11.4	2	3	97	1	20	9.5			.3	.5	10000	280			943		
8-22	0600		6878	8.7	38	147	7	120	13	3/12	11.8	2	3	97	1	20	9.5			.2	.5	9860	280			989		
8-23	0545		6970	8.7	34	137	5	120	7	2/10	11.8	2	3	97	1	18 1/2	9.0			.1	.5	6180	240			1153		
8-24	0600		7100	8.7	30	118	4	120	7	2/8	10.3	2	3	97	1	20	9.1			.3	.5	6100	240			1020		
8-25	0600		7180	8.7	35	154	5	120	9	2/8	10.3	2	3	97	1	20	9.5			.3	.5	6100	240			965		
8-26	0800		7080	8.6	32	138	5	120	7	2/8	10.0	2	3	97 1/2	1	20	9.0			.2	.4	5680	210			1028		
8-27	0700		7080	8.7	32	142	5	120	8	2/10	10.1	2	3	97 1/2	1	20	9.0			.2	.5	5680	220			1020		



DAILY DRILLING MUD ADDITIONS

Operator BECHTEL NATIONAL	Legal Location	Elevation/Water Depth	Warehouse Brawley
Well Name and No. State 2-14 R.D.	Field/Offshore Area/Block Salton Sea	Solid Date 08/05/87	Total Cost
Contractor Cal Pac	County/Parish Imperial	TD Date 08/27/87	
TSR Bill Linne	State California	Days to TD 22	Total Depth 7180'

DATE (19)	DEPTH (ft)	STATUS	MIL-BAR		MIL-GEL		COTTONSEED OIL		SAND-DUST		BICARB		CAUSTIC SODA		CHEMIBOLX		DFE-104		DFE-105		LD-8		Ligco		MinTemp		KEMSEAL		SODA ASH		NUT PLUG		BIOZAN		RICE HULLS		SEA-SERV		MATT		Trucking Overage	6% Tax	DAILY COST	CUMULATIVE COST																								
			Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost																																		
8-19	6738	OH	222	345	61	99	21	62	44	21	32	0	39	40	34	19	40	7	13																																																	
		USED	10	72	9	1		3	4				9		6	4			10	175	2333																		140	2648	21341																											
8-20	6744	OH	198	345	57	99	21	62	44	15	32	2	39	40	34	19	40	7	61																																																	
		USED	24		4					6									5	175	698																	42	998	22339																												
8-20		DEL										2							56																																																	
8-21	6760	OH	153	322	57	99	21	60	44	15	32	1	33	40	29	19	40	7	51																																																	
		USED	45	23				2				1	6		5				10	175	1766																					106	2047	24386																								
8-22	6878	OH	149	264	49	99	21	58	44	15	32	1	33	40	29	19	40	7	39																																																	
		USED	4	58	8			2											12	175	526																																															
8-23	6970	OH	149	215	46	99	21	56	44	15	32	1	33	40	29	19	40	7	34																																																	
		USED		49	3			2											5	175	364																																															
8	7100	OH	139	171	46	99	21	54	38	15	32	0	27	32	29	19	40	7	32																																																	
		USED	10	44				2	6			1	6	8					2	175	1992																																															
8-25	7180	OH	139	171	44	99	21	54	38	13	32	0	27	32	29	19	40	7	28																																																	
		USED			2					3									4	175	293																																															
8-26	7180	OH	125	84	35	95	21	54	38	12	32	0	27	32	29	19	40	7	10																																																	
		USED	14	87	9	4													18	175	771																																															
8-27		TRUCKING - LOAD SENT OUT (NOT USED) AND RETURNED TO WAREHOUSE.																																																																		
		MATERIAL RETURNED	120	79	56	88	22	54	36	12	32	0	34	32	29	22	40	7	4																																																	
		MATERIALS USED	217	1049	77	19	7	46	12	26	0	2	15	8	25	25	0	13	80	3750																																																
																					TOTAL WELL COST																																															

SUPPLEMENTARY DATA

Operator BECHTEL PETROLEUM	Legal Location	Elevation/Water Depth	Warehouse Brawley
Well Name and No. State 2-14 R.D.	Field/Offshore Area/Block Salton Sea	Spud Date 08-05-87	Total Cost
Contractor Cal Pac	Rig No. 1	County/Parish Imperial	T.O. Date 08-27-87
TSR Bill Linne	State California	Days to TD 22	Total Depth 7180'

DATE	DEPTH	INFORMATION
8-6	5956	Circulate with fresh water and mix 600 bbls of Kem Seal/Gel/Mud after retrieving 7" liner hanger & left 7" liner in hole at 7141'.
8-7	6049	Circulate to cool well for directional tools. Mud temperature out rose to 209°. Change from mud to water to cool well.
8-8		Water in hole.
8-9		Water in hole.
8-10		Shut down repairing rig.
8-11		Shut down repairing rig.
8-12	6133	Tripping in hole with mud motor (failed). RIH with locked bottom hole assembly. Drill 5'. POH. RIH with mud motor.
8-13	6635	POH with mud motor (failed). RIH with conventional bottom hole assembly. Drill to 6635'. Drilled out of cement plug. Took kick of CO2 and brine. Trip took 125 bbls brine. 2 Trip took 135 bbls brine.
8-14	6635	Killed well by bullheading cold water into formation. Wait on order. Mixed 700 bbls Gel and Kem Seal mud. RIH to cool well. POH to set cement plug.
8-15		Wait on cement.
8-16	2751	Polished cement plug. RIH with conventional whipstock. Displace brine in well with mud. Try and kick off well (no go). POH. RIH with 8 1/2" bit. Stop @2751. Repair Rig.
8-17	6537	Stage in to 6000'. Circulate and condition mud. Raise mud weight to 8.7 with Milbar. Bullhead 37 bbls in to formation. RIH. Tag fill at 6509'. Clean out and circulate hole clean. POH to shoe at 6000'. Wait 30 min. RIH. No fill. Spot 50 bbl visc. pill of 9.4#/gal on bottom. POH. CO2 @5000' + 128,000 ppm.
8-18	6547	RIH with conventional whipstock. Kick off. Drill 10'. POH. RIH with 8 1/2" hole opener. Staging in hole.
8-19	3738	Open hole from 6537' to 6546'. POH. RIH with conventional BHA. Drill to 6729' at 6630'. Back in old hole. (Built 165 bbl volume.) (left buttons for bit in hole.)
8-20	6744	POH. RIH with 8 1/2" flat bottom mill. Milling on junk.
8-21	4760	RIH with 8 1/2" bit. Ream hole made with mill. POH. RIH with 8 1/2" bit and conventional BHA. Drill.
8-22	6878	Trip for bit. Hole taking 25 bbls/trip.
8-23	6970	At 6958' bit torqued up. Stuck on bottom. Worked free. POH. RIH. Ream from 6880 to 6959'. Drill.
8-24	7100	Drill to 7100'. POH. Left 3 cones in hole.
8-25	7180	RIH with milltooth bit. Drill on junk. POH. RIH.
8-26	7080	RIH with mill. Mill on iron @7080'. Lost 35 bbls mud on trip. Lost 75-100 bbls with milling.
8-27	7080	Milling on junk iron. Decision was made to shut down and test well.