

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890201	36"	216.0	1.05			/		/					SPUD MUD
890202	36"	216.0	1.05			/		/					SPUD MUD
890203	36"	301.0	1.11	8.0	36.0	20/25	10.0	/					GEL MUD
890204	12 1/4"	915.0	1.16	5.0	21.0	17/23	8.6	/					GEL MUD
890205	12 1/4"	915.0	1.17	5.0	23.0	17/20		/					GEL MUD
890206	26"	920.0	1.18	5.0	23.0	17/22	8.3	/					GEL MUD
890207	26"	920.0	1.18			/		/					GEL MUD
890218	26"	920.0	1.16			/	9.5	/					GEL MUD
890219	26"	920.0	1.18			/	11.8	/					GEL MUD
890220	26"	960.0	1.22	14.0	18.0	1/2	10.1	.2/.6	200	48000		9.0	KCL MUD
890221	17 1/2"	1250.0	1.25	19.0	20.0	2/5	8.5	.1/.5	240	54000	.3	11.0	KCL MUD
890222	17 1/2"	1398.0	1.29	17.0	12.0	2/11	8.5	/.5	280	48000	.3	15.0	KCL MUD
890223	17 1/2"	1687.0	1.45	22.0	10.0	2/15	8.5	/.7	300	49000		20.0	KCL MUD
890224	17 1/2"	1920.0	1.50	24.0	11.0	3/19	8.1	/.7	340	51000		22.0	KCL MUD
890225	17 1/2"	2093.0	1.50	23.0	12.0	4/38	8.0	/1.2	360	57000		22.0	KCL MUD
890226	17 1/2"	2093.0	1.55	27.0	12.0	5/34	8.1	.1/.7	320	53000	.1	24.0	KCL MUD
890227	17 1/2"	2093.0	1.58	26.0	10.0	4/34	8.4	.1/1.2	400	55000	.1	26.0	KCL MUD
890228	17 1/2"	2093.0	1.58	24.0	12.0	5/29	8.2	/1.2	365	56000	.1	24.0	KCL MUD
890301	17 1/2"	2093.0	1.59	26.0	12.0	5/30	8.0	/1.2	420	62000	.1	25.0	KCL MUD
890302	17 1/2"	1818.0	1.59	21.0	10.0	4/31	8.4	.2/2.3	200	65000	.1	25.0	KCL MUD
890303	17 1/2"	1920.0	1.61	28.0	10.0	5/28	9.8	1.3/3.3	60	65000		25.0	KCL MUD
890304	17 1/2"	1920.0	1.61	25.0	9.0	4/26	9.1	1.1/3.8	100	68000		25.5	KCL MUD
890305	17 1/2"	2120.0	1.63	28.0	15.0	6/38	8.7	.6/1.7	100	68000		27.0	KCL MUD
890306	17 1/2"	2210.0	1.63	26.0	14.0	9/45	8.0	.1/1.4	360	68000		28.0	KCL MUD
890307	17 1/2"	2363.0	1.63	28.0	13.0	7/44	8.0	.1/1.1	600	63000		27.0	KCL MUD
890308	17 1/2"	2363.0	1.63	31.0	11.0	6/39	8.1	.0/1.0	520	64000		26.0	KCL MUD
890309	17 1/2"	2363.0	1.63	28.0	11.0	5/36	8.3	/1.3	480	64000		26.0	KCL MUD

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890310	17 1/2"	2363.0	1.63	29.0	12.0	5/31	8.3	/1.4	400	68000		26.0	KCL MUD
890311	17 1/2"	2363.0	1.63	29.0	10.0	4/19	8.3	/1.4	360	70000		25.5	KCL MUD
890312	17 1/2"	2363.0	1.63	31.0	13.0	8/45	8.5	/1.5	440	71000		25.5	KCL MUD
890313	17 1/2"	2363.0	1.67	33.0	12.0	8/43	8.3	/1.3	360	71000	.3	26.5	KCL MUD
890314	17 1/2"	2428.0	1.67	31.0	13.0	7/35	8.3	/1.6	360	70000		26.5	KCL MUD
890315	17 1/2"	2644.0	1.67	33.0	13.0	7/35	7.8	/1.6	360	71000		26.5	KCL MUD
890316	17 1/2"	2644.0	1.67	32.0	11.0	7/30	7.8	/1.6	400	70000		26.5	KCL MUD
890317	17 1/2"	2644.0	1.67	32.0	12.0	7/31	7.9	/1.7	400	70000		26.5	KCL MUD
890318	17 1/2"	2644.0	1.67	30.0	10.0	7/28	7.8	/1.6	380	70000		26.5	KCL MUD
890319	17 1/2"	840.0	1.67	29.0	12.0	4/24	8.7	.1/1.8	280	64000	.1	25.0	KCL MUD
890320	17 1/2"	825.0	1.57	35.0	12.0	4/18	8.7	.0/1.7	140	68000	.1	22.0	KCL MUD
890321	17 1/2"	1112.0	1.57	28.0	10.0	5/22	8.4	.1/1.6	160	68000	.1	22.0	KCL MUD
890322	17 1/2"	1322.0	1.57	35.0	16.0	5/22	8.3	/1.6	120	65000		22.0	KCL MUD
890323	17 1/2"	1613.0	1.62	30.0	12.0	5/24	8.3	/1.7	200	62000		25.0	KCL MUD
890324	17 1/2"	1853.0	1.65	30.0	13.0	5/27	8.0	/1.4	400	63000		26.0	KCL MUD
890325	17 1/2"	1900.0	1.67	35.0	9.0	5/26	7.8	/1.1	600	64000		27.0	KCL MUD
890326	17 1/2"	1900.0	1.67	30.0	13.0	7/29	8.0	/1.6	520	72000		28.0	KCL MUD
890327	17 1/2"	2331.0	1.67	30.0	16.0	12/62	7.9	.1/2.1	520	75000	.1	28.0	KCL MUD
890328	17 1/2"	2428.0	1.67	24.0	10.0	5/34	7.7	/1.7	440	73000	.1	28.0	KCL MUD
890329	17 1/2"	2428.0	1.67	25.0	11.0	6/32	7.7	/1.6	440	73000	.1	28.0	KCL MUD
890330	17 1/2"	2428.0	1.67	25.0	11.0	6/32	7.7	/1.6	440	73000	.1	28.0	KCL MUD
890331	17 1/2"	2428.0	1.67	24.0	11.0	6/30	7.7	/1.6	440	73000		28.0	KCL MUD
890401	17 1/2"	2428.0	1.67	24.0	11.0	6/30	7.7	/1.6	440	73000		28.0	KCL MUD
890402	17 1/2"	1720.0	1.67	27.0	12.0	6/31	7.9	/2.0	400	72000	.1	27.0	KCL MUD
890403	17 1/2"	1720.0	1.67	29.0	12.0	4/39	8.3	.1/1.8	80	75000	.1	28.0	KCL MUD
890404	17 1/2"	1720.0	1.69	23.0	12.0	4/25	8.3	.1/1.8	320	73000	.1	27.5	KCL MUD
890405	17 1/2"	1720.0	1.72	36.0	12.0	5/41	8.6	.1/1.8	360	71000	.1	28.5	KCL MUD

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890406	17 1/2"	1755.0	1.72	27.0	13.0	5/32	8.6	.1/2.5	180	75000	.1	28.5	KCL MUD
890407	17 1/2"	1907.0	1.72	35.0	14.0	6/39	8.5	.1/2.5	220	72000		28.5	KCL MUD
890408	17 1/2"	1988.0	1.72	35.0	12.0	3/16	8.2	/1.6	220	70000		28.0	KCL MUD
890409	17 1/2"	2100.0	1.72	36.0	12.0	3/18	8.1	/1.5	240	71000		28.0	KCL MUD
890410	17 1/2"	2010.0	1.72	34.0	11.0	3/17	8.0	/1.3	280	73000	.1	28.0	KCL MUD
890411	17 1/2"	2010.0	1.72	28.0	11.0	3/19	7.9	/1.3	300	72000	.1	28.0	KCL MUD
890412	17 1/2"	2010.0	1.72	27.0	10.0	3/21	7.9	/1.3	300	73000		28.0	KCL MUD
890413	17 1/2"	2010.0	1.72	26.0	9.0	3/19	8.1	/1.3	400	73000	.1	28.0	KCL MUD
890414	17 1/2"	2010.0	1.72	24.0	10.0	4/23	9.1	.3/1.8	140	69000		28.0	KCL MUD
890415	17 1/2"	2010.0	1.72	28.0	8.0	7/48	10.7	.4/1.3	160	70000		31.0	KCL MUD
890416	17 1/2"	2010.0	1.72	26.0	11.0	6/57	10.6	.2/.9	720	70000	.1	29.0	KCL MUD
890417	17 1/2"	2298.0	1.72	29.0	11.0	5/32	8.5	.1/1.3	200	74000	.1	29.0	KCL MUD
890418		2453.0	1.72	27.0	10.0	4/23	8.1	/1.3	620	73000	.1	28.0	KCL MUD
890419		2673.0	1.72	37.0	11.0	4/23	8.4	.1/1.3	420	69000	.1	29.0	KCL MUD
890420	12 1/4"	2673.0	1.72	37.0	10.0	4/26	8.9	.1/1.3	300	69000		29.0	KCL MUD
890421	12 1/4"	2673.0	1.72	32.0	13.0	4/27	8.2	/1.3	400	75000		28.0	KCL MUD
890422	12 1/4"	2673.0	1.72	32.0	13.0	4/27	8.2	/1.3	400	75000		28.0	KCL MUD
890423	17 1/2"	2673.0	1.72	34.0	12.0	4/26	8.4	.1/1.2	400	73000	.1	28.0	KCL MUD
890424	17 1/2"	2673.0	1.72	34.0	12.0	4/26	8.4	.1/1.2	400	73000	.1	28.0	KCL MUD
890425	17 1/2"	2678.0	1.72	28.0	12.0	4/29	8.8	.1/1.3	400	73000	.1	28.0	KCL MUD
890426	12 1/4"	2684.0	1.72	28.0	12.0	4/29	8.8	.1/1.3	400	73000	.1	28.0	KCL MUD
890427	12 1/4"	2803.0	1.72	34.0	16.0	7/39	8.8	.1/1.2	400	72000	.1	28.5	KCL MUD
890428	12 1/4"	2955.0	1.72	27.0	12.0	5/38	8.0	/.9	400	72000		28.5	KCL MUD
890429	12 1/4"	3073.0	1.72	25.0	12.0	5/39	8.1	/1.0	480	71000		28.0	KCL MUD
890430	12 1/4"	3126.0	1.72	25.0	10.0	3/31	8.1	/1.1	460	72000		28.0	KCL MUD
890501	12 1/4"	3203.0	1.72	30.0	15.0	7/49	8.0	/1.2	440	70000	.1	28.0	KCL MUD
890502	12 1/4"	3250.0	1.72	31.0	12.0	2/21	8.0	/1.3	380	65000	.1	26.5	KCL MUD

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890503	12 1/4"	3400.0	1.72	26.0	9.0	2/11	7.9	/1.4	400	68000		27.0	KCL MUD
890504	12 1/4"	3431.0	1.72	27.0	11.0	3/14	8.0	/1.2	360	68000		27.0	KCL MUD
890505	12 1/4"	3433.0	1.72	29.0	9.0	3/24	8.4	/1.9	360	68000		27.0	KCL MUD
890506	12 1/4"	3462.0	1.72	29.0	11.0	3/29	8.3	/2.0	240	70000		27.0	KCL MUD
890507	12 1/4"	3497.0	1.72	33.0	12.0	3/25	8.5	.0/1.5	300	70000	.1	27.0	KCL MUD
890508	12 1/4"	3531.0	1.72	36.0	13.0	4/30	8.6	.0/1.4	460	70000	.1	27.0	KCL MUD
890509	12 1/4"	3558.0	1.72	35.0	12.0	4/30	8.4	.0/1.5	520	67000	.1	27.0	KCL MUD
890510	12 1/4"	3565.0	1.72	28.0	11.0	3/24	8.4	.0/1.1	480	66000	.1	27.0	KCL MUD
890511	12 1/4"	3621.0	1.72	28.0	12.0	3/25	8.1	/1.1	360	67000	.1	27.0	KCL MUD
890512	12 1/4"	3670.0	1.72	29.0	12.0	4/35	8.0	/1.9	480	64000		26.0	KCL MUD
890513	12 1/4"	3703.0	1.72	28.0	13.0	4/28	8.2	/1.2	320	61000		27.0	KCL MUD
890514	12 1/4"	3740.0	1.72	25.0	11.0	3/28	8.2	/1.9	300	59000		27.0	KCL MUD
890515	12 1/4"	3811.0	1.72	29.0	12.0	3/25	8.2	/1.9	320	59000	.1	27.0	KCL MUD
890516	12 1/4"	3811.0	1.72	28.0	11.0	3/24	8.1	/1.0	300	59000		27.0	KCL MUD
890517	12 1/4"	3811.0	1.72	27.0	12.0	3/23	8.5	.0/1.9	360	59000	.1	27.0	KCL MUD
890518	12 1/4"	3811.0	1.74	27.0	12.0	3/24	8.6	.0/1.0	360	59000	.1	27.0	KCL MUD
890519	12 1/4"	3811.0	1.74	29.0	14.0	3/28	8.5	/1.8	480	59000		27.0	KCL MUD
890520	12 1/4"	3816.0	1.74	29.0	13.0	3/26	8.6	/1.9	480	58000		27.0	KCL MUD
890521	12 1/4"	3867.0	1.74	24.0	11.0	2/26	8.3	/1.8	360	61000	.1	27.0	KCL MUD
890522	12 1/4"	3867.0	1.74	24.0	12.0	2/28	8.4	/1.9	400	59000		27.0	HI TEMP POLYMER
890523	12 1/4"	3875.0	1.74	24.0	12.0	2/31	8.6	.0/1.2	280	58000		28.0	HI TEMP POLYMER
890524	12 1/4"	3880.0	1.74	25.0	10.0	3/27	6.9	/1.2	1400	60000		28.0	HI TEMP POLYMER
890525	12 1/4"	3916.0	1.74	14.0	11.0	4/38	8.6	.0/1.2	400	52000		29.0	HI TEMP POLYMER
890526	12 1/4"	3960.0	1.74	16.0	9.0	5/30	8.9	.0/1.3	440	52000		28.0	HI TEMP POLYMER
890527	12 1/4"	4017.0	1.74	20.0	11.0	5/37	9.5	.1/1.4	400	51000		29.0	HI TEMP POLYMER
890528	12 1/4"	4045.0	1.74	21.0	10.0	7/39	9.5	.2/1.5	400	49000		29.0	HI TEMP POLYMER
890529	12 1/4"	4075.0	1.74	23.0	13.0	8/52	9.4	***/1.2	440	45000		29.5	HI TEMP POLYMER

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890530	12 1/4"	4137.0	1.74	22.0	11.0	6/43	10.2	.2/1.2	440	44000		29.0	HI TEMP POLYMER
890531	12 1/4"	4170.0	1.74	18.0	11.0	4/38	10.1	.2/1.6	340	42000		29.0	HI TEMP POLYMER
890601	12 1/4"	4181.0	1.74	22.0	10.0	8/42	10.2	.3/1.5	420	41000		29.0	HI TEMP POLYMER
890602	12 1/4"	4219.0	1.74		20.0	8/4	10.3	.4/1.8	480	42000		29.0	HI TEMP POLYMER
890603	12 1/4"	4224.0	1.74	20.0	9.0	5/39	10.3	.3/1.9	580	41000		29.0	HI TEMP POLYMER
890604	12 1/4"	4275.0	1.74	22.0	11.0	5/39	10.8	.5/2.6	440	44000		29.0	HI TEMP POLYMER
890605	12 1/4"	4302.0	1.74	23.0	10.0	6/42	10.7	.5/2.6	480	42000		29.0	HI TEMP POLYMER
890606	12 1/4"	4336.0	1.74	25.0	10.0	9/49	10.7	.5/2.5	520	41000	.1	28.5	HI TEMP POLYMER
890607	12 1/4"	4344.0	1.74	21.0	10.0	7/43	10.7	.3/2.8	520	40000	.1	28.5	HI TEMP POLYMER
890608	12 1/4"	4355.0	1.74	22.0	8.0	6/41	10.3	.3/2.5	540	40000		29.0	HI TEMP POLYMER
890609	12 1/4"	4408.0	1.74	20.0	10.0	8/50	9.9	.3/2.4	520	38000		28.0	HI TEMP POLYMER
890610	12 1/4"	4431.0	1.74	18.0	9.0	7/38	10.5	.3/1.8	480	36000		28.0	HI TEMP POLYMER
890611	12 1/4"	4474.0	1.74	18.0	9.0	7/43	10.2	.3/1.5	400	34000	.1	28.0	HI TEMP POLYMER
890612	12 1/4"	4525.0	1.74	20.0	10.0	7/40	10.2	.3/2.4	440	38000	.1	28.0	HI TEMP POLYMER
890613	12 1/4"	4543.0	1.74	19.0	11.0	7/36	10.8	.4/2.8	420	43000		28.0	HI TEMP POLYMER
890614	12 1/4"	4543.0	1.74	19.0	9.0	5/32	10.7	.4/2.4	400	44000		28.0	HI TEMP POLYMER
890615	12 1/4"	4543.0	1.74	18.0	9.0	6/29	10.6	.3/2.2	500	44000	.1	28.0	HI TEMP POLYMER
890616	12 1/4"	4543.0	1.74	18.0	9.0	6/30	10.5	.3/2.2	500	44000		28.0	HI TEMP POLYMER
890617	12 1/4"	4543.0	1.74	18.0	9.0	6/30	10.5	.3/2.2	500	44000		28.0	HI TEMP POLYMER
890618	12 1/4"	4543.0	1.74	18.0	9.0	6/30	10.5	.3/2.2	500	44000	.1	28.0	HI TEMP POLYMER
890619	12 1/4"	4543.0	1.74			/		/					HI TEMP POLYMER
890620	12 1/4"	4543.0	1.74			/		/					HI TEMP POLYMER
890624	12 1/4"	4543.0	1.74			/		/					HI TEMP POLYMER
890628	12 1/4"	4548.0	1.76	18.0	10.0	7/37	10.4	.3/2.3	480	44000	.1	28.0	HI TEMP POLYMER
890629	8 1/2"	4548.0	1.76	18.0	9.0	6/34	10.3	.3/2.1	460	44000	.1	28.0	HI TEMP POLYMER
890630	8 1/2"	4548.0	1.76	19.0	10.0	7/43	10.8	.4/2.6	500	44000		29.0	HI TEMP POLYMER
890701	8 1/2"	4548.0	1.76	19.0	10.0	7/43	10.8	.4/2.6	500	44000		29.0	HI TEMP POLYMER

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890702	8 1/2"	4550.0	1.78	18.0	9.0	9/48	10.6	.3/2.4	480	44000	.1	29.0	HI TEMP POLYMER
890703	8 1/2"	4551.0	1.78	18.0	10.0	8/44	10.5	.3/2.4	420	44000	.1	29.0	HI TEMP POLYMER
890704	8 1/2"	4551.0	1.78	18.0	9.0	7/42	10.3	.3/2.4	400	44000	.1	29.0	HI TEMP POLYMER
890705	8 1/2"	4551.0	1.78	17.0	8.0	7/31	10.7	.3/2.5	420	44000	.1	29.0	HI TEMP POLYMER
890706	8 1/2"	4551.0	1.78	18.0	10.0	7/30	10.7	.3/2.6	440	43000		29.0	HI TEMP POLYMER
890707	8 1/2"	4551.0	1.78	19.0	10.0	7/32	10.6	.3/2.5	420	43000		29.0	HI TEMP POLYMER
890708	8 1/2"	4551.0	1.78	18.0	9.0	7/32	10.8	.4/2.6	440	39000		29.0	HI TEMP POLYMER
890709	8 1/2"	4551.0	1.78	16.0	9.0	6/30	10.8	.4/2.5	440	37000	.1	29.0	HI TEMP POLYMER
890710	8 1/2"	4551.0	1.78	17.0	9.0	6/31	10.8	.4/2.5	380	36000	.1	29.0	HI TEMP POLYMER
890711	8 1/2"	4551.0	1.78	16.0	10.0	7/29	10.6	.4/2.5	380	35000	.1	29.0	HI TEMP POLYMER
890712	8 1/2"	4551.0	1.78	16.0	8.0	6/27	10.4	.3/2.7	320	35000	.1	29.0	HI TEMP POLYMER
890713	8 1/2"	4551.0	1.78	17.0	8.0	7/30	10.3	.3/2.6	360	35000		29.0	HI TEMP POLYMER
890714	8 1/2"	4551.0	1.78	16.0	8.0	6/28	10.7	.4/2.5	440	33000		29.0	HI TEMP POLYMER
890715	8 1/2"	4551.0	1.78	16.0	9.0	7/33	10.4	.3/2.6	420	33000		29.0	HI TEMP POLYMER
890716	8 1/2"	4551.0	1.78	17.0	8.0	6/30	10.2	.3/2.3	400	33000		29.0	HI TEMP POLYMER
890717	8 1/2"	4551.0	1.78	18.0	9.0	7/33	10.5	.3/2.7	420	33000		29.0	HI TEMP POLYMER
890718	8 1/2"	4551.0	1.78	17.0	9.0	6/33	10.3	.3/2.6	400	33000		29.0	HI TEMP POLYMER
890719	8 1/2"	4551.0	1.78	17.0	8.0	6/30	10.2	.3/2.5	360	31000		28.0	HI TEMP POLYMER
890720	8 1/2"	4551.0	1.78	17.0	9.0	6/31	10.3	.3/2.6	400	30000		28.0	HI TEMP POLYMER
890721	8 1/2"	4551.0	1.78	17.0	10.0	6/30	10.4	.3/2.4	380	30000		28.0	HI TEMP POLYMER
890722	8 1/2"	4551.0	1.78	17.0	7.0	4/28	10.3	.3/3.0	240	30000		28.0	HI TEMP POLYMER
890723	8 1/2"	4551.0	1.78	18.0	12.0	6/38	10.4	.3/3.0	320	30000		28.0	HI TEMP POLYMER
890724	8 1/2"	4551.0	1.78	17.0	10.0	5/22	10.4	.3/3.0	280	30000		28.0	HI TEMP POLYMER
890725	8 1/2"	4551.0	1.78	18.0	9.0	6/26	10.4	.3/3.0	320	30000		28.0	HI TEMP POLYMER
890726	8 1/2"	4551.0	1.78	18.0	10.0	6/28	10.4	.3/3.0	320	30000		28.0	HI TEMP POLYMER
890727	8 1/2"	4551.0	1.78	18.0	11.0	5/27	10.3	.3/2.8	280	30000		28.0	HI TEMP POLYMER
890728	8 1/2"	4551.0	1.78	18.0	11.0	5/41	10.5	.3/3.0	280	30000		28.0	HI TEMP POLYMER

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890729	8 1/2"	4551.0	1.78	18.0	12.0	5/38	10.4	.3/2.8	300	30000		28.0	HI TEMP POLYMER
890730	8 1/2"	4551.0	1.78	19.0	13.0	6/40	10.4	.3/2.8	300	28000		28.0	HI TEMP POLYMER
890731	8 1/2"	4505.0	1.78	20.0	12.0	6/38	10.5	.3/2.4	350	27000	.1	28.0	HI TEMP POLYMER
890801	8 1/2"	4551.0	1.78	18.0	11.0	7/39	10.4	.3/2.2	300	26000	.1	28.0	HI TEMP POLYMER
890802	8 1/2"	4551.0	1.78	18.0	11.0	7/41	10.5	.3/2.1	360	26000	.1	28.0	HI TEMP POLYMER
890803	8 1/2"	4551.0	1.78	18.0	11.0	7/36	10.4	.3/2.0	340	26000	.1	28.0	HI TEMP POLYMER
890804	8 1/2"	4551.0	1.78	17.0	10.0	6/37	10.3	.3/1.9	300	26000		28.0	HI TEMP POLYMER
890805	8 1/2"	4551.0	1.78	17.0	10.0	6/40	10.4	.3/1.9	360	26000		28.0	HI TEMP POLYMER
890806	8 1/2"	4551.0	1.78	16.0	11.0	6/42	10.3	.3/2.0	360	26000	.1	28.0	HI TEMP POLYMER
890807	8 1/2"	4551.0	1.78	17.0	9.0	5/39	10.3	.3/2.0	380	25000		28.0	HI TEMP POLYMER
890808	8 1/2"	4551.0	1.78	16.0	10.0	6/41	10.4	.3/2.1	360	25000	.1	28.0	HI TEMP POLYMER
890809	8 1/2"	4551.0	1.78	18.0	10.0	6/44	10.4	.3/2.1	340	25000	.1	28.0	HI TEMP POLYMER
890810	8 1/2"	4551.0	1.78	18.0	7.0	7/42	10.3	.3/1.9	400	25000		28.0	HI TEMP POLYMER
890811	8 1/2"	4551.0	1.78	15.0	7.0	6/41	10.0	.3/1.8	440	25000		28.0	HI TEMP POLYMER
890812	8 1/2"	4551.0	1.78	17.0	8.0	6/37	10.0	.3/1.8	440	25000		28.0	HI TEMP POLYMER
890813	8 1/2"	4600.0	1.78	20.0	7.0	6/27	10.1	.3/2.0	520	25000		28.0	HI TEMP POLYMER
890814	8 1/2"	4658.0	1.78	17.0	7.0	4/24	10.6	.5/3.1	400	23000	.1	28.0	HI TEMP POLYMER
890815	8 1/2"	4658.0	1.78	21.0	9.0	4/24	10.0	.6/3.2	400	23000	.1	28.0	HI TEMP POLYMER
890816	8 1/2"	4658.0	1.78	21.0	8.0	5/25	10.1	.6/3.2	420	23000		28.0	HI TEMP POLYMER
890817	8 1/2"	4689.0	1.78	19.0	7.0	5/22	10.1	.6/3.3	440	22000		28.0	HI TEMP POLYMER
890818	8 1/2"	4714.0	1.78	19.0	10.0	5/22	10.1	.6/3.2	400	22000	.1	28.0	HI TEMP POLYMER
890819	8 1/2"	4714.0	1.78	20.0	10.0	5/24	10.2	.6/3.3	440	22000	.1	28.0	HI TEMP POLYMER
890820	8 1/2"	4714.0	1.78	18.0	9.0	5/23	10.5	.8/3.4	400	20000	.1	28.0	HI TEMP POLYMER
890820	8 1/2"	4689.0	1.78	18.0	9.0	5/23	10.5	/	400	20000	.1	28.0	KCL MUD
890821	8 1/2"	4714.0	1.78	19.0	9.0	5/24	10.5	.8/3.4	400	20000		28.0	HI TEMP POLYMER
890821	8 1/2"	4714.0	1.78	19.0	9.0	5/24	10.5	.8/3.4	400	20000	.1	28.0	HI TEMP POLYMER
890822	8 1/2"	4733.0	1.78	17.0	9.0	5/22	10.6	.8/3.0	360	20000	.1	27.5	HI TEMP POLYMER

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890823	8 1/2"	4757.0	1.78	19.0	9.0	5/24	10.5	.8/2.8	400	20000	.1	27.5	HI TEMP POLYMER
890824	8 1/2"	4756.0	1.78	17.0	10.0	5/22	10.6	.8/2.9	440	20000	.1	27.5	HI TEMP POLYMER
890825	8 1/2"	4779.0	1.78	17.0	8.0	5/23	10.3	.4/2.2	440	20000		27.5	HI TEMP POLYMER
890826	8 1/2"	4786.0	1.78	17.0	9.0	4/22	10.3	.4/3.0	440	19500		27.5	HI TEMP POLYMER
890827	8 1/2"	4811.0	1.78	18.0	8.0	5/23	10.2	.3/3.8	460	20000	.1	27.5	HI TEMP POLYMER
890828	8 1/2"	4811.0	1.78	18.0	12.0	4/32	10.3	.3/3.0	480	20000	.1	27.5	HI TEMP POLYMER
890828	8 1/2"	4811.0	1.78	18.0	12.0	4/32	10.3	.3/3.0	480	20000	.1	27.5	HI TEMP POLYMER
890829	8 1/2"	4814.0	1.78	17.0	10.0	5/27	10.2	.3/3.7	500	20000	.1	28.0	HI TEMP POLYMER
890830	8 1/2"	4845.0	1.78	17.0	9.0	4/24	10.3	.3/3.5	520	19000	.1	28.0	HI TEMP POLYMER
890830	8 1/2"	4845.0	1.78	17.0	9.0	4/24	10.3	.3/3.5	520	19000	.1	28.0	HI TEMP POLYMER
890831	8 1/2"	4851.0	1.78	16.0	9.0	4/24	10.2	.3/3.5	540	19000	.1	28.0	HI TEMP POLYMER
890831	8 1/2"	4851.0	1.78	16.0	9.0	4/24	10.2	.3/3.5	540	19000	.1	28.0	HI TEMP POLYMER
890901	8 1/2"	4863.0	1.78	16.0	9.0	4/22	10.0	.3/3.5	540	19000		28.0	HI TEMP POLYMER
890902	8 1/2"	4863.0	1.78	16.0	9.0	4/23	10.0	.3/3.5	560	20000		28.0	HI TEMP POLYMER
890903	8 1/2"	4863.0	1.78	17.0	10.0	4/24	10.2	.3/3.4	520	20000	.1	28.0	HI TEMP POLYMER
890904	8 1/2"	4863.0	1.78	17.0	9.0	4/24	10.1	.3/3.5	520	20000	.1	28.0	HI TEMP POLYMER
890904	8 1/2"	4863.0	1.78	17.0	9.0	4/24	10.1	.3/3.5	520	20000	.1	28.0	HI TEMP POLYMER
890905	8 1/2"	4886.0	1.80	18.0	9.0	4/26	10.3	.3/3.9	480	19000	.1	28.5	HI TEMP POLYMER
890906	8 1/2"	4886.0	1.80	16.0	8.0	5/27	10.3	.3/3.6	560	18500	.1	28.5	HI TEMP POLYMER
890907	8 1/2"	4886.0	1.80	16.0	8.0	5/29	10.2	.3/3.6	560	18500	.1	28.5	HI TEMP POLYMER
890908	8 1/2"	4896.0	1.80	16.0	8.0	4/26	10.5	.3/3.8	440	18500	.1	27.5	HI TEMP POLYMER
890909	8 1/2"	4896.0	1.90	18.0	9.0	5/38	10.5	.4/3.9	480	18500	.1	31.5	HI TEMP POLYMER
890910	8 1/2"	4905.0	1.90	17.0	6.0	3/21	10.4	.4/3.8	440	18000	.1	31.5	HI TEMP POLYMER
890911	8 1/2"	4909.0	1.95	18.0	7.0	4/26	10.3	.3/3.7	520	17500	.1	31.5	HI TEMP POLYMER
890912	8 1/2"	4910.0	1.95	18.0	6.0	4/26	10.5	.4/3.8	440	16500	.1	31.5	HI TEMP POLYMER
890913	8 1/2"	4616.0	1.95	17.0	7.0	3/20	10.3	.3/3.7	520	16000	.1	33.0	HI TEMP POLYMER
890914	8 1/2"	4930.0	1.95	18.0	7.0	4/21	10.4	.5/3.6	400	16500	.1	33.0	HI TEMP POLYMER

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
890915	8 1/2"	4930.0	1.95	18.0	6.0	4/20	10.3	.5/3.6	400	16500		33.0	HI TEMP POLYMER
890916	8 1/2"	4930.0	1.95	18.0	6.0	4/20	10.2	.4/3.3	420	16500	.1	33.0	HI TEMP POLYMER
890917	8 1/2"	4930.0	1.95	18.0	6.0	4/21	10.1	.3/3.1	440	16500	.1	33.0	HI TEMP POLYMER
890918	8 1/2"	4930.0	1.95	17.0	7.0	4/20	10.0	.3/3.3	440	16500	.1	33.0	HI TEMP POLYMER
890919	8 1/2"	4930.0	1.95	18.0	9.0	4/23	10.0	.3/3.7	380	16000	.1	33.0	HI TEMP POLYMER
890920	8 1/2"	4930.0	1.95	18.0	8.0	4/22	10.3	.4/3.5	440	16000	.1	33.0	HI TEMP POLYMER
890921	8 1/2"	4930.0	1.95	18.0	8.0	4/21	10.2	.3/3.1	420	16000	.1	33.0	HI TEMP POLYMER
890922	8 1/2"	4930.0	1.95	17.0	12.0	7/25	10.5	.5/3.6	460	14500	.1	33.0	HI TEMP POLYMER
890923	8 1/2"	4930.0	1.95	17.0	11.0	6/24	10.4	.5/3.7	460	14500	.1	33.0	HI TEMP POLYMER
890924	8 1/2"	4930.0	1.95	17.0	11.0	6/23	10.3	.4/3.7	460	14500	.1	33.0	HI TEMP POLYMER
890925	8 1/2"	4930.0	1.95	17.0	10.0	6/23	10.3	.4/3.6	440	14500	.1	33.0	HI TEMP POLYMER
890926	8 1/2"	4930.0	1.95	17.0	10.0	6/23	10.3	.4/3.5	420	14500	.1	33.0	HI TEMP POLYMER
890927	8 1/2"	4930.0	1.95	17.0	10.0	5/21	10.2	.4/3.5	420	14500	.1	33.0	HI TEMP POLYMER
890928	8 1/2"	4930.0	1.95	18.0	10.0	4/20	10.2	/	400	15500		33.0	HI TEMP POLYMER
890929	8 1/2"	4930.0	1.95	16.0	10.0	5/21	10.1	.3/3.4	360	15000		33.0	HI TEMP POLYMER
890930	8 1/2"	4930.0	1.95	17.0	10.0	5/22	10.1	.3/3.4	360	15000		33.0	HI TEMP POLYMER
891001	8 1/2"	4930.0	1.95	17.0	10.0	6/25	10.4	.4/3.2	360	14500	.1	33.0	HI TEMP POLYMER
891002	8 1/2"	4930.0	1.95	17.0	10.0	5/23	10.5	.4/3.3	360	14500	.1	33.0	HI TEMP POLYMER
891003	8 1/2"	4930.0	1.95	16.0	10.0	5/21	10.2	.4/3.4	280	14000	.1	33.0	HI TEMP POLYMER
891004	8 1/2"	4930.0	1.95	16.0	10.0	5/22	10.1	.3/3.5	280	14000	.1	33.0	HI TEMP POLYMER
891005	8 1/2"	4930.0	1.95	17.0	10.0	5/23	10.0	.3/3.7	260	14000	.1	33.0	HI TEMP POLYMER
891006	8 1/2"	4930.0	1.95	18.0	10.0	5/24	10.0	.3/3.6	240	14000	.1	33.0	HI TEMP POLYMER
891007	8 1/2"	4930.0	1.95	17.0	10.0	6/26	10.5	.4/3.0	480	14000	.1	33.0	HI TEMP POLYMER
891008	8 1/2"	4930.0	1.95	18.0	10.0	6/25	10.5	.4/3.1	460	14000	.1	33.0	HI TEMP POLYMER
891009	8 1/2"	4930.0	1.95	18.0	11.0	5/20	10.4	.4/3.3	440	14000	.1	33.0	HI TEMP POLYMER
891010	8 1/2"	4930.0	1.95	18.0	10.0	6/26	10.3	.4/3.4	440	14000	.1	33.0	HI TEMP POLYMER
891011	8 1/2"	4930.0	1.95	16.0	10.0	5/24	10.3	.3/2.8	400	14000	.1	33.0	HI TEMP POLYMER

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
891012	8 1/2"	4930.0	1.95	16.0	10.0	5/23	10.3	.3/2.4	420	14000	.1	33.0	HI TEMP POLYMER
891013	8 1/2"	4930.0	1.95	16.0	10.0	5/21	10.2	.3/2.4	420	14000	.1	33.0	HI TEMP POLYMER
891014	8 1/2"	4930.0	1.95	16.0	10.0	5/21	10.1	.2/1.9	420	14000	.1	33.0	HI TEMP POLYMER
891015	8 1/2"	4930.0	1.95	16.0	10.0	5/24	10.5	.4/2.5	420	14000	.1	33.0	HI TEMP POLYMER
891016	8 1/2"	4930.0	1.95	16.0	10.0	5/22	10.4	.4/2.3	440	14000	.1	33.0	HI TEMP POLYMER
891017	8 1/2"	4930.0	1.95	16.0	10.0	5/21	10.4	.3/2.3	440	14000	.1	33.0	HI TEMP POLYMER
891018	8 1/2"	4930.0	1.95	16.0	10.0	5/21	10.3	.3/2.3	420	14000	.1	33.0	HI TEMP POLYMER
891019	8 1/2"	4930.0	1.95	14.0	10.0	7/30	10.5	.3/2.3	400	14000	.1	33.0	HI TEMP POLYMER
891020	8 1/2"	4930.0	1.95	14.0	10.0	7/30	10.5	.3/2.3	400	14000	.1	33.0	HI TEMP POLYMER
891021	8 1/2"	4930.0	1.95	14.0	10.0	7/30	10.5	.3/2.3	400	14000	.1	33.0	HI TEMP POLYMER
891022	8 1/2"	4930.0	1.95	14.0	10.0	7/30	10.5	.3/2.3	400	14000	.1	33.0	HI TEMP POLYMER
891023	8 1/2"	4930.0	1.95	15.0	9.0	5/24	10.6	.3/3.3	360	14000	.1	33.0	HI TEMP POLYMER
891024	8 1/2"	4930.0	1.95	15.0	9.0	5/24	10.6	.3/3.3	360	14000	.1	33.0	HI TEMP POLYMER
891025	8 1/2"	4930.0	1.95	15.0	9.0	5/24	10.4	.3/3.3	360	14000	.1	33.0	HI TEMP POLYMER
891026	8 1/2"	4930.0	1.95	15.0	9.0	5/24	10.6	.3/3.3	360	14000	.1	33.0	HI TEMP POLYMER
891027	8 1/2"	4930.0	1.95	16.0	10.0	5/26	10.5	.3/3.4	380	14000	.1	33.0	HI TEMP POLYMER
891028	8 1/2"	4930.0	1.95	15.0	9.0	5/22	10.6	.3/3.5	400	14000	.1	33.0	HI TEMP POLYMER
891029	8 1/2"	4930.0	1.95	15.0	9.0	5/22	10.6	.3/3.5	400	14000	.1	33.0	HI TEMP POLYMER
891030	8 1/2"	4930.0	1.95	15.0	9.0	5/22	10.6	.3/3.5	400	14000	.1	33.0	HI TEMP POLYMER
891031	8 1/2"	4930.0	1.95	15.0	11.0	10/28	10.6	.3/3.0	440	17000	.1	33.0	HI TEMP POLYMER
891101	8 1/2"	4930.0	1.95	15.0	11.0	10/28	10.6	.3/3.0	440	17000	.1	33.0	HI TEMP POLYMER
891102	8 1/2"	4930.0	1.95	14.0	10.0	9/32	10.5	.3/2.8	400	15000	.1	33.0	HI TEMP POLYMER
891103	8 1/2"	4930.0	1.95	16.0	11.0	8/30	10.3	.3/2.9	380	16000	.1	33.0	HI TEMP POLYMER
891104	8 1/2"	4930.0	1.95	15.0	11.0	8/28	10.5	.3/2.7	440	14000	.1	33.0	HI TEMP POLYMER
891105	8 1/2"	4930.0	1.95	15.0	10.0	7/27	10.5	.3/2.7	440	14000	.1	33.0	HI TEMP POLYMER
891106	8 1/2"	4930.0	1.95	15.0	10.0	7/28	10.5	.3/2.7	400	14000	.1	33.0	HI TEMP POLYMER
891107	8 1/2"	4930.0	1.95	16.0	11.0	7/28	10.5	.3/2.7	400	14000	.1	33.0	HI TEMP POLYMER

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
891108	8 1/2"	4930.0	1.95	16.0	11.0	7/28	10.5	.3/2.7	400	14000	.1	33.0	HI TEMP POLYMER
891109	8 1/2"	4930.0	1.95	14.0	9.0	5/22	10.6	.4/2.7	460	14000	.1	33.0	HI TEMP POLYMER
891110	8 1/2"	4930.0	1.95	15.0	10.0	4/22	10.6	.4/2.7	440	14000	.1	32.0	HI TEMP POLYMER
891111	8 1/2"	4930.0	1.95	16.0	11.0	5/26	10.6	.3/2.1	400	14000	.1	32.0	HI TEMP POLYMER
891112	8 1/2"	4930.0	1.95	15.0	10.0	5/25	10.5	.3/2.2	400	14000	.1	33.0	HI TEMP POLYMER
891113	8 1/2"	4930.0	1.95	16.0	10.0	5/24	10.5	.3/2.2	380	14000	.1	32.0	HI TEMP POLYMER
891114	8 1/2"	4930.0	1.95	15.0	12.0	7/27	10.2	.2/2.4	360	14000	.1	32.0	HI TEMP POLYMER
891115	8 1/2"	4930.0	1.95	15.0	11.0	6/26	10.5	.4/2.1	420	14000	.1	32.0	HI TEMP POLYMER
891116	8 1/2"	4930.0	1.95	15.0	11.0	6/26	10.4	.4/1.9	420	14000	.1	33.0	HI TEMP POLYMER
891117	8 1/2"	4930.0	1.95	15.0	11.0	5/24	10.4	.3/1.9	400	14000	.1	33.0	HI TEMP POLYMER
891118	8 1/2"	4930.0	1.95	15.0	11.0	5/23	10.3	.3/1.9	400	14000	.1	33.0	HI TEMP POLYMER
891119	8 1/2"	4930.0	1.95	15.0	10.0	5/23	10.3	.3/1.9	400	14000	.1	33.0	HI TEMP POLYMER
891120	8 1/2"	4930.0	1.95	14.0	10.0	6/24	10.7	.3/2.1	400	13000	.1	33.0	HI TEMP POLYMER
891121	8 1/2"	4930.0	1.95	15.0	10.0	5/25	10.6	.3/2.1	400	13000	.1	33.0	HI TEMP POLYMER
891122	8 1/2"	4930.0	1.95	15.0	10.0	5/22	10.5	.3/1.9	420	13000	.1	33.0	HI TEMP POLYMER
891123	8 1/2"	4930.0	1.95	15.0	10.0	5/22	10.5	.3/1.9	420	13000	.1	33.0	HI TEMP POLYMER
891124	8 1/2"	4930.0	1.95	16.0	9.0	4/19	10.7	.4/2.5	440	13000	.1	33.0	HI TEMP POLYMER
891125	8 1/2"	4930.0	1.95	16.0	9.0	4/18	10.6	.4/2.4	440	13000	.1	33.0	HI TEMP POLYMER
891126	8 1/2"	4930.0	1.95	16.0	9.0	4/20	10.6	.3/2.4	420	13000	.1	33.0	HI TEMP POLYMER
891127	8 1/2"	4930.0	1.95	16.0	11.0	10/27	10.9	.4/2.6	440	13000	.1	33.0	HI TEMP POLYMER
891128	8 1/2"	4930.0	1.95	16.0	11.0	6/20	10.7	.4/2.3	440	13000	.1	33.0	HI TEMP POLYMER
891129	8 1/2"	4930.0	1.95	16.0	11.0	5/20	10.6	.3/2.1	420	13000	.1	33.0	HI TEMP POLYMER
891130	8 1/2"	4930.0	1.95	15.0	10.0	5/22	10.5	.3/2.1	400	13000	.1	33.0	HI TEMP POLYMER
891201	8 1/2"	4930.0	1.95	15.0	9.0	4/20	10.3	.3/2.2	380	13000	.1	33.0	HI TEMP POLYMER
891202	8 1/2"	4930.0	1.95	14.0	10.0	5/22	10.7	.4/2.1	480	13000	.1	33.0	HI TEMP POLYMER
891203	8 1/2"	4930.0	1.95	14.0	9.0	4/20	10.6	.4/2.1	480	13000	.1	33.0	HI TEMP POLYMER
891204	8 1/2"	4930.0	1.95	14.0	9.0	4/20	10.4	.4/2.1	400	13000	.1	33.0	HI TEMP POLYMER

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
891205	8 1/2"	4930.0	1.95	15.0	12.0	5/25	10.4	.3/2.3	480	13000	.1	33.0	HI TEMP POLYMER
891206	8 1/2"	4930.0	1.95	15.0	12.0	5/25	10.4	.3/2.3	480	13000	.1	33.0	HI TEMP POLYMER
891207	8 1/2"	4930.0	1.95	14.0	10.0	6/24	10.0	.3/2.3	480	13000	.1	33.0	HI TEMP POLYMER
891208	8 1/2"	4930.0	1.95	15.0	11.0	6/25	10.0	.3/2.3	480	13000	.1	33.0	HI TEMP POLYMER
891209	8 1/2"	4930.0	1.95	14.0	10.0	6/26	10.0	.3/2.4	480	13000	.1	33.0	HI TEMP POLYMER
891210	8 1/2"	4932.0	1.95	22.0	11.0	5/23	10.4	.3/2.2	380	12000	.1	33.0	HI TEMP POLYMER
891211	8 1/2"	4932.0	1.95	17.0	10.0	4/22	10.3	.3/2.3	360	12000	.1	33.0	HI TEMP POLYMER
891212	8 1/2"	4963.0	1.95	16.0	11.0	4/23	10.4	.3/2.2	380	12000	.1	33.0	HI TEMP POLYMER
891213	8 1/2"	4963.0	2.13	30.0	21.0	5/20	9.6	.2/1.3	240	5000		32.0	HI TEMP POLYMER
891214	8 1/2"	4962.0	2.13	26.0	14.0	5/20	9.6	.2/1.3	240	5000		32.0	HI TEMP POLYMER
891215	8 1/2"	4962.0	2.25	26.0	12.0	5/21	10.0	.3/2.2	280	5000	.1	33.0	HI TEMP POLYMER
891216	8 1/2"	4962.0	2.25	15.0	11.0	5/21	10.1	.3/2.2	280	5000	.1	31.5	HI TEMP POLYMER
891217	8 1/2"	4963.0	2.12	30.0	15.0	5/12	10.3	.3/2.3	280	300	.5	36.5	HI TEMP POLYMER
891218	8 1/2"	4963.0	2.12	31.0	19.0	5/13	10.1	.3/2.3	320	300	.5	36.5	HI TEMP POLYMER
891219	8 1/2"	4962.0	2.20	65.0	34.0	8/24	10.8	.4/3.1	420	300	1.0	39.0	HI TEMP POLYMER
891220	8 1/2"	4963.0	2.20	34.0	35.0	10/24	10.6	.4/2.8	340	300	1.0	39.0	HI TEMP POLYMER
891221	5 7/8"	4962.0	2.20	55.0	45.0	14/49	10.5	.3/3.1	380	300	.1	39.0	HI TEMP POLYMER
891222	5 7/8"	4962.0	2.20	55.0	45.0	14/49	10.3	.3/2.6	380	300	.1	39.0	HI TEMP POLYMER
891223	5 7/8"	4962.0	2.20	63.0	42.0	13/42	10.9	.4/3.0	360	3000	1.0	39.0	HI TEMP POLYMER
891224	5 7/8"	4962.0	2.20	61.0	40.0	13/39	10.8	.4/3.0	380	3000	1.0	39.0	HI TEMP POLYMER
891225	5 7/8"	4962.0	2.20	65.0	39.0	14/42	10.6	.3/2.4	340	3000	1.0	39.0	HI TEMP POLYMER
891226	5 7/8"	4962.0	2.20	65.0	39.0	14/42	10.6	.3/2.4	340	3000	1.0	39.0	HI TEMP POLYMER
891227	5 7/8"	4962.0	2.20	58.0	38.0	15/51	10.5	.3/2.9	340	3000	.1	39.0	HI TEMP POLYMER
891228	5 7/8"	4962.0	2.20	58.0	38.0	15/51	10.5	.3/2.9	340	3000	.1	39.0	HI TEMP POLYMER
891229	5 7/8"	4962.0	2.20	63.0	37.0	11/54	10.1	.2/2.6	240	7000	1.0	39.0	HI TEMP POLYMER
891230	5 7/8"	4962.0	2.20	63.0	37.0	11/54	10.1	.2/2.6	240	7000	1.0	39.0	HI TEMP POLYMER
891231	5 7/8"	4962.0	2.20	63.0	40.0	11/64	10.7	.3/2.5	320	7000	1.0	39.0	HI TEMP POLYMER

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
900101	5 7/8"	4963.0	2.20	63.0	40.0	11/64	10.7	.3/2.5	320	7000	1.0	39.0	HI TEMP POLYMER
900102	5 7/8"	4963.0	2.20	61.0	34.0	14/62	10.6	.3/2.3	340	7000	1.0	39.0	HI TEMP POLYMER
900103	5 7/8"	4963.0	2.20	61.0	34.0	14/62	10.6	.3/2.3	340	7000	1.0	39.0	HI TEMP POLYMER
900104	5 7/8"	4963.0	2.20	61.0	34.0	14/56	10.5	.3/2.3	340	7000	1.0	39.0	HI TEMP POLYMER
900105	5 7/8"	4962.0	2.20	60.0	32.0	13/43	10.7	.3/2.5	380	6500	1.0	39.0	HI TEMP POLYMER
900106	5 7/8"	4962.0	2.20	60.0	32.0	13/40	10.6	.3/2.1	380	6500	1.0	39.0	HI TEMP POLYMER
900107	5 7/8"	4963.0	2.20	63.0	37.0	15/49	10.7	.3/2.6	400	6000	1.0	39.0	HI TEMP POLYMER
900108	5 7/8"	4963.0	2.20	55.0	30.0	12/39	10.5	.3/2.1	440	6000	1.0	39.0	HI TEMP POLYMER
900109	5 7/8"	4963.0	2.20	57.0	28.0	13/44	10.8	.3/2.4	440	6000	1.0	39.0	HI TEMP POLYMER
900110	5 7/8"	4963.0	2.20	54.0	26.0	11/38	10.6	.3/1.9	440	6000	1.0	39.0	HI TEMP POLYMER
900111	5 7/8"	4963.0	2.20	54.0	26.0	10/35	10.5	.3/1.9	440	6000	1.0	39.0	HI TEMP POLYMER
900112	5 7/8"	4963.0	2.20	58.0	35.0	15/49	10.7	.3/2.6	460	6000	1.0	39.0	HI TEMP POLYMER
900113	5 7/8"	4963.0	2.20	60.0	32.0	12/40	10.5	.3/2.1	440	6000	1.0	39.0	HI TEMP POLYMER
900114	5 7/8"	4963.0	2.20	60.0	32.0	11/36	10.5	.3/2.1	440	6000	1.0	39.0	HI TEMP POLYMER
900115	5 7/8"	4963.0	2.20	61.0	30.0	11/34	10.4	.3/2.1	420	6000	1.0	39.0	HI TEMP POLYMER
900116	5 7/8"	4963.0	2.20	50.0	28.0	13/45	10.7	.3/2.6	440	6000	1.0	39.0	HI TEMP POLYMER
900117	5 7/8"	4963.0	2.20	52.0	27.0	12/40	10.5	.3/2.6	440	6000	1.0	39.0	HI TEMP POLYMER
900118	5 7/8"	4963.0	2.20	52.0	27.0	12/40	10.5	.3/2.6	440	6000	1.0	39.0	HI TEMP POLYMER
900119	5 7/8"	4963.0	2.20	61.0	30.0	13/45	10.2	.3/2.5	400	6000	1.0	39.0	HI TEMP POLYMER
900120	5 7/8"	4963.0	2.20	53.0	37.0	25/70	10.7	.3/2.3	480	6800	1.0	40.0	HI TEMP POLYMER
900121	5 7/8"	4963.0	2.20	54.0	35.0	23/68	10.7	.3/2.3	480	6800	1.0	40.0	HI TEMP POLYMER
900122	5 7/8"	4963.0	2.20	50.0	27.0	20/65	10.8	.4/2.5	500	7000	1.0	40.0	HI TEMP POLYMER
900123	5 7/8"	4963.0	2.20	51.0	28.0	21/67	10.8	.4/2.5	500	7000	1.0	40.0	HI TEMP POLYMER
900124	5 7/8"	4963.0	2.20	40.0	18.0	11/48	10.7	.4/2.5	480	6800	.8	40.0	HI TEMP POLYMER
900125	5 7/8"	4963.0	2.20	41.0	19.0	12/49	10.7	.4/2.5	480	6800	.8	40.0	HI TEMP POLYMER
900126	5 7/8"	4963.0	2.20	42.0	19.0	12/48	10.7	.4/2.5	480	6800	.8	40.0	HI TEMP POLYMER
900127	5 7/8"	4963.0	2.20	42.0	20.0	12/49	10.6	.3/2.6	460	6800	.8	40.0	HI TEMP POLYMER

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
900128	5 7/8"	4963.0	2.20	40.0	13.0	9/52	10.6	4/2.5	480	6800	.8	40.0	HI TEMP POLYMER
900129	5 7/8"	4963.0	2.20	40.0	14.0	10/53	10.6	3/2.6	460	6800	.8	40.0	HI TEMP POLYMER
900130	5 7/8"	4963.0	2.20	39.0	14.0	10/51	10.6	3/2.6	460	6800	.8	40.0	HI TEMP POLYMER
900131	5 7/8"	4963.0	2.20	39.0	14.0	10/51	10.6	3/2.6	460	6800	.8	40.0	HI TEMP POLYMER
900201	5 7/8"	4963.0	2.20	37.0	15.0	9/54	10.5	3/2.6	480	6800	.8	40.0	HI TEMP POLYMER
900202	5 7/8"	4963.0	2.20	37.0	15.0	9/54	10.5	3/2.6	480	6800	.8	40.0	HI TEMP POLYMER
900203	5 7/8"	4963.0	2.20	36.0	14.0	9/52	10.5	3/2.6	480	6800	.8	40.0	HI TEMP POLYMER
900204	5 7/8"	4963.0	2.20	36.0	14.0	9/52	10.5	3/2.6	480	6800	.8	40.0	HI TEMP POLYMER
900205	5 7/8"	4963.0	2.20	36.0	14.0	9/52	10.5	3/2.6	480	6800	.8	40.0	HI TEMP POLYMER
900206	5 7/8"	4963.0	2.20	45.0	15.0	7/48	10.6	3/2.5	420	7000	1.0	40.0	HI TEMP POLYMER
900207	5 7/8"	4963.0	2.20	45.0	15.0	7/48	10.6	3/2.5	420	7000	1.0	40.0	HI TEMP POLYMER
900208	5 7/8"	4963.0	2.20	45.0	15.0	7/54	10.5	3/2.5	420	7000	1.0	40.0	HI TEMP POLYMER
900209	5 7/8"	4963.0	2.20	45.0	14.0	7/54	10.5	3/2.5	420	7000	1.0	40.0	HI TEMP POLYMER
900210	5 7/8"	4963.0	2.20	45.0	14.0	7/54	10.5	3/2.5	420	7000	1.0	40.0	HI TEMP POLYMER
900211	5 7/8"	4963.0	2.20	45.0	14.0	7/54	10.5	3/2.5	420	7000	1.0	40.0	HI TEMP POLYMER
900212	5 7/8"	4963.0	2.20	39.0	16.0	8/60	10.5	3/2.6	400	7000	1.5	40.0	HI TEMP POLYMER
900213	5 7/8"	4963.0	2.20	39.0	16.0	8/60	10.5	3/2.6	400	7000	1.5	40.0	HI TEMP POLYMER
900214	5 7/8"	4963.0	2.20	37.0	17.0	8/65	10.4	3/2.5	360	7000	1.5	40.0	HI TEMP POLYMER
900215	5 7/8"	4963.0	2.20	38.0	16.0	8/64	10.3	3/2.6	380	7000	.5	40.0	HI TEMP POLYMER
900218	5 7/8"	4963.0	2.20	37.0	12.0	8/67	10.7	3/2.3	460	7000	.5	40.0	HI TEMP POLYMER
900219	5 7/8"	4963.0	2.20	37.0	13.0	9/68	10.6	3/2.4	440	7000	.5	40.0	HI TEMP POLYMER
900220	5 7/8"	4963.0	2.20	30.0	12.0	7/54	10.3	3/2.5	400	7000	.5	40.0	HI TEMP POLYMER
900221	5 7/8"	4963.0	2.20	30.0	12.0	7/54	10.3	3/2.5	400	7000	.5	40.0	HI TEMP POLYMER
900222	5 7/8"	4963.0	2.20	31.0	13.0	7/55	10.2	3/2.6	380	7000	.5	40.0	HI TEMP POLYMER
900223	5 7/8"	4963.0	2.20	31.0	13.0	7/55	10.2	3/2.6	380	7000	.5	40.0	HI TEMP POLYMER
900224	5 7/8"	4963.0	2.20	32.0	14.0	7/57	10.2	3/2.7	360	7000	.5	40.0	HI TEMP POLYMER
900225	5 7/8"	4963.0	2.20	32.0	14.0	7/57	10.2	3/2.7	360	7000	.5	40.0	HI TEMP POLYMER

Well: 2/4-15S

Date	Hole size	Hole depth	Mud weight	PV	YP	Gel strength	pH	Alkalinity Pf /Mf	Ca++ mg/l	Cl- mg/l	Sand %	Solids %	Mudtype
900226	5 7/8"	4963.0	2.20	38.0	12.0	9/53	10.5	.4/2.3	420	7000	.5	40.0	HI TEMP POLYMER
900227	5 7/8"	4963.0	2.20	38.0	12.0	9/53	10.5	.4/2.3	420	7000	.5	40.0	HI TEMP POLYMER
900228	5 7/8"	4963.0	2.20	37.0	13.0	9/57	10.4	.4/2.5	400	7000	.5	40.0	HI TEMP POLYMER
900301	5 7/8"	4963.0	2.20	38.0	14.0	9/60	10.3	.4/2.6	380	7000	.5	40.0	HI TEMP POLYMER
900302	5 7/8"	4963.0	2.20	38.0	14.0	9/60	10.3	.4/2.6	380	7000	.5	40.0	HI TEMP POLYMER
900303	5 7/8"	4963.0	2.20	38.0	14.0	9/60	10.3	.4/2.6	380	7000	.5	40.0	HI TEMP POLYMER
900304	5 7/8"	4963.0	2.20	34.0	19.0	10/68	10.5	.4/2.5	400	7500	.5	40.0	HI TEMP POLYMER
900305	5 7/8"	4963.0	2.20	34.0	19.0	10/68	10.5	.4/2.5	400	7500	.5	40.0	HI TEMP POLYMER
900306	5 7/8"	4963.0	2.20	34.0	19.0	10/68	10.5	.4/2.5	400	7500	.5	40.0	HI TEMP POLYMER
900307	5 7/8"	4963.0	2.20	34.0	19.0	10/68	10.5	.4/2.5	400	7500	.5	40.0	HI TEMP POLYMER
900308	5 7/8"	4963.0	2.20	32.0	14.0	8/54	10.4	.4/2.5	420	7500	.5	40.0	HI TEMP POLYMER
900309	5 7/8"	4963.0	2.20	32.0	14.0	8/54	10.4	.4/2.5	420	7800	.5	40.0	HI TEMP POLYMER
900310	5 7/8"	4963.0	2.20	32.0	14.0	8/54	10.4	.4/2.5	420	7800	.5	40.0	HI TEMP POLYMER
900312	5 7/8"	4963.0	2.20	33.0	8.0	3/26	10.4	.5/2.8	400	7800	.5	40.0	HI TEMP POLYMER
900313	5 7/8"	4963.0	2.20	33.0	8.0	3/26	10.4	.5/2.8	400	7800	.5	40.0	HI TEMP POLYMER
900314	5 7/8"	4963.0	2.20	33.0	8.0	3/26	10.4	.5/2.8	400	7800	.5	40.0	HI TEMP POLYMER
900316						/		/					HI TEMP POLYMER

Well 2/4-15S



SAGA PETROLEUM A/S

MUD MATERIALS USED

Well : 2/4-15S

Materials	Unit	36" Hole	26" Hole	17 1/2" Hole	12 1/4" Hole	8 1/2" Hole	5 7/8" Hole	Total
ANTISOL FL 100	25 kg	-	-	379	136	-	-	515
ANTISOL FL 3000	25 kg	-	-	-	-	-	12	12
BARITE	M/T	-	-	4644	1870	835	1548	8897
BENTONITE	M/T	11	19	10	28	13	10	91
BICARBONATE	50 kg	-	-	404	-	12	8	424
BORREWELL C	25 kg	-	-	29	-	-	-	29
Bachban -biocid	3kg	-	-	-	-	-	10	10
CACL2	25 kg	-	-	596	204	-	-	800
CAUSTIC SODA	25 k	2	5	8	196	103	35	349
CF DESCO	25 lbs	-	-	-	717	109	306	1132
CaCl2-brine	bbl	-	-	-	-	-	320	320
Conqor 404	55 gal	-	-	-	-	-	3	3
DRILLING DETERG	55 gal	-	-	6	-	-	-	6
KCL - brine	bbl	-	-	19055	3898	-	-	22953
KCL - sxs	50 kg	-	-	1557	11	-	-	1568
KOH -POTASS. HY	50 kg	-	-	6	47	-	-	53
KwickSeal F/M	40 lbs	-	-	-	83	-	-	83
LIME	40 k	2	2	-	233	95	132	464
MICA C/F	SXS	-	-	-	51	-	-	51
MPOC-freeing st	55 gal	-	-	10	2	-	-	12
Magcolube	55 gal	-	-	33	-	-	-	33
Magcopol LV	25 kg	-	-	3202	512	-	-	3714
Magcopol Reg	25 kg	-	-	622	153	-	-	775
Nut plug F/M/C	25 kg	-	-	20	102	-	6	128
OS-1L	55 gal	-	-	-	-	-	1	1
Oilex	55 gal	-	-	1	5	4	2	12
POT. BICARBONAT	50 kg	-	-	386	53	-	-	439
Poly Plus	25 kg	-	-	149	-	-	-	149
Polydrill	25 kg	-	-	-	523	457	60	1040
Resinex	50 lbs	-	-	-	1166	533	344	2043
Rhodopol	25 kg	-	-	-	-	46	-	46
SAPP	50 kg	-	-	24	-	-	-	24
SODA ASH	50 k	2	4	41	13	1	1	62
SOLTEX	50 lbs	-	-	1683	17	-	-	1700
Silicone Defoam	55 gal	-	-	-	8	40	7	55
XC-POLYMER	25 k	5	-	13	-	41	92	151
XP-20	50 lbs	-	-	-	1209	529	571	2309

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RESEARCH
INSTITUTET
FÖR JORDREKTORATET

Date

IFE/KR/F-90/029

REPORT ON STABLE ISOTOPES
($\delta^{13}\text{C}$, δD) ON NATURAL GAS
SAMPLES FROM WELL 2/4-14,
WELL 2/4-13 AND WELL 2/4-15

KJELLER ADDRESS N-2007 Kjeller, Norway TELEPHO. +47 6 806000 TELEX 74 573 energ n TELEFAX +47 6 815553		HALDEN N-1751 Halden, Norway +47 9 183100 76 335 energ n		AVAILABILITY Private Confidential	
REPORT TYPE	REPORT NO. IFE/KR/F-90/029		DATE 1909-02-12		
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	CLIENT SAGA		NUMBER OF PAGES 16		
	CLIENT REF. IO-AK-89-01072		NUMBER OF ISSUES 17		
SUMMARY <p>The gas components C_1-C_5 have been separated from natural gas samples from well 2/4-14, well 2/4-13 and well 2/4-15. The $\delta^{13}\text{C}$ values of methane, ethane, propane and the butanes have been measured. The isotopic composition of hydrogen from CH_4 has also been measured.</p>				DISTRIBUTION Saga (12) Andresen, B. Råheim, A. Throndsen, T. File (2)	
KEYWORDS					
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1 INTRODUCTION

Gas samples from well 2/4-14, well 2/4-13 and well 2/4-15 were received and analysed during May (two samples from well 2/4-14) and August to December 1989.

The gas samples analysed at IFE are listed in table 1 (well 2/4-14) and table 2 (well 2/4-13) with the sample codes from GECO and corresponding IFE sample codes.

On the samples $C_1 - C_3$ are quantified, and the $\delta^{13}C$ value is measured on methane, ethane, propane and the butanes. The δD value is also measured on methane.

2 ANALYTICAL PROCEDURE

The natural gas samples are quantified and separated into the different gas components by a Carlo Erba 4200 instrument.

The hydrocarbon gas components are oxidized in separate CuO-ovens in order to prevent cross contamination. The combustion products CO_2 and H_2O are frozen into collection vessels and separated.

The combustion water is reduced with zinc metal in a sealed tube to prepare hydrogen for isotopic analysis. The isotopic measurements are performed on a Finnigan Mat 251 and a Finnigan Delta mass spectrometer. IFE's value on NBS 22 is $-29.77 \pm .06$ ‰ PDB.

3 RESULTS

The volume composition of the gas samples is given in tables 3, 4 and 5 (well 2/4-14, well 2/4-13 and well 2/4-15). The results have been normalized to 100%. The stable isotope results are given in table 6, 7 and 8 respectively.

Figure 1 and 2 show the wetness and the iC_4/nC_4 ratio for the gas samples from well 2/4-14 and 2/4-13 and figure 3 and 4 the carbon isotopic composition of methane, ethane, propane and n-butane of the two wells.

The uncertainty on the $\delta^{13}C$ value is estimated to be ± 0.3 ‰ PDB and includes all the different analytical steps. The uncertainty on the δD value is likewise estimated to be ± 5 ‰.

Table 1 Sample codes, well 2/4-14.

Sample no.	Sample code GECO	Sample code IFE
	PRØVER ANKOMMET GECO 22.08.89	
3	Flaske nr.: Whitney P 125. Fra joint between 20" og 30" riser, 2/4-14. Tatt: 18.08.89 kl. 15.00. Prøve sendt IFE på : WIC 9715	8392
	PRØVER ANKOMMET GECO 28.08.89	
1	Flaske nr.: Whitney P 109. Fra joint between 20" og 30" BOP. 2/4-14. Sampled 25.08.89 kl.15.30-16.40, sampling temp. ca. 4°C. Prøve sendt IFE på : WIC 4699	8444
	PRØVER ANKOMMET GECO 05.09.89	
4	Flaske nr.: Whitney P 110. Fra riser mellom 20" - 30". 2/4-14. Tatt 03.09.89 kl. 16.30 Prøve sendt IFE på: WIB 9550	8450
	PRØVER ANKOMMET GECO 12.09.89	
5	Flaske nr.: Unummerert (500 cc). Brønn 2/4-14. Gass fra riser "joint between 20" - 30" casing. Tatt 09.09.89 kl. 14.00. Prøve sendt IFE på: WIB 9715	8456
	PRØVER ANKOMMET GECO 22.09.89	
4	Flaske nr.: Whitey unummerert 500cc. Brønn 2/4-14. Gas sample from 20" - 30". Tatt 21.09.89. Dive No. 114 Prøve sendt IFE på: WIC 5382	8480
	PRØVER ANKOMMET GECO 05.10.89	
3	Flaske nr.: Whitey P2. Brønn 2/4-14. Gass fra between 20" - 30" riser. Tatt 02.10.89 kl. 13.44 - 14.22. Prøve sendt IFE på: WIB 9726	8507
	PRØVER ANKOMMET GECO 16.10.89	
4	Flaske nr.: PT7. Brønn 2/4-14. Gas from between 20" - 30" riser. Tatt 11.10.89. Prøve sendt IFE på: WIB 9550	8510
	PRØVER ANKOMMET GECO 07.11.89	
1	Flaske nr.: P 122. Gass fra 2/4-14 between 20"/30" riser. Tatt 02.11.89 kl. 9.03 - 9.25. Prøve sendt IFE på: WIB 9550	8556
	PRØVER ANKOMMET GECO 14.11.89	
10	Flaske nr.: P 125. Gass fra 2/4-14. Tatt 12.11.89 kl. 14.17 - 14.40. Prøve sendt IFE på: WIB 9726	8557
	PRØVER ANKOMMET GECO 28.11.89	
1	Flaske nr.: PT 8 Gass fra 2/4-14 Tatt 25.11.89 kl. 10.50 - 14.10.	8567

Table 2 Sample codes, well 2/4-13.

Sample no.	Sample code GECO	Sample code IFE
	PRØVER ANKOMMET GECO 22.08.89	
2	Flaske nr.: Whitney P 122 fra 2/4-13. Tatt 21.08.89 Prøve sendt IFE på: WIC 5561	8393
	PRØVER ANKOMMET GECO 25.08.89	
1	Flaske nr.: Whitney PT 7/P 103 fra krater 2/4-13. Sampling dato 23.08.89 Prøve sendt IFE på: WIC 5493	8398
2	Flaske nr.: Whitney P 119 fra krater 2/4-13. Sampling dato 23.08.89 Prøve sendt IFE på: WIC 5595	8397
	PRØVER ANKOMMET GECO 05.09.89	
2	Flaske nr.: Whitney P 123 fra krater 2/4-13. Tatt 03.09.89 kl. 19. Prøve sendt IFE på: WIC 4700	8451
	PRØVER ANKOMMET GECO 12.09.89	
3	Flaske nr.: Whitey P 125 brønn 2/4-13. Gass fra krater. Tatt 11.09.89 kl. 14.00 Prøve sendt IFE på: WIC 5493	8455
	PRØVER ANKOMMET GECO 22.09.89	
2	Flaske nr.: Whitey P 100 brønn 2/4-13. Gass fra krater. Tatt 19.09.89 Prøve sendt IFE på: WIB 9710	8479
	PRØVER ANKOMMET GECO 05.10.89	
1	Unummerert Whitey flaske (500 cc). Gass fra brønn 2/4-13. Tatt 02.10.89 kl. 15.58 - 18.49 Prøve sendt IFE på: WIC 4710	8506
	PRØVER ANKOMMET GECO 16.10.89	
2	Unummerert Whitey 500 cc. Brønn 2/4-13. Gass fra krater. Tatt 14.10.89. Prøve sendt IFE på: WIC 5493	8509
	PRØVER ANKOMMET GECO 14.11.89	
9	Flaske nr.: P 114. Gass fra 2/4-13. Tatt 12.11.89 kl. 11.00 - 12.22. Flasken er sendt IFE	8558
1	PRØVER ANKOMMET GECO 27.11.89 Flasken ikke nummerert. Gass fra 2/4-13. Tatt 20.11.89 kl. 10.00 - 11.51	8566

Table 3 Volume composition of gas samples from well 2/4-14.

SAMPLE	IFE no.	C ₁ %	C ₂ %	C ₃ %	iC ₄ %	nC ₄ %	iC ₅ %	nC ₅ %	WET- NESS	iC ₄ / nC ₄
01.05.89	8260	81.3	9.9	5.2	0.90	1.8	0.50	0.50	0.190	0.51
Sample no.9, cyl.no. C4699	8270	79.4	9.7	5.6	1.2	2.7	0.57	0.78	0.210	0.44
30.07.89	8381	99.2	0.55	0.19	0.04	0.05	0.01	0.01	0.008	0.76
11.08.89	8387	99.0	0.66	0.22	0.03	0.05	0.01	0.01	0.010	0.69
18.08.89	8392	99.8	0.13	0.04	0.01	0.01	<0.01	<0.01	0.002	0.58
WIC 4699	8444	98.2	1.2	0.31	0.05	0.13	0.03	0.03	0.018	0.37
WIB 9550, Whitey P110, 03.09.89, kl.1630	8450	97.6	1.7	0.39	0.06	0.15	0.04	0.02	0.024	0.39
WIB 9715, 09.09.89, kl.14	8456	97.8	1.3	0.50	0.08	0.24	0.06	0.05	0.022	0.34
WIC 5382, 21.09.89	8480	97.5	1.7	0.45	0.07	0.18	0.04	0.04	0.025	0.38
WIB 9726, 02.10.89	8507	97.7	1.7	0.34	0.05	0.14	0.03	0.04	0.023	0.32
WIB 9550, 11.10.89	8510	98.4	1.0	0.28	0.05	0.14	0.04	0.04	0.016	0.35
WIB 9550, P122, 02.11.89	8556	98.4	0.86	0.34	0.07	0.19	0.05	0.05	0.016	0.35
WIB 9726, P125, 12.11.89	8557	97.8	1.6	0.39	0.06	0.14	0.03	0.03	0.022	0.40
WIC 5493, PT8, 25.11.89, kl.1050- 1410	8567	98.2	1.1	0.44	0.06	0.16	0.04	0.04	0.018	0.37

Table 4 Volume composition of gas samples from well 2/4-13.

SAMPLE	IFE no.	C ₁ %	C ₂ %	C ₃ %	iC ₄ %	nC ₄ %	iC ₅ %	nC ₅ %	WET- NESS	iC ₄ / nC ₄
21.08.89	8393	93.9	4.6	0.74	0.10	0.52	0.11	0.08	0.061	0.19
WIC 5595, 23.08.89	8397	93.2	4.8	0.78	0.12	0.70	0.18	0.17	0.068	0.17
WIC 5493, 23.08.89	8398	94.2	3.7	0.78	0.13	0.74	0.25	0.18	0.058	0.17
WIC 4700, 03.09.89, kl.1900	8451	88.5	8.9	0.88	0.15	0.96	0.30	0.30	0.115	0.16
WIC 5493, P125, 11.09.89, kl.14	8455	88.2	9.1	0.96	0.15	1.05	0.29	0.26	0.118	0.14
WIB 9710, P100, 19.09.89	8479	90.6	7.1	0.90	0.12	0.92	0.23	0.20	0.094	0.13
WIC 4710, 02.10.89	8506	91.3	6.3	0.96	0.14	0.78	0.31	0.25	0.087	0.18
WIC 5493, 14.10.89	8509	91.0	6.4	0.86	0.12	0.90	0.37	0.35	0.090	0.14
P114, 12.11.89	8558	92.0	5.9	0.76	0.10	0.79	0.23	0.20	0.080	0.12
20.11.89, kl. 1000-1151	8566	93.4	4.1	1.15	0.11	0.67	0.28	0.28	0.066	0.16

Table 5 Volume composition of gas samples from well 2/4-15.

SAMPLE	IFE no.	C ₁ %	C ₂ %	C ₃ %	iC ₄ %	nC ₄ %	iC ₅ %	nC ₅ %	WET- NESS	iC ₄ / nC ₄
WIC 5382, 18.10.89, kl.1330	8537	99.7	0.19	0.08	0.02	0.01	<0.01	<0.01	0.003	2.91

Table 6 Isotopic composition of gas samples from well 2/4-14.

SAMPLE	IFE no.	C ₁ $\delta^{13}\text{C}$ PDB	C ₁ δD SMOW	C ₂ $\delta^{13}\text{C}$ PDB	C ₃ $\delta^{13}\text{C}$ PDB	iC ₄ $\delta^{13}\text{C}$ PDB	nC ₄ $\delta^{13}\text{C}$ PDB
01.05.89	8260	-44.1	-202	-26.3	-25.1	-27.2	-25.0
Sample no.9, cyl.no. C4699	8270	-43.9	-204	-26.1	-25.0	-27.0	-25.5
30.07.89	8381	-71.3	-198	-27.0	-24.3	-	-24.7
11.08.89	8387	-71.2	-184	-26.5	-25.0	-27.6	-24.3
18.08.89	8392	-71.0	-213	-27.1	-25.1	*	-26.2
WIC 4699	8444	-70.3	-204	-27.1	-24.9	-25.5	-24.2
WIB 9550, Whitey P110, 03.09.89, kl.1630	8450	-69.1	-205	-26.3	-25.6	-20.7	-24.9
WIB 9715, 09.09.89, kl.14	8456	-68.8	-208	-26.8	-24.5	-26.8	-25.4
WIC 5382, 21.09.89	8480	-68.1	-204	-26.7	-24.5	-25.3	-24.6
WIB 9726, 02.10.89	8507	-69.6	-205	-26.3	-23.8	-25.7	-25.4
WIB 9550, 11.10.89	8510	-68.9	-200	-26.2	-24.4	-26.3	-25.5
WIB 9550, P122, 02.11.89	8556	-67.5	-199	-27.3	-26.5	-29.0	-26.0
WIB 9726, P125, 12.11.89	8557	-68.8	-202	-26.4	-25.2	-23.4	-25.7
WIC 5493, PT8, 25.11.89, kl.1050-1410	8567	-67.5	-194	-26.4	-25.1	-27.4	-25.4

* iC₄ and nC₄ isotopically determined in one fraction.

Table 7 Isotopic composition of gas samples from well 2/4-13.

SAMPLE	IFE no.	C ₁ $\delta^{13}\text{C}$ PDB	C ₁ δD SMOW	C ₂ $\delta^{13}\text{C}$ PDB	C ₃ $\delta^{13}\text{C}$ PDB	iC ₄ $\delta^{13}\text{C}$ PDB	nC ₄ $\delta^{13}\text{C}$ PDB
21.08.89	8393	-51.1	-205	-26.2	-24.5	-25.9	-21.9
WIC 5595, 23.08.89	8397	-51.7	-211	-26.1	-24.2	-27.4	-25.9
WIC 5493, 23.08.89	8398	-50.2	-204	-25.2	-23.6	-27.2	-25.4
WIC 4700, 03.09.89, kl.1900	8451	-50.6	-212	-26.0	-25.0	-26.7	-23.7
WIC 5493, P125, 11.09.89, kl.14	8455	-49.2	-210	-26.1	-24.5	-23.2	-23.2
WIB 9710, P100, 19.09.89	8479	-50.3	-207	-27.0	-24.3	-23.5	-23.9
WIC 4710, 02.10.89	8506	-52.5	-206	-26.1	-24.4	-27.2	-24.1
WIC 5493, 14.10.89	8509	-51.3	-201	-26.0	-24.4	-26.8	-25.5
P114, 12.11.89	8558	-51.0	-213	-26.1	-25.0	-28.1	-25.5
20.11.89, kl. 1000-1151	8566	-54.8	-199	-26.4	-25.3	-27.3	-25.3

Table 8 Isotopic composition of gas samples from well 2/4-15.

SAMPLE	IFE no.	C ₁ $\delta^{13}\text{C}$ PDB	C ₁ δD SMOW	C ₂ $\delta^{13}\text{C}$ PDB	C ₃ $\delta^{13}\text{C}$ PDB	C ₄ * $\delta^{13}\text{C}$ PDB
WIC 5382, 18.10.89, kl.1330	8537	-72.4	-209	-29.4	-23.8	-26.9

* iC₄ and nC₄ isotopically determined in one fraction.