



III.

AMERADA ET AL CROWN YP-A #1

DRILLING MUD, CHEMICALS & LOST CIRCULATION MATERIALS RECORD

The total amount of mud, chemicals and sawdust used:

2374 sacks Aquagel  
4400# Caustic  
20 sacks Bi Carbonate  
6300# Tannex  
2450# Driscose Regular  
1850# H.V. Driscose  
28 sacks sawdust  
6 gals. Quick Vis.

The total amount of mud, chemicals and sawdust taken into the wellsite:

4600 sacks Aquagel  
100 cans Caustic soda  
70 sacks Bi Carbonate  
3000 sacks Bariod  
99 sacks Anhydrox  
150 sacks Tannex  
180 sacks Driscose Hi and Regular  
975 sacks of sawdust, filled at Mayo sawmill  
4250 sacks cement and 1250 cans of cement.

AMERADA ET AL CROWN YT-A #1DRILLING MUD RECORD

<u>Date</u>	<u>Depth</u>	<u>Visc.Sec.</u>	<u>W.Loss</u>	<u>pH.</u>	<u>Wt.</u>	<u>Additions</u>
Mar.1/60	145	60				Gel 60 sks., Sawdust 82 sks.
Mar.2	155	60				
Mar.5	200	38		11.5	8.7	Gel 40 sks., Comcarb 11 sks.
Mar.6	200	55		11.0	8.9	Gel 106 sks., Bicarb 10 sks., Tannex 8 sks.
Mar. 7	200	55		11.0	8.9	Gel 48 sks., Comcarb 1 sk. Hi-vis. Driscose 100#
Mar. 8	200	110		10.5	8.9	Gel 72 sks., Sawdust 20 sks., Fibertex 5 bags.
Mar.9	200	110		11.0	8.9	
Mar.10	200	41			8.9	Gel 65 sks., Driscose 25#
Mar.11	200	90		12.0	8.8	Gel 41 sks., Caustic 200#, Driscose 40#
Mar.12	200					Gel 28 sks., Tannex 200#
Mar.14	200	Heavy		12.0	8.8	
Mar.15	200	87				Caustic 50#, Gel 60 sks., Tannex 100#, Driscose 25#
Mar.16	200	95	7.6	12.0	8.8	
Mar.17	310	136	6.1	12.0	8.8	
Mar.18	310	76			8.9	Caustic 50#, Gel 32 sks., Driscose 50#
Mar.19	310					
Mar.20	367	190			8.6	
Mar.21	375	65	7.5	12.0	8.8	Gel 5 sks., Tannex 300#
Mar.22	375	46	5.6	12.0	8.8	Gel 35 sks., Driscose 100#
Mar.23	390	52	5.6	12.0	9.5	
Mar.24	480	45		12.0	9.5	Quick Vis 2 gals., Gel 60 sks., Driscose Hi Vis. 100#
Mar.25	550	140	10.0	11.0	8.9	Gel 24 sks., Hi Vis. 1 gal Driscose 100#
Mar.26	655	108		11.0	8.9	Gel 60 sks., Driscose 50#
Mar.27	702	108	10.8	11.5	8.9	
Mar.28	702	63	5.6	12.5	8.8	Caustic 150#, Gel 37 sks., Driscose 125#, Tannex 250#
Mar.29	702	58	10.1	12.0	9.0	Hi Vis. Driscose 50#, Caustic 25#, Gel 39 sks., Driscose 50#, Tannex 50#
Mar.30	762	115	9.6	12.0	9.0	Tannex 50#, Regular Driscose 50#, Gel 10 sks., Hi Vis. Driscose 50#, Caustic 25#
Mar.31	762	83	6.2	12.0	9.2	Tannex 25#, Caustic 25#, Gel 10 sks., Hi Vis Driscose 25#
Apr.1/60	762	116	6.4	12.0	9.1	Hi Vis. Driscose 25#, Gel 37 sks., Caustic 25#, Tannex 25#
Apr.2	791	67	7.4	12.0	9.2	Caustic 50#, Gel 40 sks., Reg. Driscose 50#, Tannex 100#
Apr.3	826	100	6.4	11.5	8.9	Gel 65 sks.
Apr.4	844	76	6.0	10.5	9.0	Tannex 50#, Gel 60 sks., Hi Driscose 50#
Apr.5	874	125	7.0	9.0	9.4	Gel 15 sks.
Apr.6	916	97	6.2	9.0	9.3	Gel 29 sks.
Apr.7	947	83	6.8	8.5	9.4	Gel 20 sks., Driscose 25#
Apr.8	964	113	8.6	10.5	9.2	Driscose 50#, Gel 24 sks., Tannex 50#, Caustic 50#
Apr.9	1002	95	7.2	8.0	9.2	Gel 36 sks., Tannex 25#, Caustic 25#
Apr.10	1029	95	8.0	8.0	9.2	Gel 25 sks., Tannex 25#, Caustic 25#
Apr.11	1064	74	9.0	8.5	9.2	Gel 21 sks., Caustic and Tannex 25#

AMERADA ET AL CROWN YT-A #1

DRILLING MUD RECORD

Date	Depth	Visc.Sec.	W.Loss	pH.	Wt.	Additions
Apr.12/60	1098	83	8.8	8.5	9.2	Gel 22 sks., Caustic and Driscose 25#
Apr.13	1145	85	6.2	9.0	9.1	Gel 16 sks., Caustic 25#
Apr.14	1186	77	7.6	10.5	9.1	Gel 31 sks., Sawdust 20 bags.
Reaming hole to 12 1/4"						
Apr.15	1200	73	8.0	10.5	9.2	Gel 13 sks., Driscose 15#, Fibertex 80#
Apr.16	1200	91	8.8	10.0	9.3	Gel 17 sks.
Apr.17	1200	105	7.2	10.0	9.3	Gel 11 sks., Fibertex 2 sks., Sawdust 9 bags.
Reaming hole to 17 1/2"						
Apr.18	1200	90	7.4	9.5	9.3	Gel 13 sks.
Apr.19	1200	115	8.4	10.5	9.4	Sawdust 3 sks.
Apr.20	1200	120	9.4	10.5	9.5	Gel 10 sks.
Apr.21	1200	155	7.8	8.5	9.6	Gel 17 sks., Tannex & Caustic 50#
Apr.22	1200	100	9.4	10.5	9.8	Tannex and Caustic 50#
Apr.23	1200	100	9.5	8.5	9.6	Tannex 100#
Apr.24	1200	110	8.6	8.5	9.6	Tannex 50#
Apr.25	1200	100	9.0	8.5	9.7	Tannex and Caustic 100#
Apr.26	1200	65	9.2	8.5	9.9	Tannex 200#, Caustic 150#, Gel 10 sks.
Apr.27	1200	104	8.8	8.5	9.9	Tannex 50#, Caustic 25#
Apr.28	1200	135	7.2	9.5	10.1	Gel 10 sks.
Apr.29	1200	125	8.8	9.5	9.9	
Apr.30	1200	100	8.4	10.5	9.8	
May 1/60	1200	100	8.2	10.5	10.0	Gel 32 sks., Tannex 100#, Caustic 50#
May 2	1200	90	8.6	10.0	10.1	Tannex 50#, Caustic 75#
May 3-7	Finished reaming and running 13 3/8" casing					
May 8	1251'	38	11.1	12.0	8.6	
May 9	1341	42	5.8	14.5	8.7	Gel 5 sks.
May 10	1447	60	5.8	11.5	9.0	Regular Driscose 50#, Gel 90 sks., Hi Vis. 50#, Tannex 50#
May 11	1464	95	8.2	11.5	9.0	
May 12	1529	64	7.8	10.5	9.1	Gel 25 sks., Tannex 75#, Driscose 35#
May 13	1604	76	7.4	10.5	9.4	Gel 16 sks., Driscose 15#, Tannex 10#
May 14	1678	91	5.2	10.5	9.5	Tannex 15#
May 15	1735	70	5.9	10.0	9.5	
May 16	1761	90	7.8	9.5	9.5	Gel 7 sks.
May 17	1809	80	5.4	9.5	9.5	Gel 8 sks., Tannex and Caustic 50#
May 18	1914	106	6.7	9.0	9.6	Gel 10 sks., Tannex 100#, Caustic 50#
May 19	2014	90	6.7	9.0	9.7	Tannex and Caustic 50#
May 20	2118	85	7.3	9.0	9.7	Driscose 10#, Gel 8 sks., Caustic and Tannex 25#
May 21	2214	75	6.8	9.0	9.8	Gel 8 sks., Driscose 10#
May 22	2290	75	6.8	9.0	9.9	Hi Vis Driscose 30#
May 23	2365	87	7.0	9.5	10.0	Hi Vis Driscose 75#, Gel 11 sks., Caustic and Tannex 25#
May 24	2443	93	5.7	9.5	10.0	Gel 28 sks., Driscose 50#
May 25	2530	75	8.2	9.5	9.6	Hi Vis. Driscose 25#, Gel 4 sks., Caustic and Tannex 50#
May 26	2602	92	6.4	9.5	9.9	Caustic 50#, Hi Vis. Driscose 50#, Tannex 100#
May 27	2732	70	5.5	9.5	9.9	Caustic 25#, Tannex 50#, Hi Vis. Driscose 25#

## AMERADA ET AL CROWN YF-A #1

## DRILLING MUD RECORD

Date	Depth	Visc.Sec.	W.Loss	pH	Wt.	Additions
May 28/60	2832	75	5.8	9.5	9.9	Hi Vis. Driscose 25#, Gel 4 sks., Caustic 25#, Tannex 50#
May 29	2860	70	5.5	9.5	9.9	
May 30	2911	80	6.7	9.5	9.9	Driscose 10#, Gel 9 sks., Tannex 25#
May 31	2958	75	6.0	9.5	9.9	Driscose 25#, Gel 5 sks., Tannex 50#, Caustic 50#
June 1/60	3011	60	6.0	9.5	9.9	Gel 5 sks., Driscose, Tannex and Caustic 25#
June 2	3063	71	6.0	9.5	9.9	Gel 10 sks., Hi Vis. Driscose 50#
June 3	3117	65	6.2	9.5	9.9	Driscose 40#, Gel 5 sks., Caustic and Tannex 50#
June 4	3202	60	6.3	9.5	9.8	HV Dris. 45#, Gel 10 sks., Tannex 25#, Caustic 50#
June 5	3291 <sup>3</sup>	63	6.3	9.5	9.8	Hi Vis. Driscose and Tannex 25#
June 6	3386	125	6.0	9.5	10.0	Gel 18 sks., Tannex 50#
June 7	3500	70	6.2	9.5	9.9	Hi Vis. Driscose 15#, Gel 6 sks., Tannex 100#, Caustic 50#
June 8	3589	70	7.8	9.0	10.0	Gel 12 sks., Hi Vis. Driscose 25#
June 9	3655	55	6.4	9.0	9.0	Caustic and Tannex 25#, Hi Vis. Driscose 50#, Reg. Driscose 25#
June 10	3722	55	6.6	9.0	9.8	Gel 25 sks., Hi Vis. Driscose 50#
June 11	3759	65	6.6	9.0	9.7	Hi Vis. Driscose 50#, Tannex and Caustic 25#
June 12	3792	75	6.4	9.0	9.7	Reg. and Hi Vis. Driscose 50#, Gel 6 sks., Caustic and Tannex 25#
June 13	3807	55	7.0	9.0	9.6	Reg. Driscose 75#, Hi Vis. Driscose 25#, Gel 4 sks., Caustic and Tannex 25#
June 14	3822	55	6.6	9.5	9.6	
June 15	3858	58	6.8	9.0	9.6	Tannex and Caustic 25#, Gel 18 sks., Reg. Driscose 100#
June 16	3920	65	6.6	9.0	9.6	Hi Vis. Driscose 25#, Gel 8 sks., Tannex 50#, Caustic 25#
June 17	3974	60	7.2	9.0	9.6	Gel 16 sks., Reg. Driscose 50#
June 18	4020	65	6.9	9.0	9.6	Caustic and Tannex 75#
June 19	4079	65	6.6	9.5	9.7	Hi Vis. Driscose 50#
June 20	4114	55	6.0	9.0	9.7	Gel 5 sks., Reg. Driscose 25#
June 21	4132	65	6.4	9.0	9.7	Tannex and Caustic 50#
June 22	4152	60	6.6	9.0	9.7	Gel 5 sks., Hi Vis. Driscose 25#
June 23	4164	60	6.6	9.5	9.7	Gel 5 sks., Caustic and Tannex 25#
June 24	4187	53	7.0	9.0	9.7	Hi Vis. Driscose 25#, Gel 5 sks., Tannex and Caustic 25#
June 25	4205	84	6.8	9.5	9.8	Caustic and Tannex 25#, Reg. Driscose 25#
June 26	4228	58	7.0	9.5	9.7	
June 27	4264	56	7.0	9.5	9.8	Gel 5 sks., Hi Vis. Driscose 25#
June 28	4313	56	6.8	9.5	9.8	
June 29	4365	52	6.8	9.0	9.7	Hi Vis. Driscose 25#, Reg. Driscose 25#, Gel 5 sks., Tannex 50#, Caustic 25#
June 30	4406	72	7.2	9.5	9.8	Tannex 100#, Caustic 25#, Reg. Driscose 50#

AMERADA ET AL CROWN YT-A #1DRILLING MUD RECORD

<u>Date</u>	<u>Depth</u>	<u>Visc. Sec.</u>	<u>W. Loss</u>	<u>pH</u>	<u>Wt.</u>	<u>Additions</u>
July 1/60	4494	53	8.0	9.0	9.7	Gel 18 sks.,
July 2	4561	52	7.2	9.0	9.7	Tannex 50#, Caustic 25#
July 3	4612	55	7.4	9.0	9.5	Caustic 25#, Gel 5 sks., Reg. Driscose 25#, Tannex 50#
July 4	4654	46	7.6	9.0	9.7	
July 5	4702	59	7.6	9.0	9.7	Reg. Driscose 50#, Gel 17 sks., Tannex 100#, Caustic 50#
July 6	4754	56	6.8	9.0	9.7	Hi Vis. Driscose 25#, Gel 5 sks., Tannex 50#, Caustic 25#
July 7	4818	50	7.2	9.0	9.7	Reg. Driscose 25#, Gel 10 sks., Tannex 50#, Caustic 25#
July 8	4875	54	7.0	9.0	9.7	Gel 20 sks., Reg. Driscose 50#
July 9	4913	53	7.4	9.0	9.6	Tannex 50#, Gel 5 sks., Reg. Driscose 25#, Caustic 25#
July 10	4980	61	7.2	9.0	9.7	Tannex 50#, Caustic 25#
July 11	5032	58	7.0	9.0	9.6	Tannex 100#, Caustic 50#, Gel 15 sks., Reg. Driscose 100#
July 12	5102	63	7.4	9.5	9.7	Gel 5 sks., Reg. Driscose 25#
July 13	5157	62	7.6	9.0	9.7	Tannex 50#, Caustic 25#, Gel 5 sks., Reg. Driscose 25#
July 14	5220	64	8.0	9.0	9.7	Gel 5 sks., Tannex 50#, Caustic 25#
July 15	5282	57	7.2	9.5	9.8	Reg. Driscose 50#, Tannex 50#, Caustic 25#
July 16	5353	55	7.2	9.5	9.8	Hi Vis. Driscose 100#
July 17	5410	54	7.4	9.0	9.7	Gel 12 sks.
July 18	5491	54	7.4	9.0	9.8	Tannex 50#, Caustic 25#, Gel 5 sks., Reg. Driscose 50#
July 19	5553	59	7.6	9.0	9.8	Reg. Driscose 50#, Gel 5 sks., Tannex 100#, Caustic 25#
July 20	5598	59	8.0	9.5	9.8	Reg. Driscose 50#, Gel 12 sks., Tannex 50#
July 21	5641	59	7.4	9.0	9.8	Reg. Driscose 50#, Gel 10 sks., Tannex and Caustic 100#
July 22	5708	62	7.4	9.0	9.9	Tannex 50#, Gel 5 sks., Reg. Driscose 50#
July 23	5808	60	7.4	9.0	9.9	Caustic 25#, Reg. Driscose 50#, Tannex 50#
July 24	5911	59	7.4	9.0	9.9	
July 25	6002	56	7.8	9.0	10.0	Caustic 50#, Hi Vis. Driscose 150#, Tannex 100#
July 26	6089	51	6.8	9.5	9.9	Gel 5 sks., Hi Vis. Driscose 50#
July 27	6153	61	7.2	9.0	10.0	Caustic 25#, Gel 8 sks., Reg. Driscose 100#, Tannex 50#
July 28	6193	67	6.8	9.0	10.1	Reg. Driscose 50#, Gel 12 sks., Tannex and Caustic 50#
July 29	6247	69	7.0	9.0	10.0	
July 30	6277	40	8.2	9.0	9.7	Tannex 125#, Caustic 150#, Gel 40 sks., Hi Vis. Driscose 250#
July 31	6316	57	7.6	9.5	9.8	Gel 5 sks., Reg. Driscose 50#
Aug. 1/60	6320	62	7.0	9.5	9.8	Tannex and Caustic 50#
Aug. 2	6337	62	7.2	9.5	9.9	
Aug. 3	6372	63	6.8	9.5	9.9	Gel 8 sks., Reg. Driscose 50#

AMERADA ET AL CROWN YT-A #1DRILLING MUD RECORD

<u>Date</u>	<u>Depth</u>	<u>Visc. Sec.</u>	<u>W. Loss</u>	<u>pH.</u>	<u>Wt.</u>	<u>Additions</u>
Aug. 4/60	6403	65	7.8	8.5	9.9	Gel 10 sks., Caustic 50#, Tannex 75#
Aug. 5	6445	77	7.4	9.5	9.8	Caustic and Tannex 50#
Aug. 6	6501	65	7.6	9.5	9.9	Gel 8 sks.
Aug. 7	6535	68	7.8	9.5	9.9	Tannex and Caustic 50#
Aug. 8	6591	64	7.8	9.5	10.0	Gel 15 sks., Caustic and Tannex 50#
Aug. 9	6658	68	7.4	9.5	10.1	Caustic and Tannex 50#
Aug. 10	6717	64	7.6	9.5	10.0	
Aug. 11	6744	96	7.8	9.5	10.1	Caustic and Tannex 50#
Aug. 12	6798	66	7.6	9.5	10.0	Gel 10 sks., Caustic and Tannex 50#
Aug. 13	6861	63	7.6	9.5	10.0	Gel 8 sks.
Aug. 14	6922	67	7.8	9.5	10.1	Gel 9 sks., Caustic 25#, Tannex 50#
Aug. 15	6979	72	7.1	9.5	10.0	Tannex and Caustic 50#, Gel 12 sks., Reg. Driscose 100#
Aug. 16	7034	64	7.4	9.5	10.0	Gel 8 sks.
Aug. 17	7104	78	7.6	9.5	10.1	Gel 8 sks., Caustic and Tannex 50#
Aug. 18	7152	68	8.0	9.5	10.2	
Aug. 19	7188	85	7.8	9.5	10.2	Gel 16 sks., Caustic and Tannex 50#
Aug. 20	7258	64	7.8	9.5	10.2	
Aug. 21	7315	63	8.2	9.5	10.1	Gel 23 sks., Caustic and Tannex 100#
Aug. 22	7364	65	7.4	9.5	10.1	Gel 16 sks.
Aug. 23	7434	71	7.8	9.5	10.1	Tannex and Caustic 50#
Aug. 24	7486	66	7.8	9.5	10.1	Gel 8 sks.
Aug. 25	7522	65	7.8	9.5	10.1	Gel 20 sks., Tannex and Caustic 50#
Aug. 26	7581	96	7.6	9.5	10.2	
Aug. 27	7630	77	7.8	9.5	10.2	Tannex and Caustic 50#
Aug. 28	7674	74	8.0	9.5	10.2	
Aug. 29	7735	64	8.4	9.5	10.3	
Aug. 30	7786	77	8.4	9.5	10.4	
Aug. 31	7824	78	8.6	9.5	10.4	
Sept. 1/60	7860	71	8.3	9.5	10.4	Gel 15 sks.
Sept. 2	7900	105	8.5	9.0	10.5	
Sept. 3	7939	105	8.5	9.0	10.5	Tannex 150#, Gel 30 sks., Caustic 100#
Sept. 4	7975	115	7.4	9.5	10.5	Tannex 250#, Caustic 150#, Gel 48 sks., Driscose 100#
Sept. 5	7994	172	5.8	9.5	10.4	Gel 20 sks.
Sept. 6	8004	285	6.2	9.5	10.5	Gel 15 sks., Driscose 100#
Sept. 7	8004	295	5.0	9.5	10.5	Gel 13 sks., Tannex 150#, Caustic 50#
Sept. 8	8004	120	5.8	9.5	10.5	

The drilling mud on Amerada et al Crown YT-A #1 offered very few problems. A conventional Aquagel chemical system was used throughout. In spite of the fact that there was considerable hole deviation, very little hole trouble was reported.

There was some lost circulation and gravel in the surface hole at approximately 200 feet. This was controlled with conventional lost circulation material and high viscosities.

One of the problems encountered was building viscosity. It was very difficult to obtain any appreciable yield from Aquagel. Water temperature was felt to be the reason for the failure of the mud to yield. To overcome this problem, a mud was prepared from High Viscosity Driscose, Quick-Vis and Aquagel. Pilot tests indicated that a combination of H.V. Driscose and Quick-Vis. in conjunction with Aquagel gave far better results than

either product used alone. The disadvantage of using such a mixture is the instability of the viscosity. A rapid increase is obtained but after a few hours of circulation or rolling, the viscosity will start to fall back. To maintain a steady viscosity, the system must be watched very closely and supplementary treatments made as required.

After setting the surface casing, High Viscosity Driscose was used along with Aquagel. There were several valid reasons for using Driscose. If used properly, one sack will give the same viscosity increase as 8 to 10 sacks of Aquagel. To maintain a mud with a reasonably low solids content, approximately one-tenth of the solids volume is returned to the system for viscosity control. At the same time Driscose is an excellent filtration control additive. Last but not least is the economical aspect.

Transportation costs into Bell Camp were extremely high. The use of Driscose made it possible for 50 pounds of material to do essentially the same job as 800 pounds. The saving in transportation cost far exceeded the difference in the basic costs of the two materials.

The mud cement materials for YT-A #1 was palletized on wooden pallets using weatherproof paper and metal strapping except for canned cement which was only palletized. It was moved by boat to Skagway. It was then taken from Skagway to Whitehorse on the White Pass and Yukon narrow gauge railway. The material was trucked from Whitehorse to the staging point twenty-three miles north of Mayo. The materials were stacked at the staging area in waiting for completion of road and then trucked to the wellsite. An additional order was taken in later from Edmonton to Waterways via train, Waterways to Ft. McPherson via boat. From McPherson to wellsite, which is approximately 65 air miles, 2 Norseman planes were used to deliver the materials.