

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Mountain Fuel Supply Company's Butcher Knife Springs No. 2 Well located in the SE1/4 (810 feet N/S and 2039 feet E/W) of sec 1, T 14 N, R 113 W, Unita County, Wyoming

Surface elevation 6805 feet

Sample number		Run No.	Yield of product				Specific gravity of oil at 60°/60° F	Properties of spent shale		Remarks
			Weight percent		Gal per ton	Tendency to coke				
Laramie	Their		Oil	Water			Spent shale	Gas + loss	Oil	Water
SBR74-2575-96	0- 220						No oil			
SBR74-2597-2654	240- 820						No oil			
SBR74-2655	820- 830						b			
SBR74-2656-62	830- 900						No oil			
SBR74-2663	900- 910						Trace			
SBR74-2664	910- 920						b			
SBR74-2665-66	920- 940						No oil			
SBR74-2667	940- 950						Trace			
SBR74-2668-69	950- 970						b			
SBR74-2670	970- 980						No oil			
SBR74-2671	980- 990						Trace			
SBR74-2672-73	990-1010						No oil			
SBR74-2674	1010-1020						c			
SBR74-2675-76	1020-1040						b			
SBR74-2677	1040-1050						No oil			
SBR74-2678	1050-1060						b			
SBR74-2679-81	1060-1090						No oil			
SBR74-2682	1090-1100						b			
SBR74-2683	1100-1110						Trace			
SBR74-2684	1110-1120						b			
SBR74-2685	1120-1130	90629	0.5	2.3	95.2	1.0	3.9a	5.5	None	
SBR74-2686	1130-1140						Trace			
SBR74-2687	1140-1150						b			
SBR74-2688	1150-1160						Trace			
SBR74-2689	1180-1190						c			
SBR74-2690	1190-1200	90630	.6	2.8	95.9	.7	4.2a	4.3	None	
SBR74-2691	1200-1210	90631	1.2	2.4	95.7	.7	3.1a	5.7	None	
SBR74-2692	1210-1220	90632	1.7	2.5	94.8	1.0	4.5a	6.0	None	
SBR74-2693	1220-1230	90633	1.3	2.6	94.9	1.2	3.5a	6.2	None	
SBR74-2694	1230-1240	90634	1.3	2.3	95.3	1.1	3.5a	5.5	None	

See footnote at end of table.

Drill cutting samples received September 21, 1973; assays made on air-dried samples.

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Mountain Fuel Supply Company's Butcher Knife Springs No. 2 well (cont.)

Surface elevation 6805 feet

Sample number	Run No.	Yield of product				Specific gravity of oil at 60°/60° F	Properties of spent shale Tendency to coke	Remarks		
		Weight percent		Gal per ton						
Laramie	Their	Oil	Water	Spent shale	Gas + loss	Oil	Water			
SBR74-2695	1250-1260					b				
SBR74-2696	1260-1270					c				
SBR74-2697	1270-1280	90635	0.4	2.8	96.0	0.8	1.0a	6.7	None	
SBR74-2698	1280-1290	90636	1.5	2.0	95.7	.8	3.9a	4.8	None	
SBR74-2699	1290-1300	90637	1.6	2.0	95.6	.8	4.1a	4.8	None	
SBR74-2700	1300-1310	90638	1.5	2.0	95.6	.9	3.9a	4.8	None	
SBR74-2701	1310-1320	90639	1.4	2.1	95.6	.9	3.7a	5.0	None	
SBR74-2702	1320-1330	90640	1.8	2.1	94.9	1.2	4.6a	5.0	None	
SBR74-2703	1330-1340	90641	1.6	1.8	95.6	1.0	4.2a	4.3	None	
SBR74-2704-06	1340-1370						No oil			
SBR74-2707-08	1370-1390						Trace			
SBR74-2709	1390-1400						No oil			
SBR74-2710	1400-1410						b			
SBR74-2711	1410-1420	90642	3.7	3.2	91.5	1.6	9.6	7.7	0.911	None
SBR74-2712	1420-1430	90643	3.6	3.2	91.6	1.6	8.5	8.6	.906	None
SBR74-2713	1430-1440	90644	3.0	3.5	91.9	1.6	8.0	8.4	.904	None
SBR74-2714	1440-1450	90645	2.4	3.5	92.2	1.9	6.3	8.4	.906	None
SBR74-2715	1450-1460	90646	1.4	3.5	93.4	1.7	3.6a	8.4		None
SBR74-2716	1460-1470	90647	1.3	3.6	93.5	1.6	3.4a	8.6		None
SBR74-2717	1470-1480	90648	.6	3.4	94.6	1.4	1.6a	8.2		None
SBR74-2718	1480-1490	90649	.7	3.6	94.0	1.7	1.9a	8.6		None
SBR74-2719	1490-1500	90650	.9	3.1	94.3	1.7	2.3a	7.4		None
SBR74-2720	1500-1510	90651	.9	4.6	93.0	1.5	2.4a	11.0		None
SBR74-2721	1510-1520	90652	1.2	4.1	93.0	1.7	3.2a	9.8		None
SBR74-2722	1520-1530	90653	1.1	4.6	92.7	1.6	2.8a	11.0		None
SBR74-2723	1530-1540						b			
SBR74-2724	1540-1550						c			
SBR74-2725	1550-1560						b			
SBR74-2726-27	1560-1580						No oil			
SBR74-2728-29	1580-1600						Trace			

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Samples from Mountain Fuel Supply Company's Butcher Knife Springs No. 2 well (cont.)

Surface elevation 6805 feet

Sample number	Run No.	Yield of product				Specific gravity of oil at 60°/60° F	Properties of spent shale		Remarks
		Weight percent		Gal per ton	Tendency to				
Laramie	Their	Oil	Water		Spent shale	Gas + loss	Oil	Water	coke
SBR74-2730-39	1600-1700					No oil			
SBR74-2740-41	1700-1720					Trace			
SBR74-2742	1720-1730					b			
SBR74-2743-44	1730-1750					Trace			
SBR74-2745	1750-1760					c			
SBR74-2746	1760-1770					b			
SBR74-2747-49	1770-1800					Trace			
SBR74-2750	1800-1810					b			
SBR74-2751-54	1810-1850					Trace			
SBR74-2755-86	1850-2170					No oil			
SBR74-2787-99	2180-2310					No oil			
SBR74-2800-09	2350-2450					No oil			
SBR74-2810-13	2460-2500					No oil			
SBR74-2814	2500-2510					b			
SBR74-2815	2510-2520					No oil			
SBR74-2816-21	2520-2580					Trace			
SBR74-2822-23	2580-2600					b			
SBR74-2824-29	2600-2660					No oil			
SBR74-2830-31	2660-2680					Trace			
SBR74-2832-33	2680-2700					c			
SBR74-2834	2700-2710					b			
SBR74-2835	2710-2720					Trace			
SBR74-2836	2720-2730					c			
SBR74-2837	2730-2740					No oil			
SBR74-2838	2740-2750	90654	1.3	1.5	94.9	2.3	3.5a	3.6	None
SBR74-2839	2750-2760	90655	1.1	1.7	96.2	1.0	2.9a	4.1	None
SBR74-2840	2760-2770	90656	1.3	1.6	96.3	.8	3.4a	3.8	None
SBR74-2841-42	2770-2790						c		
SBR74-2843	2790-2800	90657	1.2	1.6	96.5	.7	3.1a	3.8	None
SBR74-2844	2800-2810	90658	1.9	1.6	95.5	1.0	4.9a	3.8	None

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OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Mountain Fuel Supply Company's Butcher Knife Springs No. 2 well (cont.)

Surface elevation 6805 feet

Sample number		Run No.	Yield of product				Specific gravity of oil at 60°/60° F	Properties of spent shale		Remarks
			Weight percent		Spent shale	Gas + loss		Gal per ton		
Laramie	Their		Oil	Water					Oil	Water
SBR74-2845	2810-2820	90659	1.5	1.9	95.7	0.9	4.0a	4.6		None
SBR74-2846	2820-2830	90660	1.3	1.9	95.9	.9	3.4a	4.4		None
SBR74-2847	2830-2840	90661	1.4	1.9	96.0	.7	3.6a	4.6		None
SBR74-2848	2840-2850	90663	1.7	1.9	95.4	1.0	4.4a	4.6		None
SBR74-2849	2850-2860	90664	.5	1.4	97.3	.8	1.4a	3.4		None
SBR74-2850	2860-2870						b			
SBR74-2851-52	2870-2890						c			
SBR74-2853	2890-2900	90665	1.1	1.8	95.8	1.3	2.8a	4.3		None
SBR74-2854	2900-2910	90666	.9	1.8	96.2	1.1	2.4a	4.3		None
SBR74-2855	2910-2920	90667	1.0	1.5	96.4	1.1	2.7a	3.6		None
SBR74-2856	2920-2930	90668	1.6	1.6	95.6	1.2	4.1a	3.8		None
SBR74-2857	2930-2940	90669	1.5	2.0	95.1	1.4	3.9a	4.8		None
SBR74-2858	2940-2950	90670	1.4	2.1	95.3	1.2	3.6a	5.2		None
SBR74-2859	2950-2960	90671	1.2	2.2	95.2	1.4	3.2a	5.3		None
SBR74-2860	2960-2970	90672	1.5	1.9	95.2	1.4	3.9a	4.7		None
SBR74-2861	2970-2980	90673	1.8	1.6	95.0	1.6	4.8a	3.8		None
SBR74-2862	2980-2990	90674	1.8	1.7	95.1	1.4	4.7a	4.1		None
SBR74-2863	2990-3000	90675	.8	2.7	95.2	1.3	2.1a	6.5		None
SBR74-2864	3000-3010	90676	1.1	2.5	95.4	1.0	2.8a	6.0		None
SBR74-2865	3010-3020	90677	1.2	2.4	95.1	1.3	3.2a	5.8		None
SBR74-2866	3020-3030	90678	2.1	1.3	95.5	1.1	5.7	3.1	0.904	None
SBR74-2867	3030-3040	90679	6.0	.9	91.6	1.5	15.6	2.1	.917	None
SBR74-2868	3040-3050	90680	5.6	1.0	92.0	1.4	14.7	2.4	.917	None
SBR74-2869	3050-3060	90681	5.9	1.0	91.5	1.6	15.4	2.4	.916	None
SBR74-2870	3060-3070	90682	5.5	.8	92.2	1.5	14.4	1.8	.915	None
SBR74-2871	3070-3080	90683	5.5	1.0	91.9	1.6	14.5	2.4	.912	None
SBR74-2872	3080-3090	90684	5.7	.9	92.0	1.4	14.9	2.2	.912	None
SBR74-2873	3090-3100	90685	2.4	1.0	95.7	.9	6.3	2.4	.909	None
SBR74-2874	3100-3110	90686	4.6	.8	93.3	1.3	12.1	1.8	.914	None
SBR74-2875	3110-3120	90687	1.2	1.1	96.9	.8	3.3a	2.6		None

See footnote at end of table.

Drill cutting samples received September 21, 1973; assays made on air-dried samples.

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Mountain Fuel Supply Company's Butcher Knife Springs No. 2 well (cont.)

Surface elevation 6805 feet

Sample number		Run No.	Yield of product				Specific gravity of oil at 60°/60° F	Properties of spent shale		Remarks
			Weight percent		Gal per ton	Tendency to				
Laramie	Their		Oil	Water		Spent shale	Gas + loss	Oil	Water	coke
SBR74-2876	3120-3130	90688	0.9	1.0	97.2	0.9	2.4 ^a	2.4	None	
SBR74-2877	3130-3140	90689	5.5	1.7	91.0	1.8	14.2	4.1	None	0.926
SBR74-2878	3140-3150	90690	5.7	1.3	91.3	1.7	14.7	3.1	None	.927
SBR74-2879	3150-3160	90691	8.1	1.7	88.2	2.0	21.0	4.1	None	.924
SBR74-2880	3160-3170	90692	6.5	1.6	90.1	1.8	17.0	3.8	None	.923
SBR74-2881	3170-3180	90693	6.4	2.0	89.8	1.8	16.7	4.8	None	.920
SBR74-2882	3180-3190	90694	6.2	2.0	90.1	1.7	16.1	4.8	None	.920
SBR74-2883	3190-3200	90695	4.7	1.9	91.9	1.5	12.1	4.6	None	.920
SBR74-2884	3200-3210	90696	5.9	2.0	90.4	1.7	15.3	4.8	None	.918
SBR74-2885	3210-3220	90697	5.8	2.0	90.4	1.8	15.3	4.8	None	.913
SBR74-2886	3220-3230	90698	4.0	1.7	92.6	1.7	10.6	4.1	None	.901
SBR74-2887	3230-3240	90699	4.4	2.1	92.0	1.5	11.6	5.0	None	.906
SBR74-2888	3240-3250	90700	3.6	2.0	92.8	1.6	9.4	4.8	None	.928
SBR74-2889	3250-3260	90701	3.4	2.1	93.2	1.3	8.7	5.0	None	.935
SBR74-2890	3260-3270	90702	3.8	2.0	93.0	1.2	9.8	4.8	None	.932
SBR74-2891	3270-3280	90703	4.4	2.1	92.0	1.5	11.5	5.0	None	.913
SBR74-2892	3280-3290	90704	4.0	1.8	92.7	1.5	10.4	4.3	None	.926

¹/_a--indicates specific gravity estimated as 0.92. Oil yields were estimated by rapid test-tube method: "No oil," "Trace," "b"--less than 1 gal/ton, "c"--1 to 3 gal oil/ton.

Drill cutting samples received September 21, 1973; assays made on air-dried samples.