

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Phillips Petroleum Company's UPRR Granger Unit Well No. 1 drilled in SE1/4SE1/4  
(654 feet N/S 662 feet W/E) of sec 26, T 18 N, R 111 W, Sweetwater County, Wyoming

Kelly Bushing elevation 6,415 feet

Sample number		Run No.	Yield of product				Specific gravity of oil at 60°/60° F	Properties of spent shale		Remarks
			Weight percent		Gas + loss	Gal. per ton		Tendency to coke		
Laramie	Their		Oil	Water		Spent shale			Oil <sup>1/</sup>	Water
SBR67-7043	1000-1010						c			
SBR67-7044	1010-1020						No Oil			
SBR67-7045	1020-1030						b			
SBR67-7046-54	1030-1120						c			
SBR67-7055	1130-1140						c			
SBR67-7056-59	1150-1190						c			
SBR67-7060-61	1210-1230						c			
SBR67-7062-63	1230-1250						Trace			
SBR67-7064-65	1250-1270						c			
SBR67-7066	1270-1280						No Oil			
SBR67-7067-68	1280-1300						Trace			
SBR67-7069-71	1380-1410						b			
SBR67-7072	1410-1420						Trace			
SBR67-7073	1420-1430						No Oil			
SBR67-7074	1430-1440						b			
SBR67-7075-77	1440-1470						Trace			
SBR67-7078	1470-1480						b			
SBR67-7079	1480-1490						Trace			
SBR67-7080-81	1490-1510						b			
SBR67-7082-84	1510-1540						Trace			
SBR67-7085-86	1540-1560						b			
SBR67-7087	1560-1570	24894	2.1	0.7	95.7	1.5	5.5a	1.6		None
SBR67-7088	1570-1580	24895	1.7	.8	96.0	1.5	4.4a	1.9		None
SBR67-7089	1580-1590	24896	4.0	.9	92.8	2.3	10.5	2.0	0.918	None
SBR67-7090	1590-1600	24897	2.9	1.4	93.3	2.4	7.5	3.4	.917	None
SBR67-7091	1600-1610	24898	2.8	1.3	94.0	1.9	7.2	3.1	.921	None
SBR67-7092	1610-1620	24899	2.2	1.2	94.9	1.7	5.8	2.8	.921	None
SBR67-7093-97	1620-1670						c			
SBR67-7098-7100	1670-1700						b			
SBR67-7101	1700-1710	24900	2.1	1.1	94.3	2.5	5.5	2.5	.921	None

See footnotes at end of table.

Drill cutting samples received March 8, 1967; Assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Phillips Petroleum Company's UPRR Granger Unit well No. 1 (con.)

Kelly Bushing elevation 6,415 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 <sup>1/</sup>	Water	coke	
SBR67-7102	1710-1720	24901	7.7	0.8	87.6	3.9	20.2	1.9	None	
SBR67-7103	1720-1730	24902	2.3	1.4	94.1	2.2	5.9	3.4	None	
SBR67-7104	1730-1740	24903	4.1	1.5	91.6	2.8	10.7	3.7	None	
SBR67-7105	1740-1750	24904	.4	1.7	95.8	2.1	1.0a	4.1	None	
SBR67-7106	1750-1760						c			
SBR67-7107	1770-1780						Trace			
SBR67-7108	1790-1800	24905	.8	2.0	95.6	1.6	2.0a	4.9	None	
SBR67-7109-15	1800-1870						c			
SBR67-7116	1870-1880	24906	.8	1.8	96.4	1.0	2.1a	4.2	None	
SBR67-7117	1880-1890	24907	4.1	1.6	91.5	2.8	10.7	3.8	None	.919
SBR67-7118-21	2200-2240						c			
SBR67-7122	2240-2250	24908	2.7	1.4	94.0	1.9	7.1a	3.4	None	
SBR67-7123	2250-2260	24909	3.9	1.5	93.0	1.6	10.2a	3.6	None	
SBR67-7124	2260-2270						No Oil			
SBR67-7125	2270-2280	24910	2.9	2.6	93.0	1.5	7.9	6.2	None	.890
SBR67-7126	2280-2290	24911	2.0	2.6	93.5	1.9	5.2a	6.2	None	
SBR67-7127	2290-2300	24912	2.9	1.9	92.4	2.8	7.5	4.6	None	.910
SBR67-7128	2300-2310	24913	6.6	2.8	88.1	2.5	17.7	6.6	None	.896
SBR67-7129	2310-2320	24914	6.0	3.0	89.6	1.4	16.0	7.2	None	.895
SBR67-7130	2320-2330	24915	4.2	1.9	91.8	2.1	11.2	4.6	None	.899
SBR67-7131	2330-2340	24916	5.1	2.1	90.6	2.2	13.6	5.0	None	.897
SBR67-7132	2340-2350	24917	4.7	1.6	91.5	2.2	12.6	3.8	None	.900
SBR67-7133	2350-2360	24918	4.4	2.4	91.3	1.9	11.8	5.8	None	.899
SBR67-7134	2360-2370	24919	1.1	2.5	95.4	1.0	2.8a	6.0	None	
SBR67-7135	2370-2380	24920	1.7	2.1	94.7	1.5	4.4a	5.0	None	
SBR67-7136	2380-2390	24921	.2	2.4	96.6	.8	.4a	5.8	None	
SBR67-7137	2390-2400	24922	.5	2.1	96.7	.7	1.3a	5.0	None	
SBR67-7138	2400-2410	24923	2.1	4.4	92.8	.7	5.4a	10.5	None	
SBR67-7139	2410-2420	24924	2.3	1.1	94.5	2.1	6.0a	2.7	None	
SBR67-7140	2420-2430	24925	2.3	3.2	93.4	1.1	5.9a	7.8	None	

See footnotes at end of table.

Drill cutting samples received March 8, 1967; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Phillips Petroleum Company's UPRR Granger Unit Well No. 1 (con.)

Kelly Bushing elevation 6,415 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		Spent shale	Gas + loss	Gal. per ton			
Laramie	Their		Oil	Water					Oil <sup>1/</sup>	Water
SBR67-7141	2430-2440	24926	1.8	3.6	93.9	0.7	4.6a	8.6		None
SBR67-7142	2440-2450	24927	2.8	3.3	93.7	.2	7.4	7.9	0.890	None
SBR67-7143	2450-2460	24928	2.1	2.9	93.6	1.4	5.6a	6.9		None
SBR67-7144	2460-2470	24929	2.0	3.3	94.5	.2	5.2a	7.8		None
SBR67-7145	2470-2480	24930	3.1	3.1	92.9	.9	8.3	7.5	.903	None
SBR67-7146	2480-2490	24931	2.6	3.4	92.1	1.9	6.6a	8.1		None
SBR67-7147	2490-2500	24932	2.6	3.2	93.4	.8	6.8a	7.5		None
SBR67-7148	2500-2510	24933	2.1	3.6	93.6	.7	5.6	8.6	.894	None
SBR67-7149	2510-2520	24934	2.1	2.6	93.2	2.1	5.7	6.2	.907	None
SBR67-7150	2520-2530	24935	2.1	2.3	93.4	2.2	5.5a	5.5		None
SBR67-7151	2530-2540	24936	2.2	2.7	92.6	2.5	5.9	6.5	.904	None
SBR67-7152	2540-2550	24937	1.6	4.0	92.3	2.1	4.3a	9.6		None
SBR67-7153	2550-2560	24938	1.5	4.7	92.2	1.6	3.8a	11.3		None
SBR67-7154	2570-2580	24939	2.0	4.2	91.2	2.6	5.3a	10.1		None
SBR67-7155	2580-2590	24940	1.5	4.7	91.5	2.3	4.0a	11.2		None
SBR67-7156	2590-2600	24941	2.4	4.2	91.8	1.6	6.3a	10.0		None
SBR67-7157	2600-2610	24942	1.6	4.8	91.7	1.9	4.3a	11.4		None
SBR67-7158	2610-2620	24943	1.7	5.2	90.6	2.5	4.5a	12.5		None
SBR67-7159	2620-2630	24944	2.2	4.5	92.0	1.3	5.6a	10.7		None
SBR67-7160	2630-2640	24945	1.5	8.8	88.1	1.6	4.0a	21.0		None
SBR67-7161	2640-2650	24946	1.3	6.5	88.8	3.4	3.4a	15.6		None
SBR67-7162	2650-2660	24947	1.1	5.9	91.8	1.2	2.9a	14.1		None
SBR67-7163	2660-2670	24948	1.4	5.2	90.8	2.6	3.6a	12.4		None
SBR67-7164	2670-2680	24949	1.1	5.8	91.1	2.0	3.0a	13.8		None
SBR67-7165	2680-2690	24950	2.6	4.4	92.2	.8	6.8a	10.5		None
SBR67-7166	2690-2700	24951	1.8	4.0	90.8	3.4	4.6a	9.6		None
SBR67-7167	2700-2710	24952	2.9	4.5	89.5	3.1	7.8	10.7	.897	None
SBR67-7168-71	2710-2750						c			
SBR67-7172	2760-2770						No Oil			
SBR67-7173	2770-2780						b			

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Drill cutting samples received March 8, 1967; Assays made on air-dried samples

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Kelly Bushing elevation 6,415 feet

Sample number		Run No.	Yield of product				Specific gravity of oil at 60°/60° F	Properties of spent shale Tendency to coke	Remarks
Laramie	Their		Weight percent		Spent shale	Gas + loss			
			Oil	Water			Oil <sup>1/</sup>	Water	
SBR67-7174	2780-2790						No Oil		
SBR67-7175	2790-2800	24953	1.3	3.5	93.8	1.4	3.3a	8.4	None
SBR67-7176	2800-2810	24954	2.2	3.8	93.3	.7	5.8	9.1	0.898
SBR67-7177	2810-2820	24955	2.1	4.7	92.2	1.0	5.4a	11.2	None
SBR67-7178	2820-2830	24956	3.2	6.5	89.1	1.2	8.5	15.6	.918
SBR67-7179	2830-2840	24957	2.1	4.1	92.8	1.0	5.3a	9.8	None
SBR67-7180	2840-2850	24958	1.6	4.2	92.9	1.3	4.1a	10.1	None
SBR67-7181	2850-2860	24959	1.5	4.1	93.7	.7	4.0a	9.8	None
SBR67-7182	2860-2870	24960	.9	3.6	93.5	2.0	2.2a	8.6	None
SBR67-7183-84	2880-2900						c		
SBR67-7185	2900-2910						b		
SBR67-7186-88	2910-2940						c		
SBR67-7189	2940-2950	24961	.7	3.8	95.1	.4	1.9a	9.1	None
SBR67-7190	2950-2960	24962	2.4	3.6	93.0	1.0	6.5	8.6	.895
SBR67-7191	2960-2970	24963	1.6	3.5	94.1	.8	4.2a	8.4	None
SBR67-7192	2970-2980	24964	1.5	3.7	93.8	1.0	3.9a	8.9	None
SBR67-7193	2980-2990	24965	1.2	3.8	94.2	.8	3.1a	9.1	None
SBR67-7194	2990-3000	24966	.6	3.8	94.5	1.1	1.6a	9.1	None
SBR67-7195-96	3000-3020						c		
SBR67-7197	3020-3030						b		
SBR67-7198	3030-3040						c		
SBR67-7199	3040-3050						No Oil		
SBR67-7200	3050-3060						b		
SBR67-7201	3060-3070						c		
SBR67-7202	3070-3080	24967	1.2	3.7	94.5	.6	3.1a	8.9	None
SBR67-7203	3080-3090	24968	.9	3.4	94.6	1.1	2.4a	8.1	None
SBR67-7204	3090-3100	24969	.9	3.8	94.4	.9	2.3a	9.1	None
SBR67-7205-06	3100-3120						Trace		
SBR67-7207-08	3120-3140						c		
SBR67-7209	3140-3150	24970	.5	2.6	95.3	1.6	1.4a	6.2	None

See footnotes at end of table.

Drill cutting samples received March 8, 1967; Assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Phillips Petroleum Company's UPRR Granger Unit Well No. 1 (con.)

Kelly Bushing elevation 6,415 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 <sup>1/</sup>	Water			
SBR67-7210	3150-3160	24971	0.6	3.0	95.4	1.0	1.6a	7.2		None	
SBR67-7211	3160-3170						Trace				
SBR67-7212	3170-3180						c				
SBR67-7213	3200-3210	24972	2.6	1.6	95.5	.3	6.6a	3.9	0.897	None	
SBR67-7214	3210-3220	24973	1.8	1.2	95.7	1.3	4.8a	2.8		None	
SBR67-7215-16	3220-3240						b				
SBR67-7217-18	3240-3260						c				
SBR67-7219-20	3260-3280						Trace				
SBR67-7221	3280-3290	24974	5.2	2.6	90.5	1.7	13.9	6.3	0.897	None	
SBR67-7222	3290-3300	24975	1.5	1.9	95.6	1.0	3.9a	4.6		None	
SBR67-7223	3300-3310	24976	2.7	2.4	93.8	1.1	6.9a	5.8		None	
SBR67-7224	3310-3320	24977	1.9	2.8	94.7	.6	5.1a	6.7		None	
SBR67-7225	3320-3330	24978	1.8	2.9	94.5	.8	4.8a	6.9		None	
SBR67-7226	3330-3340	24979	1.6	2.0	96.0	.4	4.2a	4.8		None	
SBR67-7227	3340-3350	24980	2.1	2.4	94.2	1.3	5.8a	5.8		None	
SBR67-7228-39	3350-3470						No Oil				
SBR67-7240	3470-3480						c				
SBR67-7241	3480-3490						b				
SBR67-7242-43	3490-3510						No Oil				
SBR67-7244	3510-3520						Trace				
SBR67-7245-46	3520-3540						No Oil				
SBR67-7247	3540-3550						Trace				
SBR67-7248-52	3550-3600						No Oil				
SBR67-7253	4060-4070						No Oil				
SBR67-7254	4070-4080						Trace				
SBR67-7255	4080-4090						b				

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

Drill cutting samples received March 8, 1967; Assays made on air-dried samples