

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Mintech Corporation and Marathon Oil Company's McMurray No. 1 Well drilled 575 feet South,  
75 feet East of NW corner of sec. 15, T 24 N, R 106 W, Sweetwater County, Wyoming

Surface elevation 6,624 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	
SBR71-8682	380-385	62177	0.0	1.0	96.7	2.3	No oil	2.4	None	
SBR71-8683	385-390	62178	.0	1.9	97.3	.8	No oil	4.5	None	
SBR71-8684	390-395	62179	1.4	2.9	94.8	.9	3.5a	7.0	None	
SBR71-8685	395-400	62180	2.6	1.9	93.8	1.7	6.8a	4.4	None	
SBR71-8686	400-405	62181	2.8	3.2	92.6	1.4	7.5	7.6	0.908	None
SBR71-8687	405-410	62182	2.7	2.6	93.4	1.3	7.1	6.2	.908	None
SBR71-8688	410-415	62183	3.3	2.7	91.6	2.4	8.5	6.5	.919	None
SBR71-8689	415-420	62184	2.7	3.2	92.4	1.7	7.2	7.7	.914	None
SBR71-8690	420-425	62185	4.2	2.0	92.0	1.8	10.9	4.8	.924	None
SBR71-8691	425-430	62186	4.1	1.9	92.2	1.8	10.7	4.6	.927	None
SBR71-8692	430-435	62187	5.5	1.6	90.9	2.0	14.5	3.8	.913	None
SBR71-8693	435-440	62188	7.6	1.5	88.9	2.0	20.0	3.6	.915	None
SBR71-8694	440-445	62189	6.6	.8	90.7	1.9	17.1	2.0	.917	None
SBR71-8695	445-450	62190	5.7	1.0	91.8	1.5	14.8	2.4	.914	None
SBR71-8696	450-455	62191	9.5	1.4	87.0	2.1	24.8	3.4	.918	None
SBR71-8697	455-460	62192	7.0	1.9	89.6	1.5	18.2	4.6	.917	None
SBR71-8698	460-465	62193	3.2	1.6	94.0	1.2	8.5	3.8	.915	None
SBR71-8699	465-470	62194	3.7	1.7	93.5	1.1	9.7	4.1	.922	None
SBR71-8700	470-475	62195	5.7	1.5	91.3	1.5	14.8	3.6	.922	None
SBR71-8701	475-480	62196	7.6	1.7	88.0	2.7	19.8	4.1	.922	None
SBR71-8702	480-485	62197	6.0	1.4	90.8	1.8	15.5	3.5	.919	None
SBR71-8703	485-490	62198	5.3	1.5	91.7	1.5	13.9	3.5	.917	None
SBR71-8704	490-495	62199	6.2	1.0	90.8	2.0	16.3	2.4	.913	None
SBR71-8705	495-500	62200	11.8	1.5	84.0	2.7	31.0	3.6	.908	None
SBR71-8706	500-505	62201	4.3	1.1	92.1	2.5	11.2	2.6	.914	None
SBR71-8707	505-510	62202	6.9	1.0	90.1	2.0	18.2	2.4	.911	None
SBR71-8708	510-515	62203	4.3	1.3	92.8	1.6	11.2	3.1	.920	None
SBR71-8709	515-520	62204	4.6	1.4	91.4	2.6	11.9	3.5	.917	None
SBR71-8710	520-525	62205	2.6	1.8	94.3	1.3	6.8	4.3	.920	None
SBR71-8711	525-530	62206	9.9	1.0	86.7	2.4	25.9	2.4	.915	None

See footnote at end of table.

Drill cutting samples received September 22, 1971; Assays made on air-dried samples

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Surface elevation 6,624 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 <sub>1</sub> /	Water	coke			
SBR71-8712	530-535	62207	2.2	1.2	95.9	0.7	5.8	2.9	0.910	None	
SBR71-8713	535-540	62208	5.2	1.5	91.5	1.8	13.7	3.6	.917	None	
SBR71-8714	540-545	62209	3.2	1.8	93.5	1.5	8.5	4.3	.913	None	
SBR71-8715	545-550	62210	2.5	1.1	95.6	.8	6.7	2.6	.905	None	
SBR71-8716	550-555	62211	3.0	1.4	94.1	1.5	7.9	3.4	.914	None	
SBR71-8717	555-560	62212	2.2	1.1	95.7	1.0	5.8	2.6	.917	None	
SBR71-8718	560-565	62213	3.9	.9	92.4	2.8	10.2	2.2	.917	None	
SBR71-8719	565-570	62214	2.9	1.6	94.4	1.1	7.6	3.7	.910	None	
SBR71-8720	570-575	62215	3.5	1.5	93.7	1.3	9.2	3.6	.907	None	
SBR71-8721	575-580	62216	1.3	1.4	96.2	1.1	3.3a	3.4		None	
SBR71-8722	580-585	62217	3.9	1.5	93.0	1.6	10.2	3.7	.911	None	
SBR71-8723	585-590	62218	1.5	1.4	96.0	1.1	4.0a	3.4		None	
SBR71-8724	590-595	62219	1.5	1.1	96.5	.9	3.9a	2.6		None	
SBR71-8725	595-600	62220	2.8	1.6	92.8	2.8	7.3	3.8	.922	None	
SBR71-8726	600-605	62221	3.7	1.6	93.3	1.4	9.7	3.8	.920	None	
SBR71-8727	605-610	62222	2.3	1.5	94.9	1.3	6.1	3.6	.918	None	
SBR71-8728	610-615	62223	.6	2.1	96.8	.5	1.4a	5.0		None	
SBR71-8729	615-620	62224	2.1	1.6	95.3	1.0	5.5	3.8	.912	None	
SBR71-8730	620-625	62225	2.1	1.5	94.5	1.9	5.5	3.6	.912	None	
SBR71-8731	625-630	62226	1.4	1.5	95.6	1.5	3.7a	3.6		None	
SBR71-8732	630-635	62227	.3	2.4	96.6	.7	.9a	5.8		None	
SBR71-8733	635-640	62228	2.2	2.0	94.6	1.2	5.8	4.8	.910	None	
SBR71-8734	640-645	62229	1.5	1.7	95.4	1.4	4.0a	4.1		None	
SBR71-8735	645-650	62230	1.4	1.6	96.2	.8	3.5a	3.8		None	
SBR71-8736	650-655	62231	.1	2.9	96.4	.6	.2a	7.1		None	
SBR71-8737	655-660	62232	1.7	1.8	95.8	.7	4.4a	4.3		None	
SBR71-8738	660-665	62233	3.7	2.0	93.2	1.1	9.6	4.8	.920	None	
SBR71-8739	665-670	62234	2.1	2.1	95.1	.7	5.5	5.0	.917	None	
SBR71-8740	670-675	62235	.2	2.6	96.9	.3	.4a	6.2		None	
SBR71-8741	675-680	62236	2.2	2.5	94.3	1.0	5.8	6.0	.911	None	

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			Weight percent		Gal per ton			Tendency to		
Laramie	Their		Oil	Water	Spent shale	Gas + loss	Oil <sup>1</sup> /	Water	coke	
SBR71-8742	680- 685	62237	0.7	1.9	96.2	1.2	1.9a	4.6	None	
SBR71-8743	685- 690	62238	.1	2.5	96.8	.6	.2a	6.0	None	
SBR71-8744	690- 695						Trace			
SBR71-8745-46	695- 720						No oil			
SBR71-8747	720- 725	62239	2.1	1.9	94.9	1.1	5.5	4.6	0.907	None
SBR71-8748	725- 730	62240	2.3	2.0	94.3	1.4	6.1	4.8	.910	None
SBR71-8749	730- 735	62241	3.5	2.2	92.8	1.5	9.3	5.3	.912	None
SBR71-8750	735- 740	62242	3.9	1.7	92.8	1.6	10.0	4.1	.920	None
SBR71-8751	740- 745	62243	5.9	1.8	90.1	2.2	15.4	4.3	.917	None
SBR71-8752	745- 750	62244	3.1	2.6	92.9	1.4	8.1	6.2	.917	None
SBR71-8753	750- 755	62245	1.9	2.2	93.2	2.7	4.9a	5.3		None
SBR71-8754	755- 760	62246	4.3	2.2	91.8	1.7	11.2	5.3	.923	None
SBR71-8755	760- 765	62247	.1	1.2	97.7	1.0	.3a	2.9		None
SBR71-8756	765- 770	62268	.0	1.1	98.7	.2	No oil	2.6		None
SBR71-8757	770- 775						Trace			
SBR71-8758-61	775- 795						No oil			
SBR71-8762	795- 800						Trace			
SBR71-8763-97	800- 975						No oil			
SBR71-8798	975- 980	62248	.3	.9	98.2	.6	.9a	2.0		None
SBR71-8799	980- 985	62269	.0	1.2	98.8	.0	No oil	2.9		None
SBR71-8800-12	985-1050						No oil			
SBR71-8813	1050-1055	62270	.0	.7	99.2	.1	No oil	1.7		None
SBR71-8814	1055-1060	62271	.0	.8	99.0	.2	No oil	1.8		None
SBR71-8815	1060-1065						b			
SBR71-8816	1065-1070						Trace			
SBR71-8817-19	1070-1085						b			
SBR71-8820	1085-1090	62272	.0	1.4	98.3	.3	No oil	3.5		None
SBR71-8821-22	1090-1100						Trace			
SBR71-8823-25	1100-1115						b			
SBR71-8826	1115-1120	62273	.9	2.2	96.1	.8	2.3a	5.4		None

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			Weight percent		Gal per ton			Tendency to			
Laramie	Their		Oil	Water	Spent shale	Gas + loss	Oil <sup>1</sup> /	Water	coke		
SBR71-8827	1120-1125	62274	4.6	2.0	91.9	1.5	12.0	4.9	0.918	None	
SBR71-8828	1125-1130	62275	6.0	2.5	90.0	1.5	15.4	6.0	.924	None	
SBR71-8829	1130-1135	62276	7.0	1.9	89.9	1.2	18.0	4.6	.928	None	
SBR71-8830	1135-1140	62277	1.7	1.3	96.4	.6	4.4a	3.1		None	
SBR71-8831-32	1140-1150						b				
SBR71-8833-54	1150-1260						No oil				

<sup>1</sup>/ "a"--indicates 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.

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