

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

4

Samples from Gulf Mineral Resources Company's No. 4 Southam Corehole drilled in the SE1/4SW1/4
(315 feet N/S, 1,705 feet E/W) of sec 17, T 10 S, R 24 E, Uintah County, Utah

Surface elevation 5,061 feet

			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				
Sample number	Laramie	Their		Oil	Water			Oil 1/	Water			
SBR72-10198	910	-911	77307	5.8	0.2	92.7	1.3	15.4	0.5	.909	None	2/
SBR72-10199	911.7	-912.3	77308	9.3	.7	88.2	1.8	24.6	1.8	.903	None	
SBR72-10200	912.3	-913.0	77309	15.2	.6	80.8	3.4	40.6	1.4	.898	None	
SBR72-10201	913	-914	77310	6.0	.3	91.8	1.9	15.8	.6	.915	None	
SBR72-10202	914.0	-914.6	77311	3.1	.3	95.5	1.1	8.2	.7	.917	None	
SBR72-10203	914.6	-915.3	77312	2.5	.2	96.2	1.1	6.5	.6	.911	None	2/
SBR72-10204	915.9	-917.0	77313	2.2	.4	96.2	1.2	5.7	1.0	.915	None	
SBR72-10205	917	-918	77314	1.2	.2	97.4	1.2	3.0a	.6		None	
SBR72-10206	918	-919	77315	2.5	.0	96.3	1.2	6.5	.0	.919	None	
SBR72-10207	919	-920	77316	2.5	.1	95.7	1.7	6.6	.2	.925	None	
SBR72-10208	920.0	-920.7	77317	1.5	.3	97.4	1.1	4.0a	.6		None	2/
SBR72-10209	921.3	-922.0	77318	1.9	.4	96.6	1.1	5.0a	1.0		None	
SBR72-10210	922	-923	77319	1.4	.2	97.4	1.0	3.6a	.6		None	
SBR72-10211	923	-924	77320	1.0	.6	97.3	1.1	2.6a	1.4		None	
SBR72-10212	924	-925	77321	1.2	.4	97.3	1.1	3.1a	1.0		None	
SBR72-10213	925.0	-925.6	77322	2.2	.5	96.2	1.1	5.7	1.2	.914	None	
SBR72-10214	925.6	-926.3	77323	5.0	.6	92.9	1.5	13.1	1.4	.908	None	2/
SBR72-10215	926.95	-928.00	77324	2.7	.3	95.9	1.1	7.2	.7	.905	None	
SBR72-10216	928	-929	77325	8.4	.7	89.2	1.7	22.4	1.7	.901	None	
SBR72-10217	929	-930	77326	16.4	.7	80.2	2.7	43.5	1.7	.905	Heavy	
SBR72-10218	930	-931	77327	6.6	.3	91.4	1.7	17.4	.6	.911	None	2/
SBR72-10219	931.7	-932.3	77328	5.6	.2	92.7	1.5	14.8	.4	.907	None	
SBR72-10220	932.3	-933.0	77329	4.9	.4	93.4	1.3	12.9	1.0	.908	None	
SBR72-10221	933	-934	77330	7.1	.2	90.5	2.2	18.6	.6	.909	None	
SBR72-10222	934	-935	77331	9.4	.2	97.9	2.5	24.8	.4	.911	None	
SBR72-10223	935	-936	77332	12.1	.5	85.2	2.2	31.5	1.2	.912	None	
SBR72-10224	936.0	-936.9	77333	9.9	.7	86.9	2.5	25.8	1.7	.916	None	
SBR72-10225	937.6	-938.3	77334	12.4	.5	84.5	2.6	32.8	1.3	.905	None	
SBR72-10226	938.3	-939.0	77335	19.0	.5	77.1	3.4	50.6	1.2	.902	Slight	
SBR72-10227	939.00	-940.05	77336	16.5	.7	79.5	3.3	43.6	1.7	.907	Slight	2/

829'

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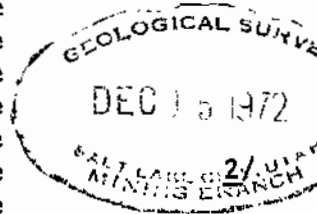
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See footnotes at end of table.

Core samples received October 20, 1972; Assays made on air-dried samples



OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Gulf Mineral Resources Company's No. 4 Southam Corehole (con.)

Surface elevation 5,061 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			Tendency to coke		
			Oil	Water			Oil	Water				
Laramie	Their											
SBR72-10228	940.65-941.30	77337	8.4	0.2	88.1	3.3	22.4	0.5	0.901	None		
SBR72-10229	941.3 -942.0	77338	8.4	.4	89.2	2.0	22.3	.8	.906	None		
SBR72-10230	942 -943	77339	7.6	.2	90.6	1.6	20.0	.5	.904	None		
SBR72-10231	943 -944	77340	5.7	.2	92.5	1.6	15.1	.5	.911	None		
BR72-10232	944 -945	77341	4.7	.4	93.7	1.2	12.4	1.1	.917	None		
BR72-10233	945 -946	77342	8.4	.5	89.1	2.0	21.9	1.2	.913	None		
SBR72-10234	946 -947	77343	6.2	.3	92.1	1.4	16.3	.6	.918	None		
SBR72-10235	947 -948	77344	4.7	.4	93.8	1.1	12.4	1.0	.912	None		
SBR72-10236	948 -949	77345	4.8	.4	93.5	1.3	12.5	1.0	.910	None	Making Moist	
SBR72-10237	949 -950	77346	4.6	1.0	93.4	1.0	12.4	2.4	.894	None		
SBR72-10238	950.0 -950.9	77347	4.0	.2	94.4	1.4	10.5	.5	.907	None		2/
SBR72-10239	951.65-952.30	77348	4.4	.4	94.1	1.1	11.8	1.0	.896	None		
SBR72-10240	952.3 -953.0	77349	4.6	.1	94.2	1.1	12.2	.4	.897	None		
SBR72-10241	953 -954	77350	14.0	.6	82.6	2.8	37.0	1.3	.909	Moderate		
SBR72-10242	954 -955	77351	14.0	.7	82.2	3.1	37.3	1.7	.901	Slight		
SBR72-10243	955 -956	77352	8.0	.2	89.7	2.1	21.4	.6	.894	None		
SBR72-10244	956 -957	77353	7.1	.2	88.7	4.0	19.1	.4	.896	None		
SBR72-10245	957 -958	77354	11.3	.5	86.2	2.0	30.3	1.2	.897	None		
SBR72-10246	958 -959	77355	13.9	.3	82.6	3.2	37.0	.6	.902	None		
SBR72-10247	959.0 -959.7	77356	15.1	.5	81.6	2.8	39.9	1.2	.906	None		2/
BR72-10248	960.4 -961.0	77369	18.8	.5	77.4	3.3	50.2	1.2	.900	Moderate		
BR72-10249	961 -962	77370	25.0	.7	69.4	4.5	67.7	1.6	.901	Heavy		
BR72-10250	962 -963	77371	21.6	1.1	72.6	4.7	57.2	2.6	.904	Heavy		
SBR72-10251	963 -964	77372	32.6	2.1	59.4	5.9	86.7	5.0	.901	Heavy		
SBR72-10252	964 -965	77373	30.0	2.0	62.5	5.5	79.7	4.8	.903	Heavy		
SBR72-10253	965 -966	77374	23.3	1.0	71.0	4.7	61.7	2.3	.907	Heavy		
SBR72-10254	966 -967	77375	17.9	.7	78.6	2.8	47.2	1.7	.906	Moderate		
SBR72-10255	967 -968	77376	22.4	.8	72.5	4.3	59.3	1.8	.907	Moderate		
BR72-10256	968 -969	77377	15.4	.6	81.3	2.7	40.3	1.3	.918	None		
BR72-10257	969 -970	77378	7.7	.3	90.1	1.9	20.2	.7	.917	None		

see footnotes at end of table.

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Samples from Gulf Mineral Resources Company's No. 4 Southam Corehole (con.)

Surface elevation 5,061 feet

Sample number			Run No.	Yield of product				Gal per ton		Specific gravity of oil at 60°/60° F	Properties of spent shale		Remarks
				Weight percent		Spent shale	Gas + loss				Tendency to coke		
				Laramie	Their			Oil	Water				
SBR72-10258	970.0- 970.7	77379	7.4	0.2	90.3	2.1	19.4	0.5	0.912	None			
SBR72-10259	970.7- 971.3	77380	10.4	.5	87.2	1.9	27.2	1.2	.905	None		2/	
SBR72-10260	971.9- 973.0	77381	19.9	1.5	74.3	4.3	52.1	3.6	.918	None			
SBR72-10261	973 - 974	77382	9.1	.5	88.0	2.4	23.7	1.2	.924	None			
SBR72-10262	974 - 975	77383	6.5	.5	90.8	2.2	16.8	1.2	.921	None			
SBR72-10263	975 - 976	77384	6.6	.5	91.0	1.9	17.1	1.2	.921	None			
SBR72-10264	976 - 977	77385	5.7	.4	90.5	3.4	15.0	1.0	.910	None			
SBR72-10265	977 - 978	77386	15.6	.7	80.3	3.4	41.0	1.8	.910	None			
SBR72-10266	978 - 979	77387	13.2	.2	83.5	3.1	35.6	.5	.889	None			
SBR72-10267	979 - 980	77388	19.8	.4	75.5	4.3	52.2	1.0	.909	None			
SBR72-10268	980.0- 980.7	77389	11.0	.3	86.6	2.1	29.6	.7	.891	None		2/	
SBR72-10269	981.4- 982.0	77390	8.3	.3	89.4	2.0	22.6	.7	.882	None			
SBR72-10270	982 - 983	77391	13.2	.2	84.1	2.5	35.4	.6	.890	None			
SBR72-10271	983 - 984	77392	16.2	.5	79.9	3.4	42.8	1.2	.905	None			
SBR72-10272	984 - 985	77393	7.3	.2	91.2	1.3	19.3	.4	.908	None			
SBR72-10273	985 - 986	77394	7.9	.4	89.4	2.3	20.8	1.1	.912	None			
SBR72-10274	986 - 987	77395	5.2	.2	93.1	1.5	13.7	.5	.914	None			
SBR72-10275	987 - 988	77396	7.0	.2	90.6	2.2	18.2	.6	.914	None			
SBR72-10276	988 - 989	77397	6.7	.2	91.0	2.1	17.8	.5	.906	None			
SBR72-10277	989 - 990	77398	9.2	.3	88.4	2.1	24.0	.7	.915	None			
SBR72-10278	990.0- 990.9	77399	5.9	.2	92.4	1.5	15.5	.6	.910	None		2/	
SBR72-10279	991.5- 992.2	77400	4.0	.1	93.5	2.4	10.4	.2	.916	None			
SBR72-10280	992.2- 993.0	77401	4.7	.2	92.6	2.5	12.3	.4	.921	None			
SBR72-10281	993 - 994	77402	4.1	.1	94.2	1.6	10.8	.1	.915	None			
SBR72-10282	994 - 995	77403	6.4	.2	91.7	1.7	16.9	.5	.907	None			
SBR72-10283	995 - 996	77404	12.5	.2	84.9	2.4	33.1	.6	.902	None			
SBR72-10284	996 - 997	77405	13.0	.2	84.1	2.7	34.8	.6	.895	None			
SBR72-10285	997 - 998	77406	11.1	.2	88.4	.3	29.7	.6	.893	None			
SBR72-10286	998 - 999	77407	8.9	.4	88.9	1.8	23.7	1.0	.900	None			
SBR72-10287	999 -1000	77408	10.3	.3	87.4	2.0	27.6	.7	.899	None			

See footnotes at end of table.

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Surface elevation 5,061 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			Tendency to coke		
				Oil	Water			Oil ¹ /	Water				
Laramie	Their												
SBR72-10288	1000	-1001	77409	15.8	0.5	80.8	2.9	42.3	1.2	0.895	None		
SBR72-10289	1001	-1002	77410	11.3	.2	86.3	2.2	30.1	.6	.896	None		
SBR72-10290	1002	-1003	77411	8.1	.0	89.6	2.3	21.6	.0	.900	None		
R72-10291	1003	-1004	77412	7.6	.1	89.8	2.5	19.9	.4	.909	None		
SBR72-10292	1004	-1005	77413	5.2	.1	92.9	1.8	13.6	.4	.910	None		
SBR72-10293	1005.0	-1005.7	77414	3.9	.2	94.2	1.7	10.1	.6	.921	None	2/	
SBR72-10294	1006.4	-1007.0	77415	6.0	.2	92.2	1.6	15.7	.6	.913	None		
SBR72-10295	1007.0	-1007.7	77416	12.7	.5	84.2	2.6	33.2	1.2	.916	None	2/	
SBR72-10296	1008.4	-1009.0	77417	4.1	.2	94.5	1.2	10.7	.4	.912	None		
SBR72-10297	1009	-1010	77418	5.1	.2	93.9	.8	13.3	.6	.915	None		
SBR72-10298	1010	-1011	77419	4.4	.2	94.2	1.2	11.9	.4	.890	None		
SBR72-10299	1011	-1012	77420	5.5	.3	93.1	1.1	14.6	.6	.904	None		
SBR72-10300	1012	-1013	77421	4.7	.2	94.2	.9	12.6	.4	.895	None		
SBR72-10301	1013.0	-1013.7	77422	4.9	.3	94.1	.7	13.0	.6	.906	None		
SBR72-10302	1013.7	-1014.5	77423	8.1	.2	90.6	1.1	21.8	.4	.897	None	2/	
SBR72-10303	1015.3	-1016.0	77424	2.2	.2	97.0	.6	6.0	.5	.888	None		
SBR72-10304	1016	-1017	77425	5.2	1.3	92.7	.8	14.0	3.1	.898	None	(Tar sands)	
SBR72-10305	1017	-1018	77426	5.6	.2	93.0	1.2	14.8	.5	.911	None		
SBR72-10306	1018	-1019	77427	12.7	.5	84.4	2.4	33.2	1.2	.916	None		
SBR72-10307	1019	-1020	77428	4.8	.4	93.7	1.1	12.6	1.0	.913	None		
SBR72-10308	1020	-1021	77429	3.4	.4	95.4	.8	9.1	1.0	.908	None		
SBR72-10309	1021	-1022	77430	3.3	.3	95.7	.7	8.7	.8	.900	None		
SBR72-10310	1022	-1023	77431	8.1	.4	90.1	1.4	21.2	1.0	.913	None		
SBR72-10311	1023	-1024	77432	19.6	.7	76.6	3.1	51.3	1.6	.917	Slight		
SBR72-10312	1024	-1025	77433	3.9	.3	95.0	.8	10.3	.6	.911	None		
SBR72-10313	1025	-1026	77434	2.7	.3	96.5	.5	7.1	.7	.919	None		
SBR72-10314	1026	-1027	77435	1.0	.4	98.3	.3	2.7a	1.0		None		
SBR72-10315	1027	-1028	77436	1.5	.0	97.9	.6	3.9a	.0		None		
SBR72-10316	1028	-1029	77437	1.6	.5	97.4	.5	4.2a	1.3		None		
SBR72-10317	1029	-1030	77438	1.8	.3	97.1	.8	4.7a	.7		None		

See footnotes at end of table.

Core samples received October 20, 1972; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Gulf Mineral Resources Company's No. 4 Southam Corehole (con.)

Surface elevation 5,061 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					
Laramie	Their			Oil	Water					Oil	Water	
SBR72-10318	1030	-1031	77439	5.9	0.5	92.6	1.0	15.4	1.2	0.916	None	
SBR72-10319	1031	-1032	77440	8.1	1.5	89.5	.9	21.2	3.6	.913	None	
SBR72-10320	1032	-1033	77441	6.5	1.6	91.4	.5	17.1	3.8	.912	None	
SBR72-10321	1033	-1034	77442	6.0	.7	92.3	1.0	15.7	1.8	.913	None	
SBR72-10322	1034	-1035	77443	5.8	.7	92.2	1.3	15.3	1.7	.913	None	
SBR72-10323	1035	-1036	77444	3.0	.2	96.3	.5	8.0	.4	.916	None	
SBR72-10324	1036.0-1036.9		77445	2.4	.0	96.8	.8	6.3	.1	.918	None	

↓
1075'

- 1/ "a"--indicates specific gravity estimated as 0.92.
 2/ Indicates sample removed for Rock Mechanics Testing.

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