

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Gulf Mineral Resources #2 Southam Corehole drilled in the NW1/4NW1/4
(611 feet S/N, 1,134 feet E/W) of sec 34, T 10 S, R 24 E, Uintah County, Utah

Surface elevation 5,432 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		
				Oil	Water	Spent shale	Gas + loss	Oil 1/	Water			coke	
Laramie	Ther												
SBR72-9894	821	-822	76997	3.8	0.5	94.3	1.4	9.9	1.2	0.924	None		
SBR72-9895	822	-823	76998	4.5	.4	93.8	1.3	11.7	1.1	.917	None		
SBR72-9896	823	-824	76999	14.1	.6	82.0	3.3	36.6	1.6	.921	None		
SBR72-9897	824	-825	77000	9.2	.6	87.7	2.5	23.7	1.4	.929	None		
SBR72-9898	825	-826	77001	5.0	.4	92.8	1.8	13.0	1.0	.923	None		
SBR72-9899	826	-827	77002	5.1	.4	92.5	2.0	13.2	1.1	.923	None		
SBR72-9900	827.0	-827.7	77003	5.1	.4	92.8	1.7	13.1	1.0	.930	None	2/	
SBR72-9901	828.3	-829.0	77004	.5	.1	98.5	.9	1.4a	.2		None		
SBR72-9902	829	-830	77005	9.0	.7	88.5	1.8	23.9	1.7	.908	None		
SBR72-9903	830	-831	77006	12.1	.7	84.2	3.0	31.4	1.7	.925	None		
SBR72-9904	831	-832	77007	5.6	.4	92.6	1.4	14.6	1.0	.914	None		
SBR72-9905	832.0	-832.8	77008	6.0	.5	91.8	1.7	15.6	1.3	.913	None		
SBR72-9906	832.8	-833.5	77009	9.9	.7	97.4	2.0	26.1	1.8	.908	None	2/	
SBR72-9907	834.1	-835.0	77010	4.9	.5	93.4	1.2	12.8	1.2	.917	None		
SBR72-9908	835	-836	77011	2.7	.4	96.5	.4	7.1	1.0	.923	None		
SBR72-9909	836.1	-836.7	77012	2.3	.4	96.9	.4	5.9	1.1	.922	None		
SBR72-9910	836.7	-837.5	77013	2.1	.1	97.0	.8	5.3	.4	.927	None	2/	
SBR72-9911	838.1	-839.0	77014	1.6	.4	97.5	.7	3.7a	.8		None		
SBR72-9912	839.0	-840.2	77015	3.2	.1	95.0	1.7	8.4	.2	.927	None		
SBR72-9913	841.0	-841.6	77016	1.7	.1	97.4	.8	4.3a	.2		None		
SBR72-9914	841.6	-842.2	77017	1.4	.1	97.2	1.3	3.8a	.1		None	2/	
SBR72-9915	842.9	-844.0	77018	.9	.5	97.9	.7	2.4a	1.2		None		
SBR72-9916	844	-845	77019	.8	.4	98.3	.5	2.1a	1.0		None		
SBR72-9917	845	-846	77020	1.4	.6	97.7	.3	3.7a	1.4		None		
SBR72-9918	846	-847	77021	4.4	.7	93.6	1.3	11.6	1.8	.910	None		
SBR72-9919	847.0	-847.9	77022	6.2	.4	92.0	1.4	16.2	1.1	.914	None	2/	
SBR72-9920	848.5	-849.2	77023	11.3	1.3	85.1	2.3	29.8	3.1	.911	Slight		
SBR72-9921	849.2	-850.0	77024	14.4	1.0	81.9	2.7	38.0	2.4	.910	Slight		
SBR72-9922	850	-851	77025	6.7	.7	90.5	2.1	17.5	1.7	.913	None		
SBR72-9923	851.0	-851.7	77026	5.8	.5	92.5	1.2	15.3	1.3	.906	None	2/	

See footnotes at end of table.

Core samples received September 13, 1972; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Gulf Mineral Resources #2 Southam Corehole (con.)

Surface elevation 5,432 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		Oil	Water	Spent shale	Gas + loss	Oil	Water				
SBR72-9924	852.4-853.0	77027	4.7	0.4	93.7	1.2	12.1	1.0	0.924	None		
SBR72-9925	853 -854	77028	6.3	.7	92.0	1.0	16.5	1.8	.916	None		
SBR72-9926	854 -855	77029	10.3	.7	87.2	1.8	26.9	1.7	.917	None		
SBR72-9927	855 -856	77030	13.2	1.0	83.2	2.6	34.6	2.3	.917	None		
SBR72-9928	856.0-856.7	77031	9.0	.5	89.0	1.5	23.3	1.2	.921	None		
SBR72-9929	856.7-857.4	77032	9.6	.7	87.9	1.8	25.0	1.8	.916	None	2/	
SBR72-9930	858 -859	77033	16.6	.7	79.7	3.0	44.3	1.8	.895	Slight		
SBR72-9931	859 -860	77034	.8	17.0	79.5	2.7	44.9	1.9	.905	Slight		
SBR72-9932	860 -861	77035	10.4	.4	87.4	1.8	27.8	1.1	.894	None		
SBR72-9933	861 -862	77036	7.3	.6	90.5	1.6	19.5	1.3	.900	None		
SBR72-9934	862 -863	77037	6.0	.7	92.0	1.3	16.0	1.6	.906	None		
SBR72-9935	863 -864	77038	4.5	.6	93.6	1.3	11.9	1.3	.913	None		
SBR72-9936	864 -865	77039	8.1	.8	89.4	1.7	21.4	1.9	.906	None		
SBR72-9937	865 -866	77040	7.3	.5	90.7	1.5	19.0	1.2	.908	None		
SBR72-9938	866 -867	77041	3.9	.5	94.6	1.0	10.3	1.2	.904	None		
SBR72-9939	867 -868	77042	4.7	.3	93.5	1.5	12.3	.8	.908	None		
SBR72-9940	868 -869	77043	4.8	1.2	92.9	1.1	12.8	2.9	.902	None	Mahogany Marker	
SBR72-9941	869 -870	77044	4.5	.6	94.0	.9	11.9	1.4	.901	None	868.7-869.1 is	
SBR72-9942	870 -871	77047	3.9	.2	95.3	.6	10.3	.5	.900	None	tar impregnated	
SBR72-9943	871 -872	77048	5.0	.2	93.8	1.0	13.3	.6	.895	None		
SBR72-9944	872 -873	77049	6.5	.2	91.4	1.9	17.1	.6	.909	None		
SBR72-9945	873 -874	77050	19.2	1.2	75.9	3.7	50.6	2.9	.908	Slight		
SBR72-9946	874 -875	77128	8.3	.5	89.6	1.6	22.1	1.1	.902	None		
SBR72-9947	875 -876	77052	7.4	.5	90.2	1.9	19.7	1.2	.903	None		
SBR72-9948	876 -877	77053	13.0	.8	83.9	2.3	34.6	1.8	.903	None		
SBR72-9949	877 -878	77054	17.8	.7	78.4	3.1	47.0	1.8	.905	None		
SBR72-9950	878 -879	77055	13.9	.7	83.3	2.1	36.7	1.7	.906	None		
SBR72-9951	879 -880	77056	20.7	1.5	73.9	3.9	55.4	3.6	.898	Moderate		
SBR72-9952	880 -881	77057	19.6	1.0	76.1	3.3	52.4	2.4	.899	Heavy		
SBR72-9953	881 -882	77058	25.1	1.5	68.2	5.2	66.4	3.6	.906	Heavy		

See footnotes at end of table.

Core samples received September 13, 1972; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Gulf Mineral Resources #2 Southam Corehole (con.)

Surface elevation 5,432 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	
SBR72-9954	882	-883	77059	30.8	2.5	60.4	6.3	81.7	6.0	0.903	Heavy	
SBR72-9955	883	-884	77060	26.0	2.5	65.9	5.6	69.0	6.0	.905	Heavy	
SBR72-9956	884	-885	77061	17.8	.7	78.3	3.2	47.2	1.8	.902	None	
SBR72-9957	885	-886	77062	22.2	1.2	72.5	4.1	59.2	2.9	.900	None	
SBR72-9958	886	-887	77063	20.4	.7	75.7	3.2	54.3	1.8	.900	None	
SBR72-9959	887	-888	77064	8.5	.2	89.7	1.6	22.5	.5	.904	None	
SBR72-9960	888	-889	77065	9.9	.3	87.4	2.4	26.4	.7	.903	None	(
SBR72-9961	889	-890	77066	16.4	.5	79.9	3.2	43.4	1.2	.905	None	
SBR72-9962	890	-891	77067	10.0	.3	87.7	2.0	26.6	.7	.903	None	
SBR72-9963	891	-892	77068	23.6	.8	72.0	3.6	62.8	1.8	.902	None	
SBR72-9964	892	-893	77069	17.7	.5	78.6	3.1	46.7	1.3	.908	None	
SBR72-9965	893	-894	77070	17.8	.5	78.3	3.4	47.1	1.2	.907	None	
SBR72-9966	894	-895	77071	10.2	.3	87.8	1.7	27.6	.6	.891	None	Rubble
SBR72-9967	895	-896	77072	16.3	.5	80.7	2.5	43.2	1.1	.905	None	
SBR72-9968	896	-897	77073	7.6	.6	90.3	1.5	20.1	1.3	.909	None	Rubble
SBR72-9969	900	-901	77074	13.2	.5	83.7	2.6	34.6	1.3	.912	None	
SBR72-9970	901	-902	77075	6.3	.4	91.1	2.2	16.4	1.0	.920	None	Rubble
SBR72-9971	902	-903	77076	3.7	.1	94.6	1.6	9.6	.4	.916	None	
SBR72-9972	903	-904	77077	4.8	.5	92.9	1.8	12.7	1.2	.918	None	
SBR72-9973	904	-905	77078	5.5	.3	92.5	1.7	14.3	.7	.919	None	
SBR72-9974	905	-906	77079	7.6	.3	90.6	1.5	20.0	.7	.909	None	
SBR72-9975	906	-907	77080	13.0	.4	84.7	1.9	34.8	1.1	.895	None	
SBR72-9976	907	-908	77081	13.8	.5	84.4	1.3	37.5	1.2	.882	None	(
SBR72-9977	908	-909	77082	10.6	.7	87.5	1.2	28.0	1.6	.909	None	
SBR72-9978	909	-910	77083	9.0	.5	89.3	1.2	23.9	1.2	.901	None	
SBR72-9979	910	-911	77084	9.9	.8	88.2	1.1	26.4	1.8	.900	None	
SBR72-9980	911	-912	77085	12.6	.8	85.1	1.5	33.7	1.8	.898	None	
SBR72-9981	912.0-912.8		77086	8.3	.5	90.3	.9	22.2	1.3	.896	None	
SBR72-9982	912.8-913.5		77087	7.5	.9	90.7	.9	20.1	2.2	.900	None	2/
SBR72-9983	914.2-915.0		77088	4.7	.4	93.7	1.2	12.4	1.0	.909	None	

See footnotes at end of table.

Core samples received September 13, 1972; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Gulf Mineral Resources #2 Southam Corehole (con.)

Surface elevation 5,432 feet

Surface elevation 5,452 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- 9984	915 -916		77089	4.2	0.8	93.7	1.3	10.9	2.0	0.922	None		
SBR72- 9985	916 -917		77090	4.7	.5	93.3	1.5	12.1	1.2	.921	None		
SBR72- 9986	917.0-917.6		77091	6.5	.5	92.0	1.0	17.2	1.2	.909	None		
SBR72- 9987	917.6-918.3		77092	13.7	.9	83.3	2.1	36.1	2.0	.911	None	2/	
SBR72- 9988	919 -920		77093	4.4	.5	93.9	1.2	11.4	1.2	.929	None		
SBR72- 9989	920 -921		77094	2.8	.4	95.5	1.3	7.2	1.0	.924	None		
SBR72- 9990	921 -922		77095	1.8	.2	96.9	1.1	4.8a	.4		None	(
SBR72- 9991	922 -923		77096	2.4	.2	96.3	1.1	6.2	.5	.913	None		
SBR72- 9992	923.0-923.6		77097	4.4	.3	93.7	1.6	11.6	.7	.906	None	2/	
SBR72- 9993	924.3-925.0		77098	3.2	.4	95.4	1.0	8.5	1.0	.892	None		
SBR72- 9994	925 -926		77099	3.4	1.4	94.6	.6	8.9	3.4	.902	None		
SBR72- 9995	926 -927		77100	6.1	.5	92.1	1.3	16.2	1.2	.906	None		
SBR72- 9996	927 -928		77101	11.4	.6	85.9	2.1	29.8	1.6	.915	None		
SBR72- 9997	928 -929		77102	4.1	.3	94.4	1.2	10.8	.6	.911	None		
SBR72- 9998	929 -930		77103	2.9	.2	96.0	.9	7.5	.6	.917	None		
SBR72- 9999	930 -931		77104	9.1	.5	88.5	1.9	23.9	1.2	.912	None		
SBR72-10000	931 -932		77105	15.0	.8	80.9	3.3	38.9	1.8	.925	Slight		
SBR72-10001	932 -933		77106	2.9	.5	95.3	1.3	7.5	1.2	.923	None		
SBR72-10002	933 -934		77107	1.6	.4	96.8	1.2	4.1a	1.0		None		
SBR72-10003	934 -935		77108	1.4	.6	96.8	1.2	3.6a	1.4		None		
SBR72-10004	935 -936		77109	1.4	.5	96.7	1.4	3.7a	1.1		None		
SBR72-10005	936 -937		77110	5.3	.4	92.7	1.6	13.7	1.0	.921	None		
SBR72-10006	937 -938		77111	7.7	1.3	87.9	3.1	20.4	3.1	.911	None	(
SBR72-10007	938 -939		77112	6.8	1.2	89.8	2.2	17.8	2.9	.913	None		
SBR72-10008	939 -940		77113	3.7	.4	93.8	2.1	9.7	.8	.920	None		
SBR72-10009	940 -941		77114	4.1	.8	93.6	1.5	10.7	1.8	.924	None		
SBR72-10010	941 -942		77115	2.8	.4	95.3	1.5	7.2	1.0	.933	None		
SBR72-10011	942 -943		77116	1.3	.4	97.4	.9	3.4a	1.0		None		
SBR72-10012	943 -944		77117	1.8	.4	96.5	1.3	4.8a	.8		None		
SBR72-10013	944 -945		77118	2.8	.5	95.5	1.2	7.3	1.1	.937	None		

See footnotes at end of table.

Core samples received September 13, 1972; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Gulf Mineral Resources #2 Southam Corehole (con.)

Surface elevation 5,432 feet

Sample number			Run No.	Yield of product				Gal per ton		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 ^{1/}	Water	
SBR72-10014	945	-946	77119	1.7	0.5	97.0	0.8	4.5a	1.1		None	
SBR72-10015	946	-947	77120	2.2	.6	95.9	1.3	5.6	1.6	0.938	None	
SBR72-10016	947	-948	77121	3.0	.8	95.3	.9	7.7	1.8	.931	None	
SBR72-10017	948	-949	77122	1.2	.6	97.5	.7	3.0a	1.6		None	
SBR72-10018	949	-950	77123	3.1	.6	95.2	1.1	7.9	1.4	.931	None	
SBR72-10019	950	-951	77124	3.1	1.0	94.8	1.1	8.0	2.4	.925	None	
SBR72-10020	951	-952	77125	1.5	.8	96.7	1.0	4.0a	1.8		None	
SBR72-10021	952	-953	77126	1.3	.8	97.3	.6	3.3a	1.9		None	
SBR72-10022	953	-954	77127	1.5	.6	97.3	.6	3.9a	1.4		None	
SBR72-10023	954	-955	77129	2.0	1.0	96.0	1.0	5.2a	2.5		None	
SBR72-10024	955	-956	77130	1.3	1.5	96.3	.9	3.4a	3.6		None	
SBR72-10025	956	-957	77141	1.7	1.2	96.6	.5	4.4a	2.9		None	
SBR72-10026	957	-958	77131	2.0	1.0	96.3	.7	5.3	2.4	.920	None	
SBR72-10027	958.0-958.8		77132	2.4	.3	96.3	1.0	6.4	.6	.914	None	

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1/ "a"--indicates specific gravity estimated as 0.92.

2/ Missing footage removed for physical property testing.

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