

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Brewer et al. Corehole No. 8-1 drilled in C NW1/4SW1/4
(1980 feet N/S 660 feet E/W) of sec 8, T 13 S, R 24 E, Uintah County, Utah

Surface elevation 6322 ft.

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
Laramie	Their		Oil	Water					Oil—	Water	
SBR64-11037	0.0- 2.4	1681	1.2	2.7	95.7	0.4	3.2a	6.5		None	
SBR64-11038	2.4- 4.0	1682	1.6	1.5	96.0	.9	4.1a	3.6		None	
SBR64-11039	4.0- 5.0	1683	1.4	1.5	96.3	.8	3.6a	3.6		None	
SBR64-11040	5.0- 6.0	1684	1.2	1.7	96.0	1.1	3.2a	4.1		None	
SBR64-11041	6.0- 7.0	1685	1.0	1.6	96.9	.5	2.7a	3.8		None	
SBR64-11042	7.0- 8.0	1686	1.9	1.5	95.8	.8	4.8a	3.6		None	
SBR64-11043	8.0- 9.0	1687	2.5	1.3	95.1	1.1	6.4	3.1	0.930	None	
SBR64-11044	9.0-10.0	1688	.8	1.4	96.5	1.3	2.0a	3.4		None	
SBR64-11045	10.0-11.4	1689	1.3	1.9	95.8	1.0	3.4a	4.6		None	
SBR64-11046	11.4-12.5	1690	2.3	1.6	95.2	.9	6.0	3.8	.934	None	
SBR64-11047	12.5-13.5 ^{1.0}	1691	1.6	1.5	96.1	.8	4.2a	3.6		None	
SBR64-11048	13.5-14.6 ^{1.1}	1692	4.2	1.0	93.7	1.1	10.9 ^{11.99}	2.4	.930	None	
SBR64-11049	14.6-15.6 ^{1.0}	1693	3.4	1.0	94.8	.8	8.8 ^{8.80}	2.4	.931	None	
SBR64-11050	15.6-16.6 ^{1.0}	1694	2.3	.7	95.1	1.9	5.9 ^{5.90}	1.8	.926	None	
SBR64-11051	16.6-17.6 ^{1.0}	1695	4.5	.8	93.5	1.2	11.7 ^{11.70}	1.8	.924	None	
SBR64-11052	17.6-18.7 ^{1.1}	1832	11.4	.9	84.7	3.0	29.3 ^{31.23}	2.2	.934	None	
SBR64-11053	18.7-19.7 ^{1.0}	1697	3.8	1.2	93.9	1.1	9.8 ^{9.8}	2.9	.930	None	
SBR64-11054	19.7-21.0 ^{1.3}	1698	4.7	1.3	92.8	1.2	12.2 ^{12.86}	3.1	.927	None	
SBR64-11055	21.0-22.6 ^{1.4}	1699	5.0	1.3	92.6	1.1	12.7 ^{12.32}	3.1	.934	None	
SBR64-11056	22.6-23.2 ^{0.6}	1700	17.1	1.2	77.5	4.2	43.8 ^{43.18}	2.9	.934	None	
SBR64-11057	23.2-24.6 ^{1.4}	1701	5.6	1.2	91.9	1.3	14.5 ^{14.30}	2.9	.920	None	
SBR64-11058	24.6-25.7 ^{1.1}	1702	5.2	.5	93.5	.8	13.6 ^{14.96}	1.2	.915	None	
SBR64-11059	25.7-26.6 ^{0.9}	1703	13.0	.8	84.0	2.2	34.1 ^{34.69}	1.9	.912	None	
SBR64-11060	26.6-27.5 ^{0.9}	1704	5.0	.5	93.5	1.0	13.0 ^{11.70}	1.2	.923	None	
SBR64-11061	27.5-28.5 ^{1.0}	1705	1.9	.6	97.1	.4	4.9a ^{4.9}	1.6		None	
SBR64-11062	28.5-29.5 ^{1.0}	1706	1.1	.5	97.9	.5	3.0a	3.01.2		None	
SBR64-11063	29.5-30.7 ^{1.2}	1707	1.8	.2	97.5	.5	4.6a	5.52.6		None	
SBR64-11064	30.7-31.9 ^{1.2}	1708	1.9	.4	97.2	.5	5.0a	6.01.0		None	
SBR64-11065	31.9-33.0 ^{1.1}	1709	4.2	.4	94.6	.8	11.0	12.11.0	.924	None	
SBR64-11066	33.0-34.0 ^{1.0}	1710	2.0	.4	97.0	.6	5.4	5.41.0	.916	None	

See footnotes at end of table.

Core samples received November 20, 1964; Assays made on air-dried samples

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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
Laramie	Their		Oil	Water					Oil	Water	
SBR64-11067	34.0-35.0 1.0	1711	1.0	0.5	97.9	0.6	2.6 2.6	1.3		None	
SBR64-11068	35.0-36.8 1.3	1712	1.1	.5	98.0	.4	2.9 2.9	1.1		None	
SBR64-11069	36.8-37.8 1.0	1713	1.1	.4	98.2	.3	2.8 2.8	1.1		None	
SBR64-11070	37.8-38.9 1.1	1714	4.4	.7	93.7	1.2	11.6 11.6	1.7	0.915	None	
SBR64-11071	38.9-39.8 0.7	1715	3.6	.5	95.1	.8	9.3 9.3	1.3	.915	None	
SBR64-11072	39.6-40.3 0.7	1716	7.6	1.2	89.4	1.8	20.0 20.0	2.9	.913	None	
SBR64-11073	40.3-41.1 0.8	1717	14.2	1.3	81.8	2.7	37.5 37.5	3.0	.911	Slight	
SBR64-11074	41.1-42.1 1.0	1718	5.5	.7	92.4	1.4	14.2 14.2	1.8	.924	None	
SBR64-11075	42.1-43.1 1.0	1719	5.0	.8	92.9	1.3	13.2 13.2	1.8	.919	None	
SBR64-11076	43.1-44.6 1.5	1720	3.4	.6	95.4	.6	8.9 8.9	1.3	.925	None	
SBR64-11077	44.6-45.5 0.9	1721	8.0	1.0	89.7	1.3	20.7 20.7	2.4	.925	None	
SBR64-11078	45.5-46.5 1.0	1722	13.8	.9	82.8	2.5	35.9 35.9	2.0	.922	None	
SBR64-11079	46.5-48.0 1.5	1723	9.2	.5	88.1	2.2	24.3 24.3	1.1	.911	None	
SBR64-11080	48.0-49.4 1.4	1724	19.1	.6	76.5	3.8	50.5 50.5	1.3	.907	Slight	
SBR64-11081	49.4-50.4 1.0	1725	9.9	.4	88.0	1.7	26.3 26.3	1.1	.897	None	
SBR64-11082	50.4-52.0 1.6	1726	6.1	1.1	91.2	1.6	16.2 16.2	2.6	.911	None	
SBR64-11083	52.0-53.0 1.0	1727	3.7	.8	94.2	1.3	9.5 9.5	2.0	.925	None	
SBR64-11084	53.0-54.0 1.0	1728	7.4	1.0	89.6	2.0	19.2 19.2	2.4	.919	None	
SBR64-11085	54.0-55.5 1.5	1729	5.4	.7	92.5	1.4	13.9 13.9	1.8	.923	None	
SBR64-11086	55.5-56.5 1.0	1833	4.4	.5	93.9	1.2	11.6 11.6	1.2	.920	None	
SBR64-11087	56.5-57.5 1.0	1731	3.4	.7	94.8	1.1	8.8 8.8	1.8	.923	None	
SBR64-11088	57.5-57.8 0.3	1732	6.2	3.0	89.8	1.0	16.4 16.4	2.2	.908	None	Mahogany Marker
SBR64-11089	57.8-59.0 1.2	1733	3.7	.7	94.2	1.4	9.7 9.7	1.7	.924	None	
SBR64-11090	59.0-60.0 1.0	1734	3.1	.6	95.1	1.2	8.0 8.0	1.4	.922	None	
SBR64-11091	60.0-61.0 1.0	1735	3.1	.7	95.2	1.0	8.1 8.1	1.7	.915	None	
SBR64-11092	61.0-62.4 1.4	1736	4.3	.7	93.8	1.2	11.2 11.2	1.7	.916	None	
SBR64-11093	62.4-63.7 1.3	1737	4.1	.5	94.2	1.2	10.7 10.7	1.2	.918	None	
SBR64-11094	63.7-64.9 1.2	1738	12.4	.9	84.7	2.0	32.4 32.4	2.3	.915	None	
SBR64-11095	64.9-66.0 1.1	1739	14.2	.9	82.5	2.4	37.4 37.4	2.2	.909	None	
SBR64-11096	66.0-67.5 1.5	1740	25.5	2.0	67.3	5.2	67.1 67.1	4.8	.910	Heavy	

See footnotes at end of table.

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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		
			Laramie	Their			Oil	Water	Oil ^{1/}		Water	
SBR64-11097	67.5-68.5 1.0	1741	26.6	1.5	65.6	6.3	69.6 69.63.6	0.914	Heavy			
SBR64-11098	68.5-69.5 1.0	1742	16.1	1.0	79.6	3.3	42.3 42.32.4	.912	Slight			
SBR64-11099	69.5-70.5 1.0	1743	12.3	1.2	84.4	2.1	32.2 32.22.9	.913	None			
SBR64-11100	70.5-71.5 1.0	1744	13.0	1.2	83.4	2.4	34.5 34.52.9	.905	None			
SBR64-11101	71.5-72.5 1.0	1745	5.8	1.2	91.4	1.6	15.2 15.22.9	.913	None			
SBR64-11102	72.5-73.5 1.0	1746	7.0	1.2	90.2	1.6	18.0 18.02.9	.929	None			
SBR64-11103	73.5-74.6 1.1	1747	7.9	.8	90.1	1.2	21.2 21.33.1	.899	None			
SBR64-11104	74.6-75.7 1.1	1748	8.7	1.1	88.6	1.6	23.1 23.412.6	.905	None			
SBR64-11105	75.7-77.1 1.4	1749	19.6	1.4	74.8	4.2	51.7 52.383.4	.911	Slight			
SBR64-11106	77.1-78.1 1.0	1750	7.7	.8	90.0	1.5	20.0 20.01.8	.923	None			
SBR64-11107	78.1-79.1 1.0	1751	6.6	.6	91.5	1.3	17.2 17.21.4	.917	None			
SBR64-11108	79.1-80.1 1.0	1752	16.2	.7	80.6	2.5	42.1 42.11.7	.925	None			
SBR64-11109	80.1-81.3 1.2	1753	6.1	.9	92.1	.9	15.8 15.842.0	.924	None			
SBR64-11110	81.3-82.5 1.2	1754	6.2	.7	92.0	1.1	16.2 16.241.6	.922	None			
SBR64-11111	82.5-83.5 1.0	1755	15.7	1.3	80.5	2.5	40.9 40.93.1	.919	None			
SBR64-11112	83.5-84.5 1.0	1756	20.0	1.3	75.7	3.0	52.3 52.33.1	.918	Slight			
SBR64-11113	84.5-85.9 1.4	1757	7.0	.8	91.1	1.1	18.3 18.362.9	.920	None			
SBR64-11114	85.9-86.9 1.0	1758	13.4	1.0	83.5	2.1	35.0 35.02.4	.918	None			
SBR64-11115	86.9-87.9 1.0	1759	5.1	.7	92.8	1.4	13.2 13.22.8	.919	None			
SBR64-11116	87.9-89.3 1.4	1760	3.9	.7	92.4	3.0	10.2 10.281.6	.921	None			
SBR64-11117	89.3-90.5 1.2	1761	14.0	1.3	82.4	2.3	36.3 36.363.1	.920	None			
SBR64-11118	90.5-91.1 0.6	1762	5.1	.8	92.9	1.2	13.3 13.381.8	.922	None			
SBR64-11119	91.1-92.1 1.0	1763	2.9	.5	95.8	.8	7.5 7.51.3	.920	None			
SBR64-11120	92.1-93.8 1.7	1764	4.3	.3	94.5	.9	11.2 11.29.04	.919	None			
SBR64-11121	93.8-94.9 1.1	1765	14.4	1.2	82.0	2.4	37.6 37.6362.9	.917	None			
SBR64-11122	94.9-96.0 1.1	1766	10.0	.5	87.9	1.6	26.2 26.28.921.2	.916	None			
SBR64-11123	96.0-97.0 1.0	1767	7.7	.6	90.4	1.3	20.2 20.22.1.4	.914	None			
SBR64-11124	97.0-98.4 1.4	1768	10.2	.6	87.4	1.8	26.7 26.7381.6	.910	None			
SBR64-11125	98.4-99.4 1.0	1769	6.7	.6	90.9	1.8	17.6 17.661.4	.919	None			
SBR64-11126	99.4-100.4 1.0	1770	4.2	.3	94.2	1.3	10.9 10.99.7	.929	None			

See footnotes at end of table.

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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	Thair		Oil	Water	Spent shale	Gas + loss	Oil $\frac{1}{\text{Water}}$		coke		
SBR64-11127	100.4-101.7	1.3 1771	3.3	0.4	95.2	1.1	8.410.92	1.0	0.934	None	
SBR64-11128	101.7-102.7	1.0 1772	4.4	.4	93.9	1.3	11.5 11.5	1.0	.925	None	
SBR64-11129	102.7-103.5	0.8 1773	11.1	.8	86.0	2.1	28.923.12	1.9	.924	None	
SBR64-11130	103.5-104.4	0.9 1774	4.2	1.0	93.8	1.0	10.8 9.72	2.4	.925	None	
SBR64-11131	104.4-105.4	1.0 1775	2.4	.5	96.0	1.1	6.1 6.1	1.2	.928	None	
SBR64-11132	105.4-107.0	1.6 1776	1.2	.2	97.7	.9	3.1a4.96	.5		None	
SBR64-11133	107.0-108.0	1.0 1777	2.6	.5	96.0	.9	6.8 6.8	1.1	.918	None	
SBR64-11134	108.0-109.1	1.1 1778	7.0	.5	90.6	1.9	18.210.02	1.3	.918	None	
SBR64-11135	109.1-110.2	1.1 1779	2.0	1.7	95.5	.8	5.1a5.61	4.1		None	
SBR64-11136	110.2-111.3	1.1 1780	3.1	.6	95.4	.9	8.0 8.8	1.4	.920	None	
SBR64-11137	111.3-112.5	1.2 1781	11.1	.8	85.9	2.2	28.934.68	1.9	.919	None	
SBR64-11138	112.5-113.5	1.0 1782	2.8	.5	95.7	1.0	7.4 7.4	1.2	.918	None	
SBR64-11139	113.5-114.9	1.4 1783	2.3	.5	96.4	.8	6.0 8.4	1.1	.919	None	
SBR64-11140	114.9-115.7	0.8 1784	5.8	.9	91.3	2.0	15.212.16	2.2	.918	None	
SBR64-11141	115.7-116.3	0.6 1785	12.4	1.3	84.1	2.2	32.419.44	3.1	.917	None	
SBR64-11142	116.3-117.4	1.1 1786	.8	.3	98.7	.2	2.0a2.2	.7		None	
SBR64-11143	117.4-118.6	1.2 1787	3.4	.6	95.0	1.0	8.810.56	1.4	.914	None	
SBR64-11144	118.6-119.5	.9 1788	1.6	1.3	96.6	.5	4.1a3.69	3.2		None	
SBR64-11145	119.5-120.0	.5 1789	3.6	1.6	93.5	1.3	9.5 4.75	3.8	.913	None	
SBR64-11146	120.0-121.5	1790	1.1	.4	98.2	.3	2.9a	.8		None	
SBR64-11147	121.5-122.9	1791	1.9	.3	97.5	.3	5.0a	.7		None	
SBR64-11148	122.9-124.0	1792	2.9	.1	96.2	.8	7.5	.2	.922	None	Tar impregnated
SBR64-11149	124.0-125.4	1793	.2	.2	99.2	.4	.6a	.4		None	
SBR64-11150	125.4-126.4	1794	.3	.1	99.0	.6	.8a	.2		None	
SBR64-11151	126.4-127.7	1795	3.8	.9	93.7	1.6	10.0	2.0	.920	None	
SBR64-11152	127.7-128.7	1796	2.7	.2	95.7	1.4	6.9	.6	.916	None	
SBR64-11153	128.7-129.7	1797	3.0	.4	95.6	1.0	7.9	1.0	.915	None	
SBR64-11154	129.7-130.5	1798	6.7	.5	91.7	1.1	17.9	1.1	.901	None	
SBR64-11155	130.5-132.3	1799	2.2	.3	96.9	.6	5.9	.6	.911	None	
SBR64-11156	132.3-132.8	1800	3.7	.5	95.0	.8	9.7	1.2	.910	None	

See footnotes at end of table.

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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						1/					
SBR64-11157	132.8-133.7	1801	0.7	0.7	98.2	0.4	1.7a	1.8	0.910	None		
SBR64-11158	133.7-135.0	1802	1.5	.3	97.7	.5	3.9a	.7		None		
SBR64-11159	135.0-136.0	1803	2.6	1.2	95.6	.6	6.9	2.9		None		
SBR64-11160	136.0-137.0	1804	1.8	1.5	96.1	.6	4.6a	3.7		None		
SBR64-11161	137.0-138.0	1805	1.4	1.2	96.9	.5	3.5a	2.9		None		
SBR64-11162	138.0-139.1	1806	1.2	.7	97.6	.5	3.2a	1.6	.915	None		
SBR64-11163	139.1-140.9	1807	4.0	1.7	93.4	.9	10.5	4.1		None		
SBR64-11164	140.9-142.7	1808	.0	2.1	97.6	.3	Trace	5.0		None		
SBR64-11165	142.7-143.7	1809	2.0	1.8	95.8	.4	5.1a	4.3		None		
SBR64-11166	143.7-145.0	1810	.2	1.8	97.5	.5	.4a	4.3		None		
SBR64-11167	145.0-145.6	1811	6.3	1.1	91.4	1.2	16.1	2.6	.936	None		
SBR64-11168	145.6-146.7	1812	3.6	.4	95.2	.8	9.4	.8	.925	None	Tar impregnated	
SBR64-11169	146.7-147.5	1813	3.5	.2	95.7	.6	9.2	.5	.924	None	Tar impregnated	
SBR64-11170	147.5-148.7	1814	.3	.0	99.0	.7	.8a	.0	.924	None		
SBR64-11171	148.7-150.0	1815	.9	.1	98.5	.5	2.4a	.2		None	Tar impregnated	
SBR64-11172	150.0-150.5	1816	3.6	.2	95.6	.6	9.5	.4		None	Tar impregnated	
SBR64-11173	150.5-152.3	1817	.2	.2	99.2	.4	.4a	.6		None		
SBR64-11174	152.3-153.7	1818	5.5	.1	93.8	.6	14.3	.2		.915	None	Tar impregnated
SBR64-11175	153.7-157.0	1819	.5	.4	98.6	.5	1.4a	.8	.921	None	Tar impregnated	
SBR64-11176	157.0-160.9	1820	.1	.4	99.2	.3	.3a	1.0		None	Tar impregnated	
SBR64-11177	160.9-164.0	1821	5.0	.1	94.3	.6	13.1	.2		None	Tar impregnated	
SBR64-11178	164.0-166.0	1822	3.7	.1	95.6	.6	9.6	.1		.920	None	Tar impregnated
SBR64-11179	166.0-170.5	1823	5.9	.1	93.4	.6	15.5	.2		.920	None	Tar impregnated
SBR64-11180	170.5-172.6	1824	4.1	.1	95.5	.3	10.6	.1	.919	None	Tar impregnated	
SBR64-11181	172.6-175.0	1825	.4	.3	99.3	.0	1.1a	.6	.932	None	Tar impregnated	
SBR64-11182	188.9-192.3	1826	2.9	.1	96.6	.4	7.5	.2		None	Tar impregnated	
SBR64-11183	192.3-194.3	1827	3.5	.1	96.0	.4	9.2	.2		.923	None	Tar impregnated
SBR64-11184	213.4-216.7	1828	1.6	.1	98.0	.3	4.1a	.2		.925	None	Tar impregnated
SBR64-11185	216.7-218.8	1829	5.4	.1	94.0	.5	14.1	.1			None	Tar impregnated
SBR64-11186	218.8-220.4	1830	5.0	.0	94.6	.4	13.0	.0	.926		None	Tar impregnated

See footnotes at end of table.

Core samples received November 20, 1964; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Brewer et al. Corehole No. 8-1 (con.)

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		
Laramie	Their		Oil	Water					Oil ^{1/}		Water	
SBR64-11187	220.4-221.3	1831	0.8	0.0	98.9	0.3	2.1a	0.0		None	Tar impregnated	
	175.0-188.9)											
	194.3-213.4)	Barren rock not sampled										
	221.3-227.7)											

^{1/} "a" indicates specific gravity estimated as 0.92.

Core samples received November 20, 1964; Assays made on air-dried samples