

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Ladd Petroleum Corporation's Federal Well 1-4-64 drilled in the NW1/4NE1/4 (660 feet FNL, 1980 feet FEL) of sec. 4, T 16 N, R 94 W, Sweetwater County, Wyoming

Surface elevation: 6,824 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
SBR76-4740-61	50-270						No Oil			
SBR76-4762	280-290						No Oil			
SBR76-4763-78	300-460						No Oil			
SBR76-4779	460-470						Trace			
SBR76-4780-816	470-840						No Oil			
SBR76-4817-28	880-1000						No Oil			
SBR76-4829-47	1020-1210						No Oil			
SBR76-4848-50	1220-1250						No Oil			
SBR76-4851-53	1260-1290						No Oil			
SBR76-4854	1300-1310						No Oil			
SBR76-4855-69	1320-1470						No Oil			
SBR76-4870-71	1470-1490						c			
SBR76-4872	1490-1500	19314	1.1	3.3	94.9	0.7	2.9a	7.9		None
SBR76-4873-74	1500-1520						b			
SBR76-4875	1520-1530						c			
SBR76-4876	1530-1540						b			
SBR76-4877-79	1560-1590						b			
SBR76-4880	1590-1600						Trace			
SBR76-4881	1600-1610	19315	1.7	3.5	93.8	1.0	4.5a	8.4		None
SBR76-4882	1610-1620	19316	1.9	3.9	93.0	1.2	5.0a	9.3		None
SBR76-4883	1620-1630	19317	1.9	3.6	93.1	1.4	4.9a	8.6		None
SBR76-4884	1630-1640	19318	2.1	3.6	93.0	1.3	5.6	8.6	0.891	None
SBR76-4885	1640-1650	19319	1.8	3.0	94.3	.9	4.6a	7.2		None
SBR76-4886	1650-1660	19320	1.4	2.5	95.2	.9	3.6a	6.1		None
SBR76-4887	1660-1670	19321	1.5	3.2	94.1	1.2	3.9a	7.7		None
SBR76-4888	1670-1680	19322	1.4	2.5	95.0	1.1	3.8a	5.9		None
SBR76-4889	1680-1690	19323	1.6	2.6	94.2	1.6	4.3a	6.2		None
SBR76-4890	1690-1700	19324	1.8	2.7	94.5	1.0	4.7a	6.5		None
SBR76-4891	1700-1710						Trace			
SBR76-4892-95	1710-1750						b			

See footnote at end of table.

Drill cuttings received February 17, 1976; assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Ladd Petroleum Corporation's Federal Well 1-4-64

Surface elevation: 6,824 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		
SBR76-4896	1750-1760	19325	0.6	2.4	95.8	1.2	1.6a	5.8		None	
SBR76-4897	1760-1770						b				
SBR76-4898	1780-1790						b				
SBR76-4899	1790-1800						Trace				
SBR76-4900	1800-1810						b				
SBR76-4901-02	1810-1830						Trace				
SBR76-4903	1830-1840						No Oil				
SBR76-4904	1840-1850						b				
SBR76-4905	1850-1860						Trace				
SBR76-4906	1860-1870						No Oil				
SBR76-4907-09	1870-1900						Trace				
SBR76-4910-11	1900-1920						No Oil				
SBR76-4912	1920-1930						b				
SBR76-4913	1930-1940						Trace				
SBR76-4914	1940-1950						b				
SBR76-4915-16	1950-1970						No Oil				
SBR76-4917-19	1970-2000						Trace				
SBR76-4920	3170-3200	19326	7.7	6.4	80.8	5.1	18.3	15.3	1.006	None	Rubber
SBR76-4921	3200-3230	19327	.6	5.0	93.1	1.3	1.7a	12.0		None	
SBR76-4922	3230-3260	19328	.9	4.6	93.1	1.4	2.4a	11.0		None	
SBR76-4923	3260-3290	19329	2.7	4.0	91.5	1.8	6.7	9.6	.982	None	
SBR76-4924	3290-3320	19330	2.1	1.8	91.7	4.4	5.1	4.3	.981	None	
SBR76-4925	3320-3350	19331	3.6	4.7	88.2	3.5	8.7	11.3	.986	None	
SBR76-4926	3350-3380	19332	1.5	4.0	93.1	1.4	3.9a	9.6		None	
SBR76-4927	3380-3410	19333	2.0	5.0	91.3	1.7	5.0	12.0	.972	None	
SBR76-4928	3410-3440	19334	.8	3.8	93.8	1.6	2.1a	9.1		None	
SBR76-4929	3440-3470	19335	.1	3.4	95.7	.8	.3a	8.1		None	
SBR76-4930	3470-3500						c				
SBR76-4931-32	3500-3560						b				
SBR76-4933-37	3590-3740						b				

See footnote at end of table.

Drill cuttings received February 17, 1976; assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Ladd Petroleum Corporation's Federal Well 1-4-64

Surface elevation: 6,824 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	
SBR76-4938	3740-3770	19336	0.2	4.0	94.9	0.9	0.5a	9.6	None	
SBR76-4939	3770-3800	19337	.2	3.8	95.5	.5	.6a	9.1	None	
SBR76-4940	3800-3830						c			
SBR76-4941	3830-3860						b			
SBR76-4942-44	3860-4050						Trace			
SBR76-4945-47	4050-4150						b			
SBR76-4948	4150-4180	19338	.6	3.6	94.6	1.2	1.7a	8.6	None	
SBR76-4949	4180-4210	19339	.5	4.1	94.4	1.0	1.3a	9.8	None	
SBR76-4950	4210-4240						Trace			
SBR76-4951	4240-4270						c			
SBR76-4952	4270-4300						Trace			
SBR76-4953-56	4300-4420						b			
SBR76-4957	4420-4450	19340	.9	3.9	93.9	1.3	2.3a	9.3	None	
SBR76-4958	4450-4480	19341	1.0	3.9	93.2	1.9	2.6a	9.3	None	
SBR76-4959	4510-4540	19342	1.2	4.0	92.8	2.0	3.1a	9.6	None	
SBR76-4960	4540-4570	19343	1.9	4.7	91.3	2.1	5.0a	11.3	None	
SBR76-4961	4570-4600	19344	1.4	3.9	93.0	1.7	3.5a	9.3	None	
SBR76-4962	4600-4630	19345	1.5	5.0	91.4	2.1	3.9a	12.0	None	
SBR76-4963	4630-4660	19346	.8	3.8	94.1	1.3	2.2a	9.1	None	
SBR76-4964	4660-4690	19347	1.3	4.0	93.8	.9	3.3a	9.6	None	
SBR76-4965	4690-4720	19353	1.1	5.2	92.7	1.0	2.8a	12.5	None	
SBR76-4966	4720-4750	19354	.7	5.4	91.6	2.3	1.7a	12.9	None	
SBR76-4967	4750-4780	19355	.4	3.8	94.5	1.3	1.0a	9.1	None	
SBR76-4968	4780-4810	19356	1.8	4.4	92.6	1.2	4.6a	10.5	None	
SBR76-4969	4840-4870	19359	.6	4.8	93.5	1.1	1.5a	11.5	None	
SBR76-4970	4870-4900	19360	.4	4.5	93.9	1.2	1.1a	10.8	None	
SBR76-4971	4900-4930	19361	.4	3.8	94.1	1.7	1.1a	9.1	None	
SBR76-4972	4930-4960	19362	1.7	4.6	92.2	1.5	4.4a	11.0	None	
SBR76-4973	4960-4990	19363	1.9	4.7	91.9	1.5	4.9a	11.3	None	
SBR76-4974	4990-5020	19364	1.1	4.4	93.4	1.1	2.9a	10.5	None	

See footnote at end of table.

Drill cuttings received February 17, 1976; assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Ladd Petroleum Corporation's Federal Well 1-4-64

Surface elevation: 6,824 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	
SBR76-4975	5020-5050	19365	1.3	5.5	91.8	1.4	3.4a	13.2	None	
SBR76-4976	5050-5080	19366	1.8	4.5	92.3	1.4	4.8a	10.8	None	
SBR76-4977	5080-5110	19367	1.0	4.4	93.5	1.1	2.5a	10.5	None	
SBR76-4978	5110-5140	19368	.5	3.3	95.5	.7	1.2a	7.9	None	
SBR76-4979	5140-5170	19369	.6	4.5	94.0	.9	1.5a	10.8	None	
SBR76-4980	5170-5200	19370	.6	3.5	95.0	.9	1.5a	8.4	None	
SBR76-4981	5200-5230	19371	1.1	3.9	93.5	1.5	2.8a	9.3	None	
SBR76-4982	5230-5260	19372	1.4	4.8	92.8	1.0	3.7a	11.5	None	
SBR76-4983	5290-5320	19373	.9	3.4	94.7	1.0	2.3a	8.1	None	
SBR76-4984	5320-5350	19374	1.1	4.0	93.9	1.0	2.9a	9.6	None	
SBR76-4985	5350-5380	19375	1.4	4.8	92.1	1.7	3.7a	11.5	None	
SBR76-4986	5380-5410	19376	1.1	4.1	93.9	.9	3.0a	9.8	None	
SBR76-4987	5410-5440	19377	1.1	5.0	92.8	1.1	2.8a	12.0	None	
SBR76-4988	5440-5470	19378	1.1	3.2	91.9	3.8	2.8a	7.7	None	
SBR76-4989	5470-5500	19379	1.1	4.4	93.7	.8	3.0a	10.5	None	
SBR76-4990	5500-5530	19380	1.0	4.0	94.3	.7	2.6a	9.6	None	
SBR76-4991	5530-5560	19381	.3	4.0	95.4	.3	.8a	9.6	None	
SBR76-4992	5560-5590	19382	1.2	3.2	94.4	1.2	3.2a	7.7	None	
SBR76-4993	5590-5620	19383	1.5	4.3	92.8	1.4	4.0a	10.3	None	
SBR76-4994	5620-5650	19384	1.0	4.3	93.3	1.4	2.5a	10.3	None	
SBR76-4995	5650-5680	19385	2.5	3.5	92.8	1.2	6.1	8.4	0.975	
SBR76-4996	5680-5710	19386	3.0	5.0	89.8	2.2	7.9a	12.0	None	
SBR76-4997	5710-5740	19387	3.8	3.5	90.6	2.1	10.0a	8.4	None	
SBR76-4998	5740-5770	19388	4.6	4.6	87.7	3.1	12.1a	11.2	None	Rubber
SBR76-4999	5770-5800	19389	3.6	3.5	91.0	1.9	9.3a	8.4	None	Rubber
SBR76-5000	5800-5830	19390	2.6	3.7	91.8	1.9	6.7a	8.8	None	Rubber
SBR76-5001	5830-5860	19391	3.7	3.5	90.8	2.0	9.6a	8.4	None	Rubber
SBR76-5002	5860-5890	19392	3.4	3.5	91.4	1.7	9.0a	8.4	None	Rubber
SBR76-5003	5890-5920	19393	2.7	3.5	92.0	1.8	7.1a	8.4	None	Rubber
SBR76-5004	5920-5950	19394	1.6	3.5	93.6	1.3	4.3a	8.4	None	Rubber

See footnote at end of table.

Drill cuttings received February 17, 1976; assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Ladd Petroleum Corporation's Federal Well 1-4-64

Surface elevation: 6,824 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	
SBR76-5005	5950-5980	19395	1.7	3.4	93.5	1.4	4.5a	8.1	None	
SBR76-5006	5980-6010	19396	2.2	3.6	92.7	1.5	5.3	8.6	0.985	None
SBR76-5007	6010-6050	19397	1.7	3.1	94.1	1.1	4.5a	7.4	None	
SBR76-5008	6050-6080	19398	2.0	2.7	92.6	2.7	5.2a	6.5	None	
SBR76-5009	6080-6110	19399	.7	5.6	92.2	1.5	1.9a	13.4	None	
SBR76-5010	6110-6140	19400	1.5	4.2	92.9	1.4	4.0a	10.1	None	
SBR76-5011	6140-6170	19401	2.4	4.0	91.8	1.8	6.3a	9.6	None	Rubber
SBR76-5012	6170-6200	19402	2.4	3.5	91.7	2.4	6.3a	8.4	None	Rubber
SBR76-5013	6200-6230	19403	5.2	3.0	88.6	3.2	13.5a	7.2	None	Rubber
SBR76-5014	6230-6260	19404	1.6	3.0	94.3	1.1	4.3a	7.2	None	
SBR76-5015	6260-6270	19405	1.4	3.5	93.9	1.2	3.6a	8.4	None	Rubber
SBR76-5016	6270-6300	19406	1.5	3.3	94.1	1.1	4.0a	7.9	None	
SBR76-5017	6300-6330	19407	1.4	3.4	94.2	1.0	3.7a	8.1	None	
SBR76-5018	6330-6360	19408	1.7	3.2	93.6	1.5	4.5a	7.7	None	
SBR76-5019	6360-6390	19409	1.0	2.0	95.7	1.3	2.6a	4.8	None	

1/ "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, "c"--1 to 3 gal oil/ton.

Drill cuttings received February 17, 1976; assays made on air-dried samples