

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Garrett Research and Development Company Inc., Wyoming Corehole No. 3 drilled in
 NE SE1/4SE1/4 (750 feet N/S 730 feet W/E) of sec 11, T 16 N, R 100 W, Sweetwater County, Wyoming

| 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 | | | | Gal per ton | | | | |
| | | Oil | Water | Spent shale | Gas + loss | Oil ^{1/} | Water | | | |
| Laramie | Their | | | | | | | | | |
| SBR71-3881 | 300.0-301.0 | 57844 | 1.8 | 3.4 | 93.2 | 1.6 | 4.8a | 8.1 | None | |
| SBR71-3882 | 301.0-302.0 | 57845 | 1.1 | 2.1 | 93.3 | 3.5 | 2.9a | 5.0 | None | |
| SBR71-3883 | 302.0-303.0 | 57846 | 1.4 | 5.4 | 91.3 | 1.9 | 3.7a | 12.9 | None | |
| SBR71-3884 | 303.0-304.0 | 57847 | 1.1 | 4.2 | 88.5 | 6.2 | 2.8a | 10.1 | None | |
| SBR71-3885 | 304.0-305.0 | 57848 | 6.4 | 4.0 | 87.0 | 2.6 | 16.6 | 9.6 | 0.916 | None |
| SBR71-3886 | 305.0-306.0 | 57849 | 6.3 | 4.1 | 87.0 | 2.6 | 16.7 | 9.8 | .911 | None |
| SBR71-3887 | 306.0-307.0 | 57850 | 6.4 | 2.9 | 87.7 | 3.0 | 16.8 | 7.0 | .920 | None |
| SBR71-3888 | 307.0-308.0 | 57851 | 3.3 | 3.6 | 91.5 | 1.6 | 8.5 | 8.6 | .926 | None |
| SBR71-3889 | 308.0-309.0 | 57852 | 2.4 | 3.0 | 93.1 | 1.5 | 6.3 | 7.2 | .911 | None |
| SBR71-3890 | 309.0-310.0 | 57853 | 2.2 | 2.4 | 93.9 | 1.5 | 5.7 | 5.8 | .922 | None |
| SBR71-3891 | 310.0-311.0 | 57854 | 5.8 | 3.0 | 88.3 | 2.9 | 14.8 | 7.2 | .931 | None |
| SBR71-3892 | 311.0-312.0 | 57855 | 4.9 | 3.1 | 89.6 | 2.4 | 13.0 | 7.4 | .911 | None |
| SBR71-3893 | 312.0-313.0 | 57856 | 3.4 | 2.5 | 92.3 | 1.8 | 8.9 | 6.0 | .925 | None |
| SBR71-3894 | 313.0-314.0 | 57857 | 2.5 | 2.3 | 92.9 | 2.3 | 6.4 | 5.5 | .927 | None |
| SBR71-3895 | 314.0-315.0 | 57858 | 3.0 | 2.5 | 92.9 | 1.6 | 7.6 | 6.0 | .928 | None |
| SBR71-3896 | 315.0-316.0 | 57859 | 1.8 | 4.0 | 92.7 | 1.5 | 4.7 | 9.6 | .924 | None |
| SBR71-3897 | 316.0-317.0 | 57860 | 2.5 | 3.4 | 92.9 | 1.2 | 6.4 | 8.1 | .921 | None |
| SBR71-3898 | 320.0-321.0 | 57861 | 1.9 | 5.2 | 91.7 | 1.2 | 4.8a | 12.5 | None | None |
| SBR71-3899 | 321.0-322.0 | 57862 | 12.9 | 4.6 | 77.6 | 4.9 | 32.5 | 11.0 | .948 | None |
| SBR71-3900 | 322.0-323.0 | 57863 | 15.2 | 3.7 | 74.8 | 6.3 | 38.2 | 8.9 | .952 | None |
| SBR71-3901 | 323.0-324.0 | 57864 | 13.4 | 4.5 | 77.0 | 5.1 | 33.9 | 10.8 | .951 | None |
| SBR71-3902 | 324.0-325.0 | 57865 | 13.3 | 4.0 | 78.2 | 4.5 | 33.9 | 9.6 | .942 | None |
| SBR71-3903 | 325.0-326.0 | 57866 | 3.0 | 2.9 | 92.5 | 1.6 | 7.8 | 7.0 | .933 | None |
| SBR71-3904 | 326.0-327.0 | 57867 | 1.0 | 5.6 | 91.8 | 1.6 | 2.5a | 13.4 | None | None |
| SBR71-3905 | 327.0-328.0 | 57868 | 1.4 | 4.0 | 92.8 | 1.8 | 3.8a | 9.6 | None | None |
| SBR71-3906 | 328.0-329.0 | 57869 | 1.8 | 1.9 | 93.0 | 3.3 | 4.6 | 4.6 | .922 | None |
| SBR71-3907 | 329.0-330.0 | 57870 | 2.5 | 4.2 | 91.0 | 2.3 | 6.6 | 10.1 | .925 | None |
| SBR71-3908 | 330.0-331.0 | 57871 | 3.6 | 2.8 | 92.0 | 1.6 | 9.2 | 6.7 | .931 | None |
| SBR71-3909 | 331.0-332.0 | 57872 | 2.8 | 4.6 | 90.8 | 1.8 | 7.3 | 11.0 | .926 | None |
| SBR71-3910 | 332.0-333.0 | 57873 | 3.4 | 3.7 | 90.2 | 2.7 | 8.7 | 8.9 | .936 | None |

See footnote at end of table.

Core samples received February 17, 1971; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Garrett Research and Development Company Inc., Wyoming Corehole No. 3 (con.)

| 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 | | | Gal per ton | | | | | |
| Laramie | Their | | Oil | Water | Spent shale | Gas + loss | Oil ^{1/} | Water | | | |
| SBR71-3911 | 333.0-334.0 | 57874 | 4.0 | 2.6 | 91.1 | 2.3 | 10.4 | 6.2 | 0.931 | None | |
| SBR71-3912 | 334.0-335.0 | 57875 | 5.4 | 2.3 | 88.9 | 3.4 | 14.0 | 5.5 | .920 | None | |
| SBR71-3913 | 336.0-337.0 | 57876 | 5.3 | 3.2 | 88.9 | 2.6 | 13.9 | 7.7 | .914 | None | |
| SBR71-3914 | 337.0-338.0 | 57877 | 6.8 | 3.7 | 87.4 | 2.1 | 17.9 | 8.9 | .917 | None | |
| SBR71-3915 | 338.0-339.0 | 57878 | 7.1 | 4.0 | 86.7 | 2.2 | 18.6 | 9.6 | .918 | Slight | |
| SBR71-3916 | 339.0-340.0 | 57879 | 9.2 | 2.8 | 85.0 | 3.0 | 24.3 | 6.7 | .910 | None | |
| SBR71-3917 | 340.0-341.0 | 57880 | 6.5 | 2.4 | 88.4 | 2.7 | 17.0 | 5.8 | .915 | None | |
| SBR71-3918 | 341.0-342.0 | 57881 | 5.4 | 1.5 | 88.9 | 4.2 | 14.2a | 3.6 | | None | |
| SBR71-3919 | 342.0-343.0 | 57882 | 11.8 | 2.8 | 80.9 | 4.5 | 30.1 | 6.7 | .937 | None | |
| SBR71-3920 | 343.0-344.0 | 57883 | 12.4 | 3.1 | 79.7 | 4.8 | 31.8 | 7.4 | .938 | None | |
| SBR71-3921 | 344.0-345.0 | 57884 | 9.3 | 3.6 | 82.8 | 4.3 | 24.0 | 8.6 | .925 | None | |
| SBR71-3922 | 345.0-346.0 | 57885 | 4.0 | 3.2 | 91.1 | 1.7 | 10.6 | 7.7 | .914 | None | |
| SBR71-3923 | 346.0-347.0 | 57886 | 6.0 | 2.2 | 88.4 | 3.4 | 15.4 | 5.3 | .936 | None | |
| SBR71-3924 | 347.0-348.0 | 57887 | 6.4 | 2.4 | 88.6 | 2.6 | 16.4 | 5.8 | .929 | None | |
| SBR71-3925 | 348.0-349.0 | 57888 | 5.2 | 2.1 | 90.0 | 2.7 | 13.4 | 5.2 | .927 | None | |
| SBR71-3926 | 349.0-350.0 | 57889 | 4.5 | 1.6 | 92.1 | 1.8 | 11.6 | 3.8 | .930 | None | |
| SBR71-3927 | 350.0-351.0 | 57890 | 5.6 | 1.8 | 91.3 | 1.3 | 14.4 | 4.2 | .934 | None | |
| SBR71-3928 | 351.0-352.0 | 57891 | 8.0 | 2.4 | 87.8 | 1.8 | 20.6 | 5.8 | .928 | None | |
| SBR71-3929 | 352.0-353.0 | 57892 | 7.4 | 2.4 | 87.3 | 2.9 | 19.3 | 5.8 | .918 | None | |
| SBR71-3930 | 353.0-354.0 | 57893 | 7.0 | 1.7 | 87.8 | 3.5 | 18.1 | 4.1 | .927 | None | |
| SBR71-3931 | 354.0-355.3 | 57894 | 6.6 | 2.2 | 88.8 | 2.4 | 17.1 | 5.3 | .921 | None | |
| SBR71-3932 | 356.0-357.0 | 57895 | 5.9 | 4.2 | 88.6 | 1.3 | 15.3 | 10.1 | .927 | None | |
| SBR71-3933 | 357.0-358.0 | 57896 | 5.8 | 3.4 | 89.8 | 1.0 | 14.9 | 8.1 | .934 | None | |
| SBR71-3934 | 358.0-359.0 | 57897 | 7.9 | 3.5 | 86.8 | 1.8 | 20.5 | 8.4 | .924 | None | |
| SBR71-3935 | 359.0-360.0 | 57898 | 9.8 | 2.1 | 85.0 | 3.1 | 25.6a | 5.0 | | None | |
| SBR71-3936 | 360.0-361.0 | 57899 | 8.3 | 2.4 | 86.4 | 2.9 | 21.8 | 5.9 | .908 | None | |
| SBR71-3937 | 361.0-362.0 | 57900 | 7.4 | 2.9 | 87.0 | 2.7 | 19.5 | 7.0 | .909 | None | |
| SBR71-3938 | 362.0-363.0 | 57901 | 8.2 | 2.6 | 86.8 | 2.4 | 21.6 | 6.2 | .906 | None | |
| SBR71-3939 | 363.0-364.0 | 57902 | 9.0 | 2.9 | 84.0 | 4.1 | 23.3 | 7.0 | .926 | None | |
| SBR71-3940 | 364.0-366.0 | 57903 | 7.2 | 2.9 | 87.6 | 2.3 | 18.9 | 7.0 | .920 | None | |

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Core samples received February 17, 1971; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Garrett Research and Development Company Inc., Wyoming Corehole No. 3 (con.)

| 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 ^{1/} | Water | coke | |
| SBR71-3941 | 367.0-368.0 | 57904 | 7.4 | 1.9 | 87.9 | 2.8 | 19.1 | 4.6 | 0.925 | None |
| SBR71-3942 | 368.0-369.0 | 57905 | .3 | .2 | 98.4 | 1.1 | .8a | .5 | | None |
| SBR71-3943 | 369.0-370.0 | 57906 | .4 | 1.5 | 95.7 | 2.4 | 1.2a | 3.6 | | None |
| SBR71-3944 | 370.0-371.0 | 57907 | .3 | 2.1 | 96.6 | 1.0 | .8a | 5.0 | | None |
| SBR71-3945 | 371.0-372.0 | 57908 | .6 | 2.7 | 95.5 | 1.2 | 1.4a | 6.5 | | None |
| SBR71-3946 | 372.0-373.0 | 57909 | .7 | 2.1 | 95.3 | 1.9 | 1.7a | 5.2 | | None |
| SBR71-3947 | 373.0-374.0 | 57910 | 3.2 | 3.1 | 91.9 | 1.8 | 8.4 | 7.4 | .930 | None |
| SBR71-3948 | 374.0-375.2 | 57911 | 7.3 | 2.7 | 86.3 | 3.7 | 19.1 | 6.5 | .917 | None |
| SBR71-3949 | 376.0-377.0 | 57912 | 6.5 | 1.8 | 89.9 | 1.8 | 17.0 | 4.3 | .916 | None |
| SBR71-3950 | 377.0-379.0 | 57913 | 8.7 | 2.0 | 86.9 | 2.4 | 22.9 | 4.8 | .908 | None |
| SBR71-3951 | 379.0-380.0 | 57914 | 5.9 | 2.4 | 89.5 | 2.2 | 15.5 | 5.8 | .909 | None |
| SBR71-3952 | 380.0-381.0 | 57915 | 5.1 | 1.9 | 91.4 | 1.6 | 13.3 | 4.6 | .921 | None |
| SBR71-3953 | 381.0-382.0 | 57916 | 6.5 | 2.8 | 88.8 | 1.9 | 16.6 | 6.7 | .936 | None |
| SBR71-3954 | 382.0-383.0 | 57917 | 2.5 | .9 | 94.4 | 2.2 | 6.5 | 2.2 | .927 | None |
| SBR71-3955 | 383.0-384.0 | 57918 | 4.8 | 2.7 | 90.6 | 1.9 | 12.5 | 6.5 | .912 | None |
| SBR71-3956 | 384.0-385.0 | 57919 | 8.2 | 1.6 | 86.8 | 3.4 | 21.7 | 3.8 | .909 | None |
| SBR71-3957 | 385.0-385.6 | 57920 | 5.9 | 2.2 | 89.5 | 2.4 | 15.5 | 5.3 | .920 | None |
| SBR71-3958 | 386.0-387.0 | 57921 | 5.0 | 2.8 | 90.1 | 2.1 | 13.1 | 6.7 | .919 | None |
| SBR71-3959 | 387.0-388.0 | 57922 | 3.8 | 1.7 | 92.7 | 1.8 | 9.9a | 4.1 | | None |
| SBR71-3960 | 388.0-389.0 | 57923 | 4.4 | 2.8 | 91.8 | 1.0 | 11.4a | 6.7 | | None |
| SBR71-3961 | 389.0-390.0 | 57924 | 2.3 | 5.4 | 91.7 | .6 | 6.2 | 12.9 | .911 | None |
| SBR71-3962 | 390.0-391.0 | 57925 | 4.9 | 2.0 | 90.8 | 2.3 | 12.8 | 4.8 | .941 | None |
| SBR71-3963 | 391.0-392.0 | 57926 | 4.1 | 3.2 | 91.6 | 1.1 | 10.4 | 7.7 | .946 | None |
| SBR71-3964 | 329.0-393.0 | 57927 | 3.2 | 1.7 | 94.3 | .8 | 8.4 | 4.1 | .929 | None |
| SBR71-3965 | 393.0-394.0 | 57928 | 3.9 | 2.4 | 92.5 | 1.2 | 10.2 | 5.8 | .922 | None |
| SBR71-3966 | 394.0-395.0 | 57929 | 3.0 | 2.0 | 93.6 | 1.4 | 7.8 | 4.8 | .921 | None |
| SBR71-3967 | 395.0-395.7 | 57930 | 3.4 | 1.2 | 94.2 | 1.2 | 8.8 | 2.9 | .918 | None |
| SBR71-3968 | 396.0-397.0 | 57931 | 3.2 | 1.9 | 94.0 | .9 | 8.4 | 4.6 | .913 | None |
| SBR71-3969 | 397.0-398.0 | 57932 | 4.6 | 1.9 | 92.3 | 1.2 | 12.1 | 4.6 | .911 | None |
| SBR71-3970 | 398.0-399.0 | 57933 | 8.1 | 1.4 | 88.7 | 1.8 | 21.5 | 3.4 | .901 | None |

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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 | Their | | Oil | Water | Spent shale | Gas + loss | Oil ^{1/} | Water | coke | |
| SBR71-3971 | 399.0-400.0 | 57934 | 6.8 | 1.4 | 89.3 | 2.5 | 17.5 | 3.4 | None | |
| SBR71-3972 | 400.0-401.0 | 57935 | 6.6 | 2.0 | 89.0 | 2.4 | 17.1 | 4.8 | None | |
| SBR71-3973 | 401.0-402.0 | 57936 | 6.8 | 1.8 | 89.1 | 2.3 | 17.6 | 4.3 | None | |
| SBR71-3974 | 402.0-403.0 | 57937 | 3.6 | 1.8 | 93.3 | 1.3 | 9.3 | 4.4 | None | |
| SBR71-3975 | 403.0-404.0 | 57938 | 5.1 | 1.9 | 91.5 | 1.5 | 13.4 | 4.6 | None | |
| SBR71-3976 | 404.0-405.0 | 57939 | 9.2 | 2.1 | 85.8 | 2.9 | 23.6 | 5.0 | None | |
| SBR71-3977 | 405.0-405.4 | 57940 | 6.2 | 2.2 | 89.3 | 2.3 | 15.9 | 5.3 | None | |
| SBR71-3978 | 406.0-407.0 | 57941 | 7.9 | .6 | 89.4 | 2.1 | 20.6 | 1.6 | None | |
| SBR71-3979 | 407.0-408.0 | 57942 | 16.5 | 2.0 | 76.9 | 4.6 | 44.6 | 4.8 | Slight | |
| SBR71-3980 | 408.0-409.0 | 57943 | 17.9 | 1.7 | 77.3 | 3.1 | 46.7a | 4.1 | Slight | |
| SBR71-3981 | 409.0-409.6 | 57944 | 11.6 | 1.7 | 84.4 | 2.3 | 30.3a | 4.1 | None | |
| SBR71-3982 | 409.6-410.6 | 57945 | 3.8 | 1.0 | 93.7 | 1.5 | 9.9a | 2.3 | None | |
| SBR71-3983 | 410.6-411.0 | 57946 | 8.1 | 1.2 | 88.7 | 2.0 | 21.2a | 2.9 | None | |
| SBR71-3984 | 411.0-412.0 | 57947 | 10.2 | 1.6 | 84.9 | 3.3 | 26.6a | 3.8 | None | |
| SBR71-3985 | 412.0-413.0 | 57948 | 9.4 | 1.8 | 85.0 | 3.8 | 24.4a | 4.3 | None | |
| SBR71-3986 | 413.0-415.0 | 57949 | .0 | 2.0 | 97.1 | .9 | Trace | 4.7 | None | |
| SBR71-3987 | 460.0-462.2 | 57950 | .2 | 1.7 | 97.1 | 1.0 | .5a | 4.1 | None | |
| SBR71-3988 | 462.2-463.0 | 57951 | 7.7 | 1.4 | 87.9 | 3.0 | 20.0 | 3.4 | None | |
| SBR71-3989 | 463.0-464.0 | 57952 | 5.7 | 1.4 | 90.1 | 2.8 | 14.9 | 3.4 | None | |
| SBR71-3990 | 464.0-465.0 | 57953 | 6.0 | 1.0 | 91.7 | 1.3 | 15.8 | 2.4 | None | |
| SBR71-3991 | 465.0-466.0 | 57954 | 9.1 | 1.5 | 86.6 | 2.8 | 23.6a | 3.6 | None | |
| SBR71-3992 | 466.0-467.0 | 57955 | 12.8 | 1.5 | 81.9 | 3.8 | 33.3 | 3.6 | None | |
| SBR71-3993 | 467.0-468.0 | 57956 | 9.8 | 1.9 | 85.6 | 2.7 | 25.7 | 4.6 | None | |
| SBR71-3994 | 468.0-469.0 | 57957 | 7.9 | 1.5 | 88.4 | 2.2 | 20.9 | 3.6 | None | |
| SBR71-3995 | 469.0-470.0 | 57958 | 8.6 | 1.1 | 86.0 | 4.3 | 22.1 | 2.6 | None | |
| SBR71-3996 | 470.0-471.0 | 57959 | 6.1 | 1.5 | 90.0 | 2.4 | 15.6 | 3.6 | None | |
| SBR71-3997 | 471.0-472.0 | 57960 | 5.4 | 1.6 | 91.0 | 2.0 | 13.8 | 3.7 | None | |
| SBR71-3998 | 472.0-473.0 | 57961 | 8.6 | 1.0 | 86.9 | 3.5 | 21.9 | 2.4 | None | |
| SBR71-3999 | 473.0-474.0 | 57962 | 10.4 | 1.3 | 84.6 | 3.7 | 26.8 | 3.1 | None | |
| SBR71-4000 | 474.0-475.0 | 57963 | 10.1 | 1.6 | 85.1 | 3.2 | 26.0 | 3.8 | None | |

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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 | Their | Oil | Water | Spent shale | Gas + loss | Oil ^{1/} | Water | coke | | | |
| SBR71-4001 | 475.0-476.0 | 57964 | 10.1 | 1.3 | 84.8 | 3.8 | 26.0 | 3.1 | 0.928 | None | |
| SBR71-4002 | 476.0-477.0 | 57965 | 8.5 | 1.1 | 88.0 | 2.4 | 21.7 | 2.6 | .941 | None | |
| SBR71-4003 | 477.0-477.5 | 57966 | 5.7 | 1.1 | 91.7 | 1.5 | 14.5 | 2.6 | .939 | None | |
| SBR71-4004 | 477.5-479.0 | 57967 | .0 | .9 | 98.5 | .6 | No Oil | 2.2 | | None | |
| SBR71-4005 | 479.0-481.0 | 57968 | .0 | 1.0 | 98.7 | .3 | Trace | 2.4 | | None | |
| SBR71-4006 | 481.0-482.2 | 57969 | 3.4 | 1.6 | 93.4 | 1.6 | 8.7 | 3.8 | .932 | None | |
| SBR71-4007 | 482.2-482.7 | 57970 | .5 | .4 | 98.0 | 1.1 | 1.2a | 1.0 | | None | |
| SBR71-4008 | 483.5-485.0 | 57971 | 3.7 | 1.1 | 93.4 | 1.8 | 9.4 | 2.6 | .938 | None | |
| SBR71-4009 | 485.0-486.0 | 57972 | 4.8 | 1.8 | 91.2 | 2.2 | 12.5 | 4.3 | .927 | None | |
| SBR71-4010 | 486.0-487.0 | 57973 | 4.2 | 1.4 | 92.3 | 2.1 | 11.1 | 3.2 | .914 | None | |
| SBR71-4011 | 487.0-488.0 | 57974 | 4.4 | 2.0 | 91.3 | 2.3 | 11.3 | 4.8 | .928 | None | |
| SBR71-4012 | 488.0-489.0 | 57975 | 5.9 | 1.4 | 90.3 | 2.4 | 15.3 | 3.2 | .925 | None | |
| SBR71-4013 | 489.0-490.0 | 57976 | 4.9 | 1.8 | 90.9 | 2.4 | 12.7 | 4.3 | .917 | None | |
| SBR71-4014 | 490.0-491.0 | 57977 | 7.0 | 1.7 | 89.1 | 2.2 | 18.4 | 4.0 | .917 | None | |
| SBR71-4015 | 491.0-492.0 | 57978 | 10.0 | 1.9 | 86.1 | 2.0 | 25.8 | 4.6 | .925 | None | |
| SBR71-4016 | 492.0-493.0 | 57979 | 9.6 | 2.4 | 84.8 | 3.2 | 25.0 | 5.8 | .925 | None | |
| SBR71-4017 | 493.0-494.0 | 57980 | 11.9 | 2.4 | 81.8 | 3.9 | 30.4 | 5.8 | .941 | None | |
| SBR71-4018 | 494.0-495.0 | 57981 | 11.7 | 2.2 | 81.2 | 4.9 | 29.6 | 5.3 | .949 | None | |
| SBR71-4019 | 495.0-496.0 | 57982 | 7.1 | 1.8 | 86.9 | 4.2 | 18.0 | 4.2 | .945 | None | |
| SBR71-4020 | 496.0-497.0 | 57983 | 7.7 | 1.2 | 87.1 | 4.0 | 19.9 | 3.0 | .927 | None | |
| SBR71-4021 | 497.0-498.0 | 57984 | 5.9 | .7 | 90.2 | 3.2 | 15.5 | 1.6 | .918 | None | |
| SBR71-4022 | 498.0-499.0 | 57985 | 7.3 | 1.9 | 87.9 | 2.9 | 19.1 | 4.6 | .921 | None | |
| SBR71-4023 | 499.0-500.0 | 57986 | 7.1 | 2.0 | 88.3 | 2.6 | 18.2 | 4.8 | .930 | None | |
| SBR71-4024 | 500.0-501.0 | 57987 | 7.0 | 1.9 | 88.1 | 3.0 | 18.2 | 4.6 | .917 | None | |
| SBR71-4025 | 501.0-502.0 | 57988 | 12.8 | 1.9 | 80.9 | 4.4 | 32.8 | 4.6 | .933 | None | |
| SBR71-4026 | 502.0-503.0 | 57989 | 15.5 | 1.4 | 77.7 | 5.4 | 39.6 | 3.4 | .940 | None | |
| SBR71-4027 | 503.0-504.0 | 57990 | 4.2 | 1.8 | 92.3 | 1.7 | 10.7 | 4.3 | .940 | None | |
| SBR71-4028 | 504.0-505.0 | 57991 | 8.4 | 1.1 | 87.4 | 3.1 | 21.3 | 2.8 | .938 | None | |
| SBR71-4029 | 505.0-506.0 | 57992 | 4.3 | 2.4 | 91.8 | 1.5 | 11.2 | 5.6 | .928 | None | |
| SBR71-4030 | 506.0-507.0 | 57993 | 2.4 | 1.2 | 95.3 | 1.1 | 6.0 | 3.0 | .939 | None | |

See footnote at end of table.

Core samples received February 17, 1971; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Garrett Research and Development Company Inc., Wyoming Corehole No. 3 (con.)

| 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 | | | | Gal per ton | | | | | |
| | | Laramie | Their | Oil | Water | Spent shale | Gas + loss | Oil ^{1/} | | | |
| SBR71-4031 | 57994 | 507.0-508.0 | 4.1 | 1.1 | 92.1 | 2.7 | 10.7 | 2.6 | 0.925 | None | |
| SBR71-4032 | 57995 | 508.0-509.0 | 5.0 | 1.2 | 90.8 | 3.0 | 12.8 | 2.9 | .930 | None | |
| SBR71-4033 | 57996 | 509.0-510.0 | 5.6 | 1.8 | 90.4 | 2.2 | 14.5 | 4.3 | .922 | None | |
| SBR71-4034 | 57997 | 510.0-511.0 | 6.5 | .9 | 89.4 | 3.2 | 16.9 | 2.2 | .920 | None | |
| SBR71-4035 | 57998 | 511.0-512.0 | 8.6 | 1.4 | 87.4 | 2.6 | 22.2 | 3.4 | .921 | None | |
| SBR71-4036 | 57999 | 512.0-513.0 | 10.5 | 1.5 | 85.1 | 2.9 | 27.0 | 3.6 | .929 | None | |
| SBR71-4037 | 58000 | 513.0-514.0 | 9.9 | 1.4 | 85.5 | 3.2 | 25.4 | 3.4 | .932 | None | |
| SBR71-4038 | 58001 | 514.0-515.0 | 6.1 | 1.6 | 89.7 | 2.6 | 15.7 | 3.8 | .925 | None | |
| SBR71-4039 | 58002 | 515.0-516.0 | 5.3 | 1.1 | 92.2 | 1.4 | 13.6 | 2.6 | .925 | None | |
| SBR71-4040 | 58003 | 516.0-517.0 | 4.6 | 1.7 | 91.7 | 2.0 | 12.3 | 4.1 | .907 | None | |
| SBR71-4041 | 58004 | 517.0-517.5 | 5.0 | 1.3 | 91.5 | 2.2 | 13.2 | 3.1 | .911 | None | |
| SBR71-4042 | 58006 | 517.5-519.0 | .5 | .5 | 98.4 | .6 | 1.2a | 1.3 | | None | |
| SBR71-4043 | 58007 | 519.0-520.0 | 2.8 | 1.5 | 94.2 | 1.5 | 7.4 | 3.6 | .902 | None | |
| SBR71-4044 | 58008 | 520.0-521.0 | 3.4 | 1.5 | 93.7 | 1.4 | 8.9 | 3.6 | .914 | None | |
| SBR71-4045 | 58009 | 521.0-522.0 | 2.4 | 1.6 | 95.1 | .9 | 6.2 | 3.8 | .929 | None | |
| SBR71-4046 | 58010 | 522.0-523.0 | 3.7 | 2.0 | 92.9 | 1.4 | 9.6 | 4.8 | .934 | None | |
| SBR71-4047 | 58011 | 523.0-524.0 | 4.0 | 1.6 | 93.1 | 1.3 | 10.5 | 3.8 | .914 | None | |
| SBR71-4048 | 58012 | 524.0-525.0 | 3.7 | 1.6 | 93.0 | 1.7 | 9.9 | 3.8 | .905 | None | |
| SBR71-4049 | 58013 | 525.0-526.0 | 1.5 | .4 | 96.4 | 1.7 | 3.9a | 1.1 | | None | |
| SBR71-4050 | 58014 | 526.0-527.0 | 4.4 | .8 | 93.1 | 1.7 | 11.3 | 1.9 | .924 | None | |
| SBR71-4051 | 58015 | 527.0-528.0 | 5.8 | 1.8 | 90.5 | 1.9 | 14.9 | 4.3 | .926 | None | |
| SBR71-4052 | 58016 | 528.0-529.0 | 4.9 | 2.0 | 91.2 | 1.9 | 12.8 | 4.8 | .915 | None | |
| SBR71-4053 | 58017 | 529.0-530.0 | 6.4 | 1.7 | 89.5 | 2.4 | 16.7 | 4.1 | .928 | None | |
| SBR71-4054 | 58018 | 530.0-531.0 | 5.7 | 1.6 | 90.5 | 2.2 | 15.0 | 3.7 | .916 | None | |
| SBR71-4055 | 58019 | 531.0-532.0 | 3.2 | 1.2 | 93.9 | 1.7 | 8.2 | 3.0 | .932 | None | |
| SBR71-4056 | 58020 | 532.0-533.0 | 4.0 | 1.1 | 92.8 | 2.1 | 10.2 | 2.6 | .931 | None | |
| SBR71-4057 | 58021 | 533.0-534.0 | 6.0 | 1.8 | 90.1 | 2.1 | 15.6 | 4.3 | .923 | None | |
| SBR71-4058 | 58022 | 534.0-535.0 | 5.7 | 1.1 | 91.2 | 2.0 | 15.2 | 2.5 | .904 | None | |
| SBR71-4059 | 58023 | 535.0-536.0 | 5.6 | 2.1 | 89.9 | 2.4 | 14.9 | 5.0 | .910 | None | |
| SBR71-4060 | 58024 | 536.0-537.4 | 9.3 | 2.5 | 85.0 | 3.2 | 23.6 | 6.0 | .939 | None | |

See footnote at end of table.

Core samples received February 17, 1971; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Garrett Research and Development Company Inc., Wyoming Corehole No. 3 (con.)

| 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 ^{1/} | Water | |
| SBR71-4061 | 537.4-538.0 | 58025 | 1.7 | 0.5 | 96.7 | 1.1 | 4.5a | 1.2 | | None |
| SBR71-4062 | 538.0-539.0 | 58026 | .9 | .6 | 97.7 | .8 | 2.3a | 1.6 | | None |
| SBR71-4063 | 539.0-539.7 | 58027 | .9 | 1.2 | 96.8 | 1.1 | 2.2a | 3.0 | | None |
| SBR71-4064 | 539.7-541.0 | 58028 | 3.7 | 1.6 | 93.4 | 1.3 | 9.6 | 3.8 | 0.927 | None |
| SBR71-4065 | 541.0-542.0 | 58029 | 3.9 | 1.9 | 92.5 | 1.7 | 10.3 | 4.6 | .919 | None |
| SBR71-4066 | 542.0-542.6 | 58030 | 5.4 | 1.5 | 89.8 | 3.3 | 14.1 | 3.6 | .921 | None |
| SBR71-4067 | 542.6-543.4 | 58031 | 1.2 | 1.2 | 96.0 | 1.6 | 3.1a | 2.9 | | None |
| SBR71-4068 | 543.4-544.0 | 58032 | 6.3 | 1.5 | 89.8 | 2.4 | 16.4 | 3.6 | .913 | None |
| SBR71-4069 | 544.0-545.0 | 58033 | 5.6 | 1.1 | 90.6 | 2.7 | 14.5 | 2.6 | .918 | None |
| SBR71-4070 | 545.0-546.0 | 58034 | 5.1 | 1.1 | 91.3 | 2.5 | 13.3 | 2.6 | .918 | None |
| SBR71-4071 | 546.0-547.0 | 58035 | 10.8 | 1.2 | 85.0 | 3.0 | 28.0 | 2.8 | .925 | None |
| SBR71-4072 | 547.0-548.0 | 58036 | 7.7 | 1.6 | 87.3 | 3.4 | 19.8 | 3.8 | .937 | None |
| SBR71-4073 | 548.0-549.0 | 58037 | 5.8 | 1.2 | 90.7 | 2.3 | 15.1 | 2.9 | .921 | None |
| SBR71-4074 | 549.0-550.0 | 58038 | 6.7 | 1.4 | 89.3 | 2.6 | 17.5 | 3.4 | .919 | None |
| SBR71-4075 | 550.0-551.0 | 58039 | 8.2 | 1.6 | 87.3 | 2.9 | 21.5 | 3.8 | .918 | None |
| SBR71-4076 | 551.0-552.0 | 58040 | 8.8 | 1.9 | 86.3 | 3.0 | 22.9 | 4.6 | .917 | None |
| SBR71-4077 | 552.0-553.0 | 58041 | 9.4 | 1.7 | 86.0 | 2.9 | 24.4 | 4.1 | .924 | None |
| SBR71-4078 | 553.0-554.0 | 58042 | 10.1 | 1.7 | 83.6 | 4.6 | 25.9 | 4.1 | .935 | None |
| SBR71-4079 | 554.0-555.0 | 58043 | 5.9 | 2.0 | 89.7 | 2.4 | 15.4a | 4.9 | | None |
| SBR71-4080 | 555.0-556.0 | 58044 | 7.0 | 2.0 | 88.9 | 2.1 | 18.0 | 4.8 | .935 | None |
| SBR71-4081 | 556.0-557.0 | 58045 | 4.6 | 1.4 | 92.5 | 1.5 | 11.8 | 3.2 | .934 | None |
| SBR71-4082 | 557.0-558.0 | 58046 | 7.8 | 1.4 | 88.5 | 2.3 | 20.0 | 3.5 | .929 | None |
| SBR71-4083 | 558.0-559.0 | 58047 | 4.0 | 1.8 | 92.5 | 1.7 | 10.5 | 4.3 | .925 | None |
| SBR71-4084 | 559.0-560.3 | 58048 | 7.8 | 1.8 | 87.6 | 2.8 | 20.4 | 4.3 | .923 | None |
| SBR71-4085 | 560.3-561.0 | 58049 | .8 | 1.2 | 96.6 | 1.4 | 2.1a | 2.8 | | None |
| SBR71-4086 | 561.0-562.0 | 58050 | .1 | 1.0 | 98.2 | .7 | .3a | 2.4 | | None |
| SBR71-4087 | 562.0-563.0 | 58051 | .6 | 1.6 | 97.1 | .7 | 1.6a | 3.8 | | None |
| SBR71-4088 | 563.0-564.0 | 58052 | .8 | .8 | 98.0 | .4 | 2.0a | 2.0 | | None |
| SBR71-4089 | 564.0-565.0 | 58053 | 2.8 | .5 | 95.7 | 1.0 | 7.1 | 1.3 | .932 | None |
| SBR71-4090 | 565.0-566.0 | 58054 | 6.5 | 1.7 | 89.3 | 2.5 | 16.5 | 4.0 | .945 | None |

See footnote at end of table.

Core samples received February 17, 1971; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Garrett Research and Development Company Inc., Wyoming Corehole No. 3 (con.)

| 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 ^{1/} | Water | coke | |
| SBR71-4091 | 566.0-567.0 | 58055 | 0.0 | 1.5 | 97.9 | 0.6 | Trace | 3.6 | None | |
| SBR71-4092 | 567.0-568.0 | 58056 | .1 | 2.2 | 96.4 | 1.3 | 0.3a | 5.3 | None | |
| SBR71-4093 | 568.0-569.0 | 58057 | .0 | 2.3 | 96.8 | .9 | Trace | 5.6 | None | |
| SBR71-4094 | 569.0-570.0 | 58058 | .4 | 2.1 | 97.1 | .4 | 1.0a | 5.0 | None | |
| SBR71-4095 | 570.0-571.0 | 58059 | .5 | 1.6 | 97.2 | .7 | 1.2a | 4.0 | None | |
| SBR71-4096 | 571.0-572.0 | 58060 | .0 | 2.2 | 97.2 | .6 | Trace | 5.3 | None | |
| SBR71-4097 | 572.0-573.0 | 58061 | .0 | 1.5 | 97.3 | 1.2 | Trace | 3.5 | None | |
| SBR71-4098 | 573.0-574.0 | 58062 | 1.4 | 2.7 | 94.6 | 1.3 | 3.7a | 6.5 | None | |
| SBR71-4099 | 574.0-575.0 | 58063 | .3 | 2.7 | 95.4 | 1.6 | .9a | 6.5 | None | |
| SBR71-4100 | 575.0-576.0 | 58064 | .0 | 1.2 | 98.6 | .2 | No Oil | 2.8 | None | |
| SBR71-4101 | 576.0-577.0 | 58065 | .4 | 2.1 | 97.3 | .2 | .9a | 5.2 | None | |
| SBR71-4102 | 577.0-578.0 | 58066 | .8 | 1.5 | 96.5 | 1.2 | 2.2a | 3.6 | None | |
| SBR71-4103 | 578.0-579.0 | 58067 | .0 | 2.0 | 96.8 | 1.2 | Trace | 4.8 | None | |
| SBR71-4104 | 579.0-580.0 | 58068 | .2 | 2.2 | 96.7 | .9 | .6a | 5.2 | None | |
| SBR71-4105 | 580.0-581.0 | 58069 | 3.0 | 1.9 | 92.4 | 2.7 | 7.8a | 4.6 | None | |
| SBR71-4106 | 581.0-582.0 | 58070 | 4.0 | 1.6 | 91.7 | 2.7 | 10.5a | 3.7 | None | |
| SBR71-4107 | 582.0-583.0 | 58071 | 3.6 | 1.6 | 91.8 | 3.0 | 9.3 | 3.8 | 0.931 | None |
| SBR71-4108 | 583.0-584.0 | 58072 | 5.5 | 1.4 | 90.3 | 2.8 | 14.1 | 3.5 | .932 | None |
| SBR71-4109 | 584.0-585.0 | 58073 | 3.2 | 1.2 | 93.9 | 1.7 | 8.2 | 2.9 | .934 | None |
| SBR71-4110 | 585.0-586.0 | 58074 | 3.8 | 1.6 | 91.8 | 2.8 | 9.8 | 3.8 | .934 | None |
| SBR71-4111 | 586.0-587.0 | 58075 | 3.8 | 1.9 | 92.3 | 2.0 | 9.9 | 4.6 | .925 | None |
| SBR71-4112 | 587.0-588.0 | 58076 | 5.3 | 1.8 | 90.3 | 2.6 | 13.9 | 4.3 | .922 | None |
| SBR71-4113 | 588.0-588.5 | 58077 | 6.4 | 1.7 | 89.1 | 2.8 | 16.6 | 4.2 | .920 | None |
| SBR71-4114 | 588.5-590.5 | 58078 | 5.6 | 1.7 | 90.7 | 2.0 | 14.3 | 4.2 | .936 | None |
| SBR71-4115 | 590.5-592.0 | 58079 | 3.4 | 2.4 | 92.4 | 1.8 | 8.8 | 5.8 | .935 | None |
| SBR71-4116 | 592.0-596.0 | 58080 | 4.3 | 2.1 | 92.1 | 1.5 | 11.1 | 5.0 | .924 | None |
| SBR71-4117 | 596.0-598.0 | 58081 | .1 | 2.7 | 96.6 | .6 | .1a | 6.5 | None | |
| SBR71-4118 | 598.0-600.0 | 58082 | .0 | 2.5 | 97.2 | .3 | No Oil | 5.9 | None | |
| SBR71-4119 | 600.0-602.0 | 58083 | .0 | 1.9 | 97.9 | .2 | No Oil | 4.5 | None | |
| SBR71-4120 | 602.0-604.0 | 58084 | .0 | 1.2 | 98.0 | .8 | No Oil | 3.0 | None | |

See footnote at end of table.

Core samples received February 17, 1971; Assays made on air-dried samples

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Garrett Research and Development Company Inc., Wyoming Corehole No. 3 (con.)

| 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 ^{1/} | Water | coke | |
| SBR71-4121 | 604.0-606.0 | 58085 | 0.0 | 0.8 | 97.8 | 1.4 | No Oil | 2.0 | None | |

^{1/} "a"--indicates specific gravity estimated as 0.92. Oil yields were estimated by a rapid test-tube method: "No oil", "Trace".

Core samples received February 17, 1971; Assays made on air-dried samples