

OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Davis Oil Company's Kinney Rim-Federal No. 1-Z drilled in <sup>5r</sup>NE1/4SW1/4 (1900 feet N/S 3270 feet W/E) of sec 30, T 15 N, R 99 W, Sweetwater County, Wyoming

Kelly Bushing elevation 7,414 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 |         |
| SBR71-1479-81 | 400- 430  |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1482-83 | 430- 450  |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1484-86 | 450- 480  |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1487-99 | 480- 610  |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1500    | 610- 620  |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1501-05 | 620- 670  |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1506-07 | 670- 690  |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1508-11 | 690- 730  |         |                  |       |             |            | c                                    |                           |      |         |
| SBR71-1512    | 730- 740  |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1513    | 740- 750  |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1514    | 750- 760  |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1515    | 760- 770  |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1516    | 770- 780  | 56069   | 0.2              | 1.5   | 97.5        | 0.8        | 0.6a                                 | 3.6                       |      | None    |
| SBR71-1517    | 780- 790  | 56070   | 1.7              | 2.5   | 94.7        | 1.1        | 4.4a                                 | 6.0                       |      | None    |
| SBR71-1518    | 790- 800  | 56071   | .6               | 3.0   | 96.0        | .4         | 1.5a                                 | 7.2                       |      | None    |
| SBR71-1519    | 800- 810  | 56072   | .1               | 2.9   | 96.9        | .1         | .3a                                  | 7.0                       |      | None    |
| SBR71-1520    | 810- 820  | 56073   | .0               | 2.5   | 96.8        | .7         | No Oil                               | 6.0                       |      | None    |
| SBR71-1521    | 820- 830  | 56074   | .1               | 2.6   | 96.1        | 1.2        | .2a                                  | 6.2                       |      | None    |
| SBR71-1522    | 830- 840  | 56075   | .3               | 2.5   | 95.8        | 1.4        | .7a                                  | 6.0                       |      | None    |
| SBR71-1523    | 840- 850  | 56076   | .4               | 2.2   | 95.1        | 2.3        | 1.1a                                 | 5.3                       |      | None    |
| SBR71-1524-31 | 850- 930  |         |                  |       |             |            | No Oil                               |                           |      |         |
| SBR71-1532    | 930- 940  |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1533    | 940- 950  | 56077   | 1.0              | 2.2   | 95.2        | 1.6        | 2.6a                                 | 5.2                       |      | None    |
| SBR71-1534    | 950- 960  | 56078   | 1.4              | 2.1   | 95.0        | 1.5        | 3.6a                                 | 5.0                       |      | None    |
| SBR71-1535    | 960- 970  | 56079   | 1.1              | 2.2   | 95.0        | 1.7        | 2.9a                                 | 5.3                       |      | None    |
| SBR71-1536    | 970- 980  | 56080   | 1.4              | 2.3   | 95.0        | 1.3        | 3.6a                                 | 5.5                       |      | None    |
| SBR71-1537    | 980- 990  | 56081   | .1               | 1.3   | 97.0        | 1.6        | .2a                                  | 3.1                       |      | None    |
| SBR71-1538    | 990-1000  | 56082   | 1.1              | 1.7   | 94.9        | 2.3        | 2.9a                                 | 4.0                       |      | None    |
| SBR71-1539    | 1000-1010 | 56083   | .1               | 2.1   | 95.1        | 2.7        | .3a                                  | 5.0                       |      | None    |
| SBR71-1540    | 1010-1020 | 56084   | .2               | 2.3   | 95.7        | 1.8        | .6a                                  | 5.5                       |      | None    |

See footnote at end of table.

Drill cutting samples received September 25, 1970; Assays made on air-dried samples

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Kelly Bushing elevation 7,414 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 |         |
| SBR71-1541    | 1020-1030 | 56085   | 0.3              | 2.3   | 96.0        | 1.4        | 0.8a                                 | 5.6                       | None |         |
| SBR71-1542    | 1030-1040 |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1543-44 | 1040-1060 |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1545    | 1060-1070 | 56086   | .3               | 1.7   | 97.0        | 1.0        | .8a                                  | 4.0                       | None |         |
| SBR71-1546    | 1070-1080 | 56087   | .4               | 1.9   | 96.8        | .9         | .9a                                  | 4.5                       | None |         |
| SBR71-1547    | 1080-1090 | 56088   | .5               | 1.9   | 96.9        | .7         | 1.2a                                 | 4.5                       | None |         |
| SBR71-1548    | 1090-1100 | 56089   | .8               | 1.9   | 96.5        | .8         | 2.1a                                 | 4.6                       | None |         |
| SBR71-1549    | 1100-1110 | 56090   | .2               | 1.4   | 96.9        | 1.5        | .6a                                  | 3.4                       | None |         |
| SBR71-1550    | 1110-1120 | 56091   | 1.2              | 2.1   | 95.9        | .8         | 3.1a                                 | 5.0                       | None |         |
| SBR71-1551    | 1120-1130 | 56092   | .3               | 2.4   | 96.8        | .5         | .7a                                  | 5.8                       | None |         |
| SBR71-1552    | 1130-1040 | 56093   | .1               | .7    | 97.2        | 2.0        | .3a                                  | 1.6                       | None |         |
| SBR71-1553    | 1040-1050 | 56094   | .3               | 1.7   | 97.1        | .9         | .8a                                  | 4.1                       | None |         |
| SBR71-1554    | 1050-1060 | 56095   | .3               | 1.9   | 97.1        | .7         | .7a                                  | 4.6                       | None |         |
| SBR71-1555    | 1060-1070 | 56096   | .1               | 2.2   | 97.6        | .1         | .3a                                  | 5.3                       | None |         |
| SBR71-1556    | 1070-1080 | 56097   | .2               | 2.3   | 97.2        | .3         | 4.3a                                 | 5.5                       | None |         |
| SBR71-1557    | 1080-1090 |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1558-59 | 1090-1210 |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1560-62 | 1210-1240 |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1563-64 | 1240-1260 |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1565    | 1260-1270 | 56098   | .8               | 1.0   | 97.2        | 1.0        | 2.2a                                 | 2.3                       | None |         |
| SBR71-1566    | 1270-1280 | 56099   | .9               | 1.1   | 96.1        | 1.9        | 2.3a                                 | 2.6                       | None |         |
| SBR71-1567    | 1280-1290 | 56100   | 1.0              | 1.5   | 96.7        | .8         | 2.5a                                 | 3.6                       | None |         |
| SBR71-1568    | 1290-1300 | 56101   | .8               | 1.3   | 96.8        | 1.1        | 2.0a                                 | 3.1                       | None |         |
| SBR71-1569    | 1300-1310 | 56102   | .5               | 1.4   | 97.0        | 1.1        | 1.3a                                 | 3.4                       | None |         |
| SBR71-1570    | 1310-1320 | 56103   | .3               | 1.8   | 96.2        | 1.7        | .8a                                  | 4.3                       | None |         |
| SBR71-1571    | 1320-1330 |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1572-73 | 1330-1350 |         |                  |       |             |            | Trace                                |                           |      |         |
| SBR71-1574    | 1350-1360 |         |                  |       |             |            | b                                    |                           |      |         |
| SBR71-1575    | 1360-1370 | 56104   | .4               | 1.6   | 96.4        | 1.6        | 1.0a                                 | 3.8                       | None |         |
| SBR71-1576    | 1370-1380 | 56105   | 1.1              | 1.0   | 95.6        | 2.3        | 2.8a                                 | 2.4                       | None |         |

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Kelly Bushing elevation 7,414 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 |         |
| SBR71-1577    | 1380-1390 | 56106   | 7.2              | 1.9   | 87.8        | 3.1        | 18.4                                 | 4.6                       | None |         |
| SBR71-1578    | 1390-1400 | 56107   | 12.5             | 2.3   | 81.2        | 4.0        | 31.9                                 | 5.5                       | None |         |
| SBR71-1579    | 1400-1410 | 56108   | 6.3              | 2.2   | 88.9        | 2.6        | 16.0                                 | 5.3                       | None |         |
| SBR71-1580    | 1410-1420 | 56109   | 4.8              | 1.7   | 89.9        | 3.6        | 12.3                                 | 4.1                       | None |         |
| SBR71-1581    | 1420-1430 | 56110   | 9.2              | 2.1   | 85.8        | 2.9        | 23.7                                 | 5.0                       | None |         |
| SBR71-1582    | 1430-1440 | 56111   | 8.9              | 2.3   | 86.2        | 2.6        | 23.2                                 | 5.5                       | None |         |
| SBR71-1583    | 1440-1450 | 56112   | 8.6              | 1.5   | 87.6        | 2.3        | 22.1                                 | 3.6                       | None |         |
| SBR71-1584    | 1450-1460 | 56113   | 9.8              | 2.0   | 86.0        | 2.2        | 25.3                                 | 4.8                       | None |         |
| SBR71-1585    | 1460-1470 | 56114   | 9.3              | 2.0   | 86.3        | 2.4        | 24.1                                 | 4.8                       | None |         |
| SBR71-1586    | 1470-1480 | 56115   | 8.3              | 2.0   | 87.4        | 2.3        | 21.6                                 | 4.8                       | None |         |
| SBR71-1587    | 1480-1490 | 56116   | 8.8              | 2.1   | 86.9        | 2.2        | 23.0                                 | 5.0                       | None |         |
| SBR71-1588    | 1490-1500 | 56117   | 6.4              | 1.0   | 88.7        | 3.9        | 16.7                                 | 2.4                       | None |         |
| SBR71-1589    | 1500-1510 | 56118   | 7.1              | 1.5   | 89.2        | 2.2        | 18.5                                 | 3.6                       | None |         |
| SBR71-1590    | 1510-1520 | 56119   | 8.9              | 1.6   | 87.3        | 2.2        | 23.5                                 | 3.8                       | None |         |
| SBR71-1591    | 1520-1530 | 56120   | 6.4              | 1.6   | 89.9        | 2.1        | 16.8                                 | 3.8                       | None |         |
| SBR71-1592    | 1530-1540 | 56121   | 5.5              | 2.0   | 91.3        | 1.2        | 14.4                                 | 4.8                       | None |         |
| SBR71-1593    | 1540-1550 | 56122   | 5.1              | 1.9   | 91.3        | 1.7        | 13.4                                 | 4.6                       | None |         |
| SBR71-1594    | 1550-1560 | 56123   | 3.0              | 1.6   | 92.6        | 2.8        | 7.9                                  | 3.8                       | None |         |
| SBR71-1595    | 1560-1570 | 56124   | 2.4              | 2.3   | 94.3        | 1.0        | 6.4                                  | 5.5                       | None |         |
| SBR71-1596    | 1570-1580 | 56125   | 9.2              | 1.8   | 85.6        | 3.4        | 24.0                                 | 4.3                       | None |         |
| SBR71-1597    | 1580-1590 | 56126   | 8.5              | 1.0   | 87.7        | 2.8        | 21.9                                 | 2.4                       | None |         |
| SBR71-1598    | 1590-1600 | 56127   | 12.2             | 2.0   | 82.6        | 3.2        | 31.1                                 | 4.8                       | None |         |
| SBR71-1599    | 1600-1610 | 56128   | 11.9             | 2.0   | 83.2        | 2.9        | 30.4                                 | 4.8                       | None |         |
| SBR71-1600    | 1610-1620 | 56129   | 4.2              | .6    | 89.7        | 5.5        | 10.9                                 | 1.4                       | None |         |
| SBR71-1601    | 1620-1630 | 56130   | 5.4              | 1.3   | 91.1        | 2.2        | 14.0                                 | 3.1                       | None |         |
| SBR71-1602    | 1630-1640 | 56131   | 3.3              | 1.9   | 93.6        | 1.2        | 8.5                                  | 4.6                       | None |         |
| SBR71-1603    | 1640-1650 | 56132   | 4.4              | 1.8   | 92.5        | 1.3        | 11.5                                 | 4.3                       | None |         |
| SBR71-1604    | 1650-1660 | 56133   | 4.7              | 1.7   | 92.0        | 1.6        | 12.2                                 | 4.1                       | None |         |
| SBR71-1605    | 1660-1670 | 56134   | 7.9              | 1.7   | 87.6        | 2.8        | 20.3                                 | 4.1                       | None |         |
| SBR71-1606    | 1670-1680 | 56135   | 8.2              | 1.5   | 87.0        | 3.3        | 21.0                                 | 3.6                       | None |         |

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Kelly Bushing elevation 7,414 feet

| Sample number | Run No.   | Yield of product |       |             |            | Specific gravity of oil at 60°/60° F | Properties of spent shale<br>Tendency to coke | Remarks |       |      |  |
|---------------|-----------|------------------|-------|-------------|------------|--------------------------------------|---|---------|-------|------|--|
|               |           | Weight percent   |       | Gal per ton |            |                                      |   |         |       |      |  |
| Laramie       | Their     | Oil              | Water | Spent shale | Gas + loss | Oil <sup>1/</sup>                    | Water   |         |       |      |  |
| SBR71-1607    | 1680-1690 | 56136            | 6.9   | 1.7         | 89.0       | 2.4                                  | 17.9  | 4.1     | 0.925 | None |  |
| SBR71-1608    | 1690-1700 | 56137            | 6.7   | 1.1         | 89.5       | 2.7                                  | 17.3  | 2.6     | .930  | None |  |
| SBR71-1609    | 1700-1710 | 56138            | 6.9   | 1.6         | 89.2       | 2.3                                  | 17.8  | 3.8     | .927  | None |  |
| SBR71-1610    | 1710-1720 | 56139            | 6.0   | 1.8         | 90.0       | 2.2                                  | 15.6  | 4.3     | .926  | None |  |
| SBR71-1611    | 1720-1730 | 56140            | 6.7   | 1.5         | 88.9       | 2.9                                  | 17.2  | 3.6     | .933  | None |  |
| SBR71-1612    | 1730-1740 | 56141            | 5.3   | .8          | 90.7       | 3.2                                  | 13.5  | 1.9     | .936  | None |  |
| SBR71-1613    | 1740-1750 | 56142            | 4.4   | 1.9         | 91.5       | 2.2                                  | 11.3  | 4.6     | .925  | None |  |
| SBR71-1614    | 1750-1760 | 56143            | 4.0   | 2.0         | 92.4       | 1.6                                  | 10.3  | 4.8     | .925  | None |  |
| SBR71-1615    | 1760-1770 | 56144            | 3.4   | 2.2         | 92.8       | 1.6                                  | 8.8   | 5.3     | .923  | None |  |
| SBR71-1616    | 1770-1780 | 56145            | 3.4   | 1.7         | 93.1       | 1.8                                  | 8.8   | 4.1     | .923  | None |  |
| SBR71-1617    | 1780-1790 | 56146            | 3.9   | 2.2         | 92.2       | 1.7                                  | 10.2  | 5.4     | .911  | None |  |
| SBR71-1618    | 1790-1800 | 56147            | 4.2   | 2.3         | 91.8       | 1.7                                  | 11.0  | 5.6     | .916  | None |  |
| SBR71-1619    | 1800-1810 | 56148            | 3.5   | 2.2         | 92.2       | 2.1                                  | 9.3   | 5.3     | .917  | None |  |
| SBR71-1620    | 1810-1820 | 56149            | 3.1   | 2.4         | 93.5       | 1.0                                  | 8.1   | 5.8     | .915  | None |  |
| SBR71-1621    | 1820-1830 | 56150            | 2.8   | 2.7         | 93.5       | 1.0                                  | 7.2   | 6.5     | .917  | None |  |
| SBR71-1622    | 3190-3200 |                  |       |             |            |                                      | Trace   |         |       |      |  |
| SBR71-1623-54 | 3200-3520 |                  |       |             |            |                                      | No Oil  |         |       |      |  |
| SBR71-1655    | 3520-3530 |                  |       |             |            |                                      | b   |         |       |      |  |
| SBR71-1656    | 3530-3540 |                  |       |             |            |                                      | No Oil  |         |       |      |  |
| SBR71-1657    | 3540-3550 |                  |       |             |            |                                      | b   |         |       |      |  |
| SBR71-1658    | 3550-3560 |                  |       |             |            |                                      | No Oil  |         |       |      |  |
| SBR71-1659    | 3560-3570 |                  |       |             |            |                                      | Trace   |         |       |      |  |
| SBR71-1660    | 3570-3580 |                  |       |             |            |                                      | c   |         |       |      |  |
| SBR71-1661    | 3580-3590 |                  |       |             |            |                                      | b   |         |       |      |  |
| SBR71-1662    | 3590-3600 |                  |       |             |            |                                      | No Oil  |         |       |      |  |
| SBR71-1663    | 3600-3610 |                  |       |             |            |                                      | Trace   |         |       |      |  |
| SBR71-1664-65 | 3610-3630 |                  |       |             |            |                                      | b   |         |       |      |  |
| SBR71-1666    | 3630-3640 |                  |       |             |            |                                      | Trace   |         |       |      |  |
| SBR71-1667    | 3640-3650 |                  |       |             |            |                                      | b   |         |       |      |  |
| SBR71-1668-69 | 3650-3670 |                  |       |             |            |                                      | c   |         |       |      |  |

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|---------------|-----------|------------------|-------|-------------|------------|--------------------------------------|---------------------------|-----|---------|------|
|               |           | Weight percent   |       | Gal per ton |            |                                      | Tendency to coke          |     |         |      |
| Laramie       | Their     | Oil              | Water | Spent shale | Gas + loss | Oil <sup>1/</sup>                    | Water                     |     |         |      |
| SBR71-1670    | 3670-3680 |                  |       |             |            | b                                    |                           |     |         |      |
| SBR71-1671    | 3680-3690 |                  |       |             |            | Trace                                |                           |     |         |      |
| SBR71-1672-75 | 3690-3730 |                  |       |             |            | c                                    |                           |     |         |      |
| SBR71-1676    | 3730-3740 |                  |       |             |            | b                                    |                           |     |         |      |
| SBR71-1677    | 3740-3750 |                  |       |             |            | Trace                                |                           |     |         |      |
| SBR71-1678-79 | 3750-3770 |                  |       |             |            | No Oil                               |                           |     |         |      |
| SBR71-1680-81 | 3770-3790 |                  |       |             |            | Trace                                |                           |     |         |      |
| SBR71-1682    | 3790-3800 |                  |       |             |            | c                                    |                           |     |         |      |
| SBR71-1683-86 | 3800-3840 |                  |       |             |            | No Oil                               |                           |     |         |      |
| SBR71-1687    | 3840-3850 | 56151            | 7.0   | 2.1         | 89.1       | 1.8                                  | 18.3                      | 4.9 | 0.915   | None |
| SBR71-1688    | 3850-3860 | 56152            | 2.3   | 2.6         | 93.2       | 1.9                                  | 6.1                       | 6.2 | .905    | None |
| SBR71-1689    | 3860-3870 | 56153            | 2.0   | 1.6         | 94.0       | 2.4                                  | 5.1a                      | 3.8 |         | None |
| SBR71-1690    | 3870-3880 | 56154            | 3.8   | 1.7         | 91.6       | 2.9                                  | 10.1                      | 4.1 | .907    | None |
| SBR71-1691    | 3880-3890 | 56155            | 3.7   | 2.4         | 92.1       | 1.8                                  | 9.8                       | 5.9 | .894    | None |
| SBR71-1692    | 3890-3900 | 56156            | 4.5   | 2.6         | 91.3       | 1.6                                  | 11.9                      | 6.2 | .901    | None |
| SBR71-1693    | 3900-3910 | 56157            | 4.5   | 2.3         | 91.6       | 1.6                                  | 11.9                      | 5.5 | .903    | None |
| SBR71-1694    | 3910-3920 | 56158            | 3.6   | 2.4         | 91.9       | 2.1                                  | 9.4                       | 5.8 | .912    | None |
| SBR71-1695    | 3920-3930 | 56159            | 3.6   | 2.2         | 91.3       | 2.9                                  | 9.5                       | 5.3 | .912    | None |
| SBR71-1696    | 3930-3940 | 56160            | 4.0   | 2.0         | 92.5       | 1.5                                  | 10.5                      | 4.8 | .907    | None |
| SBR71-1697    | 3940-3950 | 56161            | 2.9   | 2.5         | 93.3       | 1.3                                  | 7.8                       | 6.0 | .905    | None |
| SBR71-1698    | 3950-3960 | 56162            | 2.2   | 2.2         | 93.9       | 1.7                                  | 5.8                       | 5.3 | .903    | None |
| SBR71-1699    | 3960-3970 | 56163            | 1.8   | 3.1         | 94.4       | .7                                   | 4.6a                      | 7.4 |         | None |
| SBR71-1700    | 3970-3980 | 56164            | 1.3   | 3.1         | 94.8       | .8                                   | 3.2a                      | 7.4 |         | None |
| SBR71-1701    | 3980-3990 | 56165            | .7    | 1.9         | 95.6       | 1.8                                  | 1.7a                      | 4.6 |         | None |
| SBR71-1702    | 3990-4000 | 56166            | .5    | 3.0         | 95.6       | .9                                   | 1.2a                      | 7.2 |         | None |
| SBR71-1703    | 4000-4010 | 56167            | .2    | 3.9         | 95.6       | .3                                   | .5a                       | 9.3 |         | None |
| SBR71-1704    | 4010-4020 | 56168            | .9    | 3.2         | 94.8       | 1.1                                  | 2.4a                      | 7.7 |         | None |
| SBR71-1705    | 4020-4030 | 56169            | .5    | 3.5         | 95.2       | .8                                   | 1.2a                      | 8.4 |         | None |
| SBR71-1706    | 4030-4040 | 56170            | .8    | 2.7         | 95.0       | 1.5                                  | 2.0a                      | 6.5 |         | None |
| SBR71-1707    | 4040-4050 | 56171            | .4    | 2.7         | 95.0       | 1.9                                  | 1.1a                      | 6.5 |         | None |

See footnote at end of table.

Drill cutting samples received September 25, 1970; Assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Davis Oil Company's Kinney Rim-Federal No. 1-Z (con.)

Kelly Bushing elevation 7,414 feet

| Sample number |           | Run No. | Yield of product |       |             |            | Specific gravity of oil at 60°/60° F | Properties of spent shale |  | Remarks |
|---------------|-----------|---------|------------------|-------|-------------|------------|--------------------------------------|---------------------------|--|---------|
| Laramie       | Their     |         | Weight percent   |       | Spent shale | Gas + loss |                                      | Gal per ton               |  |         |
|               |           |         | Oil              | Water |             |            | Oil                                  | Water                     |  |         |
| SBR71-1708    | 4050-4060 | 56172   | 1.3              | 4.0   | 93.1        | 1.6        | 3.4a                                 | 9.6                       |  | None    |
| SBR71-1709    | 4060-4070 | 56173   | 2.1              | 3.3   | 93.4        | 1.2        | 5.4a                                 | 7.9                       |  | None    |
| SBR71-1710    | 4070-4080 | 56174   | .7               | 3.7   | 94.9        | .7         | 1.8a                                 | 8.9                       |  | None    |
| SBR71-1711    | 4080-4090 | 56175   | 1.8              | 3.3   | 93.8        | 1.1        | 4.8a                                 | 7.9                       |  | None    |
| SBR71-1712    | 4090-4100 | 56176   | 1.8              | 3.2   | 93.9        | 1.1        | 4.8a                                 | 7.5                       |  | None    |
| SBR71-1713    | 4100-4110 | 56177   | .8               | 2.3   | 94.7        | 2.2        | 2.1a                                 | 5.5                       |  | None    |
| SBR71-1714    | 4110-4120 | 56178   | 1.5              | 3.2   | 94.4        | .9         | 3.8a                                 | 7.8                       |  | None    |
| SBR71-1715    | 4120-4130 | 56179   | .4               | 3.8   | 94.9        | .9         | .9a                                  | 9.1                       |  | None    |
| SBR71-1716    | 4130-4140 | 56180   | .4               | 3.9   | 95.4        | .3         | 1.0a                                 | 9.3                       |  | None    |
| SBR71-1717    | 4140-4150 |         |                  |       |             |            | c                                    |                           |  |         |
| SBR71-1718    | 4150-4160 |         |                  |       |             |            | b                                    |                           |  |         |
| SBR71-1719    | 4160-4170 |         |                  |       |             |            | Trace                                |                           |  |         |
| SBR71-1720-22 | 4170-4200 |         |                  |       |             |            | No Oil                               |                           |  |         |
| SBR71-1723    | 4200-4210 | 56181   | .4               | 3.8   | 94.3        | 1.5        | 1.0a                                 | 9.1                       |  | None    |
| SBR71-1724    | 4210-4220 | 56182   | .2               | 4.0   | 95.0        | .8         | .5a                                  | 9.6                       |  | None    |
| SBR71-1725    | 4220-4230 | 56183   | .1               | 4.4   | 94.2        | 1.3        | .3a                                  | 10.5                      |  | None    |
| SBR71-1726    | 4230-4240 | 56184   | .0               | 2.7   | 95.0        | 2.3        | Trace                                | 6.5                       |  | None    |
| SBR71-1727    | 4240-4250 | 56185   | .2               | 4.2   | 94.8        | .8         | .6a                                  | 10.1                      |  | None    |
| SBR71-1728    | 4250-4260 | 56186   | .0               | 3.9   | 95.4        | .7         | Trace                                | 9.3                       |  | None    |
| SBR71-1729    | 4260-4270 | 56187   | .8               | 4.7   | 93.1        | 1.4        | 2.0a                                 | 11.4                      |  | None    |
| SBR71-1730    | 4270-4280 | 56188   | .0               | 4.0   | 95.4        | .6         | No Oil                               | 9.6                       |  | None    |
| SBR71-1731    | 4280-4290 |         |                  |       |             |            | b                                    |                           |  |         |
| SBR71-1732    | 4290-4300 |         |                  |       |             |            | Trace                                |                           |  |         |
| SBR71-1733    | 4300-4310 |         |                  |       |             |            | No Oil                               |                           |  |         |
| SBR71-1734    | 4310-4320 |         |                  |       |             |            | b                                    |                           |  |         |
| SBR71-1735-40 | 4320-4380 |         |                  |       |             |            | No Oil                               |                           |  |         |
| SBR71-1741-42 | 4380-4400 |         |                  |       |             |            | Trace                                |                           |  |         |
| SBR71-1743    | 4400-4410 |         |                  |       |             |            | No Oil                               |                           |  |         |
| SBR71-1744    | 4410-4420 |         |                  |       |             |            | b                                    |                           |  |         |
| SBR71-1745-48 | 4420-4460 |         |                  |       |             |            | c                                    |                           |  |         |

See footnote at end of table.

Drill cutting samples received September 25, 1970; Assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Davis Oil Company's Kinney Rim-Federal No. 1-Z (con.)

Kelly Bushing elevation 7,414 feet

| Sample number | Run No.   | Yield of product |       |             |            | Specific gravity of oil at 60°/60° F | Properties of spent shale<br>Tendency to coke | Remarks |       |
|---------------|-----------|------------------|-------|-------------|------------|--------------------------------------|---|---------|-------|
|               |           | Weight percent   |       | Gal per ton |            |                                      |   |         |       |
| Laramie       | Their     | Oil              | Water | Spent shale | Gas + loss | Oil <sup>1/</sup>                    | Water   |         |       |
| SBR71-1749    | 4460-4470 |                  |       |             |            | b                                    |   |         |       |
| SBR71-1750    | 4470-4480 |                  |       |             |            | Trace                                |   |         |       |
| SBR71-1751    | 4480-4490 |                  |       |             |            | b                                    |   |         |       |
| SBR71-1752    | 4490-4500 |                  |       |             |            | No Oil                               |   |         |       |
| SBR71-1753-59 | 4500-4570 |                  |       |             |            | Trace                                |   |         |       |
| SBR71-1760-61 | 4570-4590 |                  |       |             |            | b                                    |   |         |       |
| SBR71-1762    | 4590-4600 | 56189            | 0.6   | 1.5         | 95.0       | 2.9                                  | 1.7a  | 3.6     | None  |
| SBR71-1763    | 4600-4610 | 56190            | .9    | 2.4         | 94.8       | 1.9                                  | 2.3a  | 5.8     | None  |
| SBR71-1764    | 4610-4620 | 56191            | 2.0   | 3.2         | 93.7       | 1.1                                  | 5.3   | 7.7     | 0.904 |
| SBR71-1764    | 4620-4630 | 56192            | 2.6   | 2.5         | 92.7       | 2.2                                  | 6.9   | 6.0     | .909  |
| SBR71-1766    | 4630-4640 | 56193            | 2.8   | 3.0         | 92.2       | 2.0                                  | 7.3   | 7.2     | .906  |
| SBR71-1767    | 4640-4650 | 56194            | 2.5   | 2.0         | 94.1       | 1.4                                  | 6.5   | 4.8     | .912  |
| SBR71-1768    | 4650-4660 | 56195            | 2.2   | 2.5         | 93.1       | 2.2                                  | 5.7   | 6.0     | .917  |
| SBR71-1769    | 4660-4670 | 56196            | 2.6   | 2.3         | 94.6       | .5                                   | 6.8   | 5.5     | .916  |
| SBR71-1770    | 4670-4680 | 56197            | 2.1   | 2.7         | 94.3       | .9                                   | 5.6   | 6.5     | .908  |
| SBR71-1771    | 4680-4690 | 56198            | 1.5   | 2.4         | 94.9       | 1.2                                  | 3.9a  | 5.8     | None  |
| SBR71-1772    | 4690-4700 | 56199            | 1.0   | 3.2         | 95.4       | .4                                   | 2.7a  | 7.7     | None  |
| SBR71-1773    | 4700-4710 | 56200            | 1.0   | 3.8         | 94.9       | .3                                   | 2.6a  | 9.1     | None  |
| SBR71-1774    | 4710-4720 | 56201            | .5    | 1.7         | 95.1       | 2.7                                  | 1.3a  | 4.1     | None  |
| SBR71-1775    | 4720-4730 | 56202            | .4    | 3.4         | 95.0       | 1.2                                  | 1.1a  | 8.1     | None  |
| SBR71-1776    | 4730-4740 | 56203            | .0    | 3.3         | 95.3       | 1.4                                  | Trace   | 7.9     | None  |
| SBR71-1777    | 4740-4750 | 56204            | .2    | 3.5         | 96.1       | .2                                   | .6a   | 8.4     | None  |
| SBR71-1778    | 4750-4760 | 56205            | .6    | 3.6         | 95.3       | .5                                   | 1.5a  | 8.6     | None  |
| SBR71-1779-80 | 4760-4780 |                  |       |             |            |                                      | b   |         |       |
| SBR71-1781-83 | 4780-4810 |                  |       |             |            |                                      | Trace   |         |       |
| SBR71-1784-85 | 4810-4830 |                  |       |             |            |                                      | b   |         |       |
| SBR71-1786    | 4830-4840 |                  |       |             |            |                                      | c   |         |       |
| SBR71-1787    | 4840-4850 |                  |       |             |            |                                      | b   |         |       |
| SBR71-1788    | 4850-4860 |                  |       |             |            |                                      | c   |         |       |
| SBR71-1789    | 4860-4870 |                  |       |             |            |                                      | b   |         |       |

See footnote at end of table.

Drill cutting samples received September 25, 1970; Assays made on air-dried samples

## OIL-SHALE ASSAYS BY MODIFIED FISCHER RETORT METHOD

Samples from Davis Oil Company's Kinney Rim-Federal No. 1-Z (con.)

Kelly Bushing elevation 7,414 feet

| Sample number   |           | Run   | Yield of product |       |             |            |             | Specific gravity of oil at 60°/60° F | Properties of spent shale<br>Tendency to coke | Remarks |
|-----------------|-----------|-------|------------------|-------|-------------|------------|-------------|--------------------------------------|---|---------|
|                 |           |       | Weight percent   |       | Spent shale | Gas + loss | Gal per ton |                                      |   |         |
| Laramie         | Their     | Non   | Oil              | Water |             |            |             |                                      | Oil <sup>1/</sup>                             | Water   |
| SBR71-1790      | 4870-4880 | 56206 | 0.7              | 2.5   | 95.8        | 1.0        | 1.9a        | 6.0                                  | None  |         |
| SBR71-1791      | 4880-4890 | 56207 | .7               | 2.7   | 95.2        | 1.4        | 1.7a        | 6.5                                  | None  |         |
| SBR71-1792      | 4890-4900 | 56208 | .5               | 2.2   | 96.8        | .5         | 1.4a        | 5.3                                  | None  |         |
| SBR71-1793      | 4900-4910 | 56209 | .1               | 2.3   | 96.6        | 1.0        | .2a         | 5.5                                  | None  |         |
| SBR71-1794      | 4910-4920 | 56210 | .1               | 2.2   | 96.8        | .9         | .2a         | 5.3                                  | None  |         |
| SBR71-1795      | 4920-4930 | 56211 | .1               | 2.7   | 96.6        | .6         | .3a         | 6.5                                  | None  |         |
| SBR71-1796      | 4930-4940 | 56212 | .6               | 2.3   | 95.8        | 1.3        | 1.4a        | 5.5                                  | None  |         |
| SBR71-1797      | 4940-4950 | 56213 | .3               | 1.4   | 96.1        | 2.2        | .8a         | 3.4                                  | None  |         |
| SBR71-1798-1802 | 4950-5000 |       |                  |       |             |            | b           |                                      |   |         |
| SBR71-1803      | 5000-5010 | 56214 | .3               | 2.5   | 96.4        | .8         | .7a         | 6.0                                  | None  |         |
| SBR71-1804      | 5010-5020 | 56215 | .3               | 2.9   | 96.0        | .8         | .7a         | 7.0                                  | None  |         |
| SBR71-1805      | 5020-5030 | 56216 | .2               | 2.5   | 96.6        | .7         | .6a         | 6.0                                  | None  |         |
| SBR71-1806      | 5030-5040 | 56217 | .1               | 2.3   | 96.1        | 1.5        | .3a         | 5.5                                  | None  |         |

<sup>1/</sup> "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 cutting samples received September 25, 1970; Assays made on air-dried samples