



STIM-LAB, Inc.

Company: Haas Petroleum, LLC
 Well: HO Kimbell No. 20
 Location: Woodson County, Kansas
 Sec. 18, T 24S-R14E

Date: 10/1/2007
 Files: SL 7799
 Analyst(s): CP

**STIM-LAB
 PRELIMINARY CMS-300 CORE ANALYSIS DATA**

| Sample Number | Depth (ft) | Net Confining Stress (psig) | Porosity (%) | Permeability | | Beta ft(-1) | Alpha microns | Saturation | | Grain Density g/cm3 | Lithology |
|---------------|------------|-----------------------------|--------------|--------------|-------------|-------------|---------------|---------------|-------|---------------------|---|
| | | | | Kair | Klinkenberg | | | Oil | Water | | |
| | | | | (mD) | (mD) | | | % Pore Volume | | | |
| 1 | 1632.5 | 800 | 27.7 | 116 | 107 | 3.94E+07 | 1.36E+01 | 30.9 | 43.6 | 2.88 | Dol, tr pyrt, tr anhy, tr pp, tr ixp, 85% yel flu |
| 2 | 1633.5 | 800 | 26.7 | 143 | 134 | 2.64E+07 | 1.14E+01 | 26.8 | 51.5 | 2.88 | Dol, tr anhy, tr pp, tr bxp, 90% yel flu |
| 3 | 1634.5 | 800 | 23.2 | 66.4 | 61.2 | 8.57E+07 | 1.69E+01 | 23.8 | 52.2 | 2.86 | Dol, tr anhy, tr cht, tr pp, tr ixp, 80% yel flu |
| 4 | 1635.5 | 800 | 20.7 | 12.4 | 10.3 | 4.65E+08 | 1.54E+01 | 11.2 | 77.7 | 2.81 | Dol, cht, tr ixp, 60% yel flu |
| 5 | 1636.6 | 800 | 19.0 | 16.2 | 14.1 | 5.31E+08 | 2.41E+01 | 15.5 | 58.6 | 2.87 | Dol, tr anhy, tr cht, tr ixp, 80% yel flu |
| 6 | 1637.5 | 800 | 17.7 | 13.9 | 12.2 | 2.50E+09 | 9.83E+01 | 10.7 | 67.5 | 2.88 | Dol, tr pyrt, 40% yel flu |
| 7 | 1638.5 | 800 | 19.7 | 17.4 | 15.3 | 3.21E+09 | 1.58E+02 | 16.7 | 51.6 | 2.62 | Cht, tr dol, ppm, 60% yel flu |
| 8 | 1639.5 | 800 | 24.4 | 52.9 | 43.5 | 1.26E+08 | 1.77E+01 | 11.4 | 74.2 | 2.82 | Dol, sli cht, tr ixp, 70% yel flu |
| 9 | 1640.5 | 800 | 27.6 | 52.5 | 46.4 | 3.78E+07 | 5.64E+00 | 11.8 | 66.8 | 2.83 | Dol, sli cht, tr ixp, 85% yel flu |
| 10 | 1642.0 | 800 | 19.2 | 24.6 | 21.8 | 6.17E+08 | 4.33E+01 | 22.8 | 50.5 | 2.85 | Dol, sli cht, sli pp, tr ixp, 50% yel flu |
| 11 | 1642.5 | 800 | 25.0 | 28.0 | 23.3 | 3.09E+08 | 2.32E+01 | 19.2 | 57.6 | 2.87 | Dol, tr pyrt, sli pp, tr ixp, 70% yel flu |
| 12 | 1643.5 | 800 | 27.1 | 76.1 | 68.0 | 6.21E+07 | 1.36E+01 | 16.1 | 61.3 | 2.86 | Dol, sli pp, tr ixp, 75% yel flu |

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HO Kimbell No. 20

Mississippian Dolomite

| Model = Archie | | | | | | | | | | | | | | | | | | |
|----------------|------|-------|--------|-----|------|-------|------|-------|------|-------|-------|-------|-------|---|--|--|--|--|
| PARAMETERS | ZN | DEPTH | THK | RT | PHI | RWA | RO | MA | SW | BVW | VSH | PAY | | | | | | |
| X | | 1 | 1620 | 0.5 | 30.9 | | 0.12 | 28.61 | 2.03 | | 0.060 | 0.450 | 0 | | | | | |
| Y | | 2 | 1620.5 | 0.5 | 32.6 | | 0.06 | 59.94 | 1.81 | | 0.058 | 0.292 | 0 | | | | | |
| A | 1 | 3 | 1621 | 0.5 | 33.7 | | 0.06 | 64.84 | 1.79 | | 0.057 | 0.251 | 0 | | | | | |
| M | 2 | 4 | 1621.5 | 0.5 | 35.4 | | 0.07 | 52.45 | 1.87 | | 0.056 | 0.293 | 0 | | | | | |
| N | 2 | 5 | 1622 | 0.5 | 37.9 | | 0.13 | 32.17 | 2.06 | | 0.054 | 0.388 | 0 | | | | | |
| RW | 0.11 | 6 | 1622.5 | 0.5 | 39.2 | | 0.26 | 16.63 | 2.34 | 65.2% | 0.053 | 0.543 | 0 | | | | | |
| CTHK | 40.5 | 7 | 1623 | 0.5 | 40 | 10.0% | 0.40 | 10.98 | 2.56 | 52.4% | 0.052 | 0.653 | 0 | | | | | |
| AVPHI | 0.17 | 8 | 1623.5 | 0.5 | 40.4 | | 0.40 | 11.14 | 2.56 | 52.5% | 0.052 | 0.628 | 0 | | | | | |
| FTOIL | 0.80 | 9 | 1624 | 0.5 | 40.2 | | 0.27 | 16.19 | 2.36 | 63.5% | 0.052 | 0.576 | 0 | | | | | |
| PAYFEET | 12 | 10 | 1624.5 | 0.5 | 40.7 | | 0.16 | 28.89 | 2.12 | 84.2% | 0.052 | 0.581 | 0 | | | | | |
| P | | 11 | 1625 | 0.5 | 41.1 | | 0.09 | 51.24 | 1.93 | | 0.052 | 0.514 | 0 | | | | | |
| Q | | 12 | 1625.5 | 0.5 | 40 | | 0.06 | 70.58 | 1.82 | | 0.052 | 0.405 | 0 | | | | | |
| R | | 13 | 1626 | 0.5 | 40.6 | | 0.10 | 46.63 | 1.95 | | 0.052 | 0.340 | 0 | | | | | |
| DMIN | 1620 | 14 | 1626.5 | 0.5 | 44.2 | | 0.25 | 19.46 | 2.32 | 66.4% | 0.050 | 0.404 | 0 | | | | | |
| DMAX | 1660 | 15 | 1627 | 0.5 | 46.9 | 11.1% | 0.58 | 8.92 | 2.75 | 43.6% | 0.048 | 0.631 | 0 | | | | | |
| GL | | 16 | 1627.5 | 0.5 | 47.7 | 13.6% | 0.88 | 5.98 | 3.04 | 35.4% | 0.048 | 0.892 | 0 | | | | | |
| TD | | 17 | 1628 | 0.5 | 46.1 | 13.3% | 0.81 | 6.22 | 2.99 | 36.7% | 0.049 | 1.012 | 0 | | | | | |
| BHT | 94 | 18 | 1628.5 | 0.5 | 41.9 | 10.7% | 0.48 | 9.52 | 2.66 | 47.7% | 0.051 | 0.878 | 0 | | | | | |
| ST | 75 | 19 | 1629 | 0.5 | 36.6 | | 0.23 | 17.19 | 2.30 | 68.5% | 0.055 | 0.579 | 0 | | | | | |
| RMF | 1.4 | 20 | 1629.5 | 0.5 | 31.8 | | 0.15 | 23.74 | 2.11 | | 0.056 | 0.388 | 0 | | | | | |
| RMFT | 75 | 21 | 1630 | 0.5 | 27 | | 0.14 | 20.97 | 2.10 | | 0.064 | 0.321 | 0 | | | | | |
| | | 22 | 1630.5 | 0.5 | 22.6 | | 0.19 | 13.18 | 2.22 | 76.5% | 0.070 | 0.254 | 0 | | | | | |
| | | 23 | 1631 | 0.5 | 18.7 | 12.7% | 0.30 | 6.78 | 2.49 | 60.2% | 0.077 | 0.183 | 0.03 | | | | | |
| | | 24 | 1631.5 | 0.5 | 15.8 | 16.5% | 0.43 | 4.05 | 2.75 | 50.7% | 0.084 | 0.160 | 0.04 | | | | | |
| | | 25 | 1632 | 0.5 | 13.3 | 18.8% | 0.47 | 3.10 | 2.87 | 48.3% | 0.091 | 0.159 | 0.05 | | | | | |
| | | 26 | 1632.5 | 0.5 | 11.1 | 20.6% | 0.47 | 2.60 | 2.92 | 48.3% | 0.099 | 0.156 | 0.05 | | | | | |
| | | 27 | 1633 | 0.5 | 9.32 | 21.9% | 0.45 | 2.30 | 2.92 | 49.7% | 0.109 | 0.153 | 0.06 | | | | | |
| | | 28 | 1633.5 | 0.5 | 7.76 | 22.0% | 0.38 | 2.27 | 2.81 | 54.1% | 0.119 | 0.160 | 0.05 | | | | | |
| Colors: | ON | 29 | 1634 | 0.5 | 6.53 | 21.8% | 0.31 | 2.32 | 2.68 | 56.6% | 0.130 | 0.155 | 0.04 | | | | | |
| | | 30 | 1634.5 | 0.5 | 5.72 | 21.8% | 0.27 | 2.32 | 2.59 | 63.6% | 0.139 | 0.134 | 0.04 | | | | | |
| RSH | | 31 | 1635 | 0.5 | 5.28 | 22.1% | 0.26 | 2.24 | 2.57 | 65.2% | 0.144 | 0.128 | 0.04 | | | | | |
| PHISH | | 32 | 1635.5 | 0.5 | 5.06 | 22.9% | 0.27 | 2.09 | 2.60 | 64.3% | 0.147 | 0.139 | 0.04 | | | | | |
| | | 33 | 1636 | 0.5 | 4.94 | 23.4% | 0.27 | 2.00 | 2.62 | 63.7% | 0.149 | 0.176 | 0.04 | | | | | |
| | | 34 | 1636.5 | 0.5 | 4.8 | 23.2% | 0.26 | 2.04 | 2.58 | 65.2% | 0.151 | 0.232 | 0.04 | | | | | |
| | | 35 | 1637 | 0.5 | 4.63 | 22.4% | 0.23 | 2.19 | 2.50 | 68.8% | 0.154 | 0.255 | 0.03 | | | | | |
| | | 36 | 1637.5 | 0.5 | 4.44 | 20.9% | 0.19 | 2.52 | 2.36 | 75.4% | 0.157 | 0.225 | 0.03 | | | | | |
| | | 37 | 1638 | 0.5 | 4.23 | 19.2% | 0.16 | 2.97 | 2.22 | 83.8% | 0.161 | 0.176 | 0.02 | | | | | |
| | | 38 | 1638.5 | 0.5 | 4.03 | 18.3% | 0.14 | 3.28 | 2.12 | | 0.165 | 0.154 | 0 | | | | | |
| | | 39 | 1639 | 0.5 | 3.88 | 16.2% | 0.13 | 3.31 | 2.09 | | 0.168 | 0.190 | 0 | | | | | |
| | | 40 | 1639.5 | 0.5 | 3.78 | 19.2% | 0.14 | 2.99 | 2.14 | | 0.171 | 0.237 | 0 | | | | | |
| | | 41 | 1640 | 0.5 | 3.74 | 20.7% | 0.16 | 2.56 | 2.24 | 82.7% | 0.172 | 0.213 | 0.02 | | | | | |
| | | 42 | 1640.5 | 0.5 | 3.67 | 22.3% | 0.18 | 2.21 | 2.34 | 77.6% | 0.173 | 0.174 | 0.02 | | | | | |
| | | 43 | 1641 | 0.5 | 3.55 | 23.2% | 0.19 | 2.05 | 2.38 | 76.0% | 0.176 | 0.174 | 0.03 | | | | | |
| | | 44 | 1641.5 | 0.5 | 3.42 | 22.8% | 0.18 | 2.12 | 2.33 | 76.6% | 0.179 | 0.172 | 0.02 | | | | | |
| | | 45 | 1642 | 0.5 | 3.35 | 21.6% | 0.16 | 2.37 | 2.23 | 84.0% | | 0.183 | 0 | | | | | |
| | | 46 | 1642.5 | 0.5 | 3.39 | 20.4% | 0.14 | 2.64 | 2.16 | | | 0.199 | 0 | | | | | |
| | | 47 | 1643 | 0.5 | 3.54 | 19.8% | 0.14 | 2.62 | 2.14 | | | 0.176 | 0.187 | 0 | | | | |
| | | 48 | 1643.5 | 0.5 | 3.68 | 20.3% | 0.15 | 2.67 | 2.20 | | | 0.173 | 0.163 | 0 | | | | |
| | | 49 | 1644 | 0.5 | 3.65 | 21.4% | 0.17 | 2.39 | 2.27 | 81.0% | 0.174 | 0.168 | 0.02 | | | | | |
| | | 50 | 1644.5 | 0.5 | 3.44 | 22.2% | 0.17 | 2.23 | 2.29 | 80.5% | 0.179 | 0.163 | 0.02 | | | | | |
| | | 51 | 1645 | 0.5 | 3.18 | 22.0% | 0.15 | 2.27 | 2.22 | 84.5% | | 0.136 | 0 | | | | | |
| | | 52 | 1645.5 | 0.5 | 2.94 | 21.4% | 0.13 | 2.40 | 2.13 | | | 0.117 | 0 | | | | | |
| | | 53 | 1646 | 0.5 | 2.74 | 21.2% | 0.12 | 2.44 | 2.07 | | | 0.114 | 0 | | | | | |
| | | 54 | 1646.5 | 0.5 | 2.56 | 21.7% | 0.12 | 2.34 | 2.06 | | | 0.134 | 0 | | | | | |
| | | 55 | 1647 | 0.5 | 2.39 | 22.3% | 0.12 | 2.20 | 2.06 | | | 0.161 | 0 | | | | | |
| | | 56 | 1647.5 | 0.5 | 2.27 | 22.7% | 0.12 | 2.14 | 2.04 | | | 0.158 | 0 | | | | | |
| | | 57 | 1648 | 0.5 | 2.19 | 22.6% | 0.11 | 2.15 | 2.01 | | | 0.174 | 0 | | | | | |
| | | 58 | 1648.5 | 0.5 | 2.14 | 22.7% | 0.11 | 2.13 | 2.01 | | | 0.188 | 0 | | | | | |
| | | 59 | 1649 | 0.5 | 2.11 | 23.2% | 0.11 | 2.05 | 2.02 | | | 0.182 | 0 | | | | | |
| | | 60 | 1649.5 | 0.5 | 2.08 | 23.3% | 0.11 | 2.03 | 2.02 | | | 0.178 | 0 | | | | | |
| | | 61 | 1650 | 0.5 | 2.09 | 23.2% | 0.11 | 2.05 | 2.01 | | | 0.162 | 0 | | | | | |
| | | 62 | 1650.5 | 0.5 | 2.17 | 22.9% | 0.11 | 2.10 | 2.02 | | | 0.157 | 0 | | | | | |
| | | 63 | 1651 | 0.5 | 2.31 | 22.6% | 0.12 | 2.15 | 2.05 | | | 0.170 | 0 | | | | | |
| | | 64 | 1651.5 | 0.5 | 2.52 | 22.6% | 0.13 | 2.15 | 2.11 | | | 0.200 | 0 | | | | | |
| | | 65 | 1652 | 0.5 | 2.77 | 22.6% | 0.14 | 2.16 | 2.17 | | | 0.244 | 0 | | | | | |
| | | 66 | 1652.5 | 0.5 | 3.02 | 21.6% | 0.14 | 2.35 | 2.16 | | | 0.292 | 0 | | | | | |
| CROSS SECTION | | 67 | 1653 | 0.5 | 3.26 | 19.4% | 0.12 | 2.91 | 2.07 | | | 0.307 | 0 | | | | | |
| DATUM 1 | | 68 | 1653.5 | 0.5 | 3.5 | 16.9% | 0.10 | 3.84 | 1.95 | | 0.177 | 0.346 | 0 | | | | | |
| DATUM 2 | | 69 | 1654 | 0.5 | 3.76 | 15.3% | 0.09 | 4.72 | 1.88 | | 0.171 | 0.402 | 0 | | | | | |
| No. of Prf | | 70 | 1654.5 | 0.5 | 4.06 | 14.9% | 0.09 | 4.63 | 1.90 | | 0.165 | 0.460 | 0 | | | | | |
| | | 71 | 1655 | 0.5 | 4.36 | 15.7% | 0.11 | 4.44 | 1.99 | | 0.159 | 0.422 | 0 | | | | | |
| | | 72 | 1655.5 | 0.5 | 4.61 | 16.8% | 0.13 | 3.90 | 2.09 | | 0.154 | 0.298 | 0 | | | | | |
| | | 73 | 1656 | 0.5 | 4.86 | 17.5% | 0.15 | 3.57 | 2.18 | | 0.150 | 0.244 | 0 | | | | | |
| | | 74 | 1656.5 | 0.5 | 5.14 | 17.9% | 0.16 | 3.43 | 2.24 | 81.7% | 0.146 | 0.244 | 0.02 | | | | | |
| | | 75 | 1657 | 0.5 | 5.48 | 18.4% | 0.19 | 3.25 | 2.31 | 77.0% | 0.142 | 0.257 | 0.02 | | | | | |
| | | 76 | 1657.5 | 0.5 | 5.79 | 18.9% | 0.21 | 3.08 | 2.38 | 73.0% | 0.138 | 0.274 | 0.03 | | | | | |
| | | 77 | 1658 | 0.5 | 5.99 | 18.2% | 0.20 | 3.33 | 2.34 | 74.5% | 0.135 | 0.329 | 0 | | | | | |
| | | 78 | 1658.5 | 0.5 | 6.11 | 15.7% | 0.15 | 4.47 | 2.17 | | 0.134 | 0.344 | 0 | | | | | |
| | | 79 | 1659 | 0.5 | 6.25 | 12.3% | 0.09 | 7.28 | 1.93 | | 0.133 | 0.331 | 0 | | | | | |
| | | 80 | 1659.5 | 0.5 | 6.47 | 10.9% | 0.08 | 9.18 | 1.84 | | 0.130 | 0.316 | 0 | | | | | |
| | | 81 | 1660 | 0.5 | 6.63 | | 0.00 | ##### | 0.61 | | 0.129 | 0.335 | 0 | | | | | |

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