49754.98-5 7 56 (4-7) New Location X Drill Desper Examined by Flowers Crecord on Abandonment

Company Godfrey L Cakot Inc. Address 900 Union Bldg Charleston X 14. Form Russell & Doloff, Trustees Tract\_\_\_\_\_ Acres 63 45 Leaso No. 5-42 Well (Farm) No. / Sorial No. /236 Quadrangle Beckley - SE County Raleigh District Shady Springs Engineer Logan Mc Jonald Engineer's Registration No. ... Drawing No 500 100 100 100 150 150 500 15 1320

21-6

Samples

STATE OF WEST VIRGINIA DEPARTMENT OF MINES OIL AND GAS DIVISION CHARLESTON

WELL LOCATION MAP FILE NO RAL-83

- ♣ Denotes location of well on United States Topographic Maps, scale I to 62,500, latitude and longitude lines being represented by border lines as' shown.
- Denutes and Inch spaces on border line of original traning.

Deepwell

H. Ch. 82 1

59 gg / 2

# WEST VIRGINIA DEPARTMENT OF MINES OIL & GAS DIVISION WELLRECORD

Permit No. Ral 83 Beckley Quad.					Dry Hole	
Company Address Farm Well No. District Commenced Completed Hater	Charle Russel 1 seri Shady	ston, W. 1 & Dolo al 1236 Springs 23,1947 3,1948	va. Va. ff Acres Elev. 1999 Raleigh County		2010	2010 "
Gravel Red Rock Lime Red Rock Slate Sand Lime Red Rock Lime Red Rock Lime Red Rock Fand Red Rock	0 20 35 54 58 77 145 224 250 435 450 455	20 35 54 58 77 145 224 250 435 450 455 465	Slate & Shells White Slate Black Slate Corniferous Lime Sand Line Measure Gas 401 show Gas pocket at 681		4400 4420 4550 6195 6220 6650 6790 6908 7173	4420 4550 6195 6220 6650 5790 6908 7173
Time Fed Rock Lime Slate & Shells lime Slate & Shells Fand Fed Rock Dime Red Rock & Shells Lime Red Rock Lime Red Rock Lime And Rock	465 475 480 485 596 600 650 660 685 690 775 795 818 825	475 480 485 596 600 650 660 775 795 818 825 838	Gas 6953 show. al	so sho		2619 <b>4</b> 9
State & Shells Lame State & Shells Grey Sand State Errey Lime State Shells Lime Red Rock Lime Sand Red Rock	838 875 895 960 975 990 1020 1058 1175 1190 1275	875 895 960 975 990 1020 1058 1175 1190 1275 1300 1385			Les	
Sand Slate Dark Slate & Shells Lime Slate Sand Slate Lime Slate & Shells Sand Slate Lime Slate & Shells Sand S late Greenbrier Lime Black Shale Big Lime Red Rock Gritty Lime Slate Lime Slate & Shells Lime Slate & Shells Lime	1385 1395 1435 1455 1480 1490 1500 1520 1555 1582 1610 1630 1675 1850 1880 2520 2541 2791 2810 2820	1395 1435 14455 1480 1490 1500 1520 1555 1582 1610 1630 1675 1850 2520 2541 2791 2810 2820 3855	e inequal confident from the state of the st			

G.L. CHBOT, INC, -

RAL-83

#### RUSSELL & DOLOFF NO. 1 (1236) WELL.



Shady Springs District, Raleigh County, W. Va. By Godfrey L. Cabot, Inc., Charleston, W. Va. Drilled under permit Ral-\$3: Beckley Quadrangle.

On.....acres.

Elevation, 1999 L.

Drilling commenced April 23, 1947; completed Feb. 13, 1948.

Water, 25', hole full.

13" casing, 299'; 10", 1061' (shoe); 8", 2010' (shoe); 7", 6923' (shoe); all left in.

Gas show, 401. Gas pocket at 6819. Gas show, 6953; also show at 7133. Dry hole. Record from Smith April 26, 1949.

Cravel		mom.	Bottom.
Red rock       20 - 35         Lime       35 - 54         Red rock       54 - 58         Slate       58 - 77         Sand       77 - 145         Lime       145 - 224         Red rock       224 - 250         Lime       250 - 435         Red rock       435 - 450         Sand       455 - 465         Lime       465 - 475         Red rock       455 - 465         Lime       465 - 475         Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       775 - 795         Red rock and shells       685 - 690         Red rock       825 - 838         Lime       775 - 795         Red rock       825 - 838         Slate and shells       838 - 875         Lime       875 - 895         Slate shells       895 - 960         Gray sand       960 - 975         Slate shells       1020 - 1058	Gravel		
Lime       35 - 54         Red rock       54 - 58         Slate       58 - 78         Sand       77 - 145         Lime       145 - 224         Red rock       224 - 250         Lime       250 - 435         Red rock       435 - 450         Send       455 - 465         Red rock       475 - 480         Lime       465 - 475 - 480         Lime       485 - 596         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       660 - 650         Lime       660 - 665         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       818 - 825         Red rock       825 - 838         Slate and shells       838 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190 <td>Red rock</td> <td></td> <td></td>	Red rock		
Red rock       54 - 58         Slate       53 - 77         Sand       77 - 145         Lime       145 - 224         Red rock       224 - 250         Lime       250 - 435         Red rock       435 - 450         Sand       455 - 465         Red rock       455 - 465         Lime       465 - 475         Red rock       475 - 480         Lime       485 - 596         Slate and shells       600 - 650         Sand       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       825 - 838         Slate and shells       838 - 875         Lime       875 - 895         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1020 - 1058         Sand       1275 - 1300         Red rock       1175 - 1190         Lime       1020 - 1058 <t< td=""><td>Lime</td><td></td><td></td></t<>	Lime		
Slate	·		
Sand       77 - 145         Lime       145 - 224         Red rock       224 - 250         Lime       250 - 435         Red rock       435 - 450         Samd       450 - 455         Red rock       455 - 475         Lime       465 - 475         Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       818 - 825         Red rock       825 - 838         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1058 - 1175         Red rock       1175 - 1190         Lime       1058 - 1175         Sand       1275 - 1300         Red rock       1175 - 1300	Slate		
Lime       145 - 224         Red rock       224 - 250         Lime       250 - 435         Red rock       435 - 450         Sand       450 - 455         Red rock       455 - 465         Lime       465 - 475         Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       825 - 838         Slate and shells       838 - 875         Lime       818 - 825         Red rock       825 - 838         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1175 - 1190         Lime       1175 - 1300         Red rock       1300 - 1385         Sand       1275 - 1300	Sand		
Red rock       224 - 250         Lime       250 - 435         Red rock       435 - 450         Sand       450 - 455         Red rock       455 - 465         Lime       465 - 475         Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       690 - 775         Red rock and shells       690 - 775         Lime       818 - 825         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1175 - 1190         Line       1175 - 1300         Red rock       1300 - 1385         Sand       1275 - 1300         Red rock       1300 - 1385         Lime       1300 - 1385         Slate       1395 - 1435 </td <td>Lime</td> <td></td> <td></td>	Lime		
Lime       250 - 435         Red rock       435 - 450         Sand       450 - 455         Red rock       455 - 465         Lime       465 - 475         Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray lime       990 - 1020         Slate shells       1020 - 1053         Lime       1075 - 1300         Red rock       1175 - 1190         Lime       1275 - 1300         Red rock       1300 - 1385         Lime       1300 - 1385         Slate       1395 - 1435         Slate       1395 - 1435 <td></td> <td></td> <td></td>			
Red rock       435 - 450         Send       450 - 455         Red rock       455 - 465         Lime       465 - 475         Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       825 - 838         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1175 - 1190         Red rock       1175 - 1300         Red rock       1175 - 1300         Slate shells       1058 - 1175         Slate       1300 - 1385         Sand       1325 - 1435         Slate, dark       1455 - 1480         Lime	Line		
Sand       450 - 455         Red rock       455 - 465         Lime       465 - 475         Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       795 - 818         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1028 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Slate, dark       1495 - 1445         Slate and shells       1455 - 1480	Red rock		
Red rock       455 - 465         Lime       465 - 475         Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       795 - 818         Lime       813 - 825         Red rock       825 - 838         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1075 - 1190         Lime       1175 - 1190         Red rock       1175 - 1300         Red rock       1175 - 1190         Lime       1300 - 1385         Slate       1395 - 1435         Slate       1435 - 1455         Slate and shells <t< td=""><td>Sand</td><td></td><td></td></t<>	Sand		
Lime Red rock Lime Lime Lime Lime Lime Lime Lime Lime	Red rock		
Red rock       475 - 480         Lime       480 - 485         Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480	Line		
Lime Slate and shells Lime Slate and shells Slate and shells Slate and shells Sand Sand Sand Sand Sand Sand Sand Sand	Red rock		
Slate and shells       485 - 596         Lime       596 - 600         Slate and shells       600 - 650         Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       838 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1275 - 1300         Red rock       1300 - 1385         Sand       1275 - 1300         Red rock       1395 - 1435         Slate       1395 - 1435         Slate       1435 - 1455         Slate       1480 - 1490         Slate       1480 - 1490	Lime		
Lime	Slate and shells		
Sand       650 - 660         Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1075 - 1190         Lime       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500	Lime	596	
Red rock       660 - 685         Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       838 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500	Slate and shells	600	- 650
Lime       685 - 690         Red rock and shells       690 - 775         Lime       775 - 795         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       838 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1285 - 1495         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500	Sand	650	- 660
Red rock and shells       690 - 775         Lime       775 - 795         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       838 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1275 - 1300         Red rock       1300 - 1385         Sand       1275 - 1300         Red rock       1395 - 1435         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1480 - 1490			
Lime       775 - 795         Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       833 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1480 - 1490		1244	
Red rock       795 - 818         Lime       818 - 825         Red rock       825 - 838         Slate and shells       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1275 - 1300         Red rock       1395 - 1435         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1480 - 1490			
Lime       818 - 825         Red rock       825 - 838         Slate and shells       838 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500			
Red rock       825 - 838         Slate and shells       875 - 895         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500	Que		
Slate and shells       838 - 875         Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1480 - 1490         Lime       1480 - 1490         Slate       1490 - 1500			-
Lime       875 - 895         Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500	*		•
Slate and shells       895 - 960         Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500			
Gray sand       960 - 975         Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500			
Slate       975 - 990         Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500			
Gray lime       990 - 1020         Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500	· · · · · · · · · · · · · · · · · · ·	,	
Slate shells       1020 - 1058         Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500		φ.	
Lime       1058 - 1175         Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500			
Red rock       1175 - 1190         Lime       1190 - 1275         Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500			-
Lime 1190 - 1275 Sand 1275 - 1300 Red rock 1300 - 1385 Sand 1385 - 1395 Slate 1395 - 1435 Slate, dark 1435 - 1455 Slate and shells 1455 - 1480 Lime 1480 - 1490 Slate 1490 - 1500		-	
Sand       1275 - 1300         Red rock       1300 - 1385         Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500			
Red rock 1300 - 1385 Sand 1385 - 1395 Slate 1395 - 1435 Slate, dark 1435 - 1455 Slate and shells 1455 - 1480 Lime 1480 - 1490 Slate 1490 - 1500			
Sand       1385 - 1395         Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500			
Slate       1395 - 1435         Slate, dark       1435 - 1455         Slate and shells       1455 - 1480         Lime       1480 - 1490         Slate       1490 - 1500	Sand		
Slate, dark 1435 - 1455 Slate and shells 1455 - 1480 Lime 1480 - 1490 Slate 1490 - 1500	Slate		
Lime 1480 - 1490 Slate 1490 - 1500	Slate, dark		
Lime 1480 - 1490 Slate 1490 - 1500	Slate and shells		
Slate 1400 - 1490	Lime	Thon	17.00
(OVER)	Slate		
	(OVER)	· · · · · · · · · · · · · · · · · · ·	

Sand Slate Lime Slate and shells Sand	1500 - 1520 - 1555 - 1582 -	Bottom. - 1520 - 1555 - 1582 - 1610 - 1630
Slate Greenbrier Lime Black shale Big Lime	1630 -	- 1675 - 1850 - 1880
Red rock Gritty lime Slate	2520 - 2541 - 2791 -	· 2541 · 2791 · 2810
Slate and shells Lime Slate and shells Lime	2810 - 2820 - 3855 - 4400 -	· 3855 · 4400 · 4420
Slate and shells Lime Slate and shells White slate	4420 - \$550 - 6195 - 6220 - 6650 -	· 6195 · 6220 · 6 <b>6</b> 50
Black slate Corniferous Lime Total depth (sand-line measurement)	6790 <b>-</b> 6908 <b>-</b>	6908

Shady Springs District, Raleigh County, W. Va.

By Godfrey L. Cabot, Inc., 900 Union Bldg., Charleston, W. Va.

Located 5.07 mi. S. of  $37^{\circ}$  50° and 2.72 mi. W. of  $81^{\circ}$  00° = SE - Beckley Quad. Elevation,  $1999^{\circ}$  L.

Permit Ral-83.

Drilling commenced April 23, 1947; completed Feb. 13, 1948.

Gas show 401. Gas pocket at 6819. Gas show, 6953; also show at 7133. Dry hole.

Water, 25', hole full.

13" casing 299'; 10", 1061' (shoe); 8", 2010' (shoe); 7", 6923' (shoe); all left in.

Section based on samples 50' to 7173', examined by Russell R. Flowers. Record to RCT from Flowers, Oct. 11, 1949.

Top.	Bottom	Thick-	
700.		ness	MAUCH CHUNK, 2030+ FEET
50	54	tave:	Siltstone (very sandy, greenish-gray to medium-gray, calcareous, slightly dolomitic; small amount of gray-ish-green shale
54	58 J	4	Clay-shale, grayish-brown; some greenish-gray, cal- careous, sandy siltstone.
<b>5</b> 8	6 <b>1</b>		Clay-shale, (grayish-brown), to shale(brownish-gray), silty, a moderate amount of greenish-gray, calcareous siltstone.
61 00 0 01 24 0 10 0 1	74		Siltstone, greenish-gray, some medium-gray (with highly calcareous, brown streaks); small amount of brownish-gray to grayish-brown, highly calcareous shale; small amount of moderately yellowish brown, highly dolomitic shale
74	aliyy (16). Gurana Yungan	3 3 3 10	Siltstone to sandstone (very fine), greenish-gray to medium-gray, slightly calcareous, somewhat dolomitic; some grayish-brown clay-shale
		67 2 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	Sandstone, very light to light-gray and light greenish-gray, fine-grained, very fine grained in part, some medium grains, fine- to medium-grained at 134 to 144°, contains specks of carbonaceous and chloritic material, slightly calcareous, moderately to highly sideritic at the bottom; a moderate amount of medium-gray, shaly silt-stone at the top; a moderate amount of grayish-brown and greenish-gray clay-shale at 82-86°; some medium- to dark-gray, silty shale at 82-86°; some medium- to dark-gray, silty shale, 121-130°; a large amount of medium-gray and greenish-gray shale and siltstone, 134-144°.
144 147	147 150 181	3 3 31	Shale, medium-gray to greenish-gray, silty Shale, medium- to dark-gray, some greenish-gray, silty
150			Shale, medium dark to dark-gray; trace of calcite and trace of pyrite at the bottom.
	<b>191</b>		Shale, medium-to dark-gray, sandy, very highly fossil- iferous (light- to medium-gray calcite;) some dark-gray to grayish=black shale.
	212		Shale (very sandy) to sandstone (fine, very shaly), medium dark to dark-gray with light- to medium-gray fossiliferous calcite spots and streaks; a moderate amount of interbedded, dark-gray to gravish-black shale.
212.	216		Shale, dark-gray to grayish-black, very silty, fossil- iferous, calcareous in part.

.0000	V 1		
Top	Bottom	Thick-	
216	-224	ness 8	
			Shale, light olive gray, to greenish-gray and medium- gray, soft, calcareous in part; some dark-gray to gray-
			ish-black shale.
224	244 .	20	Shale and siltstone, grayish-red to grayish-brown, green-
3667		and the second	remark-gray to medium-gray, some dark-gray to gray sh-black
244	050	. 0	and some brownish-gray, calcareous in part
Tithet	253	9	Shale, grayish red to grayish brown, some greenish-gray,
. El miner	y - 1	first gentemme)	and brownish-gray, some dark-gray to grayish-black,
253	273	20	silty, slightly calcareous.
4	taga and the second of the sec	23 <b>77</b>	Sandstone (very fine) to siltstone, light-gray to green-
			ish gray; a very large amount of interbedded grayish- brown to dusky-brown and some grayish-black shale at
			265-269°; some shale cavings in the upper part
273	289	16	Siltstone and shale, sandy at the top to sandstone, very
·	jadi jeujimili	ai i se je se	fine and silty at the bottom, greenish-gray to medium-gray
TO TO HITC			some grayish-red to grayish-brown, some dark-gray to gray-
			isn-black, calcareous at the bottom: some dark vellowish
289	296		prown, nighty sideritic, shale at the bottom
209		· / · · · ·	Shale, medium to medium dark gray, some grayish-black, some
296	304	7.	dark yellowish-brown (sideritic)
			Shale, greenish-gray to medium-gray, dark-gray to black
304	325	21	(carbonaceous and calcareous)
	để đị		Siltstone to sandstone (very fine), light- to medium-gray
**************************************			to greenish-gray (with dark-gray to grayish-black, high- ly micaceous, somewhat carbonaceous, shaly streaks),
			slightly to moderately calcareous; a large amount of
			interbedded dark-gray shale at the bottom
	335		Siltstone and shale, medium light to medium dark gray,
Call Vi	an 11.194 ki 12.11.41.8		some prownish-gray to dusky vellowish brown (sideritic)
	· · · · · · · · · · · · · · · · · · ·	er en	Small amount is calcareous and dolomitic
335	370	41	Limestone, brownish-black with some brownish-gray shalw
			to a nighty calcareous shale (brownish-black to gravesh-
			Diack), very highly fossiliferous, a few chins are slicken-
376	385	9	sided; some dark-gray shale
J. J.	-112		Shale, medium light to medium dark gray (with brownish-gray
			highly fossiliferous, highly calcareous spots), somewhat dolomitic, trace of pyrite
	392		Shale, medium to medium dark gray, some dark-gray at the
. ~ 4			top; some moderate to dark yellowish brown siderite
392	401	. 3	buate; medium to dark-gray (with brownish-black, highly
. و	Second and a control of a control of the control of		LODGETT CTOP S SNOTS TO THO THOUSAND
407_	لام الام الام الام الام الام الام الام	n <b>al</b> le masse laste.	siltstone at the bottom Siltstone, greenish-gray to medium-gray, somewhat cal-
		e <b>and</b> the second	Sirtstone, greenish-gray to medium-gray, somewhat cal-
415		1.0	The court of the military and continued to
a de la compansión de l		golden av	Siltstone, greenish-gray to medium-gray with interbedded
419	422	5	medium to dark-gray siltstone (shaly) to shale Shale, dark-gray to black, carbonaceous, pyritic and
422	432	20	Clay-shale, medium to medium dark gray come dark and
-			
Les	torico		righter in color with a greenish cast in the lower part
			moderate amount of brownish-gray limestone; small amount of pyrite

	K The state of the		The residence of the re
Top	Bottom	Thick-	
***		ness	
435	445	10	Clay-shale, grayish-red, greenish-gray and medium-gray;
11au 1186,94 17			some dark-gray, some brownish-gray, somewhat silty and
e de la companya da l La companya da la co			sandy at the bottom, calcareous in part
445	450	5	Shale, grayish-brown to grayish-red, soft; shale (soft)
	er et Torrer en		and siltstone (sandy) to sandstone (very fine), greenish-
		· · · · · · · · · · · · · · · · · · ·	gray to medium gray, some dark-gray to black; some of
			the shale and siltstone is calcareous
450	455	5	Sandstone, very light gray and light greenish gray, fine-
			grained, subrounded, slightly calcareous; a large amount
			of grayish-red and greenish-gray shale and siltstone
υ,	at the same of the		cavings
455	475	20	Siltstone and shale (silty), greenish-gray to brownish-
ال المالية المسكيد	la lores	العربين المحاري المال الشار	gray, small amount of grayish-red to blackish-red, some-
game of the second		212 4	what calcareous; some sandstone, very light gray to
			pinkish-gray and light greenish-gray; at the bottom silt-
1. 1.	1706 2000		stone to sandstone (very fine)
475 480	480	(+, <b>5</b> 111)	Shale, grayish-brown to dusky-brown, silty
400	485	) (J	Shale, grayish-grown to dusky-brown, dark greenish gray
485	500 <sup>( ( ) )</sup>		to medium-gray
40)	500	15	Shale, medium dark gray, some dark greenish gray, some
		T. 1277 C	dark-gray to black (carbonaceous), dolomitic, small a-
	السامونك الأدامية الردران		mounts of grayish-brown and dark-yellowish brown (sider-itic)
500	510	- 10	
			Shale, grayish-brown to grayish-red, somegrayish-black to black (calcareous); shale and siltstone, dark greenish
			gray to medium dark gray, calcareous in part
510	520	10	Shale and siltstone, dark greenish gray to medium dark
J		miner S.F	and dark-gray (shaly), contains streaks of greenish and
	6 - V - 20 C	د.سد دنشست الآبر	light greenish gray to white, very fine sandstone; some
			dark-gray to black and brownish-black, shaly limestone; small
	ب يا آلاپ يادي	za e du.	amount of black, carbonaceous shale
520	535	15	Shale (silty) and some siltstone, medium dark to dark-gray,
			some grayish-black; some siltstone to sandstone (very
	en San San San San San San San San San Sa	6 O = 0	fine), light- to medium-gray, calcareous
535	550	15	Shale and siltstone (highly micaceous), grayish-brown to
	الله الله الله الله الله الله الله الله	Tagrama a	dusky-brown, some grayish-red, some greenish-gray to
	Carlo Carlo	The second secon	
550	560	10	Siltstone and shale, grayish-brown to dusky-brown, dark
			are and the many description of the second s
in anggaj jime ka	en e gjever i m <sup>er</sup> e sku		brownish-gray, micaceous
560	580	20;	Dolomite (very shaly) to shale (highly dolomitic), olive-
	o ta		plack to grayish-black, 40%; siltstone, greenish-gray
Salest eji sadi i.			to medium-gray, dolomitic, 40%; shale, greenish-gray to
1.00	605	- 110	medium-gray, grayish-brown to grayish-red. 20%
500		-	Shale, olive-black, slightly calcareous to highly cal-
·	t kin sûrîd ji ji jirên.	· January	careous, olive-black shale (with brownish-black spots)
The same of the Same	C / }		and streaks, to a brownish-black, shaly limestone, high-
605	625	20	ly fossiliferous, highly dolomitic
777	TO THE STATE OF STATE		Limestone, dark-gray to brownish-black (with medium-
625	645	20	gray spots), highly dolomitic; fossiliferous Clay-shale to shale, grayish-red to grayish-brown, some
V.L. ₹ .C.			greenish-gray to medium-gray, some medium dark to dark-
the state of the s	Benzer GW -	en fil vil i v I vil i v	gray; a large amount of olive-black to brownish-black shale
			to shaly limestone, highly dolomitic (cavings)
645	665	20	Siltstone (sandy) to sandstone (very fine), grayish-brown to
to S	Note: 1	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
	a sale on sale a second		the lower part

(Continued on page 4 - Over)

	MOSSETT & 1	JOLOFK,	TRUSTEES NO. 1 (1236) WELL (CONTINUED)
Top	Bottom	Thick- ness	- 01
665 Files			Shale, grayish-red to very dusky red, some grayish- brown to dusky-brown, soft, calcareous and dolomitic,
(9 9 ) - (1 <b>725</b>	.:ca	25 cb (	in part; some grayish-brown to dusky-grown siltstone in the lower part Clay-shale, brownish-gray to grayish-red; siltstone and
1	the second of th	o si s	shale (silty), grayish-brown to dusky-brown, some brown- ish gray, somewhat calcareous in the lower part
Janestan memberaturi er de	그 원 중에 대한 기계	John 119 g	Clay-shale and shale (splty), grayish-red to grayish- brown, some dusky-brown Siltstone, grayish-brown to dusky-brown, calcareous in
rolle. Other Signer	en e	; ( -v file)	part; shale, grayish-red to grayish-brown, some green- ish-gray to krownish-gray.
- 03 Let <b>e 778</b> 03 (12 f) 1- <b>-</b> 3 list -0090; e 3			Shale and some siltstone, grayish-brown to dusky-brown, some grayish-red to very dusky red, greenish-gray to medium-gray, some purplish-gray; some dark-gray, calcareous in part
e e e e e e e e e e e e e e e e e e e	A10810cm - ;	- "i. 	Clay-shale and shaly (silty), some siltstone (in the upper part), grayish-brown to dusky-brown, some greenish-gray to dark-gray (in the lower part); small amount is cal-
	820	10	careous Shale, grayish-red to very dusky red, greenish-gray to medium and dark-gray, small amount of black, somewhat calcareous
			Shale, grayish-red to grayish-brown, some greenish-gray to dark-gray, calcareous
: <b>830</b> . :	837	7	Shale, olive-gray to grayish-brown, soft, calcareous in part
			a large amount of grayish-brown to dusky-brown, sandy
	. <b>899</b>	14	siltstone at the bottom Siltstone, grayish-brown to dusky-brown, micaceous, slight- ly to moderately calcareous; a large amount of grayish-
		12	gray clay-shale in the lower part  Clay-shale and shale, grayish-red to grayish-brown, some
			amount of greenish-gray to brownish-gray limestone at the top  Shale, grayish-brown to grayish-red, some dark greenish-
	and the second seco	* * * * * * * * * * * * * * * * * * *	promish or movement as a gray; strospone; ansky orom to
	<b>999</b> <u>2</u> 2 		Shale and siltstone, grayish-brown to dusky-brown, some very dusky-red, some medium- to dark-gray; trace of limestone
7. 1			Shale; grayish-brown, soft; some dusky-brown siltstone; some medium- to dark-gray shale; some olive-gray to brown sh-gray dolomite
			Siltstone, dusky-brown to brownish-gray, slightly dolo- mitic; some dusky-brown to grayish-brown shale; a moderate
0(0.0 00 - 0.1 00	4—. 4 <b>90</b> 7 (143), 94. (1 0		Siltstone, dark greenish gray to medium dark gray, sligh
987	-07 <b>997</b> 00.0	~10	Shale, grayish-brown to dusky-brown, some grayish-red, greenish-gray to medium dark gray, some dark-gray (with black, carbonaceous streaks), Calcareous and dolomitic
			(Continued on page 5)

	Top	Bottom	Thick- ness	
	997	•	2 2 10 14	Siltstone, dusky-brown to very dusky red, some grayish- brown, some brownish-gray, a moderate amount of dark
				greenish-gray to medium dark gray, micaceous, dolomitic in part
	1007	. 1020	13	Shalo, grayish-red, to grayish-brown, greenish-gray to dark greenish gray, medium dark to dark-gray (dolomitic) soft
		1030	10	Limestone to shale (highly calcareous), dark greenish gray; shale, brownish-gray to grayish-red, some reddish-gray
	1030	1040	10_ [	Siltstone and shale, dusky-brown, some very dusky red,
			#1790   TTT	some grayish-brown, dark greenish-gray to medium dark gray (dolomitic in part), dark-gray to black, some brown-ish-gray
and the same	1040	1051	· LL	Shale, (soft, silty), and some siltstone, grayish-brown
ئىلىكىدىدىيىدىدىدىلىلىكىدىدىدىدىدىدىدىدىدىدىدىدىدىد	مهارستان در داملاستا در از این	الساسية الأراب	بالرابية الشيكة المسألة. المرابعة المسالة	to dusky-brown, some brownish-gray, some dark greenish- gray to dark-gray and black; a moderate amount of olive-
	1051		The second of th	gray to brownish-gray dolomite.
	1051	1063	4	Dolomite, olive-gray to brownish-gray, shaly, 40%; green- ish-gray to dark greenish-gray, dark-gray to black, gray-
	1063	1070		ish-brown, and some grayish-red siltstone and shale, 60% Shale, grayish-brown to medium dark gray, some olive-gray
e secondo de la companio de la comp	10 _ 0	5 0 .		to brownish-gray, shaly dolomitic (cavings?)
	1070	1085	15	Siltstone and shale, grayish-black (dolomitic in part), mostly siltstone in the lower part
a 1790 and F. Sannage	r i	1095	01. <b>10</b> .00 or.	Siltstone, dusky-brown to brownish-gray; shale, greenish-
in the section of the	1095			gray to medium dark gray (dolomitic), some dark-gray Siltstone to sandstone (very fine), light- to medium-gray
	<u>.</u>			(with medium dark gray to grayish-black, shaly, micaceous and somewhat carbonaceous streaks), somewhat calcareous,
	and the second			kaolinitic; considerable medium dark gray to dark-gray; shaly, micaceous siltstone in the lower part; a large
	1115	1122	1 0 65 7 2 1 <b>7</b> 1 1 1 1	smount of medium dark gray to dark greenish gray shale Shale, dark greenish gray to medium dark gray (dolomitic
	çui ku			in part), some dark-gray to grayish-black; some medium
e yan eganeri ezeren e	1122	1126	J4	gray, very fine sandstone Sandstone, light- to medium-gray and greenish-gray, fine
And the second of the second o			56	to very fine grained, somewhat calcareous, kaolinitic; some medium dark gray siltstone and some shale; dark
				greenish gray to medium dark gray, soft
and the second	A		ere and a compared for the	greenish gray to medium dark gray, soft Sandstone, very light to medium-gray, fine-grained, 30%; shale and siltstone, medium dark gray, some dark greenish gray, 20%; shale (calcareous) to limestone (shaly), dark-
	1135	1155	20	gray to greenish-black, 50% Siltstone (sandy in part) and shale, medium dark gray,
	mar dimen			some dark greenish gray, some dark-gray to black (carbon-aceous) in the lower part, somewhat calcareous, moderately dolomitic in the lower part
		1162	7	Limestone, brownish-black to black, shaly, 50%; shale, grayish-red to grayish-brown, some brownish-gray, con-
ado i la la La companya di santa di santa La companya di santa	1162	1185	0	siderable dark greenish gray, to medium dark gray Shale and siltstone, grayish-brown to dusky-brown, a moderate amount of medium dark gray to dark greenish gray,
	1185	1195	10	some brownish black to black, shaly limestone at the top Shale, medium dark gray (silty), some dark greenish gray, a moderate amount of grayish-brown, some brownish-gray, trace
\ \UUU	÷ /		the same of the same of	of black (calcareous cavings?)

,			# 9 j
,			RUSTEES NO. 1 (1236) WELL (CONTINUED)
Top	Bottom	Thick-	
		ness	
119	5 _ 1205 _	10	Shale, mottled olive-gray and very dusky red, highly
otio wi	Company of the compan	7000 - 100 <u>0</u>	dolomitic, calcareous, 60%; shale, brownish-gray,
alemanis			medium dark gray, and dark greenish gray
120	5 1215	10	Shale, mottled grayish-red and medium dark gray, some
and the second			dark greenish gray, moderately dolomitic; considerable
التاء ببطلاني			interbedded medium dark gray, silty shale, calcareous
			in part 01.83
121	5 (1230	15	Shale and some siltstone, grayish-brown to dusky-brown,
			some medium dark gray in the upper part, considerable
a to the	Control of the	Q11 1 1111	brownish-gray and medium dark gray to dark greenish gray
e e e e e e e e e e e e e e e e e e e		The second secon	in the lower part, small amount is calcareous and
juga ji u	ريدر في الله		dolomitic (alla)
1230	1260	30	Siltstone, medium dark gray and dark greenish gray to
			shale, medium dark to dark-gray, kaolinitic, somewhat
N	ALA SALO DE LA	Salah Salah	micaceous, dolomitic in part at the bottom; at the top,
	the man the		mustly siltstone, dark greenish-gray to medium dark gray;
		* 3.10.00	mostly shale, medium dark to dark-gray in the middle and
	5	فهار المالوران بالوابال	lower parts   00 000
1260	1285	25	Siltstone and sandstone (very fine, some fine at the
	a and the second of the second		bottom), medium=gray to greenish-gray (with medium dark
	en e		gray to grayish-black, carbonaceous and micaceous, shaly
( .	i in u , o.		streaks), highly kaolinitic, somewhat calcareous and
	ri arum) muk		dolomitic a resident of the second of the se
128			Sandstone (very fine, silty), light brownish gray to gray-
		-	ish-brown; small amount of brownish-gray to grayish-
	in û first silvi		brown; small amount of brownish-gray dolomite
130		48	Shale, grayish-brown to grayish-red, some very dusky
		il e có	red to dusky-brown; some medium dark gray shale in the
		re was no	middle; at the bottom, a moderate amount of medium dark
	r - Commenter de la Commenta del Commenta del Commenta de la Commenta del Commenta de la Commenta de la Commenta del Commenta de la Commenta del Commenta de la Commenta del Commenta de la Commenta de la Commenta de la Commenta de la Commenta de l		gray to dark greenish gray and brownish-gray shale; small
		J E	amount of moderate olive brown dolomite
1348	3 1360	. 12	Shale, medium dark gray to dark greenish gray, dark-gray
. Karalan ingka		J. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	to black, delemitic, 30%: Night plive grav to light brown-
· · · · · ·		The state of the s	ish gray dolomite, 10%; shale, grayish-brown to very dusky
			red, 60%
7360	7400	-40	Siltstone, dark greenish gray to medium dark gray, some
			dark-oray kaolinitie micaceous with specks of carbon-
			dark-gray, kaolinitie, micaceous, with specks of carbon- aceous-material; some grayish-brown to dusky-brown, and
			some dark greenish gray shale (cavings)
7.200	1/120	30	Chala and come alarmebala medium dank array and dank
	o		Shale and some clay-shale, medium dark gray and dark greenish gray; some dark-gray to brownish-black dolomite
7/12/	מפולד	J. Jones	Shale and siltstone, medium dark-gray to dark greenish
	7470	40	grant come development to block (lorge amount 7/1/10 to
			gray, some dark-gray to black (large amount, 1440 to 1450'); at the bottom, some sandstone (very fine, silty)
	The second second		medium light gray to greenish-gray, calcareous
יכול ר	7/186	76	Shale, medium dark gray to grayish-black, 60%; siltstone
	2.790		(calcareous, delomitic), to a slight calcareous delomite,
	e e e e e e e e e e e e e e e e e e e		40% 200 4000 4000 4000 4000 4000 4000 40
7 /18/			Shale, medium dark gray, highly calcareous to limestone
2.70			(shaly), brownish-black to black (with medium-gray spots),
and the state of t		and the second of the second o	- somewhat dolomitic
			Shale, grayish-brown to dusky-brown, olive-gray to
			dark greenish gray; a moderate amount of dark-gray,
ar in the second of the second	د در در در این این افوا گراهی دروندر مورد در دریان ارتشاری میشارد در		dolomitic shale
750	<b>1</b> 515		Siltstone, dusky-brown, 90%; shale, grayish-brown,
. الأفريد	المركب المساوية		olive-gray to dark greenish-gray, dark-gray (dolomitic) 10%
		· · · · · · · · · · · · · · · · · · ·	Comment Prof. 100 comment of children of the

(Continued on page ?)

Top	Bottom	Thick ness	
1515	0 <b>1520</b>		Shale and siltstone, dusky-brown, some brownish-gray, medium dark gray (dolomitic); some dolomite, olive-gray to brownish-gray
1520	<b>1540</b>	122 <b>0</b> %	Shale, medium dark to dark-gray (dolomitic in part), some dark greenish gray and brownish-gray, some grayish-brown (cavings?)
1540	1549	9	Shale, olive-gray to dark greenish-gray, 70%; shale, medium dark to dark-gray, dolomitic, 30%
1549	1565	i pomite	Shale, medium dark gray to grayish-black, calcareous, some olive-gray to dark greenish gray, the upper part contains more dark shale; small amount of olive-gray dolomite
1565	1572		Dolomite, brownish-gray to light-gray, greenish-gray to medium dark gray, shaly to dolomitic shale
1572	15777		Limestone, grayish-black to black, shaly to a highly
1,577	1582		Dolomite, brownish-black, highly calcareous; some gray- ish-black to black, shaly, dolomitic limestone; some shale cavings
	1608	J. 26 J.	Shale, medium dark to dark-gray, some grayish-black to black (highly carbonaceous), moderately calcareous at the top, silty and lighter in color at the bottom
1608	1624		Siltstone, greenish-gray to medium and medium dark gray, micaceous and kaolinitic with some carbonaceous material; a moderate amount of interbedded, dark-gray to black (high-
1624	1631	17-	ly carbonaceous) shale Siltstone and shale, medium dark gray, some dark-gray to black
1631	J 1650 J		Shale, medium dark gray; small amounts of brownish-black and grayish-black limestone and dolomite (cavings?)
1650 1674	1674 1706		Shale, medium-dark gray, soft, distinctly laminated Shale, medium dark to dark-gray, slightly to moderately calcareous, moderately dolomitic at the top, small amount
		· · · · · · · · · · · · · · · · · · ·	is highly calcareous Limestone, brownish-black, highly fossiliferous, shaly to a highly calcareous shale; a large amount of medium dark
1733	3 1741	<mark>8</mark> Hunda —	to dark-gray shale (probably mostly cavings) Limestone, dark-gray to brownish-black, shaly to a highly calcareous shale, fossiliferous, 60%; shale, medium dark
1741	1760	i 19	gray, highly dolomitic, 40% Shale, medium dark to dark-gray, highly dolomitic, cal-
			careous in part, silty Limestone, brownish- and grayish-black, very highly fossiliferous; some medium dark to dark-gray, highly
1774	<b>1790</b> .du	. 0 <b>16</b> ( ); 111000	dolomitic shale; trace of white calcite Limestone, brownish—and grayish—black, highly dolomitic, to calcareous dolomite in the upper part to dolomitic and shaly at the bottom; some highly fossiliferous, lime—stone at the top
1790	1797	J7	Limestone, grayish-black, very shaly, dolomitic; shale, medium dark gray, highly calcareous to a grayish-black, highly oolitic limestone

## RUSSELL DOLOFF, TRUSTEES NO. 1 (1236) WELL (Continued)

	Top	Boxtom	Thick-	
	1797	1843 0, 70 0.60	46	Limestone, grayish-black with light- to medium-gray spots, grayish- and brownish-black with more light- and medium-gray in the lower part, very highly oolitic
				and fossiliferous, more fossiliferous and less colitic toward the bottom; a large amount of medium dark gray, calcareous and dolomitic shale at 1824-1830° and some in
	1843	1851		the upper part Shale, grayish-black, silty, highly dolomitic; with light-
لداده آن آن د	1851	1876	25	gray highly calcareous spots Shale, olive-black to brownish- and grayish-black, dolo- mitic; small amount of brownish-black dolomite; some gray-
La rede	1876	1882		ish-black, silty, highly carbonaceous shale at the top Shale, brownish- to grayish-black, dolomitic, 60%; lime- stone, brownish-black with light- to medium-gray spots,
	1882 63 (1990 M	1886	4	fossiliferous and oolitic, 40%. Shale, medium dark gray (silty) to grayish— and brownish—black, dolomitic in part; some brownish—black, dolomitic
	1886	1922	36 - 1 3 2 - 0.	in part; some brownish-black to medium-gray limestone Shale (silty)to siltstone, olive-gray to olive-black, dark-gray to grayish-black, moderately calcareous, high- ly dolomitic, somewhat kaolinitic and micaceous; a large amount of dark-gray to grayish-black shale in the upper
	1922	1927	5	part. Siltstone and shale (silty), greenish-gray to dark greenish gray, some medium dark gray, calcareous and dolomitic; some limestone, dark gray to brownish-black with white
	1927	1940	13	to medium-gray spots, fossiliferous Shale, dark greenish gray to olive-black, highly calcareous,
	1940	<b>1952</b>	12 .	dolomitic, to a shaly, dolomitic limestone Limestone, dark greenish gray, and dark-gray to brownish- black (with light- to medium-gray spots), highly fossil-
	1952	1971	<u>1</u> 9	iferous, shaly to a highly calcareous shale, dolomitic Shale, olive-black to grayish-black, some dark greenish gray to dark-gray, some light- to medium-gray spots,
	1971	j985		moderately calcarcous and moderately dolomitic Shale, dark-gray to brownish-black (with some light-gray, highly calcareous, fossiliferous spots), highly calcareous, dolomitic; at the bortom, a large amount of grayish- and brownish-black limestone containing
		1991	6	brownish-black limestone containing many fossil fragments Limestone, dark-gray to grayish-black, mostly oblites, With calcite matrix, somewhat silty and shells
	1991	2000	4	with calcite matrix, somewhat silty and shaly limestone, medium dark gray to olive-gray, some light-gray, dolomitic in part, shaly; some grayish-black, oolitic limestone
	e e e e e e e e e e e e e e e e e e e		20	Shale (dolomitic) to dolomite (shaly), dark greenish gray to olive-gray, calcareous; some medium dark to dark-gray,
		2028	8-, - ;	somewhat fossiliferous andoolitic limestone Limestone, dark greenish gray to medium dark gray and gray- ish black, fossiliferous, dolomitic, very shaly; some brownish-gray, highly oolitic and fossiliferous limestone
		7		some dark-gray to black and grayish=red shale (probably cavings)

	Top	Bottom	Thick	
	2028	2045	ness	GREENBRIER LIMESTONE, 480 FEET Limestone, brownish-gray to brownish-black, some light
			<u>ۦۦ؞ۣڹؙڗؽٙ</u> ۼ؞ڹ؞؞؞ؿٷڶڶؠ؞؞	brownish gray, highly colitic, fossiliferous
	2045	2056	11	Limestone, brownish-black, some brownish-gray, clastic texture, mostly fossil fragments and oolites
: 1 T <del>-</del> .	2056	2066	10	limestone, brownish-gray to brownish-black, the brownish-
	2066	2075	9.	gray is mostly colites with calcite cement limestone, brownish-black, somewhat colitic and fossil- iferous
Section Control of the Control of th	2075	2104	.29	Limestone, brownish and grayish-black with light- to
		A	3	medium-gray spots; a moderate amount of light-gray, high- ly colitic limestone in the lower part
مهر به در این می است. این از این این است. این	2104	2120	16	Limestone; brownish- and grayish-black, shaly, dolomitic in
	2120	2132	12	part Limestone, brownish-black, some grayish-black, somewhat
<i></i>	07.00			silty and shaly
	2132	, 21.54	. 22 J	limestone, brownish- and grayish-black, with a large amount of white vein calcite in the upper part and a very large
				amount in the lower part, silty, some shaly, carbonaceous material, a few pieces are slickensided
	21.54	2163	9	Limestone, brownish-black with medium-gray spots, somewhat
	2163			silty and shaly, oolitic in part
		3510		limestone, brownish-black with medium-gray spots, oolitic, 50%; limestone (silty to siltstone) (highly calcareous),
The same of the sa	2170	2195	25	medium dark to dark-gray, 50% Limestone, light brownish gray to brownish-gray, mostly
a para di salah	് മെട്ട് മിക്സ് പ്ര	00 0 C	A. 17	oolites with calcite cement, somewhat silty at the top
	2195	2214	19 10	Limestone, medium dark gray to brownish-gray, very shaly Dolomite (shaly) to shale (highly dolomitic), dark greenish
				gray to olive-gray, 40%; limestone, brownish-gray to
	2224	2238	140	brownish-black
San Carrier Company			)	Limestone, medium dark gray to brownish-gray, some brown- ish black, oolitic in part
	.2238 	2252	14	limestone and dolomite (shaly and silty) to shale and silt-
a faranta ya	ge had a service of the service of t	angalang sakil angalan		stone (highly calcareous and highly dolomitic), dark greenish gray to olive-gray, medium dark gray to brownish-
	í 50 Tabéa		٠	grav. some gravish-brown
	تحليفا للراء والمستدفاة	" and Talling a California		fimestone, brownish-gray to medium dark gray (highly colitic in part), some brownish-black to black (shaly,) silty
land the state of	2303	2325	22~	Limestone, olive-black to brownish-black, some brownish-
K 9	a New York and the second of the second		A 100 1 Aug 1 1 A	gray, shaly limestone, medium dark gray to brownish-gray, silty; lime-
			أرتبير	silty
المستورة الم المستورة المستورة ال	2343	2365	22	Timestone, medium dark gray to dark greenish gray and brown-
	2365 -	-2396	31	ish-gray, very shaly in part Limestone, dark-gray to brownish- and olive-black, some
		2410		Limestone, brownish-gray to olive-black, somewhat silty.
	2410	2430	20	crystalline, texture, very fine grained Limestone, light-gray to brownish-gray, clastic texture, highly oolitic
ر تا مسافق می داند. ا	2430	2/15/4	24.	highly odlitic
			24	medium-gray spots, somewhat dolomitic in part
	2454	2466	12	Dolomite, olive-gray to medium dark gray, some dark-gray and some dark greenish gray, calcareous in part, shaly and
			(	(Continued on page 10)
				(oomornace on base to)

Top	Bottom	Thick	
2466	2474	ness 9	Dolomite, light olive gray to olive-gray, some medium-
2475	2485	10	gray, shaly, somewhat cherty and silty, 60%; limestone, brownish and grayish-black with medium-gray spots, 40%
	and the second of the second o	لين	Dolomite, olive-gray, small amount of brownish-gray, somewhat calcareous, silty
2485   174   1520   14   14   14	. <b>2491</b> 10 Eige Grin 		Dolomite, olive-gray, silty, 40%; dolomite, dark-gray to grayish-black, somewhat brownish-black and black, highly calcareous, dolomitic siltstone, 60%; some medium dark to dark-gray, silty dolomite
2491	2500°C	9	Dolomite, medium dark gray to grayish-black, olive-gray to olive-black, somewhat calcareous, very silty, somewhat shaly
2500	2508	8-1-	Dolomite, dark-gray to grayish-black, olive-gray to brown-ish-black, very silty, shaly, somewhat calcareous, 80%; shale, grayish-brown to grayish-red, some olive-gray to greenish-gray (very silty), slightly dolomitic, 20%; some white anhydrite
2508	2535 VI		MACCRADY FORMATION, 45 FEET Shale, grayish-brown, some grayish-red, some dark greenish- gray to olive-gray, silty in part; some white anhydrite; some dark greenish gray siltstone at the bottom; a moderate
2535	- 1		amount of dark-gray to grayish-black dolomite (cavings) Siltstone to sandstone (very fine), dark greenish gray to greenish and grayish-black, a moderate amount of grayish- brown to grayish-red (shale) at the top to very dusky red and dusky-brown (siltstone) at the bottom; some mediu. dark gray to grayish-black shale; trace of anhydrite at the top
2553	2576	-23	POCONO FORMATION, 789 FEET Siltstone, greenish- and olive-black to brownish-black;
		in in the second	a moderate amount of interbedded, dark-gray to grayish- black shale
2576		54	Siltstone, dark greenish gray and olive-gray to greenish- and olive-black (with dark-gray to grayish-black, shaly streaks); at 2602-2610' very shaly, small amount of calcite and dark yellowish brown siderite
	2657	man a series	Siltstone, dark greenish gray to olive-gray with dark-gray
	2682	-	Siltstone, greenish- and olive-black, sideritic in part;
	2692°''	00	Siltstone to sandstone (very fine), greenish- and olive- black to brownish-black (sideritic); considerable inter- bedded, dusky-brown to very dusky red; some dark-gray to grayish-black shale
		ے ٹی پا	Sandstone (very fine) to siltstone, dark greenish gray to olive-gray, some brownish-gray to brownish-black, slightly dolomitic, moderately sideritic; some dusky-brown to very dusky red siltstone
		-15	Siltstone and some sandstone (very fine), olive-gray (dolo-mitic) and dark greenish gray to dark-gray, kaolinitic, some dark-gray to grayish-black shale
	9 <b>2735</b> - 1		Siltstone to sandstone (very fine), olive-gray (somewhat sideritic), some medium dark gray, a large amount of interbedded dark-gray to grayish-black shale

RUSSELL & DOLOFF NO. 1 (1236) WELL (Continued)

		I	RUSSELL	L & DOLOFF NO. 1 (1236) WELL (Continued)
	Top	Bottom	Thick ness	
Ui]	2735		18	Siltstone and some sandstone (very fine), olive-gray to medium dark gray, kaolinitic, micaceous, sideritic in
-	rala. co Haba co			part; a very large amount of interbedded, dark-gray to grayish-black shale
- !	. <b>2753</b>  	2759	6 	Sandstone, light-gray to light olive gray, very fine grained with some broken, very coarse, quartz grains, dolomitic; some brownish-gray to grayish-brown and dark-gray,
rechi.	2759	2001	32	very fine sandstone; a moderate amount of siltstone and shale, dark-gray to grayish-black (cavings)
				Sandstone, medium light gray to greenish-gray to plare- red, fine- to medium-grained, some very fine grains at the top, with chlorite and iron oxide in an argillaceous
	2791		- <b>1</b> 0 - ( -	matrix, slightly dolomitic Sandstone, light- to medium-gray and greenish-gray, very
i ya	2801	2809	. <b></b>	fine grained, 30%; shale, medium dark to dark-gray, 70% Shale, dark-gray, some medium dark gray; a large amount of
	. <b>2809</b>	2819 /		siltstone, medium to medium dark gray Shale, medium dark to dark-gray, some grayish-black, 50%; siltstone to sandstone (very fine), medium light to medium dark gray, 50%.
		2900		Siltstone, medium to dark-gray to olive-gray and olive-black; shale, dark-gray, some dark-gray to grayish-black;
	2900 J	.2929.0	29:	small amount of dark yellowish brown, sideritic shale Shale (sandy) to sandstone (very fine, shaly), grayish - black to black; considerable interbedded, medium dark to dark-gray shale; a moderate amount of medium to medium
	2929	2960	0 <b>21</b>	dark gray and dark greenish gray, very fine sandstone; a very small amount of disseminated pyrite Shale, dark-gray, some olive-black to grayish-black; some
				siltstone and sandstone (very fine), medium-gray to olive- gray and greenish-gray; small amount of dark yellowish
	2960	2995.	35	brown, sideritic shale Sandstone, light greenish gray to greenish-gray, some dark greenish gray to medium dark gray (very silty to silt-
				stone); a very large amount of interbedded shale, dark-gray to grayish-black, some medium dark gray, some olive-black (sideritic) to dark yellowish brown (highly sideritic)
	.2995 as a	3025	30	Siltstone, greenish-gray and dark greenish gray to medium dark gray, micaceous, kaolinitic; a large amount of inter-
	. Talan da	3060	ta Gu	bedded, medium dark to dark-gray shale
91			(4) 4 (1). 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1	and medium dark gray to dark greenish gray, micaceous; small amount of dark yellowish brown, highly sideritic
: ; ;	3060	3100; ( 00 	40	Siltstone, medium light to medium dark gray, some olive- gray, kaolinitic, micaceous; a moderate amount of inter- bedded, medium dark to dark-gray shale; small amount of
	<b>3100</b> / / Jäsen mit En jä //	.3130	30.0	gray, micaceous and kaolinitic; a moderate to large amount of medium dark gray to grayish-black shale; small amount of
				dark yellowish brown, sideritic shale Shale, grayish-black to black, some brownish-black, highly
		J=10	٠٠٠ <u>ر</u> ٠٠	carbonaceous, very highly carbonaceous at the bottom

(Continued on page 12.)

## RUSSELL & DOLOFF NO. 1 (1236) WELL (Continued)

	J.J.L	C DO CHARGE CO	JEOPE 1	MAN T (TS)O) METT (COLLOTTINGA)
	Top.	Bottom	Thick- ness	
- 21 ;	3173	3183		Shale, grayish-black to black, some brownish-black
				(silty), highly carbonaceous, 50%; siltstone, medium light to medium dark gray, and shale, medium to medium dark gray, 50%; small amount of sandstone, light to medium-gray, very
	3183			fine grained Siltstone, medium light to medium dark gray, some olive-gray (sideritic), a large amount of medium dark to dark-gray, a little grayish-black, and some dark yellowish brown (highly
	3225 - 3		95. 3 	sideritic) shale Siltstone, dark greenish gray and olive-gray to medium dark gray, some olive-black and grayish-black, kaolinitic and micaceous; considerable interbedded, medium dark to dark gray shale, some olive-gray (sideritic) to dark yellowish brown (highly sideritic); small amount of grayish-black
	3320	3331	11	Shale, grayish-black to black (highly carbonaceous); some
	3331 · · ·	3337		medium dark to dark-gray (Sunbury Shale) Shale, grayish-black to black (highly carbonaceous), some medium dark to dark-gray, 60%; sandstone, light-gray to light brownish gray and light olive gray, very fine grained with an occasional coarse grain; contains scattered crystals of pyrite, 40% (Berea)
	3337	3342		Sandstone, light-gray to light olive gray and light brownish gray, very fine grained with an occasional coarse grain, contains scattered crystals of pyrite, dolomitic in part (Berea); shale, medium dark to dark-gray, grayish-black
ا د ان ا				to black (probably mostly cavings)  DEVONIAN SHALES, 3566 FEET
	3942			Siltstone and some shale(silty), medium dark gray, some dark-gray to grayish-black
	3358			Siltstone and shale, dark-gray and olive-black
	3363	3398		Siltstone and shale, medium dark to dark-gray, dark greenish
	ar ac -		8	gray to elive-gray, some brownish- and elive-black Siltstone and some shale (silty), elive-black to brownish-
	3406	3494	88	and grayish-black Siltstone, dark greenish gray to olive-gray, sandy to very
				fine sandstone, micaceous; shale, medium dark to dark-gray Siltstone to very fine sandstone, light to medium light gray, some medium-gray, micaceous, kaolinitic; moderate amount of medium dark to dark-gray, silty shale
	3509	3530	24-2-5 24-2-5 24-2-5	Siltstone to sandstone (very fine), dark-gray to grayish- black (slightly to moderately dolomitic, somewhat carbon- aceous, shaly), interbedded with medium-gray to greenish- gray; some white, vein dolomite; some white, glassy chert;
U,	3530	<b>355</b> 6.0 013.4 <u>4.4</u> 2	(26 c 0	a moderate amount of medium- to dark-gray shale Siltstone to sandstone (very fine), dark-gray to grayish- black (slightly dolomitic with some shaly, carbonaceous material), dark greenish gray to olive-gray, contains some
	3556	3582: J	26	dolomitic chert; at the top, some medium dark to dark-gray shale increasing to a large amount at the bottom Siltstone, dark greenish gray to medium dark gray, olive-black to grayish-black; a moderate amount of medium dark to dark-gray and some olive-black (silty) shale

		*	,	
	Top.	Bortom	Thick ness	
	3582	3675	93	Siltstone, dark greenish gray to medium dark gray, some
		arama managa daga daga daga daga daga daga daga		olive-black to grayish-black; a moderate to large amount
			-0 15 TH	of interbedded, medium dark to dark-gray, and a small amount of dark-gray to grayish-black shale
15	3675	3685	10	Siltstone to sandstone (very fine), light-gray to light
		The second of th		olive gray, 80%; shale, medium dark to dark-gray, 20%
	3685	3701	16-	Siltstone to sandstone (very fine), light-gray to olive-
	ing in the second secon		The second	gray and dark-gray to grayish-black (dolomitic in part,
				contains shaly, sarbonaceous material); some medium dark
-14	3701	3731	30	gray to grayish-black shale Siltstone, dark greenish gray to medium dark gray, olive-
٠.				black to grayish-black (shaly); a moderate amount (at top)
		pring a con-	3 m 3 m 3 m 3 m	to a large amount (at the bottom) of interbedded, medium
٠		an di sarangi ana an (gang ana an a Sarangi da		dark gray to grayish-black shale
	3731	3775	44	Shale; medium dark to dark-gray, some olive-black to gray-
10				ish-black; a small amount of siltstone, dark greenish gray to medium dark gray with some olive-black; at the bottom,
	Marin Jagar	بن نیائی بنایہ	y 9 te	the siltstone is 40% of the sample
	3775	3809	34	Siltstone, olive-gray and dark greenish gray to medium-
		geregi inggggananasi Cara	disconsistantino	gray, dark-gray to olive-black, some grayish-black to black
				(shaly); a moderate amount of interbedded, medium dark to dark-gray shale
	3809	3815	6	Siltstone, medium light gray to olive-gray with dark-gray
				to olive-black, shaly streaks; some medium dark to dark-
	15 1 1 m			gray shale a control of the control
	3815	3898	83 -	Shale, medium dark to dark-gray, some olive-black to gray-
2	at amendus seus des Residents	in ruskili ur		ish-black; a moderate to large amount of interbedded, dark
	en har in de seu de la companya de La companya de la co			greenish gray to olive-gray siltstone with dark-gray to olive-black streaks
	3898-19	4001		Siltstone, dark greenish gray to medium dark gray (with
				dark-gray to olive-black, shaly streaks), some medium-gray
				somewhat micaceous and kaolinitic with traces of pyrite;
		r ille der i Meler Alle der von	- 1	a moderate amount of medium dark to dark-gray shale, some
	4001	4045	44	grayish-black Siltstone and some sandstone (very fine) at the bottom,
	~ 1		77	medium light to medium dark gray with dark-gray to olive-
	2		(3	black, shaly streaks, contains some dolomite, Magnesite
- 1		Solve a susceptible and the solve and the so		(?); some medium dark to dark-gray shale in the lower part
	4045	4056	11	Siltstone, olive-gray and medium dark gray to dark-gray,
				olive-black to grayish-black (shaly); some dark-gray to
	4056	4085	29	grayish-black shale No Samples
	tage afficiency and a	4185	L00	Siltstone, olive-gray and medium dark gray to dark-gray,
				olive black to grayish-black (shaly), kaolinitic and
		المستحددة		micaceous, contains some dolomitic magnesite (?)
1		4250	65	No Samples
	- 4230 - 2	4275	25	Siltstone, light olive-gray to olive-gray and medium-gray, some dark-gray to olive-gray and grayish-black (shaly);
	Salar Maria		10 23	a moderate amount of medium dark gray to grayish-black
	A Section of the sect			shale
			25	
:	4300	4310 / 9	10 00	
	رايون الها بالمشا	Filmer manifest		gray to olive black (shaly); some medium dark gray to grayish-black (silty) shale
	(		Card	

(Continued on page 14)

	Top.	Bottom.	Thick- ness	
	4310	4360	50	Siltstone, olive-gray and dark greenish gray to medium
				dark gray, some olive-black to grayish-black (shaly);
	unan wan an	7.000 mm &		a moderate to large amount of medium d ark gray to
		and the second second		brownish- and grayish-black, silty shale, some black
ria de la composición dela composición de la composición dela composición de la composición de la composición de la comp	4360	4387	27	Siltstone, light olive gray to dark greenish gray and
	and the second s			medium gray with olive-black and grayish-black, shaly
			mercija i postavata. Postavata	streaks; some medium dark to grayish-black shale
	4387	4417	30	Shale, medium dark gray to dark-gray; some grayish-black;
			15 51 27	considerable interbedded, dark greenish gray to olive-
				black siltstone
	4417	_4495 co	78	Siltstone, olive-gray and dark greenish gray to dark-gray
والعالين لالعجيبي	la dinawaka			and olive-black, kaolinitic and micaceous; a moderate to
22.0		. No į kulda	J . U	large amount of medium dark to dark-gray shale, some olive-
				black and some grayish-black to black (carbonaceous);
. T A			- 1. Z	a large amount of shale at the bottom
	4495	4541	46	No sample
en e	4541	4558 ·	- J.7- si	Siltstone, dark greenish gray and olive-gray to medium
		in the state of the	Jan	dark gray; a large amount of interbedded, medium dark to
**	LEER	lisos		dark-gray and grayish-black to black shale Siltstone, dark grayish gray and medium dark gray to
	4558	4595	71	olive-black with carbonaceous (black) and dolomitic (white
ليوناً إلى إلى الأخوري. الم		قىيدى ئىسا رايمىز دىيە دارادە -		to medium-gray) spots and streaks (veinlets); a large
and the state of t	يرينا المسترين المستران	gara menarakan sebagai kecamatan berasakan dari sebagai kecamatan berasakan		amount of interbedded, medium dark to dark-gray and gray-
				ish-black shale of the
	4595	4665	70	Siltstone, dark greenish gray and olive-gray to medium
			· · · · · · · · · · · · · · · · · · ·	dark gray; a moderate to large amount of medium dark to
	far or 1 tue.			dark-gray and olive-black shale; a large amount of gray-
and the second				ish and brownish- black to black, highly carbonaceous shale
	4665	4775	110	Shale, medium dark to dark-gray, some olive-black, gray-
	en northern arthur a			ish-black to black (carbonaceous); siltstone- medium- to
The second of th	401 (4			dark-gray, elive-gray to olive-black
	4775	5029	254	Shale, medium- to dark-gray to olive-black, grayish-black
Control Service Control	العاد أأثر بالكادي والباثة	14.044. 111. 14	The state of the s	to black (carbonaceous), silty in part; considerable inter-
				bedded siltstone, olive-gray to medium dark gray, olive-
			. CUUTE	black to grayish-black, some brownish-gray; the amount of siltstone increases roward the bottom but the amount of
	To the second of			grayish=black to black shale decreases
	5209	5043	14	Siltstone, olive-gray to olive-black and brownish-black,
			1 77 'CJ	micaceous and kaolinitic: a moderate amount of interbedded
	a di	باقرائوروروها سند الدراد ساروراتها داد. المارات المارات	المستريق المنتجي	shale, medium dark to dark-gray, some grayish-black to
		3.5 million (1997)	· · · · · · · · · · · · · · · · · · ·	black
	5043	5079	36	Shale, medium- to dark-gray, grayish-black to black (carbon-
e e e e e e e e e e e e e e e e e e e	i Doğumlar			aceous), some olive-black; siltstone, olive-gray to medium
	grapian na harring in		المنظمة المالية ال	dark gray, olive-black to brownish-black
	5079	5094	- <b>15</b>	Shale, brownish and grayish-black to black, highly carbon-
`				aceous, silty; some medium dark to dark-gray shale; small
A Company of the Comp	5094		A = -	amount of pyrite
\$ 7 min \$ 7 min \$ 2 mi	2UY4	770A	לצַ	Shale, medium dark to dark-gray, grayish-black to black
				(partly silty); a moderate amount of siltstone, olive-gray to medium dark gray, olive-black to brownish-black, kao-
				linitic; small amount of pyrite
	51 80	5356		Shale, grayish-black to black (highly carbonaceous),
	- Z Z			medium dark to dark-gray, some olive-black to brownish-
, spd (±	. '			black; considerable interbedded siltstone, olive-gray to
			and your control of good good.	olive-black, dark-gray to grayish-black, some medium to mediu
				dark gray; a large amount of the grayish-black to black shale
3 ±			1	(Continued on page 15)

(Continued on page 15)

### RUSSELL & DOLOFF NO. 1 (1236) WELL (Continued)

		RUSSEL	A. & DO	LOFF NO. 1 (1236) WELL (Continued)
	Top.	Bottom.	Thick ness	
				at the top; a large amount of the lower part is siltstone; some pyrite is disseminated throughout the siltstone and shale
	<b>5356</b>			Siltstone, olive-gray to medium dark gray, some dark-gray, some grayish-black at the top; a few streaks of white to light-gray dolomite and black, carbonaceous material in the lower part
)		La Caraca de la Caraca de	<b>97</b>	Siltstone, olive-gray to medium dark gray, somewhat cal- careous and dolomitic at 5507 to 5514; some interbedded shale, medium dark gray, some medium gray and some dark-
			40	gray, some grayish-black to black at the top Shale, medium dark to dark-gray, some grayish-black; a moderate to large amount of siltstone, olive-gray to medium dark gray, some dark-gray to olive-black
). 1		.5715	3.05 ·	Siltstone, olive-gray to medium dark gray, some dark-gray to brownish-cand olive-black at 5685 to 5700°, somewhat dolomitic, slightly calcareous; a large amount of interbedded shale, medium dark gray, some dark-gray to grayish- and
	eriou () () 2 <b>5725</b> - L.J. 20 - C. () 10 - C. (2.12)		<b>126</b>	olive-black Shale, medium dark to dark-gray, some grayish-black to black (highly carbonaceous, silty); a large amount of inter- bedded siltstone, medium light to medium dark gray, some olive-gray to dark-gray and olive-black
	5841			Shale, grayish-black to black (carbonaceous), some medium dark to dark-gray; some siltstone, olive-gray to medium dark gray
	15855 - 0 1000 -	5963-		Shale, medium dark to dark-gray, some grayish-black to black (carbonaceous); some siltstone, olive-gray to medium dark gray, some dark-gray to olive-black
	5963	5991	<b>. 28</b> 	Shale, medium dark to dark-gray, some grayish-black, to black; some olive-gray to medium-gray siltstone
د تف				Shale, grayish-black to black (carbonaceous), some olive- black, medium dark to dark-gray; some siltstone, medium light to medium dark gray
د الد البدائد	and the second s			Shale, medium dark to dark-gray, grayish-black to black (carbonaceous); a moderate amount of interbedded siltstone, olive-gray to medium dark gray, some dark-gray to olive-black, slightly dolomitic, a large amount of siltstone in the lowerpart
	16090	6138 /	48	Shale, grayish-black to black (highly carbonaceous), medium dark to dark-gray; siltstone and shale, medium light to medium dark gray to olive-gray, some olive-black; small
4	Andreas Andreas		ورائع وأرمون والمواورة	amount of pyrite; trace of white, vein dolomite Shale, grayish-black to black (highly carbonaceous), medium dark to dark-gray, pyritic; some siltstone, olive-gray to medium-gray
	1		.; 34 ; ; ; 	Shale, grayish-black to black, some brownish-black, highly carbonaceous; some medium-gray to olive-gray and olive-black siltstone
1.5m;			.9 <b>30</b>	gray to grayish-black, some olive-black to brownish-black, some black, pyritic in part
د در معالی	6245	6419 05	174	Shale, medium dark gray to grayish-black, some black (carbon-aceous); siltstone, olive-gray to olive-black, some medium dark gray, pyritic in part; trace of dolomite

(Continued on page 16.)

RUSSELL & DOLOFF NO. 1 (1236) WELL (CONTINUED)

		RUSSE	LL & DOI	OFF NO. 1 (1236) WELL (CONTINUED)
	Top.	Bottom.	Thick- ness	
	6419	0.64442	1. <b>23</b> 700 0. 1815; 1	Shale, dark-gray to grayish-black, some olive-black; some interbedded siltstone, olive-gray to medium dark
	6442	6510	121 <mark>68</mark> 120	gray Shale, medium dark to dark-gray, some olive-black, and some grayish-black, the amount of grayish-black increases toward
ila ila				the bottom
	6510	6538	28 	Shale, dark-gray to brownish- and grayish-black, some black, some medium dark gray, a large amount of black (carbon-aceous) at the bottom; trace of dolomite
	6538 6572	6572 6674	34	
Comments of the comments of th	215			white to medium-gray dolomite); some grayish-black, contains some black carbonaceous streaks; some olive-gray to olive-
	6674	6754	- 80 G	black siltstone Shale, medium dark to dark-gray to olive-black; trace of
	6754	6788	34	pyrite; trace of dolomite Shale, medium dark to dark-gray, some grayish-black to black (increases toward the bottom); some olive-gray silt-
	6788	6815	<b>27</b> 2202	stone; a very small amount of dolomite and dolomitic shale Shale, grayish-black to black (highly carbonaceous), some dark-gray, somewhat pyritic, a few chips have slickensides;
To see the second se	6815	11.6819	eginer i i persenti si sugs. Kanada salah salah salah	trace of dolomite and calcite Shale, grayish-black to black, highly carbonaceous, contains a very-large amount of white, vein calcite, some of the
				shale has a graphitic appearance, some chips show slick- ensides
	6819 60	4 6825 , , 4 -	. 60-, 20 	Shale, grayish-black to black (highly carbonaceous-some has graphitic appearance), some dark-gray, a few chips have slickensides, contains a few chips of altered biotite; some white yein calcite
	6825	6850-	25.00 -041-0	Shale, grayish-black to black(highly carbonaceous), some dark-gray; trace of pyrite; trace of calcite
	6850	6870	20:	gray to olive-black; some medium to medium dark gray shale
	6870		<b>31</b>	Shale, grayish-black to black, highly carbonaceous, pyritic in part, somewhat calcareous in the lower part; some olive-gray to olive-black siltstone at the top
	0.69 <b>01</b> 0			Shale, grayish-black to black (highly carbonaceous), some dark gray, highly calcareous and somewhat dolomitic in part; some interbedded, medium-gray and olive-gray to olive-black siltstone and shale; small amount of pyrite
	<b>X000</b>	4070		HUNTERSVILLE CHERT, 82 FEET No sample (Corniferous Lime, 6908', from driller's log)
	6912	6923		Iimestone, medium- to dark-gray, cherty; some dark-gray to grayish-black, calcareous and silicified shale; some white to light-gray chert; some dark yellowish brown and some
				brownish-gray shale at the top; a large amount of grayish- black to black shale (cavings)
	6923 	6950, 	27	Chert, dark-gray to grayish-black, calcareous, shaly to a
		6956		silicified shale; some light to medium gray thert; some medium to dark-gray, cherty limestone Chert (sandy) to sandstone (very cherty), medium to dark-gray (very shaly) at the top to medium light and medium dark gray at the bottom, contains a moderate to
S THE S TO SAME STATE OF THE ST				large amount of glauconite, slightly calcareous and dolomitic
				(continued on page 17)

1 100		streaks), fine- to medium-grained, cherty, highly cal- careous, fossiliferous
7009	7019	10 Sandstone, medium-gray, very fine grained, some fine grains
1002	(9-/ ) .	and an occasional medium, rounded grain. very highly cal-
	The state of the s	careous, somewhat cherty, some grayish-black, carbonaceous
e de la composition della comp	areas Taranta and Arian	shaly material
7019	7026	7 Limestone (very sandy), medium- to dark-gray) to shale
· • · · · · ·	( )	(grayish-black to black, calcareous, sandy), the quartz
		grains are very fine, slightly cherty
7026	7030	4 Limestone, medium- to dark-gray with light-gray spots,
		somewhat sandy (fine to very fine), highly fossiliferous
7030	7033	3 Sandstone, light to medium light gray, fine to very fine,
		grained, highly calcareous
7033	7040	7 Sandstone, (very fine, highly calcareous) to limestone
		(sandy), medium light to medium dark gray, very cherty,
man la		small amount of carbonaceous, shaly material
7040	7045	5 Sandstone, light- to medium-gray, very fine grained, high-
~~1. ~	2010	ly calcareous
7045	7049	4 Limestone, medium light to medium dark gray, very sandy
7049	7052	(very fine) 3 Sandstone, light to medium light-gray, fine-grained,
1049	7052	3 Sandstone, light to medium light-gray, fine-grained, moderately calcareous
7052	7055	3 Limestone, light- to medium-gray, some dark-gray, very
(954		sandy (fine)
		(Concluded on page 18)

Top	Bottom	Thick- ness	
7055	7068 ***** - 7068 ***** - 7068 *****	13 S <sub>e</sub>	andstone, light to medium-gray, some dark-gray, fine overy fine grained, very highly calcareous, some sandy mestone, some fossil fragments
7068-	7071	3 Sa	andstone, light to medium-gray, very fine grained, very nerty, highly calcareous
7071	7076	5 ~ Li	imestone, light to dark-gray, highly fossiliferous, very andy, (fine), cherty; some white, vein calcite; a moderate
(3. .70763:⊥	7082	∪aı	mount of interpedded, grayish-black shale in the upper part
i pullinge	7 <b>002</b> 711 (in 1) in 0	st	andstone (highly calcareous, fine to very fine) to lime- tone (very sandy), light- to medium-gray with dark-gray oots and streaks, highly fossiliferous, slighly cherty
7082	7097	್15 - Sa	andstone, light-to medium-gray, very fine grained, high-
		v v v v v v v v v v v v v v v v v v v	v calcareous; a large amount of medium light to dark-gray, ery sandy, fossiliferous limestone at 7086 to 7090°
7097	<b>7106</b> 	. ( 9 <b>Li</b>	mestone, (very sandy) to sandstone (highly calcareous, ery fine to medium-grained), medium to dark-gray and gray-sh-black (very shedy) at the top to medium-gray at the
		~ - ~ ⊃bc	ottom, fossiliferous, some chert
7106 71 <b>0</b> 9	7109 7115	6 Li hi	andstone, light-gray, very fine grained, calcareous mestone (very sandy) to sandstone (very fine to fine, ghly calcareous), medium light to dark-gray, some gray-
7115	7126	ll Lin	sh-black (very shaly); some chert nestone (very shaly and cherty) to a silicified, calcareous hale, medium- to dark-gray and some grayish-black at the
		to	op to dark-gray and grayish-black with some medium-gray the bottom, very sandy at the top; some light- to
7126	7148	22 Si	edium-gray chert hale, dark-gray to grayish-black, some medium dark gray at he bottom, calcareous and dolomitic, silicified in part to hert
7148	7151	3 Nc	sample-   -   -   -   -   -   -   -   -   -
7151	7156	5 Ck	ert, light to dark-gray, highly calcareous; a large a- unt of dark-gray to grayish-black shale
7156	7168	12 Sh	cone (medium to dark-gray, shalp), some chert, dolomitic
7168	7169	ir	part, somewhat fossiliferous
		‰ \ bl	mestone, light to medium-gray with dark-gray to grayish-ack, shaly streaks, highly fossiliferous, somewhat cherty
	7173	To it is the Po	tal depth (sand-line measurement)