

MID GULF, INC.

THORNE UNIT #1

Atchison County, Kansas

Section 16 Township 6S Range 19E

SAMPLE DESCRIPTIONS

910 to 920 Limestone: Lt. tan to brown, fossil hash.

920 to 930 60% Limestone: As above; some varicolored shale, green, lt gray, and red. Siltstone, lt gray with gas bubbles.

930 to 940 Siltstone: Gray with some gray shale. Sandstone: Lt gray, very fine grained.

940 to 950 Sandstone: Lt. gray, very fine grained, some carbon and glauconite, some unconsolidated.

950 to 960 Sandstone: Very fine grained, porous, partly unconsolidated, some small pieces of tar in the sandstone.

960 to 970 Sandstone: Unconsolidated, some gas bubbles, when first put in water fairly large bubbles.

970 to 980 Sandstone: As above

980 to 990 Sandstone: Very fine grained unconsolidated.

990 to 1000 Sandstone: As above

1000 to 1010 90% Shale: Varicolored, gray, green, and red.

1010 to 1020 90% Shale: As above

1020 to 1100 No sample descriptions

1100 to 1110 Shale: Gray - 20% black carbonaceous.

1110 to 1120 Limestone: Lt. tan.

1120 to 1130 Limestone, some shale.

1130 to 1140 Sucrosic Limestone and gray shale.

1140 to 1290 No sample description

1290 to 1300 Gray Shale.

1300 to 1310 Gray shale, sandstone very fine grained, white.

1310 to 1320 Shale: Varicolored and siltstone gray.

1320 to 1330 Shale: Gray.

1330 to 1340 Gray becoming darker.

1340 to 1350 Varicolored shale, some siltstone.

1350 to 1360 Shale: As above

1360 to 1365 Sandstone: White, medium, 40% dark gray shale.

1365 to 1370 Limestone: Fossiliferous.

1370 to 1380 Shale: Varicolored, some coarse grained sandstone, 25% black shale.

1380 to 1390 Shale: Varicolored.

1390 to 1400 Shale: Gray, green, some coal w/gas.

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1400 to 1410	Sandstone: fine, hard, gray shale, few limestone.
1410 to 1420	Sandstone: fine grained, gray shale.
1420 to 1430	Sandstone: White and varicolored shale.
1430 to 1440	As above
1440 to 1450	Sandstone: White, fine grained.
1450 to 1460	Sandstone: White, medium to fine-grained.
1460 to 1470	As above
1470 to 1480	Sandstone: As above w/some gray shale.
1480 to 1490	50% Sandstone: As above w/some dark gray shale & lignite coal.
1490 to 1500	Shale: Dk gray.
1500 to 1505	Gray siltstone
1505 to 1510	Varicolored shale.
1510 to 1520	As above.
1520 to 1525	Gray siltstone, some sandstone and gray shale.
1525 to 1530	Varicolored shale and siltstone.
1530 to 1535	As above
1535 to 1540	Gray green shale and siltstone.
1540 to 1545	As above
1545 to 1550	Gray shale, some green gray, some coal.
1550 to 1555	Gray green shale w/some fine white sandstone.
1555 to 1560	As above
1560 to 1570	Sandstone: White, fine grained; shale: gray green coal gassy.
1570 to 1575	Sandstone: Medium-fine grained.
1575 to 1580	Sandstone mixed with dark gray shale, some coal bubbling gas.
1580 to 1585	Sandstone: White, medium to fine grained, gray shale.
1585 to 1590	Sandstone: As above; shale: gray, green, mottled.
1590 to 1595	Shale: gray, green, red, varicolored w/some dark gray shale.
1595 to 1600	Shale: Dark gray (some gas) and varicolored as above.
1600 to 1605	Dark gray shale, some coal.
1605 to 1610	60% dark gray shale 40% varicolored gray green and some red.
1610 to 1615	Dark and light gray shale, few pieces of red shale, pyrite.

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1615 to 1620 Shale: gray, some gas bubbles, varicolored shale, some white medium grained sandstone.

1620 to 1625 Shale: Varicolored, green, gray, some red shale, more coal, bubbling gas. 30% black shale.

1625 to 1630 Shale: Varicolored - similar to above.

1630 to 1635 Shale: Gray green - mottled shale.

1635 to 1640 Shale: Dark gray and green, gray shale w/some hard silty sandstone, some limestone.

1640 to 1645 80% dark gray shale full of sand, some sandstone.

1645 to 1650 Dark gray shale, few pieces of limestone.

1650 to 1655 Gray shale, red, green, light, few pieces of limestone, few pieces of fine sandstone.

1655 to 1660 Shale: Green-gray, few pieces of limestone, pyrite.

1660 to 1665 Green-gray shale, coal gassy, few pieces of sandstone.

1665 to 1670 As above

1670 to 1675 Gray green shale

1675 to 1680 Gray green shale; few pieces of white medium sandstone.

1680 to 1685 Sandstone: Coarse grained, unconsolidated; some gray shale.

1685 to 1690 Sandstone: Coarse grained, unconsolidated, 40% gray shale.

1690 to 1695 Sandstone: White, medium-grained; some unconsolidated coarse-grained.

1695 to 1700 Sandstone: White, medium-grained; some green-gray shale.

1700 to 1705 Sandstone: As above

1705 to 1710 Sandstone: As above 80%; some gray shale.

1710 to 1715 Sandstone: White, medium-grained.

1715 to 1720 Sandstone: Unconsolidated; some gray shale.

1720 to 1725 Sandstone: As above

1725 to 1730 Sandstone: As above

1730 to 1735 Sandstone: As above