

SAMPLE LOG

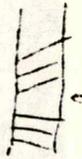
DRILL HOLE: MLZ Hiller #4
 PROP. OWNER: M.J. & J.M. Hiller
 DRILL CONTRACTOR: L-K Drilling Co.
 DRILL OPERATOR: H. Laverty
 DATE STARTED: 9/21/78
 CASING LEFT IN HOLE: 21' of 7" O.D.

LOC.: NW SE NE Sec. 34, T30S, R21E
 650' E of Hiller #3
 LOGGED BY: M.L. Ebers
 ELEV.: 874' surveyed
 DATE COMPLETED: 9/22/78
 TOTAL DEPTH: 262'

Surface Casing; 258' of 4-1/2" O.D. Casing; cemented in

- 0- 10 - Soil
- 10- 20 - Shale, black, fissile 75%; siltstone, medium gray 15%; limestone, light olive gray, micrite 10%
- 20- 25 - Siltstone, greenish gray, fine grained, soft carbonaceous 70%; shale, black, brittle 25%; coal, black 5%
- 25- 35 - Limestone, brownish gray, micrite, few fossils
- 35- 40 - Limestone, brownish gray 70%; shale, black, fissile, small chips 30%
- 40-50 - Siltstone, light greenish gray, very soft
- 50- 55 - Siltstone, light greenish gray, very soft, 5% pyrite
- 55- 60 - Siltstone, light greenish gray, soft, sandy
- 60- 75 - Siltstone, light greenish gray, soft, carbonaceous
- 75- 80 - Siltstone, light greenish gray, soft, carbonaceous and micaceous specks
- 80- 85 - Silty shale, dark gray, few fine carbonaceous specks
- 85- 95 - Shale, dark gray, fissile, trace pyrite
- 95-120 - Shale, medium dark gray, fissile
- 120-125 - Shale, medium gray, fissile 95%; shale, brownish gray 5%
- 125-130 - Shale, medium gray, fissile 85%; shale, black carbonaceous 15%
- 130-135 - Shale, black, locally carbonaceous, local pyrite 90%; coal, black 10%
- 135-140 - Shale, medium dark gray, large chips of pyrite, carbonaceous plant fossils 70%; shale, black, scattered pyrite
- 140-145 - Siltstone, light greenish gray 50%; limestone brownish gray 40%; shale, black, calcareous 20%
- 145-150 - Shale, black, fissile, carbonaceous 70%; limestone, brownish gray, trace pyrite, micrite, few fossils 30%
- 150-155 - Shale, black, carbonaceous 60%; coal, black, vitreous 30%; siltstone, light gray, soft 10%
- 155-160 - Siltstone, light greenish gray, locally shaly, trace pyrite 90%; shale, black 5%; coal, black 5%
- C.F.S. at 160.5 - Sandstone, brown 80%; siltstone, light greenish gray 10%; shale, black, hard 10%
- Core @ 160.5-181 - All sand is oil saturated
- 160.5-167 - Sandstone, brown, few thin coal seams at 160.5-161; 8 to 12 paper thin shale seams to the inch (micaceous), oil saturated, no water
- 167-171 - Alternating sandstone and shale, thicker shales at 168-168.2 and 169-170.5, estimate 50% sandstone and 50% shale at 167-171, sandstone saturated with oil
- 171-180.5 - Sandstone, arenaceous, brown, oil saturated, few paper thin coal seams at 174.5-175 crossbedding to 20° to drill hole ⊥ at 176-178.5
- Core @ 181-201
- 181-197 - Sandstone, arenaceous, brownish gray, first water observed at 188', oil-water contact at 189', oil saturated at 181-189', water saturated at 191-197', oil and water at 189-191'
- 197-200 - Sandstone, micaceous, medium dark gray, at 182' 3" of paper thin shale parts at 45° to drill hole ⊥, at 185-186 mud and shale flakes in sandstone, few thin shales at 188.5-189 & 195
- 200-201 - Shale, medium gray, micaceous

160
163
164
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175
178



- Core at 201-221 - Oil on surface of core only, no oil visible on fresh break, no bleeding oil or gas
201-204 - Shale, medium dark gray, sandy, no oil
204-221 - Sandstone, medium dark gray, somewhat micaceous, water only on fresh break

Rotary drilled at 221-262 T.D.

- 221-230 - Sandstone, olive gray, arenaceous, few micaceous seams, 5-10% bitumen 85%; siltstone, medium light gray, micaceous 15%
230-235 - Siltstone, medium dark gray, micaceous and carboniferous, platy minor sandstone
235-240 - Siltstone same as above, no sandstone
240-245 - Siltstone, fine grained, shaly, medium dark gray, micaceous
245-250 - Shale, fine silty, medium dark gray, platy
250-255 - Shale, medium light gray to black, fissile, medium and small chips, minor fine silt, scattered pyrite
255-262 - Shale, black, fissile 80%; scattered pyrite; shale, medium dark gray 20%; minor fine silt ~1%

T.D. at 262'