SAMPLE LOG

DRILL HOLE: R. Vilmer #4
PROP. OWNER: R. Vilmer
DRILL CONTRACTOR: J-J Drilling
DRILL OPERATOR: Guy
DATE STARTED: 12-3-79
CASING LEFT IN HOLE:

LOC:
LOGGED BY: MRG
ELEV: 839'
DATE COMPLETED: 12-4-79
TOTAL DEPTH: 300'

30 - 40 - Limestone, gray, silty, few fossil fragments 90%; shale, black, silty 10%
40 - 50 - Shale, black, silty, trace of pyrite, calcareous 50%; siltstone, gray, trace of pyrite 50%
50 - 60 - Shale, gray, silty, micaceous, trace of pyrite 75%; siltstone, light gray, micaceous, trace of pyrite 25%
60 - 70 - Shale, gray, silty, trace of pyrite, slightly calcareous 100%
70 - 80 - Shale, gray, silty, micaceous, trace of iron oxides (perhaps reduced pyrite) slightly calcareous 100%
80 - 120 - Shale, gray, silty, micaceous, slightly calcareous 100%
120 - 130 - Shale, gray, silty, slightly calcareous 75%; limestone, black, silty, trace of pyrite 25%
130 - 140 - Limestone, black, silty, fossil fragments, trace of pyrite 75%; shale, gray, silty, slightly calcareous 25%
140 - 150 - Shale, black, silty, trace of pyrite, calcareous, 80%; limestone, gray, crystaline, fossil fragments 10%; coal, trace of pyrite 10%
150 - 160 - Shale, gray, silty, trace of pyrite 40%; sandstone, gray, fine grained, micaceous and carbonaceous 40%; limestone, dark gray, crystaline 10%; coal 10%
160 - 170 - Shale, gray, silty, micaceous and locally carbonaceous 85%; sandstone, gray, micaceous and carbonaceous, fine grained 10%; sandstone, fine grained, brown, carbonaceous 5%; (U.V.) good show
170 - Sandstone, fine grained, brown, carbonaceous and micaceous 90%; shale, gray, silty, locally carbonaceous; slightly calcareous 10%; U.V. good show

CORE # 1 - 170 - 188.9

170.0 - 178.2 - Sandstone, fine grained, brown sugar, micaceous. Shale pebbles and laminations at 177.8 - 178.0
178.2 - 179.4 - Shale, gray, uniform
180.0 - 188.9 - Sandstone, fine grained, brown, approximately 1" lost between 180 & 182 evidenced by broken core (gnarled). Approximately 1" lost between 182 & 184 (chunky core); 2" lost between 184 - 186 (chips). Evidence of vertical between 184 - 186 also between 186 - 187. Horizontal fracs at 182. Shaley sequence 182.2 - 182.3. Shale pebbles 187.8 - 188.1 ≈ 1" x ¼". Carbonaceous laminations and shale pebbles at 188.6. Approx. 1' left in hole perhaps shale by drilling time 9' minutes. Sand intervals ooze free oil throughout; no water present

CORE # 2 - 190 - 210

190.0 - 210.0 - Sandstone, fine grained, brown, micaceous, carbonaceous streaks at 191.1 ≈ 80° from core axis. Carbonaceous lamination at 199.1; shale pebbles and lenses at 197.5 - 197.8 possibly (rip clasts)? carbonaceous, shaley region at 198.9 1" thick, shale lense 2" x ¼" at 210.1. Shale, sandy at 211.7 - 212.2 region is carbonaceous and oozes little free oil. Possible vertical frac at 211.0 & 217.5 - 218. Core is badly broken between 215 - 217 with estimated loss here of 1". A carbonaceous shaley layer 1" thick occurs from 219.0 - 219.1) region oozes oil from carbonaceous zone. Core oozes free oil throughout and mixed with water below 198.

210 - 215 - Sandstone, fine grained, brown, micaceous and carbonaceous 70%; shale, black, silty, trace of pyrite 15%; limestone, gray, silty, trace of pyrite 15%; U.V. good show

215 - 220 - Sandstone, fine grained, brown, micaceous and carbonaceous 85%; limestone, light gray, silty, trace of pyrite 15%; U.V. good show

220 - 225 - Sandstone, fine grained, brown, micaceous and carbonaceous 89.9%; limestone, light gray, silty, fossil fragments 10%; shale, black, silty, trace U.V. good show

225 - 230 - Sandstone, fine grained, brown-gray, micaceous and carbonaceous 75%; limestone light gray, silty and crystaline 15%; coal 10%; U.V. good show

230 - 235 - Sandstone, fine grained, brown and gray, micaceous and carbonaceous 90%; coal 5%; shale, black, silty 5%; U.V. good show

235 - 240 - Sandstone, fine grained, brown and gray, micaceous and carbonaceous 80%; limestone, tan, silty 10%; shale, gray, silty 5%; coal 5%; U.V. good show

240 - 245 - Shale, gray, silty 90%; limestone, buff, silty and crystaline 5%; sandstone, fine grained, brown and gray, micaceous and carbonaceous 5%

245 - 250 - Shale, gray, silty, trace of pyrite 100%

250 - 260 - Shale, black, silty, calcareous 50%; shale, gray, silty, trace of pyrite, calcareous 50%

260 - 270 - Shale, gray, silty, calcareous 50%; limestone, tan, silty and crystaline 25%; shale, black, silty, trace of pyrite 25%

270 - 280 - Siltstone, gray, locally oxidized to Fe_2O_3; shale, black, silty, calcareous

280 - 290 - Siltstone, gray, local concentrations of well rounded light brown quartz grains (1-3mm) 80%; shale, gray, silty 15%; shale, black, silty, calcareous 5%

290 - 300 - Shale, medium to dark gray, silty, trace of pyrite 80%; siltstone, light gray, trace of glauconite 10%; limestone, tan, silty 10%