

CORE DESCRIPTION

300-D-153

185'-194'

(76% recovery, RQD = 41%, poor rock quality)

PANTHER SEEP FORMATION:

185'-185.5' Medium gray (N5) to grayish black (N2), micritic, fractured limestone. The limestone contains no allochems, is strongly effervescent and moderately hard (easily scratched with a knife but not with a fingernail). Pervasive fracturing has obliterated any trace of sedimentary structures.

Fracture orientations range from near vertical through 30° off vertical. Fractures range in thickness from hairline to approximately 2 mm. Most fractures are filled with white (N9) to very light gray (N8) calcite. These fractures widen into vugs that range from 0.5 to 1.0 cm in length. Some vugs are unlined, others are lined with translucent, euhedral calcite crystals less than 1 mm across.

Two fault zones are present. One is located at 185.1' and is oriented at 65° off vertical. This fault zone is approximately 1 cm thick and contains angular limestone fragments that range from 1 to 3 mm across. The second fault zone is located at 185.5' and is oriented at 45° off vertical. This fault zone is approximately 1 cm thick and displays a foliation. This foliation is defined by fine-grained, platy, dark material (deformed shale?) and is also oriented subparallel to the margins of the fault zone. It also contains angular shale fragments of the underlying interval which range from less than 1 to 3 mm across. Both fault zones transect the calcite fractures described above, and the second fault zone is the contact between this limestone and the underlying shale.

The limestone is not porous (estimated porosity is < 10%). This rock unit is probably highly transmissive because of the abundant vugs, fractures and faults present.

185.5'-194' Interbedded grayish orange (10YR 7/4) to pale yellowish brown (10YR 6/2) and medium dark gray (N5) to grayish black (N2), laminated, fractured shale. The dark gray (N5) shale is prevalent from 186.5' to 187.5' and from 191' to 193' and is moderately hard (easily scratched with a knife but not with a fingernail). The grayish orange (10YR 7/4) shale is prevalent in the remainder of this interval and is soft (scratched with a fingernail but not indented with a thumb).

CORE DESCRIPTION Cont.

300-D-153

185'-194'

Each of the two shales is laminated on a millimeter scale and interbedded with the other on a scale of 1 mm to 3 cm. Lamination and bedding orientations are parallel to each other and range from 65° to 80° off vertical. Abundant fractures are present. Fractures are predominantly oriented near vertical, 30° off vertical and along bedding planes. Fractures range in thickness from hairline to 1.5 cm. The fractures are filled with white (N9) cryptocrystalline calcite, lined with translucent calcite crystals or lined with grayish red (5R 4/2) quartz crystals. Mineralized fractures which are parallel to bedding are present in the grayish orange (10YR 7/4) shale. Shale laminations and bedding planes are offset by a few millimeters along the near vertical fractures.

The shale is not porous (estimated porosity is < 5%). This rock unit is probably highly transmissive because of the abundant vugs, fractures and faults present.

Note: Core pieces are sequentially numbered from top to bottom, with directional arrows in the up direction.