

CORE DESCRIPTION

100-A-182

215'-221'

(100% Recovery, RQD = 65%, fair rock quality)

PANTHER SEEP FORMATION: 215'-221' - Medium gray (N5) to grayish black (N2), micritic, bedded, fractured limestone. The limestone contains no allochems, is strongly effervescent and hard (difficult to scratch with a knife). Bedding is present between 215' and 216' and between 220' and 221'. Bedding is defined by grayish black layers which are 0.1 to 0.2 inch thick that alternate with medium gray layers which are 0.2 to 1.0 inch thick. The uppermost beds are discontinuous and dip approximately 40°. The lowermost beds are continuous and are subhorizontal. No distinct bedding is observed between 216' and 220'. Possible bedding occurs at 217' and is defined by grayish black limestone containing approximately 25% white (N9) calcite. This zone occurs within medium gray limestone, is 1.0 inch thick and dips approximately 40°. The color of the limestone grades from medium gray in the upper 2' to grayish black in the lower 4'. This color change may also represent bedding.

Fracture orientations range from subhorizontal through subvertical. Fractures range in thickness from hairline to approximately 1.0 inch. Most fractures are filled with white (N9) calcite. Larger fractures are lined with translucent, euhedral calcite. Fractures which occur between 215' and 217.5' are also stained with limonite. Limonite staining pervades up to 1.0 inch of limestone adjacent to the stained fractures. Fracture density between 217.5' and 220' is so dense that the rock resembles a breccia.

Fault zones are present at 216.5' and throughout the densely-fractured interval between 217.5' and 220'. The fault zone at 216.5' is approximately 1 inch thick and dips 40°. It is filled with calcite, angular pieces of limestone, limonite and black, fissile friable limestone (deformed limestone). Fault zones occurring between 217.5' and 220' are subhorizontal to subvertical and range in thickness from hairline to 0.15 inch. These fault zones are filled with deformed limestone and a black, fibrous mineral. Slickensides are also present on some of the fault surfaces. The fibrous minerals and slickensides are aligned to indicate normal fault displacement.

The limestone is not porous (estimated primary matrix porosity is less than 5%). This rock unit is highly transmissive because of abundant fractures present. Estimated secondary porosity is 10% between 215' and 217.5', 30% between 217.5' and 220' and less than 5% between 220' and 221'.