Reservoir Navigation Final Report

Midcon Energy
Holland 1-12H

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MidCon Energy_Holland 1-12H
TSD

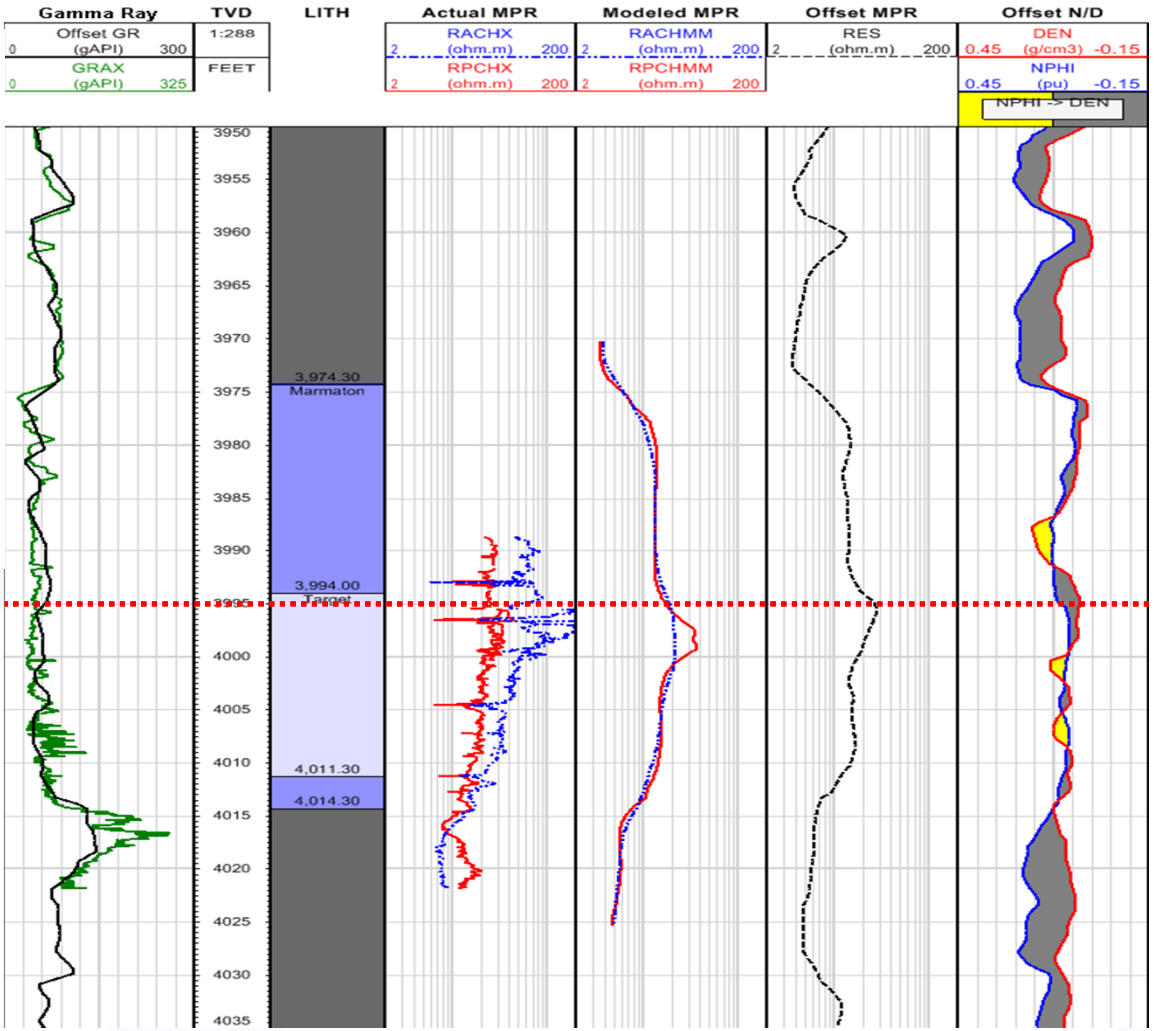
Customer: MidCon Energy

Field: Marmaton

Rig: Trinidad 215

Well: Holland 1-12H

County and Section: Trego County, Kansas
Section 12



Final Stratigraphic Position

- ~ 1 ft. Below the Top of the Target Window

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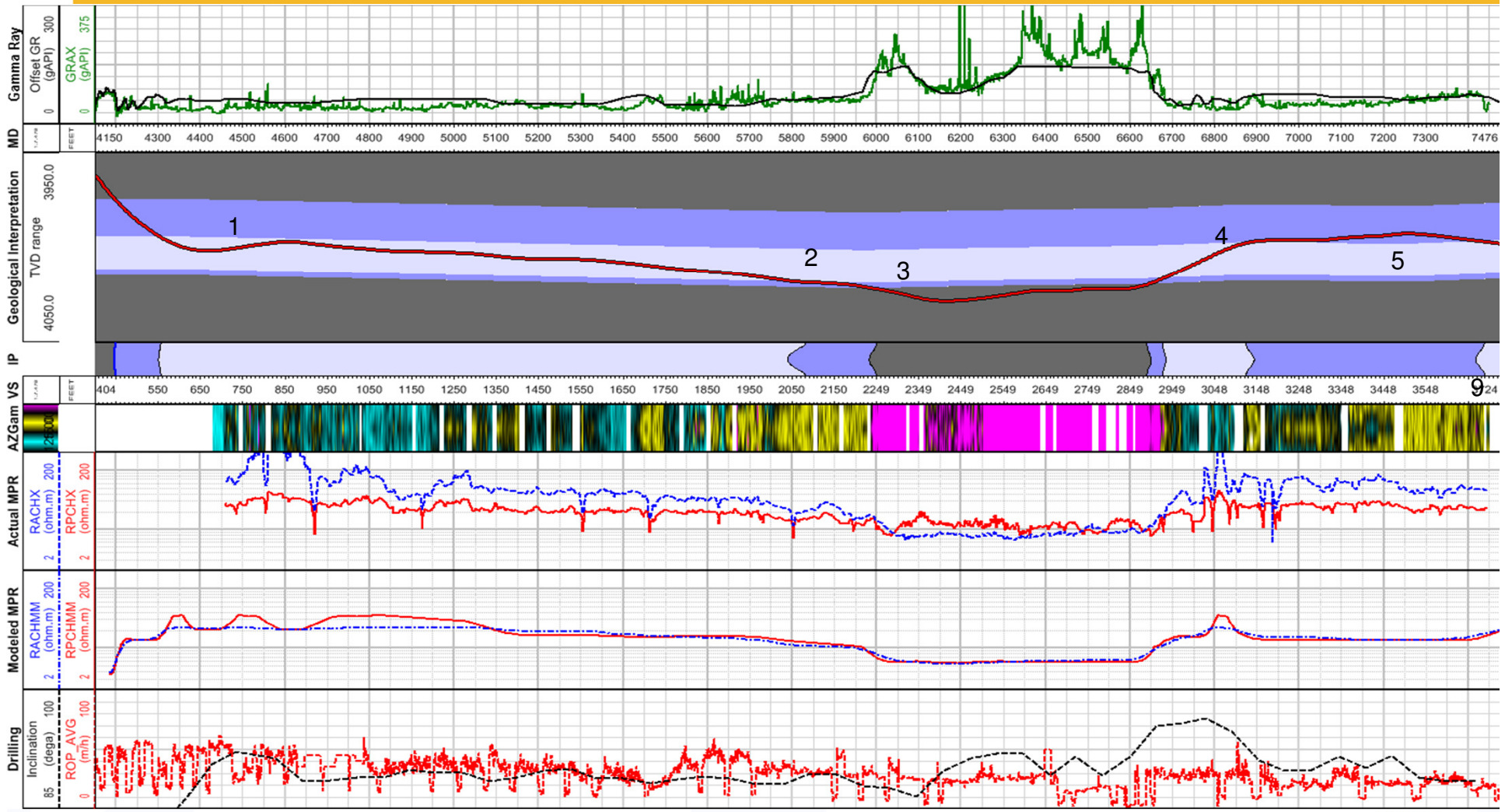
MidCon Energy_Holland 1-12H FINAL RNS INTERPRETATION



See page 4 for additional remarks

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Percentage In Formation, Fault Identification, Steering Recommendations and Remarks

- **Percent in Formation**
- Footage Drilled in lateral: 3046 ft.
- Footage and Percentage of lateral drilled within the Target Window: 1626 ft. MD or ~53%
- Footage and Percentage of lateral drilled below the Target Zone: 228 ft. MD or ~8%
- Footage and Percentage of lateral drilled above the Target Zone: 541 ft. MD or ~18%
- Footage and Percentage of lateral drilled Below the Base of the Marmaton: 651 ft. MD or ~21%

- **Steering Recommendations and Remarks**
- At ~4018' MD it was decided to lower the LP TVD by 15' to 4,005.00' TVD. This would allow us to land ~10-11' Below the Top of the target Window.
- (1) At ~4483' MD a Target Line of 3,999.60' TVD @ 0' VS with an 89.5 deg INC was issued which would allow us to maintain in the lower half of the Target Window.
- (2) At ~ 5850' MD a Target Line of 4,019' TVD @ 0' VS with 90 deg INC was issued as this would allow us to stop our downward movement and begin drilling with bedding.
- At 5,988' MD we exited the Base of the Marmaton due to INC's of near 87-87.5 deg.
- (3) At ~ 6030' MD a Target Line of 4028.9' TVD @ 0' VS with 90.5 was issued. This new Target line would get us up near the Top of the Target Window and maintain with bedding till TD.
- From 6,000' MD – 6650' MD we maintained out the Base of the Marmaton as Sliding became difficult due to the shale. We entered back into the Marmaton at ~6650' MD with a wellbore INC of 95 deg. At this time we were moving up section ~8' TSD per 100' MD Drilled.
- (4) At ~ 6841' MD we were at a wellbore INC of 94.8 deg and approaching the Top of the target Window. I called and advised that we needed to have an INC of 89 deg as this would stop our movement up section and begin moving back down to the 4028.9' TVD @ 0' VS with 90.5 Target Line.
- (5) At ~ 7250' MD a Target Line of 3,998' TVD @ 0' VS with 90 deg INC was issued as this would allow us to slowly cut down trough the structure to well TD.
- At ~7476' MD the well was called due to a lost BHA down hole that could not be retrieved.

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