A PRODUCING MICROBIAL RESERVOIR IN THE UINTA BASIN

**GREEN RIVER FORMATION DEPOSITIONAL SETTING**

- **Location of cross section A-A’ is shown on figure above.**
- **Line of cross section A-A’ is shown in figure below.**

**GRANITIC LAMINATIONS**

- **Laminated to planar grainstones**
- **Laminated to planar pisoids**
- **Planar intercalated laminites**
- **Laminated to planar laminites**

**MICROBIALITICS**

- **Microbialite consisting of digitate stromatolitic heads displaying synaptic relief and thombolites (see white arrows). Porosity in blue.**
- **Figure 1 - Abundant preserved interparticle and intraparticle pores.**
- **Figure 2 - The lower half of this core segment shows a very porous dolomitic fabric containing relict microbialite structures.**
- **Figure 3 - Abundant grainstone and oolitic fabric with small hemispherical heads includes “hard” exteriors, heads and fingers.**

**EOLIC CARBONATES**

- **Permepability - 0 to 4.1 mD**
- **Porosity = 5.6%, permeability = 0.12 mD**
- **Porosity = 5.6%, permeability = 0.12 mD**

**EVAPORITE CRYSTAL DISSOLUTION (?)**

- **Figure 4 - Close-up view of thrombolitic fabric (see white arrows).**
- **Figure 5 - Thrombolitic fabric (see white arrows).**

**FIELD OVERVIEW**

- **Microbialites**
- **Plants**
- **Ooids**
- **Pisoids**
- **Oncolites**
- **Peloidal/Skeletal**
- **Dolomite**
- **Compensated Neutron-Fraction Density and Gamma-Ray Log.**
- **FREDERICK No. 15-24B WELL**

**FEDERAL NO. 15-24B WELL**

- **E, CARBONATE BED, GREEN RIVER FORMATION**

**CONCLUSIONS**

- The San Juan-Eocene Green River Formation in the Uinta Basin, Utah, contains excellent examples of microbial carbonates – stromatolites, thrombolites, and possible evaporite crystal molds. These examples are attributed to highly productive non-marine microbial reservoirs worldwide.
- The newly acquired Skyline 16 Green River research cores and the additional core fragments (12 microbialite examples, 11 thrombolitic examples, 2 stromatolite examples, 2 oolitic/peloidal examples, and 2 other examples) provide excellent examples of microbial microbialite structures with abundant porosity and permeability.
- The cores also contain significant oil and gas production potential. The cores contain abundant examples of possible evaporite crystal molds within dense carbonate fabrics.
- The West Willow Creek Field produces from a small diagenetic dolomite reservoir in the Uinta Basin, which consists of microbial dolomite with abundant porosity and permeability. The cores contain significant oil and gas production potential.
- The entire Skyline 16, Federal Creek Field, and other cores containing microbial carbonates are available for examination, at the Utah State University’s Utah’s Natural History Museum, and as a core workshop. 'Microbial Reservoirs in Utah Basins', which will include some of the Skyline 16 core samples, will be presented in conjunction with the 11th Annual Microbial Reservoirs in Basins International Workshop at the University of Utah, Salt Lake City, Utah, September 20-22, 2016.

**WEST WILLOW CREEK FIELD**

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