Quantifying Fluorescence, Reservoir Assessment

3D & 2D Oil Fluorescence to quantify shows, oil type and assess primary lateral target & secondary target potentials

The fluorescence analyzer was stationed on location during the drilling of a lateral production well in Oklahoma’s Anadarko Basin. The project was to determine any up-hole potential as well as assess the primary target in the lateral. Three main data sets are delivered from analysis: (1) Oil Concentration-fluorescence intensity (C, mg/L), (2) Series Level-oiliness concentration (N, [1-15]), (3) Oiliness Index-ratio of medium composition to light composition (0 to +99). Using the 2D fluorogram, geologists can quickly assess the fluid conditions based on the left to right convention, the more left, the lighter the oil versus the more right, the heavier the oil (picture below). The plot to the right shows the results from the analysis. Track 1 represents the Oil Concentration, Track 3 represents the Oiliness Index & Track 4 represents the Series Level. The results identified an upper target just above 7,000 ft. (depth altered for confidentiality) with large shows (see fluorogram 1 below).

However, it is clearly illustrated the lateral target yielded the best results and increases dramatically towards the toe of the well-bore path. The presence of oil fluorescence is consistently present throughout the entire lateral which shows a good sign of a uniform in situ reservoir. Fluorogram 2 below shows a similar composition (light oil) as the upper target however, you can see the increase in distribution of the Z-axis attributes to the higher intensity of fluorescence material in the samples.

Easily identify Fluid Properties

Quickly Assess Reservoir Potential
**BENEFITS**

- No More Subjective Interpretations
- Fast Analysis
- Fluorograms Can Be Placed On Mudlog

**ADVANTAGES**

- Provides Quantified Data Sets
- Suitable For Oil Based Mud
- Calibrates To Reservoir

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**Exclusive on-site 3D & 2D Oil Fluorescence Analyzer That Actually Quantifies Fluorescence, Oil & Gas Shows, And Cut & Show only available at Paladin**

Cutting edge technology that measures fluorescence materials in cores, cuttings & sidewall cores quantitatively. By detecting aromatic hydrocarbons in crude oil, this instrument provides valuable information versus the very subjective widely used human eye measurement. The instrument separates the exciting light (fluorescence) by grating monochromator which separates wavelength into 3D: Excitation Wavelength (X-axis), Emission Wavelength (Y-axis) & Fluorescence Intensity (Z-axis). By utilizing this instrument on the well-site during drilling, mud loggers can provide information regarding:

- Light-Medium-Heavy Oil
- True Oil & Gas Shows
- Evaluate The Reservoir
- Oil Concentration
- Oil Density
- Assess Tight Oil Reservoirs (Unconventional)

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Deliverables includes fluorogram (image based) as well as data sets in .las format that can easily be placed directly on mudlogs. Paladin offers this technology as part the Scientific Mudlogging Program that includes fluorograms directly placed on mudlog as well as track curves to trend shows, fluorescence presence, etc. For information and examples email: info@paladingeo.com