

INDEPENDENT GEOLOGIST REPORT CASE STUDY

New Standard Energy - Eagle Ford Shale

Texas, USA

AWT DISCIPLINES

Geology
Geophysics
Reservoir Engineering
Petrophysics
Resource Assessment

PROJECT BACKGROUND

In 2013, New Standard Energy Limited (New Standard) commissioned AWT International (AWT) to prepare an Independent Geologist Report (IGR) for distribution to the shareholders of New Standard in order to assess the technical merit of the Alright and Peeler Ranch prospects in Texas, USA. The prospects are located within 10 miles (17km) of each other and lie in Atascosa County within the unconventional Eagle Ford Shale Play

Location:
USA



AWT WORKSCOPE

New Standard was planning to acquire Pathfinder Energy Onshore Pty Ltd ("PFE0"), which has an exercisable option over 100% of Magnum Hunter Resources' ("MHR") interests in the Alright and Peeler Ranch prospects. New Standard requested that AWT address the following topics in this IGR:

- Project overview
- Land position, work commitment
- Exploration history
- Geological overview
- Extent and quality of the targeted shales
- Well performance

The Alright and Peeler Ranch prospects were at that time a small part of the larger MHR portfolio and MHR would continue as contract operator of the leases at New Standard's election.

Initial data gathering phase – the object of this stage was to produce a brief characterisation of the project, and to establish baseline criteria to evaluate the project.

Identification of Data Requirements, Availability, Accessibility and Gap Analysis.

- Following discussions among the AWT team, a list of data requirements was prepared for the project. This covered the technical data as well as non-technical data.
- Availability and accessibility were not expected to be issues in this case, given the types of data required.
- Gap analysis was expected to be an ongoing issue. The team will identify as many of the gaps in data as possible at the beginning of the process, so that steps can be taken to alleviate the situation.
- In other cases, recommendations to obtain new data, such as by drilling and coring wells would be made.

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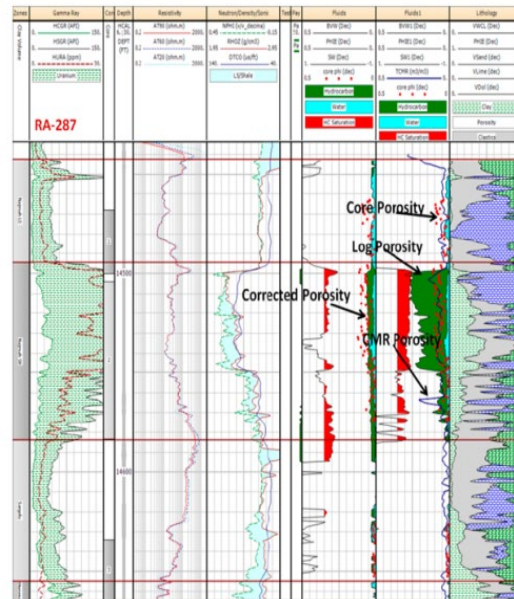


Figure 6. Najmah Shale member with log interpretation before and after kerogen effect porosity correction. It validated the corrected porosity to core porosity and CMR porosity.

AWT ADDED VALUE

- Reviewed existing data sets (remaining preserved core, core, SWC and cuttings).
- Reviewed upcoming well locations and potential to carry out additional sampling, such as core or pressurised core.
- Reviewed recent adsorption analysis by KOC and commented on the procedure and any improvements that can be made.
- Proposed additional experimentation on existing rock samples.
- Reviewed wireline log TOC calculations and correlation to core and cuttings measurements from pyrolysis.
- Using existing samples, suggested a program for limited Tight Rock Analysis (TRA).
- Using existing samples, suggested a program for limited Digital Rock Properties (DRP), and vRock.
- Sw was a poorly understood. AWT provided theoretical concepts and suggest measurement techniques beyond those already employed.
- Reviewed Basin Modelling, number of points, recommended additional locations. Suggest hydrocarbon composition prediction method (complex as it should take into account previous expulsion episodes).
- Reviewed FVF calculation and impact of overpressure and temperature on Z factor. Inclusion of Bo for oil component (depending on predicted shale rock hydrocarbon composition).
- Free Gas space porosity correction for Adsorbed space. AWT suggested a method to determine/calculate.
- Recovery Factor (RF) and EUR's were poorly understood, very complex and probably best assessed using analogues. AWT reviewed US analogues to determine if parts of successful plays have a higher correlation to Kerogen than whole plays.
- Program/protocol for sampling cores (TRA, DRP, isotherms etc).