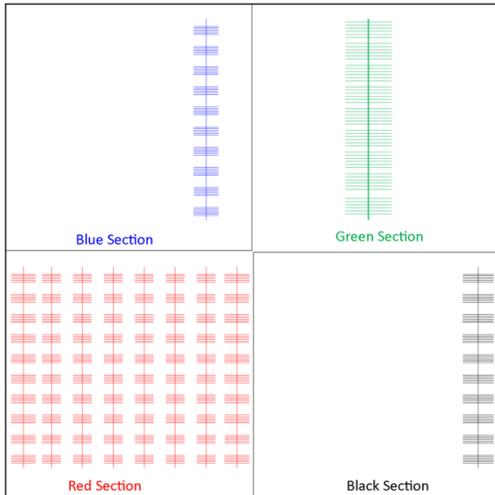


Petroleum Consulting Uses WSAF™ System to Improve Development Plan and Reduce Drilling Costs by ≥ \$15 Million



The Weatherford Petroleum Consulting group deployed a consulting team and the proprietary WSAF system. The team analyzed all 40 prospect wells and the shale formation in general to create a series of physics-based models that reduced the drilling plan and increased NPV by 20 to 30 percent.



LOCATION

Woodford Shale, Oklahoma

WELL TYPE

Onshore oil/gas

WELL ORIENTATION

Horizontal

PROSPECT WELLS DRILLED PRIOR TO CONSULT

40

PRODUCTS/SERVICES

- Petroleum Consulting services
- WSAF

Objectives

- Optimize a field development plan for a large drilling lease in the Woodford Shale formation. The operator had drilled 40 prospect wells that had all been producing; however, the drive mechanisms were unclear because only early data was available.
- Determine optimum well spacing for the field by mining data and analyzing trends.
- Reduce reservoir and completion uncertainty.

Results

- Weatherford deployed a Petroleum Consulting team along with the proprietary Weatherford Shale Analysis Framework (WSAF). The system improves well placement and completion design by tracking correlations between the reservoir, rock quality, and well performance.
- The team created a series of physics-based models to enable greater understanding of the existing 40 wells. In-depth analyses determined that all wells were still operating in linear-transient flow, which enabled confidence in the physical constraints of the reservoir.
- The team investigated three geographical areas, each of which exhibited unique fluid dynamics. In addition to correlations between pumping fluids and well performance in the Woodford in general, the WSAF system discovered four sections with a correlation between proppant and well performance.
- The Petroleum Consulting team used the data to create an optimized well spacing plan for each zone. Because of different completion strategies, wells in the northern area required three wells per section, and wells in the southern area required six wells per section.



WSAF™ System Reduces Drilling Costs by ≥ \$15 Million

Value to Client

- Using the WSAF, the Petroleum Consulting team reduced reservoir uncertainty and optimized the well spacing and field-development plans. The team reduced the drilling plan by five wells per zone in the north and by two wells per zone in the south.
- Drilling and completing the average well in the area costs an estimated US \$7.5 million. By reducing the drilling plan, the operator saved at least US \$15 million in unnecessary drilling costs.
- By optimizing and reducing the drilling plan, the operation increased the net present value (NPV) of the development by 20 to 30 percent.

