

Optimizing Kuwait's Drilling Resources through Simulated and Sequential Rig Deployment

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Abstract

As part of Kuwait Oil Company's aggressive campaign to spear the wave of optimizations and drilling completions, the company has various activities to combat practices that promote unnecessary expenditures. Drilling, being the culprit of most of the company's spending, was the master candidate to engage in such an activity. Using the traditional methods would yield expected results and might propagate the continuous decay of resources.

Therefore, we have decided to approach matters in a new light. Instead of solely fixating on productivity and rates, we have expanded our rig deployment metrics to engulf other variables that would sway the feasibilities of well construction and delivery. These variables would include and are not limited to:

- Actual Production Rates and Expected Production Rates
- Location availability and location readiness
- Distances between rig availabilities
- Operation duration and intermediate durations

Once these variables have been within our grasp, we have managed to generate an algorithm that enabled us to formulate schedules with specific key performance indicators (KPI) in mind. These KPIs would state the following:

- Oil gain per well (then generated randomly based on historic distribution by field)
- Drilling Duration per well (based on well trajectory type)
- Expected movement time per Rig contractor

These KPIs were then simulated to create iterations of relative confidence.

The results would exemplify the potential outcome of a certain scenario and calculate the overall yield should the company expand this specific scenario. It would also calculate the time, movement-oriented cost, and cost of change of such activities.

Once these results have been processed, optimizing by gain in congruence with other variables (such as location vicinity and material readiness) would yield greater numeric returns in comparison with flat relevance.

Biography:

Danah Alselahi is working in Kuwait Oil Company in Kuwait. She completed her bachelor degree in Industrial Engineer from Arizona State University.

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