

Title: RTPO for Gas Lifted Unconventional Field

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Objectives/Scope:

To maximize the oil production from an unconventional oil and gas field with over 100 wells by utilizing real time field data. We will highlight some of the challenges in the process and how they were overcome as we delivered a full RTPO system to the client that delivered daily optimization and what-if capabilities.

Methods, Procedures, Process:

The field was modelled from the reservoir through the surface trunk lines to and including the facilities. This involved building well models and producing performance tables from these that represented the performance of the well for varying parameters. These well performance tables were then used to represent the wells flowing to a pad. Each pad was then connected via pipeline models to the central facilities. The facilities were also included in the model to allow a full system approach to be taken. The field data was available in multiple data sources that needed to be pulled together to gain a full data picture of the field. Various issues were identified in the data that needed to be corrected to allow full integration. A UI dashboard was developed that allows operators to interact with the powerful optimization engine but without the need to learn how to run and operate a complex model.

Results, Observations, Conclusions:

The system is running daily and providing the operator with an overview of the system and identifies which set points to change to optimise oil production for the field. The dashboard also has a set of screens that allows the operator or engineer to set up "what-if" studies. All these what-if studies are based on the latest field data, for example a gas compressor goes down and the gas handling capacity of the field is severely reduced: What should the operator do?

Novel/Additive Information:

The overall system allows the operator a view of the whole field operations and an idea of the interactions of the various elements. They can daily gauge how close the field is to optimal operations and if required make changes to increase production.