



OPTIMISATION OF THE PRODUCTION OF OIL AND GAS
IMPROVING OUTPUTS WHILE LOWERING COSTS

Optimisation of the Production of Oil and Gas

Before Simudyne . . .

Situation: Production management has to integrate production and maintenance activities, within the constraints of the capabilities of the production field equipment, the personnel available and the production profiles of the reserves, to create an operational schedule that produces the best net economic and operational outcome for the production period.

Desired Outcome: Production schedules are set within the practical constraints of formation, personnel and equipment with all maintenance interruptions anticipated and a buffer held in reserve for contingency so that economic expectations are met.

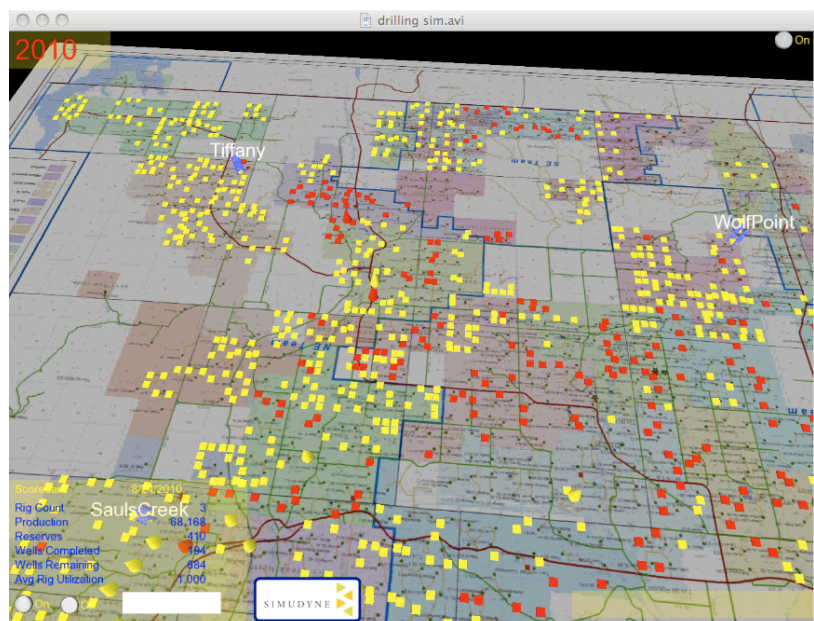
Attempted Approach: Starting with last months schedule and “this month last years” schedule, operations management calls for input from all departments as to which activities must be integrated into the schedule. Using a variety of manual and automated procedures, production management iterates potential solutions until

a schedule is created that is the best compromise of all desired activities. Operations management then publishes the schedule to all concerned.

Interfering Factors: Information on production equipment, personnel, formations and planned activities is in a variety of different formats, levels of detail, and levels of accuracy. It is difficult to anticipate the impact of a single desired activity, impossible to understand the net combined impact of hundreds of interrelated activities over the entire production period. Once the production period begins, events begin occurring

immediately which interfere with the production schedule and require adjustments to the activities being performed. Understanding the impact of tactical events, and the timely assimilation of those net changes into the necessary modifications to the published production schedule is an uncertain process, full of time delay and the potential to further impact the schedule through misinterpretation and miscommunication.

Economic Consequences: Due to the limitations of the data available, the planning process and the ability to respond to circumstances during the production period,



Optimisation of the Production of Oil and Gas

production results are sub-optimised in terms of the potential production rates and the economic results of the assets.

After Simudyne. . .

Economic Rewards: The first benefit of a Simudyne solution focused on optimising the production of oil and gas is an initial schedule that is superior to previous efforts by virtue of the simulation systems ability to see all components and to solve for the optimum solution with superior mathematical techniques. This initial advantage is overshadowed during the scheduled production period, however, by the systems ability to quickly assimilate changes in the schedule, react to the consequences of the changes, and issue new directives to adjust for the changes. It is a particular property of simulation science to be most effective in a networked landscape of solutions where there are many and frequent interruptions to the scheduled events, as we find in creating an optimal oil and gas production schedule. The Simudyne simulation solves for production efficiency as well as economic result, so

the net solution at the end of the scheduled period is superior in both categories.

New Approach: To optimise production of oil and gas, Simudyne implements an integrated software environment that connects world class scheduling optimisation science to the data architectures that support the field operations and maintenance communities of a major oil and gas production company. Able to see all aspects of the scheduling problem, the Simudyne system iterates scheduling options, in dialogue with production management personnel and our consultants, until the best net economic schedule is arrived at, given all initial inputs. Once the scheduled production period begins, we ensure the system is able to quickly assimilate all unanticipated events into the production schedule and issue adjustments to the schedule.

Enabling Factors: Integrated data access is the enabling technology of the system. The ability to see all contributing factors, to understand and catalogue the nature and relationships of all factors is a

key component of the system. Multi-objective optimisation is the enabling science of the system. Using simulation science which has come out of the study of natural systems, the Simudyne solution is able to “search the landscape” of solutions to the problem in new and dramatically more effective ways than in previous generations of optimisation software.

How to get started. . .

Find out how Simudyne can help you improve outputs while lowering costs. Consider the three-point plan:

1. Initiate an education and training session from Simudyne.
2. Create a proof-of-concept with Simudyne to quantify costs versus benefits, including performance, flexibility, anticipated production increases, cost savings, and overall effort.
3. Engage with Simudyne to accelerate your oil and gas production.

For more information. . .

Contact Justin Lyon at justin@simudyne.com.

© Copyright Simudyne S.à r.l. 2010.

63/65, rue de Merl
L-2146 Luxembourg

All Rights Reserved.

Simudyne, the Simudyne logo and simudyne.com are trademarks of Simudyne S.à r.l. in Luxembourg and the United Kingdom.

References to Simudyne products or services do not imply that Simudyne intends to make them available in all countries in which Simudyne operates.

Simudyne reserves the right to change or withdraw offerings or services at any time without written notice.

The examples cited in this brochure, including any performance/delivery achievements and any cost savings referenced in this brochure, are fact-specific and are based on past performance. They are not a guarantee of results and may not be representative of what can be achieved in other circumstances.