

**Real-Time Production
Optimization for a Mature
Onshore Field in Austria**
SPE Eu ALF 2010

Aberdeen, February 17, 2010

Introduction

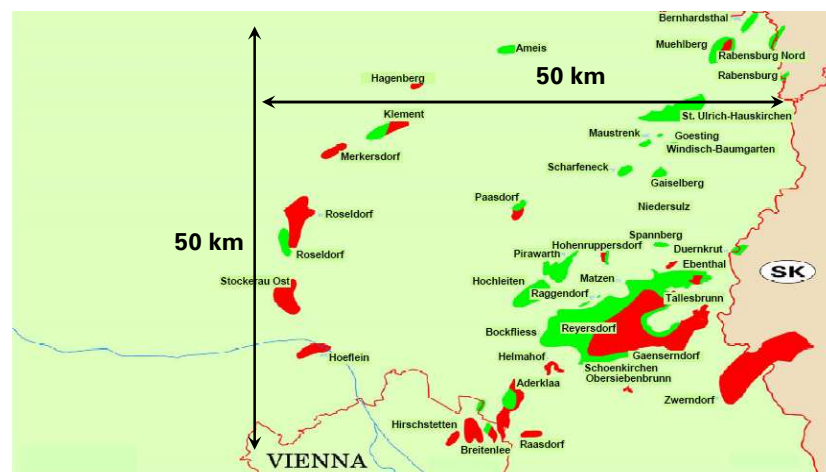
- ▶ Introduction
- ▶ Where, what and how do we produce
- ▶ Current Situation
- ▶ Project Real-Time Production Optimization (RTPO)
- ▶ Conclusions & way forward

Where, what and how do we produce



3 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Where, what and how do we produce



4 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Where, what and how do we produce

- ▶ Gross liquid production 30.000 m³/d
Average water cut 90%
- ▶ Gross Gas production 4.0 Million Sm³/d
- ▶ Total Production OMV Austria 45.000 boe/d
- ▶ Under Ground Gas Storage 2.3 bn/Sm³ (working gas)

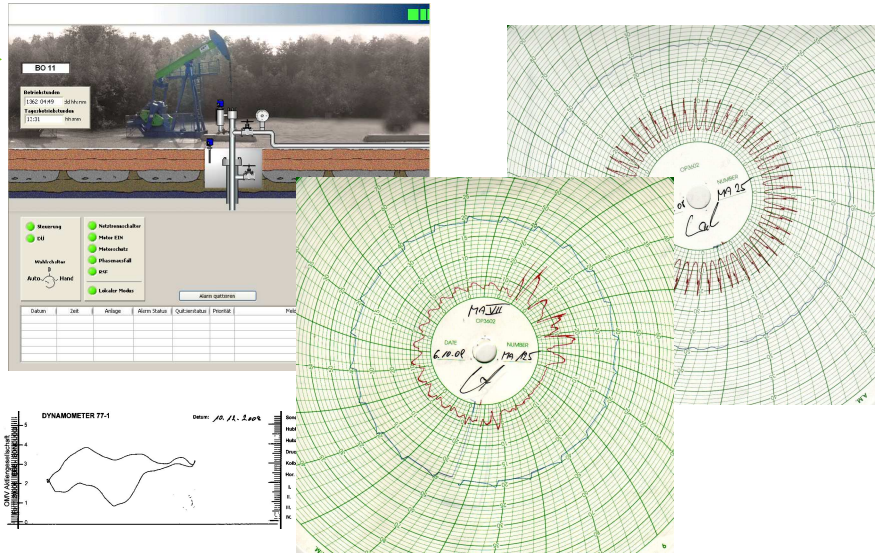
5 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Where, what and how do we produce

- ▶ **Currently operating around 1100 wells**
- ▶ **Oil**
 - Sucker Rod Pumps (550x)
 - Gas Lift, continuous & intermittent (180x)
 - PCP (20x)
 - ESP (15x)
 - Natural flow (45x)
- ▶ **Water Injection & Disposal (75x)**
- ▶ **Gas production (100x)**
- ▶ **Gas storage (150x)**

6 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Current Situation



7 | OVM Exploration & Production, Eduard Nederlof, February 17, 2010

Current Situation

- ▶ The system in place is mainly a safety system. Following alarms are monitored
 - ▶ Pressure flow-line → High
 - ▶ Stuffing box → High
 - ▶ Fluid level cellar → High
- ▶ Some data is gathered and some control is possible
 - ▶ Torque (PCP), Amps (Esp), Frequency, etc.
 - ▶ Start/ Stop the well, adjust frequency, liftgas amount
 - ▶ 25% of the gas wells is automated and production is monitored

8 | OVM Exploration & Production, Eduard Nederlof, February 17, 2010

Project (RTPO) – Target

“Equip all oil and gas producers as well as water injectors and several gathering stations with additional sensors and control measures that will allow Real-Time Monitoring and Optimisation of Production.”

9 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Project (RTPO) – Goals

- ▶ Reduce Operating Expenditure (OPEX)
- ▶ Enhance Staff Efficiency
- ▶ Boost Production and Ultimate Recovery
- ▶ Further Improve HSEQ performance

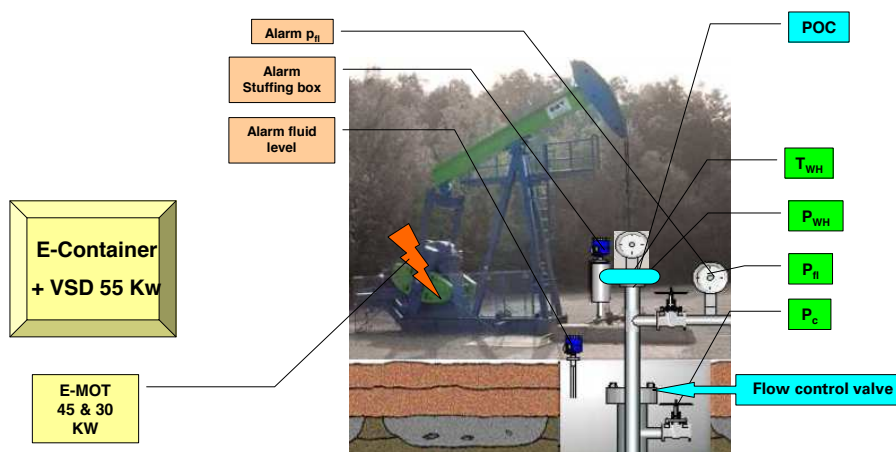
10 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Project RTPO – Scope

- ▶ Sensor & Controller definition for the different lift methods
- ▶ Communication system from well-site to office
- ▶ Upgrade Well-site
- ▶ Upgrade of the electrical system
- ▶ Define Platform for monitoring & analyses
- ▶ Synergies with current system

11 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

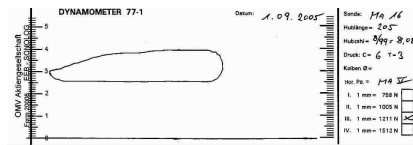
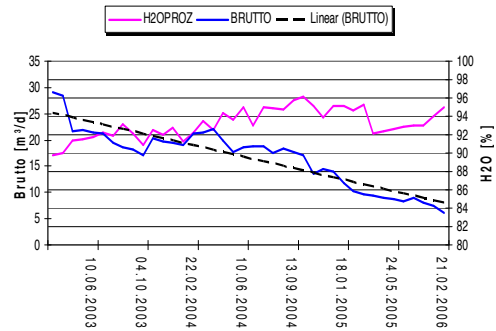
Sensor Definition



12 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Project RTPO – Benefits VSD

- ▶ Optimization possibilities in concordance with Reservoir Management Strategy without manual intervention
- ▶ Automatically reduce Spm when Pumping Off
- ▶ Hold Production when Pump efficiency/ performance is reduced
- ▶ Reduce Spm to a minimum when sand or Paraffin problems exist



13 |OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Project RTPO – Platform

- ▶ Display Real-Time data
- ▶ Warnings and alarms
- ▶ Workflow defined
- ▶ Monitoring of the installed artificial lift systems
- ▶ Analyses and optimization of the AL-systems
- ▶ Reporting tools
- ▶ Integrate with existing systems and databases

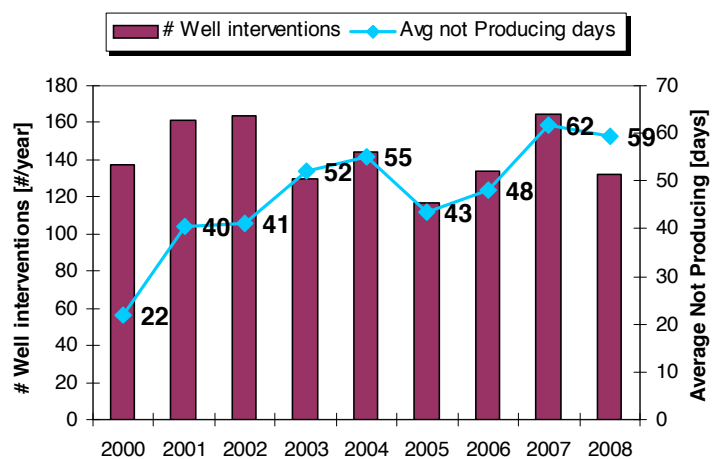
14 |OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Project RTPO – Economical Benefits

- ▶ Reduction deferred Production
- ▶ Increase MtBF (Meantime between Failure)
- ▶ Reduce Well interventions
- ▶ Workflow improvements
- ▶ Artificial lift optimization

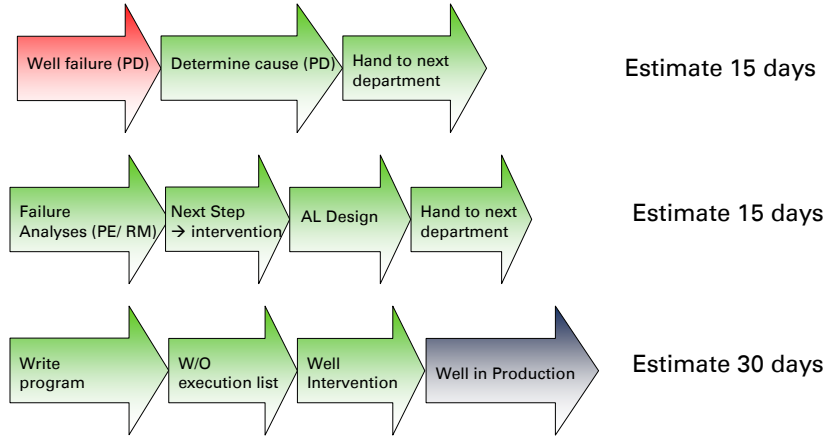
15 |OMV Exploration & Production, Eduard Nederlof, February 17, 2010

None Productive days



16 |OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Current Workflow



17 |OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Worked out Scenarios

SCENARIOS	
1	All wells RTPO
2	All wells RTPO without VSD, E-Motor and Container
3	All Pumping Wells (SRP/ ESP/ PCP) RTPO
4A	All wells in the Satellite Fields RTPO
4B	All wells in the South RTTPO
5	All wells with Production > 30 bopd full RTPO

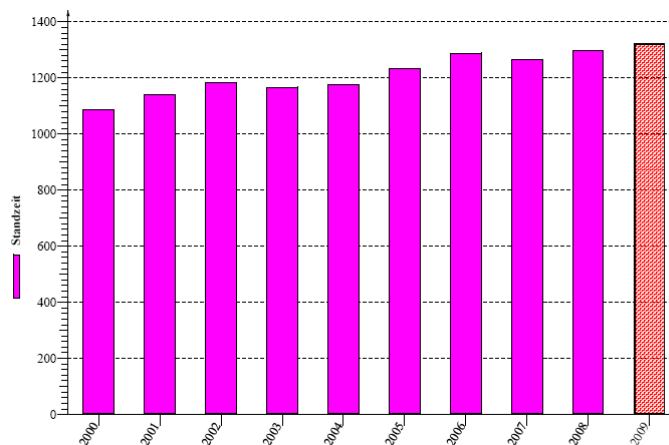
18 |OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Conclusions

- ▶ High Runtimes, average 1300 days
- ▶ Reduced Oil price
- ▶ High costs of project due to “Field revamp”
- ▶ Average Oil rate per well to low

19 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Current Run time



20 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Way forward

- ▶ Pilot Project in 2010
 - ▶ 15 SRP wells with the full sensor and controller package
 - ▶ Capture data from ESP, Gaslift, Water Injection and PCP wells
 - ▶ Install Platform for monitoring and analyses

21 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010

Questions



22 | OMV Exploration & Production, Eduard Nederlof, February 17, 2010