



FLOOD OPTIMIZATION



Flood Optimization

Objectives

GOAL
Slow down decline

ACTIONS

- » Provide pressure support
 - » Artificial lift
 - » Water injection
- » Displace all fluids
 - » Water flood
 - » EOR
- » Go after by-passed oil
 - » Infill wells

SUCCESS METRICS
» Improve injection efficiency
» Improve sweep

RESERVOIR DRIVERS

- » Accurate reservoir description
- » Optimal injection pattern
- » Balanced rates

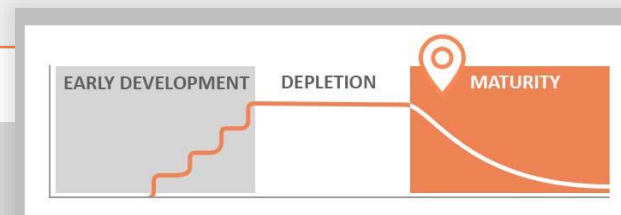
PRODUCTION DRIVERS
» Cost efficient production system for flooded field
DESIGNED LIFT STRATEGY | ADVANCED ANALYTICS

ARCHITECTURE & HETEROGENEITY | RESERVOIR CONNECTIVITY | PRODUCTION EFFICIENCY



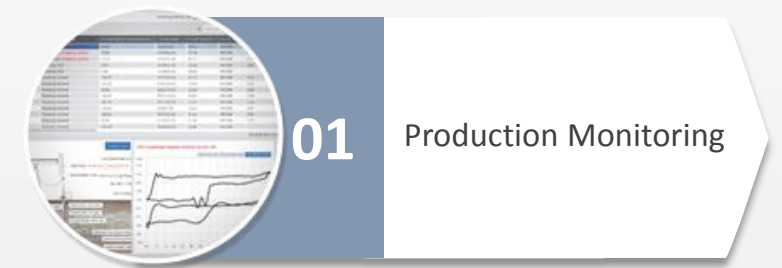
DECISIONS MADE

- » Select and convert injectors
- » Implement injector rates
- » Field level optimized lift design

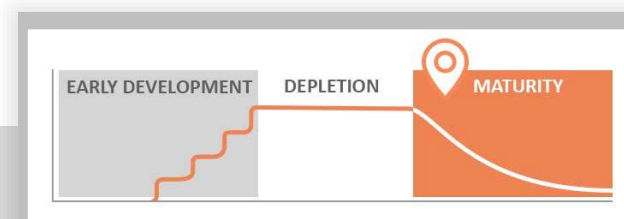


Flood Optimization

Traditional Workflow



- » Monitor production
- » Optimize production based on equipment capacity



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Reservoir Driven Workflow

01

Seismic processing
Interpretation
Attributes

02

Well logs
Cores
Well tests

03

Geological
knowledge

- » Enhance reservoir description by extracting maximum information from data
- » Reconcile through the construction of multiple possible realistic reservoir models
- » Identify compartments, flow barriers and highways

04

Reservoir Models

05

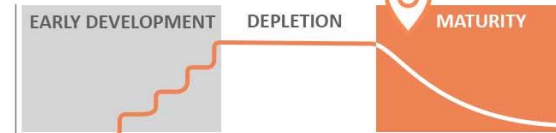
Dynamic Simulation

- » Calibrate models to production history
- » Quantify injector efficiency
- » Propose optimal rate control

06

Production Monitoring

- » Implement proposed production adjustment
- » Monitor production & optimize production equipment



Flood Optimization

Benefits

