

Advanced Heavy Oil Production Optimization Training Course

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Overview

Advanced Heavy Oil Production Optimization Training Course is a one-week advanced course for reservoir, production, thermal recovery, field development, and operations teams who leave with a Heavy Oil Production Optimization File. Participants connect heavy oil reservoir behavior, viscosity and mobility constraints, cold production, thermal recovery, artificial lift, surface handling, and production surveillance to diagnose well and pattern performance. The course turns operating evidence into integrated decisions on rates, steam, fluids, energy intensity, and limits. Agile Leaders Training Center presents heavy oil production optimization practice.

Who Should Attend

- Reservoir teams responsible for heavy oil recovery screening, pattern performance, and depletion decisions
- Production teams responsible for well deliverability, artificial lift, diagnostics, and intervention priorities
- Thermal recovery teams responsible for steam injection, CSS cycles, SAGD performance, and heat management
- Field development teams responsible for integrated subsurface, well, and facility decisions
- Operations leadership responsible for production targets, operating limits, energy use, and asset coordination

The course assumes participants analyze reservoir, well, facility, or operating data at work, and it leaves out refinery conversion, introductory fluid modeling, standalone lift selection, and general production operations.

Departments and Industries

The course supports departments and industries that develop, operate, monitor, or improve viscous hydrocarbon production systems.

- Heavy oil, extra-heavy oil, and oil sands field operations
- Reservoir engineering, production technology, and field development departments
- Thermal recovery, steam generation, water treatment, and energy management teams
- Well operations, artificial lift, flow assurance, and production chemistry functions
- Engineering consultancies, technical service companies, and applied energy research groups

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Learning Objectives

By the end of this course, participants will be able to:

- Analyze viscosity, mobility, reservoir, and operating constraints
- Compare cold production and thermal recovery methods
- Diagnose well, lift, fluid, and pattern underperformance
- Evaluate steam, water, gas, sand, and emulsion controls
- Prioritize surveillance and production optimization actions
- Build a Heavy Oil Production Optimization File

Course Agenda

Day 1: Define Heavy Oil Production Constraints

- Heavy Oil Classification and Viscosity-Temperature Curve
- Reservoir Mobility and Deliverability Constraint Map
- Fluid, Rock, Sand, and Foamy-Oil Behavior Review
- Cold-versus-Thermal Recovery Screening Matrix
- Field Production Basis and Operating-Limit Register

Day 2: Optimize Cold Production and Well Delivery

- Cold Heavy Oil Production with Sand Performance Model
- Horizontal-Well Inflow and Pressure-Loss Diagnostic
- Viscous-Fluid Artificial Lift Operating Envelope
- Gas Interference and Water Loading Decision Tree
- Well Deliverability and Intervention Priority Table

Day 3: Evaluate Thermal Recovery Performance

- Cyclic Steam Stimulation Injection-Soak-Production Cycle
- Steamflood Pattern Balance and Heat-Loss Review
- SAGD Steam-Chamber Growth Interpretation Method
- Steam-Oil Ratio and Energy-Intensity Performance Dashboard
- Thermal Breakthrough and Conformance Response Matrix

Day 4: Integrate Surveillance and Surface Controls

- Well and Pattern Production Surveillance Plan
- Rate, Pressure, Temperature, and Fluid Trend Diagnostic
- Sand Production and Erosion Control Checklist
- Heavy Oil Emulsion and Surface Handling Decision Map
- Produced Water, Gas, Diluent, and Heat Integration Sheet

Day 5: Practice Heavy Oil Optimization Decisions

- Suggested Exercise: Screen Cold and Thermal Recovery Options
- Suggested Exercise: Diagnose a Viscous-Well Production Decline
- Suggested Exercise: Evaluate SAGD and CSS Performance Evidence
- Suggested Exercise: Prioritize Surface and Surveillance Actions
- Capstone Exercise: Complete the Heavy Oil Production Optimization File

Practical Exercises

The course uses suggested activities to convert reservoir-to-surface evidence into bounded production decisions.

- Suggested activity: build a constraint map from viscosity, mobility, pressure, temperature, sand, water, gas, and facility evidence.
- Suggested activity: compare cold production, CSS, steamflood, and SAGD against reservoir fit, energy intensity, and operating limits.
- Suggested activity: diagnose well and pattern trends and assign surveillance, lift, steam, fluid, or surface responses.
- Suggested activity: defend an integrated optimization file with priorities, triggers, responsibilities, and follow-up measures.

FAQs

Who suits advanced heavy oil production optimization training, and what does it assume?

Reservoir, production, thermal recovery, field development, and operations professionals suit the course. It assumes experience interpreting field, well, reservoir, facility, or operating evidence and does not teach introductory petroleum engineering.

How does heavy oil production optimization differ from general production operations training?

Heavy oil production optimization addresses viscosity, sand, emulsions, thermal recovery, steam efficiency, and pattern behavior as linked constraints. General production operations training covers broader routine production systems without this heavy-oil decision focus.

How are CSS and SAGD compared in heavy oil production optimization?

CSS is evaluated as a repeated injection, soak, and production cycle, while SAGD is evaluated through paired wells and steam-chamber development. The comparison uses reservoir fit, thermal response, production evidence, steam use, and operating limits.

What evidence supports heavy oil well and pattern optimization?

Rate, pressure, temperature, fluid composition, steam, water, gas, sand, lift behavior, energy intensity, and facility constraints support optimization. Their trends and relationships matter more than a single production-rate observation.

Why does steam-oil ratio matter in thermal heavy oil production?

Steam-oil ratio links injected steam to produced oil and helps teams examine thermal efficiency, water demand, fuel exposure, heat losses, and changing reservoir response. It must be interpreted with operating conditions and production trends.

Conclusion

Participants take back a Heavy Oil Production Optimization File linking reservoir behavior, wells, recovery methods, surveillance, surface controls, energy intensity, and operating limits. It changes separate technical observations into one prioritized field-decision record. Teams can update it as production evidence, thermal response, fluid behavior, and asset constraints change.

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