

Completions and Workovers

CAW



Completions and Workovers provides an integrated introduction to many facets of completion and intervention technology. The material progresses through each of the major design, diagnostic, and intervention technologies concluding with some common remedial measures and well abandonment. The course focuses on the practical aspects of each of the technologies, using design examples - successes and failures - to illustrate the key points of the design and the risks/uncertainties. The overall objectives of the course focus on delivering and maintaining well quality.

LEVEL – Foundation

DESIGNED FOR

Graduates or engineers with experience, engaged in drilling operations, production operations, workover, and completions; petroleum engineering in both the service and operating sectors.

YOU WILL LEARN HOW TO

- Develop a high level completion strategy for wells in a variety of situations
- Select tubing, packers, and completion flow control equipment
- Appraise/design a suitable flow barrier strategy
- Identify key design considerations for vertical and inclined wells, horizontal, multilateral, HPHT, and unconventional resource wells
- Select an appropriate intervention strategy/equipment
- Identify key features/applicability of the main sand control and well stimulation options
- Assess/specify concerns/remedial measures for formation damage/skin removal
- Develop outline overall strategies for completion and workover programs

COURSE CONTENT

- Basic well completion design, practices, and strategies
- Well quality and integrity
- Safety aspects of well design
- Wellheads, trees, subsurface safety valves, and flow control equipment
- Material selection guidelines based on corrosion and erosion conditions
- The basic interpretation of inflow and tubing performance to aid tubing size selection
- Tubing design and selection
- Considerations for designing deviated horizontal, multilateral, and multi zone reservoir completions
- Basic completion principles and considerations for subsea, HPHT, and unconventional wells
- Perforating job selection and design
- Formation damage mechanisms and their remediation
- Stimulation design considerations
- Sand control options and their selection
- Wireline, coiled tubing, and hydraulic workover rig operations
- Snubbing

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CAW | Completions and Workovers



Daily Agenda

Daily schedule is approximate

DAY 1	<ul style="list-style-type: none"> • Introduction • Course pre-test, if required • Basic completion design <ul style="list-style-type: none"> * Objectives * Key decisions 	<ul style="list-style-type: none"> • Well flow capacity and tubing selection <ul style="list-style-type: none"> * Exercise - tubing selection (Optional video) • Completion interface with well construction <ul style="list-style-type: none"> * Exercise - critique designs • Supplementary material (Instructor's discretion) • Artificial lift • Completion design examples
DAY 2	<ul style="list-style-type: none"> • Completion equipment <ul style="list-style-type: none"> * Exercise - SAQ tubing, wellheads, trees * Exercise - SAQ completion equipment • Perforating 	<ul style="list-style-type: none"> • Complex wells <ul style="list-style-type: none"> * Exercise - 2 zone completion • Supplementary material tubing stresses (Instructor's discretion)
DAY 3	<ul style="list-style-type: none"> • Advanced completions • Formation damage • Damage and well servicing fluids <ul style="list-style-type: none"> * Exercise - damage mechanisms • Completion programming 	<ul style="list-style-type: none"> • Stimulation methods <ul style="list-style-type: none"> * Exercise - screening stimulation options • Sand production and control • Overview of exclusion options <ul style="list-style-type: none"> * Exercise - grain size analysis
DAY 4	<ul style="list-style-type: none"> • Sand control <ul style="list-style-type: none"> * Exercise - exclusion selection and design • Well problems and analysis <ul style="list-style-type: none"> * Exercise - well problem diagnosis 	<ul style="list-style-type: none"> • Wireline • Coiled tubing • Live well interventions
DAY 5	<ul style="list-style-type: none"> • Hydraulic workover units • Workover planning <ul style="list-style-type: none"> * Exercise - well killing • Remedial operations <ul style="list-style-type: none"> * Open discussion 	<ul style="list-style-type: none"> • Post class exam • Further informal discussion, if required <ul style="list-style-type: none"> * Exercise - alternatively integrated completion design

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Mason J. Gomez, P.E.

MASON GOMEZ is a Licensed Petroleum Engineer (LA#26131) with 26 years diversified experience including: production/reservoir engineering, offshore field development/mature field optimization, shale play drilling/completions, Operator/Service Company employment, Engineering, Sales, Operations Management, Human Resource Development, and Project Management roles. He received a BS degree in Petroleum Engineering from Stanford University.

PROFESSIONAL EXPERIENCE

2013–Present	<p>PetroSkills <i>Vice President, Regions</i></p> <p>Direct the global regional structure within PetroSkills to grow the business and meet client needs. Improve internal business processes to support PetroSkills strategies. Act as a technical resource in reservoir, completions, project management, and general oilfield knowledge.</p>
1996–2013	<p>Halliburton <i>Business Development, Project Management, Denver USA – Jan 2013 – April 2013</i></p> <p>Develop business for the Project Management organization in the USA and Canada.</p> <p><i>Region Manager, Consulting and Project Management, Dubai, UAE – Oct 2011 to Jan 2013</i></p> <p>Direct the Company’s turnkey drilling operations in Saudi, Iraq, and Algeria. Hold overall P&L, HSE, SQ, and Personnel responsibilities for 3 country, 14 rig operation. Lead the local Iraq PM organization through multiple project start-ups, going from 0 to 8 rigs for three clients. Manage significant staff growth required for these projects. Implemented strong HSE culture using tiered inspection approach. Built Region level support structure including HSE, Contract Management, Engineering, Recruiting, and Business Development.</p> <p><i>Senior Project Manager, Drilling and Completions, Denver, USA – Sept 2008 to Oct 2011</i></p> <p>Lead a team of drilling engineers, completion engineers, project managers, and rig supervisors responsible for drilling and completing shale play wells (horizontal and vertical) throughout the Rockies area for both internal and external clients. Support our internal investment group (Halliburton Oil and Gas) by managing and executing earn-in wells on their projects, from initial rig selection through permitting, third party subcontracting, location construction, drill/complete activities, and facility installation. Apply Project Management principles to well construction projects driving best in area performance. Engaged in overall frac strategy during the technological/ reservoir push from few to 30+ stages in the Bakken. Implement HSE management system to monitor and control overall HSE performance on Halliburton managed rigs.</p>

Senior Human Resource Development Manager, Dallas, USA – Jan 2005 to Sept 2008

Develop and implement the technical training strategy for the Completion and Production (Completions, Stimulation, Cementing) Division worldwide (20,000 employees in 2008). Ensure quality training programs exist to provide competent human capital to meet growth forecasts. Develop and deploy training quality audits, ensure training courses are mapped to business dictated competencies, adjust new engineer programs to reduce time to market. Oversee multiple Learning Centers supporting the Division. Manage the Leadership and Development program to ensure succession planning efforts have qualified candidates. As the Halliburton representative to the PetroSkills, LLC Advisory Board (Jan 2005 – Jun 2010), work with other Board Members (Shell, BP, Saudi Aramco, Chevron) to strategically advise PetroSkills.

Learning Center Manager, Halliburton Completion Tools, Dallas, USA – Oct 2002 to Jan 2005

Direct a team of instructors to create and offer technical training courses to the Halliburton Completion Tools business line. Worked with the business to develop job based competencies and link development activities to these required competencies. Developed new courses to address identified competency gaps. Developed and instructed the course on NODAL™ analysis using WEM software.

Country Operations Manager, TTTCP, Port Harcourt, Nigeria – Jan 2001 to Oct 2002

Responsible for Financial, Safety, and Environmental performance of the Tools, Testing, and Tubing Conveyed Perforating business in Nigeria (70 employees). Created and implemented a nationalization plan that reduced reliance on expatriate workers while promoting and developing talented national employees.

Country Sales Manager, Port Harcourt, Nigeria – Nov 1999 to Dec 2000

As Sales Manager leading 16 member business development team (multi-national and local staff), developed pricing and marketing strategy for all Halliburton Energy Services products for Nigeria. Centralized tender response activities, focused sales efforts on Deepwater prospects, reduced Company exposure to volatile Niger Delta land work, resulting in a revenue increase of 67% (2000 over 1999).

Special Assignment, West Africa SAP implementation – June 1999 to Nov 1999

Assisted with SAP implementation as part of a dedicated team of SAP specialists.

Lead Well Engineer, Lagos, Nigeria – June 1997 to May 1999

Production and Reservoir technical resource for the West Africa region, responsible for candidate selection engineering and reservoir focused completion design, including "Complete the Limit" workshops.

Senior Well Engineer, Perth, Australia – Oct 1996 to June 1997

Worked as member of Client project team to provide technical input (sand production estimates, scaling potential, and triaxial tubing design) to major subsea development. Involved in "Drill the Limit" workshops.

Senior Well Engineer, Houston, USA – July 1996 to Oct 1996

Evaluated fields throughout South America for possible equity participation by Halliburton.

1988–1996

Shell Offshore, Inc, New Orleans, LA

Reservoir Engineer – 1993 to July, 1996

Evaluated 175+ wells using pressure transient and NODAL™ analysis; increased rates 10% through follow-up remedial work. Conducted reserve determination, production forecasting, profitability assessments, and property valuations for oil and gas fields.

Special Assignment - Unit Engineer – 1992 to 1993

Improved relationship between Engineering and Operations by working offshore (7/7 rotation) as an integrated member of a Production Unit. Initiated field based surveillance system resulting in a 5% production gain.

Production Engineer – 1988 to 1992

Developed a depletion strategy for Division's largest producing field, improving field management 15%. Identified, designed and executed sidetrack drilling program. Identified, recommended, designed and managed 75+ rig workovers. Conducted study of mature oil field resulting in a 100% production increase.

EDUCATION

1988

Stanford University

B.S., Petroleum Engineering