



31st Gas-Lift Workshop

Houston, Texas

February 4 - 8, 2008

American Petroleum Institute

MY Gas-Lifted Company is Successful Because ...

Jim Hall

Shell International E&P, BV

The Vision

The objectives of the company are to engage efficiently, responsibly and profitably in oil, oil products, gas, chemicals and other selected businesses and to participate in the search for and development of other sources of energy to meet evolving customer needs and the world's growing demand for energy.

– Achieved with an appropriate blend of

- **People – management, technical, operations, support**
- **Processes**
- **Hardware**

People – Management...

- is informed of the importance of gas lift to achieving production targets
 - is committed to delivering the resources to support gas-lift production levels
- have personal incentives directly linked to important aspects of the business
 - receive, value, and act upon counsel from technical specialists

People – Artificial Lift Technical Staff..

- are present at every level of the organisation
- carry a level of expertise/experience appropriate to responsibility / impact
- receive formal training in technical specialties BEFORE starting the job
- experienced hires for technical specialties are vetted by internal experts
- have operational experience
- participate in the project valuation and realisation process
- build and maintain strong networks (internal and external)
- do not spend significant time doing “overhead” work

People – Operations Staff...

- clearly understand that they have more impact on the daily production rates / revenues than any other group in the entire organisation.
- strive to responsibly and profitably produce oil and gas in a safe and environmentally sound manner to the benefit of the corporation and the local communities.
- are provided with clear deliverables, and the tools and support needed to achieve those deliverables

“tools” includes formal training in artificial lift

- enjoy a good working relationship with technical staff

Listen! Share! Learn!

People – Support Staff...

- are recognised for the fact that the support they provide is essential to the business

a word of appreciation is different from a lack of criticism

- are provided with an appropriate level of technical training

e.g. “gas lift for non-technical staff”

- provide support which liberates technical staff to do technical work

Processes

- **Global Processes** – developed and supported at the Global Level
 - Includes WHAT is to be done, but not HOW
 - Deployed, supported and strengthened by a team of specialists
- **Local Processes**
 - Adds the HOW to the WHAT provided by the Global Process
 - Tailored to specific location requirements
 - “what works in the desert often does not work in the ocean”*
- **Job-specific Processes / Standards**
 - Practices Worth Replication (PWR) / Best Practices
 - “PWE” Just as important?*

Processes - Global

- **Well and Reservoir Management process which is consistent between locations**
- **software tools consistent between all locations**
- **technical support delivered by a team of specialists, with corporate funding**
- **structured succession plan to advance from the field to corporate level**
- **regular specialist workshops strengthen networks, ensure focus, continuity**
- **electronic Common Interest Networks serve to maintain the community and support sharing of best practices**

Processes – Local / Job Specific

- Completion designs support the appropriate A/L method for the field
- Completion design for life-cycle needs, not high initial rate
- Running WellTracer surveys on all gas lift wells annually
- Inspection of gas lift valve string setup by a 3rd party, using API RP11V7
- Installing new gas lift valves as part of preparation for acid stimulations
- Premium seal materials selected for performance, not price
- Installation of automated lift gas flow control valves on every gas lift well (along with associated meters and transmitters)

**scan passport and travel documents and e-mail
them to yourself on internet-based account**

**don't use MS-Outlook 'out-of office assistant'
to advertise your absence from home**

**adopt ICE initiative now! - enter emergency
contact number against 'ICE' in your cellphone**

**when you see a notice or hear a warning about
pickpockets...do not check your pockets!**

**ask to be e-mailed a digital photo of your
'meet and greet' person, tell them to display
only your first name or surname but know both**

Hardware

- **Comply with minimum industry standards**

API Spec 11V1, ISO 17078

- **further refined with the application of internal standards**
- **purchased from *detailed* specifications**

Without a detailed specification, you lose the right to complain

- **Require Valve Performance Clearinghouse testing for all gas-lift valve models**
- **Use the High Reliability gas-lift Orifice as a base case**
- **Use the Weatherford DVX mandrel in all high risk gas-lift completions**
- **Use at least one string of PPO valves in common-annulus dual G/L wells**

Hardware – Research and Development

Core Technologies with long-term business impact are strengthened through proprietary Research and Development

- Invest \$1 per year per barrel of oil produced per day via artificial lift.
- Commercialise mature technologies for the benefit of industry while retaining advantageous access to our own technology.

Hardware – Tools of the Trade

What do you get for your R&D investment in gas lift?

Automatic Valve Tester (AVT)

Bubble Breaker / Small Bubbles

CO₂ Tracer / Well Tracer

Electric Surface Controlled Gas-Lift Valve

High Reliability gas-lift Orifice (and HRC)

Valve Performance Clearinghouse (VPC)

FieldWare GasLift

WinGLUE (integrating AVT, WellTracer, VPC, FWGL, PI, GAP)

Conclusion

If you ain't the lead dog, the view never changes.

Wells Deplete !
Artificial Lift is Important !

Reading List

The Systems Bible, John Gall

Normal Accidents, Charles Perrow

To Engineer is Human, Henry Petroski

The Peter Principle, Laurence J. Peter

Out of the Crisis, W. Edwards Deming

Now, Discover Your Strengths, Donald O. Clifton

Atlas Shrugged, Ayn Rand

Copyright

Rights to this presentation are owned by the company(ies) and/or author(s) listed on the title page. By submitting this presentation to the Gas-Lift Workshop, they grant to the Workshop, the Artificial Lift Research and Development Council (ALRDC), and the American Society of Mechanical Engineers (ASME), rights to:

- Display the presentation at the Workshop.**
- Place it on the www.alrdc.com web site, with access to the site to be as directed by the Workshop Steering Committee.**
- Place it on a CD for distribution and/or sale as directed by the Workshop Steering Committee.**

Other uses of this presentation are prohibited without the expressed written permission of the company(ies) and/or author(s) who own it and the Workshop Steering Committee.

Disclaimer

The Artificial Lift Research and Development Council and its officers and trustees, and the Gas-Lift Workshop Steering Committee members, and their supporting organizations and companies (here-in-after referred to as the Sponsoring Organizations), and the author(s) of this Technical Presentation or Continuing Education Training Course and their company(ies), provide this presentation and/or training material at the Gas-Lift Workshop "as is" without any warranty of any kind, express or implied, as to the accuracy of the information or the products or services referred to by any presenter (in so far as such warranties may be excluded under any relevant law) and these members and their companies will not be liable for unlawful actions and any losses or damage that may result from use of any presentation as a consequence of any inaccuracies in, or any omission from, the information which therein may be contained.

The views, opinions, and conclusions expressed in these presentations and/or training materials are those of the author and not necessarily those of the Sponsoring Organizations. The author is solely responsible for the content of the materials.

The Sponsoring Organizations cannot and do not warrant the accuracy of these documents beyond the source documents, although we do make every attempt to work from authoritative sources. The Sponsoring Organizations provide these presentations and/or training materials as a service. The Sponsoring Organizations make no representations or warranties, express or implied, with respect to the presentations and/or training materials, or any part thereof, including any warranties of title, non-infringement of copyright or patent rights of others, merchantability, or fitness or suitability for any purpose.