



Pursuit of Ultra Low LOE

Business Financial Protocols Cause Operators to Have More Failures and Realize Less Profit

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Historically operators, vendors, and industry professionals have worked together towards a common goal; profit for themselves and the industry.

Today financial protocols drive operational decisions at all levels of the industry.

Some protocols entice operators to make short term decisions that limit production, cause future failures, increase downtime, and ultimately reduce profit.

Artificial Lift production is most impacted by this situation, the pursuit of Ultra Low LOE.

Why are Assets / Operators judged by LOE?



- Private Equity
- Institutional Lenders
- Share Holders
- Accountants

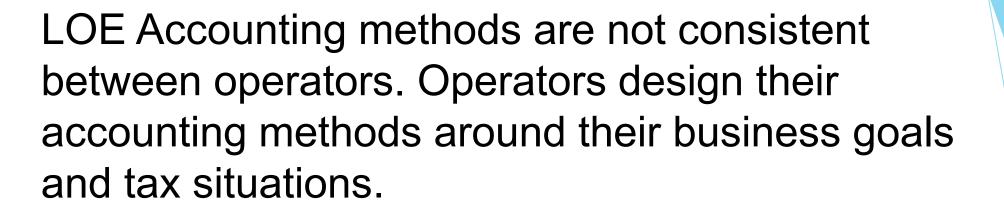
Alternative Metrics could be:

- Net Profit
- Realized Production vs Reservoir Estimates
- Average Well Life Cycle Cost
- Standardized LOE Reporting



What is Ultra Low LOE?

It is the point where operators stop making data driven engineering decisions and make decisions on present day costs.



Their interpretations of what constitutes LOE may include or exclude the following.

- The use of "owner" and "operator" companies.
- General and Administrative Expense (G&A) **Company Labor**
- Workovers may be LOE or nonrecurring expenses.



Lease Operating Expenses

- 600 Pumping
- 602 Auto & Truck Expense
- 604 Labor & roustabout
- 606 Communications
- 608 Road & location maintenance
- 610 Vacuum truck, clean-up
- 614 Produced Water Disposal SWD
- 615 Disposal of Fluids, Chemicals, Mud
- 616 Well servicing
- 618 Hot Oil & other treatments
- 620 Chemicals
- 622 Supervision
- 630 Gas measurement & analysis
- 636 Marketing cost deductions
- 638 Misc parts and supplies
- 639 Preventative Maintenance
- 640 Equipment repairs
- 641 Compressor Rental
- 642 Equipment rental
- 643 Compressor Maintenance
- 644 Trucking & transportation
- 647 Surface Use/Easment Agreements
- 652 Insurance
- 664 Environmental
- 665 Field Office Expenses
- 666 Safetu
- 675 Diesel Fuel
- 677 Electricity



Production is the only phase of operations in the life of a well that generates revenue.

Almost all wells will require some type of artificial lift during their lives.

Artificial Lift decisions are most often influenced by the pursuit of Ultra Low LOE.



Pushing the field to Ultra Low LOE leads to poor planning, execution, operation, and maintenance of artificial lift systems

- Lost (deferred) production
- Increased operations cost
- Increased downtime
- Increased workovers



Example Well #1

August 2019 thru July 2021

Failure Cost				
	Date	Amount		
Initial Rod Up	9/13/2019	\$94,060		
Failure 1 - Rod Part	1/17/2020	\$8,519		
Failure 2 - Rod part	4/8/2020	\$8,005		
Failure 3 - HIT	7/19/2020	\$15,909		
Failure 4 - HIT	8/3/2020	\$27,525		
Failure 6 - HIT	8/13/2020	\$13,870		
Failure 7 - ?	8/27/2020	\$30,090		
Failure 8 - HIT	10/14/2020	\$20,375		
Redesign	12/11/2020	\$52,830		
Total Failures		\$124,293		
Total Failures +				
Redesign		\$177,123		

D	owntime		
Possible Production Days	708		
Downtime Cause	Downtime (HRs)	Downtime (Days)	
Initial Rod Up	216	9.0	
Intermit	168	7.0	
Engine	339	14.1	
Supply Gas	508	21.2	
Production			
Equipment	103	4.3	
Pressure Switch	36	1.5	
Unknown	240	10.0	
Failure	848	35.3	
Total Downtime Days		102.4	
Total Downtime Percentage		14.5%	
	Downtime	Percent	
Downtime Cause	(Days)	Downtime	
Initial Production	16.0	2.3%	
Field Operations	51.1	7.2%	
Failure	35.3	5.0%	

Oil Sales			
			Estimated
	Estimated Gros	s	Unrealized
	Revenue		Gross Revenue
Totals	\$2,192,586.75		\$234,043.95



August 2019 thru July 2021

Total Failure and Redesign Cost	Total Estimated Unrealized Gross Revenue From Oil Sales	Total Estimated Unrealized Gross Revenue
\$177,123	\$234,044	\$411,167





Elimination of direct labor costs leads to loss of knowledge & experience managing artificial lift systems.

Contracted field personnel are "lower cost" but do not generally have the skillset and knowledge for all of the systems required for field operations.

As contractors are generally specialized, more contractors or vendors are required to realize the same level of operations as skilled company personnel.



Reliance on vendors, automation, and "artificial intelligence" in the search for the "Magic Bullet" answer increases life cycle costs and downtime.

Automation and "artificial intelligence" can be a force multiplier but can't replace skilled personnel.

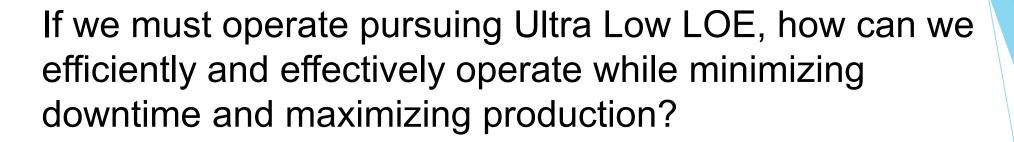
Matching artificial lift systems to a well rather than using cost as the primary driver will ensure best revenue.



Is it more important to make a profit or pursue Ultra Low LOE?

The bitterness of poor quality remains long after the sweetness of low price is forgotten

Benjamin Franklin





Evaluate operations based on a 3 year window. Select artificial lift systems that will be appropriate for the well's production and conditions for at least 3 years. Design artificial lift systems with a planed life of 3 years.

Make purchase decisions based on life cycle cost instead of cost today.

Routine Maintenance maintains value, reduces downtime, reduces costs.

(pursuing Ultra Low LOE, cont.)



Test and evaluate all wells on a regular basis. Fluid level, dynamometer, flow rates, pressures, actual production including water and gas.

Maintain good production records – BOPD, BWPD, Mscf/D, pressures, and production notes.

Regular diagnostic testing and accurate production provides you the basis to make intelligent decisions to maximize uptime/production and reduce operating costs.



Can we stop the pursuit of Ultra Low LOE and return to the days of production and profitability?

If you think it's expensive to hire a professional to do the job, wait until you hire an amateur.

- Red Adair -



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