

OPERATIONAL REPORT ARTIFICIAL LIFT SYSTEM UPGRADE (POWERLIFT HPU)

Client: International Operator (Europe)

Field / Well: Mature onshore well (Target depth: ~2,000 m TVD, deviated profile with high GOR and sand interference)

Installed Technology: PowerLift - Long-Stroke Hydraulic Pumping Unit (Model XL600S-C100)

Installation Date: July 2026

1. EXECUTIVE SUMMARY

This document compares the operational parameters of a mature well, previously constrained by a conventional beam pump system and affected by frequent failures due to rod/tubing wear and high Non-Productive Time (NPT), with the data collected following the installation of the PowerLift long-stroke hydraulic unit.

The data analysis highlights a sharp improvement in volumetric efficiency, a substantial surge in net oil production, and a radical optimization of downhole mechanical dynamics. This upgrade successfully mitigated the dynamic losses and gas interference at the pump intake, ensuring higher system stability and fewer interventions over time.



Fig. 1 – General installation layout of the PowerLift PL600-C100 hydraulic unit on the well

Sivam S.p.A. Headquarters:

Via Mare Adriatico 72/F
65010 Spoltore (PE) ITALY
VAT Number and Fiscal Code 01404070680

Web Site: www.sivam.com

E-mail: sivam@sivam.com

Tel.: +39 085 4972130

Fax: +39 085 4973667



Cert. ISO 9001	N. 28359/12/S
Cert. ISO 14001	N. EMS-817/S
Cert. ISO 45001	N. OHS-170

2. PERFORMANCE COMPARISON (DATA DASHBOARD)

Operational data confirm a cross-sectional improvement in the main production and mechanical KPIs :

Analyzed Parameter	Pre-intervention (Lufkin)	Post-intervention (PowerLift)	Variation	Operational impact
Total fluid production	19 m ³ /d (119 bpd)	43,5 m³/d (274 bpd)	+ 130%	Optimized reservoir exploitation
Water Cut (BSW)	86%	67,0%	- 19 points %	Drastic mitigation of water coning
Net oil production	~2,66 m ³ /d (17 bpd)	~14.35 m³/d (90.42 bpd)	+ 440%	Immediate ROI maximization
Efficiency (Pump Fillage)	58%	77%	+ 19 point %	Elimination of gas lock and cavitation
Pumping frequency	5,94 SPM	2,8 SPM	- 53% cycles/min	Reduction of wear and fatigue stress
Surface stroke	144"	272,6"	+ 89%	High compression ratio

Sivam S.p.A. Headquarters:

Via Mare Adriatico 72/F
65010 Spoltore (PE) ITALY
VAT Number and Fiscal Code 01404070680

Web Site: www.sivam.com

E-mail: sivam@sivam.com

Tel.: +39 085 4972130

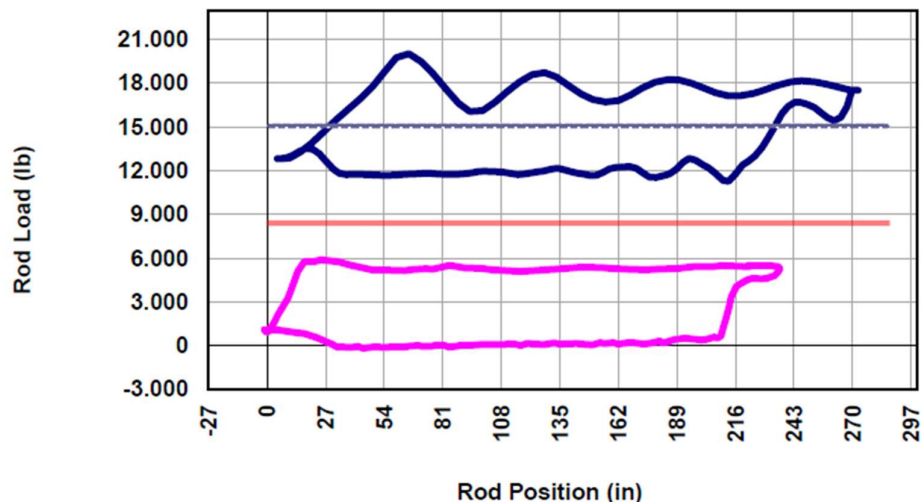
Fax: +39 085 4973667



Cert. ISO 9001	N. 28359/12/S
Cert. ISO 14001	N. EMS-817/S
Cert. ISO 45001	N. OHS-170

3. ANALYSE TECHNIQUE DES RÉSULTATS

- A. Production Increase and Water Cut Reduction** The transition to PowerLift technology increased total liquid extraction from 19 to 43.5. Simultaneously, the pumping dynamics favored a Water Cut reduction from 86% to 67%. The combined effect of the higher volumetric flow rate and the lower water proportion resulted in an effective 440% increase in extracted net oil.
- B. Volumetric Efficiency and Gas Management** Historical measurements showed a volumetric efficiency limited to 58%. Thanks to the larger useful downhole stroke (236.5 inches), the PowerLift unit ensures a significantly higher compression ratio. The free gas pocket is compressed almost instantly, allowing the traveling valve to open quickly and bringing the Pump Fillage to a stable 85%
- C. Mechanical Advantage: Optimized Kinematics and OPEX Reduction** The superiority of our Long-Stroke Unit lies in guaranteeing optimal fluid flow dynamics, but with half the mechanical cycles (from 5.94 to 2.80 SPM). This means the well produces more, while the downhole equipment works half as much. The drastic reduction in stroke reversals translates to:
 - A clear decrease in rod-tubing friction wear
 - Less structural fatigue stress on the entire rod string and on the couplings
 - An exponential increase in the MTBF (Mean Time Between Failures) of the downhole system and valves



Graph 1 – Real-time parameter monitoring and diagnostics via Rod Pump Controller (RPC)

Sivam S.p.A. Headquarters:

Via Mare Adriatico 72/F
65010 Spoltore (PE) ITALY
VAT Number and Fiscal Code 01404070680

Web Site: www.sivam.com
E-mail: sivam@sivam.com
Tel.: +39 085 4972130
Fax: +39 085 4973667



Cert. ISO 9001	N. 28359/12/S
Cert. ISO 14001	N. EMS-817/S
Cert. ISO 45001	N. OHS-170

4. DÉPLOIEMENT LOGISTIQUE ET CONTRÔLE NUMÉRIQUE (RPC)

- **Zero-Impact "Plug & Play" Installation**

Unlike traditional and bulky beam pumping systems, the deployment of the PowerLift unit was surgical. The system was assembled, interfaced with the wellhead, and made fully operational in just 4 to 5 hours, eliminating the need for civil engineering works or long production stops.

- **Pump Controller (RPC) and Real-Time Telemetry**

The PowerLift system is natively intelligent and equipped with an advanced RPC controller, ensuring total control of the asset without requiring continuous physical presence at the well:

- **Total remote monitoring** : Instant control of operating parameters in real-time via dedicated access to the platform from any device.
- **Diagnostic dynamométrique** : Automatic generation of comprehensive operational reports including the hydraulic unit's surface data and downhole parameters. The system provides the dynamometer cards (Surface and DownHole DynaCards) essential for analyzing pump efficiency, detecting anomalies, and quickly applying appropriate operational corrections



Fig. 3 – Real-time parameter monitoring and diagnostics via Rod Pump Controller (RPC)

Sivam S.p.A. Headquarters:

Via Mare Adriatico 72/F
65010 Spoltore (PE) ITALY
VAT Number and Fiscal Code 01404070680

Web Site: www.sivam.com

E-mail: sivam@sivam.com

Tel.: +39 085 4972130

Fax: +39 085 4973667



Cert. ISO 9001	N. 28359/12/S
Cert. ISO 14001	N. EMS-817/S
Cert. ISO 45001	N. OHS-170

6. CONCLUSIONS

The analysis of the operational data and the well's start-up history confirms the overall success of the upgrade project :

- **Extraction efficiency and economic value** : Net oil production more than quadrupled (+440%), going from ~2.66 m³/d to ~14.35 m³/d, combined with a drastic reduction in the Water Cut (from 86% to 67%)
- **Downhole volumetric efficiency** : The high compression ratio guaranteed by the 236.5" stroke brought the Pump Fillage to 85%, exceeding the historical filling limits due to free gas.

The installation currently operates at nominal speed, under conditions of full mechanical stability, maximum environmental protection, and high profitability.

Sivam S.p.A. Headquarters:

Via Mare Adriatico 72/F
65010 Spoltore (PE) ITALY
VAT Number and Fiscal Code 01404070680

Web Site: www.sivam.com
E-mail: sivam@sivam.com
Tel.: +39 085 4972130
Fax: +39 085 4973667



Cert. ISO 9001	N. 28359/12/S
Cert. ISO 14001	N. EMS-817/S
Cert. ISO 45001	N. OHS-170