

## UNBRIDLED ESP Systems prevents electric utility fines with a cost-effective harmonics solution

CASE HISTORY

### CHALLENGES

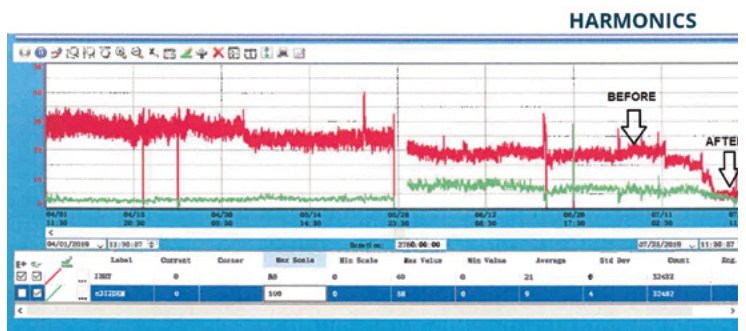
- ▶ The local electric utility notified a Permian Basin operator of unacceptable harmonic distortion levels (iTHD) in several fields, especially those with a large number of ESP systems
  - iTHD levels in the fields reached as much as 40% and averaged 30%
  - Electric utility required no more than 10% total distortion
- ▶ Without improvement in total distortion levels, the utility planned to shut off electricity to several fields, which would severely impact the operator's production and revenue

### SOLUTIONS

- ▶ The UNBRIDLED® ESP Systems' Power Quality Service team was dispatched to conduct a comprehensive field survey to assess well and ESP performance in several critical fields
- ▶ The team identified multiple wells with harmonic mitigation equipment that was either inoperable or oversized for the application
- ▶ The team recommended a solution designed to fit the fields' specific requirements, including:
  - SMARTEN™ variable speed drives and harmonic filters properly sized for each well
  - Real-time power meter monitoring

### RESULTS

- ▶ UNBRIDLED ESP Systems' Power Quality Services solution achieved electric utility requirements of <10% iTHD
- ▶ Tests conducted by the operator's consultant showed the ESP systems operating continuously below 10% iTHD with "outstanding performance"
- ▶ UNBRIDLED ESP Systems solution proved more cost effective than 12- or 18-pulse drives with a phase-shift transformer



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	IA	IB	IC	IN
Fund(A)	88.406	90.906	85.813	0.775
RMS(A)	88.454	91.110	85.926	0.813
THD (%)	3	7	5	0

Current THD

Excellent THD



**Apergy**<sup>®</sup>