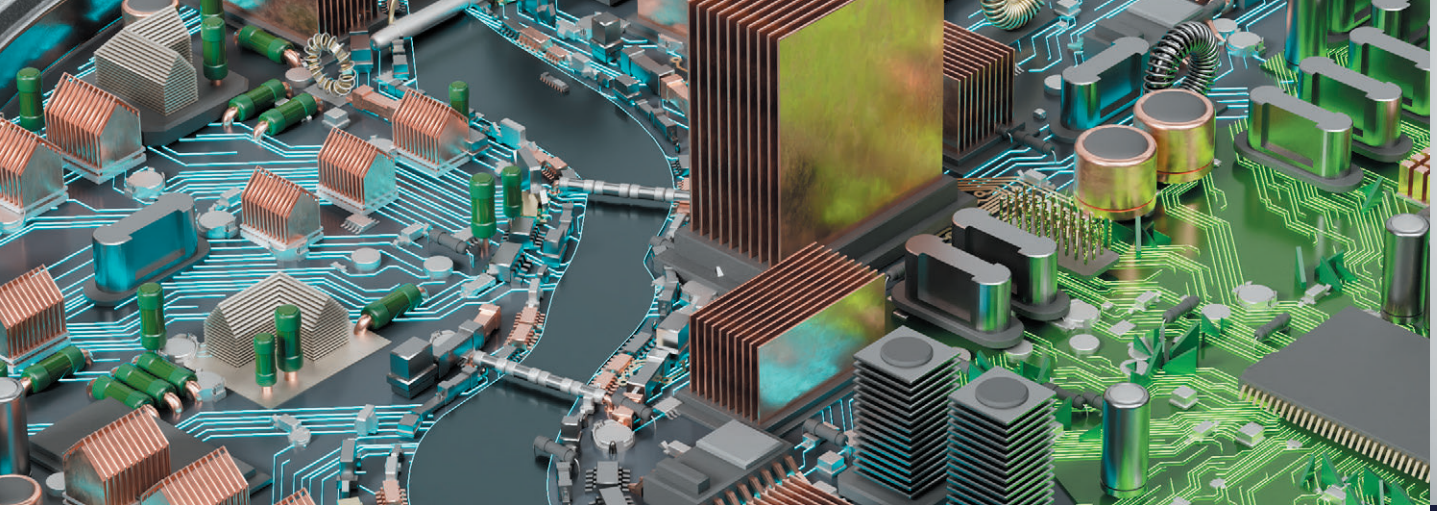


Case Study

High Voltage Identification

Detecting hidden over-voltage threats to protect asset reliability

VisNet®
From EA Technology

V1 / UK / 03.10.25
PUBLIC

www.visnet.tech

Case Study

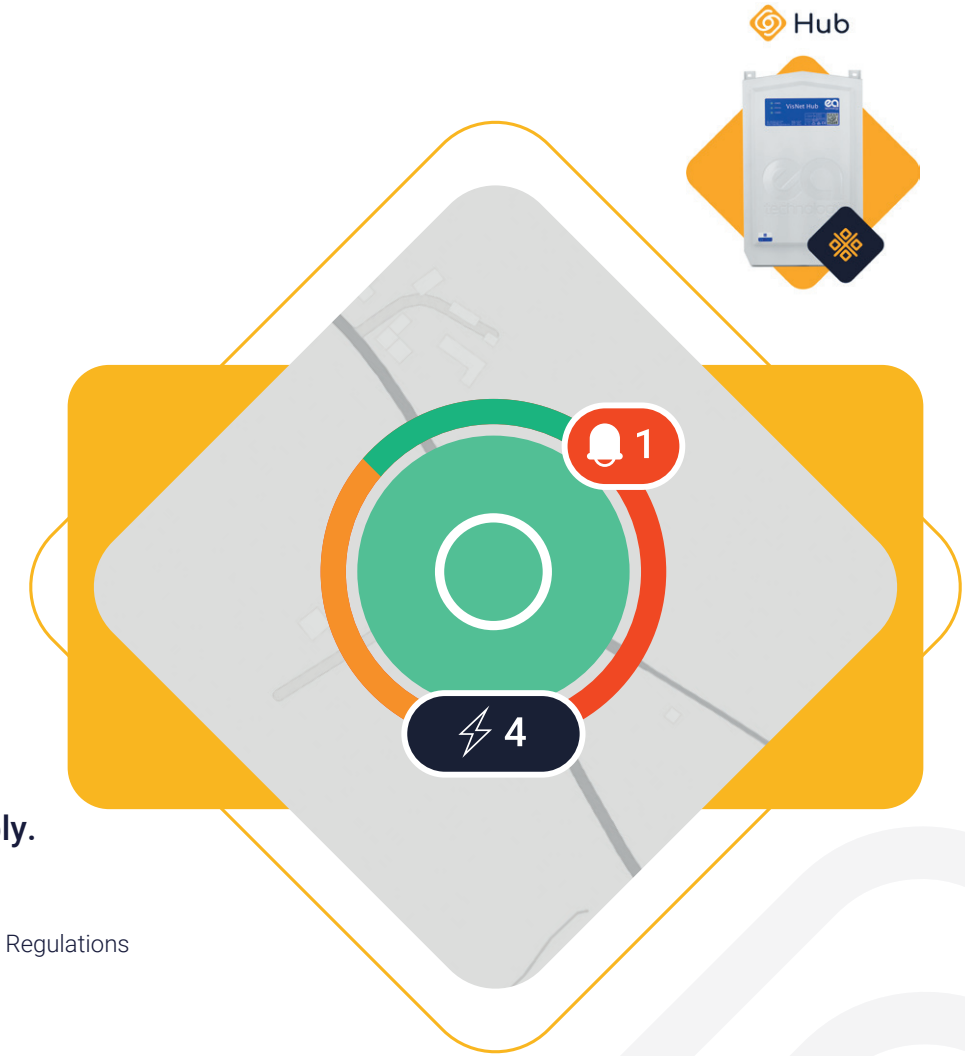
Overview

Date of Incident: Continuous observation - July 2025

Location: UK

Monitored By: The VisNet® Hub from EA Technology

Data Source: Monitored Electrical Supply Data



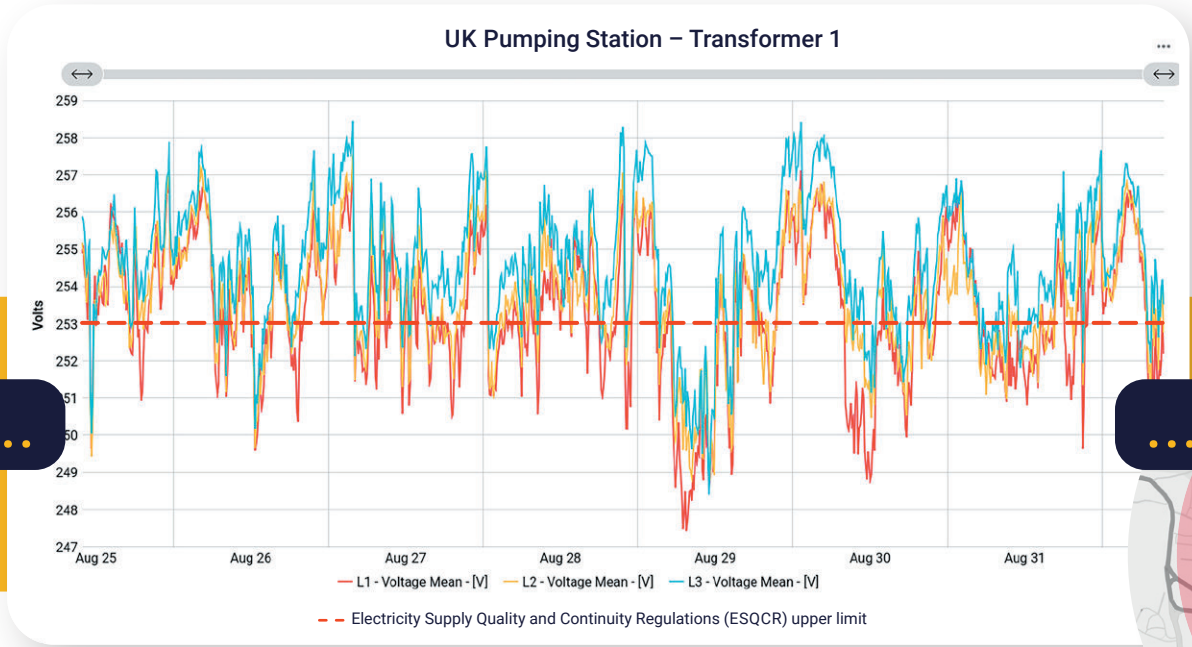
Background

Routine monitoring by the VisNet® Hub at this pumping station identified consistently elevated voltage levels on the incoming supply.

Measured voltages were found to be:

- Above 253V for the majority of the time, exceeding the Electricity Supply Quality and Continuity Regulations (ESQCR) upper limit of 230V +10%.
- Peaking at 258V RMS (10-minute average) during overnight low load conditions.
- Lowest during daytime when site load was at its highest, with a predictable overnight rise.

While not an immediate emergency, this condition indicates that site equipment is regularly being operated outside of its tested supply voltage range, which can reduce equipment reliability and lifespan.



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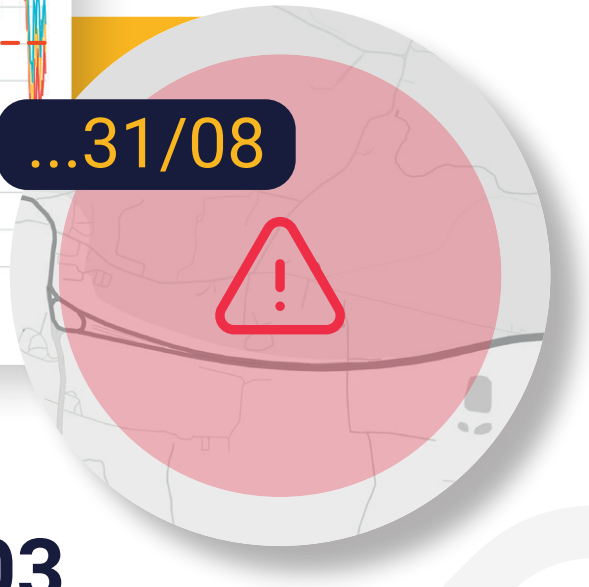
Alarm:
High Volts (Average)



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Key Findings

01
Persistent High Voltage

- Voltage levels consistently exceeded regulatory limits, often >253V, with peaks recorded at 258V.
- Alarms flagged "High Volts (Average)" across multiple days.

02
Time-of-Day Variation

- Voltage was predictably lowest during the daytime when demand increased.
- Nighttime load reduction led to a marked rise in supply voltage, suggesting insufficient DNO voltage regulation.

03
Risk of Equipment Stress

- **Motors:** Over-voltage accelerates heating, raising operational temperatures and reducing lifetime.
- **Electronics:** Power supply components are subjected to direct stress, with heightened risk of overheating and premature failure.

Operational Impact

Pump Performance

The site's pumping systems remain operational, but exposure to sustained high voltages risks unplanned breakdowns. Stress on motors and electronics increases maintenance requirements and threatens long-term resilience.

Risk Avoidance

Without proactive engagement, prolonged over-voltage will accelerate equipment degradation. Addressing this issue early reduces the likelihood of costly failures and operational downtime.

To book your demonstration or to get further information and advice please contact us on +44 (0) 151 347 2283 or email **monitoringservices@eatechnology.com**
www.visnet.tech

Technical Classification

This incident is an example of voltage excursions outside statutory supply limits, not linked to a fault event but instead a systemic over-voltage condition. Such conditions require collaboration with the DNO to ensure compliance and protect customer equipment.

Conclusion & Learnings

This UK pumping station case highlights how the VisNet Hub provides early warning of hidden risks within the electrical supply. By detecting persistent over-voltage conditions, asset operators gain the insight needed to:

- Verify the supply quality at site level.
- Engage with the DNO to reduce equipment stress.
- Protect pumps, motors, and control systems from premature failure.

This proactive approach supports improved asset resilience, reduced maintenance costs, and extended equipment lifetimes across water industry operations.

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