RMS
RELIABILITY MAINTENANCE SOLUTIONS

Case Study – Wireless - Kappa X Unbalance Problem

Power Plant - Food Sector

Background

- Critical Gas Fan part of a power plant for a food production factory
- 1485 RPM Direct Drive Fan – 250kW
- Kappa X wireless sensors installed on the fan to monitor condition- 1 min short term trends, with power bands, spec, waveform
- HMI Software setup in control room for site Ops to monitor. Alarms setup based on current fan levels. System will email / text - key personnel when broken.

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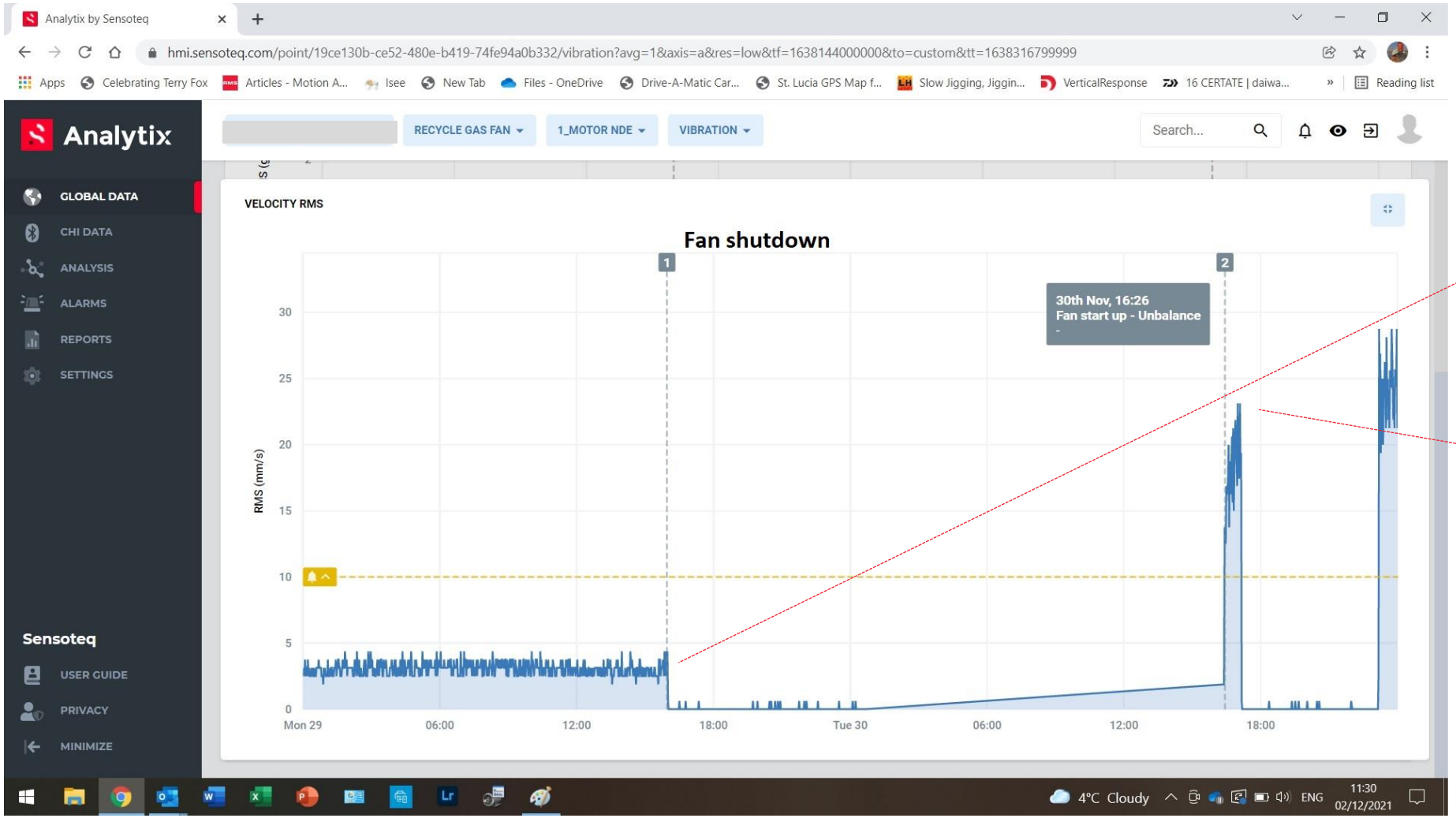
Short term 1 min trends – Motor NDE – Velocity mm/sec RMS



Analysis

- Fan shut down as one dryer was brought offline.
- Upon restart, sharp increase in velocity levels up to 20mm/sec RMS, previous levels were 4 mm/sec RMS.
- Alarms broken PDM team alerted

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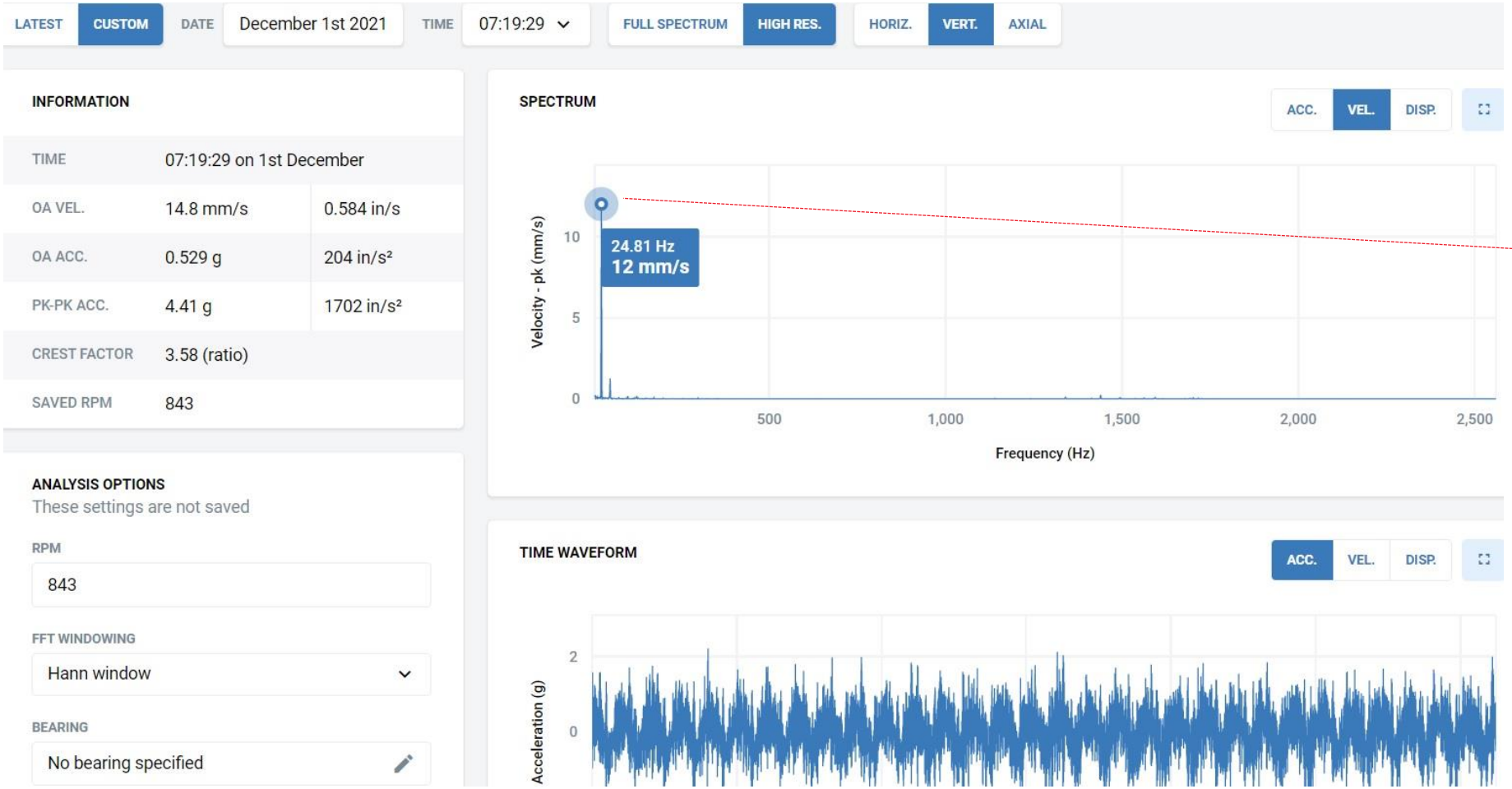
Spectral / Waveform Data – Motor NDE



Analysis

- Spectral data showed high 1XRPM, suspected unbalance
- Low G's on waveform
- Decision was made to inspect fan impellor for signs of damage or dirt build up.

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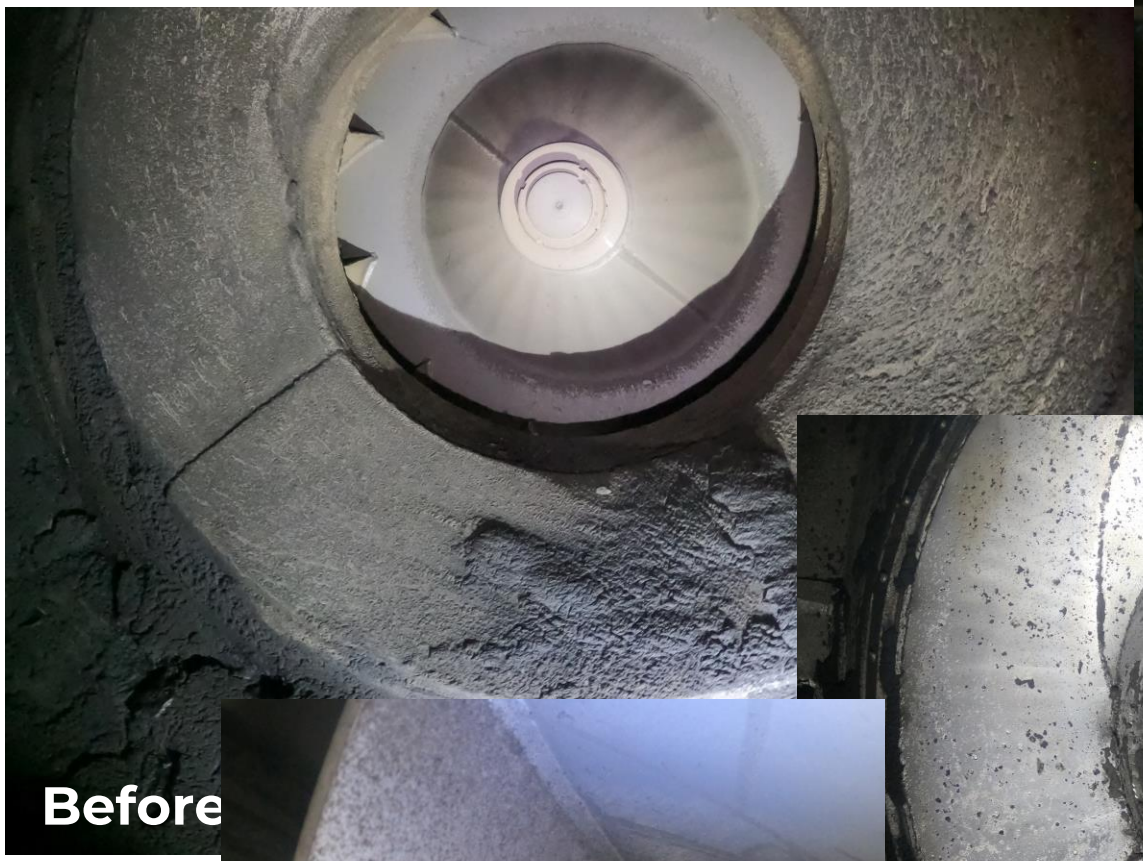
Fan inspection – Before & After Clean



Analysis

- Fan inspected, found to have heavy dirt deposits on the impellor and casing
- Fan thoroughly cleaned
- **Suspected root cause of unbalance was significant piece of dirt fell off during start-up of the fan.**

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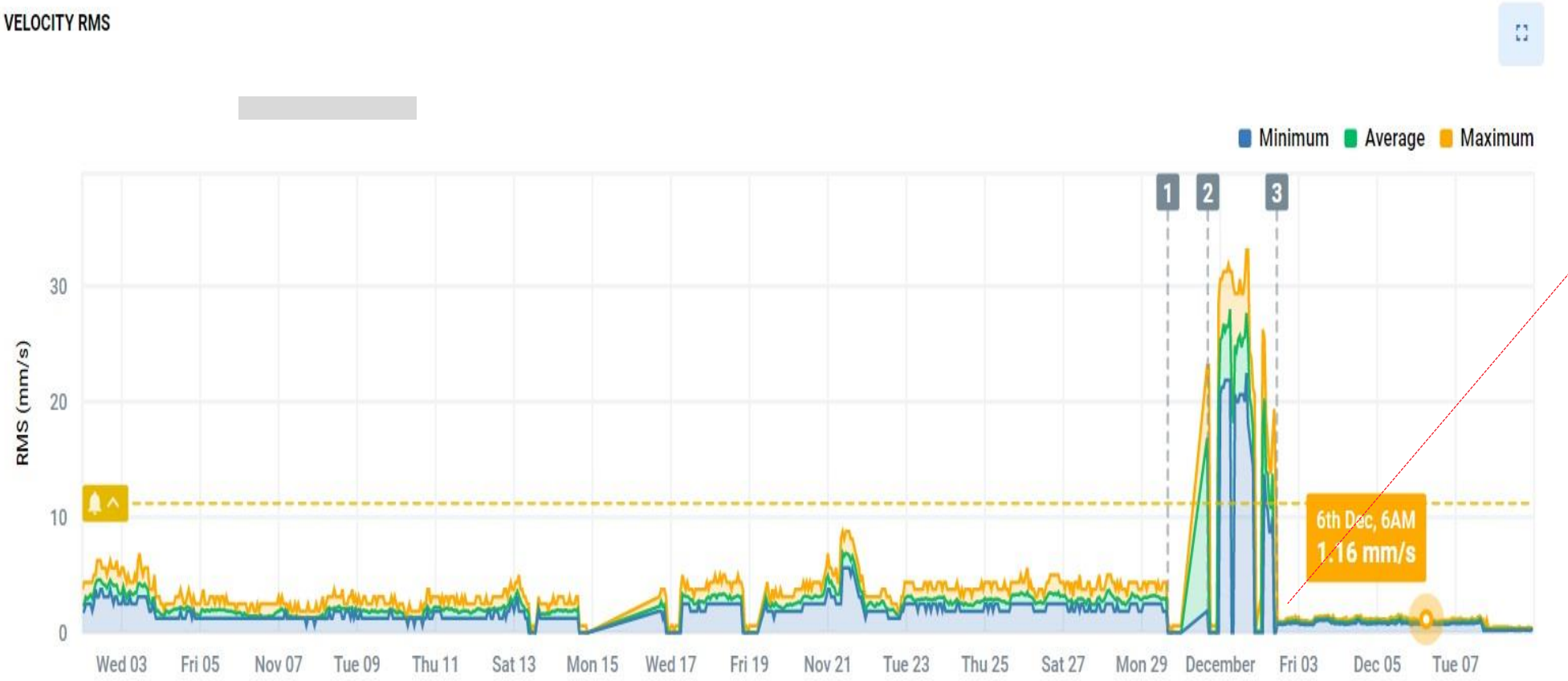
Before and After Fan Clean - Trend Data



Analysis

- Levels reduced to 1mm/sec after fan clean.
- Investigation planned into why fan had build up of dirt as classed as “Clean Fan”

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FURTHER INFORMATION

Customer Support

RMS Ltd. No.42 Goldcrest Close. Longridge Park.

Colchester. Essex CO4 3FN.

Company Reg No. 03808313. VAT No. GB 741737428.

Tel/Fax: +44 (0)1206 791917

Email: info@rms-reliability.com

rms-reliability.com