Using your PI System for Full Featured Vibration Monitoring

Presented by Brüel & Kjær Vibro
About SETPOINT...

20 minutes from Lake Tahoe

Machinery Protection

Condition Monitoring
PROCESS VISUALIZATION CLIENT

VIBRATION VISUALIZATION CLIENT

PI SYSTEM

DCS
(SUPERVISORY CONTROL)

PROCESS CONTROL
MOTOR CONTROL
TURBINE CONTROL
ANTI-SURGE
OVERSPEED
VIBRATION

SILO

VIBRATION ANALYSIS SOFTWARE

MECHANICAL ASSETS

CONTROL & MONITORING

LEGEND

- OPEN PROTOCOL (e.g., MODBUS)
- PROPRIETARY PROTOCOL (CONTROL)
- PROPRIETARY PROTOCOL (VIBRATION)
- CORPORATE NETWORK

ETC.
How do you put waveforms in PI?
\[ \Delta t = 1 \text{ ms} \]

4.2 mils

0.9 mils

2048 samples
x-probe

phase probe

y-probe
When do you put waveforms in PI?
Alarm Buffer contains data for 10 minutes before the alarm…

…and for 1-2 minutes after the alarm

Interesting data not captured even though vibration amplitude more than doubles

DANGER alarm setpoint

ALERT alarm setpoint

What operators see…

ALERT alarm @ t = 35 min.

Vibration Amplitude (mils)

Time (minutes)
1. AMPLITUDE
2. PERIOD
3. AVERAGE VALUE (GAP OR BIAS)
4. FREQUENCY CONTENT (1X, 2X, nX)
What does it look like in practice?
Cursor Pos'n Shows Displayed Waveform

Tic Marks Show Waveforms Collected
How is this visualized?
Typical PI Visualization screens

- Create your own HMIs using PI ProcessBook
- View integrated process and vibration data
- Write rules to detect anomalies/conditions
- Launch CMS Display from within PI ProcessBook
Typical SETPOINT CMS Visualization screens

- All data resides in your PI System
- Navigate easily in time using the time slider
- View specialized data presentation formats
- View data in real time or play back later
What hardware do I need?
Augmentation

Visualization Tools
(PI Vision and CMS Display)

Digital Interface
PI Server

Digital Interface
Data Acquisition
H/W (SETPOINT)

ANALOG Interface
Protection System
H/W (e.g., 3500)
Replacement

Visualization Tools
(PI Vision and CMS Display)

Digital Interface

PI Server

Digital Interface

Protection System

EXISTING SENSORS

Machine(s)
Who is using this system?
Randy Chitwood
randy.chitwood@bkvibro.com
SETPOINT Vice-President
Brüel & Kjær Vibro

Steve Sabin
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SETPOINT Product Manager
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Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

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