



Kuwait 4th Flow Measurement Technology Conference

3-5 December 2019
Hilton Kuwait Resort



OFFICIAL SPONSOR



الراعي الرسمي



MAX GUTBERLET
GLOBAL GAS GROWTH MANAGER
HONEYWELL



MOVING TO TRUE PREDICTIVE MAINTENANCE FOR ULTRASONIC METERS

STATE OF THE MEASUREMENT NATION



- CONDITION BASED MAINTENANCE
- LIMITED TO SINGLE MANUFACTURER
- OR MULTI MANUFACTURER AND LIMITED DEPTH
- UNCERTAINTY CALCULATION WITH STATIC VALUES
- STATION LEVEL ANALYSIS

Honeywell


EMERSON

ABB

ST
swinton
TECHNOLOGY

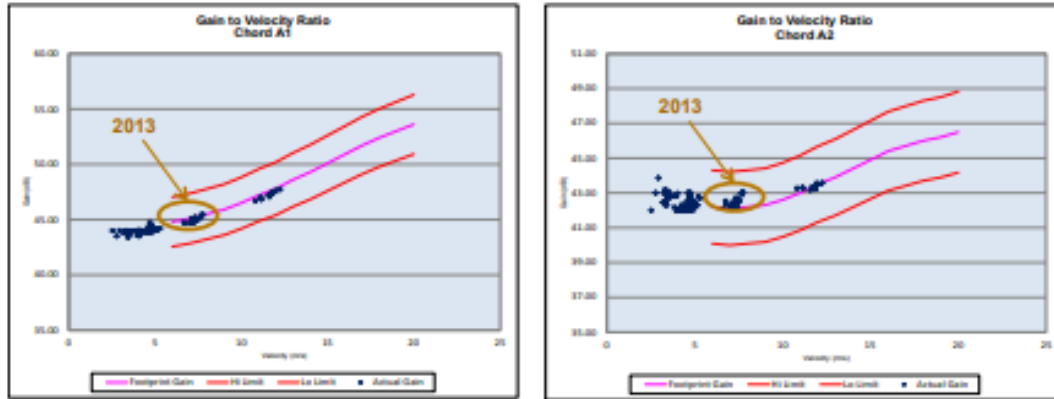
KELTON
Delivering Measurement Excellence

THIS DOES NOT MEAN CBM IS STUPID



RULE 1:

COMPARE GAIN CURVES OVER FLOW RATE



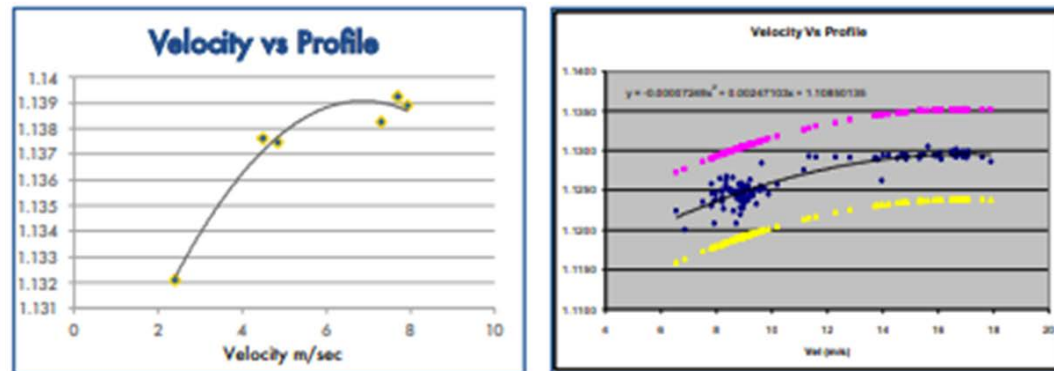
RULE 2:

TRACK PERFORMANCE LEVEL OVER TIME



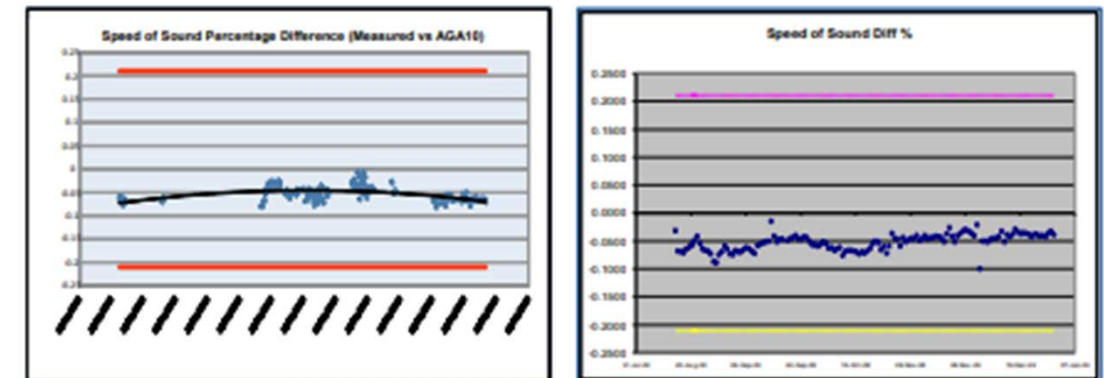
RULE 3:

MAP PROFILE vs SYMETRY and Cross-flow



RULE 4:

TRACK SPEED OF SOUND OVER TIME



TAKING CBM ONE STEP FURTHER



HONEYWELL MEASUREMENT IQ FOR GAS

- MULTI MANUFACTURER SUPPORT
- MULTI DEVICE TYPE SUPPORT
- LINE UNCERTAINTY SUPPORT
- MOBILE AND CENTRAL MONITORING
- ISO17089-1 & BS7965 COMPLIANT
- SCALABILITY



شركة الغاز العمانية ش.م.ع.م.
OMAN GAS COMPANY S.A.O.C.

MULTI MAUFACTURER – MULTI DEVICES



MULTI MANUFACTURER SUPPORT



MULTI DEVICE SUPPORT

ULTRASONIC



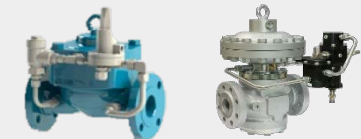
GAS ANALYSIS



TURBINES (2021)



REGULATORS (2022)



SO YOU HAVE CBM NOW...



... SO WHAT ?

MOVING FROM CBM TO PREDICTIVE (1)



A THE METERING SKID

TT PT USM GC FC

B CONNECTED AND SECURE DATA GATEWAY

Edge Device VPN Tunnel

E DETAILED DIAGNOSTICS AND CONFIGURATION
[HONEYWELL SERVICES SME]

SME Web Based Connected Metering Console

C IDENTIFY & DIAGNOSE METERING ISSUES
[AVAILABLE FROM ANYWHERE]

Measurement IQ for gas

Customer's Metering Technicians

D MOBILE APP.
[FASTER AND EASIER]

Level 1 Summary

Customer's Metering Technicians

Level 2 Insight

Level 3 Trending

MOVING FROM CBM TO PREDICTIVE (2)



A THE METERING SKID

TT PT USM GC FC

B CONNECTED AND SECURE DATA GATEWAY

Edge Device with ML Model VPN Tunnel

E DETAILED DIAGNOSTICS AND CONFIGURATION [HONEYWELL SERVICES SME]

SME Web Based Connected Metering Console

C IDENTIFY & DIAGNOSE METERING ISSUES [AVAILABLE FROM ANYWHERE]

Measurement IQ for gas

Customer's Metering Technicians

D HONEYWELL FORGE MACHINE LEARNING [CLOUD BASED DIGITAL TWIN]

Windows Azure
MACHINE LEARNING

FIELD DATA

OUR REQUEST TO YOU



WE HAVE A MOUNTAIN OF MEASUREMENT DATA



WE HAVE VERY LITTLE ROOT CAUSE ANALYSIS

WHAT WE COVERED



Honeywell

- Condition Based Maintenance is improving
 - Multi manufacturer
 - Multi devices
- But the core question remains ... what to do ?
 - Build a model in the cloud
 - Requires not only measurement data but root cause intelligence
 - Run the model locally on site
- Work with Honeywell – and get first results in 2020



THANK YOU

