

ATLAS MDT – Current problems

Kacper for Gas team – works to be discussed

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ATLAS MDT – Topics to be discussed

1. PUMP module - regulation problem

2. Distribution module - problems:

- Pressure sensors.
- Flowcells.

3. Humidity measurement point.

PUMP module - regulation problem

Bypass regulation valve needs to be replaced!

- System stop needed.
- Piping modification needed.
- When? LS2 or if MDT will agree during TS2.

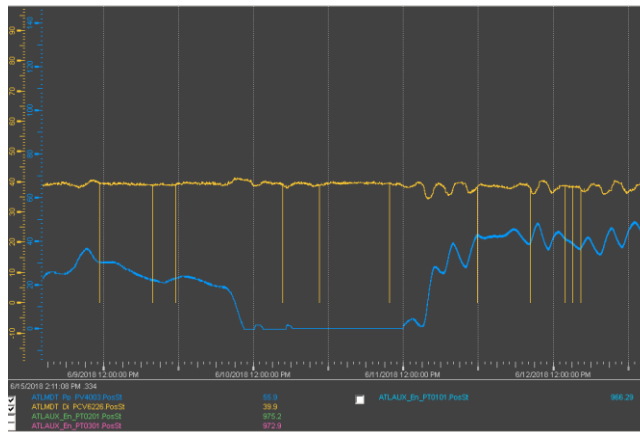
Pump bypass regulation going to 0%. Problem since 29/04/2018.

System was back to normal after bypass regulation and PLC/SCADA deadbands change (end of may)

System again touched zero => problem back => after bypass regulation system back to normal.

First thoughts:

- Bypass valve – not made for regulation => needs to be changed.
- Pump efficiency starts decreasing => To be verified after valve change.



DISTRIBUTION: Pressure sensors.

Pressure sensors used in MDT distribution are 0-5V. In distribution racks we have also 4-20mA sensors and we are not facing this problems.

- We have around 280 0-5v sensors in MDT.
- Cost to replace all sensors needs to be evaluated, just new sensors are around 70kCHF (~250CHF) + Costs of manpower.
- After CHARM radiation tests of our equipment we can see that new generation of 0-5V sensors is really bad in terms of lifetime in radiation zones.
- Decision should be taken – or we continue to replace pressure sensors or we will stop and replace for 4-20mA in LS2.

- RACK 64 Channels 5, 8, 9
- RACK 66 Channels 16, 19
- RACK 67 Channels 15, 22
- RACK 68 Channels 5, 17
- RACK 69 Channels 22
- RACK 73 Channels 3, 7

In total we have 12 bad sensors over 280
So we have 4.3% bad sensors since 2017.
Since system first start - 14 sensors

- **Important question: How important are they for system operation? Can we run system like this until LS2?**

DISTRIBUTION: Flowcells

We have 3 flowcell that should be replaced:

- RACK 64 Channels 9 INPUT
- RACK 69 Channels 11 INPUT & OUTPUT

3+3 Flowcells will be prepared and replaced during next approved date:

- Gas team proposal - TS2

Humidity measurement point.

Now regulation of humidity is "manual":

- We are regulating PPM sent from mixer to loop (1)
- So regulation is not taking in account value change in loop.

- We need to move regulation from mixer (1) to loop (2).
- Connections are already there but system never tested in this configuration.

Gas team proposal:

- Perform tests & regulation during MD3 and TS2
- If positive stay in this configuration, if not back to current configuration.

