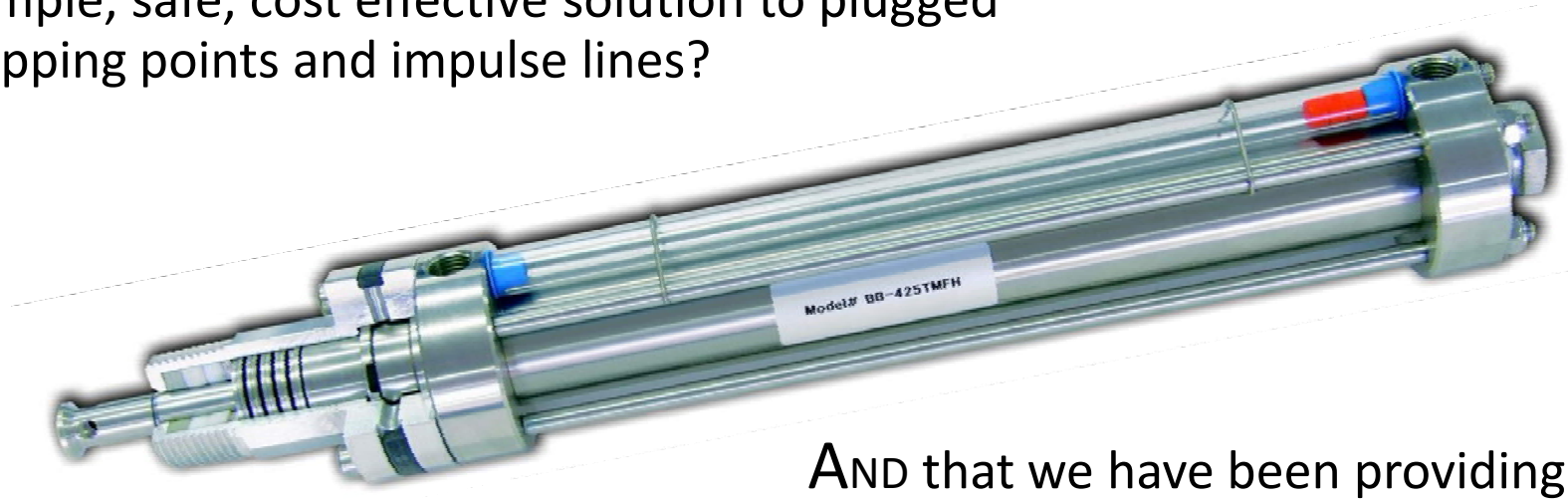
CLEARGUARD

REFCOMM GALVESTON MAY 2-6 2016

What would you say if I told you that there is a simple, safe, cost effective solution to plugged tapping points and impulse lines?



AND that we have been providing this engineered solution for 15 years

- PRESENTER: MR. STAN MILLER P.E.
- PRESIDENT CLEARGUARD USA

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History

Since the Industrial Revolution, measuring process variables such as Level, Flow, Pressure, and Density has been critical to the efficient operation of a process plant.

When you cannot measure accurately, you cannot have an efficient process

When a Process Tapping Point continually blocks up, confidence in measurement values from field instruments is lost. A field instrument relies on clear unimpeded access to the process to measure the variable the instrument is required to measure.

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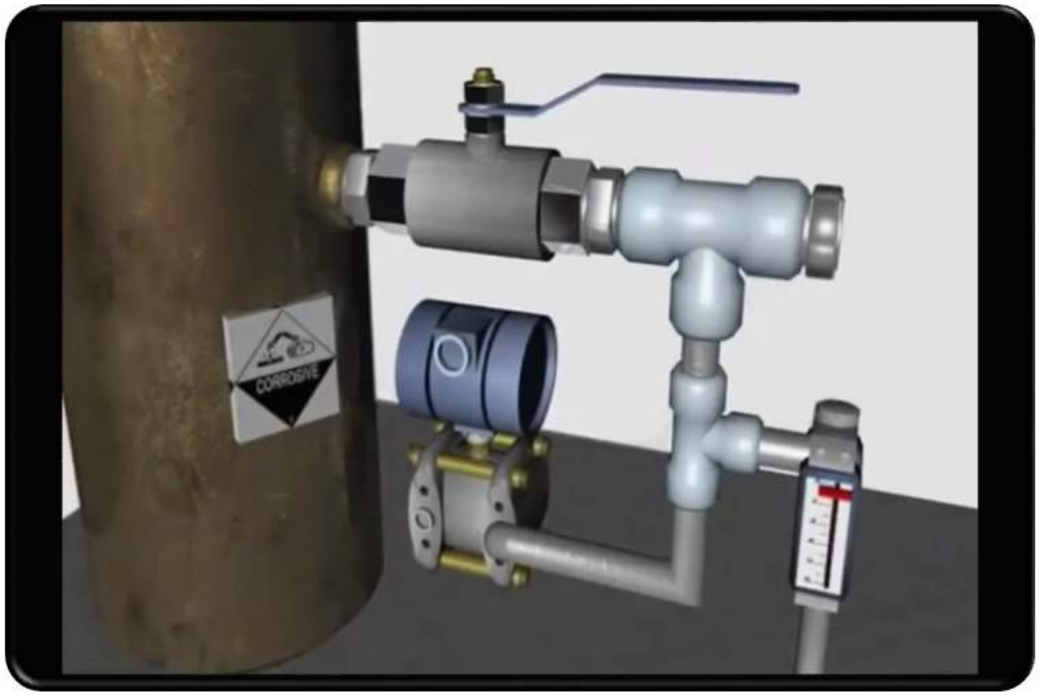
Example of a conventional tapping point



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Example of Unsafe manual “rodding out” operation

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Preface

16 years ago, lost time injuries, unit outages and erroneous data from field devices became a high priority issue for a major Alumina Refiner

The Problem = plugged instrument taps and plugged impulse lines

Hot Caustic Slurry (320 F) pressure (up to 928 psi) needed to be controlled accurately and efficiently

The preferred field instrument from a cost, reliability point of view is the Pressure and Differential Pressure Transmitter (Dp Cell)

Both Pressure and Differential Pressure transmitters are contact instruments and not recommended in slurry, scaling, crystallizing processes, because of plugged taps

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Plugged tapping point

Plugged impulse / purge line

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Evolution

Change out robust pressure transmitters to expensive non-contact instruments

Use larger diameter tapping points

Increase purge flow rates

Use potentially unsafe, personnel intensive, manual rodding procedures

Ignore false readings from field devices and operate “blind”

Take the vessel or pipe out of production or shut the unit down

All of the above are only treating the ***symptoms***

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What causes Plugged Taps and impulse lines?

Unreliable purge delivery, incorrect purge installation

Location and alignment of taps, e.g. horizontal

Differential temperature or other aspects affecting process phase change

Reducing preventative maintenance routines

Process upsets

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And the solution is…

No. 1 Let's ensure compliance with recommended installation practices are carried out

No. 2 Let's keep the bore of the tap open and greater in area than the impulse line bore

No. 3 Let's do No. 2 Automatically, frequently and routinely, ensuring 24/7 accurate Pv measurement

No. 4 Let's ensure there is zero or absolutely minimal potential for induced errors

No. 5 Let's use existing and available motive power and no special tools

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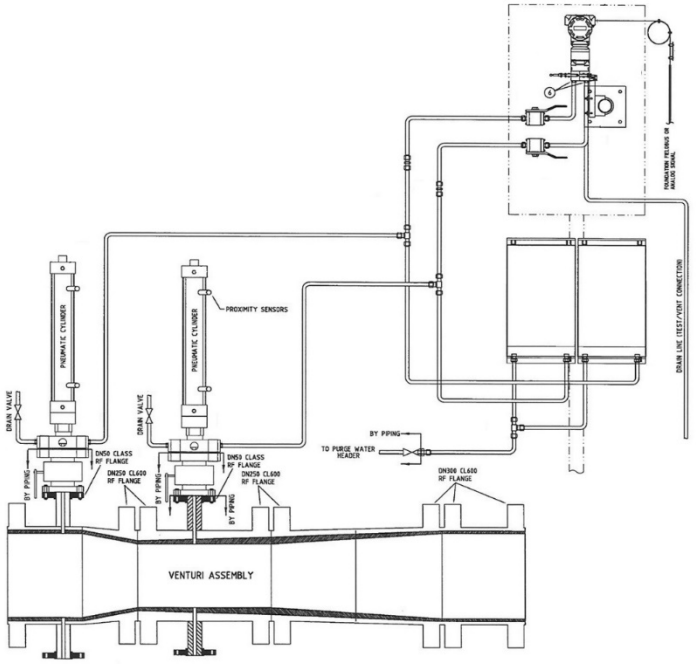
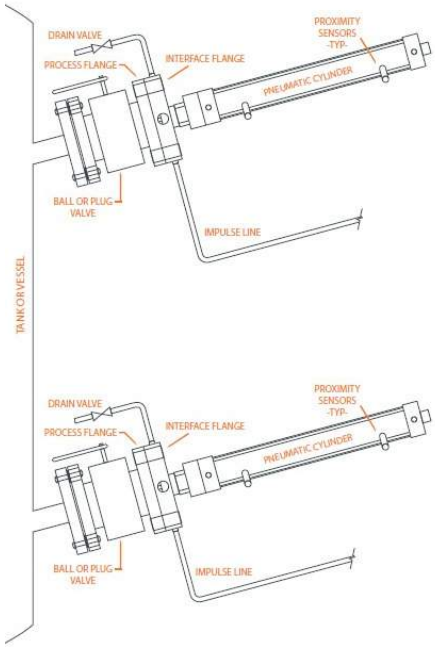
Typical Instrument Tapping Point Schematic





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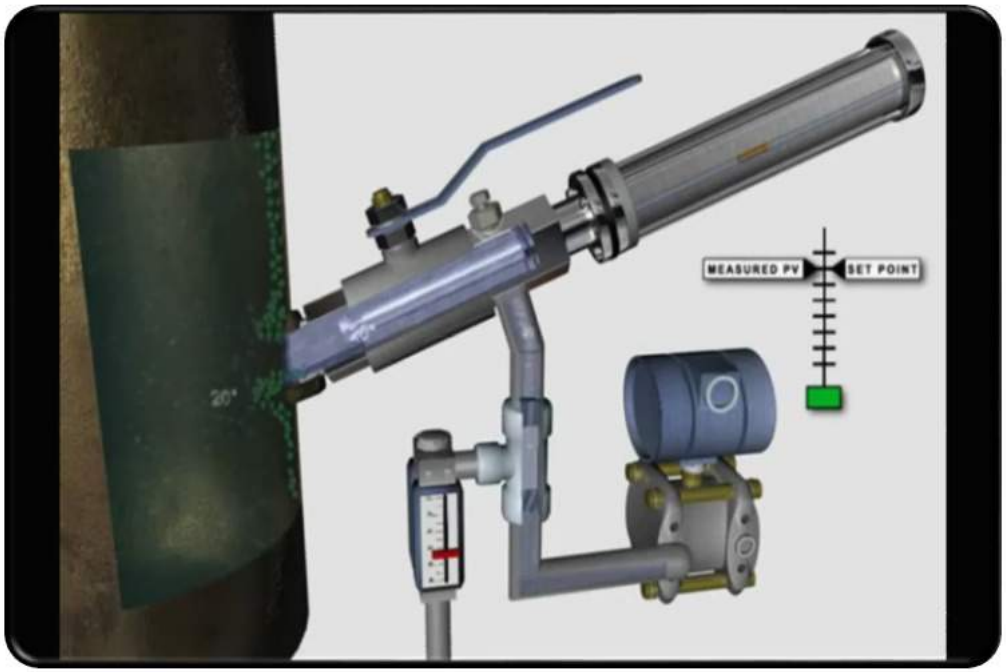
Autorodder Animation



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Autorodder Stroke Test

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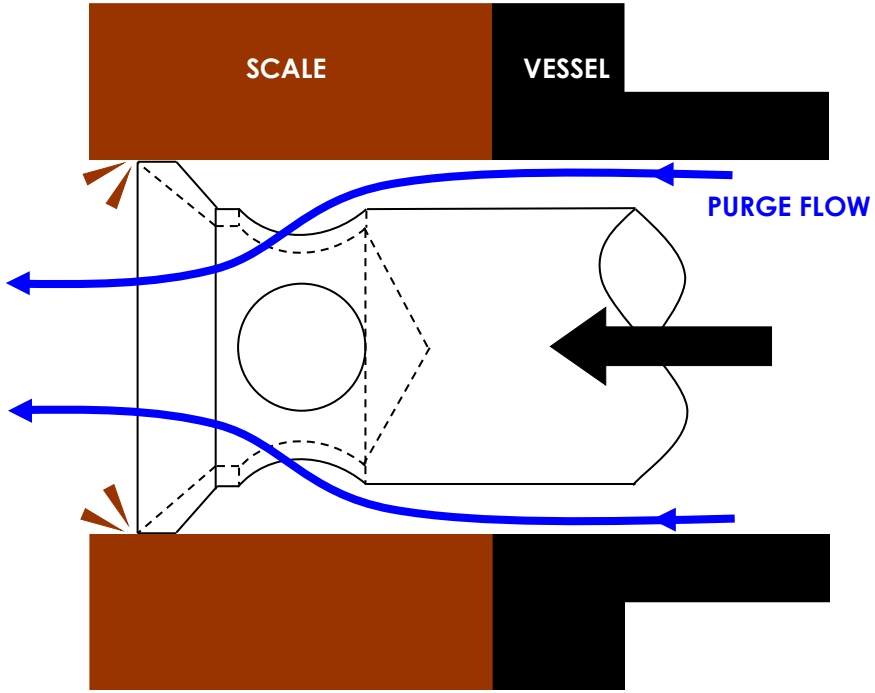

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The CLEARGUARD® Autorodder

The Autorodder advanced Evolution by Revolution and became the ***SOLUTION***

- Standard options connects to 20mm ID 1" NPT or BSPT nozzles through to DN80 3" ANSI 600 flanged process connections
  (optional 3000 PSI rated 1" NPT or BSPT tapping point valve available)
  custom options available upon request
- Uses plant air and mains or optional 24v battery pack
- Stand alone or remote DCS operation
- Assists in reducing purge flow rates
- Enables continued used of robust pressure transmitters
- Provides constant accurate, reliable process variable measurement readings
- Automatically keeps the tapping point clear at ALL times

Helps keep your plant running!

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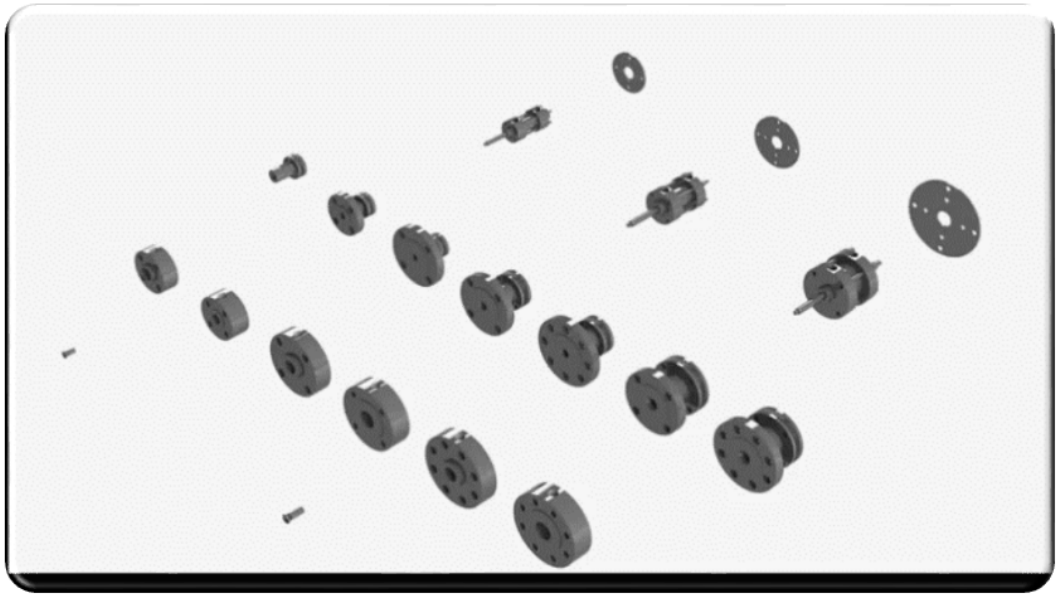
Manufactured to suit a wide range of ANSI standards



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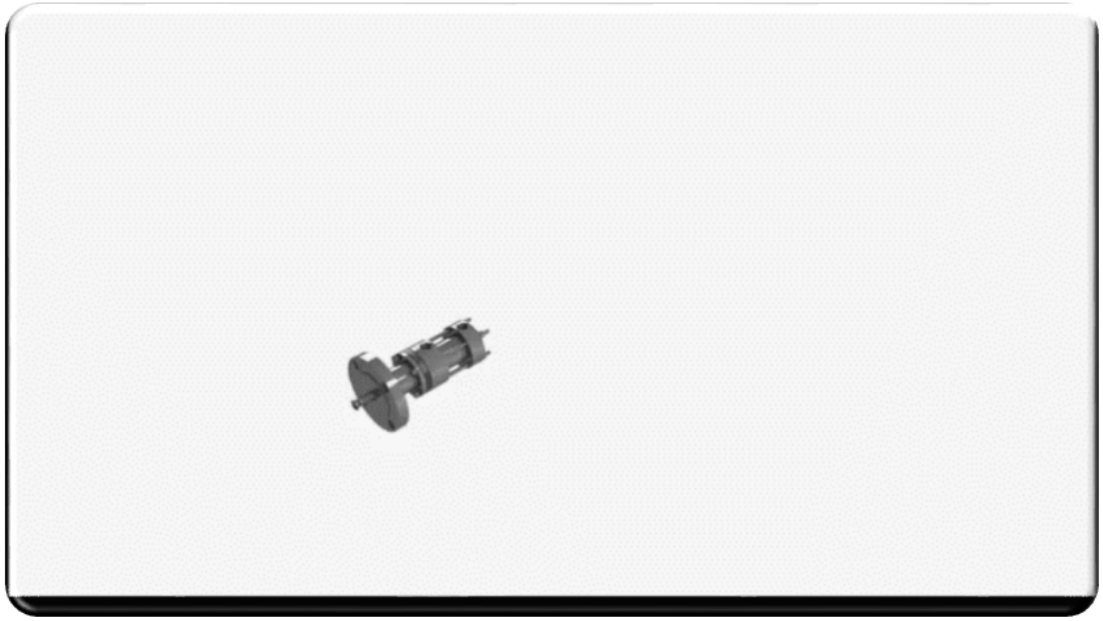
Engineered Solution



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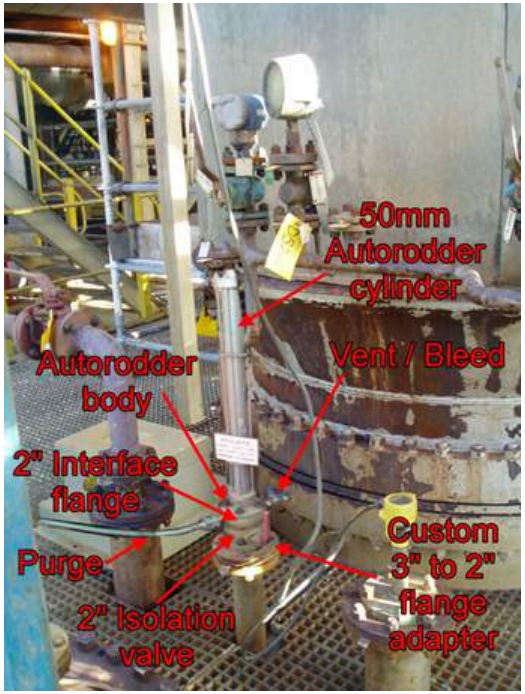
Before

Mock up



Installation





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Field Results

Purge flow reduced to bubbles per minute or 1-3 Gal/hr using constant flow purge flowmeters

Eliminate the risky practice of manual rodding or blow down needs

Provide safe, reliable, accurate Pv measurement, 24/7 from field device

Eliminate any unit outages or plant shutdowns due to plugged taps

Field serviceable, with no special tools required

Accurate data means accurate Control = increased efficiency

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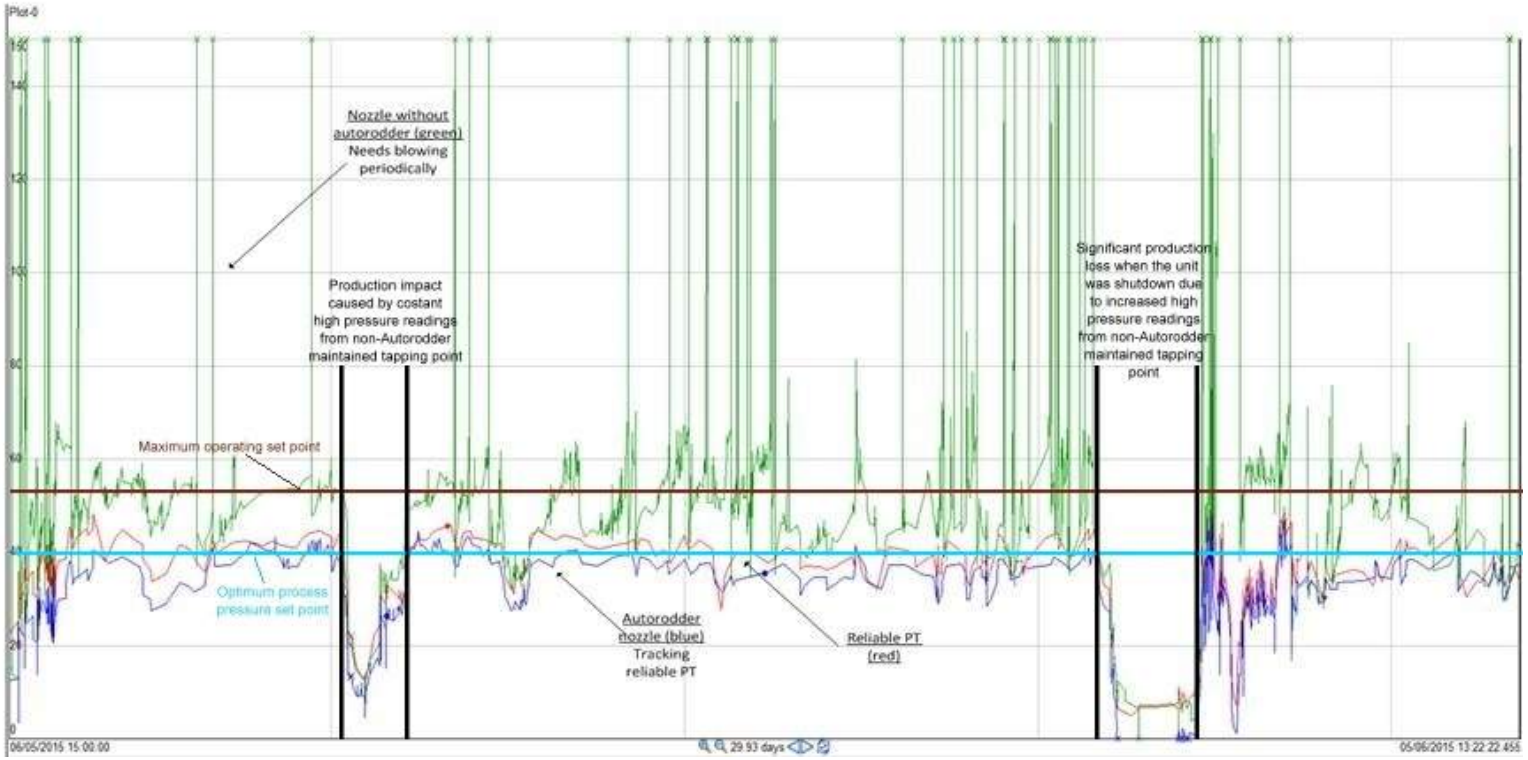
Pressure Variable Trend



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