Filtration and Separation

Seven Deadly Sins

GPAC
Gas Processing Association Canada

Why Process Separation ?

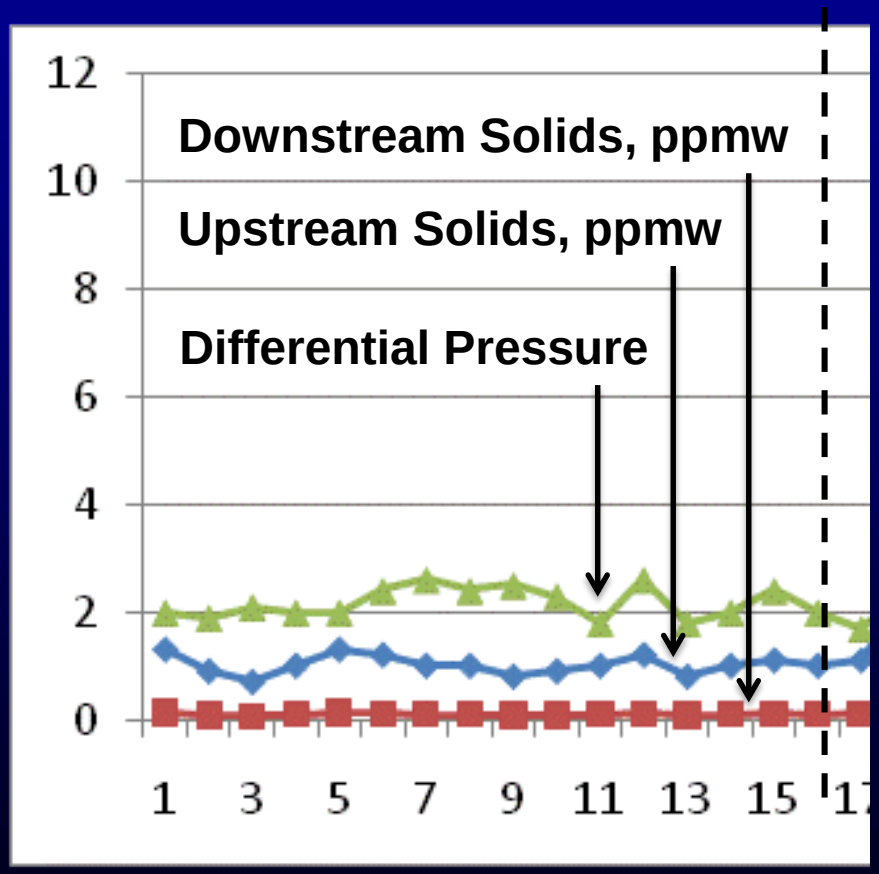
Undesired Contaminants	Meet Specifications	Enhance Throughput
Reduce Maintenance	Better Use of Natural Resources	Reduce Failure of Equipment
Minimize Operational Cost		

Desired Features of Separation Devices

- Simple to Maintain
- Cost Effective
- Long On-Line Life
- Low Waste Generation
- Reliable
- Efficient in Contamination Removal
- Provide Information
- Simple to Install and Operate
- Solve a problem - not change its location

Why Do We Need Separation Devices ?

Daily Control vs. Upset Conditions Control

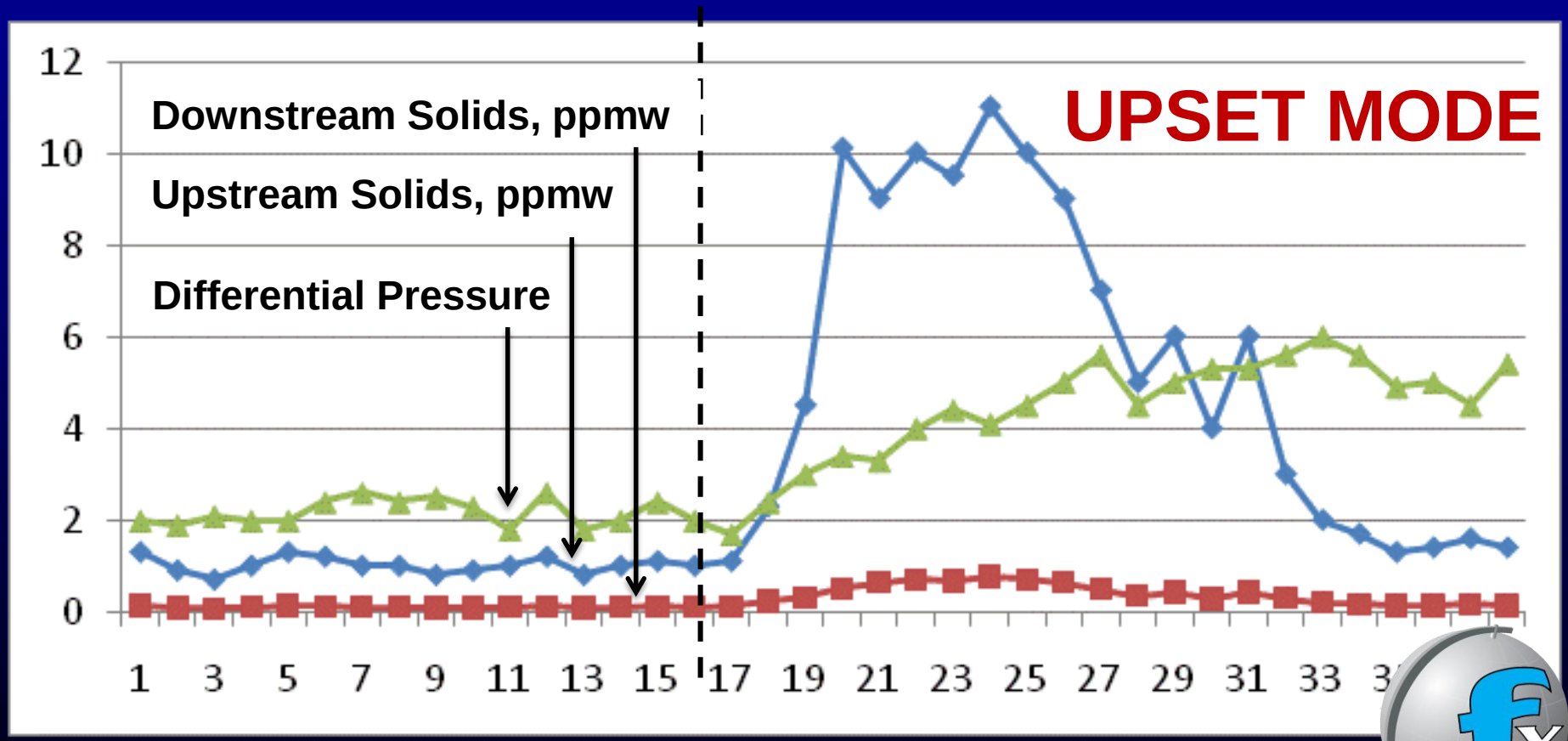


NORMAL OPERATION

PPM analysis and DCS readings in a Refinery

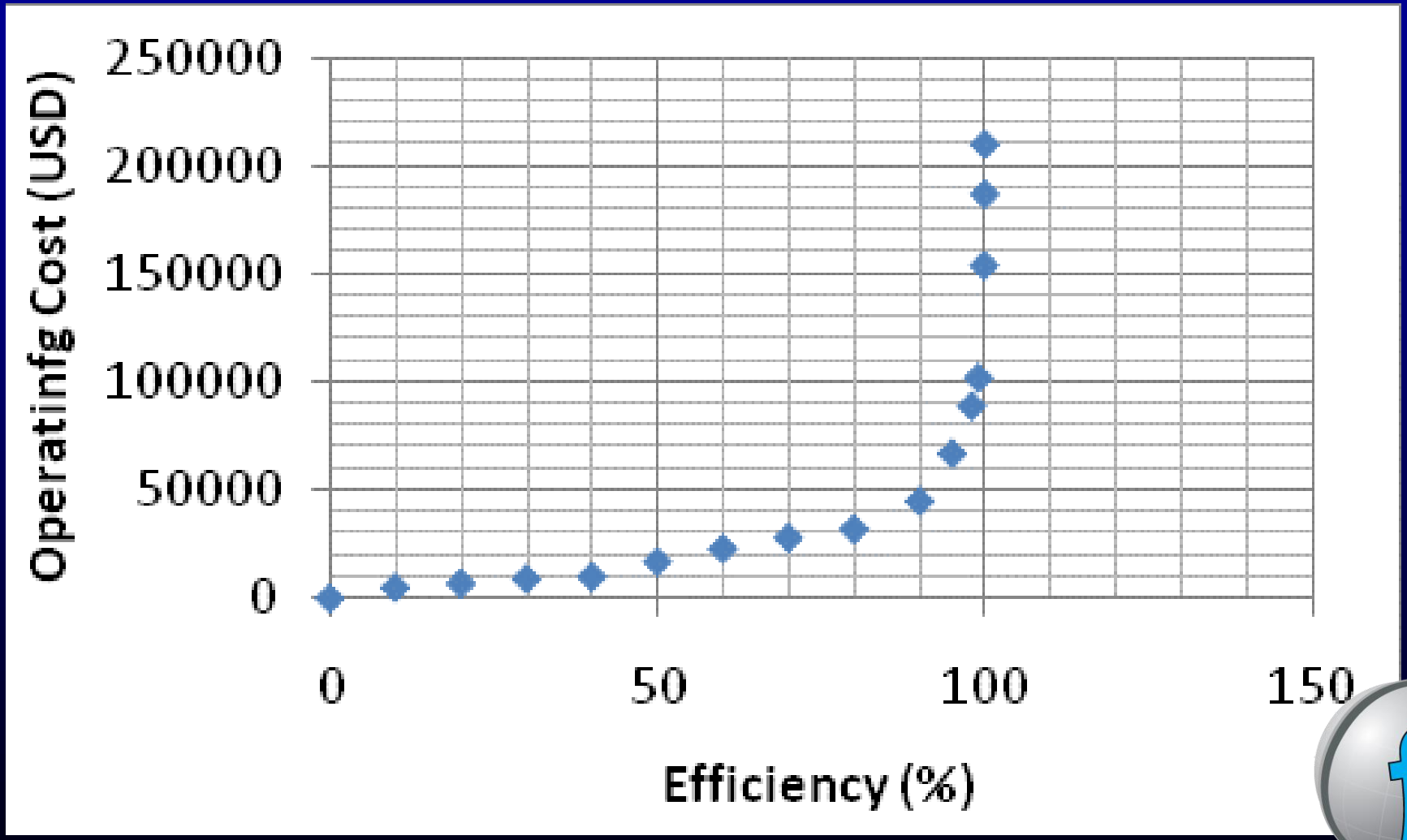
Why Do We Need Separation Devices ?

Daily Control vs. Upset Conditions Control



PPM analysis and DCS readings in a Refinery

Separation System
Finding the “Sweet Spot”



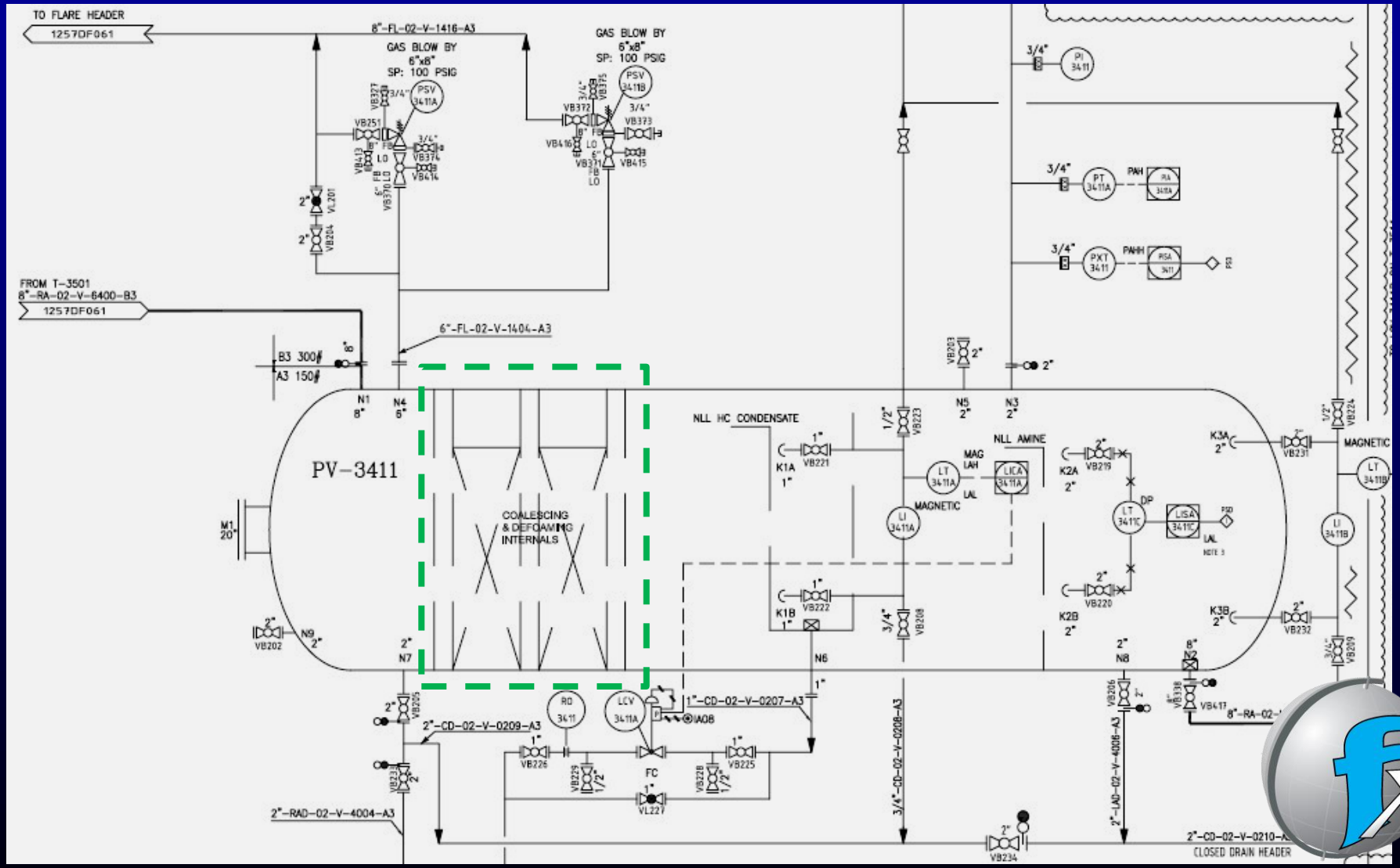
The 7 Sins

Seven Deadly Sins In Separation and Filtration

1. Unsuitable Technology for the Application
2. Incorrect Compatibility (thermal, chemical, mechanical)
3. Deficient Vessel Design
4. Inappropriate Sealing Surfaces
5. Wrong Media (and/or Efficiency)
6. Lack of or Incorrect Maintenance Procedures
7. Instrumentation Deficiencies

1. Unsuitable Technology

Flash Tank with Mesh Pad Internals

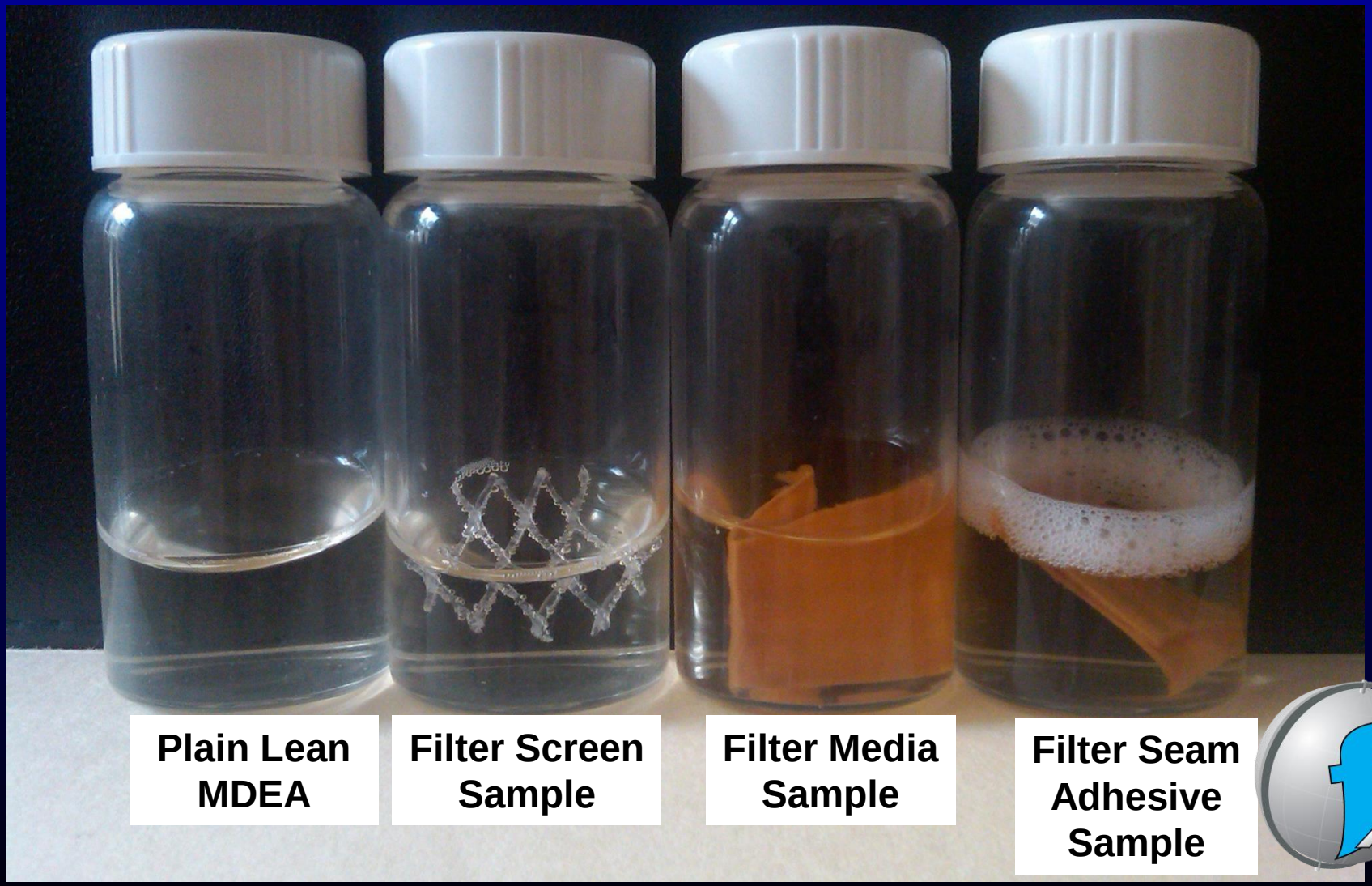


Waxy Build-up in Flash Drum Coalescing Pads

2. Incompatibility

Amine Filter Soak Test & Foaming Test

(Lean MDEA soak, RT, 48 hrs - shake 10 sec - picture taken after 30 seconds)

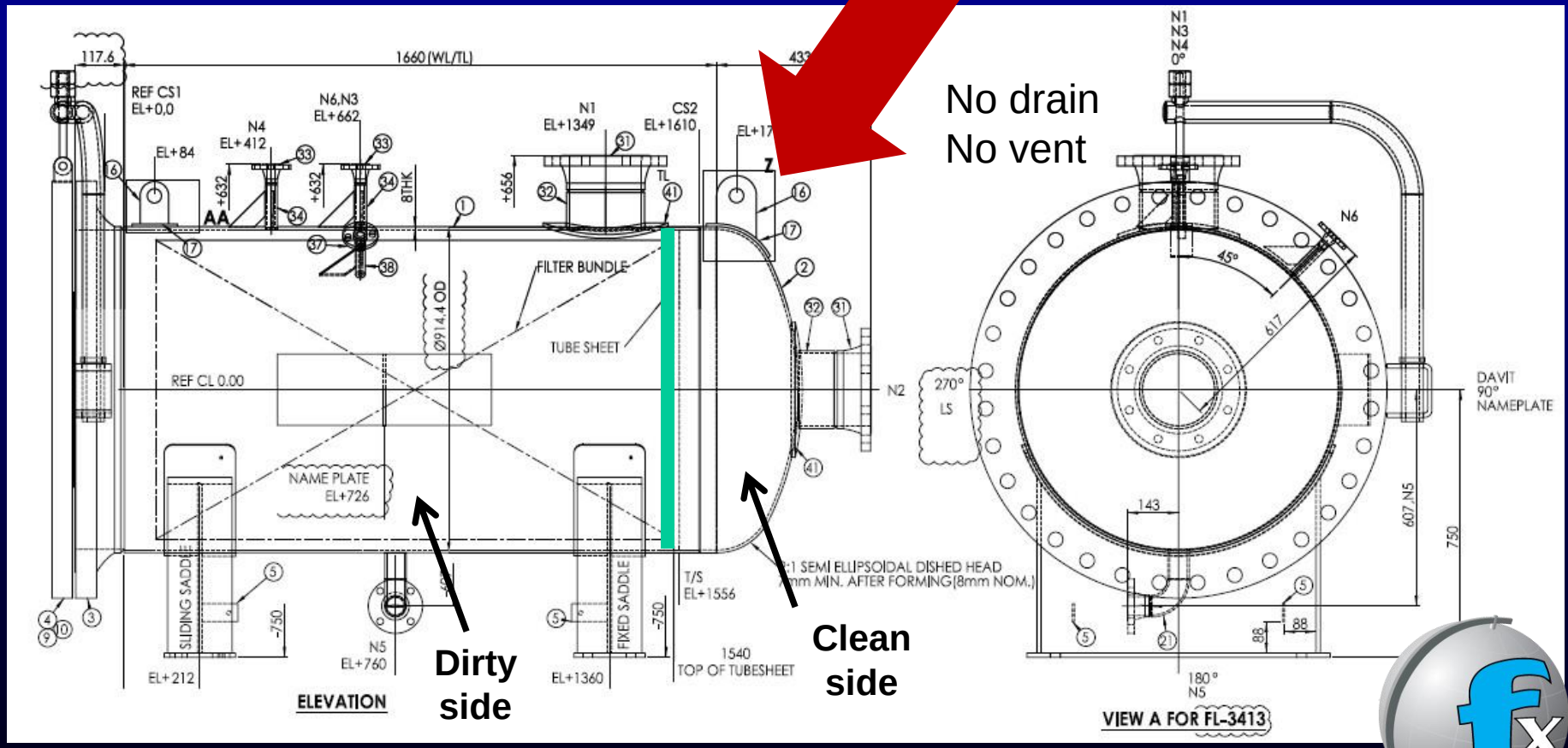


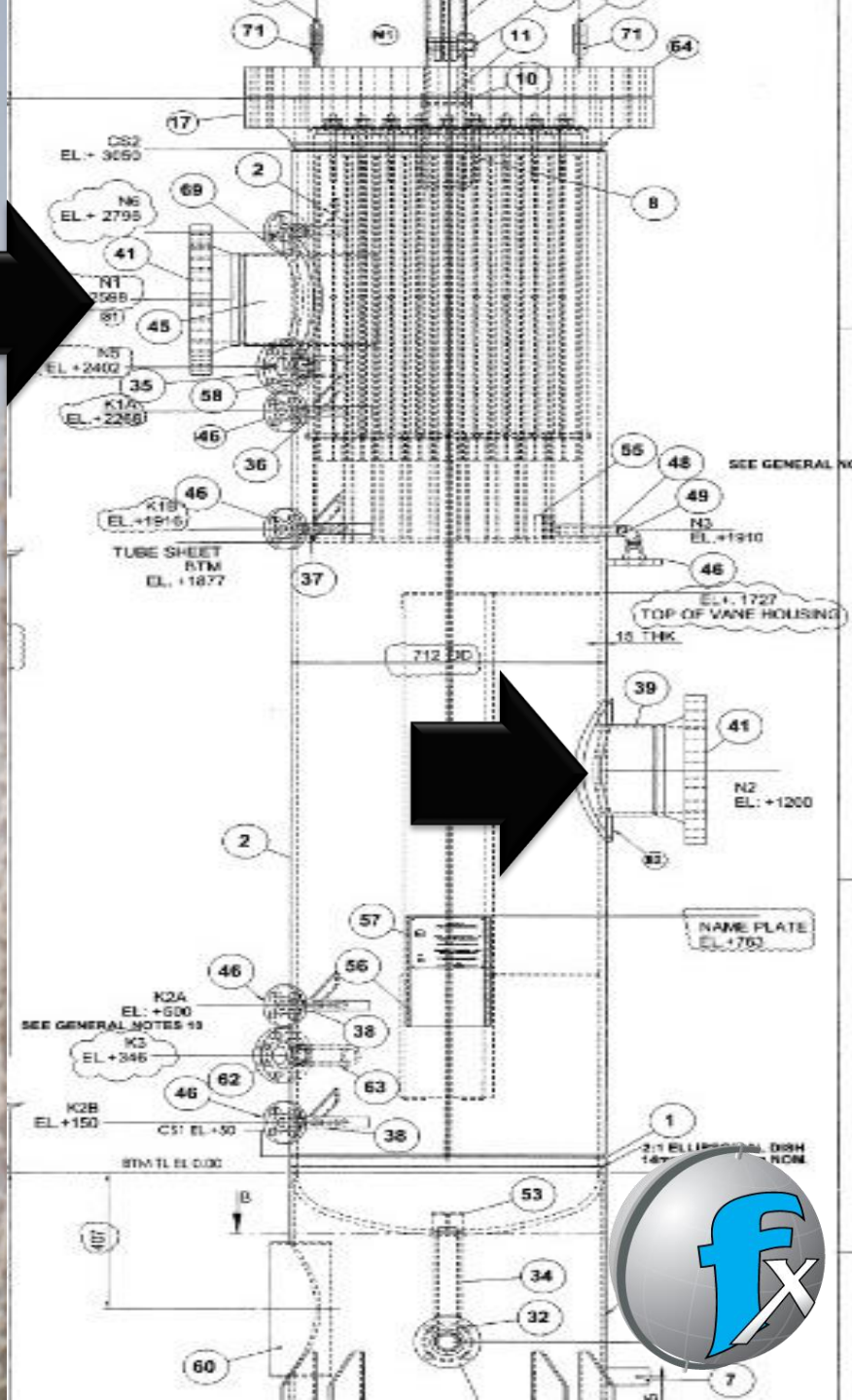
2. Incompatibility

Water Filters Used For Process Streams

3. Deficient Vessel Designs

Rich Amine Filtration Vessel (corrosion and drainage)

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4. Inappropriate Sealing Surfaces

Gasket & Adhesive Degradation

4. Inappropriate Sealing Surfaces

Cement Formation

5. Wrong Media and/or Efficiency

Surface Loading Only

6. Lack of or Incorrect Maintenance Procedures

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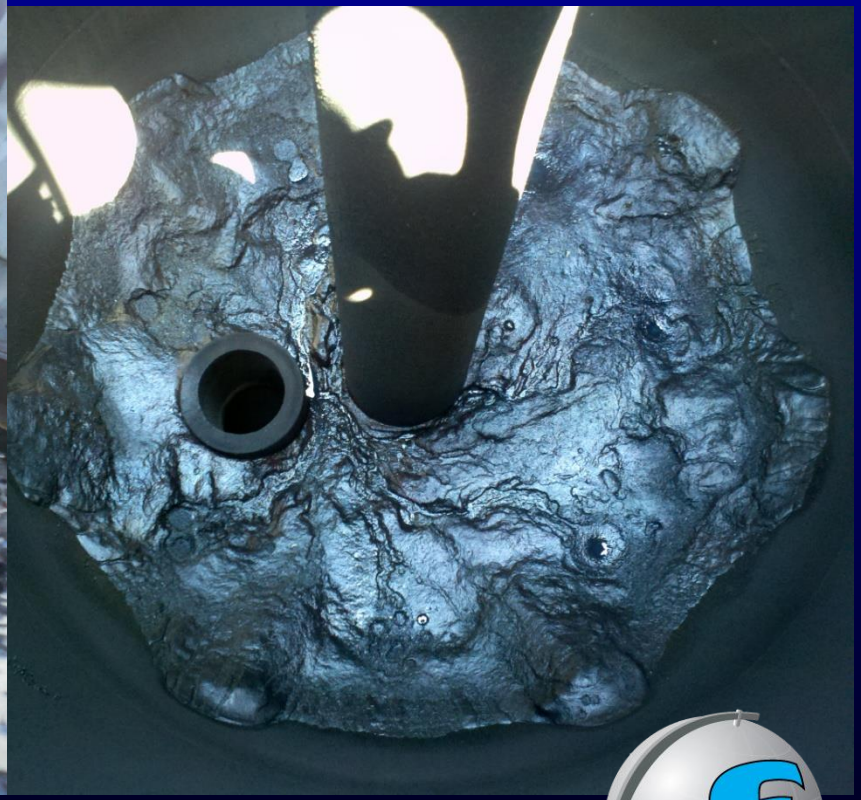
Filters with 3 years and no DP



7. Instrumentation Deficiencies

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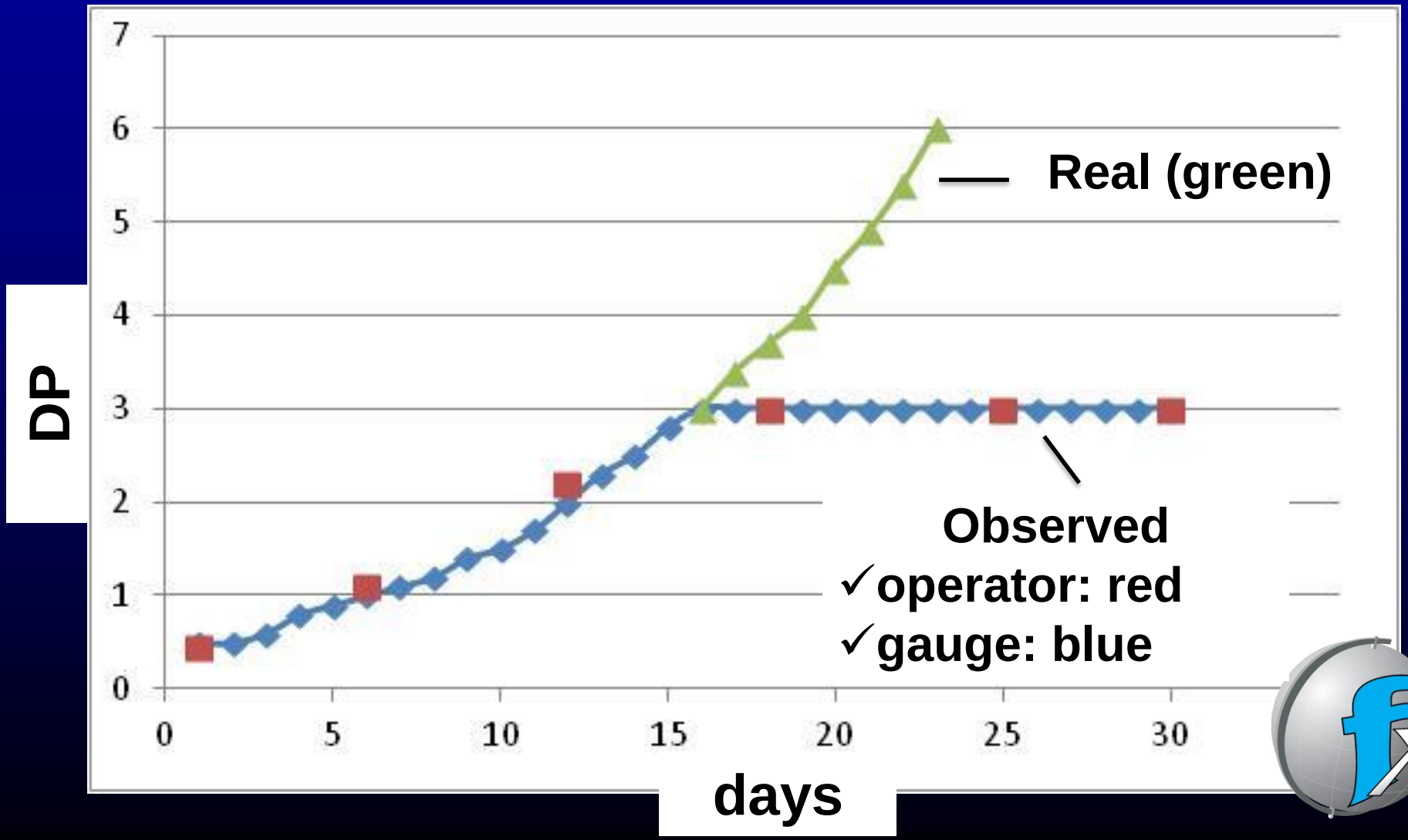
Filter Differential Pressure Profile



The OTHER Seven Deadly Sins in Separation and Filtration

1. Neglect
2. Lack of Understanding
3. Low Cost Systems
4. Overstatement of Expectations
5. Seen as a Cost
6. Thinking They are Not Necessary
7. Lack of Innovation

Remember

Effective process control starts with effective contamination control

Low cost separation systems often result in high operational costs

Get “experienced” advice

THANK YOU GPAC !

David Engel – Filtration Experts
Michael Sheilan – Amine Experts
Ben Spooner – Amine Experts

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