



# Process Drift

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## ➤ Two Sides of Process Drift

- Process slowly changes
  - Frequently involve work-arounds
  - Can involve loss of process knowledge with new operators
- NCS analysis has incorrect assumptions
  - What the NCS engineer was told or believed was incorrect
  - Limited initial and subsequent observation of the process to detect drift
- In both cases, the “as-found” is not what was analyzed

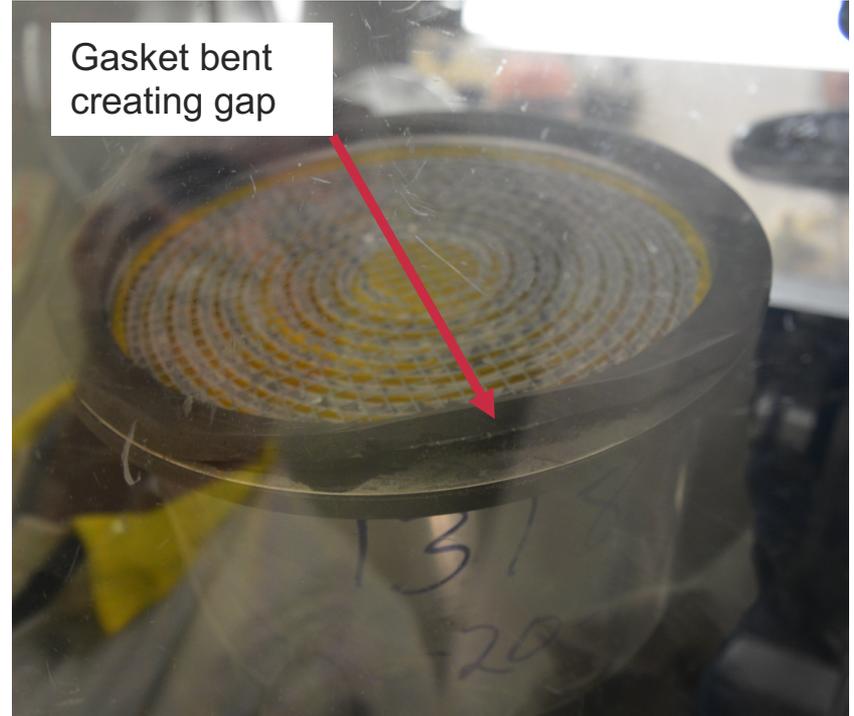
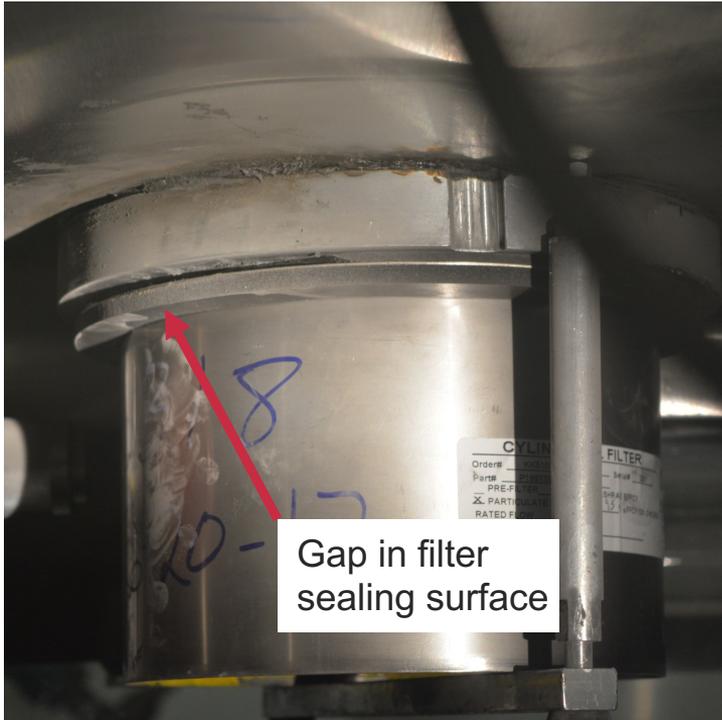
## ➤ Slow Process Change Example

- Material is weighed prior to placing into a glovebox
  - A scale on the table was used to weigh the material prior putting it in the glovebox
  - The scale was removed from the table
  - There is a scale in the glovebox
  - Operator put the material into the glovebox to get a weight
  - Operator may have violated the limit

## ➤ NCS Assumptions Not Correct

- Analysis requires pre-filters on glovebox ventilation
  - Assumption that the filters would be installed and maintained so they are effective
  - Filters were installed, but not properly seated
  - Overchecks verified filters were installed, but did not check adequacy of the installation

➤ Poorly seated filters



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  - Assumption that the filters would be installed and maintained so they are effective
  - Filters were installed, but not properly seated
  - Overchecks verified filters were installed, but did not check adequacy of the installation
  - Operators did not understand why they were installed
  - Result: Material bypassed the filters and accumulated downstream

## > Conclusions

- Process Drift in either form comes down to one word:

# Communications

- Inadequate mental model used in the analysis
- A lack of understanding by Operations of what is important to NCS