

**FROM REFINERY PERFORMANCE
TO BETTER ASSET DECISIONS**

A CLEARER UNDERSTANDING OF COKE DRUM CONDITION



Across Phillips 66, site performance depends on how critical assets across the refinery support **utilization, reliability, crude flexibility, turnaround discipline, and capital discipline**. Furnaces, reactors, towers, exchangers, and coke drums all contribute but the impact of real operating history on asset condition is not always clear between inspections.

For coke drums, that matters. Akselos helps Phillips 66 connect operating history to structural response, creating a stronger basis for understanding fatigue, bulging, cracking, and deformation and for making better-informed maintenance, turnaround, and capital decisions.

WHY THIS MATTERS FOR PHILLIPS 66

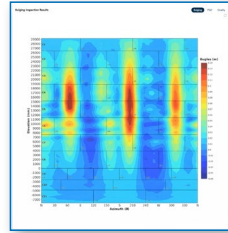
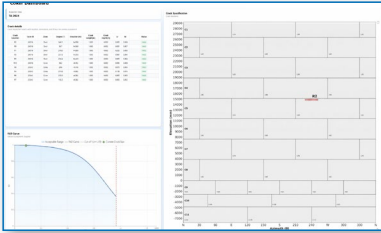
For Phillips 66, the value is not only in monitoring degradation. It is in building a clearer basis for decision-making.

By connecting operating history to structural response, Akselos helps create a more complete view of condition that can support:

- **Lower High-Damage Cycles:** Leading to a stronger basis for extending asset life
- **Clearer Structural Visibility:** For better-informed OPEX & CAPEX decisions
- **Shorter Cycle Time:** Resulting in throughput improvement



WHAT AKSELOS MAKES VISIBLE



CRACK

Supports crack assessment using Fitness-for-Service logic aligned with API 579 Part 9 Level 2 to evaluate crack criticality and stability for continued operation.

BULGING

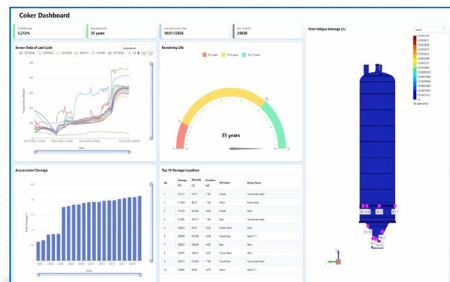
Maps laser-scan deformation data to the structural model to evaluate severity and identify affected regions, highlighting areas of significant strain for inspection focus.

FATIGUE

Evaluates fatigue damage cycle by cycle using operational data such as temperature and pressure history. Helps identify how different operating patterns contribute to cumulative damage.

DEFORMATION

Evaluates broader effects including flange ovality, cone ovality, and banana effect resulting from uneven loading through a wide set of condition indicators.



From operating history to structural insight

~600 TIME STEPS/ CYCLE

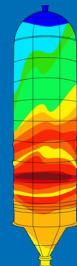
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687 CYCLES IN 4 YEARS

=

412 200

STRUCTURAL CALCULATIONS



PROVEN IN COKER OPERATIONS

Pan American
ENERGY

<10% OF CYCLES
CAUSED

>50% OF TOTAL
DRUM DAMAGE

Higher throughput
& longer asset life

API 579-1
FFS alignment



See PAE's
Success Story



See what
Phillips 66 could
uncover in its
own cycle history

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