

# PRODUCT QUALITY REVIEW

# Product Quality Review

- The purpose of Product Quality Review is to verify the consistency and capability of processes to deliver safe and effective drug products. Including the identification and documentation of corrective and improvement actions.
- How to conduct product quality review?

# The sum of the parts



# Product Performance

- Direct product measures
  - Product technical complaints
  - Adverse drug events
  - Batch disposition
- No issues or completion as expected infers product quality
- Issue resolution infers product quality was returned
- Long term trends are helpful

# Compliance

- "Just do it" elements
  - Post approval commitments
  - Internal procedural compliance
  - Routine shelf life monitoring
  - Validated systems, equipment and methods
  - Environmental monitoring
- Evidence of completion as expected infers product quality

# Extraordinary events

- Significant Deviations
  - Product quality will be related to the effectiveness of the CAPA's

# Process Performance

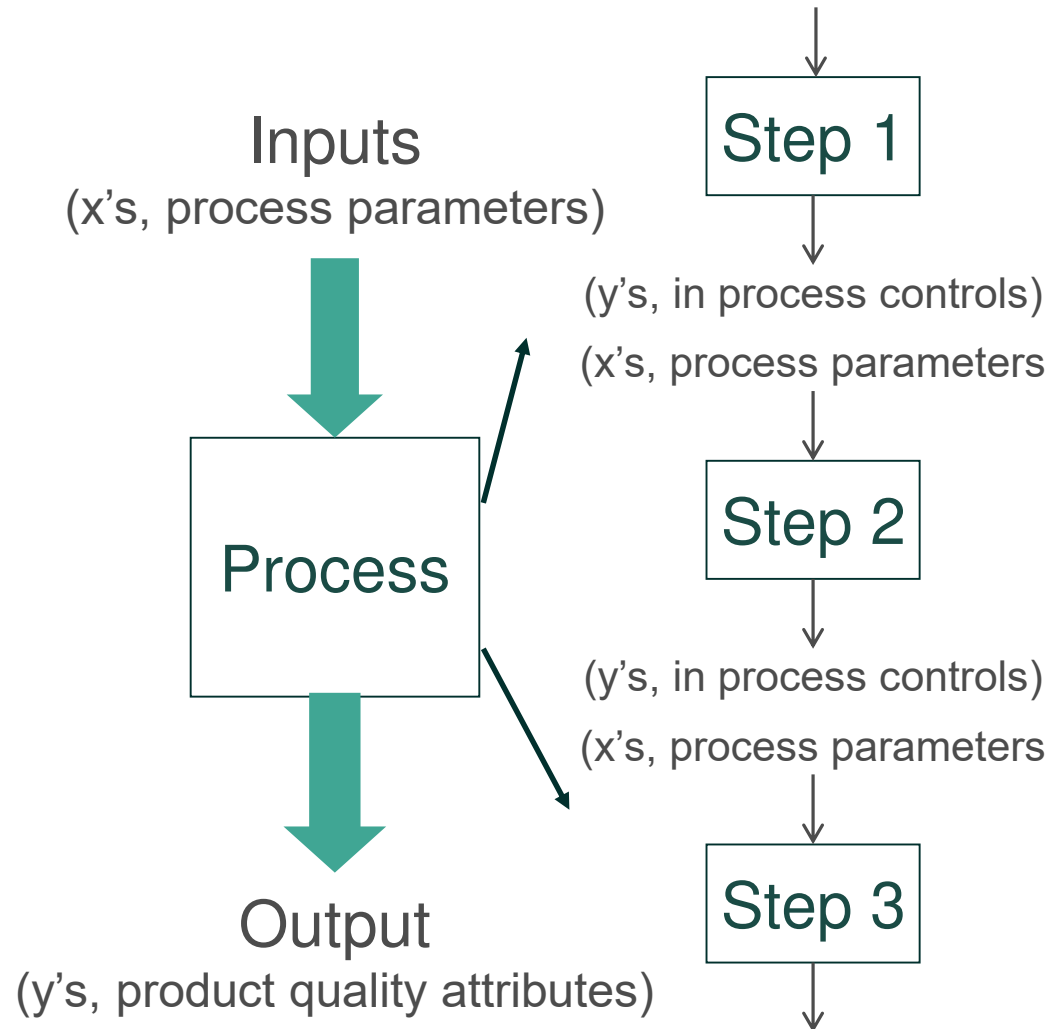
- Judge how well a process has maintained stability/predictability
- To maintain stability and predictability there needs to be continuous monitoring for change, learning from change and reacting to change

# Process Performance – statistical thinking

- Product is an outcome from interconnected processes
- Inputs – preventing, controlling, usually have boundaries
- Outputs – monitoring, decision making, expect to be within boundaries



# Process Performance – statistical thinking



# Process Performance – Overall Outcomes

- Judge product quality using the final critical quality attributes (CQA's) of the product
- For legacy products the batch release specifications provide an easily defined set of CQA's
- For recently developed products the Quality Target Product Profile (QTPP) would define them



# Process Performance – Overall Outcomes

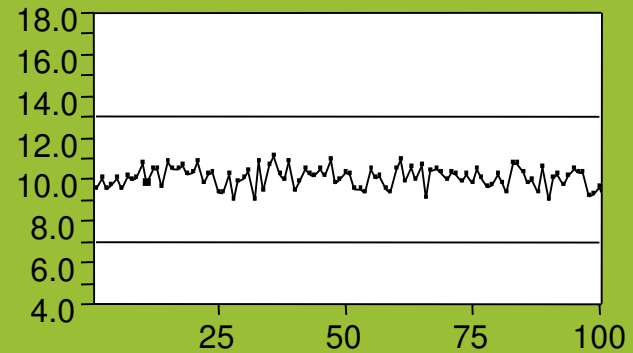
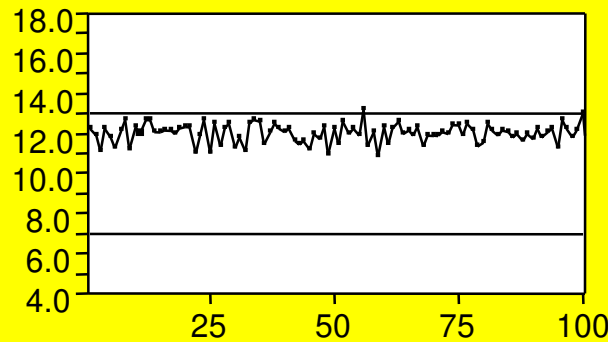
**NOT CAPABLE**

**CAPABLE**

*Threshold state*

*Ideal State*

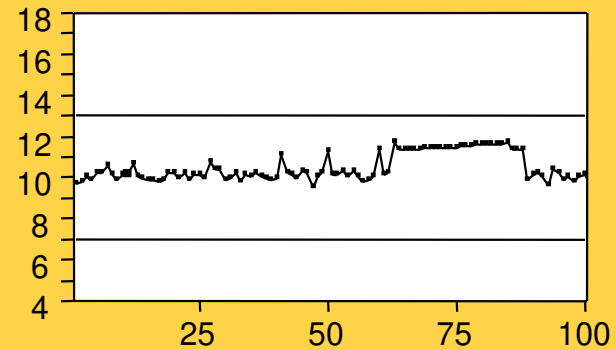
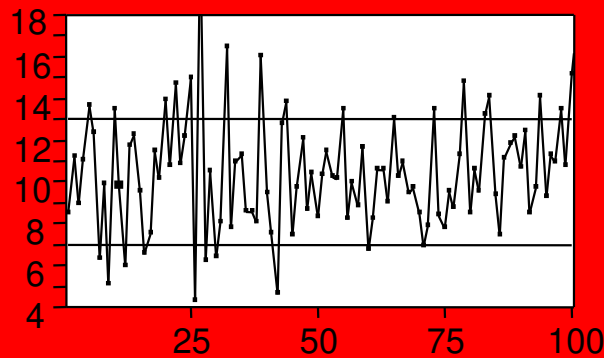
**STABLE**



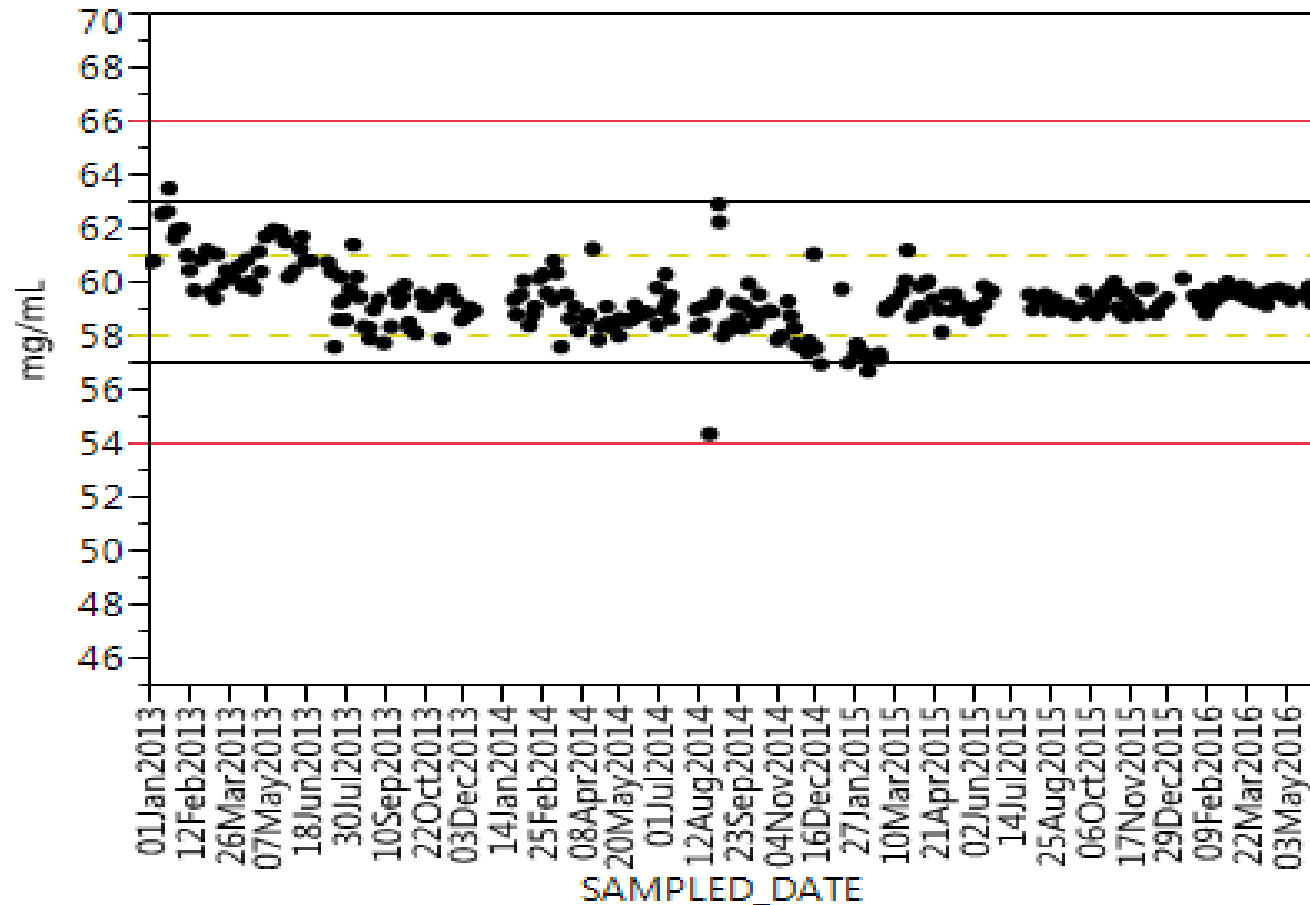
**UNSTABLE**

*State of chaos*

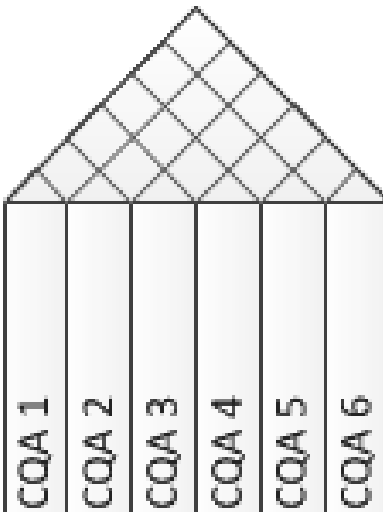
*Brink of chaos*



# Final CQA example



# Process Performance – How we got there



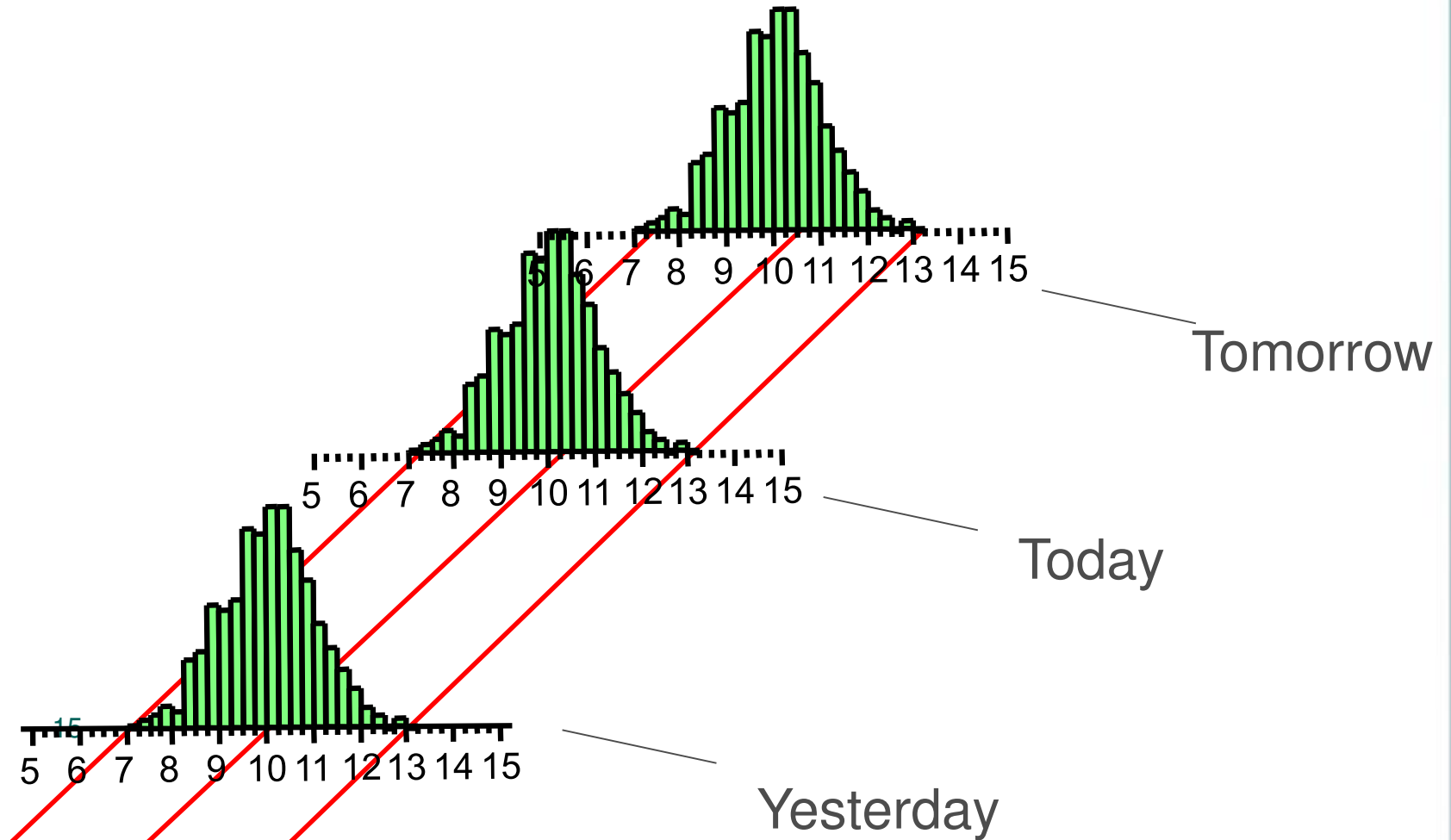
	CQA 1	CQA 2	CQA 3	CQA 4	CQA 5	CQA 6
Step 1	X					
Step 2				X		
Step 3						X
Step 4				X		
Step 5	X	X				
Step 6					X	

- Map shows where the in process outputs are correlated to critical quality attributes
- Built with knowledge and data

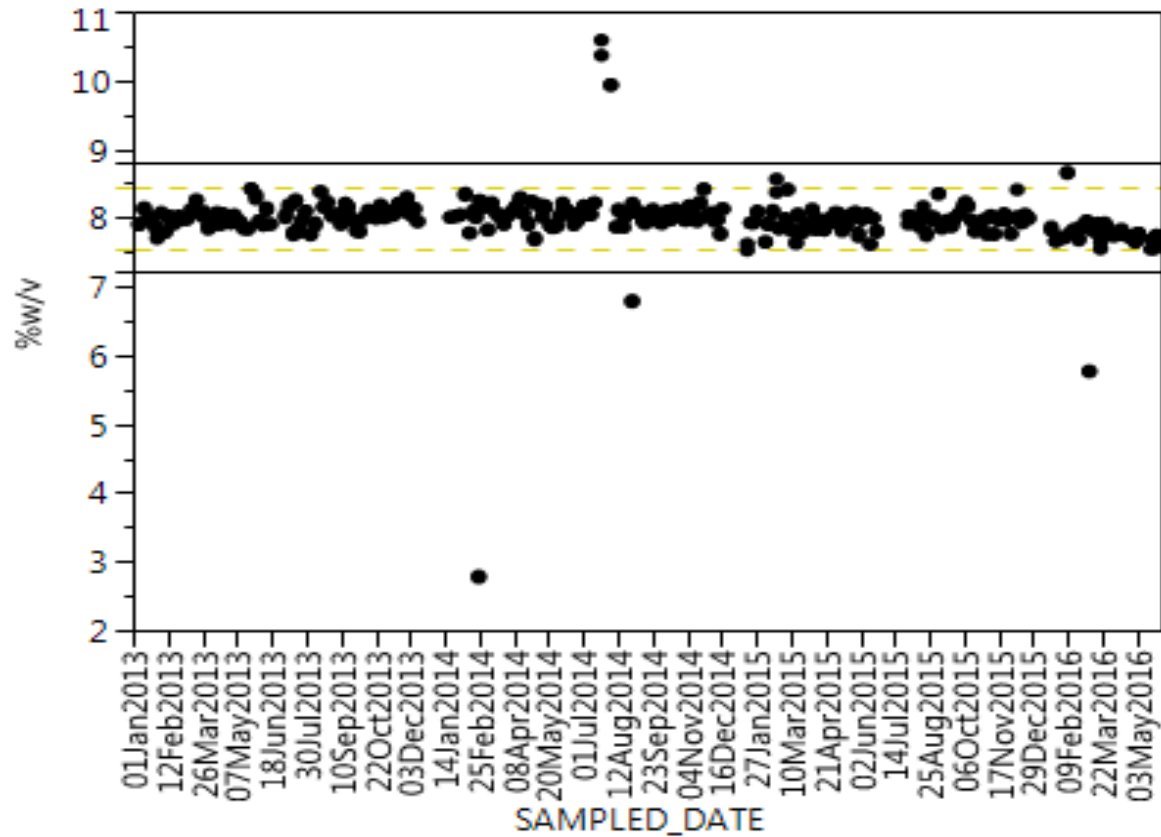
# Process Performance – In process outcomes

- During the review period step outputs are monitored for stability using statistical process limits
- The process limits help to signal changes and escalate changes according to the likelihood of the result.

# Process Performance – In process outcomes



# In process outcomes example





# Process Performance

- Product Quality is inferred when
  - All final product CQA's are in the ideal state
  - In process outcomes are stable or return to stability after change
  - Achieved through continuous monitoring

# Conclusion

- Product quality review is both a periodic and a continuous process
- Thank-you

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