Contamination Control Strategy Implementation Case Study

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Overview

- Introduction: Developing a tool for multi-site deployment
- Deployment Strategy
- Global Policy Definition
- Creation of a global CCS template
- Continuous Improvement: Key learnings
- Takeaways

Introduction: Developing a tool for multi-site deployment

- Global Supply Chain:
  - 20+ manufacturing units
  - Portfolio of more than 20 vaccines
- Vaccines processes comprising:
  - Low bioburden and aseptic processing steps
  - A range of technologies and barrier systems

Deployment Strategy

Global Policy Definition

Scope:

- Control of microbial (bacteria &viruses), pyrogen & particle contamination during the end-to-end manufacturing process of a sterile product (including bioburden control steps)
- Sites may develop one or more CCS depending on complexity: products, manufacturing steps, facilities.

Objective:

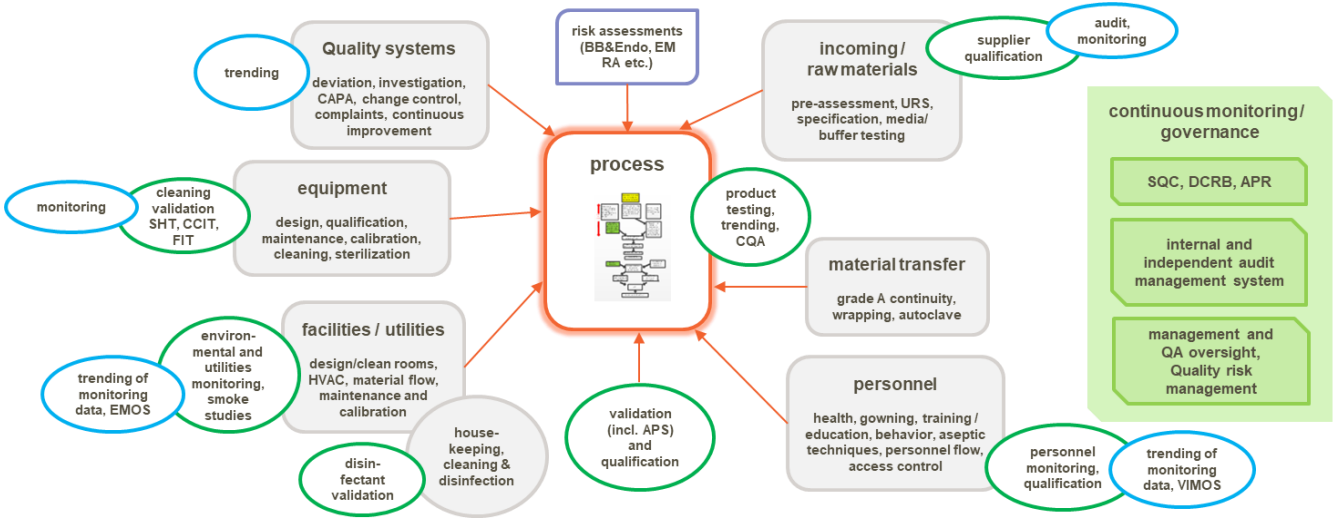
- A single document which provides a holistic overview of contamination risks, control & monitoring.
- Visible to Senior Management (Site and Global) for management and governance purposes driving corrective actions and continuous improvement

Policy Elements:

Describes the key elements from Annex 1 and provides high level instruction, referencing a standard template

Global Policy Definition

Previously, contamination control elements were in place but were not reviewed in a holistic manner.



Global CCS Policy ensures:

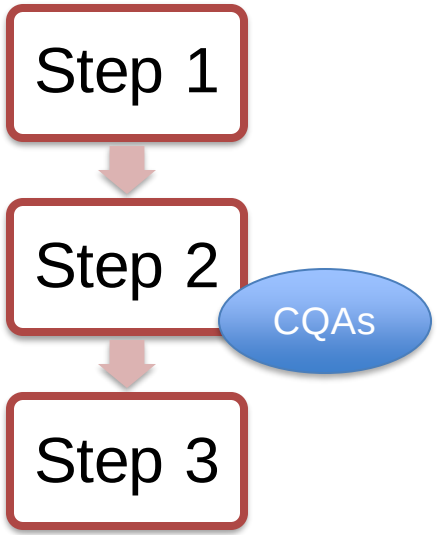
- The current and future strategy is reviewed in a single document.
- Structured approach to review potential contamination sources
- Hierarchy of controls:
  - ✓ Design
  - ✓ Procedural
  - ✓ Monitoring
- Incorporates a performance review

Creation of a global CCS template

Section 1	Introduction
Section 2	Scope
Section 3	Design Strategy and Validation
Section 4	Procedural Controls
Section 5	Monitoring Systems
Section 6	Overview Control Improvements
Section 7	Performance Data
Section 8	Conclusion

Creation of a global CCS template

Section 1	**Introduction**	Context & Structure of CCS
Section 2	**Scope**	Process description and flow diagrams



- Provides the reader with an overview of the assessment approach
- Describes process at a high level, including critical quality attributes

Creation of a global CCS template

Section 3	**Design Strategy and Validation**	Overview of documentation related to design and validation
Section 4	**Procedural Controls**	Documents describing how controls are implemented (e.g., SOPs for gowning, disinfection)

- Summary of the Design and Procedural controls
- Conclusion regarding assurance of product/process as a consequence of design and procedural controls
- Appendices provide full list of documentation reviewed, including validation documentation, risk assessments and procedures
- Appendices follow structure provided in Annex 1 section 2.5

2.5 The development of the CCS requires detailed technical and process knowledge. Potential sources of contamination are attributable to microbial and cellular debris (e.g. pyrogen, endotoxin) as well as particulate (e.g. glass and other visible and sub-visible particles). Elements to be considered within a CCS should include (but are not limited to):
i. Design of both the plant and processes including the associated documentation.
ii. Premises and equipment.
iii. Personnel.
iv. Utilities.
v. Raw material controls – including in-process controls.
vi. Product containers and closures.
vii. Vendor approval……

Creation of a global CCS template

Section 5	**Monitoring Systems**	Overview of documents for Monitoring Systems (EM, utilities monitoring, alarms, VI, Quality Systems etc.)

- Summary of the monitoring processes in place
- Conclusion regarding assurance of product/process resulting from monitoring systems
- Appendices provide full list of documentation reviewed
- Appendices follow structure provided in Annex 1 section 2.5

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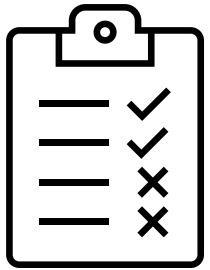
- *xiv. Monitoring systems - including an assessment of the feasibility of the introduction of scientifically sound, alternative methods that optimize the detection of environmental contamination.*
- *xv. Prevention mechanisms – trend analysis, detailed investigation, root cause determination, corrective and preventive actions (CAPA) and the need for comprehensive investigational tools.*

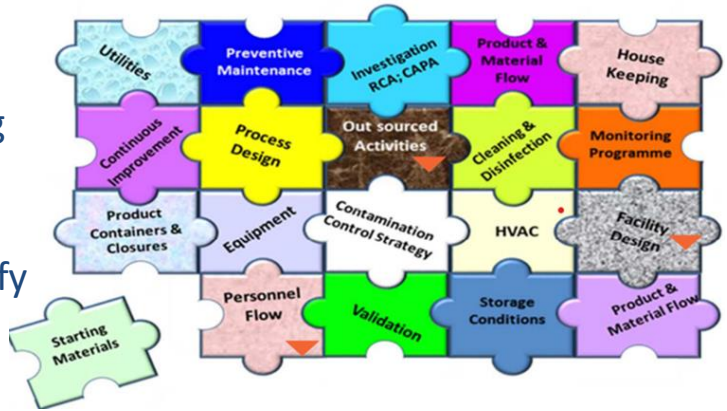
Creation of a global CCS template

Section 6	**Overview Control Improvements**	Summary of ongoing CCS improvement initiatives (projects, change controls etc)
Section 7	**Performance Data**	Summary of KPI of previous year (EM / product / Utilities etc.)
Section 8	**Conclusion**	Conclusion on effectiveness of controls and actions for improvement

- Sections 6-8 subject to annual update (other sections reviewed)
- Improvement initiatives may be identified from a number of sources to remediate gaps or continuously reduce risk.
- Improvements follow the hierarchy of design-procedural-monitoring
- The review of performance aims to provide confirmation that processes remain under control
- The review includes an assessment of monitoring trends and unplanned events
- Conclusions provide an overall assessment of effectiveness of controls



Key Takeaways



- Create a global policy and standard CCS template, giving clear instructions and providing a harmonised approach
- CCS document provides a structured approach to identify Potential contamination sources and define controls
- Structure document to provide a ‘narrative’ to the reader as well as a reference to appropriate documents
- Review the CCS annually, using data (unless driven by other changes)
- Use the output of the documented CCS to drive remediation, continuous improvement andrisk reduction
- Adopt a continuous improvement mindset to the CCS approach

Thank You

Sample Questions:

- What is the recommended review frequency for CCS?
- How did you determine the number of CCSs to prepare for a manufacturing site?
- Have you received any independent feedback on your CCS approach?
- What benefits have you observed from your CCS approach?