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Digital Inspection Rounds: From Field Execution to AI-Driven Continuous Improvement

SCIC
SINGAPORE CHEMICAL
INDUSTRY COUNCIL

2026



About us

eschbach

2005

Founded in Germany,
Offices in Boston, USA



30

Countries with
Implementations



107,000+

Users around the globe
In all languages



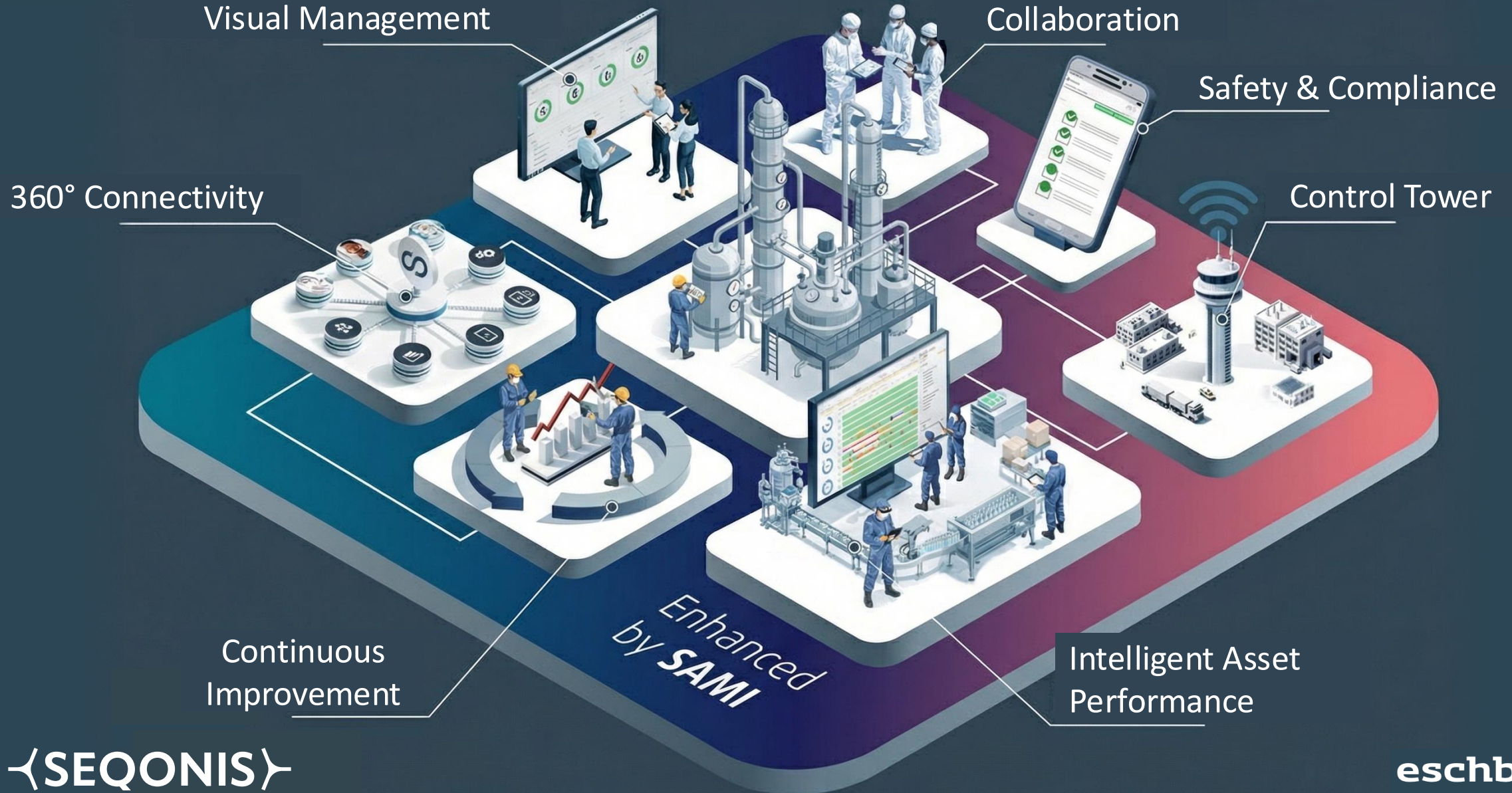
Microsoft
Partner



Partner for Leading Chemical & Pharma Manufacturers



Seqonis Intelligent Operations Platform



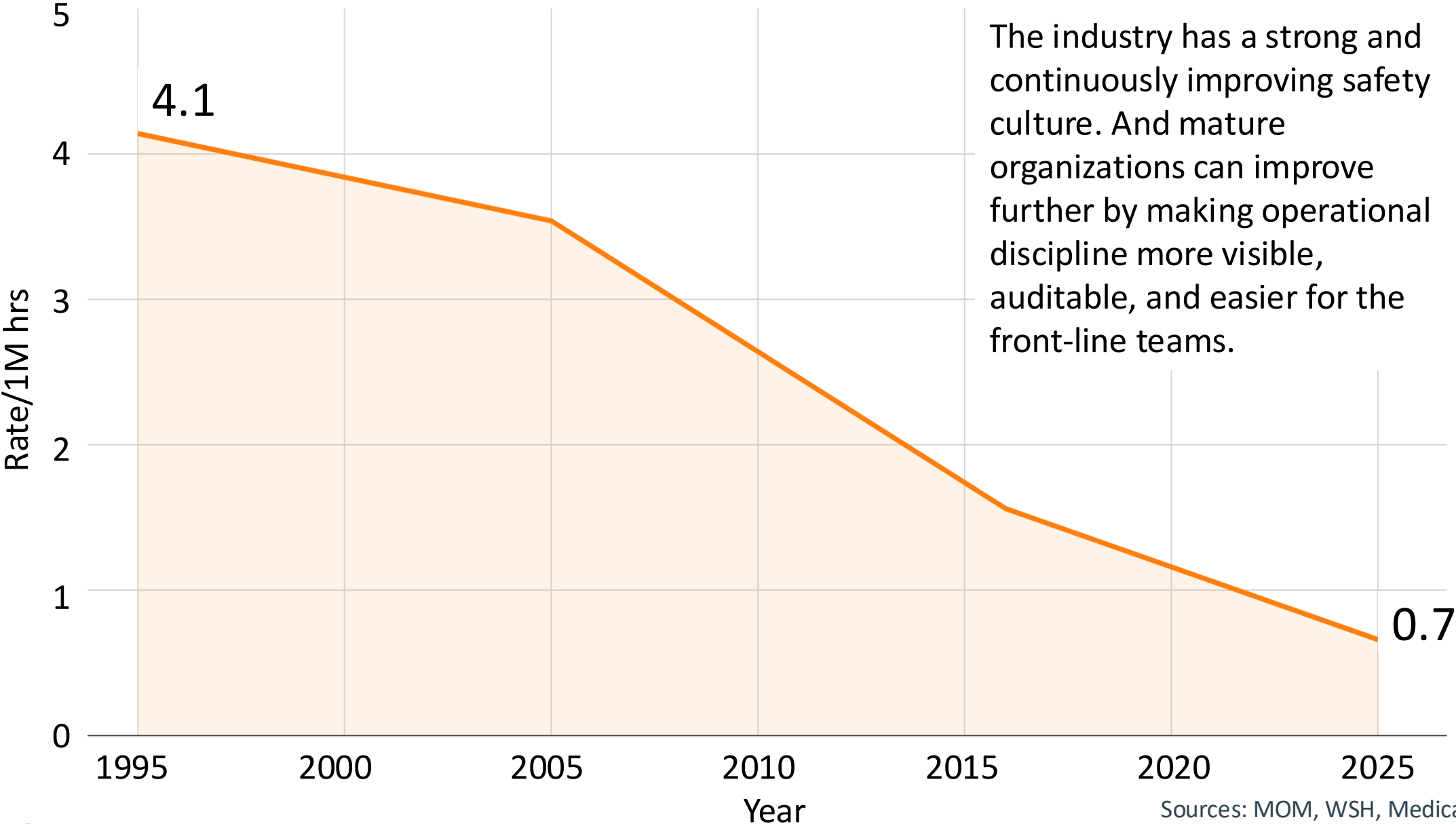
A man in a blue uniform with reflective stripes is lifting a young child in a blue shirt and dark shorts. They are both laughing and looking at each other. The scene is set in a hallway with a glass door on the left and a coat rack with a hat and umbrella on the right. The lighting is warm and indoor.

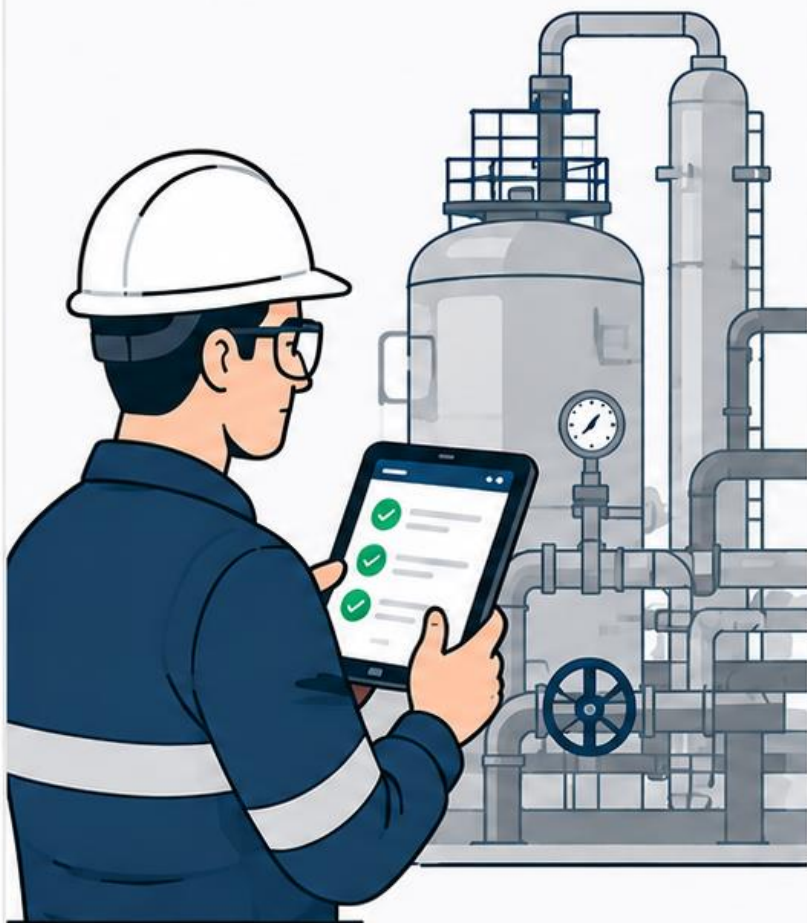
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Returning Home Safely.

Major reduction of Incidents in Chemical

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Mobile Rounds



**Track Operational
Discipline in a Team-Board**



**Reduce Risk of
Lost Learnings**

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Mobile Inspection Rounds in Disconnected Areas

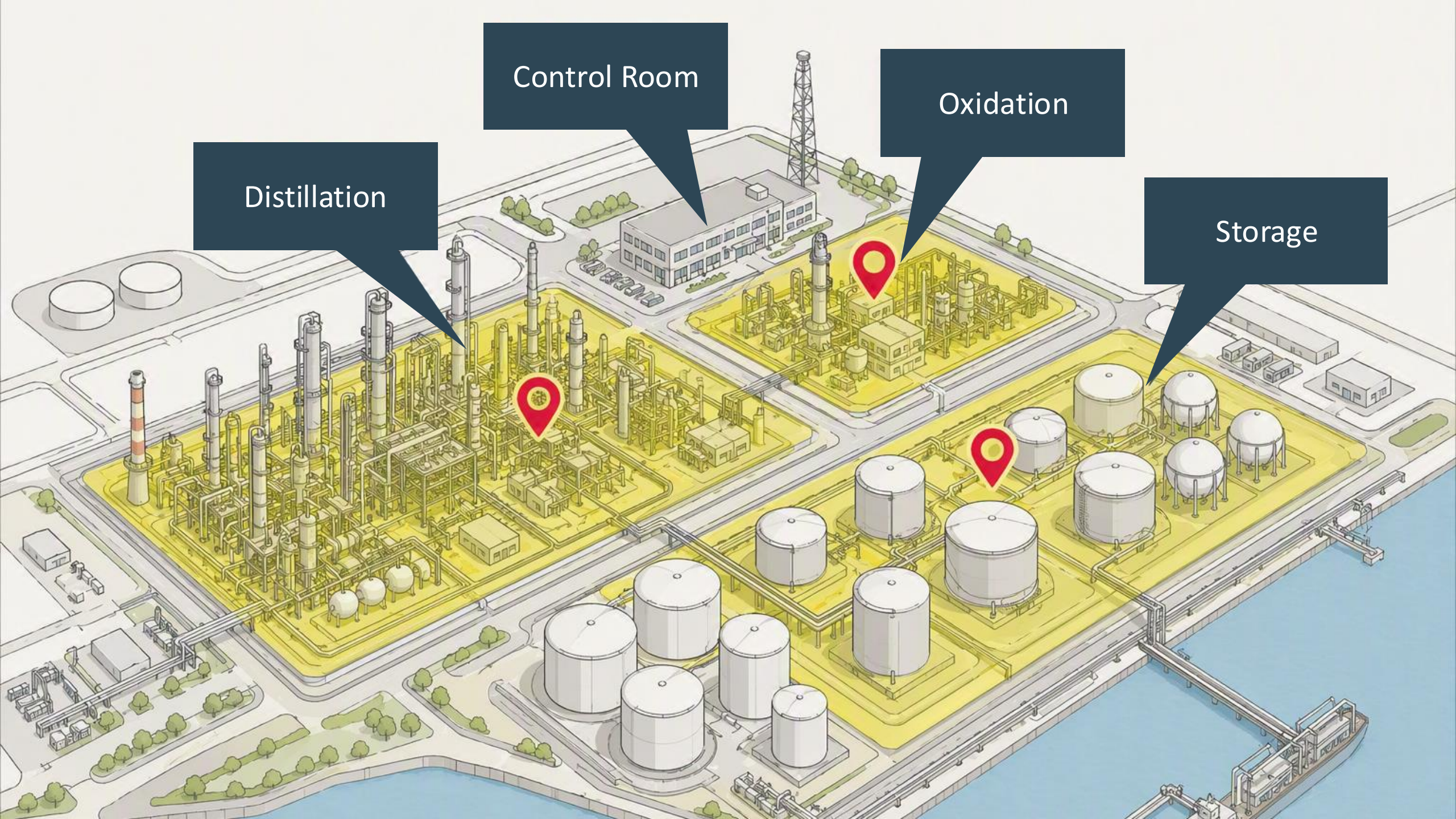


Control Room

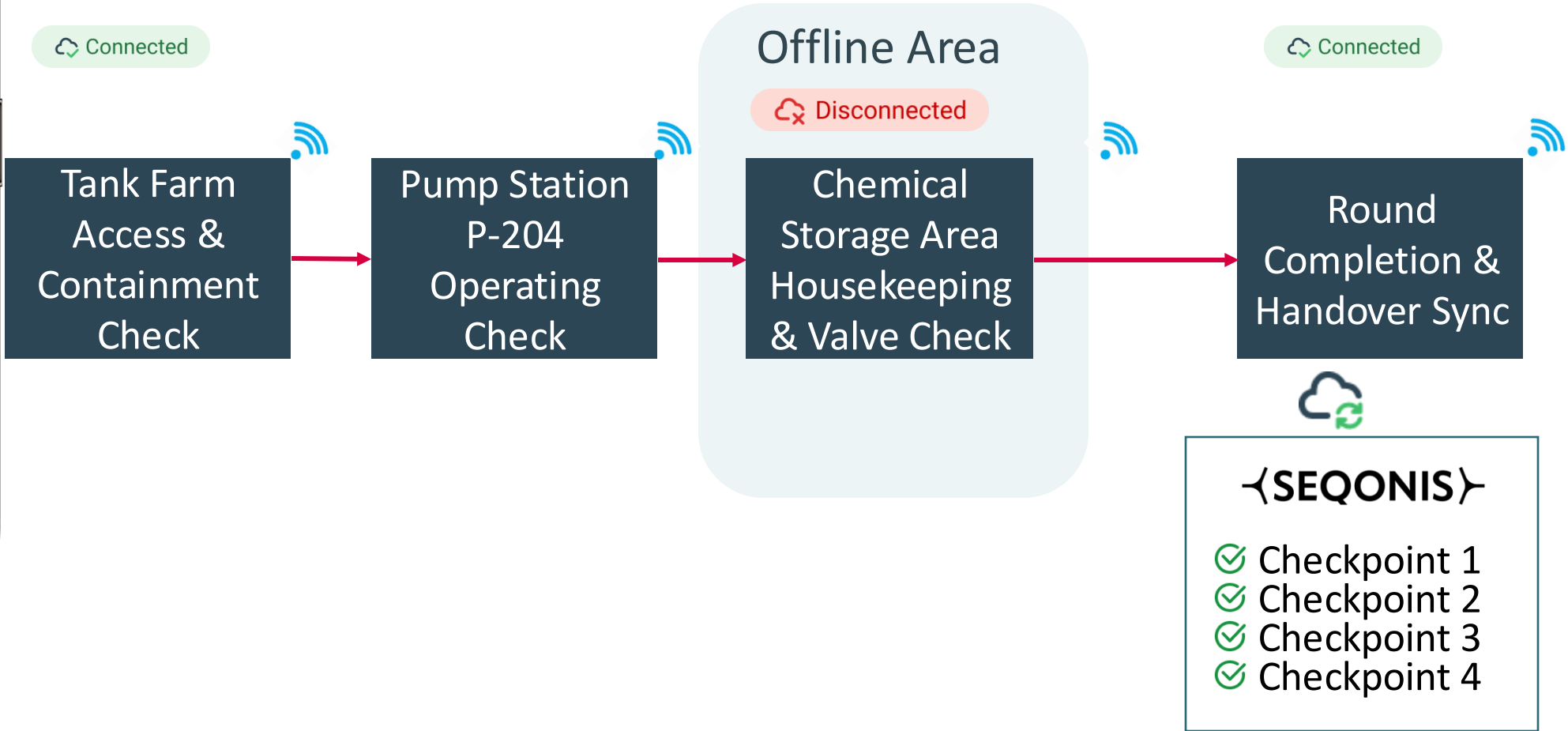
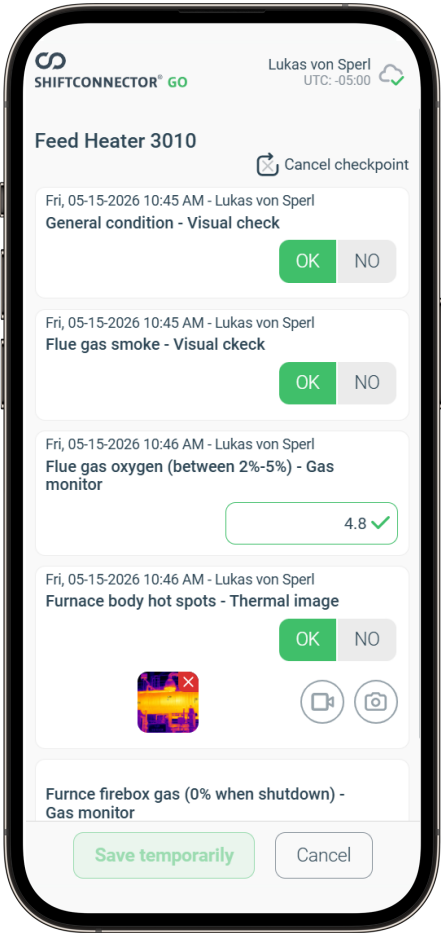
Oxidation

Distillation

Storage

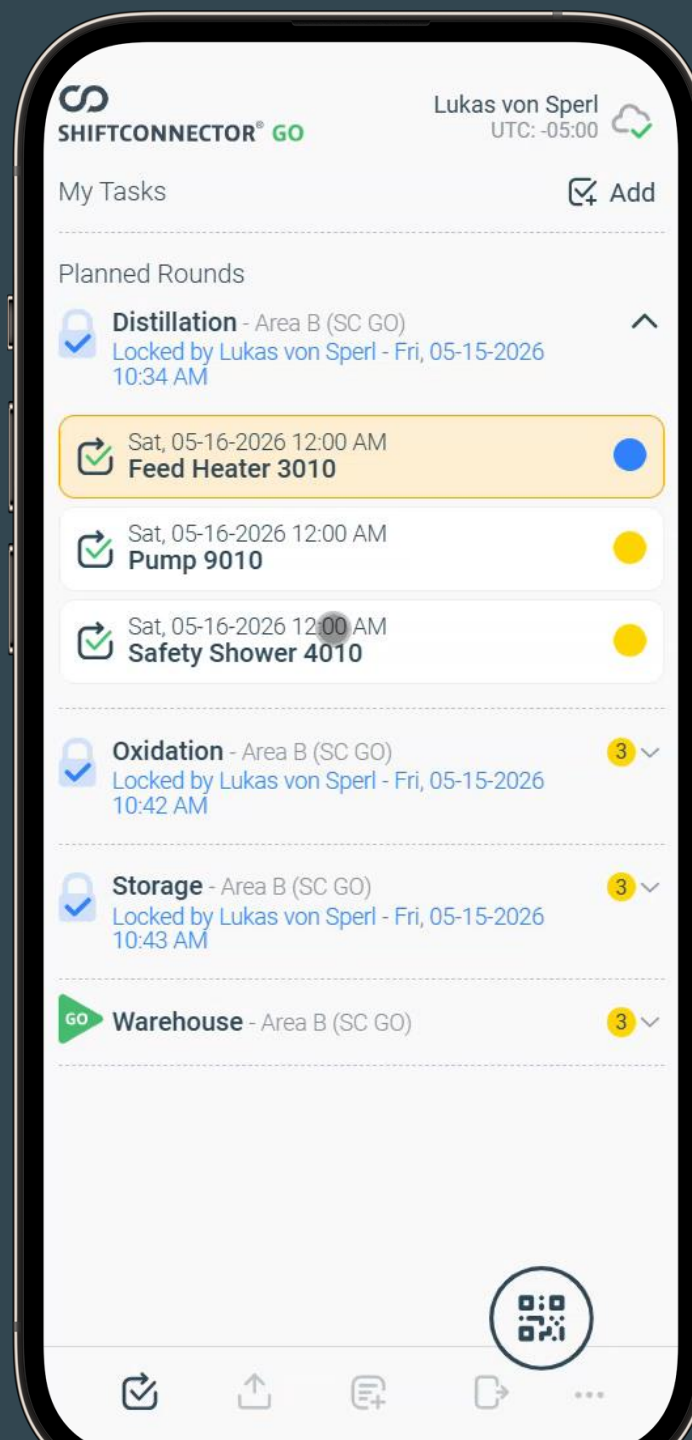


Mobile Inspection Rounds



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Field operators
complete structured
inspection rounds
directly on mobile —
even in offline areas
— with findings
automatically synced
when connectivity is
restored.



Example – Leakage detection during inspection

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Example – Leakage detection during inspection

Anomalies detected during rounds trigger immediate follow-up workflows: corrective actions are assigned, tracked and escalated automatically, closing the loop between the field and the control room.



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Track Operational Discipline in a Team-Board

Management of Compliance Critical Tasks

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EHSQ Responsible



Outside Field
Operator

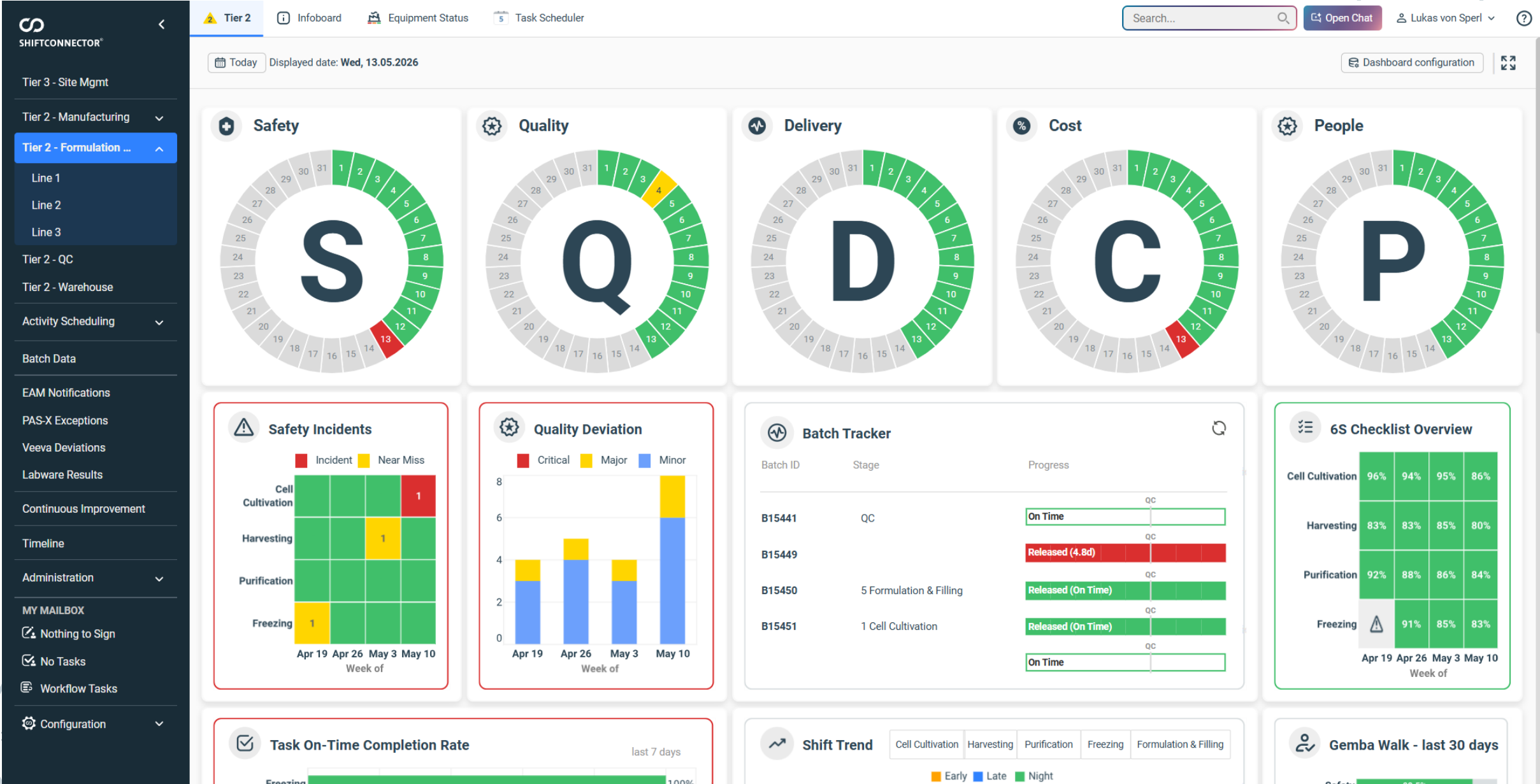


Supervisor /
Process Engineer

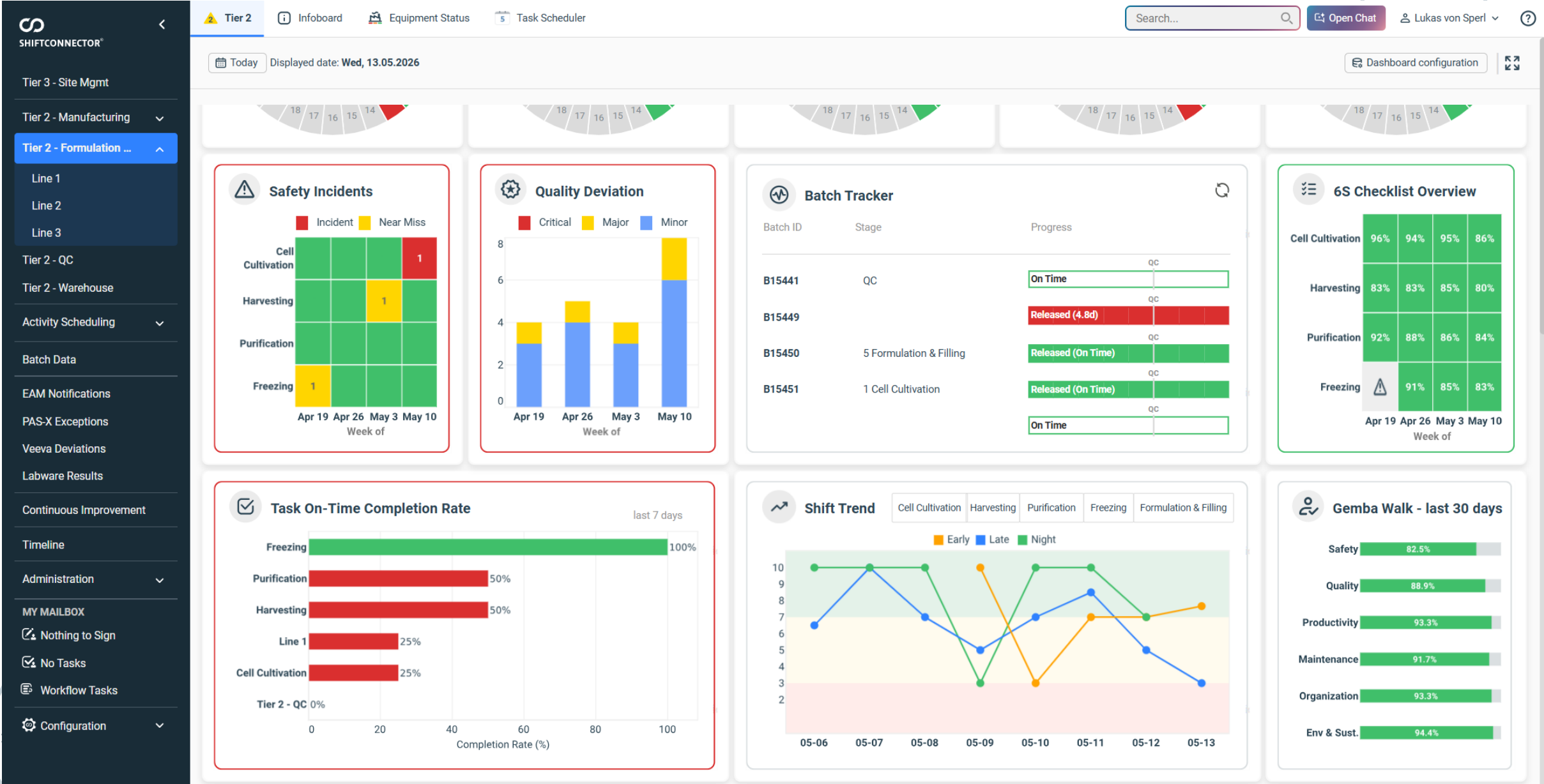


EHSQ Responsible

Track Operational Discipline in a Team-Board



Track Operational Discipline in a Team-Board



Track Operational Discipline in a Team-Board



SHIFTCONNECTOR®

MY WORKSPACE

Infoboard

Drafts

Signature List

Personal Tasks

TENANT STRUCTURE

Area A

Overview Shift Su...

Attendance

Review book

Line 1

Line 2

Line 3

Overrides

Rounds

Checklist

Tenant Structure

Area B

Area C

Tier 1

Search...

Alex Carter

?

Safety Trigger

Quality Trigger

Delivery Trigger

Triggered: 11:23 PM 01-10-2025

Current Batch

Delayed + 1h 15min

Batch ID / Product
15453 / Barium selenite

Expected End
Sat, 08.02 23:00

Right First time

Since yesterday: -0.3

97.1%

Safety Incidents

0 Incident | 0 Near Miss

Quality Incidents

0 Incident | 0 Near Miss

Delivery Incidents

0 Incident | 0 Near Miss

OEE Overall

100% Availability

79,55% Performance

97,81% Quality

Daily Direction Setting

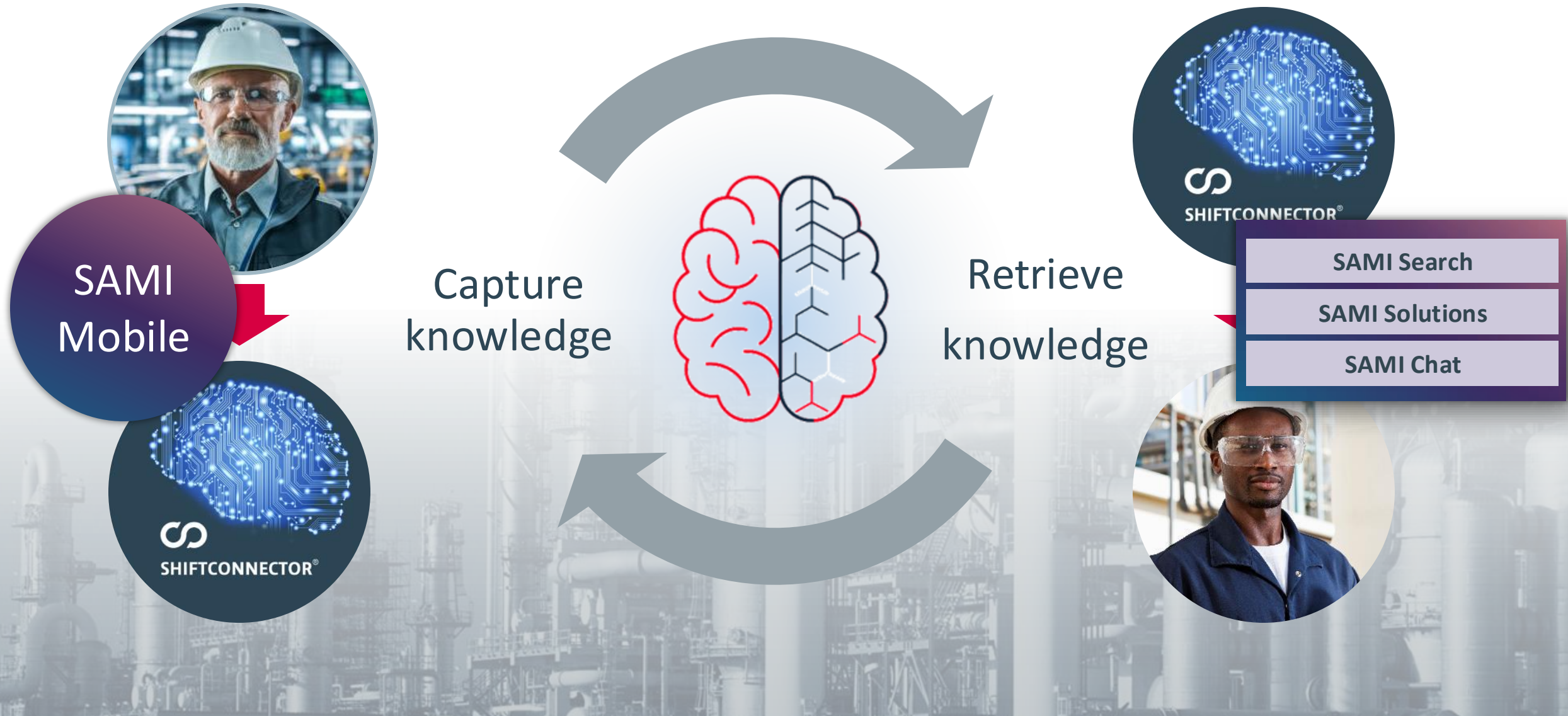
	Target	Monday			Tuesday			Wednesday			Thursday			Friday		
		Early	Late	Night	Early	Late	Night	Early	Late	Night	Early	Late	Night	Early	Late	Night
Safety																
Observation	1															

Centerline

	Early	Late	Night
Control System	89%	83%	85%

The Circle of Knowledge

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AI Features & Functions

AI-enabled Scanning “cleaning deviation”

cleaning issues reactor BR01

Relevance

Cell Cultivation / Line 1

Start: Tue, 12-03-2024 03:59 PM

Info: Cleaning issues noted in Bioreactor BR01 following Rituximab5 batch B15473. Residual material was detected during swab tests after initial CIP sequence.

Performed extra water flushing cycle, which effectively removed remaining residues. Post-rinse swab [...]

Functional Location: Beta - Cell Cultivation

Last Edit Date: Wed, 03-26-2025 4:00 PM

Show linked items

Cell Cultivation / Line 1

Start: Thu, 12-11-2025 03:06 PM

Info: Visual inspection identified stubborn residue on reactor walls after Rituximab5 batch B15446 cleaning of reactor BR01. Standard washing temperature insufficient.

Last Edit Date: Wed, 03-26-2025 3:06 PM

Show linked items

Cell Cultivation / Line 1

Start: Wed, 03-26-2025 03:08 PM

Info: Conductivity sensor indicated incomplete rinse cycle in reactor BR01 post Rituximab5 batch B15451, possibly due to insufficient cleaning temperature during detergent step.

Problem was solved by elevating detergent CIP temperature by 3°C and repeating the [...]

Last Edit Date: Wed, 03-26-2025 3:08 PM

Show linked items

Cell Cultivation / Line 1

Start: Fri, 12-13-2024 04:00 PM

Malfunction: CIP difficulties encountered on Bioreactor BR01 after Rituximab5 batch B15474; cleaning verification indicated incomplete residue removal.

Functional Location: Beta-L1 - Line 1

Action/Solution: Executed supplementary rinse cycle to address remaining contamination. Follow-up conductivity and visual checks passed successfully.

AI-powered Troubleshooting “cleaning deviation”

Reduce detergent concentration incrementally

CIP execution in Bioreactor BR01 after Rituximab5 batch B15470 showed excessive foam gener...

solved it by Reducing detergent concentration incrementally, eliminating foam-related interruptions. C...

Problems during CIP due to excessive foam accumulation observed in Bioreactor BR01 after Rit...

Lowered detergent strength from 2.0% to 1.5% to mitigate foaming. Subsequent CIP completed succe...

Increase the cleaning solution temperature

Visual inspection identified stubborn residue on reactor walls after Rituximab5 batch B15446 cle...

Adjusted CIP procedure by increasing cleaning solution temperature to upper SOP limit (68°C). CIP rep...

Conductivity sensor indicated incomplete rinse cycle in reactor BR01 post Rituximab5 batch B15...

Problem was solved by elevating detergent CIP temperature by 3°C and repeating the cleaning cycle. ...

Post-cleaning swab tests failed due to minor protein residues detected in Bioreactor BR01 after ...

We could solve the problem by raising the cleaning temperature by 5°C above standard setting. After r...

Perform an additional rinse cycle

CIP problems identified on Bioreactor BR01 after finishing Rituximab5 batch B15472. Visible resi...

As a quick workaround we conducted an additional rinse cycle to ensure complete residue removal; s...

Cleaning inefficiencies occurred in Bioreactor BR01 post-Rituximab5 batch B15475. Post-cleanin...

Additional CIP rinse step performed immediately, effectively eliminating residue; reactor subsequently ...

AI-driven Improvement “cleaning deviation”

Which types of cleaning issues did we have with bioreactor BR01?

Cleaning Issues with Bioreactor BR01

Bioreactor BR01 experienced several cleaning challenges during operations, particularly after processing batches of Rituximab5. Below is a summary of the identified issues:

Residue Persistence

- After batch B15475, minor residues were detected on the vessel interior following the cleaning process. An additional CIP rinse step was performed to eliminate the residue, and the reactor was cleared by QA¹
- Batch B15473 also resulted in residual material detected during swab tests after the initial CIP sequence. An extra water flushing cycle was conducted, which successfully removed the residues²

Foaming Issues

- Persistent foaming disrupted normal CIP operations after batch B15470. The root cause was identified as overly concentrated detergent, which was adjusted to resolve the issue³
- Excessive foam formation was observed during the detergent cycle for batch B15467, suspected to be caused by a high detergent concentration⁴
- High foam levels were noted during the cleaning phase for batch B15471, attributed to elevated detergent strength. Reducing the detergent concentration stabilized foam levels, allowing cleaning validation to pass⁵
- Elevated foam levels interrupted the cleaning cycle for batch B15471, causing inaccurate CIP sensor readings. Operators reduced detergent concentration, resolving the issue⁶

Generated using a subset of 25 total documents, considering all shiftbooks.

Relevant entries

Info

Info

Production

Failure

Info

Production

Suggestions

What adjustments were made to CIP detergent concentrations?

What cleaning challenges occurred with BR01 during recent batches?

How should detergent concentrations be adjusted for upcoming CIP cycles?

1. Find

2. Cluster & Resolve

3. Improve

20

SAMI continuously learns from operational data captured across shifts — surfacing patterns, flagging recurring issues, and feeding insights directly into continuous improvement cycles.

Search...

Open Chat

Christian Matt

XLS

Grouping: - None - Category Functional Location Priority

Created/Modi...	Att...	Priority			
the Tank 6788 LSH is damaged.	Andreas Eschbach				
2 revealed solidified polymer deposits around ing batch T12448 of PEG 8000. Residue hardening leaning sequence after batch discharge.	Christian Matt				
terior to 40°C via indirect steam through jacket iently to complete effective CIP and ensuring full					
02 post-cleaning cycle, delaying start-up for lymer deposits affecting heat transfer during PEG	Christian Matt				
stic wash followed by steam cleaning, onal standards.					
m reactor R302 after standard CIP, causing 3 (PEG 8000). Inspection revealed clogged spray	Christian Matt				
s, repeated CIP with enhanced cleaning efore release.					
dings post-cleaning of reactor R302, impacting identified contamination due to insufficient rinse	Christian Matt				
cle by 30 minutes and adjusted CIP procedure, ange.					
ed, and reactor cleared for continued production	Christian Matt				
tion during cleaning preparation, posing risk to oot cause analysis linked issue to faulty pressure	Christian Matt				

1 2 3 4

PROBLEM ID	PROBLEM
PSM-7	Batch started too late due to missing material

Close

Save

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

Problem Clarification

Problem Breakdown

Problem Statement

Root Cause Analysis

Countermeasures

Action Implementation

Effectiveness Verification

Standardize & Share

1. Problem Clarification

Done

Describe the actual situation using facts and data. Compare what is happening to what should be happening.

Case definition

Problem ID *

PSM-7

Problem Title *

Batch started too late due to missing material

Date Problem Occurred *

Thu, 16.04.2026 00:00

Owner

Placeholder text

Problem type

Placeholder text

Problem description

What happened?

The batch was started way too late because the material was not there in time and it took 50 minutes to find it in another staging area.

What should have happened?

The material should have been there.

What are the measurements in place?

Summary

Hide

Start describing your problem.

Recommendations

Hide

Observability

Describe the deviation in plain facts: what is happening that should not happen?

Scope

If multiple issues are mixed, pick the main one & split it into separate problems.

Clarity

Write what was observed (symptoms, deviations). Avoid

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Safety. Compliance. Confidence.