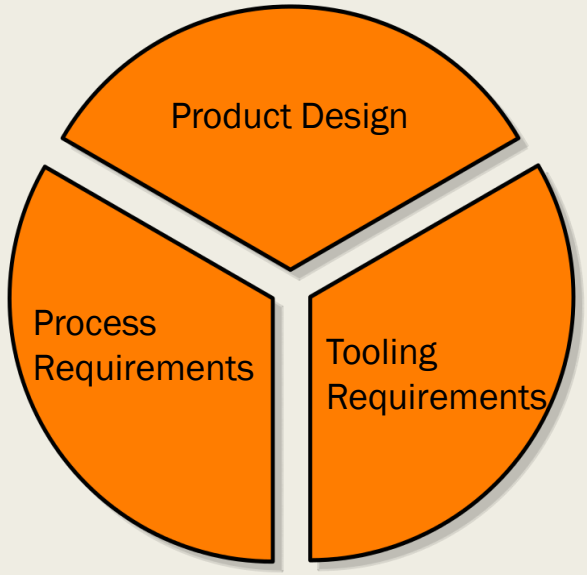
AUROS CASE STUDY

KOHLER CO., Showering and Bathing –
Manufacturing Engineering

Jim Jaeckels – Mgr. Manufacturing Engineering, Plastics Bathing

- **KOHLER Co.**
  - *NA Fixtures*
    - Showering and Bathing Business
      - *Manufacturing Engineering, Plastics Bathing*
- M.E. Department Responsibilities
  - *Project Management: Major Capital Projects*
  - *Project Management: Cost-out Projects*
  - *New Product Development/Integration*
    - Plastics Mold Shop

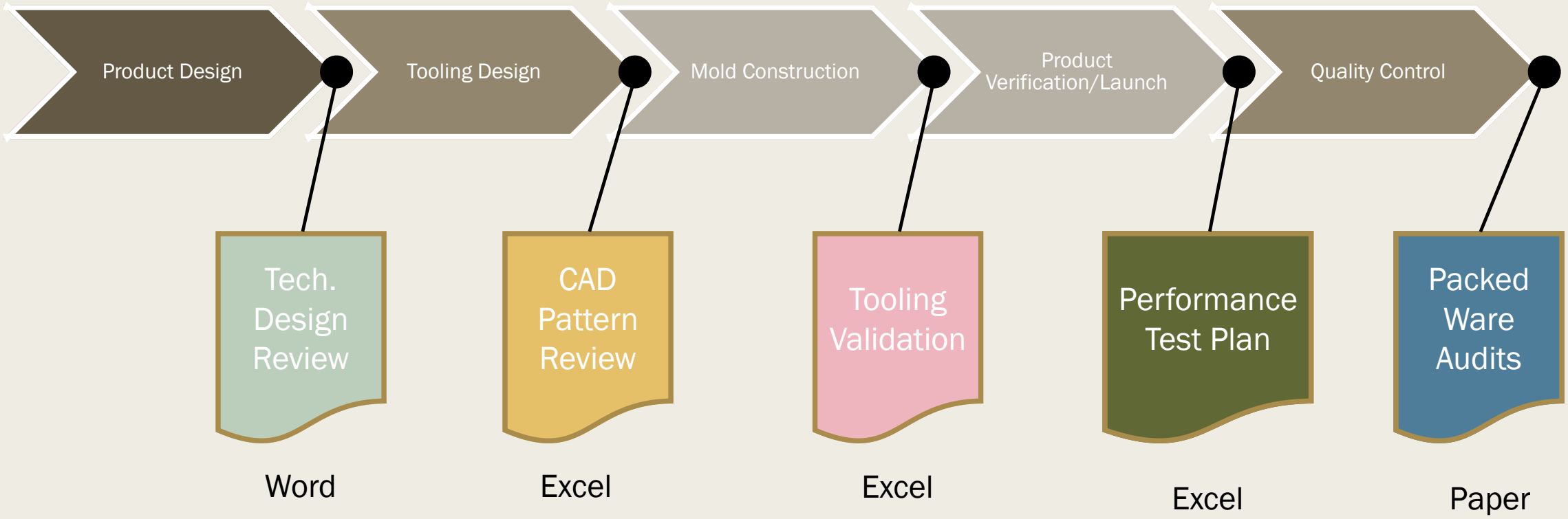
Manufacturing Engineering



Primary Material: Thermoformed Acrylic Fiberglass Reinforced Plastic

BATHING PRODUCTS

NEW PRODUCT DEVELOPMENT PROCESS



THE PROBLEM

- **Product Engineering** – High Turnover with frequently new engineers with little plastics experience.
- **Manufacturing Engineering** – High seniority Engineers and Technicians.
  - *Mold Shop: 5 Associates, ~91 years of experience.*
  - *Mfg. Eng.: 4 Engineers, ~52 years of experience.*

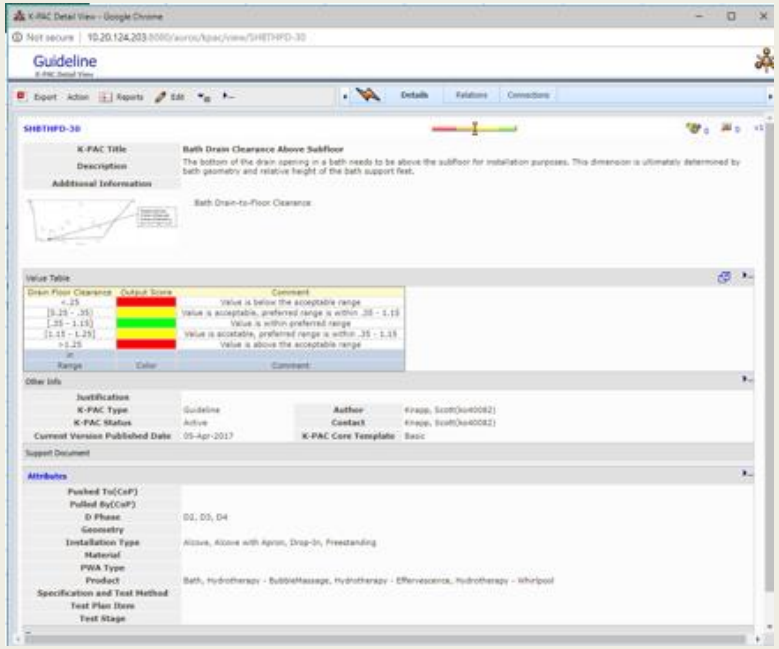
HOW DO WE BETTER COMMUNICATE REQUIERMENTS TO NEW ASSOCIATES?

HOW DO WE CAPTURE THE TECHNICAL KNOWLEDGE OF Mfg. Eng. ASSOCIATES?

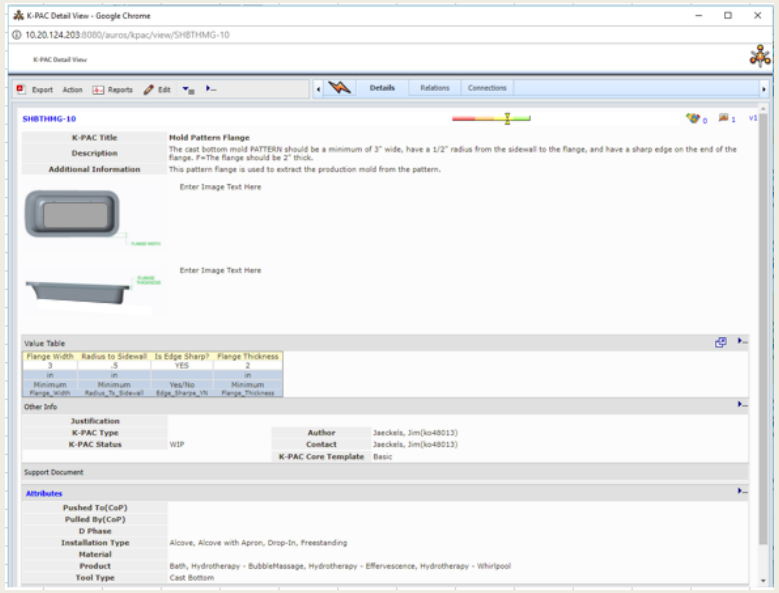
HOW CAN WE MAKE OUR DATA MORE AVIALABLE AND USABLE?

CAPTURE THE KNOWLEDGE

Product Engineering KPAC's



Tooling KPAC's

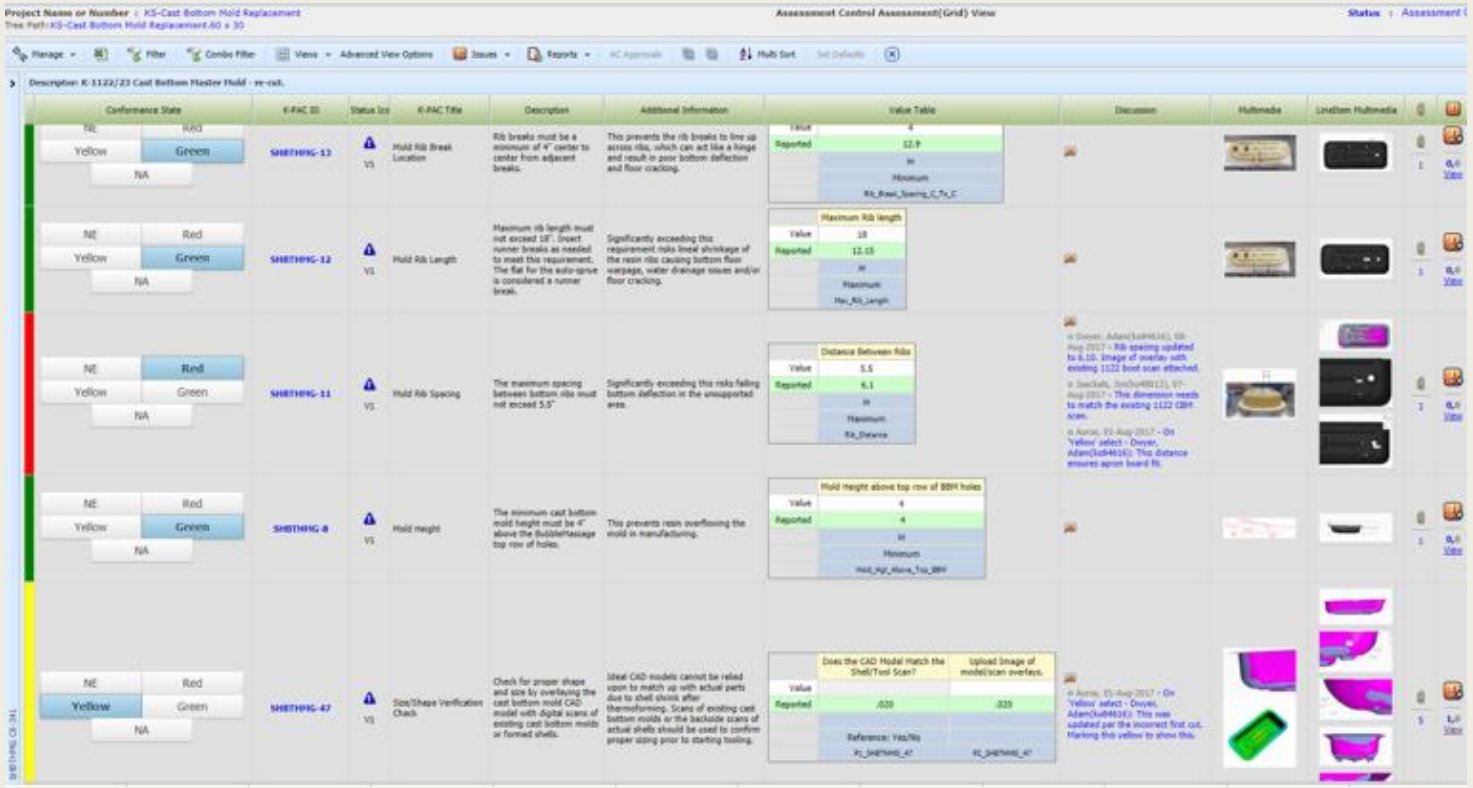


Process KPAC's

CAPTURE THE KNOWLEDGE

- KPAC Attributes:
  - *Material*
    - Acrylic FRP
    - ExoCrylic
  - *Installation*
    - Alcove
    - Drop-in
    - Freestanding
  - *Product Type*
    - Bath
    - Hydrotherapy
    - Shower Receptor
  - *Process Step*
    - Technical Design Review
    - CAD Pattern Check
    - Mold Construction
    - Product Verification
    - Packed Ware Audits

APPLY THE KNOWLEDGE

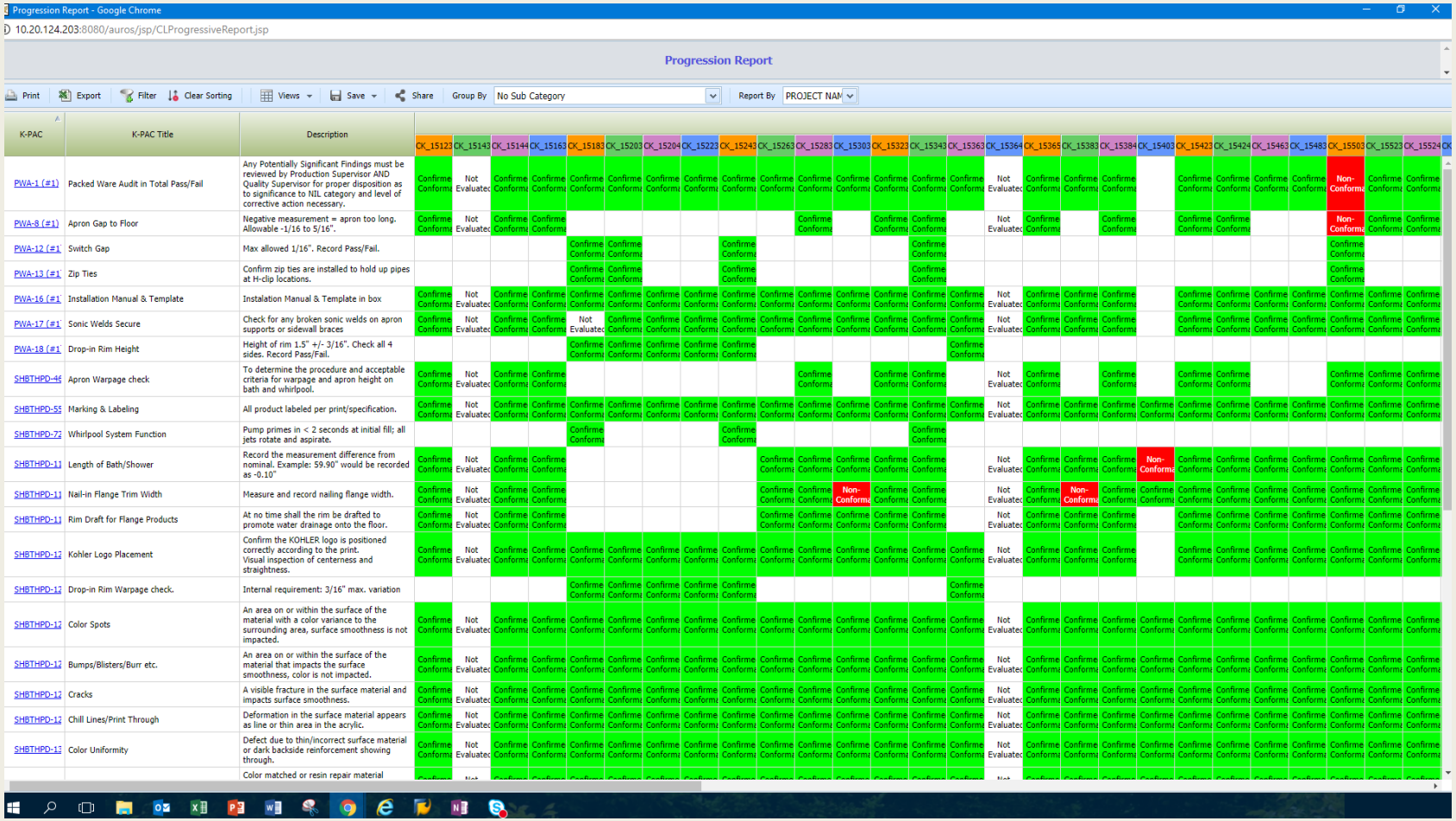


- An Assessment control is a collection of requirements (KPAC's)
- Based on Attributes selected.
- Collects actual measurement data.
- Determines pass/fail.
- Documents issues and discussions.

APPLY THE KNOWLEDGE

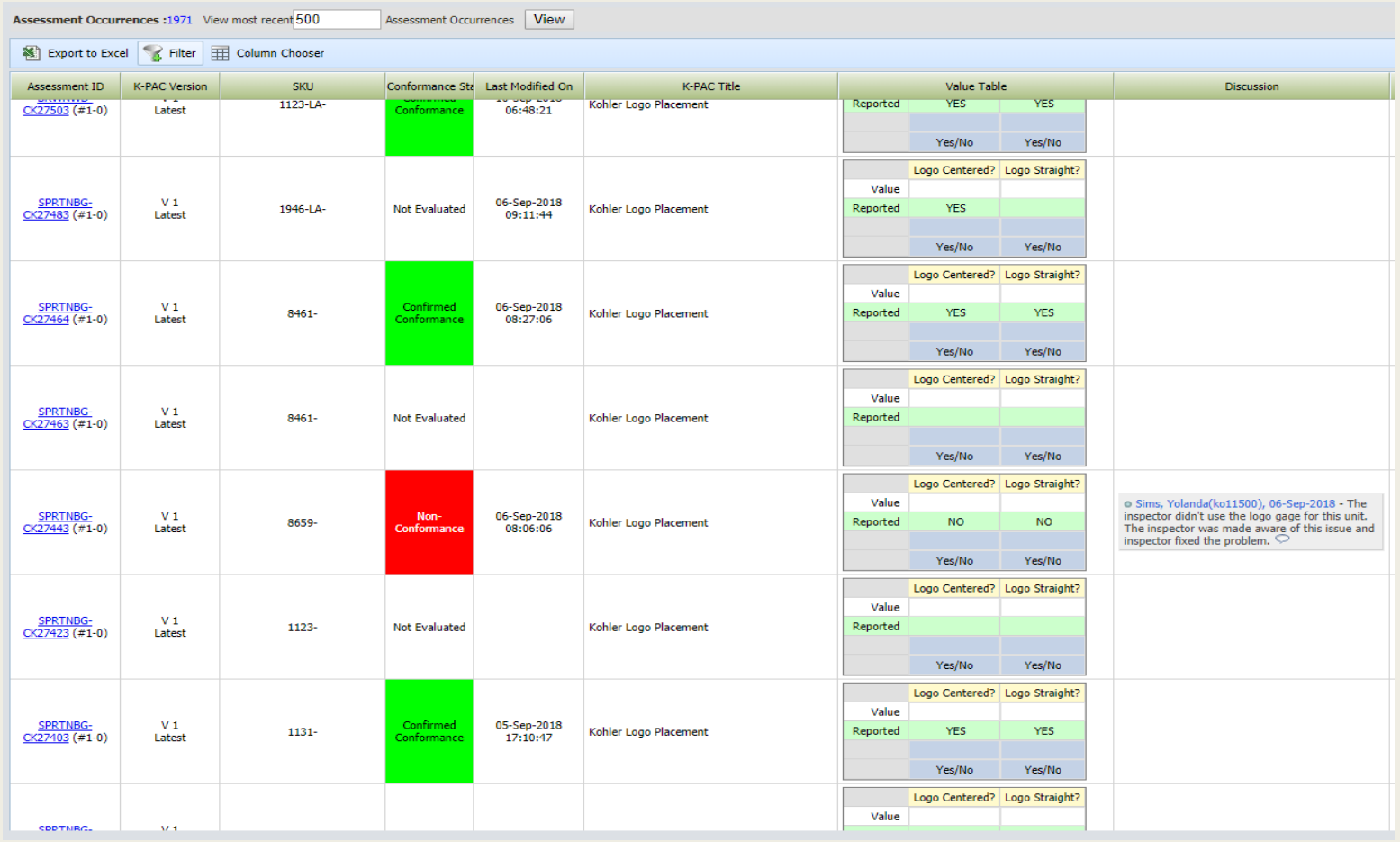
Assesment Controls	Product Engineering KPAC's	Tooling KPAC's	Process KPAC's
Technical Design Review	X		
CAD Pattern Review	X	X	X
Tooling Validation		X	X
Performance Test Plan	X		
Packed Ware Audits	X		

PERFORMANCE VISIBILITY – BACK END



- Packed Ware Audit Results
- Visually see Frequencies and Patterns of non-conformities

PERFORMANCE VISIBILITY – FRONT END



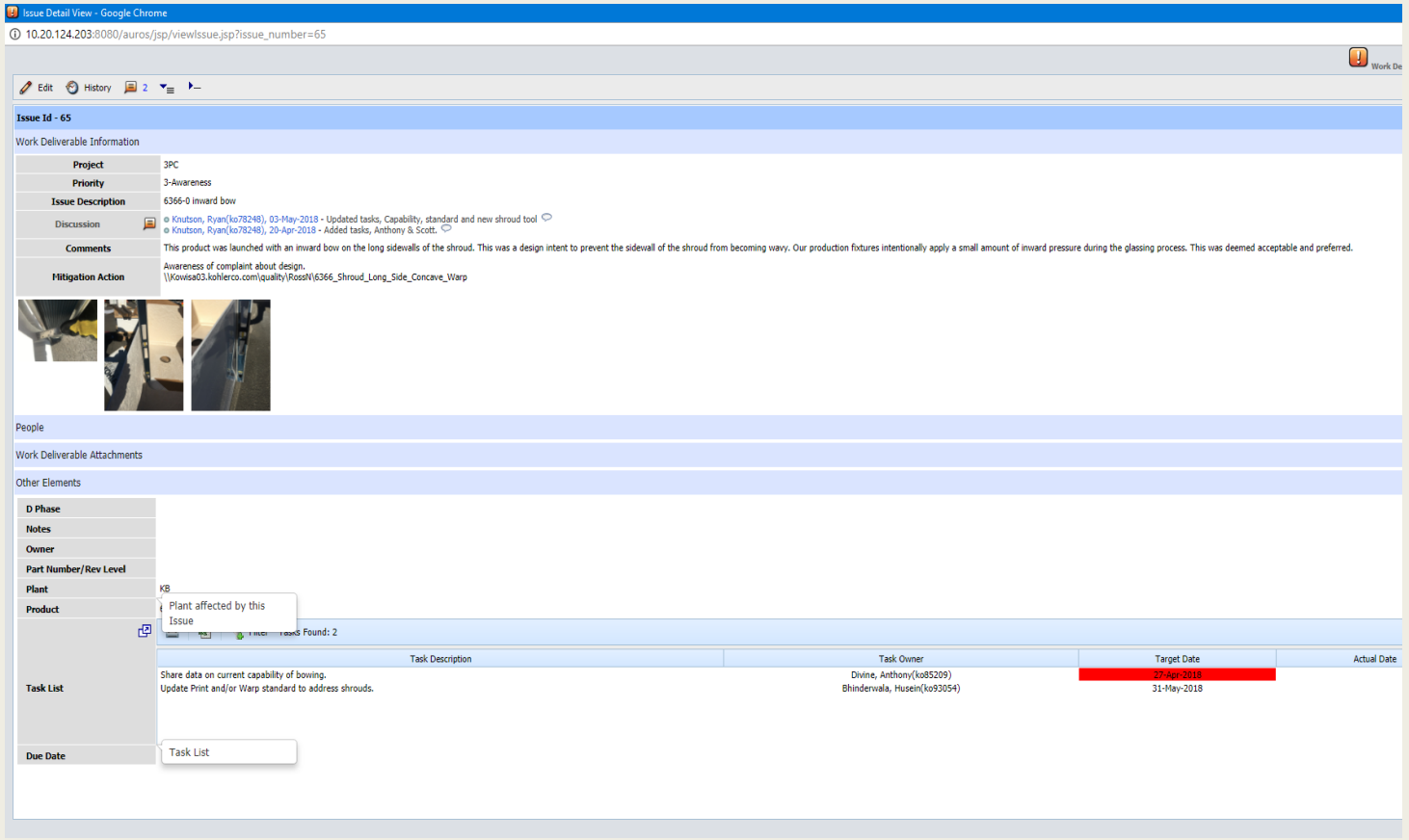
Assessment Occurrences :1971 View most recent 500 Assessment Occurrences View

Export to Excel | Filter | Column Chooser

Assessment ID	K-PAC Version	SKU	Conformance Sta	Last Modified On	K-PAC Title	Value Table	Discussion
CK27503 (#1-0)	Latest	1123-LA-	Conformance	06:48:21	Kohler Logo Placement	Reported YES YES; Yes/No Yes/No	
SPRTNBG-CK27483 (#1-0)	V 1 Latest	1946-LA-	Not Evaluated	06-Sep-2018 09:11:44	Kohler Logo Placement	Logo Centered? Logo Straight?; Value; Reported YES; Yes/No Yes/No	
SPRTNBG-CK27464 (#1-0)	V 1 Latest	8461-	Confirmed Conformance	06-Sep-2018 08:27:06	Kohler Logo Placement	Logo Centered? Logo Straight?; Value; Reported YES YES; Yes/No Yes/No	
SPRTNBG-CK27463 (#1-0)	V 1 Latest	8461-	Not Evaluated		Kohler Logo Placement	Logo Centered? Logo Straight?; Value; Reported; Yes/No Yes/No	
SPRTNBG-CK27443 (#1-0)	V 1 Latest	8659-	Non-Conformance	06-Sep-2018 08:06:06	Kohler Logo Placement	Logo Centered? Logo Straight?; Value; Reported NO NO; Yes/No Yes/No	Sims, Yolanda(ko11500), 06-Sep-2018 - The inspector didn't use the logo gage for this unit. The inspector was made aware of this issue and inspector fixed the problem.
SPRTNBG-CK27423 (#1-0)	V 1 Latest	1123-	Not Evaluated		Kohler Logo Placement	Logo Centered? Logo Straight?; Value; Reported; Yes/No Yes/No	
SPRTNBG-CK27403 (#1-0)	V 1 Latest	1131-	Confirmed Conformance	05-Sep-2018 17:10:47	Kohler Logo Placement	Logo Centered? Logo Straight?; Value; Reported YES YES; Yes/No Yes/No	
						Logo Centered? Logo Straight?; Value	

- Look-across for a single requirement.
- Where and when this requirement was used.
- Frequency of conformance at our figure tips.

ISSUES MANGEMENT



- Our issues are now tied to requirements.
- Discussions with the right people are documented.
- Resolution documented with the requirement.
- Future users can see past issues.