

SANTIAGO – CHILE - JULIO 30-31, 2019

XI Jornadas Técnicas ABB en Chile

Changing the Way to Operate and Maintain Mining Processes: Minerals Library Success

Víctor Oropesa Jiménez, Senior Principal Project Engineer - Chile



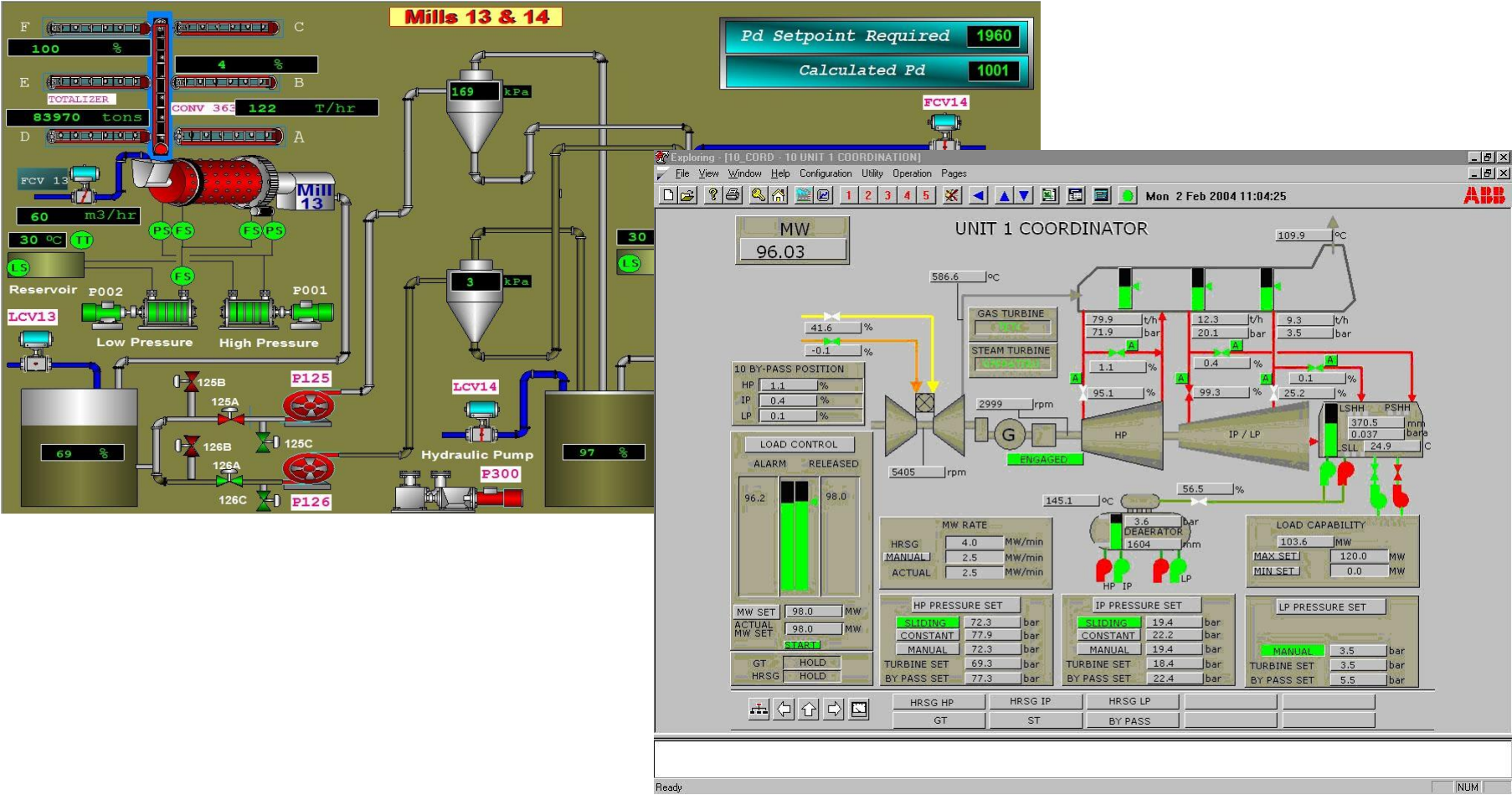
Presentation outline

1. General context, detected situations
2. Proposed solution: Minerals Control Library
3. Next generation Process Display
4. Benefits
5. Conclusion
6. Questions

Detected situations...



Operation displays with too much information and colors...

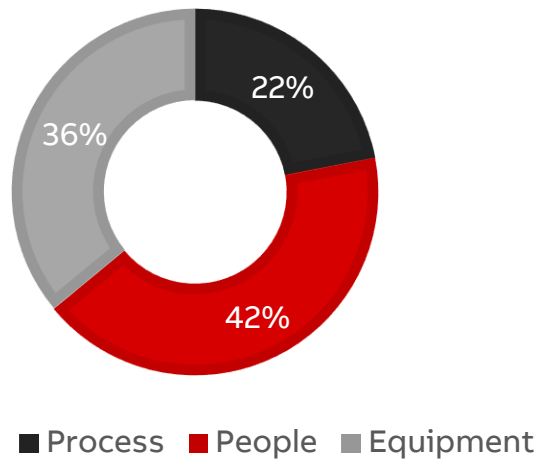


—
This cause...



What situation awareness seeks to resolve

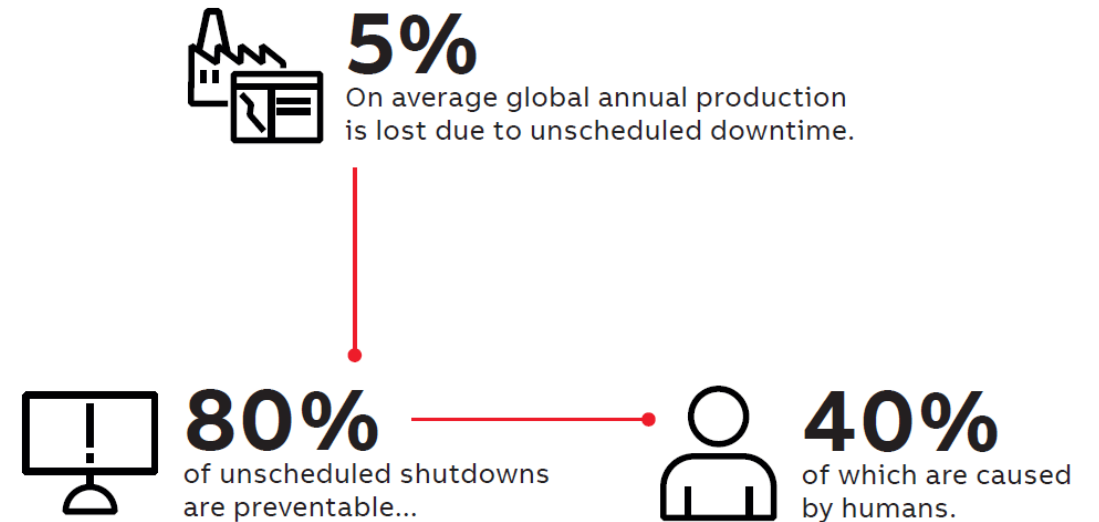
Distribution of unscheduled shutdowns and slowdowns



Global process industry loses \$20 billion (5% percent of annual production) due to unscheduled downtime and poor quality

Source: ARC Advisory Group

Losses due to unscheduled downtime

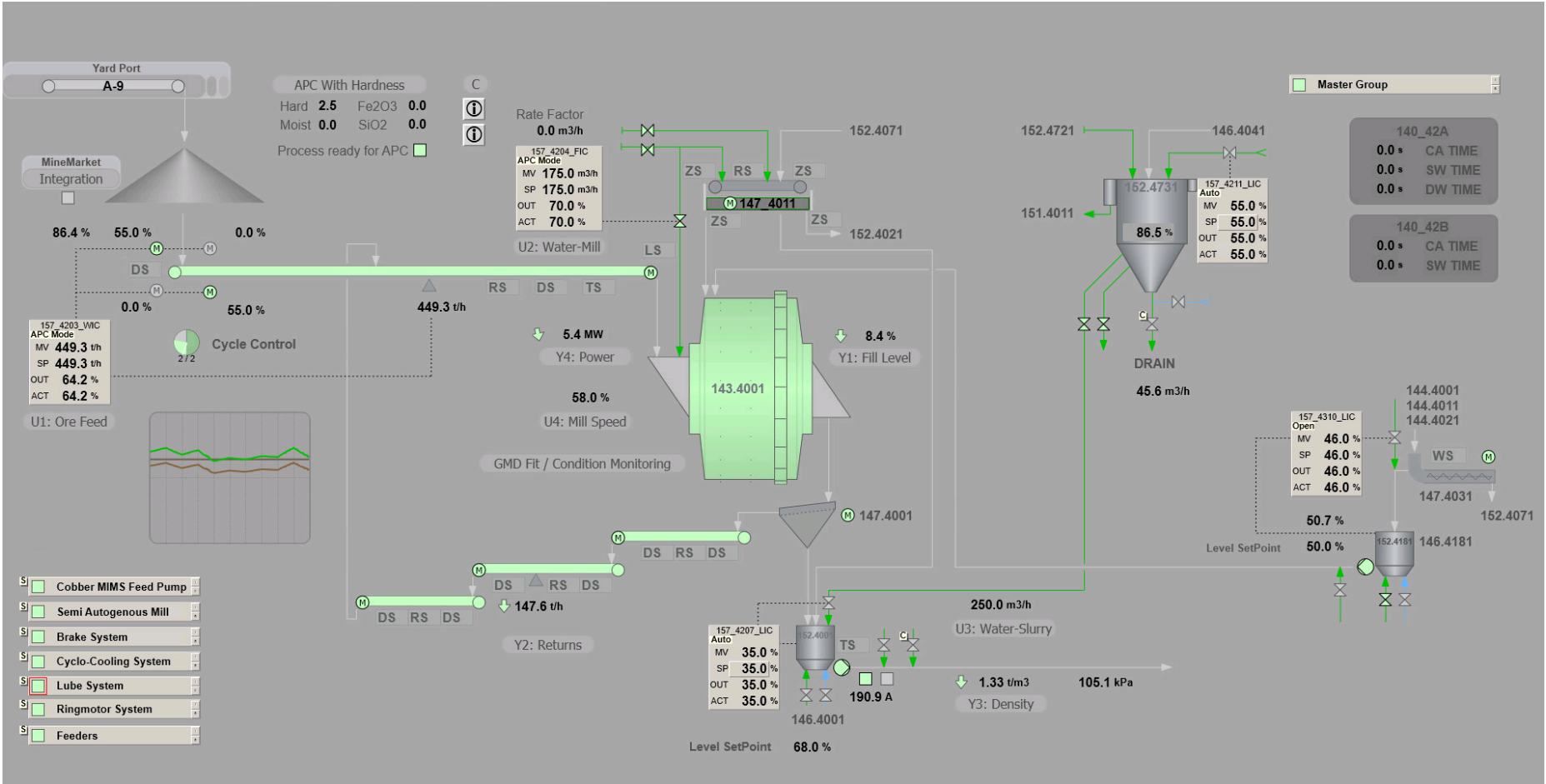


Over the total lifecycle, most important decisions are made by the operator

How could we improve this situation? The users needed:

- ✓ Intuitive navigation; Standardized graphic representation for the field devices
- ✓ Easy operation of process objects like motors, valves, and also for complex equipment like mills, conveyors, etc.
- ✓ Simple way to find root cause of problems

Introducing: ABB Minerals Control Library



Introducing: ABB Minerals Control Library

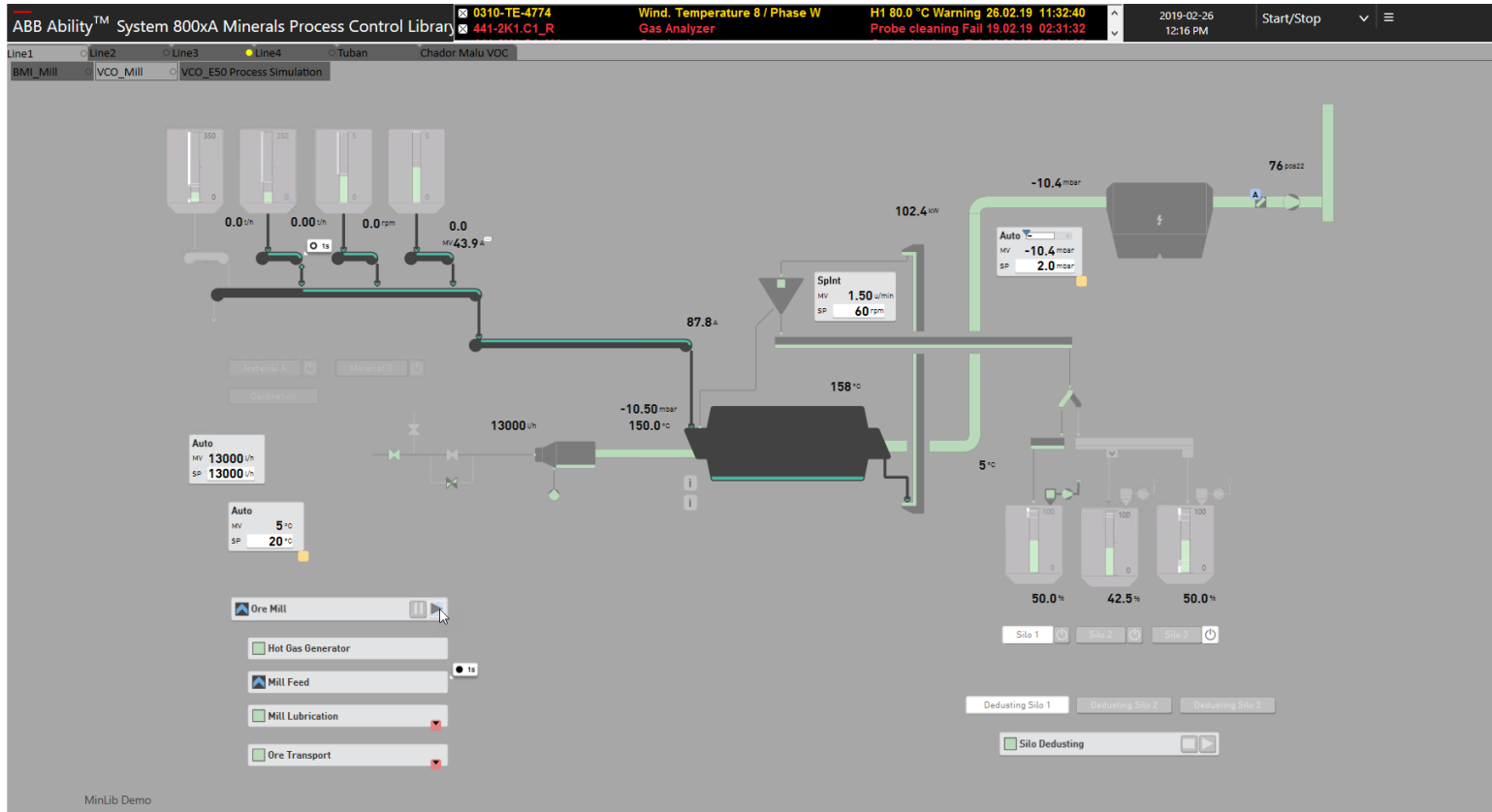
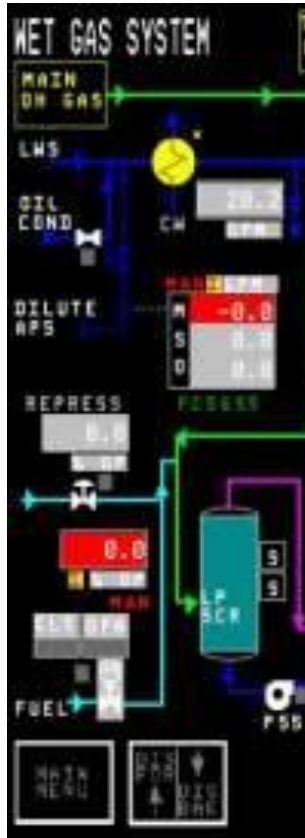


ABB Minerals Control Library: Grouping concept

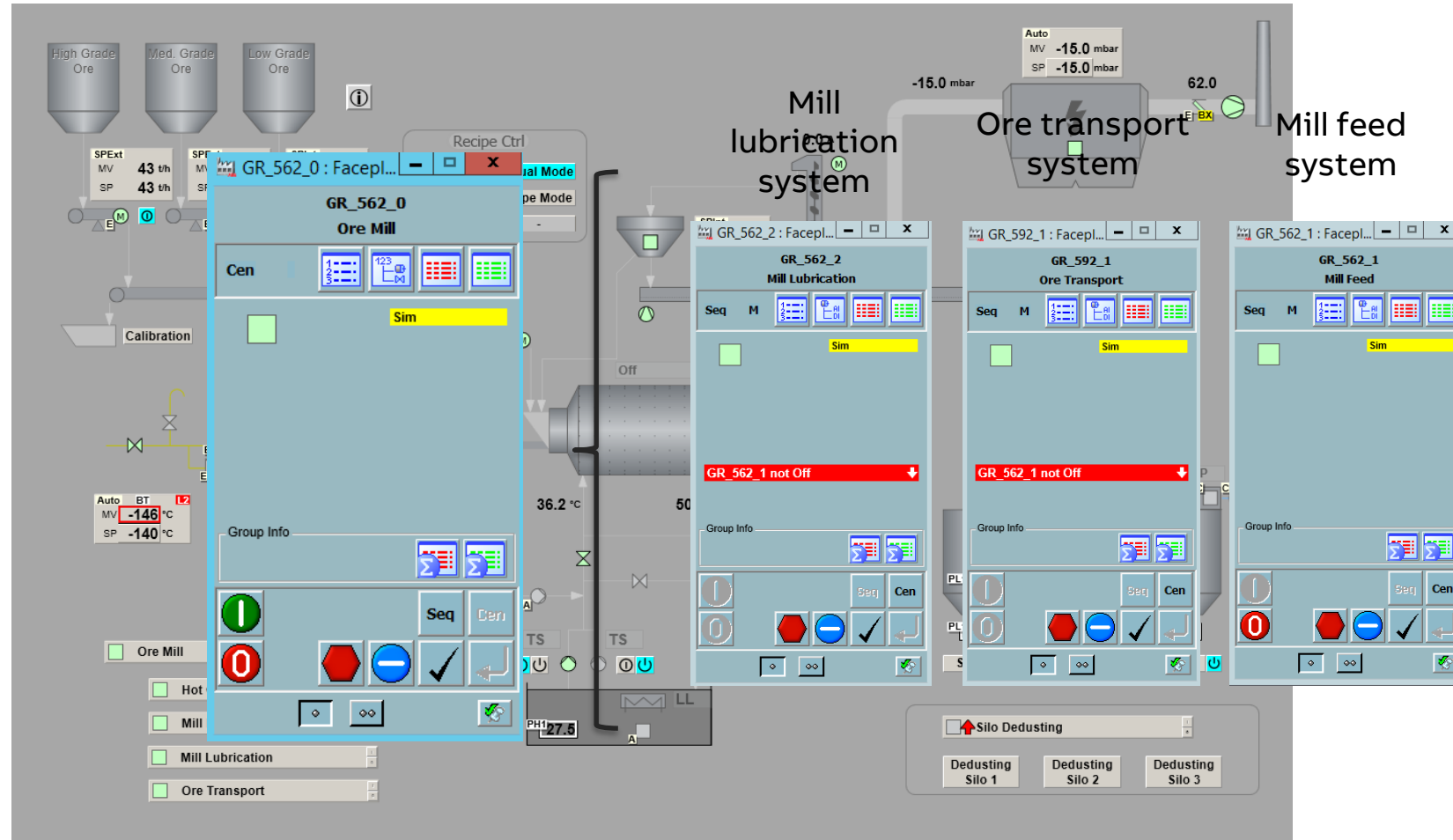
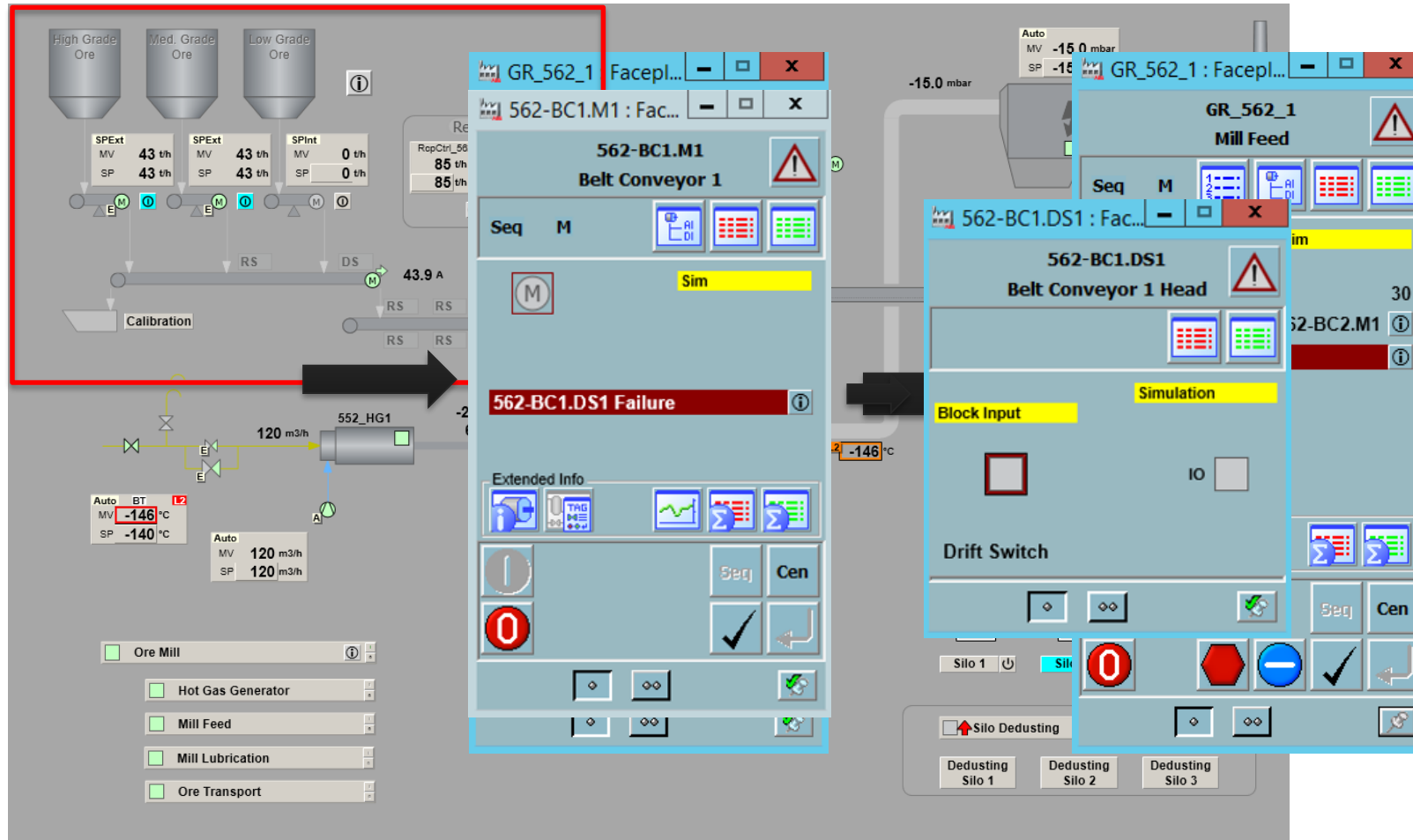
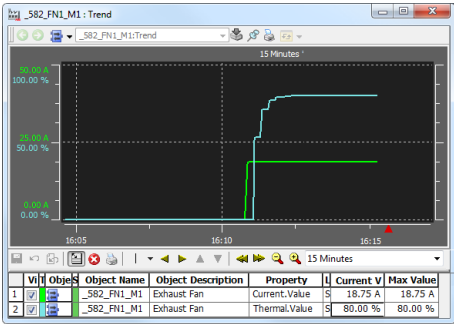
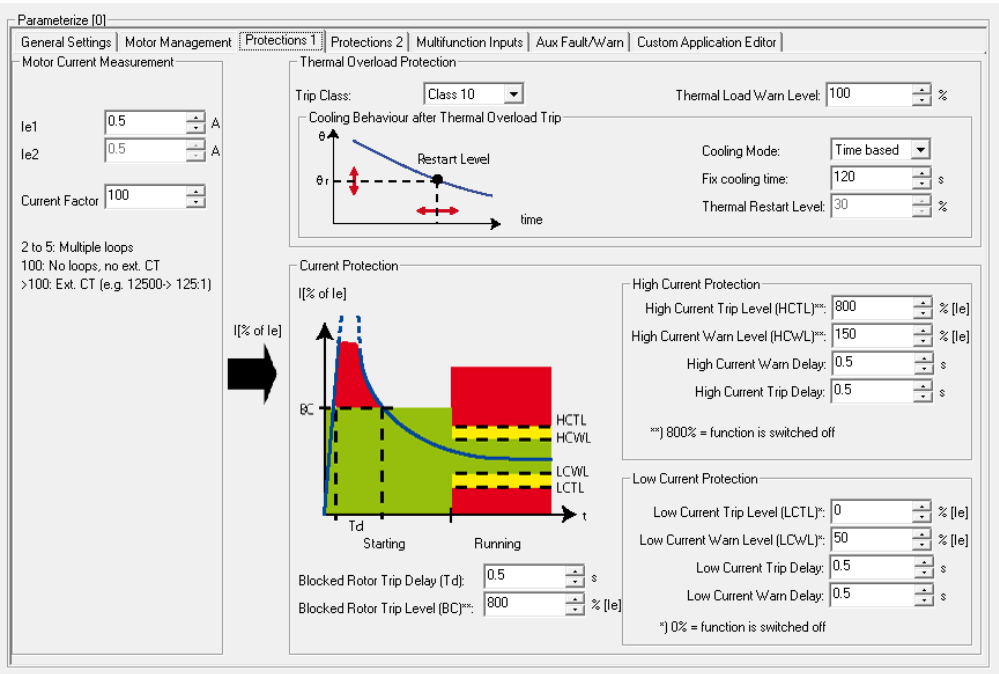
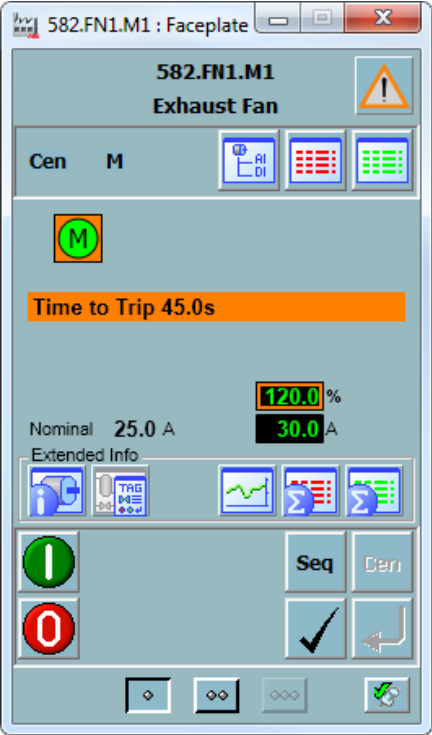


ABB Minerals Control Library: Fast detection of failure's root cause

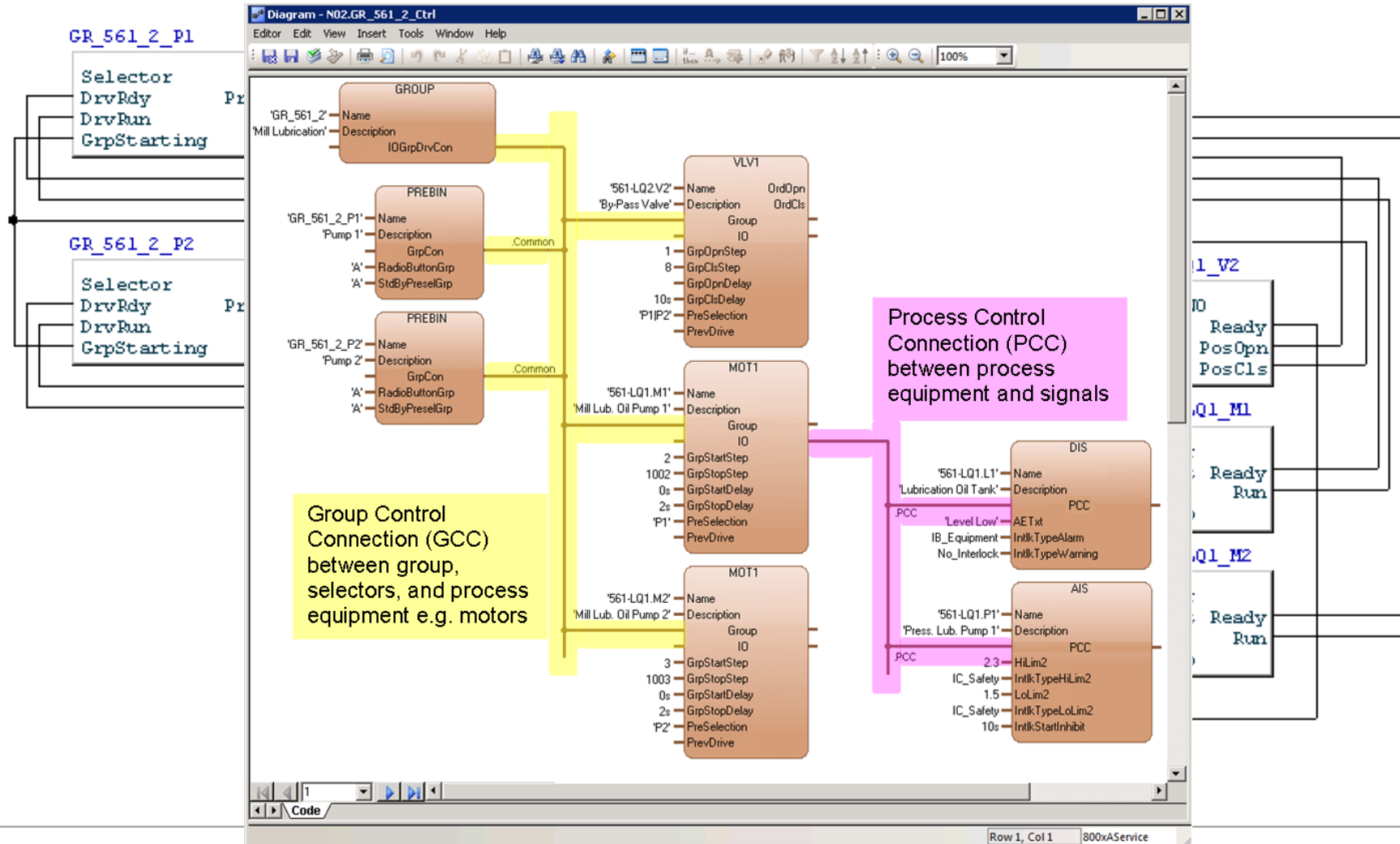


Improving operator effectiveness



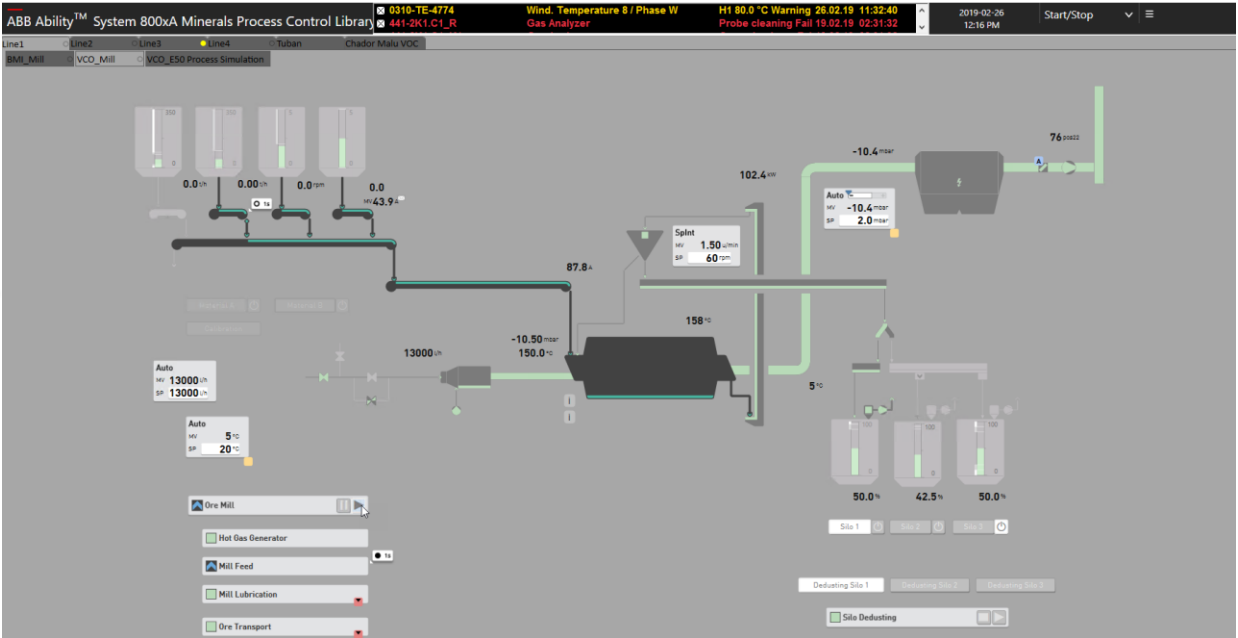
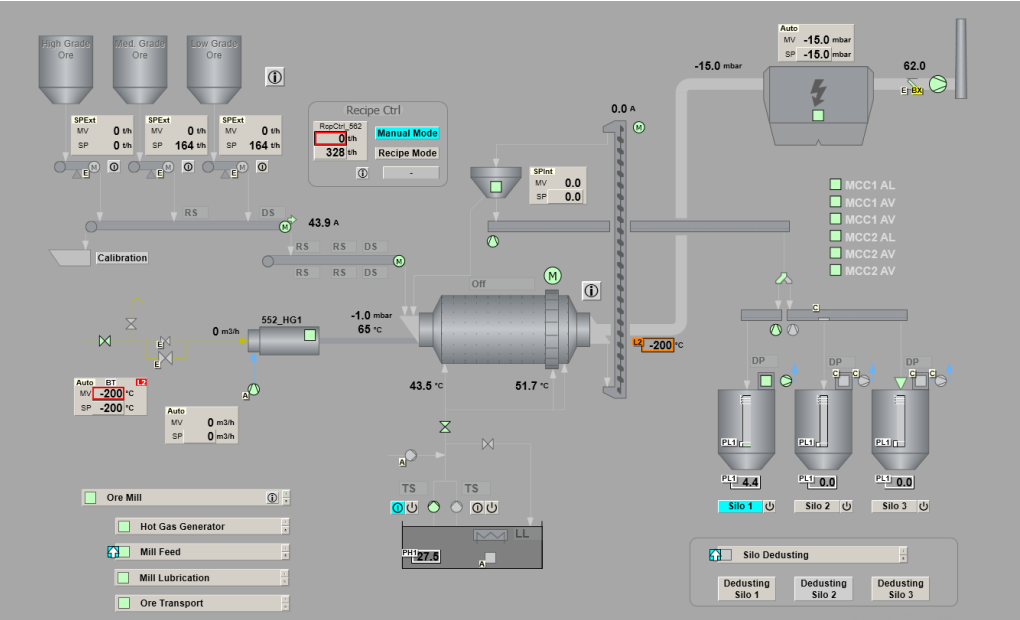
SourceName	Object Description	Message Description	Event Time
582.FN1.M1	Exhaust Fan	See Extended Info Warnings	20.06.11 10:36:08:103
582.FN1.M1	Exhaust Fan	Thermal Overload	20.06.11 10:36:06:989
582.FN1.M1	Exhaust Fan	Cen Man Off CSP Blk: -	20.06.11 10:34:38:353
582.FN1.M1	Exhaust Fan	Cen Man Run Blk: -	20.06.11 10:34:37:853
582.FN1.M1	Exhaust Fan	Cen Man Off CSP Blk: -	20.06.11 10:34:37:353
582.FN1.M1	Exhaust Fan	Cen Man Run Blk: -	20.06.11 10:34:36:853

Control applications easy to understand and follow



Next Generation Process Control Graphics

VCO – Visual Control HMIs

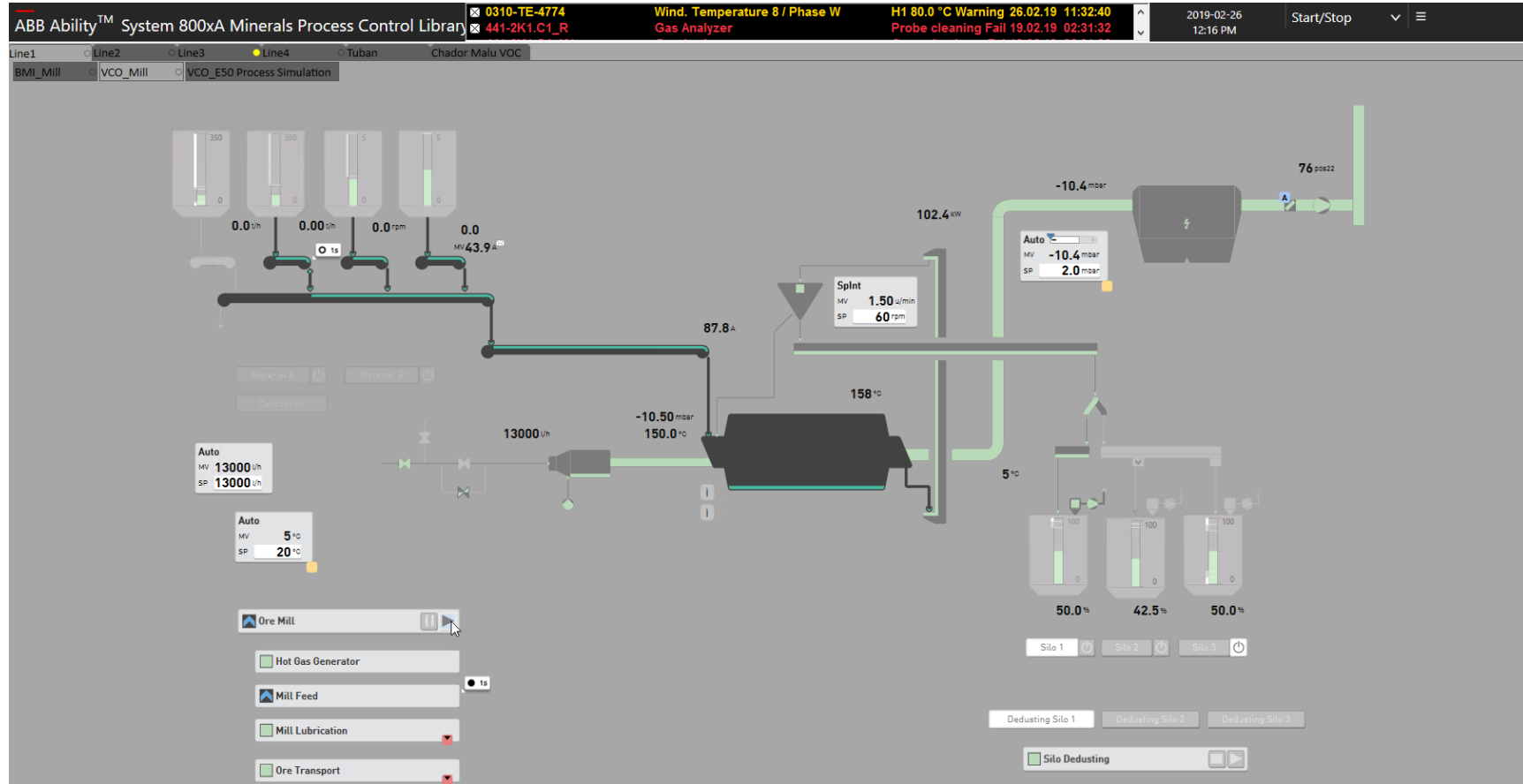


100

START/STOP

PRODUCTION

ASM - MODE



VCO - Situation Dependent Process Display

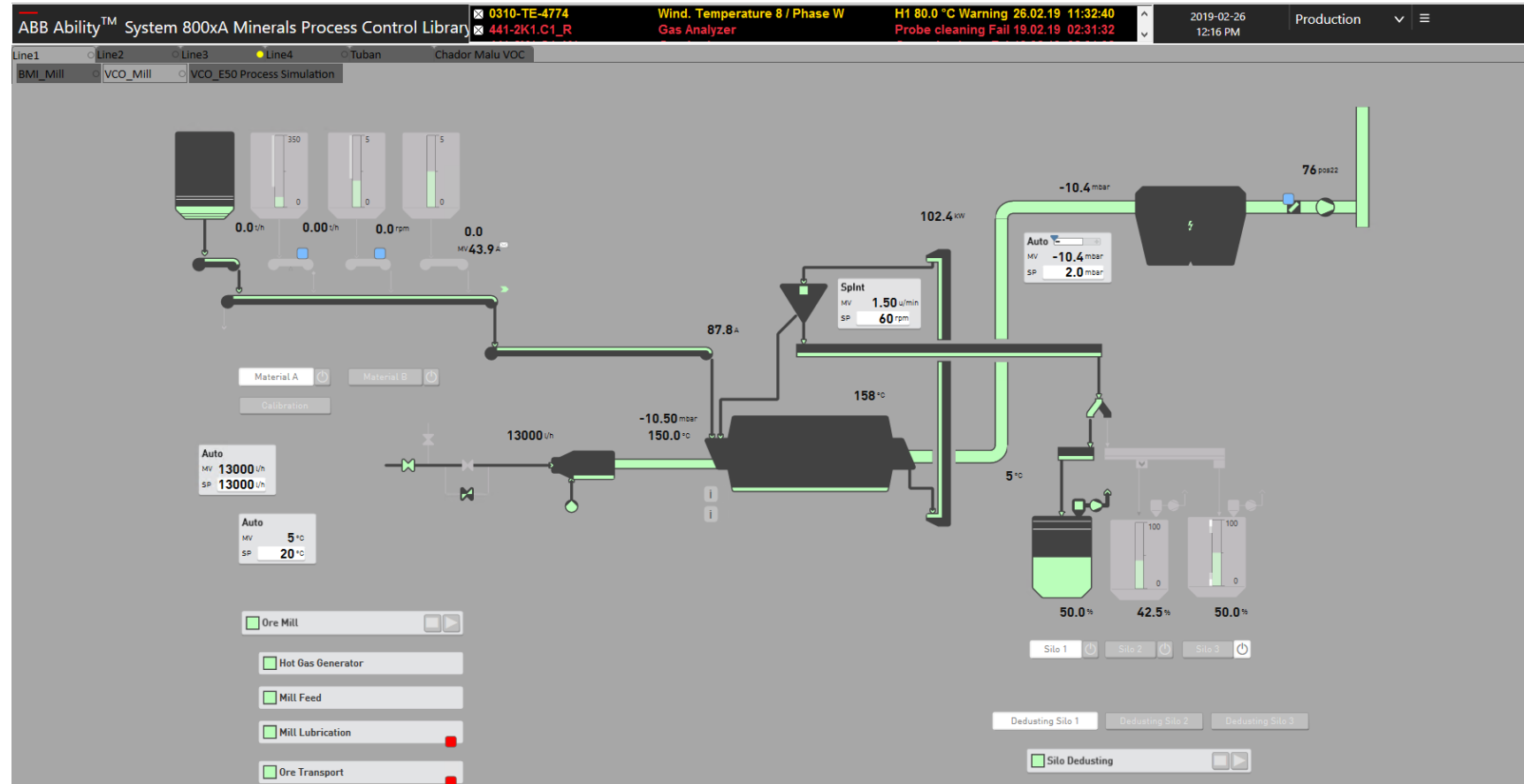
Optimized display modes for particular process situations

Display Mode

START/STOP

PRODUCTION

ASM - MODE



VCO - Situation Dependent Process Display

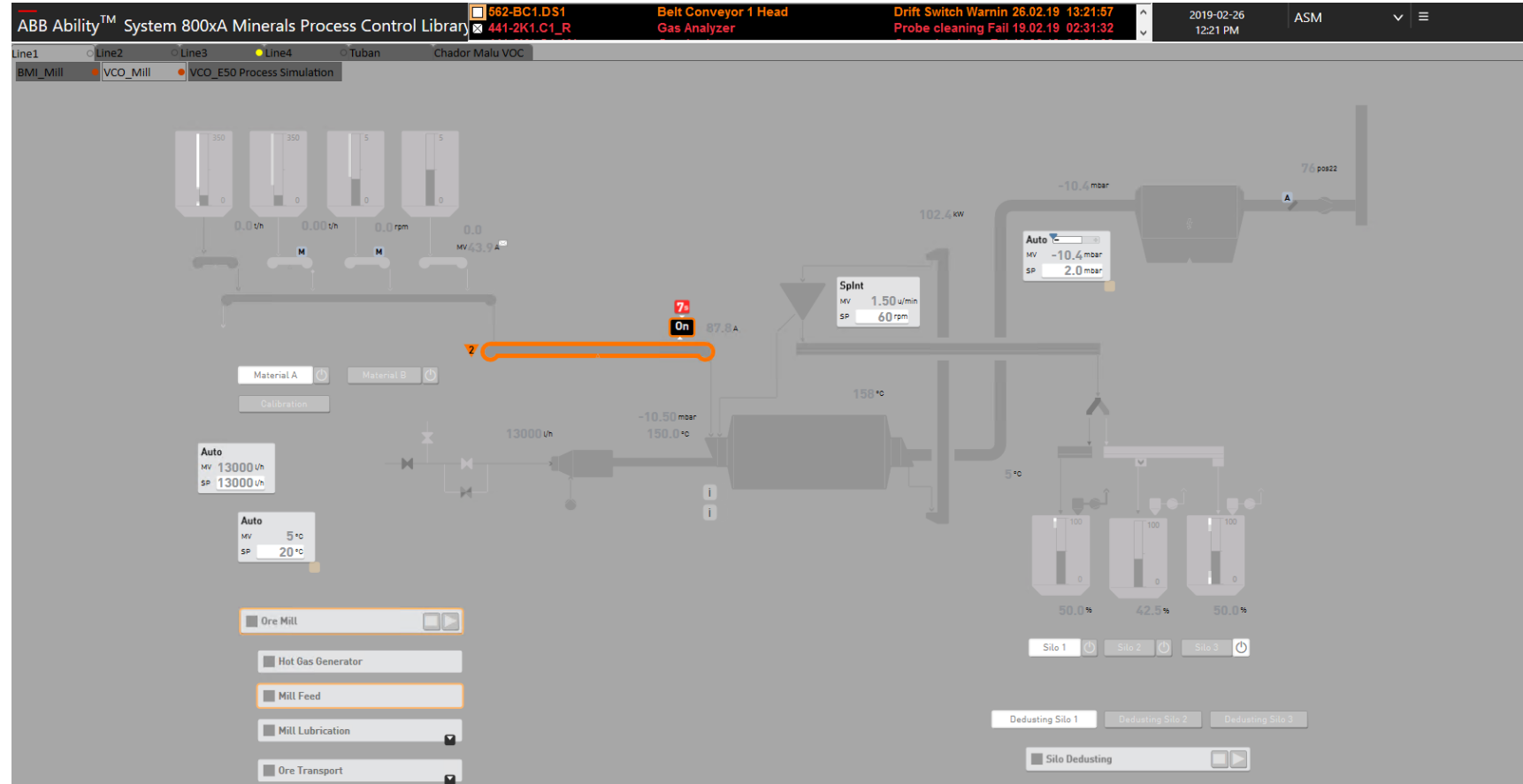
Optimized display modes for particular process situations

Display Mode

START/STOP

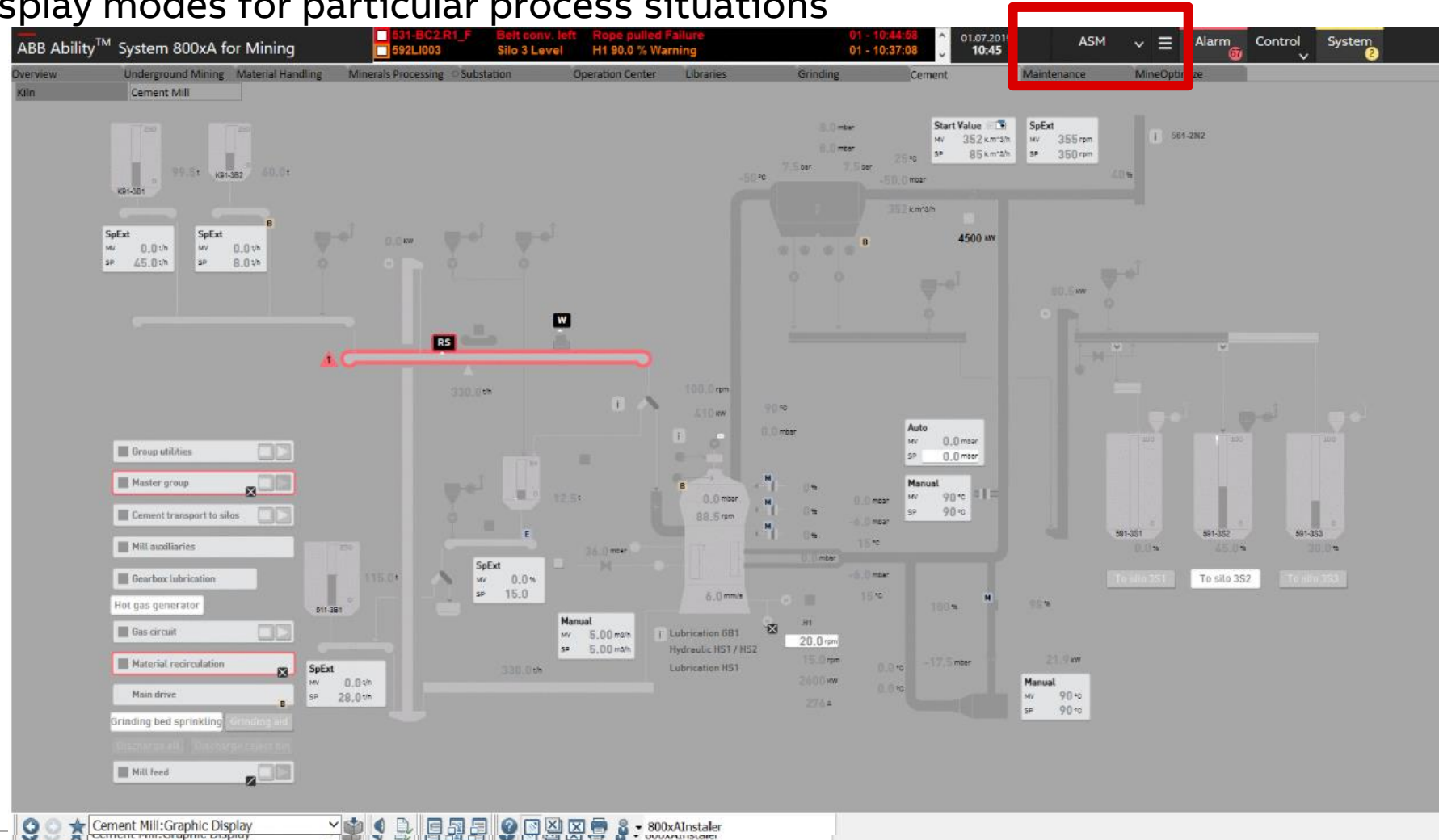
PRODUCTION

ASM - MODE



VCO - Situation Dependent Process Display

Optimized display modes for particular process situations



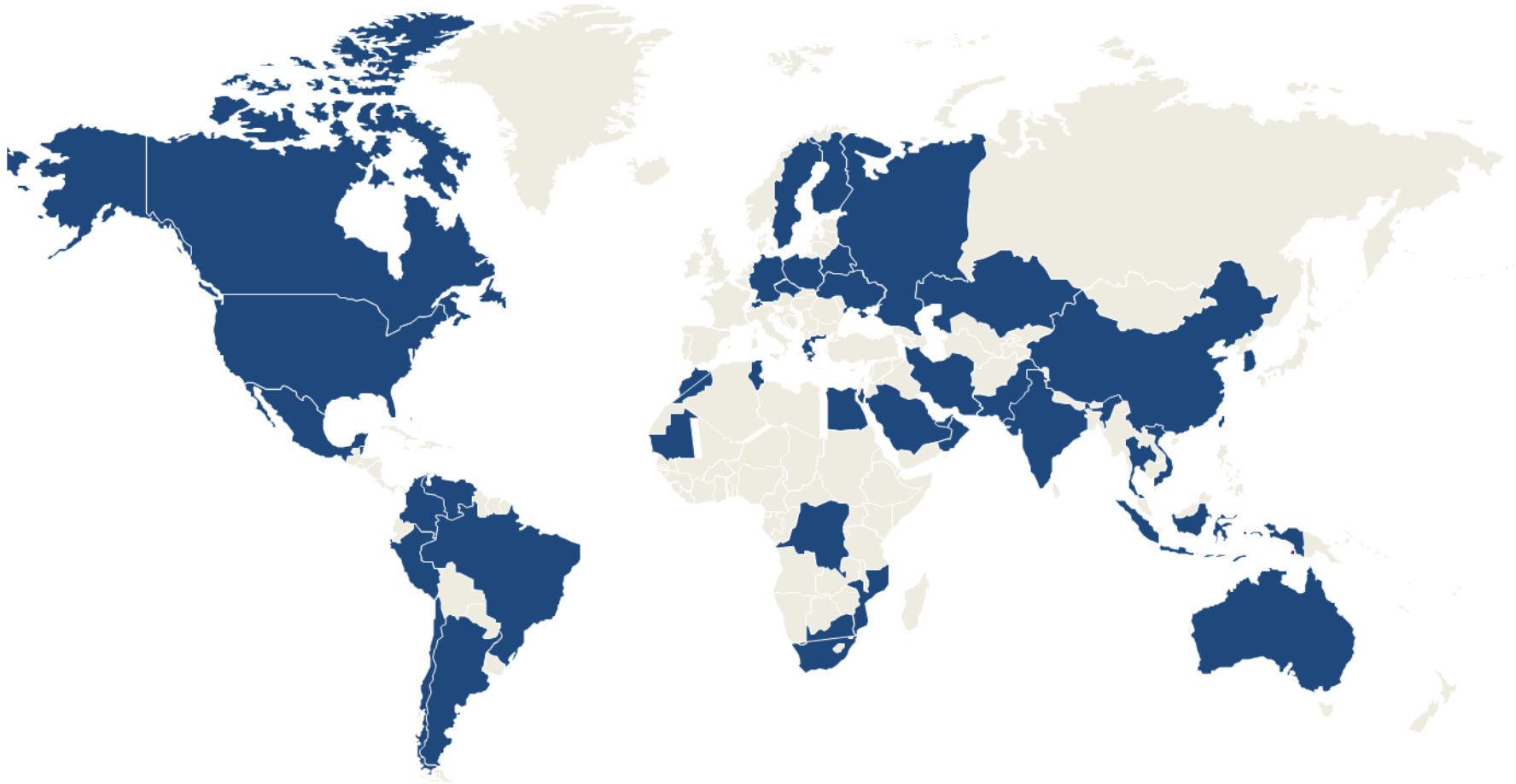
Achieved benefits with implementation...

- ✓ Simple way to find root cause of problems
- ✓ Less process detention time
- ✓ Intuitive operation/maintenance → More efficiency
- ✓ Standardized control libraries for the entire mining process

Conclusions

- ✓ The operation interfaces evolve permanently
- ✓ Despite the “initial resistance”, significant changes in the operation methodologies has shown important short-term benefits
- ✓ The best way to demonstrate the benefits to the users is through practice (hands-on)

800xA & Minerals Library References



ABB