

AUTOMATED AVAILABILITY TRACKING @ PETRA III.

Involving operators in availability tracking and failure analysis at PETRA III

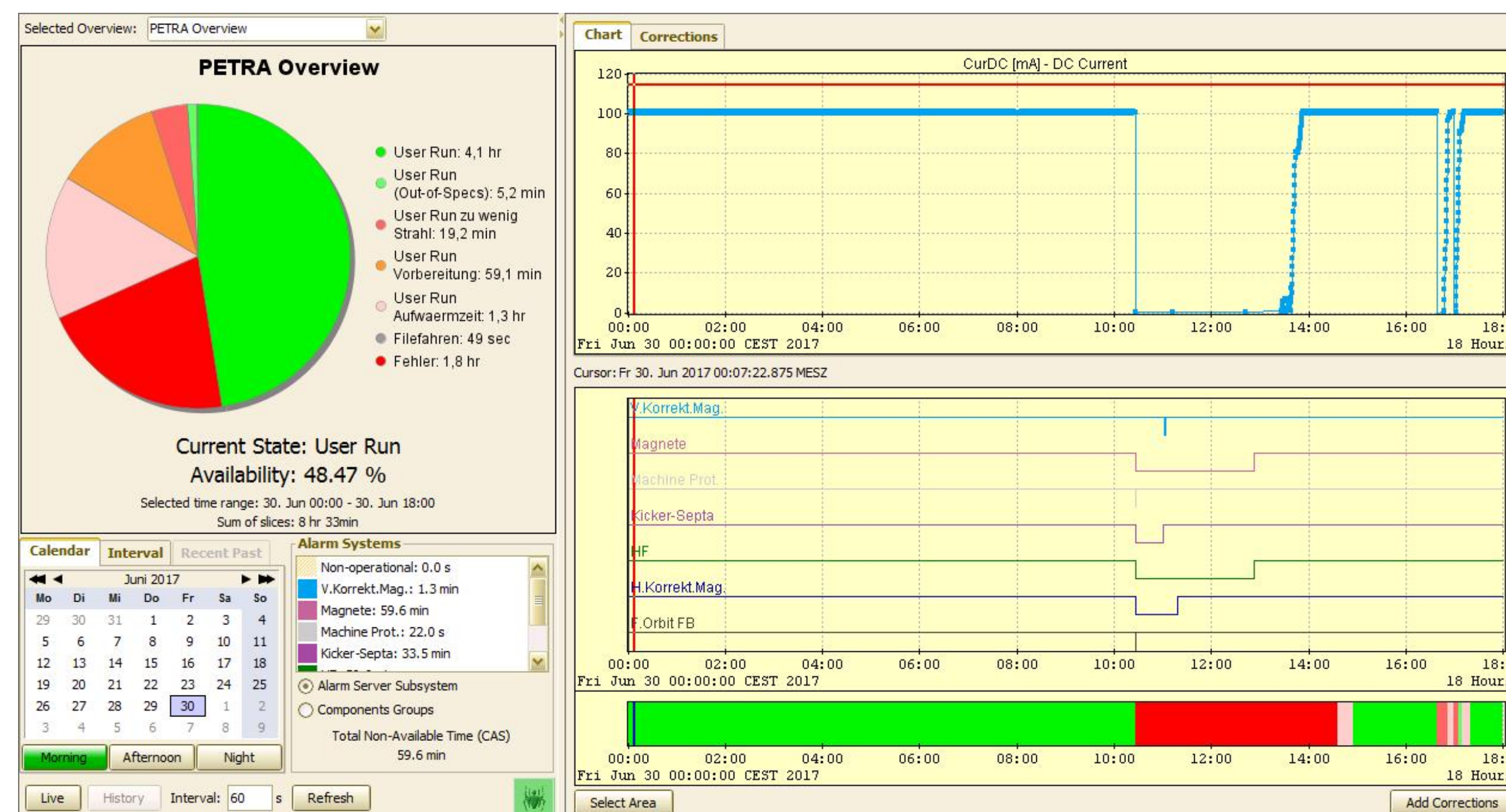


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Abstract

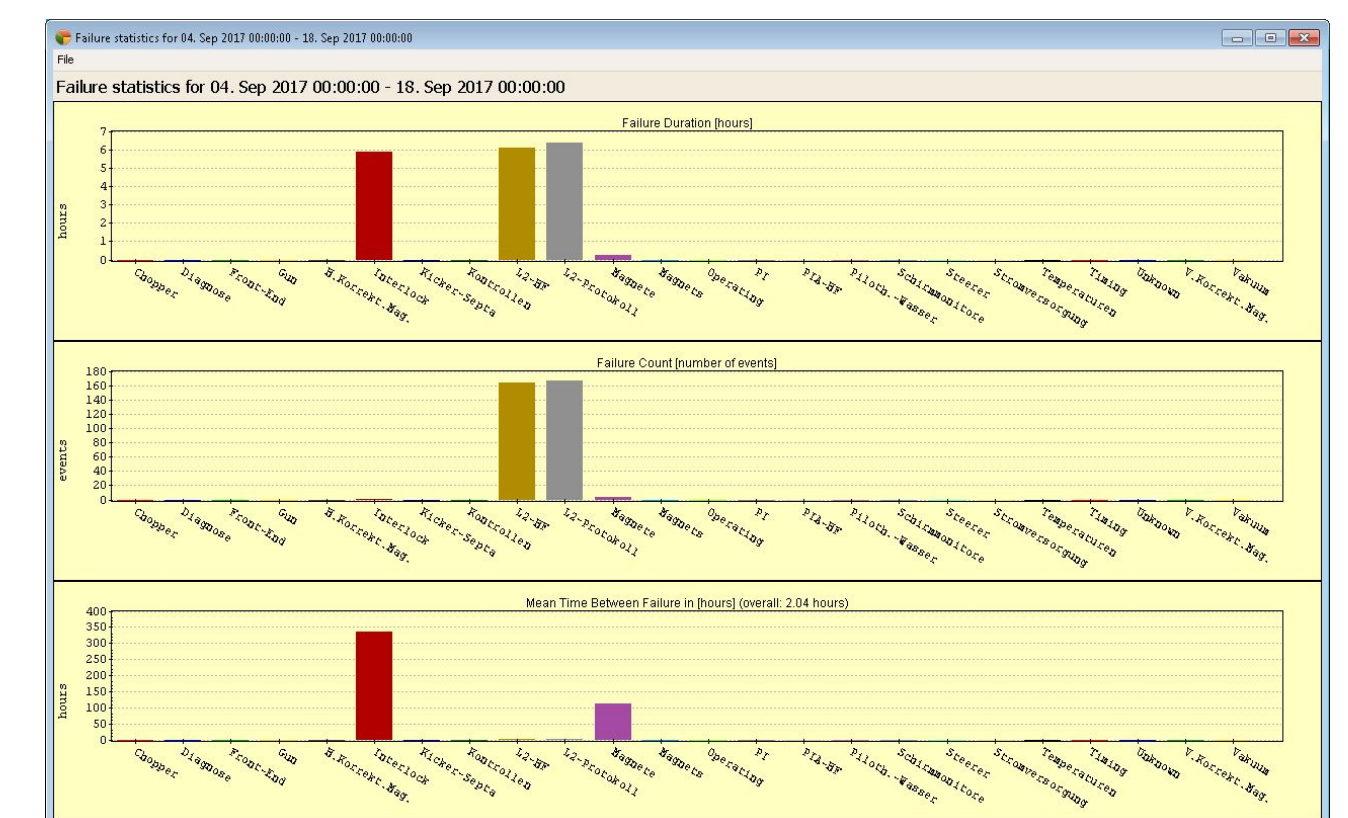
A high machine availability is an important performance indicator for modern synchrotron light sources. To reach this goal of stabilizing operations by minimizing the occurrence and duration of downtime events, software tools play an important role. Reliable operation statistics are necessary, in addition to reliable tools for root-cause analysis and fault tracking. Here we describe how we do business at PETRA III and how operators are involved.

The Operation History Viewer



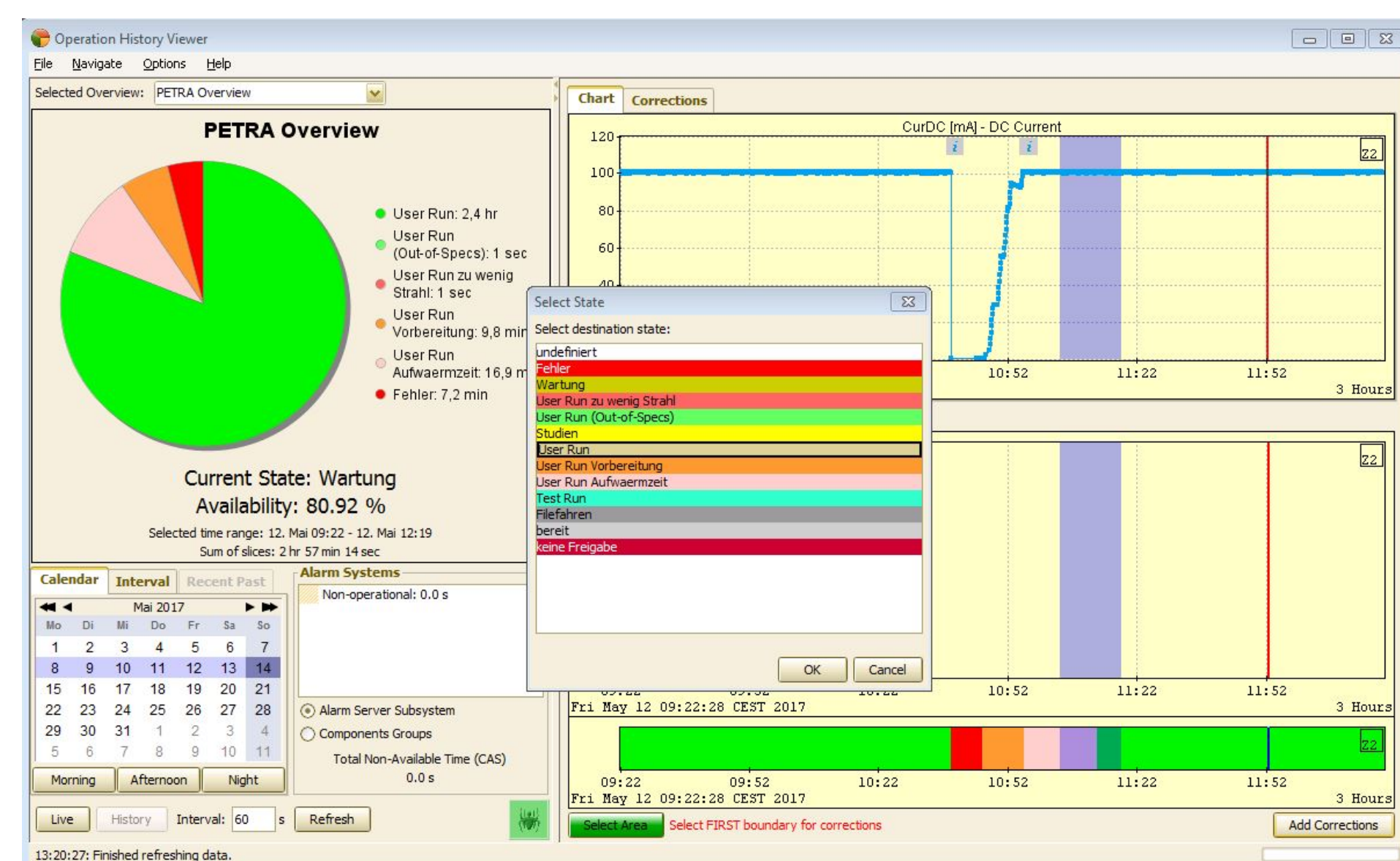
- calculates machine performance taking into account the alarm system, machine states, operation calendar and machine parameters

- a flexible tool to view the history of machine states and alarms
 - for any time interval
 - zooming possibility down to seconds
- accelerator availability and MTBF calculation for the selected time interval



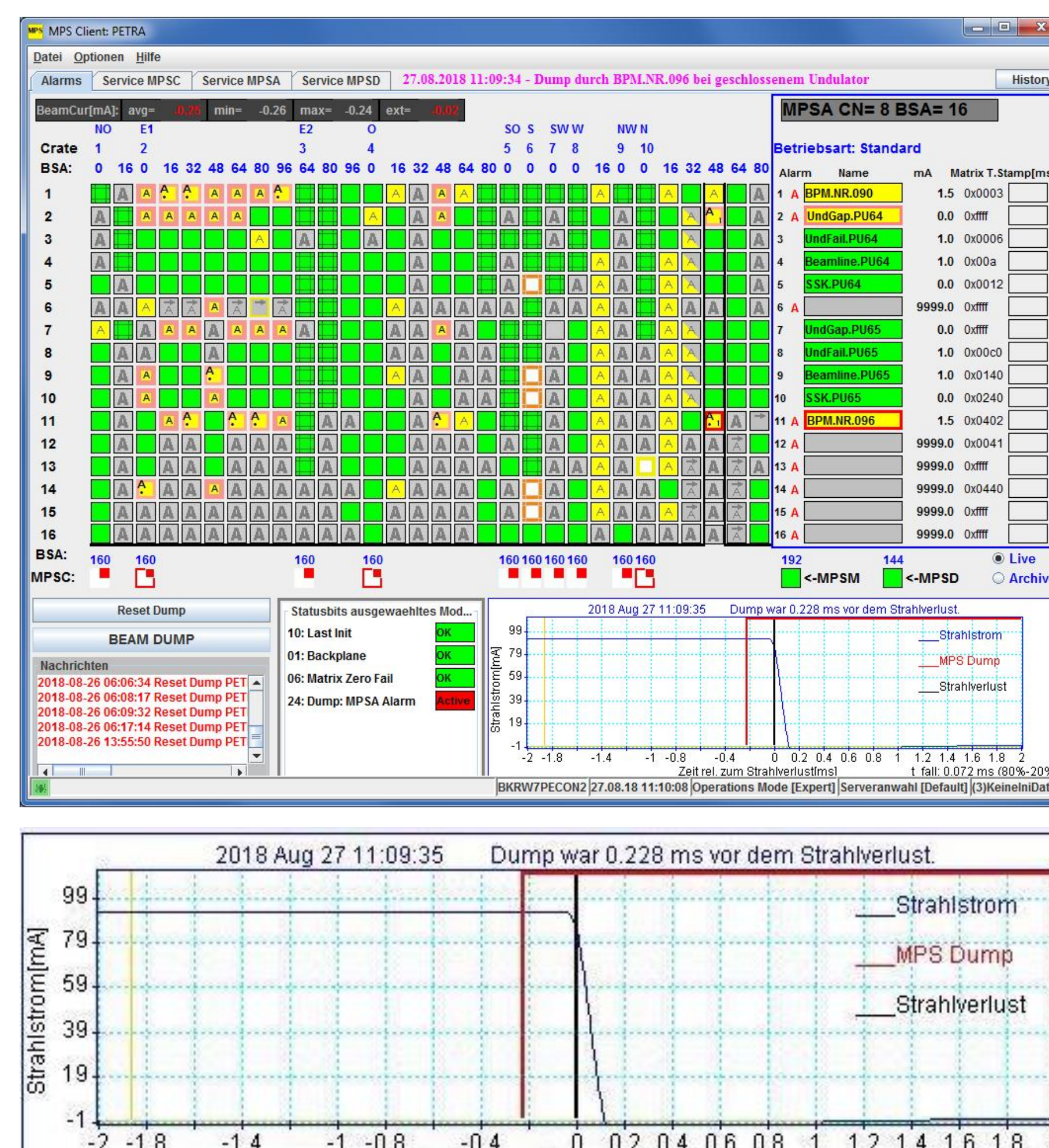
Failure statistic for selected time range

Statistik Korrekturen



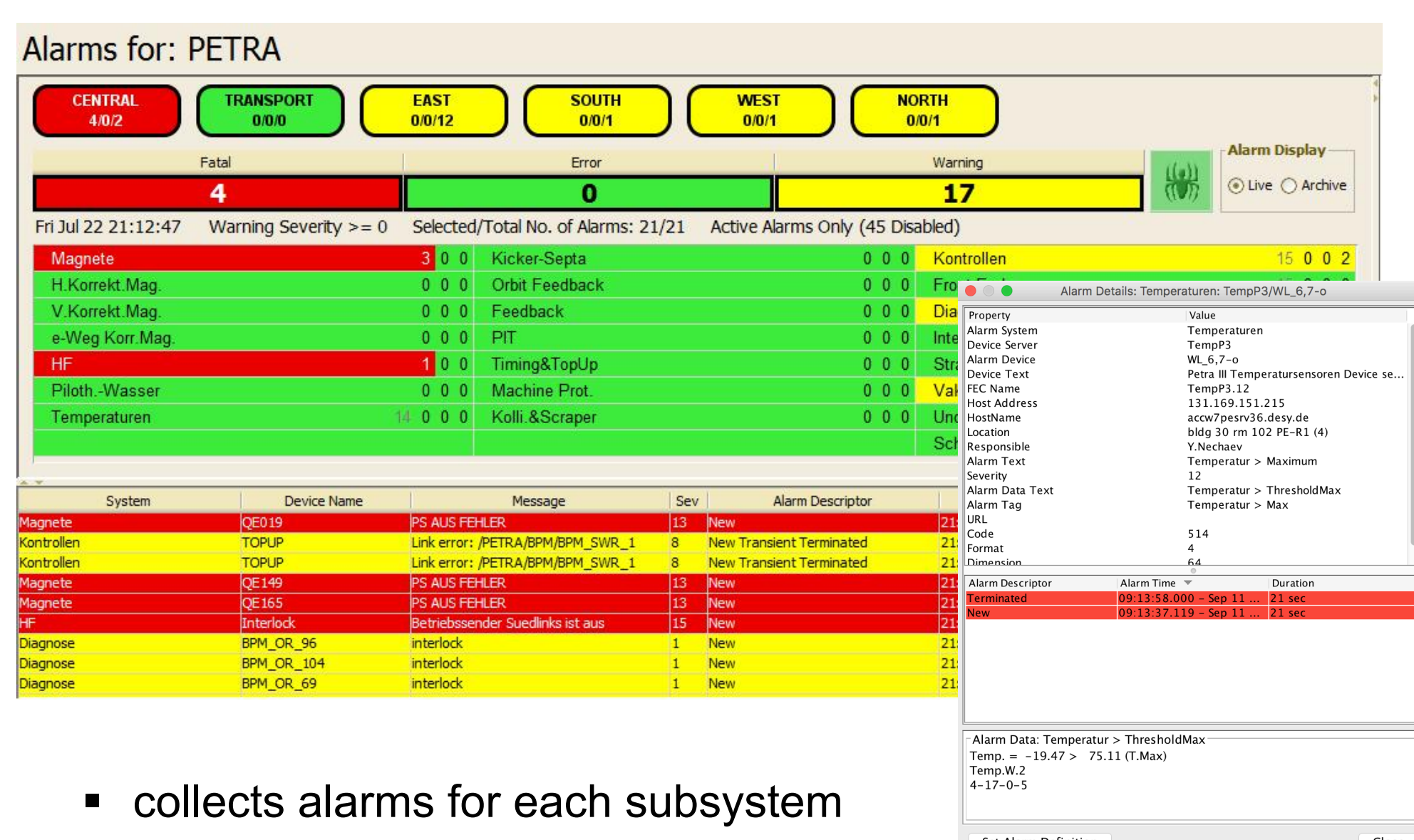
- no system is perfect -> offline state corrections must be possible
 - incorrect current state generated
 - incorrect alarm definition/severity
 - ...
- operators have to check the data every shift and correct it if necessary
- operators have to prepare the machine statistics including all failures and present it in the electronic logbook

Machine Protection System



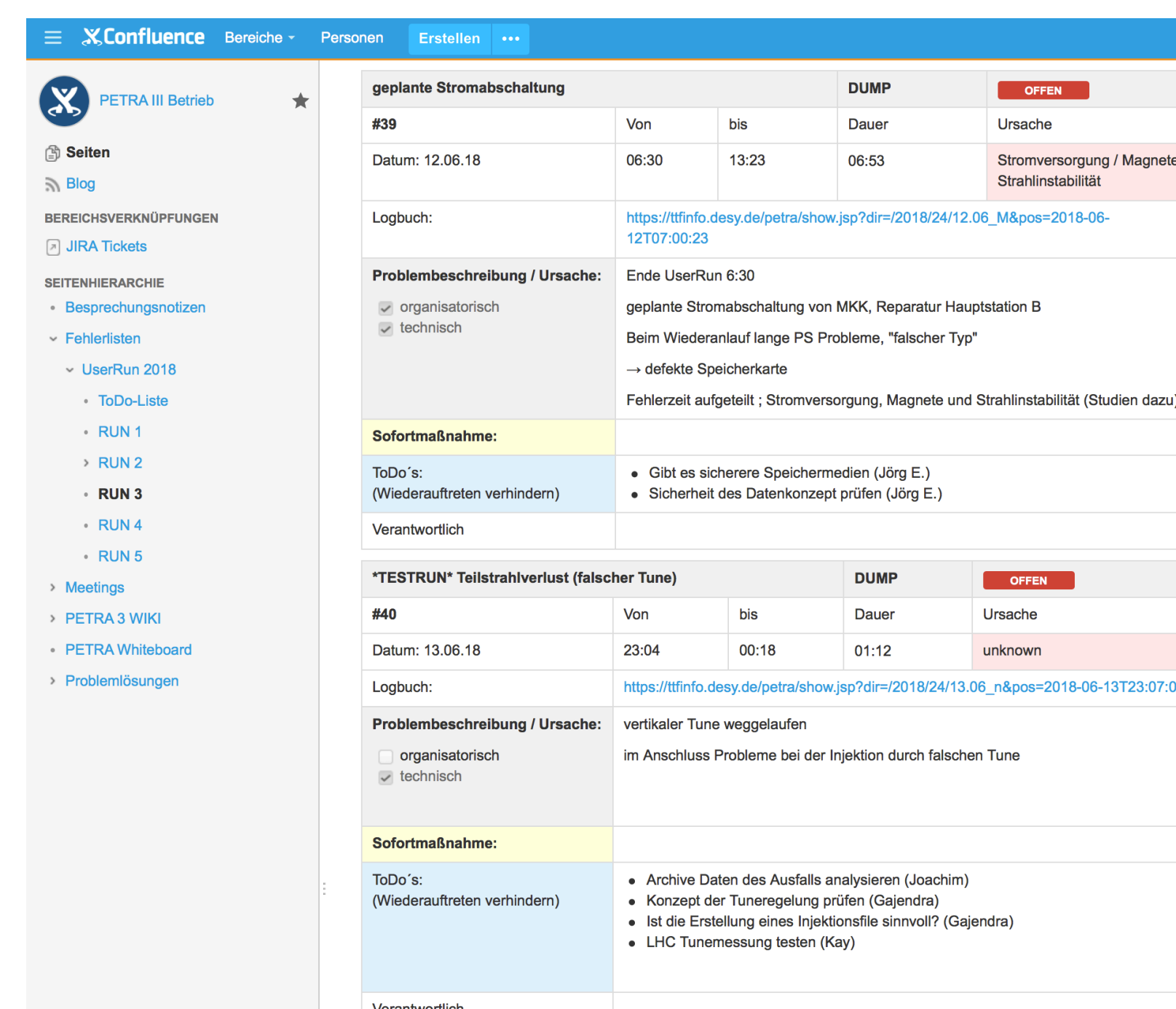
- protects machine by analysing many interlock inputs
- provides graphical representation of beam dumps
- generates very precise reason of beam dumps in clear words
- first tool where operators look at
- operators have to document the display and fill out a template in the electronic logbook

The Central Alarm System



- collects alarms for each subsystem
- detailed description for each alarm available: location, responsibility, thresholds, severity, ...
- operators have to maintain the system and point out incorrect severity, incorrect description, etc.
- operators have the possibility to disable alarms

Failure Tracking



- Atlassian software tools are used for tracking failures and communicate with technical departments
- every failure which contributes into statistics gets well analysed in dedicated meetings. Todo's are captured in the ticket system JIRA

Conclusion

It's is an ongoing iterative process to keep the software tools suitable for the requirement of a high machine availability. It a process where operators and machine coordinators are highly involved.

It's beneficial to involve Operators in responsible tasks to keep the motivation and machine identification high. Furthermore the understanding of the machine operating gets improved.



HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

