Preparation for ZZ and recovery after access

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Topics

- Magnet current during ZZ
- ZZ Injector
- Restart Injector after ZZ
- ZZ XTL
- Restart XTL after ZZ
- ZZ XTD-1-3-4-7-
- Restart XTD-1-3-5-7 after ZZ
- ZZ XTD-2-4-10-
- Restart XTD-2-4-10- after ZZ
- ZZ and Restart XTD6 and XTD9
- Useful hint

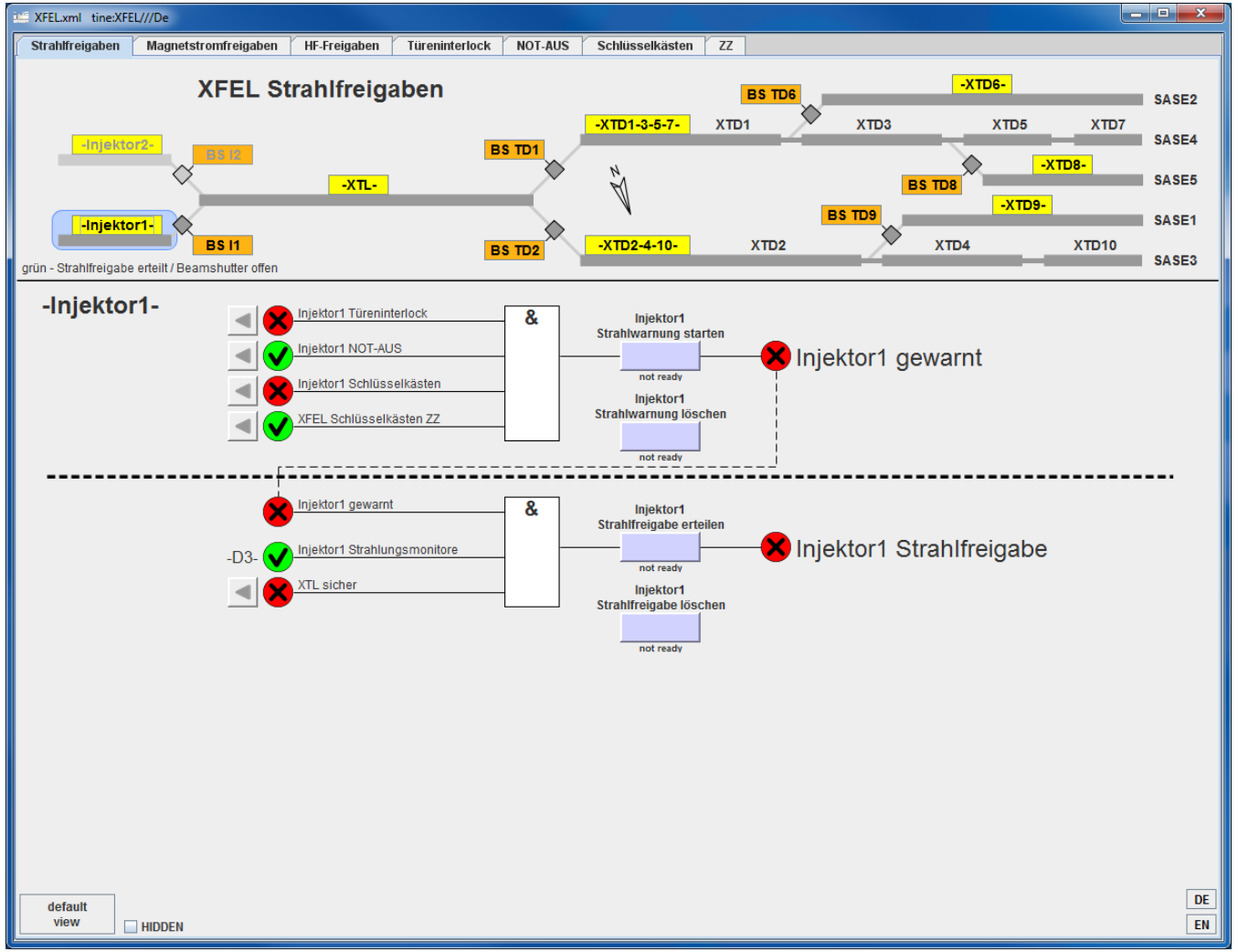
Magnet current during ZZ

- Before ZZ with magnets under current, MXL or RCs make a safety audit to ensure that there is no work near the beam pipe
- Point out to the colleagues who enter the tunnel that the magnet current is on
- Also the shift leaders should point that out while the ZZ team enters the ZZ door
- Under this conditions ZZ with magnets under current and without attendance of MKK colleagues is permitted

- Injector and XTL all magnet connections are covered
- XTD1-3-5-7 and XTD2-4-10 not every magnet connection is covered sufficiently
  - In XTD1-3-5-7 and XTD2-4-10 using a bike with magnets under current is prohibited

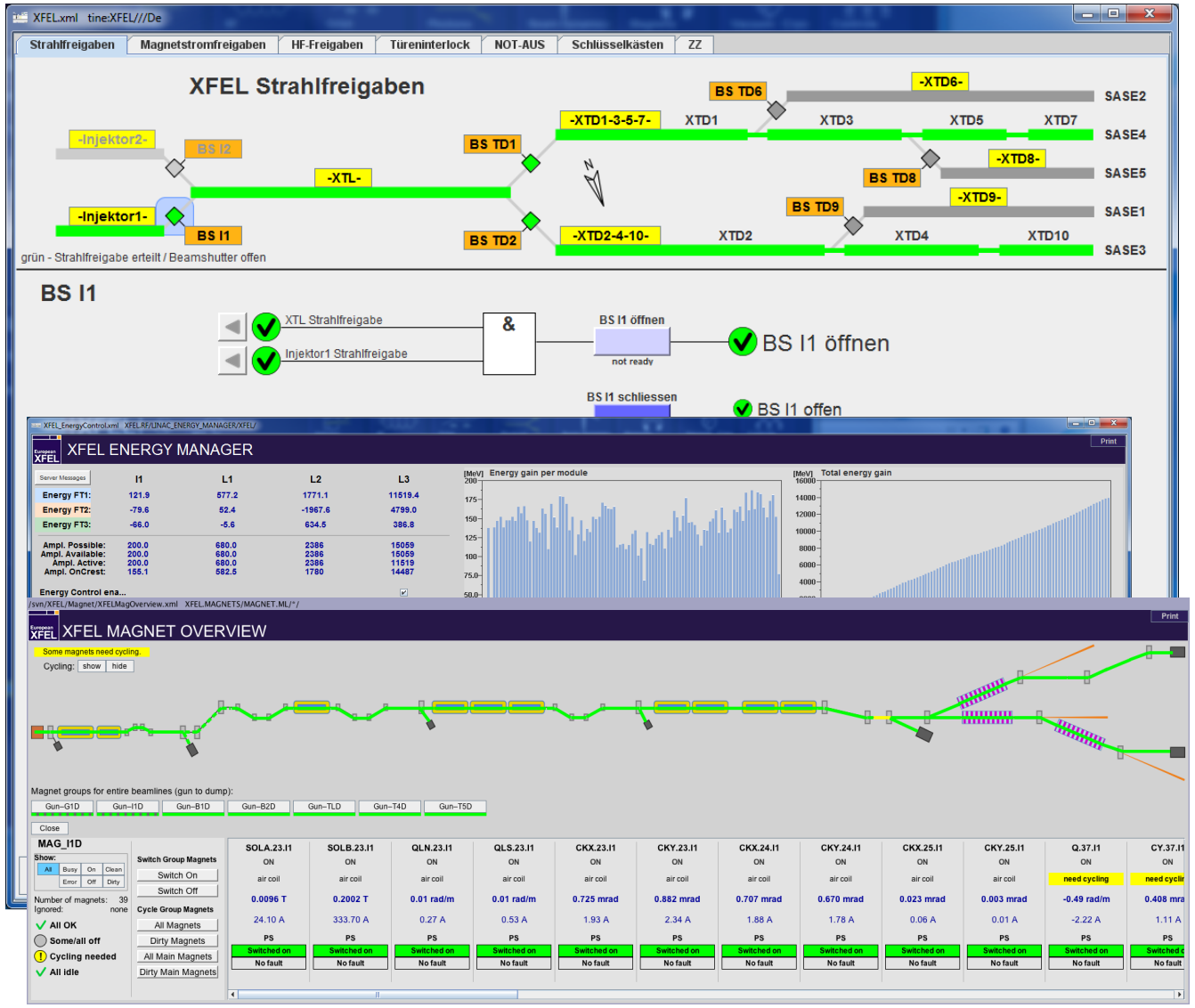
ZZ areas

- Injector
- XTL
- XTD1-3-5-7 (SASE2 branch)
- XTD2-4-10 (SASE1 branch)
- XTD6 (SASE2 Photon tunnel)
- XTD9 (SASE1 photon tunnel)
- XTD8 (empty tunnel)



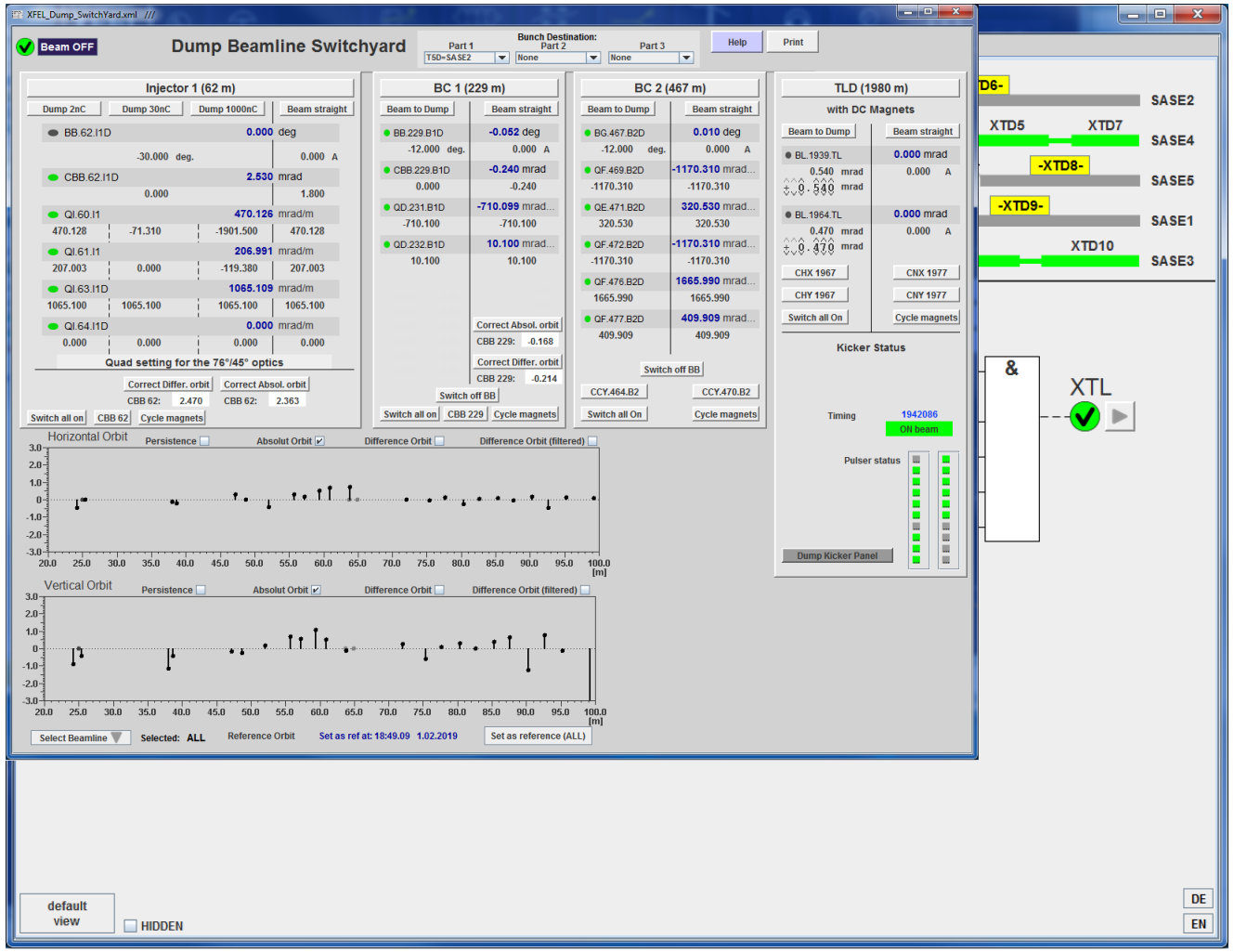
ZZ Injector

- Save a file (sequencer)
- Use sequence “Separate Injector from XTL” (required to close BS TD1)
- Switch of RF
  - GUN
  - A1 and AH1 (with energy manager)
  - Injector TDS (uncheck RF on/off)
- In case of work near beam pipe, switch off and ground magnets
  - Use ‘Magnet overview’ panel to switch off magnets and ask MKK for grounding (also Dump dipole will be switched off, no effect on XTL beam permission



Restart Injector after ZZ

- Ask MKK to unground magnets
- Switch on magnets and load file values
- Switch on BB.62.I1D (use “Dump Switch” panel
- Switch on RF
  - GUN (see training “GUN operation”)
  - A1 and AH1 with energy manager
  - Injector TDS
- Use sequence “Join Injector with XTL”

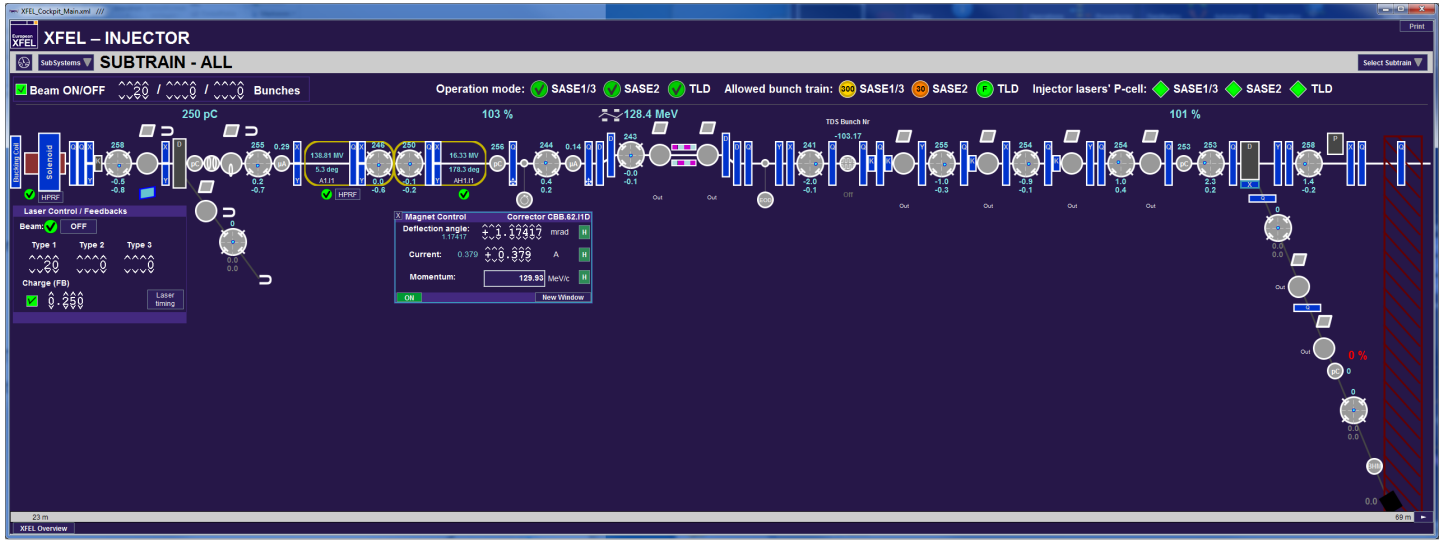


ZZ XTL

- Save a file
- Set golden orbit in orbit FBs
- Use sequence “Separate Injector from XTL” to keep Injector running
- Shut down RF by using “Linac Energy Manager”
- Shut down TDS B2 (press STBY)
- In case of work near beam pipe, switch off and ground magnets
  - Use ‘Magnet overview’ panel to switch off magnets by clicking on each section and press Switch off
  - Ask MKK for grounding

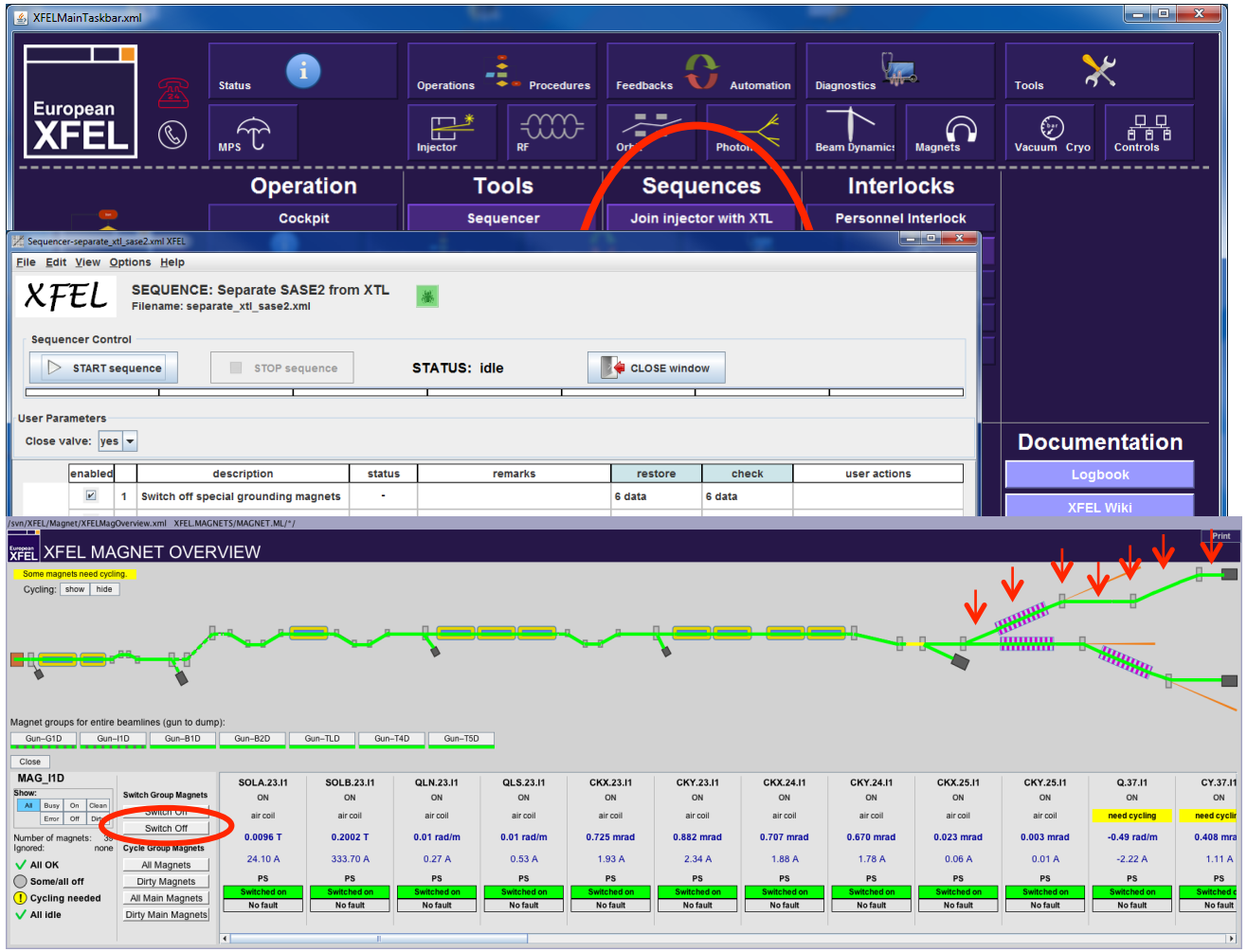
Restart XTL after ZZ

- Unground magnets
- Switch on magnets and load file
- Cycle all main magnets
- Ask Shift leader for beam permission
- Restart RF using the ‘Linac Energy Manager’
  - See training “LLRF”
- Use sequence “Join Injector with XTL”
- Use corrector CBB.62.I1D to correct orbit and re-establish transmission
- Switch on orbit FBs to re-establish transmission



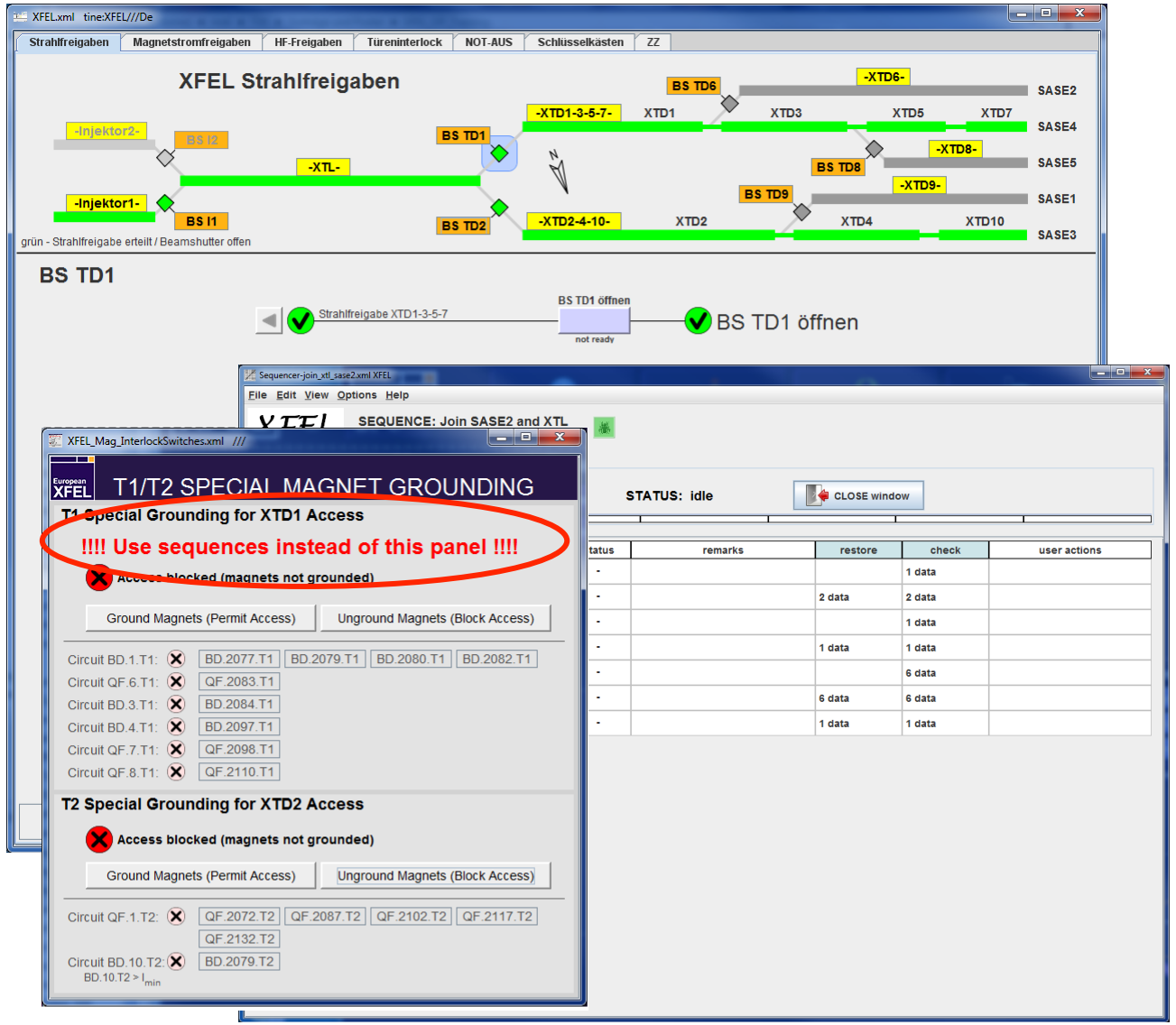
ZZ XTD1-3-5-7 (South branch SASE2)

- Save a file
- Set golden orbit in orbit FBs
- Use sequence “Separate SASE2 from XTL”
- In case of work near beam pipe, switch off and ground magnets
  - Use ‘Magnet overview’ panel to switch off magnets by clicking on each section and press Switch off
  - Ask MKK for grounding



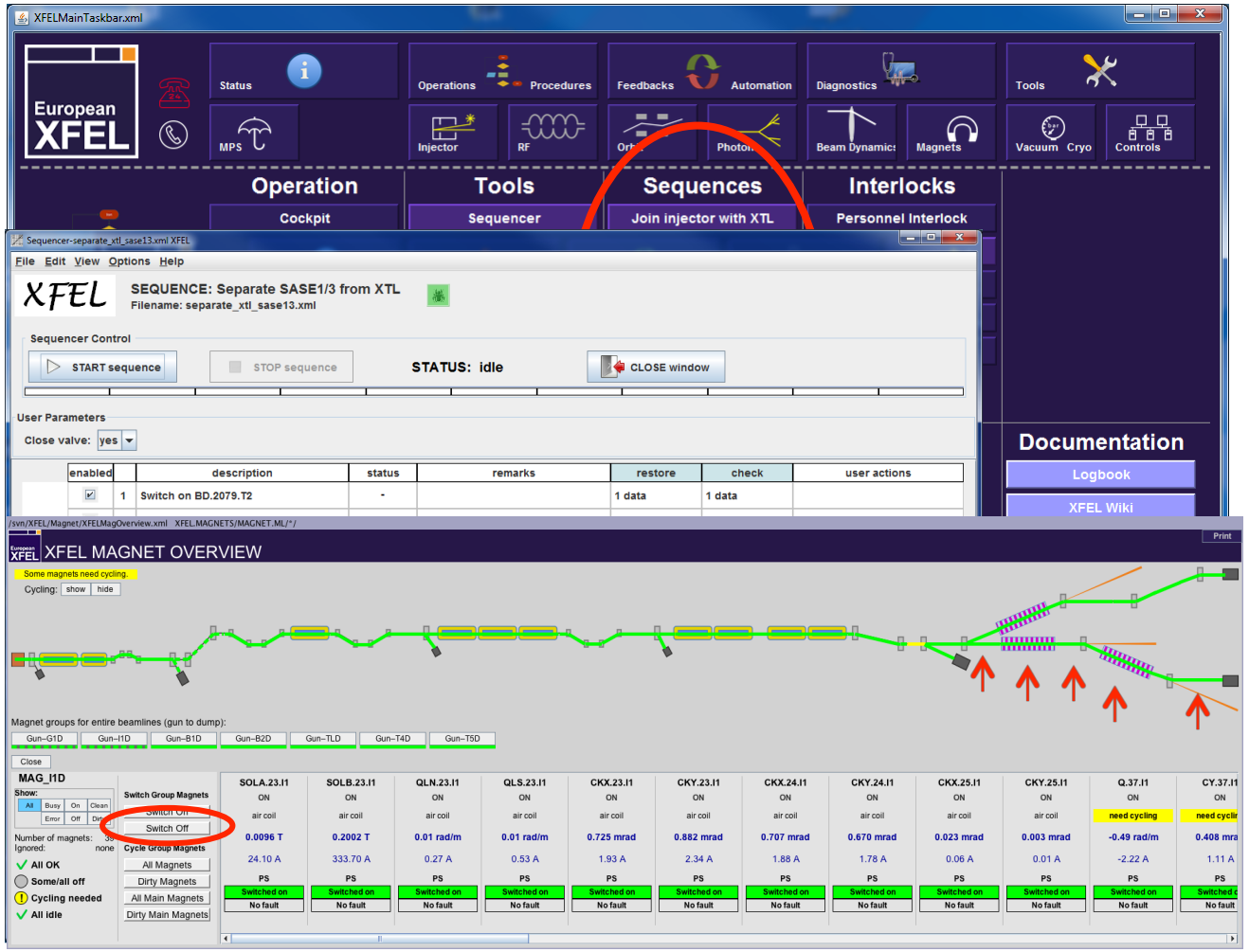
Restart XTD1-3-5-7 after ZZ

- Use sequence “Join SASE2 with XTL”
- Cycle special grounded magnets
- In case magnets were grounded, unground, switch on and reload file and cycle main magnets
- Switch on orbit FB to re-establish transmission



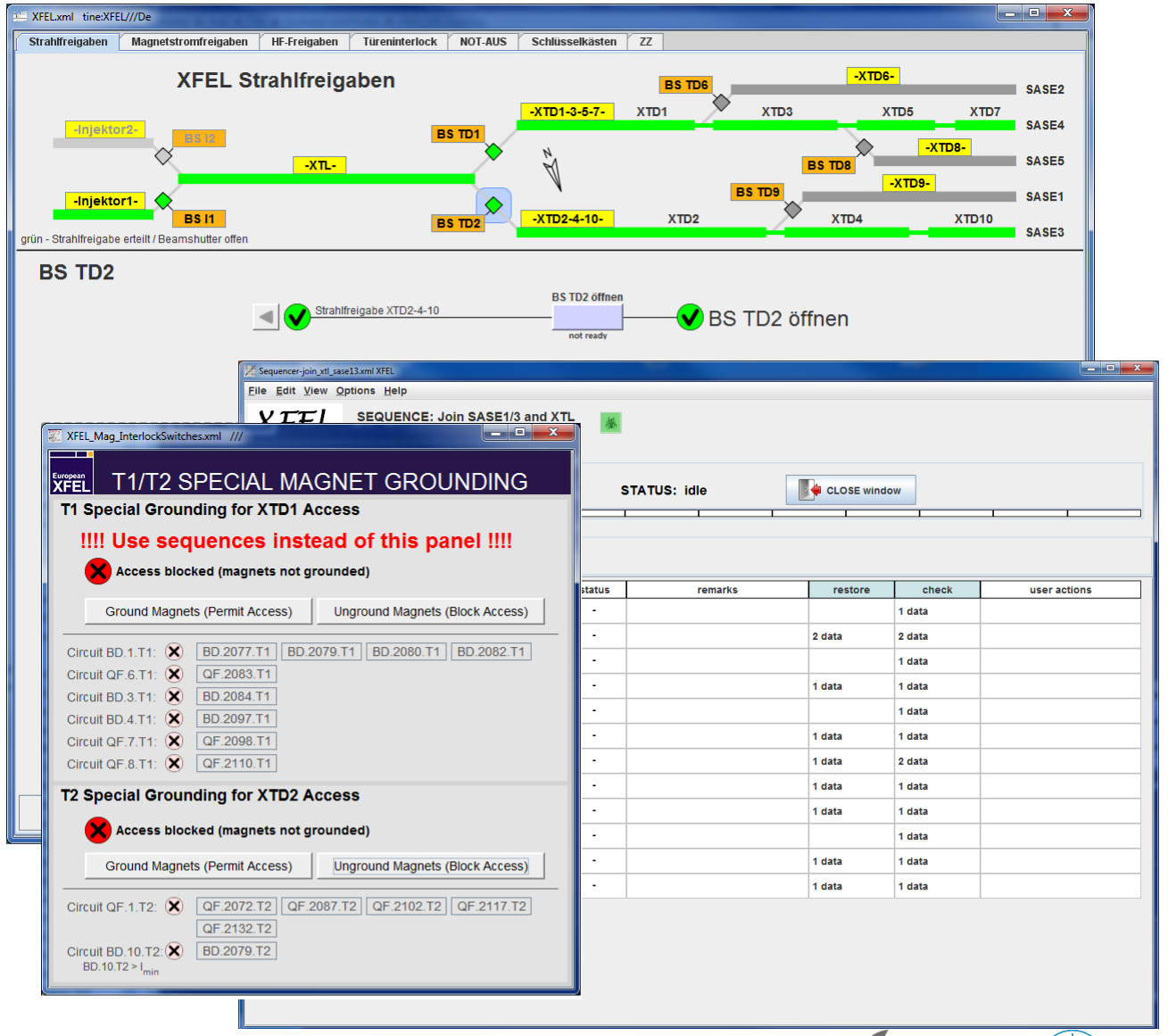
ZZ XTD2-4-10 (North branch SASE1/3)

- Save a file
- Set golden orbit in orbit FBs
- Use sequence “Separate SASE1/3 from XTL”
- In case of work near beam pipe, switch off and ground magnets
  - Use ‘Magnet overview’ panel to switch off magnets by clicking on each section and press Switch off
  - Ask MKK for grounding



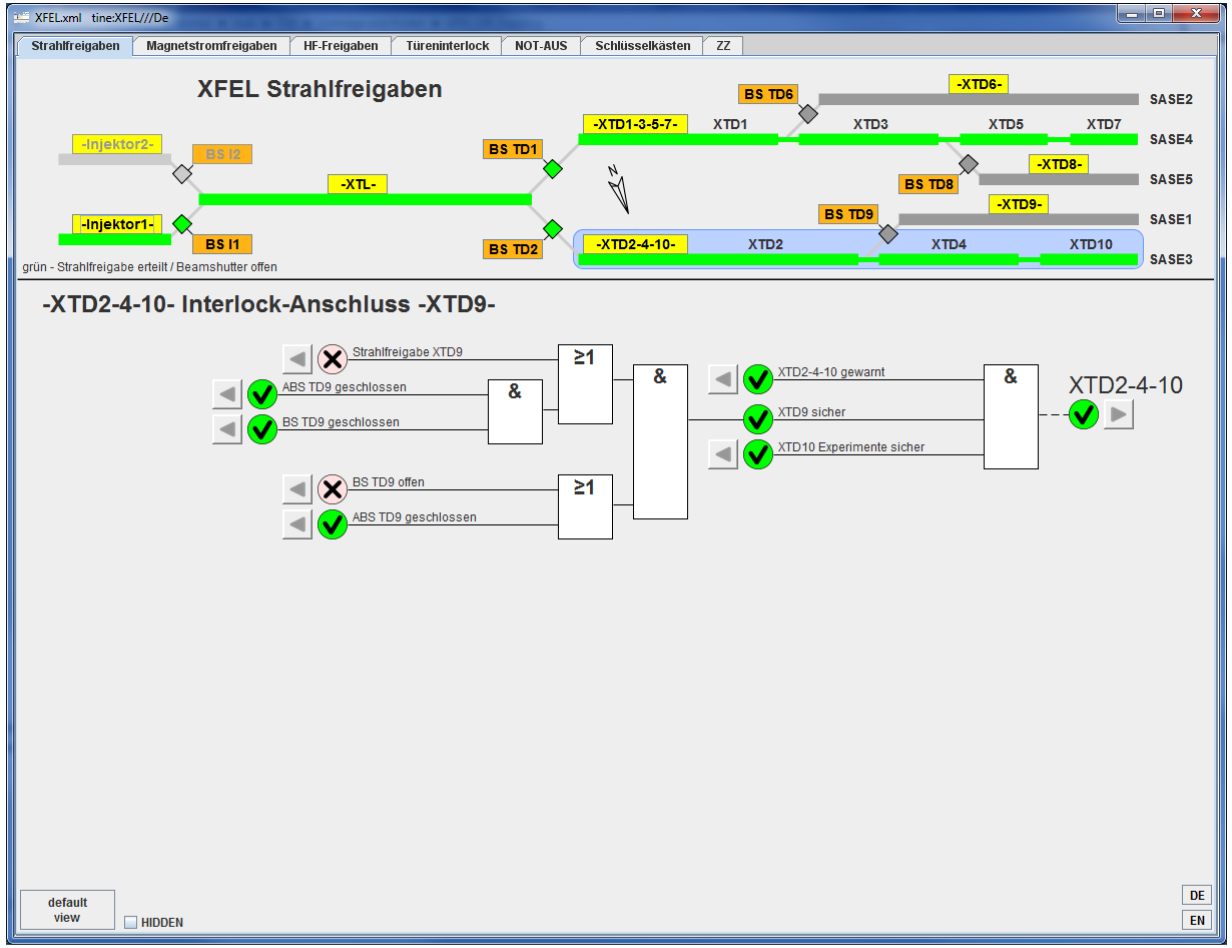
Restart XTD2-4-10 after ZZ

- Use sequence “Join SASE1/3 with XTL”
- Cycle special grounded magnets
- In case magnets were grounded, unground, switch on and reload file and cycle main magnets
- Switch on orbit FB to re-establish transmission



ZZ XTD6 and XTD9

- No magnets in this areas
- For ZZ in XTD6 close BS TD6
- For ZZ in XTD9 close BS TD9



Useful hint

- Beam warning, as requirement for beam permission, for any interlock section can only be given, when all interlock keys are locked

Thank you!

Questions?