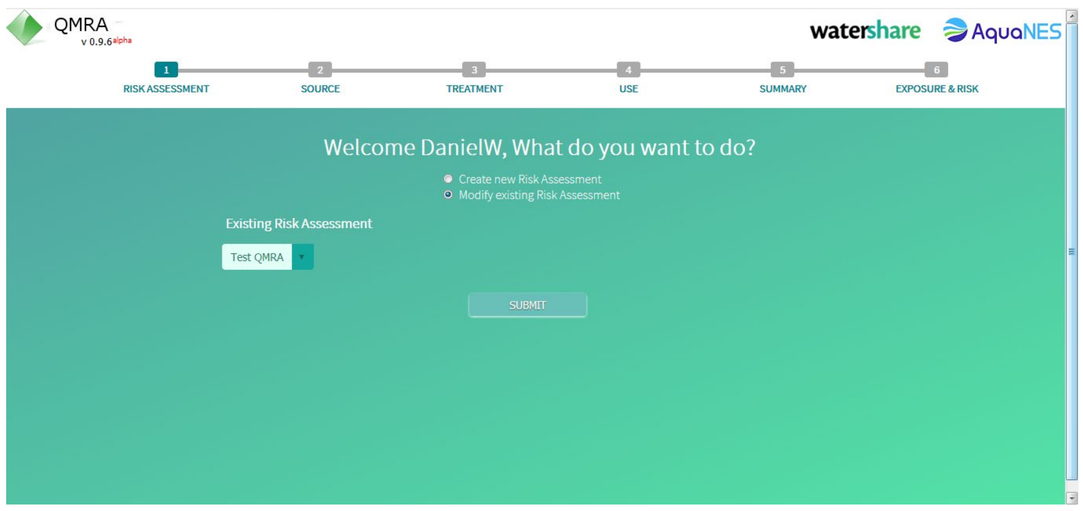
AquaNES

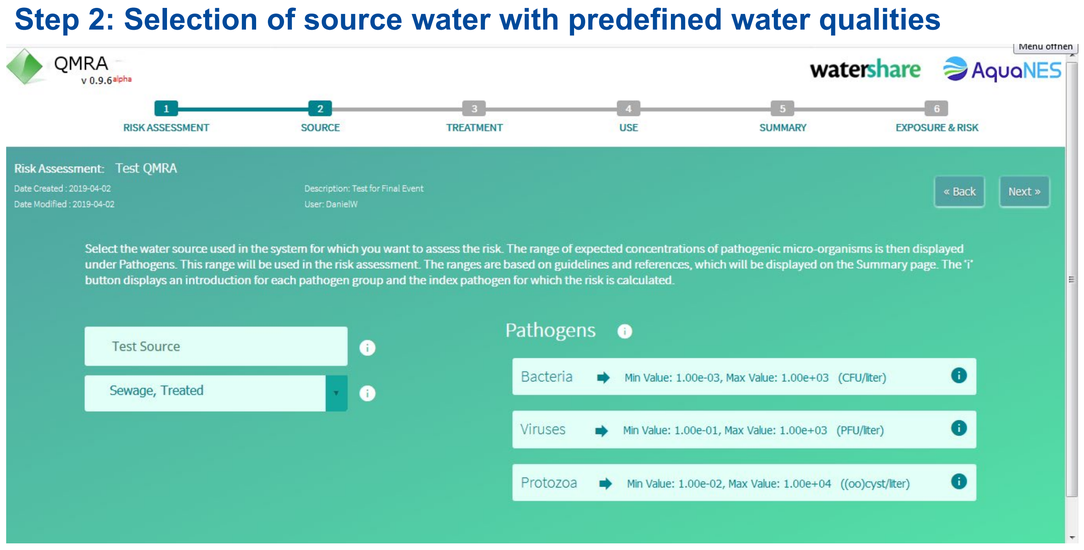
Demonstrating Synergies in Combined Natural and Engineered Processes for Water Treatment Systems

Workflow for Quantitative Microbial Risk Assessment with AquaNES online tool

Step 1: Create new QMRA or open existing QMRA

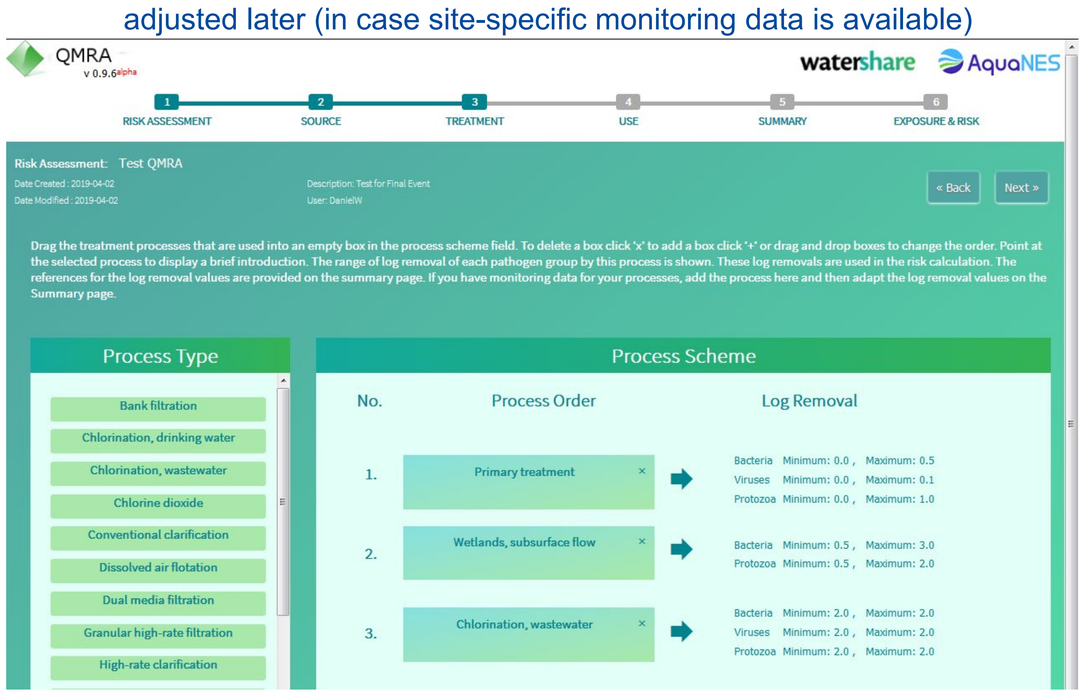


Step 2: Selection of source water with predefined water qualities

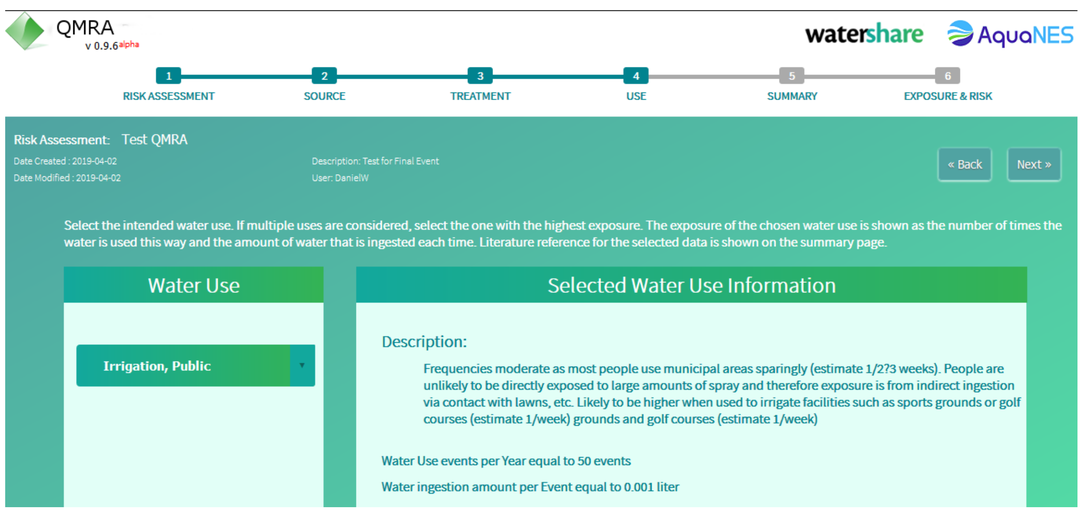


Step 3: Selection of Treatment Train

- Several predefined treatment processes are available (>20)
- Adjust number of treatment steps as needed for the case study
- Insert treatment steps into blank boxes by drag and drop
- Default values for each treatment step are displayed, which can be adjusted later (in case site-specific monitoring data is available)

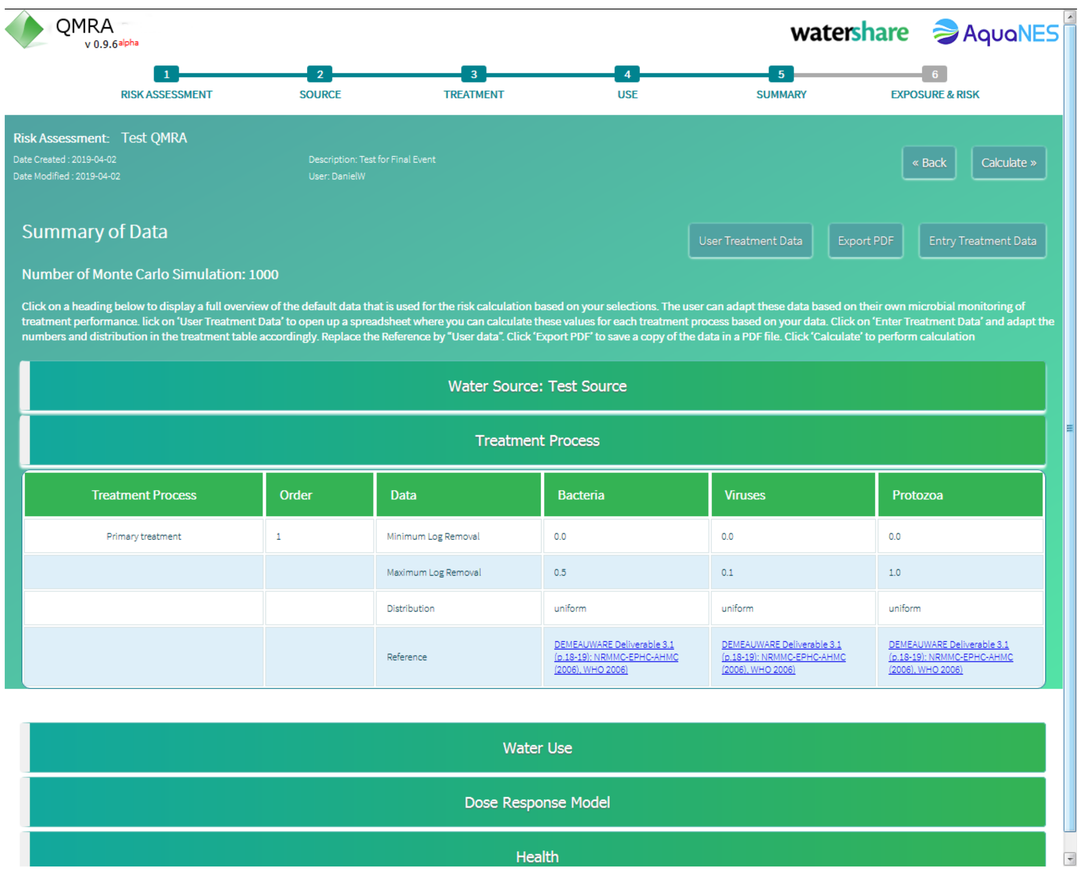


Step 4: Select foreseen type of water usage



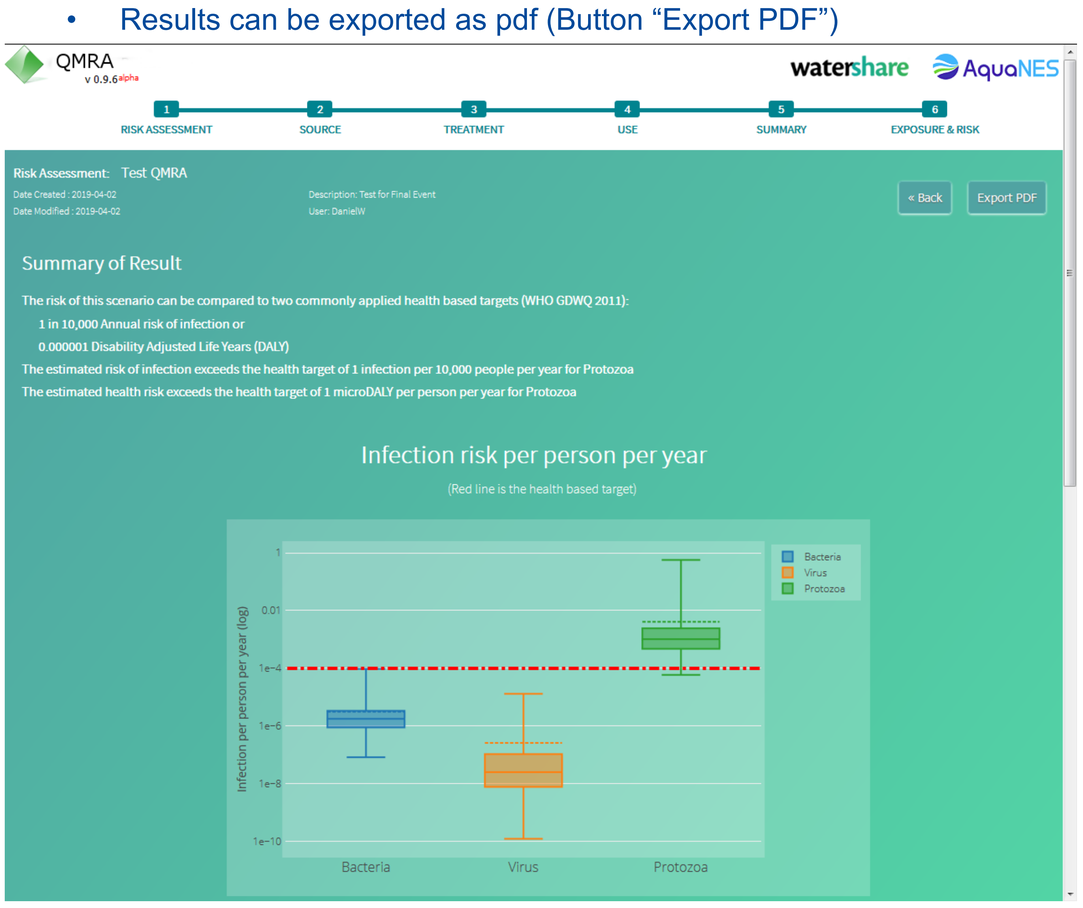
Step 5: Summary page with all assumptions made for the QMRA

- Overview of all input parameters is shown in fold-out tables
- Log-removal of treatment steps can be adapted by selecting "Entry Treatment Data" opening the summary table "Treatment Process"
- Min/Max removal can be adjusted and distribution type can be modified (set to "norm" = normal distribution), change reference to "User data"
- Clicking on "User Treatment Data" opens an excel file which can be used to calculate the appropriate log-removal credits for each treatment step from given monitoring data
- Further optimization of the tool will improve user data input
- Input data for QMRA can be exported as pdf (Button "Export PDF")



Step 6: Summary of results

- After running of the Monte-Carlo-Simulation (takes 5-60 s) the results are display as boxplots depending on use scheme
- The red line indicates the maximum acceptable risk level according to WHO guidelines
- The following results are given:
  - Infection risk per person per year
  - DALYs per person per year (DALY: disability-adjusted life years)
- Below the graph the results are given as tables (values exceeding the guideline risk level are shown in red)
- Results can be exported as pdf (Button "Export PDF")



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