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Operation & Maintenance Workshop – Demo 4 Budapest

Operation and maintenance of prototype equipment and wastewater heat recovery system

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Basic project data

- Expansion of units of Újpest enginehouse – in H2020 program project (HEAT4COOL)
  http://www.heat4cool.eu/
- R&D → installing new heat exchanger and fine screen prototypes
  – 4 pc HEX blocks (2xA2,2xB2), 1 pc fine screen with built-in washer
- R&D → installation of new heat exchanger cleaning methods
  – Construction period: March-May 2019
- 1 year experimental operation and supervision, evaluation of system operation
  – Operation period: May 2019 – May (October) 2020
Division of O&M tasks

• Skilled Operator and Maintenance:
  1. Tasks to be performed during the test run after the execution
  2. Tasks to be performed during the period of experimental operation after the test run – comprehensive system operation and efficiency monitoring
  3. Operation and maintenance of equipment

• 4. Operational tasks of the end-user

1. Tasks during the test run

• The test period lasts for 1 month
• Intended for checking the functionality of the system
• Adjusting the individual equipment
  – Firstly manual adjusting
  – Automatic adjustment
• Performing control measurements in order to ensure their accuracy
• Regular management of the test run log-book
2. Tasks during experimental operation

- Continuous tracking of the system’s operation
- Regular management of experimental operation log-book
- Regular evaluation and analysis of the measured data
- Determining the schedule and method of cleaning - for future operation
  - What kind of cleaning is needed
  - The frequency of the cleaning
  - Phases and parameters of cleaning (e.g. rinse time, efficiency check, measuring the temperature and pressure losses, etc.)
- Scheduling on-site inspections

3. O&M of equipment
(A) WASTEWATER FINE SCREEN WITH BUILT-IN WASHER

- Regular assessment of the condition of the high-pressure washer part
- Checking the quality and efficiency of washing
- Scheduling any other necessary cleaning of the filter
- Comparing and analysing the new and the existing screening unit's operation
  - Analysing the efficiency of the innovation (built-in high-pressure washer)
3. O&M of equipment

(B) HEAT EXCHANGERS

- Analysis of measurement data
  - Necessary modification of the operation instructions and the handbook
- Clarifying and finalizing maintenance processes – developing them together with the manufacturers
- Comparison of the two new types of heat exchangers
  - Comparing them with the existing ones as well
3. O&M of equipment

(B) HEAT EXCHANGERS

- Visual inspection of the extent of the clogging during an on-site supervision, by removing the flange
- Examining the different types of cleaning methods
  - Cleaning with reversed flow direction – counter-current cleaning
  - Cleaning with high pressure equipment (water jet)
- Performing overall analysis based on operational experiences and measured data

(B) COMPARISON OF HEAT EXCHANGERS

- Comparing the two new types of heat exchangers with each other and with the existing ones
  - Examination of structural differences
  - Testing the performance of each heat exchanger
  - Analysis of the frequency and extent of clogging
  - Economic examination of each type
4. Operation tasks of the end-user

• Proper alignment of the consumer side’s system with the sewage heat system in order to achieve effective operation
• System administration authorisation (passive)
  – Heat generation, efficiency and CO2 saving information – only reading rights
• Reporting perceptions, requesting the operational change of the system from the operator
  – Cooling → heating, heating → cooling
• Commenting on the annual report (operations, malfunctions, status survey)

Questions?
Thank you for your attention!

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