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Modelling a Water Treatment Plant

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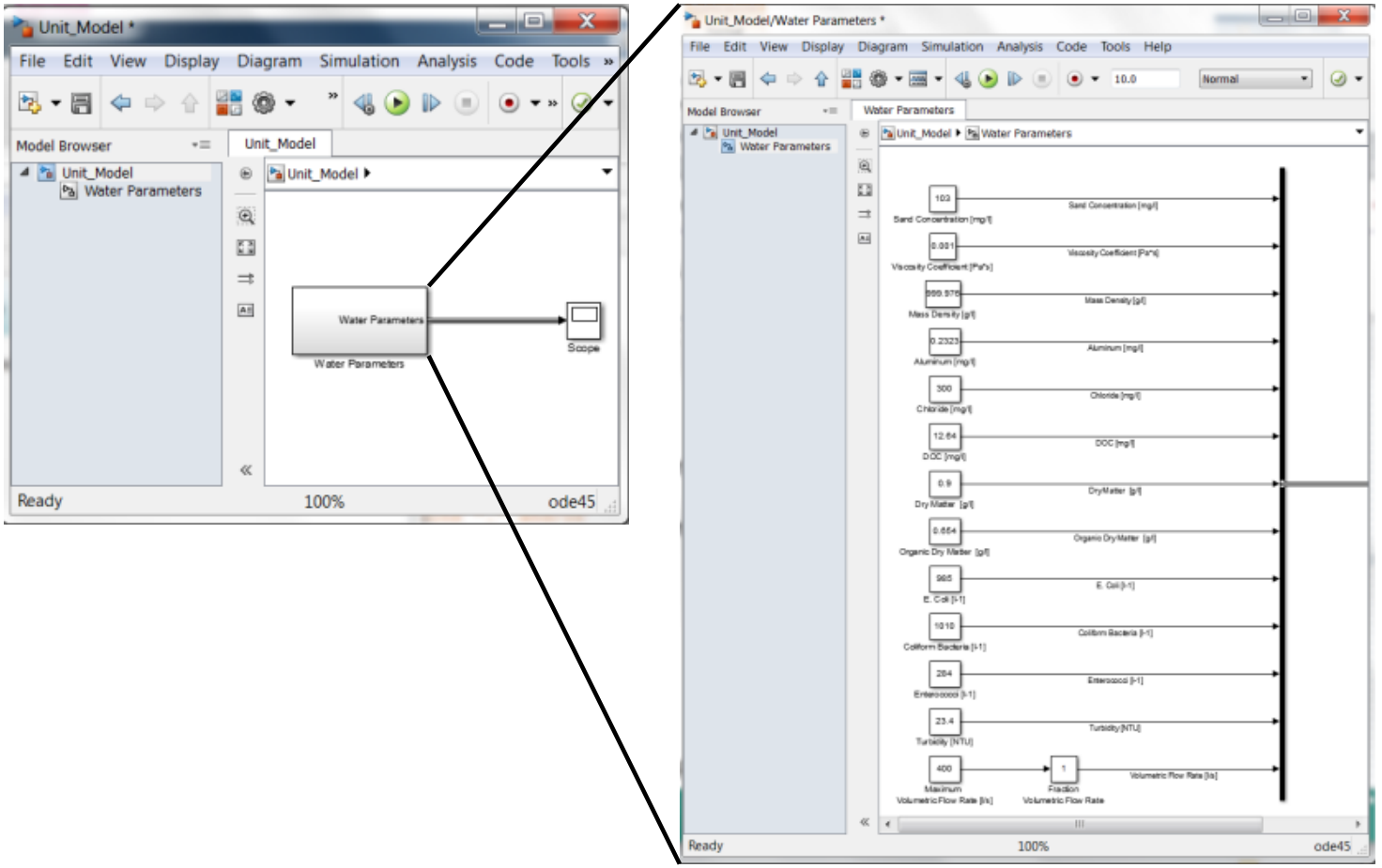
Water Parameters

- Water parameters used in this model (in reality there are many more)
  - Sand Concentration and Grain Size
  - Mass Density
  - Concentration of the following materials
    - Aluminum
    - Dissolved Organic Carbon
    - Chloride
    - Dry Matter
    - Organic Dry Matter
    - E. Coli
    - Coliform Bacteria
    - Enterococci
  - Turbidity
  - Volumetric Flow Rate

Values of Water Parameters

- For our model we suggest the following initial values for these parameters
  - Sand Concentration and Grain Size — 750 mg/l and 0.0002 m
  - Mass Density — 999.976 g/l
  - Concentration of the following materials
    - Aluminum — 0.2323 mg/l
    - Dissolved Organic Carbon — 12.64 mg/l
    - Chloride — 300 mg/l
    - Dry Matter — 1.8 g/l
    - Organic Dry Matter — 0.6 g/l (i.e. 1/3 of the Dry Matter)
    - E. Coli — 985 l^{-1}
    - Coliform Bacteria — 1010 l^{-1}
    - Enterococci — 284 l^{-1}
  - Turbidity — 23.4 NTU (Nephelometric Turbidity Unit)
  - Maximum Volumetric Flow Rate — 400 l/s

Modelling Water Parameters



Modelling Water Parameters: Exercise

- Build a Simulink® model that represents the water parameters described in this unit in a bus.
- Group your function blocks in a subsystem.
- Observe some of the paramerers in displays or socpes.