Using turbidity to assess water quality

- **Turbidity** is a measure of water clarity.
- Increases in turbidity can be due to the presence of any of the following substances in water:
  - Particles such as silt and clay
  - Microorganisms such as algae
  - Substances dissolved in water, such as dissolved organic matter

Highly turbid water
Falling Creek Reservoir, Vinton, VA
Photo credit: Bethany Bookout

Using turbidity to assess water quality

- **In a treatment plant, turbidity on the bottom filter must be 0.3 Nephelometric Turbidity Units (NTU) or less!**
- How high the turbidity in the raw water must be before it is considered a potential water quality concern depends on a number of factors, including:
  - The treatment process in the plant
  - How much coagulant you can feed
  - Detention time
- Operators must use their best judgment about how to manage high raw water turbidity!

Using turbidity to assess water quality

- **Turbidity** can be measured using high-frequency sensors
- These sensors shine a light into the water and then measure how much of the light is scattered by particles and dissolved substances in the water
- **The more light is scattered, the higher the turbidity**
- In our data today, turbidity is measured in **Formazin Nephelometric Units (FNU)**

"Formazin nephelometric" describes what kind of light is being used to measure turbidity

1 FNU = 1 NTU

Photo credit: Adrienne Breef-Pilz

Using turbidity to assess water quality

- **Excess turbidity can clog treatment plant filters, requiring more frequent cleaning or changing of filters.**