Treatment Plant Overview:

One of the primary concerns continues to be the **processing and management of biosolids** along with the removal of solids from process equipment. The high amount of solids **have led to effluent violation due to the high total suspended solids (TSS) concentration.** Sludge is now being sent to the Quarantine Road Landfill, which has opened up a new source of disposal.

**Primary Treatment:**

- **Primary Settling Tanks (PSTs)**
  - Currently only two of the 11 PSTs are functioning. The Maryland Environmental Service (MES) has cleaned PST #7 and Baltimore City has issued contracts to clean five of the PSTs.
  - After cleaning, four of the PSTs will require various mechanical and equipment repairs.

**Secondary Treatment:**

- **Biological Treatment Activated Sludge**
  - Newly constructed Activated Sludge Plant #4 is now online. This will allow Baltimore City to take Activated Sludge Plant #3 offline in order to remove sludge and make repairs to non-functioning blowers and mixers.
  - **Once completed, this project will improve nitrogen removal and lower solids concentrations in the biological reactors.**

- **Secondary Clarifiers**
  - There are 36 secondary clarifiers and 12 are associated with Activated Sludge Plant #4.
    - A third-party engineering assessment determined that the return activated sludge (RAS) pumps and wasting pumps **require replacement.**
      - RAS pump failure would cause poor performance of the biological reactors and wasting pump failure would prevent the wasting of sludge, which would cause a buildup of solids in the treatment system.
    - MES stated that some of the RAS and sludge pumps were evaluated and repaired in the Activated Sludge Plant #3, and two other pumps are on order.

- **Tertiary Treatment:**
  - **Denitrification Filters (DNFs)**
    - Back River is experiencing problems with the DNFs due to the problems with solids.
May 27, 2022 Back River Wastewater Treatment Plant Update

What You Need to Know

● The solids are clogging the filter media causing many of the filters to not function properly or not function at all.
● In addition, there are mechanical and control system problems that have to be repaired.
● Baltimore City has engaged ProStart Inc. to manage and operate the DNF system.
● MES has performed an evaluation of malfunctioning level transducers and control units; there are plans for more comprehensive evaluations of the DNF system once equipment needs are confirmed.
  ○ Once completed, the filters can be backwashed frequently to remove the solids.

○ Sand Filters
  ○ The treatment system has 15 functioning sand filters and the remaining 33 are not functioning due to various equipment failures, insufficient sand, and mechanical issues.
  ○ MES is in the process of evaluating the sand filters and their mechanics are replacing and repairing components.
    ■ There are 10 pumps for the sand filters on order.

● Final Effluent:
  ○ The analytical data has shown that there has been some progress made in getting the Back River WWTP into compliance with the discharge permit.
    ■ The TSS concentration has been a factor in creating high nutrient concentrations.
    ■ Data from April and May show that the average TSS concentration at discharge point Outfall 001 is 9 mg/L compared to 21 mg/L for January and 17.5 mg/L for February and 14.2 mg/L for March.
  ● The data indicates progress towards the goal of removing the clogging solids from the treatment system