



## Daily Operation Manual FSM Aerated Pilot Plant

### 1. Discharge 5 cubic meters of wastewater from the system

In order to take on new faecal sludge from the pit latrines, a corresponding amount of wastewater has to be discharged from the system. Therefore start the daily operation with discharge of treated wastewater.

Start the process of discharge with cleaning the filter by backwashing.

#### a) Backwash

- Make sure **Discharge Valve** is closed (see picture below)
- Make sure **Gravity Valves I + II** are closed (see picture below)
- Set **Manual Valve** (top of filter) to position „**Backwash**“ (see picture below)
- Make sure that **Effluent Valve** is closed (see flowchart below)
- Make sure that **Backwash Valve** is open (see flowchart below)
- Make sure that the **Backwash Tank** is filled with clean water from the borehole
- Run **Backwash Pump** for 1 minute
- Make sure that water comes out of the **Backwash Pipe** in a strong stream of a diameter of 5 cm, wait 60 seconds, turn slowly to position „**Rinse**“, wait 30 seconds, turn valve slowly to position „**Filtration**“, wait 30 seconds
- Turn off **Backwash Pump**
- Close **Backwash Valve** (see flowchart below)
- Open **Effluent Valve** (see flowchart below)



Discharge Valve



Gravity Valves I + II



Manual Valve (top of the filter)

## b) Filtration

- Run **Effluent Pump**,
- Make sure that there is filtered water coming into the **Reaction Tank**.
- Water stream should have a diameter of 5 cm. If not: Report to WASH Officer.
- Add 1 teaspoon of **chlorine agent** in the water stream when filtration just started, 1 teaspoon after the **Reaction Tank** is  $\frac{1}{4}$  full, 1 teaspoon when the tank is  $\frac{1}{2}$  full, 1 teaspoon when the tank is  $\frac{3}{4}$  full (4 teaspoons in total)
- The exact amount of chlorine will be determined by the WASH officer and may change over time according to the lab findings
- Whenever the filtration water stream gets thinner than a diameter of 2 cm, stop **Effluent Pump** and start the complete **Backwash** process again.
- When the water level inside the **Reaction Tank** reaches a level of 30 cm below the dome or 2,5 cm below the overflow discharge outlet, stop **Effluent Pump**
- Wait for 1 hour (reaction time in order to kill all pathogens)
- Open **Discharge Valve** and let the water flow into the creek
- When the **Reaction Tank** is empty, close **Discharge Valve** again
- Repeat all steps until 5 cubic meters of water have been discharged (same amount as faecal sludge has been added the day before). The exact amount may vary on the daily intake plan and can be altered by the WASH Officer.



Reaction Tank

## 2.) Conduct 5 cubic meters treated wastewater from Treatment Tank to Settling Tank

- Open **Gravity Valves I+II** slowly.
- Let 5 cubic meters to be conducted into the **Settling Tank**. The exact amount may vary on the daily intake plan and can be altered by the WASH Officer. Use marked bamboo stick in order to measure the amount of conducted water.
- Close **Gravity Valves I+II** slowly.
- **Gravity Valves I+II** are not to be opened again until next morning.

## 3.) Intake of new fecal sludge

- Allow desludging teams discharge of barrels into **Anaerobic Baffled Reactor (ABR)** inlet coarse screen filter (s. picture below)
- Control **Inlet Coarse Screen Filter of Anaerobic Baffled Reactor (ABR)** after every faecal sludge intake. Empty and clean the filter whenever necessary. Transport the screenings to the burning pit on site and burn it.
- Fill out **Daily Operation Sheet**



Inlet coarse screen filter (located at the top of Anaerobic Baffled Reactor (ABR))



# IFRC – FSM – Aerobic digester Plant - Bangladesh

