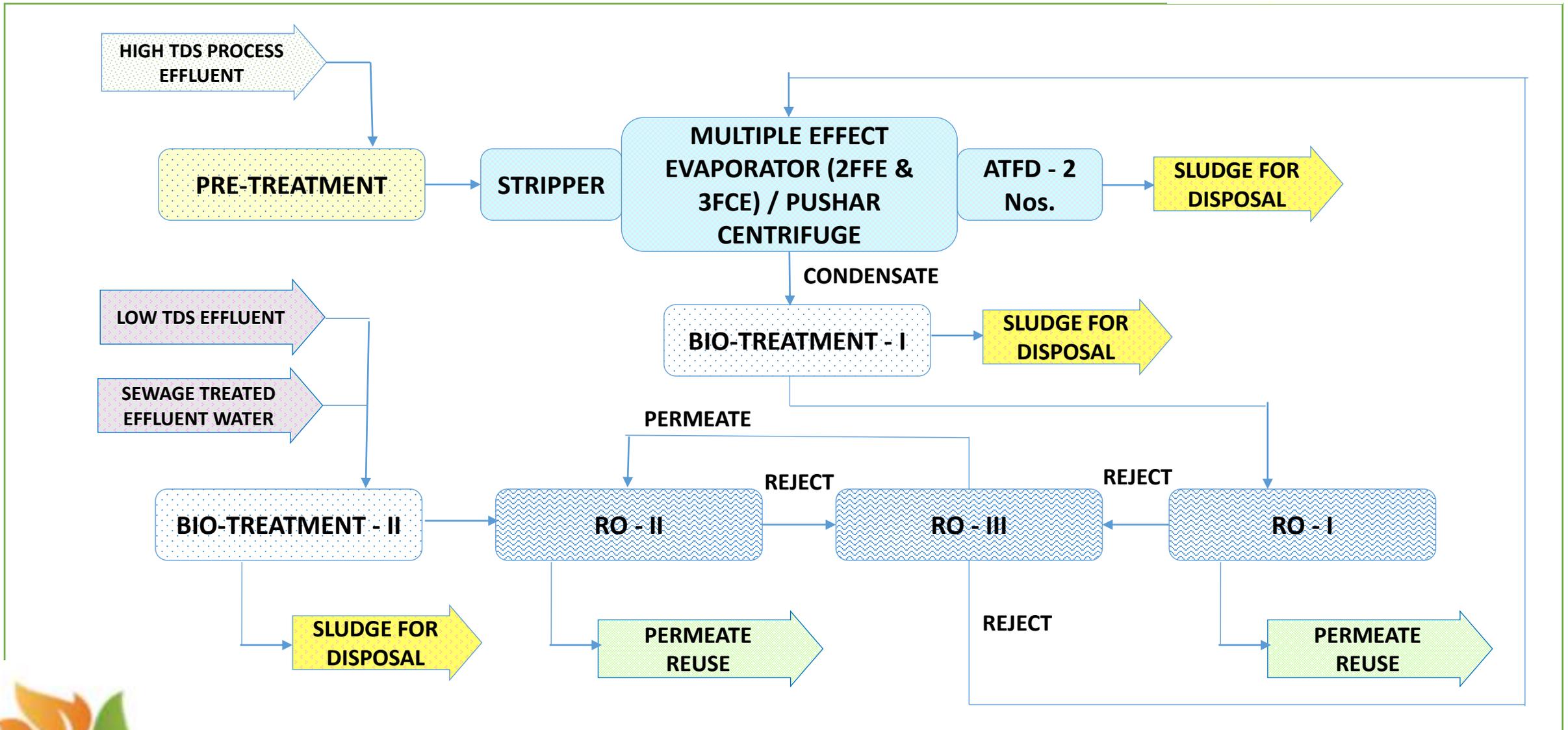




**SOLARA**  
Active Pharma Sciences

**ZERO LIQUID DISCHARGE (ZLD) PLANT  
PONDY API UNIT**

# ZLD FLOW DIAGRAM



# ZLD - DESCRIPTION



## Treatment Scheme for Effluent Treatment and Zero Liquid Discharge (ZLD)

### Low Pollutant Stream (LPS):

Low Pollutant Stream is separately collected in the Equalisation tank and then subjected to Physico-chemical treatment for neutralisation and suspended solid separation. The Physico-chemical treatment consists of neutralisation, flash mixing, flocculation cum primary clarification and is sent to Biological Treatment Plant-II (BTP-II) and treated along with domestic waste water.

The BTP-II consists of two stage aeration (Primary & Secondary) treatment with Aeration tank-1 followed by Bio-Clarifier -1 and Aeration tank-2 followed by Bio-Clarifier -2. The bio-clarifier overflow water goes to tertiary clarifier and then to Filter feed tank. From Filter feed tank, it is fed to Pressure sand filter (PSF) and Activated Carbon Filter (ACF). ACF treated water is taken to RO Plant –II for further treatment.



# ZLD - DESCRIPTION



## **High Pollutant Stream (HPS) :**

High Pollutant Stream predominantly from process is separately collected in the Equalisation tank along with reject of Reverse Osmosis Plant III (RO III) and then subjected to Physico-chemical treatment for neutralisation and suspended solid separation. The Physico-chemical treatment consists of neutralisation, flash mixing, flocculation and primary clarification.

The physico chemical treated water is taken to Stripper/ Multiple Effect Evaporator (MEE) plant for evaporation / concentration. The concentrate from MEE is further concentrated to a dry solid in Agitated Thin Film Dryer (ATFD). The evaporated condensate from MEE and ATFD are taken for further treatment in Biological Treatment Plant –I (BTP-I). The concentrated chemical sludge from ATFD is disposed to authorised co-processor for cement industry / authorised Secured Land Fill (SLF)site.

The BTP-I consists of two stage aeration (Primary & Secondary) treatment with Aeration tank-1 followed by Bio-Clarifier -1 and Aeration tank-2 followed by Bio-Clarifier -2. The bio-clarifier overflow water goes to Tertiary clarifier followed by Filter feed tank. From Filter feed tank, it is fed to Pressure Sand Filter (PSF) and Activated Carbon Filter (ACF). The filtered treated water is taken to RO Plant - I for further treatment.

# ZLD - DESCRIPTION



## **Reverse Osmosis Plants (RO I, RO II & RO III):**

The treated water from Biological treatment plant – BTP I & II are processed through RO-I & II respectively and the permeate water from the RO is recycled through non process / process applications.

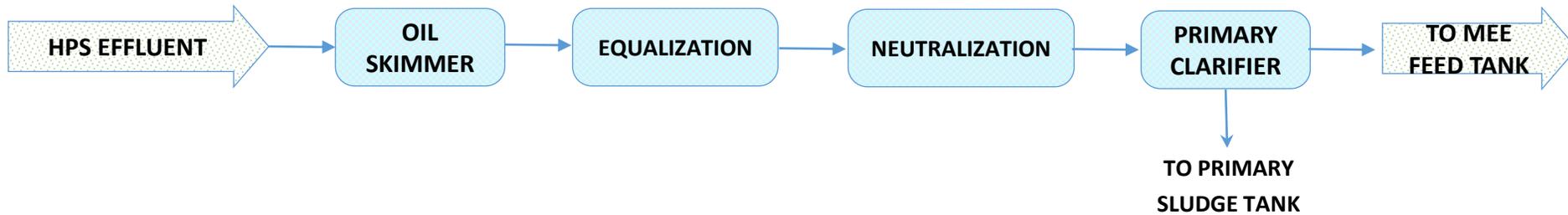
The reject from the RO I & II are fed to RO III for further recovery of water. Permeate from RO III is used for non process application / recycled as feed to RO II. Reject from RO III is sent to Multiple Effect Evaporator (MEE) for further processing.

The permeate water from the RO meets the potable water specification on all physio chemical analysis.

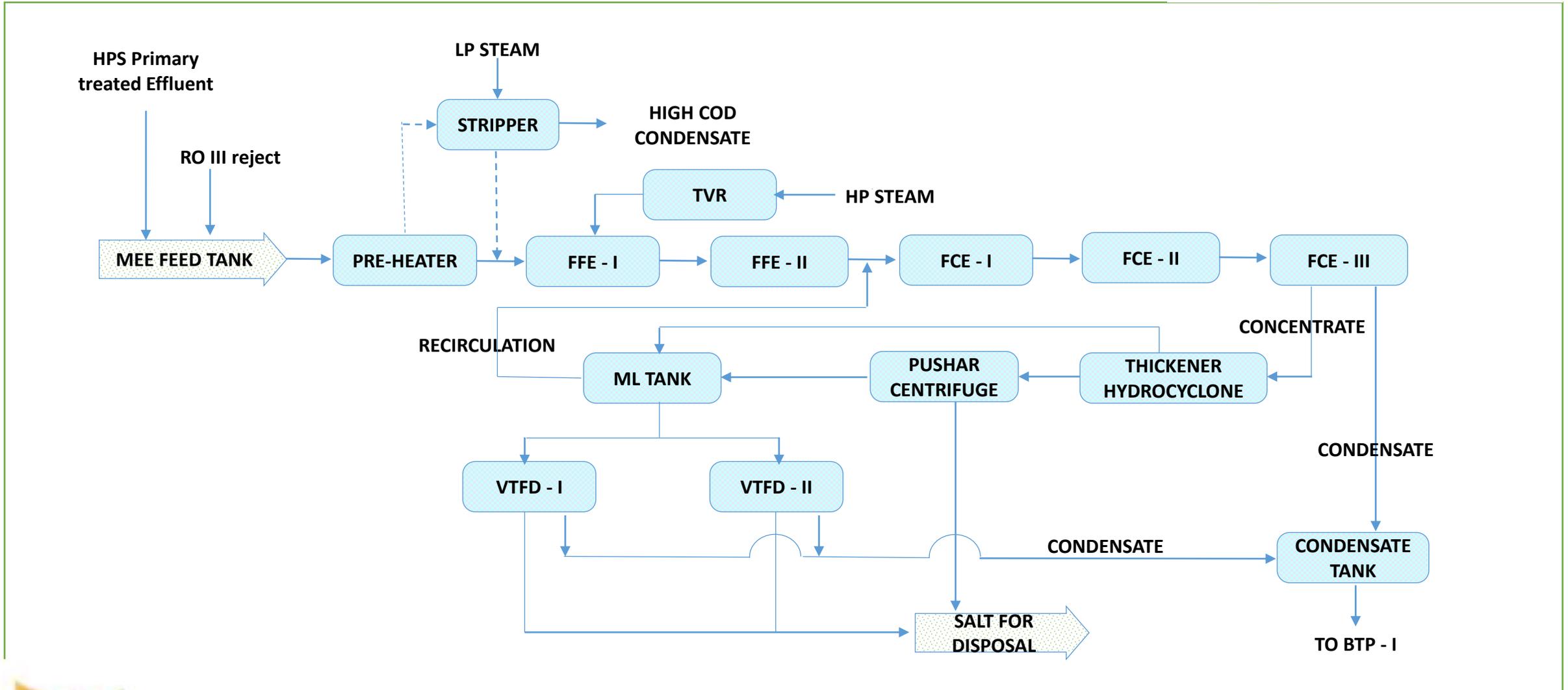


# HPS – FLOW DIAGRAM

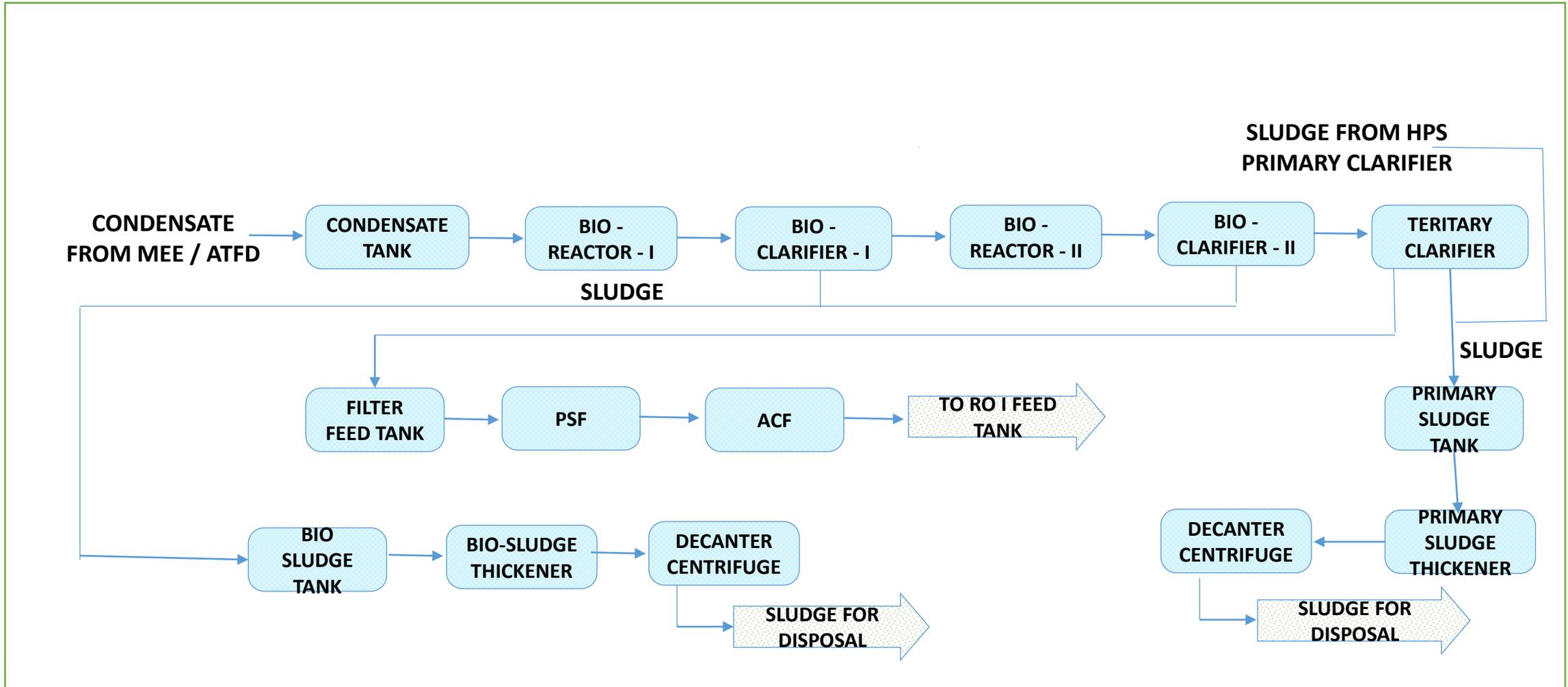
## HPS EFFLUENT PRE TREATMENT



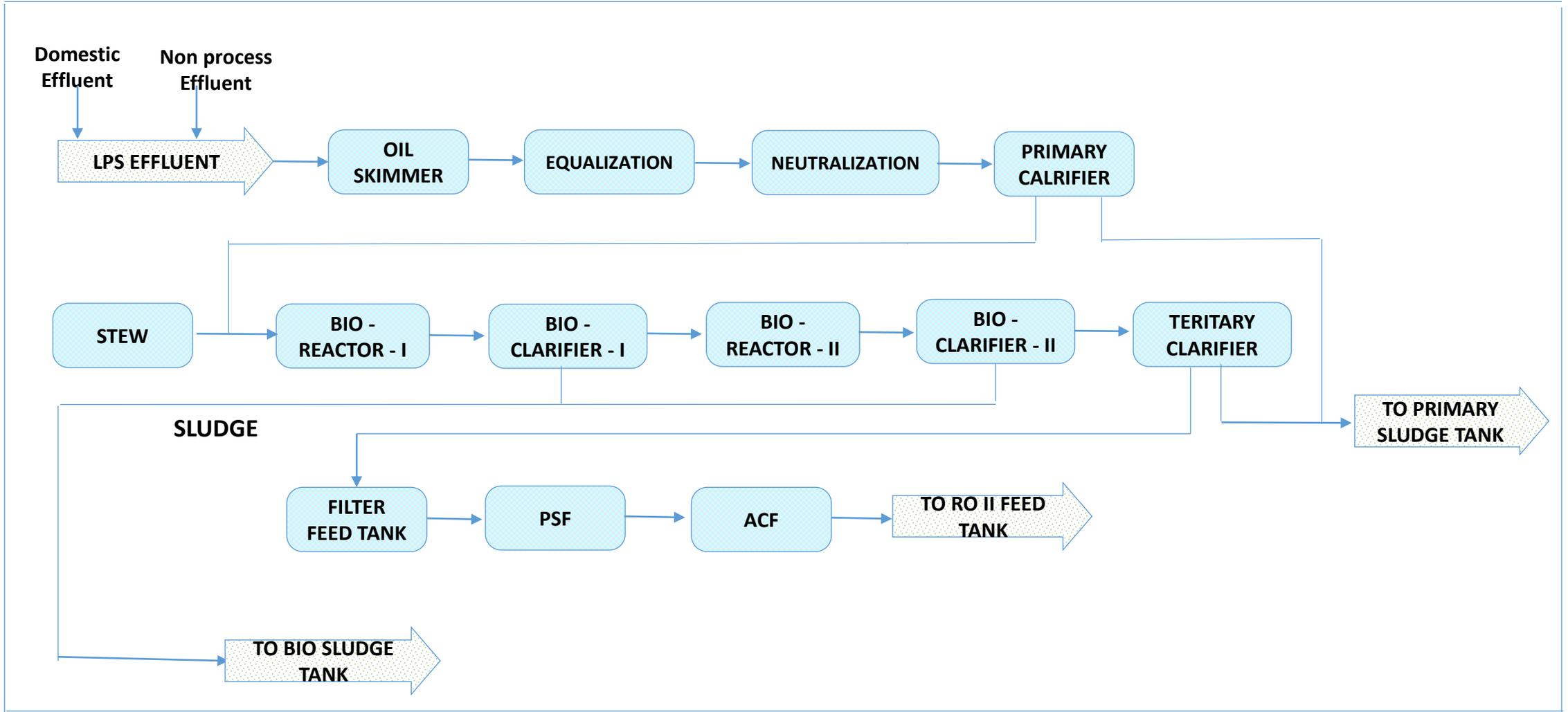
# MEE FLOW DIAGRAM



# HPS – FLOW DIAGRAM



# LPS – FLOW DIAGRAM



# ZLD – MEE PLANT



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# ZLD - BIOLOGICAL TREATMENT PLANT



# ZLD - RO PLANT



Thank You

