

Presentation on
Zero Liquid Discharge System in
Yelahanka Combined Cycle Power Plant - Karnataka
(A Case Study)

By
Nagamani V.
Assistant Executive Engineer[Civil]



Zero liquid Discharge System in Yelahanka Combined Cycle Power Plant-Karnataka

- Karnataka Power Corporation Limited is establishing
 - 1x370MW Combined Cycle Power Plant at Yelahanka, Bengaluru, Karnataka.
- Water required for the power plant is supplied from tertiary treated water from Bangalore Water Supply and Sewerage Board(BWSSB).
- The total water required for the plant is 14.4 MLD (600m³/hr).
- The waste water generated from the power plant is about 230m³/hr and same is stored in Central Monitoring Basin(CMB).

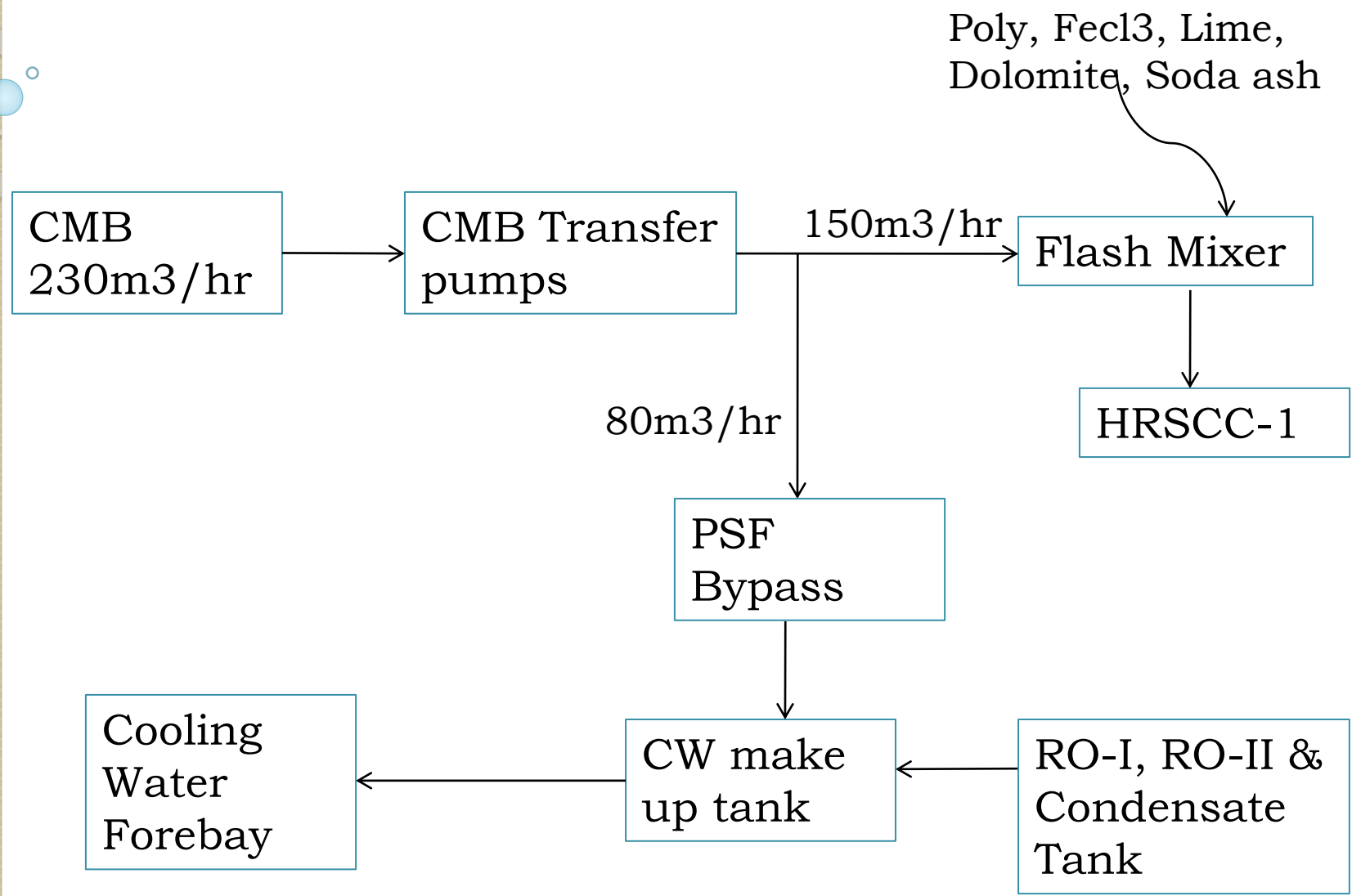
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- Generated waste water is treated in Zero Liquid Discharge(ZLD).
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- The treatment system involved in ZLD are;
 - a. Pre-Treatment System
 - b. Chemical dosing system
 - c. Ultrafiltration (UF) system (pressurized)
 - d. Reverse Osmosis system RO-1
 - e. Reverse Osmosis system RO-2
 - f. Membrane cleaning systems
 - g. Sludge dewatering system
 - h. MVRE system

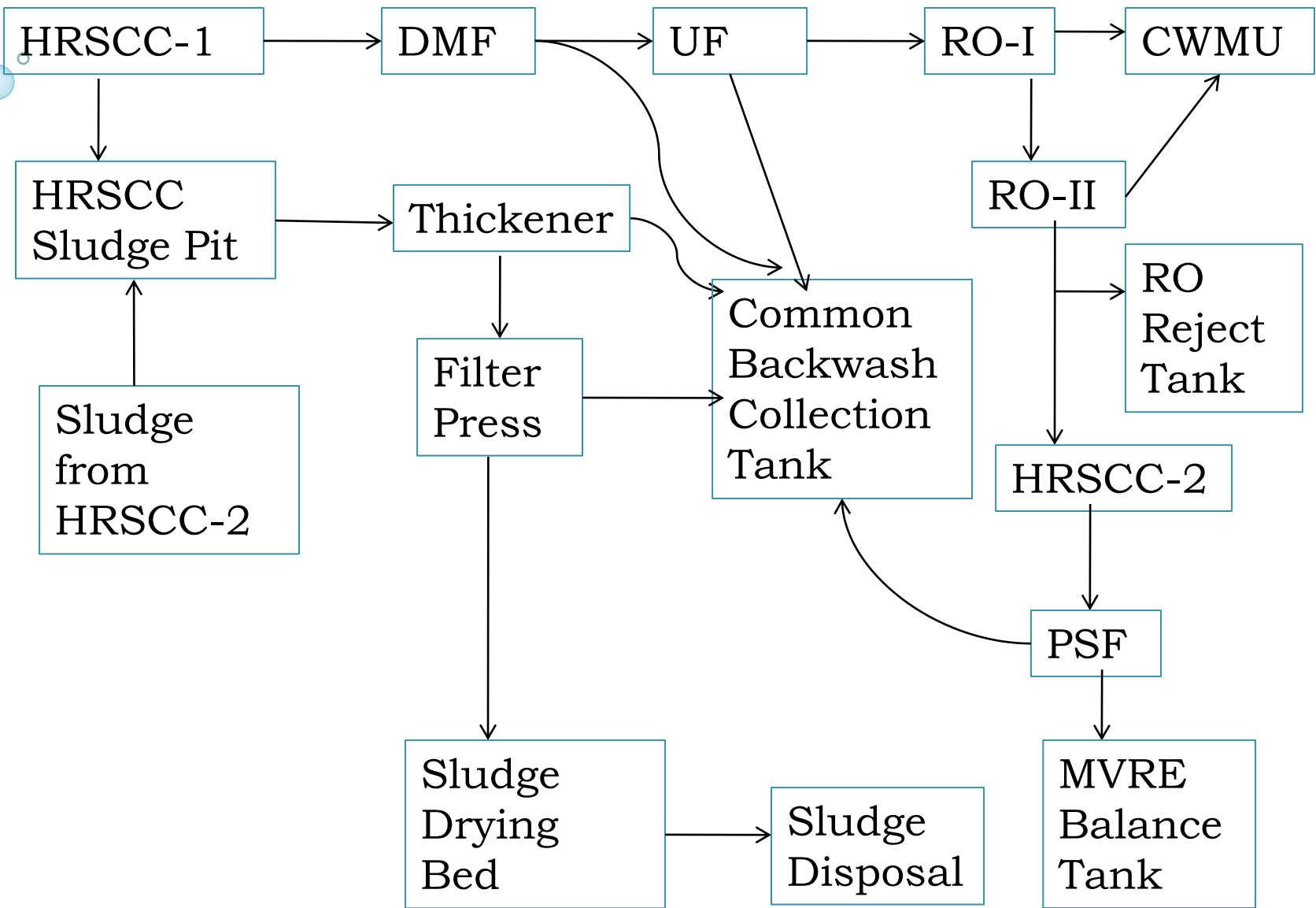
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- Out of 230 m³/hr of waste water, 150 m³/hr effluent will be pumped to Pre-treatment, UF and Reverse Osmosis and MVRE system for further treatment.
- Balance 80 m³/hr effluent is directly passed to Pressure sand filter (PSF) and will be further stored into CW make up tank.

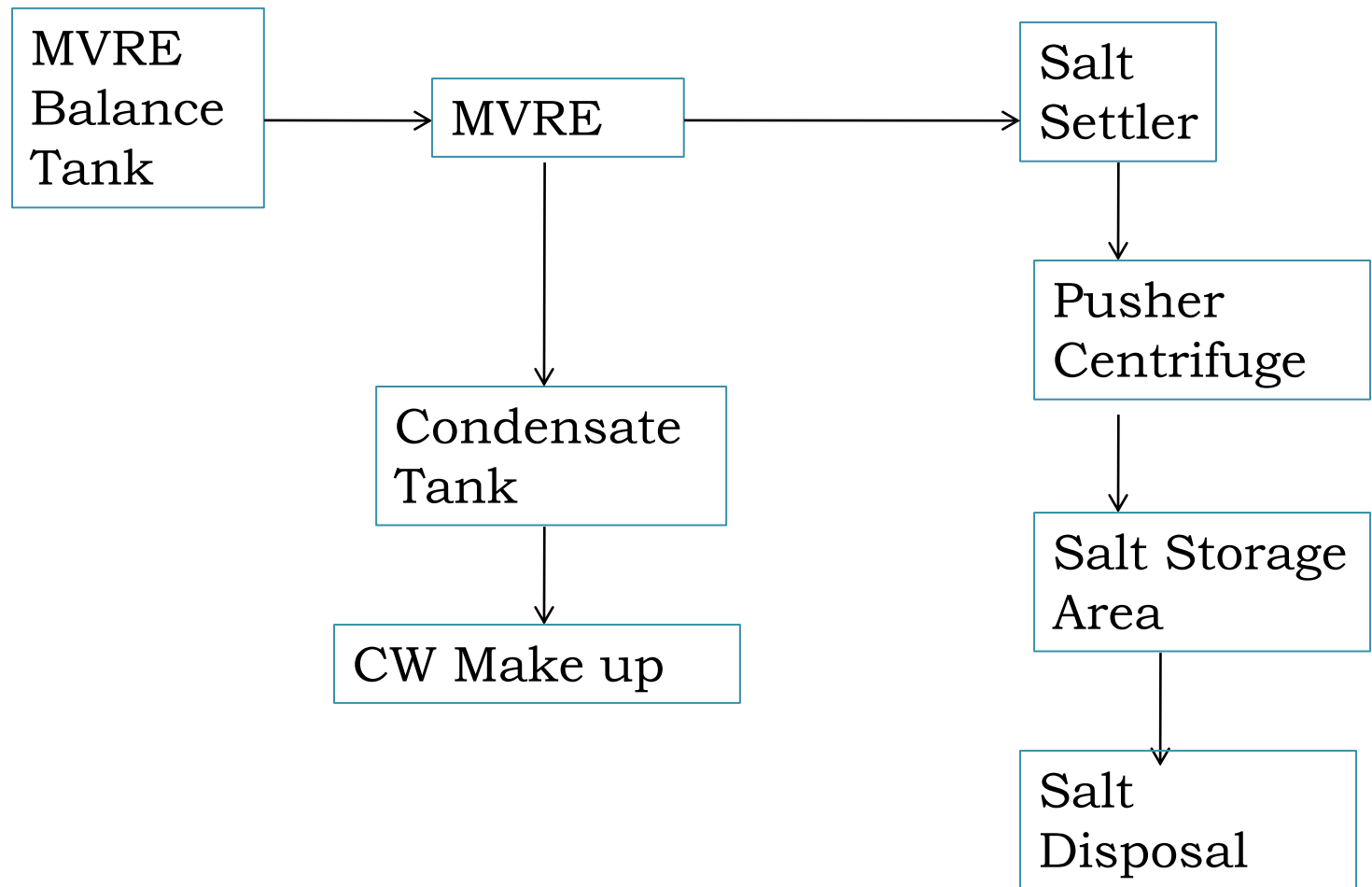
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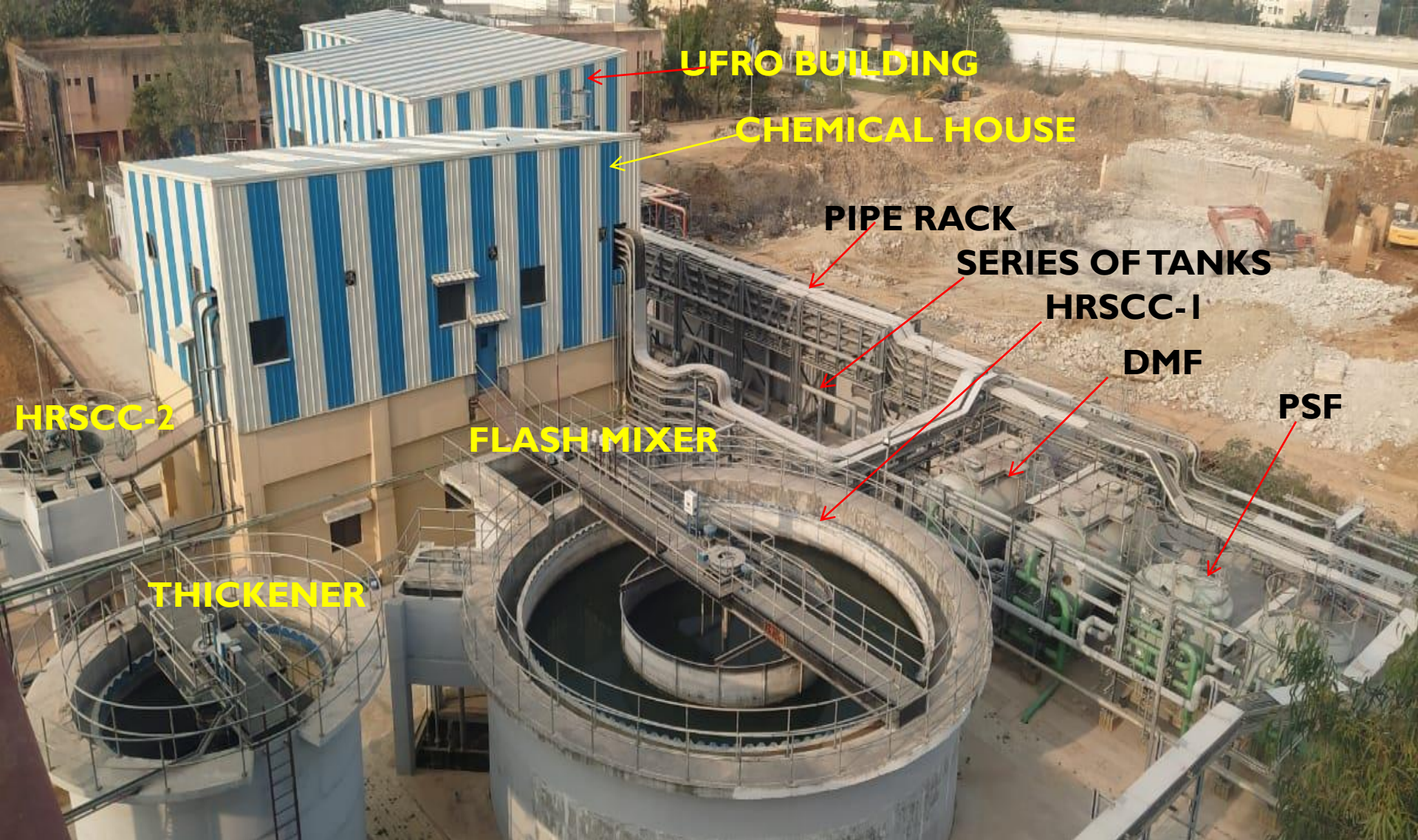
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LAYOUT OF ZLD PLANT

Zero liquid Discharge System in Yelahanka Combined Cycle Power Plant-Karnataka



**UFRO
BUILDING**

**CHEMICAL
DOSING
TANKS**

TRANSFORMERS

**RO REJECT
TANK AND
FEED TO
MVRE**

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**MVRE
STRUCTURE**

**MVRE FAN
BUILDING**

**SALT
STORAGE
BUILDING**

**FILTER
PRESS
BUILDING**

THICKENER

SLUDGE DRYING

Zero liquid Discharge System in Yelahanka Combined Cycle Power Plant-Karnataka

PLC control panel:

Programmable Logic Controller (PLC) based control system along with workstations, LED screens, Printer & other peripherals for implementing measurements, modulating controls, interlocks & protections, sequential controls for entire ZLD system are made.

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Conclusion:

- Zero Liquid Discharge system is implemented in 1X370 MW – Yelahanka Combined Cycle Power Plant to meet the MoEF & CC stipulations.
- The entire effluent generated from power plant is treated in the ZLD and no effluents will be discharged into natural stream.



THANK YOU ALL











