**MINUTES OF TECHNICAL DISCUSSION AND MEETING CONDUCTED BY THE MANAGING DIRECTOR, CMWSSB WITH THE PROJECT MANAGEMENT CONSULTANT (PMC SERVICES) FOR THE PROPOSED 400MLD DESALINATION PLANT AR PERUR AND ITS ALLIED WORKS ON 04.02.2020 AT 11.00 AM**

**Venue**: CMWSSB Head Office, Conference Hall (1st Floor)

**Members present:**

**CMWSSB**

1. Executive Director
2. Engineering Director
3. Chief Engineer (O&M) - I
4. Chief Engineer (O&M) - II
5. Chief Engineer (P) – I
6. Chief Engineer (P) – II
7. Superintending Engineer (C&M)
8. Superintending Engineer (Desal)
9. Executive Engineer (Desal)
10. Assistant Executive Engineers (Desal)
11. Assistant Engineers (Desal)

**PMC SERVICES**

Representative from M/s. SMEC International Pty Limited,
Representative from M/s. Tata Consulting Engineers,
Representatives from M/s. SMEC India Pvt. Ltd.,

- The Chief Engineer (O&M) - II welcomed the Directors & Engineers of CMWSSB & the PMC team members.
- The PMC consultant Mr. Michel Morillion, Mechanical Engineer (Desal) – International Expert presented about the Base load design and Conventional design seawater reverse osmosis desalination treatment and about the selection criteria for the same. The base load design consist of a common high pressure pump and common energy recovery device for 4 or more RO trains instead of individual High Pressure Pump and individual energy recovery device for each RO train as provided in Conventional design.
- The Chief Engineer (O&M) – II enquired about HP pumps of huge capacity that may be required for the Base load design and about the number of stand by pumps.
- The PMC consultant Mr. Michel Morillion explained that failure rate of bigger pump is less and 80% of energy of plant is for HP pumps. Further, stated that the R.O racks are provided with inlet and outlet valves on either side of the common header main and the HP pumps feed the R.O racks from the common header main. Also, informed that the number of stand by pumps can be provided as per requirement.

- The PMC consultant Mr. Michel Morillion presented the pros and cons of seawater reverse osmosis desalination treatment technology based on Base load design in terms of Capex, energy, availability and flexibility.

- The PMC consultant Mr. Michel Morillion explained that if Base load design is adopted then capex cost will come down by 5%, energy saving by 2% to 3% with availability more than 97% and less flexibility compared to the Conventional design.

- The Chief Engineer (O&M) – II enquired whether the percentage arrived are based on practical study or theoretical and requested for details of project where the base load technology is in operation.

- The PMC consultant Mr. Michel Morillion explained that the 380MLD Desalination plant functioning at Ashdod (Israel) is based on Base load design.

- The officials of CMWSSB requested the consultant to provide more supporting documents for comparison of conventional design and Base load design of proposed SWRO technology.

- The PMC consultant Mr. Michel Morillion presented about the pigging process, which helps in the removal of scales, sediments and marine organism from the intake pipe walls.

- The PMC consultant discussed about the importance of Dissolved Air Floatation (DAF).

- The Chief Engineer (O&M) - II informed about the issues faced in the existing 100 MLD Nemmeli Desalination Plant stating the Presence of White Fibrous Particles and COD and enquired about the efficiency of DAF to handle the issue.

- The PMC consultant Mr. Michel Morillion stated that the DAF unit can remove upto 80% to 85% of white fibrous particle.

- The PMC consultant Mr. Michel Morillion presented about the hybrid RO configuration with SWC4Max in front and followed by SWC5Max and explained that by adopting hybrid RO configuration flux will reduce thereby reducing biofouling and the permeate salinity will also get decreased.

- The PMC consultant Mr. Michel Morillion informed that large volume of sludge is expected in the process in 400 MLD SWRO plant and suggested to have Wastewater Treatment Plant (WWTP) to treat the sludge.
- The Chief Engineer (O&M) - II informed that the Wastewater Treatment Plant (WWTP) technology components may be included in the tender document as a part of proposed SWRO Desalination Plant for CP-1 package.
- Superintending Engineer, Desalination thanked the PMC team for the presentation made by them.

Sd/-xxx 17.02.2020
Managing Director
CMWSSB

Copy submitted to:
1. Engineering Director
2. CE(O&M)-I / CE(P)-I / CE(P)-II

Copy to:
1. SE(C&M)
2. TO to Managing Director
3. TA to Executive Director
4. PMC Agency

17/02/2020
Superintending Engineer/Desal
CMWSSB