ADVANCED HIGH EFFICIENT WASTE WATER FILTERATION PLANT

INTRODUCTION

Freudenberg Performance Material India Pvt Ltd

104, P.H.Road, Vellapanchavadi, Chennai-77

Production facility: Coated interlining fabric in Non woven and woven materials

Customer: all Garment manufacturers

INITIAL CONDITION

- We are using 8 KL of water per day for our process
- It includes wash water and machine cooling circulation water
- All the waste water are collected in a 17 KL sump.
- From the first 17 KL sump water pumped into second 17 KL tank with the use of pump and cartridge filters
- With this method we were able to extract only 75% of solid waste particles and this is ineffective.

WASTE WATER TEST RESULTS

Parameters	Values
pH	5.76
COD, mg/L	14796
After 2 hrs settling COD , mg/L	3461
BOD , mg/L	6450
NH_3, mg/L	46
Total solids , mg/L	23260
Total Dissolved Solids , mg/L	380
Total Suspended Solids , mg/L	22880
ORP , mV	+91.8

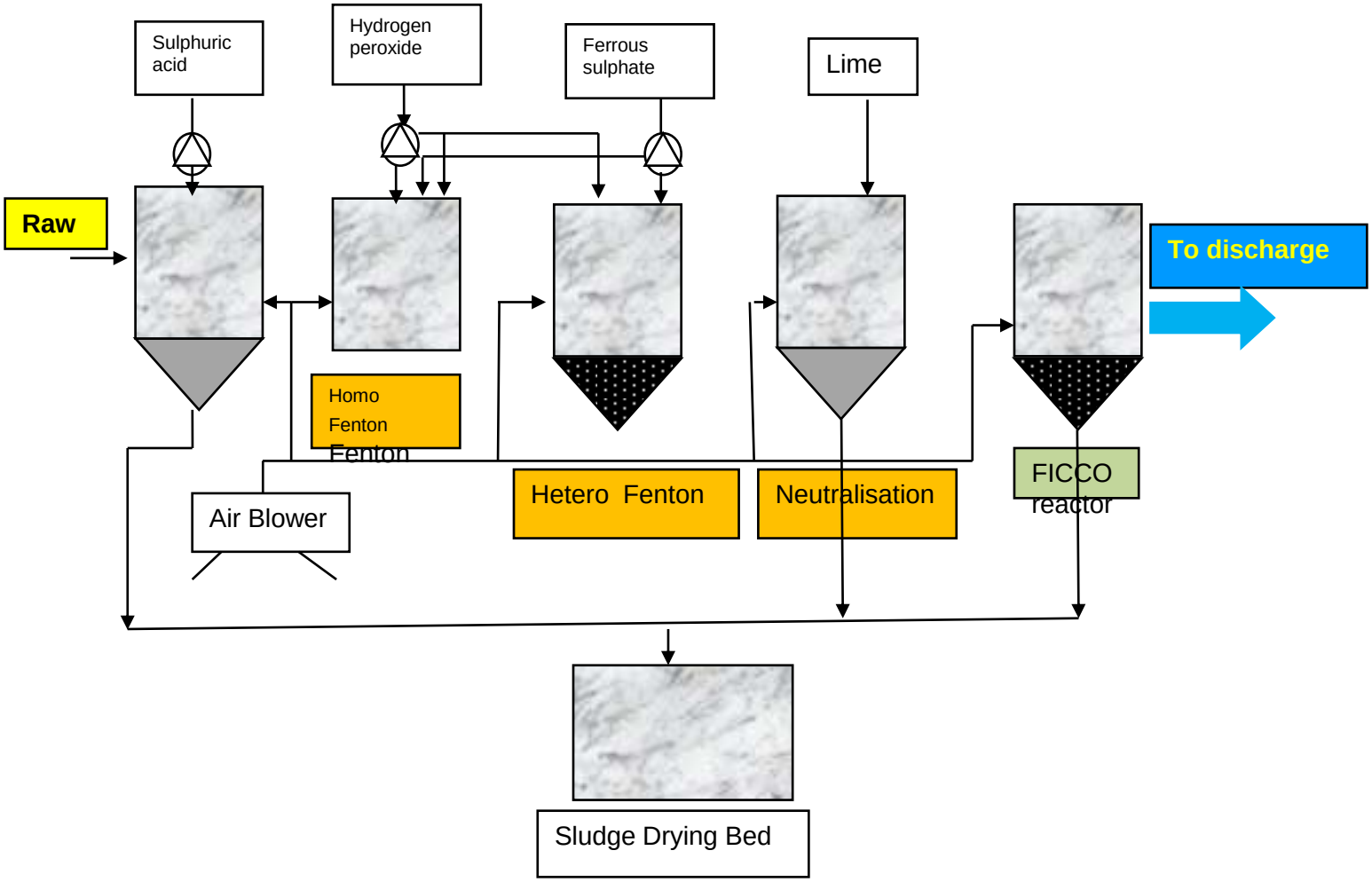
SUPPORT FROM IWMA

- I happened to attend one technical seminar organized by IWMA in the year 2014.
- Dr G.Sekaran explained about the process of water treatment technology
- He explained about the impact to environment on letting out the untreated water
- He also offered FREE consultation towards setting up treatment plant.
- We are very much thankful to IWMA and Dr G.Sekaran for extending this support.

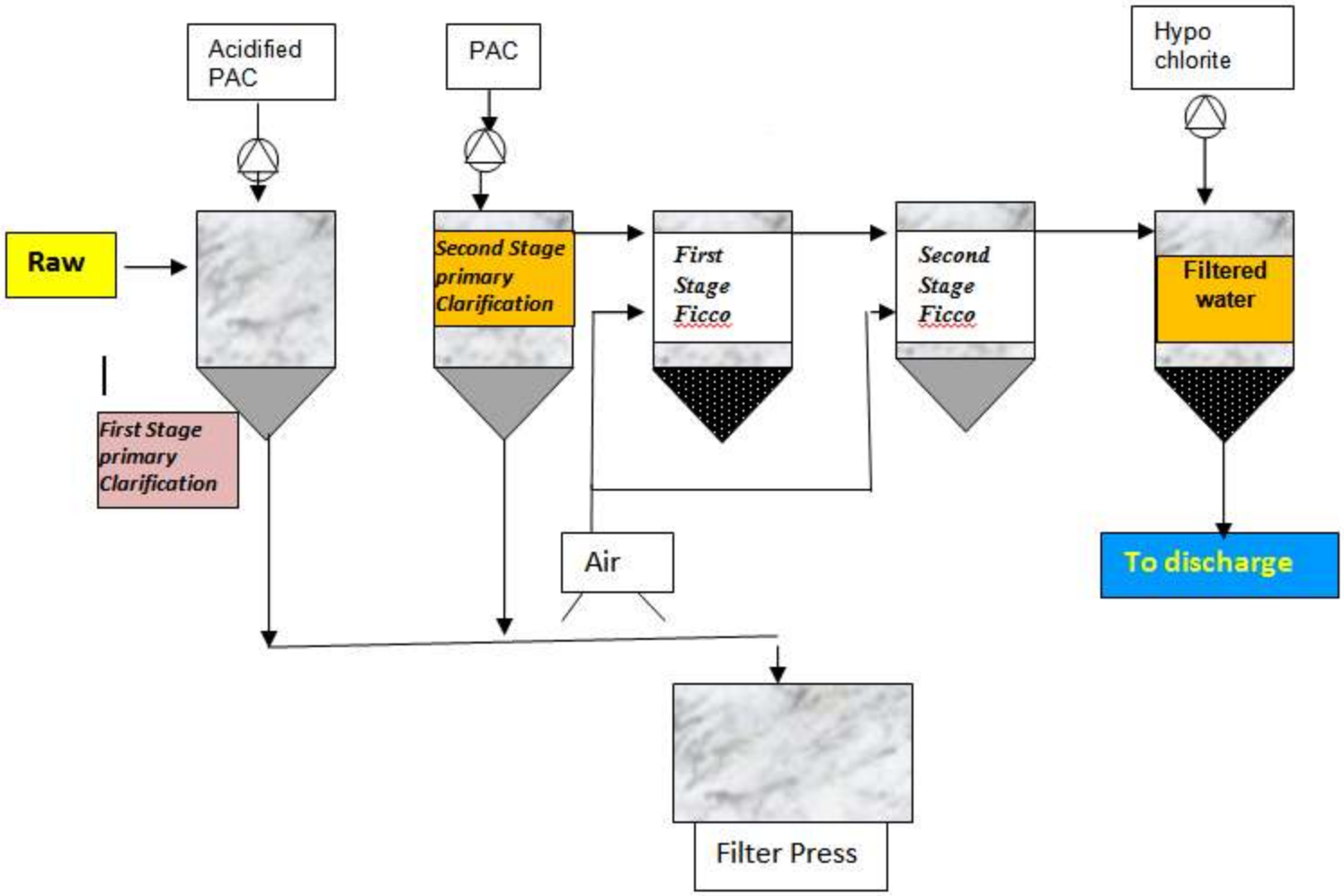
CLRI's ROLE IN SETTING UP THE PLANT

- It took more than a year towards designing of plant.
- More than 10 samples were collected and tested in CLRI lab.
- Dr G.Sekaran designed the treatment process and took several trials at laboratory stage.
- He visited our factory towards locating the treatment plant.
- He gave complete report with treatment process and test results.
- The final output water quality came up with acceptable level for reuse.

FIRST DESIGN



FINAL DESIGN



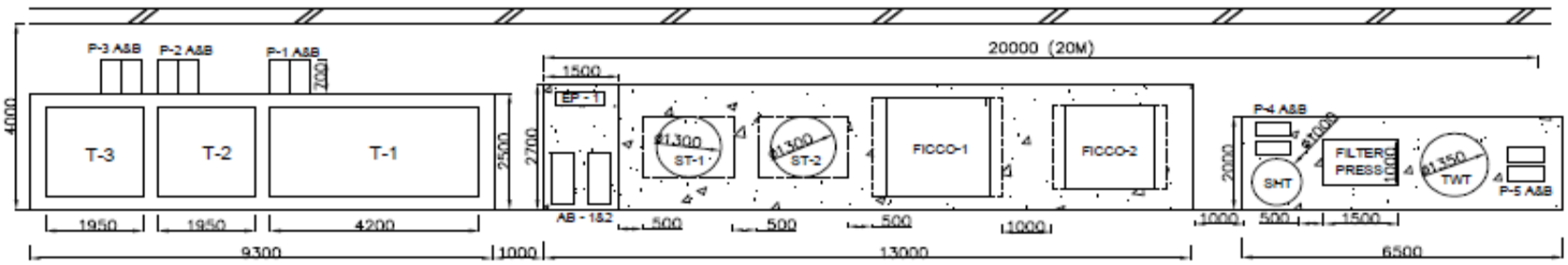
MANAGEMENT APPROVAL

- The estimation for plant worked out and submitted to management for approval.
- On obtaining the approval tender floated with three agencies and quote obtained
- M/s Eyar Water Tech Pvt Ltd was awarded the contract towards the erection and commissioning in Nov 2015.

PLANT COMMISSIONING

- Erection was delayed due to heavy rain in Nov and Dec 2015.
- In Jan 2016 we did the civil basement work.
- All equipment's were installed in Feb 2016.
- Plumbing work were carried out in March 2016.
- During April & May 2016 various trials were taken.
- On June 7th 2016 the plant was inaugurated.

PLANT LAYOUT



S.No	TAG No.	Description	Size in mm	MOC
1.	T-1	Collection Tank-1	4200x2500x2700	RCC
2.	T-2	Collection Tank-2	1950x2500x2700	RCC
3.	T-3	Intermediate Tank	1950x2500x2700	RCC
4.	ST-1	Settling Tank-1	1300Ø x 2900 Ht	MS-FRP
5.	ST-2	Settling Tank-2	1300Ø x 2900 Ht	MS-FRP
6.	FICCO-1	FICCO Tank-1	2000x2000x3600	MS-FRP
7.	FICCO-2	FICCO Tank-2	1800x1800x2600	MS-FRP
8.	SHT	Sludge Holding Tank	1000 Ø x 800 Ht	MS-FRP
9.	TWT	Treated Water Tank	1350 Ø x 1600 Ht	HDPE

S.No	TAG No.	Description
1.	P-1 A&B	Effluent Transfer Pump
2.	P-2 A&B	Settling Tank-1 Transfer Pump
3.	P-3 A&B	Settling Tank-2 Transfer Pump
4.	P-4 A&B	Sludge Transfer Pump
5.	P-5 A&B	Treated Water Transfer Pump
6.	AB- 1&2	Air Blowers
7.	EP-1	ETP Panel

All Dimensions are in mm

CUSTOMER : M/s. Freudenberg Non wovens India Pvt.Ltd, Chennai.

Eyar Water Tech Private Limited

Project: Effluent Treatment Plant - 8 KLD

Drawing: Plant Layout

PROJECT: MATERIAL:

DESIGNED HMP 05.01.2019 SCALE:

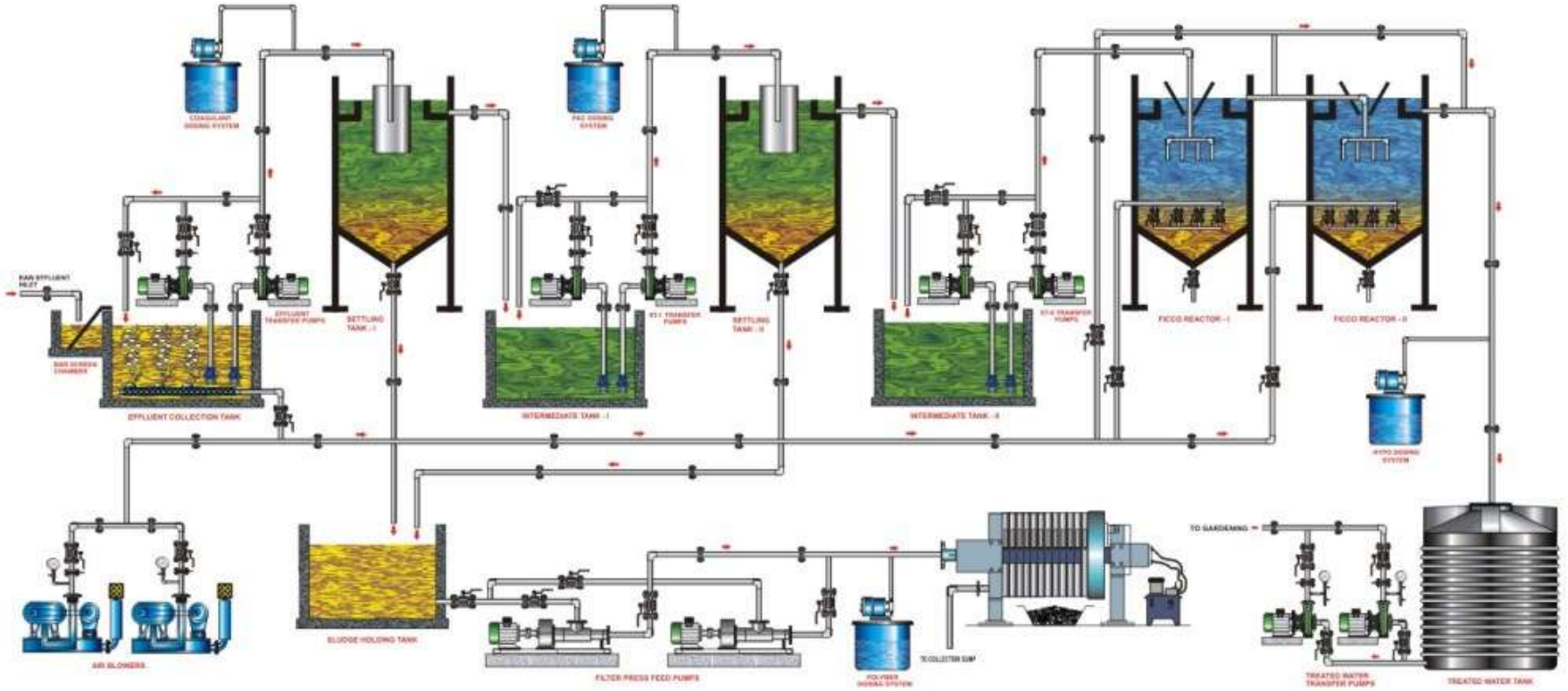
DRAWN HMP 05.01.2019

CHECKED MS 05.01.2019 DRG. NO:

APPROVED DS 05.01.2019

HYDRAULIC FLOW DIAGRAM

FREUDENBERG PERFORMANCE MATERIALS INDIA PVT LTD — **ADVANCED WASTE WATER FILTRATION PLANT**



DESIGNED BY :
CENTRAL LEATHER RESEARCH INSTITUTE

EXECUTED BY :
EYAR WATER TECH PRIVATE LIMITED

WATER TREATMENT PLANT

TEST RESULTS

FREUDENBERG
INNOVATING TOGETHER

RAW & TREATED EFFLUENT CHARACTERISTICS AT VARIOUS TREATMENT LEVELS

Parameters	Raw wastewater	Settling Tank – I (O/L)	Settling Tank – II (O/L)	FICCO Reactor – I (O/L)	FICCO Reactor – II (O/L)
pH	7.48	7.27	7.06	6.88	6.48
Oxidation Reduction Potential, mV	-38.3	+0.6	+0.6	+0.8	+0.7
Chemical Oxygen Demand , mg/L	6640	3872	696	384	16
Total Organic Carbon , mg/L	190	128.6	67.8	44.04	7.7
Ammonia, NH_4^+, mg/L	29	15	8	6	3
Total Nitrogen , mg/L	38	18.0	13.0	10.0	8.0
Total Solids, mg/L	8656	1985	1675	1030	760
Total dissolved solids, mg/L	980	890	825	795	705
Total suspended solids, mg/L	7676	1095	850	235	55
UV-Visible absorption at λ_{280}nm(unfiltered)	3.416	0.532	0.357	0.112	0.028
UV-Visible absorption at λ_{280}nm (filtered)	0.9656	0.341	0.275	0.093	0.0165
Water Sample Pictures	 Initial	 Settling tank-1	 Settling tank-2	 FICCO-1	 FICCO-2

M/S. FREUDENERG PERFORMANCE MATERIALS INDIA PVT. LTD

RESULT

PLANT INAUGURATION

PLANT INAUGURATION

PLANT INAUGURATION

PLANT INAUGURATION

FUTURE PLAN

- 50% of treated water will be sent to RO plant inlet towards recycling.
- Balance 50% will be sent to garden.
- From Jan 2017 - 100% treated water will be recycled.

THANK YOU