

“Review paper on operation and maintenance of effluent treatment plant of paper industry”

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Abstract : Paper and pulp industry comprises companies that use wood as raw material and produce pulp paper board and other cellulose-based products. Paper and pulp industry consume more power and energy. The environmental impact of paper is significant, which has led to changes in industry and behavior at both business and personal levels. With the use of modern technology such as printing press and highly mechanized harvesting of wood, disposable paper has become cheap commodity. This has led to a high level of consumption and waste. With the rise in environmental awareness due to the lobbying by environmental organization and increased government regulation there is now and toward sustainability in pulp and paper industry. In this company during working process there is emission of gases like SO₂, which can be harmful to health and surrounding area. That's why to minimize the adverse effects of this emission various types of plants are cultivated in industrial area. The plants are essential to absorb the air pollutants and improve the environmental quality.

Keywords: units of effluent treatment plant .

1.Introduction

In this company during working process there is emission of gases like SO₂, which can be harmful to health and surrounding area. That's why to minimize the adverse effects of this emission various types of plants are cultivated in industrial area. The plants are essential to absorb the air pollutants and improve the environmental quality. Total area acquired is

345Ha., area to be taken under green belt 33% i.e. 116Ha.

In this park such plants are cultivated which releases more amount of O₂ during absorb air pollutants which is useful for balancing our environment. The green park includes small bushes, herbs, and shrubs, small and large trees.

2. Company Profile .

Ballarpur Industries Limited (Bilt), Unit Bhigwan is located at village Bhigwan, District Pune, Maharashtra. The unit is situated in MIDC Industrial area, Bhigwan. This industry has advanced machinery and improved technology which produces superior variety of writing and printing paper and board mainly coated paper.

The current chairman of the company is Gautam Tapper. Company is leader in coated paper segment. The core business of manufacturing paper from paper industry 13 years. Bilt has been granted clearance from Maharashtra State Pollution Control Board and Ministry Of Environment and Forest. The mill is presently employing 1170 person comprising of various categories.

1) The paper production PM 1 and PM 2 is = 1, 21,642 MT

2) The total power generation = 60 MW (export – 25 MW)

3. Scope Of Epc

Bilt-Bhigwan is continued to responsible development through its environmentally sound policies and activities with above objectives with above objectives and environment dept. was established on 1st Oct 97. An env. Policy was made on 21st Dec 97 and implemented to improve the performance of dept. This policy was taken as a guideline to frame the environment policy which was regularized on June 01, 2001.

Our main objectives are:

*Develop and betterment through our Environmental policy.-

*To meet consent conditions of MOEF

*To meet consent conditions of MPCB & get renewal of consent to operate.

*Calculation & payment of water CESS to Irrigation dept. (Govt. of Maharashtra) and Maharashtra Pollution Control Board.

The dept. looks after water air, soil & noise pollution and controls it. Quality parameters of the environment are strictly monitored and maintain through a well equipped chemical laboratory. A 5 stage state of the art effluent treatment plant ensures that the treated effluent confirm, the international std. & complies the most stringent limits of MPCB as Stated in EC/SC-001

To demonstrate our treated water quality, we have made two fish ponds where more than 100 fishes are surviving since last 2 years.

To ensure further ground & well water of the surrounding area is monitored every month.

4. Characteristics of effluent

- Above organic or inorganic matter in the strongest industrial effluent.
- The effluent is characterized by its colour, odour, temp,COD, BOD, TSS etc.
- The parameters of incoming effluent are COD 1300 – 4000, BOD 100 – 350, and TSS 1000 – 3000 PPM etc.
- The effluent contain about 11000m³/day and and sludge QTY. is about 15 to 20 MT/Day⁵.

5.Effluent treatment plant

Flow Diagram of Existing Effluent Treatment Plant

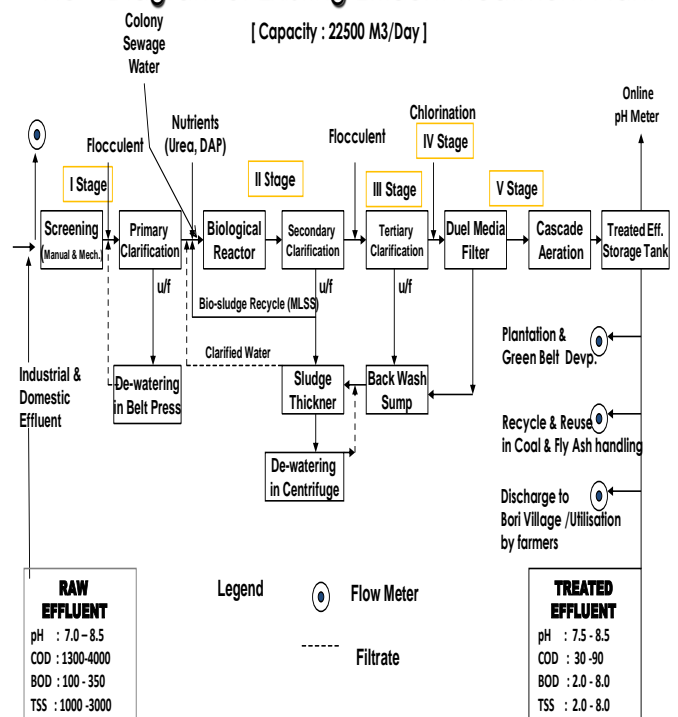


fig:2 flow chart for ETP plant

5.1 Units of E.T.P.:-

1) Primary clarifier :-

Design flow : 22500m³/day.
 Dimension : 35 M dia x 3.5 M SWD
 Volume : 3367m³

2) Secondary clarifier:-

Design flow : 22500m³/day.
 Dimension : 31M dia x 3.5 M SWD
 Volume : 2641m³

3) Aeration tank 1& 2:-

Design flow : 22500m³/day
 Dimension : 80M dia x 80 M*3.5 M SWD
 Volume : 22400m³

4) Filter feed pump:-

Design flow : 22500m³/day.
 Dimension : 20 M dia x 20 M x 2.0 M.
 Volume : 800m³

5) Duel media pressure sand filter:-

Number of filter : 02
 Design flow : 22500m³
 Dimension : 8 M Length x 3.0 M dia

6) Treated effluent storage tank:-

Design flow : 22500m³/day.
 Dimension : 18M dia x 18M x 2.0 M
 Volume : 1000m³

7) Belt press filter:-

Capacity : 24 MT /Day.

6. Results and discussion

The E.T.P. Shows following results

Sr. no.	Parameter	Raw effluent	Treated effluent (actual parameters)	MPC B Limits for treated effluent
1	Ph	7.0-8.5	7.5-8.5	7-8.5
2	TSS(mg/l)	200-300	2.0-8.0	<10
3	BOD(mg/l)	700-900	2.0-8.0	<10
4	COD(mg/l)	250-300	30-90	<120
5	OIL & GREASE(mg/l)	NIL	NIL	<10

Table no:1 characteristics of ETP plant

7. Conclusion and Recommendation:-

- The industry has provided full fledge treatment facility of waste water. Treated effluent is utilized for plantation

and green belt development. Also utilized for reuse and recycle in coal & fly ash handling and also utilization for farmer.

- The existing effluent plant capacity is 22500m³/day.
- The ETP is meeting the standards for all parameter prescribed by MPCB as well as MoEF in consent granted.
- To meet consent condition of MOEF.
- Environmental policy is implemented by the employees for further development & betterment of the company
- All parameter for ambient air quality and noise are well within limit prescribed by CPCB for industrial area.
- The impact on plant, animal and human health by the paper industry is negligible as industry is taking the precaution to keep Water, Air and Land pollution at the lowest possible level.
- We have studied about Air, Water, Noise pollution, Environmental audit, Waste water treatment and pollution monitoring.

9. REFERANCES

- 1) Waste water engineering (Treatment and reuse) by Metcalf and Eddy
- 2) Standers methods for the examination of water and waste water
Author:-1) Lenore S. clesceri.
2) Arnold e. Greenberg.
3) Andrew D. Eaton.
- 3) Environmental chemistry by Sharma .B.K.
- 4) Environmental Pollution- by Manivasankam. N.
- 5) Advances in Waste water treatment technology by Trivedi R. K.
- 6) Industrial Effluents (Origin, characteristics, effect, analysis treatment) by Manivasankam. N.
- 7) <http://www.goole.com>.