

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
WESTERN ZONE BENCH PUNE AT PUNE .

ORIGINAL APPLICATION NO.69 OF 2022

Sunil Pharate

.. **APPLICANT**

V/S

State of Maharashtra
And others

.. **RESPONDENTS**

REPLY ON BEHALF OF
RESPONDENT NO.10

MAY IT PLEASE THE HON'BLE TRIBUNAL

THE RESPONDENT NO.10 MOST RESPECTFULLY SUBMITS
THAT :-

01. At the outset, the Statements and averments made in the Original application are not admitted by this Respondent No.10 and the same are denied in toto. The Original Application filed by the Applicant is not maintainable at all and is liable to be dismissed with costs. The Respondent No.10 in the present proceedings denies everything that is contrary what is stated therein and/or inconsistent therewith as if the same is set out in extenso and traversed. The Respondent No.10 submits that, nothing not expressly admitted herein ought to be taken as admitted by the Respondent No.10 or be deemed to have been admitted by the

Respondent No.10 for want of specific traverse. The Respondent No.10 states that for the purpose of gravity, the Respondent No.10 is not denying each and every allegation, statement and contention of the Applicant which is ex-facia contrary to the contention of Respondent No.10 and its stand in the present case except to the extent that such allegation, statement or contention necessitate, cogent, warrant or reply.

PRELIMINARY OBJECTION

02. The Respondent No.10 submits that the Applicant is not herein an aggrieved party within the meaning of the provisions of National Green Tribunal Act, 2010 and has not stated in the present Application that, what grievance he has against the present Respondent No.10. The Applicant has also failed to make out the substantial question relating to the environment under the provisions Sec.2(m) of the NGT Act, 202010. The Hon'ble Supreme Court in the Judgement of '*Uday Welfare Trust Vs. State of U.P.*' has clearly held that, this Hon'ble Tribunal has to consider the bonafide of the litigant approaching the Hon'ble Tribunal as the question of operation of Industry and employment of numerous employees is depending on the order of this Hon'ble Tribunal. The Applicant herein is the clearly interested litigant and thus, has

filed the present application to harass the present Respondent No.10 with an ulterior motive and on this count alone, the present original Application is required to be dismissed with costs. The present Application has been filed by the Applicant on the basis of the newspaper clippings dated 12/07/2022 to 14/07/2022, which are annexed to the Original Application being Annexure 'D'.

03. The Respondent No.10 submits that, the Respondent No.10 is a Sugar Factory, situated at Walva, Dist. Sangli. The activities of the Respondent No.10 Sugar Factory are seasonal activities and is operating from the Month of October to March every year. The Incident, as alleged by the Applicant in the present application thus cannot be attributed to the present Respondent No.10 as at the time of occurrence of the incident, the operations of the present Respondent No.10 was not in functional. It is further submitted that, the plant of the Respondent No.10 is situated at the distance of 5 Kms from the River Krishna and it is impossible to discharge the water into the river. The application is alleging that the industries situated on the bank of River Krishna are indulging into pollution. The Respondent No.10 is not located at the bank of the river. Hence, the present Application is filed only for indulging into

fishing and rowing activity to gather the material and framed the present Respondent under one pretext or others.

FACTS OF THE CASE

04. The Respondent No.10 is situated at Walva, Dist. Sangli and the Respondent No.10 is having valid Consent to Operate received from the MPCB. The Respondent No.10 is also having an operational affluent treatment plant and that there is no water, which is being discharged outside the premises of the present Respondent and thus, there is no question of the water being discharged untreated into river Krishna. The Hon'ble Tribunal had appointed a Joint Committee vide order dated 24/8/2022 in the present case and the Committee visited to the Plant of the Respondent and submitted its Report. In the said Report, it has been observed that, there is no violation at the hands of the present Respondent. There are certain recommendations, which have been provided and the Respondent has already taken necessary steps for the same. The Respondent has already carried out the adequacy assessment of the ETP and the same has been intimated to the Respondent No.4. Copy of the adequacy assessment report is annexed hereto and marked as **ANNEXURE – R-1**. As regards the other recommendations, mentioned in the said Report, pertaining to

the tertiary treatment, the same is in existence already. The Respondent No.10 submits that, there is no case made out to proceed against the present Respondent before this Hon'ble Tribunal.

05. In view of the circumstances stated herein above, the present Original application is required to be dismissed with costs.

PUNE

DATE 28/08/2023

A handwritten signature in blue ink, appearing to read 'S. S. Kani', with a horizontal line underneath.

ADVOCATE FOR RESPONDENT NO.10

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE BENCH, PUNE

AT PUNE

Original Application No.69/2022 (WZ)

SUNIL PHARATE

APPLICANT

V/s

STATE OF MAHARASHTRA

AND OTHERS

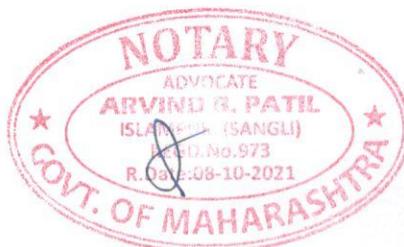
RESPONDENTS

AFFIDAVIT IN SUPPORT OF REPLY

MAY IT PLEASE THE HON'BLE TRIBUNAL

I, Babaso Shripati Mane, adult, I/c.Managing Director of the Respondent No.10, having office at Nagnathanna Nagar, Taluka Walwa, District Sangli, do hereby state on solemn affirmation as under: -

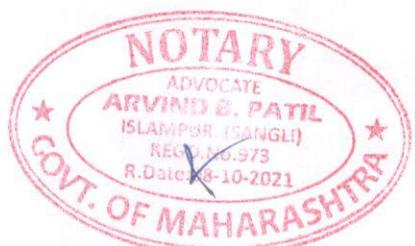
1. I say that I am the I/c.Managing Director of the Respondent No.10 and am authorized to file the present Affidavit. I say that I am aware of the facts and circumstances of the present case and hence am able to depose the same on oath.
2. I say that the Respondent No.10 herein has filed the present reply to the Original Application. I say that the contents of the said Reply and the present affidavit are true and correct to the best of my knowledge, information, belief and the legal advice which I believe to be correct.



WHATEVER stated herein above is true and correct to the best of my knowledge and belief and for the same I have signed hereunder at Islampur on 20th day of March, 2023.

[Signature]
Deponent

MANAGING DIRECTOR
Padmbhushan Krantiveer Dr. Nagnath-Anna Nayakwadi
Hutatma Kisan Ahir Sahakari Sakhar Karkhana Ltd:
Nagnath Annanagar, Walwe, Tal. Walwe, Dist. Sangli



Shri Babasaheb Shripat's Mame A/o Walwe Tal-Walwe Dist Sangli,

do swear, name of God
that this is my name & signature
solemnly affirm that the contents
of this affidavit are true

[Signature] Signature of Deponent
[Signature] Signature of Notary
Identified by *[Signature]* - Page Nos. 2

Noted and Listed at
Sl. No. 13 Of Notarial
Registered Dated 20/3/2023
Document Pages. 2



[Signature]
ARVIND B. PATIL
B.A., LL.M
Advocate & Notary, State of Maharashtra
'Laltara', ISLAMPUR, Dist. Sangli.
Mob. 9822051177

ANNEXURE - R-1**Walchand College of Engineering**

(Government-Aided Autonomous Institute)

Vishrambag, SANGLI - 416415 (M.S.) India

Website : www.walchandsangli.ac.in



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WCE/Civil/Public health/Consultancy | 2779

Date: 16.01.2023

To,
 Managing Director,
 Padmabhushan Krantiveer Dr. Nagnathanna Nayakawadi
 Hutatma Kisan Ahir Sahakari Sakhar Karkhana Ltd.,
 Nagnathannagar, Walwe
 Taluka: Walwa
 District: Sangli.

Subject: Adequacy Assessment Report of Effluent Treatment Plant for Sugar Factory**Reference:** PKDNNHKASSK/MFG/2022-23/3277 dated: 05.01.2023

Dear Sir,

With reference to your letter mentioned above, we have prepared report on adequacy assessment of effluent treatment plant for sugar factory (PKDNNHKASSK). The report of the same is attached herewith for your kind reference and use.



I.C. Director

**Adequacy Assessment Report of Effluent Treatment Plant for**

Padmabhushan Krantiveer Dr. Nagnathanna Nayakawadi
Hutatma Kisan Ahir Sahakari Sakhar Karkhana Ltd., Nagnathannagar, Walwa
Taluka Walwa District Sangli (Maharashtra)

1.0 Introduction:

The Managing Director, Padmabhushan Krantiveer Dr. Nagnathanna Nayakawadi, Hutatma Kisan Ahir Sahakari Sakhar Karkhana Ltd., Nagnathannagar, Walwa, requested (PKDNNHKASSK/MFG./2022-2-23/3321 dated 9th Jan. 2023) the Department of Civil Engineering to prepare adequacy assessment of Effluent Treatment Plant (ETP) for their sugar factory. The assignment was accepted by the Department of Civil Engineering with Dr. G. R. Munavalli as the coordinator and expert member.

2.0 Methodology:

The following methodology was adopted for the adequacy assessment;

2.1 Data collection

- i. Design and drawings of ETP
- ii. Details of pumps, mixers and other mechanical devices used in ETP,
- iii. Recent Environmental consent report
- iv. Recent analysis/test reports of effluent (raw and treated)
- v. Communication by MPCB regarding submission of adequacy assessment report.

The above data was collected from concerned officials prior to the site visit.

2.2 Desk study

The data submitted was studied and preliminary analysis was done. The study included assessing appropriateness of unit processes/operations in effluent treatment and their sequence, and preliminary computation on size/volume/area required for current 5000 TCD capacity of sugar factory. The sampling locations were also identified.

2.3 Site visit

The site visit was planned on 10th Jan., 2023. Accordingly, ETP site was visited by Dr. G. R. Munavalli and Shri. G. M. Bhosale (Expert members from WCE), Shri. Vishal Bhokare and Shri. Pravin Gaikwad (Support staff from WCE). During the site inspection, Shri. Manohar Khumtale, the ETP Operator, and Shri. Kishore Suryavanshi, the Environmental Engineer, represented the sugar factory. Each of the ETP units were physically visited, inspected and studied for the following:

- i. Process flow/Sequence of unit operations and processes
- ii. Size/Dimensions/Volume/Area of all the units
- iii. Working of ETP units
- iv. Physical condition of ETP units
- v. Working of pumping systems and other mixing devices

Further, the effluent samples were collected at various locations to assess the performance of ETP units. The spot analysis for pH and dissolved oxygen was carried out. Settability of mixed liquor from aeration tank was assessed. The current issues/problems associated with ETP were also noted through interaction with officials present during the site visit.





2.4 Data analysis and adequacy check

The information provided by the sugar factory and the information gathered during the site visit were checked and examined. To evaluate the effectiveness of the ETP, effluent samples taken during the site visit were analysed and tested. Previous test results provided by the sugar mill were also taken into consideration. The ETP's physical dimensions were utilised to determine whether they were suitable for handling the current flow (500 m³/d). To comment on their current state, the observations on the ETP's civil infrastructure and pumping, mixing, and aeration devices were used.

2.5 Adequacy assessment of ETP units

The adequacy assessment of ETP is carried out for dimensions/capacity/power, treatment process flow, physical condition of ETP units, operation of ETP and effluent quality to treat 500 m³/d.

2.6 Upgradation/Modification to improve the performance

2.7 Modifications and Refurbishments

2.8 Suggested operational changes

2.9 Recommended Treatment system for ETP

3. Details of existing ETP

3.1 Treatment process flow in ETP

Fig. 1 shows the treatment process flow in the existing ETP. The existing ETP has an oil and grease tank, a flow measuring channel with "V" notch, an equalization tank, anaerobic filter, primary settling tank, aeration tank, secondary settling tank, sludge sump and sludge drying beds. The pumping system is provided to feed effluent from equalization tank to anaerobic filter, and sludge from sludge sump to sludge drying beds & aeration tank. As per the original design the equalization tank had two compartments separated by a partition wall and siphon pump conveying effluent from first compartment to the second compartment. Also equalization was installed with turbine type mixer. There are two surface aerators provided in aeration tank. There is a stirrer attached with scraper blade in primary and secondary settling tanks.

The processes in ETP include removing oil and grease from raw effluent, equalizing flow feeding an anaerobic filter, filtering effluent and feeding it to primary settling tank, feeding primary effluent after mixing it with recirculated sludge to the aeration tank, feeding mixed liquor from aeration tank to the secondary settling tank and using secondary effluent for land irrigation. The primary and secondary sludge are collected in sludge sump. The excess sludge is dewatered in sludge drying beds while a portion of the mixed sludge is recirculated. The dried sludge is used as manure. There is an online flow meter installed on pipe feeding anaerobic filter and flow is digitally displayed. A monthly washing tank is also a part of this ETP (not shown in Fig.1).



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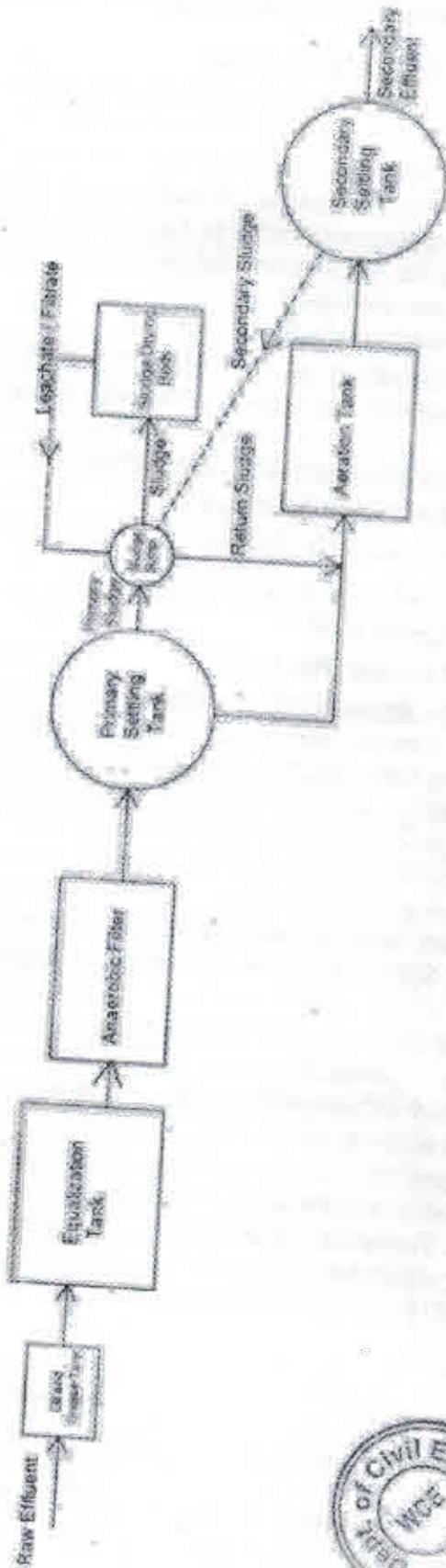


Fig. 1: Treatment process flow in existing ETP



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3.2 Size/Capacity of ETP

The size and capacity of ETP units are given in Table 1.

Table 1: Size and Capacity of ETP units

S. No.	ETP Unit	Size	Surface area (m ²)	Volume (m ³)
1	Oil and Grease tank	1.2 m x 1.5 m x 2 m	1.92	3.84
2	Equalization tank	8.2 m x 8.2 m x 3.5 m	67.24	235.34
3	Anaerobic filter	10 m x 10 m x 4 m	100	400
4	Primary settling tank	7.5 m dia. 2.5 m SWD	44.16	110.39
5	Aeration tank (Trapezoidal)	28 m x 18 m (Top) x 3 m 16 m x 6 m (Bottom) x 3 m	300	900
6	Secondary settling tank	7.0 m dia. 2.5 m SWD	38.47	96.16
7	Sludge drying beds	10 m x 10 m	100	-
8	Sludge sump	3.5 m x 2.75 m x 3 m	28.88	1.39
9	Monthly washing tank	-	-	810
Pumping/Aerator Units				
S. No	Pumping/Aerator Units	Power	-	-
1	Feed pumps from equalization tank to Anaerobic filter	5 hp - 2 No.	-	-
2	Recirculation and Sludge feed pump at sludge sump	5 hp - 2 No.	-	-
3	Surface aerators in aeration tank	40 hp and 30 hp	-	-
4	Belt-conveyor motor in Oil and Grease tank	3 hp	-	-

4 Adequacy assessment of ETP units

Adequacy assessment is carried out in terms of different considerations and is discussed below:

4.1 Dimensions/Capacity/Power

The computed capacity of existing ETP units to treat 500 m³/d flow and the pertinent design parameters are given in Table 2.





Table 2: Computed capacities of ETP units

S.No.	ETP Unit	Detention time	Volume (m ³)	Surface overflow rate (m ³ /m ² .d)	Weir loading rate (m ³ /m.d)
1	Oil and Grease tank	10.37 min.	3.65	-	-
2	Equalization tank	11.30 h	235	-	-
3	Primary Settling tank	5.30 h	110	11.32	21.23
4	Secondary Settling tank	4.62 h	96	13	22.75
5	Sludge Sump	1.40 h	30	-	-
6	Anaerobic filter	Detention Time	Volume (m ³)	COD max (mg/L)	COD loading rate (kgCOD/m ³ .d)
		21.6 h	400	2500	3.13
7	Aeration tank	Detention Time	Volume (m ³)	BOD max (mg/L)	F/M (kgBOD/kgMLSS.d) [for MLSS of 4000-5000 mg/L]
		43.2 h	900	1200	0.13-0.17
8	Sludge drying bed	Area required to process 300 mgTSS/L, in 500 m ³ /d flow with 60% removal in PST; 5000 mgMLSS/L, SRT of 30 d, Return sludge conc. 12000 mg/L, 0.5 m depth of sludge on surface and 10-d cycle time is 300 m ²			
9	Surface Aerator	31 hp aerator/s required for BOD removal from 1200 to 100 mg/L in 500 m ³ /d flow.			

The summary of computed capacities to treat 500 m³/d flow in terms of adequacy/inadequacy is given below:

- The size of Oil and Grease tank is inadequate as detention time is low (< 30 min.).
- The anaerobic filter is subjected to higher COD loading rate (> 1.2 kgCOD/m³.d) and hence inadequate in terms of capacity and size.
- The area of sludge drying beds is inadequate to process sludge specified in the Table 2.
- The power of surface aerators is adequate. However, the diffused aeration would be more efficient and effective.

4.2 Treatment process flow

The process flow provided in the existing ETP is described in section 3.1. There is no bar screen provided in the ETP. The pretreatment with anaerobic filter followed by primary settling tank may not give the desired performance for the removal of soluble BOD. The feed from equalization tank to anaerobic filter contains suspended solids and will be sieved/filtered in anaerobic filter. The purpose of anaerobic filter is to remove soluble BOD by biofilm formation. The accumulated suspended solids will affect this activity and thereby result in poor performance in BOD removal. Further, the primary settling tank will not receive adequate suspended solids and hence it acts as flow-through tank with less settled sludge. Thus, the provision of anaerobic filter and primary settling tank in this sequence/configuration may not be useful for the removal of soluble BOD.





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4.3 Physical condition of ETP units

The ETP units were physically observed during the site visit. The physical observations and information collected through interaction on each of the ETP units are summarized in Table 3.

Table 3: Summary of observations on ETP units

S.No.	Unit	Observations
1	Oil and Grease tank	<ul style="list-style-type: none"> i. The oil and grease are removed from the tank both manually and mechanically through belt-conveyor system. ii. The oil and grease are also removed in chambers prior to the oil and grease tank. iii. The mechanical belt-conveyor system is old (installed in 2005) and efficiency seems to be lesser.
2	Equalization tank	<ul style="list-style-type: none"> i. The partition wall constructed as per the design has fallen converting the equalization tank into single compartment tank. ii. Due to the collapse of partition wall, the siphon pump that conveys effluent from first compartment to second compartment is also not installed. iii. There is no provision of mixing arrangement and hence it acts as a settling tank. Mixing conditions are not maintained in the tank. iv. The inner plastering is deteriorated. v. The condition of the tank at the bottom could not be ascertained as the tank was full. vi. It should be refurbished to strengthen it thereby avoiding a possible damage to the structure in future.
3	Anaerobic filter	<ul style="list-style-type: none"> i. There were frequent leakages reported and the tank requires civil refurbishment works. ii. The clogging of stone media was frequently reported due to pumping of raw effluent with suspended solids into the anaerobic filter.
4	Primary settling tank	<ul style="list-style-type: none"> i. The feeding system to the inner central well is not proper. There is a short-circuiting of flow from surface of inner feed well to the outlet weir. ii. The flow distribution is non-uniform in the outlet weir. iii. The outlet weir does not have smooth overflow section. iv. The structure requires civil refurbishment works.
5	Aeration tank (Trapezoidal)	<ul style="list-style-type: none"> i. There were frequent leakages reported and the tank requires civil refurbishment works.
6	Secondary settling tank	<ul style="list-style-type: none"> i. The flow distribution is non-uniform in the outlet weir. ii. The outlet weir does not have smooth overflow section. iii. The structure requires civil refurbishment works. iv. The stirrer is under repair.
7	Sludge drying beds	
8	Sludge sump	





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9	Monthly washing tank	i. There were frequent leakages reported and the tank requires civil refurbishment works.
10	Feed pumps from equalization tank to Anaerobic filter	i. Very old pumps purchased in 1984 are used. It will result in more power consumption with reduced output. ii. The pump discharge varied (online flow measurement 20 m ³ /h to 14 m ³ /h) during the visit indicating inconsistency in the performance. iii. Frequent clogging of pumps is reported.
11	Recirculation and Sludge feed pump at sludge sump	i. Very old pumps purchased in 1984 are used. It will result in more power consumption with reduced output.
12	Surface aerator in aeration tank	i. The surface aerators of capacity 40 hp and 30 hp are operational since 2005 and 1984 respectively.

4.4 Operation of ETP

The performance of any ETP is significantly governed by its operational conditions. The operational problems associated with ETP are summarized in Table 4.

Table 4: Summary of operational problems in ETP

S.N.	Unit	Observations
1	Equalization tank	i. The lime/neutralizing chemical is not added in the equalization tank. It is added somewhere in inlet line prior to oil and grease tank/from washing tank. Few times the addition is from washing tank. ii. The pumps in equalization tank are operated intermittently with an average operation time of 10 to 12 h.
2	Aeration tank.	i. The return sludge is added intermittently. Thus the tank is fed with only primary effluent during the operation. ii. Urea (20 kg/d) and microbial culture (50 L/d) are added once in a day. iii. Due to non-continuous pumping from the equalization tank, the system is operated in a combination of batch and continuous modes.
3	Sludge drying beds.	i. The depth of sludge stored above bed is 0.75 m.
4	ETP (Overall)	i. Anaerobic filter, Primary settling tank, Aeration tank, and Secondary settling tank are operated in intermittent (partly continuous and partly batch) mode. ii. ETP is operated without understanding the system requirements. iii. ETP receives high temperature effluent frequently.





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4.5 Effluent quality in ETP

The effluent samples were collected at various locations in the treatment plant to assess the adequacy treatment units in terms of performance due to operation of the system. The following are the comments on the performance based on spot and laboratory analysis of the effluent at various locations.

- i. The pH of water was in the range 4.5 to 6.0. It indicates the improper functioning of equalization tank and poor neutralization due to improper addition of lime/neutralizing chemical.
- ii. The return sludge has too low suspended solids (< 200 mg/L). Thus, the microbial solids required to be fed to maintain proper Food/Microbes ratio are too low in aeration tank.
- iii. There are too low mixed liquor suspended solids (MLSS) observed in aeration tank. It was confirmed through sludge volume index test in which no settled sludge was noticed. This is due to irregular addition of return sludge.
- iv. The intermittent addition of return sludge with too low concentration of suspended solids to aeration tank has affected biological treatment. It is indicated in observed dissolved oxygen of 4.50 mg/L in mixed liquor. The dissolved oxygen is present in mixed liquor is due to high capacity (40 hp and 30 hp) surface aerators in the aeration tank and lesser demand exerted for dissolved oxygen due to poor biological activity.
- v. The COD and BOD of effluent varied in the range 2400 to 3000 mg/L and 1000 to 1200 mg/L at various locations in the treatment plant respectively. It is an indicative of poor performance due to improper operational conditions.

5.0 Upgradation/Modifications to improve the performance

5.1 Modifications and Refurbishments

The modifications and refurbishments are required to improve the performance of ETP to treat 500 m³/d of flow to satisfy the effluent standards for land application/irrigation. The suggested modifications in ETP infrastructure are as given below:

- i. A change in process flow with feed from equalization tank to primary settling tank and subsequently feeding the anaerobic filter. As a result, there will be more soluble BOD removed from the effluent that is fed to the anaerobic filter.
- ii. Anaerobic filter of size 10 m x 16 m x 4 m should be added to the system to ensure COD loading rate of 1.2 kgCOD/m³.d.
- iii. Both existing (if used) and new anaerobic filters should be covered and ventilated appropriately.
- iv. Refurbishment works are required to all civil infrastructure of ETP to strengthen the units and to stop leakages.
- v. Replacement of old, power consuming and less efficient pumping/mixing/aeration units is essential. It is desired to replace existing surface aerators by diffused aeration system of appropriate capacity.
- vi. Installation of mixing device/unit in equalization tank is required.
- vii. A larger capacity oil and grease tank with proper efficient skimmer unit should be provided.
- viii. The area of sludge drying beds is to be increased to 300 m².
- ix. The secondary treatment should be followed by tertiary treatment consisting of multigrade filter and Activated carbon filter.
- x. If refurbishment of existing ETP units does not strengthen the existing ETP units adequately, then new structure should be constructed.
- xi. The summary of ETP units existing and upgraded capacity is given in Table 5.





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Table 5: Capacity of Existing and Upgraded ETP units

S.No.	ETP Unit	Capacity	
		Existing	Upgraded
1	Fine and Coarse bar screen	-	0.5 m deep with area of 2 m ²
2	Oil and Grease tank	3.6 m ³	15.65 m ³
3	Equalization tank	235 m ³	235 m ³
4	Anaerobic filter	400 m ³	1040 m ³
5	Primary settling tank	110 m ³	110 m ³
6	Aeration tank	900 m ³	900 m ³
7	Secondary settling tank	96 m ³	96 m ³
8	Sludge drying beds	100 m ²	300 m ²
9	Sludge sump	30 m ³	30 m ³
10	Multigrade filter	-	Surface area 1.5 to 2 m ²
11	Activated carbon filter	-	Surface area 1.5 to 2 m ²

6.0 Suggested Operational changes

The operation of ETP and its performance depends on maintenance of appropriate operational parameters. In this context, the following operational conditions need to be maintained in ETP.

- Proper mixing in equalization tank and addition of appropriate dose lime/chemical for neutralization.
- ETP should be operated in continuous mode.
- There should be a continuous recycling of return sludge in aeration tank and well mixed with influent to aeration tank from the anaerobic filter.
- Operational parameters viz. detention time, MLSS, F/M, and Recycle ratio are to be maintained as per the design requirements in aeration tank.
- There should be a skilled and trained operator for ETP.
- ETP should not be fed with any effluent (like condensate) other than process wastewater from sugar factory.

7.0 Recommendations:

7.1 Recommended and upgraded treatment system

Fig. 1 shows the recommended and upgraded treatment system for ETP. The treated effluent should be chlorinated/ozonated before disposal. A monthly washing tank is required, but not shown in Fig. 2.

7.2 Upgradations/Modifications to existing ETP

The present ETP must either be properly renovated or new units must be built wherever necessary, implementing the recommended treatment system. If an existing ETP unit/s are to be used in the upgraded treatment system, then

- Appropriate measures should be taken to ensure structural stability, durability and water tightness of existing ETP units.
- The corrective measures should be taken to address the observations/suggestions related to physical conditions mentioned in Table 3 and section 5.1.

The surface aerators are to be replaced by diffused aeration system to achieve significantly higher oxygen transfer efficiency.





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7.3 Operating conditions

The operational conditions specified in section 6.0 are to be maintained to achieve the desired performance of ETP.

7.4 Design of upgraded treatment system

The size/capacity given in Table 5 is tentative. The detailed design and drawings should be prepared for upgraded ETP with/without considering existing ETP units.

NOTE:

The information given above is true and correct to the best of our knowledge. The college is responsible only for the technical aspects of the work carried out under the scope of the request of the client. The college or its representative will not be party to legal implications arising out of use of this report in any manner.

** Subject to Sangli jurisdiction.

Date: 16th Jan., 2023



Dr. G. R. Munavalli
Coordinator and Head, Dept., of Civil Engg.

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 (Government-Aided Autonomous Institute)
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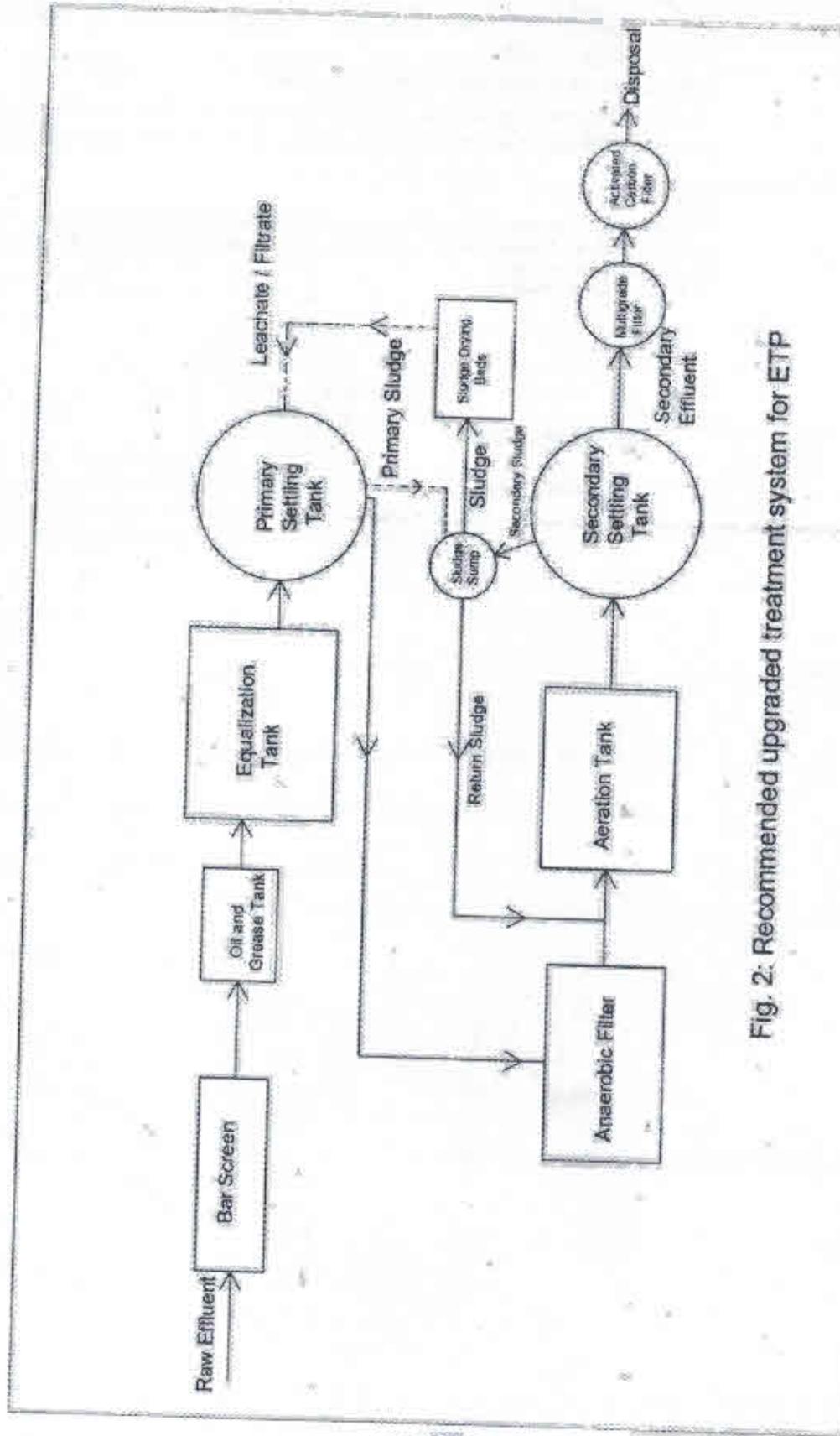


Fig. 2: Recommended upgraded treatment system for ETP

