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1.0 OBJECTIVE:

To define a procedure for Operation of Effluent Treatment Plant.

2.0 SCOPE:

This SOP is applicable for Effluent Treatment Plant.

3.0 RESPONSIBILITY:

Operator /Officer / Executive – Engineering

4.0 ACCOUNTABILITY:

Head – Engineering

5.0 ABBREVIATIONS:

CETP	Common Effluent Treatment Plant
ETP	Effluent Treatment Plant
HP	Hours 'Power
Ltd.	Limited
ltr.	Liter
Pvt.	Private
SOP	Standard Operating Procedure
TDS	Total Dissolved Solids
Soln.	Solution

6.0 PROCEDURE:

6.1 Industrial Effluent from all the sources is collected in Collection tank at ETP.

6.1.1 Prepare the 3.5% solution of Lime by adding 7 Kg Lime in 200 ltr. Lime mixing Tank making the volume up to 200 ltr. with Raw water Note the quantity in ETP Chemical Consumption record as **Annexure – II**.

6.1.2 Prepare 2.0% solution Alum by adding 4 Kg of Alum in 200 ltr. Alum Mixing Tank and making the volume up to 200 ltr. with Raw water. Note the quantity in ETP Chemical Consumption record as **Annexure – II**.

6.1.3 Prepare 0.02% solution by adding 20 gm in 100 ltr. Note the quantity in ETP Chemical Consumption record as **Annexure – II.**

6.1.4 Effluent from all the sources is collected in Collection tank at ETP.

6.1.5 Take a sample from collection tank and check pH, TDS & Temperature of the Effluent & Record the results in **Annexure – 1**.

6.1.6 Start the effluent transfer pump to Transfer effluent into Flash Mixer.

6.1.7 Start the flash mixer, Flocculator -1 & flocculator-2

6.1.8 If pH of the effluent is less than 7, add Lime solution into flash mixer with constant agitation.

6.1.9 If the pH more then 7, add the Alum solution into Alum dosing tank to equalize the effluent.

6.1.10 Add polyelectrolyte in flocculator with constant agitation.

6.1.11 Transfer the equalized effluent to Primary clarifier tank at a minimum flow rate so as to achieve maximum settling of suspended matter.

6.1.12 Start the Primary sludge removal to remove the settled solids, known as chemical sludge, are drained to sludge drying bed by pump.

6.1.13 The sludge from sludge drying bed, after drying, is collected in poly bags and shifted to Hazardous waste storage room.

6.1.14 The treated water is collected in collection cum Filter feed tank.

6.1.15 Start the filter feed pumps and let the effluent pass through Dual Media Filter. Dual media filter removes suspended impurities of the effluent.

6.1.16 Add 300gm DAP & 150 gm urea to be added in the SAFF reactor for proper growth of MLSS and consumption of DAP & Urea shall be recorded in **Annexure – II** titled as “Chemical Consumption Record”.

6.1.17 Then effluent passes through Activated Carbon Filter which removes colour & odour from the effluent.

6.1.18 Check pH, TDS and Temperature of treated effluent and record the results in **Annexure- I**.

6.1.19 Finally the Treated Effluent is transferred to CETP through water flow meter for further treatment and final disposal.

6.2 UNITS INVOLVED IN EFFLUENT TREATMENT PLANT:

S.No.	Description
1.	Collection Tank
2.	Flash Mixture

3.	Primary Settling Tank
4.	Filter Feed Tank
5.	Dual Media Filter
6.	Activated Carbon Filter
7.	Sludge Drying Beds

6.3 EQUIPMENTS INVOLVED:

S. No.	Description	Capacity
1	Effluent Transfer Pump	2.0 HP, Monoblock & 3.0 HP Centrifugal
2	Filter Feed Pump	2.0 HP, Monoblock & 3.0 HP Centrifugal

6.4 Daily Record of Effluent Treatment Plant should be maintained as per **Annexure-III** Titled as **"Effluent Treatment Plant Daily Log Sheet".**

6.5 Flow diagram of Effluent Treatment as per **Annexure-IV.**

7.0 ANNEXURES:

ANNEXURE No.	TITLE OF ANNEXURE	FORMAT No.
Annexure-I	pH, TDS & Temperature Record	
Annexure-II	Chemical Consumption Record	
Annexure-III	Effluent Treatment Plant Daily Log Sheet	
Annexure-IV	Flow diagram of Effluent Treatment	

ENCLOSURES: SOP Training Record

8.0 DISTRIBUTION:

- Controlled Copy No. 01 — Quality Assurance
- Controlled Copy No. 02 — Engineering
- Master Copy — Quality Assurance

9.0 REFERENCES:

In House

10.0 REVISION HISTORY:

CHANGE HISTORY LOG

Revision No.	Change Control No.	Details of Changes	Reason for Change	Effective Date	Updated By

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ANNEXURE–I
pH, TDS & TEMPERATURE RECORD

Date	Inlet(Collection Tank)			Outlet (After ACF)			Recorded By Sign & Date	Review By Sign & Date	Remarks
	pH	TDS	Temp. (^{O}C)	pH	TDS	Temp. (^{O}C)			

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ANNEXURE–II
CHEMICAL CONSUMPTION RECORD

Name of Chemical:

Date	Opening Balance (Kg)	Received Quantity (Kg)	Total Stock (Kg)	Consumption (Kg)	Total Consumption (Kg)	Closing Balance (Kg)	Recorded By Sign & Date	Review By Sign & Date	Remark

ANNEXURE–III

EFFLUENT TREATMENT PLANT DAILY LOG SHEET

Date:

Time	Inlet Sample pH	Eff. Tr. Pump	Chemical Dosing						Chemical mixing				P.S.T.		Filter feed pump	Outlet Sample		Filter Backwash	Done By Sign & Date	Remark
			Lime		Alum		Poly.		A-1	A-2	A-3	pH	Settling	pH		pH	TDS			
			Soln.	Pump	Soln.	Pump	Soln.	Pump												

Water flow Meter: Initial Reading (KL):
Final Reading (KL):
Difference (KL):

Review By
Sign & Date

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ANNEXURE-IV
FLOW DIAGRAM OF EFFLUENT TREATMENT