



**M/s Malur Effluent Treatment Plant.,  
Malur, Kolar -Karnataka**

**South Zonal  
Office,  
Bangalore**

1	Name/ address of CETP/ company:	M/s Malur CETP, Malur Industrial Estate, Malur Kolar , Karnataka													
2	Area occupied by CETP (plot area):	6.6 acres (3acres built-up area, 3.6 acres-green belt)													
3	Total no. of staff (including operational & skilled persons):	30 employees (3 shifts/day, 4 operators/ shift)													
4	Contact person (Name, Designation, and Contact No, FAX, e mail):	Mr. G.V. Gore, Managing Director Cell no. 9342539644, 9844935539 Fax no. 080-22927327 E-mail: <a href="mailto:cetpmalur@gmail.com">cetpmalur@gmail.com</a>													
5	Status of CETP: operational or closed (if closed since when):	Partly-Operational													
6	Consent & Authorization: <ul style="list-style-type: none"> <li>• Valid up to:</li> <li>• Applied (date of application):</li> </ul>	The consent under Water and Air Act is valid till 30.06.2013.  The Hazardous waste authorization is valid till 30.06.2014													
7	Industrial area/estate (s) connected to CETP:	KIADB Industrial Area Malur KIADB Industrial Area Narasapur KIADB Doddaballapur KIADB Industrial Area Jigani													
8	Type of industries in the connected industrial areas: CETP is receiving effluent from textile processing, food processing waste, pharmaceutical intermediate w/w, Engineering companies.	<table border="1"> <thead> <tr> <th>Industrial area/estate</th> <th>Type of industries</th> <th>Number of industries</th> </tr> </thead> <tbody> <tr> <td>KIADB Industrial Area Malur</td> <td>Food Processing</td> <td>5</td> </tr> <tr> <td>KIADB Industrial Area Narasapur</td> <td>Automobile engineering</td> <td>9</td> </tr> <tr> <td>KIADB Doddaballapur</td> <td>Pharmaceuticals</td> <td>7</td> </tr> </tbody> </table>		Industrial area/estate	Type of industries	Number of industries	KIADB Industrial Area Malur	Food Processing	5	KIADB Industrial Area Narasapur	Automobile engineering	9	KIADB Doddaballapur	Pharmaceuticals	7
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8.1	Number of member industries of CETP:	25															
9	Method of collection of effluent (pipeline/tanker): <ul style="list-style-type: none"> <li>If collection is by tankers, average No. of tankers/day:</li> <li>Capacity of tankers, m<sup>3</sup>:</li> </ul>	The CETP has 9 tankers. 10,000 liters capacity and 2 tankers of 6,000 L capacity for collection of wastewater 9 tankers/day  9 tankers of 10,000 liters capacity and 2 tankers of 6,000 L capacity															
10	Details of flow meters (Type, location and operational status):	The unit has not installed flow meter at the inlet and outlet of CETP.															
11	Treatment capacity: MLD / Design flow of CETP: m <sup>3</sup> /hr	Installed- 140 KLD															
12	Wastewater treated: MLD / Average flow reaching CETP m <sup>3</sup> /hr	Actual- 90 KLD															
13	Wastewater if bypassed in CETP from treatment: <ul style="list-style-type: none"> <li>Flow/volume of wastewater bypassing treatment units in CETP:</li> </ul>	No by pass arrangements															
14	Treatment units and dimensions (Attach flow chart also):	Enclosed at <b>Annexure - 4</b>															
15	Details of chemicals used: <table border="1" data-bbox="350 1283 1357 1507"> <thead> <tr> <th>No.</th> <th>Name of chemical</th> <th>Quantity, kg/month</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Alum</td> <td>500</td> </tr> <tr> <td>2</td> <td>Ferrous sulphate</td> <td>200</td> </tr> <tr> <td>3</td> <td>Polyelectrolyte</td> <td>50</td> </tr> <tr> <td>4</td> <td>Caustic Soda</td> <td>500</td> </tr> </tbody> </table>	No.	Name of chemical	Quantity, kg/month	1	Alum	500	2	Ferrous sulphate	200	3	Polyelectrolyte	50	4	Caustic Soda	500	
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1	Alum	500															
2	Ferrous sulphate	200															
3	Polyelectrolyte	50															
4	Caustic Soda	500															

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Design parameters & monitoring results (based on composite sample for 08 hours):  
 \*All values are in mg/L, except pH

**Low TDS Stream :**

Parameters	Designed inlet norms	SPCB inlet norms	Raw effluent after equalization	Final outlet	Discharge limits (Standards )
pH	6.0	-	-	7.2	6.0-9.0
SS	120-1150	-	-	10	100
TDS	800-1200	-	-	590	2100
Conductivity	2960-7350	-	-	790	-
BOD	300-2200	-	-	10	-
COD	500-6000	-	-	38	-
O & G	0-13	-	-	Nil	10
NH <sub>3</sub> -N	-	-	-	10	50
TKN	-	-	-	-	-
Phenol	-	-	-	Nil	-
BOD/COD Ratio	1:3.8	-	-	1:3.8	-
Cyanide	Nil	-	-	-	0.2

	MLSS in mg/l	MLVSS in mg/l	DO in mg/l
SBR	3500-4000	-	6.65

**High TDS Stream:**

Parameters	Designed inlet norms	SPCB inlet norms	Raw effluent after equalization	Final outlet	Discharge limits (Standards )
pH	-	-	-	Neutral	6.0-9.0
SS	-	-	-	10	100
TDS	800-4200	-	-	10	2100
Conductivity	-	-	-	250	-
BOD	-	-	-	>20	-
COD	-	-	-	20	-
O & G	-	-	-	ND	10
NH <sub>3</sub> -N	-	-	-	ND	50
TKN	-	-	-	-	-
Phenol	-	-	-	-	-
BOD/COD Ratio	-	-	-	-	-
Cyanide	-	-	-	-	0.2

17	<p>Primary sludge management system:</p> <ul style="list-style-type: none"> <li>• Primary sludge generation rate (m<sup>3</sup>/day or tons/day):</li> <li>• Number &amp; capacity of sludge drying beds:</li> <li>• Details of any other methods for sludge thickening (filter press/rotary filters etc.)</li> <li>• Quantity of sludge stored:</li> <li>• Primary sludge disposal- *(Secured landfill or TSDF): *(Co-incineration if any):</li> </ul>	<ul style="list-style-type: none"> <li>• About 3-4 MT/Annum</li> <li>• 02 No. SDB</li> <li>• No</li> <li>• Sludge is packed in polythene bags and stored in the unit premises and reported that sludge is being disposed to TSDF, Ramky.</li> </ul>
18	<p>Excess Biological Sludge Management System:</p> <ul style="list-style-type: none"> <li>• Excess Biological Sludge generation rate:</li> <li>• Number and capacity of sludge drying beds:</li> <li>• Details of any other methods for sludge thickening (filter press/rotary filters etc.)</li> <li>• Quantity of sludge stored:</li> <li>• Excess Biological Sludge Disposal:</li> </ul>	NA
19	Conveyance system for disposal of treated wastewater: Drains/ Pipeline	Pipe line with sprinkler
20	Method of Treated wastewater disposal: River/ Land/ Marine/ Others (Specify)	Part of the treated effluent is discharged on land for irrigation while part of the effluent after filtration at GAF is used by the workers for domestic purposes.
21	Reject Managment	Multiple Effect Evaporator is installed to treat High TDS Effluent
21	Capital cost with breakup of sources of funds:	Rs. 4.3 Crores
22	Operational cost:	Rs. 30 lakhs/month

23	Date of Inspection	May 3, 2013
24	Inspected by (Name & Designation):	Mrs. H.D. Varalaxmi, EE Mrs. Mahima T, AEE
25	<p data-bbox="297 384 1510 464"><b>OBSERVATIONS &amp; FINDINGS</b></p> <ol data-bbox="297 464 1510 1606" style="list-style-type: none"> <li data-bbox="297 464 1510 625">1. M/s Malur CETP (unit) formerly known as M/s Eco Engineering Malur is situated at Malur Industrial Estate, Kolar. Reportedly, the unit is treating 90 KLD of effluent against the design capacity of 140 KLD.</li> <li data-bbox="297 625 1510 821">2. The unit has 25 member industries from different industrial estates located at Malur, Jigani, Bommasandra, Yelahanka and Doddaballapur. Though unit is located at Malur Industrial Estate, only four industries from Malur Industriasl Estate are sending effluents to this unit.</li> <li data-bbox="297 821 1510 905">3. The unit has 9 tankers of 10KL capacity and 2 tankers of 6KL capacity.</li> <li data-bbox="297 905 1510 1066">4. The unit has not provided any flow meters or flow measuring devices at inlet and outlet of CETP and hence quantity of effluent treated and reused was not available</li> <li data-bbox="297 1066 1510 1171">5. There was no proper conveyance system for conveying sludge from treatment units to sludge drying beds.</li> <li data-bbox="297 1171 1510 1402">6. The unit has two separate treatment system for treatment of high TDS and Low TDS effluent. The unit receives about 60-70 KLD of HTDS and 25-30 KLD of Low TDS effluent. Effluent having TDS in the range of 3000-4000 mg/l is considered as HTDS while TDS below 1000mg/l is considered as LTDS. On the day of inspection only biodegradable treatment system was in operational.</li> <li data-bbox="297 1402 1510 1606">7. On the day of inspection HTDS treatment system was not operational and the outer wall of MEE and boiler were rusted. Settling tank and sludge drying beds were filled with HTDS effluent. Reportedly, the capacity of HTDS raw effluent storage tank is 120KL.</li> </ol> <p data-bbox="297 1606 1510 1717"><b><u>High TDS treatment System:</u></b></p> <ol data-bbox="297 1717 1510 1873" style="list-style-type: none"> <li data-bbox="297 1717 1510 1873">8. The high TDS effluent after screening is treated in Settling tank by the addition of alum. Supernatant from settling tank after adjusting pH to 7 is evaporated in a 3 stage MEE of 30 KL capacity. The reported Feed rate in MEE is 6000-7000 l/hr and MEE is operated for 4-5 days/ week.</li> </ol>	

9. The unit has three boilers (two boilers each of 14,000kg/hr and 8000kg/hr operating on bio-fuel and one boiler of 8000 kg/hr operated on diesel) to produce steam for MEE.
10. MEE condensate is being reused in the boiler. Semi-concentrate is separated into sludge and wastewater in the centrifuge, the supernatant from centrifuge being treated along with low TDS effluent while sludge is being sent to SDB. MEE concentrate is dried in SDB and disposed at Ramky TSDF.

**Low TDS effluent treatment system:**

11. The unit has provided Cooling tower to reduce the temperature for effective treatment in SBR but however it was not operational.
12. Low TDS effluent after screening in both bar screens and fine screens is allowed to settle in a settling tank by the addition of alum. Supernatant from settling tank is treated in Sequential Batch Reactors (SBR). Part of treated effluent is used onland for irrigation within unit premises and part of effluent after treating through sand filter and activated carbon filter is used by workers for domestic purposes. Sludge from settling tank and SBR after drying is disposed to TSDF.
13. Completely dried and semi-solid Sludge generated from the unit is packed in polythene bags and stored in the shed. The shed is not properly floored there is possibility of leaching of hazardous waste into the ground.
14. The unit is equipped with a laboratory within its premises but however no analysis results were available
15. Centrifuge has worn out and was not in operation.
16. Grab samples were collected from HTDS collection tank, HTDS concentrate and SBR and results are as follows:

S.No.	Parameter	High TDS Collection tank	MEE Concentration tank	Low TDS collection tank		Final Treated Effluent
				Collection tank no. 1	Collection tank no. 2	
1	pH	4.7	4.8	6.0	6.4	7.6
2	EC ( $\mu\text{S}/\text{cm}0$ )	28000	37400	4180	11500	3960
3	TSS (mg/l)	105	90	4	380	12
4	TDS (mg/l)	18200	24480	2450	1590	2296

5	BOD (mg/l)	2670	3590	15	1571	30
6	COD (mg/l)	5556	7023	79	5667	99
7	Sulphate (mg/l)	-	-	73	-	172
8	Copper (mg/l)	0.23	0.26	0.14	0.284	0.438
9	Cadmium (mg/l)	0.05	0.10	0.05	0.108	0.05
10	Chromium (mg/l)	BDL	BDL	BDL	BDL	BDL
11	Iron (mg/l)	3.16	27.96	1.06	5.27	0.698
12	Manganese (mg/l)	0.20	0.55	0.22	0.984	0.176
13	Nickel (mg/l)	0.26	0.44	4.90	0.524	0.994
14	Lead (mg/l)	BDL	BDL	BDL	BDL	BDL
15	Zinc (mg/l)	0.84	3.25	0.07	0.6	0.24
16	Cobalt (mg/l)	0.07	0.14	6.31	0.18	0.076

<b>Parameter</b>	<b>Aeration tank</b>
MLSS (mg/l)	195

17. It is informed that Karnataka State Pollution control Board has not given any concentration limit for receiving effluent from member units. From the above result, the treated effluent used for irrigation/plantation was not meeting the standards w.r.t TDS. The MLSS concentration (195 mg/l) in aeration tank also found very less which indicates the poor operation. The solid concentration of MEE concentrate (2.5%) stored indicates the poor operation of MEE, the solid concentration was found increased from 1.8 % to 2.5 % which indicates the inadequate treatment system to handle High TDS Effluent.

30	<b>Recommendations w. r. t. specific observations made during inspection:</b>
	<ol style="list-style-type: none"> <li>1. The CETP shall be directed to operate the unit properly and efficiently to achieve the desired standards.</li> <li>2. The CETP shall be directed to achieve zero discharge by installing tertiary treatment system for Low TDS effluent.</li> <li>3. The CETP shall be directed to monitor ground water quality of the surrounding area and to submit reports to CPCB/SPCB.</li> <li>4. Present practice of concentration of High TDS effluent in Multi effect evaporator and separation of solids in centrifuge found inadequate. Hence the CETP shall be directed to install adequate stage of MEE and drier or salt recovery system for efficient treatment of High TDS effluent and to achieve</li> </ol>

	<p>zero discharge.</p> <ol style="list-style-type: none"><li>5. The CETP shall be directed to install electromagnetic flow meter at the MEE feed, MEE condensate, Concentrate and the steam feed.</li><li>6. The unit shall be directed to appoint qualified and skilled operator to operate CETP.</li><li>7. CETP is receiving effluent from very furthest point , hence KSPCB may be directed to devise a policy so that industries may send their effluent to the nearest CETP.</li></ol>
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**Mahima T.**  
**Scientist 'B'**

**H.D. Varalaxmi**  
**Scientist 'C'**

**A. Manoharan**  
**Zonal Officer**



## Photographs of M/s Malur CETP

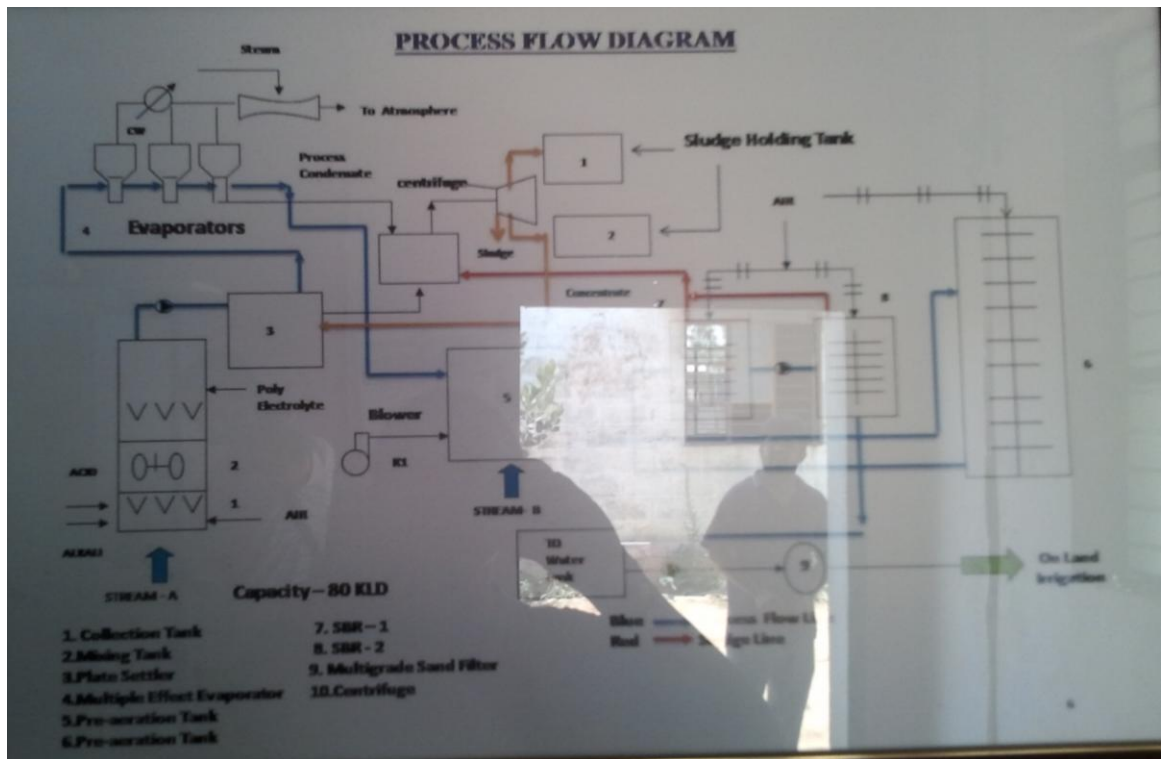


Fig 1: Process flow diagram of Malur CETP



Fig 2: High TDS raw effluent storage tank



**Fig. 3-** High TDS Settling tank tank



**Fig 4:** Conveyance of HighTDS effluent from storage tank to concentrate storage tank



**Fig 5:** MEE



**Fig 6:** MEE concentrate storage tank





**Fig 7:** Low TDS effluent storage tank



**Fig 8:** Low TDS effluent



**Fig. 9 -** Low TDS effluent Settling tanks





**Fig 10: Centrifuge**



**Fig 11: Sludge drying bed**



**Fig 12 : Sludge storage shed**



Fig 13: Laboratory

**No. F. Tech/87/CETP-KA/ZOB/2013-14/**

**June 28, 2013**

To

**The Member Secretary,**  
Central Pollution Control Board,  
Parivesh Bhawan,  
East Arjun Nagar,  
**Delhi – 110032**

**Sub:** Performance Evaluation report of M/s Malur Effluent Treatment Plant., Malur, Kolar, Karnataka  
- regarding.

Sir,

With reference to above , a performance evaluation report of Common Effluent Treatment Plant (CETP's) at M/s Malur Effluent Treatment Plant., Malur, Kolar, Karnataka was carried out on May 03, 2013. The inspection report of the above mentioned CETP is submitted for your kind perusal and further action please

Yours faithfully,

**Encl :** As above

**(A. Manoharan)**  
I./c Zonal Office

