BEFORE THE NATIONAL GREEN TRIBUNAL

SOUTHERN BENCH CHENNAI

Original Application No. 80 OF 2020 (SZ)

IN THE MATTER OF:

Kalushya Parirakshna Samithi

... Applicant(s)

Versus

Union of India and others

… Respondent(s)

INDEX

Place: Chennai
Date : 16.10.2022

DEPONENT

H.D. VARALAXMI, M.Tech
Regional Director
CENTRAL POLLUTION CONTROL BOARD
(MoEF & CC, Govt. of India)
Regional Directorate (Chennai)
2nd Floor, 77-A, South Avenue Road,
Ambattur Industrial Estate, Chennai - 600 058

INSPECTION REPORT FILED BY CENTRAL POLLUTION CONTROL BOARD IN THE MATTER OF OA NO. 80/2020 AS PER THE ORDER DATED 29.08.2023 OF HON'BLE NGT(SZ), CHENNAI

1. **Background:**

Hon'ble NGT(SZ), Chennai in the matter of OA NO. 80/2020 in its order dated directed 29.08.2023 directed CPCB as follows;

"... 7. The report of the CPCB is filed which is not useful for us to proceed with the matter. Hence, we once again direct the CPCB to cause an inspection and file a detailed report…"

In compliance to the above order, a team of following official from CPCB, RD-Chennai has carried out inspection of the industries during the September 11 – 13, 2023.

(i) Dr. R. Rajkumar, Scientist E
(ii) Ms. R. Haritha, JRF
(iii) Ms. R. Punithavathi, Scientific Assistant

2. **Details of the Inspection & Monitoring:**

The following industries were inspected and monitoring of source emission, fugitive emission, Ambient Air Quality (VOCs) & waste water sampling was carried out. In addition, ground water sampling was carried out in & around the area to assess the water quality and to know any impact in ground water quality due to operation of these industries.

i) M/s Divi's Laboratories Limited (Unit – 1)
ii) M/s Srini Pharmaceuticals Private Limited
iii) M/s Maruti Cottex Limited

a) *Waste water Monitoring:*

(i) In M/s Divi's Laboratories Limited (Unit – 1) samples were collected in the various stages of ETP at 11 locations.
(ii) In M/s Srini Pharmaceuticals Private Limited samples were collected in the various stages of ETP at 4 locations and two stagnated samples near the ETP area.

(iii) In M/s Maruti Cottex Limited samples were collected in the various stages of ETP at 7 locations and TDS was measured at stagnated water in the premises (since adequate water is not available to collect)

b) Emission Monitoring:

(i) In M/s Divi's Laboratories Limited (Unit – 1) Ambient Air Quality (VOCs) carried out in four locations, Fugitive emissions at six locations, Sources emission in four Scrubbers and Boiler Stack.

(ii) In M/s Srini Pharmaceuticals Private Limited Ambient Air Quality (VOCs) carried out in four locations, Fugitive emissions at two locations, Sources emission in two Scrubbers and Boiler Stack.

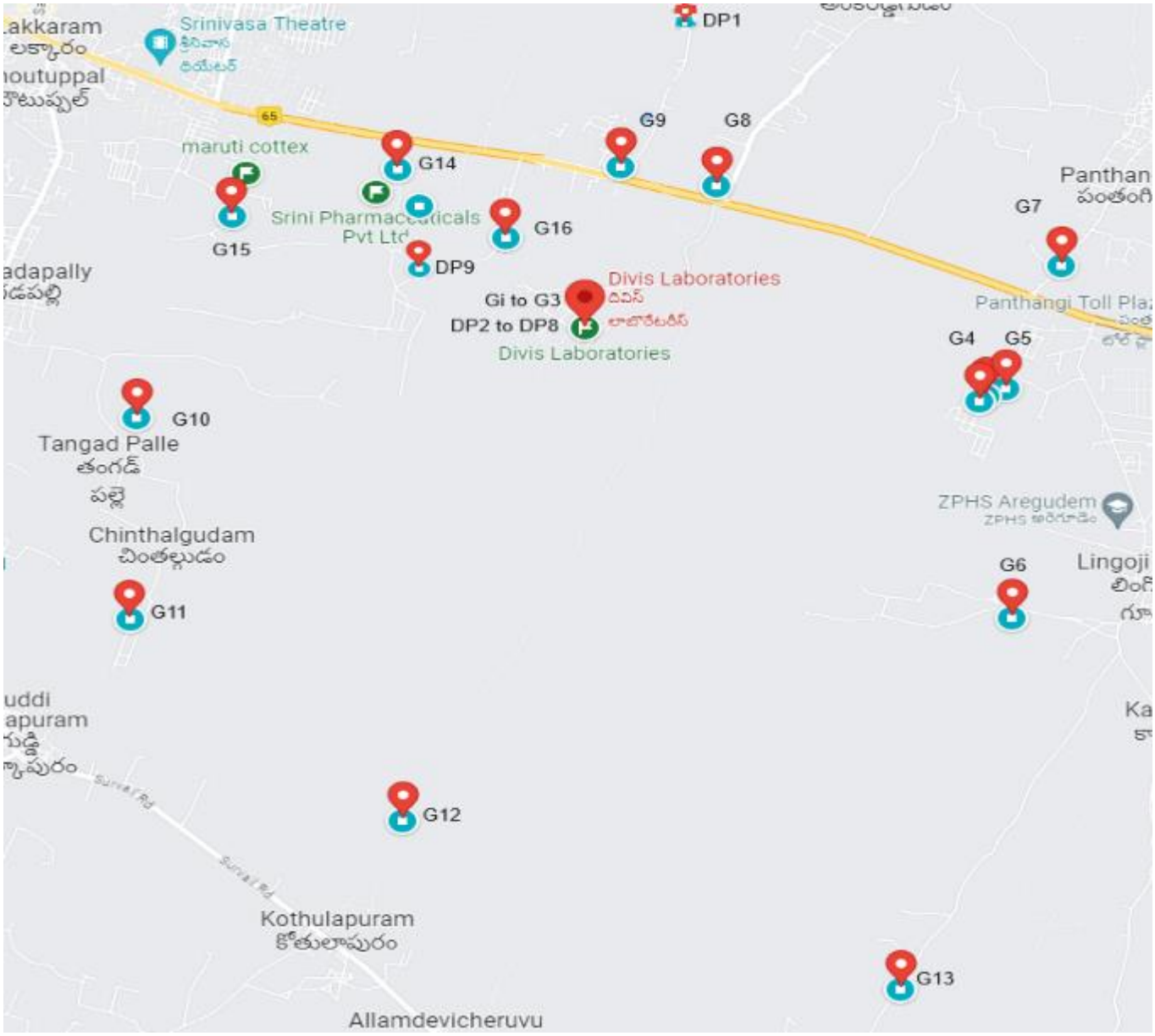
(iii) In M/s Maruti Cottex Limited Sources emission carried out in the Boiler Stack

c) Ground Water Monitoring:

Ground water samples collected from seven Piezo metric wells inside & two Piezo metric wells outside of M/s Divi's Laboratories premises and seventeen bore well samples in and around the said industries. The sampling locations and details are given below;

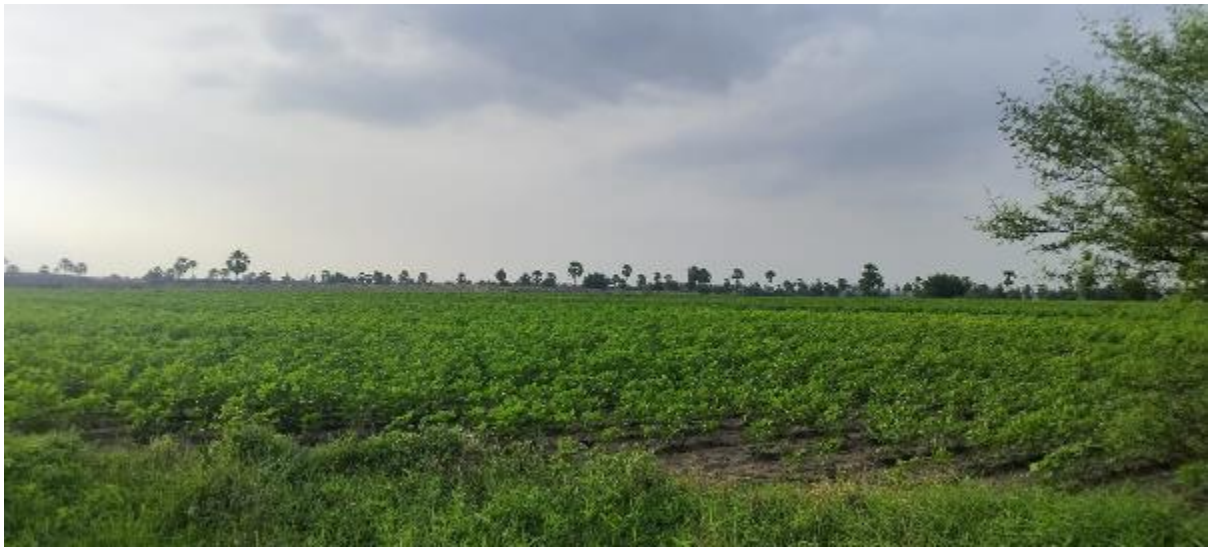
DP- 1	Upstream Piezometric well (Angireddygudem village)
DP- 2	Piezometric well (Hostel Area)
DP- 3	Piezometric well (Hostel Canteen)
DP- 4	Piezometric well (Near warehouse no. VIII)
DP- 5	Piezometric well (Front area left side to warehouse)
DP- 6	Piezometric well (Near entrance)
DP- 7	Piezometric well (Near warehouse no. VII)
DP- 8	Piezometric well (Near Canteen)
DP- 9	Upstream Piezometric well (Lingidudem village)
G-1	Borewell near hostel area (inside the Divis lab)
G-2	Borewell near substation area (inside the Divis lab)
G-3	Borewell near main gate (inside the Divis lab)
G-4	Borewell – Chinnala Narasimha Plot (used for agriculture & domestic purposes)
G-5	Borewell – Manne Jangareddy land (used for agriculture purposes)
G-6	Borewell – Vennepalli Venkatareddy (used for agriculture purposes)

G-7	Borewell – Pathanji Road (Public water supply)
G-8	Borewell - Mudhan Sathya's House (used for domestic purposes)
G-9	Borewell – Anjeneya's House (used for domestic purposes)
G-10	Borewell – Nagalle Sarabaiya Agri Land (used for agriculture purposes)
G-11	Borewell – Gumudu Bekshanreddy Agri Land (used for agriculture purposes)
G-12	Borewell - Kothayadhaiya's Agri Land (used for agriculture purposes)
G-13	Borewell – Galugundam Gram Panchayat (Public water supply)
G-14	Borewell – Near Industry Entrance (Srini pharma)
G-15	Borewell – Jallamellaya Agri Land (used for agriculture purposes)
G-16	Borewell – Labour Quarters Vamsi Rubbers (used for domestic purposes)



The bore well installed in the houses, use the water only for domestic purposes such as washing, gardening etc. due to fluoride content, it is not used for drinking. The bore wells installed in agriculture land is used for cultivation of cotton and paddy. During inspection cultivation of cotton & paddy crops were observed in the surrounding areas of three industries and photo showing standing crops are as below;

Paddy Cultivation



Cotton Cultivation

Sampling and Analysis were carried out through MoEF&CC Recognized laboratories under EP Act, 1986. Source emission, Ambient Air Quality (VOC) & fugitive emission were carried

out by M/s SV Enviro Labs & Consultants. Wastewater & Ground water samples were analysed at M/s SMS Labs Services Private Limited, Chennai.

3. Ground Water Status in and around the industries

Ground water samples collected were analyzed for various parameters including 60 VOCs to know any impact in the ground water quality due to operation of the said industries. The analysis results are shown below;

Sl.N	Parameter	Unit	DP - 1	DP - 2	DP - 3	DP - 4
1.	pH	--	7.72	7.79	7.45	7.95
2.	TDS	mg/L	1985	168	235	294
3.	Conductivity	µS/cm	3240	294	401	506
4.	COD	mg/L	BLQ	BLQ	BLQ	BLQ
5.	Total Hardness (as CaCO3)	mg/L	843	61	90	129
6.	Total Alkalinity (as CaCO3)	mg/L	249	74	100	115
7.	Chloride as Cl	mg/L	821	42	54	65
8.	Sulphate (as SO4)	mg/L	177	13	21	12
9.	Fluoride as F	mg/L	0.9	0.4	0.6	0.6
10.	Phenolic Compounds (as C6H5OH)	mg/L	BLQ	BLQ	BLQ	BLQ
11.	Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ
12.	Hexavalent Chromium as Cr6+	mg/L	BLQ	BLQ	BLQ	BLQ
13	Copper	mg/L	0.003	0.002	0.002	0.002
14	Zinc	mg/L	0.019	0.096	0.067	0.051
15	Cadmium	mg/L	BLQ	BLQ	BLQ	BLQ
16	Chromium	mg/L	BLQ	BLQ	BLQ	BLQ
17	Lead	mg/L	BLQ	0.001	0.001	0.001
18	Nickel	mg/L	0.006	0.006	0.003	0.002
19	VOC	mg/L	BLQ	BLQ	BLQ	BLQ

Sl. N	Parameter	Unit	DP - 5	DP - 6	DP - 7	DP - 8	DP - 9
1.	pH	--	7.93	7.89	7.31	6.94	7.22
2.	TDS	mg/L	217	227	45	1315	675
3.	Conductivity	µS/cm	361	378	77.1	2190	1042
4.	COD	mg/L	BLQ	BLQ	BLQ	8.2	25
5.	Total Hardness (as CaCO3)	mg/L	121	86	13	444	177
6.	Total Alkalinity (as CaCO3)	mg/L	94	93	25	288	239
7.	Chloride as Cl	mg/L	55	52	12	527	153
8.	Sulphate (as SO4)	mg/L	19	18	BLQ	41	37
9.	Fluoride as F	mg/L	0.4	0.5	BLQ	0.5	BLQ

10.	Phenolic Compounds (as C6H5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ
11.	Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ
12.	Hexavalent Chromium as Cr6+	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ
13	Copper	mg/L	0.002	0.002	0.003	0.022	0.005
14	Zinc	mg/L	0.065	0.055	0.048	0.012	0.074
15	Cadmium	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ
16	Chromium	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ
17	Lead	mg/L	BLQ	0.004	0.001	0.010	0.016
18	Nickel	mg/L	0.003	0.003	0.002	0.024	0.009
19	VOC	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ

Sl. N	**Parameter**	**Unit**	**G – 1**	**G – 2**	**G – 3**	**G – 4**	**G – 5**	**G – 6**
1.	pH	--	8.35	8.06	7.99	7.23	7.17	7.30
2.	TDS	mg/L	709	700	1260	1175	1595	1720
3.	Conductivity @ 25◦C	µS/cm	1181	896	1573	1903	2420	2840
4.	COD	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
5.	Total Hardness (as CaCO3)	mg/L	333	227	500	439	455	631
6.	Total Alkalinity (as CaCO3)	mg/L	302	234	395	395	429	522
7.	Chloride as Cl	mg/L	175	131	250	357	379	578
8.	Sulphate (as SO4)	mg/L	66	51	94	75	145	45
9.	Fluoride as F	mg/L	0.9	0.8	0.9	0.9	1.2	1.2
10.	Phenolic Compounds (as C6H5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
11.	Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
12.	Hexavalent Chromium as Cr6+	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
13.	Copper	mg/L	0.041	BLQ	BLQ	BLQ	BLQ	0.002
14.	Zinc	mg/L	1.369	0.098	0.403	0.129	0.175	0.056
15.	Cadmium	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
16.	Chromium	mg/L	0.001	BLQ	BLQ	BLQ	BLQ	BLQ
17.	Lead	mg/L	0.029	BLQ	BLQ	BLQ	BLQ	BLQ
18.	Nickel	mg/L	0.003	0.001	BLQ	0.003	0.003	0.003
19.	VOC	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Sl. N	**Parameter**	**Unit**	**G – 7**	**G – 8**	**G - 9**	**G - 10**	**G - 11**	**G - 12**
1.	pH	--	7.16	7.51	7.34	7.21	7.95	8.10
2.	TDS	mg/L	1018	3992	4108	848	980	1812
3.	Conductivity @ 25◦C	µS/cm	1728	6200	6400	1416	1576	3040
4.	COD	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
5.	Total Hardness (as CaCO3)	mg/L	465	869	1073	429	458	800
6.	Total Alkalinity (as CaCO3)	mg/L	390	897	884	439	485	732
7.	Chloride as Cl	mg/L	316	1030	1185	168	202	495
8.	Sulphate (as SO4)	mg/L	81	384	727	75	76	102
9.	Fluoride as F	mg/L	1.2	1.6	1.6	0.8	1.0	1.8

10.	Phenolic Compounds (as C6H5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
11.	Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
12.	Hexavalent Chromium as Cr6+	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
13.	Copper	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
14.	Zinc	mg/L	0.011	0.003	0.010	0.015	0.011	0.292
15.	Cadmium	mg/L	BLQ	BLQ	0.004	BLQ	BLQ	BLQ
16.	Chromium	mg/L	BLQ	0.001	BLQ	BLQ	BLQ	BLQ
17.	Lead	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
18.	Nickel	mg/L	BLQ	BLQ	0.002	BLQ	BLQ	BLQ
19.	VOC	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

Sl. N	**Parameter**	**Unit**	**G - 13**	**G - 14**	**G - 15**	**G - 16**
1.	pH	--	7.65	7.59	7.09	7.50
2.	TDS	mg/L	910	1050	1675	1455
3.	Conductivity @ 25◦C	µS/cm	1569	1575	2838	2650
4.	COD	mg/L	BLQ	BLQ	BLQ	BLQ
5.	Total Hardness (as CaCO3)	mg/L	497	195	234	371
6.	Total Alkalinity (as CaCO3)	mg/L	253	409	717	525
7.	Chloride as Cl	mg/L	97	335	471	529
8.	Sulphate (as SO4)	mg/L	102	103	166	183
9.	Fluoride as F	mg/L	0.8	0.7	0.5	1.2
10.	Phenolic Compounds (as C6H5OH)	mg/L	BLQ	BLQ	BLQ	BLQ
11.	Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ
12.	Hexavalent Chromium as Cr6+	mg/L	BLQ	BLQ	BLQ	BLQ
13.	Copper	mg/L	BLQ	BLQ	BLQ	0.002
14.	Zinc	mg/L	0.015	0.020	0.006	0.015
15.	Cadmium	mg/L	BLQ	BLQ	BLQ	BLQ
16.	Chromium	mg/L	BLQ	BLQ	BLQ	BLQ
17.	Lead	mg/L	BLQ	BLQ	BLQ	BLQ
18.	Nickel	mg/L	BLQ	BLQ	0.001	0.008
19.	VOC	mg/L	BLQ	BLQ	BLQ	BLQ

BLQ (Below limit of quantification), LOQ (Limit of Quantification): BOD (LOQ:2.0), COD (LOQ:4.0), Fluoride (LOQ:0.1), Sulphate (LOQ1.0), Phenolic Compounds (LOQ:0.001), Cyanide (LOQ: 0.01), Hexavalent Chromium (LOQ:0.03), Cadmium (LOQ:0.001), Chromium (LOQ:0.001), Copper (LOQ:0.001), Lead (LOQ:0.001), Nickel (LOQ:0.001), VOC (60 parameters) (LOQ:0.1)

As per the analysis report, pH & Heavy metals in ground water are within the limit of the drinking water standards. It is observed that COD, Phenolic compound & VOC are reported as BLQ in all locations except the COD reported in the Piezo metric well 8 & 9. Piezo metric well 8 is installed next to the percolation pond of green belt surface water runoff (observation & result reported in percolation pond is given in the Divi's inspection report Annexure 2). The

water sample from the percolation pond collected and analyzed, in which COD is reported as 20 mg/l. This impact is shown in this Piezo metric well 8. The sewage drain is passing next to the Piezo metric well 9, so the impact of COD is observed due to sewage.

TDS, Total Hardness, Total Alkalinity & Fluoride are more than the drinking water standards. **TDS in the ground water at location G8 & G9 is reported as 3992 mg/l & 4108 mg/l, which is more comparatively to the other locations, whereas these two locations are at upstream of the industries. The groundwater in the said area naturally contains TDS, Total Hardness, Total Alkalinity, and Fluoride.**

The VOC analysis report indicates that no impact in ground water due to these pharmaceutical industries.

The ground water study in the area was carried out by various departments as per the direction of District Collector. The joint inspection was carried out on 16.03.2021 by RDO, District Agriculture Officer, District Ground Water Officer, CSIR-NEERI, TSPCB and the samples were collected by the individual department at 20 locations. **The outcome of the study concluded by the various department that the ground water quality in the said area is due to local rock formation and its mineral composition, suitable for agriculture purpose and influence of M/s Divis Laboartories limited effluents shall rule out.** The copy of the ground water report of the joint committee constituted by District Collector, Yadadri Bhuvanagiri is enclosed as **Annexure 1**.

4. Industries wise Suggestions based on the inspection

i) M/s Divi's Laboratories Limited (Unit – 1)

M/s Divi's Laboratories ltd, involved in the manufacturing of bulk drug and intermediate products. The unit is consented for manufacturing of 34 products and four by-products. The unit has provided facilities for achieving ZLD, the detailed report is attached as **Annexure 2**. The conclusion & suggestions made in the report are given below;

Conclusion:

- The unit has provided treatment facility for waste water treatment to achieve ZLD. The analysis results show that the RO performance needs to be improved.
- The analysis results of source emission monitoring of scrubber and boiler shows that the air pollution control system are operated properly.

- Adequate storage facilities provided for storage of hazardous waste.
- The unit has provided 71 flow meters, in which seven flow meters are connected to CPCB & TSPCB server. In order to verify ZLD based on quantum of waste water treated, the flow meters installed at RO Reject & MEE shall be additionally connected to CPCB & TSPCB server.

Based on the above, the following suggestions made for further improvement of the existing system is as follows;

a) The unit shall take necessary steps to improve the performance of RO system.
b) The unit shall connect the flow meters installed at RO Reject & MEE Inlet to CPCB & TSPCB server.

ii) M/s Srini Pharmaceuticals Private Limited

M/s Srini Pharmaceuticals ltd, involved in the manufacturing of bulk drug products. the unit has obtained consent for manufacturing of 90 products and 39 by-products. The unit is consented for manufacturing of any 37 products at any given point of time. The major violation observed during the visit and mentioned in the detailed report attached as **Annexure 3**. The conclusion & suggestions made in the report are given below;

Conclusion:

- The analysis report indicated the unit is not segregating the LTDS and HTDS effluent and the ETP provided including RO & MEE is not operated properly. ‘
- The analysis report of the stagnated samples collected near the ETP area indicates the characteristics of effluent and same is ensured by the chemical compound analysis of raw effluent & stagnated water sample.
- The hazardous waste generation, storage & disposal is not maintained category wise as per the Authorisation issued by TSPCB.
- The analysis results of source emission monitoring of scrubber and boiler shows that the air pollution control system are operated properly.
- The flow meters installed at inlet of HTDS, LTDS, RO feed & reject, MEE feed and condensate are not connected to CPCB server except RO permeate.
- Online continuous emission monitoring system is not provided in the boiler stack.

Based on the above, the following are suggested for taking action on the unit by TSPCB

Suggestions:

a) The unit shall properly segregate the effluent as high TDS stream and low TDS stream.
b) The unit shall ensure proper maintenance and operation of ETP. Filter press shall be provided instead of sludge drying bed.
c) The unit shall enhance the capacity of RO as per the ETP treatment capacity 300 KLD.
d) The unit shall operate the MEE properly to achieve ZLD.
e) The stagnated samples collected near the ETP area shows the nature of effluent, so industry shall ensure that no untreated effluent discharged on land and achieve proper ZLD.
f) The industry shall properly maintain individual category wise records of hazardous waste generation, storage and disposal. Same shall be maintained in Annual Report Submission Form 4.
g) The unit shall connect the flow meters installed at inlet of HTDS, inlet of LTDS, RO feed, RO Reject, MEE feed and condensate to CPCB server.
h) The unit shall provide online analyser in the stack connected to the boiler for measurement of PM, SO_2, & NO_2 and same shall be connected to CPCB & TSPCB server
i) The unit shall provide cameras around the ETP area in order to monitor any discharge of effluent. The cameras shall be connected to TSPCB & CPCB server.

iii) M/s Maruti Cottex Limited

M/s Maruti Cottex Ltd., is involved in dyeing and printing of fabrics. The unit has obtained combined consent and authorisation for fabric processing 1,50,000 Mts/day and Printed Synthetic 1,50,000 Mts/day. The major violation observed during the visit and mentioned in the detailed report attached as **Annexure 4**. The conclusion & suggestions made in the report are given below;

Conclusion:

- The waste water generated is not segregated as HTDS and LTDS as per the consent condition.

- The analysis report of the samples collected in the ETP & RO indicated that the existing system is not adequate and operated properly to achieve ZLD.
- Analysis report of the boiler emission are within the norms and indicates that air pollution control system are operated properly.
- During the visit, stagnation of water is observed in the dense Juliflora plant growth area inside the premises and the TDS measured is around 2100 to 5700 ppm, which indicates the discharge of effluent.
- The flow meters provide at inlet and outlet of ETP and MEE feed and RO permeate are not connected to TSPCB. In order to verify/ monitor ZLD system additional flow meters are required in all stages of RO permeate & reject, MEE condensate.

Based on the above, the following are suggested for taking action on the unit by TSPCB

Suggestions:

a) The unit shall segregate the effluent as LTDS and HTDS as per the consent and provide separately treatment system accordingly.
b) The unit shall augment the ETP, RO and MEE system to treat the LTDS and HTDS effluent and ensure adequate capacity of the treatment units.
c) The TDS observed in the stagnated water ranges from 2100 to 5700 ppm. The high TDS indicates the discharge of effluent, so the unit shall achieve ZLD and ensure that no untreated/treated/partially treated effluent discharged on land.
d) The unit shall provide separate dedicated facility for storage of hazardous waste generated in the unit.
e) Juliflora plant growth inside the premises shall be removed and green belt shall be developed. Proper access shall be provided in the green belt area.
f) The unit shall provide flowmeters for inlet & outlet of LTDS & HTDS treatment plants, UF inlet & outlet, all stages of RO inlet, outlet & permeate, MEE inlet, condensate. These flow meters shall be connected to TSPCB server.
g) The unit shall provide cameras around the unit in consultation with TSPCB in order to monitor any discharge of effluent. The cameras shall be connected to TSPCB.

5. Over all Conclusion:

1) The ground water (bore well & piezo metric well) analysis report shows that no impact in the water quality due to operation of these industries and same is also concluded in the joint committee report of other State departments of Telangana constituted by District Administration, Yadadri Bhuvanagiri dist. and also in the report of CSIR-NEERI.

2) **Out of three Industries two industries viz M/s Srini Pharmaceuticals ltd and M/s Maruti Cottex Ltd., found non-complying w.r.t discharge of effluent on land, non-segregation of effluent, improper operation of ETP, non-connectivity of flow meter etc., so it is suggested TSPCB should take necessary action against the industries for ensuring ZLD.**

(R. Rajkumar)
Scientist E

Annexure 1

JOINT INSPECTION REPORT OF THE MULTI DISCIPLINARY TEAM CONSTITUTED BY THE DISTRICT COLLECTOR, YADADRI BHUVANAGIRI TO EXAMINE POLLUTION PROBLEMS IN THE SURROUNDINGS OF M/S. DIVI'S LABORATORIES LIMITED, CHOUTUPPAL.

The Member Secretary, TSPCB has requested the District Collector, Yadadri Bhuvanagiri District to constitute a Multi Disciplinary Team to conduct a detailed study in consultation with the local public to assess the extent of ground water contamination due to operation of the industry and extent of damage caused to any identifiable persons / agricultural lands in and around the industry and suggest remedial action / compensation to be recovered from the industry on polluter pays principle in connection with several public complaints received against M/s. Divi's Laboratories Limited, Choutuppal.

In this regard, the District Collector, Yadadri Bhuvanagiri District has constituted a Multi Disciplinary Team with the following officials in connection with complaints against M/s. Divi's Laboratories Limited, Sy.No. 238, 247 to 250, 260 to 279, 289 to 293 & 302 of Lingojigudem (V) and Sy.No.505 & 506 of Aregudem (Hamlet of Pantangi Village) of Choutuppal Mandal, Yadadri Bhuvanagiri District:

1. The Revenue Divisional Officer, Choutuppal, Yadadri Bhuvanagiri District.
2. The District Agricultural Officer, Yadadri Bhuvanagiri District.
3. The District Ground Water Officer, Yadadri Bhuvanagiri District.
4. Expert from CSIR-NEERI, Hyderabad.
5. The Environmental Engineer, TSPCB, Regional office, Nalgonda.

As per the instructions of the District Collector, the Multi Disciplinary Team has conducted joint inspection of M/s. Divi's Laboratories Limited (Unit-1) and surroundings on 16.03.2021, 30.03.2021 and 16.04.2021.

The Team has visited Aregudem village on 16.03.2021 and conducted Gramasabha at the Gram Panchayat Office under the chairmanship of RDO, Choutuppal. The meeting was attended by the Sarpanch and public of Aregudem village. During the meeting, the RDO has explained about the constitution of the Multi Disciplinary Team with officials from various departments by the District Collector and its mandate to the public.

The Team will examine/assess the ground water contamination and damages, if any due to M/s. Divi's Laboratories Limited. The Team will also collect ground water samples from the bore wells located in the surrounding agriculture lands and wherever as shown by the villagers. The samples will be collected simultaneously by Agriculture Department, Ground Water Department, NEERI and Pollution Control Board and analyze the samples in the respective department laboratories. The RDO has also instructed TSPCB Officials to conduct Ambient Air Quality Monitoring in Aregudem Village to verify the air pollution due to the industry. The Team will also inspect the industry and verify the status of pollution control measures taken by the industry.

The RDO has assured the villagers that, the Team will examine all the issues and submit a comprehensive impartial report incorporating all the details to the District Collector for further action.

After the Grama Sabha, the Team along with villagers visited the agricultural fields in the village.

The Team collected water samples on 16.03.2021, 30.03.2021 & 16.04.2021 from the 20 bore wells from various locations in Aregudem, Katrevu, Thangadpalli, Panthangi, Gundlabavi, Jilleduchelka, Ankireddygudem and Lingojigudem villages surrounding the industry the presence of the villagers. The bore wells are located at a distance of about 819 Meters to 4.4 KM from the industry.

The distance of the habitations of villages from the industry is as follows: Aregudem 3 KM, Katrevu 3.6 KM, Thangadpalli 2.6 KM, Panthangi 2.8 KM, Gundlabavi 4 KM, Jilleduchelka 2.2 KM, Ankireddygudem 2.4 KM and Lingojigudem 2.6 KM.

The locations of the samples collected are as follows:

S.No.	Sample details / collection point
1.	Water sample collected from Bore well in agricultural land of Sri Manne Janga Reddy, S/o. Muthyam Reddy, Sy.No.540 & 545 of Panthangi Revenue village, H/o. Aregudem (V), Choutuppal (M), Yadadri Bhuvanagiri District.
2.	Water sample collected from Bore well in agricultural land of Sri Sama Janardhan Reddy, S/o. Malla Reddy, Sy.No.501 of Aregudem (V), Panthangi Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.

3.	Water sample collected from Bore well in agricultural land of Smt Ananthula Anjamma, W/o. Ramulu, Sy.No.470 of Aregudem (V), Panthangi Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.
4.	Water sample collected from Bore well in agricultural land of Sri Jillala Buchi Reddy, S/o. Ram Reddy, Sy.No.435 & 436 of Aregudem (V), Panthangi Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.
5.	Water sample collected from Bore well in agricultural land of Smt Yennapalli Rukmamma, W/o. Janga Reddy, Sy.No.421 of Aregudem (V), Panthangi Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.
6.	Water sample collected from Bore well in agricultural land of Sri Pinninti Narsi Reddy, S/o. Malla Reddy, Sy.No.407 of Aregudem (V), Panthangi Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.
7.	Water sample collected from Bore well in Annapurna Devi Temple, Sy.No.381 of Katrevu (V), Lingojigudem Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.
8.	Water sample collected from Bore well in agricultural land of Sri Katta Narsimha, S/o. Laxmaiah, Sy.No.63 of Thangadapalli (V), Choutuppal (M), Yadadri Bhuvanagiri District.
9.	Water sample collected from Bore well in agricultural land of Sri Balike Sathaiah, S/o. Mallaiah, Sy.No.66 of Thangadapalli (V), Choutuppal (M), Yadadri Bhuvanagiri District.
10.	Water sample collected from Bore well in agricultural land of Sri Arige Beeraiah, S/o. Sathaiah, Sy.No.79 of Thangadapalli (V), Choutuppal (M), Yadadri Bhuvanagiri District.
11.	Water sample collected from Bore well in agricultural land of Sri Boya Mallesh (Vulavakaya), S/o. Gopaiah, Sy.No.612 of Panthangi village, Choutuppal (M), Yadadri Bhuvanagiri District.
12.	Water sample collected from Bore well in agricultural land of Sri Chappidi Buchi Reddy, S/o. Veera Reddy, Sy.No.192 of Jilleduchelka, H/o Ankireddygudem (V), Lingojigudem Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.
13.	Water sample collected from Bore well in agricultural land of Sri Vallamdasu Pentaiah, S/o. Papaiah, Sy.No.209 of Ankireddygudem (V), Lingojigudem Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.
14.	Water sample collected from Bore well in agricultural land of Sri Kodari Ushaiah, S/o. Mallaiah, Sy.No.327 of Lingojigudem (V), Choutuppal (M), Yadadri Bhuvanagiri District.
15.	Water sample collected from Bore well in agricultural land of Sri Velijala Jagadish, S/o. Sathaiah, Sy.No.620,621 & 622 of Panthangi (V), Choutuppal (M), Yadadri Bhuvanagiri District.
16.	Water sample collected from Bore well in the premises of Katamaiah Temple, Sy.No. 341 of Gundlabavi (V), Panthangi Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.

17.	Water sample collected from Bore well in agricultural land of Sri Pedditi Buchi Reddy, S/o. Aagi Reddy, Sy.No.330 of Gundlabavi (V), Panthangi Revenue village, Choutuppal (M), Yadadri Bhuvanagiri District.
18.	Water sample collected from Bore well near 'B' Hostel within the industry premises.
19.	Water sample collected from Peizo well No.2, which is located near 'A' Hostel within the industry premises.
20.	Water sample collected from Peizo well No.7 which is located near Canteen within the industry premises.

The Inspection Reports of the Individual Departments of the Multi Disciplinary Team are submitted as below:

1. REPORT OF TELANGANA STATE POLLUTION CONTROL BOARD:

TSPCB Officials collected ground water samples from the bore wells along with the other Department Officials and the water samples were submitted to Central Laboratory, TSPCB, Hyderabad for analysis. As per the samples analysis results, the range of the concentrations of the samples is as submitted below and it is compared with Bureau of Indian Standards limits of Drinking Water (IS 10500:2012):

Parameter	Concentration Range of the samples (in mg/ltr)		Drinking Water Standards as per IS 10500 :2012 (*Acetapable limit) (**Permissible limit in absence of alternate source)
	Lower	Higher	
Total Dissolved Solids (TDS)	1160	2193	500* (2000**)
Chlorides as Cl^-	335	805	250* (1000**)
Total Hardness as $CaCO_3$	452	1890	200* (600**)
Calcium as Ca+2	56	284	75* (200**)
Magnesium as Mg^{+2}	30	287	30* (100**)

The analysis reports of TSPCB are enclosed as **Annexure – I**.

As seen from the analysis results, the following parameters are exceeding the drinking water standards (ISO10500:2012).

- TDS values of 2 bore well samples are exceeding the permissible limit of 2000 mg/ltr.
- Fluoride values of 9 bore wells samples exceeding 1.5 mg/ltr.
- Total Hardness as CaCO3 of 9 bore well samples exceeding 600 mg/ltr.
- Calcium as Ca+2 values of 3 bore well samples exceeding 200 mg/ltr.
- Magnesium as Mg+2 values of 5 bore wells samples exceeding 100 mg/ltr.

With regard to air pollution, TSPCB has conducted Ambient Air Quality Monitoring at Aregudem Gramapanchayat Office continuously for 7 days during the period from 22.04.2021 to 29.04.2021. As per the monitoring results, the Particulate Matter (RSPM), SO_2 & NO_2 and NH_3 levels are within the National Ambient Air Quality Standards. The monitoring results are as follows:

Parameter	Monitoring values range (in micrograms/m^3)	National Ambient Air Quality Standards (in micrograms/m^3)
RSPM	53 to 78	100
SO_2	4 to 6	80
NO_2	14 to 24	80
NH3	BDL	400

TSPCB has also conducted Volatile Organic Compounds (VOC) monitoring in Aregudem village and the levels of VOCs were observed to be in the range of 0 to 0.85 PPM.

The AAQM analysis reports are enclosed as **Annexure – II.**

The Team has also inspected the industry on 16.03.2021. The Inspection details of the industry with suggestions to implement by the industry are enclosed as **Annexure - III**.

REPORT OF THE GROUND WATER DEPARTMENT:

In obedience of orders of the District Collector, Yadadri Bhuvanagiri, the officials of Ground Water Department along with the Team collected water samples from agriculture bore wells from agriculture lands around M/s Divis Laboratories Limited on dt.16-3-2021, dt.30-3-2021 and dt.16-4-2021.

The Groundwater department collected 20 water samples from agriculture bore wells of Ankireddygudem hamlet of Lingojigudem, Aregudem, Gundlabavi and Katrevaguda hamlet of Panthangi, Thangedupally, Lingojigudem and Panthangi located around M/s Divis Laboratories Limited, Choutuppal village and Mandal, Yadadri Bhuvanagiri District. The Collected water samples were submitted to Level II Water Quality Lab at Directorate, Groundwater Department, Hyderabad for chemical analysis. Geologically the area is underlain by weathered to semi weathered Granites with fine to medium grained, angular to sub angular texture. It is observed that the depth and degree of weathering is varying from place to place, depending upon several factors like temperature, rain fall, slope, drainage, rock type and its susceptibility to weather etc. The depth of the weathered zone varies from 25 mts to 40 mts, and depth of bore wells range from 36 mts to 90 mts, the depth to water levels vary from 4.64 to 17.56 mts, fitted with electrical submersible pumps of 5 HP, installed at a depth of 21 mt and further depths. The reported yields ranged from 5000 Lph to 6000 Lph and irrigating about 1Acres of paddy in both seasons.

As per the analysis results, the water samples quality is as follows:

Electrical Conductivity (> 3000 µ.Sie/cm): Out of 20 samples, 08 samples Electrical Conductivity values are above 3000 µ.Sie/cm and Electrical Conductivity value of Bore well at Ankireddygudem (V) & Lingojigudem (V) of Choutuppal (M), shows 3508 µ.sie/cm which is the highest among 09 samples.

Residual Sodium Carbonate (RSC): Out of 20 sample collected, 04 sample are Marginal Range (M.R) for agriculture as per RSC parameter.

Fluoride (>1.5 mg/liter): Out of 20 samples, 07 samples Fluoride concentration is above the BIS limits(>1.5 mg/l) and Fluoride concentration of Bore well at Gundlabavi-Panthangi (V), Choutuppal (M), shows 2.25 mg/l is the highest among 07 samples.

Nitrate (>45 mg/liter): Out of 20 samples, 03 samples Nitrate concentrations is above BIS limits(>45 mg/l) and Nitrate concentration of Bore well at Thangadipally(V), Choutuppal (M), shows 95 mg/l, is the highest among 04 samples.

Conclusions:-

Groundwater Department collected 20 water samples from agriculture bore wells of Ankireddygudem, Lingojigudem, Aregudem, Gundlabavi and Katrevaguda villages, Thangedupally, Lingojigudem and Panthangi located around the investigated area of M/s Divis Laboratories Limited, Choutuppal village and Mandal, Yadadri Bhuvanagiri District. These water samples were subjected to partial analysis for suitability for agriculture purpose and also ascertain pollution due to effluents from Divis Laboratories, Choutuppal. With reference to water samples analysis report, the Nitrates in the upstream of M/s Divis Laboratories are showing excess only in 3 samples out of 20 samples shall be attributed due to excess usage of manures to the agricultural crops in the local area and EC are more than the normal limits showing in 8 samples out of 20 samples due to local rock formation and its mineral composition. Fluoride contamination found in more than the normal limits of 7 (seven) samples out of 20 collected and analyzed samples, shall be attributed due to eugenic and base rock formation. Rainfall of the area is also one of key factors to influence quality of ground water. Choutuppal mandal NRF is only 690.7mm, but actual rainfall was – 52% in 2018, -44% deficit in 2019 and +31% excess in 2020. As a cumulative it is – 48% deficit in the last 3 years.

Recommendations:

1. Out of 20 samples collected surrounding of M/s Divis Laboratories and results of chemical analysis, only few samples showing just more than desired/ permissible limits.
2. Analytical results reveal that the groundwater quality is suitable for agriculture purpose.
3. Influence of M/s Divis Laboratories Limited effluents shall rule out basing on the analytical results of water samples collected and analyzed.

The analysis reports are enclosed as **Annexure – IV.**

3. REPORT OF THE AGRICULTURE DEPARTMENT:

Agriculture Department officials along with the Team Collected (16) Water Samples from Bore wells and (4) Soil Samples from Farmers Fields.

The water Samples were sent to Soil Testing Laboratory, Rajendra Nagar, Hyderabad and Soil Samples Collected are sent to Soil Testing Laboratory, AMC Bhongir

Water Samples analyzed for EC, PH and Chlorides, Bicarbonates etc. Based on the water Samples analytical reports of STL Rajendra Nagar, more Samples are having Electrical Conductivity more than 2.0, Bicarbonates, Chlorides and Residual Sodium Carbonates (RSC) also in High range. This water can be used with arrangement of adequate usage of FYM, Gypsum and adequate drainage facilities.

The Soil Samples were analyzed for the parameters of PH, Electrical Conductivity, Organic Carbon, Nitrogen, Phosphorous and Potassium, As per the analytical reports of soil samples, these soils are suitable to grow crops.

Recommendations – Sugar cane, Sugar beet, Oats, Barely, wheat, Cotton Sorghum, all Millets, Sun hemp, Dalincha crops may be grown in this areas.

Analytical reports are enclosed as **Annexure – V.**

4. NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE (CSIR-NEERI), HYDERABAD REPORT:

A team constituting of TSPCB, NEERI, State Groundwater Department and State Agriculture Department had visited Divis Laboratories and affected villages around Divis Labs. Accordingly, the ground water samples in and around have been collected and analyzed for the major physic-chemical parameters and heavy metals to assess the groundwater quality of the region.

Study Area:

Geologically, the area is covered with Peninsular Gneissic Complex (PGC), includes granites, Gneisses and Migmatite. There are few basic intrusive rocks represented by dolerite in the form of dykes. There are three major lineaments observed within the sites, which are trending NNW-SSE direction.

Geo-morphologically, the area is a rocky upland, sloping towards west from east. The surface is covered with flat topped area with local undulations. There are no prominent hills / mounds within the site. The site forms weathered Pedi -planes underlain by Gneisses and Granites. Major part of pedi-plain constitutes low relief area having matured dissected rolling topography with erosional landscape covered by layers of red soil of varied thickness. The area is surrounded by red sandy loam soil. These soils are derived from acidic rocks, such as Granites and Granitic Gneisses. These soils occur on gently sloping pediplains with maximum thickness of 3 m (bgl) from the surface. The water flows from west to east. The groundwater in the area occurs in the weathered & fractured zones.

The groundwater samples were collected inside Divis Laboratories and also in the villages Aregudem, Katrevu, Thangedupally, Panthangi, Ankireddygudem, Lingojigudem, Gundlabhavi. A total of 19 samples were collected from the whole area which include 03 samples of Divis, 02 samples from Gundlabhavi, 01 sample from Lingojigudem, 02 samples from Ankireddygudem, 02 samples from Panthangi, 05 samples from Aregudem, 01 sample from Katrevu and 03 samples from Thangedupally. The details of the sampling locations are enclosed.

The standard methods prescribed for groundwater sampling and analysis of individual parameters is followed in this study. The determination of physico-chemical parameters of ground water samples was carried out by adopting standard protocols given by APHA, 2012. The temperature was measured by using thermometer in the field. The pH and conductivity were measured with respective meters. TDS was calculated by using the gravimetric method. The chemical parameters like Total hardness (TH), Calcium (Ca), Chloride (Cl), Alkalinity were determined titrimetrically. Magnesium (Mg) was calculated by taking the differential values between TH and Ca concentrations. Sodium (Na) and Potassium (K) were measured by Flame Photometer. Sulphate (SO4) was determined by turbidity method using visible Spectrophotometer. Heavy metals like Arsenic (As), Boron (B), Barium (Ba), Cadmium (Cd), Cobalt (Co), Chromium (Cr), Copper (Cu), Iron (Fe), Manganese (Mn), Nickle (Ni), Lead (Pb) and Zinc (Zn) were determined by using ICP-OES (iCAP 6300 Duo, Make: Thermo Scientific).

Ground water Level:

The groundwater level could be measured only at 12 samples as the other wells were completed sealed and could not be opened. The water level in these groundwater locations varied from 4.47 m to 17.53 m indicating that all the wells are shallow.

Groundwater Quality:

The groundwater analysis for the physic-chemical and heavy metals were carried out as per APHA (2012) methods. The groundwater quality data was compared with the Bureau of Indian Standards limits of drinking water. The parameters are described in detail below:

Physical parameters:

In general, pH in groundwater reflects the suitability of groundwater for drinking purpose. The water samples collected from all the locations has pH ranging from 6.7–7.7. The observed pH values were within the normal range as per the BIS norms.

TDS is a measure of dissolved elements present in water. TDS values in ground water samples ranged from 1319-1910 mg/l. The TDS was within 2000mg/l at all locations.

Inorganic Parameters:

The Total Hardness values in the study area ranged from 426–2060 mg/l. Expect at some locations, most of samples showed total hardness values within the permissible limit of BIS.

The observed Chloride concentration varied from 254-782 mg/l. The observed Chloride values were within1000mg/l of BIS at all locations.

Sulphate content in the groundwater varied from 33–199 mg/l. The Sulphate values for all groundwater samples were within the permissible limits of BIS.

The Sodium levels in the groundwater varied from 190–467 mg/l. The high levels of sodium are due to the rock dominance in the study area.

Nutrient Demand Parameters:

The Nitrate content in the groundwater varied in the range of 0.22–41.8 mg/l. The observed vales of Nitrate were observed to be within BIS limits.

BOD observations are normal and ranged from 1.2–18 mg/l.

COD values ranged from 14 –28 mg/l. No high values of COD are found in any groundwater sample

No phenolic compounds were detected in any samples.

Bacteriological Parameters:

Portability of groundwater with respect to microbiological analysis was checked using MPN Index. The MPN values ranged between33 ->1600, 350 ->1600 and <1.8->1600during February, March and November 2020, respectively.

Heavy Metals:

All the heavy metals were within the permissible limits of BIS except for Iron. The high values of iron are due to the laterite nature of soil

Conclusions:

A total of 19 groundwater samples were collected from various villages and within the premises of Divis Laboratories Limited. The water level was measured at 12 locations. All the parameters were within the permissible limits of BIS except for TDS, Chloride. The high values of TDS and Chloride are due to the rock water interaction. The underlying rocks contribute to the high values of groundwater samples.

The reports is enclosed as **Annexure – VI.**

Observations and Recommendations of the Multi Disciplinary Team:

1. As per TSPCB report, some of the ground water samples in the area are exceeding the standards for drinking water with respect to certain parameters like TDS, Fluoride, Total Hardness (as CaCO3), Calcium (as Ca+2) and Magnesium (as Mg+2).

2. As per the monitoring results of air quality monitoring carried by TSPCB, the parameters (RSPM, SO_2, NO_2 & NH3) are within the National Ambient Air Quality Standards.

3. During the Joint Inspection of the Industry, the following suggestions are made for prevention and control of pollution:
   i) The industry shall continue to operate the scrubbers provided to control process emissions regularly for control of odour to the surroundings.

ii) The industry shall continue to operate the Zero Liquid Discharge (ZLD) system regularly to treat the effluents and reuse the same.

iii) The hazardous waste shall be kept stored inside the sheds till the final disposal to TSDF/Cement industries.

4. The Agriculture Department stated that, more samples are having the Electrical Conductivity more than 2.0, Bicarbonates, Chlorides and Residual Sodium Carbonates are also in High range. This water can be used with arrangement of adequate usage of FYM, Gypsum and adequate drainage facilities. The Soil Samples were analysed for the parameters of PH, Electrical Conductivity, Organic Carbon, Nitrogen, Phosphorous and Potassium, As per the analytical reports of soil samples, these soils are suitable to grow crops.The Agriculture Department recommended that Sugar cane, Sugar beet, Oats, Barely, wheat, Cotton Sorghum, all Millets, Sunhemp, Dalincha crops may be grown in this area.

5. The Groundwater Department stated that the Nitrates in the upstream of M/s Divis Laboratories are showing excess only in 3 samples out of 20 samples shall be attributed due to excess usage of manures to the agricultural crops in the local area and EC are more than the normal limits showing in 8 samples out of 20 samples due to local rock formation and its mineral composition. Fluoride contamination found in more than the normal limits of 7 seven samples out of 20 collected and analyzed samples are shall be attributed due to eugenic and base rock formation.

6. Further, the Groundwater Department stated that:
   a) Out of 20 samples collected surrounding of M/s Divis Laboratories and results of chemical analysis only few samples showing just more than desired/ permissible limits.
   b) Analytical results reveal that the groundwater quality is suitable for agriculture purpose.
   c) Influence of M/s Divis Laboratories Limited effluents shall rule out basing on the analytical results of water samples collected and analyzed.

7. As per the CSIR-NEERI report, the total Hardness values in the study area ranged from 426–2060mg/l except at some locations most of samples showed total hardness values within the permissible limit of BIS. The sodium levels in the groundwater varied from 190–467mg/l. The high levels of sodium are due to the rock dominance in the study area and all the heavy metals were within the permissible limits of BIS except for Iron. The high values of iron are due to the laterite nature of soil.

The Joint Inspection Report of the Team is submitted for kind perusal of the District Collector, Yadadri Bhuvanagiri District and for taking necessary action.

Environmental Engineer,
TSPCB, RO-NLG

Director, CSIR-NEERI,
Hyderabad.

District Ground Water Officer,
Yadadri Bhuvanagiri.

District Agricultural Officer,
Yadadri Bhuvanagiri.

Revenue Divisional Officer,
Choutuppal.

ANNEXURE 2

Inspection Report of M/s Divi's Laboratories Limited (Unit – 1)

M/s Divi's Laboratories ltd, is located at Lingojigudem Village, Choutuppal Mandal, Yadadri Bhuvanagiri District, Telangana. It is a bulk drug and intermediate manufacturing unit. It was commissioned in the year 1996 and present the installed capacity of the plant is 17409.13 kgs/day. The unit has permission to withdraw ground water of 500 KLD from Ground Water Department, Government of AP in the year 2013 from two bore wells of the unit, 100 KLD and surface water of quantity 2700 KLD from Musi River with the approval of Irrigation & CAD Department, Government of Telangana. The unit is consented for manufacturing of 34 products and four by-products. The unit is consented for consumption of 3120 KLD of fresh water & 1870 KLD of recycled water and allowed to generated 533 KLD of HTDS and 2186 KLD of LTDS effluent.

The unit has obtained latest Environmental Clearance for expansion for manufacturing of 35 products vide order dated 04.07.2020 from SEIAA. During the COVID-19 period, MoEF&CC vide notification dt.27.03.2020 stated that *"All proposals for projects or activities in respect of Active Pharmaceutical Ingredients (API), received up to the 30th September 2020, shall be appraised, as Category 'B2' projects, provided that any subsequent amendment or expansion or change in product mix, after the 30th September 2020, shall be considered as per the provisions in force at that time.".* Under this provision, the unit has obtained expansion approval from SEIAA.

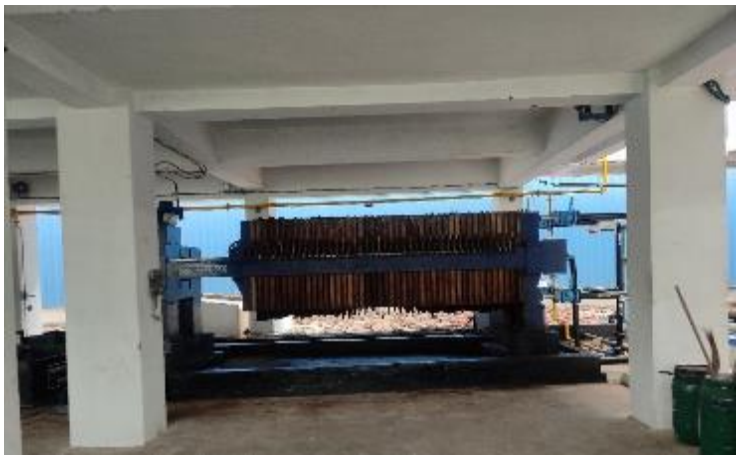
Observations:

Waste Water Management:

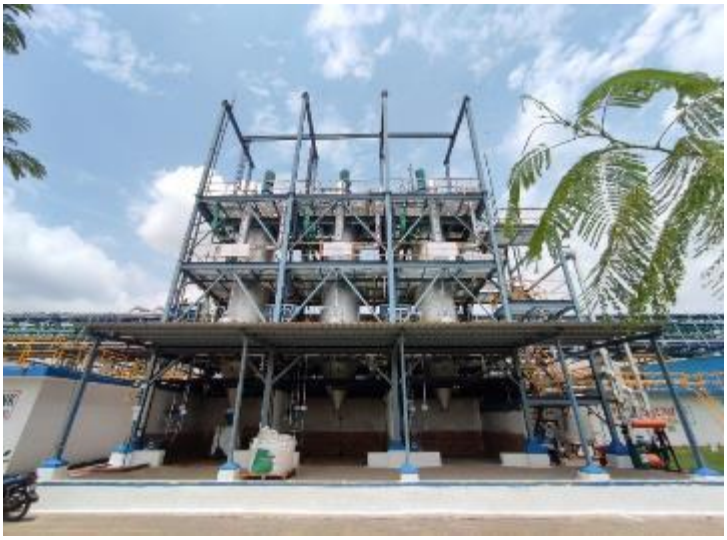
- As per the consent, the unit needs to segregate as HTDS and LTDS stream, whereas the unit has taken steps to segregate the effluent as four streams for ease of treatment. The unit segregates effluents into 4 streams are Stream A (High COD effluents), Stream B (Process High TDS/Non bio-degradable effluents), Stream C (Low TDS effluents) and Stream D (process high salt effluent). The segregated streams are treated separately in the ETP.
- Stream A effluent treatment plant is designed for 150 KLD capacity. The effluent is neutralized and sent to stripper columns, stripper distillates are sent back to the unit for reuse. Stripper concentrate is sent to MEE followed by ATFD.

- Stream B is collected, neutralized, settled (clarifier). The treated effluent is further sent to MEE followed by ATFD. The unit has six effect evaporators capacity of 1080 KLD
- Stream C designed capacity is 5000 KL. The effluent is collected and neutralized and sent to primary aeration treatment followed by primary clarifier, secondary aeration, secondary clarifier, sand filter, Ultra filtration, Reverse Osmosis. The RO reject is sent to MEE followed by ATFD.
- Stream D is directly sent to ATFD. The capacity of the unit is 250 KLD
- The unit has provided filter press and drum filter for removal of sludge from ETP.
- As per the unit records, the effluent generated in each stream on an average is Stream A – 45 KLD, Stream B – 95-115 KLD, Stream C – 600-610 KLD, Stream D – 45-50 KLD.

Effluent Treatment Plant



Filter Press



Agitated Thin Film Dryers

- Samples were collected from the Stream A Inlet, Stream B Inlet, Stream C Inlet, Stream D Inlet, RO Feed, RO Reject, RO Permeate, MEE Inlet, MEE Concentrate, MEE Condensate ATFD Condensate to analyze the performance of the ETP and ZLD

	Stream A Inlet	Stream B Inlet	Stream C Inlet	Stream D Inlet	RO Feed	RO Reject	RO Permeate	MEE Inlet	MEE Concentrate	MEE Condensate
pH	9.49	8.63	6.62	8.06	7.52	7.49	7.07	8.22	8.44	8.92
TDS	754	55550	14705	92964	10555	14385	435	15440	112280	452
COD	123000	7380	13940	508840	--	--	BLQ	--	--	--
BOD	28000	1700	3200	11500	--	--	BLQ	--	--	--
Benzene	0.428	BLQ	BLQ	BLQ	--	--	--	--	--	--
Chloroform	35.105	BLQ	0.527	BLQ	--	--	--	--	--	--
Dichloromethane	0.721	0.271	2.331	BLQ	--	--	--	--	--	--
Ethyl benzene	8.452	BLQ	BLQ	BLQ	--	--	--	--	--	--
O-xylene	211.85	BLQ	BLQ	BLQ	--	--	--	--	--	--
p-xylene	17.66	BLQ	BLQ	BLQ	--	--	--	--	--	--
Toluene	98.65	179.75	182.51	116.68	--	--	--	--	--	--

The analysis results show that the ETP is operated properly and unit is able to achieve ZLD, whereas the performance of the RO is required to be improved.

Emission Management:

- The unit has totally 52 scrubbers which are connected to 22 nos. of production block. Standby arrangements are also made, scrubber failure alarms and online pH meters are provided for control of fugitive and process emissions. the unit has both acidic and alkaline scrubbers.
- During inspection, randomly five operational scrubbers were monitored for source emission. The analysis results indicate the adequate control measures provided which results in meeting with nationalised prescribed standards under EP Act.

Parameter	Process-VII	Process-V	Process-X	Process-IV (NH_3)	Process-IV (HCl)	Notified Standard EP Act
HCl	BDL	BDL	<0.7	BDL	<0.7	35
NH_3	<0.7	<0.7	<0.7	<0.7	BDL	30
Toluene	0.12	0.094	0.14	0.15	0.08	100
Methanol	0.10	0.09	0.06	0.08	BDL	-
Acetone	0.12	0.07	BDL	BDL	BDL	2000
Ethyl acetate	0.12	0.09	0.14	BDL	BDL	-

** All units are in mg/Nm^3, Below Detection Limit: VOCs <0.001 ppm, HCl – 0.5, NH_3- 1.0*

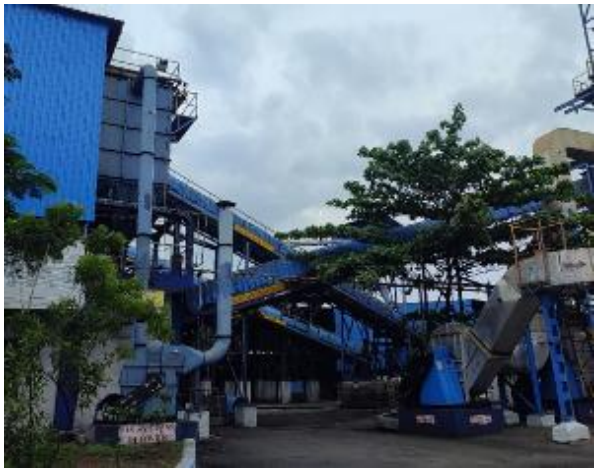
- The unit has two 24 TPH boiler connected to individual ESP and one 16 TPH boiler connected to bag filter. One 24 TPH & 16 TPH boilers are connected to common stack of height 40 mts and another 24 TPH boiler connected to separate stack of height 40 mts.

ESP followed by Stack Connected to Coal Fired Boiler

- During inspection one 24 TPH coal fired boiler was in operation. Source monitoring was performed in the stack. An average consumption of coal 130-150 TPD. Fly ash generated is sent to brick manufacturing units. The emission from the boiler are meeting the TSPCB prescribed standard norms and the analysis results are given below;

PARAMETER	UNIT	RESULT	STANDARDS
Particulate Matter – PM	mg/Nm^3	62.0	115
Sulphur Dioxide – SO_2	mg/Nm^3	348.7	600
Oxides of Nitrogen – NOx	mg/Nm^3	229.4	300

- Coal is being stored under closed shed which prevents the fugitive emissions while operation. Coal from coal handling area is sent to boiler through conveyor belts with proper enclosure and no fugitive emissions observed during inspection.



Coal Handling area – Conveyor belts with closed shed

- Fugitive VOC emission and Ambient Air Quality monitoring was also carried out and the analysis results are given below;

4 hrs Fugitive VOC Emission Monitoring Results (PPM)							
Parameter	**Production Block-I**	**MEE top floor**	**Production Block-Vb**	**Production Block-XIX**	**Production Block-Vd**	**Production Block-XII**	**OSHA PEL Std. 8-hour TWA**
Toluene	0.05	0.02	BDL	BDL	BDL	0.05	200
Methanol	0.08	0.02	BDL	BDL	BDL	BDL	200
O-Xylene	0.05	BDL	BDL	BDL	BDL	BDL	100
Acetone	0.03	0.05	BDL	BDL	0.03	BDL	750
Ethyl acetate	BDL	BDL	0.02	BDL	BDL	BDL	400
Butanol	BDL	BDL	BDL	0.01	BDL	BDL	100
Ethanol	BDL	BDL	BDL	BDL	0.08	BDL	1000

Heptanes	BDL	BDL	BDL	BDL	BDL	0.02	500
Hexanes	BDL	BDL	BDL	BDL	BDL	0.02	500
Iso Propyl Acetate	BDL	BDL	BDL	BDL	BDL	0.08	400

24 hrs Average Ambient Air Monitoring Results (µg/m^3)					
Parameters	**Main Gate Entrance**	**Near ETP**	**Truck Parking Area**	**Bulk Storage Tank Area**	**Standards**
Toluene	BDL	1.32	BDL	BDL	The reported parameters are within limit as compared to the Alberta & ONTARIO'S Ambient Air Quality Criteria
Methanol	BDL	35.2	24.5	BDL	
Acetone	BDL	25.2	BDL	BDL	
Ethyl acetate	BDL	BDL	BDL	31.5	
Ethanol	BDL	40.3	BDL	BDL	
Iso Propyl Alcohol	BDL	BDL	BDL	24.3	
Methylene chloride	BDL	BDL	BDL	3.5	
Heptanes	BDL	BDL	BDL	28.6	
Sulphur dioxide - SO_2	14.5	13.2	15.2	-	80
Oxides of Nitrogen – NO_X	17.8	16.8	18.9	-	80
Ammonia	19.2	17.2	12.5	-	400

Below Detection Limit: VOCs <0.1

Hazardous Waste Management:

- The industry is consented to generate, store & dispose Hazardous waste in the below mentioned quantity

Sl. No.	**Name of the Hazardous waste**	**Quantity**	**Disposal Option**
1	Process residues (Organic residue)	37563.2 Kgs/day	Cement units for co-processing/AFR facilities for pre-processing or M/s TSDF, Dundigal pre-processing.
2	Solvent Residue (distillation bottom residue)		
3	Spent Carbon	1022.8 Kgs/day	
4	ETP Sludge	4500 Kgs/day	
5	MEE salts	75126.7 Kgs/day	TSDF for landfilling
6	Sodium Chloride	108.4 kg/day	Authorized recovery units/TSDF for landfilling
7	Incineration ash	9 Kg/day	TSDF for landfill/authorized vendors
8	Spent Catalyst	135.81 Kg/day	Disposed to TSDF/return to supplier for recovery
9	Spent acids	24 KLD	Recovered and recycled within the industry/returned to supplier for recovery

10	Spent solvents	272 KLD	Solvent recovery to maximum extent
11	Waste Oil	35 LPD	Disposed to authorized re processors / recyclers

- The quantity of Hazardous waste generated, stored and disposed during the months of March to August 2023 is given below

Sl No.	Hazardous Waste Generated	Opening Stock	Generation details from Mar – Aug kgs	Disposal Quantity from Mar-Aug kgs	Stored Quantity as on 31/08/2023 kgs
1	Process Residues (Organic Residue) Solvent Residue (Distillation Bottom Resiude)	-	988053	801200	186853
2	Spent Carbon	-	59919	49600	10319
3	ETP Sludge	167108	388500	522660	32948
4	MEE Salts	-	5852860	5800300	52560
5	Sodium Chloride	3864	9658	12948	574
6	Spent Catalyst	964	9758.439	10622.902	99.537
7	Spent Acids	-	3991886	3879536	112350
8	Mixed Spent Solvents	108030	3270948	3318345	60633
9	Waste Oil	-	1386	1101.8	284.2

- The unit has provided three dedicated closed shed facility for storage of Hazardous Waste and MEE salt with leachate collection system. The area of the storage shed is 200 m^2, 450 m^2 and 120 m^2.

Hazardous Waste Storage Unit

Other Management

- The unit has installed solvent recovery plant of capacity of 4 Nos x 10 KL, 10 Nos x 12.5 KL, 1 No X13 KL & 2 Nos x 5 KL and also installed 2 Nos x 30 KL, 2 Nos x 12.5 KL, 1 No X 12 KL & 1 No X 28.8 KL It is informed by the unit that SRP recovery efficiency is 99%. The distillation residue is sent to TSDF/pre-processor for co-processing.
- The unit has totally provided 71 flow meters in ETP at Inlet of each stream, Feed, Permeate, Reject streams of RO, UF, MEE, and ATFD. Among these flowmeters seven are connected to TSPCB and CPCB servers.
- The flow meters LTDS & LTDS2 (inlet of process effluent), LTDS3 (inlet of blowdown water), HTDS (inlet of stream B effluent), HTDS2 (inlet of stream A effluent), HTDS3 (inlet of stream D effluent) and RO permeate streams and also continuous monitoring of pH, TSS, COD & BOD of RO Permeate analysers are connected to TSPCB & CPCB server.
- OCEMS is provided to the stacks as well, the parameters such as SPM, SO_2, NO_x, CO data is transferred to the TSPCB and CPCB servers.
- The unit has installed three CAAQM station in and around the unit along with continuous VOC monitoring which are connected to the TSPCB servers.
- The unit has provided percolation pond inside the premises, in which rain water surface runoff from the green belt area is collected. Sample was collected to verify any impact in the water due to industrial activity. The analysis results confirm no impact and COD is reported in the water, which is due to stagnation, dead leaves/plants from green belt and algae formation. The analysis result is given below

Parameter	**Unit**	**Percolation pond sample**
pH Value	--	7.10
TDS	mg/L	233
BOD at 27˚C for 3 days	mg/L	BLQ
COD	mg/L	20
VOC	mg/L	BLQ
Hexavalent Chromium as Cr6+	mg/L	BLQ
Cadmium	mg/L	BLQ
Chromium	mg/L	0.004
Copper	mg/L	0.096
Lead	mg/L	0.005
Nickel	mg/L	0.013
Zinc	mg/L	0.243

Conclusion:

- The unit has provided treatment facility for waste water treatment to achieve ZLD. The analysis results show that the RO performance needs to be improved.
- The analysis results of source emission monitoring of scrubber and boiler shows that the air pollution control system are operated properly.
- Adequate storage facilities provided for storage of hazardous waste.
- The unit has provided 71 flow meters, in which seven flow meters are connected to CPCB & TSPCB server. In order to verify ZLD based on quantum of waste water treated, the flow meters installed at RO Reject & MEE shall be additionally connected to CPCB & TSPCB server.

Based on the above, the following are suggested to implement by the unit.

Suggestions:

- The unit shall take necessary steps to improve the performance of RO system.
- The unit shall connect the flow meters installed at RO Reject & MEE to CPCB & TSPCB server.

(R. Rajkumar)
Scientist E

ANNEXURE 3

Inspection Report of M/s Srini Pharmaceuticals Private Limited

M/s Srini Pharmaceuticals is located in Yadadri Bhuvanagiri district with an area covering 25 acres and established in the year 1997. It is located at Sy. No. 247, Choutuppal (V&M), Yadadri Bhuvanagiri (D), TS – 508252. It is a pharmaceutical industry involved in manufacturing of Bulk Drug Products. The unit has obtained EC from MOEF&CC, Delhi for five products on 01.07.2004 and further the unit has obtained EC for expansion for manufacturing of 90 products on campaign basis, 37 products at any given point of time with maximum production quantity of 11266.67 kg/day (338 MTM) from SEIAA, Telangana on 23.02.2021. Subsequently, the unit has obtained CFE on 10.06.2021 from Telangana Pollution Control Board. Further, the unit has obtained consent for manufacturing of 90 products and 39 by-products. The unit is consented for manufacturing of any 37 products at any given point of time. The validity of combined consent & authorisation is till 30/06/2026.

Observations:

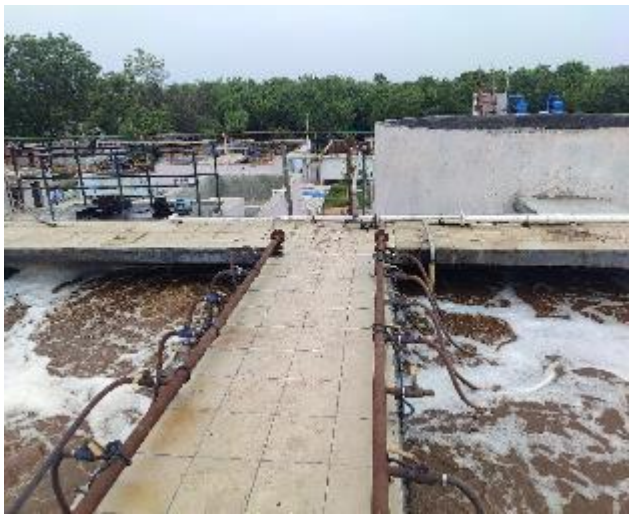
Waste Water Management

- The unit is consented water consumption is 856.65 KLD (fresh 636.48 + Recycled 220.17 KLD) for the purpose of process, washings, boiler feed, cooling tower, scrubber, Domestic, RO Water input & Gardening and allowed for total generation of effluent is 271.78 KL (HTDS – 117.69 KLD & LTDS – 154.09 KLD). As per the data submitted by the industry for past six months an average fresh water consumption is 150 KLD.
- The unit informed that, presently manufacturing 20 products are being carried out, for which 150 KL of fresh water and 88 KL recycled water is consumed per day for process, washings, boiler make up, cooling tower make up, scrubbing system, Domestic, RO Water input, Gardening. The average effluent generation is about 79 KLD of High TDS effluent and 120 KLD of Low TDS effluent.
- The unit informed that the waste water is segregated into two streams High TDS and Low TDS.
- The high TDS treatment system designed for a capacity of 230 KLD. The treatment units consist of Collection, Neutralization, Press Filter, Stripper, MEE & ATFD. The condensate from MEE is taken to LTDS collection tank. The collection tank of high TDS stream is

closed and provided with suction system connected to two stage scrubber in order to reduce the odour & fugitive emission. The spent solvent recovered from stripper is sent to co-processing.

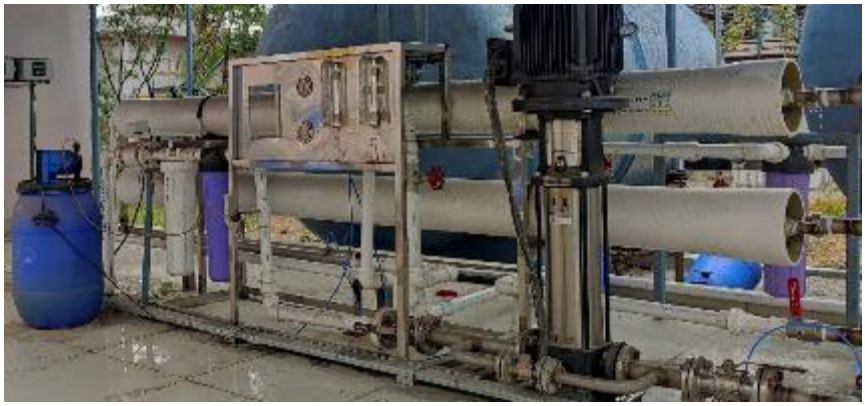
High TDS Effluent collection tank with Stripper

- The Low TDS effluents treatment plant designed capacity is 300 KLD, the treatment unit consists of Collection, Neutralization, Primary Clarifier, Anaerobic treatment, Aeration, Secondary Clarifier, treated effluent collection tank, Multi Grade filter, Activated Carbon Filter, Treated effluent storage tank, Reverse Osmosis (single stage). The RO permeate is reused as makeup water and reject is sent to MEE.



Aeration Tank

- The unit has two RO vessel containing six membranes. Each membrane has flow rate of 750 lits/hr. So the total capacity of the plant is 108 KLD. RO capacity to treat the effluent is inadequate.



RO plant of 300 KLD Capacity

- During inspection ETP was not operated properly. The anaerobic digester found over filled and cow dung floating was observed. No flow observed in subsequent treatment systems. The water stored in the treated effluent tank seems to be formed with algae bloom and TDS observed is 2500 mg/l. The RO was not operated with treated effluent during the inspection, so samples in RO are not collected. Sludge drying bed was found to be dry. No signs of sludge generation observed.
- MEE and ATFD was under operation during the visit and odour was observed near the process. During inspection samples were collected at the High TDS inlet, Low TDS Inlet, MEE Condensate and MEE Concentrate.

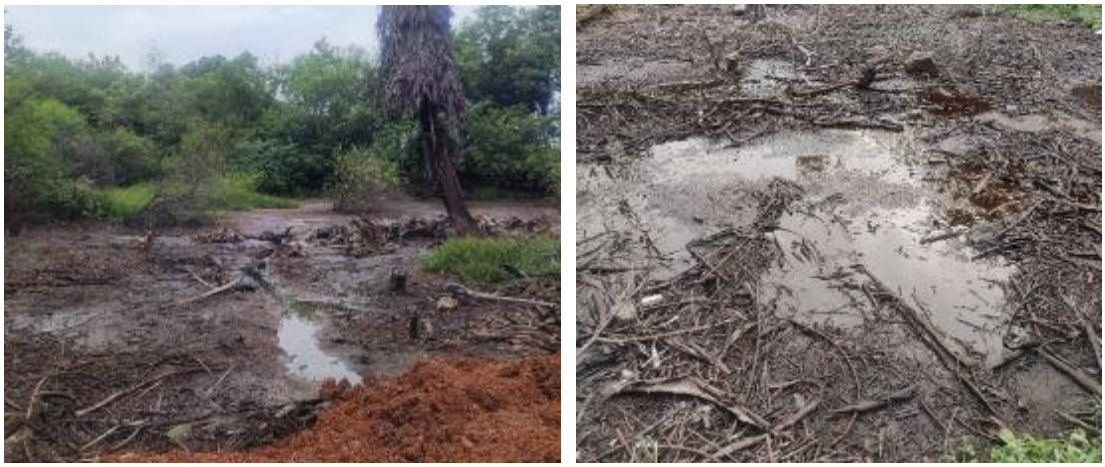
MEE and ATFD

- Samples were collected during the inspection to know whether the unit carry out proper segregation of effluent and also to assess the operational performance of MEE. The analysis result is shown below;

Sl. No.	Parameter	Unit	High TDS Inlet	Low TDS Inlet	MEE Condensate	MEE Concentrate
1.	pH Value	--	5.03	7.4	6.52	6.03
2.	TDS	mg/L	7120	6645	57	9930

The analysis results show that the unit is not carrying out proper segregation of High TDS & Low TDS effluent and the operation performance of MEE is poor, which indicates that unit is not possible to achieve ZLD.

- During inspection, effluent stagnation was observed near the ETP green belt area. The stagnant samples were collected near N-E area and near ETP entrance gate. Samples from these locations were collected to perform finger print analysis (compound detection in raw effluent as well as stagnated water).



Water Stagnation Inside the premises of the Unit

High TDS Inlet	Low TDS Inlet	Stagnated water near N.E area	Stagnated beside of Boiler area/ETP
Butanedioic acid, 2-cyano 1,4-Dioxane, 2,3-dichloro Nickel tetracarbonyl Glyoxal dithiosemicarbazone 1-propane, 3-azido Methyl glyoxal Toluene	Methyl Alcohol Acetone Isopropyl Alcohol Methylene chloride Propane, 2-methoxy-2-methyl Pyridine,2,3-dimethyl	Nickel tetracarbonyl 4-hydroxybutyric acid hydrazi Butanedioic acid, 2-cyano Manganese, acetylpentacarbon Valeric acid hydrazide Glyoxal dithisemicarbazone Methyl Alcohol Ethyl acetate 1-(4-Nitrophenyl)-3,6-diaza	Nickel tetracarbonyl Butanedioic acid, 2-cyano Methyl Alcohol Ethanol, Isopropyl Alcohol, Acetic Acid, methyl ester, Methylene chloride Propane, 2-methoxy-2-methyl Ethyl Acetate

Sl. No.	Parameter	Unit	High TDS Inlet	Low TDS Inlet	Stagnated water near N.E area	Stagnated beside of Boiler area/ETP
1.	pH Value	--	5.03	7.4	7.01	3.67
2.	TDS	mg/L	7120	6645	1410	15230
3.	BOD at 27˚C for 3 days	mg/L	1100	3800	58	3600
4.	COD	mg/L	5412	17220	295	15908
5.	Cyanide as CN	mg/L	--	--	BLQ	BLQ
6.	Hexavalent Chromium as Cr6+	mg/L	--	--	BLQ	BLQ
7.	Oil and Grease	mg/L	--	--	29	233
8.	Phenolic Compounds	mg/L	--	--	BLQ	BLQ
9.	Cadmium	mg/L	--	--	BLQ	0.032
10	Chromium	mg/L	--	--	0.016	0.734
11	Copper	mg/L	--	--	0.098	3.595
12	Lead	mg/L	--	--	0.012	0.081
13	Nickel	mg/L	--	--	0.051	2.885
14	Zinc	mg/L	--	--	0.319	3.965
15	Chloroform	mg/L	0.293	BLQ	BLQ	BLQ
16	Dichloromethane	mg/L	0.685	6.002	BLQ	12.083
17	Toluene	mg/L	30.403	0.345	BLQ	0.254
18	Ethyl Benzene	mg/L	BLQ	15.399	BLQ	BLQ

The analysis report and compounds detection indicates that the stagnated samples exhibit the characteristics of untreated effluent.

Emission Management

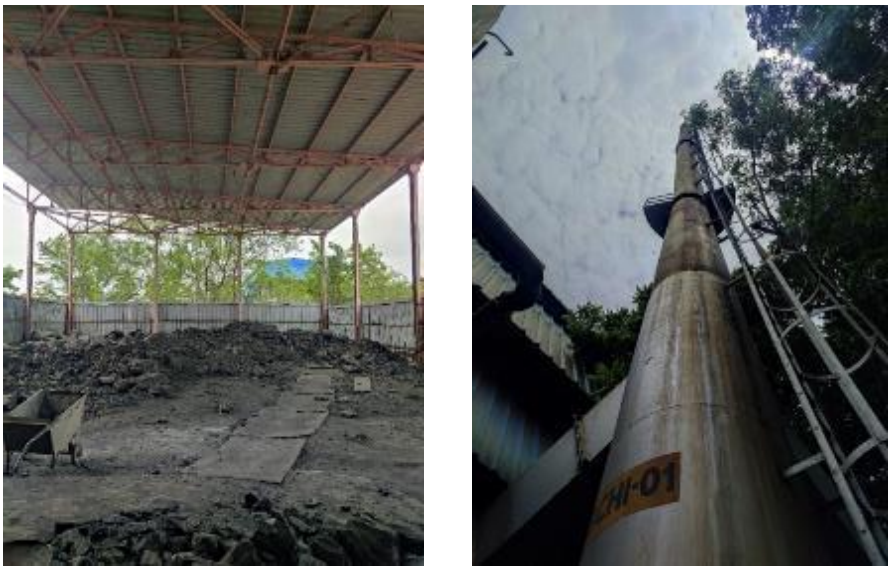
- The unit has provided 2 stage scrubber of 5 nos connected to the reactors. During inspection 2 scrubbers were in operation and monitoring at these were performed to identify source emissions. The analysis result shows that process emissions are within the nationalised notified standards under EP Act.

Parameter	Production block -5	Production block - 2	Notified Standards EP Act
HCl	BDL	15.64	35
NH_3	11.06	<0.7	30
Toluene	0.09	0.189	100
Methanol	0.88	1.11	-
Acetone	0.095	0.08	2000
Ethyl acetate	0.108	0.09	-
Isopropyl Alcohol	0.37	0.32	-

** All units are in mg/Nm^3, Below Detection Limit: VOCs <0.001 ppm, HCl – 0.5, NH_3- 1.0*

- The industry has two coal fired boilers of capacities 10 TPH and 3 TPH. They are connected to common mechanically dust collector, bag filter followed by stack of height 30m. During inspection monitoring of sources emission in boiler stack was carried out. The analysis results given below show that all parameters are meeting the TSPCB prescribed standard norms.

PARAMETER	UNIT	RESULT	STANDARD
Particulate Matter – PM	mg/Nm^3	98.5	115
Sulphur Dioxide – SO_2	mg/Nm^3	336.64	600
Oxides of Nitrogen – NOx	mg/Nm^3	241.96	300



Coal Handling area and Stack connected to Coal Fired Boiler

- Fugitive emission monitoring was performed for a period of 4 hrs at Production Block V and near ETP area and also carried out Ambient Air Quality at the boundaries of industry premises for 24 hrs. The analysis results are given below;

4 hrs Fugitive Emission Monitoring Results (PPM)			
Parameter	**Location of sampling**		**OSHA PEL Std. 8-hour TWA**
	MEE Plant Area	**Production Block -2**	
Toluene	0.014	0.041	200
Methanol	0.045	0.07	200
O-Xylene	BDL	BDL	100
Acetone	0.11	0.18	750
Ethyl acetate	0.05	0.07	400
Butanol	BDL	BDL	100
Ethanol	0.48	0.25	1000
Heptanes	BDL	BDL	500

Hexanes	0.10	0.04	500
Iso Propyl Acetate	0.09	0.13	400

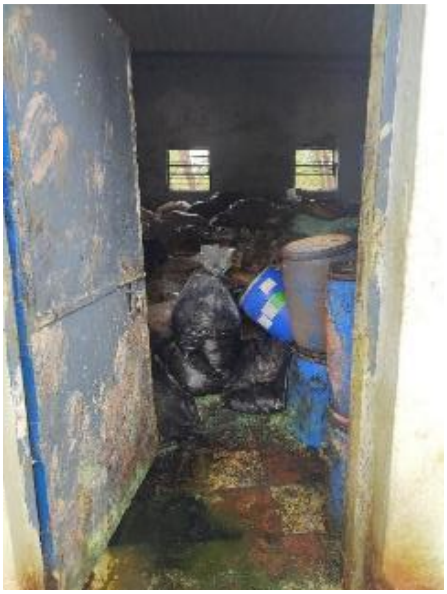
24 hrs Average Ambient Air Monitoring Results (µg/m^3)					
Parameter	**Location of sampling**				**Standards**
	Ware House	**Production Block-3**	**Production Block-5**	**Time office**	
Toluene	1.35	1.25	1.42	BDL	The reported parameters are within limit as compared to the Alberta & ONTARIO'S Ambient Air Quality Criteria
Methanol	28.8	25.5	24.2	20.4	
O-Xylene	4.2	4.1	5.1	3.9	
Acetone	20.8	32.5	45.5	BDL	
Ethyl acetate	5.5	6.2	4.7	BDL	
Ethanol	55.5	40.5	65.8	35.3	
Iso Propyl Alcohol	25.8	28.5	31.5	BDL	
Sulphur dioxide - SO_2	10.8	12.2	13.5	14.5	80
Oxides of Nitrogen – NO_X	14.5	15.7	17.8	18.2	80
Ammonia	20.4	35.5	28.5	19.2	400

Below Detection Limit: VOCs <0.1

Hazardous Waste Management

- The hazardous waste generated by the unit are MEE salts, ETP Sludge, Inorganic solid waste, Organic Residue, Spent Carbon, Solvent Distillation Residue and Organic distillate from MEE stripper. Maximum quantity of hazardous waste that can be generated by the unit as per consent and its disposal is given below.

S.No.	Name of the Hazardous Waste	Quantity	Disposal Option
1.	Organic Residue	10936 kgs/day	Co-processing/TSDF/Pre-processing
2.	Spent Carbon	347 kgs/day	
3.	Solvent Distillation Residue	2425 kgs/day	
4.	ETP Sludge	230 kgs/day	
5.	Organic Distillate for MEE Stripper	2120 kgs/day	
6.	Inorganic Solid Waste	3774 kgs/day	TSDF for landfill
7.	MEE Salt	7704 kgs/day	
8.	Used Oil	3000 Lts/Year	Authorized Recycler
9.	Spent Solvent	115.16 TPD	Recovered within premises
10.	Containers & Container liner of HW & Haz Chemicals	1500 No/Month	Authorized Recycler



Hazardous Waste Storage Unit

- The hazardous waste generated & disposed details submitted by the industry is given below.

S.No.	Month	Hazardous waste	Generation in Tonnes	Disposal In Tonnes
		Opening Balance 11.6		
1	Mar-23	Organic Residue/Spent Carbon/Solvent Distillation Residue/Organic Distillate from MEE stripper	9.8	19.5
2	Apr-23		9.4	
3	May-23		9.3	10.3
4	Jun-23		8.4	
5	Jul - 23		9.2	10.6
6	Aug -23		8.5	
7	Sep -23		-	9.5

S.No.	Month	Hazardous waste	Generation in Tonnes	Disposal In Tonnes
		Opening Balance 2.8		
1	Mar-23	In Organic MEE Salts, ETP Sludge/Inorganic Solid Waste	18.6	17.7
2	Apr-23		18.2	19.5
3	May-23		18.9	15.1
4	Jun-23		18.5	21.7
5	Jul - 23		18.3	21.2
6	Aug -23		18.7	-
7	Sep -23		-	13.3

It is observed that the unit is not maintaining details of waste generation & disposed in category wise and same is observed in the Annual Submission Report Form 4.

- The unit has provided two closed shed with concrete flooring of sizes 63.8 m^2 and 59.625 m^2 for storage of hazardous waste.

Other Management

- The industry has set up Solvent Recovery System with total capacity of 14 KLD. During inspection, SRP was not in operation. It is informed that, about 95-96% of solvents are recovered and remaining 4-5% residue generated are sent to co-processing.
- The unit has provided flow meters in inlet of HTDS, LTDS, RO feed, permeate & reject, MEE feed and MEE condensate. The flow meters of RO permeate, inlet of HTDS & LTDS connected to TSPCB server, whereas RO permeate only connected to CPCB server.
- The unit has not installed online analyser in the stack connected to the boiler for monitoring of PM, SO_2, & NO_2.

Conclusion:

- The analysis report indicated the unit is not segregating the LTDS and HTDS effluent and the ETP provided including RO & MEE is not operated properly. ‘
- The analysis report of the stagnated samples collected near the ETP area indicates the characteristics of effluent and same is ensured by the chemical compound analysis of raw effluent & stagnated water sample.
- The hazardous waste generation, storage & disposal is not maintained category wise as per the Authorisation issued by TSPCB.
- The analysis results of source emission monitoring of scrubber and boiler shows that the air pollution control system are operated properly.
- The flow meters installed at inlet of HTDS, LTDS, RO feed & reject, MEE feed and condensate are not connected to CPCB server except RO permeate.
- Online continuous emission monitoring system is not provided in the boiler stack.

Based on the above, the following are suggested for taking action on the unit by TSPCB

Suggestions:

TSPCB may be take necessary action against the industry and to comply the following suggestions;

- The unit shall properly segregate the effluent as high TDS stream and low TDS stream.
- The unit shall ensure proper maintenance and operation of ETP. Filter press shall be provided instead of sludge drying bed.

- The unit shall enhance the capacity of RO as per the ETP treatment capacity 300 KLD.
- The unit shall operate the MEE properly to achieve ZLD.
- **The stagnated samples collected near the ETP area shows the nature of effluent, so industry shall ensure that no untreated effluent discharged on land and achieve proper ZLD.**
- The industry shall properly maintain individual category wise records of hazardous waste generation, storage and disposal. Same shall be maintained in Annual Report Submission Form 4.
- The unit shall connect the flow meters installed at inlet of HTDS, inlet of LTDS, RO feed, RO Reject, MEE feed and condensate to CPCB server.
- The unit shall provide online analyser in the stack connected to the boiler for measurement of PM, SO_2, & NO_2 and same shall be connected to CPCB & TSPCB server
- The unit shall provide cameras around the ETP area in order to monitor any discharge of effluent. The cameras shall be connected to TSPCB & CPCB server.

(R. Rajkumar)
Scientist E

ANNEXURE 4

Inspection Report of M/s Maruti Cottex Limited

M/s Maruti Cottex is located at Sy No. 257, Choutuppal (Village & Mandal) Yadadri Bhuvanagiri District. The unit is involved in dyeing and printing of fabrics. The unit has obtained combined consent and authorisation for fabric processing 1,50,000 Mts/day and Printed Synthetic 1,50,000 Mts/day. The validity of consent is till 31.12.2023.

Observations:

Waste Water Management:

- The unit is consented to segregate the effluent has HTDS and LTDS and allowed for generation of 800 KLD HTDS and 313.5 KLSD of LTDS effluent.
- The unit is not segregating the effluent as per the consent.
- The unit has biological ETP system (ZLD system) of capacity 800 KLD which consists of Oil and Grease trap, neutralisation tank, flash mixer and flocculator, primary clarifier, 1st stage aeration, secondary settler, 2nd stage aeration, tube settling tank, pressure sand filter, activated sand filter, Sludge drying bed. After Treatment, the effluent is further taken to Ultra Filtration (UF), followed by 3 stage RO. MEE and ATFD. The unit is not having adequate capacity for treatment of HTDS and LTDS effluent.

Secondary Clarifier and Neutralization Tank

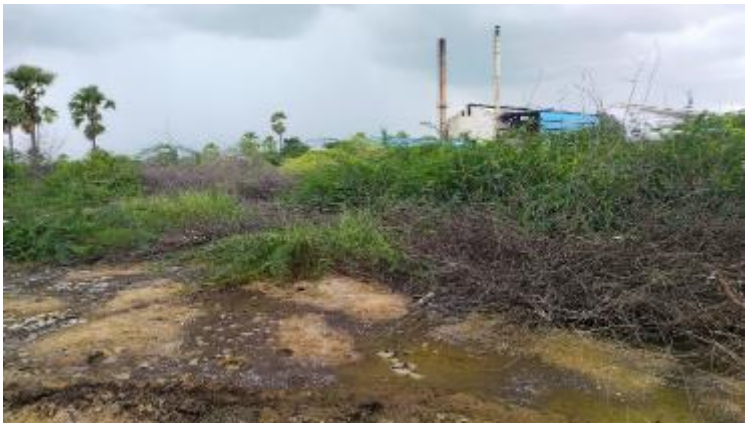
1St Stage RO Plant

- Samples were collected during inspection for analysis the performance of ETP. The analysis report is shown below;

Parameter	pH value	TDS	TSS	BOD	COD
Equalization Tank	6.51	4470	9740	4000	17876
Effluent from ETP (After active filter)	4.32	5515	170	240	1148
RO Inlet	7.05	1156	--	--	--
1st Stage RO Permeate	7.2	1265	--	--	--
1st Stage RO Reject	7.35	2230	--	--	--
2nd Stage RO Permeate	5.86	47	--	--	--
2nd Stage RO Reject	7.34	2345	--	--	--

As per the analysis report, it shows that effluent is not treated properly and ROs are also not working efficiently, which indicates poor performance and not able to achieve ZLD.

- Dense Juliflora growth was observed inside the unit premises and found difficult to get access to go inside the area. Some stagnation was observed in this area, there was no enough quantity to collect the samples for analysis, hence TDS was measured using TDS meter. The TDS observed in the stagnated water ranges from 2100 to 5700 ppm. The high TDS indicates the discharge of effluent.



Dense Juliflora growth with water stagnation

Stagnated water testing with TDS meter

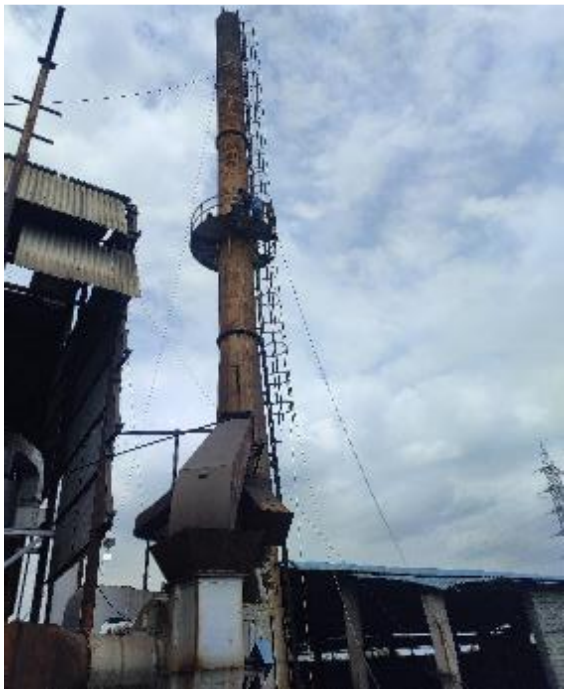
Hazardous Waste Management:

- The unit is consented for generation, storage & disposal of hazardous wastes is ETP sludge – 4500 Kgs/month, ATFD salt – 1500 kgs/month (disposed to TSDF/Co-Processing) and waste oil - 200 LPM (disposed to recycler/ re-processor or TSDF or pre-processor).
- The unit is not maintaining proper records for generation, storage and disposal of Hazardous waste.

- The unit has not provided dedicated storage facility for hazardous waste storage.

Emission Management:

- The unit has a 6 TPH husk fired boiler and Thermic fluid heater of 1 Lakh K.Cal/hr which are connected to mechanical dust collector, Multi cyclone dust collector. Another boiler of capacity 3 tons/hr and thermic fluid heater of 1 Lakh K.Cal/hr it has separate mechanical dust collector, multi cyclone dust collectors. Both the boilers after cyclone is connected to the common water tank and followed by the stack of 30 mt height.



Stack connected to husk fired boiler

- Boiler monitoring was carried out and the analysis results shows that all parameters are within TSPCB prescribed limit.

PARAMETER	UNIT	RESULT	TSPCB STANDARD
Particulate Matter – PM	mg/Nm^3	87.2	115
Sulphur Dioxide – SO_2	mg/Nm^3	9.58	600
Oxides of Nitrogen – NOx	mg/Nm^3	115.17	300

Other Management:

- The unit has digital flow meters at inlet and outlet of ETP and MEE feed and RO permeate but these are not connected to TSPCB.

Conclusion:

- The waste water generated is not segregated as HTDS and LTDS as per the consent condition.
- The analysis report of the samples collected in the ETP & RO indicated that the existing system is not adequate and operated properly to achieve ZLD.
- Analysis report of the boiler emission are within the norms and indicates that air pollution control system are operated properly.
- During the visit, stagnation of water is observed in the dense Juliflora plant growth area inside the premises and the TDS measured is around 2100 to 5700 ppm, which indicates the discharge of effluent.
- The flow meters provide at inlet and outlet of ETP and MEE feed and RO permeate are not connected to TSPCB. In order to verify/ monitor ZLD system additional flow meters are required in all stages of RO permeate & reject, MEE condensate.

Based on the above, the following are suggested for taking action on the unit by TSPCB

Suggestions:

TSPCB may to take necessary action against the Industry and to comply the following suggestions.

- The unit shall segregate the effluent as LTDS and HTDS as per the consent and provide separately treatment system accordingly.
- The unit shall augment the ETP, RO and MEE system to treat the LTDS and HTDS effluent and ensure adequate capacity of the treatment units.
- **The TDS observed in the stagnated water ranges from 2100 to 5700 ppm. The high TDS indicates the discharge of effluent, so the unit shall achieve ZLD and ensure that no untreated/treated/partially treated effluent discharged on land.**
- The unit shall provide separate dedicated facility for storage of hazardous waste generated in the unit.
- Juliflora plant growth inside the premises shall be removed and green belt shall be developed. Proper access shall be provided in the green belt area.

- The unit shall provide flowmeters for inlet & outlet of LTDS & HTDS treatment plants, UF inlet & outlet, all stages of RO inlet, outlet & permeate, MEE inlet, & condensate. These flow meters shall be connected to TSPCB server.
- The unit shall provide cameras around the unit in consultation with TSPCB in order to monitor any discharge of effluent. The cameras shall be connected to TSPCB.

(R. Rajkumar)
Scientist E

BEFORE THE NATIONAL GREEN TRIBUNAL (SOUTHERN ZONE) CHENNAI

ORIGINAL APPLICATION NO. 80 OF 2021(SZ)

IN THE MATTER OF:

Kalushya Parirakshna Samithi

... Applicant

Versus

Union of India and others

… Respondents

INSPECTION REPORT FILED ON BEHALF OF CENTRAL POLLUTION CONTROL BOARD (CPCB)

Advocate R. Thirunavukarasu

COUNSEL FOR CPCB