

	M/s Govind Solvents Pvt. Ltd., Kunigal Industrial Area, Tumkur - 572 130, Karnataka	South Zonal Office, Bangalore
<p>Back Ground:</p> <p>M/s Govind Solvents Pvt., Ltd., was inspected by a team of CPCB, zonal office Bangalore on November 22, 2012. The report was examined by Member Secretary and directed to re-inspect the unit to verify the TDS concentration in Low TDS , High TDS streams and MEE Condensate and also to verify the BOD to COD ratio in High TDS stream. In this regard, H.O. asked the zonal office, Bangalore vide letter dated November 29, 2013 to re-inspect and to submit the report. In response to H.O. letter, a team of officials from zonal office (south) inspected the above mentioned CETP on February 10, 2014. During inspection the CETP was found in partial operation, the overall observations, details and status of operation of CETP are as follows;</p>		
1	Name/ address of CETP/ company:	M/s Govind Solvents Pvt. Ltd., No. 19(P) - 22, Kunigal Industrial Area, Kallanayakana Village, Kunigal - 572 130, Tumkur Dist., Karnataka
2	Area occupied by CETP (plot area):	10 acres
3	Total no. of staff (including operational & skilled persons):	10 nos.
4	Contact person (Name, Designation, and Contact No, FAX, e mail):	Mr. S.V. Nagaraj, Executive Director Phone no.: 093410 40401, e-mail Id: gspl@govindsolvents.com
5	Status of CETP: operational or closed (if closed since when):	Partially operational
6	Consent & Authorization: <ul style="list-style-type: none"> • Valid up to: • Applied (date of application): 	The consent under Water and Air Act is valid till 30-06-2014. The Hazardous waste authorization is valid till 30-06-2016. Details enclosed as Annexure - 1
7	Industrial area/estate (s) connected to CETP:	Kunigal Industrial area, Tumkur.

8	Type of industries in the connected industrial areas: Enclosed as Annexure -2																																
8.1	Number of member industries of CETP:		The unit has 156 member units																														
9	Method of collection of effluent (pipeline/tanker):		The unit receives effluents through tankers.																														
	<ul style="list-style-type: none"> If collection is by tankers, average No. of tankers/day: Capacity of tankers, m³: 		<ul style="list-style-type: none"> 2 - 3 tankers/day 12 KL capacity and 20 KL capacity. 																														
10	Details of flow meters (Type, location and operational status):		The unit has not installed Electromagnetic flow meter at the inlet and outlet of CETP.																														
11	Treatment capacity: KLD / Design flow of CETP: m ³ /hr		The design capacity of the CETP Low TDS -----50 m ³ /day High TDS -----25 m ³ /day																														
12	Wastewater treated: KLD / Average flow reaching CETP m ³ /hr		Low TDS ----- 40-45 m ³ /day High TDS ----- 15-20 m ³ /day																														
13	Wastewater if bypassed in CETP from treatment:		No bypass arrangement is existing																														
	<ul style="list-style-type: none"> Flow/volume of wastewater bypassing treatment units in CETP: 																																
14	Treatment units and dimensions (Attach flow chart also):		The flow chart of ETP is enclosed as Annexure - 3																														
15	Details of chemicals used:																																
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16	Design parameters & standards given by Karnataka State Pollution Control Board: *All values are in mg/L, except pH																																
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					results of CETP)	of KSPCB
	pH	>1	-	-	8.0 -8.5	6.5-9.0
	SS	-	-	-	14 -18	100
	TDS	<4000 mg/l	-	-	1528 - 1600	2100
	Conductivity	-	-	-	-	-
	BOD	-	-	-	7.0 - 10	100
	COD	-	-	-	207 - 220	250
	O & G	-	-	-	BDL	10
	Chloride	-	-	-	380 - 400	600
	Sulphate	-	-	-	196 - 210	1000
	Residual sodium Carbonate	-	-	-	Nil	5.0
	BOD/COD Ratio	-	-	-	-	-
	Cyanide	-	-	-	-	-
			MLSS in mg/l	MLVSS in mg/l	DO in mg/l	
	Aeration Tank-1		2500 -3000	-	-	
	Aeration Tank-2		2500 -3000	-	-	
17	<p>Primary sludge management system:</p> <ul style="list-style-type: none"> • Primary sludge generation rate (m³/day or tons/day): • Number & capacity of sludge drying beds: • Details of any other methods for sludge thickening (filter press/rotary filters etc.) • Quantity of sludge stored: • Primary sludge disposal-*(Secured landfill or TSDF):*(Co-incineration if any): 				<ul style="list-style-type: none"> • 200 – 250 kg/ day • 02 No. SDB of capacity 1 ton • Filter press. • Approximately 10 tons • The sludge generated is send to TSDF Dobbespets. 	
18	<p>Excess Biological Sludge Management System:</p> <ul style="list-style-type: none"> • Excess Biological Sludge generation rate: 				<ul style="list-style-type: none"> • ----- 	

	<ul style="list-style-type: none"> • Number and capacity of sludge drying beds: • Details of any other methods for sludge thickening (filter press/rotary filters etc.) • Quantity of sludge stored: • Excess Biological Sludge Disposal: 	<ul style="list-style-type: none"> • 02 No. SDB of capacity 1 ton • Filter press • 10 tons • The sludge generated is send to TSDF Dobbespel.
19	Conveyance system for disposal of treated wastewater: Drains/ Pipeline	The treated effluent is stored in the sump.
20	Method of Treated wastewater disposal: River/ Land/ Marine/ Others (Specify)	The entire treated effluent is used for gardening purpose within the unit premises.
21	Capital cost with breakup of sources of funds:	No information provided.
22	Operational cost:	` 450/KL for operation of CETP excluding transportation charges.
23	Date of Inspection	February 10, 2014
24	Inspected by (Name & Designation):	Mrs. H.D. Varalaxmi, EE Mrs. D. Sowmya, AEE
25	OBSERVATIONS & FINDINGS	
	<ol style="list-style-type: none"> 1. M/s Govind Solvents Pvt. Ltd., has 156 active members and receiving the effluent in the range 40 - 45 KLD of low TDS effluent against the designed capacity of 50 kld and 20 kld of High TDS effluent against designed capacity of 25 KLD. The unit receives effluent through tankers, the unit has 02 tankers of capacity 12 KL and 03 tankers of 20 KL capacity. 2. During the inspection the unit was found partially operational due to maintenance schedule and power shutdown. The validity of consents under the Water Act & Air Act was upto June 30, 2014 and Authorization under Hazardous Waste is valid upto June 30, 2016. 3. The unit has 2 collection tank for receiving Low TDS effluent and 2 tanks with FRP coating for receiving High TDS effluents from their member units. 	

4. The Low TDS effluent treatment system comprises the 02 no. of collection tank of capacity 30 m³ capacity, Flash mixer, Flocculator, plate settler, 02 SBR tank followed by sand and activated carbon filter and 2 Sludge storage tanks and filter press.
5. The high TDS effluent treatment system comprises of collection tank of capacity 15 m³, Flash mixer, Flocculator, plate settler, MEE and sludge thickener.
6. The member units are not providing any pretreatment before sending their effluents to CETP. No flow meter has been installed at the inlet and outlet of the CETP to assess the quantity of effluent received and quantity of treated effluent.
7. The Low TDS effluent is received in collection tank cum equalization tank and lime & alum is added in the collection cum equalization tank and agitated for two hours and pumped to flash mixer and polyelectrolyte dosage is being given and then treated through flocculator followed by plate settler for settling of suspended solids. Then it is pumped to 02 stages SBR. The clarified effluent from the SBR is pumped to collection tank and treated through Pressure sand filter & Activated carbon filter. The sludge from the plate settler and SBR is then taken to sludge collection tank and dewatered through filter press. **(Photograph no. 3-8)**. During inspection ETP was found partially operated, SBR- 1 & SBR-2 was found under stabilization. It was informed that the entire treated effluent is being used for gardening purpose within the unit premises.
8. The high TDS effluent is received in collection tank and lime & alum is added in the collection cum equalization tank and agitated for two hours and pumped to flash mixer and polyelectrolyte dosage is being given and then treated through flocculator followed by plate settler for settling of suspended solids. The filtered effluent from the plate settler is collected in the intermediate tank. The effluent is then concentrated through 3 stages Multi Effect Evaporator, the part of condensate being used in boiler and part of condensate being mixed with low TDS effluent. After attaining 30-35% solid concentration the concentrated effluent being taken sludge thickener, the thickened sludge is being taken along with other sludge for dewatering in filter press, drained water from filter press is being treated through high TDS effluent. The dried sludge is being stored in the hazardous storage shed. During inspection Plate settler was under repair, MEE was found under back washing to remove salt deposits. No Flow meters were installed to assess the MEE feed, steam, quantity of concentrate and condensate generated from MEE. **(Photograph no. 10 - 14)**.
9. No skilled operators were available in the CETP. The House keeping at ETP was

found good.

10. Since the CETP was partially operational, during inspection samples were collected from collection tanks, out let of low TDS plate settler and from SBR . The analysis results are depicted below:

S. No	Parameter	Low TDS Effluent		High TDS effluent
		Low TDS raw effluent	Outlet of Plate settler	High TDS raw effluent
1	pH	6.8	7.1	4.1
2	EC (µS/cm)	-	-	-
3	TSS (mg/l)	1485	62	870
4	TDS (mg/l)	12800	7595	18000
5	BOD (mg/l)	2827	1282	5424
6	COD (mg/l)	4190	1594	10750
7	Sulphide (mg/l)	BDL	1.3	BDL
8	Chloride (mg/l)	8461	2704	10546
9	Copper (mg/l)	BDL	BDL	-
10	Cadmium (mg/l)	BDL	BDL	-
11	Chromium (mg/l)	BDL	BDL	-
12	Iron (mg/l)	6.31	BDL	-
13	Manganese (mg/l)	0.368	0.117	-
14	Nickle (mg/l)	BDL	BDL	-
15	Lead (mg/l)	BDL	BDL	-
16	Zinc (mg/l)	0.457	0.089	-
17	Cobalt (mg/l)	BDL	BDL	-
18	BOD/COD ration	0.67	-	0.5

11. From the above analysis results, after chemical treatment of Low TDS effluent BOD & COD removal efficiency was found 54 % & 62 % respectively. After Chemical treatment the effluent was taken to SBR which was under stabilization after maintenance schedule. During inspection Clarifier of high TDS effluent was under repair and MEE was found under back washing to remove salt deposits.

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Recommendations w. r. t. specific observations made during inspection:

1. The CETP shall be directed to install electromagnetic flow meter to assess the quantity of effluent taken for treatment, quantity of treated effluent taken for

	<p>gardening purpose, at inlet of MEE to assess the quantity of effluent fed to MEE, to assess quantity of MEE condensate generated and to assess the quantity of , MEE Concentrate taken for salt separation.</p> <p>2. The CETP shall be directed to operate the unit properly and efficiently to achieve the desired standard.</p> <p>3. The CETP shall be directed to monitor ground water quality of the surrounding area and to submit reports to CPCB/SPCB.</p> <p>4. The unit shall be directed to appoint qualified and skilled operator to operate CETP.</p> <p>5. The CETP shall be directed to achieve zero discharge by installing tertiary treatment system for Low TDS effluent.</p> <p>6. Present practice of concentration of High TDS effluent in 3 stage Multi effect evaporator and thickening of solids and recirculation of mother liquor in MEE found inadequate. Hence the CETP shall be directed to install drier or salt recovery system for efficient treatment of High TDS effluent and to achieve zero discharge.</p>
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D. Sowmya
Scientist 'B'

H.D. Varalaxmi
Scientist 'C'

List of Enclosures

Sl. No	Caption of Annexures	Details of Enclosure
1.	Annexure -1	Consent under Water & air Act and HW Authorisation
2.	Annexure -2	Details of member units connected
3.	Annexure -3	Flow chart of CETP

Photographs of M/s Govind Solvent Pvt. Ltd.,



Fig 1 : Display Board at the Entrance



Fig 2 : Over all view of CETP



Fig. 3 : Low TDS Collection tank



Fig 4 : Chemical dosage tank



Fig. 4: Flash Mixer, flocculator followed by Plate Settler for Low TDS effluent



Fig 5. : Sludge storage tanks



Fig. 6 : SBR-1 and SBR -2 for Low TDS effluent



Fig. 7 : Treated water Collection tank



Fig. 8 : Pressure sand filter and carbon filter



Fig 9. : Two filter Press to dewater the sludge generated from Low & high TDS chemical treatment, biological sludge and salt from MEE concentrate



Fig. 10 : High TDS Collection tank



Fig 11 : Chemical dosage tanks, Flash mixer flocculator followed by plate settler (which was under repair during inspection)



Fig. 12: Three Effect MEE and Recirculation tank which was under back washing process during inspection





Fig 13. : Cooling Tower



Fig 14 : Sludge and salt storage shed