FINAL ACTION PLAN
FOR IMPROVEMENT OF
ENVIRONMENTAL PARAMETERS
IN
CRITICALLY POLLUTED AREAS OF
"PATANCHERU-BOLLARAM CLUSTER"
ANDHRA PRADESH

NOVEMBER 2010

A.P. POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN, A-3, IE, SANATHNAGAR, HYDERABAD

www.appcb.ap.nic.in

PREFACE

CPCB has evolved a Comprehensive Environmental Pollution Index (CEPI) for 88 study areas with an objective of identifying polluted clusters or areas in order to take concerted action and to centrally monitor them at the national level to improve the current status of their environmental components such as air and water quality, ecological damage and visual environmental conditions. As per the study of CPCB, the Patancheru – Bollaram was considered as critically polluted area.

The Steering Committee of CPCB, New Delhi on CEPI reviewed the draft Action Plan of **Patancheru - Bollaram cluster** of Andhra Pradesh State on July, 2010 and gave certain suggestions / comments. Taking into consideration of the suggestions / comments of steering committee, a revised action plan was prepared by APPCB and submitted to the CPCB.

The MoE&F has reviewed the revised action plan of APPCB for Patancheru -Bollaram Areas and subsequently, delisted the same from the Critically Polluted Areas vide MoE&F Notification Dated 26th October 2010.

The Central Pollution Control Board's In-House Committee reviewed the revised Action Plan of the Board on 02.11.2010 for Patancheru-Bollaram cluster in light of the suggestions made by Steering Committee in October, 2010. The meeting was attended by the Board Officials. During the meeting the In-House committee observed that some of the suggestions of the Steering Committee have been incorporated in the Action Plans. However, it has sought the Final Action plans for the cluster area.

Accordingly, APPCB has prepared the Final Action Plan on Critically Polluted Area of **Patancheru - Bollaram cluster** taking into consideration the suggestions made by the In-House committee and the same is submitted to the Central Pollution Control Board, New Delhi for Consideration.

INDEX

ACTION PLAN FOR PATANCHERU-BOLLARAM AREAS

1. Introduction:

- In the early 80's, many Bulk Drug, Chemical, Pesticides and other Water Polluting units were established in Patancheru - Bollaram area of Medak District.
- Initially the industries in Small Scale sector could not set up full fledged ETPs and were discharging partially treated effluents resulting in pollution of Nakkavagu and ground water in the adjacent villages. Thus, the Areas of "Patancheru – Bollaram" were identified as critically Polluted areas.
- At present there are 106 industries identified as pollution potential industries which are either located in the critically polluted areas of Patancheru-Bollaram these are now members of the Common Effluent Treatment Plant (M/s.PETL, Patancheru) and sent their effluents to M/s.PETL, Patancheru for further treatment and disposal. The list of industries is placed at **Annexure-I.**

Background :

- The Indian Council of Enviro Legal Action has filed a PIL in Hon'ble Supreme Court of India regarding pollution problems in the areas of "Patancheru-Bollaram".
- Pollution problems in Medak district were reviewed by the Hon'ble Supreme Court in the Writ Petition No.1056/90 and transferred the case to the Hon'ble High Court vide W.P.No.19661/2002 for implementation of directions and further action.

Steps taken to reduce the pollution problems in "Patancheru-Bollaram" area

The following measures were taken by Govt. of AP/APPCB to control the pollution in "Patancheru-Bollaram" areas:

(a) Establishment of a Common Effluent Treatment Plant by name M/s.Patancheru Enviro Tech Ltd., (PETL) in Patancheru during 1994 to treat 7,500 KL/Day of industrial effluents generated by the industries in and around "Patancheru-Bollaram" areas. However, the Common Effluent Treatment Plant (CETP) could not achieve the desired results initially due to high TDIS.

(b) Establishment of TSDF near Kazipalli industrial area which started functioning in 2001.

(c) **Banning of establishment / expansion of polluting industries:** On recommendation of APPCB, the State Government vide GO Ms.No.62, dated

28.04.1999 and GO Ms.No.95, dated 21.09.2007 has issued ban notification prohibiting establishment / expansion of certain polluting industries in and around IDAs / IEs including industrial areas located in "Patancheru-Bollaram" areas.

(d) All the member industries were directed to segregate the effluents into High Total Dissolved Solids (High TDS) and Low Total Dissolved Solids (Low TDS) streams. The High TDS effluents are force evaporated individually within the premises of industries and salts are sent to Treatment Storage and Disposal Facility (TSDF), Dundigal.

(e) The low TDS pre-treated effluents are transported to CETP by the industries in dedicated tankers duly following the manifest system.

(f) As per the directions given by the Hon'ble Supreme Court, APPCB has directed all the industries to close the outlets, which may otherwise join the water bodies. Industries were directed to construct separate drains for storm water / rain water and effluents.

(g) The EFS&T Department, Government of A.P. issued a GO Rt.No.286, dated 05.07.1999, to transport the effluents to CETPs between 6 AM to 6 PM and also to confiscate and penalize the tanker and transport companies indulging in illegal movement of effluent tankers operating without proper manifest forms and plying in between 6:00 PM to 6:00 AM i.e. during night times, to control illegal dumping of effluents. The APPCB had formed night surveillance teams to check the illegal dumping of effluents and hazardous waste and to check the illegal movement of effluent tankers.

1.2.1 Fact Finding Committee:

The Hon'ble High Court in its order dated 25.09.2003 has constituted a five member Fact Finding Committee with Justice A. Gopal Rao (Retd.) as the Chairman, for submission of a status report in accordance with Terms Of Reference (TOR). Based on the report an appropriate orders could be issued by the Hon'ble High Court. Accordingly the Fact Finding Committee visited the pollution affected villages and industries in Medak District during December, 2003 and January, 2004. The Committee heard the pollution problems from the villagers, visited the agricultural fields, vagus, tanks and collected soil, surface water and ground water samples. The Committee has submitted its report to Hon'ble High Court in March, 2004 and till now orders from Hon'ble High Court are awaited.

After initiating various measures as stated above, the APPCB is continuously monitoring the ground water in Nakkavagu basin, to ascertain the improvements in its quality. The Fact Finding Committee constituted by the Hon'ble High Court observed in its report that "over the years, technological advances and industry initiatives have also resulted in improving the discharge concentrations". The Fact Finding Committee has also observed that "the rate of pollution to the Nakkavagu basin from Common Effluent Treatment Plant (CETP), Patancheru is considerably reduced".

1.2.2 Compensation Paid to Farmers:

As per the directions of the Hon'ble Supreme Court and Hon'ble High Court, the State Govt., has paid an amount of Rs.2,34,35,535/- to the pollution affected farmers as compensation on polluters pay principle for crop damaged in 14 villages for the period from 1984 to 1999.

For the period 1999-2002:

The Fact Finding Committee (FFC) recommended to pay Rs.72,08,471=25 towards crop damage compensation for a further period of three years i.e. upto 2002 (from 1999-2002). The Committee has submitted its report to Hon'ble High Court in March, 2004 and further orders from Hon'ble High Court are awaited.

As per the Fact Finding Committee recommendations, an amount of Rs.72,08,471=25 was collected by the District Collector towards crop damage compensation for the period from 1999-2002 @ Rs.1300/- per acre per year for dry lands and Rs.1700/- per acre per year for wet lands and waiting for Court order for disbursement.

1.2.3 Constitution of Special Taskforce for Medak District.

The Fact Finding Committee (FFC) recommended "for setting up of a separate Taskforce of APPCB exclusively for Medak District with a special thrust to "Patancheru-Bollaram" areas for effective enforcement of Environmental Regulations and to ensure continuous compliance with the Hon'ble Court directions".

As per the Fact Finding Committee recommendations, the Govt. of Andhra Pradesh has constituted a special Taskforce exclusively for Medak District vide G.O.Ms.No.76, Dt.28.02.2009 which has started functioning from 28.03.2009.

1.2.4 Drinking water supply to the pollution affected villages:

As per the directions of the Hon'ble Supreme Court and Hon'ble High Court, the State Govt., has been supplying drinking water to 20 villages in Medak Dist.

The 106 member industries of M/s.Patancheru Enviro Tech Ltd., (CETP) are paying Rs.2.15 lakhs every month to HMWS&SB towards supply of drinking water charges being supplied to the pollution affected villages.

1.3 Implementation of Joint Action Plan (JAP), 2007 of APPCB & CPCB as approved by the Hon'ble Supreme Court

(a) In furtherance of the orders of the Hon'ble Supreme Court, in a matter that has originated under the Hazardous Waste Management, a Supreme Court Monitoring Committee (SCMC) was constituted which made inspections all over the country. In the month of October 2004, the SCMC inspected M/s. PETL and other areas of Hyderabad and came up with a suggestion that all the measures of CETPs are not environmental friendly. APPCB has then imposed stringent standards on industries and CETPs vide orders dated 05.08.2005 and 26.12.2005. Aggrieved by the same, some of the industries as well as the CETPs approached the Hon'ble Supreme Court for directions. During the pendency of the said proceedings, the Hon'ble Supreme Court directed the CPCB and APPCB shall meet to serve out the problem, if possible. In that meeting it will be open to the two Boards to call the petitioners therein if so advised.

(b) Accordingly, the CPCB and APPCB convened a meeting on 02.07.2007 with M/s. PETL and other member units. With due consideration to the consultation with the member units, the CPCB and APPCB submitted a Joint Action Plan to the Hon'ble Supreme Court. A copy of Joint Action Plan is placed at **Annexure-II**.

(c) The Hon'ble Supreme Court has endorsed the action plan submitted by APPCB & CPCB vide order dated 17.07.2007. While passing the orders, the Hon'ble Supreme Court has directed the Board to implement the action plan as per the time schedule given in the action plan.

(d) In compliance with the Hon'ble Supreme Court Order dt: 17.07.2007, the APPCB, has issued directions to M/s. PETL, Patancheru on 25.07.2007 and to the member industries on 31.07.2007 for effective implementation of Joint Action Plan of CPCB and APPCB. The effective date of implementation of Joint Action plan was started from 01.08.2007 and was completed by January'2009. During this period the APPCB has strictly implemented the Joint Action Plan and the defaulters were penalized as per the Joint Action Plan. As M/s. PETL was not complying

with the standards stipulated in the Joint Action Plan, M/s. PETL was levied penalty for Rs.2,72,49,000/- for the period from Nov'2007 to January,2009. As M/s. PETL has not paid this penalty amount as per the Joint Action Plan, 2007 and also not complying with the standards, the APPCB has invoked the Bank guarantee of Rs.50.00 Lakhs submitted by M/s. PETL as per the Joint Action Plan and also the Bank accounts of M/s. PETL were freezed. Aggrieved by the actions taken by APPCB, M/s. PETL approached the Hon'ble High Court in W.P.No.3510/2009. It also filed W.P.M.P.No.4559/2009 seeking a direction to the Board, not to take coercive steps against M/s. PETL, pending WP.No.3510 of 2009 in Hon'ble High Court. The Hon'ble High Court vide order dt.04.03.2009, granted **"**Interim directions as prayed for, subject to the condition of depositing Rs.50 Lakhs within a period of eight weeks from today. It is also made clear that the petitioner shall adhere to the inlet standards strictly in terms of the action plans approved by the Hon'ble Supreme Court. In default, WPMP No.4559 of 2009 stands dismissed.**"** In compliance with the Hon'ble High Court orders, M/s. PETL has deposited an amount of Rs.50.00 Lakhs on 24.04.2009. The said W.P.No.3510 of 2009 is pending adjudication.

1.4. M/s. PETL, Patancheru, Medak District.

- M/s. PETL, Patancheru was established in 1994.
- This CETP has 106 No. of member industries. All the member industries are sending only their low TDS effluents (TDS less than 5000 mg/lt from 01.02.2009) to the CETP for treatment and disposal.
- The CETP is designed for treatment of 7500 m^3/day of industrial effluents
  (A flow diagram of PETL is appended vide **Annexure – VI**).
- The Board has issued directions in August 2005 to PETL to achieve Surface water standards under Environmental Protection Act, 1986 for discharge of treated effluent, in view of the Supreme Court Monitoring Committee (SCMC) directions. PETL filed writ petition in Hon'ble Supreme court against the Board directions. The Hon'ble Supreme Court while disposing the petition filed by PETL approved the Joint Action Plan 2007 (JAP 2007) submitted by APPCB & CPCB for implementation of surface water standards for CETPs and member units.
- APPCB implemented JAP 2007 from Aug.2007 to Jan.2009 (18 months) and penalised the defaulters for not complying with the standards prescribed in the Joint Action Plan. The Board has obtained Bank Guarantees from member industries and CETPs as per the Joint Action Plan 2007 as detailed below.

  - SSI units – Rs. 10 lakhs
  - Large & medium industries – Rs. 40 lakhs
  - CETPs – Rs. 50 lakhs of Bank Guarantees.
- Penalty of Rs.30 per KL was levied on defaulting member industries and Rs. 300 per KL from CETPs for non-compliance of standards.
- Rs,5,40,400 was levied as penalty on member units for non-compliance.
- Rs.2,72,49,000 was levied as penalty on PETL. Bank Guarantee of Rs.50 lakhs of PETL was forfeited in Feb.2009. M/s.PETL Bank Account was frozen for non-payment of penalty. Aggrieved by the action of the Board, M/s.PETL approached the Hon'ble High Court who issued order to M/s.PETL for payment of Rs.50 lakhs, as a part payment of the penalty. The Case is pending.
- From 1.02.2009, APPCB implemented the following:
  - Implemented the inlet standards of PETL by deputing AEEs/Analysts from 6.00 A.M to 6.00 P.M who check the inlet standards of effluent tankers received from member industries.
  - Returned 769 tankers (7690 KL) which did not meet the standards.
  - Monitoring M/s.PETL on regular basis for inlet and outlet standards
  - M/s.PETL improved the aeration process at primary treatment
  - Dissolved Air Floatation (DAF) unit was upgraded
  - improved seeding of effluent with microbes to improve the biological treatment
  - Replaced the ½ inch liquid oxygen pipeline with 1 inch pipeline at secondary treatment unit to increase the quantity of oxygen for aeration
  - Installed online VOC, TDS, TOC and flow meters at the outlet of M/s. PETL.

- After further analysis and report by NEERI, the final report on APIs shall be submitted to MoEF, GoI
- 18 Km pipeline was laid by HMWS&SB for transportation of treated effluents from the outlet of PETL to K&S main sewer which is connected to the newly constructed Sewage Treatment Plant (STP), Amberpet and finally discharging the treated waste water into river Musi.
- The Outlet of PETL was connected to 18 Km Pipe line on 07.07.2009 after achieving the prescribed standards, in a phased manner, which ultimately joins STP at Amberpet.

Initially, 25% (500 KLD) of the treated effluents of PETL were connected to 18 km pipeline on 07.07.2009, 50% (1000 KLD) from 09.08.2009, 75% (1500 KLD) from 07.10.2009 and 100% (2000 KLD) on 26.03.2010.

- M/s.PETL and the STP at Amberpet are monitored regularly and it was observed that M/s.PETL is meeting the prescribed standards and Amberpet STP is meeting the surface water standards.
- Further, M/s. PETL has installed Membrane Bio Reactor (MBR) during 2010 at a cost of Rs. 4.84 Crores to further reduce the Suspended Solids by 95% and COD by 45%. At present the out let Suspended Solids is about 52 mg/lt and COD is about 219 mg/lt. The MBR is under wet trail runs.
- Provided standby power supply to CETP through D.G. sets of capacity 2 x 725 KVA.
- Also to reduce the pollution Load at M/s. PETL, the Board has directed 12 major bulk drug manufacturing units which are generating **more than 25000 Lt/Day of industrial effluents** to **achieve zero discharge by 31.12.2010 by installing** ETP, Reverse Osmosis (RO) Plant, Stripper, Multiple Effect Evaporator (MEE) and Agitated Thin Film Drier (ATFD) on site.
- Accordingly, out of 12 major bulk drug units, 5 units have already achieved zero discharge and not sending the effluents to M/s. PETL. The other 7 units are in the progress of installation of zero discharge systems and will be completed by 31.12.2010. Beside the above 12 major bulk drug units, another 15 units in Patancheru – Bollaram area have proposed to upgrade their treatment/control systems by 31.12.2010 to reduce the impact of water and air pollution in the area. These 27 industries are investing Rs.154.15 crores.

The officials of the Board are monitoring the inlet and outlet of M/s. PETL, Patancheru & outlet of Amberpet STP. As per the analysis reports for the period from January-2009 to October 2010, the values are within the limits.

1.5 Performance of M/s. PETL during 1994 to October 2010.

YEAR	INLET (TOTAL DISOLVED SOLIDS in mg/lt)	OUTLET (TOTAL DISOLVED SOLIDS in mg/lt) (Standard-2100 mg/lt)
1994 – 1997	20,000 – 40,000	About 18,000
From 12.05.1998	< 15,000	About 8,000
From 26.12.2005	< 10,000	About 6,000
From 01.02.2009	< 5,000	About 2,700
May 2010	< 2,293	1,994
June 2010	**< 2073**	**1856**
July 2010	**< 2368**	**1846**
August 2010	**< 2350**	**1837**
September 2010	**< 2334**	**1856**
October 2010	**< 2319**	**1847**

1.5.1 Steps taken by APPCB for improving the performance of M/s.PETL from February 2009 so as to achieve the prescribed discharge standards.

(a) As the Joint Action Plan, 2007 was completed by January, 2009, the APPCB has taken the following specific steps from 01.02.2009, so that M/s Patancheru Enviro Tech Ltd., a common effluent treatment plant which is treating the effluents of 106 member industries of Patancheru area meets outlet standards as prescribed in the Joint Action Plan, 2007:

(b) Strictly implemented the inlet standards in M/s. PETL, as stipulated in JAP, 2007, by deputing Asst. Environmental Engineers and Analysts of the Board at M/s PETL from 6.0 A.M to 6.0 P.M during which M/s. PETL receives industrial effluents from member units. In view of the said implementation, only the pre-treated effluents which confirm to the standards were only allowed and the

effluents which do not meet the inlet standards were again sent back to the industries for further treatment. From 01.02.2009 to 31.10.2010, the APPCB has returned 789 tankers (7890 KL) for further treatment. This practice is in vogue even now. Due to such strict implementation of the inlet standards, the individual industries have segregated their high TDS effluents as per the Joint Action Plan standards i.e., from 15,000 mg/l to 5,000 mg/l and evaporating the high TDS effluents which are more than 5,000 mg/l. This has resulted in reduction of effluent tankers received at M/s. PETL. Prior to 01.02.2009 about 175 tankers (1750 KL/Day) were received at M/s. PETL and at present about 135 tankers (1350 KL/Day) are received.

(c) The APPCB constantly pursuing M/s. PETL resulted improvement of aeration process at primary treatment for homogenising the industrial effluents so that the suspended solids are removed effectively at the Clariflocculator.

(d) Installed a new clariflocculator to remove the suspended solids at the designed capacity.

(e) Improved seeding of effluent with nutrient rich sewage for further improvement of biological treatment.

(f) Replaced the ½ inch liquid oxygen pipeline with 1 inch pipeline at secondary treatment unit allowing free flow of liquid oxygen resulting in effective aeration.

(g) The following online monitoring meters were installed at M/s. PETL:

- VOC meter to monitor the volatile Organic compounds to assess the odour in the area.
- Flow meter at the outlet of M/s. PETL to measure the quantity of treated effluent discharged.
- On line TDS meter to measure the total dissolved solids levels in the treated effluents.
- TOC meter to measure the total organic carbon in the treated effluents,

(h) The APPCB monitored the inlet and outlet of M/s. PETL on day to day basis and suggested improvements.

(i) Enforced better treatment facilities in the individual industries.

(j) Enforced Installation of zero liquid discharge systems viz., Stripper, MEE, ATFD and RO in the 25 major bulk drug industries, with result the quantity of effluent received at M/s. PETL was reduced from 1750 KL/Day to 1100 KL/Day.

(k) Further, M/s.PETL made an additional investment of 5.0 Crores for installation of Membrane Bio reactor to further reduce the COD to about 140 mg/lt, which is likely to be completed by June, 2010.

1.6 Achievements:

- Due to implementation of the measures, M/s. PETL has made substantial progress in achieving the outlet standards as prescribed in the Joint Action Plan, 2007, since 20th May, 2009 and is meeting the outlet standards consistently.
- As M/s.PETL is meeting the outlet standards consistently, as per the Hon'ble Supreme Court Orders, the outlet of M/s.PETL was given connectivity from 07.07.2009 as follows;
    - On 07.07.2009 – 25% of treated effluents of M/s. PETL.
    - On 07.08.2009 – 50% of treated effluents of M/s. PETL.
    - On 07.10.2009 – 75% of treated effluents of M/s. PETL.
    - On 26.03.2010 – 100% of treated effluents of M/s. PETL.
- Before connecting at successive stages, the parameters and the standards at the outlet of PETL and STP at Amberpet were closely monitored to verify the performance of STP after connectivity.
- At present all the treated effluents of M/s.PETL are joining the STP at Amberpet for further treatment and also M/s.PETL and STP at Amberpet are meeting the prescribed discharge standards.

1.7 Results of M/s. PETL from January, 2009 to October, 2010

MONTH	TSS in mg/l		TDIS in mg/l		COD in mg/l		Ammonical Nitrogen in mg/l	
	IN LET	OUT LET	IN LET	OUT LET	IN LET	OUT LET	IN LET	OUT LET
STANDARD	--	100	5000	2100	15000	500	50	50
JAN, 2009	708	351	4214	2800	6277	1901	321	212
FEB ,2009	407	212	3001	2692	5021	1142	150	193
MAR ,2009	308	74	3406	2205	5858	538	113	99
APR, 2009	286	122	2325	1430	3883	371	70	68
MAY, 2009	224	69	1975	1338	3739	230	40	51
JUNE,2009	309	62	2388	1642	2699	199	41	32
JULY,2009	198	28	1879	1525	2140	199	28	17
AUG,2009	257	30	1932	1616	2233	185	32	15
SEP,2009	696	33	2005	1200	2242	144	30	8
OCT,2009	656	36.28	1969.36	1388	2403	171.44	31.22	6.98
NOV,2009	830.33	34.86	2026	1731	2260	159	33	8

DEC, 2009	**699**	**32.9**	**1818**	**1463**	**2103**	**146**	**36**	**8**
JAN, 2010	**557.9**	**35.43**	**2411**	**1599**	**2962**	**278**	**33.86**	**9.04**
FEB, 2010	**571**	**38**	**2598**	**1769**	**3620**	**232**	**37**	**8**
MAR, 2010	**413.5**	**32**	**2207**	**1852.5**	**3257**	**279.7**	**35.5**	**3.9**
APRIL,2010	**488.9**	**50.4**	**2034.4**	**1552.9**	**3084**	**245.3**	**38.8**	**9.6**
MAY, 2010	**509**	**50**	**2293**	**1994**	**3133**	**254**	**39**	**7.1**
JUNE,2010	**535**	**78**	**2073**	**1856**	**2901**	**264**	**35**	**6**
JULY,2010	**519**	**73**	**2368**	**1846**	**3261**	**250**	**38**	**3.2**
AUG,2010	**514**	**52**	**2350**	**1837**	**3245**	**215**	**56**	**4.3**
SEP,2010	503	49	2334	1856	3272	213	48	4.1
OCT,2010	485	47	2319	1847	3269	215	51	3.2

1.7.1 Results of STP at Amberpet from July, 2009 To October, 2010

MONTH	**TSS in mg/l**		**TDIS in mg/l**		**COD in mg/l**		**Ammonical Nitrogen in mg/l**	
	IN LET	**OUT LET**	**IN LET**	**OUT LET**	**IN LET**	**OUT LET**	**IN LET**	**OUT LET**
STANDARD	**--**	**100**	**---**	**2100**	**---**	**250**	**---**	**50**
JULY ' 09	**212**	**11.8**	**495**	**610**	**320**	**45**	**31.7**	**23.8**
AUG' 09	**195**	**17**	**641**	**617**	**202**	**51**	**28**	**24**
SEP' 09	**131**	**12**	**565**	**546**	**136**	**31**	**25**	**12**
OCT' 09	**190**	**12**	**429**	**557**	**288**	**30**	**27**	**13**
NOV, 09	**265**	**12**	**416**	**619**	**348**	**47**	**28**	**22**
DEC, 09	**202**	**12**	**431**	**628**	**323**	**32**	**28**	**31**
JAN, 2010	**238**	**12**	**414**	**594**	**461**	**46**	**32**	**34**
FEB, 2010	**198**	**8**	**422**	**566**	**360**	**49**	**34**	**37**
MAR, 2010	**199**	**8**	**440**	**575**	**273**	**51**	**40**	**35**
APR, 2010	**188**	**12**	**556**	**558**	**277**	**36**	**35**	**28**
JUNE,2010	**264**	**20**	**666**	**664**	**408**	**66**	**38**	**20**
JULY,2010	**320**	**10**	**760**	**708**	**480**	**62**	**30**	**18**
AUG,2010	**129**	**4**	**725**	**708**	**389**	**63**	**22**	**12**
SEP,2010	**140**	**9**	**740**	**651**	**278**	**67**	**34**	**10**
OCT,2010	**150**	**8**	**870**	**832**	**363**	**61**	**37**	**12**

2.0 Comprehensive Environmental Pollution Index (CEPI):

CPCB has evolved a Comprehensive Environmental Pollution Index (CEPI) for 88 study areas with an objective of identifying polluted clusters or areas in order to take concerted action and to centrally monitor them at the national level to improve the current status of their environmental components such as air and water quality, ecological damage and visual environmental conditions. As per the study of CPCB the Patancheru - Bollaram is in the 43rd place as far as CEPI score is concerned with a score of 70.07. It has been suggested that areas having aggregated CEPI of 70 and should be considered as critically polluted areas. Accordingly, Patancheru - Bollaram is considered as a critically polluted area as per the CEPI score also. However, the sub-indices for air, water and land for Patancheru - Bollaram are 50, 59 and 54 only i.e., below 60 indicating the area as severely polluted only. However, keeping the overall CEPI in view, an action plan has been prepared for Patancheru - Bollaram in order to put further efforts by various sectors including industrial sector for pollution control.

2.1 Remarks of APPCB on CEPI:

The data considered and the study period preferred have not been indicated in the CEPI report. The geographical area of the study area has not been mentioned.

Patancheru - Bollaram is likely to attract maximum factor under A1 due to scale of industrial activities which cannot be changed further. it is also likely to attract maximum factor under C1 due to number of people residing within 2 KM radius from the industries are more than 1,00,000, hence, no possibility for change in C1. Similarly, maximum factors are possible under C3 also (C3=0 if ‘no’ and 5 if ‘yes’ – additional risk to sensitive receptors within 2 KM distance from the source).

CEPI for air environment of Patancheru - Bollaram is 50 with the break up of A+B+C+D as 15+7+18+10, for water environment as 59 with the break up of 15+14+20+10, for land environment as 54 with break up of 10+14+20+10. It indicates that in all environments maximum values is shown under score ‘C’. Due to achievement of discharge standards by CETP, Patancheur and connecting the PETL outlet to 18 KM pipeline, which ultimately join Amberpet STP for further treatment and disposal, the impact factor related to water and land environment are reduced considerally. The latest CEPI is 47.33 instead of 70.07. The calculation sheet is placed at **ANNEXURE – V**. Hence, this needs to be re-examined thoroughly.

3.0 Ground water monitoring of Patancheru areas:

The APPCB is continuously monitoring the ground water in the surrounding 18 villages of "Patancheru-Bollaram" areas for drinking water parameter as per IS – 10500, 1991, since 2001, to ascertain the quality of ground water. The monitoring results from 2001-2009 are placed at **Annexure-III**. The monitoring results of ground water samples collected in the surrounding 18 villages during 2009 indicate that the parameters viz., pH, TDS, Nitrates, Heavy Metals such as Zinc, Lead, Cadmium, Chromium, Nickel are within the permissible limits of IS-10500, 1991, due to implementation of pollution control measures at the source of generation as well as at the treatment level.

4.0 Status of Air quality in Patancheru - Bollaram area:

The main sector of industries located in the Patancheru - Bollaram area are Bulk drug & Pharmaceutical and Steel industries. Bulk drug & Pharmaceutical industries use different types of solvents in their production and there is considerable loss of solvents into air, effluents and solid waste. This caused air pollution in the area. During implementation of JAP, the major industries were insisted to install solvent recovery units for recovery and reuse of solvents so as to reduce release of solvents into atmosphere. Major industries, viz., M/s Dr. Reddys Laboratories Ltd (unit-I & unit-II), IDA Bollaram, M/s Matrix Laboratories Ltd., Pashamylaram, M/s Aurobindo Pharma Ltd. (unit – V), Pashamylaram, M/s Neuland Laboratories Ltd, Pashamylaram, M/s Saraca Laboratories Ltd, Gaddapotharam, M/s Astrix Laboratories Ltd, Gaddapotharam have installed full-fledged solvent recovery units. Some of the Small scale units which were recovering the solvents through simple distillation (Reactor type) have now installed sub coolers to improve recovery and remaining small scale units are giving their spent solvents to Standalone solvent recovery units for recovery of solvents. However, the performance of the standalone recovery units needs improvement.

Apart from the above, it was observed that practice of evaporating the effluents in agitated type (Reactor type) evaporators causing emission of solvents (VOCs) into atmosphere resulting in air (odour) pollution. In order to control VOCs emission, major industries were installed steam stripper and Multiple Effect Evaporator followed by ATFD systems for evaporating High COD/ High TDS effluents. Now there is control of VOCs to some extent. The Board is contemplating monitoring mechanism to identify the predominant pollutant (Organic matter) causing odour nuisance in the area by engaging reputed laboratories.

The status of Ambient Air Quality at Patancheru-Bollaram and surrounding areas is placed at **Annexure-IV.**

5.0 Status of Solid waste Management in Patancheru-Bollaram areas:

Until the year 2002, the industries in Patancheru - Bollaram area were storing hazardous wastes in their premises or in off site storage area. There were instances of dumping of solid wastes around the industrial area/dumping into the water bodies resulting in contamination of land environment. In the year, 2002 the Board conceptualized to establish first scientifically designed Common Hazardous waste treatment, storage and disposal facility (TSDF) at Dundigal, RR district. The Board has closely monitored the industries to lift the waste existed in illegal dumpsites and also to regularly sending the Hazardous waste to the TSDF. Subsequently, in the year 2006, Common Hazardous waste Incinerator was established in TSDF for scientific disposal of Incinerable hazardous waste. In addition, the Board explored the possibility of disposal of Incinerable hazardous waste through co-incineration in cement kilns during the year 2007. Thus, a part of Incinerable waste (spent carbon, solvent distillation residues etc.,) is being scientifically disposed through co-incineration. This resulted in low cost and effective disposal option for incinerable waste. The Board also completed the inventorisation of hazardous waste generation in the area for effective tracking of waste disposal.

6.0 Status of domestic effluent management in Patancheru and Bollaram area:

In Patancheru and Bollaram areas, the major habitations are M/s. BHEL Town ship and newly developed residential areas in GHMC i.e., Chandanagar, Miyapur, Ashok Nagar, Ramachandrapuram and Patancheru and other major habitation is at IDA, Bollaram.

At present, untreated / partially treated domestic effluents from Miyapur, Chandanagar, Ramchandrapuram, Patancheru and Bollaram areas are joining into Nakkavagu through different natural streams.

6.1 Existing Facilities for treatment of Domestic waste water:

- M/s. BHEL has Sewage Treatment Plant of capacity 2 MGD at Ashoknagar, Ramchandrapuram (M) for treatment of domestic effluents generated in their residential colonies and another STP of 600 KLD for treatment of domestic effluents generated in the factory. At present, a part of partially treated domestic effluents is

being transported to CETP, Patancheru for treating the industrial effluents after mixing with domestic effluents and remaining partially treated domestic effluent is being discharged into Isukavagu which in turn joins Nakkavagu.

- In GHMC residential areas there is no STP for the treatment of domestic effluents and un-treated effluents are joining Isukavagu.
- In IDA, Bollaram there are about 60 medium and small scale non-chemical industries are generating domestic effluents and habitation also developed within the industrial area. There is no STP for the treatment of domestic effluents and un-treated effluents are joining Asanikunta which in turns joins Isukavagu at Patancheru.

6.2 Action Plan for treatment of domestic waste water:

- M/s.BHEL was directed to improve the performance of the STPs and utilize total quantity of treated effluents for plantation within their premises.
- For treatment of domestic effluents generated in GHMC area, M/s. HMWS & SB, Hyderabad is planning to construct 30 MLD capacity STP at Lingam Kunta Cheruvu, in Sy. No. 253 of Chandanagar (V), Serilingampally(M), Rangareddy District for treatment of domestic effluents generated in the areas of Miyapur, Chandanagar etc.
- In IDA, Bollaram the industrial association was directed to establish STP of 1 MLD in up-stream of Asanikunta for treatment of domestic effluents generated in industries and residential area within the IDA.

7.0 Monitoring samples of PETL effluents

- PCB is monitoring the PETL effluents (Inlet & Outlet) for all physico-chemical parameters like COD, TDS(I) etc., and for presence of anti biotics.
- Water samples from Nakkavagu, industries, borewells and sediment samples are being analysed regularly.
- The results show declining values of COD, TDS(I) and are meeting the surface water standards.
- The concentration of anti biotics in the outlet of PETL and in the borewell samples are not detected.

8.0 Epidemiological and Genetic studies

- The Epidemiological study conducted during 2004 - 2010 by Institute of Genetics, Osmania University reports that :

I. The overall results show that there are no adverse effects on health and cytogenetic damage in people living in different villages of Nakkavagu.

II. The heavy metal levels in the blood samples of people of these villages were also within permissible limits.

9.0 Trends of PETL Outlet during 2009-2010.

Month	TDS (I) (Outlet - mg/l)	COD (Outlet - mg/l)	Ciprofloxacin (ug/l)
Jan-09	2800	500	7239
Mar-09	2205	538	1853
Jan-10	1599	278	ND
Mar-10	1825.5	279.7	ND
June-10	**1856**	**264**	---
July-10	**1846**	**250**	---
Aug-10	**1837**	**215**	---
Sep-10	1856	213	---
Oct-10	1847	215	---

10. Action plan for improving of Environmental parameters in Patancheru-Bollaram areas:

The following major polluting industries were asked to submit an Action Plan for up-gradation of their treatment systems for achieving zero discharge for improving the Environmental parameters in Patancheru-Bollaram areas:

1. M/s. Aurobindo Pharma Ltd., Unit-I, IDA, Borapatla, Medak District.
2. M/s. Aurobindo Pharma Ltd., Unit-V, IDA, Pashamailaram, Medak District.
3. M/s Hetero Drugs Ltd., Unit – IV, Bonthapally, Jinnaram (M), Medak dist
4. M/s Hetero Labs Ltd., Gaddapotharam, Medak dist.
5. Hetero Drugs, Unit-I, Bonthapally, Jinnaram(M), Medak dist
6. M/s Aurobindo Pharma Ltd., Unit – VIII, Gaddapotharam, Medak dist.
7. M/s.Neuland Laboratories Ltd., Unit - II, Pashamailaram, Medak District.
8. M/s. Piramal Health Care Ltd., Unit-II, Digwal (V), Kohir (M), Medak District.
9. M/s.Neuland Laboratories Ltd, Unit-I, Bonthapally, Medak dist
10. M/s.Aurobindo Pharma Ltd, Unit-IX, Gundlamachanoor, Medakdist
11. M/s. Arch Pharma Labs Ltd., Gaddapotharam (V), Medak District.
12. M/s Matrix Laboratories Ltd, Unit - I, Gaddapotharam (V) , Medak District.
13. M/s. Matrix laboratories, Unit-VII, IDA, Pashamailaram, Medak District.
14. M/s. Covalent Laboratories Pvt Ltd, Hatnoor (M), Medak Dist.
15. M/s. MSN Pharama Chem Pvt.Ltd., IDA, Pashamailaram, Medak District
16. M/s. Nitya Laboratories Ltd., IDA, Pashamailaram, Medak District.
17. M/s. Porus Laboratories (P) Ltd., Unit – I, Kodad (M), Nalgonda district.

18. M/s. Porus Laboratories (P) Ltd., Unit – II, Bibinagar (V&M), Nalgonda dist.
19. M/s Virchow Petro Chemicals Ltd.,Patancheru, Medak District.
20. M/s. Suven Life Science, Pashamailaram,Medak District.
21. M/s. Piramal Health Care Ltd., Unit-III, Digwal (V), Kohir (M) , Medak District.
22. M/s. Everest Organics Ltd., Aroor (V), Sadasivapet (M), Medak District.
23. M/s Lee Pharma Ltd., Gaddapotharam, Medak dist.
24. M/s. Piramal Health Care Ltd., Unit-I, Digwal (V), Kohir (M) , Medak District.
25. M/s. PETL (Common ETP), Patancheru, Medak District.
26. M/s. Chaitainya Chlorides, Pashamailaram, Medak District.
27. M/s. Hyderabad Chemical Products Ltd, Pashamailaram, Medak dist.

A technical committee was constituted with Professor from JNTU, Hyderabad and the Board Officials to review the Action plan submitted by the 27 industries located in critically polluted area of Patancheru and Bollaram and also common Action plan for industrial clusters for reducing negative impact on the surrounding environment due to discharges / emissions. The committee reviewed the Action plan submitted by the industries and their status of implementation on 08.07.2010 and the industry wise status of implementation of Action plan by the industries is as follows:

PLAN OF ACTION:

S. No.	Name of the industry	Investment made for treatment systems for the past ten years i.e., 1999 to 2008 earlier (in Crores)	Investment made for up-gradation of treatment systems during 2009-2010 (including future proposed investments) (in Crores)	Progress & Action Plan	Time Schedule
1	M/s. Aurobindo Pharma Ltd., Unit-I, IDA, Borapatla, Medak District.	Rs.4.5	Rs.17.18	1. The industry installed Stripper, MEE and ATFD to dispose off the HCOD & HTDS effluents and the same are under operation. 2. The units of R.O Plant were received at site and civil works are under progress. 3. The industry proposed to install STP to treat the domestic effluents. 4. The industry proposed to provide online monitoring instruments. 5. The industry taken up R & D study for reduction of Ammonia	**December, 2010**

				consumption in the process to reduce Ammonical Nitrogen load in waste water. 6. The water conservation practices are being reviewed regularly to reduce the water consumption for domestic and industrial use. They adopted recycling of steam condensate as make up water in Boiler, Use of high pressure jets for cleaning of Reactors and Vessels, floor cleaning by wet mopping.	
				7. The industry proposed to monitor the VOC levels in and around the unit by procuring VOC monitor. 8. The industry suggested that APPCB may advise detailed methodology and usefulness in respect of Installation of video cameras within the premises for checking emissions in night time.	
2	M/s. Aurobindo Pharma Ltd., Unit-V, IDA, Pashamailaram, Medak District.	Rs.8.0	Rs.13.48	1. The industry installed Stripper, MEE and ATFD to dispose off the HCOD & HTDS effluents and the same are under operation. 2. R.O Plant is installed in June,2010 and it is under trial operation. 3. The industry taken up R & D study for reduction of Ammonia consumption in the process to reduce Ammonical Nitrogen load in waste water. 4. The industry proposed to provide online monitoring instruments. 5. The water conservation practices are being reviewed regularly to reduce the water consumption for domestic and industrial use. They adopted recycling of steam condensate as make up water in Boiler, Use of high pressure jets for cleaning of Reactors and Vessels, floor cleaning by wet mopping. 6. The industry proposed to monitor the VOC levels in and around the unit by procuring VOC monitor and also proposed for provision of common VOC monitors with recording facility in four directions of the industrial area to know overall status and to assess it's impact on surroundings. 7. The industry suggested that APPCB	**December ,2010**

				may advise detailed methodology and usefulness in respect of Installation of video cameras within the premises for checking emissions in night time.	
3	M/s Hetero Drugs Ltd., Unit – IV, Bonthapally Jinnaram (M), Medak dist	Rs.1.2	Rs.18	1. The industry proposed zero discharge system consisting of biological ETP, RO Plant, Stripper, MEE and ATFD. 2. 90% Civil works of the Biological completed. 3. R.O Plant is received and yet to be installed. 4. Stripper, MEE, ATFD are built on skid and kept at supplier and will be shifted to the site after solving local villagers problem. 5. Their R & D team is putting efforts for optimization of raw materials consumption so as to reduce the pollution load and down stream cost of disposal. The industry was directed to submit the specific improvements achieved. 6. The industry adopted water conservation practices viz. treatment of sewage in STP and using the treated effluents for gardening / plantation. They proposed to recycle process water after treating in Zero liquid discharge (ZLD) system by October 2010. 7. The industry is carrying out VOCs monitoring in work place, regularly. The industry was directed to maintain record the results for review.	**December, 2010.**
4	M/s Hetero Labs Ltd., Gaddapotharam	Rs.2.0	Rs.15	1. The industry proposed zero discharge system consisting of biological ETP, RO Plant, Stripper, MEE and ATFD. 2. Govt. A.P has cleared for land allotment for Zero liquid discharge (ZLD), but officials order is yet to be received. Hence, the proposal got delayed and revised target date for the project is May 2011. 3. R.O System is under operation and intake to cooling tower for make up is reduced by 20 KLD. 4. Construction of new Biological ETP will be taken up after land allotment by revenue department. 5. Structural material for Stripper, MEE, ATFD are received and installation will be taken up after land allotment.	**May 2011**

				6. The R & D team is putting efforts for optimization of raw materials consumption so as to reduce the pollution load and down stream cost of disposal. The industry was directed to submit the specific improvements achieved. 7. The industry is recycling 70% of steam condensate and using high pressure jets for reactor and vessels washing as a part of water conservation practices. The industry was directed to submit other specific improvements achieved and specific reduction of overall water consumption 8. The industry is carrying out VOCs monitoring in work place, regularly. The industry was directed to maintain record the results for review.	
5	Hetero Drugs, Unit-I Bonthapally, Jinnaram(M), Medak dist	Rs.1.0	Rs.10	1. The industry is exploring advanced treatment methods i.e, Phyto and MBR for biological treatment of waste water. In the mean time they are planning to transport the effluents to their other unit – Unit IV, Bonthapally after obtaining permission from APPCB. 2. Structural material of Stripper, MEE and AFTD are received. Design details of biological ETP completed and installation to be taken up. 3. The R & D team is putting efforts for optimization of raw materials consumption so as to reduce the pollution load and down stream cost of disposal. The industry was directed to submit the specific improvements achieved. 4. The industry is recycling 70% of steam condensate and using high pressure jets for reactor and vessels washing as a part of water conservation practices. STP is commissioned for treatment of domestic waste water and treated waste water is being used for gardening. The industry was directed to submit specific improvements achieved in reduction of overall water consumption.	**December ,2010**

6	M/s Aurobindo Pharma Ltd., Unit – VIII, Gaddapotharam:	Rs.1.0	Rs.6.5	1. Installed Stripper, MEE (single stage & 3-Effect) and are under operation. Condensate water is being sent to CETP along with LTDS effluents. After commissioning of Biological ETP, Condensate water will be treated and reused. 2. Civil works of R.O. system are under progress. Material of RO plant received at site and will be installed by November 2010. 3. The industry taken up R & D study for reduction of Ammonia consumption in the process to reduce Ammonical Nitrogen load in waste water. 4. The water conservation practices are being reviewed regularly to reduce the water consumption for domestic and industrial use. They adopted recycling of steam condensate as make up water in Boiler, Use of high pressure jets for cleaning of Reactors and Vessels, floor cleaning by wet mopping. The industry was directed to submit specific improvements achieved in reduction of overall water consumption. 5. The industry taken process emission control measures viz. closed piping network for transfer of solvents, Chillers & sub coolers with chilled water / brine circulatation, Closed centrifuges / ANFD, Use of dry vaccum pumps.The industry was directed to take up VOCs level monitoring within their premises and maintain records for review and to identity areas which needs improvement. 6. VOCs monitoring taken up the APPCB may be continued. 7. The industry suggested that APPCB may advise detailed methodology and usefulness in respect of Installation of video cameras within the premises for checking emissions in night time.	**December,2010**

7	M/s.Neuland Laboratories Ltd., Unit - II, Pashamailaram, Medak District.	Rs.4.00	Rs.8.99	1. The industry installed stripper and MEE and are under operation. 2. ATFD and RO systems are proposed to be installed. 3. Taking actions for input / output modifications of process control and R & D towards waste minimization and as well as reduce the pollution loads. The industry was directed to submit the specific improvements achieved. 4. Water conservation practices are adapted by reusing the MEE & ATFD condensate. The industry was directed to submit the specific improvements achieved. 5. The industry proposed continuous monitoring for Gas incinerator stack and continuous AAQM.	**December,2010**
8	M/s. Piramal Health Care Ltd., Unit-II, Digwal (V), Kohir (M), Medak District.	Rs.7.27	Rs.6.14	1. The industry installed MEE, ATFD and RO Plant and the same are under operation. 2. The industry R & D team has achieved improvements in Usage of single solvent (Methanol) instead of mixed solvent (EA and Methanol) in Ketoconzole production there by reduction of 270 kg/day of Methanol and COD load of 405 kg/day, Process optimization of Ketoconzole for reduction of carbon quantity by 36%. 3. The industry R & D team proposed to achieve elimination of IPA in Verapamil manufacture so as to reduce solvent consumption and down stream cost of disposal. The target date of achievement is Mar2011. 4. Water conservation practices are adapted by reusing the MEE condensate for cooling tower make-up. The industry was directed to submit other specific improvements achieved and specific reduction of overall water consumption. 5. The industry proposed continuous monitoring for AAQM.	**December,2010**

9	M/s.Neuland Laboratories Ltd, Unit-I Bonthapally, Medak dist	Rs.1.0	Rs.5.0	1. R.O system is under operation. The R.O permeate is being used for boiler feed make up. 2. Installation of Stripper, MEE, ATFD as part of ISO 14001 and target of completion is December 2011. The industry was directed to expedite their proposal and submit revised target date. 3. The industry R&D team is carrying studies for optimizing raw material consumption so as to reduce the pollution load and down stream cost of disposal. The industry was directed to submit specific improvement achieved. 4. Water conservation practices are being adopted by identification of leaks. The industry was directed to submit specific improvement achieved in overall water consumption for both domestic and industrial use. 5. VOC monitor was purchased for carrying out VOC levels in their two units during day and night times. The industry was directed to maintain records for review and to identify the areas needs further improvement. 6. They will explore possibility of installation of video cameras which needs suitable flame proof system as number of highly flammable solvents are being used and stored in the premises.	**December,2010**
10	M/s.Aurobindo Pharma Ltd, Unit-IX, Gundlamachanoor, Medakdist	Rs.2.0	Rs.6.18	1. The industry installed Stripper and MEE to dispose off the HOCD & HTDS effluents and the same are under operation. ATFD is installed and it is under operation. 2. The units of R.O Plant were received at site and civil works are under progress. Installation will be completed by September 2010. 3. The industry have taken up R & D study for reduction of Ammonia consumption in process to reduce Ammonical Nitrogen load in waste water. 4. The water conservation practices were reviewed regularly to reduce the water	**December,2010**

				consumption for domestic and industrial use. They adopted recycling of steam condensate as make up water in Boiler, Use of high pressure jets for cleaning of Reactors and Vessels, floor cleaning by wet mopping. 5. The industry proposed to monitor the VOC levels in and around the unit by procuring VOC monitor. 6. The industry proposed bag filters to the boiler and continuous AAQM system.	
11	M/s. Arch Pharma Labs Ltd., (Formerly M/s Sibra Pharmaceutical Ltd,) Gaddapotharam (V), Medak District.	Rs.0.3	Rs.3.7	1. The industry proposed zero liquid discharge system consisting of up-gradation of primary treatment, installation of stripper, MEE, ATFD, RO system and boiler. 2. Civil works are under progress for up-gradation of and RO system and to be completed by March, 2011. 3. Stripper, MEE and ATFD equipment was received and the ATFD was installed. 4. Optimise raw material consumption stage wise by carrying out in-house R & D studies so as to reduce the pollution load and down stream cast of disposal. 5. Water conservation practices has to be adopted to the maximum extent both domestic and industrial use.	**December,2010**
12	M/s Matrix Laboratories Ltd, Unit - I, (Formerly M/s Vorin Laboratories Ltd.,) Gaddapotharam (V), Medak District.	Rs.4.0	Rs.3.5	1. Biological , RO System for Low TDS waste water are under operation. R.O permeate is being used for boiler feed make up. 2. Stripper , MEE, ATFD for treatment and disposal of HOCD & HTDS effluents are under operation at lower capacity due to non-availability of required quantity of steam for which they applied for CFE for new 8 TPH Coal fired boiler. 3. The industry is carrying out R & D study for reduction of Ammonia consumption in the process to reduce Ammonical Nitrogen load in waste water. R& D work for process improvement is a continuous activity. The industry was directed to submit specific improvement achieved. 4. The water conservation practices are	**December,2010**

				being reviewed regularly to reduce the water consumption for domestic and industrial use. They adopted recycling of steam condensate and use of RO permeate as make up water in Boiler, Use of high pressure jets for cleaning of Reactors and Vessels, floor cleaning by wet mopping. The industry was directed to submit specific improvement achieved in overall reduction of water consumption for industrial and domestic use. 5. The industry proposed to monitor the VOC levels in and around the unit by procuring VOC meter. 6. The industry proposed for provision of common VOC monitors with recording facility in four directions of the industrial area to know overall status and to assess it's impact on surroundings. 7. The industry proposed that APPCB may advise detailed methodology and usefulness in respect of Installation of video cameras within the premises for checking emissions in night time.	
13	M/s. Matrix laboratories, Unit-VII, IDA, Pashamailaram, Medak District.	Rs. 4.0	Rs.6.1	1. The industry installed stripper, MEE, ATFD and RO Plant and the same are under operation. 2. The industry achieved zero discharge. 3. The industry initiated electro oxidation trials on Ammonia steams to reduce Ammonical nitrogen in waste water, taken up studies with JNTU for identification specific effluent streams for recycling. The industry was directed to submit specific improvement achieved. 4. The industry proposed for further improvement of VOC levels and for online AAQM system.	**December,2010**

14	M/s. Covalent Laboratories Pvt Ltd, Gundlamachanoor (V), Hatnoor (M), Medak Dist.	Rs.0.15	Rs.3.65	1. The industry installed stripper, reactor type evaporators with plate heat exchanger and cooling towers and the same are under operation. Also installed another heat exchanger as stand by. 2. Raw material consumption is optimized by adapting new method and giving training to operating people, avoided cross contamination by providing separate reactors for each product, optimized solvent consumption and recovery & reuse etc. 3. Water conservation practices are adapted by recycling of washings in process, recycling of steam condensate recycling of condensate from evaporators etc. 4. The industry proposed online stack monitoring and for online AAQM system.	**December ,2010**
15	M/s. MSN Pharama Chem Pvt.Ltd., IDA, Pashamailaram, Medak District	--	Rs. 3.5	1. The industry installed stripper, MEE and ATFD and the same are under trial operation. 2. Taking actions for input / output modifications of process control and R & D towards waste minimization and as well as reduce the pollution loads. The industry was directed to submit specific improvement achieved. 3. Water conservation practices are adapted by reusing the MEE and ATFD condensate. The industry was directed to submit specific improvement achieved in overall water consumption.	**December ,2010**
16	M/s. Nitya Laboratories Ltd., Plot No. 272, 273, 280 & 281, Phase-II, IDA, Pashamailaram, Patancheru (M), Medak District.	--	3.03	1. Installation of Stripper is under progress and installation of MEE completed. 2. Taking actions for input / output modifications of process control and R & D towards waste minimization and as well as reduce the pollution loads. The industry was directed to submit specific improvement achieved. 3. The industry is recycling waste water generated in cislactum stage-I by distilling MLs, reusing the FE	**December ,2010**

				condensate in cooling towers. The industry was directed to submit specific improvement achieved.	
17	M/s. Porus Laboratories (P) Ltd., Unit – I, Nallabandagudem (V), Kodad (M), Nalgonda district.	Rs.0.45	Rs.1.2	1. Multiple Effect Evaporation System of Capacity 50 KL/day was commissioned and sending of effluents was stopped from June 2010. 2. Taking actions for input / output modifications of process control and R & D towards waste minimization and as well as reduce the pollution loads. 3. Water conservation practices are adapted by reusing the FE condensate in cooling towers.	**December ,2010**
18	M/s. Porus Laboratories (P) Ltd., Unit – II, Bibinagar (V&M), Nalgonda dist.	Rs. 0.30	Rs.0.8	1. Multiple Effect Evaporation System of capacity 25 KL/day was commissioned and sending of effluents was stopped from February 2010. 2. Taking actions for input / output modifications of process control and R & D towards waste minimization and as well as reduce the pollution loads. 3. Water conservation practices are adapted by reusing the FE condensate in cooling towers.	**December ,2010**
19	M/s Virchow Petro Chemicals Ltd., Patancheru, Medak District.	Rs.0.45	Rs.2.4	1. The industry commissioned stripper for recovery of solvents in effluents, operating MEE for evaporating effluents. 2. Continuous efforts are being made in process development and improvement in reaction yields to reduce the pollution load. 3. Installed R. O. plant to treat the Boiler blow down, cooling tower blow down and it will be commissioned by September 2010 for reuse of treated waste water.	**Decem ber,20 10**

20	Suven Life Science, Pashamailaram, Medak District.	Rs.0.72	Rs.1.89	1. The industry proposed MEE and RO plant for treatment of process effluents. It will be commissioned by December 2010. 2. Taking actions for input / output modifications of process control and R & D towards waste minimization and as well as reduce the pollution loads. 3. Water conservation practices are adapted by reusing the FE condensate.	**December ,2010**
21	M/s. Piramal Health Care Ltd., Unit-III, Digwal (V), Kohir (M) , Medak District.	Rs.5.8	Rs.1.84	1. The industry installed Stripper, MEE, ATFD and the same are under operation. 2. He informed that their R&D team has achieved improvements in process optimization of Isoflorane for reduction of HTDS effluents (3.3 KLD). He also informed that R&D activity is an on going activity. 3. Water conservation practices are adapted by reusing the MEE condensate for cooling tower make-up. The industry was directed to submit other specific improvements achieved and specific reduction of overall water consumption. 4. The industry proposed online AAQM system.	**December ,2010**
22	M/s. Everest Organics Ltd., Aroor (V), Sadasivapet (M), Medak District.	Rs.0.07	Rs. 1.27	1. The industry commissioned recovery system for recovery of Ammonium Sulphate from the effluents and similar system for recovery of Sodium Sulphate is under erection. 2. The industry installed one falling film evaporator for evaporating low TDS effluents generated in Q- Acid production and completed trial operations for recovery of NaCl which is used in chilling plant. 3. Taking actions for input / output modifications of process control and R & D towards waste minimization and as well as reduce the pollution loads. 4. Water conservation practices are adapted by reusing the FE condensate and steam condensate.	**December ,2010**

23	M/s Lee Pharma Ltd., Gaddapotharam	Rs.1.4	Rs.0.25	1. The industry is operating MEE for concentration of HTDS effluents and separating salts by evaporating the MEE concentrate in forced evaporation reactors. The condensate is being in cooling tower make up or sending to CETP patancheru for further treatment and disposal. 2. Installed Solvent recovery columns for recovery of DMSO solvent. 3. R&D team is carrying studies for optimizing raw material consumption so as to reduce the pollution load and down stream cost of disposal. The industry was directed to submit specific improvement achieved. 4. Water conservation practices are being adopted by identification of leaks. The industry was directed to submit specific improvement achieved in overall water consumption for both domestic and industrial use. 5. VOC monitor proposed to be purchased for carrying out VOC levels in their unit during day and night times. The industry was directed to maintain records for review and to identify the areas needs further improvement. 6. The industry proposed to explore possibility of installation of video cameras which needs suitable flame proof system as number of highly flammable solvents are being used and stored in the premises.	**December,2010**
24	M/s. Piramal Health Care Ltd., Unit-I, Digwal (V), Kohir (M) , Medak District.	Rs.0.96	Rs.0.84	1. The industry installed Stripper, MEE, ATFD for treatment and disposal of HCOD & HTDS effluents. The condensate collected from MEE and ATFD is being treated in Biological ETP and RO plant to reuse in cooling tower up. 2. R & D team has achieved improvements in recovery and reuse of Methanol solvent (300 kg/day) in Trazodone production, He also informed that R&D activity is an on going activity. 3. R & D team is carrying studies for reduction of buffer volume in	**December ,2010**

				Trazodon product , Elimination of IPA in Verapamil manufacture so as to reduce water consumption and the pollution load and down stream cost of disposal. The target date of achievement is Mar2011.	
25	M/s. PETL (Common ETP), Patancheru, Medak District.	Rs.2.5	Rs.11.44	1. PETL has completed the civil works for installation of Membrane Bio Reactor and proposed to be commissioned by November, 2010. 2. Optimized usage of process chemicals like Alum and polyelectrolyte in treatment process. The industry was directed to submit the specific reduction of chemicals achieved. 3. VOCs monitor is installed and values are recorded regularly.	**December,2010**
26	M/s. Chaitainya Chlorides, Pashamailaram, Medak District.	Rs.0.15	Rs. 1.34	1. The industry provided three Graphite falling film vapor absorbers (2 X 250 kg/hr and 500 kg/hr) in series for effective control of Hcl emissions from the process and they are in operation. 2. Installation of R.O plant for water treatment for reduction of water consumption for Boiler feed and cooling tower make up and chilling plant. The industry was directed to submit other specific improvements achieved and specific reduction of overall water consumption.	**December,2010**
27	M/s. Hyderabad Chemical Products Ltd, Pashamailaram, Medak dist.	Rs.2.5	Rs.0.95	1. The industry provided fume extraction and scrubbing system for centrifuges and reactors for effective scrubbing of solvents like Ethyl Acetate and Di-chloro methane and VOCs emissions into atmosphere is reduced. The industry was directed to quantify the solvents recovered and their disposal. 2. The industry has provided Stripper, MEE to evaporate the high TDS effluents and to separate salts and it is in operation. 3. Installation works of ATFD	**December ,2010**

				completed and is yet to be commissioned. 4. Taking actions for input / output modifications of process control and R & D towards waste minimization and as well as reduce the pollution loads. The industry was directed to submit the specific improvements achieved. 5. Water conservation practices are adapted by reusing the MEE condensate for cooling tower make-up. The industry was directed to submit other specific improvements achieved and specific reduction of overall water consumption.	
	TOTAL	**Rs. 55.72**	**Rs. 154.15**		

11. Further actions proposed:

1. Toll free number is being started to register public complaints.
2. Installation of video cameras in the premises of all major industries by focusing on the main sources of process emissions and video recording emissions generated by industries during night time so that the same can be used for cross verification by PCB.
3. Identifying outlet points of all the industries which are leading into nallahs / drains and permanently closing them using concrete and cement.
4. Monitoring of VOCs in industrial areas during night times and also extending monitoring in the surrounding villages.

5. **APPCB will ensure the linkage of Continuous Ambient Air Quality Monitoring Stations installed by the concerned industries with the web sites of State Board and CPCB by 31st March, 2011.**

6. **Presently, the manifesto system is being followed during the transportation of Hazardous wastes from Industries to TSDF, Dindigal, Rangareddy District. APPCB In-consultation with Road Transport Authority proposes to take-up GPS based transportation and tracking system for transportation of hazardous waste.**

7. Appointment of local area representatives in each industrial estates to monitor compliances.
8. The APPCB is proposing to under take survey to identify hidden underground pipelines.
9. Continuous monitoring of process emissions of all the major industries.
10. VOC monitoring within the industrial premises, at industrial estates and also in the surrounding villages.
11. One continuous monitoring station to asses wastewater quality that is being discharged into 18 KM pipeline.
12. Inspection of industries to ensure installation and efficient functioning of wet condensers provided to MEE and FE .

13. Monitoring of noise levels within the industries and adjacent villages.
14. Monthly monitoring of ground water in the surrounding villages and industrial areas.

M/s. PETL (Common ETP), Patancheru, has made additional investments for providing advanced treatment systems such as Membrane Bio Reactor Technology for improving their effluent treatment systems. M/s. Chaitainya Chlorides, Pashamailaram has provided Falling film absorbers which is an advanced air pollution control Technology.

12.0 Remarks:

In addition to all the abovementioned measures, the CPCB and APPCB have given special thrust and attention for implementation of the Joint Action Plan, 2007 by all the industries in critically polluted areas of "Patancheru - Bollaram" so as to achieve the stipulated standards . To ensure better results, both the CPCB and APPCB are holding periodical meetings in this regard.

****

ANNEXURE -I

List of industries in Critically polluted area of Patancheru – Bollaram

RO, Sangareddy-I

S.No.	Name of the Industry & Address
1.	M/s.NSL (Presently M/s.Pennar Industries Ltd), IDA, Patancheru, Medak dist.
2.	M/s.Hitesh Chemicals, IDA, Patancheru, Medak dist.
3.	M/s.TFL Quinn India Ltd, IDA, Patancheru, Medak dist.
4.	M/s. Roopa Industires Ltd, IDA, Patancheru, Medak dist.
5.	M/s.Rallis India Ltd., IDA, Patancheru, Medak dist.
6.	M/s. Arch Pharma Labs Ltd., (formerly Merven Drugs), Gundlamachnoor Village, Hatnoor Mandal, Medak Dist.
7.	M/s. Aurobindo Pharma Ltd., Unit – I, Borpatala Village, Hatnoor Mandal, Medak Dist.
8.	M/s. Aurobindo Pharma Ltd., Unit – V, IDA Pashamailaram, Patancheru Mandal, Medak Dist.,
9.	M/s. Aurobindo Pharma Ltd., Unit – VI-B, Chitkul Village, Patancheru Mandal, Medak Dist.,
10.	M/s. Aurobindo Pharma Ltd., Unit – IX, (formerly Ranit-III / Vamsi),Gundlamachnoor Village, Hatnoor Mandal, Medak Dist.
11.	M/s. Cirex Pharmaceuticals Ltd., Gundlamachnoor Village, Hatnoor Mandal, Medak Dist.
12.	M/s. Deccan Leathers Ltd., IDA, Patancheru, Medak Dist.
13.	M/s. Everest organics Ltd., Aroor village, Sadasivpet Mandal, Medak Dist.
14.	M/s. Hyderabad Chemicals Products Ltd., IDA Pashamailaram, Patancheru Mandal, Medak Dist.
15.	M/s. Nestor Pharmaceuticals Ltd., IDA Patancheru, Medak Dist.
16.	M/s. Neuland Laboratories Ltd., Unit – II, IDA Pashamailaram, Patancheru Mandal, Medak Dist.
17.	M/s. Nitya Laboratories Ltd., IDA Pashamailaram, Patancheru Mandal, Medak Dist.
18.	M/s. Pennar Industries Ltd., Isnapur (V), Patancheru (M), Medak District.
19.	M/s. Rantus Pharma Pvt. Ltd., IDA Pashamailaram, Patancheru Mandal, Medak Dist.
20.	M/s. Venkar Chemicals Pvt. Ltd., IDA Pashamailaram, Patancheru Mandal, Medak Dist.
21.	M/s. Alpex International Ltd., (formerly Global Bulk Drug), Digwal Village, Kohir Mandal, Medak Dist.,
22.	M/s. Aurobindo Pharma Ltd., Unit – VI-A Chitkul Village, Patancheru Mandal, Medak Dist.
23.	M/s. Avon Organics Ltd., Yawapur village, Sadasivpet Mandal, Medak Dist.
24.	M/s.Biological E Ltd., Unit-I, IDA, Patancheru, Medak dist
25.	M/s. Covalent Laboratories Ltd., Gundlamachnoor Village, Hatnoor Mandal, Medak Dist.
26.	M/s. Inventa Chemicals Ltd., Unit-III, Pati (V), Patancheru (M), Medak District.
27.	M/s. Ion Exchange (India) Ltd., IDA Patancheru, Medak Dist.
28.	M/s. Jupiter Bio Science Ltd., Cheriyal (V), Sangareddy (M), Medak District.

29.	M/s. Matrix Laboratories Ltd., Unit – VII, IDA Pashamailaram, Patancheru Mandal, Medak Dist.
30.	M/s.MSN Laboratories Ltd., Rudraram Village, Patancheru (M), Medak District
31.	M/s. Nicholas Piramal India Ltd., (Formerly Global Bulk Drugs, Unit II), Digwal Village, Kohir Mandal, Medak Dist.
32.	M/s. Venkataram Chemicals Ltd., Kardanoor (V), Patancheru (M), Medak District
33.	M/s. Biological E. Ltd., Unit-II, IDA Patancheru Medak Dist.
34.	M/s. ITW India Ltd., (Steel Strapping Division), Rudraram (V), Medak District.
35.	M/s. MSN Pharma Chem Pvt. Ltd., IDA., Pashamylaram, Medak District
36.	M/s.Indian Chemphar Ltd, IDA, Pashamailaram, Medak dist.
37.	M/s.Nicholas Piramal (I) Ltd., Unit-III, (Formerly M/s.Canere Actives & Fine Chemicals Ltd) Digwal (V), Kohir (M), Medak dist.
38.	M/s.Arene Life Sciences Ltd, (Formerly M/s.Jaycinth Drugs and Pharmaceuticals (P) Ltd, Phase-II,IDA, Pashamailaram, Medak dist.
39.	M/s.Virchow Petrochemicals (P) Ltd., (Formerly M/s.Ambhuja Petrochemicals) Plot No.17A, IDA, Patancheru, Medak dist
40.	M/s.Reliance Cellulose Products Ltd., IDA, Patancheru, Medak dist.
41.	M/s.Gulf Oil Corporation Ltd., Phase-II, IDA, Pashamailaram, Patancheru (M), Medak dist.
42.	M/s.Suven Life Sciences Ltd., (Formerly M/s.Suven Synthesis Ltd/ M/s.Lordvin Labs Ltd), Phase-II, IDA, Pashamailaram, Patancheru (M), Medak dist.
43.	M/s.S.S. Organics Ltd., Aroor (V), Sadasivapet (M), Medak Dist.
44.	M/s. Dulichand Silk Mills Ltd., Unit-II, Sy.No.305 & 306, Plot No. 4, Industrial Park, Indrakaran (V), Sangareddy (M), Medak district.
45.	M/s. Parle Agro Pvt. Ltd., Plot No. 58-63, IDA, Pashamailaram, Medak District.
46.	M/s. SNF India (P) Limited, Plot No 19/B, Phase-II, IDA, Patancheru, Medak District
47.	M/s. Sawaria Pipes Ltd, Sy.No.257, Nandigama (V), Patancheru (M), Medak dist.

RO, Sangareddy-II

48.	M/s. Harika Drugs Ltd., Gummadidala (V), Jinnaram (M), Medak dist
49.	M/s.Dr.Reddy's Laboratories Ltd., Unit-I, IDA, Bollaram, Jinnaram (M), Medak dist.
50.	M/s.Dr.Reddy's Laboratories Ltd., Unit-II, IDA, Bollaram, Jinnaram (M), Medak dist.
51.	M/s.Dr.Reddy's Laboratories Ltd., Unit-III, IDA, Bollaram, Jinnaram (M), Medak dist.
52.	M/s. Matrix Laboratories Ltd, Unit-I,(Formerly M/s Vorin Laboratories Ltd.,) Gaddapotharam (V), Jinnaram (M), Medak dist.
53.	M/s.Astrix Laboratories Ltd, (Formerly M/s.Matrix Laboratories Ltd, Unit-II), Gaddapotharam (V), Jinnaram (M), Medak dist.
54.	M/s.Glochem Industries Ltd., IDA Bollaram (V), Jinnaram (M), Medak dist.
55.	M/s.Pragathi Organics Ltd, IDA Bollaram (V), Jinnaram (M), Medak dist.
56.	M/s Erythro Pharma Pvt. Ltd., Gaddapotharam (V), Jinnaram (M), Medak dist.
57.	M/s Lee Pharma Ltd., Gaddapotharam (V), Jinnaram (M), Medak dist.
58.	M/s Aurobindo Pharma Ltd., Unit – VIII, Gaddapotharam (V), Jinnaram (M), Medak dist.

59.	M/s.Yag Mag Labs Pvt. Ltd, Gaddapotharam (V),Jinnaram (M), Medak dist.
60.	M/s Senor Organics, Gaddapotharam (V), Jinnaram (M), Medak dist.
61.	M/s Virupaksha Organics Pvt Ltd., Gaddapotharam (V), Jinnaram (M), Medak dist.
62.	M/s Symed Labs Pvt. Ltd., Bonthapally (V), Jinnaram (M), Medak dist.
63.	M/s Fleming Laboratories Ltd., Nawabpet (V), Shivampet (M), Medak dist.
64.	M/s. Sai Advantium Pharma Ltd., (Formerly M/s Prasad Drugs Ltd), IDA Bollaram (V), Jinnaram (M), Medak dist.
65.	M/s.Plant Organics Ltd., IDA Bollaram (V), Jinnaram (M), Medak dist.
66.	M/s.Saraca Laboratories Ltd., Gaddapotharam (V), Jinnaram (M), Medak dist.
67.	M/s.Apex Drugs & Intermediates Pvt Ltd., Gaddapotharam (V), Jinnaram (M), Medak dist.
68.	M/s Hartex Rubbers Ltd., IDA Bollaram (V), Jinnaram (M), Medak dist.
69.	M/s Island Veer Chemie Pvt. Ltd, IDA Bollaram, Jinnaram (M), Medak dist.
70.	M/s Kalvik Laboratories Pvt Ltd., IDA Bollaram, Jinnaram (M), Medak dist.
71.	M/s Kekule Pharma Ltd., (Formerly M/s Kekule Chemicals (P) Ltd), Khazipally (V), Jinnaram (M), Medak dist.
72.	M/s Neo Medichem Pvt. Ltd., Bonthapally (V),Jinnaram (M), Medak dist.
73.	M/s Sri Gayathri Drugs Pvt. Ltd., Bonthapally (V), Jinnaram (M), Medak dist.
74.	M/s Sigachi Laboratories Ltd., Bonthapally (V), Jinnaram (M), Medak dist.
75.	M/s Vayajayanthi Drugs Pvt. Ltd., Bonthapally (V), Jinnaram (M), Medak dist.
76.	M/s Bio-Tech Pharma Ltd.,, Gaddapotharam (V), Jinnaram (M), Medak dist.
77.	M/s Sheethal Chemicals Pvt. Ltd, IDA Bollaram,Jinnaram (M), Medak dist.
78.	M/s Techbond Laboratories Pvt.Ltd, Anantharam (V), Jinnaram (M), Medak dist.
79.	M/s Zyden Gentec Ltd., (Formerly M/s Sree Venkateswara Medichem Labs Pvt.Ltd) IDA Bollaram, Jinnaram (M), Medak dist
80.	M/s. Prabhava Organics Pvt. Ltd, IDA Bollaram, Jinnaram (M), Medak dist
81.	M/s Enpiar Pharma Pvt. Ltd., IDA Bollaram (V), Jinnaram (M), Medak dist.
82.	M/s Hygro Chemicals Pharmatek (P) Ltd., IDA Bollaram, Jinnaram (M), Medak dist.
83.	M/s Parsin Chemicals Ltd., Anrich Industrial Estate, Bollaram, Jinnaram (M),Medak District.
84.	M/s Twin Star Laboratories Ltd., Bonthapally (V), Jinnaram (M), Medak District.
85.	M/s Warner Laboratories Ltd., Laxmakkapally (V), Mulugu (M), Medak District.
86.	M/s Konar Organics Ltd., Khazipally (V), Jinnaram (M), Medak District.
87.	M/s Matrix Laboratories Ltd, (R & D), Anrich Industrial Estate, Bollaram, Jinnaram (M), Medak District.
88.	M/s Rampex Labs Pvt. Ltd., IDA Bollaram, Jinnaram (M) Medak District.
89.	M/s Yenkey Drugs & Pharmaceuticals Ltd, (Formerly known as M/s Yenkey Medico Drugs Pvt. Ltd), Sy.No. 14, Gaddapotharam (V), Jinnaram (M), Medak District.
90.	M/s Sibra Pharmaceutical Ltd, (Formerly known as M/s Paks Veterinary Drugs Mfg.Co.Ltd, Sy.No. 3-72, IDA Gaddapotharam (V), Jinnaram (M), Medak District.
91.	M/s Neuland Laboratories Ltd, (R & D Centre), Bonthapally (V), Jinnaram (M), Medak District.
92.	M/s. Neuland Laboratories Ltd, Bonthapally (V), Jinnaram (M), Medak District.
93.	M/s. Granules India Ltd, Bonthapally (V), Jinnaram (M), Medak District.
94.	M/s. Virchow Drugs Pvt. Ltd, Bonthapally (V),Jinnaram (M), Medak District.

95.	M/s. Matrix Laboratories Ltd, Unit-VI, (M/s. Fine Drugs & Chemicals Ltd), Gaddapotharam (V), Jinnaram (M), Medak District.
96.	M/s. TPS Laboratories Pvt. Ltd, Gaddapotharam (V), Jinnaram (M), Medak District
97.	M/s. Divis Pharmaceuticals Pvt. Ltd, Gaddapotharam (V), Jinnaram (M), Medak District.
98.	M/s. Siris Crop Science Ltd, Gummadidala (V), Jinnaram (M), Medak District.
99.	M/s. KRS Pharmaceuticals Pvt. Ltd., Gaddapotharam (V), Jinnaram (M), Medak District
100.	M/s.Sri Krishna Drugs Ltd., (M/s.Arandy Laboratories Ltd,) IDA, Bollaram, Jinnaram (M), Medak dist.
101.	M/s.Prudential Pharmaceuticals Ltd., IDA, Bollaram, Jinnaram (M), Medak dist.

RO, Nalgonda

102.	M/s.Mantena Drugs Ltd., Kondamadugu (V), Bibinagar (M), Nalgonda District..
103.	M/s.Porus Drugs & Intermediates Ltd., Unit- I, Nallabandagudem (V), Kodad (M), Nalgonda District.
104.	M/s.Porus Drugs & Intermediates Ltd., (Formerly M/s Lakshmi Drugs & Entermediats Ltd.,), Unit-II, Bibinagar (V), Nalgonda District.
105.	M/s Sri Ram Organics Pvt Ltd., (Formerly M/s. S.K.S.Drugs Pvt Ltd.,) Bibi Nagar (V & M), Nalgonda district.
106.	M/s. Bio Nutrica India Pvt Ltd., Sy.No.310, Challur (V), Rajapet (M), Nalgonda district.

ANNEXURE – II

JOINT ACTION PLAN PROPOSED BY CPCB & APPCB IN WP No. 476/2005, W.P.No.441/2005 AND BATCH CASES

1. The Hon'ble Supreme Court vide order dated 12.03.2007 in W.P.No. 476/2005, W.P.No.441/2005 and batch cases, suggested that "the Central Pollution Control Board and the State Pollution Control Board shall meet to serve out the problem, if possible. In that meeting it will be open to the two Boards to call the petitioners herein, if so advised."

2. In compliance with the above, a meeting was held by the Chairman, CPCB with APPCB on 19.04.2007. In this meeting, it was decided to carry out inspection of JETL & PETL and related industries jointly by the Central and State Pollution Control Boards to come out with specific recommendations.

3. Accordingly, a team of officials of CPCB and APPCB carried out inspection of both the CETPs, some of the member industries, nallahs / drains and Amberpet STP during 26-28th April 2007. The team thereafter submitted a Joint Inspection Report, inter alia recommending an Action Plan (Annexure –I).

4. The Joint Inspection Report and the Action Plan contained therein, were communicated to M/s. JETL, M/s. PETL and 39 petitioner industries on 25.06.2007, with a request that their representatives may attend the meeting on 02.07.2007 with CPCB and APPCB before the Action Plan was finalised.

5. Accordingly, the CPCB and APPCB convened a meeting on 02.07.2007, which was attended by 53 representatives of JETL, PETL and other petitioners. The representatives of CETPs made presentations giving their

views on the proposed Action Plan. Some other representatives also made their observations. It was stated by the CETPs, that the views presented by them were acceptable to their member industries. The record of above consultation is annexed (Annexure-II).

6. The Action Plan proposed in the Joint Inspection Report has been finalised by APPCB and CPCB with due consideration to the consultation with the petitioners, referred to above, as detailed in the following paragraphs.

6.1 **Application of surface water standards as per EPA** : Any standards including the standards prescribed under E(P) Act are binding and CPCB or APPCB do not have any powers to relax them. However, based on the local environmental conditions APPCB is empowered to stipulate more stringent standards. Further, it has been confirmed in the Joint Inspection Report that effluents stream after mixing with sewage at Amberpet STP finally joins River Musi. Hence the relaxation cannot be considered.

6.2 **Inlet standards to the CETP :** The Standards applicable to CETPs are notified under the E (P) Act. Further, Chemical Oxygen Demand (COD) and Total Dissolved Solids (TDS) (inorganic) limits have been additionally prescribed by APPCB as empowered under Water Act, keeping in view the treatability in the CETP, design features of CETP, final disposal point and local conditions.

6.3 **Outlet Standards to the CETP :** Specific standards have been prescribed under the E (P) Act for the outlet of CETPs vide Schedule-I (Sl.No.55) of the Environment (Protection) Rules, 1986 and its Amendments. In particular, since the STP does not treat TDS (inorganic), the standards therefor have to be met at the outlet of the CETP.

6.4 **Common Solvent Recovery :** The solvent recovery may be permitted either at the individual industrial unit level or at an approved common solvent recovery facility. However, many of the solvents being carcinogenic, at least 95% recovery has to be ensured to begin with, whatever option above is followed.

6.5 **Usage of 22.5 km pipeline (called as 18 km pipeline):** This has been already provided in the Action Plan. In any case, the outlet standards of the CETP have to be met for reasons explained above.

6.6 **Inlet TDS (inorganic) Standards :** It is feasible to achieve proposed TDS (inorganic) standards of 10,000 mg/L as PETL and JETL receive similar type of effluents from similar type of industries. PETL is able to achieve < 7,000 mg/L even as on date. Therefore, the request of JETL to have an inlet standard of 15,000 mg/L is not acceptable. Further, achieving ultimate TDS (inorganic) concentrations of 5,000 mg/L is essential to meet the outlet standards of 2,100 mg/L. Hence, it is not possible to relax the concentration limits. However, an additional 6 months time

over and above the one year proposed in the Joint Inspection Report, is agreed.

7. The finalised Action Plan for joint submission by CPCB and APPCB to Hon'ble Supreme Court in light of above discussion is as follows:

Sl No	Description	Action Plan	Time Schedule & other parameters of compliance
1	Inlet standards for the CETPs (i.e. outlet of member industry / tankers received at CETP)	All the parameters as stipulated in the Schedule – I (S.No.55) of the Environment (Protection) Rules, 1986 and its amendments thereto	Within 3 months
	Total Dissolved Solids (TDS) (inorganic) – (Additional parameter) (i.e., outlet of member industry / tankers received at CETP)	10,000 mg/l at inlet of CETP 5,000 mg/l at inlet of CETP	Within 4 months. Within 18 months.
	COD (Additional parameter) (i.e., outlet of member industry / tankers received at CETP)	15,000 mg/l	Within 4 months
2	Outlet standards for CETPs	Surface water disposal standards as stipulated in the Schedule – I (S.No.55) of the Environment (Protection) Rules, 1986 and its amendments thereto.	With immediate effect. (Except TDS (inorganic) & COD)

	Total Dissolved Solids (TDS) (Inorganic) –	5,000 mg/l at outlet of CETP 2,100 mg/l at outlet of CETP	Within 4 months Within 18 months.
	COD	500 mg/l at outlet of CETP	Within 8 months
3a	Penalties	The penalties for the member industries and CETPs for not complying with the above inlet and outlet standards to be levied	For Member Industries : Rs. 30/KL/day for violating any parameter. For CETPs : Rs. 300/KL/day for violating any parameter.
3b	Bank Guarantee	Bank Guarantees to be imposed on the member industries and CETPs for meeting the time schedule detailed in the Action Plan.	With immediate effect. Member Industries : (a) SSI – Rs.10 lakhs (b) Other than SSI – Rs.40 lakhs. (c) CETPs – Rs. 50 lakhs All BGs with a validity period of 24 months, in favour of APPCB.
4	JETL be restrained from entering into agreements with its member industries with different inlet standards. All existing agreements not in accordance with the stipulated standards shall cease to have effect.		With immediate effect
5	JETL may be directed to adopt appropriate scientific treatment and maintain a uniform methodology for treatment of effluents from its member industries based on the inlet standards.		With immediate effect
6	The member industries shall segregate the low and high TDS effluents, improve the pre-treatment systems and send only the low TDS effluents to CETP (Biological treatment system).		Within 3 months.
7	i) The JETL may be directed to enhance the capacity of MEE and spray drier (so as to dispose the centrate generated from MEE) on day to day basis to prevent storage of high concentrated effluents.		Within 6 months

	ii) The existing MEE shall be provided with the stripper to reduce the volatile organic and odour. The air pollution control equipment of the spray drier to be upgraded. iii) one additional MEE with stripper and additional spray drier to be installed iv) The stripper (at MEE) condensate shall be incinerated at TSDF	Within 6 months Within 1 year Within 6 months for (ii) and within 1 year for (iii) above.
8	Air emission standards for spray drier.	CPCB / APPCB to prescribe guidelines within 6 months.
9	To enable APPCB to monitor CETPs (JETL & PETL) continuously, they may be advised to provide online monitors (eg. TOC analyzers), continuous flow measuring & recording devices at the outlet and online VOC monitor at the boundary of the CETP with network connection to APPCB.	Within 1 year
10	The non-member water polluting industries be permitted to become members of the JETL & PETL based on neighborhood concept, only after the consent of the Board. However, the industry should comply with the inlet standards and also no increase in the permitted pollution load and hydraulic load of the individual industry.	Within 3 months for the existing non-member industries from Rangareddy and Medak Districts, after prior approval of APPCB.
11	The 18 KM pipeline provided to discharge treated effluents from CETP Patancheru to K&S Main sewer be permitted to be commissioned provided they meet the standards prescribed.	Within 3 months
12	The JETL and PETL may explore the possibility of installation of common spent solvent recovery plant with adequate capacities.	Within 3 months

13	The individual industries shall provide or upgrade, as the case may be, solvent recovery system to achieve atleast 95% recovery, on the lines stipulated in the Environmental Clearances granted by MoE&F, GOI.	Within 6 months
14	Five major industries letting the high TDS effluent to the JETL biological treatment plant shall be directed to treat in their own premises or to send the same to Multiple Effect Evaporator (MEEs) at JETL. The industries are 1. M/s. Virchow Laboratories Ltd., 2. M/s. Vani Chemicals and Intermediates Ltd., 3. M/s. Orchem Intermediates (P) Ltd., 4. M/s. Vijayalakshmi Drugs and Chemicals Ltd., 5. M/s. Orchem Industries (P) Ltd., (Unit-II)	With Immediate effect.

2/07/07

Member Secretary
APPCB

2/7/07

Member Secretary
CPCB

Date: 02.07.2007
Place: Hyderabad

ANNEXURE-III

A. P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2009

Parameter	Name of the village																		Permissible standards as per IS - 10500,
	Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chinna kanjarla	Patancheru	Pedda kanjerla	Chitkul	Bithole	Kardanoor	Chidruppa	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhanpet	
pH	7.9	7.8	6.9	7	7.6	7.9	7.6	7.4	7.7	8.2	7.4	7.6	7.8	7.4	6.9	7.0	7.4	7.6	-
Conductivity µmho/cm	922	1742	399	2895	1094	1102	1305	989	1697	1359	2160	1351	899	2639	2430	798.0	1469	796	-
TDS	625	1048	267	1595	788	859	942	701	1009	994	1158	944	710	1740	1270	501.0	873	620	2000
Total Alkalinity $CaCo_3$	60	60	20	48	40	68	52	68	52	44	80	68	52	28	36	16.0	40	56	600
Total Hardness as $CaCo_3$	232	460	208	700	430	264	414	260	510	140	751	368	408	624	560	410.0	405	510	600
Calcium as $Ca2^+$	60	56	50	118	70	28	61	21	96.8	25	126	80	110	132	103	134.0	98	360	200
Magnesium as $Mg2^+$	21.2	50	19	70	50	31	19	14	33	18	88	24	44	36	24	18.0	42	60	100
Chlorides as Cl^-	134	252	40	510	201	129	229	139	294	250	285	216	210	443	486	211.0	236	250	1000
Sulphates as SO_4^{-2}	20	85	12	113	68	50	75	49	102	78	101	115	73	116	136	44.0	90	55	400
Fluoride as F	1.4	1	1.4	1.5	0.4	1,2	1	1	1.2	1.5	1.4	1	1.6	1.4	1.2	1.0	1	1.8	1.5
NO3-N	9	18	4	13	12	10	31	22	52	40	19	18	15	10	19	20.0	8	12	100
Sodium	75	175	40	221	119	24	142	102	199	145	90	127	45	42	18	24.0	154	93	-
Potassium a	1.5	32	1.3	70	5	90	17	72	16	42	9	61	2	1.9	2.5	4.0	31	6	-
Zinc as Zn	0.018	0.2	BDL	0.042	0.06	0.06	0.05	0.06	0.2	0.079	0.1	0.29	0.085	0.048	0.08	0.1	0.12	0.06	15
Iron as Fe	0.3	0.3	BDL	0.19	BDL	0.29	0.26	0.07	0.1	0.1	0.44	BDL	0.18	0.2	0.04	0.2	0.5	0.086	1
Lead as Pb	BDL	0.008	BDL	0.008	BDL	BDL	0.006	0.008	0.006	0.003	0.002	0.004	0.007	0.008	0.005	0.0	0.003	0.008	-
Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
Total Chromium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-

A. P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2001

S.No.	Parameter	Name of the village																	Permissible standards as per IS - 10500, 1991
		Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chinna kanjarla	Patancheru	Pedda kanjerla	Chitkul	Bithole	Kardanoor	Chidruppa	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhanpet	
1	pH	7.27	7.25	7.13	7.12	7.2	7.5	7.18	7.22	7.17	7.4	7.31	7	7.17	7.24	7.16	6.93	7.24	7.12	-
2	Conductivityμmho/cm	728	1518	542	2302	867	950	1800	1830	1524	1422	1340	1422	750	1726	1720	848	976	2210	-
3	TDS	648	1028.2	361	1513.2	565	613.8	1120	1198.8	999.4	942	865.5	924.7	486.8	1160.2	1133	553.2	633	1570	2000
4	Total Alkalinity $CaCo_3$	304	363.2	184.4	438	270.6	338.4	412.2	366	402	208	348.25	334.6	248.6	380	344.6	137	317.2	340.6	600
5	Total Hardness as $CaCo_3$	389.8	419.4	246.6	682	278.4	300	582.6	624	522	292	415	486.6	408	656.6	633.2	375.2	335.2	627.6	600
6	Calcium as $Ca2^+$	80.8	99.2	53.2	138.4	59.2	61.6	122.4	117.6	128.8	59.6	91	105.8	71.6	132.8	117.8	81.6	72.2	122	200
7	Magnesium as $Mg2^+$	45.2	41.4	24	76.6	36.4	35.2	66.8	79.8	48.56	34.6	45.25	53.4	35	78.2	75.6	41.2	37.4	76.5	100
8	Chlorides asCl^-	114.2	275.6	72.2	446.2	74	90	376.8	327.8	244.8	268.4	242.25	215.6	65.2	355.6	311.6	138.4	156.8	466	1000
9	Sulphates as SO_4^{-2}	51.8	173.9	15.2	176.28	139.5	46.92	165	115.73	131.24	56	41.55	103.47	61.35	169.39	132.95	33.36	46.16	215.2	400
10	Fluoride as F^-	0.93	1.05	0.67	0.98	0.85	0.83	1.14	1.13	1.14	1.38	0.94	1.01	0.82	1	1.07	0.85	0.93	2.77	1.5
11	NO3-N	8.78	10.38	5.67	14.86	3	6.97	14.05	15.61	16	11.88	10.11	12.95	8.04	10.05	9.1	15.72	2.99	8.35	100
12	Sodium	128.6	246.4	57.2	258	70.4	132	179.2	120	134.4	160.6	187	108	75.6	188	178.8	142.8	129.2	259.8	–
13	Potassium as K	1.6	1	1.8	2.2	1.4	2.31	1.6	1.2	1.4	<1	0.8	1.4	1.6	0.38	0.84	1.4	2.54	2.83	–
14	Zinc as Zn	0.46	0.24	0.43	0.46	0.16	0.33	0.38	0.33	0.43	0.34	0.24	0.44	0.48	0.24	<0.05	0.44	0.38	0.29	15
15	Iron as Fe	0.23	0.19	0.18	0.21	0.17	0.15	0.22	0.21	0.25	0.23	0.19	0.29	0.14	0.14	0.24	0.14	0.18	0.31	1
16	Lead as Pb	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
17	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	<0.004	BDL	<0.004	BDL	BDL	BDL	<0.004	<0.0004	BDL	<0.004	<0.004	BDL	-
18	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	<0.05	BDL	BDL	BDL	BDL	BDL	<0.005	BDL	BDL	<0.05	<0.05	BDL	-
19	Total Chromium	BDL	BDL	BDL	BDL	BDL	BDL	0.024	BDL	BDL		BDL	BDL		0.006	BDL	BDL	0.028		-

Note: All values expressed in mg/l except pH.

SENIOR ENVIRONMENTAL SCIENTIST (FAC)

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2002

S.No.	Parameter	Name of the village																		Permissible standards as per IS - 10500, 1991
		Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chinna kanjarla	Patancheru	Pedda kanjerla	Chitkul	Bithole	Kardanoor	Chidrupal	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhan pet	
1	pH	7.13	8.83	7.16	7.06	7.11	7.29	7.12	7.01	7.03	7.26	7.2	6.88	7.16	7.27	7.2	7.07	7.11	7.05	-
2	Conductivityμmho/cm	1270	2492	676	3242	1204	2192	1646	2456.8	1496	1145	1616	1072	1155	2050	1670	1238	1392	2605	-
3	TDS	870.8	1653.6	448	2201	782.6	1445.2	952	1644	991	742.25	1094	697	755	1372.5	1114.4	802	940	1467.5	2000
4	Total Alkalinity $CaCo_3$	249	434	163	540	262	381	560	414.6	330	310	385.6	233	158.25	383.75	370	264	407	430	600
5	Total Hardness as $CaCo_3$	545	688	267	1078	420	579	540	692	624	255	682	338	405	852.5	582	472	454	837.5	600
6	Calcium as $Ca2^+$	104	139.2	54	222.4	85.2	119.2	111.2	138.4	126.4	48.25	137.2	68	83.5	173	118.4	95.2	92	180	200
7	Magnesium as $Mg2^+$	69	82.4	31.8	116.4	50.2	68	63.2	83.8	79.5	29.25	212.6	40.4	47.5	101.5	69	48.4	54.4	95.25	100
8	Chlorides asCl^-	231.6	397.8	76	736.2	145.4	330.2	235.6	346.8	253.8	204	302.4	125.2	122.75	1747	323.2	192.4	209.8	332.75	1000
9	Sulphates as SO_4^{-2}	83	862.7	17.95	217.45	162	49.3	121.6	134.85	140.25	61.5	43.85	48.5	61.3	214.4	66.3	44.1	131.8	187.75	400
10	Fluoride as F^-	1.16	1.18	0.8	1.08	0.82	1.13	1.04	1.12	0.97	1.05	1.43	2.85	1.03	0.73	1.12	0.9	0.99	0.92	1.5
11	NO3-N	8.5	17.37	5.94	18.58	6.38	5.59	3.85	18.17	31.54	12.68	42.13	27.86	4.57	10.43	2.81	10.07	5.48	15.27	100
12	Sodium	160.4	335.8	60.6	350.4	135.8	192.8	145.2	130.4	117.6	168.5	--	112	120.5	216.58	186.54	151	178.4	240.75	-
13	Potassium as K	--	2.2	1.5	1.6	2.4	2.12	1.8	--	0.5	<1	<1	1.4	1.8	1.6	2	1.6	2.4	1.4	-
14	Zinc as Zn	0.34	0.43	0.6	0.14	0.34	0.5	0.5	0.4	0.6	0.29	0.4	2.89	0.216	0.216	0.24	0.38	0.43	0.26	15
15	Iron as Fe	0.4	0.2	0.2	0.5	0.24	0.2	0.3	0.3	0.3	0.25	0.4	0.2	0.113	0.16	0.21	0.3	0.11	0.138	1
16	Lead as Pb	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
17	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	0.004	BDL	BDL	BDL	BDL	BDL	<0.004	<0.004	BDL	0.004	0.004	BDL	-
18	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	0.05	BDL	BDL	BDL	BDL	BDL	<0.005	<0.05	BDL	BDL	≤0.05	BDL	-
19	Total Chromium	BDL	BDL	BDL	BDL	BDL	BDL	0.033	BDL	BDL		BDL	BDL		0.016	BDL	BDL	0.028		-

Note: All values expressed in mg/l except pH.

SENIOR ENVIRONMENTAL SCIENTIST (FAC)

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2003

S.No.	Parameter	Name of the village																		Permissible standards as per IS - 10500, 1991
		Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chirina kanjarla	Patancheru	Pedda kanjerla	Chitkul	Bithole	Kardanoor	Chidrupal	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhan pet	
1	pH	7.57	7.14	7.29	7.02	7.34	7.38	7.42	7.0	7.1	7.16	7.03	7.1	7.14	7.24	7.15	7	7.17	7.09	-
2	Conductivityμmho/cm	885.75	2060	579.5	1299.64	1514.5	1387.8	3275	2340	1680	1677.75	2123	1247	2102	2492.18	2177.5	1187.2	1150	1288.93	-
3	TDS	606.8	1330.8	395.2		967.5	966.9	2128.5	1577	1086.1	1132.25	1479	805	1014	3128.8	1498.5	748	750	1877.4	2000
4	Total Alkalinity $CaCo_3$	247	3753	157.6	784	360	366	450	500	435	237.5	303.33	285	289	858	535	275.6	310	495.2	600
5	Total Hardness as $CaCo_3$	343	573	174.2	508	422.5	380	604	593.33	590	320.25	870	421	686	935	950	385	850	788	600
6	Calcium as Ca^{2+}	51.2	137.2	54	102.4	80	74.4	121	126	118	59.5	199.5	87.2	160	194	186	80	180	145.8	200
7	Magnesium as Mg^{2+}	32.86	55.85	31.98	61.38	49	42.06	78	72.5	71.5	41.25	127.75	49.29	69.45	109	117.5	132.52	97	78.4	100
8	Chlorides as Cl^-	87.6	336.4	65.4	699.4	272.5	128.8	815.2	404.25	332	247.5	419.25	174	360	1308.5	462	160.6	376	479.6	1000
9	Sulphates as SO_4^{-2}	19.47	218.32	17.25	210.11	182.8	45.58	174.3	184.15	143	62.43	48	72.8	198	153.95	142.25	30.2	120	120	400
10	Fluoride as F^-	2.11	1.15	1.01	1.14	0.85	1.43	0.52	1.23	0.97	1.21	1.34	1	0.85	1.38	0.9	0.62	1	1.32	1.5
11	NO3-N	8.66	9.49	4.23	39.45	8.42	3.92	--	47.66	4.9	28.27	26.03	24	21.3	45.32	4.63	14.22	11.8	53.39	100
12	Sodium	181	328	69.2	471.6	135	168.8	147.9	129.5	149	136	207.5	142	142	264	218.5	147.6	184	241.6	-
13	Potassium as K	1.2	1.8	18	1.8	1.6	1.66	2.4	1.6	0.75	<1	<1	2.2	1.9	--	1.6	2.4	1.4	0.14	-
14	Zinc as Zn	0.12	0.33	0.23	0.09	0.12	1.6	0.11	0.14	0.34	0.12	0.06	1.24	0.24	0.21	0.22	0.12	0.44	0.16	15
15	Iron as Fe	0.06	0.17	0.04	0.13	0.06	0.12	0.06	0.08	0.27	0.11	0.25	0.18	0.12	0.13	0.14	0.05	0.3	0.08	1
16	Lead as Pb	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<0.05	BDL	-
17	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	<0.004	BDL	BDL	BDL	BDL	BDL	BDL	0.004	BDL	0.01	<0.004	BDL	-
18	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	<0.05	BDL	BDL	BDL	BDL	BDL	BDL	<0.05	BDL	BDL	<0.05	BDL	-
19	Total Chromium	BDL	BDL	BDL	BDL	BDL	BDL	0.022	BDL	BDL		BDL	BDL		0.026	BDL	BDL	0.025		-

Note: All values expressed in mg/l except pH.

SENIOR ENVIRONMENTAL SCIENTIST (FAC)

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2004

S.No.	Parameter	Name of the village																		Permissible standards as per IS - 10500, 1991
		Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chinna kanjarla	Patancheru	Pedda kanjerla	Chitkul	Bithole	Kardanoor	Chidruppa	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhan pet	
1	pH	7.9	7.6	7.8	7.15	7.6	7.7	7.5	7.3	7.6	7.27	7.0	7.3	7.1	7.26	7.7	7.1	7.3	7.5	-
2	Conductivityμmho/cm	929	1485	632	1810	1736	1542	2990	225	2030	1720.2	1593	2092	2460	2871	1268	1087	1400	1393	-
3	TDS	594	935	404	1176.5	1112	986	1920	1470	1350	1110	1019	1235	1530	1836	812	706	840	892	2000
4	Total Alkalinity $CaCo_3$	320	210	120	325	190	410	170	300	410	298	140	390	373	640	190	225.5	300	287	600
5	Total Hardness as $CaCo_3$	195	500	196	600	500	290	800	1200	290	345	590	412.3	865	830	400	411	380	335	600
6	Calcium as $Ca2^+$	34	116	44	142	73	72	180	260	164	80	140	170	183	172	100	85.3	80	68	200
7	Magnesium as $Mg2^+$	28	50	22	59.49	84	28	88	121.4	68	35.21	58	60	98.83	97.13	38	74.04	43.7	41	100
8	Chlorides asCl^-	60	209	74	327	237	139	422	513	334	262.4	255	316	445	950	172	189.46	210	204	1000
9	Sulphates as SO_4^{-2}	16	110	28	186	140	54	142	208	110	64.3	118	160	240	189	98	35.88	140	28	400
10	Fluoride as F^-	2.04	0.72	1.21	1.16	0.86	--	0.88	1.22	0.72	1.18	0.68	0.41	0.96	1.1	1.41	0.79	0.94	0.98	1.5
11	NO3-N	--	10.4	4.83	27.05	124	--	7.94	19	--	18	59.5	28	63	35.2	6.84	13.36	0.48	--	100
12	Sodium	148	117	62.33	195	114.3	--	132.62	100.2	--	148	112	250	160	242	198.2	147.13	130	180	-
13	Potassium as K	1.4	0.4	12.42	2.4	1.8	--	1.64	2.1	--	112	11.2	4	2.9	1.9	1.4	1.8	3	8	-
14	Zinc as Zn	0.22	0.35	0.28	0.092	0.2	--	0.62	0.542	0.32	0.18	0.23	1.8	0.31	0.23	0.21	0.31	0.42	0.38	15
15	Iron as Fe	0.08	0.18	0.12	0.42	0.15	BDL	0.04	0.14	0.29	0.16	0.27	0.14	0.11	0.18	0.16	0.16	0.34	0.31	1
16	Lead as Pb	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
17	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<0.004	BDL	BDL	BDL	BDL	-
18	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<0.005	BDL	BDL	BDL	BDL	-
19	Total Chromium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL		0.18	BDL	BDL	BDL		-

Note: All values expressed in mg/l except pH.

SENIOR ENVIRONMENTAL SCIENTIST (FAC)

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2005

S.No.	Parameter	Name of the village																	Permissible standards as per IS - 10500, 1991
		Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chinna kanjarla	Patancheru	Pedda kanjerla	Bithole	Kardanoor	Chidrupal	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhan pet	
1	pH	7.1	7.6	8.04	6.9	7.89	6.97	7	8.17	6.7	7.15	7.54	6.9	7.69	7.3	6.25	7.42	7.46	-
2	Conductivityμmho/cm	960.5	2920	512	3710	10080	1390	2660	2110	2430	2468	2310	2450	3307	2970	1394		995	-
3	TDS	602	1869	340	2374	6900	887.5	1702	1300	1555	1575	1477	1568	2115	1898	890	856	658	2000
4	Total Alkalinity $CaCo_3$	304	440	120	316		432		620	188			296						600
5	Total Hardness as $CaCo_3$	178	368	240	736	1500	292	544	120	836	644	408	700	671	192	482	391	192	600
6	Calcium as $Ca2^+$	40	28.8	14.5	158	320	59	144	72.8	99	115	86	235	154	217	123	38	46	200
7	Magnesium as $Mg2^+$	19.3	71.88	76.9	86	17	36.25	45	19	149	87	47	28	70	81	44	54	18.5	100
8	Chlorides asCl^-	103.5	262	104	766	3150	514	346	275	355	472	253	374	617	650	294	187	179	1000
9	Sulphates as SO_4^{-2}	23.5	122	67	200	640	346	195	140	240	60	101	150	259	230	55	57	89	400
10	Fluoride as F^-																		1.5
11	NO3-N	4.7	67.52	76.9	439.5	87	3.4	8.4	38	1.08	11	34	49.6	37	3.1	35	2	8.9	100
12	Sodium	1336	292.36	12.6	17.8	1291	140.76	228	196.5	150.08	185	188	149.64	407	149	65	140	135	-
13	Potassium as K	1.54	182.98	32	17.8		7.72	0	12.4	4.7			11.14						-
14	Zinc as Zn	0.12	BDL	BDL	BDL	0.643	0.121	BDL	BDL	BDL	0.098	0.123		0.131	0.112	0.143	BDL	0.13	15
15	Iron as Fe	0.36	0.28	0.12	0.18	0.28	0.07	BDL	0.18	0.24		BDL		0.18			BDL	0.29	1
16	Lead as Pb	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL		BDL			BDL		-
17	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL		BDL			BDL		-
18	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL		BDL			BDL		-
19	Total Chromium	BDL	BDL	BDL	BDL	0.093	BDL	BDL	BDL	BDL				BDL			BDL		-

Note: All values expressed in mg/l except pH.

SENIOR ENVIRONMENTAL SCIENTIST (FAC)

A. P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2006

S.No.	Parameter	Name of the village																	Permissible standards as per IS - 10500, 1991
		Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chinna kanjarla	Patancheru	Pedda kanjerla	Chitkul	Bithole	Kardanoor	Chidruppa	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhan pet	
1	pH	8.9	7.83	8.05	8	8.8	7.82	8.35	8.75	8.45	7.55	7.265	8.7	7.36	8.25	8.1	8.4	7.57	7.3	-
2	Conductivity, µmho/cm																			-
3	TDS	809	1376.5	1720.5	1655.5	870	1142	1546	1473	1836	1395	806	1380	1115	1314	1464	552	929.5	1340	2000
4	Total Alkalinity $CaCo_3$	388	346	103	248	406	528	364	326	456	200	156	424	206	192	192	108	264	172	600
5	Total Hardness as $CaCo_3$	215	489	688	769	345	326	582	434	842	851	422	460	570	634	722	560	368	863	600
6	Calcium as $Ca2^+$	33.6	107.2	153.2	208.4	68	56	74	72	192	286	100	99.6	135	152	166	173	75.2	233	200
7	Magnesium as $Mg2^+$	31.81	53.55	74.06	60.215	43	45	97	63	88	33	42	51.235	56	62	75	30.83	73.7	74	100
8	Chlorides asCl^-	171.5	259	786	487.5	287	190	372	362	403	457	227	214	311	452	488	266.5	177	456	1000
9	Sulphates as SO_4^{-2}	23.5	69	264.5	265	193	106	112	216	125	294	105	188	109	239	345	93.5	116	236	400
10	Fluoride as F^-	0.835	0.525	0.53	0.655	0.875	0.97	0.52	0.905	0.525	0.29	0.55	0.255	0.175	1.055	0.985	0.635	0.485	0.165	1.5
11	NO3-N	9.752	52.532	9.95	20.97	13.23	2.36	50.05	62	73.75	30	5.008	48.65	41	1.368	7.962	29.85	14.14	23.83	100
12	Sodium	237.89	256.305	188.285	365.465	83	238	350	252	311	140	149	215	174.72	210.65	236.18	45.995	231.76	0.141	-
13	Potassium as K.	BDL	86.948	40.63	23.9035	30	105	56	209	149	2.56	2.284	224	109.57	3.207	4.57	6.0865	52.23	177.82	-
14	Zinc as Zn	BDL	BDL	BDL	BDL	0.0685	0.0535	0.6425	BDL	0.873	0.325	0.028	0.159	BDL	0.005	BDL	0.0525		6.174	15
15	Iron as Fe	0.07	0.0075	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.039	0.1485	BDL	0.122	BDL	BDL	BDL	0.0455	0.1215	1
16	Lead as Pb	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.021	BDL	BDL	BDL	0.02	-
17	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
18	Arsenic		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
19	Total Chromium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL		BDL	BDL	BDL	BDL		-

Note: All values expressed in mg/l except pH.

SENIOR ENVIRONMENTAL SCIENTIST (FAC)

A. P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2007

S.No.	Parameter	Name of the village																	Permissible standards as per IS - 10500, 1991
		Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chinna kanjarla	Patancheru	Pedda kanjerla	Chitkul	Bithole	Kardanoor	Chidruppa	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhan pet	
1	pH	6.855	7.11	7.1	7.215	7.5	7.05	7.4	7.865	7.04	7.145	6.87	7.115	6.785	7.305	7.25	7.175	6.89	6.915	-
2	Conductivityμmho/cm																			-
3	TDS	468	670.5	891	1491	388	669	1022	670	1218	840	1047	955	993	1036.5	1291	808.5	688	1037	2000
4	Total Alkalinity $CaCo_3$	196	250	102	373	203	208	298	163	352	235	295	358	223	230	298	300	215	336	600
5	Total Hardness as $CaCo_3$	235	290	640	665	246	380	640	285	690	483	690	530	579	600	705	809.5	455	694	600
6	Calcium as $Ca2^+$	43.4	38.5	108	114	47	70	139	37	252	78	148	93	98	136	138	142.2	77.5	136	200
7	Magnesium as $Mg2^+$	30.38	46.78	89.8	92	32	49	71	46	76	69	78	69	81	63	87	110.39	62.895	86	100
8	Chlorides asCl^-	46.015	65.83	410	557	54	167	269	100	326	220	339	180	465	379	238	181.5	195.5	459	1000
9	Sulphates as SO_4^{-2}	22	93	60	205	21	59	153	64	209	100	154	113	77	172	172	84	102	180	400
10	Fluoride as F^-	2.91	6.06	1.1	0.763	1.255	1.485	0.89	0.75	0.775	2.545	6.765	6.615	0.815	1.355	1.025	0.175	0.4	0.65	1.5
11	NO3-N	6.09	13.57	3.6	19	1.83	1.44	38.33	14	41.9	16.6	14.32	22.8	9.322	1.53	2.375	22	5.116	19.04	100
12	Sodium	101.02	69.5	100.14	210	63	76	106	82	123	103	76.57	93.7	77	95.19	120	26.211	63.925	80	-
13	Potassium as K	1.402	49.36	2.926	16	1.209	74	15	123	26	32	7.56	108.26	2.54	2.94	2.6975	5.212	2.9695	7.32	-
14	Zinc as Zn	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	15
15	Iron as Fe	0.4455	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0855	BDL	BDL	1
16	Lead as Pb	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	-
17	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	-
18	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	-
19	Total Chromium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL		BDL	BDL		BDL		-

Note: All values expressed in mg/l except pH.

SENIOR ENVIRONMENTAL SCIENTIST (FAC)

A. P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, R.C. PURAM, MEDAK DISTRICT

ANNUAL AVARAGE VALUES OF GROUND WATER QUALITY OF 18 VILLAGES FOR THE YEAR 2008

S.No.	Parameter	Name of the village																	Permissible standards as per IS - 10500, 1991
		Inole	Muttangi	Kistareddy pet	Sultanpur	Bachu gudem	Arutla	Chinna kanjarla	Patancheru	Pedda kanjerla	Chitkul	Bithole	Kardanoor	Chidruppa	Gandi gudem	Dayara	Indresam	Pocharam	Ismailkhanpet	
1	pH	7.7	7.6	7.4	7	7.5	7.8	7.6	7.7	7.5	7.6	7.1	7.6	7.8	7.4	6.9	7.0	7.4	7.6	-
2	Conductivityμmho/cm	944	1761	414	2967	1174	1259	1434	1004	1722	1466	2228	1426	916	1776	2528	836.0	1588	889	-
3	TDS	630	1089	281	1632	803	872.3	955	733	1177	1033	1226	961	710	1834	1391	614.0	991	829.5	2000
4	Total Alkalinity $CaCo_3$	114	98	42	46.7	65	155	71	109	65	76	56.7	117	52	56	26	33.0	75	146	600
5	Total Hardness as $CaCo_3$	244	441	220	704	456	289	404	284	521	472	766.7	392	436	627	702	475.0	474	566.5	600
6	Calcium as $Ca2^+$	62.7	88.9	51.9	131.6	73.7	36.4	72	25.3	96.8	67.2	154.9	79.3	112	167	203	148.0	99	1369	200
7	Magnesium as $Mg2^+$	21.2	53.2	26.3	90.9	72	48	54.3	54.5	67.7	73.9	92.3	47	38	51	47	25.5	55	55	100
8	Chlorides asCl^-	141	282	42.8	555.7	223	148	256	155.5	323	273	297.7	215.5	221	476	507	207.0	285	276	1000
9	Sulphates as SO_4^{-2}	25.8	91	17.5	120.7	74	56.8	87.5	57.5	120.3	84.8	109	122.5	81	123	144	47.0	95	69	400
10	Fluoride as F^-	1.5	1	1.4	1.6	1.2	1.5	1.3	0.8	1.3	1.8	1.4	0.8	1.6	1.8	1.2	0.8	1.1	2.2	1.5
11	NO3-N	11.6	26.8	5.1	15.7	15.3	14	41.4	28.2	68.3	44.6	20.6	21.6	16.9	13.6	21.1	24.5	9.2	15.7	100
12	Sodium	80.4	182.9	44	226.8	128.2	134.3	158.7	110.8	216.7	153.8	95.8	134.4	49.3	49.7	20.7	26.0	161.8	98.5	-
13	Potassium as K	1.9	34.8	1.8	75.8	5.5	92.8	18.6	75.9	19.9	56.4	10.3	67.4	2.8	3.5	3.3	5.2	32.6	7.1	-
14	Zinc as Zn	0.192	0.27	BDL	0.053	0.073	0.076	0.045	0.071	0.26	0.084	0.108	0.339	0.091	0.05	0.1	0.1	0.154	0.067	15
15	Iron as Fe	0.394	0.312	BDL	0.213	BDL	0.388	0.312	0.076	0.129	0.157	0.548	BDL	0.17	0.223	0.063	0.4	0.717	0.097	1
16	Lead as Pb	BDL	0.007	BDL	0.007	BDL	BDL	0.007	0.009	0.007	0.004	0.002	0.004	0.007	0.008	0.005	0.0	0.003	0.008	-
17	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
18	Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-
19	Total Chromium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	-

Note: All values expressed in mg/l except pH.

SENIOR ENVIRONMENTAL SCIENTIST (FAC)

Annexure-IV

S.No	Annual averages of Ambient Air Quality for the year -2008				
	Station	RSPM	TSPM	SO2	Nox
	Standards for industrial area	120 µg/Nm3	360 µg/Nm3	80 µg/Nm3	80 µg/Nm3
1	Patancheru	92	240	17	20
2	Bollaram	155	386	21	30
3	Gaddapotharam	168	362	28	34

	Annual averages of Ambient Air Quality for the year -2009				
	Station	RSPM	TSPM	SO2	Nox
	Standards for industrial area	120 µg/Nm3	360 µg/Nm3	80 µg/Nm3	80 µg/Nm3
1	Patancheru	86	223	15	22
2	Bollaram	145	364	19	25
3	Gaddapotharam	154	346	24	30

Annexure-V

CEPI CALCULATIONS FOR PATANCHERU – BOLLARAM AREA

Air

Calculation as per CPCB		Comments and re-calculation by APPCB.
A1 - Pollutant Concentration. Pollutants – Category : **Group – A** – Toxins that are not assessed as acute or systemic = 1. **Group – B** – Organics that are probable carcinogens (USEPA Class 2 and 3) or substances with some systemic toxicity. **Group – C** – Known carcinogens or Chemicals with significant systemic or organ system toxicity. RSPM - B TSPM - B NOx - A **A1 = 3**		RSPM - B TSPM - B NOx - A **A1=3**
A2 – Scale of industrial activities i.e., Industries Concentration in the area. R17 (17 Category industries) R54 (Red otherthan 17 category) - 764 **A2 = 5** **A= A1 x A2 = 3 x 5 = 15**		In Patancheru – Bollaram area about 194 Red category industries are located which includes 17 – category of industries in an area about 100 Sq. KM. Then the factor A2 will be 5 **A2= 5** **A= A1 x A2 = 3 x 5 = 15**
B1 – Ambient Pollutant Concentration i.e., Pollutant - Exceedence factor RSPM – TSPM – NOx – **B1 = 1**		RSPM – 1.15 TSPM – 0 .91 NOx – 0.375 **B1 = 3**
B2 – Evidence of adverse impact concentration. **B2 =3** (Symptoms of exposure on people)		**B2 =3 (Symptoms of exposure on people)**
B3 – Reliable evidence of adverse impact on eco-geological features. **B3=3** (Symptoms of exposure on eco-geological features)		**B3=3 (symptoms of exposure on eco-geological features)**

Overall score of B = B1+B2+B3 = 1+3+3 = 7		**Overall score of B = B1+B2+B3 = 3+3+3=9**
C1 – Number of people potentially effected with 2 KM boundaries from the industrial pollution source. **Population exposed > 1,00,000 C1= 5**		**Population exposed > 1,00,000 C1= 5**
C2 – Level of exposure (surrogate number which will represent level of exposure factor (SNLF)). Pollutant SNLF RSPM > 0.5 TSPM > 0.5 NOx 0 C2 = 3		Pollutant SNLF RSPM > 0.5 TSPM > 0.5 NOx 0 **C2 = 3**
C3 – Additional risk to sensitive receptors. C3 = 3 (Risk to sensitive receptors – Yes)		C3 = 3 (Risk to sensitive receptors – yes)
C = (C1 x C2) + C3 = (5x3)+3 = 18		C = (C1 x C2) + C3 = (5x3)+3 = 18
D – Additional high risk element (Inadequacy of pollution control measures for large, medium and small scale industries. Max score = 20) D = 10		All industries in area are having adequate air pollution control systems. Common facilities for air pollution in the area are not applicable. D = 5
CEPI for Air = A+B+C+D = 15+7+18+10= 50.0		**CEPI for Air = A+B+C+D = 15+9+18+5= 47.0**

Water

Calculation as per CPCB		Comments and re-calculation by APPCB.
Pollutants - Category		
TDS B Cl^- B SO_4 B		TDS B Cl^- B SO_4 B
A1 = 3		A1 = 3
R17 R54 - 764 **A2 = 5** **A= A1 x A2 = 3 x 5 = 15**		In Patancheru – Bollaram area about 194 Red category industries are located which includes 17 – category of industries in an area about 100 Sq. KM. Then the factor A2 will be 5 **A2= 5** **A= A1 x A2 = 3 x 5 = 15**
Conc Ex factor TDS - 5640 11.28 Cl^- - 2039.3 8.15 SO_4 - 224.8 1.12 **B1 = 8**		Conc Ex factor TDS - 1700 0.89 Cl^- - 800 0.80 SO_4 - 150 0.15 **B1 = 2 (When the exceedence factor is between 0.5 and 1.0)**
B2 = 3 (symptoms of exposure of people)		B2 = 3 (symptoms of exposure of people)
B3=3 (Symptoms of exposure on eco-geological features)		**B3=3** (Symptoms of exposure on eco-geological features)
B = B1+B2+B3 = 8 + 3+3 = 14		**B = B1+B2+B3 = 2 +3+3 = 8**
Population exposed > 1,00,000 **C1= 5**		**Population exposed > 1,00,000** **C1= 5**
SE/total x EF SNLF TDS - 6/6 x 11.28 11.28 Cl^- - 4/4 x 8.15 8.15 SO_4 - 3 / 4 x 1.12 0.84 **C2 = 3**		**C2 = 1.0 (Low, as the number of samples are meeting the standards and SNLF = 0)**
C3 = 5 (Risk to sensitive receptors – Yes)		C3 = 5 (Risk to sensitive receptors – Yes)
C = (C1 x C2) + C3 = (5 x 3) + 5 = 20		**C = (C1 x C2) + C3 = (5 x 1) + 5 = 10**
D = 10 (common facilities for pollution control are inadequate)		D = 5 (common facilities for pollution control are adequate)
CEPI for Water **= A+B+C+D** **= 15+ 14+20+10 = 59.0**		**CEPI for Water** **= A+B+C+D** **= 15+8+10+5 = 38**

Land

Calculation as per CPCB	**Comments and re-calculation by APPCB.**
Pollutants - Category TDS B Cl- B SO_4- B	Pollutants - Category TDS B Cl- B SO_4- B
A1 = 2 R17 R54 - 764	**A1 = 2** In Patancheru – Bollaram area about 194 Red category industries are located which includes 17 – category of industries in an area about 100 Sq. KM. Then the factor A2 will be 5
A2 = 5 **A= A1 x A2 = 2 x 5 = 10** **Pollutant -** Conc Ex factor TDS - 1423.5 2.85 Cl^- - 306.4 1.225 SO_4 - 118.9 0.59	**A2= 5** **A= A1 x A2 = 2 x 5 = 10** **Pollutant -** Conc Ex factor TDS - 924 0.462 Cl^- - 210 0.210 SO_4 - 65 0.165
B1 = 8 B2 = 3 (symptoms of exposure of people) **B3=3** (Symptoms of exposure on eco-geological features) **B = B1+B2+B3 = 6 + 3 + 3 = 12** **Population exposed >1,00,000** **C1 = 5** **Level of exposure** **Pollutant - SNLF** TDS 2.49 Cl- 0.61 SO_4- 0.147 C2 = 3	**B1 = 1** B2 = 3 (symptoms of exposure of people) **B3=3** (Symptoms of exposure on eco-geological features) **B = B1+B2+B3 = 1 + 3 + 3 = 7** **Population exposed >1,00,000** **C1 = 5** **Level of exposure** **Pollutant - SNLF** TDS 0 Cl- 0 SO_4- 0 C2 = 1 (Low) as the above parameters are within the standards.
C3 = 5 (risk to sensitive receptors = yes) **C = (C1 x C2) +C3 = (5x3)+3= 18** D = 10 (common facilities for pollution control are inadequate) **CEPI for land = A+B+C+D** **= 10+ 14+20+10** **= 54**	**C3 = 5 (risk to sensitive receptors = yes)** C = (C1 x C2) + C3 = (5x1)+5 = 10 D = 5 (common facilities for pollution control are adequate) **CEPI for land = A+B+C+D** **= 10 + 7+ 10+5** **= 32**

A comparative sheet on the calculation of CEPI by CPCB and APPCB is enclosed herewith. As per the calculations, the aggregate CEPI is arrived as below:

Aggregate CEPI as per CPCB:

= 59 + (100-59) x 50/100x54/100 = 70.07

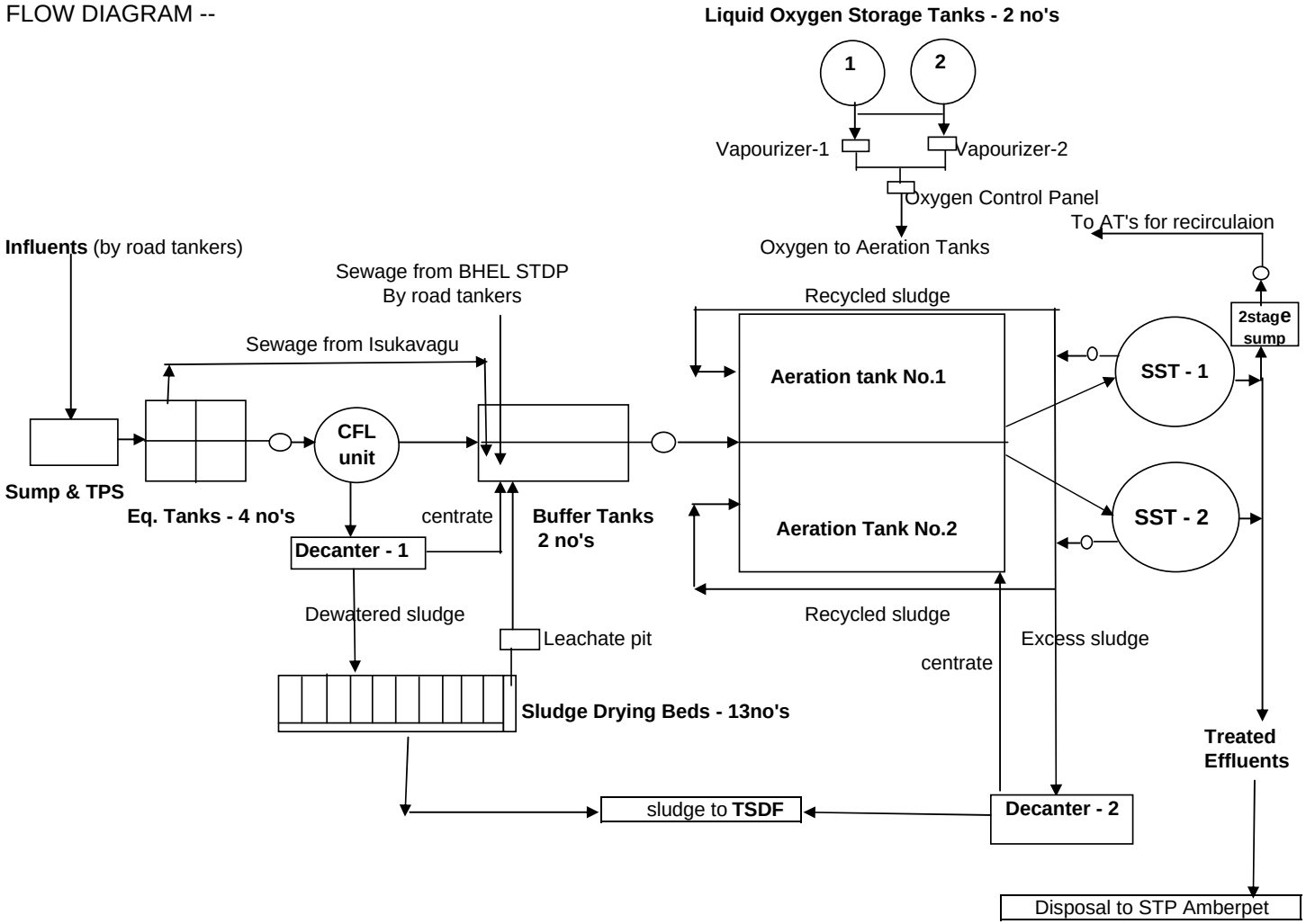
Aggregate CEPI as per APPCB:

= 38+ (100-38) x 47/100x32/100 = 47.33

PATANCHERU COMMON EFFLUENTS TREATMENT PLANT

Annexure - VI

FLOW DIAGRAM --



78°15'0"E

78°20'0"E

17°35'0"N

17°30'0"N

KISTAPALLE

MADHARAM

INOLE

Khazipally-IE

Khazipally Tank

Gandigudem Tank

Jillevagu

INDRESHAM

JANAKAMPET

KHAZIPALLE

BACHUGUDA

CHITKUL

Krishnareddypet Tank

Pamula Vagu

RAMESHWARBANDA

SULTANPUR

RENDLAGADDA (U.I)

BOLLARAM

Bollaram

Chitkul-IE

KRISHTAREDDIPET

POCHARAM

PATELGUDA

MUTHANGI

ILAPUR

Bollaram-SVCIE,AIE

M/S.PETL

Asani Kunta

IDA, BOLLARAM

PATANCHERU

Patancheru-IDA

Patancheru

Isakavagu

AMEENAPUR

KARDANUR

BANDELGUDA

IDA, PATANCHERU

RAMACHANDRAPURAM (PT)

Ramachandrapuram

ICRISAT

Maisammaguda

YANUKUNTA

RAMACHANDRAPURAM(BHEL)

Ramachandrapuram - IE

Ramachandrapuram(Bhel)

Towards

Legend

- MAJOR INDUSTRIES
- MAJOR SETTLEMENTS
- RIVER ISLAND
- RIVER WITH WATER
- TANK WITH WATER