

ACTION PLAN
FOR IMPROVEMENT OF
ENVIRONMENTAL PARAMETERS IN
CRITICALLY POLLUTED AREA-“SINGRAULI-MP”



M.P. POLLUTION CONTROL BOARD

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MP POLLUTION CONTROL BOARD

ACTION PLAN FOR CRITICALLY POLLUTED INDUSTRIAL AREAS/CLUSTERS-SINGRAULI -MP

1. INTRODUCTION:

- 1.1 Area details including brief history (background information) : Singrauli Area consists of north east area of Madhya Pradesh District Singrauli and southern part of Sonebhadra District of Uttar Pradesh. It is the 50th district of Madhya Pradesh State which is disintegrated from Sidhi District on 24th May 2008. It is emerging as energy hub of India, due to availability of coal and water. The State Government identified as Urjanchal (a Hindi word which means land of energy) or Energy Capital of the State.

In the late fifties, a large dam was constructed on the River Rihand known as Govind Vallabh Pant Sagar, It was inaugurated by Pt. Jawahar Lal Nehru in 1962. The dam proved to be the life line for the fast development of the area.

At present Approx. 12000 MW/day power is being generated by the Thermal Power Plants in the whole Singrauli Area out of which 3250 MW in MP and rest in UP. A study regarding the Comprehensive Environmental Pollution Index (CEPI) conducted by the CPCB through IIT, Delhi, for the area as a whole. Ministry of Environment and Forest, Govt of India declared Singrauli UP with as CRITICALLY POLLUTED INDUSTRIAL AREAS/CLUSTERS on 13.01.2010 on the basis of the CEPI.

- 1.2 Location &connectivity : Present industrial development which includes critically polluted area of MP in district Singrauli is located between longitude 82°30' to 82°50' E and latitude 24°00' 24°20' N. Total area of the district Singrauli (MP) is 5672 Sq.KM. Vindhyanagar, Amlori, Nigahi, Jayant, Dudhichua, and Jhingurda of the District are included in critically polluted area. The area is wellconnected with Uttar Pradesh, The nearest major city and nearest Air Port is

Varansi 208 km by road, nearest railway junction is Singrauli junction (Single plate form junction between Katni Chopen Rail Way lines). It is 768km from Bhopal.

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|---|---|--|
| <p>1.3 Digitized Map with Demarcation of Geographical boundaries and Impact Zones</p> | : | Annexure-I |
| <p>1.4 CEPI Score (Air, Water, Land and Total)
For area combine for UP & MP</p> | : | Annexure-2 |
| | | <p>1. Water CEPI – 64.00
2. Air CEPI - 70.50
3. Land CEPI - 59.50
4. Total CEPI - 81.73</p> |
| <p>For area under MP only</p> | | <p>1. Water CEPI – 47.75
2. Air CEPI - 38.50
3. Land CEPI - 43.00
4. Total CEPI - 56.40</p> |
| <p>1.5 Total population and sensitive receptors (hospitals, educational institutions, courts etc residing in the area comprising of geographical area of the cluster and its impact zone (minimum 2 Km.)</p> | : | <p>85,000 Within impact zone (minimum 2 Km from industrial set up)</p> <p>Population of tahsil singrauli is 417,731 with male population 219,194 and female 198,527 as per 2001 census. Singrauli township is a municipal corporation with a population of about 2.0 lakhs spread over an area of 286 km², which includes geographical area of critically polluted area /clusters of singrauli in MP. The area Known as Vindhyanagar navjeevan vihar, waidhan, Amlori, navanagar, Nigahi, Jayant, Dudhichua, and Jhingurda comes under the impact zone (minimum 2 Km from industrial setup). About 70% of the total population within the impact zone is engaged in industrial activities</p> |
| <p>1.6 Eco-geological features Impact Zones [the area comprising of geographical area of the cluster and its impact zone (minimum 2 Km)]</p> | : | . |

1.6.1 Major Water Bodies (Rivers, Lakes, ponds, etc.) : 1. Rihand Reservoir,
2. Rihand River
3 kachan river
4. Balia Nala
5 kachan dam
6. Chilka Lake Shaktinagar UP
7. Modwani lake
8. chatka nala

1.6.2 Ecological parks, Sanctuaries, flora and fauna or any eco sensitive zones : None

1.6.3 Buildings or Monuments of Historical/ archaeological/religious importance : • Jwalamukhi Devi Temple Shaktinagar,
• Hanuman Mandir Jhingurdah,
• Tippa Jhariya Jhingurdah,

1.7 Industry classification and distribution (no. of industries per 10 Sq. Km. area of fraction)

1.7.1 Highly Polluting industries (17 categories) : 01-Vindhyachal Super thermal power project NTPC
Vindhyanagar Distt singraul -MP

1.7.2 Red category industries (54 categories) : **Annexure No. 3**

1.7.3 Orange and Green category industries : **Annexure No. 3**

2. WATER ENVIRONMENT:

2.1 Present status of water environment supported with minimum one year analytical data :

2.1.1 Water bodies/effluent receiving drains in the area important for water quality monitoring : 1. Rihand Reservoir
2. Balia Nala
3- Surya nal

2.1.2 Present levels of pollutants in water bodies/effluent receiving drains/ground water (routine parameters, special parameters and : Analysis results enclosed as per **annexure 7A, 7B, 7C,7D**

water toxics relevant to the area in three categories- known carcinogens, probable carcinogens and other toxics)

- 2.1.3** Predominant sources contributing to various pollutants : Industrial effluent, domestic effluent of Singrauli Area in UP & MP and agricultural run-off of U.P. & M.P.
- 2.2 Sources of water pollution** :
- 2.2.1** Industrial : **Annexure 4 A**
- 2.2.2** Domestic : Domestic effluent of Singrauli Area in M.P. approximate 13.5 MLD
Annexure 4 B
- 2.2.3** Others (Agricultural runoff, leachate from MSW dump, illegal dump site etc.) : Agricultural run off, leachate of M.S.W. dump & illegal dump.
- 2.2.4** Impact on surrounding area (outside the CEPI Area) on the water courses/drainage system of the area under consideration : Agriculture and nearby population.
- 2.3** Details of Water Polluting Industries in the area/cluster : **Annexure No. 4A &4B**
- 2.4** Effluent Disposal Methods-Recipient water bodies etc. : Treated effluent is being discharged to balia nala & surya nala which finally confluence to rihand reservoir.
- 2.5** Quantification of wastewater pollution load and relative contribution by different sources viz industrial/domestic : 1. Details enclosed
- 2.6 Action Plan for compliance and control of pollution** :
- 2.6.1** Existing infrastructure facilities- water quality monitoring network, ETPs, CETPs, Sewerage Treatment Plant of industry (STPs), surface drainage system, effluent conveyance channels/outfalls etc. : 1. All large industries have established ETP for industrial waste and STP for domestic waste as per requirement.
2. All medium /SSI industries have ETP for industrial effluent as per requirement.
- 2.6.2** Pollution control measures installed by Industries : As above
- 2.6.3** Technological Intervention :
- 2.6.3.1** Inventorization of prominent industries with technological gaps : Completed. Although, CEPI of the part of the State, included in the critically polluted is 56.4, extensive survey and investigation has been done strengthen the pollution control facilities in the mines and industries

of the area. The detail of the action taken is as follows:

1. Air survey has been done by Hon'ble Environment Minister of the State with the Principal Secretary and other higher officers on 22/9/10.
2. Detail inspection has been done by a team of the officers of the State Pollution Control Board in the leadership of the Member Secretary during Nov, 2010. It is observed during the inspection that all the industries are having sufficient infrastructure of the pollution control but the problem exists in the operation and maintenance of the same.
3. The State Board issued notices to the industries and mines, u/s 5 of the Environment (Protection) Act, 1986, for taking necessary mitigative measures.
4. A review meeting in the Chairmanship of the Principal Secretary (Housing & Environment) on 29/12/10. Instructions given to respective mines and industries to submit time bound action for necessary renovation and modernization in the pollution control facilities.

2.6.3.2	Identification of low cost and advanced cleaner technology for pollution control	:	Not applicable.
2.6.4	Infrastructure Renewal	:	Following measures are necessary to further reduce the CEPI:
2.6.4.1	Details of existing infrastructural facilities	:	Roads, Electricity, Drinking Water, Hospitals, Educational Institutes, Police Security.
2.6.4.2	Need of up gradation of existing facilities	:	<p>Roads – Roads are in very poor conditions and needs to be repaired/ constructed outside the industrial premises.</p> <p>Electricity – Shortage of power</p> <p>Drinking water – Scarcity of water supply within municipal area of singrauli outside industrial residential colony .</p> <p>Health - Needs to strengthen the health facilities by the State Govt.</p>
2.6.4.3	De-silting of water tanks, drains, rivulets, etc.	:	De-silting of the Rihand Reservoir is needed
2.6.4.4	Construction of lined drains/	:	The nallas and drains joining to the Rihand Reservoir are to be lined.

connections

- 2.6.4.5 Treatment and management of contaminated surface water bodies : Not required.
- 2.6.4.6 Rejuvenation/Management Plan for important eco-geological features : Not required.
- 2.6.4.7 Carrying of effluent from industrial units located in non-industrial locations to CETP facilities by lined drains/ pipelines only and prevention of their disposal into city sewerage/surface drains. : Not applicable.
- 2.6.4.8 Installation of Gen sets at CETPs : Not applicable.
- 2.6.5 **Managerial and Financial aspects** :
- 2.6.5.1 Cost and time estimates : To be done by concerned Authority/Agency.
- 2.6.5.2 Identified Private/Public sector potential investors & their contribution/obligation : Initiatives have been taken to conduct Environmental Impact Assessment Study of the area by the State Government in coordination with the M. P. Pollution Control Board. The EOI has been issued and proposal are being examined with the District Administration The public sector /private industries are being requested to participate & contribute for this study.
- 2.6.5.3 Government Budgetary support requirement : Yes
- 2.6.6 **Self monitoring system in industries (ETPs etc.)** : Established.
- 2.6.7 **Data linkages to SPCB/CPCB (OF MONITORING DEVICES)** : The monitoring is being done in the guidance of the State Pollution Control Board.

3. AIR ENVIRONMENT:

- 3.1 **Present status of Air environment** supported with minimum one year analytical data :
- 3.1.1 Critical locations for air quality monitoring : Vindhyanagar ,Jayant, Jhingurda Waidhan.

3.1.2	Present levels of pollutants in air (routine parameters, special parameters and air toxics relevant to the area in three categories- known carcinogens, probable carcinogens and other toxic)	:	Annexure-6 A.,6B,6C,6D
3.1.3	Predominant sources contributing to various pollutants	:	Thermal power plant, Coal Mines of NCL, Transport & Heavy Earth Movers & domestic fuel.
3.2	Sources of air Pollution viz industrial, domestic (Coal & Biomass burning), natural and Transport & Heavy Earth Movers	:	Industrial, domestic (Coal and Biomass burning), natural and Transport and Heavy Earth Movers.
3.3	Air Polluting Industries in the area/Cluster	:	Annexure 5
3.4	Impact of activities of nearby area on the CEPI Area	:	Industries and local bodies of U.P.& MP
3.5	Action Plan for compliance and control of pollution	:	
3.5.1	Existing infrastructure facilities – Ambient air quality monitoring network	:	Available.
3.5.2	Pollution control measures installed by the individual sources of pollution	:	<ol style="list-style-type: none"> 1. All large industries have established Air pollution control arrangements. 2. No major source of air pollution from medium /SSI sector industries within impact zone of CPA. In MP.
3.5.3	Technological Intervention	:	.
3.5.3.1	Inventorisation of prominent industries with technological gaps	:	Done & renovation and modernization is in progress in Thermal power project of NTPC & coal mine projects
3.5.3.2	Identification of low cost and advanced cleaner technology for air pollution control	:	No.
3.5.3	Introduction and switch over to cleaner fuel	:	Not Applicable.
3.5.4	Need of infrastructure Renovation	:	Needed for repairing/Construction of Roads, Drinking water, Power

supply, Health facilities, LPG & Security.

- 3.6.4.1 Development of roads : Needed for repairing & construction of Roads.
- 3.5.5 Impact on CEPI score after installation/commissioning of full fledged air pollution control systems : CEPI score will further reduce to below 40.
- 3.5.6 **Managerial and Financial aspects- Cost and time estimates** :
- 3.6.6.1 Cost and time estimates : To be done by concerned/Authorities/Agencies.
- 3.6.6.2 Identified Private/Public sector potential investors & their contribution/obligation : Initiatives have been taken conduct Environmental Impact Assessment Study of the area by the State Government in coordination with the M. P. Pollution Control Board. The EOI has been issued and proposal are being examined and the District Administration The public sector /private industries are being requested to participate & contribute for this study.
- 3.6.6.3 Government Budgetary support requirement : Needed.
- 3.5.7 **Self monitoring system in industries (Stacks, APCDs)** : Available in all Large scale Industries. Four continuous Monitoring stations are established by the NTPC at Vindhya Nagar.
- 3.5.8 **Data linkages to SPCB/CPCB (of monitoring devices)** : NTPC Vindhyanagar, Singrauli, Madhya Pradesh has established data linkage of Air monitoring with CPCB

4. **LAND ENVIRONMENT (Soil and Ground Water)** :

4.1 **Soil contamination:** :

- 4.1.1 Present status of land environment supported with minimum one year analytical data : The CPA area & impact zone have industrial development & residential area.
- 4.1.2 Critical locations for land/soil pollution assessment and ground water monitoring : -No such critical location is reported.
- 4.1.3 Present levels of pollutants in land/soil and ground water (routine parameters, special parameters and water toxics relevant to the area in three categories- known carcinogens, : **Annexure 8.**

	probable carcinogens and other toxics)	
4.1.4	Predominant sources contributing to or posing, danger of pollution of land and ground water such as hazardous/toxic wastes or chemical dumps/storage etc.	: Municipal Solid Waste, Chemical Fertilizer and insecticides used by farmers.
4.1.5	Sources of Soil Contamination	: Industrial Waste, Municipal Solid Waste, Chemical Fertilizer and insecticides used by farmers.
4.1.6	Types of existing pollution	: Annexure 8.
4.1.7	Remedies for abatement, treatment and restoration of normal soil quality	: Development of Municipal Solid Waste treatment and disposal facilities and to encourage the farmers for using fertilizers.
4.2	<u>Ground Water contamination:</u>	:
4.2.1	Present status/quality of ground water	: Annexure 8.
4.2.2	Source Identification (Existing sources of Ground water Pollution)	: Municipal Solid Waste, Chemical Fertilizer and insecticides used by farmers.
4.2.3	Ground water quality monitoring program	: Quarterly samples of ground water of ash pond area.
4.2.4	Action Plan for control of pollution including cost/time aspects	: -
4.2.5	Treatment and management of contaminated ground water bodies, etc.	: -
4.2.6	Impact on CEPI score after abatement of pollution	: CEPI score will further reduce to below 40.
4.3	<u>Solid waste Generation and management:</u>	:
4.3.1	Waste classification and Quantification	
4.3.1.1	Hazardous waste	: Used Oil-/waste Oil- 1430 TPA Oily solid waste & others- 140 TPA

- 4.3.1.2** Bio-medical waste : Approx. 30 Kg/day.
- 4.3.1.3** Electronic Waste : None
- 4.3.1.4** Municipal solid Waste/Domestic Waste/ Sludges from ETPs/ CETPS/ STPs and other industrial sources : Municipal solid Waste -50 TPD
Sludge from ETP - 10 TPD
Sludge from STP -1.5 TPD
Sludge from CETP - Nil
- 4.3.1.5** Plastic waste : Approx. 2.0 TPD.
- 4.3.1.6** Quantification of wastes and relative contribution from different sources : Stated as in Point No. 4.3
- 4.3.2** Identification of waste minimization and waste exchange options : MP pollution control board has issued direction to all cement plants to develop facility in their kiln for use of plastic waste as co-fuel. M/s Jaypee rewa cement plant has already implemented the same.
- 4.3.3** Reduction/Reuse/Recovery/Recycle options in the co-processing of wastes. : Stated as Point No. 4.3.2
- 4.3.4** Infrastructure facilities : Hazardous waste of industries (used oil) is being sold to authorized recyclers .For other waste which generate mostly from coal mines & Thermal power plant was in practice to dispose off in locally developed Lined pit. The mines and the thermal Power Plant has been directed to dispose off the Hazardous Waste in CTSDF established at pithampur District Dhar.
- 4.3.4.1** Existing TSDF/Incineration facilities including capacities : Municipal Solid waste- composting plant capacity 70 TPD in wadhan.
Hazardous waste - TSDF facility is available in district Indore.
Biomedical waste -1 Incineration facilities installed in NTPC of 100Kg/ hr. Capacity
2 Land burial at jayant NCL Hospital
- 4.3.4.2** Present status/performance and need of up gradation of existing facilities including enhancement of capacities : It is required to install Common Bio-Medical Waste Treatment Facility.

- | | | |
|--|---|---|
| <p>4.3.4.3 Treatment and management of contaminated waste disposal sites, etc.</p> | : | No such location reported |
| <p>4.3.4.4 Impact on CEPI score after proper management of Solid Wastes.</p> | : | CEPI score will decrease. |
| <p>5. <u>PPP Model:</u></p> | : | |
| <p>5.1 Identification of project proposals (for both the options i.e. technology intervention and infrastructure renewal) for implementation under the PPP mode under the Action Plan.</p> | : | Not required. |
| <p>5.2 Identification of stakeholders/agencies to be involved and to evolve financial and managerial mechanisms for implementation of PPP projects.</p> | : | Not required. |
| <p>6. <u>Other infrastructural Renewal measures:</u></p> | : | |
| <p>6.1 Green Belts</p> | : | Strengthening & development of green belt & forestry. |
| <p>6.2 Development of Industrial Estate(s)</p> | : | Yes, proposed at Daga Bargava in District Singrauli. |
| <p>6.3 Development/shifting of industries located in the non-industrial areas to the existing/new industrial estates.</p> | : | Yes, |
| <p>7. <u>Specific Schemes:</u></p> | : | |
| <p>7.1 GIS-GPS system for pollution sources monitoring</p> | : | Required. |
| <p>7.2 Hydro-geological fracturing for water bodies rejuvenation</p> | : | Required. |
| <p>7.3 In-situ remediation of sewage</p> | : | Required. |
| <p>7.4 Utilization of MSW inert by gas based brick kilns</p> | : | Required. |
| <p>7.5 Co-processing of wastes in cement industries</p> | : | Required. |
| <p>8. Public awareness and training Programmes</p> | : | Being done by different NGOs & related Departments. |

- 9. **Overall Impact of installation/commissioning of pollution control equipments/measure on the CEPI score** : CEPI score will decrease.
- 10. **Assessment of Techno-economical feasibility of pollution control systems in clusters of small/ medium scale industries.** : Not required at present scenario.
- 11. **Efforts shall be made to encourage use of Bio-compost and Bio-Fertilizer alongwith the chemical fertilizer in the state to minimize the unutilized chemical fertilizer run-off into the natural water resources from agriculture fields (through Govt. policy)** : Required.
- 12. **Summary of proposed action points:** : Enclosed

Specific Action Plan For Singrauli : MP

Action Plan for Rihand Reservoir:

- Joint Effort by UP & MP is required [more than 75% of area of Rihand reservoir falls in UP].
- Major Polluting type Activities are located in UP area.
- Mainly two type of activities [Thermal Power Generation & Mining] are in MP area.

Proposed Joint Action Plan

[a] Formation of Joint Committee of CPCB, UPPCB & MPPCB

[b] Preparation & Implementation of Catchment Management Program

[c] Preparation & Implementation of Continuous water quality Monitoring program by CPCB after inventorization of representative sampling stations.

[d] Study of presence of sediments in Rihand by Remote Sensing Technique

[e] De-silting of Rihand Reservoir

[f] Diversion of sewage /effluent ,finding entry into Rihand

[g] Plantation along Rihand

Specific Action Plan For Singrauli : MP

Action Plan for Industrial Pollution Control :

[a] After the declaration of Singrauli as a critically polluted area, Government of MP & MP pollution control board has considered it seriously and necessary steps have been taken. Hon'ble Minister, Ministry of Housing & Environment, with Principal Secretary, Department of H & Env., Member Secretary, MPPCB & district Collector Singrauli have conducted an aerial survey of the area and necessary discussion/meeting with officer/public of the area. Necessary directions are issued to industries for better implementation of environmental laws, wherever violation is observed.

[b] It is decided to establish a Regional Office & laboratory of MP pollution control board in Singrauli MP

[c] Rapid EIA study [with limited Scope] with the involvement of Govt. of MP, EPCO and MPPCB

[d] Involvement of International Agencies like DFID, WHO etc. for Financial Assistance in environmental studies.

[e] Involvement of Industries and Mines for co-ordination of efforts.

[f] Enforcement of stringent environmental standards and stricter conditions in forthcoming consent cases

[g] Though thermal power plant of NTPC & coal mines of Northern Coal Field Ltd have established necessary pollution control arrangements but there are still some violations regarding hazardous waste management rules, & provisions of environmental clearance. After a technical discussion with all industry representatives in presence of Principal Secretary, Department of H & Env., all industries are issued directions to submit time bound action plans with bank guarantee.

[h] Rigorous plantation program outside the industrial premises and nearby area will be developed.

Specific Action Plan For Singrauli : MP

Industry-wise Action Plan:

Vindhyachal Super Thermal Power Project NTPC, Vindhyanagar MP:

- [a] Preparation of spillage & leakage detection/correction System in ash-slurry-pipelines within 03 months with implementation in 06 months.
- [b] Implementation of recollection system to pump back accidental discharge of ash slurry into Surya nallah within 06 months to protect Rehand Reservoir.
- [c] Strengthening of Environmental Cell with accountability to ensure functioning of ETP & STP at all time within 30 days.
- [d] Clearance of Hazardous waste from storage area by disposal to authorized CTSDF, Pithampur, M P, within not more than 03 months.
- [e] Industry shall comply with the condition of EC regarding involvement of local NGO's like Vanvasi Sewa Ashram to inventorize industries operating around the Rehand Reservoir within 06 months
- [6] S-2 Ash Dyke pertaining to Thermal Power Project operating in UP has been developed illegally without prior permission of Govt. of MP or MP Pollution Control Board. The activities shall be stopped immediately till such time the due permissions are sought.
- [7] Installation of Continuous Real Time Monitoring Station for display within 12 months
- [8] Improvement in existing house keeping within 03 months

Action Plan for Fly Ash Management:

- a. R & D Studies for bulk utilization of fly ash
- b. Constitution of joint committee for monitoring of compliances of fly ash notification 2003
- c. Imposition of compulsory use of washed coal in thermal power plant in CEPI area
- d. Provision of alternative fuel for boilers in CEPI area .
- e. Thermal power plant should establish cement manufacturing plant for use of fly ash.

Specific Action Plan For Singrauli : MP

Industry-wise Action Pan: Coal mine projects

Amlori project ,Nigahi proect , Jayant Project &Dudhichua project ,& Jhigurda project NCL, Bina Project & Khadia project District Singrauli:

[a] Preparation of plan for management of over Burdon dumps within 06 months with implementation within 06 months for the following:

- [1] Maintain face of dump slop as per provision given in mining plan & EC.
- [2] Implementation of progressive physical stabilization of dumps in accordance with the condition of EC to protect gully formation and overflowing of material with runoff.
- [3] Detailed data regarding expenditure on plantation and the actual plantation done on field along with survival rate be prepared for at least 15 yrs and submitted within 03 months.
- [4] Provision of garland drains be made within 06 months.
- [5] Mine closer plan shall be submitted to MPPCB within 03 months with adoption of backfilling plan as per mining lease.

[b] Clearance of Hazardous waste from storage area by disposal to authorized TSDF, Pithampur,Indore M P, within not more than 03 months.

[8] Improvement in existing house keeping within 03 months

[9] Reclamation of existing Gorbi mine is to be done within 01 year as per condition of EC

Status of Short Term action plan as discussed during the meeting in varanasi on 10.01.11
For VSTPP NTPC Vindhyanagar

Production Capacity **3260 MW**
 Stage I --6x210 MW =1260 MW
 Stage II --2x500 MW =1000 MW
 Stage III --2x500 MW =1000 MW
 Coal consumption 50,000 MT / day
 Ash /Fly ash generation 15,000 MT/day

S.No	Action point	Compliance status
01	An action plan to achieve PM emission of 100 mg/Nm ³	Already achieved for stage 2 (2x500 MW) & stage 3 (2x500 MW) units..Feasibility study is proposed for stage 1(6x210 MW)
02	Provision of dry ash collection system	Dry ash collection sylo are operating
03	Establishment of continuous ambient air quality monitoring station .The matter of linking monitoring data with CPCB/SPCB	04 Nos of continuous ambient air quality monitoring stations are established . The linking of monitoring data with CPCB is completed. Linking with MPPCB is proposed.
04	Complete recirculation of ash pond overflow to achieve zero discharge .	completed
05	Facility for control treatment of Oil spillage	Completed
06	Hazardous waste treatment and proper disposal	Hazardous waste (used Oil)is being sold to registered recyclers through MSTC. During inspection is was found that storage & house keeping is not properly managed. Necessary direction has been issued to regularize the same.
07	Proper management of bio-medical waste.	Completed

CRITICALLY POLLUTED AREA-SINGRAULI MP/UP -CALCLATION OF CEPI

Singrauli MP&UP				Singrauli MP		
Calculation of Air EPI						
Basic Air monitoring data as per CPCB & calculation						
Critical pollutants	category	Av conc. ug/m3	Exceeding factor EF	Sample exceeded/ total sample *EF	SNLF	score
RSPM	B	104.75	1.74	1/3*1.74	0.58	3
Sox	A	48	1.20	1/3*1.20	0.40	2
NOX	A	12.25	0.23	0* 0.23	0	1
A-Factor- Critical Pollutant factor		A1= 2		A1=2		
No of Industry in area		R-17 - 18 R-54 red cat -1000		No of Industry in area/10 km2 area		
Factor A2 =5				R-17 - 01 R-54 red cat -26		
				Factor A2 =2.5		
		A =A1*A2 =2*5= 10		A =A1*A2 =2*2.5= 5		
B-Factor		B1 =7.75 (exceeding factor >1.5)		B-Factor		
		B2 =3 (Symptoms of exposure on people)		B1 =7.75 (exceeding factor >1.5)		
		B3 =6 (impact on eco geological feature)		B2 =3 (Symptoms of exposure on people)		
				B3 =3 (evidence of Symptoms of exposure on eco geological feature)		
		B = B1+B2+B3 = 7.75+3+6 =16.75		B = B1+B2+B3 = 7.75+3+3 =13.75		
C-Factor		Population exposed upto 2.0 kms from source Industry > 200,000		C-Factor		
		C1 =5		Population exposed upto 2.0 kms from source Industry= 85,000		
		C2 =SNLF max score + penalty =3+1.75 =4.75		C1 =3		
		C3= Risk to sensitive receptor historical/archeological/national park etc are within 2 kms =Yes =5		C2 =SNLF max score + penalty =3+1.75 =4.75		
		C =C1*C2+C3 =5*4.75 +5 =28.75		C3= Risk to sensitive receptor historical/archeological/national park etc are within 2 kms =No =0		
				C =C1*C2+C3 =3*4.75 +0 =14.75		
D-Factor-based on pollution control measure for L/M/SSI		D =15		D-Factor-based on pollution control measure for L/M/SSI		
				D =5		
Air EPI =A+B+C+D=10+16.75+28.75+15 =70.5				Air EPI =A+B+C+D=5+13.75+14.75+5 =38.5		

CRITICALLY POLLUTED AREA-SINGRAULI MP/UP -CALCLATION OF CEPI

Singrauli MP&UP				Singrauli MP		
Calculation of Water EPI						
Basic Air monitoring data as per CPCB & calculation						
Critical pollutants	category	Av conc.	Exceeding factor EF	Sample exceeded/ total sample *EF	SNLF	score
Mercury	C	0.005	5.55	1/2*5.55	2.775	3
COD	B	1058	4.23	1/3*4.23	1.41	3
TSS	B	362	3.58	0* 3.58	1.34	3
A-Factor-Critical Pollutant factor		A1= 4+1.5 =5.5.		A1=4+1.5=5.5		
No of Industry in area		R-17 - 18 R-54 red cat -1000		No of Industry in area/10 km2 area		
Factor A2 =5				R-17 - 01 R-54 red cat -26		
				Factor A2 =2.5		
		A =A1*A2 =5.5*5= 27.5		A =A1*A2 =5.5*2.5= 13.75		
B-Factor		B1 =8 (exceeding factor >2)		B-Factor		
		B2 =3 (Symptoms of exposure on people)		B1 =6+2 =8 (exceeding factor >2.0)		
		B3 =6 (impact on eco geological feature)		B2 =3 (Symptoms of exposure on people)		
				B3 =3 (evidence of Symptoms of exposure on eco geological feature)		
		B = B1+B2+B3 = 8+3+3 =14		B = B1+B2+B3 = 8+3+3 =14		
C-Factor		Population exposed upto 2.0 kms from source Industry > 200,000		C-Factor		
		C1 =5		Population exposed upto 2.0 kms from source Industry= 85,000		
		C2 =SNLF max score + penalty =3+ =3		C1 =3		
		C3= Risk to sensitive receptor historical/archeological/national park etc are within 2 kms =Yes =5		C2 =SNLF max score + penalty =2+3 =5		
		C =C1*C2+C3 =5*3 +5 =20		C3= Risk to sensitive receptor historical/archeological/national park etc are within 2 kms =No =0		
				C =C1*C2+C3 =3*5 +0 =15		
D-Factor-based on pollution control measure for L/M/SSI		D =15		D-Factor-based on pollution control measure for L/M/SSI		
				D =5		
Water EPI =A+B+C+D=10+14+20+15 =64				Water EPI =A+B+C+D=13.75+14+15+5 =47.75		

CRITICALLY POLLUTED AREA-SINGRAULI MP/UP -CALCLATION OF CEPI- Calculation of **Land EPI**

Singrauli MP&UP				Singrauli MP		
Basic Air monitoring data as per CPCB & calculation						
Critical pollutants	category	Av conc.	Exceeding factor EF	Sample exceeded/ total sample *EF	SNLF	score
Mercury	C	0.0035	0.35	0/7*0.35	0	1
F	B	1.01	0.33	1/7*0.33	0.05	1.5
TDS	B	632	1.27	7/7* 1.27	1.09	3
A-Factor- Critical Pollutant factor			A1= 4+1.5 =5.5.	A1=4+1.5=5.5		
No of Industry in area			R-17 - 18 R-54 red cat -1000	No of Industry in area/10 km2 area		
Factor A2 =5				R-17 - 01 R-54 red cat -26		
Factor A2 =5				Factor A2 =2.5		
A =A1*A2 =5.5*5= 27.5				A =A1*A2 =5.5*2.5= 13.75		
B-Factor			B1 =8 (exceeding factor >2) B2 =3 (Symptoms of exposure on people) B3 =6 (impact on eco geological feature)	B-Factor		
B = B1+B2+B3 = 8+3+3 =9.5				B1 =3+1 =4 (exceeding factor >1.0) B2 =3 (Symptoms of exposure on people) B3 =3 (evidence of Symptoms of exposure on eco geological feature) B = B1+B2+B3 = 4+3+3 =10		
C-Factor			Population exposed upto 2.0 kms from source Industry > 200,000 C1 =5 C2 =SNLF max score + penalty =3+ =3 C3= Risk to sensitive receptor historical/archeological/national park etc are within 2 kms =Yes =5 C =C1*C2+C3 =5*3 +5 =20	C-Factor		
C =C1*C2+C3 =5*3 +5 =20				Population exposed upto 2.0 kms from source Industry= 85,000 C1 =3 C2 =SNLF max score + penalty =3+1.75 =4.75 C3= Risk to sensitive receptor historical/archeological/national park etc are within 2 kms =No =0 C =C1*C2+C3 =3*3.75 +0 =14.25		
D-Factor-based on pollution control measure for L/M/SSI D =15				D-Factor-based on pollution control measure for L/M/SSI D =5		
Land EPI =A+B+C+D=10+14+20+15 =59.5				Land EPI =A+B+C+D=13.75+10+14.25+5 =43		
Final CEPI=Im+ (100-Im)*i2/100 *i3/100 =70.5+(100-70.5)*64/100 *59.5/100 CEPI =81.73				Final CEPI=Im+ (100-Im)*i2/100 *i3/100 =47.75+(100-47.75)*38.5/100 *43/100 CEPI =56.4		

CATEGORY WISE LIST OF INDUSTRIES IN CPA & IMPACT ZONE –Singrauli – MP

S.No	Name of industry	Large/Med /SSI ind	Product /activity	Category R 17	Category R 54	orange	Green
01	VSTPP NTPC vindhyanagar	Large	Thermal power	YES			
02	Amlori project NCL Singrauli	Large	Coal mining		YES		
03	Nigahi project NCL Singrauli	Large	Coal mining		YES		
04	Jayanti project NCL Singrauli	Large	Coal mining		YES		
05	Dudhichua project NCL Singrauli	Large	Coal mining		YES		
06	Bina extention i project NCL Singrauli	Large	Coal mining		YES		
07	Khadia ext project NCL Singrauli	Large	Coal mining		YES		
08	Jhingurda project NCL Singrauli	Large	Coal mining		YES		
09	Northern coalfield Ltd central workshop Jayant Distt Singrauli	Large	Engg workshop		YES		
10	Indian Oil Corp -IBP explosive Plant Po Jayant Distt Singrauli	Medium	Bulk explosive		YES		
11	Gulf Oil Corp -IDL explosive Plant Po Jayant Distt Singrauli	Medium	Bulk explosive		YES		
12	Indian explosive Ltd Po nigahi Distt Singrauli	Medium	Bulk explosive		YES		
13	Bharat explosive Ltd Industrial Area waidhan po Waidhan	Medium	Bulk explosive		YES		
14	Premier explosive Ltd Industrial Area waidhan po Waidhan	Medium	Bulk explosive		YES		
15	Keltech Energies Ltd Industrial Area waidhan po Waidhan	Medium	Bulk explosive		YES		
16	NavBharat Fuse co Ltd Industrial Area waidhan po Waidhan	Medium	Bulk explosive		YES		

17	Emultec Pvt. Ltd. Industrial Area, Waidhan,	SSI	Bulk explosive		YES		
18	Gajraj Chemicals, Industrial Area, Waidhan,		Bulk explosive		YES		
19	Solar Capitals Ltd. Industrial Area, Waidhan,	SSI	Bulk explosive		YES		
20	Special Blast. Industrial Area, Waidhan	SSI	Bulk explosive		YES		
21	Basant Enterprises, Industrial Area, Waidhan,	SSI	Non ferrous casting			YES	
22	International Industrial Gases Pvt. Ltd. Waidhan,	SSI	Industrial gases			YES	
23	Krishna Chemicals Industrial Area, Waidhan,	SSI	Chemical			YES	
24	Krishna Enterprises Industrial Area, Waidhan,	SSI	Tire retread			YES	
25	Krishna Rubbers, Industrial Area, Waidhan,	SSI	Tire retread			YES	
26	Navbharat Fuseco. Ltd. (CN plant) I/A Area, Waidhan,	SSI	Chemical			YES	
27	Om Nitrate Industrial Area Waidhan	SSI	Chemical			YES	
28	Rewa Gases Pvt. Ltd. Indust Area, Waidhan,	SSI	Industrial gases			YES	
29	Rewa Refinery Ltd. I/A Waidhan	SSI	Used oil refinery		YES		
30	San chemicals I/A Waidhan	SSI	Chemical		YES		
31	Shantanu Chemicals. Indut Area, Waidhan,	SSI	Chemical		YES		
32	Upendra Chemicals Indust Area, Waidhan	SSI	Chemical		YES		
33	Waidhan Engineering & Industries Pvt. Ltd. Industrial Area, Waidhan,	SSI	Tire retread			YES	
34	Rama udyog Ind area waidhan	SSI	Fly ash brick				YES
	TOTAL			01	23	09	01

ANNEXURE-4.A**SOURCE OF INDUSTRIAL EFFLUENT GENERATION & TREATMENT FACILITY**

S.no	Name of ind	Production capacity	Effluent quantity	ETP status	Effluent management
01	VSTPP NTPC vindhyanagar	3250 MW	6-8 MLD	ETP constructed 9.2 MLD	Treated effluent partially used for plantation & rest discharge to Surya Nala.
02	Amlori project NCL Singrauli	COAL-10 MTPA	10-20 MLD	ETP constructed 40 MLD	Treated effluent partially used for dust suppression & rest discharge to Nala.
03	Nigahi project NCL Singrauli	COAL-15.5 MTPA	6-10 MLD	ETP constructed 14 MLD	Treated effluent partially used for dust suppression & rest discharge to Nala
04	Jayanti project NCL Singrauli	COAL-15.5 MTPA	20-28 MLD	ETP constructed 32 MLD	Treated effluent partially used for dust suppression & rest discharge to Surya Nala
05	Dudhichua project NCL Singrauli	COAL-15 MTPA	20-28 MLD	ETP constructed 30 MLD	Treated effluent partially used for dust suppression & rest discharge to Surya Nala
06	Jhingurda project NCL Singrauli	COAL-5 MTPA	5-7 MLD	ETP constructed 08 MLD	Treated effluent partially used for dust suppression & rest discharge to Nala
07	Bina extention i project NCL Singrauli	COAL-6 MTPA	-	ETP constructed	Effluent generation ,ETP,STP, discharge is in UP
08	Khadia ext project NCL Singrauli	COAL-5 MTPA		ETP constructed	Effluent generation ,ETP,STP, discharge is in UP
09	Central workshop NCL Singrauli	Engg Workshop	0.4 MLD	ETP constructed 0.8 MLD	Treated effluent partially used for dust suppression & rest discharge to Surya Nala
10	Other Medium & SSi Industry		0.2 MLD	ETP constructed	No discharge to Water body or Nala

ANNEXURE-4.B**SOURCE OF DOMESTIC EFFLUENT GENERATION & TREATMENT FACILITY**

S.no	Name of ind	Production capacity	Effluent quantity	ETP status	Effluent management
01	VSTPP NTPC vindhyanagar	3250 MW	6 MLD	STP constructed 8 MLD	Treated effluent partially used for plantation & rest discharge to Surya Nala.
02	Amlori project NCL Singrauli	COAL-10 MTPA	1.4 MLD	STP constructed 2 MLD	Treated effluent partially used for plantation & rest discharge to Nala.
03	Nigahi project NCL Singrauli	COAL-15.5 MTPA	1.6 MLD	STP constructed 3 MLD	Treated effluent partially used for plantation & rest discharge to Nala
04	Jayanti project NCL Singrauli	COAL-15.5 MTPA	1.8 MLD	STP constructed 4 MLD	Treated effluent partially used for plantation & rest discharge to Surya Nala
05	Dudhichua project NCL Singrauli	COAL-15 MTPA	1.4 MLD	STP constructed 2.4 MLD	Treated effluent partially used for plantation & rest discharge to Surya Nala
06	Jhingurda project NCL Singrauli	COAL-5 MTPA	1.0 MLD	STP constructed 1.5 MLD	Treated effluent partially used for plantation & rest discharge to Nala
07	Bina extention i project NCL Singrauli	COAL-6 MTPA	-	STP constructed	Effluent generation ,ETP,STP, discharge is in UP
08	Khadia ext project NCL Singrauli	COAL-5 MTPA		STP constructed	Effluent generation ,ETP,STP, discharge is in UP
09	Central workshop NCL Singrauli	Engg Workshop	0.3 MLD	STP constructed	Treated effluent partially used for plantation & rest discharge to Surya Nala
10	Other Medium & SSi Industry		No major establishment	Septic tank soak pit system	No discharge to Water body or Nala

SOURCE OF AIR POLLUTION & CONTROL FACILITY

S.no	Name of ind	Source of emission	APC arrangement	Status
01	VSTPP NTPC vindhyanagar	Boiler stack -10 Nos -coal handling system -Fly ash management	-ESP 99.96 % -Stack 275 m high -Dust suppression system -cyclone type dust collector. -Storage of coal in under ground bunkers.	Operating condition.
02	Amlori project NCL Singrauli	-Blasting operation -Drilling -Over burden and coal handling /transportation	-Dust suppression system on haul road -Enclosures for drilling units. -Systematic coal handling system with dust suppression --plantation	Arrangement are in operative condition
03	Nigahi project NCL Singrauli	-Blasting operation -Drilling -Over burden and coal handling /transportation	-Dust suppression system on haul road -Enclosures for drilling units. -Systematic coal handling system with dust suppression --plantation	Arrangement are in operative condition
04	Jayanti project NCL Singrauli	-Blasting operation -Drilling	-Dust suppression system on haul road	Arrangement are in operative condition

		-Over burden and coal handling /transportation	-Enclosures for drilling units. -Systematic coal handling system with dust suppression --plantation	
05	Dudhichua project NCL Singrauli	-Blasting operation -Drilling -Over burden and coal handling /transportation	-Dust suppression system on haul road -Enclosures for drilling units. -Systematic coal handling system with dust suppression --plantation	Arrangement are in operative condition
06	Jhingurda project NCL Singrauli	-Blasting operation -Drilling -Over burden and coal handling /transportation	-Dust suppression system on haul road -Enclosures for drilling units. -Systematic coal handling system with dust suppression --plantation	Arrangement are in operative condition
07	Bina extention i project NCL Singrauli	-Blasting operation -Drilling -Over burden and coal handling /transportation	-Dust suppression system on haul road -Enclosures for drilling units. -Systematic coal handling system with dust suppression --plantation	Arrangement are in operative condition

08	Khadia ext project NCL Singrauli	-Blasting operation -Drilling -Over burden and coal handling /transportation	-Dust suppression system on haul road -Enclosures for drilling units. -Systematic coal handling system with dust suppression --plantation	Arrangement are in operative condition
09	Central workshop NCL Singrauli	-Painting- Vehicle tuning	-processing within control chambers. -Dust supression	No Significant air pollution source is observed
10	Other Medium & SSI Industry	Significant air pollution source are not observed	Necessary minimum Air pollution control is provided	NA

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Ambient air quality monitoring report- NAMP data

Location : NTPC Vindhyanagar residential area distt Singrauli (M.P)

SN	Date /month	SO2 µg /m3		NOx µg /m3		RPM µg /m3		SPM µg /m3	
		Av	max	Av	max	Av	max	Av	max
1	Jan 2010	15.7	19.0	18.5	21.3	61.5	72.0	277	322.
2	Feb.2010	14.8	17.5	18.5	23.1	58.5	72.2	267	327.
3	Mar.2010	15.6	17.0	18.7	24.2	61.2	73.6	267	304
4	April 2010	15.6	17.5	18.2	23.1	63.8	74.0	297	353
5	Sept 2010	16.1	19.7	18.8	23.2	55.3	64.2	251	320
6	Oct 2010	16.5	19.2	18.6	21.3	52.3	69.7	238	310
7	Nov 2010	15.7	19.2	18.7	25.9	60.2	72.3	269	341
8	Dec 2010	16.1	19.7	18.8	23.2	55.3	64.2	251	320
	No of observation days	66		66		66		66	
	Annual Average	15.7		18.6		58.5		264.6	

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Ambient air quality monitoring report-NAMP data

LOCATION : WAIDHAN residential area distt Singrauli (M.P)

SN	Date /month	SO2 µg /m3		NOx µg /m3		RPM µg /m3		SPM µg /m3	
		Av	max	Av	max	Av	max	Av	max
1	Jan 2010	10.1	12.7	12.4	15.5	40.5	48.4	155	170
2	Feb.2010	10.6	14.3	13.3	17.4	39.4	47	161	184
3	Mar.2010	11.4	15.2	14.1	19.4	40.3	50	171	219
4	April 2010	12.8	15.9	15.8	19.4	45	53.5	184	215
5	May 2010	11.6	15.2	14.9	19.2	46.5	57	201	235
6	June 2010	15.2	16.3	19.4	24	48	55	212	244
7	July 2010	11	14.3	14.5	19.4	43.4	56	163	220
8	Aug 2010	11.6	15.2	14.9	19.2	46.5	57.4	201	254
9	Sept 2010	11.5	14	14	17.5	41.2	52.7	176	220
10	Oct 2010	11.5	13.6	13.9	16.5	41.2	52.7	176	221
11	Nov 2010	11.6	15.2	14.9	19.2	46.5	57.4	201	528
12	Dec 2010	11.9	15.9	14.9	19.4	46.4	54.1	175	213
	No of observation days	85		85		85		85	
	Annual Average	11.7		14.7		43.7		181.3	

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Ambient air quality monitoring report-NAMP data

LOCATION : JAYANT residential area distt Singrauli (M.P)

SN	Date /month	SO2 µg /m3		NOx µg /m3		RPM µg /m3		SPM µg /m3	
		Av	max	Av	max	Av	max	Av	max
1	Jan 2010	18.9	21.3	25.2	31.5	78.7	95	377	480
2	Feb.2010	19.4	22.8	25.5	33.7	74.6	95.2	364	465
3	Mar.2010	18.3	22.8	25.7	31.5	75	95	368	484
4	April 2010	19	22.8	25.7	31.5	81.5	98.4	411	512
5	Sept 2010	19	23.2	25.8	31.4	81.5	98.6	412	514
6	Oct 2010	22.4	26.2	28.6	32	81.1	97.9	399	508
7	Nov 2010	19.2	21.3	22.8	26.6	74	92	361	472
8	Dec 2010	19	22.8	25.7	31.5	81.5	98.4	411	512
	No of observation days	53		53		53		53	
	Annual Average	19.4		25.3		78.5		387.9	

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Stack emission monitoring report-

Location : stack emission -VSTPP -NTPC Vindhyanagar distt Singrauli (M.P)

Unit number	Capacity	Particulate matter- mg /NM3 Dec 2009	Particulate matter- mg /NM3 Dec 2009	Particulate matter- mg /NM3 Dec 2009	Particulate matter- mg /NM3 March 2010	Particulate matter- mg /NM3 June 2010	Particulate matter- mg /NM3 August 2010	Average mg /NM3	Permissible Limit Particulate matter- mg /Nm3
Unit No-1	210 MW	132	146	148	143	121	140	138.3	150
Unit No-2	210 MW	130	142	145	145	108	143	135.5	150
Unit No-3	210 MW	152	154	152	149	133	148	148	150
Unit No-4	210 MW	140	140	142	144	178	145	148.1	150
Unit No-5	210 MW	135	-	147	143	133	139	140.5	150
Unit No-6	210 MW	130	118	132	118	123	120	123.5	150
Unit No-7	500 MW	110	114	115	113	146	115	118.83	100
Unit No-8	500 MW	98	93	110	96	131	96	104	100
Unit No-9	500 MW	105	97	102	96	-	91	91	100
Unit No-10	500 MW	96	96	96	92	66	89	89.1	100
	3260 MW								

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Ambient air monitoring report-

Location-VSTPP- NTPC Ambient air quality monitoring distt SINGRAULI (M.P)

S.No.	Location	Ambient air quality			
		SO ₂ µg /m ³	NO _x µg /m ³	RPM µg /m ³	SPM µg /m ³
1	Near Guest House	34	35	95	392
2	Near C block	34	34	91	469
3	Near motwai gate	32	35	84	487
4	Near ash sylo	34	37	102	505
	Prescribed Limit by MPPCB	-60	50	80	500

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA

Water quality monitoring report

LOCATION : Rihand reservoir near ash pond vill Rampur distt Singrauli (M.P)

S no	parameters	unit	March 2010	April 2010	July 2010	Aug 2010	Nov 2010	Average	Max value
1	Turbidity		4	3	3	5	8	4.6	8
2	pH		7.3	7.7	7.3	7.7	7.7	7.54	7.7
3	Sp. conductivity	mg /L	0.408	0.486	0.408	0.495	1.34	0.627	1.34
4	Total solids	mg /L	696	695	696	1288	1360	947	1360
5	D S	mg /L	624	625	622	1162	1222	851	1222
6	S S	mg /L	72	70	72	126	78	83.6	126
7	Chlorides	mg /L	44	89	44	58	24	51.8	89
8	Alkalinity	mg /L	92	68	92	76	56	76.8	92
9	T. Hardness	mg /L	212	140	212	124	192	176	212
10	Sulphates	mg /L	10	18	10	13	14	13	18
10	DO	mg /L	6.8	7.1	6.8	6.3	6.5	6.7	7.1
11	BOD	mg /L	3.8	3.5	3.8	4.5	3.8	3.88	4.5
12	COD	mg /L	61	49	61	40	29	48	61
13	Coliform MPN	/100 ml	300	280	300	170	280	266	300
14	sodium	mg /L	-	29	-	-	-	29	29
15	Potassium	mg /L	-	11	-	-	-	11	11

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Water quality monitoring report

LOCATION : Surya nala near vindhyanagar distt Singrauli (M.P)

S no	parameters	unit	April 2010	June 2010	July 2010	Aug 2010	Sep 2010	Oct 2010	Nov 2010	Average	Max value
1	Appearance	-	Turbid	Turbid	Turbid	Turbid	Turbid	Turbid	Turbid	Turbid	-
2	pH	-	7.65	7.64	8.08	7.29	7.62	7.94	7.88	7.54	7.7
3	Total solids	mg /L	1283	914	1460	1441	780	1297	1340	1216.4	1460
4	D S	mg /L	1194	840	1348	1310	709	1180	1219	1114.3	1348
5	S S	mg /L	89	74	112	131	71	117	121	102.2	131
6	Chlorides	mg /L	49	58	44	54	54	49	34	48.86	58
7	BOD	mg /L	14	12	14	13	14	13	13	13.3	14
8	COD	mg /L	188	142	147	140	85	153	69	132	188
9	Oil & grease	mg /L	2	-	5	1	-	4	-	3	5

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Water quality monitoring report

LOCATION : Baliya nala near Jayant bridge distt Singrauli (M.P)

S no	parameters	unit	March 2010	May 2010	June 2010	July 2010	Aug 2010	Sep 2010	Oct 2010	Nov 2010	Average	Max value
1	Appearance	-	Turbid		Turbid	Turbid	Turbid	Turbid	Turbid	Turbid	Turbid	-
2	pH	-	7.96	7.96	7.94	8.38	7.79	7.96	7.55	7.82	7.92	8.38
3	Total solids	mg /L	1480	1490	4974	2117	1980	1094	252	1348	1841	4974
4	D S	mg /L	1290	1290	4622	1949	1798	973	214	1226	1670.	4622
5	S S	mg /L	190	200	351	168	182	121	38	122	171.5	351
6	Chlorides	mg /L	39	39	63	59	24	54	25	49	44	63
7	BOD	mg /L	18	16	21	16	11	08	8	11	13.63	21
8	COD	mg /L	156	156	153	137	194	91	49	108	130.5	194
9	Oil& grease	mg /L	3	3	6	8	2	4	-	--	4.33	8

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Water quality monitoring report

PERFORMANCE OF SEWAGE TREATMENT PLANTS -CPA AREA distt SINGRAULI (M.P)

S.No.	Location of STP	Treated effluent characteristics –annual average 2009-10				
		Flow KL/ Day	pH	SS mg /L	BOD mg /L	COD mg /L
1	VSTPP-NTPC Vindhyanagar	6000	7.35	76	29	78.4
2	Amlori project –NCL singrauli	1400	7.63	53.3	26.0	63.8
3	Nigahi project –NCL singrauli	1600	7.83	41.0	23.0	55.8
4	Jayant project –NCL singrauli	1800	7.72	54	21.3	53.9
5	Dudhichuai project –NCL singrauli	1400	7.78	46.3	22.6	56.9
6	Jhigurda project –NCL singrauli	900	7.55	53.0	24.6	62.0
	Prescribed Limit by MPPCB	-	5.5-9.0	100	30	250

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Water quality monitoring report

Location-VSTPP- NTPC Treated effluent quality AREA distt SINGRAULI (M.P)

S.No.	Parameters	Treated effluent characteristics –annual average 2009-10				
		Flow KL/ Day	pH	SS mg /L	BOD mg /L	COD mg /L
1	Maximum	7000	8.08	134	18	163
2	Minimum	5000	6.9	60	10	70
3	Average	6000	7.3	83	13	85
	Prescribed Limit by MPPCB	-	5.5-9.0	100	30	250

REGIONAL OFFICE -M.P. POLLUTION CONTROL BOARD REWA
Ground Water quality monitoring report

LOCATION :A-Bore well near vindhyanagar distt Singrauli (M.P)
B-Bore well near industrial area waidhan distt Singrauli
C-Bore well near Municipal Dump area Sample 1 &2

s.no	parameters	unit	Location A			Location B			Location C	
			Mar 10	May 10	Aug 10	Mar 10	May 10	Aug 10	Sample1 Oct 10	sample2 Oct 10
1	Turbidity		2	2	2	1	2	-	3	3
2	pH		7.62	7.8	6.95	7.52	7.60	7.38	7.39	7.27
3	Sp. conductivity	mg /L	0.36	-	0.41	0.38	-	-	0.43	0.41
4	D S	mg /L	318	642	574	440	380	544	534	485
5	Chlorides	mg /L	39.4	44.2	34.2	34.1	39.4	29.3	34.2	44.3
6	Alkalinity	mg /L	76	84	68	92.0	78.0	84.0	64	88
7	T. Hardness	mg /L	260	248	124	276	270	156	208	140
8	Sulphates	mg /L	39	22	23	18	14	18	21	20
9	BOD	mg /L	0.5	0.8	0.7	0.6	0.6	0.8	0.8	0.9
10	COD	mg /L	11	48	20.4	30	10	30	30.6	28
11	Coliform MPN	/100 ml	-	-	-	-	-	-	30	22
12	sodium	mg /L	55	-	33	61	-	27	-	
13	Potassium	mg /L	09	-	06	14	-	06	-	
14	Nitrate nitrogen	Mg/L							3.5	3.9

