RELIANCE

Vidarbha Industries Power Limited
CIN: U23209MH2005PLC158371

Correspondence Address
Plot No.D 3 MIDC
Industrial Area, Butibori
Nagpur 441 122
Tel: 07104 305650
Fax: 07104 305720
www.reliancepower.co.in

Ref.: VIPL/MoEF/July19/3 | Date: 09, July 2019

To,
The APCCF (C)
Ministry of Environment and Forest, Climate Change (MoEF &CC)
Regional Office (WCZ),
Ground Floor - East Wing,
New Secretariat Building, Civil Lines,
NAGPUR (MS) – 440001

Sub: 2X300 MW (Phase-I & II), Vidarbha Industries Power Ltd., Coal Based Thermal Power Plant at MIDC, Industrial Area, Butibori, Dist- Nagpur (MS)- Submission of Half Yearly Compliance report - reg

Ref: 1. Environmental Clearance No.J-13011/62/2007-IA.II (T) dated 9th May 2008 and 22nd December 2008 (for 1 X 300MW Phase – I)
2. Environmental Clearance No-13011/13/2009-IA.II (T) dated 26th May 2010 (for1X 300 MW Phase–II)

VIPL is operating 2x300 MW Coal based Thermal Power Plant at Plot No. D-3 & D-3/Part, MIDC Industrial Area, Butibori, Nagpur. Maharashtra Industrial Development Corporation (MIDC), a government of Maharashtra undertaking, awarded the project to VIPL. Subsequently, VIPL has been granted Environmental Clearance (EC) for both the Units on 9th May 2008 (amended on 22nd Dec. 2008) and on 26th May, 2010.

With reference to above, please find enclosed the half yearly compliance report for the period from 1st Jan 2019 to 30th June, 2019.

Our Unit-I&II at VIPL are under force shutdown from Unit:-I: 28/12/2018 & Unit-II:- 17/01/2019.

Name and address of the local & Nodal Officer with e-mail, phone / Fax number.

(i) **Mr. Ashesh Padhy,**
Station Director
Vidarbha Industries Power Ltd.
Plot No. D – 3, MIDC, Butibori
NAGPUR - 441122
E-mail: ahsesh.padhy@relianceada.com
Mobile: 932599926

(ii) **Mr. Jitendra Prasad(EHS),**
Vidarbha Industries Power Ltd.
Plot No. D – 3, MIDC, Butibori
NAGPUR - 441122
E-mail: jitendra.b.prasad@relianceada.com
Mobile: 09373250755

Thanking you,

Yours Faithfully,
For Vidarbha Industries Power Limited

Authorized Signatory

CC:

1. Member Secretary,
   Central Pollution Control Board (CPCB),
   Parivesh Bhawan,
   Complex East Arjun Nagar,
   DELHI - 110 032..

2. Member Secretary,
   Maharashtra Pollution Control Board,
   Kalptaru Point, 3rd & 4th Floor, Sion Matunga,
   Scheme Road No. 8,
   Opposite Sion Circle, Sion East,
   MUMBAI – 400 022

3. Regional Officer,
   Maharashtra Pollution Control Board,
   5th Floor, Udyog Bhavan, Civil Lines,
   NAGPUR -440 001

SIX MONTHLY COMPLIANCE REPORT

OF

ENVIRONMENTAL CLEARANCE

2X300 THERMAL POWER PLANT

At

D3, D3 Part, MIDC, Butibori, Nagpur

Submitted to:

Regional Office, Ministry of Environment, Forest & Climate Change, Nagpur

Central Pollution Control Board (CPCB), New Delhi

Maharashtra Pollution Control Board (MPCB) -Mumbai/Nagpur

Submitted by:

Vidarbha Industries Power Limited

D3, D3 Part, MIDC, Butibori,

Nagpur-441122, Maharashtra

PERIOD: 1st Jan 2019 – 30th June 2019

PREAMBLE

1 Vidarbha Industries Power Limited is operating 600 MW (2 x 300MW) Coal based Thermal Power Plant at D3, MIDC, Butibori, Nagpur (M.S.).

2 Long term PPA signed with R-Infra distribution for full ex Bus capacity of 546 MW.

3 Water commitment available from MIDC for 22 MLD for Phase–I and from Irrigation Department for 22 MLD for Phase-II.

4 Coal allocation is available from WCL. The Private Railway siding of 17 KMs from Sindhi Railway station to Plant developed by VIPL was already commissioned. The Coal requirements for the Plant Operations transported by Rail mode. Rarely, VIPL may have to depend on road transportation in case the WCL mine allocated does not have railway siding.

5 Permission from MSETCL for grid connectivity obtained for Phase-I & II.

6 All the 2 units of 300MW each have already achieved Commercial Operation.

7 All the operation related permits, including Environmental Clearance, Forest Clearance from MoEF&CC and Consent to Operate from Maharashtra Pollution Control Board are in place.

8 Environmental quality monitoring in & around the Plant site is being carried out by MoEF& CC & NABL approved Laboratory on a regular basis.

9 Three nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) along with Environmental Parameter Display Board at main gate have been established.

10 Continuous Emission Monitoring System (CEMS) is installed in flue of all the units and the data is linked to the CPCB and MPCB server.

11 Online Effluent Monitoring System is installed at the outlet of Central Monitoring Basin and data is linked to the CPCB and MPCB server.

12 Upliftment of the socio-economic status of the nearby community and society are carried out on a continuous basis through various programs run under the company's Corporate Social Responsibility (CSR) scheme.

13 A vast green belt as per the MoEF &CC guidelines is developed to curb the emission and also to provide an aesthetic look.

14 Point wise compliance status of Environmental Clearance for the period from 1st Jan 2019 – 30th June 2019 is furnished herewith.

<table>
<tr><td colspan="2" rowspan="4">Compliance Report for Environmental Clearance Accorded by MOEF to
Vidarbha Industries Power Limited (Phase-I)</td><td>Vidarbha Industries Power Limited</td></tr>
<tr><td>MOEF Ref.: J-13011/62/2007-IA.II (T)</td></tr>
<tr><td>Date of Clearance: 9th May, 2008 &
Amendment dt. 22nd Dec 2008</td></tr>
<tr><td>Status as on: 1st Jan 2019 – 30th June 2019</td></tr>
<tr><th>Sl. No.</th><th>EC Conditions</th><th>Status</th></tr>
<tr><td>A</td><td>Specific Condition</td><td></td></tr>
<tr><td>I</td><td>The total land requirement for the project shall be restricted to 255.6 acres.</td><td>1. VIPL had communicated to MoEF&CC during the time of obtaining environmental clearance that the land requirement for the Project as 225 Acres construction of 2 X 300 MW coal based power plant, 50 acres for add on facilities and ash pond for second phase (1X300 MW).
2. The additional 50 Acres of land for the Project and Ash Pond for Phase II was reflected in the application and presented to the EAC of MoEF&CC during Phase-II (1X300 MW) Environment Clearance. Accordingly, Phase II EC was granted.
3. The 80 Acres land requirement was for the Railway siding. However,, during the detailed survey for the Railway siding, it was found that the earlier proposed route was not feasible due to involvement of defence land, forestland and transmission lines passing through the above land. Therefore, an additional land of 180 Acres was needed for circumventing and final approval & Rail traffic clearance was obtained accordingly from Central Railways.
4. As, the land requirement for construction of railway siding outside plant premises does not fall under EIA Notification, 2006 hence no amendment is requested to MoEF&CC.
5. All the above information is submitted in our earlier compliance status submitted to MoEF&CC from time to time.
6. In TOR its mention that The total area for both phase I&II will be 280 acre and further offsite facilities (Railway siding) total area of 260 acre accordingly vide letter no. J-13012/153/2008-IA.II (T), dt. 10.02.2009
7. 275 Acre Plant area for Unit:-I&II
<table>
<tr><td>Description</td><td>Phase-I</td><td>Phase-II</td><td>Total</td></tr>
<tr><td>Plant Facilities(Acre)</td><td>107</td><td>-</td><td>107</td></tr>
<tr><td>Ash Storage Area (Acre)</td><td>52</td><td>37</td><td>89</td></tr>
<tr><td>Green Belt (Acre)</td><td>66</td><td>18</td><td>84</td></tr>
<tr><td>Total</td><td>225</td><td>55</td><td>280</td></tr>
<tr><td>Railway siding</td><td>80</td><td>180</td><td>260</td></tr>
</table></td></tr>
<tr><td>II</td><td>The R&R for the project affected people including those due to the corridor shall be carried out as per the norms and guidelines</td><td>The Govt. of Maharashtra in the notified MIDC area allotted the land for the Project. Therefore, there are no Project affected people. The land acquired for railway siding was mainly private land and there</td></tr>
</table>

	of the state Government.	were no houses and habitants. The land was purchased from the landowners on mutually accepted terms and conditions. In case any R&R is required in future, the same shall be addressed as per the R& R policy of Maharashtra Government.
III	Sulphur and Ash content in the coal to be used in the project shall not exceed 0.7 % and 41.6 % respectively.	Complied. Report attached as **Annexure-6**
IV	A bi-flue gas of not less than 220 m height with continuous online monitoring equipments for SOx, NOx, Mercury and PM shall be provided. Exit velocity of flue gases shall not be less than 20m/sec.	Single plume Stack with 220-M height is provided for 1x300 MW power plant with Continuous online monitoring equipment for monitoring of PM, SO2 and NOX. Exit Velocity is maintained not less than 20m/s. at top.
V	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 *mg/Nm3.*	High Efficiency Electrostatic Precipitators are provided and particulate emission limit of less than 50 mg/Nm3 is maintained.
VI	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Fly ash shall be used in phased manner as per provision of the notification on fly ash utilization issued by the Ministry in September, 1999 and its amendment. By the end of 9th year full fly ash utilization should be ensured. Unutilized fly ash shall be disposed off in the ash pond in the form of High concentration slurry and the bottom ash in conventional slurry mode.	3 nos. of Fly ash Storage Silos of 1000 MT each have been provided at site. (Enclosed photographs). The fly ash is collected in dry form and utilized as per the latest notification on Fly Ash utilization issued by MoEF. The unutilized fly ash is disposed off in the HCSD form and bottom ash in lean slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) is monitored in the bottom ash as also in the effluents emanating from the existing ash pond. Ash Utilization report for the FY 2018-19 is enclosed at **Annexure-1**
VII	Ash pond shall be lined with suitable impermeable lining. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	VIPL had taken up a leaching analysis and study of the ash pond area by M/s. Central Institute of Mining & Fuel Research, Dhanbad, Jharkhand As recommended, the ash pond is designed and lined with black cotton soil and live now. The study report is also submitted to MoEF&CC as a part of compliance of the condition. The ash dyke is designed by M/s. DCPL and adequate Safety measures are incorporated for bund stability and to protect the ash dyke from breaching.
VIII	Adequate dust extraction system such as cyclones/bag filter and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be	Dust extraction system such as cyclones/ bag filters and water spray system in dusty areas in coal handling and ash handling points, transfer areas and other vulnerable dusty areas are provided.

	provided.	Include a list of BFs at: 1) 3nos of Silo 2) Crusher House and Dust extraction at: 1) CHP Area. Water spraying points established in various locations of plant at: 1) Initial Spray at before Wagon tippler 2) Conveyor belt 3) Plant Road Side 4) ESP area. 5) Silo area.
IX	Water requirement shall not exceed 25.5 mld. No ground water shall be extracted for any activity of the power project including construction phase of the project.	Water utilization is maintained less than 25.5mld. No ground water extraction was envisaged during the project construction and operation phase. MIDC supplied water was only used during the construction phase of the Project & Operation phase of the plant. VIPL has achieved avg. Sp water 2.47m3/MWh in Jan-2019 for both units. Unit-I&II at VIPL are under force shutdown from Unit:-I: 28/12/2018 & Unit-II:-17/01/2019 respectively.
X	Closed cycle cooling system with cooling tower shall be provided. COC of 6.0 shall be adopted. The effluent shall be treated to conform to the prescribed norms.	COC of 6.0 to 6.2 is maintained and complied. The effluent is being treated to conform to the prescribed norms.
XI	The treated effluents conforming to the prescribed standard shall be re-circulated and reused with in plant. There shall be no discharge outside plant boundary except during monsoon for storm water. Arrangement shall be made so that effluent and storm water do not get mixed.	There is no discharge outside plant boundary except during monsoon for storm water. There is no mixing of effluent and storm water. A sewage treatment plant of 40 CMD capacities is provided and the treated sewage is used for greenbelt/ Plantation.
XII	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt / plantation.	A sewage treatment plant of 40 CMD capacities is provided and the treated sewage is used for greenbelt/ Plantation.
XIII	Regular monitoring of ground water in and around the ash pond area shall be carried out, records maintained and six monthly reports shall be furnished to the Regional Office of this Ministry.	Regular monitoring of ground water in and around the plant area is done and records are maintained.. There are 2nosof pizometers are installed. Monitoring around Hg, Cr, As, Pb is done on regular basis. The analysis report for the reporting period is enclosed as **Annexure-6**
XIV	The storm water drainage shall be so designed and linked to the surface drainage so as to preserve the natural drainage of	Storm water drainage study report has been prepared by CWPRS, Pune. Accordingly, various drainage through plant has been channelized as per

	the area.	the recommendations of CWPRS report and complied; hence the natural drainage in the area is not disturbed due to activities associated with operation of plant.
XV	Rainwater harvesting shall be adopted. Central Groundwater Authority Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	Detailed Rainwater harvesting study has been conducted and a report on the same has been submitted to CGWA. CGWA has given acceptance to the same vide letter no. CGWA/CR/GW/-Abs/Ind/2008/3989 dated 02/12/2008 and also submitted to MoEF in July 2009. Admin building terrace is the catchment area as per the rainwater harvesting scheme and implemented accordingly.
XVI	Green belt of adequate width and density shall be developed around the plant periphery covering about 66 acres of project area preferably with local species.	VIPL has identified a total of 90 acres of land for developing greenbelt as per MoEF guidelines in phase I & II and accordingly plantation has already been developed in 90Acres of land and complied the requirement. Total 292277 nos of different varieties of Trees are planted over an area of 90 Acres, including 25 acre of Railway siding. The survival rate for the plantation is more than 90%. The plantation map is enclosed **Annexure-2.**
XVII	Leq of Noise levels emanating from turbines shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.	1. Engg. Control measures are taken to limit the noise level. Acoustic enclosure provided to Turbine, compressor is always closed condition. 2. Earplugs and Ear muffs are provided to all the people working in high noise areas. Workers engaged in noisy areas like TG, Compressors are on periodic rotation in case of any high noise, periodically examined. The monitoring reports are enclosed as **Annexure-6**
XVIII	A plan for conservation of Scheduled fauna reported in the study area shall be prepared in consultation with State Forest and Wildlife Department within 3 month and shall be implemented effectively. Necessary allocation of funds for the same shall be made and included in the project cost.	1.The Plant falls inside the notified MIDC Industrial Area of Government of Maharashtra. 2.Wildlife Conservation Plan already submitted to CCF (WL) in compliance to Point No. XVIII of EC Clearance conditions on dated 10/06/2010. The approval of the same is awaited from the office of Pr.CCF, Govt. of Maharashtra. Necessary allocations of funds have been made in the Plan.
XIX	Regular monitoring of ground level concentration of S02, NOx, PM2.5 & PM10 and Hg shall be carried out in the impact zone and records maintained. If at any	1.3nos CAAQMS were installed at three locations as suggested by MPCB in plant premises for ambient air quality and connected to MPCB server. 2.CEMS system with opacity meters was also provided for continuous monitoring of stack emission and

<table>
<tr><td></td><td>stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. There should be one monitoring station in the pre-dominant downwind direction at a distance of about 2.5km where the maximum ground level concentration due to emission from stack is likely to occur. Six monthly reports shall be submitted to Regional Office of this Ministry at Bhopal/SPCB/CPCB.</td><td>connected to CPCB/MPCB server.<table><tr><th>Online Monitoring System</th><th>MPCB Connectivity</th><th>CPCB Connectivity</th></tr><tr><td>CEMS (Continuous Emission Monitoring System) at Chimney</td><td>MPCB server connectivity at https://onlinecems.ecmpcb.in/mpcb/graph.html</td><td>http://cpcb.chemtrols.com/graph.html</td></tr><tr><td>OEMS (Online Effluent Monitoring system) at ETP</td><td>MPCB server connectivity at https://onlinecems.ecmpcb.in/mpcb/graph.html</td><td>http://115.114.10.246:8080/enviroconnect</td></tr></table>3. Regular monitoring of the ground level concentration of S02, NOx, PM2.5 & PM10, Hg, Pb and CO is carried out and records are maintained. The location of the monitoring stations and frequency of monitoring was decided in consultation with MPCB.
4. Six monthly reports are submitted regularly to MoEF, MPCB and CPCB. Refer Annexure-6</td></tr>
<tr><td>XX</td><td>Appropriate safeguard measure shall be taken to guard against fire hazards in coal storage area. DMP shall be prepared to handle such situation.</td><td>All Fire Safety precautions are taken at the Coal storage areas. The fire safety measures taken at coal yard are enclosed as photograph.

DMP is prepared identifying the hazards, Safety precautions, Periodical Mock drills and action plans for Risk Management and is in place. Gist of On Site and Off Site Emergency Plan attached as Annexure-7</td></tr>
<tr><td>XXI</td><td>Storage facilities for auxiliary liquid fuel such as LDO and/HFO/LSHS shall be made in the plant area where risk is minimum to the storage facility. Adequate arrangement for risk management shall be made in the Disaster Management Plan for the same. Mock drills shall be conducted regularly as planned.</td><td>LDO and HFO storage tanks had been installed with all required fire detection and protection system.

License for the storage area has been granted by PESO, vide License No: P/HQ/MH/15/6068 (P250859), dt 18/01/2013.

DMP is prepared identifying the hazards, Safety precautions, Periodical Mock drills and action plans for Risk Management and is in place.</td></tr>
<tr><td>XXII</td><td>The project proponent shall advertise in at least two local newspaper widely circulated in the region around the project, one of which shall be in the vernacular language of the locally concerned within seven days from the date of this clearance letter , informing that the project has been accorded environmental clearance and</td><td>Complied and intimated to MoEF vide letter No. VIPL/NGP/MoEF/08/42 dt. October 22, 2008.

The clearance letter has already been uploaded on the link for phase-I:
http://www.reliancepower.co.in/pdf/Phase_I_EC_Butibori_May_09_2008.pdf</td></tr>
</table>

<table>
<tr><td></td><td>copies of clearance letter are available with the State Pollution Control Board/ Committee and also be seen at Website of the Ministry of Environment and forest at http://envfor.nic.in.</td><td></td></tr>
<tr><td>XXIII</td><td>A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.</td><td>Environment Management Department with qualified and adequate staff has been set up for implementation of the stipulated environmental safeguards.</td></tr>
<tr><td>XXIV</td><td>Half yearly reports on the status of the implementation of the stipulated environmental safeguards to this Ministry /RO/CPCB/SPCB.</td><td>Half-yearly compliance reports are regularly submitted to MoEF&CC, MPCB and CPCB.

The last Half yearly report was submitted for the period of 1st July 18 – 31st Dec18.</td></tr>
<tr><td>XXV</td><td>Regional Office of the Ministry of Environment & Forests shall monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring.</td><td>Complied</td></tr>
<tr><td>XXVI</td><td>Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry</td><td>Item-wise break up of Expenditure incurred for Environmental protection measures for Phase I and II during the Financial year 2018-19:
<table>
<tr><th>Sr. No</th><th>Description</th><th>Amount incurred in (Lakhs)</th></tr>
<tr><td>1</td><td>Housekeeping Expenses</td><td>60.86</td></tr>
<tr><td>2</td><td>Maintenance expenses for CAAQMS & CEMS</td><td>30.46</td></tr>
<tr><td>3</td><td>AMC for Environmental Monitoring</td><td>6.01</td></tr>
<tr><td>4</td><td>Expenses on Tree Plantation</td><td>34.19</td></tr>
<tr><td>5</td><td>O&M of STP and ETP</td><td>54</td></tr>
<tr><td>6</td><td>CSR Expenses for FY Yr 18-19</td><td>67</td></tr>
<tr><td>7</td><td>Expenses for Ash Utilization</td><td>6.37</td></tr>
<tr><td>8</td><td>CTO Expenses</td><td>93</td></tr>
<tr><td>9</td><td>Hazardous waste Disposal charges Rs</td><td>2.35</td></tr>
<tr><td></td><td>Total(Lakh)</td><td>354.15</td></tr>
</table></td></tr>
</table>

XXVII	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	VIPL has achieved the Financial closure on July 24, 2009 and lead Banker is Axis Bank. The same has been informed to MoEF with our submission of 3rd Six monthly compliance report dated December 17, 2009.
XXVIII	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bhopal I CPCSI SPCS who would be monitoring the compliance of environmental status.	Noted for compliance.

Compliance Report for Environmental Clearance accorded by MOEF for Vidarbha Industries Power Ltd. (Phase- II)	Vidarbha Industries Power Ltd.
	MOEF Ref.: J-13011/13/2009-IA.1I (T)
	Date of Clearance: 26th May , 2010
	Status As on: 1st Jan 2019 – 30th June 2019

Sl. No.	EC Conditions	Status
A	**Specific Condition**	
i.	A stack of 220 m height shall be provided with continuous online monitoring equipments for SOx, NOx, mercury and particulate. Exit velocity of flue gases shall not be less than 20m/sec.	Single plume Stack with 220-M height is provided for 1x300 MW power plant with Continuous online monitoring equipment for monitoring of PM, SO2 and NOX. Exit Velocity is maintained not less than 20m/s. at top.
ii.	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 *mg/Nm3.* Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	High Efficiency Electrostatic Precipitators are provided and particulate emission limit of less than 50 mg/Nm3 is maintained Dust extraction system such as cyclones/ bag filters and water spray system in dusty areas in coal handling and ash handling points, transfer areas and other vulnerable dusty areas are provided. Include a list of BFs at: 1)3nos of Silo, 2) Crusher House Dust extraction Water spraying points established in various locations of plant at: 1) Initial Spray at before Wagon tippler, 2) Conveyor belt 3) Plant Road Side, 4) ESP area. 5) Silo area.
iii.	Space provision for retrofitting of FGD shall be kept, if required at a later date	Adequate Space has been provided for FGD in the layout. Enclosed lay out marking location earmarked for FGD. (Refer **Annexure-3**) Inline new emission regulation 2015 & subsequent direction issue by CPCB Vide B-33014/07/2017-18/IPC-II/TPP/15914 on dt. 11/12/2017. VIPL is working actively to comply with new emission requirement as per schedule. ❖ FGD installation Timeline. 1. **Unit 2- Mar' 21** 2. **Unit 1- Jun' 21** ❖ Installation Timeline of Low No_x burner 1. **NO_x limits by Year 2022**

iv.	The proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF at Bhopal, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM ($PM_{2.5}$ & PM_{10}), S02, NOx (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	1. Status of compliance of the stipulated environmental clearance conditions, including results of monitored data uploaded at 2. CAAQMS systems were installed at three locations as suggested by MPCB. CEMS system with opacity meters was also provided for continuous monitoring of stack emission and connected to CPCB/MPCB server. 3. Photographs of the CAAQMS / CEMS are enclosed as **Annexure- 4** 4. The criteria pollutant levels namely; SPM, RSPM ($PM_{2.5}$ & PM_{10}), S02, NOx (ambient levels as well as stack emissions) are displayed at the main gate of the company in the public domain. 5. Regular monitoring of the ground level concentration of S02, NOx, PM2.5 & PM10, Hg, Pb and CO is being carried out and records are maintained. Six monthly reports are being submitted to MoEF, MPCB, and CPCB regularly.
v.	COC of 6.0 shall be adopted and report submitted within 3 months of operation of the plant.	COC of 6.0 to 6.2 is maintained and complied. The effluent is being treated to conform to the prescribed norms.
vi.	Closed cycle cooling system with natural draft cooling towers shall be provided. The effluent shall be treated as per the prescribed norms. The treated effluent conforming to the prescribed standards only shall be recirculated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluent and storm water does not get mixed. A sewage treatment plant shall be provided and the treated sewage shall be used for raising green belt/plantation.	While placing application for EC, it was clearly mentioned in submitted document that Induced Draft Cooling Tower will be provided and it was also presented before EAC at the time of presentation on February 13, 2010 and recommended. There is no discharge outside plant boundary except for the period of downpour. There is no mixing of effluent and storm water. A sewage treatment plant of 40 CMD capacities is provided and the treated sewage is used for greenbelt/ Plantation. (Photograph enclosed)
vii.	Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr, As, Pb) and records maintained and data	Regular monitoring of ground water in and around the plant area is being done and records are maintained. 2nos of Piezometers are installed. Monitoring around Hg, Cr, As, Pb is being done on regular basis. The analysis report for the reporting

	submitted to the Regional Office of this Ministry. The data so obtained shall be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	period is enclosed as **Annexure-6**
viii.	The proponent shall ensure that natural drainage in the area shall not be disturbed due to activities associated with operation of the plant.	Storm water drainage study report has been prepared by CWPRS, Pune. Accordingly, various drainage through plant has been channelized as per the recommendations of CWPRS report and complied, hence the natural drainage in the area is not disturbed due to activities associated with operation of plant.
ix.	Rainwater harvesting shall be adopted. Central Groundwater Authority Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	Detailed Rainwater harvesting study has been conducted and a report on the same has been submitted to CGWA. CGWA has given acceptance to the same vide letter no. CGWA/CR/GW/-Abs/Ind/2008/3989 dated 02/12/2008 and also submitted to MoEF in July 2009. Rain water harvesting pits are established to conserve rain water.
x.	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. 100% fly ash utilization shall be ensured from 4th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) shall be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.	3 nos. of Fly ash Storage Silos of 1000 MT each have been provided at site. (Enclosed photographs). The fly ash is collected in dry form and utilized as per the latest notification on Fly Ash utilization issued by MoEF. The unutilized fly ash is being disposed off in the HCSD form and bottom ash in lean slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) is being monitored in the bottom ash as also in the effluents emanating from the existing ash pond. Ash Utilization report for the FY 2018-19 is enclosed at **Annexure-1**
xi.	Ash pond shall be lined with HDP/LDP lining or any other suitable impermeable media so that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	Ash pond lining is done with black cotton soil as per the recommendations of the leaching study conducted by M/s. Central Institute of Mining & Fuel Research, Dhanbad, and Jharkhand. Adequate Safety measures are implemented to protect the ash dyke from breaching.
xii.	For disposal of Bottom Ash in abandoned	Note for Compliance

	mines (if proposed to be undertaken) it shall be ensured that the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	
xiii.	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	All Fire Safety precautions are taken at the Coal storage areas. DMP is prepared identifying the hazards, Safety precautions, Periodical Mock drills and action plans for Risk Management and is in place.
xiv.	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil including fire and explosion in boilers and turbines. Reliability analysis of high pressure instruments/equipments shall be periodically carried out and corrective measures taken to prevent any fire and explosion hazards. Location of the turbines may be decided in such a way that the impact of fire and explosion does not cross the plant boundary. Mock drills shall be conducted regularly and based on the same, modifications required, if any shall be incorporated in the DMP.	LDO and HFO storage tanks had been installed with all required fire detection and protection system. License for the storage area has been granted by PESO, vide License No: P/HQ/MH/15/ 6068 (P250859), dt 18/01/2013. Sulphur content in the liquid fuel is exceeding 0.5%. DMP is prepared identifying the hazards, Safety precautions, Periodical Mock drills and action plans for Risk Management and is in place. Gist of On Site and Off Site Emergency Plan of VIPL Annexure- 7.
xv.	Green belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not less than 2500 per ha with survival rate not less than 70 %.	VIPL has identified a total of 90 acres of land for developing greenbelt as per MoEF guidelines in phase I & II and accordingly plantation has already been developed in 90Acres of land and complied the requirement. Total 292277nos of different varieties of Trees are planted over an area of 90 Acres, including 25 acre of Railway siding. The survival rate for the plantation is more than 90%. The plantation map is enclosed **Annexure-2.**

xvi.	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied
xvii.	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.	1. Engg. Control measures are taken to limit the noise level. Acoustic enclosure provided to Turbine, compressor is always closed condition. 2. Earplugs and Ear muffs are provided to all the people working in high noise areas. Workers engaged in noisy areas like TG, Compressors are on periodic rotation in case of any high noise, periodically examined. The monitoring reports are enclosed as **Annexure-6**
xviii.	A good action plan for R&R (if applicable) with package for the project affected persons be submitted and implemented as per prevalent R&R policy within three months from the date of issue of this letter.	The Govt. of Maharashtra in the notified MIDC area allotted the land for the Project. Therefore, there are no Project affected people. The land acquired for railway siding was mainly private land and there were no houses and habitants. The land was purchased from the landowners on mutually accepted terms and conditions.
xix.	An amount of Rs 12.0 Crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs 2.5 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	Detailed CSR plan based on need-based survey conducted was submitted by Society for All Round Development, (SARD) NGO based at Delhi. An amount of **Rs 67 lakh** was spent on CSR activities for the **FY 2018-19.** The CSR activity for last six months is enclosed as **Annexure -5**
xx.	As part of CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.	Report on the CSR activities conducted is enclosed at **Annexure- 5**

<table>
<tr><td>xxi.</td><td>Provision shall be made for the housing of construction Labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.</td><td>Complied during Project stage.</td></tr>
<tr><td>B.</td><td>General conditions</td><td></td></tr>
<tr><td>i.</td><td>Regular monitoring of ground level concentration of S02, NOx, PM2.5 & PM10 and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.</td><td>1.3nos CAAQMS were installed at three locations as suggested by MPCB in plant premises for ambient air quality and connected to MPCB server.
2.CEMS system with opacity meters was also provided for continuous monitoring of stack emission and connected to CPCB/MPCB server.
<table>
<tr><th>Online Monitoring System</th><th>MPCB Connectivity</th><th>CPCB Connectivity</th></tr>
<tr><td>CEMS (Continuous Emission Monitoring System) at Chimney</td><td>MPCB server connectivity at https://onlinecems.ecmpcb.in/mpcb/graph.html</td><td>http://cpcb.chemtrols.com/graph.html</td></tr>
<tr><td>OEMS (Online Effluent Monitoring system) at ETP</td><td>MPCB server connectivity at https://onlinecems.ecmpcb.in/mpcb/graph.html</td><td>http://115.114.10.246:8080/enviroconnect</td></tr>
</table>
3.Regular monitoring of the ground level concentration of S02, NOx, PM2.5 & PM10, Hg, Pb and CO is carried out and records are maintained. The location of the monitoring stations and frequency of monitoring was decided in consultation with MPCB.
4.Six monthly reports are submitted regularly to MoEF, MPCB and CPCB. Refer Annexure-6</td></tr>
<tr><td>ii.</td><td>A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.</td><td>Environment Management Department with qualified and adequate staff has been set up for implementation of the Environment Management Plan.</td></tr>
<tr><td>iii.</td><td>The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and</td><td>Half-yearly compliance reports are regularly submitted to MoEF, MPCB and CPCB.</td></tr>
</table>

<table>
<tr><td></td><td>State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same bye-mail to the Regional Office, Ministry of Environment and Forests.</td><td>The last Half yearly report was submitted for the period of 1st July18 – 31st Dec18</td></tr>
<tr><td>iv.</td><td>Regional Office of the Ministry of Environment & Forests shall monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six monthly basis. Criteria pollutants levels including NOx (from stack & ambient air) shall be displayed at the main gate of the power plant.</td><td>A complete set of EIA & EMP report has been already submitted to regional office for future monitoring & implementation of stipulated conditions.

CAAQMS system is installed at three locations as suggested by MPCB. Criteria pollutant level including NOx (from Stack & ambient air) displayed at the Main Gate of the Plant.

1. The clearance letter has already uploaded on the link for phase-I: http://www.reliancepower.co.in/pdf/Phase_I_EC_Butibori_May_09_2008.pdf
2. The clearance letter has already uploaded on the link for phase-II: http://www.reliancepower.co.in/pdf/EC_VIPL_Phase_II_26_05_2010.pdf</td></tr>
<tr><td>v.</td><td>Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.</td><td>Item-wise break up of Expenditure incurred for Environmental protection measures for Phase I and II during the Financial year 2018-19:

<table>
<tr><th>Sr. No</th><th>Description</th><th>Amount incurred in (Lakhs)</th></tr>
<tr><td>1</td><td>Housekeeping Expenses</td><td>60.86</td></tr>
<tr><td>2</td><td>Maintenance expenses for CAAQMS & CEMS</td><td>30.46</td></tr>
<tr><td>3</td><td>AMC for Environmental Monitoring</td><td>6.01</td></tr>
<tr><td>4</td><td>Expenses on Tree Plantation</td><td>34.19</td></tr>
<tr><td>5</td><td>O&M of STP and ETP</td><td>54</td></tr>
<tr><td>6</td><td>CSR Expenses for FY Yr 16-17</td><td>67</td></tr>
<tr><td>7</td><td>Expenses for Ash Utilization</td><td>6.37</td></tr>
<tr><td>8</td><td>CTO Expenses</td><td>93</td></tr>
<tr><td>9</td><td>Hazardous waste Disposal charges Rs</td><td>2.35</td></tr>
<tr><td></td><td>Total(Lakh)</td><td>354.15</td></tr>
</table></td></tr>
</table>

vi.	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	VIPL has achieved the Financial Closure in October 2010 and informed to MoEF.
vii.	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bhopal I CPCSI SPCS who would be monitoring the compliance of environmental status.	Noted for compliance
viii.	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in.	Complied. The information regarding the EC has been published in the local newspaper dated June 10, 2010.
ix.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad, Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/ representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Complied. The clearance letter has already uploaded on the link for phase-II: http://www.reliancepower.co.in/pdf/EC_VIPL_Phase_II_26_05_2010.pdf
x.	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	Environment Statement for the FY 2017-18 was submitted to State Pollution Control Board on 14th Sept., 2018 and complied. (Enclosed Annexure-8)

RELIANCE

Vidarbha Industries
Power Limited
CIN: U23209MH2005PLC158371

Corporate Office Address
Plot No. D-3 MIDC
Industrial Area, Butibori
Nagpur 441 122
Tel: 07104 305650
Fax: 07104 305720
www.reliancepower.co.in

VIPL/AUT/CPCB/2019/ 73

Date:12th April, 2019

To,
Divisional Head- IPC-II,
Central Pollution Control Board,
East Arjun Nagar, Shahadara,
Delhi-110032

Sub: Submission of Annual Fly Ash Utilization Report for Period 1st April 18 - 31st March 19 by M/s. Vidarbha Industries Power Ltd – reg.

Ref: 1. Environmental Clearance No. J-13011/62/2007-IA.II (T) dated 9th May 2008 and 22nd December 2008 (for 1 X 300MW Phase – I)
2. Environmental Clearance No-13011/13/2009-IA.II (T) dated 26th May 2010 (for 1 X 300 MW Phase – II)

Dear Sir,

With reference to above, please find enclosed Annual Fly Ash Utilization Report for period 1st April 2018 - 31st March 2019 for 2X300 MW Coal Based Power Plant at MIDC Industrial Area, Butibori, Nagpur.

Thanking you,

Yours Faithfully,
For Vidarbha Industries Power Limited

Ashesh Padhy
Station Director

पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest & Climate Change
क्षेत्रीय कार्यालय (पश्चिम मध्य क्षेत्र)
Regional Office (Western Central Zone)
तल, पूर्व खंड / Ground Floor, East Wing
नया सचिवालय भवन / New Secretariat Building
सिविल लाईन्स / Civil Lines
नागपुर / Nagpur-440 001
18/04/2019

CC:

1. APCCF(C),
Ministry of Environment & Forest,
Regional Officer, Western Region,
Ground Floor, East Wing,
New Secretarial Building, Civil Lines,
Nagpur: 440001

2. The Joint Director (APC),
Maharashtra Pollution Control Board,
Kalptaru Point, 3rd & 4th Floor, Sion Matunga,
Scheme Road No. 8, Opposite Sion Circle, Sion East,
MUMBAI – 400 022

3. Regional Officer
MPCB, 5th Floor, Udyog Bhavan, Civil Lines,
NAGPUR -440 001

MAHARASHTRA POLLUTION CONTROL BOARD
Kalptaru Point, 3rd Floor, Sion Circle,
Opp. Cine Planet Cinema, Sion (E),
Mumbai - 400 022.
Tel.: 24010437 / 24020781

जावक अभिलेखक
प्रादेशिक कार्यालय
महाराष्ट्र प्रदूषण नियंत्रण मंडळ
18 APR 2019
उद्योग भवन, सी-२० माळा,
सिव्हील लाईन्स, नागपूर.

Fly Ash Notification S.O. 2804(E), 3rd November, 2009 – Statutory Compliance Report for the period 01.04.2018 to 31.03.2019

S. No.	Item	Reply
1	Name of Thermal Power Station	Vidarbha Industries Power Ltd, Butibori, Nagpur, 2x 300 MW Butibori Thermal Power Station
2	Full address including Pin code	Vidarbha Industries Power Ltd, Plot No: D-3, MIDC, Butibori Industrial Area, Nagpur, Pin-441122
3	E-mail address	biswambar.panda@relianceada.com
4	Name of the Nodal Officer (not below the rank of DGM / Dy.CE / or equivalent) dealing with ash/environment management and designation	Biswambar Panda AVP
5	Contact No.	01704-305610
6	Fax No.	07104-305720
7	Capacity of the Thermal Power Station (MW)	2x300 MW
8	Details of Number of Units and capacity of each unit	2 Units of 300 MW Capacity
9	Coal / ~~Lignite~~ Consumption in 2018-2019 (Million Tonnes)	14,37,662

A. Ash Generation in 2018-2019 (in tonnes).

10	Bottom Ash	94,097
11	Fly Ash	3,76,393
	Total A (10 to 11)	4,70,490

B. Ash unutilised (in tonnes)

12	Ash Pond disposal	69,921
13	Ash yard	--
14	Ash Dump	--
	Total B (12 to 14)	69,921

C. Ash utilization in 2018-2019(in tonnes)

	Purpose for which ash is utilized	Target (as per action plan)	Actual			
			From ESP Dry Ash (1)	From Pond Ash (2)	From Bottom Ash (3)	Total(1+2+3)
15	Ash pond dyke rising		-	-	-	-
16 *	Cement industry		85,137	-	-	85,137
17	Land fill		-	-	-	-
18	Own Brick Unit		-	-	-	-

19 *	Outside brick Units other than brick kilns		-	-	-	-
20*	Brick Kilns		-	-	-	-
21	Own ash based products (other than bricks)		-	-	-	-
22	Ash based products (outside)		2,21,335	-	-	2,21,335
23 *	Road and Flyover Embankments		-	1,26,372	3,15,988	4,42,370
24 *	Back filling of mines		-	-	-	-
25	Agriculture		-	-	-	-
26	Ready mix concrete		-	-	-	-
27	Asbestos		-	-	-	-
28 *	Exports		-	-	-	-
29	Others (please specify)		-	-	-	-
	Total C (15 to 29)		**3,06,472**	**1,26,372**	**3,15,988**	**7,48,832**

D. Reasons for variation from the target

1. Achieved the Fly Ash Utilization targets as per MoEFCC Norms

E. Remedial Measures taken

Additional Measure taken:-

1. Continuously exploring new vendors and avenues for possibilities of more ash Utilization through our business group.
2. Pursuing with Collector, NHAI, for Ash utilization in Road construction.

F. Quantity in ash pond

30.	Estimated quantity of Pond ash in active ash pond (pond in use) as on 31.03.2019 (Million Tonnes)	1,99,985

G. Ash Pond Details

31	Total area ear marked for ash ponds (ha)	Forest Area	Non Forest Area	Total
		NA	34.35	34.35
32	Ash ponds already filled dup and reclaimed (ha)	NA		
33	Ash ponds already filled up but yet to be reclaimed (ha)	NA		
34	Ash ponds in use (ha) (Active ash ponds)	21.04		
35	Area earmarked for ash ponds but ash ponds yet to be constructed (ha)	13.31		

H. Dry ash collection facilities

36	Dry fly ash collection facility available	√ Yes/ ~~No~~
37	If yes, how many units	3 Nos of Silos

I. Dry fly ash storage

38	Daily Ash Generation (TPD)	Capacity of storage as on 31.3.2019 (tones)	Capacity proposed if any in 2018-2019 (tonnes)
	1333	1000x3 nos in Silo	No

J. Capital Expenditure (Rs. Lakhs)

	Item	Item Expenditure in 2018-2019(Rs. Lakhs)	Budgetary provision in 2018-2019 (tonnes)
39	Bottom Ash collection facility	NIL	NIL
40	Dry fly ash storage	NIL	NIL

K. Dispute Settlement Committee

41	No. of meetings held in 2018-2019	If no meetings were held, reason for the same
	NIL	There was no dispute in FY 2018-2019, therefore no meeting called up.

L. Provision regarding supply to the brick kilns

42	Whether the Thermal Power Station is maintaining month-wise records of ash made available to each brick kiln	There was no demand raised from any Bricks Kiln operators in the vicinity.		
43	If yes, how many brick kilns have been supplied with fly ash	NA		
	Mode of transport of Ash: Truck / Trailer / Closed Container / Covered with Tarpaulin / Open	44	Dry ash	• Truck covered with tarpaulin • Trailer covered with tarpaulin • Closed container • Through Pipeline
		45	Wet Ash	• Truck covered with tarpaulin

M.Promotional Measures

		No. of meetings / workshops exhibition held during 2018-2019	Amount spent in 2018-2019(Rs. Lakhs)	Outlay for 2018-2019 (RS. Lakhs)
46	Public Awareness Campaign			
47	Exhibitions			
48	Seminars / Workshops	1nos	50,000/-	50,000/-

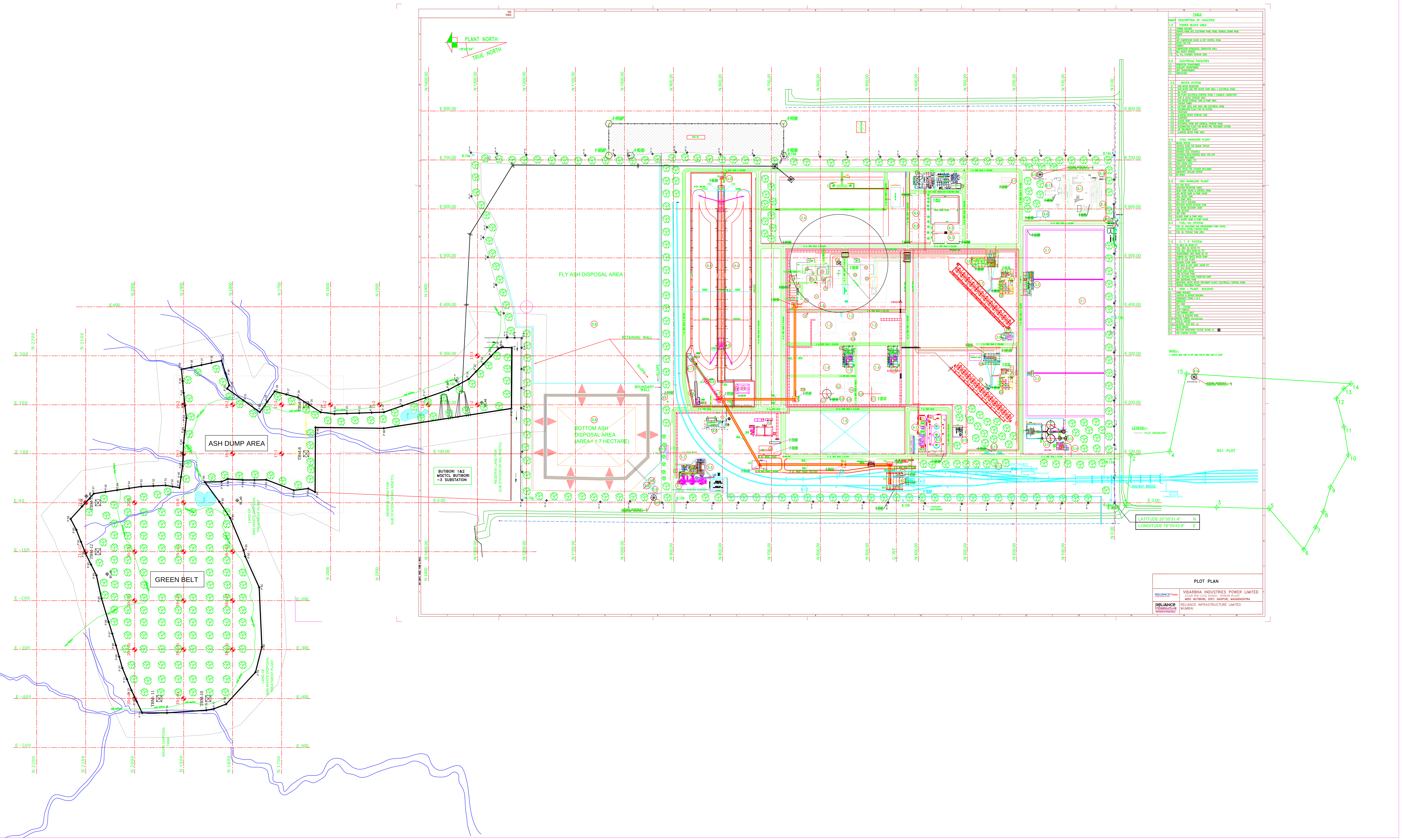
49	Advertisement in Newspapers	1 Nos	10,000/-	10,000/-
50	TV / Radio Advertisements			
51	Others (Please specify) a) Meeting with Cement Industries b) Meeting with experts in the field of Environment	8nos	35,000/-	75,000/-
	Total M (46 to 51)		95,000/-	1,35,000/-

52. Administrative Measure taken

S.No.	Administrative Measure	Outcome
(i)	Meeting with brick manufacturers	Bricks manufactures agreed to take ash from VIPL for their requirements and started lifting ash.
(ii)	Meeting with State Government / Agencies	1.NOC and clearance from all related government office received to start dumping bottom ash in nearby abandoned quarries, as off now bottom as stock is very low, we will start dumping ash immediately after availability of surplus bottom ash. Further to get BG extension against NOC is required. 2. Discussion with NHAI vendors for Samrudhi Mahamrg is in progress (E.g. Megha engineering and infrastructure Ltd, Afcon Pvt Ltd). for utilization of ash for road construction and RMC plant 3. Discussion Butibori fly over vendor T&T Infra is in progress for utilization of ash for road embankment purpose.
(iii)	Any other measure (please specify)	Continuously exploring new vendors and low lying areas for ash filling to increase the Ash utilization

Signature of the Plant Head

Name: Ashesh Padhy
Designation: Station Director
Date:



TABLE

FACILITY	DESCRIPTION OF FACILITIES
1.0	POWER BLOCK AREA
1.1	TURBINE BUILDING
1.2	CONTROL ROOM, MCC, ELECTRONIC PANEL ROOM, CHEMICAL DOSING ROOM
1.3	BOILER
1.4	ESP
1.5	AHP COMPRESSOR HOUSE & ESP CONTROL ROOM
1.6	SPACE FOR FGD
1.7	CHIMNEY
1.8	COMPRESSOR ROOM,DIESEL GENERATOR AREA.
1.9	MILL REJECT BUNKER
1.10	H_2, CO_2 CYLINDER STORAGE SHED
2.0	ELECTRICAL FACILITIES
2.1	GENERATOR TRANSFORMER
2.2	AUXILIARY TRANSFORMER
2.3	UNIT TRANSFORMERS
2.4	SWITCHYARD
3.0	WATER SYSTEM
3.1	RAW WATER RESERVOIR
3.2	RAW WATER AND FIRE WATER PUMP AREA + ELECTRICAL ROOM
3.3	DM PLANT
3.4	DM PLANT ELECTRICAL/CONTROL ROOM + CHEMICAL LABORATORY
3.5	ACID & ALKALI STORAGE AREA
3.6	D.M. WATER STORAGE TANK & PUMP AREA
3.7	COOLING TOWER
3.8	CW PUMP AREA, MCC AREA AND ELECTRICAL ROOM
3.9	CHLORINATION PLANT FOR CW SYSTEM
3.10	FOUNTAINS
3.11	CLARIFIED WATER STORAGE TANK
3.12	CLARIFIERS
3.13	SLUDGE SUMP
3.14	ELECTRICAL ROOM AND CHEMICAL STORAGE ROOM
3.15	CHLORINATION PLANT FOR WATER PRE TREATMENT SYSTEM
3.16	CW TREATMENT PLANT
3.17	CLARIFIED WATER PUMP AREA
4.0	COAL HANDLING PLANT
4.1	WAGON TIPPLER
4.2	CONTROL ROOM FOR WAGON TIPPLER
4.3	CRUSHER HOUSE
4.4	CRUSHED COAL STOCKPILE
4.5	ELECTRICAL/MCC/CONTROL BLDG. FOR CHP
4.6	STACKER RECLAIMER
4.7	TRANSFER TOWER (TT)
4.8	PENT HOUSE (PH)
4.9	BULLDOZER SHED
4.10	DRIVE HOUSE FOR STACKER RECLAIMER
4.11	EMERGENCY RECLAIM HOPPER
4.12	BV SIDING
5.0	ASH HANDLING PLANT
5.1	FLY ASH SILOS
5.2	AGITATION RETENTION TANKS
5.3	HCSD PUMP HOUSE & CONTROL ROOM
5.4	ASH WATER SUMP & PUMP HOUSE
5.5	SEAL WATER TANK
5.6	ASH DUMP AREA
5.7	SILO UTILITY BUILDING
5.8	RECOVERY WATER SETTLING TANK
5.9	ASH WATER RECOVERY SUMP
5.10	TUBE SETTLER
5.11	NOT USED
5.12	SLUDGE SUMP & PUMP AREA
5.13	ASH SLURRY SUMP & PUMP HOUSE
6.0	FUEL OIL SYSTEM
6.1	FUEL OIL UNLOADING AND PRESSURISING PUMP HOUSE, ELECTRICAL ROOM/ CONTROL ROOM
6.2	FUEL OIL STORAGE TANK AREA
7.0	E. T. P. SYSTEM
7.1	TG AREA OIL DRAIN PIT
7.2	FUEL AREA OIL WATER PIT
7.3	COAL MILL AREA DRAIN OIL PIT
7.4	TRANSFORMER AREA DRAIN OIL PIT
7.5	COMMON OILY WASTE WATER SUMP
7.6	N.PIT OF D.M. PLANT
7.7	BUILDING FLOOR WASH
7.8	ESP AREA & AHP COMP. HOUSE PIT
7.9	ASH SILO DRAIN PIT
7.10	BOILER AREA DRAIN
7.11	TWIN SETTLING POND
7.12	COAL SETTLING POND OVERFLOW SUMP
7.13	BBD QUENCHING POND
7.14	INDUSTRIAL WASTE WATER TREATMENT PLANT/ ELECTRICAL/ CONTROL ROOM
7.15	SEWAGE TREATMENT PLANT
8.0	NON - PLANT BUILDING
8.1	ADMN. BUILDING
8.2	CANTEEN & SERVICE BUILDING
8.3	PERMANENT STORE-1 & 2
8.4	WORKSHOP
8.5	NOT USED
8.6	FIRE - STATION
8.7	GATE COMPLEX
8.8	CAR PARKING AREA
8.9	CYCLE & SCOOTER SHED
8.10a-h	WATCH TOWERS a,b,c,d,e,f,g,h.
8.11	HEALTH CENTER
8.12a,b	MATERIAL GATE NOS. a,b.
8.13	WEIGH BRIDGE
8.14	WEATHER MONITORING STATION SHOWN AS ⊛
8.15	HSD PUMPING STATION

NOTE:-

1. NORTH SIDE UNIT IS IPP AND SOUTH SIDE UNIT IS GCPP

LATITUDE 20°55'31.4" N
LONGITUDE 78°55'43.9" E

PLOT PLAN

VIDARBHA INDUSTRIES POWER LIMITED
2X300 MW COAL BASED POWER PLANT
MIDC BUTIBORI, DIST: NAGPUR, MAHARASHTRA

RELIANCE INFRASTRUCTURE LIMITED
MUMBAI

SOLAR PANEL in Raw Water Reservoir/Service Building/Parking

CONTINUOUS AMBIENT AIR MONITORING SYSTEM

ELECTROSTATIC PRECIPITATOR (ESP) with 99.94% Eff.

CONTINUOUS EMISSION MONITORING SYSTEM

SEWAGE TREATMENT PLANT (STP)

EFFLUENT TREATMENT PLANT (ETP)

SPRAY SYSTEM

Coal Stack Yard Dust Spray System

Road Side Dust Spray System

Ash in Coal Analyser installed

Wagon Initial & Road Side Spray System

Society For All Round Development (SARD)

RELIANCE Power

Vidarbha Industries Power Ltd.

Butibori

Society for All Round Development

New Delhi

CSR Report.

Jan. 2019-June 2019

❖ Christmas Day prize distribution

11 ICDS center in Takalghat for Christmas day Celebration. 110 no of students benefitted.

❖ Republic day celebration

VIPL Celebrated Republic day program in VIPL campus. The program Chief Guest was Mr. Rajendra Kale and National flag was hoisted on the occasion on Republic day.

❖ Cancer awareness program

Reliance organized cancer awareness program for Community people in Takalghat total 70 people are benefited.

❖ Adolescent awareness program

An objective under the CSR VIPL & SARD Jointly Organized Adolescent. Capacity Building Program at Takalghat there were 75 adolescent participated objective of this program was to build capacity of adolescent girls to create awareness about personal sanitation, physical & mental changes,. To provide accurate age appropriate information to school going children between age of 14-19 on adolescence and growing up.

❖ Kabadi Competition

✓ VIPL donated T shirt for kabadi player in Gondwana village kabadi champion ship. Total 9 T-shirt donated.

❖ **Eye check- up camp**

✓ An initiative of CSR health project under.

✓ VIPL organized free eye check up and cataract operation camp. Dr. Mahatme eye bank support for camp. Total 178 patients are benefited.

❖ **SHG training**

SHG training in Sawangi for book keeping and income generation activity. Total 36 members are participated.

❖ **Dattu Chula**

VIPL donate Dattu Chula in Persodi widow women for help smokeless cooking.

❖ Pulse polio Abhiyan

Pulse polio abhiyan total 2108 children's benefitted in VIPL CSR under 14 village.

❖ Sanitary napkin distribution

- ✓ Sanitary napkin distribution total 1600 napkin distribute in Nistane high school takalghat, Adiwasi School Gondwana, PHC takalghat, ZP school ,Ganeshpur.

❖ World Women Day Celebration

- ✓ World women day celebration total 60 SHG member participated at Sawangi Village.
- ✓ Mrs. Wasu gives the lecture for Anemia. Organized various competitions for women. ex. Mehandi. Rangoli, Music Chair.

❖ Chawadi Wachan

- ✓ Chawadi Wachan Conducted at 10 villages.
- ✓ Total 175 students are benefitted.
- ✓ This activity objective is developing the good reading habit.

❖ Career Guidance

Career guidance seminar conducted at Shree Krushan high School Sawangi & Amar high school Takalghat Total 60 students are benefitted.

❖ Eye Camp

Eye camp Conducted at Sawangi village with the help of Mahatme Eye Hospital. Total 103 patients are benefited.

❖ Chawadi Wachan

- ✓ Chawadi Wachan is conducted at 10 villages.
- ✓ Total 175 students are benefitted.
- ✓ This activity objective is develop the good reading habit.

❖ SHG Training

Conducted at Sawangi Total 45 SHG member are participated Book keeping, loan processes, bank linkages subject of training

Adolescent Meeting

- ✓ Conducted at Takalghat & Ganeshpur village
- ✓ Create awareness about personal sanitation,
- ✓ Physical & mental changes.
- ✓ Total 40 girls are benefited

TEST REPORT

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SUMMARY OF AMBIENT AIR QUALITY RESULT- (December-2018 to May-2019)

Location Code	Sample Location	Month	PM_{10}				$PM_{2.5}$				SO_2				NO_x			
			Max	Min	Avg	98% tile	Max	Min	Avg	98% tile	Max	Min	Avg	98% tile	Max	Min	Avg	98% tile
AAQ1	Pipri	Dec-18	56.1	46.3	52	56.1	24.7	16.2	19.5	24.7	9.1	6.8	7.5	9.0	23.8	16.3	20.1	23.8
		Jan-19	56.3	47.3	52	55.9	23.8	16.4	19.8	23.4	8.7	5.7	7.1	8.6	24.6	18.3	21.2	24.4
		Feb-19	52.9	46.2	50.4	52.9	21.6	14.9	17.7	21.2	7.3	5.8	6.6	7.3	21.9	16.2	18.5	21.6
		Mar-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		April-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		May-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AAQ2	Takalghat	Dec-18	61.9	52.7	57.5	61.8	31.8	17.4	23.1	31.3	12.6	6.8	9.5	12.5	28.9	17.2	22.2	28.7
		Jan-19	67.3	54.7	60.2	66.5	32.7	17.3	25.1	32.6	13.9	6.4	9.2	13.7	34.7	18.2	24.8	34.4
		Feb-19	56.2	48.3	53.3	56.2	28.1	18.3	22.3	28	12.9	6.8	9.0	12.7	28.6	16.2	20.3	28.3
		Mar-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		April-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		May-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AAQ3	Mandwa	Dec-18	54.6	47.1	50.6	54.3	23.8	16.4	19.5	23.5	7.9	5.9	6.8	7.8	23.6	17.2	19.7	23.3
		Jan-19	57.2	47.1	51.9	57	23.9	16.2	19.4	23.5	8.6	6.1	7.3	8.5	24.7	17.3	20.5	24.5
		Feb-19	52.7	46.3	49.7	52.7	19.4	16.2	17.5	19.3	6.9	5.2	6.1	6.9	21.7	16.4	18.4	21.7
		Mar-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		April-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		May-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AAQ4	Bid Ganeshpur	Dec-18	54.9	46.1	50.2	54.6	24.7	17.3	20.6	24.5	8.4	6.4	7.2	8.3	23.4	16.9	20.4	23.3
		Jan-19	56.2	47.1	52.1	56.2	24.7	16.4	20.5	24.5	8.3	5.9	7.0	8.3	23.8	16.2	19.7	23.8
		Feb-19	54.6	43.9	49.9	54.3	21.9	14.8	17.9	21.6	7.6	5.2	6.5	7.5	23.8	16.3	18.9	23.5
		Mar-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		April-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		May-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All the above values are $\mu g/m^3$

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Location Code	Sample Location	Month	CO (µg /m³)				O₃(µg /m³)				Hg (µg /m³)		Pb(µg /m³)	
			Min	Max	Avg	98% tile	Min	Max	Avg	98% tile	in PM_{10}	in $PM_{2.5}$	in PM_{10}	in $PM_{2.5}$
AAQ1	Pipri	Dec-18	56	62	59	62	5.7	7.3	6.5	7.3	<0.001	<0.001	0.021	<0.000
		Jan-19	52	61	57	61	6.1	7.4	6.8	7.4	<0.001	<0.001	0.019	<0.000
		Feb-19	47	58	53	58	5.4	6.8	6.1	6.8	<0.001	<0.001	0.016	<0.000
		Mar-19	-	-	-	-	-	-	-	-	-	-	-	-
		April-19	-	-	-	-	-	-	-	-	-	-	-	-
		May-19	-	-	-	-	-	-	-	-	-	-	-	-
AAQ2	Takalghat	Dec-18	64	82	73	82	6.7	9.1	7.9	9.1	<0.001	<0.001	0.028	<0.000
		Jan-19	61	84	73	84	7.3	9.8	8.6	9.8	<0.001	<0.001	0.037	<0.000
		Feb-19	54	73	63.5	72.6	6.1	8.4	7.3	8.4	<0.001	<0.001	0.024	<0.000
		Mar-19	-	-	-	-	-	-	-	-	-	-	-	-
		April-19	-	-	-	-	-	-	-	-	-	-	-	-
		May-19	-	-	-	-	-	-	-	-	-	-	-	-
AAQ3	Mandwa	Dec-18	54	79	67	79	5.6	8.1	6.9	8.1	<0.001	<0.001	0.016	<0.000
		Jan-19	56	73	65	73	6.2	9.1	7.7	9.0	<0.001	<0.001	0.024	<0.000
		Feb-19	52	68	60	68	5.1	8.2	6.7	8.1	<0.001	<0.001	0.019	<0.000
		Mar-19	-	-	-	-	-	-	-	-	-	-	-	-
		April-19	-	-	-	-	-	-	-	-	-	-	-	-
		May-19	-	-	-	-	-	-	-	-	-	-	-	-
AAQ4	Bid Ganeshpur	Dec-18	58	73	66	73	6.1	8.6	7.4	8.6	<0.001	<0.001	0.019	<0.000
		Jan-19	56	72	64	72	5.9	7.3	6.6	7.3	<0.001	<0.001	0.017	<0.000
		Feb-19	48	61	55	61	5.4	6.8	6.1	6.8	<0.001	<0.001	0.016	<0.000
		Mar-19	-	-	-	-	-	-	-	-	-	-	-	-
		April-19	-	-	-	-	-	-	-	-	-	-	-	-
		May-19	-	-	-	-	-	-	-	-	-	-	-	-
CPCB Standards			2000				100 (8 hrs)				----		1.0	

All the above values are µg/m³
(Minimum Detectable limit of the instrument for Hg &Pb are 0.001µg/m3 & 0.0005µg/m3)

Chemist:- [signature]

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Stack Analysis Report from December-2018 to May-2019

Sr. No.	Parameters	Units	Boiler-1		
1	Stack height	m	220		
2	Stack attached to	-	Boiler		
3	Shape of Stack	-	Round		
4	Stack diameter	m	6.0		
5	Date of Sampling	-	December-2018	January-2019	February-2019
6	Flue gas Temperature	°C	121	Shut Down	Shut Down
7	Particulates Matter (PM)	mg /Nm³	42.4		
8	Sulphur Dioxide (SO_2) (At 6% O_2 Correction)	mg /Nm³	1508		
9	Oxide of Nitrogen (NO_x) (At 6% O_2 Correction)	mg /Nm³	422		
10	CO2	%	11.4		
11	CO	ppm	316		
12	Lead (pb)	mg/Nm³	0.0006		
13	Mercury (Hg)	mg/Nm³	0.009		
14	Moisture	%	9.2		

Sr. No.	Parameters	Units	Boiler-1		
1	Stack height	m	220		
2	Stack attached to	-	Boiler		
3	Shape of Stack	-	Round		
4	Stack diameter	m	6.0		
5	Date of Sampling	-	March-2019	April-2019	May-2019
6	Flue gas Temperature	°C	Shut Down	Shut Down	Shut Down
7	Particulates Matter (PM)	mg /Nm³			
8	Sulphur Dioxide (SO_2) (At 6% O_2 Correction)	mg /Nm³			
9	Oxide of Nitrogen (NO_x) (At 6% O_2 Correction)	mg /Nm³			
	CO2	%			
	CO	ppm			
10	Lead (pb)	mg/Nm³			
11	Mercury (Hg)	mg/Nm³			
12	Moisture	%			

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Sr.No.	Parameters	Units	Boiler-2		
1	Stack height	m	220		
2	Stack attached to	-	Boiler		
3	Shape of Stack	-	Round		
4	Stack diameter	m	6.0		
5	Date of Sampling	-	December-2018	January-2019	February-2019
6	Flue gas Temperature	°C	126	132	Shut Down
7	Particulates Matter (PM)	mg /Nm³	41.6	43.2	
8	Sulphur Dioxide (SO2) (At 6% O2 Correction)	mg /Nm³	1370	1710	
9	Oxide of Nitrogen (NOX) (At 6% O2 Correction)	mg /Nm³	516	506	
10	CO2	%	11.7	12.3	
11	CO	ppm	292	304	
12	Lead (pb)	mg/Nm³	0.0009	0.0007	
13	Mercury (Hg)	mg/Nm³	0.007	0.004	
14	Moisture	%	8.6	8.7	

Sr.No.	Parameters	Units	Boiler-2		
1	Stack height	m	220		
2	Stack attached to	-	Boiler		
3	Shape of Stack	-	Round		
4	Stack diameter	m	6.0		
5	Date of Sampling	-	March-2019	April-2019	May-2019
6	Flue gas Temperature	°C	Shut Down	Shut Down	Shut Down
7	Particulates Matter (PM)	mg /Nm³			
8	Sulphur Dioxide (SO2) (At 6% O2 Correction)	mg /Nm³			
9	Oxide of Nitrogen (NOX) (At 6% O2 Correction)	mg /Nm³			
10	CO2	%			
11	CO	ppm			
12	Lead (pb)	mg/Nm³			
13	Mercury (Hg)	mg/Nm³			
14	Moisture	%			

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SURFACE WATER QUALITY FROM DECEMBER-2018TO MAY-2019

Sr. No.	Parameter	Units	(IS10500)	SW1(Krisna-Nala near Takalghat)					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	PH	-	6.5 -8.5	8.03	7.82				
2	Temperature	^{o}C	$	25	25				
3	DO	mg/L	$	6.4	6.7				
4	Conductivity	µs/cm	$	812	719				
5	TDS	mg/L	500(2000)	455	793				
6	TSS	mg/L g/L	$	28	32				
7	BOD	mg/L	3	9.2	7.3				
8	COD	mg/L	$	26.4	21.6				
9	Total Hardness as $CaCO_3$	mg/L	200(600)	240.47	250.19	NA	NA	NA	NA
10	Total Alkalinity	mg/L	200(600)	174.29	181.68				
11	Calcium as Ca	mg/L	75(200)	71.68	76.19				
12	Magnesium as Mg	mg/L	30(100)	14.92	14.54				
13	Chlorides as Cl	mg/L	250(1000)	43.57	46.17				
14	Sulphates as SO_4	mg/L	200(400)	21.54	19.21				
15	Nitrates as NO_3	mg/L	45	8.7	9.1				
16	Phospates as PO_4	mg/L	--	0.18	0.16				
17	Sodium as Na	mg/L	$	19.17	19.17				
18	Potassium as K	mg/L	$	0.76	0.79				
19	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001				
20	Oil & Grease	mg/L	<0.01	< 4	< 4				
21	Silica	-	$	11.67	11.64				
22	E.Coli	Per 100ml	Absent	Present	Present				
23	Total Collforms	MPN/100 ml	Absent	Present	Present				

----------END----------

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SURFACE WATER QUALITY FROM DECEMBER-2018 TO MAY-2019

Sr. No.	Parameter	Units	(IS10500)	SW2 –PipriNala near (Pipri)					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	PH	-	6.5 -8.5	7.92	8.03	NA	NA	NA	NA
2	Temperature	°C	$	25	25				
3	DO	mg/L	$	6.1	6.3				
4	Conductivity	µs/cm	$	739	816				
5	TDS	mg/L	500(2000)	414	468				
6	TSS	mg/L g/L	$	24	38				
7	BOD	mg/L	3	8.4	6.1				
8	COD	mg/L	$	24.7	18.3				
9	Total Hardness as $CaCO_3$	mg/L	200(600)	224.0	220.55				
10	Total Alkalinity	mg/L	200(600)	181.68	164.92				
11	Calcium as Ca	mg/L	75(200)	67.29	68.21				
12	Magnesium as Mg	mg/L	30(100)	13.58	12.18				
13	Chlorides as Cl	mg/L	250(1000)	32.19	28.19				
1	Sulphates as SO_4	mg/L	200(400)	16.59	17.28				
15	Nitrates as $N0_3$	mg/L	45	7.9	11.4				
16	Phospates as $P0_4$	mg/L	--	0.17	0.19				
17	Sodium as Na	mg/L	$	18.42	21.52				
18	Potassium as K	mg/L	$	0.81	0.81				
19	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001				
20	Oil & Grease	mg/L	<0.01	< 4	< 4				
21	Silica	-	$	9.72	8.27				
22	E.Coli	Per 100ml	Absent	Present	Present				
23	Total Coliforms	MPN/100 ml	Absent	Present	Present				

----------END----------

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GROUND WATER QUALITY FROM DECEMBER-2018 TO MAY-2019

Sr.No.	Parameter	Units	(IS10500)	GW-1 (Takalghat)					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	pH	-	6.5 -8.5	6.82	6.73	NA	NA	NA	NA
2	Turbidity	NTU	1(5)	0.6	0.7				
3	TDS	mg/l	500 (2000)	781	781				
4	Total Hardness as $CaCO_3$	mg/l	200(600)	284.45	267.54				
5	Total Alkalinity	mg/l	200(600)	162	151				
6	Aluminium (as Al)	mg/l	0.03(0.2)	< 0.01	< 0.01				
7	Calcium (as Ca)	mg/l	75(200)	74.52	71.68				
8	Magnesium (as Mg)	mg/l	30(100)	23.9	21.51				
9	Chlorides (as Cl)	mg/l	250(1000)	38.17	28.19				
10	Sulphates (as SO_4)	mg/l	200(400)	18.21	17.24				
11	Fluoride (as F)	mg/l	1.0(1.5)	0.37	0.27				
12	Free Residual Chlorine	mg/l	0.2(1)	< 0.1	< 0.1				
13	Iron (as Fe)	mg/l	0.3	0.21	0.18				
14	Nitrates as NO_3	mg/L	45	9.76	4.17				
15	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001				
16	E.Coli	Per 100ml	Absent	Absent	Absent				
17	Total Coliforms	CFU/ 100 ml	Absent	Absent	Absent				

Sr. No.	Parameter	Units	(IS10500)	GW-2 (Mandwa)					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	pH	-	6.5 -8.5	7.28	6.92	NA	NA	NA	NA
2	Turbidity	NTU	1(5)	0.8	0.6				
3	TDS	mg/l	500 (2000)	816	804				
4	Total Hardness as $CaCO_3$	mg/l	200(600)	268.73	251.62				
5	Total Alkalinity	mg/l	200(600)	159	163				
6	Aluminium (as Al)	mg/l	0.03(0.2)	< 0.01	< 0.01				
7	Calcium (as Ca)	mg/l	75(200)	71.68	68.19				
8	Magnesium (as Mg)	mg/l	30(100)	21.8	19.76				
9	Chlorides (as Cl)	mg/l	250(1000)	27.43	31.68				
10	Sulphates (as SO_4)	mg/l	200(400)	19.64	21.54				
11	Fluoride (as F)	mg/l	1.0(1.5)	0.41	0.39				
12	Free Residual Chlorine	mg/l	0.2(1)	< 0.1	< 0.1				
13	Iron (as Fe)	mg/l	0.3	0.27	0.21				
14	Nitrates as NO_3	mg/L	45	11.38	3.94				
15	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001				
16	E.Coli	Per 100ml	Absent	Absent	Absent				
17	Total Coliforms	CFU/ 100 ml	Absent	Absent	Absent				

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Sr.No.	Parameter	Units	(IS10500)	GW-3 (Bid-Ganeshpur)					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	pH	-	6.5 -8.5	6.94	7.14	NA	NA	NA	NA
2	Turbidity	NTU	1(5)	0.4	0.7				
3	TDS	mg/l	500 (2000)	721	791				
4	Total Hardness as $CaCO_3$	mg/l	200(600)	253.74	279.76				
5	Total Alkalinity	mg/l	200(600)	147	159				
6	Aluminium (as Al)	mg/l	0.03(0.2)	< 0.01	< 0.01				
7	Calcium (as Ca)	mg/l	75(200)	69.3	73.17				
8	Magnesium (as Mg)	mg/l	30(100)	19.6	23.58				
9	Chlorides (as Cl)	mg/l	250(1000)	42.91	27.16				
10	Sulphates (as SO_4)	mg/l	200(400)	18.17	18.76				
11	Fluoride (as F)	mg/l	1.0(1.5)	0.32	0.28				
12	Free Residual Chlorine	mg/l	0.2(1)	< 0.1	< 0.1				
13	Iron (as Fe)	mg/l	0.3	0.18	0.24				
14	Nitrates as NO_3	mg/L	45	12.57	3.71				
15	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001				
16	E.Coli	Per 100ml	Absent	Absent	Absent				
17	Total Coliforms	CFU/ 100 ml	Absent	Absent	Absent				

Sr. No.	Parameter	Units	(IS10500)	GW-4 (Pipri)					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	pH	-	6.5 -8.5	7.16	6.84	-NA-	-NA-	-NA-	-NA-
2	Turbidity	NTU	1(5)	0.6	0.4				
3	TDS	mg/l	500 (2000)	759	753				
4	Total Hardness as $CaCO_3$	mg/l	200(600)	279.61	237.74				
5	Total Alkalinity	mg/l	200(600)	138	147				
6	Aluminium (as Al)	mg/l	0.03(0.2)	< 0.01	< 0.01				
7	Calcium (as Ca)	mg/l	75(200)	71.27	64.28				
8	Magnesium (as Mg)	mg/l	30(100)	24.7	18.76				
9	Chlorides (as Cl)	mg/l	250(1000)	34.52	24.73				
10	Sulphates (as SO_4)	mg/l	200(400)	21.6	13.96				
11	Fluoride (as F)	mg/l	1.0(1.5)	42	0.17				
12	Free Residual Chlorine	mg/l	0.2(1)	< 0.1	< 0.1				
13	Iron (as Fe)	mg/l	0.3	0.23	0.19				
14	Nitrates as NO_3	mg/L	45	8.38	7.03				
15	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001				
16	E.Coli	Per 100ml	Absent	Absent	Absent				
17	Total Coliforms	CFU/ 100 ml	Absent	Absent	Absent				

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Sr.No.	Parameter	Units	(IS10500)	GW-5 (In plant Borewell-2)					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	pH	-	6.5 -8.5	7.87	7.92	7.84	7.87	7.76	8.07
2	Turbidity	NTU	1(5)	0.18	0.2	0.4	0.6	0.7	19
3	TDS	mg/l	500 (2000)	816	782	861	1082	1127	1098
4	Total Hardness as $CaCO_3$	mg/l	200(600)	433	374.48	404.48	377.67	394.66	431.98
5	Total Alkalinity	mg/l	200(600)	147	146	142	162	149	157
6	Aluminium (as Al)	mg/l	0.03(0.2)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
7	Calcium (as Ca)	mg/l	75(200)	121.52	104.52	116.57	104.76	117.24	126.19
8	Magnesium (as Mg)	mg/l	30(100)	31.46	27.56	27.53	28.19	24.73	28.37
9	Chlorides (as Cl)	mg/l	250(1000)	51.62	56.19	72.91	67.28	81.6	72.9
10	Sulphates (as SO_4)	mg/l	200(400)	34.76	39.17	32.68	52.94	47.3	64.2
11	Fluoride (as F)	mg/l	1.0(1.5)	0.43	0.38	0.37	0.37	0.39	0.41
12	Free Residual Chlorine	mg/l	0.2(1)	<0.1	<0.1	< 0.1	< 0.1	< 0.1	< 0.1
13	Iron (as Fe)	mg/l	0.3	0.32	0.21	0.16	0.21	0.21	0.27
14	Nitrates as NO_3	mg/L	45	13.51	4.76	6.18	5.27	<2	<2
15	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
16	E.Coli	Per 100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent
17	Total Coliforms	CFU/ 100 ml	Absent	Absent	Absent	Present	Present	1600	1600

Sr.No.	Parameter	Units	(IS10500)	GW-6 (In plant Borewell-3)					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	pH	-	6.5 -8.5	8.03	8.16	8.06	8.16	7.82	8.04
2	Turbidity	NTU	1(5)	6.2	0.3	0.2	0.8	0.6	0.9
3	TDS	mg/l	500 (2000)	792	801	839	839	1264	1182
4	Total Hardness as $CaCO_3$	mg/l	200(600)	446.94	410.76	404	410	379.16	433.05
5	Total Alkalinity	mg/l	200(600)	152	153	157	152.6	147.29	138.52
6	Aluminium (as Al)	mg/l	0.03(0.2)	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
7	Calcium (as Ca)	mg/l	75(200)	124.96	112.59	100.76	112.58	104.78	121.59
8	Magnesium (as Mg)	mg/l	30(100)	32.76	31.48	31.58	31.29	28.54	31.43
9	Chlorides (as Cl)	mg/l	250(1000)	62.81	58.17	76.19	61.76	94.76	82.59
10	Sulphates (as SO_4)	mg/l	200(400)	41.6	42.58	46.17	48.29	73.1	67.2
11	Fluoride (as F)	mg/l	1.0(1.5)	0.39	0.42	0.29	0.26	0.28	0.34
12	Free Residual Chlorine	mg/l	0.2(1)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
13	Iron (as Fe)	mg/l	0.3	0.29	0.19	0.17	0.19	0.21	0.17
14	Nitrates as NO_3	mg/L	45	12.68	7.14	8.16	4.76	21.82	18.24
15	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
16	E.Coli	Per 100ml	Absent	>16	>16	Absent	Absent	Absent	Absent
17	Total Coliforms	CFU/ 100 ml	Absent	>16	>16	Present	Present	Present	Present

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DRINKING WATER QUALITY FROM DECEMBER-2018 TO MAY-2019

Sr. No.	Parameter	Units	(IS10500)	DRINKING WATER					
				Dec-18	Jan-19	Feb-19	March-19	April-19	May-19
1	pH	-	6.5 -8.5	7.03	6.84	NA	6.93	NA	6.87
2	Turbidity	NTU	1(5)	0.4	0.3		0.6		0.3
3	TDS	mg/l	500 (2000)	149	151		167		173
4	Total Hardness as $CaCO_3$	mg/l	200(600)	108.03	79.41		105.12		92.97
5	Total Alkalinity	mg/l	200(600)	52.76	38.51		41.62		46.52
6	Aluminium (as Al)	mg/l	0.03(0.2)	< 0.01	< 0.01		< 0.01		< 0.01
7	Calcium (as Ca)	mg/l	75(200)	34.72	24.93		31.73		27.43
8	Magnesium (as Mg)	mg/l	30(100)	5.17	4.16		6.28		5.94
9	Chlorides (as Cl)	mg/l	250 (1000)	18.49	16.52		18.43		23.58
10	Sulphates (as SO_4)	mg/l	200(400)	21.57	18.24		17.59		14.37
11	Fluoride (as F)	mg/l	1.0(1.5)	0.16	0.14		0.16		0.19
12	Free Residual Chlorine	mg/l	0.2(1)	< 0.1	< 0.1		< 0.1		< 0.1
13	Iron (as Fe)	mg/l	0.3	0.09	0.06		0.08		0.09
14	Nitrates as NO_3	mg/L	45 (NR)	< 2	< 2		< 2		< 2
15	Phenolic Compounds	mg/L	0.001 (0.002)	< 0.001	< 0.001		< 0.001		< 0.001
16	E.Coli	Per 100ml	Absent	Absent	Absent		Absent		Absent
17	Total Coliforms	CFU/ 100ml	Absent	Absent	Absent		Absent		Absent

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WASTE WATER QUALITY DECEMBER-2017 TO MAY-2018

Sample Category : Unit-1- Boiler BlowDown Water (WW-1)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			Dec-18	Jan-19	Feb-19	
1.	Suspended solids (SS)	mg / l	32	Plant in Shut down Condition	Plant in Shut down Condition	100
2.	Oil & Grease	mg / l	< 4			10
3.	Iron (as Fe)	mg / l	0.09			1.0
4.	Copper (as Cu)	mg / l	0.03			1.0

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			March-19	April-19	May-19	
1.	Suspended solids (SS)	mg / l	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	100
2.	Oil & Grease	mg / l				10
3.	Iron (as Fe)	mg / l				1.0
4.	Copper (as Cu)	mg / l				1.0

Sample Category : Unit-1- Cooling Tower Blow Down water(WW-2)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			Dec-18	Jan-19	Feb-19	
1.	Free Available chlorine	mg / l	0.2	Plant in Shut down Condition	Plant in Shut down Condition	0.5
2.	Phosphate (as PO4)	mg / l	1.1			5.0
3.	Total Chromium as (Cr)	mg / l	BDL			0.2
4.	Zinc (as Zn)	mg / l	0.39			1.0

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			March-19	April-19	May-19	
1.	Free Available chlorine	mg /l	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	0.5
2.	Phosphate (as PO4)	mg /l				5.0
3.	Total Chromium as (Cr)	mg /l				0.2
4.	Zinc (as Zn)	mg /l				1.0

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Sample Category : Unit-1-Condensor Cooling Water (WW-3)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			Dec-18	Jan-19	Feb-19	
1.	pH	-	8.37 at 25°C	Plant in Shut down Condition	Plant in Shut down Condition	6.5 to 8.5
2.	Temperature	°C	25			Not to exceed 5°C Higher than the intake water Temp (27°C)
3.	Free available chlorine	mg /l	< 0.1			0.5

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			March-19	April-19	May-19	
1.	pH	-	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	6.5 to 8.5
2.	Temperature	°C				Not to exceed 5°C Higher than the intake water Temp (27°C)
3.	Free available chlorine	mg / l				0.5

Sample Category : Unit-2- Boiler BlowDown Water(WW-4)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			Dec-18	Jan-19	Feb-19	
1.	Suspended solids (SS)	mg / l	28	23	Plant in Shut down Condition	100
2.	Oil & Grease	mg / l	< 4	< 4		10
3.	Iron (as Fe)	mg / l	0.07	0.09		1.0
4.	Copper (as Cu)	mg / l	< 0.03	< 0.03		1.0

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			March-19	April-19	May-19	
1.	Suspended solids (SS)	mg / l	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	100
2.	Oil & Grease	mg / l				10
3.	Iron (as Fe)	mg / l				1.0
4.	Copper (as Cu)	mg / l				1.0

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Sample Category : Unit-2- Cooling Tower Blow Down water (WW-5)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			Dec-18	Jan-19	Feb-19	
1.	Free Available chlorine	mg / l	0.27	0.32	Plant in Shut down Condition	0.5
2.	Phosphate (as PO4)	mg / l	1.18	1.21		5.0
3.	Total Chromium as (Cr)	mg / l	BDL	BDL		0.2
4.	Zinc (as Zn)	mg / l	0.22	0.18		1.0

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			March-19	April-19	May-19	
1.	Free Available chlorine	mg / l	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	0.5
2.	Phosphate (as PO4)	mg / l				5.0
3.	Total Chromium as (Cr)	mg / l				0.2
4.	Zinc (as Zn)	mg / l				1.0

Sample Category: Unit-2-Condensor Cooling Water (WW-6)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			Dec-18	Jan-19	Feb-19	
1.	pH	-	7.89 at 25°C	7.96 at 25°C	Plant in Shut down Condition	6.5 to 8.5
2.	Temperature	°C	25	25		Not to exceed 5°C Higher than the intake water Temp (27°C)
3.	Free available chlorine	mg /l	< 0.1	< 0.1		0.5

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			March-19	April-19	May-19	
1.	pH	-	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	6.5 to 8.5
2.	Temperature	°C				Not to exceed 5°C Higher than the intake water Temp (27°C)
3.	Free available chlorine	mg /l				0.5

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Sample Category: DM plant effluent (WW-7)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			Dec-18	Jan-19	Feb-19	
1.	pH	mg / l	8.16 at 25°C	7.93 at 25°C	Plant in Shut down Condition	5.5 to 9.0
2.	Chemical oxygen demand (COD)	mg / l	32.68	42.27		250
3.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg / l	11.24	13.81		30
4.	Total suspended solids (TSS)	mg / l	26	32		100
5.	Total dissolved solids (TDS)	mg / l	1382	1476		2100
6.	Oil & Grease	mg / l	< 4	< 4		10

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits (IS:2490) As per MPCB consent
			March-19	April-19	May-19	
1.	pH	mg / l	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	5.5 to 9.0
2.	Chemical oxygen demand (COD)	mg / l				250
3.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg / l				30
4.	Total suspended solids (TSS)	mg / l				100
5.	Total dissolved solids (TDS)	mg / l				2100
6.	Oil & Grease	mg / l				10

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Sample Category : Bottom ash Dyke(WW-8)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits As per MPCB consent
			Dec-18	Jan-19	Feb-19	
1.	pH	-	8.29 at 25°C	8.17 at 25°C	Plant in Shut down Condition	6.5 to 8.5
2.	Suspended solids (SS)	mg /l	< 10	< 10		100
3.	Oil & Grease	mg /l	< 4	< 4		10

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits As per MPCB consent
			March-19	April-19	May-19	
1.	pH	-	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	6.5 to 8.5
2.	Suspended solids (SS)	mg / l				100
3.	Oil & Grease	mg / l				10

SampleCategory : Bottom Ash Slurry(WW-9)

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits As per EPA
			Dec-18	Jan-19	Feb-19	
1.	pH	--	7.93 at 25°C	7.82 at 25°C	Plant in Shut down Condition	--
2.	Total Arsenic (as As)	mg / l	<0.001	<0.001		0.2
3.	Lead (as Pb)	mg / l	< 0.01	< 0.01		--
4.	Mercury (as Hg)	mg / l	< 0.0005	< 0.0005		--
5.	Cadmium (as Cd)	mg / l	<0.008	<0.008		--
6.	Chromium (as Cr)$^{+6}$	mg / l	< 0.03	< 0.03		--
7.	Copper (as Cu)	mg / l	< 0.03	< 0.03		--
8.	Zinc (as Zn)	mg / l	1.24	1.32		--

Sr. No.	Test Parameter	Measurement Unit	Test Result			Limits As per EPA
			March-19	April-19	May-19	
1.	pH	--	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	--
2.	Total Arsenic (as As)	mg / l				0.2
3.	Lead (as Pb)	mg / l				--
4.	Mercury (as Hg)	mg / l				--
5.	Cadmium (as Cd)	mg / l				--
6.	Chromium (as Cr)$^{+6}$	mg / l				--
7.	Copper (as Cu)	mg / l				--
8.	Zinc (as Zn)	mg / l				--

(Contd.....)

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(Contd.....)

Sample Category : ETP OUTLET (WW-10)

Sr. No.	Test Parameter	Measurement Unit	Test Result			MPCB Standards
			Dec-18	Jan-19	Feb-19	
1.	pH	-	8.10 at 25°C	7.81 at 25°C	7.44 at 25°C	5.5 to 9.0
2	Total suspended solids (TSS)	mg / l	<10	8	10	100
3.	Chemical oxygen demand (COD)	mg / l	18.3	25.2	< 4	250
4.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg / l	3.24	3.7	< 2	30
5.	Oil & Grease	mg / l	< 4	< 4	< 4	10
6.	Total dissolved solids (TDS)	mg / l	1836	1492	1726	2100

Sr. No.	Test Parameter	Measurement Unit	Test Result			MPCB Standards
			March-19	April-19	May-19	
1.	pH	-	Plant in Shut down Condition	Plant in Shut down Condition	Plant in Shut down Condition	5.5 to 9.0
2.	Total suspended solids (TSS)	mg / l				100
3.	Chemical oxygen demand (COD)	mg / l				250
4.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg / l				30
5.	Oil & Grease	mg / l				10
6.	Total dissolved solids (TDS)	mg / l				2100

SampleCategory : STP OUTLET (WW-11)

Sr. No.	Test Parameter	Measurement Unit	Test Method	Test Result			LimitsAs per MPCBconsent
				Dec-18	Jan-19	Feb-19	
1.	pH	-	IS-3025 (Part 11)	7.91 at 25°C	7.64 at 25°C	7.80 at 25°C	5.5 to 9.0
2.	Total suspended solids (TSS)	mg / l	IS-3025 (Part 17)	<10	10	12	50
3.	Chemical oxygen demand (COD)	mg / l	IS-3025 (Part 58)	26.64	16.59	11.64	100
4.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg / l	IS-3025 (Part 44)	8.64	5.82	3.66	30

Sr. No.	Test Parameter	Measurement Unit	Test Method	Test Result			Limits As per MPCB consent
				March-19	April-19	May-19	
1.	pH	-	IS-3025 (Part 11)	7.88 at 25°C	7.80 at 25°C	7.36 at 25°C	5.5 to 9.0
2.	Total suspended solids (TSS)	mg / l	IS-3025 (Part 17)	10	12	13	50
3.	Chemical oxygen demand (COD)	mg / l	IS-3025 (Part 58)	23.52	21.59	19.8	100
4.	Biochemical oxygen demand (BOD at 27°C for 3 days)	mg / l	IS-3025 (Part 44)	6.26	6.82	5.81	30

----------END----------

Chemist:-

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Monthly Noise Level Monitoring

Location	Location type	Location Code	Duration	December-18			January-2019			February-2019		
				L_{eq} dB(A)	L_{min} dB(A)	L_{max} dB(A)	L_{eq} dB(A)	L_{min} dB(A)	L_{max} dB(A)	L_{eq} dB(A)	L_{min} dB(A)	L_{max} dB(A)
Inside the plant	TG-1	NL-1	Day Time	88	84	91	Shut Down Condition			Plant In Shut Down Condition		
			Night Time	80	76	84						
	TG-2	NL-2	Day Time	87	81	92	79	76	81			
			Night Time	80	76	84	70	67	73			
	FD FAN-I	NL-3	Day Time	90	86	93	Shut Down Condition					
			Night Time	71	64	78						
	FD FAN-II	NL-4	Day Time	88	82	94	79	73	84			
			Night Time	80	77	82	67	63	71			
	Compressor Room of AHP I	NL-5	Day Time	79	71	87	Shut Down Condition					
			Night Time	71	64	78						
	Compressor Room of AHP II	NL-6	Day Time	80	76	84	73	69	76			
			Night Time	77	71	82	67	61	72			
	Main Compressor RoomNr.TG	NL-7	Day Time	69	64	73	89	84	93			
			Night Time	65	58	71	82	76	87			
	C.W.Pump House-1	NL-8	Day Time	69	62	76	Shut Down Condition					
			Night Time	64	57	71						
	C.W.Pump House-2	NL-9	Day Time	72	64	79	72	68	76			
			Night Time	66	58	73	61	57	64			
	Main Gate	NL-10	Day Time	67	62	71	66	58	73			
			Night Time	61	57	64	62	54	69			

Quarterly Noise Level

Sr. No.	Location	Location Code	Duration	January-2019		
				L_{eq} [dB(A)]	L_{min} [dB(A)]	L_{max} [dB(A)]
1.	Pipri	N-1	Day Time	51.6	48.3	54.9
			Night Time	42.7	38.1	47.2
2.	Takalghat	N-2	Day Time	55.5	51.6	59.3
			Night Time	48.5	42.8	54.1
3.	Mandwa	N-3	Day Time	49.4	46.1	52.7
			Night Time	41.6	36.9	46.2
4.	Bid Ganeshpur	N-4	Day Time	50.0	47.2	52.8
			Night Time	42.7	39.3	46.1

----------END----------

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Monthly Noise Level Monitoring

Location	Location type	Location Code	Duration	March-2019			April-2019			May-2019		
				L_{eq} dB(A)	L_{min} dB(A)	L_{max} dB(A)	L_{eq} dB(A)	L_{min} dB(A)	L_{max} dB(A)	L_{eq} dB(A)	L_{min} dB(A)	L_{max} dB(A)
Inside the plant	TG-1	NL-1	Day Time	Plant in Shut Down Condition			Plant in Shut Down Condition			Plant in Shut Down Condition		
			Night Time									
	TG-2	NL-2	Day Time									
			Night Time									
	FD FAN-I	NL-3	Day Time									
			Night Time									
	FD FAN-II	NL-4	Day Time									
			Night Time									
	Compressor Room of AHP I	NL-5	Day Time									
			Night Time									
	Compressor Room of AHP II	NL-6	Day Time									
			Night Time									
	Main Compressor RoomNr.TG	NL-7	Day Time									
			Night Time									
	C.W.Pump House-1	NL-8	Day Time									
			Night Time									
	C.W.Pump House-2	NL-9	Day Time									
			Night Time									
	Main Gate	NL-10	Day Time									
			Night Time									

Quarterly Noise Level

Sr. No.	Location	Location Code	Duration	April-2018		
				L_{eq} [dB(A)]	L_{min} [dB(A)]	L_{max} [dB(A)]
1.	Pipri	N-1	Day Time	49.5	46.3	52.7
			Night Time	44.9	41.6	48.1
2.	Takalghat	N-2	Day Time	51.2	48.1	54.3
			Night Time	42.1	37.9	46.2
3.	Mandwa	N-3	Day Time	47.3	42.7	51.9
			Night Time	41.0	38.4	43.6
4.	Bid Ganeshpur	N-4	Day Time	47.2	41.6	52.7
			Night Time	41.7	37.1	46.3

----------END----------

Chemist:-

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COAL ANALYSIS

Sr. No.	Test Parameter	Measurement Unit	Test Method	Test Result		
				Dec-18	Feb-19	April-19
Proximate Analysis						
1	Inherent Moisture	g/100g	IS 1350 (Part I)	14.56	Plant in Shut Down Condition	Plant in Shut Down Condition
2	Total ash	g/100g	IS 1350 (Part I)	30.24		
3	Volatile matter	g/100g	IS 1350 (Part I)	24.55		
4	Fixed carbon	g/100g	IS 1350 (Part I)	30.65		
5	Gross calorific value (GCV)	Kcal/Kg	IS 1350 (Part II)	4101		
6	Sulphur (as S)	g/100g	IS 1350 (Part III)	0.42	-	-

All results are reported on air dried basis except Total Moisture.
g/100g' is equivalent to '%w/w'.

----------END----------

Chemist:- S Bhuf

Authorized Signatory

Borewell Data (M) Pizometer Water level			
Sr No	Month	Borewell (Down Stream)	Borewell (Up-stream)
1	Jan-19	26.2	28.8
2	Feb-19	27.2	29.2
3	Mar-19	28.4	29.0
4	Apr-19	28.6	29.3
5	May-19	31.5	30.0
6	Jun-19	32.5	31.4

RELIANCE

VIPL

DISASTER MANAGEMENT PLAN

Prepared by

SAFETY DEPARTMENT
VIDARBHA INDUSTRIES POWER LIMITED
PLOT NO. D -3, MIDC, BUTIBORI
NAGPUR - 441122

FOREWORD

VIPL is committed to creating a safe and healthy work environment. This commitment is explicitly stated in its Health and Safety policy, and is also reflected clearly in its up to date Disaster Management Plan, that is on par with the "Best Practices" of the global power industry. VIPL Management has gone into minute details to factor in all those hazards that can trigger a major disaster, and has accordingly drawn up this Disaster Management Plan, incorporating elements relating to handling internal as well as external emergencies.

The document is prepared keeping in view and to conform to the requirements of the provisions of the Factories Act 1948 under section 41 B(4) and guidelines issued by the Ministry of Environment and Forests, Government of India, and Manufacture, Import and Storage of Hazardous Chemicals Rules 2000 Schedule II under Environment Protection Act 1986 .This manual discusses all possible kinds of disasters, and elaborately details out procedures and processes, keeping in view the statutory requirements, site conditions and local operational requirements.

The emergency response priorities as drawn up in this plan are:

1. Safety of the all stake holders inside the plant and the public.
2. Environmental protection.
3. Asset protection.
4. Restoration of essential service, as soon as possible.
5. Restoration of operations, as soon as possible

The success of any Disaster Management Programme depends on how well the employees and other related stake holders are trained, to handle the emergencies. Accordingly, training through simulated mock drills has been incorporated in the Disaster Management Plan. It is expected that ensuring awareness of the contents of the manual, as well as familiarization of the process and procedures to be followed in the event of an emergency, same

shall be achieved through the process of periodical simulated mock drills, and table top drills.

Furthermore, VIPL Management has put in place appropriately designed organizational structures, plans, and resources in place, for ensuring means of optimal co-operation with service providers, emergency responders and other key stakeholders, in the event of an emergency.

It is a commitment from the VIPL Management that, the emergency preparedness measures that have been incorporated into the Disaster Management Plan shall ensure a timely and appropriate response, should any emergency occur, and that this plan shall be followed in true letter and spirit by all the stake holders, by them adhering to the their assigned responsibilities, to tackle any disaster effectively.

Ashesh Padhy
Station Director

CONTENTS

REPORT OF MOCK DRILL CONDUCTED AT FOPH AREA

Senerio : Confined Vapour Cloud Explosion at HFO Tank No -2
Cause of Fire : Due to Spontaneouse Combustion
Venue : HFO Tank No -2 at FOPH
Date : 05.07.2018
Time : 16:00 Hrs

ACTION FLOW OF MOCK DRILL

S. N	Person/Agency responsible	Information Time (HRS)	Response Time (HRS)	Time Taken	Description of actions of the responsible persons.
1	Operator	16:00:03	16:00:11	8 Sec	Informed to Main Plant CCR Shift Incharge about the Fire
2.	Shift Incharge CCR	16:00:11	16:03:03	2m 52s	Rushed to the incident site after giving informaton to Fire Station, Amubulance and arranged for Infromation to other Key persons about the incident. After Scen Size up , as the situation was leading to Major Emeregency, activated the Major Emergency Control Procedures as per DMP in consultatation with Head – Operation and taking approval from CIC.
3	Fire Vehicle & Crew	16:01:00	16:03:49	2m 49s	Informed to Ambulance and Security and rushed to the site by fire tender along with all necessary equipment and involved in Fire Fighting, Search & Rescue and Casulty Handling Activities.
4	Head Safety & Safety Team	16:01:05	16:02:10	1m 05s	Reached site arranged for barricating ,cleared incident area and make space available for fire fighting vehicles and ambulance, and involved in Fire fighting , Search & rescue , Casualty handling activities and monitoed the Fire fighting and Safety teams responsibilities in emergency operations.
5	Ambulance & Medical Team	16:01:15	16:03:50	2m 35s	Ambulance with Male nurse reached incident site
6	Security Team	16:01:15	16:03:35	2m 20s	Reached Site, involved in cordoning of the area, Access Control, Traffic Control, Search and rescue operations.
7	Manager Fire and Fire Team	16:01:10	16:02:56	1m 46s	Reached the site and took charge of Fire Fighting and rescue,Casualty handling activities and monitored the Fire fighting Activities
8	Head - Operation	16:01:22	16:05:18	3m 56s	Reached the site and involved in emergency handling activities with his team
10	Electrical Team	16:03:04	16:06:45	3m 41s	Mr. S.Saraf reached Incident Site and involved in the Electrical Isolation Activities.
11	MFR Team	16:02:47	16:05:28	2m 41s	Mr. Manohar reached incident site.

12	Head - Electrical	16:03:04	16:07:53	4m 49s	Mr. D Bhoyar reached site and involved in emegency handling activities.
13	Head – Mech /WIC	16:01:03	16:03:49	2m 46s	Reached the site and involved in emergency handling activities with his team
14	Head- C&I	16:03:13	16:08:15	5m 2s	Reached the incident site and involved in emergency handling activities with his team.
15	Head HR	16:03:25	16:10:19	6m 54s	After Commuciating to Maya Hospital and MIDC Fire Tender for rescue operation, reached the site and assited in Evacuation of nearby effected area personnel and Head Count.
16	Maya Hospital Ambulance	16:03:10	16:25:05	21m 55s	Reached the incident site with doctor and 4 Nurses(2 - Male & 2 – Female)
17	MIDC Fire Tender	16:04:49	16:16:11	11m 22s	Reached the incident site with Fire Fighting Crew.
18	Station DirectorCIC	16:01:18	16:03:56	2m 38s	Reached the incident site , took overall charge and reviewed all the emergency operations and responses.
19	Rescue of Injured Person-1	16:00:03	16:22:23	22m 20s	Injured person send to First Aid Center .
20	Rescue of Injured Person-2	16:00:03	16:32:22	32m 19s	Injured person send to First Aid Center
21	Fire Under Control	16:00:03	16:35:10	35m 7s	Manager Fire informed to CIC that the fire is under control.
22	All clear	16:37:00	16:40:00	3m	After cessation of emergency, in consultation with the IC, CIC called for "ALL CLEAR" and instructed to IC to blow the all Clear Siren. Before leaving the site, he reviewed the deficiencies, all the operations & responses of various teams of DMP and suggested for improvements .

SUMMARY OF THE OBSERVATIONS

Positive Points:

1) The response of Fire, Security, Ambulance and Safety Team meets the initial required standard.
2) The area was timely barricaded.
3) Parking of Fire tender was meeting required guidelines like up wind, parking stoppers
4) Electrical Installations are well protected like water/foam spray.
5) Assembly Point

Areas of Concern:

1. **Rescue operation of injured persons took more time.**
   Fire/Rescue team took more time for the rescue of injured persons. Operation should be completed within shortest possible time by more training of fire and rescue team and by adopting different ways such as rescue of person manually/by staircase.
   Responsibility: Manager - Fire

2. **Rescue Operation handled by Fire & Rescue Team without using DA Set.**
   During any Fire fighting operation Fire/Rescue team must use DA set
   Responsibility: Manager – Fire.

3. **MFR Team not reached at site.**
   MFR Team should check/access the criticality of injured persons.
   Responsibility: MFR Team

4. **Lack of Communication/Coordination observed at Main Gate during entry and movement of the outside rescue team in the plant.**
   Escort team should accomply with outside rescue team for guiding them to timely reach at site.
   Responsibility: Head - Security

5. **Lack of First Aid Treatment/Checkup by medical team/MFR Team at incident site.**
   Medical Team/MFR Team should check/access the condition of injured persons at the site
   Responsibility: Head – Admin

6. **Gathering at incident site.**
   Only Persons/Teams which are required for the rescue operation/as per DMP should be available at incident site/location. Others must be make safe distance from the incident site.
   Responsibility: Safety Team

(Jitendra B. Prasad)

Head – F & S and AUT

Distribution:

1. All HODs
2. Incident Controller
3. WIC and CIC

Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

FORM V

Environmental Audit Report for the financial Year ending the 31st March 2018

Company Information

Company Name	***Application UAN number***	
Vidarbha Industries Power Limited	MPCB-CONSENT-0000009307	
Address		
D-3, MIDC, Butibori, Nagpur, District - Nagpur.		
Plot no	***Taluka***	***Village***
D-3,D3Part. D3 Part-I	Hingna	Butibori,
Capital Investment (In lakhs)	***Scale***	***City***
466038	Red	Nagpur.
Pincode	***Person Name***	***Designation***
441122	Jitendra Prasad	AVP(EHS)
Telephone Number	***Fax Number***	***Email***
9329684596	0	jitendra.b.prasad@relianceada.com
Region	***Industry Category***	***Industry Type***
SRO-Nagpur II	Red	R48 Thermal Power Plants
Last Environmental statement submitted online	***Consent Number***	***Consent Issue Date***
yes	Format1.0/BO/CAC-Cell/AutoRenewal/CAC-0101	06/02/2017
Consent Valid Upto		
31/08/2021		

Product Information

Product Name	***Consent Quantity***	***Actual Quantity***	***UOM***
Electricity Generation((Coal Based Thermal Power Plant)	600MW (2x300MW)	3307300.4	Mwh

By-product Information

By Product Name	***Consent Quantity***	***Actual Quantity***	***UOM***
NA	NA	NA	CMD

1) Water Consumption in m3/day

Water Consumption for	***Consent Quantity in m3/day***	***Actual Quantity in m3/day***
Process	3600	150
Cooling	34560	29363
Domestic	60	49
All others	600	0
Total	38820	29562

1) Effluent Generation in CMD / MLD

Particulars	***Consent Quantity***	***Actual Quantity***	***UOM***
ETP+CW	7608	5092	CMD

Domestic Effluent	40	38	CMD

2) Product Wise Process Water Consumption (cubic meter of process water per unit of product)

Name of Products (Production)	During the Previous financial Year	During the current Financial year	UOM
Electricity Generation (Ltr/KWh)	2.4	2.4	Mwh

3) Raw Material Consumption (Consumption of raw material per unit of product)

Name of Raw Materials	During the Previous financial Year	During the current Financial year	UOM
Coal (Kg/KWh)	0.614	0.624	MT/A

4) Fuel Consumption

Fuel Name	Consent quantity	Actual Quantity	UOM
Coal	3692340	2064663	MT/A

Pollution discharged to environment/unit of output (Parameter as specified in the consent issued)

[A] Water

Pollutants Detail	Quantity of Pollutants discharged (kL/day)	Concentration of Pollutants discharged(Mg/Lit) Except PH,Temp,Colour	Percentage of variation from prescribed standards with reasons		
	Quantity	Concentration	%variation	Standard	Reason
Condencer Cooling Water pH	-	8.1	Within Limit	6.5-8.5	-
Temperature	-	28.2	Within Limit	not to exceed 5°C, than that of intake water temp	-
FAC	-	0.21	Within Limit	0.5	-
Boiler Blow Down TSS (U: I &II)	-	24.78	Within Limit	100	-
Oil & Grease	-	<4	Within Limit	10	-
Copper (as Cu)	-	0.08	Within Limit	1	-
Iron (as Fe)	-	0.09	Within Limit	1	-
Cooling Tower Blow Down FAC	-	0.20	Within Limit	0.5	-
Zinc	-	0.65	Within Limit	1	-
Chromium (Total)	-	0.03	Within Limit	0.2	-
Phosphate	-	1.35	Within Limit	5	-
D.M. Plant Effluent pH	-	7.79	Within Limit	5.5-9	-
Suspended Solids	-	19.17	Within Limit	100	-
Oil & Grease	-	<4	Within Limit	10	-
BOD 3 days	-	20.75	Within Limit	30	-
COD	-	124	Within Limit	250	-
TDS	-	1673	Within Limit	2100	-
STP - TSS	0.87	22.97	Within Limit	50	-
BOD	0.6	15.81	Within Limit	30	-

COD	1.91	50.13	Within Limit	100	-
pH	-	7.79	Within Limit	6.5-8.5	-

[B] Air (Stack)

Pollutants Detail	*Quantity of Pollutants discharged (kL/day)*	*Concentration of Pollutants discharged(Mg/NM3)*	*Percentage of variation from prescribed standards with reasons*		
	Quantity	*Concentration*	*%variation*	*Standard*	*Reason*
U#1 SPM	1385	43.4	Within Limit	50 mg/Nm3	-
U#2 SPM	1369	42.9	Within Limit	50 mg/Nm3	-
U# I&II SO2	60811	1905	Within Limit	101 TPD	-

HAZARDOUS WASTES

1) From Process

Hazardous Waste Type	*Total During Previous Financial year*	*Total During Current Financial year*	*UOM*
5.1 Used /spent oil	22.02	28.38	MT/A
5.2 Wastes/residue containing oil	3.55	-	MT/A
34.3 Chemical sludge from waste water treatment	4.45	8.62	MT/A
Other Hazardous Waste	E-waste (2.66)	2.43	MT/A
Other Hazardous Waste	Battery Waste (10 kg)	39	Nos./Y
Other Hazardous Waste	Glass Wool (20.29)	5.97	MT/A
30.2 Chemical sludge from waste water treatment	Cotton Waste	0.88	MT/A
15.2 Discarded asbesto	-	0.63	MT/A

2) From Pollution Control Facilities

Hazardous Waste Type	*Total During Previous Financial year*	*Total During Current Financial year*	*UOM*
0	NA	NA	

SOLID WASTES

1) From Process

Non Hazardous Waste Type	*Total During Previous Financial year*	*Total During Current Financial year*	*UOM*
NA	NA	NA	Ton/Y

2) From Pollution Control Facilities

Non Hazardous Waste Type	*Total During Previous Financial year*	*Total During Current Financial year*	*UOM*
Ash (Fly + Bottom) generated	694046	660941	MT/A

3) Quantity Recycled or Re-utilized within the unit

Waste Type	*Total During Previous Financial year*	*Total During Current Financial year*	*UOM*
8.3 Flue gas dust and other particulates*	695458 (Ash Utilised)	688361(Ash Utilised)	MT/A

Please specify the characteristics(in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

1) Hazardous Waste

Type of Hazardous Waste Generated	*Qty of Hazardous Waste*	*UOM*	*Concentration of Hazardous Waste*

5.1 Used /spent oil	28.38	MT/A	Sr. No. Parameter Result Limit as per Schedule V*(Part B) 1 Sediment 0.21(0.25 %) 2 Lead 24.3 (100 ppm) 3 Arsenic 2.03(5 ppm) 4 Cd+Cr+Ni 114.2(500 ppm), 6. (PAH) 4.7(6%), 7 T Halogen 3820 (4000PPM)
34.3 Chemical sludge from waste water treatment	8.62	MT/A	1)pH of 10% suspension=8.03, (2)Arsenic (as As)mg/l = < 0.001, (3)Barium (as Ba)mg/l=0.32, (4)Cadmium mg/l= < 0.001, (5)Chromium mg/l =< 0.01, (6)Lead (as Pb)mg/l =< 0.001, (7)Nickel mg/l=< 0.001, (8)

2) Solid Waste

Type of Solid Waste Generated	*Qty of Solid Waste*	*UOM*	*Concentration of Solid Waste*
Ash	660941	MT/A	LOI-<0.2%, SiO2-56.78%, CaoO 6.62%, MgO <0.5%, SiO2 + Fe2O3 + Al2O3 86.35%
NA	NA	CMD	Na

Impact of the pollution Control measures taken on conservation of natural resources and consequently on the cost of production.

Description	*Reduction in Water Consumption (M3/day)*	*Reduction in Fuel & Solvent Consumption (KL/day)*	*Reduction in Raw Material (Kg)*	*Reduction in Power Consumption (KWH)*	*Capital Investment(in Lacs)*	*Reduction in Maintenance(in Lacs)*
Reduction of Parameter	Avg 3047	0.34	244265670	37496900	14.91	-

Additional measures/investment proposal for environmental protection abatement of pollution, prevention of pollution.

[A] Investment made during the period of Environmental Statement

Detail of measures for Environmental Protection	*Environmental Protection Measures*	*Capital Investment (Lacks)*
Areawise Housekeeping Contract awarded to Maintain plant premises clean.	Housekeeping Expenses	70.54
Continual monitoring of Environmental Parameter	Maintenance expenses for CAAQMS & CEMS	17.65
AMC for Environmental Monitoring	Monitoring of Environmental Parameter	9.56
Expenses on Tree Plantation	Expenses on Tree Plantation	57.04
O&M of STP and ETP	O&M of STP and ETP	43.39
CSR Expenses for FY Yr 16-17	CSR	555.31
Expenses for Ash Utilization	Expenses for Ash Utilization	84.93
CTO Expenses	CTO Expenses	94.00
Hazardous waste Disposal charges	Wate Disposal Chages	2.94

[B] Investment Proposed for next Year

Detail of measures for Environmental Protection	*Environmental Protection Measures*	*Capital Investment (Lacks)*
Maintenance expenses for CAAQMS & CEMS	Monitoring of Environment paramater	10
Online remote Calibration	Monitor CEMS parameter	17.7

Any other particulars in respect of environmental protection and abatement of pollution.

Particulars

1. Single flue gas stack of 220M height provided to dispersion of Emission and keep concentration within limit. 2. High Efficiency of ESP provided to control emission with limit. 3. DS & DE and Bag filter provided at CHP and Silo area. 4. Closed convey system installed at CHP. 5. Rain gun type water spray system installed at Coal Stacker yard. 6. Water sprinkilng system installed at Road side . 7. ETP & STP are installed to control water pollution. 8. Good Housekeeping maintain in plant premises

Name & Designation

Ashesh Padhy, Station Director