COMPLIANCE REPORT
OF
ENVIRONMENTAL CLEARANCES

3300 (5x660) MW TIRODA THERMAL POWER PLANT (PHASE – I & II)

At

TIRORA, DISTRICT GONDIA
MAHARASHTRA

Submitted to:

Regional Office (WCZ)
Ministry of Environment, Forests & Climate Change
Central Pollution Control Board, New Delhi &
Maharashtra Pollution Control Board, Mumbai.

adani

Submitted By:

Environment Management Department
Adani Power Maharashtra Limited
Plot NO: A -1, Tirora Growth Centre
MIDC, Tirora, Gondia – 441911 (M.H)

PERIOD: OCTOBER'2019 – MARCH'2020

CONTENT

1.0 Introduction

Adani Power Maharashtra Ltd, (APML), a wholly owned company of Adani Power Limited has established 3300 MW (5 x 660) Coal-based Thermal Power Plant at Tiroda, District Gondia in Maharashtra in two phases as below:
Phase I: 2 x 660 MW
Phase II: 3 x 660 MW

The plant site is located at Tiroda Growth Centre of MIDC (Maharashtra Industrial Development Corporation) developed area near Tiroda, District Gondia in Maharashtra. The Villages, Gumadhawara, Khairbodi, Chikhali, Churdi, Bhiwapur, Kachewani and Mendipur, surround the site. The power plant is based on supercritical, energy efficient & environment friendly technology.

APML has been granted Environmental Clearances from Ministry of Environment & Forest, Consent to Establish & Consent to Operate from Maharashtra Pollution Control Board for phase I & II (Unit 1, 2, 3, 4 & 5). As a part of the compliance of statutory requirements, environmental parameters monitoring is being done regularly at locations suggested by Sub- Regional Officer, MPCB, Bhandara on the basis of micrometeorological parameters. Also, three nos. of Continuous Ambient Air Quality Monitoring System have been established in three different locations inside the plant boundary as per wind direction and suggested by SRO, MPCB Bhandara. M/s Enviro Analyst & Engineers Pvt. Ltd, Mumbai is being carried out environmental monitoring & analysis for the power plant.

Point wise compliance status of Environmental Clearance for Phase -1 & 2 is furnished herewith.

Compliance status on Environmental Clearance

(Phase -1: 2 X 660 MW Coal based Thermal Power Plant)

LETTER NO.J-13011/4/2008-1A-II (T) DATED 29.05.2008 and

Subsequent amendement in Environmental Clearance vide
LETTER NO.J-13011/4/2008-1A-II (T) DATED 21.03.2012

Sr. No.	Conditions	Compliance Status
(i)	The total land requirement for the project shall be restricted to 210 ha.	Complied. The project has undergone expansion. The total area has changed and the same has been approved by MoEFCC. The total area required for all two phases is 565.84 ha.
(ii)	Sulphur and ash content in the coal to be used in the project shall not exceed 0.5 % and 29.57 % respectively.(Amendment dt. 21.03.2012)	Being Complied. Sulphur & ash contents are below 0.5 % and 29.57 % respectively. Ash content report is enclosed as **Annexure-IV**
(iii)	A bi-flue stack of 275 m height shall be provided with continuous online monitoring equipment's for SOx, NOx and Particulate matter. Exit velocity of flue gases shall not be less than 22 m/sec.	Bi-flue Stack containing two flues of phase-I of 275 meters is installed with On-line monitoring equipment for SO_2, NOx & PM. Exit velocity of flue gas is more than 22m/sec.
(iv)	High efficiency Electrostatic Precipitator (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm^3.	Highly efficient Electrostatic Precipitators with efficiency of 99.93 % have been installed for each boiler (ESPs) to meet particulate emission less than 50 mg/Nm3. Monitoring report enclosed. Please Refer **Annexure – I** MPCB has also certified **5 Star rating** to us since last 3 years for maintaining Stack Emission well within the norms. Please refer **Annexure - X**
(v)	Space provision shall be kept for retrofitting of FGD, if required at a later date.	Space & provision have been provided for FGD in the plant layout. We are in process to install FDG and bar chart of implementation schedule already submitted to your good office.
(vi)	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.	Adequate air pollution control measures such as dust extraction system (Cyclone followed by bag filters) in coal crusher and coal transfer points (JNTs), rain gun type dust suppression system in coal yard and dry fog type dust suppression system in belt conveyor have been provided.
(vii)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided and its utilization to the maximum extant shall be ensured. 100% fly ash utilization shall be ensured from 5th year onward. Unutilized fly ash shall be disposed off in the ash pond in the form of High Concentrated Slurry and the	Fly ash silos (06) established to collect dry ash for further utilization. Unutilized ash is being disposed off in the ash pond in lean slurry mode & High Concentration Slurry Disposal mode with facility of recirculation of ash water.

	bottom ash in conventional slurry mode.	
(viii)	Ash pond shall be lined with HDPE lining. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached. Guard drains shall be provided all along the periphery of the ash dyke to avoid contamination of soil and surface water in case of run-off.	Well design ash dyke with LDPE lining has been established as per the guidelines of MoEF&CC, CEA & CPCB. Adequate safety measures are being taken for any unforeseen incidents. Guard drains & guard pond established.
(ix)	Water requirement shall not exceed 36 MCM/year. No ground water shall be extracted for this power project including during construction phase.	This quantity is adequate to meet the plant's requirement. Monthly water consumption report is being submitted regularly to MPCB, Mumbai. Water allocation from Wainganga River for 70 MCM for both phases,
(x)	Closed cycle cooling system with cooling towers shall be provided. Cycle of concentration (COC) of at least 5.5 shall be adopted and the effluents treated as per the prescribed norms.	Being complied. COC of 5.5 is being maintained.
(xi)	The treated effluents confirming to the prescribed standards shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon for storm water. Arrangements shall be made that effluents and storm water do not get mixed.	All the effluent treated adequately in the ETP and STP. Treated water is being reused within the plant. The concept of "Zero Discharge Condition" implemented except during monsoon period. Separate drainage network established for storm water.
(xii)	A sewage treatment plant shall be provided and the treated sewage shall be used for raising green belt/plantation.	Sewage Treatment Plants have been installed & treated water reused suitably within the plant premises for green belt development.
(xiii)	Rainwater harvesting should be adopted. Central Ground water 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.	Rain Water Harvesting study carried out & report submitted to Regional Director, Central Ground Water Board, Nagpur & Member Secretary- Central Ground Water Authority, New Delhi. Rainwater harvesting within the project has been constructed/ implemented to store the rain water.
(xiv)	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Details of these measures along with location plant layout shall be submitted to Ministry as well as to the regional Office of the Ministry at Bhopal.	Adequate safety team with adequate safety measures is available in the plant site to take preventive control measures. Fire hydrant and rain gun type water sprinklers established in the coal yard. Copy of control measures and location plant layout has already submitted.
(xv)	Storage facilities for liquid fuel such as LDO to be used as auxiliary fuel in the project shall be made in the plant area where risk is minimum to the storage facilities. Adequate assessment of risk management shall be made in the Disaster management Plan for the same. Mock drills shall be conducted regularly as plan. Necessary clearance as may be applicable to such storage under HSM Rules shall be obtained.	The fuel LDO properly stored in minimum risk area & as per the norms storage location approved by the Chief Controller of Explosive. Disaster management plan and On-site emergency plan prepared & Mock drills are being conducted periodically.
(xvi)	Regular monitoring of ground water in and around the ash pond area shall be carried out, records maintained and periodic reports shall	Regular monitoring of ground water carried out around ash pond area. Monitoring results are being submitted to Regional Officer, MoEF and

	be furnished to the Regional Office of this Ministry.	MPCB regularly. Please Refer **Annexure – I**.
(xvii)	A green belt of adequate width and density shall be developed around the plant periphery covering at least 69.64 ha of project area preferably with local species.	Complied Green belt development/ plantations are being carried out on available land. Our efforts are being made to develop more greenery in and around plant premises. We have already established our nursery to develop saplings for afforestation & horticultural activities. Besides this, we have also developed lawn & gardens to create aesthetic view inside the plant premises. APML have developed green belt/plantation in 258 ha land which is about 45 % area against the norms of 33% of total land area. Please Refer **Annexure – VI**. **APML successfully participated in 33 crore plantation drive initiated by Government of Maharashtra and registered with Green Army Web Portal.**
(xviii)	A plan for conservation of fauna reported in the study area shall be prepared in consultation with State Forests and Wildlife Department within 3 months and shall be implemented effectively.	Complied Conservation plan of Fauna in the study area was prepared in consultation with State Forest dept. and submitted to Wildlife warden, Govt. of Maharashtra with compliance report.
(xix)	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	First Aid and sanitation facility provided for the drivers and contract workers during construction phase.
(xx)	Leq of Noise levels emanating from gas and steam 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 steam & gas turbines etc. shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.	Necessary actions have been taken care to maintain Ambient Noise levels within 75 db(A) during plant operation. The personal protective equipment's have been provided to workers & employees working in noisy areas. Noise level monitoring is being carried out regularly and reports submitted to the Board. A complete medical check up with audiometric test of workers & employees are being carried out as per frequency. Please refer **Annexure –I & IA**
(xxi)	Regular monitoring of ground level concentration of SO_2, NOx, SPM and RSPM 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 (six monthly) shall be submitted to the Regional Office of this Ministry.	Being complied Regular monitoring of PM10, PM2.5, SO2 & NOx are being carried out as per frequency & monitoring results are well within the norm. Monitoring results are being submitted to MPCB monthly. Ambient Air Quality monitoring stations established in consultation with Sub-Regional Officer, MPCB. Please refer **Annexure –I & IA**
(xxii)	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	Complied. Copy of the same already submitted to your good office.

<table>
<tr><td></td><td>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.</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>We have already established Environment Management Dept. headed by AGM & supported by Environmental Engineers/offices & Chemist & Horticulturist. Environmental laboratory has been established to monitor Environmental Quality Parameters for Ambient Air, Water, Stack emission monitoring etc.
Environmental Management System as per EMS ISO 14001:2015 implemented under Integrated Management System. Our Environmental lab is Accredited with NABL as per ISO/IEC 17025:2017 which is valid up to 27.06.2021.
The NABL Certificate is already submitted along with April'19 to September'19 compliance report.</td></tr>
<tr><td>(xxiv)</td><td>Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards shall be submitted to this Ministry/Regional Office/CPCB/SPCB.</td><td>Six monthly compliance on the Environmental Clearance granted by MoEF is being submitted to MoEF, CPCB & MPCB regularly.
Compliance status updated on company's website.
Compliance report for the period of Oct 2018 to Mar-2019 had been submitted to your good office vide letter no. APML/EMD/ MoEF&CC/EC /165/11/19 on 22.11.2019.</td></tr>
<tr><td>(xxv)</td><td>Regional Office of the Ministry of Environment & Forests located at Bhopal will 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.
The EIA & EMP report and additional information is already submitted.
Six monthly updated compliance report is being submitted on regularly.
Compliance status updated on company's website.</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>Separate fund has been already allocated for environmental protection.
Expenditure details in F.Y 19 – 20 (in Lakhs):
<table>
<tr><th>SL. No</th><th>Particulars</th><th>Cost (in Lac.)</th></tr>
<tr><td>1</td><td>Pollution control equipment O &M</td><td>2397.33</td></tr>
<tr><td>2</td><td>Pollution Monitoring ,Study and analysis</td><td>96.81</td></tr>
<tr><td>3</td><td>Green belt Development</td><td>303.82</td></tr>
<tr><td>4</td><td>Rural Development/CSR</td><td>406.09</td></tr>
<tr><td>5</td><td>Legal & consent fees</td><td>381.89</td></tr>
<tr><td>6</td><td>Training & Awareness</td><td>1.77</td></tr>
<tr><td>7</td><td>Waste Management</td><td>3495.69</td></tr>
</table></td></tr>
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			Total	**7083.41**
(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.	Complied.		
(xxviii)	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bhopal /the CPCB/the SPCB who would be monitoring the compliance of environmental status.	We always extend full cooperation to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bhopal /the CPCB/the SPCB etc.		
(xxix)	The project proponent shall upload the status of compliance of the conditions stipulated in the environmental clearance issued vide this Ministry's letter of even no. dated 30.03.2007, in its website and uploaded periodically and also simultaneously send the same by e-mail to the Regional Office of the Ministry of Environment and Forests.	Six monthly Environmental Clearance compliance status report is regularly submitted to MoEF, CPCB and SPCB. The same is sent by email also. Compliance status updated on Company's website. Www.adanipower.com		
(xxx)	Criteria pollutant levels including NOx, RSPM, (PM10 & PM2.5), Sox (from Stack & ambient air) shall be regularly monitored and results displayed in your website and also at the main gate of the power plant.	Parameters viz. NOx, PM10, PM2.5 & SOx (from Stack & Ambient Air) are being continuous monitored and results are being displayed at the **Main Gate** of the power plant. Please refer Annexure- **II & III**		

Compliance Status of Environmental Clearance
(Phase- II (3x660) MW THERMAL POWER PLANT)

LETTER NO.J-13012/81/2008-1A-II (T) DATED 22.04.2010)
& Subsequent Amendment
LETTER NO. J – 13012/81/2008- IA.II (T) dated 30.03.2012 and
LETTER No. J-13012/81/2008-IA.II (T) dated 13.03.2014

SL. NO.	CONDITIONS	COMPLIANCE
(i)	Only one unit of 1 x 660 MW shall be run on 100% domestic coal for which coal linkage from SECL is available and the other two units of 2 x 660 MW shall be run purely on imported coal, as per details in Para 2.	MoEF vide letter no. J-13012/81/2008-1A-II (T) dtd. 13.03.2014 has amended the condition for change of source of coal to indigenous Coal from subsidiary companies of "Coal India Limited" in place of Imported coal.
(ii)	Separate stacking arrangement shall be made for indigenous and imported coal.	EC is amended and the source of coal is domestic. Separate stacking/storage arrangement is not required.
(iii)	In case source of fuel supply is to be changed at a later stage for the 2 x 660 MW the project proponent shall come back to the ministry as the appraisal presently was done based on imported coal for 2 x 660 MW unit.	We had requested the MoEF for Change of source of coal to indigenous Coal from subsidiary companies of "Coal India Limited" in place of imported coal. The EAC of MoEF considered our proposal on October 10, 2013 & January 9-10, 2014 respectively and subsequently the Environmental Clearance condition amended for change of coal source from imported to domestic/indigenous on 13/03/2014.
A	**Water & Waste Water Management**	
(iv)	No ground water shall be extracted for use in operation of the power plant even in lean season	Being Complied. We have already obtained permission from water resource department Govt. of Maharashtra for withdrawal of 70 MCM water for both phases from Wainganga river. The above quantity is adequate to meet the plant's requirement including lean season.
(v)	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up / operation of the power plant	Complied There is no water body within the plant site.
(vi)	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel / Rivers (as applicable) even in lean season.	Water allocation is from Dhapewada Irrigation Project constructed and maintained by Vidarbha Irrigation Development Corporation. APML has no role in regulating the water flow down stream.
(vii)	Hydro-geological study of the area shall be reviewed annually and results submitted to the Ministry and concerned agency in the State Govt. In case adverse impact on ground water quality and quantity is observed, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken	NEERI (CSIR), Nagpur has engaged to carry out Hydro-geological study & review from 2019 – 2022. The 1st year interim report submitted to your good office along with Six Monthly compliance report for the period of April'19 to Sept' 2019. Quality of ground water is being monitored in and around the plant premises. Ground water level in nearby villages is also being monitored to know the seasonal

		fluctuations if any.
(viii)	Closed cycle cooling system with induced draft cooling towers shall be provided and COC of at least 5.5 shall be adopted.	5.5 COC is being maintained.
(ix)	The treated effluent confirming to the prescribed standards only shall be re-circulated 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 do not get mixed.	Effluent treatment plant installed within the plant and treated water is being utilize/reuse within the premises to meet "Zero Discharge". Separate drainage system established for storm water.
(x)	Effluent from the desalination plant shall be first treated in a guard pond before discharged, if applicable.	Not Applicable The desalination plant is not required
(xi)	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.	Sewage Treatment Plants have been installed and treated water is being suitably reused within the plant premises for green belt development.
(xii)	Rainwater harvesting should 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.	Rainwater Harvesting study carried out & report submitted to Regional Director, Central Ground Water Board, Nagpur & Member Secretary, Central Ground Water Board, New Delhi. Rain water harvesting practices adopted within the plant area.
(xiii)	Regular monitoring of ground water 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 submitted to the Regional Office of the Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	Regular monitoring of ground water quality including heavy metals is being carried out regularly in and around the project area. Piezometric wells are established around the ash pond area. Records are maintained and the same are submitted to Regional office of the Ministry at Bhopal. Please Refer **Annexure – I.**
B	**Air Pollution Control**	
(xiv)	Provision for installation of FGD shall be provided.	Space & provision have been provided for FGD installation. We are in process to install FDG and bar chart of implementation / completion schedule already submitted
(xv)	High Efficiency Electrostatic Precipitator (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg / Nm3.	Complied ESP with efficiency of 99.93% (ESPs of 10 fields) installed for each boiler to meet permissible norm for particulate emission of less than 50 mg / Nm3. Please refer **Annexure – III.** MPCB has also certified 5 Star rating to us for maintaining Stack Emission Well within the norms.
(xvi)	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	Complied Adequate air pollution control measures such as dust extraction system (Cyclone followed by bag filters) in coal crushers and rain gun type dust

	other vulnerable dusty areas shall be provided.	suppression system in coal yard and dry fog type dust suppression system in the belt conveyor with insertable dust collector at transfer points have been installed to meet particulate matter emission within the norms.
(xvii)	Green Belt consisting of 3 tiers 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 be less than 2500 per ha with survival rate not less than 70%.	Complied Green belt development/ plantations are being carried out on available land. Our efforts are being made to develop more greenery in and around plant premises. We have already established our nursery to develop saplings for afforestation & horticultural activities. Besides this, we have also developed lawn & gardens to create aesthetic view inside the plant premises APML have developed green belt/plantation in 258 ha land which is about 45%. of total plant area. Please refer **Annexure – VI.**
(xviii)	Noise level emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75dBA. 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 compressor etc. shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.	Necessary actions has been taken care to maintain ambient noise levels within 75 db(A) during plant operation. The working personals provided with appropriate personal protective equipment and periodic audiometric check up is being carried out and records are being maintained. The monitoring reports regularly submitted to the MPCB & MoEF. Please refer Annexure – I & IA
C	**Fly Ash Management**	
(xix)	Utilization of 100% Fly Ash generated shall be made 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.	Annual ash generation and utilization status is regularly submitted to MoEF, MPCB & CEA. Ash generation & utilization details enclosed as Annexure – IV.
(xx)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will 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.	Being complied We have established 06 Nos. silos of 1700 ton capacity each for utilization of dry ash. Regular monitoring of heavy metals is being carried out. Please refer **Annexure – V.**
(xxi)	Ash pond shall be lined with HDP/LDP lining or any other suitable impermeable media such 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.	Being complied Well-designed Ash dyke with HDPE lining have been established as per guidelines of MoEFCC, CEA and CPCB. Regular monitoring is being carried out.
(xxii)	For disposal of Bottom Ash in abandoned mines (if proposed to be undertaken) it shall be ensured that the Bottom and sides of the mined out area are adequately lined with clay before Bottom Ash is filled up. The	Noted & compliance assured We will inform to Maharashtra Pollution Control Board well in advance.

	project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	
(xxiii)	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 submitted to the regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	Regular monitoring of ground water quality including heavy metals is being carried out in and around the project area. Piezometric wells are established around the ash pond. Records are maintained and the same being submitted along with compliance report. Please refer **Annexure – I**. NEERI (CSIR), Nagpur is engaged to carry out Fly Ash Leachability Study in Radius of 35 KM for APML, Tiroda from 2019 – 2022. The first year report enclosed in **Annexure – XII.**
D	**Disaster Management**	
(xxiv)	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 Ministry as well as to the regional Office of the Ministry.	Adequate safety team with safety control measures is available in the plant site to take preventive control measures. Fire hydrant and rain gun type water sprinklers established in the coal yard. Details of control measures and location within the plant layout has been already submitted to your good office.
(xxv)	Storage facilities for auxiliary liquid fuel such as LDO and / HFO/LSHS shall be made in the plant area in consultation with Department of Explosive, 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.	The Fuel LDO is properly stored in minimum risk area & as per the norms fixed by the Chief Controller of Explosive. Disaster management plan and On-site emergency plan prepared & Mock drills are being conducted periodically.
E	**CSR/RCR Plan**	
(xxvi)	A good action plan for R & R (if applicable) with package for the project affected persons be submitted and implemented as per prevalent R7R policy within three months from the date of the issue of this letter.	Complied R&R plan approved by the State govt. and implemented. Indian Institute of Social Welfare & Business Management (IISWBM), Kolkata was Engaged for carried out R&R audit for APML, Tiroda.
(xxvii)	An amount of Rs. 66.0 Crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs. 13.20 Crore 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.	A separate budget earmarked for CSR activities. Need Base Assessment study carried out and report already submitted to the ministry. We have established well qualified team with village mobilizers to take care of CSR activities. CSR report with expenditure F.Y 2019- 20 is enclosed as **Annexure – VII.**
(xxviii)	While identifying 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	Need Base Assessment Study for development of CSR plan prepared and report already submitted to MoEF. Need Base plan implementation being done in nearby village for the individuals who are economically weak to undertake some economic

	consistent with the traditional skills of the people besides development of fodder farm, fruits 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. In addition a special scheme for upliftment of SC/ST's and marginalized population in the study area out of CSR programme shall be formulated and submitted to the Ministry within six months along with firm commitment of implementation. The scheme shall have an in – built monitoring mechanism.	activity that would help them to achieve sustainable livelihood and financial independence. APML have established a Skill Development Center for skill development of SC/ST and marginalized populations from Gondia and Bhandara district. Tiroda TPP have trained 654 students from Adani Skill Development Center in which 597 placed for good job. It also including nurse training (General Duty Assistance) of 105 and out of this 88 placed for good organization. . Year wise training and placement details is enclosed as **Annexure IX**.
F	**General**	
(xxix)	Additional soil for leveling of the proposed site shall be generated within the site (to the extent possible) so that natural drainage system of the area is protected and improved.	Complied Natural drainage has not disturbed due to plant activities.
(xxx)	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied First Aid and sanitation facilities were provided for the drivers and contract workers during construction period.
(xxxi)	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, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied Labour hutments have been established with all required facilities & infrastructure for construction phase only.
(xxxii)	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. Copy of the same already submitted to your good office with compliance report.
(xxxiii)	A copy of clearance letter shall be sent by the proponent to concern panchayat, Zila parisad/municipal corporation, urban local body and the local NG, if any from whom suggestions/representations, if any received while processing the proposal. The clearance letter shall also be put on the	Complied. Copy of Environmental Clearance and other required documents provided to Zila Parishad & Gram Panchayat.

	website of the company by the proponent.	
(xxxiv)	A separate environment management cell with qualified staff shall be setup for implementation of the stipulated safeguards.	We have already established Environment Management Dept. headed by AGM & supported by Env. Engineer/officer, Chemist & Horticulturist. Environmental laboratory has been established to monitor Environmental Quality Parameters for Ambient Air, Water, Stack emission monitoring etc. Environmental Management System as per EMS ISO 14001:2015 implemented under Integrated Management System. Our Environmental lab is Accredited with NABL as per ISO/IEC 17025:2017 which is valid up to 27.06.2021. The NABL Certificate is already submitted along with April'19 to September'19 compliance report
(xxxv)	The proponent shall upload the status of compliance of stipulated EC conditions, including the results of monitoring data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MoEF, the respective zone of CPCB & the SPCB. The criteria pollutant level namely; SPM, RSPM (PM10, PM2.5), SO2 and NOx (ambient level and stack emission) shall be displayed at the convenient location near the main gate of the company in the public domain.	Six monthly Environmental Clearance compliance status report is regularly submitted to MoEF, CPCB and SPCB. The same is sent by email also. Compliance status updated on Company's website. Display board already installed in main gate.
(xxxvi)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well by e-mail) to the respective Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB	Six monthly compliance on the Environmental Clearance granted by MoEF is being submitted to MoEF, CPCB & MPCB regularly. Compliance report for the period of Oct 2018 to Mar-2019 had been submitted to your good office vide letter no. APML/EMD/ MoEF&CC/EC /165/11/19 on 22.11.2019. Compliance status updated on company's website.
(xxxvii)	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 F.Y 18 – 19 submitted with online portal of Maharashtra Pollution Control Board. Please Refer **Annexure – VIII.**
(xxxviii)	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 State Pollution Control Board. The project proponent shall upload the status of	Six monthly Environmental Clearance compliance status report is regularly submitted to MoEF, CPCB and SPCB. The same is sent by email also. Compliance status updated on Company's website. www.adanipower.com

<table>
<tr><td></td><td>compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.</td><td></td></tr>
<tr><td>(xxxix)</td><td>Regional Office of the Ministry of Environment & Forests will 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>Being Complied.
Six monthly Environmental Clearance compliance status report is regularly submitted to MoEF, CPCB and SPCB. The same is sent by email also.
Compliance status updated on Company's website.
Display board already installed in main gate.</td></tr>
<tr><td>(xi)</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>Separate fund has already been allocated and being utilize for Environmental Protection measures.
Expenditure details in F.Y 19 – 20 (in Lakhs):
<table>
<tr><th>SL. No</th><th>Particulars</th><th>Cost (in Lac.)</th></tr>
<tr><td>1</td><td>Pollution control equipment O &M</td><td>2397.33</td></tr>
<tr><td>2</td><td>Pollution Monitoring ,Study and analysis</td><td>96.81</td></tr>
<tr><td>3</td><td>Green belt Development</td><td>303.82</td></tr>
<tr><td>4</td><td>Rural Development/CSR</td><td>406.09</td></tr>
<tr><td>5</td><td>Legal & consent fees</td><td>381.89</td></tr>
<tr><td>6</td><td>Training & Awareness</td><td>1.77</td></tr>
<tr><td>7</td><td>Waste Management</td><td>3495.69</td></tr>
<tr><td></td><td>Total</td><td>7083.41</td></tr>
</table></td></tr>
<tr><td>(xii)</td><td>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</td><td>Complied</td></tr>
<tr><td>(xiii)</td><td>Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.</td><td>Noted & Agreed
Full cooperation to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bhopal /the CPCB/the SPCB always extended.</td></tr>
<tr><td colspan="3">Additional Conditions (EC Amendment)</td></tr>
<tr><td>(xiv)</td><td>The coal transportation by road shall be</td><td>Coal is being transported by Rail through wagons</td></tr>
</table>

	through tarpaulin covered trucks for a maximum period of two years and hence forth shall be only through mechanically covered trucks.	and unloaded within our plant premises at wagon tippler & Track Hopers provided.
(xv)	Avenue plantation of 2/3 rows all along the road shall be carried out by the project proponent at its own expense.	Complied Layer wise thick Plantation done in all around the boundary.
(xvi)	Periodic maintenance of the road shall be done by the project proponent at its own expense and shall also facilitate the traffic control on the road.	Complied. All internal roads are black topped or concreated and being maintained.
(xvii)	Sulphur and ash contents in the domestic coal to be used in the project shall not exceed 0.4 % and 33% at any given time. In case of variation of coal quantity at any point of time, fresh reference shall be made to the Ministry for suitable amendments to environmental clearance condition wherever necessary.	Being complied. We are using washed coal from SECL and blended with raw coal. We have also installed Real time Coal Ash Analyzers to monitor ash content. MPCB official also collect coal samples time to time and analysis results are well within the stipulated limit. Quarterly Ash content report is being sent to MoEFCC regional office, Six monthly Average ash content is 32.85%
(xlvii)	A long term study of radio activity and heavy metals content on coal to be used shall be carried out through a reputed institute. Thereafter, mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	Being Complied. Radioactivity analysis in Coal and Ash sample being carried out by ""Board of Radiation and Isotope Technology (BRIT)" Mumbai" for FY 2019 - 20. The Analysis Report is enclosed as **Annexure - XIII**
(xviii)	Harnessing solar power within the premises of the plant particularly at available roof tops shall be undertaken and status of implementation shall be submitted periodically to the regional office of the Ministry.	10KW solar panel installed at the top of administrative building to cater domestic power requirement of administrative building. In addition to above, solar street lights are installed along the ash dyke area. Under CSR activities, we have installed more than 200 solar street lights in nearby villages.
(xix)	Mercury emission from the stack shall also be monitored on periodic basis.	Being complied. Mercury emission from the stack is being monitored & reports are being submitted on regularly. Please refer **Annexure – I.**
(l)	Fugitive emission shall be controlled to prevent impact on agricultural or non-agricultural land.	Being Complied To control fugitive emission, rain gun type water sprinkling system has been installed in coal yard. All coal conveying belts conveyors are covered and fog type dust suppression system provided. Adequate water sprinkling arrangements made in wagon tripplers and track hoopers to mitigate dust emission during coal un-loading by rail. Closed coal conveyor belts have been established. Cyclones followed by bag filters are provided at each coal transfer points (JNT's). Additionally, mobile water sprinklers are deployed at CHP area to suppress fugitive dust while movement of vehicles.
(li)	Source sustainability study of water requirement shall be carried out by an institute of repute. The study shall also	VIDC has developed and is operating Dhapewada Barrage on River Wainganga for water supply. Source sustainability study of River Wainganga

	specify the source of water for meeting the requirement during lean season. The report shall be submitted to the Regional Office of the Ministry within six months.	through "Academy of Water Technology and Environ Management" Kolkata in Technical collaboration with Indian Institute of Social Welfare and Business Management- Kolkata and CSIR-CGCRI - Kolkata. Final Report was already submitted to your good office in compliance report April 2019 to Sept 2019
(liii)	Fly ash shall not be used for agricultural purpose. No mine void filling will be undertaken as on option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.	As per Fly ash Notification 25th January, 2016; Ash may be utilize in Agriculture as a promotional activity. For the same APML has engaged AMPRI (A division of CSIR) Bhopal & NEERI, Nagpur to explore the possibility of Ash utilization in different purpose to comply Fly Ash Notification. NEERI (CSIR) Nagpur has engaged for 03 years (2019 – 2022) to carry out Fly Ash Leachability Study in an around land reclamation through fly ash of a radius of 35 KM from APML. The 1st year report for 2019 - 20 is attached as **Annexure – XII**.
(liv)	Three tire green belt shall be developed all around Ash Pond over and above the Green Belt around the Plant Boundary.	Three tire plantation at Ash pond area is in progress. Plantation is also being done in the available open area along the plant boundary.
(lv)	Social audit for the CSR Scheme shall be carried out periodically by reputed university or an institution as per the CSR guidelines of Government of India and Details to be submitted to MoEF besides putting it on company's website.	Social audit for the CSR Scheme has been carried out by Indian Institute of Social Welfare & Business Management, **University of Kolkata.** The same has already been submitted to your good office with Oct'14 to Mar'15 compliance report. Social Audit is being carried out Indian Institute of Social Welfare & Business Management, **University of Kolkata.** Final Report is already submitted to your good office with compliance report April 2019 to Sept 2019.
(lvi)	An Environmental Cell shall be created at the project site itself and shall be headed by an officer of the company of appropriate seniority and qualification. It shall be ensured that the head of the Cell shall directly report to Head of the Organization. The environmental Cell shall be responsible and accountable for implementation of all the conditions given in the EC including in the amendment letter.	We have already established Environment Management Dept. headed by AGM & supported by Env. Engineer, Chemist & Horticulturist. Environmental laboratory **(NABL Accredited)** has been established to monitor Environmental Quality Parameters for Ambient Air, Water, Stack emission monitoring etc. Environmental Management System as per EMS ISO 14001:2015 implemented under Integrated Management System. Our Environmental Lab has also has been accredited with NABL .e ISO/IEC 17025:2017 and certificate which is valid up to 27.06.2021 submitted to your good office with six monthly compliance report of April'19 – Sept'19.
(lvii)	Monitoring of surface water quantity and quality shall also be regularly conducted and record maintained. The monitoring data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the	Monitoring of surface water and ground water quality including heavy metals is being done on regular basis and records maintained. Please refer **Annexure - I**

	direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	
(lviii)	The environmental 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 compliances of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	Environmental statement is being submitted regularly to MPCB. Last Environmental Statement submitted to MPCB through online portal. Please refer **Annexure – VIII.**
(lix)	The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy stipulated in this clearance letter and other applicable environment laws and regulations.	We have implemented ISO **14001:2015** under Integrated Management System consist of Environment, Health & Safety, Quality and Energy Management Systems. We have formulated a Corporate policy as per the requirement of Integrated Management System (IMS).

Annexure I

SIX MONTHLY ENVIRONMENTAL MONITORING REPORT

FOR
The Period of Oct.2019-Mar. 2020

of

ADANI POWER MAHARASHTRA LTD.
Tirora, Growth Center,
MIDC, Gondia – 441 911

Prepared by

Recognised by MoEF (GOI) under GSR No. 983 dated. 2.5.2014
NABET Accredited and ISO 9001: 2000Certified Organisation

Head Office: B-1003, Enviro House, 10 Flr. Western Edge II , W.E. Highway, Borivali (E), Mumbai-400 066

Nagpur Branch:- Banglow No. 65, Shivkunj, Old Verma Layout, Ambajari, Nagpur - 440 010
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H. O. : B-1003, Enviro House, 10th Floor, Western Edge II, Western Express Highway, Borivali (E), Mumbai - 400 066.
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Foreword

The protection of environment plays a crucial role in maintaining the local environment quality for any industry, throughout their production. Hence compliance of the statutory requirements becomes very important to conserve the ecological balance within and surrounding the plant area. Therefore, environment protection is becoming a prerequisite for sustainable development. In line with this requirement, the management of ***Adani Power Maharashtra Ltd.*** *has adopted a corporate responsibility of development and top priority is given for environment protection.*

In order to comply with the Environment protection act, to fulfill statutory requirement and to be in tune with Environmental Preservation and sustainable development ***Adani Power Maharashtra Ltd.****, has retained* ***Enviro Analysts and Engineers Pvt. Ltd.*** *as Environment Consultants and for various Environmental issues related to their Power Plant.*

This report presents the Environmental Status for the period ***Oct.2019-Mar. 2020*** *as a compliance to the statutory requirements.*

The co-operation extended by the Staff and Management of Adani Power Maharashtra Ltd. during the work execution period is gratefully acknowledged.

For **ENVIRO ANALYSTS & ENGINEERS PVT. LTD.**

Authorized Signatory

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1.0 INTRODUCTION

M/s. Adani Power Maharashtra Limited (APML) a wholly owned company of Adani Power Limited has established 3300 MW (5x660) Coal-based Thermal Power Plant at Tiroda, District Gondia in Maharashtra in two phases as below:

Phase I: 2 x 660 MW

Phase II: 3 x 660 MW

1.1 Scope of Work.

The scope of work includes the data generation for various environmental components viz Meteorology, Air, Noise, Water, Stack, Effluent and soil of Adani Power Maharashtra limited, Tirora.

To monitor the environmental parameters and data analysis in the vicinity of the power plant of 5x660MW at MIDC Area Tiroda, APML awarded the service to M/s Enviro Analysts & Engineers Pvt. Ltd. (EAEPL), Mumbai.

The present report incorporates data of various Environmental parameters for Oct.2019-Mar. – 2020.

Chapter – 2

Details of sampling Locations

&

Methodology for sampling and analytical procedures

2.0 DETAILS OF SAMPLING LOCATIONS.

The details of sampling location w. r. t. Air, Water, Noise & Soil quality around the power plant are shown in the Sampling location Map as depicted in Figure.2.1

2.1 Meteorology and Ambient Air Quality.

Meteorological data was collected at one station concurrently with the ambient air quality monitoring. The weather station was placed on the roof top at a height of 10m. Wind speed, wind direction, relative humidity and temperature & Rainfall were recorded at hourly intervals contineously.

The sampling locations of Ambient Air Quality in the Power plant premises covering upwind and down wind direction . To assess the effect of industrial activity of power plant on the air, environmental parameters like Particulate Matter-PM_{10}, Particulate Matter-$PM_{2.5}$, Sulphur Dioxide-SO_2, Nitrogen Dioxide –NO_2 were monitored Details of the sampling locations with respect to the plant site are given below in **Table-2.1** .

Table 2.1 Ambient Air Quality Monitoring Location

Code	Name of the monitoring Station	Distance from plant boundry (km)	Direction with respect to plant	Environmental Setting	Remarks
A1	**Nr. AWRS**	Within Plant	-	Within Plant	Industrial area
A2	**Nr. Brick Plant**	Within Plant	-	Within Plant	Industrial area
A3	**Nr. China colony**	Within Plant	-	Within Plant	Industrial area

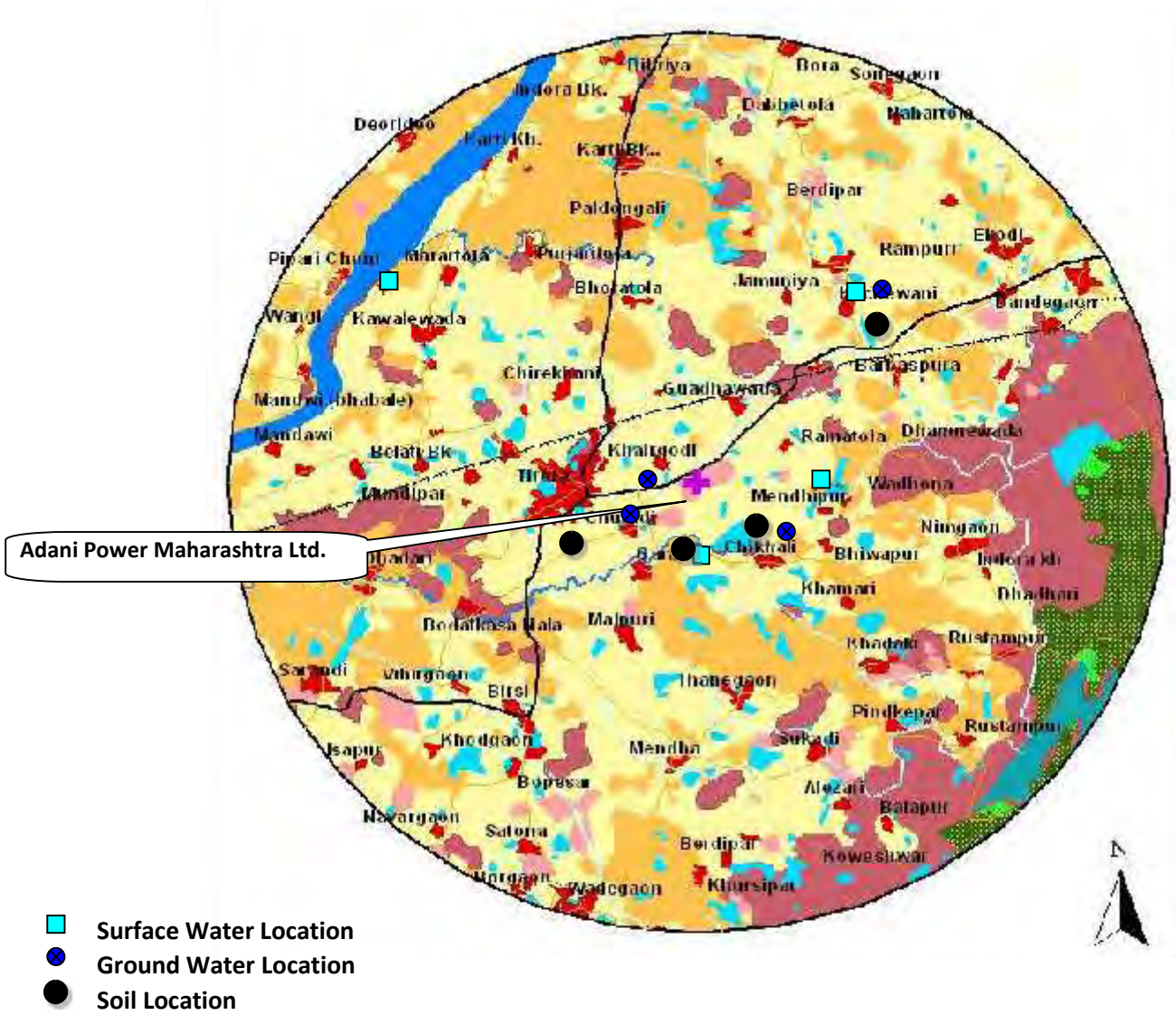


Figure : 2.1 SAMPLING LOCATIONS MAP

2.2 Water Quality

Water samples were collected at various locations within the area of 10 Km radius from the plant to assess the Physico-Chemical quality of Surface and Ground Quality water. Samples were collected as per the standard procedures. On site Parameters like Temperature, Electrical Conductivity, pH and Dissolved Oxygen were analyzed at-site using portable water analysis kit. Samples were collected by taking suitable precautions for preparation and transportation, particularly using sterilized bottles for bacteriological analysis. The details of the sampling locations are given in **Table-2.2** and **Figure.2.1** as depicted.

Water samples were collected on quarterly basis from 8 locations (Ground water 4, Surface water-4 Analytical methods mentioned in IS: 3025 and Standard Methods published by APHA were followed.

TABLE-2.2 WATER SAMPLING LOCATIONS

Surface Water				
Code	**Name of the monitoring Station**	**Distance from plant boundry (km)**	**Direction respect to plant**	**Source**
SW1	Wainganga River Water	7.0	NW	River
SW2	Mendipur Pond Water	2.0	SE	Pond
SW3	Garada Village Nalah water	3.0	SSW	Nalah water
SW4	Kachewani Pond water	3.0	NE	Pond water
Ground Water				
GW1	Kachewani Hand Pump	3.2	NE	Bore well
GW2	Mendipur Hand Pump	2.5	SE	Bore well
GW3	Garada Hand Pump	3.2	SW	Bore well
GW4	Chikhali Hand Pump	2.0	S	Bore well
Waste Water				
WW1	Cooling Tower Blow Down water Unit-1			In Plant
WW2	Cooling Tower Blow Down water Unit-2			In Plant
WW3	Cooling Tower Blow Down water Unit-3			In Plant
WW4	Cooling Tower Blow Down water Unit-4			In Plant
WW5	Cooling Tower Blow Down water Unit-5			In Plant
WW6	Condenser cooling water Unit -1			In Plant
WW7	Condenser cooling water Unit -2			In Plant
WW8	Condenser cooling water Unit -3			In Plant
WW9	Condenser cooling water Unit -4			In Plant
WW10	Condenser cooling water Unit -5			In Plant
WW11	Boiler Blow down water Unit-3			In Plant
WW12	DM plant effluent			In Plant
WW13	ETP Outlet water			In Plant
WW14	STP Outlet Water at Plant			In Plant
Piezometric Well water				
P1	Near AWRPH			In Plant
P2	B/H Ash dyke -1			In Plant
P3	Near Raw Water pump house -02			In Plant

2.3Noise Level:

Noise level at following in plant location and Buffer zone location were recorded by APML for the period of Oct.2019- Mar. 2020. Location details are given in **Table-2.3**, and as depicted in **Figure 2.1**

TABLE: 2.3 NOISE LEVEL LOCATIONS FOR THE PERIOD OF Oct.2019- Mar.2020

Code	Location	Location type	Remarks
NL- 1	Inside the plant	Near Shanti Niketan I, II & III	Industrial
NL- 2		Near Labour Hutment	Industrial
NL- 3		Near Store Area	Industrial
NL- 4		Gate No.1	Industrial
NL- 5		Gate No.2	Industrial
NL- 6		Gate No.3	Industrial
NL-7		Near OHC	Industrial
NL-8		Railway Siding	Industrial
NL-9		Near Reservoir 2	Industrial
NL-10		Near Ash Water Recovery Pump House	Industrial
NL-11		In China Colony	Industrial

2.4 Soil Quality:

Soil Samples collected at 4 locations around the plant zone on the seasonal basis for the period of Oct.2019- Mar. 2020. Location details are given in **Table-2.4**. and as depicted in **Figure.2.1**

TABLE: 2.4 SOIL SAMPLING LOCATIONS FOR THE PERIOD OF Oct 19- Mar.-2020

Code	Location	Location type	Remarks
S1	Buffer Zone	Adani Town ship	Agricultural Field
S2		Garada Village	Agricultural Field
S3		Mendipur Village	Agricultural Field
S4		Churadi Village	Agricultural Field

2.5 Methodology of Monitoring

2.5.1 Instruments Used

Samples were collected at *'Ambient Air'* monitoring locations' using standard *Fine dust sampler &* RDS sampler for monitoring PM2.5,PM10, SO2, NO2 concentrations. and analyzed as per *USEPA / IS* methods in APML Laboratories at site. Also Continuous Ambient Air Monitoring station installed (CAAQMS) at APML make Tyledyne and Met One instrument approved by USEPA.

On site Micro-meteorological data for wind direction, wind Speed, Temp, Relative humidity and Rainfall collected from APML.

Ground water, Surface water & Effluent water were analyzed for onsite parameters likeTemperature, Electrical Conductivity, pH and Dissolved Oxygen were analyzed on-site using portable water analysis kit**.** Samples are collected, preserved and sent for further analysis to Enviro Analysts & Engineers Pvt. Ltd, where other parameters like total hardness, chlorides, sulphate etc and heavy metals are analyzed as per requirements IS 3025/APHA methods.

Soil samples were analyzed for physical, chemical and heavy metal concentrations, using analytical methods.

Noise was measured at site locations using a noise level meter to determine sound levels in a scale as dB (A) This is suitable for audible range of 20 to 20,000 Hz for human being. Sound level monitoring done by APML.

Stack Monitoring kit having sensor probe was used to monitor stack data like Flue gas velocity, Volumetric flow of flue gas, Temperature of flue gas, Moisture content and other parameters like SPM, SO_2, NO_2 make by ECOTECH

2.5.2 Method of Analysis

Air samples were analyzed as per standard methods specified by Central Pollution Control Board (CPCB), EPA & IS method.

2.5.2.1 Meteorology

Micro-meteorological data was observed for wind direction and speed using wind vane and anemometer using an automatic met logger. The data was recorded at 1 hour interval. Wind speed & wind direction, Temperature, Rain fall, Relative humidity were recorded by Weather Monitoring Station at APML.

2.5.2.2 Ambient Air Quality (AAQ)

Sampling was carried out at each station during the stipulated study period using pre-calibrated Respirable Dust Samplers and Fine Dust Sampler in each of the stations by APML.

Earmarked samples were collected for Particulate Matter-PM_{10}, Particulate Matter-$PM_{2.5}$, SO_2 and NO_2 for 24 hourly.

The baseline data of air environment is generated for the parameters namely: Particulate Matter-$PM_{10,}$ $PM_{2.5}$, Sulphur Dioxide $SO_{2,}$ and Nitrogen DioxideNO_2 in APML

2.5.2.3 Stack Monitoring

Stack emission were analysed with the help of stack Kit (ECOTECH Stack Kit & Prob set, quarterly basis at Boiler Stack situated in plant. Height of the Boiler Stack was noted as, 275 m and I.D. 7.4m.Flue gas, Velocity, Temperature, Volume & Qty, Moisture Content, PM, SO_2,

NO_2, Hg were analyzed. The values obtained were then compared vis-a-vis with the standards prescribed by CPCB.

Iso-kinetic stack monitoring was conducted as per standard method IS 11255 (Part-3) specified in Emission Regulation Act Part to determine PM, SO_2 and NO_2, Data was collected and analysis was done for other parameters like Flue gas Velocity, Temperature, Volumetric flow rate, Moisture contents.

2.5.2.4 Water/Waste Water Quality

Water/Waste water samples were collected for physico-chemical and bacteriological parameters taking suitable Precautions. Temperature, pH, Dissolved Oxygen and Electrical conductivity were measured in the field while collecting the samples. Sterilized bottles were used to collect samples for bacteriological analysis, stored in ice and transported to the Laboratory.

Ground and surface water samples were analysed as per IS: 10500 and Waste Water samples were analysed as per IS: 3025. The analytical methods mentioned in IS: 3025 and Standard Methods published by APHA were followed. MPN Index of coli forms was found as per standard methods (IS: 1622).

2.5.2.5 Noise Level

Noise is defined as unwanted sound that creates interferences in speech, communication, causes annoyance, disturbance in work concentration and sleep, thus deteriorating the quality of Noise environment. In the present study, Noise monitoring has been conducted regularly by APML Since loudness of sound is the important parameter to assess the effects of particular activities on human being, hence noise level is measured for noise environment assessment. Hourly Sound Pressure level (SPL) was recorded with Sound Level Meter for 24 hours.

2.6 Analytical Procedures

2.6.1 Meteorology

The data obtained from field is used to as certain the wind percentage frequencies in the sixteen directions for wind speeds using Beaufort's scale in the range of 0-1.8, 1.8-3.6, 3.6 – 7.2, 7.2 – 14.4, 14.4 – 28.8 and >28.8 kmph. Average wind roses at twenty four hourly are prepared from the data collected. Temperature, Relative Humidity is monitoring by Automatic Weather Monitor (WM 271, Envirotech) and Rain fall by using Rain Gauge of WM 271.

2.6.2 Ambient Air Quality

Whatman GF/A & PTFE filter paper was used in Respirable dust sampler RDS and FPS Fine Particulate Sampler and weighed in electronic balance and computed as per standard methods.

Ambient Air samples were analyzed for SO_2 concentration levels by using Improved West-Gaeke method using spectrophotometer (HACH DR 5000) at a wavelength of 560 nm.NO2 conc. levels were estimated using Jacob and Hochheiser modified (Na-As) method using spectrophotometer (HACH DR 5000) at a wavelength of 540 nm

Sampling and Analytical Techniques

The techniques used for ambient air quality monitoring and minimum detectable levels are given in **Table-2.5**

TABLE- 2.5 (TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING)

Sr. No.	Parameter	Technique	Technical protocol	Minimum detectable limit ($\mu g/m^3$)
1	Respirable Particulate Matter	Respirable Dust Sampler (Gravimetric Method)	IS-5182 (Part-IV)	5.0
2	Fine Respirable Particulate Matter	Fine Respirable Dust Sampler (Gravimetric Method)	IS-5182 (Part-IV)	5.0
3	Sulphur dioxide	Improved West & Gaeke Method	IS-5182 (Part-II)	4.0
4	Nitrogen dioxide	Modified Jacob & Hochheiser Method	IS-5182 (Part-VI)	4.0

Chapter – 3

DATA ANALYSIS

3.0 DATA ANALYSIS

Environmental monitoring for the period of Oct.2019 - Mar.2020 consist, Collection and analysis of meteorological parameters, ambient air quality and ground water and surface water quality at different locations within study area selected for carrying out environmental monitoring around the plant site.

3.1 Meteorology

Meteorological data was collected on hourly basis for wind speed, Wind direction, temperature and relative humidity continuously. Total Rain fall for monthly basis during the period of Oct. 19- Mar. 2020 was measured and recorded and reported in the Environmental report.

Wind Pattern for the period Oct.2019- Mar. 2020.

The data recorded during the study period was analyzed and the daily maximum, minimum and total of all the parameters were observed. The summary of all the meteorological observations is given in **Table-3.1**.

TABLE- 3.1 METEOROLOGICAL DATA MONITORED AT SITE

(For the period of Oct-2019-Mar. 2020)

Month	Temperature (^{0}C)		Relative Humidity (%)		Rainfall (mm)
	Max	Min	Max	Min	(Total)
Oct. 2019	38.9	19.8	94.4	9.9	52.2
Nov. 2019	36.7	16.2	93.4	31.0	0.0
Dec. 2019	34.7	7.6	96.0	28.0	26.4
Jan. 2020	28.4	8.3	98.6	33.8	58.0
Feb. 2020	29.9	12.2	95.0	23.6	15.4
Mar.2020	33.6	16.6	93.1	29.7	32

*** Data collected using manual rain-guage.**

Temperature

The Temperature for the month of Oct.19 -Mar. 2020 was found to be within range of 7.6°C – 38.9°C.

Relative Humidity

The average relative humidity for the month of Oct.19 -Mar. 2020 was found to be within range of 9.9-99.6%.

Rain Fall

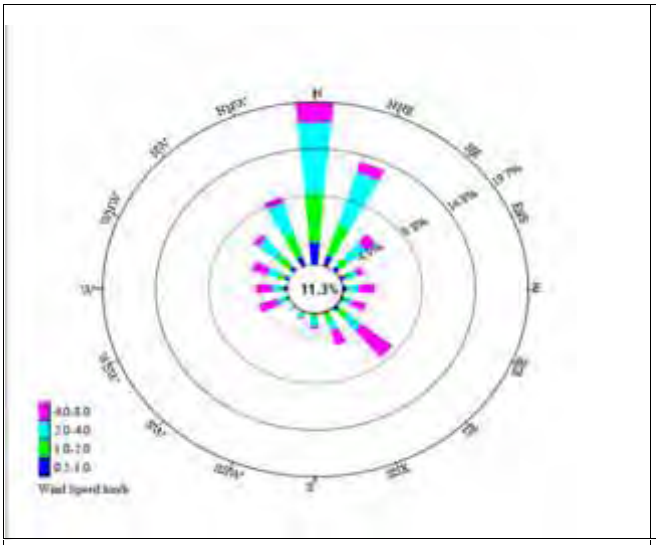
Total Rain fall found the period of Oct.19 -Mar. 2020 was 184 mm

Wind Speed/Direction

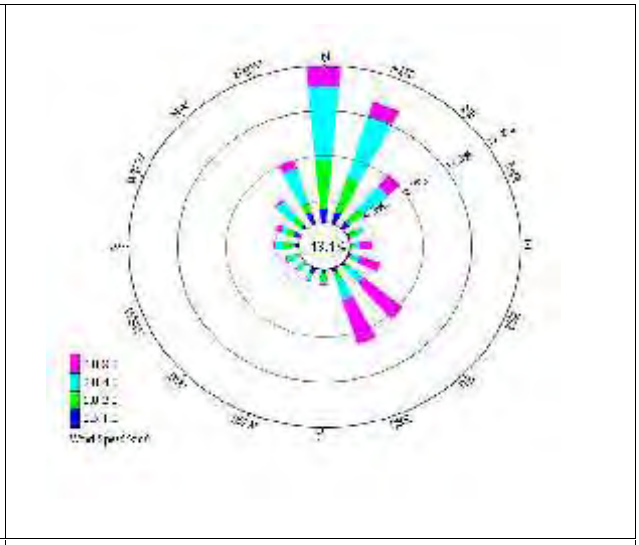
The wind speed and direction data collected during the period of Oct.2019 -Mar. 2020.

The wind roses plot using the collected data for Oct.19 -Mar. 2020 is given in **Figure-3.1**

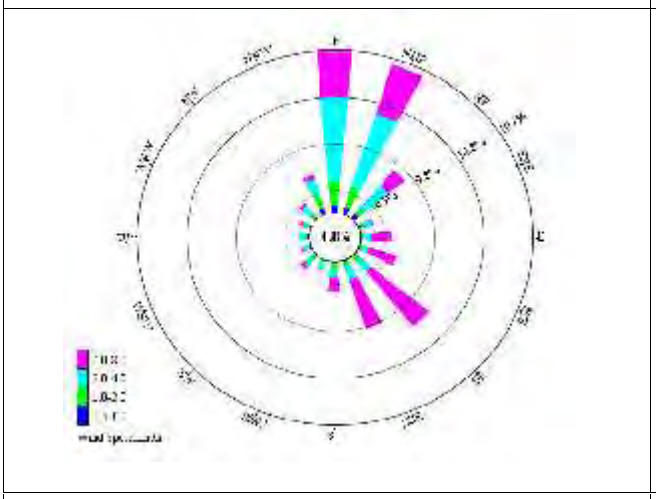
The first predominant wind direction during Oct.19 -Mar. 2020 was N. The calm condition ranges from 3.4 to 13.1%.



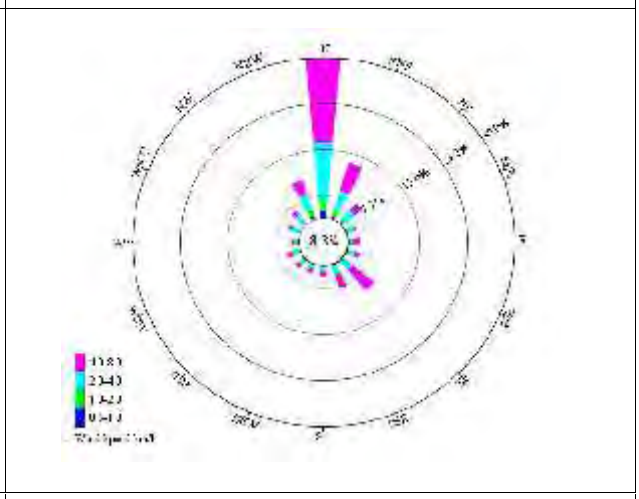
Wind rose for Oct. 2019



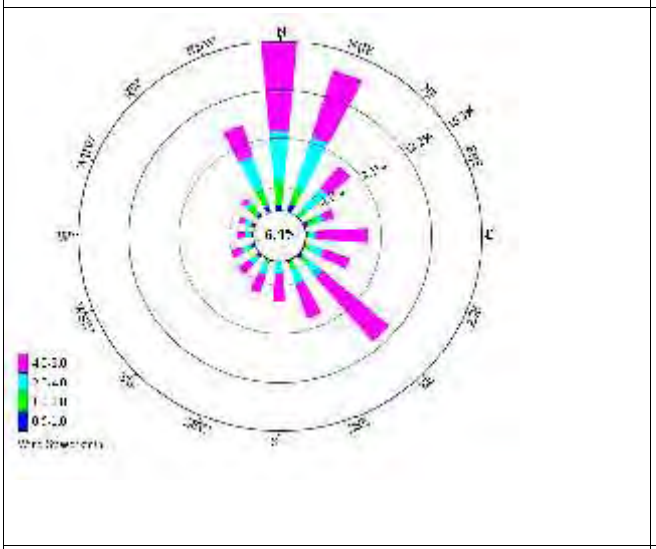
Wind rose for Nov. 2019



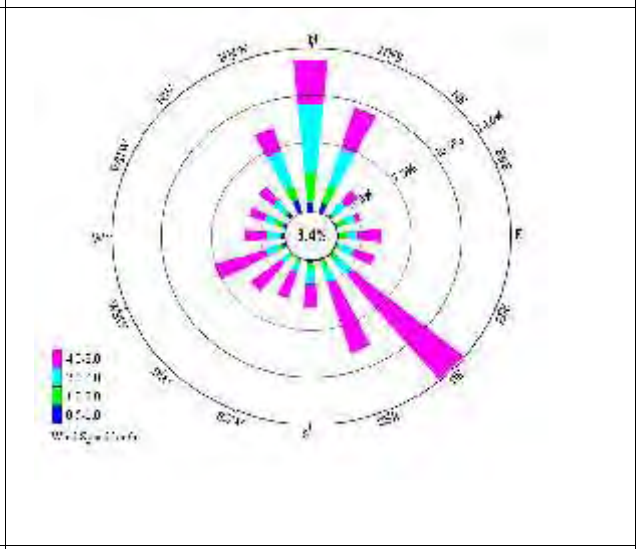
Wind rose for Dec. 2019



Wind rose for Jan. 2020



Wind rose for Feb. 2020



Wind rose for Mar. 2020

FIGURE-3.1 SITE SPECIFIC WINDROSE FOR Oct.2019 - Mar.2020

3.2 Ambient Air Quality

Ambient air quality has been carried out within plant for the period of Oct.2019- Mar. 2020. PM_{10}, $PM_{2.5}$, SO_2 & NO_2 sampling at all the locations is done for 24 hours average twice a week by APML. The values obtained were then compared vis-a-vis the standards prescribed by CPCB for Industrial/ Rural / Residential uses.

3.2.1 Presentation of Results.

The summary of Ambient Air Quality monitoring results for the period of Oct.2019- Mar. 2020 are presented in detail in **Table 3.2** for Inside plant area. 98th percentile; maximum and minimum values etc have been computed from the collected raw data for all the AAQ monitoring station. The data has been compared with the standards prescribed by Central Pollution Control Board (CPCB)/NAAQ for residential and rural zone.

Particulate Matter-PM10

The minimum and maximum concentrations during Oct.2019- Mar. 2020 in the plant area location for Particulate Matter-PM_{10} were recorded as 38.5 µg/m^3 and 93.7 µg/m^3 respectively. The minimum concentration was recorded at Near Brick Plant (A2) and maximum concentration at Near Chaina Colony (A3).

Particulate Matter-$PM_{2.5}$

The minimum and maximum concentrations in the plant area location for $PM_{2.5}$ were recorded as 10.4µg/m^3 and 47.3 µg/m^3 respectively. The minimum and maximum was recorded at Near Brick Plant (A2).

Sulphur Dioxide (SO_2)

The minimum and maximum SO_2 concentrations in the plant area location were recorded as 7.0 µg/m^3 and 21.5 µg/m^3 respectively. The minimum concentration was recorded at Near Brick plant (A2) & Near China colony (A3) respectively.

Nitrogen Dioxide (NO_2)

The minimum and maximum NO2 concentration in the plant area location were recorded as 12.0 µg/m^3 and 35.5 µg/m^3 respectively. The minimum concentration was recorded at Near Brick plant (A2)) and Near China colony (A3) respectively.

TABLE- 3.2 SUMMARY OF AMBIENT AIR QUALITY RESULT

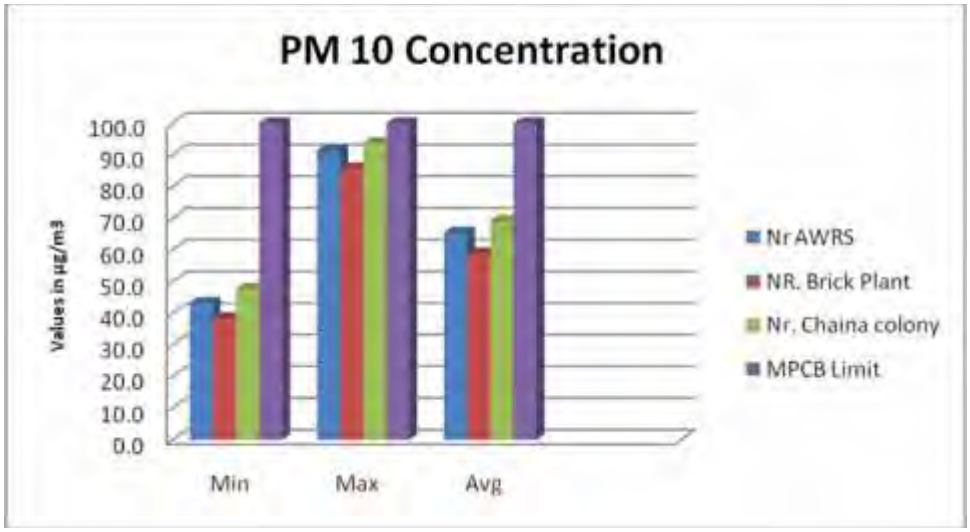
(Inside Plant Premises)

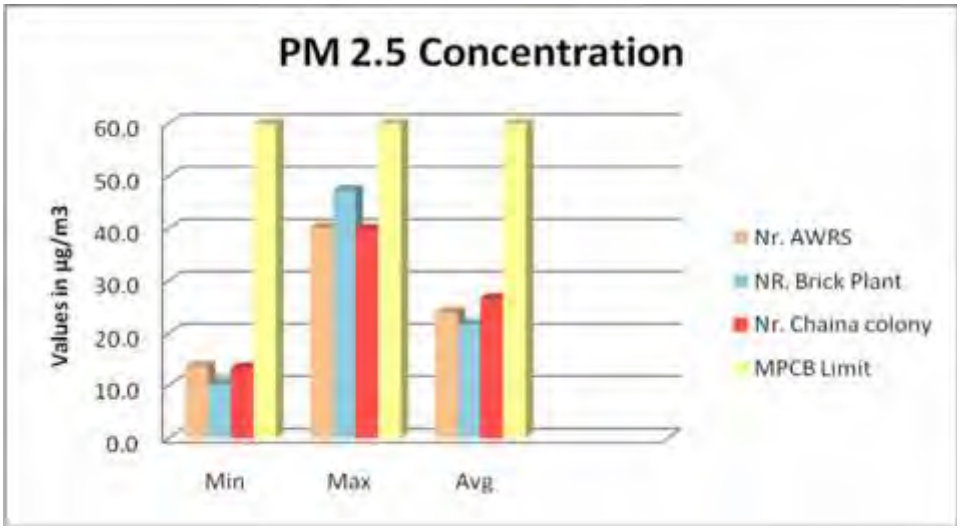
For the period of Oct. 19- Mar. 2020

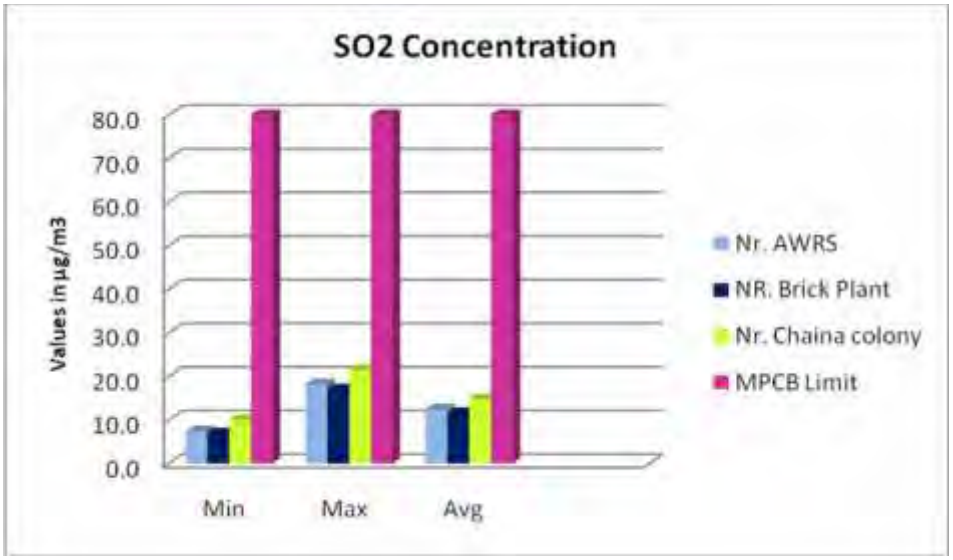
All values are µg/m3

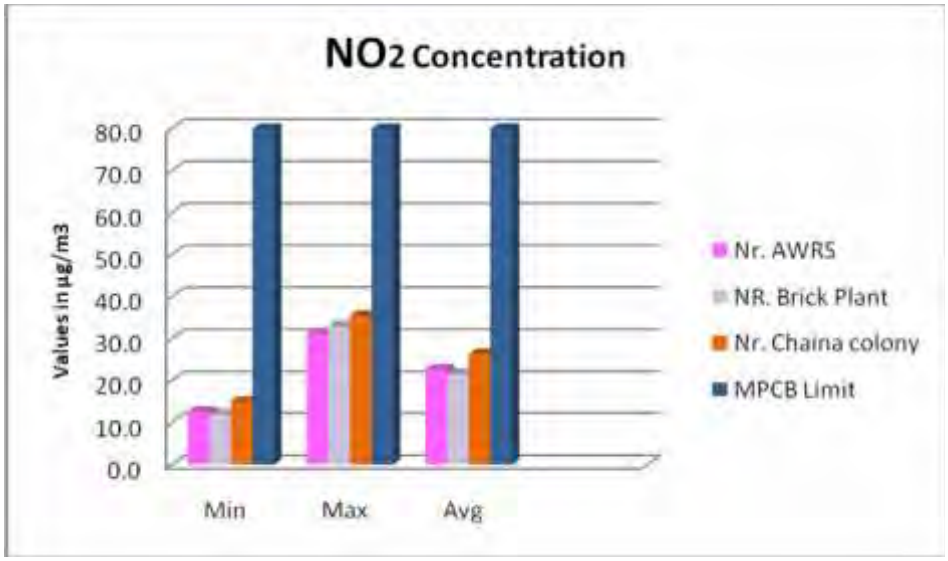
Location	PM_{10}			$PM_{2.5}$			SO2			NO_2		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg.	Min	Max	Avg.
Nr AWRS	43.2	91.3	65.5	13.7	40.2	24.0	7.4	18.2	12.5	12.6	31.3	22.6
Nr. Brick Plant	38.5	85.8	58.9	10.4	47.3	21.8	7.0	17.0	11.6	12.0	33.1	21.6
Nr. Chaina colony	47.7	93.7	69.2	13.4	39.8	26.6	10.0	21.5	14.8	15.0	35.5	26.4

MPCB Limit : PM_{10}= 100 µg/m3 $PM_{2.5}$ = 60 µg/m3 SO_2 = 80 µg/m3 (NO_2)= 80 µg/m3


PM 10 Concentration
Values in µg/m3
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Min
Max
Avg
Nr AWRS
NR. Brick Plant
Nr. Chaina colony
MPCB Limit


PM 2.5 Concentration
Values in µg/m3
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Min
Max
Avg
Nr. AWRS
NR. Brick Plant
Nr. Chaina colony
MPCB Limit





3.3 Stack Monitoring.

Stack monitoring is done with the help of stack Kit (ECOTECH Stack Kit) & Prob set, once in a quarter at Boiler Stack 1 to 5 situated in plant. Height of the Boiler Stack was noted as, 275m and I.D. 7.4m.Flue gas, Velocity, Temperature, Volume & Qty, PM, SO_2, NO_x, Hg are analysed. The values obtained are then compared vis-a-vis with the standards prescribed by CPCB.

3.3.1 Presentation of Results.

The Stack monitoring results for the period of Oct.2019- Mar. 2020 are presented in detail for various parameters like Flue gas, Velocity, Temperature, Volume & Qty, PM, SO_2, NOx, Hg values etc computed from the collected raw data for the Stack monitoring station. The summary of these results is presented below. The data has been compared with the standards prescribed by Central Pollution Control Board (CPCB)/MPCB

TABLE- 3.3 Stack Analysis Report for the period of Oct. 2019 - Mar.-2020

Power Plant (Unit-I to Unit 5)

PARAMETERS	CONCENTRATION									
	Unit I		Unit 2		Unit 3		Unit 4		Unit 5	
Date of Sampling	Nov.2019	Feb. 2020	Nov.2019	Feb. 2020	Nov.2019	Feb. 2020	Nov.2019	Feb. 2020	Nov.2019	Feb. 2020
Diameter of Stack (M)	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Height of Stack (M)	275	275	275	275	275	275	275	275	275	275
Temp. of exit gas (0 C)	131	124	128	126	121	128	120	126	122	125
Velocity of exit gas (m/sec)	23.8	23.24	23.52	23.10	23.20	23.54	23.52	23.80	23.30	23.95
Flow of exit gas at stack temp. & Press.(m3/hr)	3683091.89	3596430.90	3639761.39	3574765.66	3590240.83	3645856.43	3639761.39	3683091.89	3605716.00	3706304.47
Flow of exit gas at NTP(Nm3/hr)	2580899.29	2564608.53	2569617.08	2536381.35	2579688.27	2571802.13	2621924.81	2613241.39	2584248.61	2636318.71
PM (mg/Nm3)	45.3	43.8	47.3	46.6	40.7	47.7	38.8	40.9	41.4	36.6
Total dust emission (kg/hr)	116.91	112.33	121.54	118.2	104.99	122.67	101.73	106.88	106.99	96.49
SO2 (mg/Nm3)	942.7	967.3	921.8	940.7	944.3	930.7	912.8	920.2	870.3	914.4
SO2 (kg/hr)	2433.01	2480.74	2368.67	2385.97	2436.0	2763.30	2393.29	2404.70	2249.07	2410.65
SO2 (TPD)	58.39	59.54	56.84	57.26	58.46	66.32	57.43	57.71	53.98	57.85
NOx (mg/Nm3)	281.7	296.2	280.4	273.5	293.1	252.8	280.5	268.4	265.5	272.6
Mercury (mg/Nm3)	0.0294	0.0204	0.0281	0.0192	0.0276	0.0210	0.0262	0.0187	0.0282	0.0190

3.4 Water Quality

Ground water samples were collected at 4 locations and Surface water at 4 locations within the 10 km radial distance of power plant and analyzed as per IS 10500 to assess the quality of water for portability.

We have collected Four nos. samples of surface water and as well as ground water, also seven nos. samples of drinking water has been collected.

The surface water quality results are given in **Table-3.4**, the results of ground water quality is given in **Table-3.5** and the results of Waste water quality are given in **Table-3.6** the findings are discussed below.

3.4.1 Ground Water Quality.

Most of the villages in the Nearby plant area have hand pumps, as most of the residents of these area use of this water for drinking and other domestic uses.

The analysis results indicate that the pH ranges from 7.5 to 8.15 the maximum pH of 8.15 was observed at Medhipur Village (GW2) and the minimum pH of 7.5 observed at Kachewani Villages GW1 which is well within the specified standard of 6.5 to 8.5.

Total hardness was observed to be ranging from 206 to 410 mg/l. The maximum hardness 410 mg/l was recorded at Kachewani Village (GW1) and the minimum hardness of 206 mg/l was recorded at Mendipur village(GW2), Which is well within the specified standard 600mg/l.

Chlorides were found to be in the range of 24.2 mg/l to 184 mg/l, the maximum concentration of chlorides was observed at Kachewani Village (GW1) and the minimum concentration of chlorides was observed at Chikhali Village(GW4)

Sulphates were found to be in the range of 14.7 mg/l to 120mg/l. The maximum value observed at Kachewani Village (GW1) and the minimum value observed at Chikhali Village(GW4).
The values of Chlorides and sulphates are acceptable limits.
The analysis results indicate all parameter including bacteriological and heavy metal parameters are well within the drinking water standards.

3.4.2 Surface Water Quality.

The analysis results indicate that the pH values in the range of 8.05 to 8.40 the minimum value was observed at Mendipur and maximum value was observed at Wainganga River and Kachewani Pond which is well within the specified standard of 6.5 to 8.5.

TDS was observed in the range of 110 mg/l to 518 mg/l, the maximum TDS value was observed at Garada Nalah where as minimum value was observed in Wainganga, where as TDS is within Desirable limits.

Chlorides and Sulphates were found to be in the range of 9.1 to 26.2 mg/l and 6.0 to 18.1 mg/l respectively. It is observed that value of chlorides and Sulphates are well within acceptable limits. It is evident from the above values that all the parameters are found to comply with the requirements of IS: 10500 specification of surface water except bacteriological parameters. The surface water quality does not indicate any industrial contamination.

Heavy metals concentrations for metals like Arsenic (As), Mercury (Hg), Lead (Pb), Cadmium (Cd), Chromium (Cr) and Copper (Cu) were found to be within the acceptable limits.

3.4.3 Waste Water Quality

6 waste water samples were also collected, Analytical methods mentioned in IS: 3025 and Standard Methods published by APHA were followed. The summary of waste water quality collected on quarterly basis for the period of Oct.19- Mar. 2020 are given in **Table-3.6**

3.4.4 Pizo-Metric water

There were 3 Pizo meteric monitoried for water level and collectd water samples for Analytical methods mentioned in IS: 3025 and Standard Methods published by APHA were followed. The summary of pizo- metric water quality collected on half yearly basis for the period of Oct.19- Mar. 2020 are given in **Table-3.7**

3.5 Noise Level:

Noise level was measured by APML in basic units of dB(A) at eleven location inside the plant (industrial Area) during day time and Night time for 24Hrs.

Noise level was found within the acceptable limits during daytime as well as night time for all locations with reference to CPCB standard limits for Industrial area and Residential area.

Noise levels at following locations were recorded for the period of Oct.19- Mar.2020 on quarterly basis. The summary of Noise Level is given in **Table-3.8**

3.6 Soil Quality

Soil samples were collected at 4 locations within the 10 km radial distance of power plant were analyzed as per IS:2720 . The analysis results given in **Table-3.9.**

TABLE- 3.4 SURFACE WATER QUALITY

SW1: Wainganga River Water

Sr. No.	Test Parameters	Unit	As per IS 10500 : 2012	Results	
				Nov.2019	Feb. 2020
1	**Apparent Colour**	Hazen units	5 (15)	1.2	1.0
2	**Odour**	-	Agreeable	Agreeable	Agreeable
3	**Taste**	-	Agreeable	-	-
4	**Turbidity NTU**	NTU	1(5)	0.5	0.5
5	**Total Dissolved Solid**	mg / l	500 (2000)	110	122
6	**Electrical Conductivity**	µS/cm	-	180	198
7	**Total Alkalinity**	mg / l	200 (600)	86	90
8	**pH Value** at 25°C	-	6.5 to 8.5	8.40	8.10
9	**Total Hardness (CaCO3)**	mg / l	200 (600)	76.2	80
10	**Calcium (as Ca)**	mg / l	75 (200)	22.2	24.2
11	**Magnesium (as Mg)**	mg / l	30 (100)	5.03	4.73
12	**Copper as(Cu)**	mg / l	0.05(1.5)	< 0.01	< 0.01
13	**Iron (as Fe)**	mg / l	0.3	< 0.07	< 0.07
14	**Manganese as (Mn)**	mg / l	0.1(0.3)	< 0.01	< 0.01
15	**Chlorides (as Cl)**	mg / l	250(1000)	9.1	10.3
16	**Sulphate (as SO4)**	mg / l	200 (400)	6.0	7.2
17	**Nitrates (as NO3)**	mg / l	45	2.15	2.10
18	**Fluoride (as F)**	mg / l	1.0 (1.5)	0.35	0.35
19	**Phenolic Compounds**	mg / l	0.001	BDL	BDL
20	**Mercury as (Hg)**	mg / l	0.001	< 0.0005	< 0.0005
21	**Cadmium as (Cd)**	mg / l	0.003	< 0.001	< 0.001
22	**Selenium as (Se)**	mg / l	0.01	< 0.001	< 0.001
23	**Arsenic as (As)**	mg / l	0.01 (0.05)	BDL	BDL
24	**Cyanide as (CN)**	mg / l	0.05	< 0.005	< 0.005
25	**Lead as (Pb)**	mg / l	0.01	< 0.001	< 0.001
26	**Zinc as (Zn)**	mg / l	5 (15)	0.11	0.14
27	**Total Chromium as (Cr)**	mg / l	0.05	< 0.03	< 0.03

28	**Mineral Oil**	mg / l	0.05	< 0.01	< 0.01
29	**Free Residual Chlorine**	mg / l	0.2 (1.0)	Nil	Nil
30	**Total Coliform**	MPN/100 ml	Absent	>16	>16
31	**E. Coli**	Nos./100 ml	Absent	> 16	> 16

Note : Standards limit given as Acceptable Limit (Permissible Limit)

SW2: Mendipur Pond Water

Sr. No.	Test Parameters	Unit	As per IS 10500 : 2012	Results	
				Nov.2019	Feb. 2020
1	**Apparent Colour**	Hazen units	5 (15)	1.5	1.0
2	**Odour**	-	Agreeable	Agreeable	Agreeable
3	**Taste**	-	Agreeable	-	-
4	**Turbidity NTU**	NTU	1(5)	1.2	0.7
5	**Total Dissolved Solid**	mg / l	500 (2000)	152	138
6	**Electrical Conductivity**	µS/cm	-	256	230
7	**Total Alkalinity**	mg / l	200 (600)	124	124
8	**pH Value** at 25°C	-	6.5 to 8.5	8.30	8.05
9	**Total Hardness (CaCO3)**	mg / l	200 (600)	94	88
10	**Calcium (as Ca)**	mg / l	75 (200)	30.2	28.2
11	**Magnesium (as Mg)**	mg / l	30 (100)	4.5	4.25
12	**Copper as(Cu)**	mg / l	0.05(1.5)	< 0.01	< 0.01
13	**Iron (as Fe)**	mg / l	0.3	0.075	0.070
14	**Manganese as (Mn)**	mg / l	0.1(0.3)	0.010	0.010
15	**Chlorides (as Cl)**	mg / l	250(1000)	11.2	10.4
16	**Sulphate (as SO4)**	mg / l	200 (400)	9.3	8.7
17	**Nitrates (as NO3)**	mg / l	45	4.8	2.85
18	**Fluoride (as F)**	mg / l	1.0 (1.5)	0.40	0.35
19	**Phenolic Compounds**	mg / l	0.001	BDL	BDL
20	**Mercury as (Hg)**	mg / l	0.001	< 0.0005	< 0.0005
21	**Cadmium as (Cd)**	mg / l	0.003	< 0.001	< 0.001
22	**Selenium as (Se)**	mg / l	0.01	< 0.001	< 0.001
23	**Arsenic as (As)**	mg / l	0.01 (0.05)	BDL	BDL
24	**Cyanide as (CN)**	mg / l	0.05	< 0.005	< 0.005
25	**Lead as (Pb)**	mg / l	0.01	< 0.001	< 0.001
26	**Zinc as (Zn)**	mg / l	5 (15)	0.15	0.12
27	**Total Chromium as (Cr)**	mg / l	0.05	< 0.03	< 0.03
28	**Mineral Oil**	mg / l	0.05	< 0.01	< 0.01
29	**Free Residual Chlorine**	mg / l	0.2 (1.0)	Nil	Nil
30	**Total Coliform**	MPN/100 ml	Absent	> 16	> 16
31	**E. Coli**	Nos./100 ml	Absent	> 16	> 16

Note : Standards limit given as Acceptable Limit (Permissible Limit)

SW3: Garada Village Nalah water

Sr. No.	Test Parameters	Unit	As per IS 10500 : 2012	Results	
				Nov.2019	Feb. 2020
1	**Apparent Colour**	Hazen units	5 (15)	1.0	1.0
2	**Odour**	-	Agreeable	Agreeable	Agreeable
3	**Taste**	-	Agreeable	-	-
4	**Turbidity NTU**	NTU	1(5)	0.5	0.7
5	**Total Dissolved Solid**	mg / l	500 (2000)	332	518
6	**Electrical Conductivity**	µS/cm	-	538	836
7	**Total Alkalinity**	mg / l	200 (600)	164	190
8	**pH Value** at 25°C	-	6.5 to 8.5	8.35	8.15
9	**Total Hardness (CaCO3)**	mg / l	200 (600)	170	232
10	**Calcium (as Ca)**	mg / l	75 (200)	42.8	56.2
11	**Magnesium (as Mg)**	mg / l	30 (100)	15.3	22.2
12	**Copper as(Cu)**	mg / l	0.05(1.5)	< 0.01	< 0.01
13	**Iron (as Fe)**	mg / l	0.3	0.10	0.09
14	**Manganese as (Mn)**	mg / l	0.1(0.3)	< 0.01	< 0.01
15	**Chlorides (as Cl)**	mg / l	250(1000)	18.2	26.2
16	**Sulphate (as SO4)**	mg / l	200 (400)	13.7	18.1
17	**Nitrates (as NO3)**	mg / l	45	4.2	3.70
18	**Fluoride (as F)**	mg / l	1.0 (1.5)	0.45	0.40
19	**Phenolic Compounds**	mg / l	0.001	BDL	BDL
20	**Mercury as (Hg)**	mg / l	0.001	< 0.0005	< 0.0005
21	**Cadmium as (Cd)**	mg / l	0.003	< 0.001	< 0.001
22	**Selenium as (Se)**	mg / l	0.01	< 0.001	< 0.001
23	**Arsenic as (As)**	mg / l	0.01 (0.05)	BDL	BDL
24	**Cyanide as (CN)**	mg / l	0.05	< 0.005	< 0.005
25	**Lead as (Pb)**	mg / l	0.01	< 0.001	< 0.001
26	**Zinc as (Zn)**	mg / l	5 (15)	0.20	0.26
27	**Total Chromium as (Cr)**	mg / l	0.05	< 0.03	< 0.03
28	**Mineral Oil**	mg / l	0.05	< 0.01	< 0.01
29	**Free Residual Chlorine**	mg / l	0.2 (1.0)	Nil	Nil
30	**Total Coliform**	MPN/100 ml	Absent	> 16	> 16
31	**E. Coli**	Nos./100 ml	Absent	> 16	> 16

Note : Standards limit given as Acceptable Limit (Permissible Limit)

SW4: Kachewani Pond water

Sr. No.	Test Parameters	Unit	As per IS 10500 : 2012	Results	
				Nov.2019	Feb. 2020
1	**Apparent Colour**	Hazen units	5 (15)	2.0	1.5
2	**Odour**	-	Agreeable	Agreeable	Agreeable
3	**Taste**	-	Agreeable	-	-
4	**Turbidity NTU**	NTU	1(5)	1.2	1.0
5	**Total Dissolved Solid**	mg / l	500 (2000)	168	116
6	**Electrical Conductivity**	µS/cm	-	274	190
7	**Total Alkalinity**	mg / l	200 (600)	170	170
8	**pH Value** at 25°C	-	6.5 to 8.5	8.30	8.40
9	**Total Hardness (CaCO3)**	mg / l	200 (600)	104	80
10	**Calcium (as Ca)**	mg / l	75 (200)	30.2	24.0
11	**Magnesium (as Mg)**	mg / l	30 (100)	6.9	4.9
12	**Copper as(Cu)**	mg / l	0.05(1.5)	< 0.01	< 0.01
13	**Iron (as Fe)**	mg / l	0.3	0.070	0.075
14	**Manganese as (Mn)**	mg / l	0.1(0.3)	< 0.01	< 0.01
15	**Chlorides (as Cl)**	mg / l	250(1000)	10.3	9.6
16	**Sulphate (as SO4)**	mg / l	200 (400)	8.5	7.0
17	**Nitrates (as NO3)**	mg / l	45	2.9	2.20
18	**Fluoride (as F)**	mg / l	1.0 (1.5)	0.35	0.30
19	**Phenolic Compounds**	mg / l	0.001	BDL	BDL
20	**Mercury as (Hg)**	mg / l	0.001	< 0.0005	< 0.0005
21	**Cadmium as (Cd)**	mg / l	0.003	< 0.001	< 0.001
22	**Selenium as (Se)**	mg / l	0.01	< 0.001	< 0.001
23	**Arsenic as (As)**	mg / l	0.01 (0.05)	BDL	BDL
24	**Cyanide as (CN)**	mg / l	0.05	< 0.005	< 0.005
25	**Lead as (Pb)**	mg / l	0.01	< 0.001	< 0.001
26	**Zinc as (Zn)**	mg / l	5 (15)	0.12	0.10
27	**Total Chromium as (Cr)**	mg / l	0.05	< 0.03	< 0.03
28	**Mineral Oil**	mg / l	0.05	< 0.01	< 0.01
29	**Free Residual Chlorine**	mg / l	0.2 (1.0)	Nil	Nil
30	**Total Coliform**	MPN/100 ml	Absent	> 16	> 16
31	**E.Coli**	Nos./100 ml	Absent	> 16	> 16

Note : Standards limit given as Acceptable Limit (Permissible Limit)

TABLE- 3.5 GROUND WATER REPORT

Monitoring Date: 27.11.2019

STATIC WATER LEVEL OF OPEN WELL						
Name of village	**Plinth Height (m)**	**Diameter (m)**	**Water level from G.L. (m)**	**Shape**	**Total Depth of well from G.L (m)**	**Landmark**
Mendipur	0.85	1.45	3.90	Round	11.00	**Near Vitoba Ahinshak Suryavanshi Residence**
Khairbori	1.10	1.83	2.10	Round	10.10	**Near Hanuman Temple, Durga Temple**
Churadi	1.20	2.60	6.00	Round	11.60	**Near Primary School**
Kachewani	1.5	4.80	2.50	Round	12.30	**Opp. ZP. school**

Monitoring Date: 18.02.2020

STATIC WATER LEVEL OF OPEN WELL						
Name of village	**Plinth Height (m)**	**Diameter (m)**	**Water level from G.L. (m)**	**Shape**	**Total Depth of well from G.L (m)**	**Landmark**
Mendipur	0.85	1.45	5.45	Round	11.00	**Near Vitoba Ahinshak Suryavanshi Residence**
Khairbori	1.10	1.83	4.35	Round	10.10	**Near Hanuman Temple, Durga Temple**
Churadi	1.20	2.60	7.05	Round	11.60	**Near Primary School**
Kachewani	1.5	4.80	4.45	Round	12.30	**Opp. ZP. school**

GROUND WATER QUALITY

GW1: Kachewani Hand Pump water

Sr. No.	Test Parameters	Unit	As per IS 10500 : 2012	Results	
				Nov.2019	Feb. 2020
1	**Apparent Colour**	Hazen units	5 (15)	0.1	0.1
2	**Odour**	-	Agreeable	Agreeable	Agreeable
3	**Taste**	-	Agreeable	Agreeable	Agreeable
4	**Turbidity NTU**	NTU	1(5)	0.1	0.1
5	**Total Dissolved Solid**	mg / l	500 (2000)	824	790
6	**Electrical Conductivity**	µS/cm	-	1334	1280
7	**Total Alkalinity**	mg / l	200 (600)	190	172
8	**pH Value** at 25°C	-	6.5 to 8.5	7.7	7.5
9	**Total Hardness (CaCO3)**	mg / l	200 (600)	410	362
10	**Calcium (as Ca)**	mg / l	75 (200)	98.8	86.2
11	**Magnesium (as Mg)**	mg / l	30 (100)	39.60	35.6
12	**Copper as(Cu)**	mg / l	0.05(1.5)	< 0.01	< 0.01
13	**Iron (as Fe)**	mg / l	0.3	0.12	0.10
14	**Manganese as (Mn)**	mg / l	0.1(0.3)	0.008	0.006
15	**Chlorides (as Cl)**	mg / l	250(1000)	184	158
16	**Sulphate (as SO4)**	mg / l	200 (400)	120	104
17	**Nitrates (as NO3)**	mg / l	45	2.40	2.20
18	**Fluoride (as F)**	mg / l	1.0 (1.5)	0.70	0.80
19	**Phenolic Compounds**	mg / l	0.001	BDL	BDL
20	**Mercury as (Hg)**	mg / l	0.001	< 0.0005	< 0.0005
21	**Cadmium as (Cd)**	mg / l	0.003	< 0.001	< 0.001
22	**Selenium as (Se)**	mg / l	0.01	< 0.001	< 0.001
23	**Arsenic as (As)**	mg / l	0.01 (0.05)	BDL	BDL
24	**Cyanide as (CN)**	mg / l	0.05	< 0.005	< 0.005
25	**Lead as (Pb)**	mg / l	0.01	< 0.001	< 0.001
26	**Zinc as (Zn)**	mg / l	5 (15)	0.74	0.68
27	**Total Chromium as (Cr)**	mg / l	0.05	< 0.03	< 0.03
28	**Mineral Oil**	mg / l	0.05	< 0.01	< 0.01
29	**Free Residual Chlorine**	mg / l	0.2 (1.0)	< 0.1	< 0.1
30	**Total Coliform**	MPN/100 ml	Absent	Absent	Absent
31	**E. Coli**	Nos./100 ml	Absent	Absent	Absent

Note : Standards limit given as Acceptable Limit (Permissible Limit)

GW2: Medipur Hand Pump water

Sr. No.	Test Parameters	Unit	As per IS 10500 :2012	Results	
				Nov.2019	Feb. 2020
1	**Apparent Colour**	Hazen units	5 (15)	0.1	0.1
2	**Odour**	-	Agreeable	Agreeable	Agreeable
3	**Taste**	-	Agreeable	Agreeable	Agreeable
4	**Turbidity NTU**	NTU	1(5)	0.1	0.1
5	**Total Dissolved Solid**	mg / l	500 (2000)	540	394
6	**Electrical Conductivity**	µS/cm	-	870	640
7	**Total Alkalinity**	mg / l	200 (600)	210	180
8	**pH Value** at 25°C	-	6.5 to 8.5	8.15	7.80
9	**Total Hardness (CaCO3)**	mg / l	200 (600)	236	206
10	**Calcium (as Ca)**	mg / l	75 (200)	66.2	54.8
11	**Magnesium (as Mg)**	mg / l	30 (100)	17.1	16.8
12	**Copper as(Cu)**	mg / l	0.05(1.5)	< 0.01	< 0.01
13	**Iron (as Fe)**	mg / l	0.3	0.09	0.085
14	**Manganese as (Mn)**	mg / l	0.1(0.3)	< 0.01	< 0.01
15	**Chlorides (as Cl)**	mg / l	250(1000)	44.5	28.2
16	**Sulphate (as SO4)**	mg / l	200 (400)	26.2	15.7
17	**Nitrates (as NO3)**	mg / l	45	2.35	2.15
18	**Fluoride (as F)**	mg / l	1.0 (1.5)	0.75	0.80
19	**Phenolic Compounds**	mg / l	0.001	BDL	BDL
20	**Mercury as (Hg)**	mg / l	0.001	< 0.0005	< 0.0005
21	**Cadmium as (Cd)**	mg / l	0.003	< 0.001	< 0.001
22	**Selenium as (Se)**	mg / l	0.01	< 0.001	< 0.001
23	**Arsenic as (As)**	mg / l	0.01 (0.05)	BDL	BDL
24	**Cyanide as (CN)**	mg / l	0.05	< 0.005	< 0.005
25	**Lead as (Pb)**	mg / l	0.01	< 0.001	< 0.001
26	**Zinc as (Zn)**	mg / l	5 (15)	0.48	0.35
27	**Total Chromium as (Cr)**	mg / l	0.05	< 0.03	< 0.03
28	**Mineral Oil**	mg / l	0.05	< 0.01	< 0.01
29	**Free Residual Chlorine**	mg / l	0.2 (1.0)	< 0.1	< 0.1
30	**Total Coliform**	MPN/100 ml	Absent	Absent	Absent
31	**E.Coli**	Nos./100 ml	Absent	Absent	Absent

Note : Standards limit given as Acceptable Limit (Permissible Limit)

GW3: Garada Hand Pump water

Sr. No.	Test Parameters	Unit	As per IS 10500 : 2012	Results	
				Nov.2019	Feb. 2020
1	**Apparent Colour**	Hazen units	5 (15)	0.1	0.1
2	**Odour**	-	Agreeable	Agreeable	Agreeable
3	**Taste**	-	Agreeable	Agreeable	Agreeable
4	**Turbidity NTU**	NTU	1(5)	0.1	0.1
5	**Total Dissolved Solid**	mg / l	500 (2000)	760	534
6	**Electrical Conductivity**	µS/cm	-	1220	872
7	**Total Alkalinity**	mg / l	200 (600)	194	186
8	**pH Value** at 25°C	-	6.5 to 8.5	7.50	7.60
9	**Total Hardness (CaCO3)**	mg / l	200 (600)	324	310
10	**Calcium (as Ca)**	mg / l	75 (200)	84.2	78.2
11	**Magnesium (as Mg)**	mg / l	30 (100)	27.6	27.8
12	**Copper as(Cu)**	mg / l	0.05(1.5)	< 0.01	< 0.01
13	**Iron (as Fe)**	mg / l	0.3	0.15	0.10
14	**Manganese as (Mn)**	mg / l	0.1(0.3)	< 0.01	< 0.01
15	**Chlorides (as Cl)**	mg / l	250(1000)	120.2	92.3
16	**Sulphate (as SO4)**	mg / l	200 (400)	41.4	36.1
17	**Nitrates (as NO3)**	mg / l	45	2.20	2.15
18	**Fluoride (as F)**	mg / l	1.0 (1.5)	0.70	0.75
19	**Phenolic Compounds**	mg / l	0.001	BDL	BDL
20	**Mercury as (Hg)**	mg / l	0.001	< 0.0005	< 0.0005
21	**Cadmium as (Cd)**	mg / l	0.003	< 0.001	< 0.001
22	**Selenium as (Se)**	mg / l	0.01	< 0.001	< 0.001
23	**Arsenic as (As)**	mg / l	0.01 (0.05)	BDL	BDL
24	**Cyanide as (CN)**	mg / l	0.05	< 0.005	< 0.005
25	**Lead as (Pb)**	mg / l	0.01	< 0.001	< 0.001
26	**Zinc as (Zn)**	mg / l	5 (15)	0.42	0.38
27	**Total Chromium as (Cr)**	mg / l	0.05	< 0.03	< 0.03
28	**Mineral Oil**	mg / l	0.05	< 0.01	< 0.01
29	**Free Residual Chlorine**	mg / l	0.2 (1.0)	< 0.1	< 0.1
30	**Total Coliform**	MPN/100 ml	Absent	Absent	Absent
31	**E. Coli**	Nos./100 ml	Absent	Absent	Absent

Note : Standards limit given as Acceptable Limit (Permissible Limit)

GW4: Chikhali Hand Pump water

Sr. No.	Test Parameters	Unit	As per IS 10500 : 2012	Results	
				Nov.2019	Feb. 2020
1	**Apparent Colour**	Hazen units	5 (15)	0.1	0.1
2	**Odour**	-	Agreeable	Agreeable	Agreeable
3	**Taste**	-	Agreeable	Agreeable	Agreeable
4	**Turbidity NTU**	NTU	1(5)	0.1	0.1
5	**Total Dissolved Solid**	mg / l	500 (2000)	490	552
6	**Electrical Conductivity**	µS/cm	-	794	898
7	**Total Alkalinity**	mg / l	200 (600)	216	222
8	**pH Value** at 25°C	-	6.5 to 8.5	8.1	8.20
9	**Total Hardness (CaCO3)**	mg / l	200 (600)	214	230
10	**Calcium (as Ca)**	mg / l	75 (200)	67.2	69.2
11	**Magnesium (as Mg)**	mg / l	30 (100)	11.2	13.8
12	**Copper as(Cu)**	mg / l	0.05(1.5)	< 0.01	< 0.01
13	**Iron (as Fe)**	mg / l	0.3	0.10	0.12
14	**Manganese as (Mn)**	mg / l	0.1(0.3)	< 0.01	< 0.01
15	**Chlorides (as Cl)**	mg / l	250(1000)	24.2	27.7
16	**Sulphate (as SO4)**	mg / l	200 (400)	14.7	16.2
17	**Nitrates (as NO3)**	mg / l	45	2.15	2.10
18	**Fluoride (as F)**	mg / l	1.0 (1.5)	0.70	0.80
19	**Phenolic Compounds**	mg / l	0.001	BDL	BDL
20	**Mercury as (Hg)**	mg / l	0.001	< 0.0005	< 0.0005
21	**Cadmium as (Cd)**	mg / l	0.003	< 0.001	< 0.001
22	**Selenium as (Se)**	mg / l	0.01	< 0.001	< 0.001
23	**Arsenic as (As)**	mg / l	0.01 (0.05)	BDL	BDL
24	**Cyanide as (CN)**	mg / l	0.05	< 0.005	< 0.005
25	**Lead as (Pb)**	mg / l	0.01	< 0.001	< 0.001
26	**Zinc as (Zn)**	mg / l	5 (15)	0.20	0.26
27	**Total Chromium as (Cr)**	mg / l	0.05	< 0.03	< 0.03
28	**Mineral Oil**	mg / l	0.05	< 0.01	< 0.01
29	**Free Residual Chlorine**	mg / l	0.2 (1.0)	< 0.1	< 0.1
30	**Total Coliform**	MPN/100 ml	Absent	Absent	Absent
31	**E. Coli**	Nos./100 ml	Absent	Absent	Absent

Note : Standards limit given as Acceptable Limit (Permissible Limit)

TABLE- 3.6 WASTE WATER QUALITY (Oct. 2019- Mar. 2020)

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

Sr. No.	Parameters	Unit	MPCB Limit	Results	
				Nov.2019	Feb. 2020
1.	Free Available Chlorine	mg / l	0.5	0.22	0.24
2.	Zinc as (Zn)	mg / l	1.0	0.20	0.18
3.	Total Chromium as (Cr)	mg / l	0.2	0.013	0.012
4.	Phosphate as (PO4)	mg/ l	5.0	1.37	1.34

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

Sr. No.	Parameters	Unit	MPCB Limit	Results	
				Nov.2019	Feb. 2020
1.	Free Available Chlorine	mg / l	0.5	0.24	0.20
2.	Zinc as (Zn)	mg / l	1.0	0.26	0.23
3.	Total Chromium as (Cr)	mg / l	0.2	0.016	0.012
4.	Phosphate as (PO4)	mg/ l	5.0	1.31	1.33

Sample Category : Unit-3 - Cooling Tower Blow Down water (WW-3)

Sr. No.	Parameters	Unit	MPCB Limit	Results	
				Nov.2019	Feb. 2020
1.	Free Available Chlorine	mg / l	0.5	0.25	0.22
2.	Zinc as (Zn)	mg / l	1.0	0.22	0.18
3.	Total Chromium as (Cr)	mg / l	0.2	0.011	0.012
4.	Phosphate as (PO4)	mg/ l	5.0	1.34	1.30

Sample Category : Unit-4-Cooling Tower Blow Down water (WW-4)

Sr. No.	Parameters	Unit	MPCB Limit	Results	
				Nov.2019	Feb. 2020
1.	Free Available Chlorine	mg / l	0.5	0.30	0.25
2.	Zinc as (Zn)	mg / l	1.0	0.26	0.21
3.	Total Chromium as (Cr)	mg / l	0.2	0.014	0.011
4.	Phosphate as (PO4)	mg/ l	5.0	1.33	1.35

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

Sr. No.	Parameters	Unit	MPCB Limit	Results	
				Nov.2019	Feb. 2020
1.	Free Available Chlorine	mg / l	0.5	0.24	0.20
2.	Zinc as (Zn)	mg / l	1.0	0.18	0.15
3.	Total Chromium as (Cr)	mg / l	0.2	0.012	0.010
4.	Phosphate as (PO4)	mg/ l	5.0	1.36	1.32

Sample Particulars: Treated Effluent Water (ETP Outlet) (WW- 6)

Sr. No.	Parameters	Unit	MPCB Limits	Results	
				Nov.2019	Feb.2020
1	pH Value at 25^{o}C	-	5.5-9.0	7.95	7.3
2	TSS	mg / l	100	24	21
3	TDS	mg / l	2100	230	232
4	COD	mg / l	250	68.2	35
5	BOD at 27^{0}C for 3 days	mg / l	100	13.2	17
6	Oil & Grease	mg / l	10	5.5	0.4

TABLE- 3.7 Piezometer well water Report

Monitoring Date: 18.02.2020

	STATIC WATER LEVEL OF PIZO. WELL			
Name of village	**Water level from B.G.L. (m)**	**Total Depth of Pizo well from G.L (m)**	**Total Depth of Pizo well with Casing (m)**	**Landmark**
Pizo well (P1)	1.7	18.6	19.8	Near AWRPH
Pizo well (P2)	1.5	20.0	21.0	B/H Ash dyke -1
Pizo well (P3)	1.5	20.0	20.7	Near Raw Water pump house -02

Piezometer well water Analysis Report

Sr. No.	Test Parameters	Unit	As per IS 10500 : 2012	Pizo well (P1) Near AWRPH	Pizo well (P2) B/H Ash dyke -1	Pizo -well (P3) Near Raw Water pump house -02
1	pH		6.5 to 8.5	7.95	8.05	7.85
2	Total Dissolved Solid	mg / l	500 (2000)	492	574	570
3	Electrical Conductivity	µS/cm	-	804	930	922
4	Copper as(Cu)	mg / l	0.05 (1.5)	< 0.01	< 0.01	< 0.01
5	Iron (as Fe)	mg / l	0.3 (1.0)	0.15	0.15	0.11
6	Manganese as (Mn)	mg / l	0.1 (0.3)	0.080	0.085	0.087
7	Mercury as (Hg)	mg / l	0.001	< 0.0005	< 0.0005	< 0.0005
8	Cadmium as (Cd)	mg / l	0.01	0.0017	0.0021	0.0011
9	Selenium as (Se)	mg / l	0.01	0.0012	0.0019	0.0015
10	Arsenic as (As)	mg / l	0.05	0.011	0.012	0.010
11	Cyanide as (CN)	mg / l	0.05	< 0.005	< 0.005	< 0.005
12	Lead as (Pb)	mg / l	0.05	0.0026	0.0022	0.0011
13	Zinc as (Zn)	mg / l	5 (15)	3.0	3.95	3.55
14	Total Chromium as (Cr)	mg / l	0.05	< 0.010	< 0.010	< 0.010

TABLE- 3.8 Ambient Noise Level (Within Plant area)

SL. NO.	LOCATION	RESULT (dBA)											
		DAY						NIGHT					
		Oct. 2019	Nov. 2019	Dec. 2019	Jan. 2020	Feb. 2020	Mar. 2020	Oct. 2019	Nov. 2019	Dec. 2019	Jan. 2020	Feb. 2020	Mar. 2020
1	Near Shanti Niketan I, II & III	51.0	51.6	58.8	46.6	51.9	45.6	48.0	41.7	41.2	40.2	41.0	41.2
2	Near Labour Hutment	63.4	60.7	57.8	62.4	64.0	63.6	51.2	43.9	43.5	42.0	43.2	43.8
3	Near Store Area	68.8	44.4	61.8	63.0	64.2	65.0	50.4	40.1	51.2	43.1	42.2	42.0
4	Gate No.1	61.1	53.6	56.2	57.5	60.7	58.6	45.2	42.2	42.1	41.1	40.2	44.8
5	Gate No.2	62.2	59.1	57.1	59.5	61.8	54.3	47.9	45.0	44.0	40.0	48.5	40.2
6	Gate No.3	70.8	61.5	54.6	61.1	62.0	63.8	53.0	45.8	45.2	55.5	51.1	50.0
7	Near OHC	55.8	45.3	54.1	57.6	61.3	58.4	46.0	39.5	41.2	50.0	52.2	48.0
8	Railway Siding	60.9	59.3	58.0	62.2	64.3	66.6	44.0	42.1	42.8	51.1	44.3	52.2
9	Near Reservoir 2	57.0	59.4	57.1	57.8	58.8	58.1	41.5	47.2	49.5	40.5	40.0	50.7
10	Near Ash Water Recovery Pump House	63.7	55.4	54.2	63.6	61.7	61.3	43.7	45.4	43.7	52.2	42.2	51.1
11	In China Colony	49.7	42.8	42.4	42.2	49.3	41.7	40.4	38.0	38.4	39.0	39.8	36.4
CPCB Standards													
Industrial Area		**75**						**70**					

TABLE- 3.9 SOIL ANALYSIS as Per IS 2720 for (Oct. 19 & Mar.2020)

Nov.2019

Sr. No.	Test Parameters	Unit	Adani Township	Garada Village	Mendipur Village	Churdi Village
1	pH	-	7.95	7.85	7.80	7.90
2	E. Conductivity	µs/cm	504	538	412	452
3	Nitrogen as N	Kg/ha	254	210	196	181
4	Phosphorus as P2O5	Kg/ha	110.6	106.2	74.3	50.6
5	Potassium as K	Kg/ha	52.7	70.6	59.2	44.3
6	Calcium (as Ca)	Kg/ha	3.91	3.30	3.74	3.70
7	Magnesium (as Mg)	Kg/ha	1.46	1.32	0.91	1.02
8	Total Organic Carbon	%	0.580	0.682	0.748	0.674
9	Iron as Fe	Kg/ha	2.55	2.32	2.44	2.24
10	Boron as B	Kg/ha	ND	ND	ND	ND
11	Natural Moisture Content	%	6.3	6.4	6.7	6.6
12	Field Capacity	%	6.8	7.1	7.2	7.2
13	Wilting Coefficient	%	0.63	0.72	0.70	0.73
14	Available Water Storage Capacity	%	0.75	0.74	0.74	0.72
15	Bulk Density	gm/cc	1.36	1.37	1.38	1.36
16	Grain size Distribution : a) Sand	%	32.3	33.8	38.1	35.2
	b) Silt	%	34.1	32.7	31.5	32.4
	c) Clay	%	33.6	33.5	30.4	31.7
17	Cation Exchange Capacity	meq/100gm	36.8	37.7	36.8	33.1
18	Biological Status:					
	a) Total Heterotrophy	CFU	20.2 x103/gm	33.8 x103/gm	32.2 x103/gm	36.6 x103/gm
	b) Azetobacter	CFU	31.4 x103/gm	36.2 x103/gm	41.7 x103/gm	41.3 x103/gm
	c) Actinomycetes	CFU	40.8 x101/gm	43.7 x101/gm	33.6 x102/gm	32.8 x103/gm
	d) Yeast	CFU	162 x102/gm	154 x102/gm	176 x102/gm	158 x102/gm

Mar.2020

Sr. No.	Test Parameters	Unit	Adani Township	Garada Village	Mendipur Village	Churdi Village
1	pH	-	7.80	7.70	7.95	7.75
2	E. Conductivity	µs/cm	532	572	466	478
3	Nitrogen as N	Kg/ha	282	216	206	193
4	Phosphorus as P2O5	Kg/ha	117.4	110.7	78.1	55.6
5	Potassium as K	Kg/ha	56.7	72.2	62.3	48.1
6	Calcium (as Ca)	Kg/ha	4.30	3.62	3.90	3.84
7	Magnesium (as Mg)	Kg/ha	1.52	1.37	1.02	1.10
8	Total Organic Carbon	%	0.591	0.695	0.770	0.690
9	Iron as Fe	Kg/ha	2.70	2.55	2.52	2.31
10	Boron as B	Kg/ha	ND	ND	ND	ND
11	Natural Moisture Content	%	6.0	6.0	6.2	6.1
12	Field Capacity	%	6.5	6.6	6.6	6.9
13	Wilting Coefficient	%	0.61	0.68	0.65	0.70
14	Available Water Storage Capacity	%	0.68	0.72	0.71	0.68
15	Bulk Density	gm/cc	1.37	1.38	1.38	1.37
16	Grain size Distribution : a) Sand	%	34.3	34.2	37.7	37.2
	b) Silt	%	32.2	32.1	32.2	32.9
	c) Clay	%	33.5	33.7	30.1	29.9
17	Cation Exchange Capacity	meq/100gm	37.4	38.2	37.3	35.2
18	Biological Status:					
	a) Total Heterotrophy	CFU	18.5 x103/gm	30.6 x103/gm	26.6 x103/gm	32.7 x103/gm
	b) Azetobacter	CFU	22.6 x103/gm	29.7 x103/gm	35.7 x103/gm	35.9 x103/gm
	c) Actinomycetes	CFU	34.7 x101/gm	38.8 x101/gm	19.2 x102/gm	27.3 x103/gm
	d) Yeast	CFU	155 x102/gm	148 x102/gm	162 x102/gm	140 x102/gm

Annexure I - On site Meteorological Data for Oct.19- Mar. 2020

Oct. 2019

Date	Wind Direction (Blowing From)	Wind Speed (Km/hr)		Temperature (°C)			Humidity (%)			Atm. Pressure mBar	Rainfall (mm)
		Max.	Avg.	Max	Min	Avg.	Max	Min	Avg	(Average)	
01.10.19	N	31.9	6.4	33.6	22.5	26.5	93.5	51.0	77.0	983.9	0.0
02.10.19	N	48.9	8.7	33.6	21.9	26.9	91.3	45.7	72.2	984.0	0.0
03.10.19	N	52.9	2.3	38.7	21.4	26.6	94.1	40.2	77.3	983.9	25.0
04.10.19	N	16.3	1.4	38.9	21.7	28.4	94.4	38.9	69.9	984.2	0.0
05.10.19	N	20.7	2.2	38.0	22.0	28.8	93.0	40.0	68.0	983.8	0.0
06.10.19	N	21.0	1.9	37.9	22.7	27.8	92.4	39.7	73.6	984.2	0.0
07.10.19	N	29.4	3.1	36.8	22.2	27.7	92.8	42.5	71.0	984.7	0.0
08.10.19	N	37.0	2.8	36.8	21.9	27.7	92.3	42.0	68.6	984.4	0.0
09.10.19	N	24.9	2.7	35.3	21.9	27.4	88.7	45.4	68.8	984.2	0.0
10.10.19	N	21.0	2.2	38.4	21.4	27.8	87.9	40.8	68.0	984.3	0.0
11.10.19	N	21.2	2.6	37.1	21.4	27.4	89.9	39.9	66.3	984.4	0.0
12.10.19	N	21.2	2.2	35.9	21.2	27.2	88.4	44.0	68.1	985.0	0.0
13.10.19	N	22.0	1.6	37.5	21.7	27.9	93.1	40.7	68.2	985.8	0.0
14.10.19	N	22.0	2.1	38.4	20.7	27.8	90.7	33.0	64.3	986.6	0.0
15.10.19	N	25.7	2.9	36.9	19.8	26.9	89.4	34.7	64.0	986.6	0.0
16.10.19	N	24.7	2.2	35.9	20.9	26.6	90.6	36.9	66.5	986.7	0.0
17.10.19	N	31.4	2.6	35.6	20.4	26.9	91.2	38.4	66.3	986.6	0.0
18.10.19	N	25.2	3.4	29.2	21.3	23.6	94.1	59.7	83.1	986.6	18.5
19.10.19	NNE	25.4	2.7	35.0	21.3	25.4	92.8	45.9	76.6	987.1	0.0
20.10.19	N	42.5	3.6	30.3	21.5	24.2	92.8	58.2	80.2	986.9	0.0
21.10.19	NNE	33.1	4.0	33.7	20.6	24.6	93.3	45.8	76.6	985.7	0.5
22.10.19	NNE	21.0	2.1	34.9	21.4	25.9	92.1	46.2	75.9	983.8	0.0
23.10.19	NNE	29.6	3.3	36.8	20.2	26.3	90.0	40.6	68.8	982.4	0.0
24.10.19	NNE	29.9	3.7	28.3	20.2	23.8	84.5	60.7	75.0	982.6	0.0
25.10.19	NNE	20.0	1.8	29.4	21.5	24.4	90.0	56.3	77.4	983.2	0.0
26.10.19	N	35.1	5.1	33.3	21.8	24.4	93.6	47.5	80.0	984.8	8.0
27.10.19	N	31.4	3.5	33.7	21.4	26.3	94.0	47.9	73.3	985.7	0.0
28.10.19	N	28.9	2.6	33.4	21.6	26.2	92.2	9.9	74.1	986.3	0.2
29.10.19	N	28.4	2.4	37.4	21.3	26.7	91.7	42.2	72.4	986.7	0.0
30.10.19	N	18.5	1.8	37.8	21.5	26.2	92.3	42.3	72.0	986.0	0.0
31.10.19	NW	21.5	2.7	37.0	20.2	26.3	90.0	42.0	68.9	985.7	0.0

Nov. 2019

Date	Wind Direction (Blowing From)	Wind Speed (Km/hr)		Temperature (°C)			Humidity (%)			Atm. Pressure mBar	Rainfall (mm)
		Max.	Avg.	Max	Min	Avg.	Max	Min	Avg	(Average)	
01.11.19	SE	26.4	2.4	33.5	21.5	26.0	92.2	46.4	72.0	985.7	0.0
02.11.19	SE	19.5	1.9	34.0	21.8	25.5	88.9	44.4	71.7	986.7	0.0
03.11.19	SE	19.0	2.0	36.7	21.4	26.7	90.0	38.7	68.4	987.4	0.0
04.11.19	S	19.0	5.6	36.4	21.8	26.7	88.6	38.1	86.6	987.5	0.0
05.11.19	S	22.2	5	35.9	20.4	27.3	89.4	38.1	89.1	985.7	0.0
06.11.19	S	25.2	2.9	35.5	19.8	26.1	90.4	38.1	89.7	986.4	0.0
07.11.19	S	26.4	3.4	35.2	25.8	19.9	89.6	37.9	66.5	983.8	0.0
08.11.19	S	21.0	2.2	30.6	17.4	20.6	85.4	44.3	74.7	984.8	0.0
09.11.19	S	21	5.4	32.6	17.4	23.7	85.4	31	62.2	984.9	0.0
10.11.19	S	24.2	4.9	33.5	18.1	25.0	84.6	41.6	65.2	985.7	0.0
11.11.19	S	29.6	5.4	34.7	18.5	24.5	84.2	36.6	64.0	986.0	0.0
12.11.19	S	35.3	2.7	32.2	17.3	23.2	89.5	36.8	63.1	987.5	0.0
13.11.19	SE	39.5	3.2	32.1	16.8	23.2	90.6	37.4	66.4	988.7	0.0
14.11.19	ES	37.3	3.9	33.9	16.3	23.3	89.9	33.9	66.2	988.2	0.0
15.11.19	S	33.8	3.6	32.4	16.2	22.8	92.8	38.4	66.6	987.9	0.0
16.11.19	S	29.5	2.7	32.3	17.2	23.2	86.5	36.6	64.3	987.6	0.0
17.11.19	SE	28.7	2.8	32.3	17.0	23.3	85.4	36.9	64.3	988.1	0.0
18.11.19	S	28.4	2.5	33.2	16.6	23.5	87.0	33.9	61.4	988.2	0.0
19.11.19	S	19.0	3.0	35.1	16.4	23.6	86.0	33.9	63.1	987.5	0.0
20.11.19	SSW	19.3	1.9	34.4	16.7	23.9	90.5	34.0	63.2	987.3	0.0
21.11.19	SW	25.2	2.4	33.1	17.8	23.6	87.3	37.4	65.2	988.7	0.0
22.11.19	S	17.3	2.1	35.6	16.9	23.9	93.4	33.7	66.8	989.3	0.0
23.11.19	SSW	21.0	2.2	35.7	17.0	24.1	89.9	33.9	65.0	988.9	0.0
24.11.19	S	19.3	2.1	35.6	16.3	23.8	86.2	33.3	62.6	988.1	0.0
25.11.19	NNW	28.9	3.7	33.4	17.8	24.2	89.6	35.1	61.6	988.1	0.0
26.11.19	NW	32.6	4.1	32.6	17.3	24.1	85.4	35.4	61.6	987.8	0.0
27.11.19	NNW	28.9	3.3	34.1	17.4	23.9	87.0	35.3	64.1	987.8	0.0
28.11.19	NW	39.5	2.3	32.0	17.1	23.5	89.6	41.7	64.4	988.1	0.0
29.11.19	SSW	20.5	2.5	34.0	18.0	24.4	90.4	37.9	65.7	988.0	0.0
30.11.19	SW	29.4	2.5	32.8	17.9	23.5	90.2	39.2	68.2	988.1	0.0

Dec. 2019

Date	Wind Direction (Blowing From)	Wind Speed (Km/hr)		Temperature (°C)			Humidity (%)			Atm. Pressure mBar	Rainfall (mm)
		Max.	Avg.	Max	Min	Avg.	Max	Min	Avg	(Average)	
01.12.19	NNW	32.1	3.5	31.6	18.0	23.4	90.8	40.3	67.8	988.4	0.0
02.12.19	NW	29.6	4.6	32.2	18.1	23.6	89.0	65.2	40.0	988.7	0.0
03.12.19	SW	23.5	2.5	33.0	18.1	23.9	85.2	37.7	65.1	988.9	0.0
04.12.19	S	25.2	4.1	32.6	16.6	22.8	84.0	59.8	34.9	990.3	0.0
05.12.19	S	26.4	3.1	33.5	13.9	21.6	72.2	32.7	52.1	991.5	0.0
06.12.19	WNW	34.6	3.6	31.0	14.6	21.0	70.7	33.7	52.2	991.1	0.0
07.12.19	S	28.2	3.7	30.3	14.2	20.8	83.6	34.8	61.1	990.0	0.0
08.12.19	NW	34.3	2.9	32.4	14.2	21.3	88.6	34.2	62.3	990.0	0.0
09.12.19	S	26.4	2.9	33.5	14.7	21.8	92.1	34.2	66.4	989.6	0.0
10.12.19	SSW	20.3	3.2	34.7	15.2	22.2	90.8	65.5	33.8	989.8	0.0
11.12.19	S	23.5	3.3	33.4	15.6	22.5	91.2	66.5	35.5	986.5	0
12.12.19	NNW	48.2	5.4	31.6	15.9	22.4	91.5	67.1	40.3	986.1	0
13.12.19	NS	29.4	2.5	32.8	17.9	23.5	90.2	39.2	68.2	988.1	0
14.12.19	N	24.2	3.7	32.4	18.3	22.9	89.8	71.2	44.1	989.5	0
15.12.19	SES	47.4	4.4	31	18.2	21.9	93.5	47.5	77	988.9	13.6
16.12.19	SE	26.2	3.8	26.7	17.1	19.7	94.2	56.3	81.9	989.5	0.8
17.12.19	S	26.9	3.8	30.1	15.7	20.4	91.4	45.6	73.7	990.8	0.0
18.12.19	SE	24.7	2.7	28.3	13.6	19.1	91.7	41.6	71.3	991.2	0.0
19.12.19	SSE	21.7	3.1	32.8	14.3	21.2	80.5	34.2	62.2	989.5	0.0
20.12.19	S	24.9	2.4	32.8	14.6	21.5	87.6	36.5	64.4	988.1	0.0
21.12.19	S	22.0	2.6	34.2	15.1	22.4	78.9	30.7	59.1	988.3	0.0
22.12.19	S	20.0	2.4	33.6	16.6	22.4	80.2	33.6	59.5	988.7	0.0
23.12.19	SE	26.7	4.7	32.6	17.4	22.2	76.6	35.5	58.5	988.5	0.0
24.12.19	NNW	34.8	4.9	29.9	16.6	22.3	81.8	43.3	64.8	989.1	0.0
25.12.19	SSW	24.9	3.5	34.4	17.0	23.3	92.1	42.7	68.9	988.0	0.0
26.12.19	S	22.5	2.7	21.7	16.3	18.9	96.0	73.9	87.7	987.7	7.8
27.12.19	S	35.6	5.1	26.3	12.4	16.8	78.9	28.2	52.7	989.0	0.0
28.12.19	WSW	31.6	3.8	28.5	8.3	17.3	75.6	28.0	50.0	989.9	0.0
29.12.19	SSW	32.9	4.4	29.9	8.7	17.5	80.5	29.2	54.3	990.1	0.0
30.12.19	NNW	30.6	5.1	28.4	10.5	18.5	88.0	55.0	32.5	989.1	0.0
31.12.19	W	45.7	8.5	24.9	7.6	18.4	93.2	60.0	41.1	989.2	4.2

Jan. 2020

Date	Wind Direction (Blowing From)	Wind Speed (Km/hr)		Temperature (°C)			Humidity (%)			Atm. Pressure mBar	Rainfall (mm)
		Max.	Avg.	Max	Min	Avg.	Max	Min	Avg	(Average)	
01.01.2020	W	39.8	4.5	24.3	10.5	17.7	99.5	52.2	78.5	990.4	3.0
02.01.2020	W	40.3	6.2	19.1	8.3	16.6	96.1	64.9	82.9	991.4	17.4
03.01.2020	SW	28.4	4.5	26.1	10.2	17.3	89.0	55.0	76.0	990.0	6.5
04.01.2020	S	22.7	2.7	25.3	9.7	19.1	92.5	53.8	79.6	988.2	0.2
05.01.2020	S	35.8	4.6	28.2	10.9	18.6	92.8	36.8	68.2	989.9	0.2
06.01.2020	NNW	30.4	4.3	27.9	12.3	19.7	90.8	38.8	60.7	983.3	0.0
07.01.2020	S	28.8	3.9	26.1	11.3	17.9	91.6	39.6	62.7	986.3	0.0
08.01.2020	NNW	61.3	4.4	18.5	11.9	17.1	98.1	65.6	86.1	983.5	25.1
09.01.2020	S	33.6	5.3	22.8	12.5	18.3	99.6	52.7	79.2	985.4	5.2
10.01.2020	S	32.1	5.4	19.4	8.9	13.4	86.2	47.9	73.6	987.8	0.0
11.01.2020	NW	13.1	1.9	15.8	12.7	14.5	89.9	63.2	78.6	987.7	0.0
13.01.2020	NE	15.8	3.3	26.1	11.5	21	80	33.8	51.1	981	0.0
14.01.2020	S	13.5	2.3	27.1	12.5	19.4	91.1	37.9	66.7	983	0.0
15.01.2020	SE	41.2	2.7	28.1	13.9	18.1	91.8	43.5	72.8	978.8	0.0
16.01.2020	NW	38.8	6.6	25.1	15.1	20.7	90.1	54.5	68.4	983.4	0.0
17.01.2020	SSW	27.4	3.9	25.0	15.8	19.6	90.4	76.6	59.7	984.3	0.0
18.01.2020	S	22.0	2.5	25.2	14.3	19.9	90.9	59.6	77.7	984.7	0.0
19.01.2020	S	36.6	4.8	20.4	13.2	17.4	91.8	68.1	82.2	985.3	0.0
20.01.2020	S	22.7	3.4	23.3	12.4	17.2	87.4	45.2	70.9	986.7	0.0
21.01.2020	S	24.5	3.1	27.0	14.5	20.0	89.3	54.2	74.7	986.9	0.0
22.01.2020	NW	32.1	5.7	26.7	17.4	21.6	91.1	57.1	73.5	987.2	0.0
23.01.2020	S	32.9	4.8	25.0	16.9	20.0	92.1	55.0	73.1	986.9	0.0
24.01.2020	S	26.2	3.2	26.4	13.4	19.2	84.4	37.6	60.1	986.5	0.0
25.01.2020	SW	21.7	3.1	27.4	14.4	20.1	75.2	41.0	59.5	985.2	0.0
26.01.2020	S	30.9	3.8	26.5	13.9	19.7	81.0	36.6	60.3	984.3	0.0
27.01.2020	NNW	30.1	3.4	28.4	14.1	20.8	79.2	39.2	58.2	982.5	0.0
28.01.2020	NNW	43.5	7.2	26.7	16.9	21.8	86.0	51.6	65.8	981.2	0.4
29.01.2020	S	24.5	3.2	26.9	15.9	21.3	81.3	44.0	63.9	984.5	0.0
30.01.2020	S	38.3	5.4	24.6	14.8	18.9	79.0	41.7	61.1	985.5	0.0
31.01.2020	S	32.9	3.1	24.5	11.5	17.9	80.0	40.4	59.3	984.8	0.0
01.01.2020	W	39.8	4.5	24.3	10.5	17.7	99.5	52.2	78.5	990.4	3.0

Feb. 2020

Date	Wind Direction (Blowing From)	Wind Speed (Km/hr)		Temperature (°C)			Humidity (%)			Atm. Pressure mBar	Rainfall (mm)
		Max.	Avg.	Max	Min	Avg.	Max	Min	Avg	(Average)	
01.02.2020	SW	32.9	4.2	23.4	13.0	17.8	84.4	46.6	62.9	985.0	0.0
02.02.2020	S	30.1	4.0	24.5	13.1	18.3	75.9	43.0	59.7	987.7	0.0
03.02.2020	NW	26.7	4.8	20.7	14.0	16.8	82.3	57.9	70.4	987.0	0.2
04.02.2020	S	41.7	5.1	22.3	14.2	18.6	88.5	65.7	76.0	984.5	0.0
05.02.2020	SE	25.4	3.7	25.5	15.2	20	95	43.3	72	985.2	0.0
06.02.2020	W	36.8	6.0	21.3	15.9	17.3	91.4	63.2	81.5	984.6	1.0
07.02.2020	W	36.6	6.5	19.3	12.5	17.1	94.4	78.0	88.1	985.2	11.4
08.02.2020	SW	34.1	4.1	23.0	15.6	18.6	94.9	59.1	79.4	987.3	0.0
09.02.2020	S	38.8	4.3	23.6	12.7	17.7	86.6	49.3	69.7	989.1	0.0
10.02.2020	SW	37.8	4.6	25.4	12.2	18.5	86.6	38	63	987.9	0.0
11.02.2020	SW	23.2	2.7	27.6	13.8	20.5	84.1	37.5	62.1	987.9	0.0
12.02.2020	SW	35.3	3.9	27.4	15	20.7	79.8	39.6	60.1	988.6	0.0
13.02.2020	NW	24.5	2.3	29.2	14.1	21.3	86.9	35.8	59.6	986.5	0.0
14.02.2020	SSE	36.6	3.7	28.5	14.8	21.8	92.2	38.4	63.4	984	0.0
15.02.2020	S	28.7	3.3	28.4	15.9	21.4	87.6	37.7	62.4	984.3	0.0
16.02.2020	S	34.4	3.1	28.4	13.8	21.0	84.8	29.5	54.7	986.0	0.0
17.02.2020	S	33.6	4.4	28.7	13.9	21.4	69.2	24.6	46.4	987.0	0.0
18.02.2020	S	27.4	4.3	29.9	13.7	21.1	73.6	23.6	46.9	986.0	0.0
19.02.2020	S	28.5	3.8	29.5	13.6	21.6	87.4	29.1	54.6	985.0	0.0
20.02.2020	N	45.4	4.6	27.7	15.3	24.5	83.4	42.0	65.4	984.7	0.0
21.02.2020	NW	41.2	5.8	27.3	18.8	22.7	84.3	54.3	69.6	986.4	0.0
22.02.2020	NW	26.7	3.9	28.6	18.6	23.5	91.7	48.9	69.7	987.0	0.0
23.02.2020	NW	34.6	6.1	28.7	19.4	23.6	87.9	47.5	66.9	985.4	0.0
24.02.2020	NW	42.5	6.5	28.0	18.2	22.4	90.0	50.1	70.2	982.7	2.6
25.02.2020	SSE	35.8	3.5	26.8	17.5	21.3	93.7	40.7	71.5	982.6	0.2
26.02.2020	S	32.4	3.5	27.7	15.2	21.2	86.4	31.3	58.0	984.8	0.0
27.02.2020	NNW	29.9	3.1	28.5	14.8	21.4	88.6	34.3	60.3	984.9	0.0
28.02.2020	NW	38	4.7	28.9	15.6	22.1	89.5	36.9	59.9	983.5	0.0
29.02.2020	S	26.9	3.8	29.5	16.4	22.9	88.8	35.4	59.4	982.5	0.0

Mar. 2020

Date	Wind Direction (Blowing From)	Wind Speed (Km/hr)		Temperature (°C)			Humidity (%)			Atm. Pressure mBar	Rainfall (mm)
		Max.	Avg.	Max	Min	Avg.	Max	Min	Avg	(Average)	
01.03.2020	SSE	63.0	5.1	29.7	16.6	23.0	90.2	41.7	62.3	982.6	0.0
02.03.2020	NW	47.7	6.6	29.6	18.4	23.6	76.5	40.1	58.1	982.5	0.0
03.03.2020	NNW	37.5	5.9	30.0	18.9	23.8	86.3	45	66.3	980.8	0.0
04.03.2020	NW	25.2	4.4	31.1	18.3	23.9	89.7	34.0	62.5	980.3	0.0
05.03.2020	NNW	30.6	3.8	30.23	18	23.9	85.9	34.5	56.7	978.3	0.0
06.03.2020	NW	50.9	10.4	27.5	19.4	22.5	85.0	56.5	72.3	977.9	1.6
07.03.2020	NW	23.2	8.0	29.3	18.4	23.0	93.1	42.6	70.9	982.5	0.0
08.03.2020	SSE	29.9	6.7	30.7	17.8	30.0	76.1	41.6	75.2	986.7	0.0
09.03.2020	NNW	34.8	8.6	29.7	17.8	29.0	70.3	41.3	70.3	986.1	0.0
10.03.2020	NNW	38.3	12.7	27.4	18.8	26.9	89.6	58.2	85.2	984.5	4.8
11.03.2020	NW	35.3	12.5	28.6	17.5	28	89.8	52.6	87.8	984	2.4
12.03.2020	NNW	49.9	16.7	30.8	20.1	30.2	89.3	45.3	89.5	986	0.6
13.03.2020	NW	36.6	16.5	29.5	19.6	29.1	91.5	47	89	987.5	3.6
14.03.2020	NW	36.3	10.5	28	19.3	27.4	92.3	54.5	91.1	983.02	0.2
15.03.2020	S	27.9	8	29.3	18.4	28.8	89.5	40.9	88.8	986.2	0
16.03.2020	NW	34.1	11.4	30.1	17.5	29.3	77.1	47.4	76.3	987.7	0
17.03.2020	SW	25.2	3.3	32	18.9	25.2	77.5	41.2	56.05	985.1	0
18.03.2020	NNW	45	4.4	28	20.2	23.7	85	51.5	67.5	984.4	3.4
19.03.2020	S	59.8	4.9	31.2	19	23.5	88.6	42	68.1	982.1	1.6
20.03.2020	NW	39.5	6.9	30.5	18	23.2	82.8	44.9	63.3	982.8	1.4
21.03.2020	NW	33.6	5	30.5	18.8	24.2	85.3	47.2	64.8	981.7	0.0
22.03.2020	SSE	39.1	3.6	32.4	18.9	25.2	91.7	29.7	60.3	982.4	0.0
23.03.2020	SSW	29.4	4.4	32.3	19.4	25.7	81.7	33.4	56.7	982.2	0.0
24.03.2020	NE	62.7	4.9	33.1	19.9	25.9	77.5	38.0	57.7	981.1	10.8
25.03.2020	S	60.8	4.4	33.6	20.1	25.6	84.8	34.4	58.1	980.9	0.0
26.03.2020	ENE	48.7	3.7	29.5	19.8	23.5	83.8	48.5	69.6	982.7	0.0
27.03.2020	S	37.8	3.9	32.9	20.9	26.4	87.1	42.3	62.2	982.6	0.0
28.03.2020	S	36.3	3.5	31.7	21.3	26.2	78.9	44.2	59.5	982.7	0.0
29.03.2020	SSW	62.7	5.4	33.5	21.0	26.1	79.5	36.2	55.9	981.7	1.6
30.03.2020	NNW	48.9	4.0	31.8	20.0	24.9	86.6	41.3	64.5	982.5	0.0
31.03.2020	ENE	38.3	5.2	33.5	21.6	26.4	80.1	38.1	57.3	982.3	0.0

Annexure IA

adani

ENVIRONMENTAL LABORATORY

(Accredited by NABL)

ADANI POWER MAHARASHTRA LIMITED, TIRODA

Format No: APML/ENV-LB/7.8/F01

URL No : TC519318000001032F	Date: 31.10.2019

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -1
2	Date of Sampling	:	31.10.2019
3	Time of Sampling	:	11:55 AM
4	Load (MW)	:	450
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	122
9	Flue Gas Velocity (M/sec)	:	23.89
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2685260

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	39
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	884
			75.2	TPD	57
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	265

Results are corrected with 6% oxygen

End of the Report

Note Tested results are well within the permissible limits of MPCB.

1. The report is referring only to the tested sample and for applicable parameter.
2. The sample will be destroyed after retention time unless otherwise specified specially.
3. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.

31/10/19

Authorized Signatory
(Technical Manager)

Format No: APML/ENV-LB/7.8/F01

TC519319000000927F	17.10.2019

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -5
2	Date of Sampling	:	16.10.2019
3	Time of Sampling	:	3:25 PM
4	Load (MW)	:	625
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{o}C)	:	125
9	Flue Gas Velocity (M/sec)	:	23.65
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2638284

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	43
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	928
			80.2	TPD	58.8
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	281

Results are corrected with 6% oxygen

End of the Report

Note Tested results are well within the permissible limits of MPCB.

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3. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.

18/10/19

Authorized Signatory
(Technical Manager)

Format No: APML/ENV-LB/7.8/F01

TC519319000001028F	Date: 17.10.2019

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -4
2	Date of Sampling	:	16.10.2019
3	Time of Sampling	:	4:08 PM
4	Load (MW)	:	620
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	122
9	Flue Gas Velocity (M/sec)	:	23.36
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2625379

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	47
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	971
			80.2	TPD	61.2
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	276

Results are corrected with 6% oxygen

End of the Report

Note Tested results are well within the permissible limits of MPCB.

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3. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.

18/10/19

Authorized Signatory
(Technical Manager)

adani ENVIRONMENTAL LABORATORY

(Accredited by NABL)

ADANI POWER MAHARASHTRA LIMITED, TIRODA

Format No: APML/ENV-LB/7.8/F01

URL No : TC519319000001030F	Date: 17.10.2019
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -3
2	Date of Sampling	:	16.10.2019
3	Time of Sampling	:	2:50 PM
4	Load (MW)	:	647
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	126
9	Flue Gas Velocity (M/sec)	:	23.13
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2573597

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	40
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	969
			75.2	TPD	56
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	287

Results are corrected with 6% oxygen

End of the Report

Note Tested results are well within the permissible limits of MPCB.

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17/10/19

Authorized Signatory
(Technical Manager)

Format No: APML/ENV-LB/7.8/F01

URL No : TC519319000001029F	Date: 17.10.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -2
2	Date of Sampling	:	16.10.2019
3	Time of Sampling	:	2:10 PM
4	Load (MW)	:	660
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0}C)	:	130
9	Flue Gas Velocity (M/sec)	:	24.08
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2653015

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	46
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	974
			75.2	TPD	59.2
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	282

*Results are corrected with 6% oxygen

End of the Report

Note Tested results are well within the permissible limits of MPCB.

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17/10/19

Authorized Signatory
(Technical Manager)

Format No: APML/ENV-LB/7.8/F01

URL No :TC519319000001001F Date 01.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Air Quality (Plant)
Sample Collected by :	Environment Dept. APML

Test Report

Station	Sampling Location	Sampling Date	Analysis Starting Date	Parameters			
				PM 10	PM 2.5	SO2	NOx
				µg/m3	µg/m3	µg/m3	µg/m3
AAQ 1	Near AWRS	04.10.2019	05.10.2019	51.6	22.4	11.9	23.5
		09.10.2019	10.10.2019	43.2	19.7	10.2	19.2
		11.10.2019	12.10.2019	48.7	20.9	12.9	17.4
		14.10.2019	15.10.2019	52.3	23.1	13.5	22.8
		18.10.2019	19.10.2019	Monitoring Not Done Due to Rain			
		21.10.2019	22.10.2019	49.2	13.9	11.0	18.6
		25.10.2019	26.10.2019	54.8	21.2	9.8	16.2
		28.10.2019	29.10.2019	50.8	23.3	11.2	15.6
AAQ 2	Near Brick Plant	04.10.2019	05.10.2019	38.5	21.1	9.8	26.5
		09.10.2019	10.10.2019	43.1	19.2	12.1	19.2
		11.10.2019	12.10.2019	40.2	18.6	10.4	13.8
		14.10.2019	15.10.2019	48.3	22.3	8.2	15.6
		18.10.2019	19.10.2019	Monitoring Not Done Due to Rain			
		21.10.2019	22.10.2019	50.6	23.1	10.0	14.4
		25.10.2019	26.10.2019	45.7	25.5	9.6	21.0
		28.10.2019	29.10.2019	47.3	20.7	11.0	17.4
AAQ 3	China Colony	04.10.2019	05.10.2019	49.2	23.1	11.2	27.1
		09.10.2019	10.10.2019	47.7	16.3	12.3	25.3
		11.10.2019	12.10.2019	51.8	25.1	10.2	17.4
		14.10.2019	15.10.2019	54.0	24.2	13.7	18.6
		18.10.2019	19.10.2019	Monitoring Not Done Due to Rain			
		21.10.2019	22.10.2019	56.3	19.4	11.9	21.0
		25.10.2019	26.10.2019	55.0	21.9	10.4	18.6
		28.10.2019	29.10.2019	53.5	22.4	12.9	22.2
NAAQMS Standard				100	60	80	80

End of the Report

Note: Tested results are well within the permissible limits of National Ambient Air Quality Monitoring Standard (NAAQMS)

1. The report is referring only to the tested sample and for applicable parameter.
2. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.

01/11/19

Authorized Signatory
(Technical Manager)

Format No: APML/ENV-LB/7.8/F01

URL:TC519319000001007F

Date: 01.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	16.10.2019	Analysis Starting Date :	16.10.2019
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Cooling Tower Blowdown (Waste Water)			
Location of sample : Unit-2,Unit-3,Unit-4 & Unit-5.			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	Free Available Chlorine	mg/l	APHA 23rd Edition Iodometric Method I. 4500-Cl B.	0.5	Unit under Shut Down	0.4	0.2	0.3	0.2
2	Phosphate as (PO4)	mg/l	APHA-23rd -4500-P O Stannous Chloride Method	5		1.1	1.4	1.5	1.9
3	Zinc as (Zn)#	mg/l	APHA-23rd -3500-Zn Zincon Method	1		BDL	BDL	BDL	BDL
4	Total Chromium as (Cr)#	mg/l	APHA-23rd -3500-Cr Colorimetric Method	0.2		BDL	BDL	BDL	BDL

End of the Report

Note: Tested results are well within the permissible limits of MPCB.

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2. The sample will be destroyed after retention time unless otherwise specified specially.
3. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.
4. # Indicates this parameter is not covered in our NABL scope

Environmental Laboratory * Adani Power Maharashtra Limited, Tiroda * TC - 5123

01/11/19

Authorized Signatory
(Technical Manager)

adani ENVIRONMENTAL LABORATORY

(Accredited by NABL)

ADANI POWER MAHARASHTRA LIMITED, TIRODA

Format No: APML/ENV-LB/7.8/F01

URL NO :TC519319000001006F

Date: 01.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	16.10.2019	Analysis Starting Date :	16.10.2019
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Condenser Cooling Water (Waste Water)			
Location of sample : Unit-2,Unit-3,Unit-4 & Unit-5			

TEST REPORT

Sr no	Parameter	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	pH Value	---	APHA-23rd - 4500-H+B Electrometric Method	6.5-8.5	Unit Under Shut Down	8.2	8.4	7.7	8.0
2	Temperature	Deg C	APHA-23rd - 2550 B	---		34	34	31	32
3	Free Available Chlorine	PPM	APHA 23rd-Iodometric Method I. 4500-Cl B.	0.5		0.1	0.4	0.2	0.1

End of the Report

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Environmental Laboratory * TC - 5193 * Adani Power Maharashtra Limited, Tiroda

01/11/19

Authorized Signatory
(Technical Manager)

adani ENVIRONMENTAL LABORATORY

(Accredited by NABL)

ADANI POWER MAHARASHTRA LIMITED, TIRODA

Format No: APML/ENV-LB/7.8/F01

URL:TC519319000001011F

Date: 01.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	16.10.2019	Analysis Starting Date	16.10.2019
Quantity received	3 Lit /Sample	Sampled by	Environment Dept. APML
Sample Particulars : Treated Effluent Water			
Location of sample : DM Plant N-Pit , ETP Outlet			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					N-pit	ETP Outlet
1	pH Value	---	APHA-23rd -4500-H+B Electrometric Method	5.5-9.0	7.2	7.8
2	TSS	mg / l	APHA-23rd - 2540 D	100	16	22
3	TDS	mg / l	APHA-23rd - 2540 C	2100	460	231
4	COD	mg / l	APHA-23rd Ed 2017-5220B Open Reflux Method	250	35	48
5	BOD at 27°C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	6	8
6	Oil & Grease	mg / l	APHA-23rd Ed 2017-5520 B Liquid Liquid Partition Gravemetric method	10	BDL	BDL

End of the Report

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Environmental Laboratory TC - 5193 Adani Power Maharashtra Limited, Tirora

01/11/19

Authorized Signatory

(Technical Manager)

Format No: APML/ENV-LB/7.8/F01

URL: TC5193190000001009F

Date: 01.11.2019

Issued To:	APML , Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	16.10.2019	Analysis Starting Date	16.10.2019
Quantity received	3 Lit /Sample	Sampled by	Environment Dept.
Sample Particulars : Treated Waste Water			
Location of sample : STP -1 & 2 Out Let			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					STP-1	STP-2
1	pH Value	--	APHA-23rd -4500-H+B Electrometric Method	5.5-9.0	7.1	7.3
2	TSS	mg / l	APHA-23rd - 2540 D	500	23	41
3	TDS	mg / l	APHA-23rd - 2540 C	2100	186	233
4	COD	mg / l	APHA-23rd Ed 2017-5220B Open Reflux Method	100	32	54
5	BOD at 27°C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	16	12

End of the Report

Note: Tested results are well within the permissible limits of MPCB.

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Environmental Laboratory TC - 5193 Adani Power Maharashtra Limited, Tiroda

01/11/19

Authorized Signatory
(Technical Manager)

adani ENVIRONMENTAL LABORATORY

(Accredited by NABL)

ADANI POWER MAHARASHTRA LIMITED, TIRODA

TC-5193

Format No: APML/ENV-LB/7.8/F01

URL No. : TC519319000001024F Date: 01.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Noise Level (Plant)
Sample Collected by :	Environment Dept. APML
Date of Sampling:	05.10.2019

Test Report

S. No	Locations	Day Time in dB (A) (6.00 a.m. to 10.00 p.m.)	Night Time in dB (A) (10.00 p.m. to 06.00 a.m.)
1	Near Shanti Niketan I II & III	51.0	48.0
2	Near Labour Hutment	63.4	51.2
3	Near Store Area	68.8	50.4
4	Gate No.1	61.1	45.2
5	Gate No.2	62.2	47.9
6	Gate No.3	70.8	53.0
7	Near OHC	55.8	46.0
8	Railway Siding	60.9	44.0
9	Near Reservoir 2	57.0	41.5
10	Near Ash Water Recovery Pump House	63.7	43.7
11	In China Colony	49.7	40.4
	CPCB Standards (Industrial Area)	75	70

*** End Of the Report***

Note: Tested results are well within the permissible limits of MPCB / CPCB.

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Environmental Laboratory * Adani Power Maharashtra Limited, Tirora * TC - 5193

01/11/19

Authorized Signatory
(Technical Manager)

Format No: APML/ENV-LB/7.8/F01

URL No : TC519319000001101F

Date 30.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Air Quality (Plant)
Sample Collected by :	Environment Dept. APML

Test Report

Station	Sampling Location	Sampling Date	Analysis Starting Date	Parameters			
				PM 10	PM 2.5	SO2	NOx
				µg/m3	µg/m3	µg/m3	µg/m3
AAQ 1	Near AWRS	01.11.2019	02.11.2019	58.2	20.4	10.4	18.0
		04.11.2019	05.11.2019	55.6	23.9	12.1	19.2
		08.11.2019	09.11.2019	60.3	19.9	9.6	14.4
		11.11.2019	12.11.2019	74.6	37.1	13.5	20.4
		15.11.2019	16.11.2019	59.5	28.7	8.8	15.6
		18.11.2019	19.11.2019	53.7	19.3	7.4	12.6
		22.11.2019	23.11.2019	56.0	21.4	11.0	16.2
		25.11.2019	26.11.2019	57.6	23.0	11.4	17.4
		29.11.2019	30.11.2019	54.7	22.7	10.2	18.0
AAQ 2	Near Brick Plant	01.11.2019	02.11.2019	59.4	28.7	17.0	29.2
		04.11.2019	05.11.2019	50.1	22.6	13.5	28.3
		08.11.2019	09.11.2019	52.2	21.4	14.4	26.4
		11.11.2019	12.11.2019	60.3	24.8	13.8	23.3
		15.11.2019	16.11.2019	45.1	15.8	15.6	25.1
		18.11.2019	19.11.2019	55.0	20.7	11.2	22.2
		22.11.2019	23.11.2019	48.2	18.4	16.2	24.5
		25.11.2019	26.11.2019	45.5	16.5	12.9	19.3
		29.11.2019	30.11.2019	46.1	12.9	15.2	25.2
AAQ 3	China Colony	01.11.2019	02.11.2019	59.0	21.9	13.7	24.7
		04.11.2019	05.11.2019	60.2	30.1	11.9	22.8
		08.11.2019	09.11.2019	52.3	31.4	14.1	24.1
		11.11.2019	12.11.2019	56.8	35.6	16.4	30.7
		15.11.2019	16.11.2019	55.3	29.8	18.2	29.9
		18.11.2019	19.11.2019	58.5	26.1	15.7	28.9
		22.11.2019	23.11.2019	53.4	27.1	16.3	27.6
		25.11.2019	26.11.2019	68.3	27.4	17.8	28.3
		29.11.2019	30.11.2019	65.4	19.3	14.6	20.9
NAAQMS Standard				100	60	80	80

End of the Report

Note: Tested results are well within the permissible limits of National Ambient Air Quality Monitoring Standard (NAAQMS)

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Environmental Laboratory * TC - 5193 (NABL Certificate No.) * Adani Power Maharashtra Limited, Tiroda

01/12/19

Authorized Signatory
(Technical Manager)

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Format No: APML/ENV-LB/7.8/F01

TC519319000001131F	Date: 23.11.2019

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -5
2	Date of Sampling	:	21.11.2019
3	Time of Sampling	:	4:00 PM
4	Load (MW)	:	645
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	126
9	Flue Gas Velocity (M/sec)	:	23.33
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2596255

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	44
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	907
			80.2	TPD	56.5
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	280

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

23/11/19

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Format No: APML/ENV-LB/7.8/F01

TC519319000001130F	Date: 23.11.2019
TEST REPORT	
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -4
2	Date of Sampling	:	21.11.2019
3	Time of Sampling	:	3:15 PM
4	Load (MW)	:	616
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	124
9	Flue Gas Velocity (M/sec)	:	23.65
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2645317

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	46
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	964
			80.2	TPD	61.2
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	284

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

23/11/19

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ENVIRONMENTAL LABORATORY
(Accredited by NABL)

ADANI POWER MAHARASHTRA LIMITED, TIRODA

TC-5193

Format No: APML/ENV-LB/7.8/F01

URL No : TC519319000001129F	Date: 15.11.2019
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -3
2	Date of Sampling	:	13.11.2019
3	Time of Sampling	:	3:30 PM
4	Load (MW)	:	457
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	119
9	Flue Gas Velocity (M/sec)	:	22.54
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2553059

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	34
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	896
			75.2	TPD	52
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	267

** Results are corrected with 6% oxygen*

End of the Report

Note Tested results are well within the permissible limits of MPCB.

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

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ADANI POWER MAHARASHTRA LIMITED, TIRODA

Format No: APML/ENV-LB/5.10/F01

URL No : TC519319000001128F	Date: 15.11.2019
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -2
2	Date of Sampling	:	13.11.2019
3	Time of Sampling	:	4:10 PM
4	Load (MW)	:	454
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	122
9	Flue Gas Velocity (M/sec)	:	23.01
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2586595

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	43
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	903
			75.2	TPD	53.9
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	261

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory ★ TC - 5193 (NABL Certificate No.) ★ Adani Power Maharashtra Limited, Tiroda

15/11/19

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Format No: APML/ENV-LB/7.8/F01

URL No : TC519319000001127F	Date: 15.11.2019

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -1
2	Date of Sampling	:	13.11.2019
3	Time of Sampling	:	2:50 PM
4	Load (MW)	:	455
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	121
9	Flue Gas Velocity (M/sec)	:	23.27
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2622119

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	45
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	892
			75.2	TPD	56
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	263

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

17/11/19

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URL No. : TC519319000001124F Date: 30.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Noise Level (Plant)
Sample Collected by :	Environment Dept. APML
Date of Sampling:	02.11.2019

Test Report

S. No	Locations	Day Time in dB (A) (6.00 a.m. to 10.00 p.m.)	Night Time in dB (A) (10.00 p.m. to 06.00 a.m.)
1	Near Shanti Niketan I II & III	51.6	41.7
2	Near Labour Hutment	60.7	43.9
3	Near Store Area	44.4	40.1
4	Gate No.1	53.6	42.2
5	Gate No.2	59.1	45.0
6	Gate No.3	61.5	45.8
7	Near OHC	45.3	39.5
8	Railway Siding	59.3	42.1
9	Near Reservoir 2	59.4	47.2
10	Near Ash Water Recovery Pump House	55.4	45.4
11	In China Colony	42.8	38.0
CPCB Standards (Industrial Area)		75	70

*** End Of the Report***

Note: Tested results are well within the permissible limits of MPCB / CPCB.

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

01/12/19

Authorized Signatory
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Format No: APML/ENV-LB/7.8/F01

URL: TC519319000001102F

Date: 30.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	06.11.2019	Analysis Starting Date :	06.11.2019
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Cooling tower blowdown (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5.			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	Free Available Chlorine	mg/l	APHA 23rd Edition Iodometric Method I. 4500-Cl B.	0.5	0.1	0.3	0.4	0.2	0.3
2	Phosphate as (PO4)	mg/l	APHA-23rd -4500-P D Stannous Chloride Method	5	2.5	3.4	1.9	2.1	1.8
3	Zinc as (Zn)	mg/l	----	1	BDL	BDL	BDL	BDL	BDL
4	Total Chromium as (Cr)	mg/l	----	0.2	BDL	BDL	BDL	BDL	BDL

End of the Report

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Environmental Laboratory * TC - 5193 (NABL Certificate No.) * Adani Power Maharashtra Limited, Tiroda

01/12/19

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Format No: APML/ENV-LB/7.8/F01

URL NO :TC519319000001102F

Date: 30.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	06.11.2019	Analysis Starting Date :	06.11.2019
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Condenser Cooling Water (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5			

TEST REPORT

Sr no	Parameter	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	pH Value	---	APHA-22nd - 4500-H+B Electrometric Method	6.5-8.5	7.8	7.5	8.2	8.3	8.0
2	Temperature	Deg C	APHA-22nd - 2550 B	---	33	34	34	32	32
3	Free Available Chlorine	PPM	APHA 22nd-Iodometric Method I. 4500-Cl B.	0.5	0.2	0.1	0.2	0.4	0.1

End of the Report

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Environmental Laboratory ★ Adani Power Maharashtra Limited, Tiroda ★ TC - 5193 (NABL Certificate No.)

01/12/19

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ADANI POWER MAHARASHTRA LIMITED, TIRODA

TC-5193

Format No: APML/ENV-LB/7.8/F01

URL:TC519319000001107F

Date: 30.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	06.11.2019	Analysis Starting Date	06.11.2019
Quantity received	3 Lit /Sample	Sampled by	Environment Dept. APML
Sample Particulars : Treated Effluent Water			
Location of sample : DM Plant N-Pit , ETP Outlet			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					N-pit	ETP Outlet
1	pH Value	---	APHA-22nd -4500-H+B Electrometric Method	5.5-9.0	7.3	7.0
2	TSS	mg / l	APHA-22nd - 2540 D	100	23	29
3	TDS	mg / l	APHA-22nd - 2540 C	2100	359	287
4	COD	mg / l	APHA-22nd Ed 2012-5220B Open Reflux Method	250	47	35
5	BOD at 27°C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	19	12
6	Oil & Grease	mg / l	APHA-22nd Ed 2012-5520 B Liquid Liquid Partition Gravemetric method	10	1.0	1.3

End of the Report

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4. # Indicates this parameter is not covered in our NABL scope

Environmental Laboratory ★ TC - 5193 (NABL Certificate No.) ★ Adani Power Maharashtra Limited, Tiroda

30/11/19

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Format No: APML/ENV-LB/7.8/F01

URL:TC519319000001105F

Date: 30.11.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	06.11.2019	Analysis Starting Date	06.11.2019
Quantity received	3 Lit /Sample	Sampled by	Environment Dept.
Sample Particulars : Treated Waste Water			
Location of sample : STP -1 & 2 Out Let			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					STP-1	STP-2
1	pH Value	--	APHA-22nd -4500-H+B Electrometric Method	5.5-9.0	7.5	7.3
2	TSS	mg / l	APHA-22nd - 2540 D	500	39	26
3	TDS	mg / l	APHA-22nd - 2540 C	2100	310	355
4	COD	mg / l	APHA-22nd Ed 2012-5220B Open Reflux Method	100	58	38
5	BOD at 27°C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	17	20

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

30/11/19

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Format No: APML/ENV-LB/7.8/F01

URL No : TC519319000001201F

Date 31.12.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Air Quality (Plant)
Sample Collected by :	Environment Dept. APML

Test Report

Station	Sampling Location	Sampling Date	Analysis Starting Date	Parameters			
				PM 10	PM 2.5	SO2	NOx
				µg/m3	µg/m3	µg/m3	µg/m3
AAQ 1	Near AWRS	02.12.2019	03.12.2019	73.0	28.2	14.7	29.5
		06.12.2019	07.12.2019	65.7	25.8	11.0	19.8
		09.12.2019	10.12.2019	59.0	19.2	15.9	27.1
		13.12.2019	14.12.2019	60.7	15.7	7.8	21.0
		16.12.2019	17.12.2019	58.4	17.3	9.4	16.8
		20.12.2019	21.12.2019	55.8	21.0	13.1	25.9
		23.12.2019	24.12.2019	57.8	22.8	12.5	30.1
		27.12.2019	28.12.2019	69.9	15.5	10.4	20.4
		30.12.2019	31.12.2019	56.3	14.5	15.1	25.3
AAQ 2	Near Brick Plant	02.12.2019	03.12.2019	51.6	21.7	9.6	19.8
		06.12.2019	07.12.2019	60.3	25.3	11.0	23.5
		09.12.2019	10.12.2019	58.6	20.8	10.6	22.2
		13.12.2019	14.12.2019	61.6	24.4	13.1	29.5
		16.12.2019	17.12.2019	55.0	17.0	10.6	22.2
		20.12.2019	21.12.2019	63.9	18.4	12.1	26.5
		23.12.2019	24.12.2019	57.8	19.9	11.2	27.7
		27.12.2019	28.12.2019	69.6	22.0	13.3	29.5
		30.12.2019	31.12.2019	72.2	33.8	14.1	24.1
AAQ 3	China Colony	02.12.2019	03.12.2019	61.5	15.4	13.7	22.2
		06.12.2019	07.12.2019	51.6	20.1	12.5	25.9
		09.12.2019	10.12.2019	58.7	22.0	13.7	19.2
		13.12.2019	14.12.2019	54.2	18.3	15.1	21.6
		16.12.2019	17.12.2019	64.5	28.7	14.1	28.9
		20.12.2019	21.12.2019	78.4	26.2	16.8	30.7
		23.12.2019	24.12.2019	79.2	30.1	15.3	31.3
		27.12.2019	28.12.2019	62.6	25.1	17.0	30.1
		30.12.2019	31.12.2019	73.8	27.5	13.9	29.5
NAAQMS Standard				100	60	80	80

End of the Report

Note: Tested results are well within the permissible limits of National Ambient Air Quality Monitoring Standard (NAAQMS)

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Environmental Laboratory Adani Power Maharashtra Limited, Tiroda (NABL Certificate No.)

31/12/19

Authorized Signatory
(Technical Manager)

Plot No. A-1,Tiroda Growth Centre, M.I.D.C., Dist: Gondia - 441911, Maharashtra, India
Tel.: +917198255983, Fax: +917198253971, E-mail:arunpratap.singh@adani.com
Website:www.adani.com

Format No: APML/ENV-LB/7.8/F01

URL No. : TC519319000001223F Date: 31.12.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Noise Level (Plant)
Sample Collected by :	Environment Dept. APML
Date of Sampling:	28.12.2019

Test Report

S. No	Locations	Day Time in dB (A) (6.00 a.m. to 10.00 p.m.)	Night Time in dB (A) (10.00 p.m. to 06.00 a.m.)
1	Near Shanti Niketan I II & III	58.8	41.2
2	Near Labour Hutment	57.8	43.5
3	Near Store Area	61.8	51.2
4	Gate No.1	56.2	42.1
5	Gate No.2	57.1	44.0
6	Gate No.3	54.6	45.2
7	Near OHC	54.1	41.2
8	Railway Siding	58.0	42.8
9	Near Reservoir 2	57.1	49.5
10	Near Ash Water Recovery Pump House	54.2	43.7
11	In China Colony	42.4	38.4
	CPCB Standards (Industrial Area)	75	70

*** End Of the Report***

Note: Tested results are well within the permissible limits of MPCB / CPCB.

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Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

31/12/19

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Format No: APML/ENV-LB/7.8/F01

URL No : TC519319000001227F	Date: 13.12.2019

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -1
2	Date of Sampling	:	11.12.2019
3	Time of Sampling	:	3:00 PM
4	Load (MW)	:	659
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	123
9	Flue Gas Velocity (M/sec)	:	23.56
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2641683

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	46
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	951
			75.2	TPD	60
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	283

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

15/12/19

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Format No: APML/ENV-LB/5.10/F01

URL No : TC519319000001228F	Date: 13.12.2019
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -2
2	Date of Sampling	:	11.12.2019
3	Time of Sampling	:	4:30 PM
4	Load (MW)	:	647
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	129
9	Flue Gas Velocity (M/sec)	:	24.43
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2697933

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	47
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	967
			75.2	TPD	60.2
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	286

** Results are corrected with 6% oxygen*

End of the Report

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Format No: APML/ENV-LB/7.8/F01

URL No : TC519319000001229F	Date: 13.12.2019
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -3
2	Date of Sampling	:	11.12.2019
3	Time of Sampling	:	3:48 PM
4	Load (MW)	:	650
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	125
9	Flue Gas Velocity (M/sec)	:	22.33
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2490402

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	43
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	978
			75.2	TPD	56
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	290

** Results are corrected with 6% oxygen*

End of the Report

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15/12/19

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Format No: APML/ENV-LB/7.8/F01

TC519319000001234F	Date: 28.12.2019

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -4
2	Date of Sampling	:	27.12.2019
3	Time of Sampling	:	4:00 PM
4	Load (MW)	:	616
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	121
9	Flue Gas Velocity (M/sec)	:	24.37
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2745965

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	48
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	977
			80.2	TPD	64.4
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	287

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

30/12/19

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Format No: APML/ENV-LB/7.8/F01

TC519319000001235F	Date: 28.12.2019

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -5
2	Date of Sampling	:	27.11.2019
3	Time of Sampling	:	3:05 PM
4	Load (MW)	:	645
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	115
9	Flue Gas Velocity (M/sec)	:	23.93
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2738397

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	44
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	918
			80.2	TPD	60.3
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	285

** Results are corrected with 6% oxygen*

End of the Report

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Format No: APML/ENV-LB/7.8/F01

URL:TC519319000001205F

Date: 31.12.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.12.2019	Analysis Starting Date	04.12.2019
Quantity received	3 Lit /Sample	Sampled by	Environment Dept.
Sample Particulars : Treated Waste Water			
Location of sample : STP -1 & 2 Out Let			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					STP-1	STP-2
1	pH Value	--	APHA-22nd -4500-H+B Electrometric Method	5.5-9.0	7.4	7.0
2	TSS	mg / l	APHA-22nd - 2540 D	500	27	40
3	TDS	mg / l	APHA-22nd - 2540 C	2100	299	233
4	COD	mg / l	APHA-22nd Ed 2012-5220B Open Reflux Method	100	59	68
5	BOD at 27°C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	10	12

End of the Report

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4. # Indicates this parameter is not covered in our NABL scope

Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

31/12/19

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Format No: APML/ENV-LB/7.8/F01

URL:TC519319000001207F Date: 31.12.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.12.2019	Analysis Starting Date	04.12.2019
Quantity received	3 Lit /Sample	Sampled by	Environment Dept. APML
Sample Particulars : Treated Effluent Water			
Location of sample : DM Plant N-Plt , ETP Outlet			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					N-pit	ETP Outlet
1	pH Value	---	APHA-22nd -4500-H+B Electrometric Method	5.5-9.0	7.2	7.5
2	TSS	mg / l	APHA-22nd - 2540 D	100	31	40
3	TDS	mg / l	APHA-22nd - 2540 C	2100	241	305
4	COD	mg / l	APHA-22nd Ed 2012-5220B Open Reflux Method	250	38	62
5	BOD at 27°C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27°C	30	13	10
6	Oil & Grease	mg / l	APHA-22nd Ed 2012-5520 B Liquid Liquid Partition Gravemetric method	10	2.6	2.2

End of the Report

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Environmental Laboratory ★ TC - 5193 (NABL Certificate No.) ★ Adani Power Maharashtra Limited, Tiroda

31/12/19

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Format No: APML/ENV-LB/7.8/F01

URL: TC519319000001203F Date: 31.12.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.12.2019	Analysis Starting Date :	04.12.2019
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Cooling tower blowdown (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5.			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	Free Available Chlorine	mg/l	APHA 23rd Edition Iodometric Method I. 4500-Cl B.	0.5	0.2	0.3	0.3	0.1	0.2
2	Phosphate as (PO4)	mg/l	APHA-23rd -4500-P D Stannous Chloride Method	5	1.9	2.1	2.8	3.2	3.3
3	Zinc as (Zn)	mg/l	----	1	BDL	BDL	BDL	BDL	BDL
4	Total Chromium as (Cr)	mg/l	----	0.2	BDL	BDL	BDL	BDL	BDL

End of the Report

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Format No: APML/ENV-LB/7.8/F01

URL: TC519319000001236F

Date: 31.12.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	22.12.2019	Analysis Starting Date :	22.12.2019
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Boiler blowdown (Waste Water)			
Location of sample : Unit-4			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results
					U # 4
1	TSS	mg / l	APHA-22nd - 2540 D	100	3.0
2	Oil & Grease	mg / l	APHA-22nd Ed 2012-5520 B Liquid Liquid Partition	10	BDL
3	Copper (Total)	mg/l	----	1	BDL
4	Iron (Total)	mg/l	APHA-22nd-3500-Fe-B	1	BDL

End of the Report

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Format No: APML/ENV-LB/7.8/F01

URL NO :TC519319000001202F

Date: 31.12.2019

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.12.2019	Analysis Starting Date :	04.12.2019
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Condenser Cooling Water (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5			

TEST REPORT

Sr no	Parameter	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	pH Value	---	APHA-22nd - 4500-H+B Electrometric Method	6.5-8.5	7.6	7.8	7.9	7.9	7.7
2	Temperature	Deg C	APHA-22nd - 2550 B	---	32.0	32.0	33.0	32.0	31.0
3	Free Available Chlorine	PPM	APHA 22nd- Iodometric Method I. 4500-Cl B.	0.5	0.1	0.2	0.4	0.3	0.1

End of the Report

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M/s Adani Power Maharashtra Limited
A – 1, Tirora Growth Centre, MIDC
Dist. Gondia – 441 911

Sample Collection Date : 29.11.2019
Sample Analysis Date : 30.11.2019
Sample Type : Surface Water
Sample Collected by : Enviro Analyst & Engineers Pvt. Ltd representative
Sample Tested at : Enviro Analyst & Engineers Pvt. Ltd , Nagpur

TEST RESULTS

Sr. No.	Test Parameters	Unit	As per IS : 10500 : 2012 (Drinking Water - Specification)		Results	
			Permissible Requirement	Acceptable Limit	Mendipur Pond water	Kachewani Pond Water
1	Apparent Colour	Hazen units	15	5	1.5	2.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	-	-
4	Turbidity NTU	NTU	5	1	1.2	1.2
5	Total Dissolved Solid	mg / l	2000	500	152	168
6	Electrical Conductivity	µS/cm	-	-	256	274
7	Total Alkalinity	mg / l	600	200	124	170
8	pH Value	-	No relaxation	6.5 to 8.5	8.3	8.3
9	Total Hardness ($CaCO_3$)	mg / l	600	200	94	104
10	Calcium (as Ca)	mg / l	200	75	30.2	30.2
11	Magnesium (as Mg)	mg / l	100	30	4.5	6.9
12	Copper as(Cu)	mg / l	1.5	0.05	< 0.01	< 0.01
13	Iron (as Fe)	mg / l	No relaxation	0.3	0.075	0.070
14	Manganese as (Mn)	mg / l	0.3	0.1	0.010	< 0.01
15	Chlorides (as Cl)	mg / l	1000	250	11.2	10.3
16	Sulphate (as SO_4)	mg / l	400	200	9.3	8.5
17	Nitrates (as NO_3)	mg / l	No relaxation	45	4.8	2.9
18	Fluoride (as F)	mg / l	1.5	1.0	0.40	0.35
19	Phenolic Compounds	mg / l	0.002	0.001	BDL	BDL
20	Mercury as (Hg)	mg / l	No relaxation	0.001	< 0.0005	< 0.0005
21	Cadmium as (Cd)	mg / l	No relaxation	0.003	< 0.001	< 0.001
22	Selenium as (Se)	mg / l	No relaxation	0.01	< 0.001	< 0.001
23	Arsenic as (As)	mg / l	0.05	0.01	BDL	BDL
24	Cyanide as (CN)	mg / l	No relaxation	0.05	< 0.005	< 0.005
25	Lead as (Pb)	mg / l	No relaxation	0.01	< 0.001	< 0.001
26	Zinc as (Zn)	mg / l	15	5	0.15	0.12
27	Chromium as (Cr^{+6})	mg / l	No relaxation	0.05	< 0.03	< 0.03
28	Mineral Oil	mg / l	No relaxation	0.05	< 0.01	< 0.01
29	Residual Chlorine	mg / l	1.0	0.2	Nil	Nil
30	Total Coliform	MPN/100 ml	Absent	Absent	> 16	> 16
31	E.Coli	Nos./100 ml	Absent	Absent	> 16	> 16

Environment Dept.
Adani Power Maharashtra Limited

M/s Adani Power Maharashtra Limited
A – 1, Tirora Growth Centre, MIDC
Dist. Gondia – 441 911

Sample Collection Date : 29.11.2019
Sample Analysis Date : 30.11.2019
Sample Type : Surface Water
Sample Collected by : Enviro Analyst & Engineers Pvt. Ltd representative
Sample Tested at : Enviro Analyst & Engineers Pvt. Ltd , Nagpur

TEST RESULTS

Sr. No.	Test Parameters	Unit	As per IS : 10500 : 2012 (Drinking Water - Specification)		Results	
			Permissible Requirement	Acceptable Limit	Wainganga River Water	Garada Village Pond Water
1	Apparent Colour	Hazen units	15	5	1.2	1.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	-	-
4	Turbidity NTU	NTU	5	1	0.5	0.5
5	Total Dissolved Solid	mg / l	2000	500	110	332
6	Electrical Conductivity	µS/cm	-	-	180	538
7	Total Alkalinity	mg / l	600	200	86	164
8	pH Value	-	No relaxation	6.5 to 8.5	8.4	8.35
9	Total Hardness ($CaCO_3$)	mg / l	600	200	76.2	170
10	Calcium (as Ca)	mg / l	200	75	22.2	42.8
11	Magnesium (as Mg)	mg / l	100	30	5.03	15.3
12	Copper as(Cu)	mg / l	1.5	0.05	< 0.01	< 0.01
13	Iron (as Fe)	mg / l	No relaxation	0.3	< 0.07	0.10
14	Manganese as (Mn)	mg / l	0.3	0.1	< 0.01	< 0.01
15	Chlorides (as Cl)	mg / l	1000	250	9.1	18.2
16	Sulphate (as SO_4)	mg / l	400	200	6.0	13.7
17	Nitrates (as NO_3)	mg / l	No relaxation	45	2.15	4.2
18	Fluoride (as F)	mg / l	1.5	1.0	0.35	0.45
19	Phenolic Compounds	mg / l	0.002	0.001	BDL	BDL
20	Mercury as (Hg)	mg / l	No relaxation	0.001	< 0.0005	< 0.0005
21	Cadmium as (Cd)	mg / l	No relaxation	0.003	0.003	< 0.001
22	Selenium as (Se)	mg / l	No relaxation	0.01	0.01	< 0.001
23	Arsenic as (As)	mg / l	0.05	0.01	0.01	BDL
24	Cyanide as (CN)	mg / l	No relaxation	0.05	0.05	< 0.005
25	Lead as (Pb)	mg / l	No relaxation	0.01	0.01	< 0.001
26	Zinc as (Zn)	mg / l	15	5	5	0.20
27	Chromium as (Cr^{+6})	mg / l	No relaxation	0.05	0.05	< 0.03
28	Mineral Oil	mg / l	No relaxation	0.05	0.05	< 0.01
29	Residual Chlorine	mg / l	1.0	0.2	0.2	Nil
30	Total Coliform	MPN/100 ml	Absent	Absent	Absent	> 16
31	E.Coli	Nos./100 ml	Absent	Absent	Absent	> 16

Environment Dept.
Adani Power Maharashtra Limited

M/s Adani Power Maharashtra Limited
A – 1, Tirora Growth Centre, MIDC
Dist. Gondia – 441 911

Sample Collection Date : 29.11.2019
Sample Analysis Date : 30.11.2019
Sample Type : Ground Water
Sample Collected by : Enviro Analyst & Engineers Pvt. Ltd representative
Sample Tested at : Enviro Analyst & Engineers Pvt. Ltd , Nagpur

TEST RESULTS

Sr. No.	Test Parameters	Unit	As per IS : 10500 : 2012 (Drinking Water - Specification)		Results	
			Permissible Requirement	Acceptable Limit	Mendipur Hand Pump	Kachewani Hand Pump
1	Apparent Colour	Hazen units	15	5	0.1	0.1
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity NTU	NTU	5	1	0.1	0.1
5	Total Dissolved Solid	mg / l	2000	500	540	824
6	Electrical Conductivity	µS/cm	-	-	870	1334
7	Total Alkalinity	mg / l	600	200	210	190
8	pH Value	-	No relaxation	6.5 to 8.5	8.15	7.7
9	Total Hardness ($CaCO_3$)	mg / l	600	200	236	410
10	Calcium (as Ca)	mg / l	200	75	66.2	98.8
11	Magnesium (as Mg)	mg / l	100	30	17.1	39.60
12	Copper as(Cu)	mg / l	1.5	0.05	< 0.01	< 0.01
13	Iron (as Fe)	mg / l	No relaxation	0.3	0.09	0.12
14	Manganese as (Mn)	mg / l	0.3	0.1	< 0.01	0.008
15	Chlorides (as Cl)	mg / l	1000	250	44.5	184
16	Sulphate (as SO_4)	mg / l	400	200	26.2	120
17	Nitrates (as NO_3)	mg / l	No relaxation	45	2.35	2.40
18	Fluoride (as F)	mg / l	1.5	1.0	0.75	0.70
19	Phenolic Compounds	mg / l	0.002	0.001	BDL	BDL
20	Mercury as (Hg)	mg / l	No relaxation	0.001	< 0.0005	< 0.0005
21	Cadmium as (Cd)	mg / l	No relaxation	0.003	< 0.001	< 0.001
22	Selenium as (Se)	mg / l	No relaxation	0.01	< 0.001	< 0.001
23	Arsenic as (As)	mg / l	0.05	0.01	BDL	BDL
24	Cyanide as (CN)	mg / l	No relaxation	0.05	< 0.005	< 0.005
25	Lead as (Pb)	mg / l	No relaxation	0.01	< 0.001	< 0.001
26	Zinc as (Zn)	mg / l	15	5	0.48	0.74
27	Chromium as (Cr^{+6})	mg / l	No relaxation	0.05	< 0.03	< 0.03
28	Mineral Oil	mg / l	No relaxation	0.05	< 0.01	< 0.01
29	Residual Chlorine	mg / l	1.0	0.2	< 0.1	< 0.1
30	Total Coliform	MPN/100 ml	Absent	Absent	Absent	Absent
31	E.Coli	Nos./100 ml	Absent	Absent	Absent	Absent

Environment Dept.
Adani Power Maharashtra Limited

M/s Adani Power Maharashtra Limited
A – 1, Tirora Growth Centre, MIDC
Dist. Gondia – 441 911

Sample Collection Date : 29.11.2019
Sample Analysis Date : 30.11.2019
Sample Type : Ground Water
Sample Collected by : Enviro Analyst & Engineers Pvt. Ltd representative
Sample Tested at : Enviro Analyst & Engineers Pvt. Ltd , Nagpur

TEST RESULTS

Sr. No.	Test Parameters	Unit	As per IS : 10500 : 2012 (Drinking Water - Specification)		Results	
			Permissible Requirement	Acceptable Limit	Garada Hand Pump	Chikhali Hand Pump
1	Apparent Colour	Hazen units	15	5	0.1	0.1
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity NTU	NTU	5	1	0.1	0.1
5	Total Dissolved Solid	mg / l	2000	500	760	490
6	Electrical Conductivity	µS/cm	-	-	1220	794
7	Total Alkalinity	mg / l	600	200	194	216
8	pH Value	-	No relaxation	6.5 to 8.5	7.50	8.1
9	Total Hardness ($CaCO_3$)	mg / l	600	200	324	214
10	Calcium (as Ca)	mg / l	200	75	84.2	67.2
11	Magnesium (as Mg)	mg / l	100	30	27.6	11.2
12	Copper as(Cu)	mg / l	1.5	0.05	< 0.01	< 0.01
13	Iron (as Fe)	mg / l	No relaxation	0.3	0.15	0.10
14	Manganese as (Mn)	mg / l	0.3	0.1	< 0.01	< 0.01
15	Chlorides (as Cl)	mg / l	1000	250	120.2	24.2
16	Sulphate (as SO_4)	mg / l	400	200	41.4	14.7
17	Nitrates (as NO_3)	mg / l	No relaxation	45	2.20	2.15
18	Fluoride (as F)	mg / l	1.5	1.0	0.70	0.70
19	Phenolic Compounds	mg / l	0.002	0.001	BDL	BDL
20	Mercury as (Hg)	mg / l	No relaxation	0.001	< 0.0005	< 0.0005
21	Cadmium as (Cd)	mg / l	No relaxation	0.003	< 0.001	< 0.001
22	Selenium as (Se)	mg / l	No relaxation	0.01	< 0.001	< 0.001
23	Arsenic as (As)	mg / l	0.05	0.01	BDL	BDL
24	Cyanide as (CN)	mg / l	No relaxation	0.05	< 0.005	< 0.005
25	Lead as (Pb)	mg / l	No relaxation	0.01	< 0.001	< 0.001
26	Zinc as (Zn)	mg / l	15	5	0.42	0.20
27	Chromium as (Cr^{+6})	mg / l	No relaxation	0.05	< 0.03	< 0.03
28	Mineral Oil	mg / l	No relaxation	0.05	< 0.01	< 0.01
29	Residual Chlorine	mg / l	1.0	0.2	< 0.1	< 0.1
30	Total Coliform	MPN/100 ml	Absent	Absent	Absent	Absent
31	E.Coli	Nos./100 ml	Absent	Absent	Absent	Absent

Environment Dept.
Adani Power Maharashtra Limited

Format No: APML/ENV-LB/7.8/F01

TC519320000000029F	Date: 11.01.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -1
2	Date of Sampling	:	11.01.2020
3	Time of Sampling	:	2:55 PM
4	Load (MW)	:	624
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	120
9	Flue Gas Velocity (M/sec)	:	23.74
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2681941

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	46
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	963
			75.2	TPD	62
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	284

** Results are corrected with 6% oxygen*

End of the Report

Note Tested results are well within the permissible limits of MPCB.

1. The report is referring only to the tested sample and for applicable parameter.
2. The sample will be destroyed after retention time unless otherwise specified specially.
3. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.

Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited

11.01.2020

Authorized Signatory
(Technical Manager)

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Format No: APML/ENV-LB/5.10/F01

TC519320000000030F	Date: 11.01.2020
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -2
2	Date of Sampling	:	11.01.2020
3	Time of Sampling	:	3:45 PM
4	Load (MW)	:	660
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	121
9	Flue Gas Velocity (M/sec)	:	23.38
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2634813

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	48
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	974
			75.2	TPD	58.5
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	288

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

11.01.2020

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Format No: APML/ENV-LB/7.8/F01

TC519320000000031F	Date: 11.01.2020
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -3
2	Date of Sampling	:	11.01.2020
3	Time of Sampling	:	4:25 PM
4	Load (MW)	:	600
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	122
9	Flue Gas Velocity (M/sec)	:	22.82
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2564581

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	42
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	963
			75.2	TPD	57
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	284

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory * TC - 5193 (NABL Certificate No.) * Adani Power Maharashtra Limited, Tiroda

11.01.2020

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Format No: APML/ENV-LB/7.8/F01

TC519320000000027F	Date: 11.01.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -4
2	Date of Sampling	:	09.01.2020
3	Time of Sampling	:	3:30 PM
4	Load (MW)	:	655
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	121
9	Flue Gas Velocity (M/sec)	:	24.59
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2770605

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	47
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	972
			80.2	TPD	64.7
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	287

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

11.01.2020

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Format No: APML/ENV-LB/7.8/F01

TC519320000000028F	11.01.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -5
2	Date of Sampling	:	09.01.2020
3	Time of Sampling	:	4:05 PM
4	Load (MW)	:	644
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	120
9	Flue Gas Velocity (M/sec)	:	24.18
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2731374

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	43
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	909
			80.2	TPD	59.6
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	280

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory * TC - 5193 (NABL Certificate No.) * Adani Power Maharashtra Limited, Tiroda

11.01.2020

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ENVIRONMENTAL LABORATORY

(Accredited by NABL)

ADANI POWER MAHARASHTRA LIMITED, TIRODA

TC-5193

Format No: APML/ENV-LB/7.8/F01

URL No : TC519320000000001F

Date 31.01.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Air Quality (Plant)
Sample Collected by :	Environment Dept. APML

Test Report

Station	Sampling Location	Sampling Date	Analysis Starting Date	Parameters			
				PM 10	PM 2.5	SO2	NOx
				µg/m3	µg/m3	µg/m3	µg/m3
AAQ 1	Near AWRS	03.01.2020	04.01.2020	66.9	20.4	16.6	28.3
		06.01.2020	07.01.2020	43.9	13.7	15.9	25.9
		10.01.2020	11.01.2020	54.1	16.2	18.2	22.2
		13.01.2020	14.01.2020	61.6	24.1	15.9	29.5
		17.01.2020	18.01.2020	69.1	19.2	13.5	17.4
		20.01.2020	21.01.2020	68.2	18.4	11.0	27.7
		24.01.2020	24.01.2020	52.3	26.1	8.4	28.3
		27.01.2020	28.01.2020	73.6	30.4	13.9	19.8
		30.01.2020	31.01.2020	87.6	29.4	17.2	31.3
AAQ 2	Near Brick Plant	03.01.2020	04.01.2020	55.1	19.6	7.6	24.7
		06.01.2020	07.01.2020	60.8	15.0	10.4	16.2
		10.01.2020	11.01.2020	43.9	19.3	10.0	18.0
		13.01.2020	14.01.2020	57.2	13.7	7.0	17.4
		17.01.2020	18.01.2020	58.2	10.4	8.6	18.6
		20.01.2020	21.01.2020	49.1	18.4	14.1	16.8
		24.01.2020	24.01.2020	46.6	26.0	11.7	26.5
		27.01.2020	28.01.2020	62.3	47.3	13.9	21.0
		30.01.2020	31.01.2020	53.6	11.1	12.1	15.6
AAQ 3	China Colony	03.01.2020	04.01.2020	89.8	23.8	14.1	24.7
		06.01.2020	07.01.2020	60.8	22.6	15.9	32.5
		10.01.2020	11.01.2020	59.9	13.4	17.2	27.1
		13.01.2020	14.01.2020	69.0	20.5	11.4	19.8
		17.01.2020	18.01.2020	62.1	26.9	17.8	34.9
		20.01.2020	21.01.2020	79.6	24.3	15.7	33.1
		24.01.2020	24.01.2020	84.6	35.2	18.4	25.3
		27.01.2020	28.01.2020	76.9	26.3	10.8	30.7
		30.01.2020	31.01.2020	67.7	30.0	12.9	28.9
NAAQMS Standard				100	60	80	80

End of the Report

Note: Tested results are well within the permissible limits of National Ambient Air Quality Monitoring Standard (NAAQMS)

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Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

31.01.2020

Authorized Signatory
(Technical Manager)

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URL No. : URLTC519320000000026F Date: 31.01.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Noise Level (Plant)
Sample Collected by :	Environment Dept.,APML
Date of Sampling:	11.01.2020

Test Report

S. No	Locations	Day Time in dB (A) (6.00 a.m. to 10.00 p.m.)	Night Time in dB (A) (10.00 p.m. to 06.00 a.m.)
1	Near Shanti Niketan I II & III	46.6	40.2
2	Near Labour Hutment	62.4	42.0
3	Near Store Area	63.0	43.1
4	Gate No.1	57.5	41.1
5	Gate No.2	59.5	40.0
6	Gate No.3	61.1	55.5
7	Near OHC	57.6	50.0
8	Railway Siding	62.2	51.1
9	Near Reservoir 2	57.8	40.5
10	Near Ash Water Recovery Pump House	63.6	52.2
11	In China Colony	42.2	39.0
CPCB Standards (Industrial Area)		75	70

*** End Of the Report***

Note: Tested results are well within the permissible limits of MPCB / CPCB.

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

31.01.2020

Authorized Signatory
(Technical Manager)

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Format No: APML/ENV-LB/7.8/F01

URL:TC519320000000022F

Date: 31.01.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	22.01.2020	Analysis Starting Date	22.01.2020
Quantity received	3 Lit /Sample	Sampled by	Environment Dept.
Sample Particulars : Treated Waste Water			
Location of sample : STP -1 & 2 Out Let			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					STP-1	STP-2
1	pH Value	--	APHA-23rd -4500-H+B Electrometric Method	5.5-9.0	7.4	7.5
2	TSS	mg / l	APHA-23rd - 2540 D	500	27	39
3	TDS	mg / l	APHA-23rd - 2540 C	2100	303	224
4	COD	mg / l	APHA-23rd Ed 2017-5220B Open Reflux Method	100	48	65
5	BOD at 27^0C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	17	15

End of the Report

Note: Tested results are well within the permissible limits of MPCB.

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2. The sample will be destroyed after retention time unless otherwise specified specially.
3. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.
4. # Indicates this parameter is not covered in our NABL scope

Environmental Laboratory ★ Adani ★ TC - 5193 (NABL Certificate No.) ★ Tiroda ★ Maharashtra Limited

31.01.2020

Authorized Signatory
(Technical Manager)

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URL:TC519320000000021F Date: 31.01.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	22.01.2020	Analysis Starting Date	22.01.2020
Quantity received	3 Lit /Sample	Sampled by	Environment Dept. APML
Sample Particulars : Treated Effluent Water			
Location of sample : DM Plant N-Pit , ETP Outlet			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					N-pit	ETP Outlet
1	pH Value	---	APHA-23rd -4500-H+B Electrometric Method	5.5-9.0	7.6	7.9
2	TSS	mg / l	APHA-23rd - 2540 D	100	24	14
3	TDS	mg / l	APHA-23rd - 2540 C	2100	324	551
4	COD	mg / l	APHA-23rd Ed 2017-5220B Open Reflux Method	250	40	70
5	BOD at 27^{0}C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	10	12
6	Oil & Grease	mg / l	APHA-23rd Ed 2017-5520 B Liquid Liquid Partition Gravemetric method	10	2.5	1.1

End of the Report

Note: Tested results are well within the permissible limits of MPCB.

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3. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.
4. # Indicates this parameter is not covered in our NABL scope

Environmental Laboratory ★ TC - 5193 (NABL Certificate No.) ★ Adani Power Maharashtra Limited, Tiroda

31.01.2020

Authorized Signatory
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URL: TC519320000000017F

Date: 31.01.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	22.01.2020	Analysis Starting Date :	22.01.2020
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Cooling tower blowdown (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5.			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	Free Available Chlorine	mg/l	APHA-23rd – 4500-Cl G, DPD Colorimetric Method	0.5	0.1	0.1	0.2	0.3	0.4
2	Phosphate as (PO4)	mg/l	APHA-23rd -4500-P D Stannous Chloride Method	5	2.2	2.9	3.1	2.8	3.0
3	Zinc as (Zn)	mg/l	----	1	BDL	BDL	BDL	BDL	BDL
4	Total Chromium as (Cr)	mg/l	----	0.2	BDL	BDL	BDL	BDL	BDL

End of the Report

Note: Tested results are well within the permissible limits of MPCB.

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Environmental Laboratory ★ TC - 5193 (NABL Certificate No.) ★ Adani Power Maharashtra Limited, Tiroda

31.01.2020

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Format No: APML/ENV-LB/7.8/F01

URL NO :TC5193200000000016F Date: 31.01.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	22.01.2020	Analysis Starting Date :	22.01.2020
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Condenser Cooling Water (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5			

TEST REPORT

Sr no	Parameter	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	pH Value	---	APHA-23rd - 4500-H+B Electrometric Method	6.5-8.5	7.5	7.4	7.7	7.8	7.6
2	Temperature	Deg C	APHA-23rd - 2550 B	---	31	33	30	32	33
3	Free Available Chlorine	PPM	APHA-23rd – 4500-Cl G, DPD Colorimetric Method	0.5	0.2	0.1	0.2	0.4	0.3

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

31.01.2020

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Format No: APML/ENV-LB/7.8/F01

TC519320000000230F	Date: 08.02.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -1
2	Date of Sampling	:	07.02.2020
3	Time of Sampling	:	3:15 PM
4	Load (MW)	:	637
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	120
9	Flue Gas Velocity (M/sec)	:	23.58
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2664330

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	44
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	947
			75.2	TPD	61
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	279

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

08/02/20

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Format No: APML/ENV-LB/5.10/F01

TC519320000000231F	Date: 08.02.2020
Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -2
2	Date of Sampling	:	07.02.2020
3	Time of Sampling	:	3:55 PM
4	Load (MW)	:	662
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	121
9	Flue Gas Velocity (M/sec)	:	23.81
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2683145

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	46
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	971
			75.2	TPD	59.7
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	283

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

08/02/20

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TC519320000000232F

Date: 08.02.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -3
2	Date of Sampling	:	07.02.2020
3	Time of Sampling	:	4:30 PM
4	Load (MW)	:	646
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	120
9	Flue Gas Velocity (M/sec)	:	22.55
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2546892

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	43
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	978
			75.2	TPD	58
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	287

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

08/02/20

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Format No: APML/ENV-LB/7.8/F01

TC519320000000228F	Date: 08.02.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -4
2	Date of Sampling	:	06.02.2020
3	Time of Sampling	:	3:30 PM
4	Load (MW)	:	649
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	121
9	Flue Gas Velocity (M/sec)	:	22.92
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2582230

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	47
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	967
			80.2	TPD	59.9
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	284

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

09/02/20

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Format No: APML/ENV-LB/7.8/F01

TC519320000000229F	08.02.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -5
2	Date of Sampling	:	06.02.2020
3	Time of Sampling	:	4:07 PM
4	Load (MW)	:	652
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	120
9	Flue Gas Velocity (M/sec)	:	23.67
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2674077

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	45
2	SO_2	IS 11255 (Part 2) 1985	---	Mg/Nm^3	921
			80.2	TPD	59.1
3	NOx	IS 11255 (Part 7) 2005	---	Mg/Nm^3	285

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

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Format No: APML/ENV-LB/7.8/F01

URL No : TC519320000000201F

Date 29.02.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Air Quality (Plant)
Sample Collected by :	Environment Dept. APML

Test Report

Station	Sampling Location	Sampling Date	Analysis Starting Date	Parameters			
				PM 10	PM 2.5	SO2	NOx
				µg/m3	µg/m3	µg/m3	µg/m3
AAQ 1	Near AWRS	03.02.2020	04.02.2020	89.1	38.0	13.7	25.9
		07.02.2020	08.02.2020	70.4	29.5	14.5	28.9
		10.02.2020	11.02.2020	71.9	21.4	10.8	22.2
		14.02.2020	15.02.2020	87.1	34.1	15.7	27.1
		17.02.2020	18.02.2020	62.9	16.4	9.8	20.4
		21.02.2020	22.02.2020	59.6	15.7	15.1	21.6
		24.02.2020	25.02.2020	58.6	20.9	10.4	18.6
		28.02.2020	29.02.2020	80.1	28.5	16.2	30.1
AAQ 2	Near Brick Plant	03.02.2020	04.02.2020	58.2	18.5	9.8	20.4
		07.02.2020	08.02.2020	63.8	22.7	7.4	14.4
		10.02.2020	11.02.2020	55.5	11.5	11.0	15.6
		14.02.2020	15.02.2020	59.7	21.1	13.7	27.1
		17.02.2020	18.02.2020	52.8	15.5	8.0	12.0
		21.02.2020	22.02.2020	68.9	17.9	9.6	16.2
		24.02.2020	25.02.2020	79.7	27.5	11.7	21.0
		28.02.2020	29.02.2020	74.5	21.7	12.1	22.2
AAQ 3	China Colony	03.02.2020	04.02.2020	88.2	39.8	19.6	29.5
		07.02.2020	08.02.2020	66.1	21.8	12.9	16.8
		10.02.2020	11.02.2020	80.0	36.2	18.2	27.1
		14.02.2020	15.02.2020	78.6	33.2	20.0	29.5
		17.02.2020	18.02.2020	87.0	32.0	21.5	32.5
		21.02.2020	22.02.2020	68.3	22.1	10.0	15.0
		24.02.2020	25.02.2020	53.2	19.7	10.8	16.8
		28.02.2020	29.02.2020	85.3	30.1	21.3	31.3
NAAQMS Standard				100	60	80	80

End of the Report

Note: Tested results are well within the permissible limits of National Ambient Air Quality Monitoring Stanadard (NAAQMS)

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Environmental Laboratory NABL Certificate No. TC-5193 Adani Power Maharashtra Limited, Tiroda

29/02/20

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Format No: APML/ENV-LB/7.8/F01

URL No. : TC519320000000224F

Date: 29.02.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Noise Level (Plant)
Sample Collected by :	Environment Dept. APML
Date of Sampling:	08.02.2020

Test Report

S. No	Locations	Day Time in dB (A) (6.00 a.m. to 10.00 p.m.)	Night Time in dB (A) (10.00 p.m. to 06.00 a.m.)
1	Near Shanti Niketan I II & III	51.9	41.0
2	Near Labour Hutment	64.0	43.2
3	Near Store Area	64.2	42.2
4	Gate No.1	60.7	40.2
5	Gate No.2	61.8	48.5
6	Gate No.3	62.0	51.1
7	Near OHC	61.3	52.2
8	Railway Siding	64.3	44.3
9	Near Reservoir 2	58.8	40.0
10	Near Ash Water Recovery Pump House	61.7	42.2
11	In China Colony	49.3	39.8
CPCB Standards (Industrial Area)		75	70

*** End Of the Report***

Note: Tested results are well within the permissible limits of MPCB / CPCB.

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Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

29/02/20

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ENVIRONMENTAL LABORATORY

(Accredited by NABL)

ADANI POWER MAHARASHTRA LIMITED, TIRODA

TC-5193

Format No: APML/ENV-LB/7.8/F01

URL:TC519320000000207F

Date: 29.02.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	05.02.2020	Analysis Starting Date	05.02.2020
Quantity received	3 Lit /Sample	Sampled by	Environment Dept. APML
Sample Particulars : Treated Effluent Water			
Location of sample : DM Plant N-Pit , ETP Outlet			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					N-pit	ETP Outlet
1	pH Value	---	APHA-23rd -4500-H+B Electrometric Method	5.5-9.0	7.7	7.3
2	TSS	mg / l	APHA-23rd - 2540 D	100	22	21
3	TDS	mg / l	APHA-23rd - 2540 C	2100	434	232
4	COD	mg / l	APHA-23rd Ed 2017-5220B Open Reflux Method	250	43	35
5	BOD at 27^0C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	12	17
6	Oil & Grease	mg / l	APHA-23rd Ed 2017-5520 B Liquid Liquid Partition Gravemetric method	10	0.9	0.4

End of the Report

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4. # Indicates this parameter is not covered in our NABL scope

Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tirora

Authorized Signatory 29/02/20
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Format No: APML/ENV-LB/7.8/F01

URL: TC519320000000203F

Date: 29.02.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	05.02.2020	Analysis Starting Date :	05.02.2020
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Cooling tower blowdown (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5.			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	Free Available Chlorine	mg/l	APHA 23rd Edition Iodometric Method I. 4500-Cl B.	0.5	0.4	0.2	0.3	0.1	0.2
2	Phosphate as (PO4)	mg/l	APHA-23rd -4500-P D Stannous Chloride Method	5	2.5	3.0	1.7	1.5	1.9
3	Zinc as (Zn)	mg/l	----	1	BDL	BDL	BDL	BDL	BDL
4	Total Chromium as (Cr)	mg/l	----	0.2	BDL	BDL	BDL	BDL	BDL

End of the Report

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

29/02/20

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Format No: APML/ENV-LB/7.8/F01

URL NO :TC519320000000202F

Date: 29.02.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	05.02.2020	Analysis Starting Date :	05.02.2020
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Condenser Cooling Water (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5			

TEST REPORT

Sr no	Parameter	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	pH Value	---	APHA-23rd - 4500-H+B Electrometric Method	6.5-8.5	7.9	7.5	7.3	7.4	7.8
2	Temperature	Deg C	APHA-23rd - 2550 B	---	32	33	32	33	34
3	Free Available Chlorine	PPM	APHA 23rd- Iodometric Method I. 4500-Cl B.	0.5	0.10	0.02	0.2	0.3	0.40

End of the Report

Note: Tested results are well within the permissible limits of MPCB.

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Environmental Laboratory TC - 5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

21/02/20

Authorized Signatory
(Technical Manager)

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Format No: APML/ENV-LB/7.8/F01

URL:TC519320000000205F

Date: 29.02.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	05.02.2020	Analysis Starting Date	05.02.2020
Quantity received	3 Lit /Sample	Sampled by	Environment Dept.
Sample Particulars : Treated Waste Water			
Location of sample : STP -1 & 2 Out Let			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					STP-1	STP-2
1	pH Value	--	APHA-23rd -4500-H+B Electrometric Method	5.5-9.0	7.6	7.4
2	TSS	mg / l	APHA-23rd - 2540 D	500	19	15
3	TDS	mg / l	APHA-23rd - 2540 C	2100	260	319
4	COD	mg / l	APHA-23rd Ed 2017-5220B Open Reflux Method	100	40	30
5	BOD at 27°C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	14	11

End of the Report

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4. # Indicates this parameter is not covered in our NABL scope

Environmental Laboratory TC-5193 (NABL Certificate No.) Adani Power Maharashtra Limited, Tiroda

Authorized Signatory
(Technical Manager)

29/02/20

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Format No: APML/ENV-LB/7.8/F01

URL No. : URLTC519320000000323F Date: 31.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Noise Level (Plant)
Sample Collected by :	Environment Dept. APML
Date of Sampling:	28.03.2020

Test Report

S. No	Locations	Day Time in dB (A) (6.00 a.m. to 10.00 p.m.)	Night Time in dB (A) (10.00 p.m. to 06.00 a.m.)
1	Near Shanti Niketan I II & III	45.6	41.2
2	Near Labour Hutment	63.6	43.8
3	Near Store Area	65.0	42.0
4	Gate No.1	58.6	44.8
5	Gate No.2	54.3	40.2
6	Gate No.3	63.8	50.0
7	Near OHC	58.4	48.0
8	Railway Siding	66.6	52.2
9	Near Reservoir 2	58.1	50.7
10	Near Ash Water Recovery Pump House	61.3	51.1
11	In China Colony	41.7	36.4
-	CPCB Standards (Industrial Area)	75	70

*** End Of the Report***

Note: Tested results are well within the permissible limits of MPCB / CPCB.

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31/03/20

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(Technical Manager)

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Format No: APML/ENV-LB/7.8/F01

URL No : TC519320000000301F

Date 31.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Ambient Air Quality (Plant)
Sample Collected by :	Environment Dept. APML

Test Report

Station	Sampling Location	Sampling Date	Analysis Starting Date	Parameters			
				PM 10	PM 2.5	SO2	NOx
				µg/m3	µg/m3	µg/m3	µg/m3
AAQ 1	Near AWRS	02.03.2020	03.03.2020	91.3	38.0	12.5	27.7
		06.03.2020	07.03.2020	84.8	33.9	13.3	25.9
		09.03.2020	10.03.2020	83.9	21.4	14.1	28.9
		13.03.2020	14.03.2020	90.8	34.4	15.5	30.1
		16.03.2020	17.03.2020	80.2	36.4	12.3	23.5
		20.03.2020	21.03.2020	70.6	24.9	11.2	21.0
		23.03.2020	24.03.2020	79.2	25.9	13.1	26.5
		27.03.2020	28.03.2020	77.0	27.1	9.8	15.6
		30.03.2020	31.03.2020	88.4	40.2	11.9	28.3
AAQ 2	Near Brick Plant	02.03.2020	03.03.2020	71.2	21.4	9.8	17.4
		06.03.2020	07.03.2020	81.7	31.2	13.5	24.7
		09.03.2020	10.03.2020	74.7	27.8	10.6	22.2
		13.03.2020	14.03.2020	76.3	28.5	11.2	19.2
		16.03.2020	17.03.2020	75.1	24.3	10.8	17.4
		20.03.2020	21.03.2020	84.2	37.9	14.7	19.8
		23.03.2020	24.03.2020	85.8	31.5	14.1	20.4
		27.03.2020	28.03.2020	64.9	19.5	10.6	33.1
		30.03.2020	31.03.2020	65.3	15.4	11.4	28.3
AAQ 3	China Colony	02.03.2020	03.03.2020	89.6	29.9	15.7	27.7
		06.03.2020	07.03.2020	93.0	34.8	13.3	30.7
		09.03.2020	10.03.2020	80.0	31.4	14.1	27.1
		13.03.2020	14.03.2020	89.4	25.5	16.6	28.9
		16.03.2020	17.03.2020	88.2	27.3	14.5	24.7
		20.03.2020	21.03.2020	82.4	32.3	14.3	33.7
		23.03.2020	24.03.2020	93.7	39.4	18.2	35.5
		27.03.2020	28.03.2020	83.3	27.1	14.9	26.5
		30.03.2020	31.03.2020	88.7	38.7	12.5	27.7
NAAQMS Standard				100	60	80	80

End of the Report

Note: Tested results are well within the permissible limits of National Ambient Air Quality Monitoring Stanadard (NAAQMS)

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31/03/20

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Format No: APML/ENV-LB/7.8/F01

URL:TC519320000000309F

Date: 31.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.03.2020	Analysis Starting Date	04.03.2020
Quantity received	3 Lit /Sample	Sampled by	Environment Dept.
Sample Particulars : Treated Waste Water			
Location of sample : STP -1 & 2 Out Let			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					STP-1	STP-2
1	pH Value	--	APHA-23rd -4500-H+B Electrometric Method	5.5-9.0	7.3	7.4
2	TSS	mg / l	APHA-23rd - 2540 D	500	20	34
3	TOS	mg / l	APHA-23rd - 2540 C	2100	249	306
4	COD	mg / l	APHA-23rd Ed 2017-5220B Open Reflux Method	100	50	40
5	BOD at 27°C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	19	16

End of the Report

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31/03/20

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Format No: APML/ENV-LB/7.8/F01

URL NO :TC519320000000302F

Date: 31.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.03.2020	Analysis Starting Date :	04.03.2020
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Condenser Cooling Water (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5			

TEST REPORT

Sr no	Parameter	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	pH Value	---	APHA-23rd - 4500-H+B Electrometric Method	6.5-8.5	7.9	7.7	7.6	7.4	8.0
2	Temperature	Deg C	APHA-23rd - 2550 B	---	34	34	35	34	34
3	Free Available Chlorine	PPM	APHA-23rd – 4500-Cl G, DPD Colorimetric Method	0.5	0.4	0.2	0.3	0.1	0.2

End of the Report

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31/03/20

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Format No: APML/ENV-LB/7.8/F01

URL:TC519320000000307F Date: 31.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.03.2020	Analysis Starting Date	04.03.2020
Quantity received	3 Lit /Sample	Sampled by	Environment Dept. APML
Sample Particulars : Treated Effluent Water			
Location of sample : DM Plant N-Pit , ETP Outlet			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results	
					N-pit	ETP Outlet
1	pH Value	---	APHA-23rd -4500-H+B Electrometric Method	5.5-9.0	7.1	7.8
2	TSS	mg / l	APHA-23rd - 2540 D	100	14	21
3	TDS	mg / l	APHA-23rd - 2540 C	2100	422	377
4	COD	mg / l	APHA-23rd Ed 2017-5220B Open Reflux Method	250	90	40
5	BOD at 27^0C for 3 days	mg / l	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 °C	30	10	12
6	Oil & Grease	mg / l	APHA-23rd Ed 2017-5520 B Liquid Liquid Partition Gravemetric method	10	7.0	8.0

End of the Report

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31/03/20

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Format No: APML/ENV-LB/7,8/F01

URL: TC519320000000303F

Date: 31.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.03.2020	Analysis Starting Date :	04.03.2020
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Cooling tower blowdown (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5.			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	Free Available Chlorine	mg/l	APHA-23rd – 4500-Cl G, DPD Colorimetric Method	0.5	0.2	0.1	0.3	0.4	0.2
2	Phosphate as (PO4)	mg/l	APHA-23rd -4500-P D Stannous Chloride Method	5	2.4	3.3	3.0	2.5	2.8
3	Zinc as (Zn)	mg/l	----	1	BDL	BDL	BDL	BDL	BDL
4	Total Chromium as (Cr)	mg/l	----	0.2	BDL	BDL	BDL	BDL	BDL

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31/03/20

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Format No: APML/ENV-LB/7.8/F01

URL: TC519320000000303F Date: 31.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911		
Sample Collection Date	04.03.2020	Analysis Starting Date :	04.03.2020
Quantity received	1 Ltr / Sample	Sampled by :	Environment Dept. APML
Sample Particulars : Cooling tower blowdown (Waste Water)			
Location of sample : Unit1,Unit-2,Unit-3,Unit-4 & Unit-5.			

TEST REPORT

Sr no	Parameter (NABL SCOPE)	Unit	Test Methods	MPCB Standards	Results				
					U # 1	U # 2	U # 3	U # 4	U # 5
1	Free Available Chlorine	mg/l	APHA-23rd - 4500-Cl G, DPD Colorimetric Method	0.5	0.2	0.1	0.3	0.4	0.2
2	Phosphate as (PO4)	mg/l	APHA-23rd -4500-P D Stannous Chloride Method	5	2.4	3.3	3.0	2.5	2.8
3	Zinc as (Zn)	mg/l	----	1	BDL	BDL	BDL	BDL	BDL
4	Total Chromium as (Cr)	mg/l	----	0.2	BDL	BDL	BDL	BDL	BDL

End of the Report

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Environmental Laboratory * Adani Power Maharashtra Limited, Tiroda * TC - 5193

31/03/20

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Format No: APML/ENV-LB/7.8/F01

TC519320000000329F	Date: 14.03.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -5
2	Date of Sampling	:	12.03.2020
3	Time of Sampling	:	4:20 PM
4	Load (MW)	:	653
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	123
9	Flue Gas Velocity (M/sec)	:	23.60
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2645425

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	42
2	SO_2	IS 11255 (Part 2) 1985	1292	Mg/Nm^3	909
			80.2	TPD	57.7
3	NOx	IS 11255 (Part 7) 2005	300	Mg/Nm^3	279

** Results are corrected with 6% oxygen*

End of the Report

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Environmental Laboratory ★ TC-5193 ★ Adani Power Maharashtra Limited, Tiroda

28/03/20

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Format No: APML/ENV-LB/7.8/F01

TC519320000000328F	Date: 14.03.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -4
2	Date of Sampling	:	12.03.2020
3	Time of Sampling	:	3:30 PM
4	Load (MW)	:	616.8
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	124
9	Flue Gas Velocity (M/sec)	:	23.44
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2621646

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	46
2	SO_2	IS 11255 (Part 2) 1985	1292	Mg/Nm^3	952
			80.2	TPD	59.9
3	NOx	IS 11255 (Part 7) 2005	300	Mg/Nm^3	280

** Results are corrected with 6% oxygen*

End of the Report

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28/08/20

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Format No: APML/ENV-LB/7.8/F01

TC519320000000332F	Date: 28.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -3
2	Date of Sampling	:	26.03.2020
3	Time of Sampling	:	3:15 PM
4	Load (MW)	:	450
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	121
9	Flue Gas Velocity (M/sec)	:	23.14
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2607230

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	45
2	SO_2	IS 11255 (Part 2) 1985	1292	Mg/Nm^3	983
			80.2	TPD	58
3	NOx	IS 11255 (Part 7) 2005	300	Mg/Nm^3	275

** Results are corrected with 6% oxygen*

End of the Report

Note Tested results are well within the permissible limits of MPCB.

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Authorized Signatory
(Technical Manager)

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Format No: APML/ENV-LB/5.10/F01

TC519320000000331F	Date: 28.03.2020

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -2
2	Date of Sampling	:	26.03.2020
3	Time of Sampling	:	3:50 PM
4	Load (MW)	:	455
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	122
9	Flue Gas Velocity (M/sec)	:	23.18
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2604851

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	40
2	SO_2	IS 11255 (Part 2) 1985	1210	Mg/Nm^3	981
			75.2	TPD	59.0
3	NOx	IS 11255 (Part 7) 2005	300	Mg/Nm^3	282

** Results are corrected with 6% oxygen*

End of the Report

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28/03/20

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Format No: APML/ENV-LB/7.B/F01

TC519320000000330F	Date: 21.03.2020

TEST REPORT

Issued To:	APML,Plot No. A -1, Tirora Growth Centre, MIDC – Tirora, Dist. Gondia – 441 911
Sample Particulars :	Stack Monitoring
Sample Collected by :	Environment Dept. APML

1	Sampling Location	:	Unit -1
2	Date of Sampling	:	19.03.2020
3	Time of Sampling	:	3:30 PM
4	Load (MW)	:	650
5	Height of Stack (Meter)	:	275
6	Diameter of Stack (Meter)	:	7.4
7	Type of Fuel	:	Coal
8	Flue Gas Temperature (^{0} C)	:	122
9	Flue Gas Velocity (M/sec)	:	23.66
10	Flow of Exit Gas at NTP (NM^3/Hr)	:	2659638

Sr. No	Test Parameters	Test Method	MPCB Standards	Units	Results *
1	PM	IS 11255 (Part- 1):1985	50	Mg/Nm^3	47
2	SO_2	IS 11255 (Part 2) 1985	1210	Mg/Nm^3	973
			75.2	TPD	62
3	NOx	IS 11255 (Part 7) 2005	300	Mg/Nm^3	284

** Results are corrected with 6% oxygen*

End of the Report

Note Tested results are well within the permissible limits of MPCB.

1. The report is referring only to the tested sample and for applicable parameter.
2. The sample will be destroyed after retention time unless otherwise specified specially.
3. This report is not to be reproducing wholly or in part, and can't be used as evidence in court of law.

21/03/20

Authorized Signatory
(Technical Manager)

Plot No. A-1,Tiroda Growth Centre, M.I.D.C., Dist. Gondia - 441911, Maharashtra, India
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M/s Adani Power Maharashtra Limited
A – 1, Tirora Growth Centre, MIDC
Dist. Gondia – 441 911

Sample Collection Date : 19.02.2020
Sample Analysis Date : 20.02.2020
Sample Type : Ground Water
Sample Collected by : Enviro Analyst & Engineers Pvt. Ltd representative
Sample Tested at : Enviro Analyst & Engineers Pvt. Ltd , Nagpur

TEST RESULTS

Sr. No.	Test Parameters	Unit	As per IS : 10500 : 2012 (Drinking Water - Specification)		Results	
			Permissible Requirement	Acceptable Limit	Garada Hand Pump	Chikhali Hand Pump
1	Apparent Colour	Hazen units	15	5	0.1	0.1
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity NTU	NTU	5	1	0.1	0.1
5	Total Dissolved Solid	mg / l	2000	500	534	552
6	Electrical Conductivity	µS/cm	-	-	872	898
7	Total Alkalinity	mg / l	600	200	186	222
8	pH Value	-	No relaxation	6.5 to 8.5	7.60	8.20
9	Total Hardness ($CaCO_3$)	mg / l	600	200	310	230
10	Calcium (as Ca)	mg / l	200	75	78.2	69.2
11	Magnesium (as Mg)	mg / l	100	30	27.8	13.8
12	Copper as(Cu)	mg / l	1.5	0.05	< 0.01	< 0.01
13	Iron (as Fe)	mg / l	No relaxation	0.3	0.10	0.12
14	Manganese as (Mn)	mg / l	0.3	0.1	< 0.01	< 0.01
15	Chlorides (as Cl)	mg / l	1000	250	92.3	27.7
16	Sulphate (as SO_4)	mg / l	400	200	36.1	16.2
17	Nitrates (as NO_3)	mg / l	No relaxation	45	2.15	2.10
18	Fluoride (as F)	mg / l	1.5	1.0	0.75	0.80
19	Phenolic Compounds	mg / l	0.002	0.001	BDL	BDL
20	Mercury as (Hg)	mg / l	No relaxation	0.001	< 0.0005	< 0.0005
21	Cadmium as (Cd)	mg / l	No relaxation	0.003	< 0.001	< 0.001
22	Selenium as (Se)	mg / l	No relaxation	0.01	< 0.001	< 0.001
23	Arsenic as (As)	mg / l	0.05	0.01	BDL	BDL
24	Cyanide as (CN)	mg / l	No relaxation	0.05	< 0.005	< 0.005
25	Lead as (Pb)	mg / l	No relaxation	0.01	< 0.001	< 0.001
26	Zinc as (Zn)	mg / l	15	5	0.38	0.26
27	Chromium as (Cr^{+6})	mg / l	No relaxation	0.05	< 0.03	< 0.03
28	Mineral Oil	mg / l	No relaxation	0.05	< 0.01	< 0.01
29	Residual Chlorine	mg / l	1.0	0.2	< 0.1	< 0.1
30	Total Coliform	MPN/100 ml	Absent	Absent	Absent	Absent
31	E.Coli	Nos./100 ml	Absent	Absent	Absent	Absent

Environment Dept.
Adani Power Maharashtra Limited

M/s Adani Power Maharashtra Limited
A – 1, Tirora Growth Centre, MIDC
Dist. Gondia – 441 911

Sample Collection Date : 19.02.2020
Sample Analysis Date : 20.02.2020
Sample Type : Ground Water
Sample Collected by : Enviro Analyst & Engineers Pvt. Ltd representative
Sample Tested at : Enviro Analyst & Engineers Pvt. Ltd , Nagpur

TEST RESULTS

Sr. No.	Test Parameters	Unit	As per IS : 10500 : 2012 (Drinking Water - Specification)		Results	
			Permissible Requirement	Acceptable Limit	Mendipur Hand Pump	Kachewani Hand Pump
1	Apparent Colour	Hazen units	15	5	0.1	0.1
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable
4	Turbidity NTU	NTU	5	1	0.1	0.1
5	Total Dissolved Solid	mg / l	2000	500	394	790
6	Electrical Conductivity	µS/cm	-	-	640	1280
7	Total Alkalinity	mg / l	600	200	180	172
8	pH Value	-	No relaxation	6.5 to 8.5	7.80	7.5
9	Total Hardness ($CaCO_3$)	mg / l	600	200	206	362
10	Calcium (as Ca)	mg / l	200	75	54.8	86.2
11	Magnesium (as Mg)	mg / l	100	30	16.8	35.6
12	Copper as(Cu)	mg / l	1.5	0.05	< 0.01	< 0.01
13	Iron (as Fe)	mg / l	No relaxation	0.3	0.085	0.10
14	Manganese as (Mn)	mg / l	0.3	0.1	< 0.01	0.006
15	Chlorides (as Cl)	mg / l	1000	250	28.2	158
16	Sulphate (as SO_4)	mg / l	400	200	15.7	104
17	Nitrates (as NO_3)	mg / l	No relaxation	45	2.15	2.20
18	Fluoride (as F)	mg / l	1.5	1.0	0.80	0.80
19	Phenolic Compounds	mg / l	0.002	0.001	BDL	BDL
20	Mercury as (Hg)	mg / l	No relaxation	0.001	< 0.0005	< 0.0005
21	Cadmium as (Cd)	mg / l	No relaxation	0.003	< 0.001	< 0.001
22	Selenium as (Se)	mg / l	No relaxation	0.01	< 0.001	< 0.001
23	Arsenic as (As)	mg / l	0.05	0.01	BDL	BDL
24	Cyanide as (CN)	mg / l	No relaxation	0.05	< 0.005	< 0.005
25	Lead as (Pb)	mg / l	No relaxation	0.01	< 0.001	< 0.001
26	Zinc as (Zn)	mg / l	15	5	0.35	0.68
27	Chromium as (Cr^{+6})	mg / l	No relaxation	0.05	< 0.03	< 0.03
28	Mineral Oil	mg / l	No relaxation	0.05	< 0.01	< 0.01
29	Residual Chlorine	mg / l	1.0	0.2	< 0.1	< 0.1
30	Total Coliform	MPN/100 ml	Absent	Absent	Absent	Absent
31	E.Coli	Nos./100 ml	Absent	Absent	Absent	Absent

Environment Dept.
Adani Power Maharashtra Limited

M/s Adani Power Maharashtra Limited
A – 1, Tirora Growth Centre, MIDC
Dist. Gondia – 441 911

Sample Collection Date : 19.02.2020
Sample Analysis Date : 20.02.2020
Sample Type : Surface Water
Sample Collected by : Enviro Analyst & Engineers Pvt. Ltd representative
Sample Tested at : Enviro Analyst & Engineers Pvt. Ltd , Nagpur

TEST RESULTS

Sr. No.	Test Parameters	Unit	As per IS : 10500 : 2012 (Drinking Water - Specification)		Results	
			Permissible Requirement	Acceptable Limit	Wainganga River Water	Garada Village Pond Water
1	Apparent Colour	Hazen units	15	5	1.0	1.0
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	-	-
4	Turbidity NTU	NTU	5	1	0.5	0.7
5	Total Dissolved Solid	mg / l	2000	500	122	518
6	Electrical Conductivity	µS/cm	-	-	198	836
7	Total Alkalinity	mg / l	600	200	90	190
8	pH Value	-	No relaxation	6.5 to 8.5	8.10	8.15
9	Total Hardness ($CaCO_3$)	mg / l	600	200	80	232
10	Calcium (as Ca)	mg / l	200	75	24.2	56.2
11	Magnesium (as Mg)	mg / l	100	30	4.73	22.2
12	Copper as(Cu)	mg / l	1.5	0.05	< 0.01	< 0.01
13	Iron (as Fe)	mg / l	No relaxation	0.3	< 0.07	0.09
14	Manganese as (Mn)	mg / l	0.3	0.1	< 0.01	< 0.01
15	Chlorides (as Cl)	mg / l	1000	250	10.3	26.2
16	Sulphate (as SO_4)	mg / l	400	200	7.2	18.1
17	Nitrates (as NO_3)	mg / l	No relaxation	45	2.10	3.70
18	Fluoride (as F)	mg / l	1.5	1.0	0.35	0.40
19	Phenolic Compounds	mg / l	0.002	0.001	BDL	BDL
20	Mercury as (Hg)	mg / l	No relaxation	0.001	< 0.0005	< 0.0005
21	Cadmium as (Cd)	mg / l	No relaxation	0.003	< 0.001	< 0.001
22	Selenium as (Se)	mg / l	No relaxation	0.01	< 0.001	< 0.001
23	Arsenic as (As)	mg / l	0.05	0.01	BDL	BDL
24	Cyanide as (CN)	mg / l	No relaxation	0.05	< 0.005	< 0.005
25	Lead as (Pb)	mg / l	No relaxation	0.01	< 0.001	< 0.001
26	Zinc as (Zn)	mg / l	15	5	0.14	0.26
27	Chromium as (Cr^{+6})	mg / l	No relaxation	0.05	< 0.03	< 0.03
28	Mineral Oil	mg / l	No relaxation	0.05	< 0.01	< 0.01
29	Residual Chlorine	mg / l	1.0	0.2	Nil	Nil
30	Total Coliform	MPN/100 ml	Absent	Absent	>16	>16
31	E.Coli	Nos./100 ml	Absent	Absent	> 16	> 16

Environment Dept.
Adani Power Maharashtra Limited

M/s Adani Power Maharashtra Limited
A – 1, Tirora Growth Centre, MIDC
Dist. Gondia – 441 911

Sample Collection Date : 19.02.2020
Sample Analysis Date : 20.02.2020
Sample Type : Surface Water
Sample Collected by : Enviro Analyst & Engineers Pvt. Ltd representative
Sample Tested at : Enviro Analyst & Engineers Pvt. Ltd , Nagpur

TEST RESULTS

Sr. No.	Test Parameters	Unit	As per IS : 10500 : 2012 (Drinking Water - Specification)		Results	
			Permissible Requirement	Acceptable Limit	Mendipur Pond water	Kachewani Pond Water
1	Apparent Colour	Hazen units	15	5	1.0	1.5
2	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
3	Taste	-	Agreeable	Agreeable	-	-
4	Turbidity NTU	NTU	5	1	0.7	1.0
5	Total Dissolved Solid	mg / l	2000	500	138	116
6	Electrical Conductivity	µS/cm	-	-	230	190
7	Total Alkalinity	mg / l	600	200	124	170
8	pH Value	-	No relaxation	6.5 to 8.5	8.05	8.40
9	Total Hardness ($CaCO_3$)	mg / l	600	200	88	80
10	Calcium (as Ca)	mg / l	200	75	28.2	24.0
11	Magnesium (as Mg)	mg / l	100	30	4.25	4.9
12	Copper as(Cu)	mg / l	1.5	0.05	< 0.01	< 0.01
13	Iron (as Fe)	mg / l	No relaxation	0.3	0.070	0.075
14	Manganese as (Mn)	mg / l	0.3	0.1	0.010	< 0.01
15	Chlorides (as Cl)	mg / l	1000	250	10.4	9.6
16	Sulphate (as SO_4)	mg / l	400	200	8.7	7.0
17	Nitrates (as NO_3)	mg / l	No relaxation	45	2.85	2.20
18	Fluoride (as F)	mg / l	1.5	1.0	0.35	0.30
19	Phenolic Compounds	mg / l	0.002	0.001	BDL	BDL
20	Mercury as (Hg)	mg / l	No relaxation	0.001	< 0.0005	< 0.0005
21	Cadmium as (Cd)	mg / l	No relaxation	0.003	< 0.001	< 0.001
22	Selenium as (Se)	mg / l	No relaxation	0.01	< 0.001	< 0.001
23	Arsenic as (As)	mg / l	0.05	0.01	BDL	BDL
24	Cyanide as (CN)	mg / l	No relaxation	0.05	< 0.005	< 0.005
25	Lead as (Pb)	mg / l	No relaxation	0.01	< 0.001	< 0.001
26	Zinc as (Zn)	mg / l	15	5	0.12	0.10
27	Chromium as (Cr^{+6})	mg / l	No relaxation	0.05	< 0.03	< 0.03
28	Mineral Oil	mg / l	No relaxation	0.05	< 0.01	< 0.01
29	Residual Chlorine	mg / l	1.0	0.2	Nil	Nil
30	Total Coliform	MPN/100 ml	Absent	Absent	> 16	> 16
31	E.Coli	Nos./100 ml	Absent	Absent	> 16	> 16

Environment Dept.
Adani Power Maharashtra Limited

Annexure III

	ADANI POWER MAHARASHTRA LIMITED												
	5 x 660 MW Thermal Power Plant , Tirora, Gondia												
	Station: AAQMS 1 AAQMS 2 AAQM					Report Type: Mean				Time Base: 1H		Month- OCT - 2019	
Month		AAQMS-1 (Labour Hutment)				AAQMS-2 (China Colony)				AAQMS-3 (Gate no -2)			
		PM 10	PM 2.5	SO2	NOx	PM10	PM2.5	SO2	NOX	PM10	PM2.5	SO2	NOX
		ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ppm	ug/m3	ug/m3	ug/m3	ppm
1-Oct-19	Max	68.4	28.2	12.6	22.7	65.4	29.0	12.5	20.5	60.2	24.3	9.2	18.2
	Min	43.3	12.2	8.5	15.3	40.2	16.0	9.3	16.7	48.8	22.0	7.2	15.5
	AVG	55.9	20.2	10.6	19.0	52.8	22.5	10.9	18.6	54.5	23.2	8.2	16.9
2-Oct-19	Max	70.1	22.5	10.5	18.9	72.2	25.5	16.4	21.1	68.8	26.6	15.2	29.1
	Min	33.3	16.2	9.6	11.5	53.9	15.8	10.9	11.8	52.2	16.2	12.4	14.0
	AVG	51.7	19.4	10.1	15.2	67.6	33.5	12.2	14.5	60.5	21.4	13.8	21.6
3-Oct-19	Max	60.2	33.9	18.6	31.0	70.1	30.2	13.4	27.1	62.5	24.4	18.6	20.4
	Min	30.4	19.6	11.3	18.3	52.3	15.8	10.9	11.8	41.1	21.6	13.4	10.5
	AVG	45.3	26.8	15.0	24.7	61.2	23.0	12.2	19.5	51.8	23.0	16.0	15.5
4-Oct-19	Max	61.6	22.4	11.9	23.5	69.2	23.1	11.4	27.1	68.5	21.1	9.8	26.5
	Min	32.3	19.5	9.2	13.3	31.0	15.3	9.9	12.2	25.1	18.6	6.3	14.5
	AVG	47.0	21.0	10.6	18.4	50.1	19.2	10.7	19.7	46.8	19.9	8.1	20.5
5-Oct-19	Max	72.0	30.5	13.3	26.6	66.3	33.5	18.8	21.2	59.2	38.6	22.8	28.4
	Min	35.4	25.3	10.2	17.2	42.2	25.6	11.1	14.5	44.5	25.5	18.6	19.9
	AVG	53.7	27.9	11.8	21.9	54.3	29.6	15.0	17.9	51.9	32.1	20.7	24.2
6-Oct-19	Max	63.5	42.8	19.2	28.8	66.6	38.1	21.4	26.1	58.3	42.4	23.3	27.2
	Min	51.4	29.6	11.6	22.5	54.3	26.2	18.2	21.2	46.4	33.5	18.3	15.5
	AVG	57.5	36.2	15.4	25.7	60.5	32.2	19.8	23.7	52.4	38.0	20.8	21.4
7-Oct-19	Max	65.6	48.3	16.8	28.3	64.2	42.7	19.2	23.5	59.2	33.8	18.2	21.1
	Min	52.7	22.4	13.4	24.7	58.1	34.2	16.3	21.6	33.8	24.3	16.4	15.2
	AVG	59.2	35.4	15.1	26.5	61.2	38.5	17.8	22.6	46.5	29.1	17.3	18.2
8-Oct-19	Max	75.5	36.1	14.2	22.2	71.4	42.4	17.2	21.1	51.1	28.8	15.6	18.6
	Min	50.8	23.5	10.3	17.6	55.3	36.8	11.5	18.3	31.6	19.7	9.5	16.2
	AVG	63.2	29.8	12.3	19.9	63.4	39.6	14.4	19.7	41.4	24.3	12.6	17.4
9-Oct-19	Max	78.8	19.4	11.5	19.6	76.8	18.3	16.3	25.3	63.1	19.3	12.1	19.3
	Min	32.4	10.4	8.3	14.2	42.1	12.4	12.2	22.1	35.2	16.2	8.8	13.4
	AVG	55.6	14.9	9.9	16.9	59.5	15.4	14.3	23.7	49.2	17.8	10.5	16.4
10-Oct-19	Max	72.2	25.3	11.3	17.6	78.4	29.3	15.7	20.2	61.4	26.3	11.8	18.2
	Min	36.1	18.6	9.2	11.1	40.8	16.7	17.2	14.1	38.2	12.4	9.6	11.4
	AVG	54.2	22.0	10.3	14.4	59.6	23.0	16.5	17.2	49.8	19.4	10.7	14.8
11-Oct-19	Max	79.4	22.3	12.8	18.3	74.3	28.3	10.3	19.3	62.1	19.3	12.4	15.6
	Min	38.7	16.8	9.9	14.2	50.1	17.8	8.5	17.0	34.6	12.2	10.3	11.5
	AVG	59.1	19.6	11.4	16.3	62.2	23.1	9.4	18.2	48.4	15.8	11.4	13.6
12-Oct-19	Max	68.0	22.7	15.6	19.3	63.4	23.5	17.3	18.5	52.4	21.3	15.9	19.3
	Min	42.5	18.9	10.4	15.6	55.2	18.1	12.5	14.3	33.2	17.2	12.4	14.5
	AVG	55.3	20.8	13.0	17.5	59.3	20.8	14.9	16.4	42.8	19.3	14.2	16.9
13-Oct-19	Max	75.3	32.4	18.6	21.1	70.2	28.5	19.7	20.6	63.2	42.4	18.2	19.6
	Min	42.1	25.5	12.4	17.6	47.6	22.4	11.3	16.4	51.8	36.1	14.5	16.3
	AVG	58.7	29.0	15.5	19.4	58.9	25.5	15.5	18.5	57.5	39.3	16.4	18.0
14-Oct-19	Max	63.2	39.4	18.9	19.0	65.4	38.6	17.2	19.3	55.4	27.6	15.7	20.4
	Min	35.3	17.3	12.5	16.3	51.4	22.7	12.5	16.7	36.8	18.2	11.5	18.7
	AVG	49.3	28.4	15.7	17.7	58.4	30.7	14.9	18.0	46.1	22.9	13.6	19.6
15-Oct-19	Max	73.2	23.9	14.3	22.8	75.5	28.3	14.3	18.6	58.3	25.3	10.4	16.3
	Min	50.8	16.2	13.5	18.6	42.5	21.4	10.9	14.2	35.2	21.2	8.3	15.5
	AVG	62.0	20.1	13.9	20.7	59.0	24.9	12.6	16.4	46.8	23.3	9.4	15.9

16-Oct-19	**Max**	76.7	38.3	16.3	21.4	73.2	30.8	19.6	21.1	65.6	36.8	18.6	19.3
	Min	45.3	34.1	13.4	19.8	42.2	21.4	13.8	20.6	41.2	23.6	15.2	16.8
	AVG	61.0	36.2	14.9	20.6	57.7	26.1	16.7	20.9	53.4	30.2	16.9	18.1
17-Oct-19	**Max**	73.2	36.8	19.7	20.4	77.7	28.3	17.6	19.6	76.4	28.1	12.6	14.5
	Min	50.2	30.4	12.5	17.3	36.3	15.6	12.4	14.3	38.7	18.6	9.8	11.2
	AVG	61.7	33.6	16.1	18.9	57.0	22.0	15.0	17.0	57.6	23.4	11.2	12.9
18-Oct-19	**Max**	78.6	39.2	18.8	19.2	71.1	33.6	16.3	18.3	65.1	25.6	19.3	21.4
	Min	55.3	30.1	14.2	15.6	56.3	27.7	13.4	15.4	51.4	18.3	16.5	18.3
	AVG	67.0	34.7	16.5	17.4	63.7	30.7	14.9	16.9	58.3	22.0	17.9	19.9
19-Oct-19	**Max**	78.6	42.2	19.7	21.5	70.3	38.9	17.3	19.6	61.4	38.3	12.2	19.6
	Min	48.3	33.8	10.2	16.7	56.1	22.4	13.5	14.2	49.3	24.2	9.4	15.3
	AVG	63.5	38.0	15.0	19.1	63.2	30.7	15.4	16.9	55.4	31.3	10.8	17.5
20-Oct-19	**Max**	72.1	32.3	18.8	19.9	75.7	31.2	21.0	23.4	76.4	28.6	17.6	19.0
	Min	46.9	26.7	12.4	16.3	36.6	24.1	19.3	21.9	32.4	14.5	11.5	16.3
	AVG	59.5	29.5	15.6	18.1	56.2	27.7	20.2	22.7	54.4	21.6	14.6	17.7
21-Oct-19	**Max**	70.2	22.4	12.5	18.6	76.3	21.1	19.6	21.0	70.3	23.5	12.3	15.3
	Min	45.3	13.9	8.3	13.7	39.1	19.4	11.9	15.3	47.6	18.3	9.4	12.4
	AVG	57.8	18.2	10.4	16.2	57.7	20.3	15.8	18.2	59.0	20.9	10.9	13.9
22-Oct-19	**Max**	78.6	26.3	17.3	19.3	73.3	41.2	16.6	18.3	62.8	27.3	18.6	21.1
	Min	32.1	17.3	10.8	14.2	50.4	22.4	10.2	13.5	40.7	16.8	16.3	18.3
	AVG	55.4	21.8	14.1	16.8	61.9	31.8	13.4	15.9	51.8	22.1	17.5	19.7
23-Oct-19	**Max**	75.3	46.3	19.9	21.5	71.1	39.3	18.8	20.7	76.3	22.1	18.8	20.7
	Min	47.7	38.1	17.2	18.6	49.6	22.1	13.6	15.6	37.2	14.5	13.5	16.2
	AVG	61.5	42.2	18.6	20.1	60.4	30.7	16.2	18.2	56.8	18.3	16.2	18.5
24-Oct-19	**Max**	79.8	46.6	16.3	18.2	72.4	32.4	19.8	21.5	66.3	28.3	19.3	21.4
	Min	44.4	34.2	8.2	10.4	48.6	20.4	13.5	15.6	32.5	14.7	14.4	17.6
	AVG	62.1	40.4	12.3	14.3	60.5	26.4	16.7	18.6	49.4	21.5	16.9	19.5
25-Oct-19	**Max**	72.6	26.3	10.2	16.3	75.6	27.3	11.4	19.8	61.2	24.3	12.4	21.3
	Min	50.4	13.5	6.8	11.4	53.4	22.4	8.9	12.2	32.4	18.6	9.3	14.2
	AVG	61.5	19.9	8.5	13.9	64.5	24.9	10.2	16.0	46.8	21.5	10.9	17.8
26-Oct-19	**Max**	75.3	29.3	13.4	17.6	78.8	28.5	9.8	12.4	74.7	28.6	10.2	15.3
	Min	54.8	26.4	10.2	14.2	51.2	21.8	6.5	9.7	31.4	19.7	8.6	11.7
	AVG	65.1	27.9	11.8	15.9	65.0	25.2	8.2	11.1	53.1	24.2	9.4	13.5
27-Oct-19	**Max**	64.5	23.5	13.3	18.7	69.7	28.6	15.4	18.6	51.2	24.4	18.3	21.4
	Min	29.4	12.4	10.4	12.2	41.9	24.2	11.1	12.8	48.3	19.6	11.2	18.3
	AVG	47.0	18.0	11.9	15.5	55.8	26.4	13.3	15.7	49.8	22.0	14.8	19.9
28-Oct-19	**Max**	70.8	28.3	18.3	21.4	73.6	24.3	13.6	16.3	67.9	26.6	15.3	19.6
	Min	41.4	22.4	10.5	13.3	47.1	14.6	8.7	11.8	31.4	21.4	12.7	16.4
	AVG	56.1	25.4	14.4	17.4	60.4	19.5	11.2	14.1	49.7	24.0	14.0	18.0
29-Oct-19	**Max**	75.3	29.5	14.3	18.3	74.3	32.4	18.7	20.4	59.3	28.6	12.5	16.8
	Min	48.7	18.8	9.3	13.4	50.2	15.6	12.4	16.6	30.8	19.3	8.3	11.5
	AVG	62.0	24.2	11.8	15.9	62.3	24.0	15.6	18.5	45.1	24.0	10.4	14.2
30-Oct-19	**Max**	78.6	33.8	19.6	22.4	74.2	26.8	10.3	13.6	61.7	32.2	19.8	21.3
	Min	42.5	24.3	14.2	15.6	44.5	18.3	7.6	9.8	44.5	18.6	12.5	17.6
	AVG	60.6	29.1	16.9	19.0	59.4	22.6	9.0	11.7	53.1	25.4	16.2	19.5
31-Oct-19	**Max**	75.2	33.3	17.5	18.3	72.4	28.6	16.3	19.4	68.8	38.3	16.3	18.7
	Min	48.6	25.4	12.2	14.2	46.3	16.4	11.4	16.4	36.1	21.4	10.6	12.5
	AVG	61.9	29.4	14.9	16.3	59.4	22.5	13.9	17.9	52.5	29.9	13.5	15.6

	ADANI POWER MAHARASHTRA LIMITED												
	5 x 660 MW Thermal Power Plant , Tirora, Gondia												
	Station: AAQMS 1 AAQMS 2 AAQMS 3				Report Type: Mean			Time Base: 1Hr	Month-NOV - 2019				
Month		AAQMS-1 (Labour Hutment)				AAQMS-2 (China Colony)				AAQMS-3 (Gate no -2)			
		PM 10	PM 2.5	SO2	NOx	PM10	PM2.5	SO2	NOX	PM10	PM2.5	SO2	NOX
		ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ppm	ug/m3	ug/m3	ug/m3	ppm
1-Nov-19	Max	78.2	21.4	10.2	18.3	79.2	25.3	13.4	23.5	65.6	31.2	17.6	25.3
	Min	29.7	14.2	6.4	11.5	52.4	16.3	10.5	21.4	51.3	16.3	13.4	19.5
	AVG	54.0	17.8	8.3	14.9	65.8	20.8	12.0	22.5	58.5	23.8	15.5	22.4
2-Nov-19	Max	74.3	26.7	13.6	16.8	70.4	34.5	19.6	21.4	63.6	28.9	16.6	20.5
	Min	30.8	18.4	11.8	13.4	23.8	22.4	14.5	18.6	22.5	23.7	13.4	14.3
	AVG	52.6	22.6	12.7	15.1	47.1	28.5	17.1	20.0	43.1	26.3	15.0	17.4
3-Nov-19	Max	76.8	34.2	11.2	14.6	75.4	23.8	13.4	18.4	76.3	27.9	18.8	21.6
	Min	25.7	27.6	9.9	12.2	52.9	15.5	10.8	16.5	41.4	20.4	13.6	16.3
	AVG	51.3	30.9	10.6	13.4	64.2	19.7	12.1	17.5	58.9	24.2	16.2	19.0
4-Nov-19	Max	78.4	25.3	13.2	19.3	76.5	30.3	11.1	22.3	63.6	25.8	13.8	26.3
	Min	52.4	14.9	12.1	16.7	56.3	27.3	8.6	19.6	31.7	21.3	10.5	21.4
	AVG	65.4	20.1	12.7	18.0	66.4	28.8	9.9	21.0	47.7	23.6	12.2	23.9
5-Nov-19	Max	79.9	28.6	18.9	20.4	70.6	36.4	13.8	15.7	59.6	30.4	16.8	19.5
	Min	53.4	22.4	13.4	16.3	53.8	24.7	9.3	12.4	34.8	24.8	12.3	14.3
	AVG	66.7	25.5	16.2	18.4	62.2	30.6	11.6	14.1	47.2	27.6	14.6	16.9
6-Nov-19	Max	62.4	36.4	18.8	21.1	68.7	28.7	16.6	18.2	57.2	31.5	18.5	19.2
	Min	56.2	24.9	12.2	16.2	51.2	18.8	12.6	13.1	48.7	26.1	13.3	16.3
	AVG	59.3	30.7	15.5	18.7	60.0	23.8	14.6	15.7	53.0	28.8	15.9	17.8
7-Nov-19	Max	68.1	29.6	17.2	19.3	66.8	36.1	16.3	18.7	62.9	27.7	21.1	23.4
	Min	53.4	13.5	12.7	16.7	50.6	28.3	13.1	14.8	52.2	18.9	17.2	20.6
	AVG	60.8	21.6	15.0	18.0	58.7	32.2	14.7	29.7	57.6	23.3	19.2	22.0
8-Nov-19	Max	65.3	24.3	12.4	14.2	75.0	33.0	14.1	23.4	61.8	26.3	14.9	25.8
	Min	52.1	19.9	9.1	12.4	55.3	24.2	10.8	16.2	50.7	20.4	12.8	18.3
	AVG	58.7	22.1	10.8	13.3	65.2	28.6	12.5	19.8	56.3	23.4	13.9	22.1
9-Nov-19	Max	75.8	32.3	13.6	18.4	70.0	36.7	16.6	21.3	63.6	24.8	14.2	17.7
	Min	46.3	21.4	10.7	13.0	51.2	26.1	13.5	18.6	50.2	19.3	11.3	12.4
	AVG	61.1	26.9	12.2	15.7	60.6	31.4	15.1	20.0	56.9	22.1	12.8	15.1
10-Nov-19	Max	69.9	36.4	18.6	20.8	73.3	30.5	18.5	19.3	60.8	28.8	19.9	21.1
	Min	54.2	24.4	14.8	16.3	51.8	26.8	12.6	14.9	52.4	26.3	14.3	18.5
	AVG	62.1	30.4	16.7	18.6	62.6	28.7	15.6	17.1	56.6	27.6	17.1	19.8
11-Nov-19	Max	75.5	38.6	13.6	20.4	69.9	36.8	16.9	27.2	59.3	28.3	13.9	22.2
	Min	54.2	24.3	10.9	12.2	43.6	24.3	12.3	22.4	43.8	21.1	11.1	18.6
	AVG	64.9	31.5	12.3	16.3	56.8	30.6	14.6	24.8	51.6	24.7	12.5	20.4
12-Nov-19	Max	78.3	33.2	15.3	18.6	72.4	38.8	20.5	26.8	64.2	34.7	18.8	21.4
	Min	52.1	26.3	11.2	12.4	65.3	31.4	16.7	22.1	51.5	30.4	13.5	18.6
	AVG	65.2	29.8	13.3	15.5	68.9	35.1	18.6	24.5	57.9	32.6	16.2	20.0
13-Nov-19	Max	79.6	36.1	15.8	18.3	73.8	30.9	18.6	21.6	60.8	32.2	19.3	21.6
	Min	53.4	32.8	12.4	10.9	54.6	26.1	12.4	17.3	55.1	26.4	15.2	17.3
	AVG	66.5	34.5	14.1	14.6	64.2	28.5	15.5	19.5	58.0	29.3	17.3	19.5
14-Nov-19	Max	73.8	29.6	18.3	20.6	75.9	36.3	15.8	23.3	62.4	29.3	18.6	21.1
	Min	52.4	18.8	13.5	16.8	51.7	34.1	13.2	16.8	48.3	18.8	13.3	18.8
	AVG	63.1	24.2	15.9	18.7	63.8	35.2	14.5	20.1	55.4	24.1	16.0	20.0
15-Nov-19	Max	60.5	28.3	9.6	15.8	78.8	29.2	19.8	29.3	55.3	18.3	15.8	24.4
	Min	48.8	18.4	6.1	12.4	52.4	23.4	13.4	25.7	41.4	12.6	11.1	22.8
	AVG	54.7	23.4	7.9	14.1	65.6	26.3	16.6	27.5	48.4	15.5	13.5	23.6

16-Nov-19	**Max**	74.4	36.4	12.4	15.6	78.5	32.6	18.2	23.2	62.8	26.7	18.8	20.4
	Min	50.9	32.6	9.7	13.4	52.4	28.4	12.4	19.8	51.4	16.1	13.6	15.8
	AVG	62.7	34.5	11.1	14.5	65.5	30.5	15.3	21.5	57.1	21.4	16.2	18.1
17-Nov-19	**Max**	72.2	31.2	16.8	19.4	78.5	30.3	21.1	23.4	61.2	27.2	17.3	20.3
	Min	48.8	25.4	12.4	13.1	53.4	16.8	18.6	20.8	48.7	22.9	13.5	15.7
	AVG	60.5	28.3	14.6	16.3	66.0	23.6	19.9	22.1	55.0	25.1	15.4	18.0
18-Nov-19	**Max**	73.6	21.3	8.6	13.4	79.8	26.8	15.7	27.3	63.7	20.9	12.3	21.5
	Min	41.2	16.4	6.2	11.7	55.4	21.4	12.8	24.4	52.8	17.5	9.8	18.6
	AVG	57.4	18.9	7.4	12.6	67.6	24.1	14.3	25.9	58.3	19.2	11.1	20.1
19-Nov-19	**Max**	75.3	26.8	10.5	13.5	76.8	27.7	18.3	22.8	61.1	29.6	16.8	18.2
	Min	52.1	23.4	8.7	11.7	53.4	16.4	12.4	19.4	49.7	21.4	13.4	15.9
	AVG	63.7	25.1	9.6	12.6	65.1	22.1	15.4	21.1	55.4	25.5	15.1	17.1
20-Nov-19	**Max**	73.4	34.5	15.5	20.6	66.5	29.4	19.3	22.3	62.2	27.6	18.2	20.8
	Min	55.7	32.3	10.8	14.2	41.5	22.8	16.5	18.8	50.7	18.7	13.4	18.6
	AVG	64.6	33.4	13.2	17.4	54.0	26.1	17.9	20.6	56.5	23.2	15.8	19.7
21-Nov-19	**Max**	70.8	30.3	19.6	22.4	65.4	31.2	18.7	19.6	63.3	25.6	18.9	19.5
	Min	58.6	26.8	13.3	20.8	53.9	26.7	13.4	15.4	23.3	18.3	14.5	16.8
	AVG	64.7	28.6	16.5	21.6	59.7	29.0	16.1	17.5	43.3	22.0	16.7	18.2
22-Nov-19	**Max**	69.5	21.5	11.8	16.6	64.3	28.3	18.8	27.3	48.9	18.9	18.2	25.3
	Min	42.2	14.7	8.2	12.5	52.1	22.9	13.6	21.1	42.2	13.3	13.4	22.1
	AVG	55.9	18.1	10.0	14.6	58.2	25.6	16.2	24.2	45.6	16.1	15.8	23.7
23-Nov-19	**Max**	74.5	23.4	13.4	17.7	73.1	28.3	15.6	20.8	60.8	20.8	19.3	24.1
	Min	38.8	19.9	10.6	13.4	40.4	22.7	13.5	18.3	25.5	17.6	12.4	21.5
	AVG	56.7	21.7	12.0	15.6	56.8	25.5	14.6	19.6	43.2	19.2	15.9	22.8
24-Nov-19	**Max**	76.5	26.3	15.8	17.8	78.2	32.5	18.9	19.9	73.4	28.4	19.7	21.5
	Min	54.4	17.5	13.5	14.5	53.4	25.7	13.4	16.3	42.2	24.8	15.4	17.3
	AVG	65.5	21.9	14.7	16.2	65.8	29.1	16.2	18.1	57.8	26.6	17.6	19.4
25-Nov-19	**Max**	75.6	23.6	11.6	17.8	76.4	28.6	17.6	27.3	68.9	18.9	16.9	24.8
	Min	45.5	18.7	9.2	12.5	26.8	21.1	14.3	24.8	43.5	13.4	13.4	22.4
	AVG	60.6	21.2	10.4	15.2	51.6	24.9	16.0	26.1	56.2	16.2	15.2	23.6
26-Nov-19	**Max**	79.1	25.5	10.8	16.3	78.5	27.3	18.6	20.4	61.5	22.6	16.8	18.2
	Min	52.8	22.4	8.1	13.2	25.5	21.8	12.4	16.8	49.6	16.8	12.5	15.7
	AVG	66.0	24.0	9.5	14.8	52.0	24.6	15.5	18.6	55.6	19.7	14.7	17.0
27-Nov-19	**Max**	73.6	26.8	10.9	16.8	79.5	30.8	19.8	23.4	72.5	25.3	17.2	22.4
	Min	41.1	23.4	8.3	12.6	48.7	24.2	16.1	21.6	42.8	18.6	11.8	13.9
	AVG	57.4	25.1	9.6	14.7	64.1	27.5	18.0	22.5	57.7	22.0	14.5	18.2
28-Nov-19	**Max**	78.8	35.5	18.3	20.8	73.9	26.8	16.0	22.1	60.9	25.8	19.3	23.2
	Min	25.6	32.7	12.8	16.3	28.8	21.1	12.3	19.3	32.3	18.3	13.3	18.9
	AVG	52.2	34.1	15.6	18.6	51.4	24.0	14.2	20.7	46.6	22.1	16.3	21.1
29-Nov-19	**Max**	74.4	23.8	11.5	18.6	73.5	19.3	14.8	22.4	64.2	23.2	12.6	18.5
	Min	21.1	21.9	9.6	13.4	41.1	12.4	11.1	20.8	27.5	20.8	9.5	13.8
	AVG	47.8	22.9	10.6	16.0	57.3	15.9	13.0	21.6	45.9	22.0	11.1	16.2
30-Nov-19	**Max**	71.7	23.7	13.5	18.9	74.2	26.8	16.2	19.3	66.8	19.6	13.6	18.7
	Min	49.3	18.8	10.9	16.8	25.1	23.4	14.5	16.8	39.6	13.8	10.2	15.7
	AVG	60.5	21.3	12.2	17.9	49.7	25.1	15.4	18.1	53.2	16.7	11.9	17.2

ADANI POWER MAHARASHTRA LIMITED

5 x 660 MW Thermal Power Plant , Tirora, Gondia

Station: AAQMS 1 AAQMS 2 AAQMS 3 | Report Type: Mean | Time Base: 1Hr | Month- DEC-19

Month		AAQMS-1 (Labour Hutment)				AAQMS-2 (China Colony)				AAQMS-3 (Gate no -2)			
		PM 10	PM 2.5	SO2	NOx	PM10	PM2.5	SO2	NOX	PM10	PM2.5	SO2	NOX
		ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ppm	ug/m3	ug/m3	ug/m3	ppm
1-Dec-19	Max	68.3	32.9	16.3	25.4	63.5	23.7	18.3	20.5	66.2	26.4	12.4	18.7
	Min	55.6	28.6	13.1	21.8	58.1	19.3	14.8	16.8	52.8	18.1	9.7	14.2
	AVG	62.0	30.8	14.7	23.6	60.8	21.5	16.6	18.7	59.5	22.3	11.1	16.5
2-Dec-19	Max	73.2	28.4	14.6	28.9	71.6	18.6	16.3	21.4	73.2	23.5	11.6	19.1
	Min	61.4	22.9	12.1	22.6	52.3	13.3	13.7	19.6	46.8	17.8	9.3	13.4
	AVG	67.3	25.7	13.4	25.8	62.0	16.0	15.0	20.5	60.0	20.7	10.5	16.3
3-Dec-19	Max	70.4	24.0	13.5	29.4	75.5	20.6	13.6	22.1	65.5	24.6	10.2	16.7
	Min	63.9	16.6	10.7	23.7	52.8	18.7	10.9	17.8	43.7	13.4	8.3	13.8
	AVG	67.2	20.3	12.1	26.6	64.2	19.7	12.3	20.0	54.6	19.0	9.3	15.3
4-Dec-19	Max	73.8	26.8	16.8	23.4	78.8	29.5	16.7	20.5	60.4	21.4	13.2	19.6
	Min	53.4	20.7	13.3	21.6	53.1	23.2	14.1	17.2	53.1	11.6	9.6	12.2
	AVG	63.6	23.8	15.1	22.5	66.0	26.4	15.4	18.9	56.8	16.5	11.4	15.9
5-Dec-19	Max	71.5	32.4	15.6	21.1	73.3	28.8	17.6	22.4	68.8	27.3	16.8	22.3
	Min	53.8	26.7	12.4	16.6	53.9	22.1	12.8	16.0	55.5	18.8	14.4	21.8
	AVG	62.7	29.6	14.0	18.9	63.6	25.5	15.2	19.2	62.2	23.1	15.6	22.1
6-Dec-19	Max	76.6	25.3	11.8	19.6	73.1	22.4	13.5	24.6	58..6	26.8	12.4	23.6
	Min	56.4	21.8	8.9	15.3	50.6	19.9	11.8	21.3	54.3	23.3	9.3	21.1
	AVG	66.5	23.6	10.4	17.5	61.9	21.2	12.7	23.0	54.3	25.1	10.9	22.4
7-Dec-19	Max	74.2	29.3	13.8	21.6	78.9	26.9	18.3	20.4	52.4	29.4	14.7	21.1
	Min	50.5	25.4	11.6	18.3	56.3	22.4	14.5	18.3	50.8	13.1	11.5	16.3
	AVG	62.4	27.4	12.7	20.0	67.6	24.7	16.4	19.4	51.6	21.3	13.1	18.7
8-Dec-19	Max	79.3	30.7	16.1	23.7	71.4	22.4	15.6	23.3	64.3	20.2	16.3	18.6
	Min	56.8	17.2	14.0	21.6	55.6	18.3	11.8	16.4	51.1	14.1	11.7	13.4
	AVG	68.1	24.0	15.1	22.7	63.5	20.4	13.7	19.9	57.7	17.2	14.0	16.0
9-Dec-19	Max	74.3	21.1	15.9	26.1	78.5	23.7	13.8	18.9	73.4	22.4	10.9	21.2
	Min	55.1	18.4	13.4	22.8	50.6	19.6	10.1	14.5	31.1	16.7	8.6	18.4
	AVG	64.7	19.8	14.7	24.5	64.6	21.7	12.0	16.7	52.3	19.6	9.8	19.8
10-Dec-19	Max	79.8	23.5	11.4	19.6	74.0	21.6	14.9	19.4	69.4	20.3	11.9	23.4
	Min	53.3	15.3	9.3	14.3	50.4	17.8	12.5	14.2	43.5	14.7	9.3	21.6
	AVG	66.6	19.4	10.4	17.0	62.2	19.7	13.7	16.8	56.5	17.5	10.6	22.5
11-Dec-19	Max	76.7	26.8	13.5	21.4	71.3	27.3	16.4	22.1	60.5	23.4	14.4	18.2
	Min	41.5	21.1	9.1	18.9	46.6	22.0	11.6	18.3	23.5	16.3	11.5	13.4
	AVG	59.1	24.0	11.3	20.2	59.0	24.7	14.0	20.2	42.0	19.9	13.0	15.8
12-Dec-19	Max	79.3	28.9	18.4	22.7	73.8	25.3	15.4	19.7	65.5	18.6	9.9	13.2
	Min	52.4	26.3	13.1	18.8	50.1	21.4	11.1	16.1	31.2	11.4	6.4	10.7
	AVG	65.9	27.6	15.8	20.8	62.0	23.4	13.3	17.9	48.4	15.0	8.2	12.0
13-Dec-19	Max	70.3	16.7	8.8	20.4	75.8	19.3	16.7	20.4	61.3	23.7	13.6	27.3
	Min	41.7	13.4	6.1	15.1	32.4	14.1	12.2	17.3	54.1	20.4	10.1	22.1
	AVG	56.0	15.1	7.5	17.8	54.1	16.7	14.5	18.9	57.7	22.1	11.9	24.7
14-Dec-19	Max	78.5	18.9	9.5	18.5	53.4	21.4	15.2	21.6	59.3	16.8	13.2	22.1
	Min	53.4	14.2	5.8	13.2	51.3	18.3	11.8	18.3	56.1	11.4	9.2	18.3
	AVG	66.0	16.6	7.7	15.9	52.4	19.9	13.5	20.0	57.7	14.1	11.2	20.2
15-Dec-19	Max	73.8	23.4	11.5	19.4	79.1	19.3	16.3	23.4	66.1	21.4	16.3	18.3
	Min	34.2	20.8	9.3	14.3	58.3	16.4	13.1	19.7	50.8	12.1	14.2	15.1
	AVG	54.0	22.1	10.4	16.9	68.7	17.9	14.7	21.6	58.5	16.8	15.3	16.7

16-Dec-19	**Max**	80.2	18.1	11.3	16.3	74.2	28.6	14.3	25.1	69.5	17.6	10.8	21.1
	Min	55.1	12.1	8.9	13.9	61.7	24.1	11.1	21.4	51.3	13.1	6.4	15.4
	AVG	67.7	15.1	10.1	15.1	68.0	26.4	12.7	23.3	60.4	15.4	8.6	18.3
17-Dec-19	**Max**	75.2	21.4	10.8	16.6	77.7	26.1	16.8	21.7	70.4	19.6	15.2	20.8
	Min	50.3	16.3	6.7	11.7	53.7	23.7	11.8	18.8	48.1	14.4	12.3	16.4
	AVG	62.8	18.9	8.8	14.2	65.7	24.9	14.3	20.3	59.3	17.0	13.8	18.6
18-Dec-19	**Max**	76.3	19.5	16.2	18.3	71.6	23.5	14.9	22.6	70.1	15.7	9.8	13.4
	Min	27.5	14.1	14.1	16.7	43.3	21.8	13.8	18.3	34.4	10.5	6.7	11.8
	AVG	51.9	16.8	15.2	17.5	57.5	22.7	14.4	20.5	52.3	13.1	8.3	12.6
19-Dec-19	**Max**	78.6	24.4	13.5	22.7	78.6	24.5	16.8	19.7	68.5	16.7	13.9	21.4
	Min	24.8	22.8	10.8	18.2	23.4	17.6	12.4	13.8	48.4	14.4	10.8	15.8
	AVG	51.7	23.6	12.2	20.5	51.0	21.1	14.6	16.8	58.5	15.6	12.4	18.6
20-Dec-19	**Max**	78.5	22.4	13.8	23.8	75.3	26.8	16.2	28.1	63.8	19.7	12.8	26.7
	Min	42.2	17.3	11.4	18.9	61.7	23.7	13.9	25.1	57.6	15.6	9.7	24.2
	AVG	60.4	19.9	12.6	21.4	68.5	25.3	15.1	26.6	60.7	17.7	11.3	25.5
21-Dec-19	**Max**	73.5	21.4	16.7	22.7	76.1	22.7	14.7	23.4	68.4	16.3	10.8	20.7
	Min	25.5	15.7	11.5	18.0	24.4	18.3	11.5	21.3	22.4	12.8	6.8	15.3
	AVG	49.5	18.6	14.1	20.4	50.3	20.5	13.1	22.4	45.4	14.6	8.8	18.0
22-Dec-19	**Max**	76.5	18.7	17.4	19.9	72.0	26.8	19.7	22.7	60.4	25.4	16.2	25.2
	Min	56.1	13.5	13.8	15.7	58.7	22.7	16.1	18.3	57.1	20.8	14.7	22.8
	AVG	66.3	16.1	15.6	17.8	65.4	24.8	17.9	20.5	58.8	23.1	15.5	24.0
23-Dec-19	**Max**	77.0	23.4	15.4	28.4	72.5	30.4	16.8	26.6	61.4	21.4	12.6	22.8
	Min	55.7	20.1	13.2	24.3	56.3	23.5	12.6	23.7	49.5	14.6	10.1	19.2
	AVG	66.4	21.8	14.3	26.4	64.4	27.0	14.7	25.2	55.5	18.0	11.4	21.0
24-Dec-19	**Max**	76.5	28.1	18.3	25.8	78.6	27.1	13.4	29.7	69.9	20.4	16.3	19.3
	Min	24.4	24.8	13.9	21.1	25.5	24.4	11.2	24.9	52.8	14.2	12.4	13.6
	AVG	50.5	26.5	16.1	23.5	52.1	25.8	12.3	27.3	61.4	17.3	14.4	16.5
25-Dec-19	**Max**	71.4	26.3	13.6	21.9	74.2	36.1	18.7	27.3	70.2	23.7	13.9	22.6
	Min	68.8	23.6	11.4	16.3	28.8	27.3	14.8	22.8	55.7	16.3	9.7	13.8
	AVG	70.1	25.0	12.5	19.1	51.5	31.7	16.8	25.1	63.0	20.0	11.8	18.2
26-Dec-19	**Max**	77.3	23.4	13.8	25.6	79.4	31.8	18.3	24.2	62.4	21.1	18.8	21.1
	Min	59.7	17.7	10.9	20.8	53.4	26.3	15.2	22.5	48.6	19.6	14.9	16.8
	AVG	68.5	20.6	12.4	23.2	66.4	29.1	16.8	23.4	55.5	20.4	16.9	19.0
27-Dec-19	**Max**	76.4	22.4	15.4	21.9	75.4	28.8	14.3	19.6	66.8	23.2	13.4	16.9
	Min	57.6	16.7	11.9	18.8	53.4	20.4	11.9	15.8	54.9	21.9	9.3	13.4
	AVG	67.0	19.6	13.7	20.4	64.4	24.6	13.1	17.7	60.9	22.6	11.4	15.2
28-Dec-19	**Max**	78.9	32.5	19.4	26.7	72.5	33.9	17.6	23.5	63.3	28.6	16.6	23.2
	Min	56.6	27.1	15.5	22.9	51.1	29.6	13.9	21.9	21.4	24.0	14.7	18.9
	AVG	67.8	29.8	17.5	24.8	61.8	31.8	15.8	22.7	42.4	26.3	15.7	21.1
29-Dec-19	**Max**	74.2	28.1	15.7	21.1	77.0	25.3	16.1	19.3	67.2	21.5	16.2	21.8
	Min	30.8	23.9	13.4	18.3	26.4	22.7	12.8	15.7	29.9	16.4	13.3	16.6
	AVG	52.5	26.0	14.6	19.7	51.7	24.0	14.5	17.5	48.6	19.0	14.8	19.2
30-Dec-19	**Max**	73.9	21.1	12.6	18.6	76.3	23.8	18.3	21.6	69.4	31.2	14.3	23.4
	Min	31.2	17.3	9.8	13.8	57.1	21.4	13.9	17.3	36.1	28.5	10.3	19.9
	AVG	52.6	19.2	11.2	16.2	66.7	22.6	16.1	19.5	52.8	29.9	12.3	21.7
31-Dec-19	**Max**	78.4	26.4	16.7	23.4	74.4	31.5	14.8	23.6	72.4	31.1	16.7	28.9
	Min	53.7	24.8	14.6	21.8	32.1	26.4	12.4	18.7	32.2	22.2	14.2	24.4
	AVG	66.1	25.6	15.7	22.6	53.3	29.0	13.6	21.2	52.3	26.7	15.5	26.7

	ADANI POWER MAHARASHTRA LIMITED												
	5 x 660 MW Thermal Power Plant , Tirora, Gondia												
	Station: AAQMS 1 AAQMS 2 AAQMS 3					Report Type: Mean			Time Base: 1Hr		Month-Jan - 20		
Month		AAQMS-1 (Labour Hutment)				AAQMS-2 (China Colony)				AAQMS-3 (Gate no -2)			
		PM 10	PM 2.5	SO2	NOx	PM10	PM2.5	SO2	NOX	PM10	PM2.5	SO2	NOX
		ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ppm	ug/m3	ug/m3	ug/m3	ppm
1-Jan-20	Max	78.2	28.1	18.1	23.4	82.4	28.6	21.4	29.3	70.1	23.4	17.3	23.4
	Min	66.4	23.7	16.6	20.8	68.3	24.1	18.3	24.1	51.8	18.3	12.2	21.9
	AVG	72.3	25.9	17.4	22.1	75.4	26.4	19.9	26.7	61.0	20.9	14.8	22.7
2-Jan-20	Max	81.4	33.4	16.7	20.7	75.7	38.1	18.9	28.1	73.4	22.0	19.4	22.7
	Min	64.9	29.9	12.8	16.7	71.4	33.6	13.7	22.4	59.1	17.1	13.5	19.3
	AVG	73.2	31.7	14.8	18.7	73.6	35.9	16.3	25.3	66.3	19.6	16.5	21.0
3-Jan-20	Max	80.4	32.2	16.1	27.8	80.7	26.8	14.8	23.9	77.3	20.3	8.7	23.4
	Min	66.4	16.7	12.8	23.3	57.7	21.4	11.4	21.1	61.1	15.5	6.4	20.9
	AVG	73.4	24.5	14.5	25.6	69.2	24.1	13.1	22.5	69.2	17.9	7.6	22.2
4-Jan-20	Max	81.1	25.4	18.1	24.3	83.7	29.4	18.3	27.3	71.3	19.4	10.6	17.6
	Min	56.4	18.2	13.4	21.6	53.4	17.6	13.7	21.4	60.8	14.5	6.3	13.4
	AVG	68.8	21.8	15.8	23.0	68.6	23.5	16.0	24.4	66.1	17.0	8.5	15.5
5-Jan-20	Max	80.4	26.4	16.3	22.6	79.2	29.3	15.4	22.2	75.4	24.4	16.3	21.4
	Min	56.3	15.0	14.2	16.8	61.1	22.4	11.9	18.8	53.3	20.9	14.7	16.3
	AVG	68.4	20.7	15.3	19.7	70.2	25.9	13.7	20.5	64.4	22.7	15.5	18.9
6-Jan-20	Max	86.3	27.5	14.6	23.2	80.6	24.6	12.4	29.3	73.2	16.6	10.8	18.2
	Min	42.8	11.8	12.3	21.1	54.2	20.4	9.8	24.7	51.1	13.7	7.3	14.4
	AVG	64.6	19.7	13.5	22.2	67.4	22.5	11.1	27.0	62.2	15.2	9.1	16.3
7-Jan-20	Max	87.4	28.7	13.4	24.6	77.4	23.4	14.9	24.3	70.2	21.4	12.8	23.4
	Min	46.2	15.4	9.8	21.7	64.0	18.2	11.6	22.1	47.1	17.6	8.7	18.6
	AVG	66.8	22.1	11.6	23.2	70.7	20.8	13.3	23.2	58.7	19.5	10.8	21.0
8-Jan-20	Max	82.7	33.2	18.5	24.0	79.3	28.1	16.8	21.4	63.3	23.6	17.3	26.4
	Min	50.4	19.2	14.4	21.8	65.1	23.4	14.2	19.5	40.4	18.2	13.4	22.1
	AVG	66.6	26.2	16.5	22.9	72.2	25.8	15.5	20.5	51.9	20.9	15.4	24.3
9-Jan-20	Max	82.2	26.3	16.1	21.6	85.1	31.4	17.8	26.4	69.6	20.4	13.1	24.6
	Min	58.4	22.4	11.2	18.6	72.6	28.1	12.6	22.2	53.7	16.8	10.8	21.4
	AVG	70.3	24.4	13.7	20.1	78.9	29.8	15.2	24.3	61.7	18.6	12.0	23.0
10-Jan-20	Max	83.2	26.4	18.6	23.4	85.4	28.3	17.0	27.1	68.4	18.9	10.8	15.6
	Min	44.4	11.5	13.4	20.8	55.8	15.4	13.6	25.3	42.5	13.3	6.3	11.4
	AVG	63.8	19.0	16.0	22.1	70.6	21.9	15.3	26.2	55.5	16.1	8.6	13.5
11-Jan-20	Max	80.4	29.4	16.8	23.3	79.4	27.7	18.3	23.7	68.4	21.8	13.4	16.3
	Min	47.2	12.4	13.4	19.6	50.8	18.3	13.4	21.9	42.3	17.6	11.7	14.7
	AVG	63.8	20.9	15.1	21.5	65.1	23.0	15.9	22.8	55.4	19.7	12.6	15.5
12-Jan-20	Max	81.1	28.8	12.7	19.3	84.4	25.3	16.3	19.3	70.2	17.6	14.7	16.3
	Min	53.4	16.1	8.6	14.4	53.6	22.4	12.4	16.7	48.4	13.4	11.4	12.8
	AVG	67.3	22.5	10.7	16.9	69.0	23.9	14.4	18.0	59.3	15.5	13.1	14.6
13-Jan-20	Max	83.7	32.2	16.3	27.6	82.2	26.6	11.7	19.3	66.7	15.4	11.4	16.9
	Min	61.5	21.4	14.8	23.4	62.4	18.3	8.8	14.6	53.4	12.9	6.3	13.7
	AVG	72.6	26.8	15.6	25.5	72.3	22.5	10.3	17.0	60.1	14.2	8.9	15.3
14-Jan-20	Max	80.9	30.4	18.3	23.4	78.8	20.1	12.4	19.3	61.4	19.3	9.3	13.4
	Min	57.3	19.3	15.4	20.1	66.1	13.4	9.7	16.4	50.1	15.2	6.8	10.8
	AVG	69.1	24.9	16.9	21.8	72.5	16.8	11.1	17.9	55.8	17.3	8.1	12.1
15-Jan-20	Max	79.3	29.9	19.3	26.4	88.3	33.4	15.3	21.4	76.6	21.5	13.4	19.7
	Min	65.8	21.3	16.1	22.7	52.6	21.3	12.4	16.8	43.4	13.1	10.2	13.6
	AVG	72.6	25.6	17.7	24.6	70.5	27.4	13.9	19.1	60.0	17.3	11.8	16.7

16-Jan-20	**Max**	86.3	27.7	15.3	21.4	83.4	28.4	16.7	26.7	55.6	23.4	18.5	23.4
	Min	58.8	18.8	12.4	16.3	64.3	18.3	13.4	21.3	52.4	21.1	14.2	21.1
	AVG	72.6	23.3	13.9	18.9	73.9	23.4	15.1	24.0	54.0	22.3	16.4	22.3
17-Jan-20	**Max**	88.6	20.2	14.3	19.3	81.4	25.7	18.3	29.6	74.4	14.2	11.4	21.1
	Min	66.6	15.5	11.2	14.2	58.8	21.2	15.1	26.1	53.2	10.1	6.4	13.2
	AVG	77.6	17.9	12.8	16.8	70.1	23.5	16.7	27.9	63.8	12.2	8.9	17.2
18-Jan-20	**Max**	82.0	28.5	13.8	23.4	78.4	24.1	14.3	24.1	65.1	14.8	12.5	19.9
	Min	58.3	10.9	10.7	18.3	54.4	18.1	10.8	22.4	52.4	11.1	5.8	16.7
	AVG	70.2	19.7	12.3	20.9	66.4	21.1	12.6	23.3	58.8	13.0	9.2	18.3
19-Jan-20	**Max**	81.9	26.8	19.1	28.6	76.8	30.0	12.8	23.8	68.4	18.3	10.6	19.6
	Min	55.4	12.2	17.9	23.1	56.7	27.3	8.6	21.4	44.8	13.4	6.6	13.7
	AVG	68.7	19.5	18.5	25.9	66.8	28.7	10.7	22.6	56.6	15.9	8.6	16.7
20-Jan-20	**Max**	88.7	26.3	13.4	22.1	82.2	27.4	16.7	28.7	69.9	21.4	16.3	18.6
	Min	63.3	10.5	9.3	18.3	69.3	19.3	14.2	22.4	51.1	17.1	14.2	15.4
	AVG	76.0	18.4	11.4	20.2	75.8	23.4	15.5	25.6	60.5	19.3	15.3	17.0
21-Jan-20	**Max**	83.3	29.9	13.6	26.3	77.9	32.2	22.8	30.2	62.2	24.4	19.4	20.7
	Min	61.4	13.3	11.4	22.6	57.7	24.1	16.9	28.7	50.4	11.1	16.7	18.3
	AVG	72.4	21.6	12.5	24.5	67.8	28.2	19.9	29.5	56.3	17.8	18.1	19.5
22-Jan-20	**Max**	87.0	29.3	16.9	22.4	81.1	25.1	18.3	26.3	66.3	18.3	15.2	23.3
	Min	54.3	13.6	12.2	20.0	64.4	21.1	12.8	24.1	52.2	14.4	10.8	20.9
	AVG	70.7	21.5	14.6	21.2	72.8	23.1	15.6	25.2	59.3	16.4	13.0	22.1
23-Jan-20	**Max**	83.6	31.1	18.3	26.3	70.4	31.7	15.8	23.4	60.7	23.4	19.6	26.3
	Min	65.1	16.8	13.0	22.1	64.1	29.9	11.4	18.6	57.9	19.8	16.6	22.5
	AVG	74.4	24.0	15.7	24.2	67.3	30.8	13.6	21.0	59.3	21.6	18.1	24.4
24-Jan-20	**Max**	80.9	28.2	12.4	25.6	81.4	33.4	18.6	23.4	70.3	25.3	12.8	23.4
	Min	48.3	23.4	5.9	23.4	77.2	28.9	13.9	21.5	43.6	22.8	10.6	20.6
	AVG	64.6	25.8	9.2	24.5	79.3	31.2	16.3	22.5	57.0	24.1	11.7	22.0
25-Jan-20	**Max**	87.7	23.4	11.4	21.1	78.3	30.9	16.1	28.9	66.5	22.7	10.9	22.4
	Min	53.4	21.2	7.7	18.6	73.6	26.8	13.5	26.8	42.8	19.3	8.6	19.3
	AVG	70.6	22.3	9.6	19.9	76.0	28.9	14.8	27.9	54.7	21.0	9.8	20.9
26-Jan-20	**Max**	83.6	30.4	13.4	26.4	83.7	25.6	18.6	27.3	72.4	19.3	13.4	24.5
	Min	58.6	28.1	10.8	20.9	61.1	19.4	13.4	22.0	50.1	14.2	10.8	18.3
	AVG	71.1	29.3	12.1	23.7	72.4	22.5	16.0	24.7	61.3	16.8	12.1	21.4
27-Jan-20	**Max**	85.3	30.8	14.2	28.9	78.7	27.8	12.8	29.3	60.8	21.1	15.6	22.4
	Min	37.4	26.7	10.9	23.8	73.3	24.1	9.3	21.4	58.3	16.5	13.9	18.7
	AVG	61.4	28.8	12.6	26.4	76.0	26.0	11.1	25.4	59.6	18.8	14.8	20.6
28-Jan-20	**Max**	86.6	27.3	16.7	29.3	81.4	33.4	16.8	26.7	63.4	20.4	15.2	28.3
	Min	64.4	22.4	14.9	24.2	67.3	31.9	12.2	21.8	51.3	25.7	12.1	23.6
	AVG	75.5	24.9	15.8	26.8	74.4	32.7	14.5	24.3	57.4	23.1	13.7	26.0
29-Jan-20	**Max**	77.5	36.3	18.9	30.4	79.9	34.2	15.8	29.3	69.3	30.8	16.7	23.8
	Min	75.8	32.8	15.5	26.7	76.7	31.5	12.1	23.7	66.8	26.3	13.4	21.1
	AVG	76.7	34.6	17.2	28.6	78.3	32.9	14.0	26.5	68.1	28.6	15.1	22.5
30-Jan-20	**Max**	85.3	31.3	16.9	28.3	79.6	30.9	13.5	26.8	66.4	13.4	14.2	17.3
	Min	54.1	27.6	14.2	23.8	64.3	27.7	10.4	24.1	49.8	11.1	12.1	13.6
	AVG	69.7	29.5	15.6	26.1	72.0	29.3	12.0	25.5	58.1	12.3	13.2	15.5
31-Jan-20	**Max**	80.4	26.3	18.6	22.8	78.6	28.2	16.6	29.9	69.4	18.3	19.4	23.4
	Min	78.8	18.8	13.4	15.9	52.2	23.4	13.4	25.6	51.2	16.8	17.1	18.3
	AVG	79.6	22.6	16.0	19.4	65.4	25.8	15.0	27.8	60.3	17.6	18.3	20.9

	ADANI POWER MAHARASHTRA LIMITED											
	5 x 660 MW Thermal Power Plant , Tirora, Gondia											
	Station: AAQMS 1 AAQMS 2 AAQMS 3				Report Type: Mean			Time Base: 1Hr	Month- FEB-20			
Month		AAQMS-1 (Labour Hutment)				AAQMS-2 (China Colony)				AAQMS-3 (Gate no -2)			
		PM 10	PM 2.5	SO2	NOx	PM10	PM2.5	SO2	NOX	PM10	PM2.5	SO2	NOX
		ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ppm	ug/m3	ug/m3	ug/m3	ppm
1-Feb-20	Max	81.1	30.4	13.8	24.6	80.7	29.6	18.9	28.8	67.4	16.2	10.3	23.4
	Min	76.3	28.6	12.4	21.4	78.6	24.2	16.6	23.4	55.4	12.5	6.6	21.5
	AVG	78.7	29.5	13.1	23.0	79.7	26.9	17.8	26.1	61.4	14.4	8.5	22.5
2-Feb-20	Max	84.2	32.4	16.3	22.4	81.1	31.2	15.6	25.6	62.4	20.3	12.5	21.4
	Min	77.6	24.5	13.8	19.3	78.8	26.6	12.2	23.4	58.1	16.1	8.6	17.3
	AVG	80.9	28.5	15.1	20.9	80.0	28.9	13.9	24.5	60.3	18.2	10.6	19.4
3-Feb-20	Max	86.6	36.4	12.5	26.4	87.2	36.4	19.3	28.7	75.5	18.6	12.2	26.4
	Min	71.1	36.1	8.8	23.3	75.4	32.1	16.7	26.1	53.4	13.4	9.1	24.2
	AVG	78.9	36.3	10.7	24.9	81.3	34.3	18.0	27.4	64.5	16.0	10.7	25.3
4-Feb-20	Max	80.2	34.2	15.2	23.4	82.2	31.4	14.1	22.4	58.3	23.4	16.4	24.4
	Min	77.6	30.5	12.4	20.8	79.6	25.8	11.9	18.3	56.9	21.7	13.7	21.1
	AVG	78.9	32.4	13.8	22.1	80.9	28.6	13.0	20.4	57.6	22.6	15.1	22.8
5-Feb-20	Max	78.7	33.1	16.7	28.7	84.2	28.3	16.8	27.6	61.4	26.7	14.1	26.6
	Min	73.1	27.4	13.4	23.4	71.4	24.6	14.1	24.1	58.9	18.3	11.4	22.4
	AVG	75.9	30.3	15.1	26.1	77.8	26.5	15.5	25.9	60.2	22.5	12.8	24.5
6-Feb-20	Max	82.4	36.0	18.6	28.1	79.3	30.4	14.6	24.4	66.3	23.4	17.6	25.9
	Min	68.3	32.4	14.1	25.3	75.4	26.8	12.7	20.7	63.8	20.7	13.2	22.8
	AVG	75.4	34.2	16.4	26.7	77.4	28.6	13.7	22.6	65.1	22.1	15.4	24.4
7-Feb-20	Max	88.3	33.1	15.8	24.3	83.4	32.4	13.0	18.6	61.4	21.2	8.9	14.2
	Min	65.1	25.4	12.5	21.1	61.2	19.6	11.5	15.4	58.6	18.8	6.3	11.8
	AVG	76.7	29.3	14.2	22.7	72.3	26.0	12.3	17.0	60.0	20.0	7.6	13.0
8-Feb-20	Max	80.6	30.6	13.4	26.7	80.9	26.4	15.8	22.4	77.5	28.6	10.4	24.6
	Min	67.8	23.8	10.1	22.0	58.8	20.3	13.4	18.6	63.4	22.8	6.7	20.4
	AVG	74.2	27.2	11.8	24.4	69.9	23.4	14.6	20.5	70.5	25.7	8.6	22.5
9-Feb-20	Max	79.9	27.7	16.1	25.5	69.3	30.2	17.6	28.3	68.9	24.7	16.3	20.6
	Min	63.4	23.4	13.8	21.6	65.8	25.4	12.8	25.7	54.7	21.5	12.8	17.6
	AVG	71.7	25.6	15.0	23.6	67.6	27.8	15.2	27.0	61.8	23.1	14.6	19.1
10-Feb-20	Max	73.4	21.5	10.8	22.8	83.4	35.7	19.7	23.5	63.4	16.2	10.5	21.7
	Min	70.1	18.7	8.6	17.5	80.9	33.1	15.9	20.7	51.1	11.2	7.6	18.3
	AVG	71.8	20.1	9.7	20.2	82.2	34.4	17.8	22.1	57.3	13.7	9.1	20.0
11-Feb-20	Max	70.6	31.1	15.7	28.6	86.3	37.1	16.7	29.8	65.4	19.6	13.4	26.4
	Min	68.3	28.6	13.4	21.3	84.1	34.0	12.2	26.1	53.4	14.7	11.8	22.7
	AVG	69.5	29.9	14.6	25.0	85.2	35.6	14.5	28.0	59.4	17.2	12.6	24.6
12-Feb-20	Max	77.3	35.4	17.8	26.3	79.7	32.4	13.4	23.4	68.9	23.4	16.7	23.4
	Min	74.9	32.4	14.1	24.7	77.6	30.2	10.8	21.8	53.4	20.7	14.9	21.3
	AVG	76.1	33.9	16.0	25.5	78.7	31.3	12.1	22.6	61.2	22.1	15.8	22.4
13-Feb-20	Max	65.7	31.1	15.1	23.4	75.9	24.7	17.6	27.7	63.4	30.4	14.7	27.6
	Min	63.4	27.6	12.4	20.8	73.4	21.9	13.4	23.4	60.1	27.1	12.4	22.4
	AVG	64.6	29.4	13.8	22.1	74.7	23.3	15.5	25.6	61.8	28.8	13.6	25.0
14-Feb-20	Max	85.4	32.1	16.8	25.6	75.2	31.4	20.8	29.3	65.8	23.4	12.4	24.6
	Min	81.8	28.4	14.3	22.4	73.1	26.1	17.9	25.5	53.4	19.9	10.6	22.4
	AVG	83.6	30.3	15.6	24.0	74.2	28.8	19.4	27.4	59.6	21.7	11.5	23.5
15-Feb-20	Max	82.2	33.1	16.1	28.7	81.4	29.2	16.3	25.3	69.1	20.7	13.8	22.5
	Min	73.1	28.7	13.3	25.6	79.6	24.7	14.1	22.1	55.7	16.1	10.9	18.2
	AVG	77.7	30.9	14.7	27.2	80.5	27.0	15.2	23.7	62.4	18.4	12.4	20.4

16-Feb-20	**Max**	81.2	31.3	13.8	26.3	86.3	32.4	19.9	29.3	63.4	26.4	16.7	26.3
	Min	76.3	28.6	10.9	21.7	83.4	24.6	16.8	24.1	61.5	22.9	14.2	22.4
	AVG	78.8	30.0	12.4	24.0	84.9	28.5	18.4	26.7	62.5	24.7	15.5	24.4
17-Feb-20	**Max**	82.5	31.4	9.7	19.2	86.1	30.8	22.4	30.4	66.4	18.4	8.6	16.3
	Min	60.8	12.8	6.3	15.4	83.4	27.7	18.6	27.5	52.4	13.7	6.7	14.4
	AVG	71.7	22.1	8.0	17.3	84.8	29.3	20.5	29.0	59.4	16.1	7.7	15.4
18-Feb-20	**Max**	85.4	27.4	11.8	23.5	82.1	28.6	18.7	28.4	69.5	21.4	13.4	20.9
	Min	63.4	15.2	8.9	21.4	80.9	23.3	16.4	24.6	57.6	16.8	11.8	18.3
	AVG	74.4	21.3	10.4	22.5	81.5	26.0	17.6	26.5	63.6	19.1	12.6	19.6
19-Feb-20	**Max**	86.4	31.5	13.8	24.7	79.6	25.1	15.7	26.7	60.7	23.4	16.7	26.4
	Min	66.6	18.8	9.3	21.2	77.3	22.8	12.3	22.4	57.3	18.6	14.1	21.7
	AVG	76.5	25.2	11.6	23.0	78.5	24.0	14.0	24.6	59.0	21.0	15.4	24.1
20-Feb-20	**Max**	87.4	32.6	14.7	26.8	81.4	33.4	13.8	25.8	68.9	18.3	17.3	22.4
	Min	68.1	29.8	11.1	24.3	78.8	30.1	10.9	21.1	54.4	13.4	12.4	20.8
	AVG	77.8	31.2	12.9	25.6	80.1	31.8	12.4	23.5	61.7	15.9	14.9	21.6
21-Feb-20	**Max**	80.4	29.5	13.7	23.4	76.8	21.5	10.8	16.6	65.5	19.3	9.9	26.7
	Min	58.6	15.7	10.8	20.8	64.9	18.8	8.7	14.4	38.4	15.7	7.6	23.3
	AVG	69.5	22.6	12.3	22.1	70.9	20.2	9.8	15.5	52.0	17.5	8.8	25.0
22-Feb-20	**Max**	82.5	31.2	16.3	21.7	83.4	25.7	11.6	16.3	70.8	19.3	12.8	15.9
	Min	50.0	12.3	12.4	18.3	65.2	22.6	8.7	13.4	58.3	17.2	10.9	11.4
	AVG	66.3	21.8	14.4	20.0	74.3	24.2	10.2	14.9	64.6	18.3	11.9	13.7
23-Feb-20	**Max**	83.3	18.6	13.3	23.4	80.5	22.4	13.9	18.9	67.7	21.4	18.7	22.4
	Min	42.7	13.3	10.8	21.6	69.8	17.2	11.4	16.2	54.2	14.9	16.4	17.1
	AVG	63.0	16.0	12.1	22.5	75.2	19.8	12.7	17.6	61.0	18.2	17.6	19.8
24-Feb-20	**Max**	89.9	35.5	11.8	18.3	80.0	27.4	12.3	19.3	76.3	25.8	12.3	23.4
	Min	53.4	16.9	9.8	16.1	52.4	12.2	8.7	15.5	74.1	22.4	9.7	21.1
	AVG	71.7	26.2	10.8	17.2	66.2	19.8	10.5	17.4	75.2	24.1	11.0	22.3
25-Feb-20	**Max**	84.1	32.2	15.7	21.1	83.3	23.3	18.3	26.1	68.7	21.1	16.3	26.7
	Min	58.9	18.2	12.4	17.6	65.0	21.4	14.1	21.4	56.1	18.3	13.4	23.4
	AVG	71.5	25.2	14.1	19.4	74.2	22.4	16.2	23.8	62.4	19.7	14.9	25.1
26-Feb-20	**Max**	86.6	34.4	16.7	26.1	81.1	31.8	17.2	28.3	70.5	19.6	12.8	22.3
	Min	64.1	16.6	13.4	23.4	71.1	22.8	13.4	22.2	58.4	15.3	10.4	20.8
	AVG	75.4	25.5	15.1	24.8	76.1	27.3	15.3	25.3	64.5	17.5	11.6	21.6
27-Feb-20	**Max**	84.9	32.2	14.2	23.4	74.4	22.4	19.8	21.4	78.8	21.5	15.6	24.2
	Min	66.8	22.4	12.4	20.9	61.1	20.9	13.4	18.1	53.4	18.8	13.2	21.1
	AVG	75.9	27.3	13.3	22.2	67.8	21.7	16.6	19.8	66.1	20.2	14.4	22.7
28-Feb-20	**Max**	78.3	28.1	14.2	27.6	82.1	32.4	20.6	28.6	63.4	22.8	13.6	23.6
	Min	76.6	26.4	11.8	24.8	78.8	25.7	16.9	26.1	50.4	18.9	11.9	20.4
	AVG	77.5	27.3	13.0	26.2	80.5	29.1	18.8	27.4	56.9	20.9	12.8	22.0
29-Feb-20	**Max**	82.4	22.6	15.8	23.4	81.7	28.3	18.3	26.3	68.3	26.8	14.8	25.3
	Min	70.8	17.2	13.4	20.8	79.3	23.4	16.7	22.7	55.4	24.4	12.1	22.8
	AVG	76.6	19.9	14.6	22.1	80.5	25.9	17.5	24.5	61.9	25.6	13.5	24.1

	ADANI POWER MAHARASHTRA LIMITED												
	5 x 660 MW Thermal Power Plant , Tirora, Gondia												
	Station: AAQMS 1 AAQMS 2 A					Report Type: Mean			Time Base:		Month- MAR-20		
Month		AAQMS-1 (Labour Hutment)				AAQMS-2 (China Colony)				AAQMS-3 (Gate no -2)			
		PM 10	PM 2.5	SO2	NOx	PM10	PM2.5	SO2	NOX	PM10	PM2.5	SO2	NOX
		ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ppm	ug/m3	ug/m3	ug/m3	ppm
1-Mar-20	Max	92.2	33.4	14.5	26.6	83.3	24.3	13.4	28.8	65.8	18.3	10.1	16.8
	Min	84.3	30.6	11.6	21.4	80.8	21.5	10.9	24.3	63.4	14.6	8.5	12.4
	AVG	88.3	32.0	13.1	24.0	82.1	22.9	12.2	26.6	64.6	16.5	9.3	14.6
2-Mar-20	Max	90.4	36.8	12.2	24.8	87.4	28.6	14.8	25.6	70.5	23.4	9.9	16.8
	Min	88.3	34.1	10.3	22.5	85.2	23.3	12.4	23.3	68.7	20.5	7.2	13.4
	AVG	89.4	35.5	11.3	23.7	86.3	26.0	13.6	24.5	69.6	22.0	8.6	15.1
3-Mar-20	Max	92.3	36.8	14.9	29.3	84.1	25.8	11.8	26.1	77.3	31.1	13.4	20.5
	Min	89.1	32.5	12.6	26.6	80.8	21.1	8.4	24.3	74.6	28.4	10.7	16.3
	AVG	90.7	34.7	13.8	28.0	82.5	23.5	10.1	25.2	76.0	29.8	12.1	18.4
4-Mar-20	Max	86.4	32.4	16.3	27.1	89.3	30.4	13.2	24.9	75.5	26.4	16.7	24.8
	Min	84.2	29.1	12.9	22.4	85.5	26.1	9.7	22.4	72.6	23.7	14.2	20.7
	AVG	85.3	30.8	14.6	24.8	87.4	28.3	11.5	23.7	74.1	25.1	15.5	22.8
5-Mar-20	Max	91.1	33.4	15.7	23.1	93.2	35.4	14.7	28.5	80.6	37.1	13.7	29.4
	Min	78.6	30.8	12.6	21.0	91.7	32.2	10.8	23.7	78.1	34.4	11.6	26.8
	AVG	84.9	32.1	14.2	22.1	92.5	33.8	12.8	26.1	79.4	35.8	12.7	28.1
6-Mar-20	Max	84.2	30.9	13.7	23.3	90.6	32.7	16.2	30.4	83.3	29.6	11.2	23.9
	Min	82.7	26.6	10.0	21.7	88.9	28.1	13.3	27.1	80.5	27.4	9.4	20.8
	AVG	83.5	28.8	11.9	22.5	89.8	30.4	14.8	28.8	81.9	28.5	10.3	22.4
7-Mar-20	Max	86.1	27.7	14.4	22.7	83.4	30.8	13.4	25.2	76.1	22.1	15.2	23.1
	Min	83.4	24.3	12.1	19.2	81.1	28.4	11.8	23.0	74.9	20.9	11.5	20.3
	AVG	84.8	26.0	13.3	21.0	82.3	29.6	12.6	24.1	75.5	21.5	13.4	21.7
8-Mar-20	Max	81.6	31.2	12.4	24.2	89.1	34.1	16.5	28.9	80.2	32.1	14.1	26.4
	Min	78.3	26.1	8.3	21.4	86.7	32.6	14.7	23.7	78.1	29.4	11.8	23.8
	AVG	80.0	28.7	10.4	22.8	87.9	33.4	15.6	26.3	79.2	30.8	13.0	25.1
9-Mar-20	Max	83.4	20.6	14.0	28.7	84.2	21.4	14.8	29.5	85.3	22.5	15.9	23.4
	Min	80.1	18.4	11.6	24.6	80.9	19.2	12.4	25.4	82.0	20.3	13.5	21.0
	AVG	81.8	19.5	12.8	26.7	82.6	20.3	13.6	27.5	83.7	21.4	14.7	28.6
10-Mar-20	Max	79.1	18.4	13.7	23.4	86.7	30.7	14.5	23.7	76.9	28.1	17.3	20.7
	Min	74.3	13.7	11.4	21.5	84.2	28.1	11.1	21.5	73.4	22.6	14.1	16.1
	AVG	76.7	16.1	12.6	22.5	85.5	29.4	12.8	22.6	75.2	25.4	15.7	18.4
11-Mar-20	Max	84.3	23.6	18.9	28.6	88.6	32.6	16.4	25.6	71.4	22.6	11.8	15.2
	Min	79.5	18.9	16.6	26.7	86.1	30.0	13.0	23.4	67.9	17.1	8.6	10.6
	AVG	81.9	21.2	17.7	27.6	87.3	31.3	14.7	24.5	69.7	19.9	10.2	12.9
12-Mar-20	Max	81.2	20.5	15.8	25.5	85.4	29.4	13.2	22.4	77.5	28.7	17.9	21.3
	Min	76.4	15.8	13.5	23.6	82.9	26.8	9.8	20.2	74.0	23.2	14.7	16.7
	AVG	78.8	18.1	14.6	24.5	84.1	28.1	11.5	21.3	75.8	26.0	16.3	19.0
13-Mar-20	Max	89.6	29.9	15.4	24.1	88.6	27.2	16.4	25.6	74.4	25.6	14.8	18.2
	Min	84.8	25.2	13.1	22.2	86.1	30.0	13.0	23.4	70.9	20.1	11.6	13.6
	AVG	87.2	27.5	14.2	23.1	87.3	28.6	14.7	24.5	72.7	22.9	13.2	15.9
14-Mar-20	Max	92.0	32.3	17.8	26.5	86.0	24.6	13.8	23.0	77.2	28.4	17.6	21.0
	Min	87.2	27.6	15.5	24.6	83.5	27.4	10.4	20.8	73.7	22.9	14.4	16.4
	AVG	89.6	29.9	16.6	25.5	84.7	26.0	12.1	21.9	75.5	25.7	16.0	18.7
15-Mar-20	Max	89.8	30.1	15.6	24.3	82.5	21.1	10.3	19.5	81.4	32.6	21.8	25.2
	Min	85.0	25.4	13.3	22.4	80.0	18.9	6.9	17.3	77.9	27.1	18.6	20.6
	AVG	87.4	27.7	14.4	23.3	81.2	20.0	8.6	18.4	79.7	29.9	20.2	22.9

16-Mar-20	**Max**	84.6	24.9	10.4	19.1	86.8	25.4	14.6	23.8	75.2	26.4	15.6	19.0
	Min	79.8	20.2	8.1	17.2	84.3	23.2	11.2	21.6	71.7	20.9	12.4	14.4
	AVG	82.2	22.5	9.2	18.1	85.5	24.3	12.9	22.7	73.5	23.7	14.0	16.7
17-Mar-20	**Max**	81.2	21.5	13.8	22.5	90.1	29.4	12.6	27.8	71.8	23.0	12.2	15.6
	Min	76.4	16.8	11.5	20.6	88.3	27.2	9.2	25.6	68.3	17.5	9.0	11.0
	AVG	78.8	19.1	12.6	21.5	89.2	28.3	10.9	26.7	70.1	20.3	10.6	13.3
18-Mar-20	**Max**	79.7	19.0	11.3	20.0	87.6	26.9	10.1	25.3	76.1	20.7	9.9	13.3
	Min	74.9	14.3	9.0	18.1	85.8	24.7	6.7	23.1	72.6	15.2	6.7	8.7
	AVG	77.3	16.6	10.1	19.0	86.7	25.8	8.4	24.2	74.4	18.0	8.3	11.0
19-Mar-20	**Max**	83.1	22.4	14.7	23.4	84.0	23.3	15.7	22.7	71.3	15.9	16.7	20.1
	Min	78.3	17.7	12.4	21.5	82.2	21.1	12.3	20.5	67.8	10.4	13.5	15.5
	AVG	80.7	20.0	13.5	22.4	83.1	22.2	14.0	21.6	69.6	13.2	15.1	17.8
20-Mar-20	**Max**	74.0	32.2	18.8	27.5	81.5	27.8	14.2	21.2	79.5	24.1	13.5	24.3
	Min	69.2	18.50	16.5	25.6	79.7	25.6	10.8	19.0	76.0	18.6	10.3	19.7
	AVG	71.6	25.4	17.6	26.5	80.6	26.7	12.5	20.1	77.8	21.4	11.9	22.0
21-Mar-20	**Max**	70.7	19.6	16.5	19.2	83.7	30.0	16.4	23.4	82.9	27.5	16.9	20.9
	Min	65.9	14.9	14.2	17.3	81.9	27.8	13.0	21.2	79.4	22.0	13.7	16.3
	AVG	68.3	17.2	15.3	18.2	82.8	28.9	14.7	22.3	81.2	24.8	15.3	18.6
22-Mar-20	**Max**	76.5	25.4	13.7	17.4	89.4	26.5	13.1	20.1	76.1	20.7	10.1	14.1
	Min	71.7	20.7	11.4	15.5	87.6	24.3	9.7	17.9	72.6	15.2	6.9	10.5
	AVG	74.1	23.0	12.5	16.4	88.5	25.4	11.4	19.0	74.4	18.0	8.5	12.3
23-Mar-20	**Max**	73.9	22.8	11.1	20.0	94.7	31.8	18.4	25.4	83.6	28.2	17.6	21.6
	Min	69.1	18.1	8.8	18.1	92.9	29.6	15.0	23.2	80.1	22.7	14.4	17.0
	AVG	71.5	20.4	9.9	19.0	93.8	30.7	16.7	24.3	81.9	25.5	16.0	19.3
24-Mar-20	**Max**	90.7	29.6	17.9	26.8	90.3	27.4	14.0	21.0	87.3	31.9	12.9	23.9
	Min	75.9	24.9	15.6	24.9	88.5	25.2	10.6	18.8	83.8	26.4	9.7	19.3
	AVG	83.3	27.2	16.7	25.8	89.4	26.3	12.3	19.9	85.6	29.2	11.3	21.6
25-Mar-20	**Max**	84.1	33.0	16.8	25.7	83.0	31.0	17.6	24.6	80.9	28.8	9.8	20.8
	Min	79.3	28.3	14.5	23.8	81.2	28.8	14.2	22.4	77.4	23.3	6.6	16.2
	AVG	81.7	30.6	15.7	24.8	82.1	29.9	15.9	23.5	79.2	26.1	8.2	18.5
26-Mar-20	**Max**	81.0	29.9	13.7	22.6	88.2	26.9	13.5	20.5	74.3	26.4	15.4	26.4
	Min	76.2	25.2	11.4	20.7	86.4	24.7	10.1	18.3	70.8	20.9	12.2	21.8
	AVG	78.6	27.5	12.6	21.7	87.3	25.8	11.8	19.4	72.6	23.7	13.8	24.1
27-Mar-20	**Max**	77.3	26.2	10.0	18.9	81.9	21.6	8.2	15.2	65.4	17.5	12.0	23.0
	Min	72.5	21.5	7.7	17.0	80.1	19.4	4.8	13.0	61.9	12.0	8.8	18.4
	AVG	74.9	23.8	8.9	18.0	81.0	20.5	6.5	14.1	63.7	14.8	10.4	20.7
28-Mar-20	**Max**	80.9	29.8	13.6	22.5	87.0	26.7	13.3	20.3	67.8	19.9	14.4	25.4
	Min	76.1	25.1	11.3	20.6	85.2	24.5	9.9	18.1	64.3	14.4	11.2	20.8
	AVG	78.5	27.4	12.5	21.6	86.1	25.6	11.6	19.2	66.1	17.2	12.8	23.1
29-Mar-20	**Max**	91.8	33.0	16.8	25.7	85.4	23.5	11.7	18.7	71.2	23.3	17.8	28.8
	Min	79.3	28.3	14.5	23.8	83.6	21.3	8.3	16.5	67.7	17.8	14.6	24.2
	AVG	85.5	30.6	15.7	24.8	84.5	22.4	10.0	17.6	69.5	20.6	16.2	26.5
30-Mar-20	**Max**	86.2	35.1	18.9	27.8	88.0	31.6	19.8	26.8	65.7	17.8	12.3	23.3
	Min	81.4	30.4	16.6	25.9	86.2	29.4	16.4	24.6	62.2	12.3	9.1	18.7
	AVG	83.8	32.7	17.8	26.9	87.1	30.5	18.1	25.7	64.0	15.1	10.7	21.0

Annexure IV

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Power

Ref: APL/ENV/FLYASH/176/04/20
Date: 28/04/2020

To,
Additional Principal Chief Conservator of Forest,
Ministry of Environment, Forests & Climate Change
Regional Office (WCZ),
Ground Floor, East Wing,
New Secretariat Building, Civil Line,
Nagpur-440001 (MH).

Sub: **Submission of Annual Fly Ash implementation report for the period of April' 2019 to March' 2020 for Adani Power Maharashtra Ltd, Tiroda, Gondia, Maharashtra**

Dear Sir,

With reference to above subject, we are furnishing herewith Annual Fly Ash implementation report for the period of **April'2019 to March'2020**, in compliance of Fly Ash Notification S.O.763 (E) Dated 14th September 1999 and amendment dated 3rd November' 2009.

Total Capacity of TPP: **3300 MW**
Phase – I : 1320 (2x660) MW
Phase – II : 1980 (3x660) MW

This is for your kind information & record please.

Thanking You,
Yours faithfully,
for **Adani Power Maharashtra Limited**

(Santosh Kumar Singh)
Head- Environment

Encl.: As above

CC: Member Secretary
Central Pollution control Board
Parivesh Bhavan, East Arjun Nagar
New Delhi- 110 032.

Member Secretary,
Maharashtra Pollution Control Board,
Mumbai, Maharashtra

The Regional Officer,
Maharashtra Pollution Control Board,
Nagpur, Maharashtra

Adani Power Maharashtra Ltd
Adani House
Shantigram, S G Highway
Ahmedabad 382 421
Gujarat, India
CIN: U40101GJ2007PLC050506

Tel +91 79 2656 7555
Fax +91 79 2555 7177
info@adani.com
www.adanipower.com

Fly Ash Notification S.O.2804 (E), 3rd November 2009 – Statutory Compliance Report for the Period 01.04.2019 to 31.03.2020

Sl. No.	Item	Reply
1.	Name of the Thermal Power Station	Adani Power Maharashtra Limited
2.	Full address including Pin code	Plot No A – 1, MIDC, Tirora Growth Centre, MIDC- Tirora Distt. Gondia Maharashtra – 441 911
3.	Email Address	Santosh.Singh1@adani.com
4.	Name of the Nodal officer (not below the rank of DGM/DY.CE/or equivalent) dealing with ash management and contents of this report and his designation.	Santosh Kumar Singh, Head– Environment
5.	Telephone No.	07198-253961
6.	Fax No.	07198-253971
7.	Capacity of the Thermal Power Station (MW)	3300 MW
8.	Details of No. of Units and capacity of each Units	Total No. of Units: **5** (Five) 3300 (5x660) MW All 5 units are operational.
9.	Coal Consumption in (Million tons) in 2019- 2020	14.87 Million Tons
A. Ash Generation in 2019 – 2020 (in tons)		
10.	Bottom Ash	963,039
11.	Fly Ash	3,852,155
	Total A (10 and 11)	**4,815,194**
B. Ash Unutilized (in tons).		
12.	Ash Pond disposal	439,484
13.	Ash yard	--
14.	Ash Dump	--
	Total B (12 to 14):	439,484

C. Ash utilization in 2019 – 2020 (in Tons)						
	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 raising	--	--	311,089	--	311,089
16.	Cement industry	--	95,371	--	--	95,371
17.	Land Reclamation	--	2,036,335	--	--	2,036,334
18.	Own Brick Unit	--	369	--	--	369
19. *	Outside Brick unit other than brick Kilns	--	53,919	--	22,325	76,245
20.	Brick Kilns	--	--	--	--	0
21.	Own ash based products (other than bricks)	--	--	--	--	0
22.	Outside Ash based products (Outside)	--	--	--	--	0
23.	Road and Flyover Embankments	--	61,097	--	2,840	63,937
24.	Back filling of mines	--	33,190	--	970	34,160
25.	Agriculture	--	4,333	--	--	4,333
26.	Ready mix concrete	--	--	--	--	0
27.	Asbestos	--	--	--	--	0
28.	Exports	--	--	--	--	0
29.	**Other** 1. Bottom ash cover	--	--	--	--	0
	2. Cenosphere	--	532	--	--	532
	3. Mound Formation in HCSD and Fine ash	--	1,753,340	--	--	1,753,340
	Total C (15 to 29):	--	**4,038,486**	**311,089**	**26,135**	**4,375,710**

D. Reasons for variation from the target -

Balance ash quantity (7.64 Million Tons) Stored in ash dyke for utilization in Ash Dyke Bund raising, agriculture, Road construction and land reclamation.

E. Remedial Measures taken:

(i) We have made agreement with more than 150 brick manufacturers for using fly ash. Supply of ash with these industries is in progress.

(ii) We have established our own Fly Ash brick manufacturing plant to cater in-house need.

(iii) M/s AIPL has set up ultra- fine ash processing plant and also jumbo bag packing to export ash.

(iv) Cenosphere is also being harvested.

(v) Fly ash is being sent to M/S ACC, Ambuja & Ultratech Cement also we have made MOUs with Maihar Cement, Manikgarh Cement, Prism cement and Reliance Cement MP.

(vi) We are promoting use of ash in agriculture and for the same we have hired consultancy services from "Advanced Material & Processes Research Institute (AMPRI), Bhopal for effective use of ash in agriculture.

(vii) Bottom ash is also being used for brick manufacturing to red brick manufacturer situated near by the APML.

(viii) Organizing workshop to encourage/promote use of bottom ash in red brick manufacturing.

F. Quantity in ash pond

30.	Estimated quantity of Pond Ash in active ash pond (pond in use) as on 31.03.20 (million ton).	**7.64**

G. Ash Pond Details

31.	Total area earmarked for ash pond (ha)	Forest area	Non Forest area	Total
		-	156.07	156.07
32.	Ash ponds already filled up and reclaimed (ha)	-		
33.	Ash ponds already filled up but yet to be reclaimed (ha)	NA		
34.	Ash pond in use (ha) (Active ash ponds)	156.07		
35.	Area earmarked for ash ponds but ash ponds yet to be constructed (ha)	-		

H. Dry ash collection facilities.

36	Whether Mechanical handling facility for Dry fly ash collection facility available	Yes, Silo has been provided with pneumatic ash conveying system. We have established Rail line facility under the ash silos for ash transportation by Rail.
37.	If yes, for how many units	06 Nos. of silo for all 05 Units

I. Dry fly ash storage

38	Daily Ash Generation (TPD)	Capacity of storage as on 31.03.2020 (tons)	Capacity proposed if any in 2019 –20 (tons)
	1961 (Avg.) from each unit	10,200	N.A

J. Capital Expenditure (Rs. Lakhs)			
	Item	Expenditure in 2019-20 (Rs. Lakhs)	Budgetary provision in 2020-21 (Rs. Lakhs)
39.	Mechanical Dry fly ash collection facility	892.17	1080.37
40.	Dry fly ash storage		

K. Dispute Settlement Committee		
41.	No. of meetings held in 2019-20	01 Meeting held on 09.08.2019 and no dispute with users.

L. Provision regarding supply to the brick kilns		
42.	Whether the thermal power station is maintaining month wise records of ash issued	Yes (Records maintained)
43.	If yes how many brick kilns have been supplied with Fly Ash.	163 Brick Kilns

Mode of Transport for ash		
44.	Dry Ash	Closed railway wagon, Ash Bulker/Truck covered with tarpaulin.
45.	Wet Ash	Truck covered with tarpaulin.

M. Promotional Measures				
		No. of meetings / workshops exhibition held during 19-20	Amount spent in 2019-20 (Rs. Lakhs)	Outlay for 2020-21 (Rs. Lakhs)
46.	Exhibition/ Conference	1	0.78	--
47.	Seminars (Kisan Mela)	--	--	--
48.	Workshops	2	0.22	0.5
49.	Advertisement in Newspapers/Pamphlet	1	0.0	0.01
50.	Advertisement in TV	--	--	--
51.	Advertisement in Radio	--	--	--
	Total M (46 to 51) :	**4**	**1.0**	**0.51**

52. Administrative measures taken		
S. No.	Administrative measures:-	Outcome
(i).	Meeting with brick manufacturers	Regular meeting with Fly ash Brick Manufacturers
(ii)	Meeting with state government/ agencies	Frequent meeting with District Industries Centre and district administration.
(iii).	Any other measure (Please specify)	Regular meetings with cement manufacturers are being done.

Signature

Name: Santosh Kumar Singh
Designation: Sr. VP Environment

Annexure-I

Name of brick units/brick kilns to which Fly Ash/ Bottom Ash/ Pond Ash supplied between 01.04.2019 and 31.03.2020

Sr.No.	A. Ash Brick Manufacturing Units	Tel. no. if any	Quantity Supplied (Ton)
1	APML Brick Plant	9445554938	369
2	M/s. Abhas Industries, Garada, Tiroda (BBP)	9235366732	1143
3	M/s Veena industries (VIS)	7038595331	225
4	M/s. Swastik Fly ash Bricks Industries, Tiroda (SBP)	9371199297	446
5	M/s. OKB Bricks Industries, Gondia (OKBG)	9689991836	379
6	M/s. Pawankumar Shalikram Pardhi Satona	8007978925	507
7	Satona Gayatri Brick Plant	-	2183
9	Tejram Chauhan Satona	-	994
10	M/s. Parmatma Ek fly ash Bricks, Gondia	9637805595	897
11	Prakash Chikhalondhe Ratnara		22
12	Anuradha Rahangdale Sakhdi , Tumsar		18
13	M/s. Parmatma Ek fly ash Bricks, Gondia	9637805595	7896
15	M/s. Khan Cement Articles, Gondia	9860775147	102
16	M/s. Sai Bricks, Gondia	9595211153	68
17	M/s. S. B. Bricks, Gondia	8275398231	882
18	M/s. Vaishnavi Fly-Ash Bricks Works, Gondia	9158008745	58
19	M/s. Paliwal Industries, Gondia	9423384299	911
20	M/s. KGN Bricks, Bhandara	9422116786	1345
21	M/s. Patel Tiles, Bhandara	9422118641	1240
22	M/s. Patel Cement Work, Bhandara	9422118641	577
23	M/s. Patel Cement Bricks Company, Bhandara	8421948220	87
25	M/s. Ambiance Eco-Friendly Products, Bhandara	8055216365	808
26	M/s. Medhani Cement Bricks Co., Bhandara	9823313515	151
27	M/s. RMD Ash Bricks Industries, Bhandara	9422890835	836
28	M/s. Vaidya Bricks Industries, Balaghat	808551717	4836
29	M/s. Wonder Bricks, Balaghat	9425822603	2463
31	M/s. Polo Bricks, Sakoli	8551897473	3851
32	M/s. Jaidurga Bricks Unit, Gondia	8805922320	695
33	M/s. Pawan Bisen, Balaghat	9977831713	41
34	M/s. Shri Kripa Bricks, Gondia	9422130833	165
35	M/s. Crystal Fly Ash Bricks Plant, Gondia	7798530666	685
36	M/s. Maa Gayatri Industries, Gondia	9545361122	111
38	M/s. Gomati Brick Industries, Balaghat	9826253455	439
40	M/s. Shree Surya Bricks, Gondia	9273927298	92
42	M/s. Agrawal Industries, Gondia	9765234509	1459
45	M/s. Vaibhav Laxmi Bricks Industries, Seoni	9425445903	140
46	M/s. Pulvic Fly Industries, Gondia	9422834597	336

47	M/s. Royal Ash Bricks, Bhandara	9371988478	361
48	M/s. Gayatri Fly Ash Bricks, Gondia	9371177798	2410
51	M/s. Maa Fly Ash Bricks, Seoni	9425426717	101
52	M/s. Sai Raj Precast Industry, Gondia	9960797199	19
53	M/s. Anshu Baba Bricks, Seoni	7224929953	33
54	M/s. Sai Bricks Industries, Seoni	8349513881	333
55	M/s. JK Bricks, Gandhi Nagar, Bhandara	9421709806	267
56	M/s. Wainganga Fly Ash Bricks, Balaghat	9425140024	2898
57	M/s. Shri Pancham Fly ash Bricks & Block Factory, Gondia	8983831121	30
58	M/s. Laxmi Bricks, Bhandara	97645701934	2145
59	M/s. Shree Cement Bricks & Tiles, Bhandara	9922302740	484
60	M/s. Om Sai Bricks Company, Bhandara	8275161440	628
61	M/s. Bilal Bricks Industries, Balaghat	9425822967	2640
62	M/s. Aadesh Fly Ash Bricks Dawwa, Gondia	9422133046	17
63	M/s. Ashish B Shende, Gondia	9595211153	35
64	M/s. KGM Industries, Gondia	7709942268	198
65	M/s. Star Bricks, Balaghat	9425139136	350
66	M/s. MD Bricks Industries, Bhandara	9923983396	1801
67	M/s. Ravi Cement Fly Ash Bricks Works	9823847901	418
70	M/s. Shri Shakti Green Bricks, Balaghat	9893858525	32
74	M/s. Gayatri Fly Ash Bricks Production Private Ltd Company, Gondia	9923740570	170
77	Mahavir Krushi Kendra, (Aamgon)	--	297
78	Bhagwati Bricks Savra	93252 14198	434
79	A D N Ash Bricks, Seoni	--	17
80	Jawed Industries Chhindwara	--	388
81	Gopal Bricks Gondia	--	235
82	Kashiwar Bricks Navegoan	--	45
83	Taj Cement Tumsar	--	46
Sub Total (A)			**54,288**
B. Red Brick Kilns (Bottom Ash Supplied)			
1	APML Brick Plant	--	30
2	M/s. Abhas Industries, Garada, Tiroda (BBP)	--	37
3	M/s. Swastik Flyash Bricks Industries, Tiroda (SBP)	--	161
4	M/S. Gayatri Brick Plant Satona	--	28
5	Ajit Bodele Wadegaon	--	273
6	Pankaj Kedwatkar Wadegaon	--	152
7	Chhabilal Patle Berdipar	--	166
8	Red Bricks Sarandi	--	13
9	Kailash Prajapati Malpuri	--	214
10	Ganesh Nagpure Vihirgaon	--	113
11	M/s. Pawankumar Shalikram Pardhi Satona	--	253
12	Sunil Bhelawe Bopesar	--	133

13	Ravi Prajapati Garada	--	91
14	Pyarelal Prajapati Chikhali	--	267
15	Anandrao Mahule Garada	--	99
16	Sundarlal Prajapati Birsi	--	91
17	Rajendra Prajapati Kawalewada	--	45
18	Deepak Sharma Amagaon	--	187
19	Shree Balaji Bricks Walad	--	135
20	Sundarlal Prajapati Sarandi	--	261
21	Nilesh Bawankhede Malhi	--	91
22	Puran Prajapati Amgao	--	91
23	Ram Chakrawati Amgao	--	96
24	Krishna Chakradhari Amgaon	--	87
25	Ishwar Thakre Mendha	--	122
26	Ashish Shiwankar Bangaon	--	103
27	Govind Chakradhari Amgao	--	68
28	M/s Veena insutries (VIS)	--	53
29	Umesh Meshram Bhiwapur	--	107
30	Ravi Prajapati Churdi	--	149
31	Vinod Prajapati Kashighat	--	50
32	Munna Patle Silegao	--	34
33	Sushil Chakrawati Amgao	--	66
34	Naresh Patle Khurshipar	--	271
35	Suraj Prajapati Amgao	--	167
36	Hemraj Prajapati Amgao	--	105
37	Jitendra Meshram Bhiwapur	--	160
38	Sheshrao Chakrawati Amgao	--	46
39	Pushparaj Chakrawati Amgao	--	112
40	Motilal Patle Bhiwapur	--	93
41	Pralhad Turkar Rapewada	--	169
42	Jitendra Khandekar Wadegaon	--	23
43	Parmatma Ek Gondia	--	1074
44	Sagar Bisen Gondia	--	81
45	Rupchand Sharnagat Dongarlla Tumsar	--	219
46	Anil Gautam Malhi	--	65
47	Umesh Baghele Dongarlla Tumsar	--	45
48	Gayatri Bricks Chutiya	--	143
49	Dilip Baghele Dongarlla Tumsar	--	210
50	Santosh Baghele Dongarlla Tumsar	--	35
51	Munna Patle Dongarlla Tumsar	--	83
52	Raju Patle Dongarlla Tumsar	--	189
53	Mahendra Rane Mitewani	--	28
54	Nitin Rahangdale Lonara	--	92
55	Swastik Casting Gondia	--	119
56	Shree Bricks Pawanar Khari	--	36

57	Crystal Bricks Gondia	--	354
58	Pradip Nandeshwar Thana Amgao	--	24
59	Sanjay Doye Siwani Amgao	--	45
60	Pradip Sonewane Goratha Amgao	--	40
61	Alok Agrawal Dahegao Amago	--	123
62	Kailash Borkar Sonekhari Amgao	--	67
63	Khumesh Hukre Amgao	--	92
64	Guddu Chaudhary Thana Amgao	--	121
65	Shishupal Bisen Nilaj Dasgao	--	288
66	Devraj Funde Kamatha Chaouk Amgao	--	88
67	Santosh Chute Maharitola Amgao	--	44
68	Sunil Shirsagar Manegaon	--	49
69	SHYAMA BIJEWAR RATNARA	--	154
70	Dhharmendra Bisen Dhhanegaon	--	107
71	JaiDurga Bricks Gondia	--	129
72	VIJAY PRAJAPATI BIRSI	--	94
73	S B Bricks Gondia	--	22
74	Raju Shende Padampur Amgaon	--	49
75	Ramdas Prajapati Amgaon	--	115
76	Manbisulal Chakradhari Amgaon	--	77
77	Sachin Shiwankar Amgaon	--	51
78	Shivprasad Prajapati Thana Amgaon	--	49
79	KGN Bricks Tumsar	--	286
80	M/s Veena insutries (VIS)	--	14
81	Manoj Gangaram harde Dongarla	--	50
82	Santosh Chakrawarti Amgaon	--	52
83	Motilal prajapati sarandi	--	79
84	Bhagirat Prajapati Aamgoan	--	118
85	Balaji Bricks Gondia	--	64
86	Devrao Uparikar Savra (Arjuni)	--	103
87	Anil Damahe Gondia	--	2423
88	Avaneesh Logisticks Ramtek	--	523
89	Paras Rahangdale Khambari	--	60
90	Rakesh Meshram Mohangaon	--	45
91	Sanjay Khobragade Mohgaon khadan	--	118
92	Vasant Patle Navezari	--	28
93	Ghanshyam Singanjude Sonekhari	--	49
94	Ajit Patle Dongarlla	--	20
95	Sahesram Rahangdale Pipari	--	144
96	Gunraj Thakre Gondia	--	112
97	Sandip Dahare Aamgaon	--	73
98	Rakesh Chakradhari Kamtha	--	98
99	Pramod Thakre Dongalla	--	43
100	Omprakash Hatimare Aamgoan Seoni	--	123

101	Shankar Chaudhary Chandori Tola	--	172
102	Sairaj Cement Bricks Gondia	--	22
103	Bhagwati Bricks Savra	--	68
104	Dhaniram Chakrawarti Amgao	--	43
105	Bhaiyyala Gobade Lonara	--	45
106	Liladhar Chaudhary Kashighat	--	49
107	Dilip Bhiwgade Bhandara	--	805
108	Ishwar/ Vijay Chakraborty Rapewada	--	325
109	Sunil Chakole Yerli Road	--	118
110	Yograj Hirapure Birsi	--	18
111	Ashish Dhahare Ratnara	--	27
112	Sandip Asati Amgaon	--	27
113	Ravindra Rahangdale Malhi	--	20
114	SGP - 2	--	15
115	JMC Lakhni	--	27
116	Dhanraj Sonewane Amgao	--	22
117	Chhaganlal Baghele Sitepar	--	337
118	Pawan Jiyalal Patle Dhadari	--	497
119	Chhotlal Chakrawarti Khamari	--	59
120	Digmber Lichade Dawwa Rapewada	--	288
121	Kripa Bricks Kawlewada Gondia	--	562
122	Ashok Lilhare Gangazhari Gondia	--	72
123	Bholeshwar Chakrawarti Khambari Gondia	--	38
124	Guddu Ckakrawarti Gondia	--	53
125	Gautam Briks Kawlewada Gondia	--	313
126	Bholeshwar Chakrawarti Harbitola Khambari	--	89
127	Ashok Lilhare Gangazhari	--	0
128	Mohan Rane Chutiya	--	288
129	Mustofa Siddiqi Dawwa, Rapewada	--	40
130	Ramesh Nimje Dabha, Bhandara	--	245
131	Dinesh Patle Dawwa (Rapewada)	--	112
132	Kudwa Cement Plant Gondia	--	26
133	Ajanilal Thakre Arjuni, Paraswada	--	49
134	Shivkumar Patil Dhadari	--	104
135	Sanjay Atare Pardibandh Dongalla	--	43
136	Ravi Patle Sarpanch Ekodi	--	184
137	Ramgopal Chakrawarti Dawwa	--	189
138	Lalit Maskare Dawaniwada	--	47
139	Kishor Bisen Tirora	--	16
140	Sunil Gaidhane Amgaon	--	23
141	Anup Meshram Ekodi	--	19
142	Ashok Rinayat Ekodi	--	168
143	G.P.Ekodi	--	108
144	Maniram Yele Berdipar Khursipar	--	81

145	Roshan Patle Mitewani	--	145
146	GULAB CHAKRAWATI GONDIA	--	156
147	Dudhram Bante Sonekhari	--	58
148	Arun Mugalmare Dugipar	--	26
149	Surendra Thakre Bora (Dabbetola)	--	62
150	Arvind Chakrawarti GONDIA	--	22
151	Shiva Parihar Lohara	--	63
152	Sudhir Sharma Gondekhari	--	42
153	Narendra Shiwankar Thana	--	62
154	Rakesh Bisen Ekodi	--	100
155	Vinod Bante Nagra (Katangi)	--	75
156	Engalish Kumar Dandegaon	--	27
157	Narendra Marghare Amgaon	--	43
158	Bhagwan Rahangdale Sitepar	--	22
159	Suryprakas Mahule Amgaon	--	21
160	Chhotu Bante Sonekhari	--	63
161	Ramprasad Bijewar Mahalgaon	--	127
162	Sanjay Walde Khadipar Goregaon	--	57
163	Khomesh Pardhi Dandegaon	--	182
164	Patel Tiles Sakoli Bhandara	--	117
165	Krishna Bawankar Dandegaon	--	114
166	Low Laying Area Site (GKSY)	--	47
167	Bablu Patle Dongarlla	--	115
168	M/s. Parmatma Ek Flyash Bricks, Gondia	--	429
169	M/s. Laxmi Bricks, Bhandara	--	19
170	M/s. MD Bricks Industries, Bhandara	--	19
171	Gayatri Bricks Hiwra	--	20
Sub Total (B)			**22,325**
Total [A + B]			**76,614**

Annexure-II

Name of Cement Manufacturing Plants to which Fly Ash supplied by Rail between 01.04.2019 and 31.03.2020

Sr. No.	Name of Cement Unit	Tel. No. if any	Quantity supplied (Tonnes)		Total (Tonnes)
			Dry Fly Ash	Pond Ash	
1	M/S ACC WADI GULBARGA		23752.48	-	23752.48
2	M/S ACC Jamul - Bhilai	-	62021.03	-	62021.03
3	M/S Ultratech cement ltd. Mouda		4633.48		4633.48
4	M/S AMBUJA CHANDRAPUR		1678.46		1678.46
5	RMC Others		3285.55		3285.55
		Total	**95,371**	**-**	**95,371**

Annexure-III

Name of Road /Construction projects to which Fly Ash/Pond Ash supplied between 01.04.2019 and 31.03.2020

S. No.	Name of the Road Project	Quantity of Pond Ash supplied (Tonnes)
1.	M/S M.B.PATIL (Road Contractor)	1345
2	M/s Barbrik Projects (Road Contractor / Ramtek)	4448
3	M/s Barbrik Projects (Vihirgaon)	16625
4	M/s Shah Infra Pvt. Ltd., Gondia	3146
5	M/s Sunny Construction Tawasi (Dighori-Lakhandur)	74
6	M/s. Ajwani Infra (Road Contractor / Bramhapuri)	88
7	M/s Atcon India Navegaon (Road Contractor / Adari)	2270
8	M/s Ashtech India Pvt. Ltd. (Sakoli)	30186
9	M/S N/N PUGLIA TUMSAR (ROB TUMSAR)	5755
	Total	**63,937**

Annexure-IV

Name of Fly Ash traders for Export of Fine Ash supplied between 01.04.2019 and 31.03.2020

S. No.	Name of Fly Ash Traders for Export	Tel. No. if any	Quantity supplied (Tonnes)		Total (Tonnes)
			Dry Fly Ash	Pond Ash	
1.	M/s Astech India PVT ltd. (ultra-fine fly ash)	7718884202	3225	0	3225
	Total		**3225**	**0**	**3225**

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ENV/SWT/2019-20/081 **Date: 16.09.2019**

ISSUED TO:
M/s ADANI POWER MAHARASHTRA LIMITED
Plot no. - A1, Tirora Growth Center, MIDC, Tirora,
Dist.: Gondia, Maharashtra – 441 911. India

Sample Particulars : Fly Ash Sample

Sample Registration Date	: **28.08.2019**	Analysis Starting Date	: 01.09.2019
Quantity received	: **2 kg**	Analysis Completion Date	: 14.09.2019
Sample Type:	: **Solid Waste**	Sampled by	: EAEPL Representative

TEST RESULTS

Sr. No.	Test Parameters	Measurement Unit	Results
1	Alumina (as Al_2O_3)	% by mass	24.88
2	Iron Oxide (as Fe_2O_3)	% by mass	4.87
3	Silica (as SiO_2)	% by mass	60.2
4	Reactive Silica	% by mass	0.038
5	Magnesium Oxide (as MgO)	% by mass	1.48
6	Sulphur Trioxide (as SO_3)	% by mass	0.12
7	Alkalies (as Na_2O)	% by mass	3.61
8	Chloride (as Cl)	% by mass	0.047
9	Loss on ignition (as LOI)	% by mass	0.064
10	Cadmium	mg/kg	0.47
11	Chromium	mg/kg	24.8
12	Arsenic	mg/kg	1.13
13	Mercury	mg/kg	0.117
14	Selenium	mg/kg	Nil
15	Cyanide	mg/kg	Nil
16	Cobalt	mg/kg	15.7
17	Copper	mg/kg	30.8
18	Lead	mg/kg	39.6
19	Molybdenum	mg/kg	Nil
20	Nickel	mg/kg	28.3
21	Tin	mg/kg	Nil

For Enviro Analysts & Engineers Pvt. Ltd.

Authorized Signatory

ENV/SWT/2019-20/081 **Date: 16.09.2019**

ISSUED TO:
M/s ADANI POWER MAHARASHTRA LIMITED
Plot no. - A1, Tirora Growth Center, MIDC, Tirora,
Dist.: Gondia, Maharashtra – 441 911. India

Sample Particulars : Fly Ash Sample

Sample Registration Date	: **28.08.2019**	Analysis Starting Date	: 01.09.2019
Quantity received	: **2 kg**	Analysis Completion Date	: 14.09.2019
Sample Type:	: **Solid Waste**	Sampled by	: EAEPL Representative

TEST RESULTS

Sr. No.	Test Parameters	Measurement Unit	Results
22	Barium	mg/kg	383
23	Calcium	mg/kg	12380
24	Iron	mg/kg	34041
25	Zinc	mg/kg	72.4
26	Aluminium	mg/kg	131615
27	Manganese	mg/kg	128.7
28	Antimony	mg/kg	Nil
29	Beryllium	mg/kg	Nil

Note: **1**. Results relate to tested sample only.
2. Test report should not be reproduced partially.

REMARKS: Based upon request of party, sample was tested for above mentioned parameters only.

For Enviro Analysts & Engineers Pvt. Ltd.

Authorized Signatory

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ENV/SWT/2019-20/081 /1 **Date: 16.09.2019**

ISSUED TO:
M/s ADANI POWER MAHARASHTRA LIMITED
Plot no. - A1, Tirora Growth Center, MIDC, Tirora,
Dist.: Gondia, Maharashtra – 441 911. India

Sample Particulars : Pond Ash Sample

Sample Registration Date	: **28.08.2019**	Analysis Starting Date	: 01.09.2019
Quantity received	: **2 kg**	Analysis Completion Date	: 14.09.2019
Sample Type:	: **Solid Waste**	Sampled by	: EAEPL Representative

TEST RESULTS

Sr. No.	Test Parameters	Measurement Unit	Results
1	Alumina (as Al_2O_3)	% by mass	22.67
2	Iron Oxide (as Fe_2O_3)	% by mass	4.39
3	Silica (as SiO_2)	% by mass	58.72
4	Reactive Silica	% by mass	0.028
5	Magnesium Oxide (as MgO)	% by mass	1.33
6	Sulphur Trioxide (as SO_3)	% by mass	0.11
7	Alkalies (as Na_2O)	% by mass	3.12
8	Chloride (as Cl)	% by mass	0.033
9	Loss on ignition (as LOI)	% by mass	0.06
10	Cadmium	mg/kg	0.43
11	Chromium	mg/kg	29.1
12	Arsenic	mg/kg	1.14
13	Mercury	mg/kg	0.107
14	Selenium	mg/kg	Nil
15	Cyanide	mg/kg	Nil
16	Cobalt	mg/kg	15.9
17	Copper	mg/kg	31.6
18	Lead	mg/kg	39.7
19	Molybdenum	mg/kg	Nil
20	Nickel	mg/kg	28.8
21	Tin	mg/kg	Nil

For Enviro Analysts & Engineers Pvt. Ltd.

Authorized Signatory

ENV/SWT/2019-20/081 /1 **Date: 16.09.2019**

ISSUED TO:
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Plot no. - A1, Tirora Growth Center, MIDC, Tirora,
Dist.: Gondia, Maharashtra – 441 911. India

Sample Particulars : Pond Ash Sample

Sample Registration Date	:	**28.08.2019**	Analysis Starting Date	:	01.09.2019
Quantity received	:	**2 kg**	Analysis Completion Date	:	14.09.2019
Sample Type:	:	**Solid Waste**	Sampled by	:	EAEPL Representative

TEST RESULTS

Sr. No.	Test Parameters	Measurement Unit	Results
22	Barium	mg/kg	332
23	Calcium	mg/kg	11070
24	Iron	mg/kg	30686
25	Zinc	mg/kg	69.9
26	Aluminium	mg/kg	119924
27	Manganese	mg/kg	126.4
28	Antimony	mg/kg	Nil
29	Beryllium	mg/kg	Nil

Note: 1. Results relate to tested sample only.
2. Test report should not be reproduced partially.

REMARKS: Based upon request of party sample was tested for above mentioned parameters only.

For Enviro Analysts & Engineers Pvt. Ltd.

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ENV/SWT/2019-20/081/2 **Date: 16.09.2019**

ISSUED TO:
M/s ADANI POWER MAHARASHTRA LIMITED
Plot no. - A1, Tirora Growth Center, MIDC, Tirora,
Dist.: Gondia, Maharashtra – 441 911. India

Sample Particulars : Bottom Ash Sample

Sample Registration Date	: **28.08.2019**	Analysis Starting Date	: 01.09.2019
Quantity received	: **2 kg**	Analysis Completion Date	: 14.09.2019
Sample Type:	: **Solid Waste**	Sampled by	: EAEPL Representative

TEST RESULTS

Sr. No.	Test Parameters	Measurement Unit	Results
1	Alumina (as Al_2O_3)	% by mass	19.62
2	Iron Oxide (as Fe_2O_3)	% by mass	5.96
3	Silica (as SiO_2)	% by mass	49.2
4	Reactive Silica	% by mass	0.010
5	Magnesium Oxide (as MgO)	% by mass	1.95
6	Sulphur Trioxide (as SO_3)	% by mass	0.093
7	Alkalies (as Na_2O)	% by mass	2.42
8	Chloride (as Cl)	% by mass	0.027
9	Loss on ignition (as LOI)	% by mass	0.008
10	Cadmium	mg/kg	0.19
11	Chromium	mg/kg	18.5
12	Arsenic	mg/kg	0.62
13	Mercury	mg/kg	0.091
14	Selenium	mg/kg	Nil
15	Cyanide	mg/kg	Nil
16	Cobalt	mg/kg	11.9
17	Copper	mg/kg	33.5
18	Lead	mg/kg	26.7
19	Molybdenum	mg/kg	Nil
20	Nickel	mg/kg	31.6
21	Tin	mg/kg	Nil

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ENV/SWT/2019-20/081/2 **Date: 16.09.2019**

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Plot no. - A1, Tirora Growth Center, MIDC, Tirora,
Dist.: Gondia, Maharashtra – 441 911. India

Sample Particulars : Bottom Ash Sample

Sample Registration Date	:	**28.08.2019**	Analysis Starting Date	:	01.09.2019
Quantity received	:	**2 kg**	Analysis Completion Date	:	14.09.2019
Sample Type:	:	**Solid Waste**	Sampled by	:	EAEPL Representative

TEST RESULTS

Sr. No.	Test Parameters	Measurement Unit	Results
22	Barium	mg/kg	338
23	Calcium	mg/kg	13590
24	Iron	mg/kg	41660
25	Zinc	mg/kg	71.3
26	Aluminium	mg/kg	103790
27	Manganese	mg/kg	129.4
28	Antimony	mg/kg	Nil
29	Beryllium	mg/kg	Nil

Note: 1. Results relate to tested sample only.
2. Test report should not be reproduced partially.

REMARKS: Based upon request of party sample was tested for above mentioned parameters only.

For Enviro Analysts & Engineers Pvt. Ltd.

Authorized Signatory

ADANI POWER MAHARSHTRA LIMITED, TIRORA

GREEN BELT & PLANTATION DETAILS

Total Area Covered: 258 HA

Tree Planted: 511596 Nos.

Shrubs Planted: 59884 Sq. Meter

Green Carpet: 3, 22,194 Sq. Meter

Plant & Shrubs Species used for Green Belt Development

Shrubs	Tree Species
Bogunvellia	Psidium guavajava (Amarud)
Rose	Punica granatum (Anar)
Furcaria	Manilkara zapota (Chikoo)
Cassia biflora	Phyllanthus emblica (Aonla)
Lagerstromia indica	Tamarindus indica (Imali)
Shrubs	Mangifera indica (Mango)
Flower Beds.	Lemon
Lawn	Carissa carandas
Exora Tall	Bottle Brush
Golden Ficus	Casuarina
Ficus panda	Samania saman
Group plants	Ficus religeosa
Nerium Bell (Yellow Ghanti Kanher)	Casia siamia
Hibiscus	Bauhinia purpuria
Musanda	Ficus bengalensis
Nolino	Delonix regia
Furcaria	Azadiracta Indica
Junifer	Spathodia
Ficus Golden	Peltaphorum
Ficus blackiana	Delonix regia
Headge	Acacia auriculiformis
	Jackranda
	Peltaphorum
	Neolamarckia cadamba
	Palms (Coconut, Fistal palm, Royal Palm, etc)
	Ficus Golden
	Rain Tree
	Mimusops elengii
	Cassia fistula
	Tectona grandis (Teak)
	Wad (Bargad)
	Peepal
	Neem
	Bamboo
	Satparni

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Annexure VII

ADANI FOUNDATION
APML, TIRODA
CSR
FY-2019-2020
(Oct-19 to Mar-20)

Education

1. Aamchi Shala Aadarsh Shala

"Aamchi Shala Aadrash Shala" competition is one of its kind complete community engagement initiative by Adani Foundation in collaboration with the District Education department to motivate and rejuvenate the Government primary & secondary schools. Aamchi Shala Adarsh Shala is designed on the basis of **41 parameters** under **11 heads** which cover all aspects required to improve the standard of a school. Adani Foundation has won 'UBS Forum- under Stakeholders Engagement category'. In this period the Competition covered **267** schools in all **89 clusters** of the Gondia district covering **30907** students.

2. E-Learning Package Distribution

The E-Learning program (Gyan Jyoti) initiated as part of efforts in the Education head to modernize the education sector, exposure of rural students to new technologies aimed completely at improving the quality of learning & education in an innovative & interactive way. This programme is aligned with Digital India also helps in fulfilling child friendly classrooms. These classrooms are making the children from rural area more curious regarding the technology and garnering their undivided attention in classroom helping them, understand in much more easier way. The teachers have given positive feedback due to improved results and better attendance. During the six month period total 126 schools benefitted.

3. Guidance for Navodaya Coaching

Jawahar Navodaya Vidyala (JNV's) is a system of schools operated under MHRD Govt. of India for talented students predominantly from rural area in India with classes from std. VI to XII. Navodaya Coaching Centre (NCC) was started keeping in mind the poor talented students from the vicinity who could not afford special coaching for Navodaya Entrance Exam unlike other students. Adani Foundation has started special coaching classes for these students belonging from Government schools .With existing 3 center, this year AF started new NCC center at Berdipar,

In the six month period total of 80 students from all 4 NCC appeared for final Navodaya Exam on 11th Jan 2020 (Result awaited).

4. Udaan Programme

The Udaan project is to motivate the students and encourage them to achieve greatness. The concept is to make the students dream big & develop an entrepreneurial spirit. At Tiroda site the Udaan project is a one day exposure visit to Adani Power Maharashtra Limited Tiroda (APML). The exposure visit is followed by motivational goal setting sessions for students to actively talk about the career paths they can take and not limit themselves. Every year Udaan participation is increasing and providing a platform to ignite the minds of rural students.

In these six month conducted 63 Schools Visits under which 4389 students were participated.

5. Training of Youth for Police-Army Services

To transform young rural candidates into academically proficient, physically fit, mentally strong individuals. To make them confident and provide them a platform for employment in Police & Army services. Total 3 month training is conducted by Adani foundation in association with Police Department, Security Dept. APML under Employee Volunteering and Gram Panchayat of Khairbodi. From oct-19 to Mar-20, completed 2 batches of 200 youths. However 13 training youths have been selected in Army, Railways and Maharashtra Security Force.

The training course schedule is as follow:

- Regular 2 hours physical training on playground developed by Adani Foundation. (Given by 2 employees of Police department and 1 APML Security department)
- Weekly 2 days classroom theory classes. (Theory classes of Math and Reasoning subjects taught by Adani Power Mah Ltd employees)
- Weekly exam papers.

Pre-Police and Army Training Selected Youths		
Army Selection		
	Name	**Villages**
1	Vedant Singanjude	Tiroda
2	Aashish Patle	Bhuratola
3	Anuj Maske	Murdala
4	Manish Rinaet	Chirekhani
5	Kialash Ankule	Paraswada
6	ViKY Udapure	Paraswada
7	Lalit Ankule	Indora
8	Rahul Bisen	Barbaspura
Maharashtra Security Force (MSF) Mumbai Selected Youths		
9	Sachin Nagpure	Kawalewada
10	Shailesh Bhalani	Kawalewada
11	Santosh Pardhi	Kawalewada
Railway		
12	Sachin Bopache (Bilaspur Raiway Group D)	
13	Pradume Nagpure (Metro Mumbai)	

6. A & TDD Archery Coaching Academy

This FY-2019-20 under education initiatives AF started Archery Coaching Academy, named as Adani and Tribal Development Department (A&TDD) Archery Coaching Academy at Majjitpur. Total 36 Tribal Students were selected from Tribal Aashram Schools under Integrated Tribal Development project, Deori. Archery coaching classes run daily for 2 hours each in the morning and evening. This initiative by AF will nurture the natural athletic talent of local tribal students and rejuvenate the forgotten sport of archery in the area. Total of **36** Tribal students are being coached under the A &TDD Archery Coaching Academy in 2019-2020.

Archery Coaching Centre, Majjitpur tribal student's achievements During Oct-19 to Mar- 20:

- Archery District Sport Competition organized by Gondia District Sport Office. Total 3 tribal students from A& TDD selected for State level- Archery Competition.
- 5 students were participated in 22nd National Janjati Sports Competition-2019, organized by Akhil Bhartiya Vanvasi Kalyan Ashram at Kanpur, Uttar Pradesh. In this competition, under 17 year group Ms. Yogita Narendra Warvade has won the Silver Medal- 30m & Bronze Medal- 20m.
- Ms. Yogita Warkhade has also won the Bronze Medal under 20m at State Level Sub-Junior

7.1 Education Enhancement Programme under Employee Volunteering Programme

AF have taken an initiative to transform schools and quality education with the support of employee volunteers especially Executive Trainees. Employee volunteer's work in 4 groups with each group assigned to particular schools and are responsible for its transformation. Tiroda APML Company has brilliant employees who have different skills and ideas; also they have the sense of social transformation. APML Civil department, Safety and fire department, Electrical department and Mechanical and maintenance department employees have been enthusiastically working for social changes. In which they are giving 2 hrs. per week for teaching Math's and English in Upper Primary and High Schools in surrounding villages of APML. In rural area the problem of poor quality education is severe; the 7th standard students could not even read and write correctly. Also students were losing interest in going to schools. Our employee volunteer's teachings have changed the perceptions of students. Total 559 were Students Benefitted.

7.2 Support for Anganwadis Renovation under Employee Volunteering Programme

Many renovation programs are carried out along with the help of Teachers, Students, and GP members. The intervention has helped in improvement of students result up to 10% in just a span of 1 year. The volunteers take active part in this programme as it makes them feel good by helping underprivileged section, society and imparting their knowledge further. In the period of Oct-19 to Mar-20, total 20 Anganwadis have been renovated, installed Provided 5 sets of tables & chairs (One set contains 1 table and 6 chairs) for 20 Anganwadis of villages.

8. Scholarship Distribution for Meritorious Students

Scholarship distributions for meritorious students have started to felicitate and appreciate the students who are doing well in their academics and also increased the participation of other students to excel in their studies and other exams. In this prog ram we have awarded scholarship of Rs. 6000 per student/year to standard 10 th students for 2 years who score outstanding marks in SSC exam. In this period Oct-19 to Mar-20 we have awarded scholarship to total 54 (Class 10th students-39 and Class 11th-15) students from 5 villages. This scholarship motivated the merit students and inspires them to study hard , looking at the achievement of merit students other students also encourage to do best in their studies.

Sr. No.	Villages	No. of Students Awarded with Scholarships
1	Gumadhawada	8
2	Khairbodi	8
3	Garada	8
4	Mendipur	7
5	Kachewani	8

COMMUNITY HEALTH

1. Mobile Health Care Unit (MHCU)

In rural area people travel long distance to get assistance of medical facility from Primary Health Centre (PHC) or from Taluka hospital. It is time consuming and troublesome at the same time due to unavailability of transportation facilities from these villages. The old age people, women and children are the most vulnerable group and susceptible to contract diseases. This group is generally ignored due to unavailability of fund or there is no one to take care of them as maximum people are daily wage workers. As the turn a blind eye when the disease is in primary stage it grows into a bigger problem and creating bigger health issues. To cater to this situation, the Foundation operates Mobile Health Care Units (MHCU), providing on the-spot medical assistance to the patients where medical facility is not easily available. We are running two mobile units in collaboration with Help Age India in total 50 villages (25 each). Each MHCU consists of MBBS Doctor, Pharmacist and Special Project Officer. The MHCU has a complete set of listed medicines. The MHCUs have become a boon for women, young children and elderly population as they can avail healthcare services at their doorsteps. In the period Oct-19 to Mar-20, total 35326 patients (Male-15248, Female- 20078) benefitted with the MHCU in Tiroda block. MHCU have become doorstep health service for 50 villages, villagers are getting medical aid facilities in free of cost.

2. General Medical Health Camp

General Medical Health Camps organized in the villages, to provide quality healthcare services for the villagers. Adani Foundation regularly conducts various general and specialized medical camps in nearby villages. In the camp we hired personals from the hospital – doctors and pharmacist along with our team reached in hospitable terrain and provided service to the ones who were deprived until now by living up to our motto of "Free and Quality Health Service. During the period 23 camps took place in 23 villages and 3438 patients (1401-Male and 2037-Female) took an advantage of these specialized services at the doorstep.

3. SuPoshan

Malnourishment and Anemia are the major complications of Children and Women in rural villages. Gondia district were showing the 57% Anemia among children (below 0-5 years) Anaemic Women in age group 15-49 years 58.7 % of pregnant women & 54.9% of Women (general) (As per NFHAS-4 2015-16 data). At Tiroda the SuPoshan programme started since 2016 with an objective to eradicate malnourishment among children below five years of age and to increase health status in reproductive age women and adolescent girls. Suposhan is striving to build healthy growing nation, through integrated community based model, with the involvement of 37 community health volunteers- 'Sangini's'. At Tiroda Sangini's are actively working in total 48 villages, with total 24699 families covering 104059 total population and 112 Anganwadis. Since 2016, in villages Sanginis are becoming guide, educator, and guardian of the community as well as community supporting activities, they are conducting Households Visits, Family based counseling, and Anganwadi visits to check the health status of children, spread awareness about malnourishment issues and facilitating behavioral changes in villages.

In this period Oct-19 to Mar-20 total 74 children shifted from SAM to MAM and 319 MAM to healthy. The family counselling effectively carried out by the Sanginis and counseled 598 families and conducted 1384 focus Group Discussions. Special awareness days were also celebrated on health, nutrition, sanitation & hygiene with more focus on health of pregnant, lactating women, adolescence girls and children.

- As a result at Tiroda villages SAM children conditions have been improving.
- Observed behavioral changes in Pregnant and Postpartum women, they are more aware about the Malnourishment, nutritious food and supplements.
- Mothers are able to take good care of new born child health with the support of SuPoshan Sanginis.
- Adolescence girls becoming very comfortable with the Sanginis to share their health related issues and also trying to maintain their HB by taking nutritious food and supplements.

SuPoshan Achievement		
Sr. No.	**Indicators**	**Cumulative Data**
1	SAM to MAM	74
2	MAM to Healthy	319
3	MAM to Healthy (Wasting Category)	29
4	Sever to Moderate (Stunting Category)	7
5	Moderate to Healthy (Stunting Category)	16
6	Moderate to Healthy (Underweight Category)	70
7	Focus Group Discussions (FGD)	1384
8	Family counseling	598
9	Total Village level Events	76
10	RUTF Provided	45
11	Universal HB Screening	11000
12	SAM Children referred to CTC	0

SuPoshan Awareness Events (Oct- 19 to Mar-20)

1. **International Day of Rural Women- 2019**-
International Day of Rural Women based on the theme 'Rural women and girls building climate resilience' was celebrated at Shantigram Township-Berdipar on 15th Oct 2019. The program organized under joint aegis of Adani Foundation and Navya Ladies Club, Berdipar. Mrs Ratna Biswas chaired the programme while Mrs. Tarkeshwari Raut, Mrs. Rangnekar, Mrs. Mishra, Mrs. Pimpalikar along with AF Nitin Shiralkar were prominently present. The programme was organized as a mark of respect to women, it focused on the significance of rural women in environment conservation to reduce climate change and Women contribution in nation building. Women SHG presented their handmade products in an exhibition which includes Lac bangles, Agarbatti, Diwali lamps, and other decorates. On this occasion about 200 women took part from Navya Ladies Club, Village Sarpanch, Gram panchayat members, and members of women SHG.

2. **Global Hand washing Day, 2019-** Under SuPoshan program Global Hand washing Day on theme 'Clean Hands for All'' was celebrated on 15th Oct, 2019 in the schools and villages. The nine steps of right way of hand washing imparted to children and women by the Sanginis. The program was celebrated in 7 villages and aware upto 800 children and women.

3. **World Food day, 2019-** At Berdipar village AF celebrated 'World Food Day' on 16th Oct, 2019, based on the theme 'Our Actions Are Our Future'. Different village women taken an action to achieve zero hunger, ensured nutritious diet by installing reasonable- nutritious food stalls in an event. About 200 villagers took part in celebrating World Food Day.

4. **World Iodine Deficiency Day-** Under SuPoshan program, on 21st Oct, 2019 the World Iodine Deficiency Day was celebrated in 7 schools. Sanginis spread awareness about the adequate use of iodine, highlight the factors that lead to iodine deficiency and its consequences.

4. Ideal House Competition

Swachhagraha', an 'Ideal House Competition' is continuous flagship program started by Adani Foundation in December 2016, in lines with the 'Swachh Bharat Abhiyan' started by our honorable Prime Minister-Shri Narendra Modi. Its aim to motivate and promote women in village for adopt healthy and hygienic lifestyle. This FY- 19-20 the competition renamed as 'Ideal House Competition' The aim was to bring about a behavioral change and hence the proposal of a competition, to encourage women to participate and keep them motivated throughout. The competition was conducted in households based on 12 parameters which mainly focused on -availability of clean and safe drinking water, maintenance of kitchen in clean and safe way, water and sanitation facilities in house, clean and healthy rooms, and availability of Kitchen Garden, segregation of waste, personal cleanliness, availability of toilet facilities and other.

In this period Ideal house competition has been effectively conducted in total 26 villages in total 2000 households participated. For each village we rewarded homemakers with a gift and certificates, also given certificate to each homemaker for their recognition.

5. Poor Patient Assistant Program

In Tiroda most of the population coming from low economic background, when low-income people suspected with the perilous healthcare problem it may have the chances to weaken to many vulnerable people. Poor patients majorly faced the problem affordability of high healthcare cost, poor experience of proper healthcare services. Thus, in Tiroda, AF trying to overcome the poor patience healthcare challenges faced during their critical case of illness by running Poor Patient Assistant Program. Adani Foundation provides primary health care and financial assistance for ailments such as kidney related problems, paralysis, cancer and tumor surgeries, neurological and heart problems, blood pressure, diabetes, etc.

In the period of Six month Oct-19 to Mar-20 Foundation supported 11 poor patients in Tirora. The cases were from Cancer case, Heart case, Accidental problem, Urinal Problem, Knee Problem and other Cases.

6. Improved Chulha

Energy is a vital input for economic and social development. In Tiroda, in most of the rural household the wood and other biomass fuels found the primary source of energy for the majority of people, particularly the poor. In the last few decades, it has experienced of a rapid depletion of natural forest resources that has resulted in hardship for the people living in rural areas, especially women and children who spend a considerable part of their time and energy in search of fuel wood and biofuels and often have to cover long distances. Besides, deforestation has also led to many negative ecological consequences. In Tiroda, the Improved Chulha initiated to conserve and optimize the use of fuel wood, especially in the APML peripheral villages to help alleviate deforestation, to reduce the drudgery associated with cooking, especially on women, and the health hazards caused by smoke and heat exposure in the kitchen, to bring about improvements in household sanitation and general living conditions. The special features of improved Chulha is, it provides more oxygen for burning the fuel by placing cast iron mesh (11"x11") at the base of Chulha and below the iron mesh a trench of 33"x9"x9" is provided for air flow. Fire wood is kept on the cast iron mesh, which will be placed at 11" from both sides of the trench.

The AF provide the guidance and demonstration for construction of Improved Chulha in villages. In the period Oct-19 to Mar-20, we installed total 1000 improved Chulhas in 17 villages.

7. Swachhagraha in Villages

Swachhagraha is an exemplary initiatives by Adani Foundation that forces on promoting cleanliness and sanitation among villagers through cleanliness Drive. Like 'Satyagrah' this initiatives aims to bring long lasting changes in villages creating the culture of cleanliness in upcoming generation. At Tiroda the Swachhagraha in villages conducted on Sundays on regular basis with involvement of AMPL- HODs and team members, HODs have adopted the 16 villages (each HOD-one village). The promotion of cleanliness and village cleaning activities have been carried out with the active participation of APML employees, small children's, students, Teachers, women, Sarpanch and Gram panchayat members, villagers including youth group. Swachhagraha made villagers aware about maintaining their village cleanliness, Solid and Liquid waste disposal, and segregation of waste in the villages. Students also shows active involvement during the campaign by conducting street plays, Cleanliness rally and other awareness activities, this has made the students aware about cleanliness and overall civic sense. Village Grampanchayat have become more responsive to garbage collection and street cleaning and maintaining village environment clean and hygienic.

In this period of Six months total 2 Swachhagraha Event Conducted in 2 villages Berdipar and Kashighat with an active participation of total 595 villagers (460) and APML employee (135) volunteers. APML vicinity villages are becoming clean and people's behavior shifting towards practicing cleanliness as well as maintaining waste.

Sustainable Livelihood Development

1. System of Rice Intensification (SRI)

The System of Rice Intensification (SRI) is a methodology aimed at increasing the yield of rice produced in farming. SRI method required less input and more output. The geographical area of Tiroda block is 48305.95 Ha and the Agriculture is the major occupation about 97% (30389 Ha) average total area was under paddy cultivation (Statistic 2012-13 Tiroda agri. Dep.) The traditional paddy cultivation method were majorly in practice by the farmers and lack of awareness about new methods of farming. In traditional farming, farmers were spending Rs.8000-10000 per acre of land and taking about 6.95 quintal/acre of crops, which turn to low production and income. Thus, this region farmers get more crop production in low expenditure AF started organic SRI in Tiroda block since 2012-13. The organic SRI method based on the scientific principles of Paddy Cultivation, which mostly revolves around Water Management, Young Aged seeding, Careful Single seedling transplantation, Rotary Weeding for soil aeration, Uses of Organic Compost and pesticides, and wider spacing management. Organic SRI shows the large scale impact in Tiroda, it cultivated by 10000 farmers on 20191 areas of land and taking average yield 11.24 Qtl/Acres. Increase in average yield by 2.42 Qtl./acre i.e. avg. benefit of Rs.4800/ acre.

2. Farmers Producer Company-(FPC)
Milk Collection & Chilling Centre (MCC&C)

Adani Foundation as an aiming to start an Alternative Sustainable Livelihood Source through Dairy Development/ business. (Milk procuring, Packaging unit and marketing outlet.) With an objective to develop good quality of Indigenous descript breed for better milk production. To create network between the milk producer and efficient management of Farmers Producer Company (FPC). Establishing milk collection & chilling center. Promotion of A2 milk to establish assured market & price for milk & value addition by adopting multiple marketing channels. For promotion of strengthening of dairy business in our area Adani foundation is focusing on to provide required support to farmers by various ways like establishing livestock development center, formation of Farmers Producer Company (FPC), now we have planned to establish 3 milk collection and chilling centers with the support of FPC at Jamuniya, Chikhali &Chirekhani villages and intend to provide support for JLG's for their capacity building & part financial support for purchasing heifer of descript indigenous breed like Kankrej, Sahiwal and Tharparkar.

FPC Progress- Oct-19 to Mar-20

- Formed 100 women's, 20 Joint Liability Groups (JLG) in 10 villages.
- Collected Shares of RS. 225000/- from 450 farmers stakeholders.
- To promote and start dairy farming in nearby villages, 30 women fruitfully brought 30 Tharparkar indigenous breeds' cows & Heifer from Vrundawan Tharparkar Cow Trust, Pune.
- Female Tharparkar Indigenous Descript Breed calves born at Barbaspura village beneficiaries, home.

3. Animal Husbandry and Related Initiative (Dhanalakshami Programme)

Animal Husbandry and related initiatives have started to develop dairy farming as an additional source of livelihood for the farmers by improving productivity of local cows and buffaloes. In nearby villages of APML many farmers are successfully doing dairy business on small scale. To increase the production of A2 milk AF supporting farmers to nurture good quality of indigenous milking cow breeds like Gir, Sahiwal, Tharparkar and Murrha in buffalo. We also promoting good quality fodder cultivation for the livestock. AF set up two Livestock Development Centers at Khairbodi and Kawalewada with the support of BAIF for providing proper health care facility for livestock and to improve milk production. LDC provided the services- like Artificial Insemination services, fodder demo, health camps, trainings etc. at farmer's doorstep as well as developing good quality of indigenous milching breeds.

These initiatives are now successfully showing its outcomes, In this period both Livestock Development Centers completed **895** Artificial Insemination (AI) taking the cumulative progress **1673 AI**, Pregnancy Diagnose (PD)- **595** taking the cumulative progress total **1290 PD** and and resulted total **319** new improved breed born and taking cumulative calves to **548** in this FY 2019-20.

Cattle Health Checkup Camps-

Adani Foundation has organized a Special Health Checkup Camps for Cattle and Livestock under the aegis of Govt. Animal Husbandry Department, Tiroda with guidance of Animal Husbandry Department and AF. Total 10 cattle Health Checkup camps were successfully organized in 10 villages. The camp saw a good response from the farmers with over total 588 villagers participated in the camp and brought their Cattle and Livestock to be checked by Veterinary Doctors. Total 2684 cattle and Livestock screened at this camps. The screening and test included Deworming, Ticks, and Parasites, Demolition, Infertility Checkups, Weakness treatments and General treatment to the animals.

4. Animal Husbandry - Cow based livelihood training programme:

In Cow Based Livelihood Training Programme Adani foundation has promoted Local Cow based farming in the villages which is mainly focus on utilization of Cow dung and Cow urine. Objective of the training is to promote organic farming and reduced the cost of cultivation and increased the production. The women and farmers are involved in small scale enterprise such as production of vermicomposting, tooth powder, Dhoop Batti and organic pest control. Cow based livelihood training programme s were organized at Gov Vigyan Anushandhan Kendra Devlapar. In this period (Oct-19 to Mar-20) provided total 12 Cows and 63 Bullock to 31 beneficiaries from 11 villages. The livestock donated by Gau-Anusandhan Kendra, Deolapar. 220 farmers participate in training.

5 .Kitchen Garden Seeds Distribution Programme

Malnourishment and anemia have been found to be severe problem in rural areas impacting the children and women most. It has found that, in Tiroda block the everyday diet were majorly includes rice, gruel, vegetable based curry or chutney, and pulses were consumed once in a week at most that least provide the completed nutrition. Thus Adani Foundation found Kitchen Garden promotion relatively easy way of getting equilibrate nutrients to families. Kitchen Garden in backyard of rural households increased the availability and accessibility of nutrition riche food products and it add to family nutrition.

In this period (Oct-19 to Mar-20) we have provided 4000 seeds in total 15 villages about 4000 beneficiaries were covered under this initiative. The seeds covered Spinach, Lady Finger, Bottle Gourd, Carrot, Carrot, Tomato, Corn, Chili, Bitter Gourd, Lal Bhaji, etc. As a result of this program, now the Green leafy vegetables Kitchen garden became an ornament of everyone's home backyards that has increase the accessibility of nutritional vegetables and fruits. At Tiroda site village women and adolescence girls are successfully growing organic vegetables and fruits, as well as using organic manure. Families are getting fresh vegetables with no cost which is helpful for increasing nutritive values of food which has prevent Anemia in women and malnourishment in children.

6. Capacity building & Support for income generation activity

6.1 Mushroom Cultivation programme

At Tiroda site, Adani Foundation working alongside Human Development Mission of Government started the Oyster Mushroom cultivation programme with the aim of providing income to household women. The indoor oyster mushroom farming is a kind of business which can earn big profits in just a few weeks with basic training and low capital investment which required proper training and maintenance. The Oyster Mushroom can cultivated for the period of 8 months (July- Feb). The Successful Mushroom Cultivation improved nutrition and sprouts a better livelihood for rural women. Total 100 women cultivated mushroom in 8 villages. In this period 3134kg of Oyster Seeds supplied to nearby villages and total 7835 kg Oyster Mushroom produced on total and sold in at Rs. 150/kg in local market. By selling each woman has earned an average income of Rs. 11427.

6.2 Lac Bangles Making

Lac Bangle making Programme are ongoing through Buy back. In FY 2019-20. Total 45 women involved in Lac Bangles making, started making of new designs Lac bangle like- Kada and Multicolor Bangles. Completed the registration process of "Aadhirakshi" brand of Women Farmers Producer Company on amazon.in. GST number & trademark received. Started online Lac Bangles selling on amazon.in, under "Aadhirakshi" brand of women Farmer Producer Company. Total 30 sets of total 360 pairs of Lac bangles supplied to the warehouse of amazon. Women have made 300 new designs lac bangles and Kadas, Executed Lac Bangle and Agarbatti exhibition cum sale at Shantiram AMDC in Ahmedabad during AF Empowerment Meet-2019-20 and got overwhelming response and positive motivation from Honorable Mrs. Priti G. Adani. Total 120 lac Bangle sets have been sold in an exhibition. Total 7 sets sold out at amazon.in under the "Aadhirakshi" brand. By selling this handmade Lac Bangles and earning about RS. 3000-4000 per month.

6.3 Agarbatti Production

Incense sticks are used by many communities in the world daily for performing worships and for special occasion. In our country used incense sticks in daily for their puja ceremonies. So it has good demand for this business. Under Sustainable Livelihood Development initiative AF is promoting entrepreneurship development programmes for women SHG's for income generation. Agarbatti Production business started in villages through buy back policy, AGROHA Mills Gondia is supporting us for buying back the produced raw Agarbatti. AF distributed Agarbatti Making machines worth cost of Rs. 125000/- to the interested group of women and SHGs. To develop the sense of ownership AF took 10% contribution from the beneficiaries.

20 Agarbatti Machines have been distributed in 6 villages (Garada, Ramatola, Tikaramtola, Mendipur, Gumadhawada, & Tiroda). AF also gave training on how to use it. As a result total 60 women are making Agarbatti very skillfully. In this period Oct-19 to Mar-20, the women Farmers Producers Company also has registered the **'Aadhirakshi'** brand, under which we have provided the brand packaging for the Agarbatti. This period total 13310kg of Agarbatti were produced. Women has Started making of perfumed Agarbatti with their own. Total **2000** perfumed Agarbatti packets are sold in nearby market. Daily average production**- 40-50kg/day**. Earning for each SHG member - **4000/month**.

7. Lac Cultivation

Gondia district blessed with flora and fauna. Flame trees are abundant in nearby area of Tiroda and flame trees are good host for propagation of lac insects. Lac Cultivation id is traditionally practiced in Gondia District and district is having lac processing units where exports quality lac is produced. However, the farmers were unaware about the technologies related with lac cultivation. Thus to promote lac cultivation for additional source of livelihood of farmers with the use of existing natural resource, AF running Lac Cultivation Program in Tiroda Block with the support of Gov. of Maharashtra Manav Vikas Mission. AF promoting scientific method of lac cultivation to the group of farmers who has access to Lac Host- Palas trees. AF providing training, material support and technical support to the farmers.

Total 200 farmers are involved in Lac Cultivation, Initially Lac Cultivated on 3000 trees and within six month it multiplied with double. Now 200 farmers are growing lac on total 6000 Palas trees within one year. Each farmers is getting 4kg-5kg of lac from one tree and selling lac it in a Gondia market with rate of Rs. 100-200/kg, through which they have earned upto Rs. 12000- Rs. 15000.

SAKSHAM-
Adani Skill Development Centre (ASDC)

ASDC started to improve the employment skills and transform the life of the village youths and especially tribal youths from remote areas. Conducts four training courses Welding Technician, Assistant Electrician for male and General Duty Assistant (for female) and Digital Literacy (Male & Female)**.**

Total Training for the Oct to March 2019-20

Scheme	Job Role	Total Inquiries	Total Enrolled	Total Drop out	Total Trained	Total Certified	Total Placed	Total Self Employed	Choose for Higher Studies	Not willing for Job
CSR	Welding Technician	174	174	4	64	64	60	0	4	0
CSR	Assistant Electrician	187	187	5	62	62	58	0	4	0
CSR	General Duty Assistant	132	132	0	35	35	31	0	4	0
CSR	Digital literacy	1240	1240	1	1139	1139	0	0	0	0

Highlights Q3-

- Training of 4 Volunteer Trainers (TOT) for Digital Literacy outreach programme conducted by SAKSHAM - Adani Skill Development Centre at ASDC, Tiroda. It was one day training on 16-10-2019 and all participants successfully understood the motto of the training "What is training and how it should be implemented?".
- Mr. Sunil Mahabal, Ex. DGM, Mahindra & Mahindra Pvt. Ltd., Nagpur visited our ASDC, Tiroda Centre on 04th Oct, 2019. They were highly impressed with the infrastructure & training which ASDC provides.
- SAKSHAM - Adani Skill Development Centre, Tiroda has first time conducted a General Duty Assistant (GDA), Assistant Electrician, Welding Technician online assessment on 5th to 8th Nov. 2019 at ASDC Tiroda. Total 95 students were present.
- Till Nov. month, in previous batch, total 92 students out of 100, were trained and 8 were dropout. Out of these 92 students, total of 83 students were placed.
- In Nov. month we conducted APML ITI Apprenticeship students' Knowledge Test Exam Approx. 150 Student Attended the Exam in various tread like Copa, Welding, Plumber, Wireman and Fitter.
- SAKSHAM - Adani Skill Development Centre, Tiroda placed our students successfully on various job location at Pune, Hyderabad and Mumbai
- In Nov. month 50 students Govt. ITI Gondia visited our ASDC, Tiroda and learnt basic knowledge regarding welding and electrician Trade.
- SAKSHAM - Adani Skill Development Centre, Tiroda has nominate there 21 student's in World Skill Competition.
- We took a classes by audio and video who nominate students can't attend World skill class.
- APML Tiroda are participating in IMC Ramkrushna Bajaj National Quality Award and that purpose Mr. H. S. Bhatt with his team visited our Centre on date- 03-12-2019.

- Mr. Bhatt and his 6 team member was done there APML and our Centre inspection. And after that they interact with our student's and motivate by sharing his valuable experiences. They were highly impressed with the infrastructure & training quality which ASDC provides.
- Digital Literacy outreach programme student mobilization and School & Collage principal meeting is ongoing.
- ASDC Tiroda, has completed 21th batches of Digital Literacy.

Highlights Q4

- SAKSHAM- Adani Skill Development Centre Tiroda had organized "Interactive Session on Republic day" program on the occasion of 71th Republic day.
- Display of our training quality, facilities and placement activities through Videos and PPT. Group wise presentation on a topic related to training present by all trainees.
- Prize distribution program for topic related presentation was held immediately after presentation.
- Mr. P. P. Kate, Boiler Expert consultant, Nagpur visited our ASDC, Tiroda Centre on 23th Jan, 2020.
- Mr. C. P. Deshmukh, Ex. AGM, Transformer Expert BHEL, Bhopal visited our ASDC, Tiroda Centre on 29th Jan, 2020. They were highly impressed with the infrastructure & training quality which ASDC provides.
- SAKSHAM-Adani Skill Development Centre Tiroda had organized Job Fair and Employer Meet program in ASDC Centre Tiroda, Outreach DL Centre Govt. ITI Kamptee & Govt. ITI Goregaon on dated 05 and 06 Feb. 2020.
- Total 260 students attended three Job Fair. Apart from ASDC students total 70 students and from nearby villages ITI & 12th pass students were present. Total 140 candidates selected. 65 ASDC 4th batch candidates selected.
- Mr. Ramesh Raskar, Operation Head and Mr. Ranganath Khapare, Assistant Manager of Centurion University of Technology and Management, Pune and Mr. Kunal Mandlekar, Senior Executive (West), Portea Medical Home Care Mumbai present for Job Fair and Employer meet.
- MSRLM team visited in our centre on 1st Feb, 2020. For DD inspection to starts DDU-GKY project Mr. Shashank Sondi and Saxby Dsouza.
- In previous Assistant Electrician and Welding Technician batch, total 69 students out of 70, were trained and 1 were dropout. Out of these 69 students, total of 66 students were placed.

Mr. Sunil Mahabal, Ex. DGM, Mahindra, Nagpur visited our ASDC, Tiroda Centre on 04th Oct, 2019

IMC Ramkrushna Bajaj National Quality Award team visited our Centre on 3rd Dec. 2019

"Interactive Session on Republic day" program on the occasion of 71th Republic day.

Placed trainees were working in Supreme Treon Pvt Ltd. Pune,

Community Infrastructure Development (CID)

1. Drinking Water Facilities

Access to drinking water facilities are the major paucity in rural areas. In rural areas the primary sources of drinking water are groundwater and surface water. In villages drinking water supplied through various Rural Drinking water and Sanitation schemes. However in some villages schemes are partially implemented or neglected that resulted to low Drinking water supply. Thus to supply sufficient drinking water to the villagers, Adani Foundation started construction of new Bore -wells with hand -pumps and repairing of existing drinking water sources. That has covered Schools and community water sources.

Borewell Construction-

In the period of Oct-19 to Mar-20, constructed bore wells, hand pumps/submersible pumps and water storage tanks at 4 villages- Barbaspura, Halbitola, Kachewani, and Belati villages. Benefitted to total 2000 direct beneficiaries

Halbitola Borewell

2. Toilet Construction Work in Schools

School sanitation and hygiene is an essential component of the total sanitation campaign which government is so focused on. This includes provision of proper toilet infrastructure and also recognizes the role of children who are the best agents to bring about change in habits. There are many schools where toilets were not maintained properly and wherein unusable state. The major problem of such unusable toilets was faced by the girls. There are instances w here girls had quit schools due to improper toilet facilities. Adani foundation intervened and constructed good quality toilets only on the condition that the school will provide water facility for same. We also repaired many toilets which were in bad state and made them usable once again. This has provided relief to all students especially girls and school management committee understood the importance of sanitation.

In the period Oct-19 to Mar-20, completed Toilet construction work in 5 villages Schools–Dhamneada, Berdipar, Mandavi, Sukali and Paldongari.

Berdipar School Toilet

Paldongari School Toilet

3. Construction and Repairing of Schools and Aanganwadi

School buildings, classrooms, playgrounds and libraries are the most important aspect of school infrastructure. Spacious and refurbished buildings and well - ventilated classrooms are a must in schools for effective teaching and learning. Many schools in Tirora block are old construction buildings which are not fit to use. There was couple of life threatening incidents of collapsing of school buildings. To tackle this situation on request of villages, Adani Foundation helped in construction of classrooms for such schools.

In the period Oct-19 to Mar-20, Classroom construction work is completed at Tiroda & Kawalewada villages.

4. Construction of Community Hall

In villages Sabhamandap is constructed in public locations in which community tends gathered for group activities, social support, public information, and other purposes. Thus focusing on the community togetherness AF initiated construction of Community Halls in villages.

In the period Oct-19 to Mar-20, Community hall constructed in two villages Khairbodi and Gondmohadi.

Media Coverage


मजितपूर येथे धनुर्विद्या विभागीय स्पर्धा १५ पासून

Deshonnati- Inauguration of Archery Sport Competition


Adani Foundation takes up 'Suposhan' programme in 27 villages

The Hitavada- SuPoshan- National Nutrition week celebrated in 27 villages


International Day for Rural Women celebrated

The Hitavada- International Day for Rural Women Celebrated


Community participation ensures ZP schools' progress: Shiralkar

The Hitavada- Aamchi Shala Aadarsh Shala workshop


नितीन शिरालकर : सर्वच घटकांसाठी विविध उपक्रम, अदानी फाऊंडेशन

विद्यार्थ्यांनी आयुष्यात उंच भरारी घ्यावी

Lokmat- Udaan News


पशुवंध्यत्व निवारण व आरोग्य शिबिराचे आयोजन

Deshonnati- Cattle health checkup camp in village


Follow traffic rules strictly for own safety: Kanti Biswas

The Hitavada- Road and Traffic Safety Inauguration of Shri.


Incense sticks business making rural women self-reliant

The Hitavada- Incense stick business making rural women self-reliant


गुजराती राष्ट्रीय केलवणी मंडळाचा शताब्दी वर्ष सोहळा आज

आनंदी पटेल, गौतम अदानी, टीना अंबानी, मनोज जोशी आदींची उपस्थिती

The Hitavada-Gujarati Kelwani Mandal's ceremony year concluding function

Annexure VIII

Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

FORM V

Environmental Audit Report for the financial Year ending the 31st March 2019

Unique Application Number
MPCB-ENVIRONMENT_STATEMENT-0000019558

Submitted Date
25-09-2019

Company Information

Company Name
ADANI POWER MAHARASHTRA LIMITED

Application UAN number
CR1507000296

Address
PLOT NO A1, TIRODA GROWTH CENTER, MIDC
TIRODA, DIST. GONDIA

Plot no
A1

Taluka
TIRODA

Village
TIRODA

Capital Investment (In lakhs)
1875342

Scale
LARGE

City
TIRODA

Pincode
441911

Person Name
Kanti Biswas

Designation
STATION HEAD

Telephone Number
07198253961

Fax Number
07198253971

Email
Kanti.Biswas@adani.com

Region
SRO-Bhandara

Industry Category
Red

Industry Type
R48 Thermal Power Plants

Last Environmental statement submitted online
yes

Consent Number
Format 1.0/.BO/CAC-Cell/EIC No. NG-13350-15/CAC/CAC-14033

Consent Issue Date
04.11.2015

Consent Valid Upto
31.08.2020

Product Information

Product Name	*Consent Quantity*	*Actual Quantity*	*UOM*
Electricity Generation	3300 MW	21665480	Mwh
Fly Ash Brick	10000 Nos./day	135210	Nos./Y

By-product Information

By Product Name	*Consent Quantity*	*Actual Quantity*	*UOM*
N.A	N.A	N.A	

1) Water Consumption in m3/day

Water Consumption for	*Consent Quantity in m3/day*	*Actual Quantity in m3/day*
Process	29712	2790
Cooling	163728	136054
Domestic	1440	1200
All others	-	-
Total	194880	140044

1) Effluent Generation in CMD / MLD

Particulars	Consent Quantity	Actual Quantity	UOM
Trade Effluent	35405	26495	CMD
Domestic Effluent	192	130.7	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	2.39	2.35	
Fly Ash Bricks	0.0003	0.0003	

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	0.62	0.63	

4) Fuel Consumption

Fuel Name	Consent quantity	Actual Quantity	UOM
Furnace Oil	90KLD	459.9	KL/A
LDO	95.52 KLD	419.2	KL/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
N.A (ZLD Maintained)	N.A	N.A	N.A	N.A	N.A

[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
PM	2778	43.2	N.A	N.A	N.A
SO2	58899	914.8	N.A	N.A	N.A
NOx	17291	268.6	N.A	N.A	N.A

HAZARDOUS WASTES

1) From Process

Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
5.1 Used or spent oil	60.52	32.838	KL/A
33.1 Empty barrels/containers/liners contaminated with hazardous chemicals /wastes	300	301	Nos./Y
35.2 Spent ion exchange resin containing toxic metals	0.05	0.5	KL/A
35.3 Chemical sludge from waste water treatment	0.48	0.47	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
Bottom Ash	706381	872762	MT/A

2) From Pollution Control Facilities

Non Hazardous Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
ESP Ash (Fly Ash)	2825523	3491050	MT/A

3) Quantity Recycled or Re-utilized within the unit

Waste Type	Total During Previous Financial year	Total During Current Financial year	UOM
0	N.A	N.A	set/month

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 or spent oil	32.838	KL/A	Report Attached
33.1 Empty barrels/containers/liners contaminated with hazardous chemicals /wastes	301	Nos./Y	-
35.2 Spent ion exchange resin containing toxic metals	0.5	KL/A	-
35.3 Chemical sludge from waste water treatment	0.47	MT/A	-

2) Solid Waste

Type of Solid Waste Generated	Qty of Solid Waste	UOM	Concentration of Solid Waste
PVC,Plastic, Rubber	79311	Kg/Annum	-
Wooden Scrap	40880	Kg/Annum	-
MS Scrap	2008480	Kg/Annum	-
Misc. Scrap	617682	Kg/Annum	-

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)
Energy Savings by reducing throttling loss in CEP in unit 1,3 & 5	-	-	-	7000000	-	-
Changing of Units valve mode operation from single valve mode to sequential valve mode to improve HPT cylinder efficiency	-	-	54579 MT	-	-	-
Energy savings by reducing primary air heater pressure from 9.2 kpa to 8.4 kpa in all units	-	-	-	16918215	-	-

NABl Accreditation	-	-	-	-	1.97	-
CW pump impeller anti-friction (corrocoating) coating to reduce energy consumption at Unit 1, 2 & 3	-	-	-	1949268	-	-
Green Belt Development	-	-	-	-	273.61	-
Unit # 4, CM # C, Coal Mill bowl extension ring modification to reduce energy consumption in coal Mills	-	-	-	1974353	-	-
Green Belt Development	-	-	-	-	227.72	-
Installation of Micro oil gun in all 5 units to reduce fuel oil consumption during start up (savings 4 nos. of Startup/year)	-	1505 Ton	-	-	-	-

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)***
Pollution Control Equipment O & M	ESP, Bag Filters Etc.	2453.09
Pollution Monitoring, Study and Analysis	Pollution Monitoring, Study and Analysis	54.85
Green Belt Development	Green Belt Development	273.61
CSR	Rural Development	537.34
Legal & Consent Fee	Legal & Consent Fee	375.07
Training & Awareness	Training & Awareness	1.53
Waste Management	Waste Management	554.41

[B] Investment Proposed for next Year

Detail of measures for Environmental Protection	***Environmental Protection Measures***	***Capital Investment (Lacks)***
As per part H (A) above	As per part H (A) above	6111.07

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

Particulars

1. Environmental laboratory (NABL Accredited) has been established to monitor environmental parameters 2. Pollution monitoring and control equipment’s established 3. We are scientifically disposing domestic waste originated from canteen and guest houses from our plant through “Organic Waste Convertor” Machine which decomposes domestic waste into organic manure. Waste papers are being recycled using paper waste recycling unit. 4. We have installed weather monitoring system .

Name & Designation

Kanti Biswas, Station Head

Annexure IX

ASDC Tiroda Training and Placement Details												
S. N.	FY Year	Trade	Candidates Training								Drop Out Candidates	Total Trained	Total Placement
			ST	SC	Minority	OBC	Gen	Male	Female	Total			
1	2017-18	Welding Technician	125	0	0	0	0	125	0	125	2	123	117
2	2017-18	Assistant Electrician	116	0	0	0	0	116	0	116	5	111	95
3	2018-19	Welding Technician	30	18	2	0	0	50	0	50	5	45	45
4	2018-19	Assistant Electrician	11	14	5	0	0	30	0	30	2	28	26
5	2019-20	Welding Technician	45	25	0	59	4	133	0	133	11	122	112
6	2019-20	Assistant Electrician	30	28	0	65	9	132	0	132	10	122	114
7	2019-20	General Duty Assistant	36	27	0	27	15	0	105	105	2	103	88
Total			**393**	**112**	**7**	**151**	**28**	**586**	**105**	**691**	**37**	**654**	**597**

Digital Literacy Out-reach Training Program Total 256 Trained FY 2018-19

Digital Literacy Out-reach Training Program Total 1334 Trained FY 2019-20

Annexure X

Maharashtra Pollution Control Board
महाराष्ट्र प्रदूषण नियंत्रण मंडळ

Information Disclosure Program for Air Pollution Abatement

Air Pollution Card

Adani Power Maharashtra Limited

Very Good

Industry Description

MPCB Regional Office (RO)	:	NAGPUR
Sub-Regional Office (SRO)	:	BHANDARA
Type	:	Red
Scale	:	Large
Sector	:	Power
Release Date	:	9 September 2019

Address

Plot No-A-1, Tiroda Growth Centre MIDC, Tiroda, Dist.-Gondia

What does the rating mean?

Better Performing plants (i.e. plants with lower particulate matter (PM) concentration in stack emissions) get more stars. A 4-star or 5-star rating implies that most of the recent stack samples of the plant report PM emissions below a standard of 150mg/Nm3. A plant's star rating also benchmarks its relative performance: as of ratings date, 38 percent of rated plants have done better (received 4 or 5 stars) and 43 percent of rated plants have done worse (received 1 or 2 stars).

Star Rating Key

Very Poor	Poor	Moderate	Good	Very Good
★☆☆☆☆	★★☆☆☆	★★★☆☆	★★★★☆	★★★★★

Stack Samples used to calculate Star-Rating

Collection Date	Dust Concentration (mg/Nm^3)	Median Dust Concentration (mg/Nm^3)
15 March 2019	21	23
15 March 2019	34	
15 March 2019	24	
15 March 2019	20	

Rating Scale

Rating	Range of PM Concentration (mg/Nm^3)		Rating Key	Representation
	Minimum	Maximum		
1 star	250	-	Very Poor	★☆☆☆☆
2 star	150	250	Poor	★★☆☆☆
3 star	100	150	Moderate	★★★☆☆
4 star	50	100	Good	★★★★☆
5 star	0	50	Very Good	★★★★★

About the Star Rating Program

Maharashtra Pollution Control Board (MPCB) has initiated an air pollution information disclosure program to give industries star ratings on the basis of their particulate matter (PM) emissions. These ratings are shared through **Air Pollution Report Cards**. Ratings represent the **air pollution performance** of industries, as measured by their **PM emission concentrations.**

Ratings are based on data obtained from routine stack sampling for PM as supervised by MPCB. Industries are rated according to the median PM emissions concentration of their latest 4 sample.

Annexure XI

Interim Report-I

Providing services for carrying out review of hydrogeological conditions for 5x660 MW thermal power plant, Tiroda, Dist-Gondia, Maharashtra

Submitted to

M/s. Adani Power Maharashtra Limited (APML), Tiroda,
Gondia District (Maharashtra)

CSIR-National Environmental Engineering Research Institute
Under Council of Scientific & Industrial Research
Nehru Marg, Nagpur – 440 020

NEERI
ISO 9001:2008

May 2020

Chapter 1

Introduction

1.1 Preamble

Adani Power Maharashtra Limited (APML) is operating 3300 MW (5 X 660 MW) coal based thermal power plant at Tiroda, Dist – Gondia, Maharashtra. The 1st unit of the plant was operational in September 2012. The other units were added subsequently in 2013 and 2014. The plant is having ash lagoons (3 nos) having Low-density polyethylene (LDPE) liners for disposal. The ash dyke area is spread over approximately 156 hectares.

APML has generated total fly ash during the last three years is 10,168,727 MT (FY 2017-18 is 2825523 MT, FY 2018-19 is 3491049 MT and FY 2019-20 is 3852155 MT). The total bottom ash generation during the last three years is 2,542,181 MT (FY 2017-18 is 706380 MT, FY 2018-19 is 872762 MT and FY 2019-20 is 963039 MT). The total ash generation in FY 2017-18 is 3531904 MT, FY 2018-19 is 4363812 MT and in FY 2019-20 is 4815194 MT (source: APML).

As far as the reuse of fly ash is concerned, part of the generated ash is sent for brick making in the plant itself. Fly ash is also sent to other place for making of bricks. Besides, fly ash is being used for land reclamation in the villages surrounding the APML plant. This land reclamation of low lying areas by ash backfilling for Road & Fly-Over Construction, Raising of Ash Dyke Bunds and Cement manufacturing has been going on in the buffer zone of the plant. The back filling at the low lying areas is being pursued to comply with the fly ash notification, 2009 (As Amended in 2016) of the MoEF & CC of the Government of India.

The total ash utilization for making of bricks and ash based products in FY 2017-18 is 55435 MT, FY 2018-19 is 57725 MT and in FY 2019-20 is 76614 MT. For land filling purpose the total ash is utilized in FY 2017-18 is 271090 MT, FY 2018-19 is 533112 MT and FY 2019-20 is 2036334 MT. The total ash utilized for other purposes like Cenosphere, Mound Formation HCSD (High Concentration Slurry disposal), Fine Ash, Cement, Dyke Raising, construction, road, Mine stowing and Agriculture during FY 2017-18 is 2533183 MT, FY 2018-19 is 3094301 MT and FY 2019-20 is 2262547 MT (source: APML).

The total ash utilization in FY 2017-18 is 2859707 MT, FY 2018-19 is 3685139 MT and in FY 2019-20 is 4375495 MT. The ash utilization percentage in FY 2017-18 is 81%, in FY 2018-19 is 84.4% and in FY 2019-20 is 90.87% (source: APML).

CSIR-NEERI was assigned the task of assessing the impact of ash fill sites of Adani Power Maharashtra Limited (APML) on the water resources in the surrounding area of Tiroda village. The study was completed in 2019. Subsequently, M/S Adani desired CSIR-NEERI to provide services for review of the hydrogeological study vide Service order No.5700267218. Accordingly CSIR - NEERI team visited the ash disposal site and the groundwater sources in its vicinity (Figure 1.1).

Figure 1.1: CSIR-NEERI team at ash disposal site

1.2 Scope of work

- The study will cover the 15 km buffer zone as well as the micro-watershed surrounding the ash ponds of APML plant. The study will cover the pre-monsoon as well as post-monsoon season in three complete hydrological cycles and compare year-wise hydrogeological trend with base line data.
- Monitoring of ground water levels and deciphering its flow direction and quantity.
- Physiochemical analysis of groundwater quality as per BIS 10500:2012 in pre & post monsoon seasons.
- Heavy Metal analysis (As, B, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Se, Zn, Hg, Co, Mo) for ground water samples collected around the study area.

- Identify & select key observation wells and monitor the concentration of trace elements like Pb, Hg and As up to completion of study period.
- Groundwater stage development estimation as per the norms of GEC-2O15 in the proposed project area.
- Formulate the conceptual model to understand the hydrological setting.
- Submit the recommendation along with groundwater management plan based on the findings of the report.
- Submit the progress report after completion of individual hydrogeological cycle (pre & post monsoon each year).

1.3 Approach of the study

A kick off meeting was arranged at the APML on 12th June, 2019 wherein presentation of the project was made before the senior management of the APML. Subsequently, discussions were held in the Environmental section wherein planning for the field activities were discussed. A reconnaissance visit took place wherein the ash disposal at the low lying areas in the 35 km buffer were covered.

The observation well network and low lying areas for back filling by ash were identified during the reconnaissance visit and followed by the pre-monsoon sampling.

1.4 Report layout

Chapter 2 presents the study area details

Chapter 3 presents the Methodology of data collection

Chapter 4 presents the Water quality data and Hydrogeological data generated and analysed on the basis of sampling carried out in May 2019 and November/December 2019

Chapter 5 presents the Findings and Future activities

Chapter 2

Study Area

2.1 Location

The Adani Power Maharashtra Limited (APML) lies in the study area between latitudes 21° 16' 30" N to 21° 33' 00" N and longitudes 79° 49' 30" E and 80° 06' 50" E. The plant is covered by the survey of India toposheet No 55 O/15 (scale: 1:50,000). The 15 km buffer zone around the plant is covered by Survey of India Toposheet (55 O/14, 55 O/15, 55 O/16 and 64 C/3 on 1:50,000 scale). It is located in Tiroda village in the Gondia District of Maharashtra (Figure 2.1).

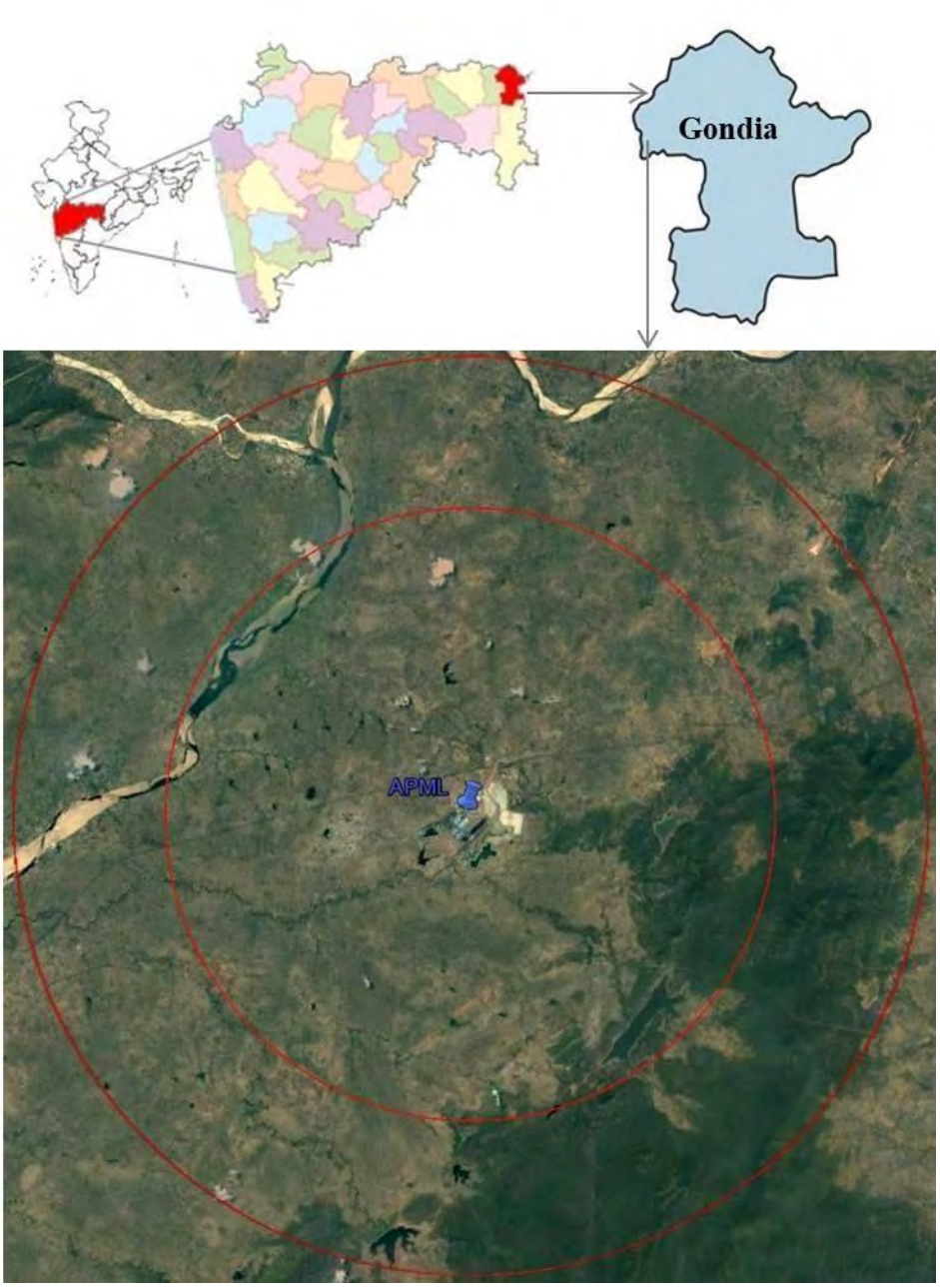

Figure 2.1: Location map (15 km buffer of APML: inner circle) of the study area

2.2 Climate

The study area experiences tropical monsoon climate with mild winter and hot summer. Rainfall in this region usually starts with the onset of monsoon by the middle of June. The southwest monsoon arrives over the district around the second week of week of June. The rainfall increases from west to east of Tiroda Tehsil. The annual average rainfall in Tiroda is about 1322 mm is observed (Table 2.1).

Table 2.1: The rainfall (mm) distribution in the study area (2012-19)

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total rainfall (mm)
2012	3.5	7	0	8.5	1.5	101	389.3	342.4	192.5	1	25.5	0	1072.2
2013	7	27	6.5	51	0	284	737.8	508.7	71	94	0	0	1787
2014	0	61.5	26.5	52.5	27	88	699.4	193.2	129	45.8	0	0.2	1323.1
2015	2	17.5	170.5	26.5	10	300.5	255.5	407.6	208.8	0	0	0	1398.9
2016	0	10	25.5	10.5	37.5	96.0	454.5	410.0	162.0	29.0	0	0	1235
2017	0	0.0	9.5	0.0	28.5	143.5	259.0	333	85.5	28	0	0	887
2018	0.0	18.8	0.0	18.5	7.5	146.2	615	370.4	111.5	0	0	1.5	1289
2019	11.5	0	24.5	0	0	203.5	290.9	551.6	417.9	52.2	0	26.4	1579

(Source: Adani Power Maharashtra Limited)

The average monthly maximum temperature recorded is 42.1°C in the month of May while the lowest average monthly temperature recorded is 13.1°C in the month of December. The study area has the hottest month during May when daily maximum temperature rises above 42.5°C and the heat is intense. December is the coldest month. During cold waves which affect the district in association with the passage of western disturbances across north India, the minimum temperature at times go down to 7°C.

Except during the monsoon season when humidity is high, the air is generally dry during the year. The summer season is the driest part of the year when relative humidity goes down to 20% or less in the afternoon.

2.3 Topography

The study area is located in the extreme north-eastern district (Gondia) of Maharashtra. The land in this part is partly undulating at higher elevation (more than 300 m on land away from river) while it becomes more or less flat near the river. The proposed site lies on

the Wainganga plains. The general elevation of the study area ranges from 301.11 m to 338.4 m. The area has rocky outcrops of granites and gneisses.

2.4 Geology

Geologically the area essentially belongs to the Archeans sediments preserved in the synclinal depressions of the landscape and is highly metamorphosed. The proposed plant site area is basically marked by the rock formations from the oldest granite and gneiss of pre-cambrian to recent alluvium. The gneisses comprise of biotite, hornblende gneiss and magnetite. The Biotite gneiss is composite in character and forms the basement for younger metamorphoses sedimentary rocks. Two types of series of rocks viz. Sausar series and Sakoli formations are found in the region.

In Tirora region, especially the study area belongs to the Sausar series. Lithologically Sausar series consist of talc granulites, mica and hornblende schist, gneiss rocks of the Sausar group contain and biotite but not chlorite. Manganese deposits are associated with rocks of this group. The rocks comprise of low grade metamorphoses such as phyllites, chlorites, muscovite and hornblende schist, quartzite, kyanite and sillimanite rocks. These are intruded by basic rocks and quartz veins. Along the bank of the river Wainganga alluvial cover varying from a few meters to 15 m thick has been observed.

2.5 Hydrogeology

The study area, covering Tirora and Gondia talukas of Gondia district, is occupied by the crystalline rocks of Pre-Cambrian formations i.e. Granite Gneises and Dharwars (Sausar and Sakoli group). The Pre-Cambrian crystalline rocks are the major water bearing formations in the study area. The weathered portions of crystalline rocks together with joints and fracture zones act as good aquifers (CGWB, 2013). Ground water occurs under water table conditions in the weathered mantle and then the fractured, well-jointed and sheared zones. Dug wells, dug cum bore wells and bore wells are the common ground water abstraction structures in the study area. Ground water occurs under water table conditions and semi-confined conditions in these formations. Water table conditions prevail in the weathered mantle and the fractures, jointed and sheared zones (CGWB, 2013).

Chapter 3

Methodology of data collection

3.1 General

The study envisages the following tasks

- Setting up observation well network
- Hydrochemistry of the observation well network
- Groundwater level monitoring

Accordingly, primary data has been generated by undertaking extensive field survey in the month of June 2019 (pre-monsoon season) and November 2019 (post-monsoon season). Secondary data has been collected through interaction with Adani Power Maharashtra Limited (APML) officials and the local villagers in and around the study area.

3.2 Groundwater sampling and analysis

The study area has been delineated on the basis of 15 km buffer zone (Figure 3.1) with the APML as the center. It covers an area of 715 sq. km. A network of observation wells (Table 3.1) has been set up in the study area. The co-ordinates (latitude/longitude) of the observation wells were noted with the help of hand held GPS of Garmin make. Wells in the vicinity of ash filled low lying areas were included in the observation well network. For physico-chemical parameters and heavy metal analysis, the samples were collected in pre-cleaned 500 ml and 100 ml polyethylene bottles respectively. Concentrated HNO_3 was added to the heavy metal samples for preservation. Parameters namely, pH and temperature were measured in the field itself. The physico-chemical parameters were analyzed by following the standard protocols (APHA, 2012). The heavy metal analysis was done by using ICP-OES (Model iCAP 6300 DUO, Make: Thermo Scientific). The detection limit for Fe, Mn, Zn, Pb, Cd, Cr and Cu are 0.0003 mg/L, 0.018 mg/L, 0.0002 mg/L, 0.05 mg/L, 0.009 mg/L, 0.0006 mg/L and 0.0004 mg/L respectively. The parameters namely Na and K were analyzed by Flame Photometer (Model- CL361).

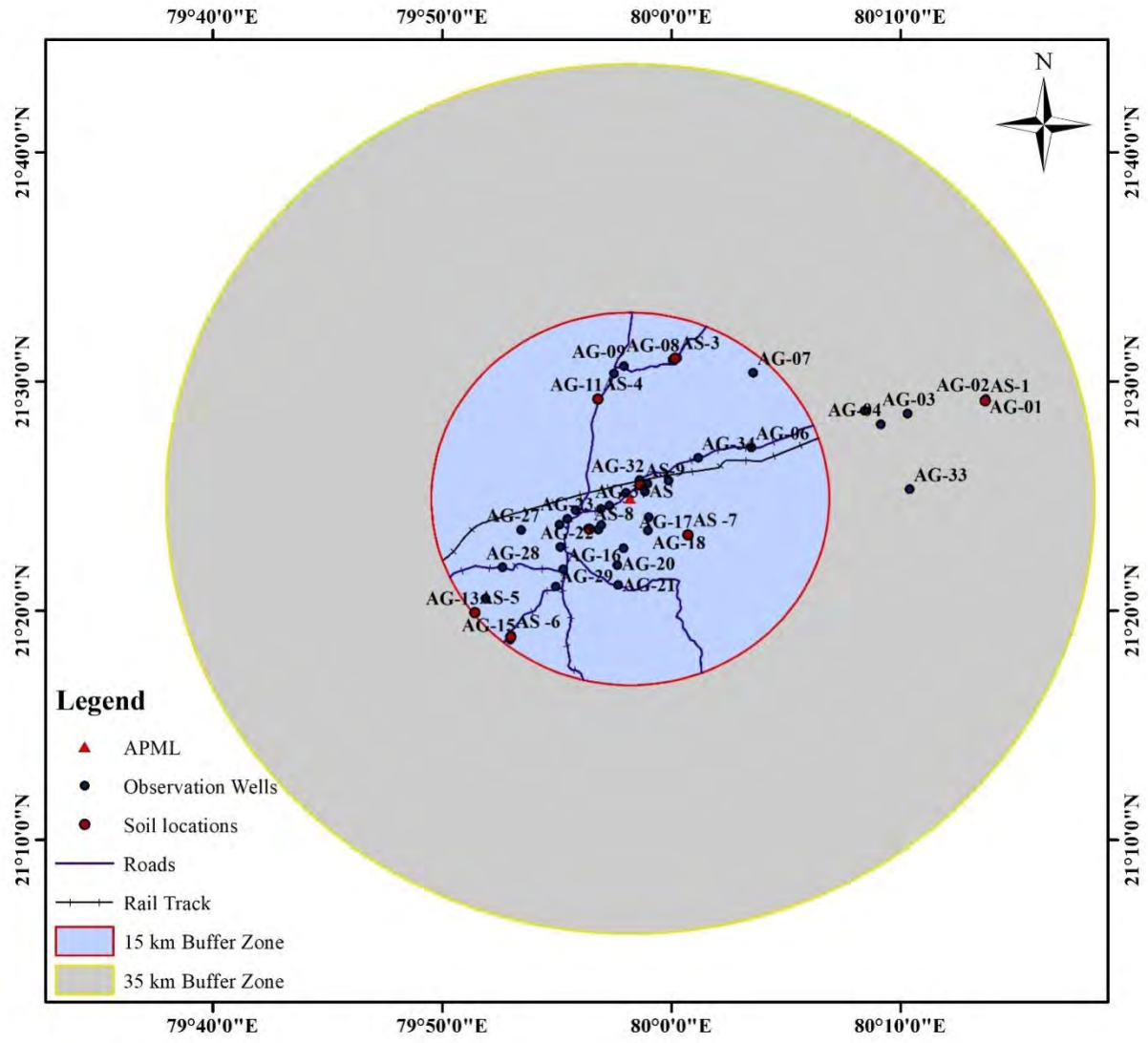

Figure 3.1: Base map of the study area

Table 3.1: Observation well network for groundwater monitoring in the study area

S.No.	Sample Code	Well Type	Latitude	Longitude	Location Description
1	AG-1	BW	N 21º 29' 12.4"	E 80º 13' 42.4"	Amboora – On road, new dumping site, RHS of Gondia to Barbaspur road
2	AG-2	DW	N 21º 29' 13.5"	E 80º 13' 42.4"	Amboora – On road, new dumping site, LHS of Gondia to Barbaspur road
3	AG-3	BW	N 21º 28' 35.8"	E 80º 10' 18.6"	GondiaKudava – On Gondia to Bagartula road, LHS, besides flyash dumping site, Mr. Bansodbhai Patel farm house

4	AG-4	BW	N 21º 28' 8.00"	E 80º 09' 7.9"	Dagni – On road, RHS, opposite fly ash dumping site, Mr. Ramesh BharatlalBisen Ag. farm
5	AG-5	BW	N 21º 28' 42.8"	E 80º 08' 25.8"	Modipar – Opposite to fly ash dumping site, at Paramatma bricks manufacturing company (Mr. JayendraPatle)
6	AG-6	HP	N 21º 27' 6.6"	E 80º 03' 30.3"	Majitpur – At Govt. Middle & Higher Ashram School, fly ash landfill activity completed during 2017 in the Ashram premises.
7	AG-7	HP	N 21º 30' 22.7"	E 80º 03' 34.6"	Dawanwada – Opoite to Primary Health Centre (PHC), close to ash filling site (April 2018)
8	AG-8	BW	N 21º 30' 56.8"	E 80º 00' 03.3"	Gondmahadi – At Late LaxmanraoMankarAdiwasi Ashram School (Govt. aided Trust School)
9	AG-9	HP	N 21º 30' 40.3"	E 79º 57' 55.7"	Paraswada – Opposite to land filling site, at ZillaParishat High School premises, RHS, on road, was filling activity during 2017.
10	AG-10	DW	N 21º 30' 20.5"	E 78º 57' 30.7"	Bhagoli – on road, LHS, Tiroda – Indora road, Opposite to ZillaParishat Primary School, near to ash filling site, (during 2017 – 2019).
11	AG-11	DW	N 21º 29' 13.8"	E 79º 56' 48.6"	Indore:Tiroda – On road, behind the primary school (In between Panchayat – school).
12	AG-12	DW	N 21º 22' 01.2"	E 79º 52' 49.1"	Sarandi – LHS on Birsi to Mundikota road, at ash fill site, agricultural land, April 2019, Mr. Nitin Agasey land
13	AG-13	DW	N 21º 19' 54.5"	E 79º 51' 25.4"	Keslawada – Mr. RamachandKukude residence, opposite to ash fill site
14	AG-14	HP	N 21º 20' 31.2"	E 79º 51' 54.2"	Baiywada – On road, LHS towards Keslawada road, besides panchayat bhawan, at the residence of Mr. PandurangYaswantaraoBawankar.
15	AG-15	BW	N 21º 18' 44.5"	E 79º 52' 58.9"	Silli – at Mr. Kiran Patle site.
16	AG-16	HP	N 21º 21' 48.3"	E 79º 55' 17.3"	Birsi – LHS on Birsi to Adani road, end of the village
17	AG-17	DW	N 21º 23' 15.9"	E 80º 00' 46.1"	Indora – situated near to ash fill site of Mr. KantilalPremlalBaghele poultry farm, agricultural fields
18	AG-18	HP	N 21º 23' 29.8"	E 79º 58' 59.3"	Biwapur – on Tiroda to Indora road, LHS, corner point, besides village bus stop

19	AG-19	BW	N 21º 22' 43.00"	E 79º 57' 54.9"	Chikli – on Chikle to Tanegaon / Minda road, RHS, at Mr. AnandraoMudkkuPatle poultry farm
20	AG-20	HP	N 21º 21' 59.00"	E 79º 57' 39.00"	Tanegaon – centre of the village, besides bus stop and opposite to temple as well as junior science college
21	AG-21	DW	N 21º 21' 07.1"	E 79º 57' 41.5"	Menda – at Govt. Ashram School premesis, on road, RHS towards Birsi, 2017 ash filling site
22	AG-22	DW	N 21º 22' 46.4"	E 79º 55' 10.00"	Birsi – at Birsi to Adani road, at Mr. Santosh Raghavathe agricultural fields
23	AG-23	HP	N 21º 24' 00.5"	E 79º 55' 27.9"	Tiroda – at Sukudinaka, LHS on road, corner point besides welding and automobile shop
24	AG-24	DW	N 21º 23' 34.4"	E 79º 56' 22.3"	Churdi – at Mr. MohangyanChandani agricultural fields, ash filled during 2016-17.
25	AG-25	HP	N 21º 24' 22.8"	E 79º 55' 50.1"	Tiroda – railway station road, near kayamkrishivikreta Kendra
26	AG-26	BW	N 21º 23' 44.9"	E 79º 55' 07.6"	Tiroda - Tiroda to Lozitola road at Meritorious public school premises
27	AG-27	HP	N 21º 23' 31.3"	E 79º 53' 27.1"	Dhadri – near panchayat office, MaaDurga temple, RHS, Dhadri to Umri road
28	AG-28	HP	N 21º 21' 53.2"	E 79º 52' 38.9"	Sarandi - on main road, RHS, in bus stop premises, corner point at behind the bus shelter
29	AG-29	HP	N 21º 21' 02.5"	E 79º 54' 57.5"	Bhupeswar – in front of anganwadi centre, near village overhead water tank
30	AG-30	DW	N 21º 23' 44.3"	E 79º 56' 56.3"	Khasighat (Tiroda) – at temple premises, on Tiroda-Churdi-Chikle road
31	AG-31	DW	N 21º 23’ 32.1”	E 79º 56' 49.6"	Garada – entrance of the village, privte well at the residence of Mr. DevrajPardii
32	AG-32	HP	N 21º 25' 41.4"	E 79º 58' 36.8"	Adani to Gonida road, near railway crossing, LHS, on road
33	AG-33	DW	N 21º 25' 18.0"	E 80º 10' 24.3"	Rapewada – at Mr. Anil Bisen residence on Rapewada to Gondia road
34	AG-34	HP	N 21º 26' 40.3"	E 80º 01' 10.9"	Ekodi – at bus stop, near MaaDurga temple and primary health centre (PHC)

35	AG-35	HP	N 21º 25' 40.3"	E 79º 59' 53.1"	Barbaspura – near gram panchayat office
36	AG-36	BW	N 21º 25' 31.7"	E 79º 58' 57.6"	ADANI – at plant premises near fly ash bricks plant
37	AG-37	BW	N 21º 24’ 34.4"	E 79º 57' 18.5"	ADANI – at China colony premises, behind the Shanti Niketan guest house
38	AG-38	HP	N 21º 25' 08.4"	E 79º 58' 01.8"	Gumadhavada – Opposite to Adani plant in between gate no.2 nd gate no.3, before entrance of the village, LHS on road, opposite to village bus stop
39	AG-39	HP	N 21º 24' 04.9"	E 79º 59' 00.8"	Mehendipur – entrance of the village, on road, besides anganwadi office
40	AG-40	DW	N 21º 24' 26.2"	E 79º 56' 56.1"	Khairabodi – on Tiroda to Adani main road, LHS, before plant area

AG: Sample Code; RL: Reduced Level; DW: Dug Well; BW: Bore Well; HP: Hand Pump; LHS: left hand side; RHS: right hand side

3.3 Groundwater Level Measurement

The observation well network consisted of India Mark II hand-pumps as well as open wells (Table 3.1). The observation wells are present in the vicinity of the ash filled low lying areas to the extent possible.

Few sampling locations are close to the disposal site i.e. ash filled low lying areas. The water levels from observation well network (Figure 3.1 & Table 3.1) were obtained using Electric Contact Gauze (The Solinst 101 Water Level Meter). The groundwater level has been obtained with respect to below ground level (bgl).

Chapter 4

Results and Discussions

4.1 Hydrogeology (Groundwater Level)

Groundwater level (Table 4.1) has been measured in the identified sources (Table 3.1). The groundwater level reflects the overall groundwater scenario as regards to its withdrawal, the recharge due precipitation, recharge from agricultural return flow, seepage from water bodies etc. The groundwater level was measured in pre-monsoon (June 2019) and post-monsoon (November 2019) and mentioned in the Table 4.1. The groundwater level (m-below ground level) is varied in between 3.70 m (AG-17) to 14.20 m (AG-9) during pre-monsoon and 1.00 m (AG-21) to 12.96 m (AG-16) during post-monsoon. The change in groundwater level from pre-monsoon to post-monsoon change in the range of 2.70 m to 1.24 m. The basic statistics of ground water level for pre and post monsoon seasons are shown in the table 4.2.

Table 4.1: Groundwater level (m – below ground level) in Pre and Post monsoon period (2019)

Sample Code	Pre-monsoon-2019 water level (meter)	Post-monsoon-2019 water level (meter)
AG-1	9.91	8.05
AG-2	9.50	5.46
AG-6	11.88	5.82
AG-7	7.87	2.50
AG-9	14.20	6.49
AG-10	8.60	3.73
AG-11	6.19	1.91
AG-12	5.35	3.63
AG-13	6.16	2.10
AG-14	11.18	4.60
AG-15	-	1.81
AG-16	10.40	12.96
AG-17	3.70	2.08
AG-18	7.45	5.37
AG-20	10.20	2.53
AG-21	5.80	1.00
AG-22	5.96	3.93
AG-23	7.42	2.44
AG-24	5.36	4.20
AG-25	8.41	2.13
AG-28	7.29	5.77

AG-29	9.26	3.63
AG-30	5.71	4.99
AG-31	7.00	5.47
AG-32	9.00	3.37
AG-33	4.90	-
AG-34	9.79	3.12
AG-38	10.32	6.22
AG-39	7.71	2.53
AG-40	6.44	1.29
AG-41	-	2.50
AG-42	-	2.96

Table 4.2: Basic statistics of groundwater level (m-below ground level) in Pre-monsoon 2019 and Post-monsoon 2019

Parameters	**Pre-monsoon' 2019**	**Post-monsoon' 2019**
Minimum water level (in meter)	3.70	1.00
Maximum water level (in meter)	14.20	12.96
Average level (in meter)	8.03	3.10
Standard deviation (in meter)	2.38	2.41

4.2 Groundwater Chemistry

The samples were analysed for Physico-chemical parameters and heavy metal parameters (Tables 4.3 - 4.6).

4.2.1 Pre-monsoon season (June 2019)

4.2.1.1 Physico-chemical parameters

The physico chemical parameters of water samples in pre-monsoon season are mentioned in the Table 4.3.

Turbidity: Turbidity concentration for all the samples was found to be within the permissible and acceptable limit of BIS except samples, AG 9 (10.2 mg/l).

Total Hardness: The concentration of Total Hardness for all the samples were found to be within the permissible and acceptable limit of BIS except samples AG-35, AG-38 and AG-40.

Magnesium (Mg^{2+}): Magnesium concentration for all the samples were found to be within the permissible and acceptable limit except Mg^{+} for sample code AG-35 (189 ppm) was found to above the permissible and acceptable limit of BIS.

Nitrate (NO^{3-}): The concentration of Nitrate were found to be within the permissible limit of BIS , except for samples AG-7, AG-12, AG-13, AG-14, AG-20, AG-21, AG-25, AG-26, AG-27, AG-29, AG-34, AG-35, AG-39, AG-40 which were found to be in the range of 47-574 mg/l.

Sulphate (SO_4^{2-}): The concentrations of Sulphate for all the samples were found to be within the permissible and acceptable limit except samples AG-31 & AG-38.

Fluoride (F^{-}): The concentration of Fluoride for all the samples were found to be within the permissible and acceptable limit except samples AG-6, AG-10, AG-11, AG-21 and AG-38 were found to be 1.5, 2.8, 1.5, 1.6 and 1.9 mg/l respectively which were above the permissible and acceptable limit of BIS.

The concentration for rest of all the water sample parameters viz. pH, EC, TDS, calcium, sodium, potassium, Total alkalinity, Phosphate and Chlorides were found to be within the permissible and acceptable limits of BIS.

4.2.1.2 Heavy metal parameters

Concentration of heavy metal parameters, namely Silver (Ag), Aluminium (Al), Arsenic (As), Cadmium (Cd), Cobalt (Co), Chromium (Cr), Copper (Cu), Manganese (Mn), Nickel (Ni), Lead (Pb), Zinc (Zn) and Mercury (Hg) were found to be Below Detection Limit (BDL) (Table 4.4).

The concentrations of Iron (Fe) in all the samples were found to be within the permissible and acceptable limit of BIS except samples AG-10 & AG-13.

4.2.2. Post-monsoon season (November 2019)

4.2.2.1 Physico-chemical parameters

The physico chemical parameters of water samples in post-monsoon season are mentioned in the Table 4.5.

pH, Sulphate (SO_4^{2-}) and Chloride (Cl^-) concentrations of all the samples were found to be within the permissible and acceptable limits of BIS.

TDS for all the samples were found to be within the permissible and acceptable limit. TDS for sample AG-39 (2754 mg/l) was found to be above the permissible and acceptable limit of BIS.

The concentration of nitrate (No_3^-) were found to be within the permissible limit of BIS , except for sample AG-7, AG-13, AG-20, AG -25, AG -26, AG-29, AG-34, AG-35 and AG-39 which were found to be in the range of 60 – 180 mg/L. The concentration of fluoride (F^-) in all the sample were found to be well within the permissible and acceptable limit of BIS. except for samples AG-10, AG-11, AG-13 and AG-21 which were found to be 2 mg/l.

4.2.2.2 Heavy metal parameters

The Heavy metal analysis of water samples in post-monsoon season are mentioned in the Table 4.6.

The concentration of heavy metals Cd, Cr, Cu, Ni and Pb were all found to be well within the permissible and acceptable limit of BIS.

The concentration of Al in all the samples were found to be within the permissible and acceptable limit of BIS, except for samples AG-24 (0.5 ppm) and AS – surface water sample (5.8 ppm) were found above the permissible and acceptable limits of BIS.

The concentration of As in all the samples were found to be within the permissible and acceptable limits of BIS except sample AS (0.07 ppm) was found to be above the permissible and acceptable limits of BIS.

The concentration of Iron (Fe^{-}) were found to be within the permissible limit of BIS , except for samples AG-1, AG-2, AG-4, AG-5, AG-6, AG-7, AG-9, AG-12, AG-14, AG-16, AG-18, AG-19, AG-20, AG-23, AG-24, AG-25, AG-28, AG-29, AG-32, AG-34, AG-35, AG-36, AG-38, AG-40, AG-42, AG-43 and AS which were found to be in the range of 1- 18 ppm.

The concentration of Mn in all the samples were found to be within the permissible and acceptable limits of BIS except samples AG-4, AG-9 and AG-31 which were found to be 0.4, 0.4 and 0.5 ppm respectively. The concentrations of zinc (Zn) in all the samples were found to be within the permissible and acceptable limits of BIS. Whereas concentration of Zn in sample AG-9 (19.0 ppm) was found to be above the permissible and acceptable limits of BIS.

Table 4.3: Physico-chemical parameters in Pre-monsoon (June 2019)

Sr. No	Sample Code	pH	EC	TDS (mg/l)	Turbidity	Total Hardness as $CaCO_3$	Calcium as Ca^{2+}	Magnesium Mg^{2+}	Sodium	Potassium	Total alkalinity as $CaCO_3$	Phosphate as PO_4^{-2}	Fluoride as F^-	Nitrate NO^{3-}	Sulphate	Chloride
Units	**-**	**-**	**µS/cm**	**mg/L**	**NTU**	**mg/L**										
BIS 10500:2012 (Acceptable/ Permissible limit)		**6.5/8.5**	**-**	**500/ 2000**	**1/5**	**200/ 600**	**75/200**	**30/100**	**-**	**-**	**200/600**	**-**	**1.0/1.5**	**45**	**200/400**	**250/ 1000**
1	AG-1	7.6	248	149	0.4	180	32	24	10	1	152	0.6	0.4	8	16	22
2	AG-2	7.6	455	273	0.6	100	34	4	9	2	120	1.8	0.2	3	14	10
3	AG-3	7.3	239	143	0.6	252	37	38	36	1	188	1.5	0.9	9	17	52
4	AG-4	7.6	606	364	0.4	200	35	27	21	2	224	1.2	1.3	14	13	14
5	AG-5	7.5	945	567	0.8	236	78	10	37	5	220	0.9	0.5	3	46	74
6	AG-6	7.4	745	447	1.8	184	58	10	27	2	160	0.6	1.1	5	13	88
7	AG-7	7.6	639	383	0.7	220	64	14	22	3	160	2.1	0.3	84	8	70
8	AG-8	7.7	443	266	0.2	120	34	9	16	1	140	1.1	0.4	21	6	16
9	AG-9	6.9	735	441	10.2	268	48	36	18	3	176	0.7	0.3	2	34	114
10	AG-10	8.2	1254	752	0.5	156	22	24	190	2	480	1.4	0.8	6	11	100
11	AG-11	7.9	615	369	0.6	160	40	14	44	2	204	2.8	1.5	30	17	22
12	AG-12	7.9	596	358	0.4	208	30	32	29	1	188	2.1	0.5	47	44	36
13	AG-13	7.8	1067	640	0.6	424	45	75	57	1	284	1.3	1.3	95	46	92

Sr. No	Sample Code	pH	EC	TDS (mg/l)	Turbidity	Total Hardness as $CaCO_3$	Calcium as Ca^{2+}	Magnesium Mg^{2+}	Sodium	Potassium	Total alkalinity as $CaCO_3$	Phosphate as PO_4^{-2}	Fluoride as F^-	Nitrate NO^{3-}	Sulphate	Chloride
Units	**-**	**-**	**µS/cm**	**mg/L**	**NTU**	**mg/L**										
BIS 10500:2012 (Acceptable/ Permissible limit)		**6.5/8.5**	**-**	**500/ 2000**	**1/5**	**200/ 600**	**75/200**	**30/100**	**-**	**-**	**200/600**	**-**	**1.0/1.5**	**45**	**200/400**	**250/ 1000**
14	AG-14	7.5	1239	743	0.9	512	107	59	43	6	216	1.0	0.5	154	41	140
15	AG-15	7.7	564	338	0.3	208	48	21	18	2	180	1.1	0.4	15	5	20
16	AG-16	7.7	627	376	0.7	228	38	32	42	6	220	2.2	0.6	2	5	40
17	AG-17	7.6	614	368	0.8	288	29	52	22	2	268	1.4	0.7	4	22	20
18	AG-18	7.6	447	268	3.5	152	16	27	24	2	200	1.1	0.6	0	3	24
19	AG-19	7.6	456	274	0.4	180	35	22	23	2	200	0.4	0.3	2	5	12
20	AG-20	7.3	771	463	0.3	284	45	41	25	8	232	0.5	0.4	94	23	50
21	AG-21	7.7	1027	616	0.5	236	16	47	80	4	228	1.9	1.6	68	47	130
22	AG-22	7.7	684	410	0.6	164	32	20	55	1	224	1.1	0.6	7	57	46
23	AG-23	7.8	1194	716	0.4	340	72	38	28	2	168	0.7	0.5	16	66	152
24	AG-24	7.4	234	140	0.7	108	27	10	9	3	112	1.2	0.3	3	17	20
25	AG-25	7.8	1280	768	0.3	492	104	56	24	4	204	1.0	0.5	174	86	172
26	AG-26	7.4	638	383	0.4	346	51	52	24	2	172	2.3	0.4	56	21	70
27	AG-27	7.6	1668	1001	0.6	380	88	38	38	2	168	0.8	0.4	83	71	156

Sr. No	Sample Code	pH	EC	TDS (mg/l)	Turbidity	Total Hardness as $CaCO_3$	Calcium as Ca^{2+}	Magnesium Mg^{2+}	Sodium	Potassium	Total alkalinity as $CaCO_3$	Phosphate as PO_4^{-2}	Fluoride as F^-	Nitrate NO^{3-}	Sulphate	Chloride
Units	**-**	**-**	**µS/cm**	**mg/L**	**NTU**	**mg/L**										
BIS 10500:2012 (Acceptable/ Permissible limit)		**6.5/8.5**	**-**	**500/ 2000**	**1/5**	**200/ 600**	**75/200**	**30/100**	**-**	**-**	**200/600**	**-**	**1.0/1.5**	**45**	**200/400**	**250/ 1000**
28	AG-28	7.5	739	443	0.9	232	59	20	51	4	340	0.9	0.3	1	15	44
29	AG-29	7.7	798	479	0.6	320	45	50	25	3	188	1.0	0.7	116	47	96
30	AG-30	7.6	675	405	0.4	176	43	16	31	1	148	0.6	0.6	4	104	56
31	AG-31	7.7	1141	685	1.0	396	118	24	32	2	120	0.5	0.2	5	408	76
32	AG-32	7.1	795	477	1.5	160	22	25	34	6	256	0.7	0.3	1	8	24
33	AG-33	7.4	534	320	2.0	154	38	14	22	3	204	1.1	0.7	18	6	22
34	AG-34	7.5	980	588	0.6	280	43	41	34	4	212	0.5	0.4	90	37	92
35	AG-35	7.2	2530	1518	0.9	920	53	189	132	2	280	0.7	0.6	574	192	392
36	AG-36	7.2	533	320	1.6	244	45	32	17	5	200	0.6	0.4	3	17	30
37	AG-37	7.6	328	197	1.6	108	29	9	24	2	140	0.8	0.3	2	15	28
38	AG-38	7.9	1505	903	1.5	620	128	72	68	13	108	1.4	1.9	20	600	100
39	AG-39	7.5	824	494	1.1	224	38	31	64	2	220	0.6	0.4	50	37	76
40	AG-40	7.4	2070	1242	0.6	672	109	96	135	3	260	0.7	0.7	369	116	330
41	AG-41	7.9	409	245	0.4	104	16	15	90	4	192	0.7	0.8	3	14	30

Table 4.4: Heavy Metal parameters in Pre-monsoon (June 2019)

Sr. No	Sample code	Ag	Al	As	Cd	Co	Cr	Cu	Fe	Mn	Ni	Pb	Zn	Hg
	BIS Limit (ppm)	**0.1**	**0.03-0.2**	**0.01**	**0.003**		**0.05**	**0.05-1.5**	**0.3-1.0**	**0.10-0.30**	**0.02**	**0.01**	**5.0-15**	**0.001**
	ICP detection Limit (ppm)		**0.00001**	**0.007**	**0.0001**	**0.0004**	**0.01**	**0.0004**	**0.0003**	**0.0001**	**0.005**	**0.009**	**0.001**	**0.000075**
1	AG-1	ND	0.02	BDL	ND	BDL	BDL	0.007	0.2	0.2	BDL	BDL	0.06	BDL
2	AG-2	ND	0.02	BDL	ND	ND	ND	0.0005	0.2	0.08	BDL	ND	0.5	BDL
3	AG-3	ND	0.01	ND	ND	ND	ND	0.004	0.07	0.03	BDL	ND	0.3	BDL
4	AG-4	ND	0.02	BDL	ND	BDL	ND	0.009	0.3	0.05	BDL	BDL	0.8	BDL
5	AG-5	ND	0.01	ND	ND	ND	ND	0.006	0.7	0.09	BDL	ND	3.9	BDL
6	AG-6	ND	0.01	ND	ND	ND	ND	0.007	0.2	0.03	BDL	ND	0.7	BDL
7	AG-7	ND	0.02	BDL	ND	ND	ND	0.007	0.2	0.05	BDL	ND	0.08	BDL
8	AG-8	ND	0.02	BDL	ND	ND	ND	0.004	0.1	0.06	BDL	BDL	0.07	BDL
9	AG-9	ND	0.01	ND	ND	ND	ND	0.003	0.2	0.02	ND	BDL	0.03	BDL
10	AG-10	ND	0.02	BDL	ND	BDL	ND	0.001	1.0	0.04	ND	BDL	0.4	BDL
11	AG-11	ND	0.03	BDL	ND	ND	ND	0.002	0.2	0.04	ND	BDL	0.07	BDL
12	AG-12	ND	0.02	ND	ND	BDL	ND	0.005	0.1	0.04	BDL	BDL	0.8	BDL
13	AG-13	ND	0.02	ND	ND	BDL	ND	0.004	1.2	0.08	ND	BDL	0.9	BDL
14	AG-14	ND	0.03	BDL	ND	BDL	ND	0.001	0.2	0.002	BDL	BDL	0.8	BDL

15	AG-15	ND	0.02	ND	ND	BDL	ND	0.005	0.3	0.2	BDL	BDL	0.8	BDL
16	AG-16	ND	0.01	ND	ND	BDL	BDL	0.007	0.1	0.003	BDL	BDL	0.04	BDL
17	AG-17	ND	0.02	BDL	ND	BDL	ND	0.003	0.1	0.2	BDL	BDL	0.07	BDL
18	AG-18	ND	0.007	BDL	ND	BDL	ND	0.003	0.1	0.1	BDL	BDL	0.4	BDL
19	AG-19	ND	0.006	BDL	ND	BDL	ND	0.0008	0.2	0.04	BDL	BDL	0.3	BDL
20	AG-20	ND	0.04	ND	ND	BDL	BDL	0.007	0.1	0.2	BDL	BDL	0.3	BDL
21	AG-21	ND	0.03	ND	ND	ND	BDL	BDL	0.006	0.05	BDL	BDL	0.5	BDL
22	AG-22	ND	0.005	ND	ND	BDL	BDL	0.004	0.7	0.06	BDL	BDL	0.4	BDL
23	AG-23	ND	0.008	BDL	ND	ND	BDL	0.0001	0.005	0.005	BDL	BDL	0.09	BDL
24	AG-24	ND	0.006	ND	ND	BDL	BDL	0.006	0.2	0.05	BDL	BDL	2.0	BDL
25	AG-25	ND	0.03	BDL	ND	BDL	BDL	0.007	0.9	0.05	BDL	BDL	0.09	BDL
26	AG-26	ND	0.09	ND	ND	ND	BDL	0.001	0.2	0.2	BDL	ND	0.4	BDL
27	AG-27	ND	0.03	BDL	ND	ND	BDL	0.007	0.1	0.05	BDL	BDL	0.3	BDL
28	AG-28	ND	0.03	BDL	ND	ND	BDL	0.001	0.2	0.009	BDL	BDL	0.05	BDL
29	AG-29	ND	0.03	ND	ND	BDL	BDL	0.004	0.1	0.2	BDL	BDL	2.0	BDL
30	AG-30	ND	0.01	ND	ND	ND	BDL	0.005	0.1	0.04	BDL	BDL	0.09	BDL
31	AG-31	ND	0.01	ND	ND	ND	BDL	0.004	0.1	0.03	BDL	BDL	0.06	BDL
32	AG-32	ND	0.02	BDL	ND	ND	BDL	0.006	0.1	0.05	BDL	BDL	0.4	BDL
33	AG-33	ND	0.02	BDL	ND	BDL	BDL	0.003	0.1	0.03	BDL	BDL	0.4	BDL
34	AG-34	ND	0.04	ND	ND	ND	BDL	0.003	0.09	0.03	BDL	BDL	0.3	BDL

35	AG-35	ND	0.02	ND	ND	ND	BDL	0.004	0.09	0.02	ND	BDL	0.05	BDL
36	AG-36	ND	0.03	BDL	ND	ND	BDL	0.005	0.09	0.1	BDL	ND	0.06	BDL
37	AG-37	ND	0.04	ND	ND	ND	BDL	0.007	0.9	0.09	BDL	ND	0.7	BDL
38	AG-38	ND	0.02	ND	ND	ND	BDL	0.003	0.3	0.07	ND	ND	0.3	BDL
39	AG-39	ND	0.03	ND	ND	ND	BDL	0.001	0.3	0.09	BDL	BDL	0.4	BDL
40	AG-40	ND	0.03	BDL	ND	ND	BDL	BDL	0.006	0.06	BDL	BDL	0.5	BDL
41	AG-41	ND	0.03	BDL	ND	ND	BDL	BDL	0.007	0.07	BDL	BDL	0.6	BDL

BDL-Below Detection Limit; ND-Not Detected

Table 4.5: Physico-chemical parameters in post-monsoon (November 2019)

Sr. No	**Sample Code**	**pH**	**EC**	**TDS (mg/l)**	**Turbidity**	**Total Hardness as $CaCO_3$**	**Calcium as Ca^{2+}**	**Magnesium Mg^{2+}**	**Sodium**	**Potassium**	**Total alkalinity as $CaCO_3$**	**Phosphate as PO_4^{-2}**	**Fluoride as F^-**	**Nitrate NO^{3-}**	**sulphate**	**chloride**
Units	**-**	**-**	**µS/cm**	**mg/L**	**NTU**	**mg/L**										
BIS 10500:2012 (Acceptable/ Permissible limit)		**6.5/8.5**	**-**	**500/ 2000**	**1/5**	**200/ 600**	**75/200**	**30/100**	**-**	**-**	**200/600**	**-**	**1.0/1.5**	**45**	**200/400**	**250/ 1000**
1	AG-1	7.6	429	257	0.4	220	40	29	13	4	160	0.2	0.5	9	18	30
2	AG-2	7.8	68	41	55	148	35	14	9	2	130	0.7	0.2	4	16	10
3	AG-3	7.5	649	389	0.2	170	33	21	20	4	160	0.5	0.9	10	18	50
4	AG-4	7.8	400	240	0.6	180	32	24	20	1	160	0.8	1.2	12	10	20

Sr. No	Sample Code	pH	EC	TDS (mg/l)	Turbidity	Total Hardness as $CaCO_3$	Calcium as Ca^{2+}	Magnesium Mg^{2+}	Sodium	Potassium	Total alkalinity as $CaCO_3$	Phosphate as PO_4^{-2}	Fluoride as F^-	Nitrate NO^{3-}	sulphate	chloride
Units	**-**	**-**	**µS/cm**	**mg/L**	**NTU**	**mg/L**										
BIS 10500:2012 (Acceptable/ Permissible limit)		**6.5/8.5**	**-**	**500/ 2000**	**1/5**	**200/ 600**	**75/200**	**30/100**	**-**	**-**	**200/600**	**-**	**1.0/1.5**	**45**	**200/400**	**250/ 1000**
5	AG-5	7.7	1072	643	0.2	248	80	12	40	6	228	0.9	0.5	3	50	80
6	AG-6	7.8	789	473	1	178	55	10	30	1	160	0.6	1	5	11	84
7	AG-7	7.9	614	368	0.2	240	72	14	26	2	180	0.6	0.2	80	8	64
8	AG-8	8	378	227	0.3	110	32	7	14	2	120	0.4	0.3	20	4	20
9	AG-9	7.4	866	520	3.4	300	56	38	20	2	180	0.4	0.2	2	30	130
10	AG-10	8.3	1507	904	0.2	196	35	26	180	3	498	0.4	2	5	12	110
11	AG-11	8.3	582	349	0.3	164	39	16	48	3	200	0.6	2	29	18	20
12	AG-12	7.9	1441	865	0.3	260	48	34	60	1	220	0.4	0.4	33	42	120
13	AG-13	7.9	1199	719	0.2	410	44	72	60	2	288	0.7	2	98	48	122
14	AG-14	7.9	582	349	0.3	218	32	33	23	3	180	0.4	0.4	40	28	60
15	AG-15	7.8	167	100	0.2	132	24	17	9	1	100	0.3	0.2	9	6	10
16	AG-16	7.9	602	361	0.3	216	35	31	35	3	208	0.4	0.3	1	5	36
17	AG-17	7.8	306	184	0.3	248	27	43	18	1	198	0.8	0.6	2	13	16
18	AG-18	7.9	472	283	0.7	160	24	24	20	1	210	0.5	0.5	1	2	20

Sr. No	Sample Code	pH	EC	TDS (mg/l)	Turbidity	Total Hardness as $CaCO_3$	Calcium as Ca^{2+}	Magnesium Mg^{2+}	Sodium	Potassium	Total alkalinity as $CaCO_3$	Phosphate as PO_4^{-2}	Fluoride as F^-	Nitrate NO^{3-}	sulphate	chloride
Units	**-**	**-**	**µS/cm**	**mg/L**	**NTU**	**mg/L**										
BIS 10500:2012 (Acceptable/ Permissible limit)		**6.5/8.5**	**-**	**500/ 2000**	**1/5**	**200/ 600**	**75/200**	**30/100**	**-**	**-**	**200/600**	**-**	**1.0/1.5**	**45**	**200/400**	**250/ 1000**
19	AG-19	7.6	489	293	0.5	198	35	26	16	1	200	0.4	0.3	3	4	16
20	AG-20	7.9	777	466	0.2	280	44	41	24	7	240	0.5	0.3	88	22	40
21	AG-21	7.9	646	388	0.2	260	24	48	34	3	210	4.2	2	28	22	82
22	AG-22	7.8	665	399	0.5	158	39	14	40	2	180	3.6	0.5	5	48	40
23	AG-23	7.7	1234	740	0.2	390	84	43	30	3	188	2.9	0.4	14	60	176
24	AG-24	8	181	109	1.2	68	19	5	11	1	78	1	0.3	2	12	16
25	AG-25	7.7	1518	911	0.5	540	112	62	28	5	240	1.2	0.5	180	90	180
26	AG-26	7.9	623	374	0.3	358	55	53	25	2	188	0.9	0.4	60	22	62
27	AG-28	7	582	349	0.8	144	32	15	48	3	220	0.8	0.2	2	10	40
28	AG-29	8	810	486	0.3	338	51	50	21	2	180	0.6	0.6	110	50	92
29	AG-30	8	631	379	0.2	164	40	15	32	2	100	0.9	0.6	3	100	44
30	AG-31	8	582	349	0.3	196	38	24	22	2	120	0.3	0.2	2	50	50
31	AG-32	7.9	748	449	1.2	160	24	24	30	4	228	0.5	0.3	1	9	30
32	AG-34	7.9	1244	746	0.3	320	72	34	24	4	120	0.6	0.4	100	40	124

Sr. No	Sample Code	pH	EC	TDS (mg/l)	Turbidity	Total Hardness as $CaCO_3$	Calcium as Ca^{2+}	Magnesium Mg^{2+}	Sodium	Potassium	Total alkalinity as $CaCO_3$	Phosphate as PO_4^{-2}	Fluoride as F^-	Nitrate NO^{3-}	sulphate	chloride
Units	**-**	**-**	**µS/cm**	**mg/L**	**NTU**	**mg/L**										
BIS 10500:2012 (Acceptable/ Permissible limit)		**6.5/8.5**	**-**	**500/ 2000**	**1/5**	**200/ 600**	**75/200**	**30/100**	**-**	**-**	**200/600**	**-**	**1.0/1.5**	**45**	**200/400**	**250/ 1000**
33	AG-35	7.8	2350	1410	0.4	890	56	180	113	20	260	0.5	0.5	100	200	370
34	AG-36	8.3	273	164	0.5	140	24	19	9	3	120	0.7	0.3	4	10	26
35	AG-37	8.2	267	160	0.5	90	24	7	12	1	80	0.8	0.3	1	11	26
36	AG-38	8	957	574	0.8	256	44	35	60	1	240	1.6	0.4	43	32	90
37	AG-39	7.9	4590	2754	0.6	740	152	86	140	5	298	1.1	0.7	98	100	520
38	AG-40	8.4	457	274	0.3	128	19	19	88	3	196	2.2	0.8	2	12	40
39	AG-41	8.2	726	436	0.3	160	32	19	22	3	160	0.8	0.7	19	12	36
40	AG-42	8.2	854	512	0.3	168	35	19	21	11	160	0.8	0.6	33	33	36
41	AG-43	8.2	556	334	0.9	140	32	14	20	10	180	0.8	0.5	21	26	10
42	AS	8.1	879	527	12	200	48	19	22	11	188	2.8	1	23	23	50

Table 4.6: Heavy Metal parameters in Post-monsoon (November 2019)

Sr. No	Sample code	Al	As	Cd	Cr	Cu	Fe	Mn	Ni	Pb	Zn	Hg
	BIS Limit (ppm)	**0.03-0.2**	**0.01**	**0.003**	**0.05**	**0.05-1.5**	**0.3-1.0**	**0.10-0.30**	**0.02**	**0.01**	**5.0-15**	**0.001**
	ICP detection Limit (ppm)	**0.00001**	**0.007**	**0.0001**	**0.01**	**0.0004**	**0.0003**	**0.0001**	**0.005**	**0.009**	**0.001**	**0.000075**
1	AG-1	0.09	0.009	0.0009	0.03	0.01	1.6	0.03	BDL	0.009	0.1	BDL
2	AG-2	0.09	0.009	0.002	0.02	0.01	4.2	0.1	0.006	0.009	0.2	BDL
3	AG-3	0.02	0.007	0.001	BDL	0.01	0.8	0.1	0.009	0.009	0.1	BDL
4	AG-4	0.02	0.007	0.001	BDL	0.02	1.0	0.4	0.01	0.009	0.1	BDL
5	AG-5	0.09	0.009	0.0005	BDL	0.01	1.0	0.03	BDL	BDL	0.2	BDL
6	AG-6	0.09	0.009	ND	BDL	0.009	9.2	0.1	BDL	BDL	0.6	BDL
7	AG-7	0.09	0.009	0.0001	BDL	0.01	1.0	0.03	BDL	BDL	0.2	BDL
8	AG-8	0.09	BDL	0.0001	BDL	0.01	0.6	0.02	BDL	BDL	0.7	BDL
9	AG-9	0.09	ND	ND	BDL	0.01	6.7	0.4	0.006	BDL	19.0	BDL
10	AG-10	0.09	ND	ND	BDL	0.009	0.6	0.03	BDL	BDL	0.2	BDL
11	AG-11	0.09	ND	ND	BDL	0.01	0.6	0.04	BDL	BDL	0.5	BDL
12	AG-12	0.09	ND	ND	BDL	0.01	0.8	0.03	BDL	BDL	0.6	BDL
13	AG-13	0.09	ND	ND	BDL	0.03	0.5	0.04	BDL	BDL	0.2	BDL
14	AG-14	0.09	ND	ND	BDL	0.01	1.4	0.09	BDL	BDL	0.3	BDL

15	AG-15	0.09	ND	ND	BDL	0.01	0.7	0.02	BDL	BDL	0.6	BDL
16	AG-16	0.09	ND	ND	BDL	0.007	1.0	0.02	BDL	BDL	0.09	BDL
17	AG-17	0.03	ND	ND	BDL	0.008	0.5	0.2	BDL	BDL	0.08	BDL
18	AG-18	0.09	ND	ND	BDL	0.01	12.0	0.05	BDL	BDL	0.2	BDL
19	AG-19	0.09	ND	ND	BDL	0.02	2.4	0.05	BDL	BDL	0.1	BDL
20	AG-20	0.09	ND	ND	BDL	0.02	2.6	0.03	BDL	BDL	0.3	BDL
21	AG-21	0.09	ND	ND	BDL	0.01	0.8	0.03	BDL	BDL	0.1	BDL
22	AG-22	0.09	ND	ND	BDL	0.01	0.6	0.05	BDL	BDL	0.06	BDL
23	AG-23	0.008	ND	ND	BDL	0.009	1.1	0.02	BDL	BDL	0.2	BDL
24	AG-24	0.5	ND	ND	BDL	0.01	1.4	0.1	BDL	BDL	0.1	BDL
25	AG-25	0.006	ND	ND	BDL	0.01	2.3	0.05	BDL	BDL	1.4	BDL
26	AG-26	0.007	ND	ND	BDL	0.009	0.6	0.03	BDL	BDL	0.09	BDL
27	AG-28	0.009	ND	ND	BDL	0.01	2.7	0.2	BDL	BDL	0.5	BDL
28	AG-29	0.001	ND	ND	BDL	0.02	8.8	0.09	BDL	BDL	0.5	BDL
29	AG-30	0.004	ND	ND	BDL	0.01	0.7	0.02	BDL	BDL	0.08	BDL
30	AG-31	0.002	ND	ND	BDL	0.009	0.8	0.5	BDL	BDL	0.1	BDL
31	AG-32	0.001	ND	ND	BDL	0.006	18.0	0.1	BDL	BDL	0.6	BDL
32	AG-34	0.006	ND	ND	BDL	0.009	1.8	0.04	BDL	BDL	0.2	BDL
33	AG-35	0.005	ND	ND	BDL	0.02	3.3	0.03	BDL	BDL	0.1	BDL
34	AG-36	0.09	ND	ND	BDL	0.01	4.0	0.03	BDL	BDL	0.2	BDL

35	AG-37	0.03	ND	ND	BDL	0.01	0.8	0.01	BDL	BDL	0.2	BDL
36	AG-38	0.03	ND	ND	BDL	0.009	1.2	0.04	BDL	BDL	0.1	BDL
37	AG-39	0.09	ND	ND	BDL	0.007	0.8	0.01	BDL	BDL	0.05	BDL
38	AG-40	0.09	ND	ND	BDL	0.009	2.2	0.02	BDL	BDL	0.1	BDL
39	AG-41	0.09	ND	ND	BDL	0.04	0.5	0.04	BDL	BDL	0.07	BDL
40	AG-42	0.09	ND	ND	BDL	0.008	3.2	0.05	BDL	BDL	0.2	BDL
41	AG-43	0.09	ND	ND	BDL	0.006	1.0	0.05	BDL	BDL	0.05	BDL
42	AS	5.8	0.07	0.0002	BDL	0.01	4.0	0.05	0.01	BDL	0.08	BDL

BDL- Below Detection Limit; ND- Not detected

Chapter 5

Findings and Recommendation

5.1 Findings

Heavy metal parameters namely As, Hg in the groundwater sources are within the drinking water standards of BIS (10500:2012).

Iron concentration is high in many sources and it can be attributed to the rusting of the pipes in the hand pumps.

Physico-chemical parameters are within the permissible limit of drinking water standards of BIS (10500:2012).

The groundwater level is shallow and most of the sources have water level <10m (below ground level**).**

5.2 Future activities

Pre-monsoon and post-monsoon sampling in 2020 and analysis

Collection of primary and secondary data on the groundwater abstraction for Groundwater stage development

Annexure XII

Interim Report-I

Providing services for carrying out fly ash leachability study for 5x660 MW thermal power plant, Tiroda, Dist-Gondia, Maharashtra

Submitted to

M/s. Adani Power Maharashtra Limited (APML), Tiroda,
Gondia District (Maharashtra)

CSIR-National Environmental Engineering Research Institute
Under Council of Scientific & Industrial Research
Nehru Marg, Nagpur – 440 020

NEERI
ISO 9001:2008

May 2020

Chapter 1

Introduction

1.1 Preamble

Adani Power Maharashtra Limited (APML) is operating 3300 MW (5 X 660 MW) coal based thermal power plant at Tiroda, Dist – Gondia, Maharashtra. The 1st unit of the plant was operational in September 2012. The other units were added subsequently in 2013 and 2014. The plant is having ash lagoons (3 nos) having High-density polyethylene (HDPE) liners for disposal. The ash dyke area is spread over approximately 156 hectares.

APML has generated total fly ash during the last three years is 10,168,727 MT (FY 2017-18 is 2825523 MT, FY 2018-19 is 3491049 MT and FY 2019-20 is 3852155 MT). The total bottom ash generation during the last three years is 2,542,181 MT (FY 2017-18 is 706380 MT, FY 2018-19 is 872762 MT and FY 2019-20 is 963039 MT). The total ash generation in FY 2017-18 is 3531904 MT, FY 2018-19 is 4363812 MT and in FY 2019-20 is 4815194 MT (source: APML).

As far as the reuse of fly ash is concerned, part of the generated ash is sent for brick making in the plant itself. Fly ash is also sent to other place for making of bricks. Besides, fly ash is being used for land reclamation in the villages surrounding the APML plant. This land reclamation of low lying areas by ash backfilling for Road & Fly-Over Construction, Raising of Ash Dyke Bunds and Cement manufacturing has been going on in the buffer zone of the plant. The back filling at the low lying areas is being pursued to comply with the fly ash notification, 2009 (As Amended in 2016) of the MoEF & CC of the Government of India.

The total ash utilization for making of bricks and ash based products in FY 2017-18 is 55435 MT, FY 2018-19 is 57725 MT and in FY 2019-20 is 76614 MT. For land filling purpose the total ash is utilized in FY 2017-18 is 271090 MT, FY 2018-19 is 533112 MT and FY 2019-20 is 2036334 MT. The total ash utilized for other purposes like Cenosphere, Mound Formation HCSD (High Concentration Slurry disposal), Fine Ash, Cement, Dyke Raising, construction, road, Mine stowing and Agriculture during FY 2017-18 is 2533183 MT, FY 2018-19 is 3094301 MT and FY 2019-20 is 2262547 MT (source: APML).

The total ash utilization in FY 2017-18 is 2859707 MT, FY 2018-19 is 3685139 MT and in FY 2019-20 is 4375495 MT. The ash utilization percentage in FY 2017-18 is 81%, in FY 2018-19 is 84.4% and in FY 2019-20 is 90.87% (source: APML).

CSIR-NEERI was assigned the task of assessing the impact of ash fill sites of Adani Power Maharashtra Limited (APML) on the water resources in the surrounding area of Tiroda village. The study was completed in 2019. Subsequently, M/S Adani desired CSIR-NEERI to provide services for the fly ash leachability study vide Service order No.5700267218. Accordingly CSIR - NEERI team visited the ash disposal site in the premises of APML (Figure 1.1).

Figure 1.1: CSIR-NEERI team at ash disposal site

1.2 Scope of work

- The study will cover the 35 km buffer zone as well as the micro-watershed surrounding APML plant. The study will cover the pre-monsoon as well as post-monsoon season in three complete hydrological cycles.
- Toxic Characteristic Leaching procedure (A complete TCLP Parameters) for fly ash and pond ash sample shall be collected. This will include the samples from site where fly ash is used for land reclamation.
- Particle size fraction and elemental speciation (SiO_2, Al_2O_3, CaO, MgO, Fe_2O_3, K_2O, Na_2O, SO_3 and other oxides, heavy metals as well) in the fly ash to be analyzed.

- Mercury and Arsenic analysis in coal, fly ash and samples taken from land reclamation sites (Once in a Year).
- Modeling of dissolution of mercury and arsenic from coal fly ash particle in aqueous phase.
- Complete soil analysis (physico chemical parameters & heavy metals) in and around the study area as well as ash ponds of APML (Once in a Year).

1.3 Approach of the study

A kick off meeting was arranged at the APML on 12th June, 2019 wherein presentation of the project was made before the senior management of the APML. Subsequently, discussions were held in the Environmental section wherein planning for the field activities were discussed. A reconnaissance visit took place wherein the ash disposal at the low lying areas in the 35 km buffer were covered.

The observation well network and low lying areas for back filling by ash were identified during the reconnaissance visit and followed by the pre-monsoon sampling.

1.4 Report layout

Chapter 2 presents the study area details

Chapter 3 presents the Methodology of data collection

Chapter 4 presents the Ash characterization and Particle size Analysis of sampling carried out in May 2019

Chapter 5 presents the Findings and Future activities

Chapter 2

Study Area

2.1 Location

The Adani Power Maharashtra Limited (APML) lies in the study area between latitudes 21° 16' 30" N to 21° 33' 00" N and longitudes 79° 49' 30" E and 80° 06' 50" E. The plant is covered by the survey of India toposheet No 55 O/15 (scale: 1:50,000). The 15 km buffer zone around the plant is covered by Survey of India Toposheet (55 O/14, 55 O/15, 55 O/16 and 64 C/3 on 1:50,000 scale). It is located in Tiroda village in the Gondia District of Maharashtra (Figure 2.1).

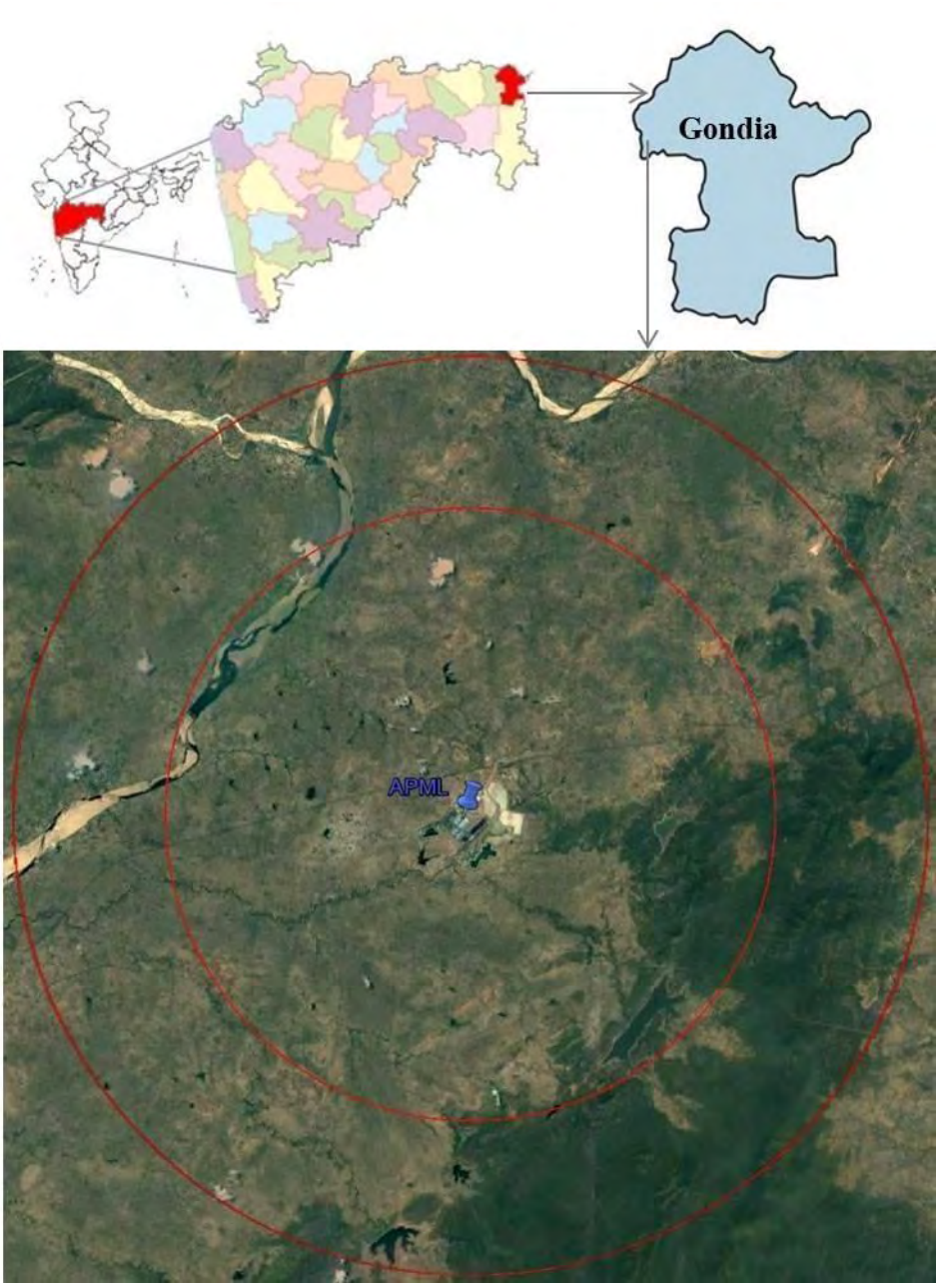

Figure 2.1: Location map (35 km buffer of APML) of the study area

2.2 Climate

The study area experiences tropical monsoon climate with mild winter and hot summer. Rainfall in this region usually starts with the onset of monsoon by the middle of June. The southwest monsoon arrives over the district around the second week of June. The rainfall increases from west to east of Tiroda Tehsil. The annual average rainfall in Tiroda is about 1322 mm is observed (Table 2.1).

Table 2.1: The rainfall (mm) distribution in the study area (2012-19)

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total rainfall (mm)
2012	3.5	7	0	8.5	1.5	101	389.3	342.4	192.5	1	25.5	0	1072.2
2013	7	27	6.5	51	0	284	737.8	508.7	71	94	0	0	1787
2014	0	61.5	26.5	52.5	27	88	699.4	193.2	129	45.8	0	0.2	1323.1
2015	2	17.5	170.5	26.5	10	300.5	255.5	407.6	208.8	0	0	0	1398.9
2016	0	10	25.5	10.5	37.5	96.0	454.5	410.0	162.0	29.0	0	0	1235
2017	0	0.0	9.5	0.0	28.5	143.5	259.0	333	85.5	28	0	0	887
2018	0.0	18.8	0.0	18.5	7.5	146.2	615	370.4	111.5	0	0	1.5	1289
2019	11.5	0	24.5	0	0	203.5	290.9	551.6	417.9	52.2	0	26.4	1579

(Source: Adani Power Maharashtra Limited)

The average monthly maximum temperature recorded is 42.1°C in the month of May while the lowest average monthly temperature recorded is 13.1°C in the month of December. The study area has the hottest month during May when daily maximum temperature rises above 42.5°C and the heat is intense. December is the coldest month. During cold waves which affect the district in association with the passage of western disturbances across north India, the minimum temperature at times go down to 7°C.

Except during the monsoon season when humidity is high, the air is generally dry during the year. The summer season is the driest part of the year when relative humidity goes down to 20% or less in the afternoon.

2.3 Topography

The study area is located in the extreme north-eastern district (Gondia) of Maharashtra. The land in this part is partly undulating at higher elevation (more than 300 m on land away from river) while it becomes more or less flat near the river. The proposed site lies on

the Wainganga plains. The general elevation of the study area ranges from 301.11 m to 338.4 m. The area has rocky outcrops of granites and gneisses.

2.4 Geology

Geologically the area essentially belongs to the Archeans sediments preserved in the synclinal depressions of the landscape and is highly metamorphosed. The proposed plant site area is basically marked by the rock formations from the oldest granite and gneiss of pre-cambrian to recent alluvium. The gneisses comprise of biotite, hornblende gneiss and magnetite. The Biotite gneiss is composite in character and forms the basement for younger metamorphoses sedimentary rocks. Two types of series of rocks viz. Sausar series and Sakoli formations are found in the region.

In Tirora region, especially the study area belongs to the Sausar series. Lithologically Sausar series consist of talc granulites, mica and hornblende schist, gneiss rocks of the Sausar group contain and biotite but not chlorite. Manganese deposits are associated with rocks of this group. The rocks comprise of low grade metamorphoses such as phyllites, chlorites, muscovite and hornblende schist, quartzite, kyanite and sillimanite rocks. These are intruded by basic rocks and quartz veins. Along the bank of the river Wainganga alluvial cover varying from a few meters to 15 m thick has been observed.

2.5 Hydrogeology

The study area, covering Tirora and Gondia talukas of Gondia district, is occupied by the crystalline rocks of Pre-Cambrian formations i.e. Granite Gneises and Dharwars (Sausar and Sakoli group). The Pre-Cambrian crystalline rocks are the major water bearing formations in the study area. The weathered portions of crystalline rocks together with joints and fracture zones act as good aquifers (CGWB, 2013). Ground water occurs under water table conditions in the weathered mantle and then the fractured, well-jointed and sheared zones. Dug wells, dug cum bore wells and bore wells are the common ground water abstraction structures in the study area. Ground water occurs under water table conditions and semi-confined conditions in these formations. Water table conditions prevail in the weathered mantle and the fractures, jointed and sheared zones (CGWB, 2013).

Chapter 3

Methodology of data collection

3.1 General

The study envisages addressing the objectives by a holistic approach integrating the following aspects:

- TCLP studies
- Chemical Characterization of ash samples
- Particle Size Analysis
- Physico-chemical and heavy metal composition of groundwater sources close to the ash filling areas

Accordingly, primary data has been generated by undertaking extensive field survey in the month of June 2019 (pre-monsoon season) and November 2019 (post-monsoon season). Secondary data has been collected through interaction with Adani Power Maharashtra Limited (APML) officials and the local villagers in and around the study area. The base map of the study area is shown in the Figure 3.1 (15 km and 35 km buffer zone).

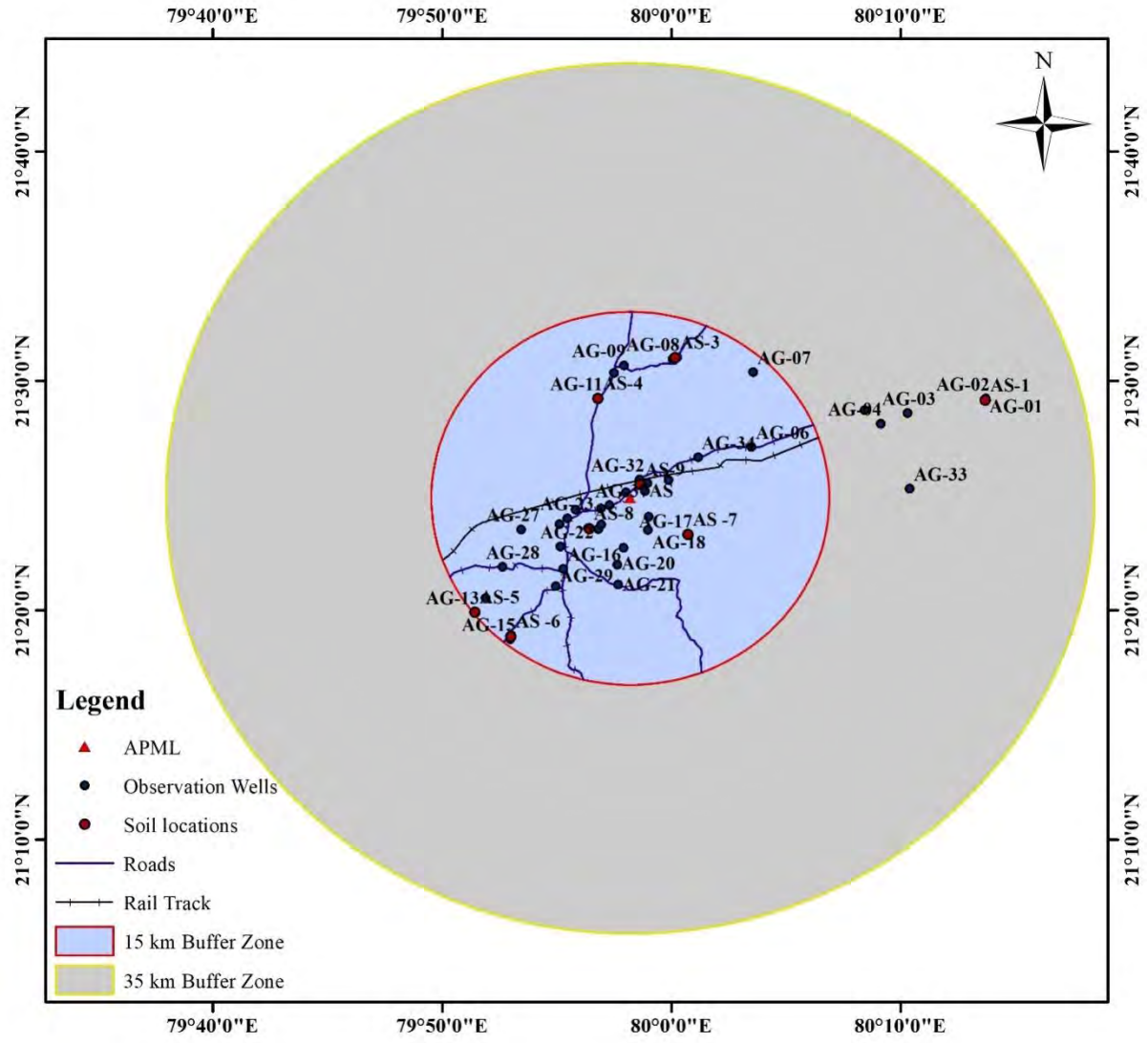

Figure 3.1: Base map of the study area

3.2 TCLP test

A commonly used test for the determination of the leaching characteristics of fly ash is the **Toxicity Characteristic Leaching Procedure (TCLP)** established by the US Environmental Protection Agency (US EPA, 1992). The TCLP is designed to determine the mobility of both organic and inorganic analytes present in liquid, solid and multiphase wastes. Fly ash samples (6 nos) were collected from the low lying back filling areas as well as the ash ponds and the Silo (Table 3.1). Standard leaching procedure has been carried out for the assessment of the mobility of hazardous substances into an aqueous phase and for the evaluation of their environmental impact. The procedure is carried out in an assembly which has an orbital shaker with fixed rotations per minute (RPM). This procedure provides a uniform method to compare the tendency of inorganic elements to leach out from fly ash samples into ***Moderate-***

to-highly acidic aqueous environments. The testing methodology is used to determine if ash is characteristically hazardous (D-List) or not. The extract is analyzed for substances appropriate to the protocol. The toxicity characteristic leaching procedure (TCLP) was conducted as per United States Environmental Protection Agency protocol (US EPA SW-846 method, 1311), wherein 10 gram of ash samples was taken with extraction fluid in 1:20 ratio (m/v). The extraction assembly at room temperature was tightly closed and kept in orbital shaker at 30±2 rpm for 18 hours. The suspension was filtered and filtrates for heavy metals were analyzed by ICP-MS. The TCLP extraction fluid was prepared by mixing 5.7 ml of glacial acetic acid, 500 ml of deionized water and later 64.3 ml of 1N NaOH was added and the volume was made up to 1 Liter. The pH of extraction fluid was maintained at 4.9.

Table 3.1: Ash sampling locations in the study area

Sample Code	Latitude	Longitude	Location Description
AF-1	21º 29' 9.00"	80º 13' 42"	Amboora – On road, new ash dumping site, LHS of Gondiya to Barbaspur road
AF-2	21º 29' 13.6"	79º 56' 48.4"	Indore:Tirdoa – behind village primary school and panchayat building
AF-3	21º 18' 51.2"	79º 53' 00.3"	Silli – at Mr. Kiran Patle site covering with 3.50 acre area
AF-4	21º 23' 17.8"	80º 00' 43.9"	Indora – Ash fill site at proposed poultry farm area of Mr. KrantilalPremlalBahele
APS			Pond ash collected from ask dyke
AFPS			Fly ash collected from cylo

3.3 Chemical characterization of ash samples

The ash samples were collected at six (06) locations in the study area (Table 3.1). They were analyzed for elements like Na_2O, MgO, SiO_2, Al_2O_3, Fe_2O_3, TiO_2, CaO, K_2O, P_2O_5, SO_3, Cr_2O_3, MnO_2, NiO, CuO, Cr_2O_3, MnO_2, NiO, CuO, Rb_2O, SrO, ZrO_2, BaO and Cl. The analysis was carried out at IBM (Indian Bureau of Mines), Nagpur.

3.4 Particle Size Analysis (PSA)

Particle-size analysis (PSA) is a measurement of the size distribution of individual particles in a soil/ash sample. The major features of PSA are the destruction or dispersion of soil/ash aggregates into discrete units by chemical, mechanical, or ultrasonic means and the separation of particles according to size limits by sieving and sedimentation. Chemical pretreatments are used for removal of organic matter and carbonate coatings; however, chemical treatment can result in destruction and dissolution of some minerals in the collected

samples. The Particle Size analysis was carried out for ash samples collected in the study area (Table 3.1). Composite samples were prepared for particle size analysis using Malvern Mastersizer 2000laser diffractometer. The Malvern Mastersizer uses the principles of static light scattering (SLS) and Mie theory to calculate the size of particles in a sample. The basic principle is that small particles will scatter light at large angles and large particles will scatter light at small angles (Figure 3.2).

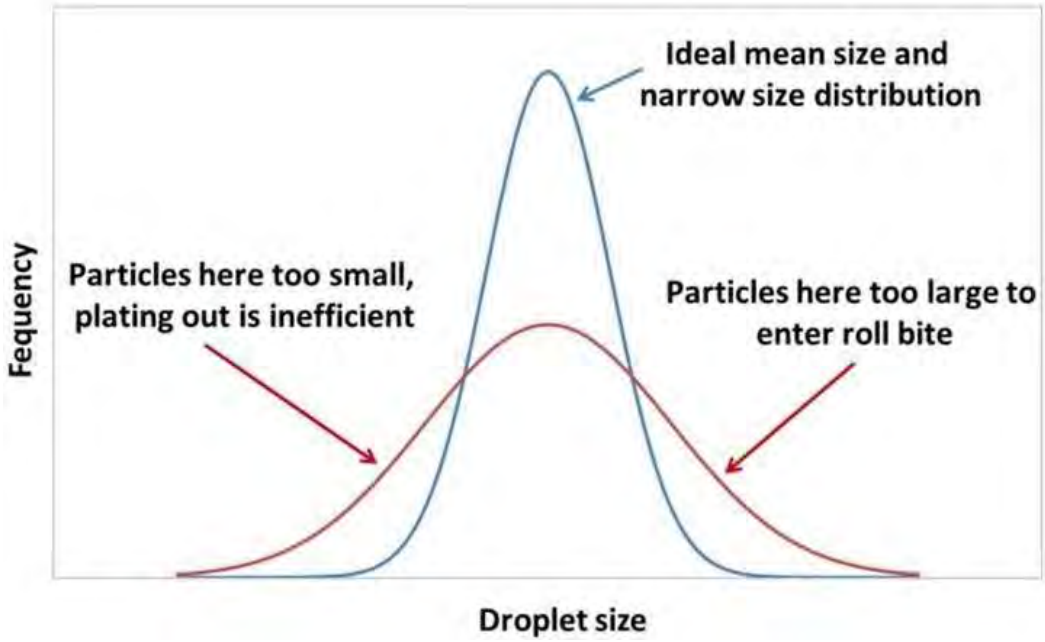

Figure 3.2: Laser Diffraction Particle Sizing

Chapter 4

Results and Discussions

4.1 Chemical characterization of the ash samples

The ash characterization results indicate that the ash samples comes under the class F with the percentage of SiO_2 (61.26% - 63.39%) followed by Al_2O_3 (25.70% - 26.68%), Fe_2O_3 (4.18% - 5.92%), TiO_2 (1.90% - 2.07%) respectively (Tables 4.1 & 4.2). As per the results, the major constituents in the pond ash are Si, Al, Fe and Ti as prominent elements in the form of oxides, silicates and alumino-silicates.

Table 4.1: Chemical composition (%) of ash samples

Sample Code	New Code	Na_2O	MgO	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	CaO	K_2O	P_2O_5	SO_3
AF-1	AF-1	0.11	0.45	61.26	26.68	5.78	2.06	1.25	1.09	0.38	0.09
AF-4	AF-2	0.18	0.43	61.53	26.43	5.92	2.07	1.02	1.11	0.35	0.12
AF-6	AF-3	0.09	0.44	62.45	26.47	4.99	2.07	1.18	1.13	0.40	0.09
AF-7	AF-4	0.09	0.43	62.61	26.67	4.45	2.04	0.98	1.21	0.37	0.07
AFAS	AFPS	0.09	0.41	63.39	26.52	4.18	1.98	1.04	1.17	0.38	0.09
APS	APS	0.09	0.39	63.39	25.70	4.79	1.90	1.02	1.19	0.28	0.04

Table 4.2: Chemical composition (%) of ash samples

Sample Code	New Code	Cr_2O_3	MnO_2	NiO	CuO	Rb_2O	SrO	ZrO_2	BaO	Cl
AF-1	AF-1	0.04	0.08	0.02	0.01	-	0.02	0.05	0.05	-
AF-4	AF-2	0.03	0.07	0.01	0.01	-	0.02	0.06	0.04	0.05
AF-6	AF-3	0.03	0.07	0.01	0.01	-	0.02	0.06	0.05	-
AF-7	AF-4	0.04	0.04	0.01	0.01	-	-	0.05	0.05	-
AFAS	AFPS	0.03	0.06	0.01	0.01	0.03	0.02	0.05	0.04	-
APS	APS	0.04	0.06	0.01	0.01	0.04	0.02	0.06	0.05	-

4.2 Particle Size Analysis

The particle size analysis of the ash samples was carried out. The particle size range and the respective % volume (Table 4.3) indicate that all ash samples have particle size predominantly below 100 µm whereas ~16% of the sample AF-2 has particle size exceeding 100 µm.

Table 4.3: Particle size analysis of ash samples in the study area

(AF-1)		(AF-2)		(AF-3)	
Size (µm)	Volume in %	Size (µm)	Volume in %	Size (µm)	Volume in %
0-0.1	0	0-0.1	0	0-0.1	2.23
0.1-1	0.06	0.1-1	0.03	0.1-1	13.22

1-10	37.22	1-10	27.93	1-10	39.81
10-100	58.95	10-100	56.53	10-100	44.45
100-1000	3.81	100-1000	15.54	100-1000	0.3
(AF-4)		**APS (APS)**		**AFAS (AFPS)**	
Size (µm)	**Volume in %**	**Size (µm)**	**Volume in %**	**Size (µm)**	**Volume in %**
0-0.1	0	0-0.1	0	0-0.1	0
0.1-1	0.02	0.1-1	0.03	0.1-1	0
1-10	33.68	1-10	37.17	1-10	34.12
10-100	64.2	10-100	60.82	10-100	61.06
100-1000	2.11	100-1000	1.97	100-1000	4.82

Chapter 5

Findings and Recommendation

5.1Findings

The chemical characterization of the fly ash is dominated by SiO_2, Al_2O_3 and Fe_2O_3. The particle size analysis indicates that predominantly the ash particles have size less than 100μm.

5.2 Future activities

Pre-monsoon and post-monsoon sampling in 2020

TCLP analysis of the samples collected in 2019

Annexure XIII

ULR-TC666519000001464F

क्रम सं. / SL. NO.: 465 A 46464

BRIT/BARC Vashi Complex,
सेक्टर-20, वाशी / Sec-20, Vashi,
नवी मुंबई / Navi Mumbai-400 703
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TC-6665

भारत सरकार / GOVERNMENT OF INDIA
परमाणु ऊर्जा विभाग / DEPARTMENT OF ATOMIC ENERGY
विकिरण एवं आइसोटोप प्रौद्योगिकी बोर्ड / BOARD OF RADIATION & ISOTOPE TECHNOLOGY

रेडियोसक्रियता परीक्षण प्रमाण-पत्र / RADIOACTIVITY TEST CERTIFICATE

RADIOANALYTICAL LABORATORY

Ref: BRIT/RAL/D-297-302/MISC/261-66/19-20 **Sep 04, 2019**

TO
M/S. ADANI POWER MAHARASHTRA LTD.,
PLOT A-1, TIRORA GROWTH CENTRE,
MIDC AREA, TIRORA,
DIST.GONDIA 441911
MAHARASHTRA, INDIA

This is regarding the "COAL, FLY ASH & POND ASH" sample submitted vide your letter no. APML/ENV/BRIT/937/07/19 dated 08.07.2019 for radioactivity analysis with the following details :

SAMPLE DESCRIPTION : COAL, FLY ASH & POND ASH

PLACE OF SAMPLING : PREMISES OF ADANI POWER MAHARASHTRA LTD., GONDIA

DATE OF SAMPLING : 08.07.2019

The sample was analysed for U-238 and Th-232 radioactivity content and the values obtained are as follows:

SR.NO.	SAMPLE NAME	SAMPLE CODE	QUANTITY(KG)	U-238 Bq/Kg	Th-232 Bq/Kg
1.	COAL	ACS-1	1	62 ± 7.9	47.1 ± 7.0
2.	FLY ASH	AFAS-1	1	111.2 ± 34.3	118.4 ± 11.5
3.	POND ASH	APS-1	1	100.4 ± 10.1	121.9 ± 11.7

Date of receipt of sample: 26.07.2019 *Date of completion of test: 09.08.2019*

The measurement values are below the clearance level for radionuclides of natural origin in bulk solid materials, as per AERB directive 01/2010 (table-3) dated 26/11/2010.

Note: (i)The report pertains to the given sample only. (ii)The sample will be retained in this laboratory for a period of one month from certificate date and thereafter it will be disposed off. (iii)This report shall not be reproduced except in full, without written approval of the laboratory. (iv) The sampling is not done by this laboratory.

Checked by:

(AJAY. N. THAMKE)

Authorized Signatory :

04/09/2019

एन. जयचंद्रन / N. Jayachandran
प्रभारी अधिकारी / Officer-In-Charge
रेडियोविश्लेषक प्रयोगशाला / Radioanalytical Laboratory
विकिरण एवं आइसोटोप प्रौद्योगिकी बोर्ड
Board of Radiation & Isotope Technology
सेक्टर / Section-20, वाशी संकुल / Vashi Complex
नवी मुंबई / Navi Mumbai-400 703

****End of Report****