ADITYA BIRLA
HINDALCO

Letter No: AAP/E&S/EC/2019/457 Date: 25/05/2019

To

The Director
Eastern Regional Office
Ministry of Environment & Forests
A/3, Chandrashekharpur
Bhubaneswar – 750 023 (Odisha)

Sub: Submission of Six Monthly Compliance from Oct' 18 to Mar' 19.

Ref: Environmental Clearance Letter No: J-11011/136/2009-IA.I (I), dated 29/11/2012, J-11011/136/2009-IA.II (I), dated 14/06/2013 & J-11011/136/2009-IA.II (I), dated 14/08/2018

Dear Sir,

As a part of the compliance to the Environmental Clearance accorded by MoEF&CC to Aditya Aluminium for 0.72 MTPA Smelter and 1650 MW CPP at Lapanga in Sambalpur district, please find enclosed herewith the six monthly compliance reports of aluminium smelter and captive power plant for the period October'18 to March'19.

Kindly acknowledge receipt of the reports.

Thanking You

Yours faithfully
For Aditya Aluminium

(K. N. Pandey)
President & Unit Head

Copy for kind information to:

1. The Member Secretary, SPCB, Bhubaneswar
2. The Regional Director, Zonal office of CPCB, Kolkata
3. The Regional Officer, SPCB, Sambalpur

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Corporate ID No.: L27020MH1958PLC011238

STATUS OF IMPLEMENTATION OF CONDITIONS STIPULATED IN ENVIRONMENTAL CLEARANCE FOR 7,20,000 TPA ALUMINIUM SMELTER & 1650 MW CAPTIVE POWER PLANT FOR ADITYA ALUMINIUM BY M/S HINDALCO INDUSTRIES AT LAPANGA, SAMBALPUR, ORISSA.

REF: Environmental Clearance Letter No: J-11011/136/2009-IA.I(1), Dated 29th November 2012, EC amendment dated 14 June 2013 & 14 Aug 2018 from MOEF&CC, GOI.

<table>
<tr><th>Sr. No.</th><th>Specific Conditions</th><th>Compliance</th></tr>
<tr><td>i)</td><td>The streams passing through the project site shall not be disturbed w.r.t their quantity and quality of flow</td><td>The streams passing through the project site is not being disturbed.</td></tr>
<tr><td>ii)</td><td>Alumina shall be obtained from those refineries, which have been accorded environmental clearance by the Ministry of Environment and Forests.</td><td>Alumina is being obtained from refineries which have been accorded environmental clearance. At Present, the Alumina is being obtained from Utkal Alumina International Limited (UAIL), Rayagada Distt. and it has been accorded environmental clearance from MoEFCC.
We have kept an option of importing Alumina in case of any shortage in supply from the above source.</td></tr>
<tr><td>iii)</td><td>The gaseous emissions (PM, SO_2, NOx, PAH, HC, VOCs and Fluoride) from various process units shall confirm to the standards prescribed by the concerned authorities from time to time. The SPCB may specify more stringent standards for the relevant parameters keeping in view the nature of the Industry and its size and location. At no time the emissions level should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency.

The particulate emissions from the bake oven plant shall not exceed 50 mg/Nm^3.</td><td>Online Monitoring equipments have been installed at the outlet of following stacks for monitoring of particulate matter and gaseous emissions. The online data has been connected to the Servers of OSPCB and CPCB.

a) Smelter GTC 1 & 2- 2 Nos.
b) Smelter FTC 1 & 2 - 2 Nos.
c) CPP Unit 1 to 6 - 6 Nos.

Particulate matter emission from the bake oven does not exceed the prescribed limit of 50 mg/Nm3. The summarized monitoring report w.r.t. particulate matter emission from Oct 18 to Mar 19 in Anoe baking Furnace stacks of stated below

<table>
<tr><th rowspan="2">Stack attached to</th><th colspan="3">PM Emission (mg/Nm3)</th></tr>
<tr><th>(Min)</th><th>(Max)</th><th>(Avg)</th></tr>
<tr><td>FTC 1</td><td>7.6</td><td>10.11</td><td>8.7</td></tr>
<tr><td>FTC 2</td><td>8.9</td><td>10.5</td><td>9.4</td></tr>
</table>

The stack monitoting report of stacks attached to Fume treatment system is attached as Annexure-1.</td></tr>
</table>

<table>
<tr><td>iv)</td><td>Particulate fluoride emissions should not be more than 0.65 mg/Nm3 and fugitive particulate fluoride emissions from pot room should not be more than 1.85 mg/Nm^3.</td><td>Online monitoring equipment at Gas Treatment Centre (GTC) and Fume Treatment Centre (FTC) installed for monitoring of Hydrogen Fluoride (HF), Particulate Matter (PM). The particulate fluoride emission from the gas treatment system is within the prescribed standard. The summarized report is stated below:
<table>
<tr><th rowspan="2">Stack attached to</th><th colspan="3">Particulte Fluoride Emission (mg/Nm3)</th></tr>
<tr><td>(Min)</td><td>(Max)</td><td>(Avg)</td></tr>
<tr><td>GTC # 1</td><td>0.14</td><td>0.24</td><td>0.19</td></tr>
<tr><td>GTC # 2</td><td>0.13</td><td>0.24</td><td>0.18</td></tr>
</table>
The average fugitive particulate fluoride emission from pot rooms during Oct 18 to Mar 18 is 0.09 kg/ton of metal produced.

The monitoring reports of stack emission from Gas Treatment Centre stacks is attached as Annexure-2.</td></tr>
<tr><td>v)</td><td>The poly aromatic hydrocarbons (PAH) from the carbon plant (anode bake oven) should not exceed 2 mg/Nm^3. The data on PAH should be monitored quarterly and report submitted regularly to the Ministry/Regional Office at Bhubaneswar and SPCB.</td><td>The poly aromatic hydrocarbons (PAH) from the carbon plant (anode bake oven) are being monitored on quarterly basis and found within the standard. (Ref: Annexure 1).</td></tr>
<tr><td>vi)</td><td>In plant, control measures like fume extraction and dust extraction system for controlling fugitive emissions from all the materials handling/transfer points shall be provided to control dust emissions.

Fugitive Fluoride emissions from the pot room and in the forage around the smelter complex and the data submitted regularly to the Ministry Regional Office at Bhubaneswar and SPCB.

Further dry scrubbing system to control the emissions from the pot lines should be provided.</td><td>Fume Extraction Centre (FTC) in Anode Baking furnace, Gas Treatment Plant (GTC) in potlines and bag filters in raw material handling, GAP, Anode Baking, Roding areas, bath recycling, carbon recycling area, butts recycling area, cathode sealing shop etc in smelter area and coal handing, ash handling plant in captive power plant is installed to control fugitive dust emissions.

Online Roof Top Monitoring analyzer installed for Fugitive fluoride (HF) monitoring in potrooms, the online monitoring report is attached as Annexure-3. Besides, forage fluoride analysis is being carriedout on quarterly basis surrounding the Aluminium smelter and the analysis report is attached as Annexure-4.

Dry scrubbing system is being provided as gas treatment centre (GTC) in pot line area to control fugitive emission.</td></tr>
<tr><td>vii)</td><td>Electrostatic Precipitators (ESP) will be</td><td>Electrostatic Precipitators (ESP) of adequate</td></tr>
</table>

<table>
<tr><td></td><td>provided to Captive Power Plant (CPP) to control particulate emissions below 50 mg/Nm3.

The company shall provide bag filters, dry scrubbing system and dust suppression system to control all the emissions including fluoride emissions from all melting and casting units. Tar, Dust and fluoride in the fumes shall be controlled in baking furnace by providing dry scrubber.

The emissions shall conform to the standards prescribed by the Ministry CPCB/SPCB whichever is more stringent.</td><td>efficiency is installed in Captive Power Plant (CPP) to restrict particulate emissions within 50 mg/Nm^3.

Two nos. of Gas Treatment Centre (GTC) provided and connected to each 180 pots. Besides, Bag filters installed in all the material handling & transfer points in Smelter. Fume treatment centre (FTC) provided to each Anode Baking Furnaces to treat the tar fumes, dust, gaseous and particulate fluorides generated during Anode Baking.

The standards prescribed by the Ministry/ CPCB/ SPCB is being adhered.
<table>
<tr><td rowspan="2">CPP Stack</td><td colspan="3">PM Emission (mg/Nm3)</td></tr>
<tr><td>(Min)</td><td>(Max)</td><td>(Avg)</td></tr>
<tr><td>CPP 1</td><td>45.8</td><td>48.1</td><td>47.0</td></tr>
<tr><td>CPP 2</td><td>45.6</td><td>48.5</td><td>47.1</td></tr>
<tr><td>CPP 3</td><td>44.3</td><td>47.3</td><td>46.4</td></tr>
<tr><td>CPP 4</td><td>41.26</td><td>46.3</td><td>44.0</td></tr>
<tr><td>CPP 5</td><td>42.8</td><td>48.2</td><td>45.6</td></tr>
<tr><td>CPP 6</td><td>SD</td><td>SD</td><td>SD</td></tr>
</table>
The CPP Unit -6 was under shutdown during this period.</td></tr>
<tr><td>viii)</td><td>Provision for installation of FGD shall be provided for future use.</td><td>Provisional Space kept for installation of FGD and will be utilized for the proposed FGD near to the Power plant.</td></tr>
<tr><td>ix)</td><td>Three tri-flue and one bi-flue stack of 275 m height with flue gas velocity not less than 22 m/s shall be installed and provided with continuous online monitoring equipment's for SO_2, NO_x, and PM_{10}.</td><td>Two (02) numbers of tri-flue stacks of 275 m height is installed in phase-I, another two nos. of stacks will be installed during Phase-II.

Continuous emission monitoring system (CEMS) installed for monitoring of SO_2, NOx, and PM in all the stacks of CPP and the velocity of the exit flue gas is being maintained above 22 m/s.</td></tr>
<tr><td>x)</td><td>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.</td><td>Dust extraction systems (DE) and Dry fog dust suppression (DFDS) system installed in coal handling plant and ash handling system of Captive Power Plant.</td></tr>
<tr><td>xi)</td><td>Utilization of 100% fly ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.</td><td>Ash generated is being utilized by means of supplying to M/s Ultratech Cements, Jharsuguda, M/s ACC, Bargarh and M/s OCL, Rajgangpur for cement manufacturing. Also we are supplying Ash to the brick manufactures, used in own fly ash brick units and utilizing for development of low lying areas with ash inside the Plant premises with the prior approval of SPCB, Odisha. The low-lying areas is being filled-up with Ash as per the</td></tr>
</table>

		Guideline for Reclamation Low Lying Areas and Abandoned Quarries with Ash of SPCB, Odisha. The efforrts being made for achiving 100% ash utilization is stated below: 1. Increase supply to Cement Plants 2. Exploring transportation of ash through rakes to cement plants. 3. Increased Supply to the local brick manufacturing Units. 4. We have constituted a Team for exploring more areas of Ash utilization like Road making, Abandoned mines/quarry filling, infrastructure projects etc. The Collector & DM, Sambalpur has been requested to provide us permission for filling of abandoned mines and voids available in the region. The Status of ash utilization from Oct 18 to Mar 19 is enclosed as Annexure-5.
xii)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized ash shall be disposed-off in the ash pond in the form of slurry. Mercury and other heavy metals (Ag, Hg, Cr, Pbetc) will be monitored in the bottom ash and also in the effluent emanating from the existing ash pond. No ash shall be disposed-off in low laying area.	Fly ash & bottom ash are collected in dry form and 3x2500 MT Fly ash silo and 1x3000 MT bottom ash silo have been installed. We are exploring maximum utilization of Ash and unutilized ash is being dischatged to the Ash pond through High Concentration Slurry Dsipsoal (HCSD) system, which is the most environment friendly conveying system at present. Monitoring of Mercury and other heavy metals (Ag, Hg, Cr, Pb etc) is being done for the fly ash and bottom ash. The analysis report is enclosed as Annexure-6. The ash filling in the low lying area inside the plant premises is being in line with the guideline for Reclamation Low Lying Areas and Abandoned Quarries with Ash after receipt of permission from SPCB, Odisha. Reclamation of low lying area and abandoned quarries with ash generated from thermal power plants is an acceptable method of utilization under the fly ash utilization of MOEFCC, GOI. (Ref: SPCB Resolution vide letter no. 11047/IND-IV-PCP-FARC-120, dated: 21/08/2017.).
xiii)	Fluoride (as F) consumption shall be less than 10 kg/ton of Aluminium produced as specified	The specific fluoride (as F) consumption for the period Oct 18 to Mar 19 is 8.88 kg/ton of

	by the CREP.	Aluminium produced.
xiv)	Anode butts generated from the pots shall be cleaned and recycled to the Anode Plant. The spent pot lining generated from the smelter shall be properly treated in spent pot lining treatment plant to remove fluoride and cyanide and disposed-off in secured landfill. The location and design of the land fill site shall be approved by the SPCB as per the Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008. Leachate collection facilities shall be provided to the secured land fill facilities (SLF). The dross shall be recycled in the cast house. STP sludge shall be utilized as manure for greenbelt development. All the used oil and batteries shall be sold to the authorized recyclers/ re-processors.	Anode butts generated from the pots is being cleaned and recycled completely for making green anode in green anode plant. The spent pot lining generated from the smelter is having two parts, Carbon and Refractory. Carbon part is being supplied to M/s Green Energy Limited, Sambalpur for reprocessing and utilization, in this way the carbon part is completely recycled. The SPL refractory part generated is being stored inside the covered shed in line with the Rule – 8 of HW (H,M & TM) Rules, 2016 for disposal to CHW-TSDF. M/s Ramky Enviro Pvt. Ltd is establishing the facility for detoxification and disposal as per the protocol given by CPCB in its CHW-TSDF at kanchichuhan, Dist- Jajpur site. M/s Ramky is likely to lift the refractory part of SPL soon after fulfilling the terms & conditions specified in the Protocol. The location and design of the land fill site has been prepared as per the Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and approved from SPCB. The dross recycling is being done in the inhouse dross processing unit and the residue generated is sent to CHW-TSDF for disposal. STP is commissioned and is in operation at township & Plant area separately, the sludge generated is being used for gardening/greenbelt development. The used oil and batteries are being sold/supplied to authorized recyclers/reprocessors only.
xv)	As proposed, spent pot lining waste shall also be provided to cement and steel industries for further utilization.	The Carbon part of the SPL which is being supposed to be sent to Cement and Steel Industries, we are supplying to M/s Green Energy Resources for detoxification and complete recycling.
xvi)	Ash pond shall be lined with HDP/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also	The ash disposal area has been studied and Designed by the Experts of NIT-Rourkela. The ash pond and water decantation system is constructed in line with the design & drawings

	be implemented to protect the ash dyke from getting breached. Ash pond water shall be recirculated and reused.	provided by NIT-Rourkela. The ash pond is provided with HDPE liner and adequate safety measures has been taken to avoid any kind of dyke breach. The ash disposal through HCSD system to the ash pond started from January 2017. The decanted water from the ash pond is being recycled and reused for ash disposal.
xvii)	Cycle of concentration (CoC) of 5.0 shall be adopted.	We are maintaing the CoC of cooling tower above 5.
xviii)	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 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 is being carriedout through establishing a network of existing wells and constructing two nos new piezometer wells near ash pond areas and the analysis report is enclosed as Annexure-7. Monitoring of heavy metals (Hg, Cr, As, Pb) around the Ash pond area is being carried and record maintained. The analysis report of the ground water quality around the ash pond area is attached as annexure-8.
xix)	Regular ground water monitoring shall be carried out by installing peizometers all around the secured land fill site in consultation with the SPCB, Central Ground Water Authority and State Ground Water Board and data submitted to the Ministry's Regional Office and SPCB.	Secured landfill (SLF) has not yet been established inside the plant. Therefore, ground water quality monitoring will be carried out after establishment of the SLF.
xx)	Total water requirement for the expansion from Hirakud Reservoir shall not exceed 5,200 m3/hr and prior permission for the existing and proposed expansion shall be obtained from the concerned department before commissioning of the plant. All the effluent including from the cooling tower and de-mineralization plant shall be treated in the effluent treatment plant and treated effluent shall be recycled/reutilized in the process in smelter and CPP and also for fire protection, dust suppression, greenbelt development etc. Domestic effluent shall be treated in sewage treatment plant (STP) and treated domestic waste water will be used for greenbelt development.	No additional fresh water will be sourced from Hirakud Reservoir for the proposed expansion. The water requirement estimated for the expansion is within 52.73 cusec, as approved. The Effluent from the cooling towers and de-mineralization plant is being treated in Double Stage RO based effluent treatment plant and is being recycled/reutilized in the process of CPP. Separate Sewage Treatment Plant (STP) is installed @ capacity 25 m^3/hr for Smelter & Captive Power Plant, STP of 300 KLD capacity is installed at Township area and the treated water being used for greenbelt development.
xxi)	No effluent shall be discharged outside the	We are operating a Double Stage Reverse

	premises of smelter during non-monsoon period and shall be discharged during the monsoon period only after treatment and meeting the norms of the OSPCB/CPCB.	Osmosis based effluent treatment plant (ETP) of 300 m^3/hr capacity and therefore no effluent water is being discharged to outside without treatment from Smelter.
xxii)	Greenbelt of adequate width and density around the project site shall be developed in 33% area in consultation with the DFO as per the CPCB guidelines having density of 2,000 trees/Ha.	Aditya Aluminium has developed Greenbelt over 537 acres inside the Core plant & Township areas. Around 3,80,500 saplings planted till March 2019. The action plan for achiving 33% greenbelt is attached as annexure - 9).
xxiii)	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Occupational Health Surveillance of the workers is being done as per the Odisha Factories Act.
xxiv)	The company shall develop rain water structures in the township area for recharge of ground water in consultation with the Central Ground Water Authority/Board.	Rain water recharging arrangement is being made in the township buildings, besides a rain water harvesting pond is being established inside the township area which is being utilised for gardening purposes. A rain water harvesting scheme has been submitted to CGWA for approval vide our letter no. AA/E&F/EC/2016/131, dated 09/04/2016.
xxv)	Rehabilitation and Resettlement Action Plan as prepared and submitted to the State Govt. shall be implemented as per the R & R Policy of the State Government. All the recommendations mentioned in the R&R Plan shall be strictly followed including suitable employment and other facilities to all the oustees.	Rehabilitation and Resettlement Action Plan is being implemented as per the R & R policy, 2006 of the State Govt. All the recommendations are being followed/complied.
xxvi)	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Aluminium Sector shall be strictly implemented.	All the conditions of CREP guideline for Aluminium sector is being followed. The point wise compliance to the CREP guideline is attached as Annexure-10
xxvii)	The company shall adopt well laid down corporate policy and identified and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with environmental clearance, environmental laws and regulations.	The company has adopted a well laid down Corporate Environment Policy. The copy of the same has been communicated in the last Six-Monthly EC Compliance report vide our letter no. AA/E&S/EC/2018/410, dated 27/11/2018.
xxviii)	All the commitments made to the public during public hearing /public consultation meeting held on 2nd march 2012 should be satisfactorily implemented and a separate budget for implementing the same should be allocated and information submitted to the	All the commitments made to the public during public hearing/public consultation meeting held on 2nd march 2012 is being complied . (Status of implementation is enclosed as annexure-11).

	Ministry's Regional Office at Bhubaneswar.	
xxix)	At least 5% of the total cost of the project shall be earmarked for towards the Enterprise Social Commitment and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's office at Bhubaneswar. Implementation of such program should be ensured accordingly in a time bound manner.	The expenses under Enterpise Social Commitment (ESC) till march 2019 is Rs 46.61 Crores. The details of the expenditure made under Enterpise Social Commitment (ESC) till March 2019 is attached as annexure-12.
xxx)	The company shall provide housing for 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 ensured accordingly in a time bound manner.	All necessary infrastructure and facilities are being provided to the workers from time to time.
xxxi)	The company shall submit within three months their policy towards Corporate Environment Responsibility which should inter-alia address (i) standard operating process/procedure to being into focus any infringement/deviation/violation of environmental or forests norms/ conditions (ii) Hierarchical system or administrative order of the company to deal with environmental issues and ensuring compliance to the environmental clearance and (iii) system of reporting of non-compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.	The Corporate Environment Policy prepared and approved by the company Board of Directors, Organizational Structure for Hindalco Corporate Environment, Deployment of Corporate Policy in manufacturing Plants & communication of Policy as regards Corporate Environment is already submitted to MoEF. The organizational structure of Corporate Sustainability cell is being revised and the modified one will be submitted after the formal structure is published by Hindalco Management.
	GENERAL CONDITIONS	
i)	The project authorities must strictly adhere to the stipulations made by the OSPCB and the State Government.	We will follow the stipulations made by OSPCB and the State Government.
ii)	No further expansion or modification in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	We will not carry out any expansion or modification in the plant without prior approval of MoEFCC.
iii)	The gaseous emissions from various process units shall conform to the load/mass based standards notified by this Ministry on 19th May, 1993 and standards prescribed from time to time. The SPCB may specify more stringent standards for the relevant parameters keeping in view the nature of the industry and its size and location.	We have noted and accepted the stipulated condition.

iv)	At least four number of ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of SPM, SO_2 and NO_x are anticipated in consultation with the OSPCB. Data on ambient air quality and stack emission should be regularly submitted to this Ministry including its Regional Office at Bhubaneswar and Orissa State Pollution Control Board once in Six months.	Installation of four (04) CAAQMStations completed and commissioned. Data connectivity established with the servers of OSPCB and CPCB. Installation of the continuous stack emission monitoring system in all the major stacks completed. All the CAAQMS & CEMS synchronized with the webserver of the SPCB & CPCB. Six-monthly compliance along with the monitoring data is being submitted to the concerned authorities regularly.
v)	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz 75 dBA (daytime) and 70 dBA (nighttime).	The overall noise levels in and around the plant area is within the prescribed standards and it is being made possible by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The overall noise level is within the standard, regular monitoring is being done. All necessary PPEs are provided to the workers and engineers working in the factory.
vi)	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Occupational Health Surveillance of the workers is being done as per the Factories Act.
vii)	The company shall develop surface water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.	The company has developed surface water harvesting structures to the tune of 22 lakhs cum to store water in the lean season and it will harvest the rain water during rainy season in the same reservoirs.
viii)	The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA report. Further the company must undertake socio-economic development activities in the surrounding villages like community development progammes, drinking water supply and health care etc.	We have noted and accepted all the conditions and will comply in a time bound manner. The economic development activities are going on regularly as a part of our corporate social responsibility. A team of personnel are working dedicatedly for peripheral development work like conducting health camps, community developed programmes, formation SHG groups, supply of drinking water and other common infrastructural development works. Details of the CSR, R&R activities undertaken is attached as Annexure-13.
ix)	Requisite fund shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment & Forests as well the State Government. An implementation	Requisite fund has been spent & allotted towards capital cost and recurring cost/annum for environment pollution control measures.

	schedule for implementing all the conditions stipulated herein shall be submitted to Regional Office of the Ministry at Bhubaneswar. The funds so provided shall not be diverted for any other purpose.	
x)	A copy of the clearance letter shall be send by the proponent to concerned Panchayat, Zillaparishad/Municipality corporation, urban local boby and the local NGO, if any from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter also be put on the web site of the company by the proponent.	Copy of the clearance letter has already been communicated to all concerned as mentioned in the condition. Scanned copy of the letter is also displayed in our official website.
xi)	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitoring data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF at Bhubaneswar. The respective zonal office of CPCB and SPCB. The criteria pollutant levels namely' PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	The status of compliance to the EC conditions is being submitted to the Regional office of the MOEF regularly on 1stJune and 1stDec respectively with a copy to CPCB & OSPCB and the same is being uploaded into the Company website. All the stack emission and ambient air monitoring stations are synchronized with the webserver of the SPCB & CPCB. The online monitoring data w.r.t. stack emission, ambient air quality and effluent water quality is being electrocically displayed at main entrance gate for information to the public.
xii)	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitoring data (both in hard & soft copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Offices of CPCB and the SPCB. The Regional office of this Ministry at Bhubaneswar. CPCB/SPCB shall monitor the stipulated conditions.	We are submitting the six monthly compliance reports of the stipulated environmental conditions (both in hard & soft copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Offices of CPCB and the SPCB. The monitoring data in respect of AAQ, water, soil, noise etc is enclosed as *Annexure-14*.
xiii)	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 compliance of environmental conditions and shall also be sent to the respective Regional Office at Bhubaneswar.	The environmental statement for each financial year ending 31st March in Form-V is being submitted to the concerned authorities of SPCB and MoEF.

xiv)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at website of the Ministry of Environment & Forest at http/www.envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Bhubaneswar.	Information to Public has been made through advertisement of the environmental clearance in two widely circulated daily newspapers i.e. "The New Indian Express" on 04-12-2012 & "The Samaja" on 05-12-2012, within seven days of receiving the clearance letter. The copy of the advertisement was submitted to the Ministry's Regional Office at Bhubaneswar vide our office letter no. AAP/E&F/786, dated 07-12-2012.
xv)	The authorities shall inform the regional office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Financial closure for Phase-1 (Smelter capacity of 0.36 MTPA and CPP of 1650 MW) of the Project is completed on 17th September 2012 and Construction activities for Phase-I completed for 0.36 MTPA Smelter and 6x150 MW CPP and operating 360 pots out of 360 pots in Smleter and 6 units (6x150 MW) in CPP.
Sr. No.	**EC Amendmnet Additional Conditions**	**Compliance Status**
i)	The project proponent shall develop in-house facilities for treatment of Spent Pot Lining (SPL) generated in the Aluminium smelter. Meanwhile, Refractory part may be sent to CHWTSDF as per the provisions of Hazardous and Other Waste Amendment Rules, 2016.	We are exploring the mode of treatment & disposal of SPL in association with JNARDDC, Nagpur. However, at present the Carbon part is being supplied to M/s Green Energy Limited, Sambalpur for reprocessing and utilization, in this way the carbon part is completely recycled. The SPL refractory part generated is being stored inside the covered shed for disposal to CHW-TSDF. M/s Ramky Enviro Pvt. Ltd is establishing the facility for detoxification and disposal as per the protocol given by CPCB in its CHW-TSDF at kanchichuhan, Dist- Jajpur site. M/s Ramky is likely to lift the refractory part of SPL soon after fulfilling the terms & conditions specified in the Protocol.
ii)	The PP shall ensure 100% utilization of Fly ash generated.	Ash generated is being utilized by means of supplying to M/s Ultratech Cements, Jharsuguda, M/s ACC, Bargarh and M/s OCL, Rajgangpur for cement manufacturing. Also we are supplying Ash to the brick manufactures, using in own fly ash brick units and utilizing for development of low lying areas inside the Plant premises with the prior approval of SPCB, Odisha. The low-lying areas is being filled-up with Ash as per the

		Guideline for Reclamation Low Lying Areas and Abandoned Quarries with Ash of SPCB, Odisha. Besides, we are also exploring other modes/areas for more ash utilization. Please refer to Annexure-5 for ash utilization from Oct 18 to Mar 19.
iii)	All the measures proposed during the presentation and application shall be implemented.	We have Noted and will be implemented.
iv)	Sale of baked anodes; sale of bath material; and sale of molten metal is permitted following the provisions of Hazardous and Other Waste Management Rules, 2016, applicable if any.	We have Noted and accepted.
v)	The project proponent shall develop in-house facilities for treatment of SPL in 2 to 3 years.	We are in the process of technical discussion in JNARDDC, Nagpur for selection of technology and installation of equipment & machinaries for detoxification and disposal of SPL.
vi)	All the conditions prescribed in the environmental clearance letter No.J-11011/136/2009-IA-II(I) dated 29.11.2012 shall be strictly complied with.	It is being Complied.
vii)	The Project Proponent shall take fresh environment clearance in case of any change in the scope of the project.	There is no change in the scope of the project.

Encl: As above

(Authorized Signatory)

MINISTRY OF ENVIRONMENT &FORESTS
EASTERN REGIONAL OFFICE
A/3, CHANDRASEKHARPUR, BHUBANESWAR- 751023

FORMAT FOR PROVIDING PARTICULARS ON GREENBELT /PLANTATION
UNDER F(C) ACT 1980 AND E(P) ACT 1986.

1	a) Name of the Project	Aditya Aluminium (A Unit of Hindalco Industries Limited)
	b) Envt. /Forest Clearance Nos.	i. Env Clearance vide letter No: J-11011/136/2009-IA-I(I), Dated 29/11/2012 &J-11011/136/2009-IA.II (1), Dated 14 June 2013. ii. Forest Clearance vide letter No: 8-27/2009-FC, 10.02.2011
2	Location/ Block/ Sub-Divn./ Dist/ State	Aditya Aluminium (A Div. of Hindalco Industries Limited) At/Po- Lapanga, Dist- Sambalpur Pin - 768 212, Odisha6
3	Address for communication	Aditya Aluminium (A Div. of Hindalco Industries Limited) At/Po- Lapanga, Dist- Sambalpur Pin - 768 212, Odisha
4	Existing vegetation in the area/ region	At present several types of vegetation available in the area, however some of the names mentioned asfollows- Terminalia arjuna; Pongamia pinnata; Gmelina arboria; Anthocephallus cadamba; Dalbergia latifolia; Azadiracta indica;Albizzia Lebbeck; Delonix regia; Ailanthus exelsa, Casseasiamea; Cassia fistula, Butea monosperma, Madhuca indica etc
5	a) Species: (trees/shrubs/grasses/climbers)	Terminalia arjuna; Pongamia pinnata; Gmelina arboria; Anthocephallus cadamba; Dalbergia latifolia; Azadiracta indica; Albizzia Lebbeck; Delonix regia; Ailanthus exelsa, Casseasiamea; Cassia fistula, etc Butea monosperma, Madhuca indica etc trees species available.
	b) Major prevalent species of each type:	Anthocephallus cadambaTerminalia arjuna, Peltoferrumferrugenium, Gmelina arboria, AlberziaLebbeck, Delonix regiaetc are the prevalent species found. Butea monosperma, Madhuca indica etc
6	Land coverage by the project:	1347.35 Ha
	a.Name and number of tree/species felled	2002 no's of trees felled through OFDC, Sambalpur (CKL) Division.
	b.Name and number of plant species still available in the area	Plant species and number will be counted after completion of all the project activities and will be submitted to your good office
	c. By protecting the area will indigenous stock come up	Nil
	d.Extent of greenbelt developed	537acres covered under greenbelt March 2019.
7	Plantations required to be carried out as per	
	a) Conditions of Environmental Clearance in Ha/Nos.	33% of total project area
	b) Conditions of Forest Act (c) Clearance in Ha/Nos.	25 % of total project area
	c. Voluntarily in Ha/Nos.	NA

8. Details of plantation

a) Total area available for plantation

In each category

Greenbelt	Dumps	Back filled area	Road sides	Block plantation
The 33% of the project area will be covered under greenbelt/green cover and the plant. The phase- I facilities completed and Phase-II construction work not started. Till date536.`15 acres of land has been covered under greenbelt and balance will be covered in phased manner.				

b) Plantation details (category wise &methodology used)

Year of plantation	Species Planted	Spacing	Height attained	Total area covered	Area still available
2010 & 2011	Terminalia arjuna; Pongamia pinnata; Gmelina arboria; Anthocephallus cadamba; Dalbergia latifolia; Azadiracta indica; Albizzia Lebbeck; Delonix regia; Ailanthus exelsa,Cassea siamea; Cassia fistula, etc	2*2	30'-32'	14.7 Ha	Plantation is being done in phased manner.
2012		3*3	22'-25'	38.2 Ha	
2013		3*3	18'-20'	11.2 Ha	
2014		3*3	17'-18'	16.8 Ha	
2015		4*4	13'-15'	24.36 Ha	
2016		2*2	9'-12'	20.0 Ha	
2017		2*2	6'-8'	46.8 Ha	
2018		2*2	2'- 3'	45 Ha	

c) Survival of Plantation:

Total Plantation (No.)	3, 80,500
Survival (No.)	3,42,450
Survival rate	Approx 90%

9. Agency carrying out plantation and maintenance: NA

10. Financial details (year wise) plantation wise and item wise:

Sl. No.	Year	Fund allocated(Rs)	Expenditure made(Rs)	Average cost of each surviving plant in Rs.
1	2010	81,62,000	81,62,000.00	245.00
2	2011			
3	2012	46,21,600	46,21,600.00	121.00
4	2013	13,62,500	13,62,500.00	121.00
5	2014	18,53,000	18,53,000.00	115.00
6	2015	18,65,000	18,65,000	109.00
7	2016	49,00,000	49,00,000	100.00
8	2017	68,00,000	68,00,000	71.00
9	2018	70,00,000	70,00,000	77.00

11. Inspection of plantation by field experts and their comments and follow up actions:
Forest officials from Divisional Forest Office, Sambalpur and Forest Renge Office, Rengali arevisiting to our location at periodic intervals and giving their technical guidance from time to time. Joint Director/Director of Regional Office of MoEF&CC, Bhubaneswar also visit our plant site periodically.

12. Remarks/ any other information :

Indigenous species have been planted as per the Guideline of CPCB.

(Signature)

Report-II

PROFORMA FOR PROVIDING INFORMATION ON REHABILITATION

1. No. of villages affected : 11
2. Families Affected : 1450

Families affected	SC	ST	OTH	TOTAL
	-	-	-	1450

3. Compensation package offered per family:

State/ Centre norms	Project package
As per the R&R Policy 2006, Govt. of Odisha	As per the R&R Policy 2006 and 2013, Govt. of Odisha. Aditya Aluminium follows the RR Policy and subsequent Compensation Revision also.

4. Budget estimate for rehabilitation :

   a) Total outlay : 84.59 Crores
   b) Amount paid/used : 80.81 Crores

5. Employment details

   a) Total employment to be provided : 68
   b) Employment given so far : 59

6. Rehabilitation & Resettlement details : Total Displaced Persons Numbers - 433

a	No. of families rehabilitated				
i	Name of the Site	Aditya Aluminium			
ii	Families rehabilitated	SC	ST	OTH	Total
		08	387	18	413
b	Families yet to be rehabilitated				
i	Name of the Site(s)	Aditya Aluminium			
ii	No. of families (Total - 433)	SC	ST	OTH	Total
		00	19	1	20

7. Any other information : Nil

(Signature)

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Env/lab/18/R-9177

Date: 03/11/2018

STACK EMISSION MONITORING REPORT FOR OCTOBER-2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 26.10.2018
3. Sampling Location : **ST-7: Stack attached to ABF-1 - FTC-1**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.10.2018 TO 30.10.2018

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-7
Stack Temperature	°C	IS 11255: Part 3 :1985 (Reaff 2008)	-	111.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.76
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	92550
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	742.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	7.6
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	256.2
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	52.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.16
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.48
Total Fluoride as F	mg/Nm^3	Calculation	-	0.64
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatogrphy	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/18/R-9176 Date: 03/11/2018

STACK EMISSION MONITORING REPORT FOR OCTOBER-2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium): Lapanga**
2. Date of Sampling : 26.10.2018
3. Sampling Location : **ST-8: Stack attached to ABF II - FTC - 2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.10.2018 TO 30.10.2018

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-8
Stack Temperature	0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	110.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	10.08
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	57813.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	742.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.1
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	231.0
Oxides of Nitrogen as NOx	mg/Nm^3	EPA Method 7E	-	136
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.16
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.42
Total Fluoride as F	mg/Nm^3	Calculation	-	0.58
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatogrphy	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

VISIONTEK CONSULTANCY SERVICES PVT LTD

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref: Vmlab/18/R-9971

Date: 04.12.18

STACK EMISSION MONITORING REPORT FOR NOVEMBER-2018

1. Name of Industry : M/s Hindalco Industries Ltd (Unit-Aditya Aluminium), Lapanga
2. Date of Sampling : 20.11.2018
3. Sampling Location : ST-7: Stack attached to ARF-1 - FTC-1
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 24.11.2018 TO 30.11.2018

	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-7
Stack Temperature	°C	IS 11255: Part 3 :1985 (Reaff 2008)	-	112
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.8
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	92688
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	742
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	8.2
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	226.2
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	57
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.18
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.48
Total Fluoride as F	mg/Nm^3	Calculation	-	0.66
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatography	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected

For Visiontek Consultancy Services Pvt. Ltd.

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Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/18/R-9772 Date: 04.12.18

STACK EMISSION MONITORING REPORT FOR NOVEMBER-2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 20.11.2018
3. Sampling Location : **ST-8: Stack attached to ABF II - FTC - 2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 24.11.2018 TO 30.11.2018

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-8
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	111
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	10.13
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)		58056
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	741
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.3
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	239
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	119
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.19
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.44
Total Fluoride as F	mg/Nm^3	Calculation	-	0.63
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatography	-	ND
Poly Aromatic Hydrocarbon as PAHs	ug/Nm^3	Gas Chromatography	-	ND

Note: ND: Not Detected.

For Visiontek Consultancy Services Pvt. Ltd.

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E-mail : visiontekinfo@bsnl.in, visiontek@gmail.com, Visit us at www.visiontek.co.in

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

STACK EMISSION MONITORING REPORT FOR DECEMBER-2018

Ref.: Envlab/18/R-9953

Date: 31.12.18

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 21.12.2018
3. Sampling Location : **ST-7: Stack attached to ABF-1 - FTC-1**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representat
6. Date of Analysis : 29.12.2018 TO 31.12.2018

	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-7
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	106
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.7
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	90919
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	743
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	**50**	10.11
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	215.69
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	65
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.16
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.51
Total Fluoride as F	mg/Nm^3	Calculation	-	0.67
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatogrphy	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

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For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Env/ab/18/R-9952

STACK EMISSION MONITORING REPORT FOR DECEMBER 2018 31.12.18

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 21.12.2018
3. Sampling Location : **ST-8: Stack attached to ABF II - FTC - 2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representati
6. Date of Analysis : 29.12.2018 TO 31.12.2018

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-8
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	105
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	10.36
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	58656
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	742
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	**50**	8.91
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	251
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	129
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.15
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.49
Total Fluoride as F	mg/Nm^3	Calculation	-	0.64
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatogrphy	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R - 493 Date: 02/02/19

STACK EMISSION MONITORING REPORT FOR JANUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 21.01.2019
3. Sampling Location : **ST-7: Stack attached to ABF-1 - FTC-1**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.01.2019 TO 31.01.2019

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-7
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	105.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.4
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	88751.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	744.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.6
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	198.69
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	45.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.13
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.47
Total Fluoride as F	mg/Nm^3	Calculation	-	0.60
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatography	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

For Visiontek Consultancy Services Pvt. Ltd.

Plot No.-M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 91-674-6451781, 7752017995
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Committed For Better Environment

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envfab/19/R-502 Date: 02/02/19

STACK EMISSION MONITORING REPORT FOR JANUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 21.01.2019
3. Sampling Location : **ST-8: Stack attached to ABF-2 - FTC-2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.01.2019 TO 31.01.2019

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-8
Stack Temperature	0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	102.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.81
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	56062.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	743.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.1
Sulphur dioxide as SO2	mg/Nm^3	EPA Method 6C	-	206.0
Oxides of Nitrogen as NOx	mg/Nm^3	EPA Method 7E	-	156.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.14
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.51
Total Fluoride as F	mg/Nm^3	Calculation	-	0.65
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatogrphy	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

For Visiontek Consultancy Services Pvt. Ltd.

Plot No.-M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 91-674-6451781, 7752017905
E-mail : visiontekm@yahoo.co.in, visiontek.m@gmail.com, Visit us at : www.vcspl.org
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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref. Envlab/19/R-1007 Date: 05.03.19

STACK EMISSION MONITORING REPORT FOR FEBRUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 14.02.2019
3. Sampling Location : **ST-7: Stack attached to ABF-I - FTC-1**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 19.02.2019 TO 22.02.2019

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-7
Stack Temperature	^0C	IS 11255: Part 3 :1985 (RA 2008)	-	104.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (RA 2008)	-	12.61
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (RA 2008)	-	119607.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (RA 2008)	-	743.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 3 :1985 (RA 2008)	50	8.32
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	206.36
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	71.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.19
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.37
Total Fluoride as F	mg/Nm^3	Calculation	-	0.56
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatography	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

For *Visiontek Consultancy Services Pvt. Ltd.*

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref: Enwlab/19/R-1008

Date: 05.03.19

STACK EMISSION MONITORING REPORT FOR FEBRUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 14.02.2019
3. Sampling Location : **ST-8: Stack attached to ABF-2 - FTC-2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 19.02.2019 TO 22.02.2019

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-8
Stack Temperature	°C	IS 11255: Part 3 :1985 (RA 2008)	-	100.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (RA 2008)	-	12.48
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (RA 2008)	-	71658.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (RA 2008)	-	743.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 3 :1985 (RA 2008)	50	10.52
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	198.0
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	138.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.13
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.45
Total Fluoride as F	mg/Nm^3	Calculation	-	0.58
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatography	-	ND
Poly Aromatic Hydrocarbon as PAHs	mg/Nm^3	Gas Chromatography	-	ND

Note: ND: Not Detected.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref: Envlab/19/R-01/1461 Date: 02/04/19

STACK EMISSION MONITORING REPORT FOR MARCH-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 20.03.2019
3. Sampling Location : **ST-7: Stack attached to ABF-1 - FTC-1**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 21.03.2019 TO 27.03.2019

	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-7
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	118.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	10.6
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	100849
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	744.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	8.8
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	236.8
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	56.8
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.18
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.36
Total Fluoride as F	mg/Nm^3	Calculation	-	0.54
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatography	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

For Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-1962 Date: 02/04/19

STACK EMISSION MONITORING REPORT FOR MARCH-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 20.03.2019
3. Sampling Location : **ST-8: Stack attached to ABF II - FTC - 2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 21.03.2019 TO 27.03.2019

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-8
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	116.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	10.8
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	61151
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	744.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.74
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	221.8
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	126.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.15
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.48
Total Fluoride as F	mg/Nm^3	Calculation	-	0.63
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatogrphy	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/18/R-01/9175 Date: 03/11/18

STACK EMISSION MONITORING REPORT FOR OCTOBER-2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 27.10.2018
3. Sampling Location : **ST-9: Stack attached to GTC-1 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.10.2018 TO 30.10.2018

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-9
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	105.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	8.81
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2134941.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	746.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	8.1
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	67.0
Oxides of Nitrogen as NOx	mg/Nm^3	EPA Method 7E	-	39.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.24
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.43
Total Fluoride	mg/Nm^3	Calculation	-	0.67

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/181 R-9174 Date: 08/11/18

STACK EMISSION MONITORING REPORT FOR OCTOBER-2018

1. Name of Indusry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Date of Sampling : 27.10.2018
3. Sampling Location : **ST-10: Stack attached to GTC-2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.10.2018 TO 30.10.2018

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-10
Stack Temperature	0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	106.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	8.8
Quantity of Gas Flow	Nm3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2198427.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	745.0
Concentration of Particulate Matter as PM	mg/Nm3	IS 11255: Part 1 :1985 (Reaff 2008)	50	6.9
Sulphur dioxide as SO2	mg/Nm3	EPA Method 6C	-	58.0
Oxides of Nitrogen as NOx	mg/Nm3	EPA Method 7E	-	46.0
Particulate Fluoride	mg/Nm3	Distillation followed by Ion Electrode method	-	0.24
Gaseous Fluoride	mg/Nm3	Ion Electrode method	-	0.41
Total Fluoride	mg/Nm3	Calculation	-	0.65

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For Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Eanlab/18/R-01/9773 Date: 04/12/18

STACK EMISSION MONITORING REPORT FOR NOVEMBER-2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 21.11.2018
3. Sampling Location : **ST-9: Stack attached to GTC-1 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 24.11.2018 TO 30.11.2018

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-9
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	111.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	8.9
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2197404.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	746.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	**50**	8.4
Sulphur dioxide as SO2	mg/Nm^3	EPA Method 6C	-	65.0
Oxides of Nitrogen as NOx	mg/Nm^3	EPA Method 7E	-	42.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.21
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.44
Total Fluoride	mg/Nm^3	Calculation	-	0.65

For ***Visiontek Consultancy Services Pvt. Ltd.***

Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/18/R-01/9774 Date: 04/12/18

STACK EMISSION MONITORING REPORT FOR NOVEMBER-2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Date of Sampling : 21.11.2018
3. Sampling Location : **ST-10: Stack attached to GTC-2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 24.11.2018 TO 30.11.2018

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-10
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	108.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	8.7
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2165966.4
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	744.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	6.3
Sulphur dioxide as SO2	mg/Nm^3	EPA Method 6C	-	61.0
Oxides of Nitrogen as NOx	mg/Nm^3	EPA Method 7E	-	44.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.23
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.44
Total Fluoride	mg/Nm^3	Calculation	-	0.67

For *Visiontek Consultancy Services Pvt. Ltd.*

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/18/R-9960

STACK EMISSION MONITORING REPORT FOR DECEMBER-2018

Date: 31.12.18

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 22.12.2018
3. Sampling Location : **ST-9: Stack attached to GTC-1 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representati
6. Date of Analysis : 29.12.2018 TO 31.12.2018

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-9
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	105
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.1
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2195772
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	746
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	10.2
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	57
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	46
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.18
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.46
Total Fluoride	mg/Nm^3	Calculation	-	0.64

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For Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/18/R-9954 Date: 31.12.18

STACK EMISSION MONITORING REPORT FOR DECEMBER-2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Date of Sampling : 22.12.2018
3. Sampling Location : **ST-10: Stack attached to GTC-2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representati
6. Date of Analysis : 29.12.2018 TO 31.12.2018

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-10
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	106
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.0
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2163009
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	745
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	**50**	7.3
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	64
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	49
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.18
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.53
Total Fluoride	mg/Nm^3	Calculation	-	0.71

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref. Envlab/19/R-494 Date: 02/02/19

STACK EMISSION MONITORING REPORT FOR JANUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 24.01.2019
3. Sampling Location : **ST-9: Stack attached to GTC-1 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.01.2019 TO 31.01.2019

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-9
Stack Temperature	°C	IS 11255: Part 3 :1985 (Reaff 2008)	-	109.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	8.8
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2091431.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	745.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.5
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	61.0
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	52.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.14
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.52
Total Fluoride	mg/Nm^3	Calculation	-	0.66

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envfab/19/R-502 Date: 02/02/19

STACK EMISSION MONITORING REPORT FOR JANUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 21.01.2019
3. Sampling Location : **ST-8: Stack attached to ABF-2 - FTC-2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.01.2019 TO 31.01.2019

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-8
Stack Temperature	0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	102.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.81
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	56062.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	743.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.1
Sulphur dioxide as SO2	mg/Nm^3	EPA Method 6C	-	206.0
Oxides of Nitrogen as NOx	mg/Nm^3	EPA Method 7E	-	156.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.14
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.51
Total Fluoride as F	mg/Nm^3	Calculation	-	0.65
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatogrphy	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

For Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Gruflab/19/R - 503 Date: 08/02/19

STACK EMISSION MONITORING REPORT FOR JANUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 24.01.2019
3. Sampling Location : **ST-10: Stack attached to GTC-2 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by Representative : VCSPL Representative in presence of Aditya Aluminium
6. Date of Analysis : 29.01.2019 TO 31.01.2019

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-10
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	104.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	8.8
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2122013.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	746.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	7.6
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	57.0
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	50.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.15
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.50
Total Fluoride	mg/Nm^3	Calculation	-	0.65

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ISO 14001 : 2004
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Ref.: Envlab/19/R - 493 Date: 02/02/19

STACK EMISSION MONITORING REPORT FOR JANUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 21.01.2019
3. Sampling Location : **ST-7: Stack attached to ABF-1 - FTC-1**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.01.2019 TO 31.01.2019

Parameters	Unit of Measurement	Methodology	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-7
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	105.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	9.4
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	88751.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	744.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.6
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	198.69
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	45.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.13
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.47
Total Fluoride as F	mg/Nm^3	Calculation	-	0.60
Tar Fumes	mg/Nm^3	Extraction followed by Gas Chromatography	-	ND
Poly Aromatic Hydrocarbon as PAHs	$\mu g/Nm^3$	Gas Chromatography	-	ND

Note: ND: Not Detected.

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Ref. Envlab/19/R-494 Date: 02/02/19

STACK EMISSION MONITORING REPORT FOR JANUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 24.01.2019
3. Sampling Location : **ST-9: Stack attached to GTC-1 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 29.01.2019 TO 31.01.2019

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-9
Stack Temperature	°C	IS 11255: Part 3 :1985 (Reaff 2008)	-	109.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	8.8
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	2091431.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	745.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	50	9.5
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	61.0
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	52.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.14
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.52
Total Fluoride	mg/Nm^3	Calculation	-	0.66

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Ref.: Envilab/19/R-1009 Date: 05.03.19

STACK EMISSION MONITORING REPORT FOR FEBRUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 14.02.2019
3. Sampling Location : **ST-9: Stack attached to GTC-1 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 19.02.2019 TO 22.02.2019

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-9
Stack Temperature	°C	IS 11255: Part 3 :1985 (RA 2008)	-	103.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (RA 2008)	-	7.43
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (RA 2008)	-	1798516.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (RA 2008)	-	740.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (RA 2003)	50	4.61
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	59.0
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	50.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.17
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.42
Total Fluoride	mg/Nm^3	Calculation	-	0.59

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Ref.: Envlab/19/R-1010 Date: 05.03.19

STACK EMISSION MONITORING REPORT FOR FEBRUARY-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 14.02.2019
3. Sampling Location : **ST-10: Stack attached to GTC-2 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 19.02.2019 TO 22.02.2019

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results ST-10
Stack Temperature	°C	IS 11255: Part 3 :1985 (RA 2008)	-	105.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (RA 2008)	-	8.35
Quantity of Gas Flow	Nm³/Hr	IS 11255: Part 3 :1985 (RA 2008)	-	1997307.0
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (RA 2008)	-	740.0
Concentration of Particulate Matter as PM	mg/Nm³	IS 11255: Part 1 :1985 (RA 2003)	50	7.17
Sulphur dioxide as SO_2	mg/Nm³	EPA Method 6C	-	62.0
Oxides of Nitrogen as NO_x	mg/Nm³	EPA Method 7E	-	55.0
Particulate Fluoride	mg/Nm³	Distillation followed by Ion Electrode method	-	0.13
Gaseous Fluoride	mg/Nm³	Ion Electrode method	-	0.48
Total Fluoride	mg/Nm³	Calculation	-	0.61

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Ref.: envlab/19/R-1459 Date: 02/04/19

STACK EMISSION MONITORING REPORT FOR MARCH-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit-Aditya Aluminium); Lapanga**
2. Date of Sampling : 20.03.2019
3. Sampling Location : **ST-9: Stack attached to GTC-1 (Pot room)**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 21.03.2019 TO 27.03.2019

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-9
Stack Temperature	0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	110.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	8.2
Quantity of Gas Flow	Nm3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	1985980
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	744.0
Concentration of Particulate Matter as PM	mg/Nm3	IS 11255: Part 1 :1985 (Reaff 2003)	50	6.5
Sulphur dioxide as SO2	mg/Nm3	EPA Method 6C	-	72.0
Oxides of Nitrogen as NOx	mg/Nm3	EPA Method 7E	-	48.0
Particulate Fluoride	mg/Nm3	Distillation followed by Ion Electrode method	-	0.21
Gaseous Fluoride	mg/Nm3	Ion Electrode method	-	0.44
Total Fluoride	mg/Nm3	Calculation	-	0.65

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Ref.: Envlab/19/R-1960 Date: 02/04/19

STACK EMISSION MONITORING REPORT FOR MARCH-2019

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Date of Sampling : 20.03.2019
3. Sampling Location : **ST-10: Stack attached to GTC-2**
4. Name of sampling Instrument : Vayubodhan Stack Sampler VSS 2
5. Sample Collected by : VCSPL Representative in presence of Aditya Aluminium Representative
6. Date of Analysis : 21.03.2019 to 27.03.2019

Parameters	Unit of Measurement	Protocol	Emission Prescribe Standard (OSPCB)	Analysis Results
				ST-10
Stack Temperature	^0C	IS 11255: Part 3 :1985 (Reaff 2008)	-	108.0
Velocity of Flue Gas	m/sec	IS 11255: Part 3 :1985 (Reaff 2008)	-	7.6
Quantity of Gas Flow	Nm^3/Hr	IS 11255: Part 3 :1985 (Reaff 2008)	-	1850327
Barometric Pressure	mm of Hg	IS 11255: Part 3 :1985 (Reaff 2008)	-	744.0
Concentration of Particulate Matter as PM	mg/Nm^3	IS 11255: Part 1 :1985 (Reaff 2003)	**50**	8.48
Sulphur dioxide as SO_2	mg/Nm^3	EPA Method 6C	-	62.0
Oxides of Nitrogen as NO_x	mg/Nm^3	EPA Method 7E	-	48.0
Particulate Fluoride	mg/Nm^3	Distillation followed by Ion Electrode method	-	0.18
Gaseous Fluoride	mg/Nm^3	Ion Electrode method	-	0.52
Total Fluoride	mg/Nm^3	Calculation	-	0.70

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Annexure-3

POTROOM ONLINE FUGITIVE MONITORING(HF) REPORT OCT '18 TO MAR '19

Oct-18		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Avg. in PPM
		01-10-18	02-10-18	03-10-18	04-10-18	05-10-18	06-10-18	07-10-18	08-10-18	09-10-18	10-10-18	11-10-18	12-10-18	13-10-18	14-10-18	15-10-18	16-10-18	17-10-18	18-10-18	19-10-18	20-10-18	21-10-18	22-10-18	23-10-18	24-10-18	25-10-18	26-10-18	27-10-18	28-10-18	29-10-18	30-10-18	31-10-18	
FUGITIVE EMISSION CH#1 (B001-B090) HF	PPM	0.27	0.099	0.216	0.154	0.252	0.137	0.248	0.246	0.246	0.107	0.031	0.094	0.155	0.19	0.17	0.137	0.145	0.139	0.139	0.208	0.155	0.174	0.239	0.169	0.115	0.089	0.198	0.124	0.239	0.149	0.272	0.171
FUGITIVE EMISSION CH#2 (B091-B180) HF	PPM	0.242	0.165	0.217	0.208	0.239	0.192	0.261	0.283	0.379	0.373	0.175	0.236	0.208	0.247	0.165	0.189	0.175	0.154	0.147	0.219	0.162	0.191	0.191	0.253	0.112	0.163	0.237	0.219	0.253	0.195	0.291	0.217
FUGITIVE EMISSION CH#3 (A091-A180) HF	PPM	0.18	0.147	0.221	0.243	0.073	0.039	0.151	0.153	0.097	0.171	0.11	0.119	0.081	0.205	0.215	0.206	0.205	0.212	0.206	0.098	0.054	0.18	0.154	0.107	0.085	0.075	0.091	0.094	0.077	0.125	0.164	0.140
FUGITIVE EMISSION CH#4 (A001-A090) HF	PPM	0.178	0.146	0.137	0.14	0.134	0.135	0.173	0.128	0.172	0.259	0.374	0.256	0.238	0.175	0.095	0.133	0.123	0.121	0.121	0.144	0.16	0.111	0.184	0.137	0.035	0.044	0.123	0.066	0.079	0.144	0.131	0.148
																														Monthly Average(ppm)			0.169
																														Monthly Average (mg/M3)			0.141

NOV'18		Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday		Avg. in PPM
		01-11-18	02-11-18	03-11-18	04-11-18	05-11-18	06-11-18	07-11-18	08-11-18	09-11-18	10-11-18	11-11-18	12-11-18	13-11-18	14-11-18	15-11-18	16-11-18	17-11-18	18-11-18	19-11-18	20-11-18	21-11-18	22-11-18	23-11-18	24-11-18	25-11-18	26-11-18	27-11-18	28-11-18	29-11-18	30-11-18		
FUGITIVE EMISSION CH#1 (B001-B090) HF	PPM	0.206	0.231	0.169	0.171	0.136	0.152	0.177	0.223	0.138	0.108	0.089	0.139	0.1	0.145	0.097	0.117	0.084	0.175	0.142	0.137	0.119	0.129	0.095	0.071	0.032	0.105	0.057	0.118	0.058	0.087		0.127
FUGITIVE EMISSION CH#2 (B091-B180) HF	PPM	0.297	0.292	0.253	0.21	0.258	0.184	0.265	0.29	0.181	0.153	0.15	0.164	0.143	0.133	0.147	0.195	0.16	0.184	0.195	0.155	0.193	0.114	0.098	0.104	0.078	0.053	0.083	0.108	0.092	0.09		0.167
FUGITIVE EMISSION CH#3 (A091-A180) HF	PPM	0.263	0.241	0.251	0.255	0.249	0.157	0.193	0.151	0.136	0.071	0.08	0.09	0.088	0.089	0.146	0.166	0.124	0.136	0.143	0.09	0.148	0.089	0.073	0.043	0.046	0.054	0.049	0.068	0.071	0.046		0.127
FUGITIVE EMISSION CH#4 (A001-A090) HF	PPM	0.114	0.145	0.139	0.143	0.142	0.1	0.168	0.241	0.12	0.079	0.074	0.089	0.045	0.062	0.096	0.096	0.064	0.082	0.111	0.078	0.085	0.053	0.066	0.078	0.053	0.062	0.054	0.061	0.047	0.085		0.094
																														Monthly Average(ppm)			0.129
																														Monthly Average (mg/M3)			0.107

Dec-18		Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Avg. in PPM
		01-12-18	02-12-18	03-12-18	04-12-18	05-12-18	06-12-18	07-12-18	08-12-18	09-12-18	10-12-18	11-12-18	12-12-18	13-12-18	14-12-18	15-12-18	16-12-18	17-12-18	18-12-18	19-12-18	20-12-18	21-12-18	22-12-18	23-12-18	24-12-18	25-12-18	26-12-18	27-12-18	28-12-18	29-12-18	30-12-18	31-12-18	
FUGITIVE EMISSION CH#1 (B001-B090) HF	PPM	0.046	0.109	0.052	0.1	0.054	0.085	0.059	0.073	0.023	0.069	0.018	0.055	0.003	0.004	0.038	0.001	0	0	0.032	0.063	0.048	0.085	0.036	0.089	0.039	0.066	0.075	0.056	0.059	0.061	0.078	0.051
FUGITIVE EMISSION CH#2 (B091-B180) HF	PPM	0.118	0.073	0.079	0.069	0.09	0.101	0.089	0.09	0.089	0.103	0.079	0.089	0.053	0.64	0.032	0.07	0	0.025	0.076	0.062	0.057	0.061	0.057	0.048	0.044	0.073	0.054	0.056	0.043	0.054	0.061	0.085
FUGITIVE EMISSION CH#3 (A091-A180) HF	PPM	0.076	0.053	0.037	0.045	0.044	0.046	0.022	0.047	0.077	0.068	0.011	0.051	0.007	0.041	0.021	0.009	0	0	0.008	0.015	0.017	0.015	0.018	0.011	0.011	0.013	0.017	0.019	0.004	0.02	0.025	0.027
FUGITIVE EMISSION CH#4 (A001-A090) HF	PPM	0.074	0.066	0.037	0.089	0.051	0.08	0.051	0.075	0.07	0.073	0.035	0.101	0.009	0.032	0.034	0.022	0	0	0.036	0.057	0.051	0.052	0.044	0.031	0.018	0.027	0.021	0.037	0.13	0.043	0.061	0.049
																														Monthly Average(ppm)			0.053
																														Monthly Average (mg/M3)			0.044

Jan-19		Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Avg. in PPM
		01-01-19	02-01-19	03-01-19	04-01-19	05-01-19	06-01-19	07-01-19	08-01-19	09-01-19	10-01-19	11-01-19	12-01-19	13-01-19	14-01-19	15-01-19	16-01-19	17-01-19	18-01-19	19-01-19	20-01-19	21-01-19	22-01-19	23-01-19	24-01-19	25-01-19	26-01-19	27-01-19	28-01-19	29-01-19	30-01-19	31-01-19	
FUGITIVE EMISSION CH#1 (B001-B090) HF	PPM	0.062	0.02	0.051	0.023	0.062	0.028	0.021	0.007	0.012	0.017	0.015	0.019	0.017	0.008	0.019	0.021	0	0	0.059	0.024	0.041	0.055	0.053	0.02	0.024	0	0.017	0.002	0.015	0.014	0.04	0.025
FUGITIVE EMISSION CH#2 (B091-B180) HF	PPM	0.033	0.059	0.065	0.043	0.038	0.053	0.045	0.041	0.056	0.055	0.056	0.059	0.064	0.082	0.069	0.074	0	0	0.091	0.072	0.085	0.095	0.133	0.162	0.146	0.028	0.075	0.052	0.055	0.017	0.078	0.064
FUGITIVE EMISSION CH#3 (A091-A180) HF	PPM	0.0109	0.036	0.0259	0.029	0.028	0.032	0.024	0.014	0.036	0.032	0.032	0.028	0.022	0.011	0.065	0.056	0	0	0.027	0.04	0.051	0.063	0.088	0.151	0.045	0.002	0.024	0.013	0.017	0.017	0.024	0.034
FUGITIVE EMISSION CH#4 (A001-A090) HF	PPM	0.036	0.019	0.02	0.025	0.043	0.033	0.027	0.019	0.029	0.024	0.026	0.036	0.043	0.028	0.058	0.049	0	0	0.043	0.024	0.035	0.041	0.096	0.059	0.105	0.001	0.019	0.024	0.046	0.046	0.039	0.035
																														Monthly Average(ppm)			0.039
																														Monthly Average (mg/M3)			0.033

Feb-19		Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday				Avg. in PPM
		01-02-19	02-02-19	03-03-19	04-02-19	05-02-19	06-02-19	07-02-19	08-02-19	09-02-19	10-02-19	11-02-19	12-02-19	13-02-19	14-02-19	15-02-19	16-02-19	17-02-19	18-02-19	19-02-19	20-02-19	21-02-19	22-02-19	23-02-19	24-02-19	25-02-19	26-02-19	27-02-19	28-02-19				
FUGITIVE EMISSION CH#1 (B001-B090) HF	PPM	0.005	0.029	0.019	0.026	0.009	0.012	0.004	0.003	0.004	0.022	0.011	0.024	0.005	0.021	0.012	0.001	0.015	0.03	0.029	0.038	0.033	0.015	0.036	0.02	0.041	0.001	0.003	0.012				0.017
FUGITIVE EMISSION CH#2 (B091-B180) HF	PPM	0.064	0.102	0.081	0.12	0.099	0.119	0.125	0.21	0.066	0.068	0.057	0.112	0.091	0.126	0.107	0.1	0.148	0.098	0.113	0.146	0.121	0.176	0.249	0.226	0.284	0.119	0.165	0.158				0.130
FUGITIVE EMISSION CH#3 (A091-A180) HF	PPM	0.022	0.032	0.08	0.064	0.054	0.085	0.117	0.052	0.033	0.02	0.03	0.043	0.064	0.077	0.128	0.02	0.091	0.039	0.066	0.169	0.133	0.13	0.102	0.143	0.123	0.072	0.187	0.113				0.082
FUGITIVE EMISSION CH#4 (A001-A090) HF	PPM	0.02	0.071	0.034	0.063	0.027	0.046	0.059	0.091	0.04	0.043	0.035	0.039	0.03	0.036	0.03	0.031	0.054	0.069	0.038	0.033	0.051	0.022	0.071	0.113	0.096	0.18	0.084	0.151				0.059
																														Monthly Average(ppm)			0.072
																														Monthly Average (mg/M3)			0.060

Mar-19		Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Avg. in PPM
		01-03-19	02-03-19	03-03-19	04-03-19	05-03-19	06-03-19	07-03-19	08-03-19	09-03-19	10-03-19	11-03-19	12-03-19	13-03-19	14-03-19	15-03-19	16-03-19	17-03-19	18-03-19	19-03-19	20-03-19	21-03-19	22-03-19	23-03-19	24-03-19	25-03-19	26-03-19	27-03-19	28-03-19	29-03-19	30-03-19	31-03-19	
FUGITIVE EMISSION CH#1 (B001-B090) HF	PPM	0.009	0.009	0	0.01	0.016	0.011	0.004	0.007	0.001	0.003	0.005	0.001	0.001	0.001	0	0	0.001	0	0.004	0.014	0.001	0	0.004	0.002	0.001	0	0.0028	0.002	0	0	0	0.004
FUGITIVE EMISSION CH#2 (B091-B180) HF	PPM	0.092	0.092	0.148	0.163	0.244	0.214	0.143	0.145	0.131	0.227	0.297	0.209	0.268	0.29	0.284	0.287	0.169	0.077	0.213	0.233	0.248	0.214	0.155	0.211	0.173	0.13	0.17	0.2	0.142	0.053	0.046	0.183
FUGITIVE EMISSION CH#3 (A091-A180) HF	PPM	0.092	0.092	0.096	0.179	0.207	0.182	0.139	0.076	0.135	0.144	0.125	0.177	0.311	0.141	0.241	0.189	0.113	0.041	0.191	0.138	0.299	0.121	0.1	0.075	0.042	0.126	0.076	0.181	0.156	0.114	0.081	0.141
FUGITIVE EMISSION CH#4 (A001-A090) HF	PPM	0.078	0.078	0.155	0.073	0.159	0.194	0.106	0.089	0.057	0.111	0.093	0.135	0.113	0.126	0.148	0.117	0.148	0.069	0.109	0.114	0.139	0.106	0.094	0.101	0.043	0.068	0.075	0.081	0.138	0.074	0.093	0.106
																														Monthly Average(ppm)			0.108
																														Monthly Average (mg/M3)			0.090

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Konkala/19/R-0489 Date: 08/04/19

FORAGE ANALYSIS REPORT

1.	Name of Industry	:	**M/s Hindalco Industries Ltd, (Unit- Aditya Aluminium); Lapanga**
2.	Date of Sampling	:	10.12.2018 TO 11.12.2018
3.	Nature of Sample	:	Vegetation Sample
4.	Sampling Locations	:	Thelkoli; Lapanga; Gurupali; Jangala; Bhadarpali; Bamloi; Tilaimal; Gumkarama; Ghichamura; Plant site.
5.	Sample collected by	:	VCSPL Representative
6.	Date of Analysis	:	12.12.2018 TO 18.12.2018

Sl. No.	Date of Sampling	Name of the Location	Type of Species	Method of Analysis	Results (ppm)
					Fluoride
1	10.12.2018	Thelkoli	Brinjal leaf (Solanum Melongena)	AOAC 975.04	1.2
2	10.12.2018	Lapanga	Tomato Leaf (Solanum lycopersicum)	AOAC 975.04	0.92
3	10.12.2018	Gurupali	Onion leaf (Allium Sepa)	AOAC 975.04	0.88
4	10.12.2018	Jangala	Flat Lima Beans leaf (Phaseolus Vulgaris)	AOAC 975.04	1.4
5	10.12.2018	Bhadarpali	Kosala Saga (Amaranthus Leaves)	AOAC 975.04	1.6
6	11.12.2018	Bomaloi	Charoli leaf (Buchanania lanzan)	AOAC 975.04	1.4
7	11.12.2018	Tileimal	Flat Lima Beans leaf (Phaseolus Vulgaris)	AOAC 975.04	0.71
8	11.12.2018	Gumkarma	Brinjal leaf (Solanum Melongena)	AOAC 975.04	1.8
9	11.12.2018	Ghichamura	Cabbage (Brassica Oleracea)	AOAC 975.04	1.4
10	11.12.2018	Plant site	Bamboo leaf (Bambusa Vulgaris)	AOAC 975.04	1.6

For *Visiontek Consultancy Services Private Limited*

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0488 Date: 08/04/19

FORAGE ANALYSIS REPORT

1.	Name of Industry	:	**M/s Hindalco Industries Ltd, (Unit- Aditya Aluminium); Lapanga**
2.	Date of Sampling	:	04.03.2019 TO 05.03.2019
3.	Nature of Sample	:	Vegetation Sample
4.	Sampling Locations	:	Thelkoli; Lapanga; Gurupali; Jangala; Bhadarpali; Bamloi; Tilaimal; Gumkarama; Ghichamura; Plant site.
5.	Sample collected by	:	VCSPL Representative in Presence of Aditya Aluminum Representative
6.	Date of Analysis	:	06.03.2019 TO 11.03.2019

Sl. No.	Date of Sampling	Name of the Location	Type of Species	Method of Analysis	Results (ppm)
					Fluoride
1	04.03.2019	Thelkoli	Brinjal leaf (Solanum Melongena)	AOAC 975.04	1.6
2	04.03.2019	Lapanga	Tomato Leaf (Solanum lycopersicum)	AOAC 975.04	1.1
3	04.03.2019	Gurupali	Onion leaf (Allium Sepa)	AOAC 975.04	0.7
4	04.03.2019	Jangala	Flat Lima Beans leaf (Phaseolus Vulgaris)	AOAC 975.04	1.2
5	04.03.2019	Bhadarpali	Kosala Saga (Amaranthus Leaves)	AOAC 975.04	1.6
6	05.03.2019	Bomaloi	Charoli leaf (Buchanania lanzan)	AOAC 975.04	1.4
7	05.03.2019	Tileimal	Flat Lima Beans leaf (Phaseolus Vulgaris)	AOAC 975.04	1.2
8	05.03.2019	Gumkarma	Brinjal leaf (Solanum Melongena)	AOAC 975.04	1.1
9	05.03.2019	Ghichamura	Cabbage (Brassica Oleracea)	AOAC 975.04	0.88
10	05.03.2019	Plant site	Bamboo leaf (Bambusa Vulgaris)	AOAC 975.04	1.2

For *Visiontek Consultancy Services Private Limited*

Plot No.-M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 7752017905
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NAME OF THE INDUSTRY:- ADITYA ALUMINIUM

STATUS OF UTILIZATION OF COAL ASH (FLY ASH AND BOTTOM ASH), For the Month of:-Oct 18 to March-2019

Sl. No.	Month	Year	Coal Consumption (MT)	Power Installed Capacity (MWH)	Power Generated (MWH)	Qunatity of Fly Ash generated (MT)	Quantity of Bottom Ash Generated (MT)	Total Ash Generated (MT)	Disposal Method	Brick Manufacturing (MT)	Supplied to cement industries (M/s Ultratech, M/s ACC & M/s OCL) in (MT)	Mine Void Filling (MT)	Utilization in Embankment/ Dyke Raising (MT)	Road Making (MT)	Low Lying area filling/land development (MT)	Through HCSD to Ash Pond	Aggregates (MT)	Agriculture/Horticulture Sector (MT)
7	Oct'18	2018	317018	900	650.28	116386.61	4849.44	121236.1	Dry ash is being supplied to Cement Plants, fly ash Bricks unit and in low lying area development and remaining ash disposed through HCSD system to ash pond.	14.938	67730.65	0	0	0	18863.79	34627	0	0
8	Nov'18	2018	299161	900	605.37	108099.18	4504.13	112603.3	Dry ash is being supplied to Cement Plants, fly ash Bricks unit and in low lying area development and remaining ash disposed through HCSD system to ash pond.	46.34	74238.06	0	0	0	17536.17	20782.74	0	0
9	Dec'18	2018	365189	900	623.2	116871.36	4869.64	121741.0	Dry ash is being supplied to Cement Plants, ash brick making, used in low lying area development and remaining ash disposed through HCSD system to ash pond.	59.052	89713.97	0	0	0	16282.43	15685.55	0	0
10	Jan-19	2019	345857	900	644.19	124459.20	5185.80	129645.0	Dry ash is being supplied to Cement Plants, ash brick making, used in low lying area development and remaining ash disposed through HCSD system to ash pond.	32.06	79068.05	0	0	0	17937.00	32607.80	0	0
11	Feb-19	2019	300077	900	573.33	106499.67	4437.49	110937.2	Dry ash is being supplied to Cement Plants, ash brick making, used in low lying area development and remaining ash disposed through HCSD system to ash pond.	36.26	78740.57	0	0	0	19599.18	12561.19	0	0
12	Mar-19	2019	334635	900	638.39	122337.20	5097.38	127434.6	Dry ash is being supplied to Cement Plants, ash brick making, used in low lying area development and remaining ash disposed through HCSD system to ash pond.	106	86665.63	0	0	0	22326.83	18336.14	0	0
Total			**1961937**			**694653.22**	**28943.88**	**723597.10**		**294.65**	**476156.93**	**0**	**0**	**0**	**112545.40**	**134600.09**	**0.00**	**0.00**

Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envtalo/19/R-0486 Date: 08/04/19

FLY ASH ANALYSIS REPORT

1. Name of Industry : **M/s Hindalco Industries Limited (Unit- Aditya Aluminium), Lapanga.**
2. Sampling Location : **FA-01:** CPP Fly Ash Silo
3. Date of Sampling : 19.12.2018
4. Date of Analysis : 20.12.2018 TO 26.12.2018
5. Sample Collected By : VCSPL Representative.

Sl. No.	Parameters	Unit	Analysis Results FA-01
A. Chemical Analysis			
1	Na_2O	%	0.21
2	MgO	%	0.94
3	Al_2O_3	%	23.2
4	SiO_2	%	54.2
5	P_2O_5	%	0.022
6	SO_3	%	1.8
7	K_2O	%	0.81
8	CaO	%	4.2
9	TiO_2	%	--
10	MnO	%	0.18
11	Fe_2O_3	%	9.2
B. Heavy Metals Analysis			
1	Hg	%	<0.001
2	As	%	<0.001
3	Pb	%	0.018
4	Cr	%	< 0.002
5	V	%	<0.001
6	Fe	%	4.6
7	Co	%	<0.001
8	Cu	%	0.064
9	Ni	%	0.094
10	Zn	%	0.056
11	Sr	%	--
12	Ba	%	<0.001

For Visiontek Consultancy Services Pvt. Ltd.

Plot No.-M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 7752017905
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Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0487 Date: 08/04/19

FLY ASH ANALYSIS REPORT

1. Name of Industry : **M/s Hindalco Industries Limited (Unit- Aditya Aluminium), Lapanga.**
2. Sampling Location : **BA-01:** CPP Bottom Ash Silo
3. Date of Sampling : 19.12.2018
4. Date of Analysis : 20.12.2018 TO 26.12.2018
5. Sample Collected By : VCSPL Representative in presence of Aditya Aluminium Representative.

Sl. No.	Parameters	Unit	Analysis Results BA-01
A.	**Chemical Analysis**		
1	Na_2O	%	0.24
2	MgO	%	1.8
3	Al_2O_3	%	25.6
4	SiO_2	%	58.0
5	P_2O_5	%	0.018
6	SO_3	%	1.6
7	K_2O	%	0.89
8	CaO	%	3.6
9	TiO_2	%	--
10	MnO	%	0.18
11	Fe_2O_3	%	6.9
B.	**Heavy Metals Analysis**		
1	Hg	%	<0.001
2	As	%	<0.001
3	Pb	%	0.018
4	Cr	%	< 0.002
5	V	%	<0.001
6	Fe	%	5.6
7	Co	%	<0.001
8	Cu	%	0.026
9	Ni	%	0.092
10	Zn	%	0.068
11	Sr	%	--
12	Ba	%	<0.001

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0474 Date: 04/04/19

GROUND WATER QUALITY ANALYSIS REPORT-DEC 2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga.**
2. Sampling location : **GW-1:** Lapanga Village; **GW-2:** Pandiol Village; **GW-3:**Bamloi Village; **GW-4:** Tilaimal Village; **GW-5:** Thelkoloi Village; **GW-6:**Ghichamura Village **GW-7:** Gumkarama Village; **GW-8:** Chaltikra Village.
3. Date of sampling : 10.12.2018
4. Date of analysis : 11.12.2018 to 18.12.2018
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS - 10500:2012	Analysis Result							
					GW-1	GW-2	GW-3	GW-4	GW-5	GW-6	GW-7	GW-8
1	pH Value	APHA 4500H B	--	6.5-8.5	7.2	7.4	7.6	6.9	6.8	7.2	7.4	7.1
2	Colour	APHA 2120 B, C	Hazen	5	<1.0	2.0	2.0	2.0	<1.0	3.0	2.0	2.0
3	Taste	APHA 2160 C	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	APHA 2150 B	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Conductivity	APHA2510-B	µs/cm	--	178.0	142.6	139.6	146.2	182.8	188.8	170.2	168.0
6	Turbidity	APHA 2130 B	NTU	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
7	Total Dissolved Solids	APHA 2540 C	mg/l	500	226.0	186.0	190.0	188.0	206.0	186.0	210.0	192.0
8	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	200	66.0	60.0	56.0	48.0	68.0	52.0	62.0	56.0
9	Total Alkalinity	APHA 2320 B	mg/l	200	52.0	50.8	51.2	52.0	56.0	48.8	52.8	54.0
10	Calcium (as Ca)	APHA 3500Ca B	mg/l	75	18.8	16.6	14.9	12.8	13.8	15.6	16.8	17.1
11	Magnesium (as Mg)	APHA 3500Mg B	mg/l	30	4.6	5.8	5.2	4.2	5.9	3.8	5.1	5.6
12	Residual. free Chlorine	APHA 4500Cl, B	mg/l	0.2	ND	ND	ND	ND	ND	ND	ND	ND
13	Boron (as B)	APHA 4500B, B	mg/l	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
14	Chloride (as Cl)	APHA 4500Cl B	mg/l	250	20.2	21.8	22.2	26.0	24.0	22.0	18.0	20.0
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	200	6.2	5.6	5.8	6.6	6.2	5.8	5.6	6.1
16	Fluoride (as F)	APHA 4500F C	mg/l	1.0	0.22	0.26	0.28	0.31	0.34	0.29	0.25	0.32
17	Nitrate (as NO_3)	APHA 4500 NO_3^- E	mg/l	45	1.8	1.6	2.1	2.4	2.2	1.6	1.4	1.6
18	Sodium as Na	APHA3500-Na	mg/l	--	12.8	11.2	11.6	10.8	11.2	12.4	12.2	11.7
19	Potassium as K	APHA 3500-K	mg/l	--	1.4	1.6	1.8	1.2	1.1	0.68	1.4	1.8
20	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
21	Cyanide (as CN)	APHA 4500 CN C,D	mg/l	0.05	ND	ND	ND	ND	ND	ND	ND	ND
22	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
23	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
24	Arsenic (as As)	APHA 3114 B	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
25	Copper (as Cu)	APHA 3111 B,C	mg/l	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
26	Lead (as Pb)	APHA 3111 B,C	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Manganese (as Mn)	APHA 3500Mn B	mg/l	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.3	0.26	0.24	0.26	0.21	0.18	0.16	0.22	0.24
29	Chromium (as Cr)	APHA 3500Cr B	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium (as Se)	APHA 3114 B	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
31	Zinc (as Zn)	APHA 3111 B,C	mg/l	5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Aluminium as(Al)	APHA 3500Al B	mg/l	0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
33	Mercury (as Hg)	APHA 3500 Hg	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
34	Mineral Oil	APHA 5220 B	mg/l	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
35	Pesticides	APHA 6630 B,C	mg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E.Coli	APHA 9221-F	MPN/ 100 ml	Shall not be detectable in any 100 ml sample	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	APHA9221-B	MPN/ 100 ml	Shall not be detectable in any 100 ml sample	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Note: CL: Colourless, AL: Agreeable, U/O:Unobjectionable, ND: Not Detected.

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Hindalco/19/R-0479 Date: 08/04/19

GROUND WATER QUALITY ANALYSIS REPORT-DEC 2018

1. **Name of Industry** : **M/s Hindalco Industries Limited (Unit-Aditya Aluminium), Sambalpur**
2. Sampling location : **GW-1:**Ash Pond area (Bore Well)
3. Date of sampling : 10.12.2018
4. Date of analysis : 11.12.2018 TO 18.12.2018
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Unit	Standard as per IS - 10500:2012	Testing Method	Analysis Results
					GW-1
1.	pH Value	--	6.5-8.5	APHA 4500 H^+ B	7.6
2.	Turbidity	NTU	5	APHA 2130B	1.8
3.	Conductivity	µs/cm	--	APHA 2510 B	312.8
4.	Total Hardness(as $CaCO_3$)	mg/l	200	APHA 2340 C	26.0
5.	Iron (as Fe)	mg/l	0.3	APHA 3500 Fe B	0.18
6.	Chloride (as Cl)	mg/l	250	APHA 4500 Cl B	42.0
7.	Dissolved Solids	mg/l	500	APHA 2540 C	156.0
8.	Calcium (as Ca)	mg/l	75	APHA 3500 Ca B	28.0
9.	Magnesium (as Mg)	mg/l	30	APHA 3500 Mg B	11.2
10.	Copper (as Cu)	mg/l	0.05	APHA 3111Cu B	<0.001
11.	Sodium (as Na)	mg/l	--	APHA 3500Na B	<0.001
12.	Potassium (as K)	mg/l	--	APHA 3500 K B	<0.001
13.	Manganese (as Mn)	mg/l	0.1	APHA 3111 B	<0.005
14	Sulphate (as SO_4)	mg/l	200	APHA 4500 SO_4^{2-} E	4.8
15.	Nitrate (as NO_3)	mg/l	45	APHA 4500 NO_3^- B	0.42
16.	Fluoride (as F)	mg/l	1.0	APHA 4500 F^- D	0.38
17.	Phenolic Compounds (as C_6H_5OH)	mg/l	0.001	APHA 5530 C	<0.001
18.	Mercury (as Hg)	mg/l	0.001	APHA 3112B	<0.001
19.	Cadmium (as Cd)	mg/l	0.003	APHA 3111 B	<0.001
20	Selenium (as Se)	mg/l	0.01	APHA 3114 B	<0.001
21.	Arsenic (as As)	mg/l	0.01	APHA 3114 B	<0.001
22.	Cyanide (as CN)	mg/l	0.05	APHA 4500 CN C,D	ND
23.	Lead (as Pb)	mg/l	0.01	APHA 3111 B	<0.001
24	Zinc (as Zn)	mg/l	5.0	APHA 3111 B	<0.005
25.	Chromium (as Cr)	mg/l	0.05	APHA 3500 Cr B	<0.005
26.	Alkalinity	mg/l	200	APHA 2320 B	36.6
27.	Aluminium as(Al)	mg/l	0.03	APHA 3500 Al B	<0.001
28.	Boron (as B)	mg/l	0.5	APHA 4500 B	<0.001

Note : ND: Not Detected ,BDL (Below detection limit)

VISIONTEK CONSULTANCY SERVICES PVT LTD

For **Visiontek Consultancy Services Pvt.Ltd**

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Kanhalo/19/R-0481 Date: 08/04/19

GROUND WATER QUALITY ANALYSIS REPORT-DEC 2018

1. **Name of Industry** : **M/s Hindalco Industries Limited (Unit-Aditya Aluminium), Sambalpur**
2. Sampling location : **GW-3**: Ash Pond area Bore well
3. Date of sampling : 10.12.2018
4. Date of analysis : 11.12.2018 TO 18.12.2018
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Unit	Standard as per IS - 10500:2012	Testing Method	Analysis Results
					GW-3
1.	pH Value	--	6.5-8.5	APHA 4500 H^+ B	7.8
2.	Turbidity	NTU	5	APHA 2130B	<1.0
3.	Conductivity	µs/cm	--	APHA 2510 B	278.8
4.	Total Hardness (as $CaCO_3$)	mg/l	200	APHA 2340 C	14.0
5.	Iron (as Fe)	mg/l	0.3	APHA 3500 Fe B	0.24
6.	Chloride (as Cl)	mg/l	250	APHA 4500 Cl^- B	36.0
7.	Dissolved Solids	mg/l	500	APHA 2540 C	118.0
8.	Calcium (as Ca)	mg/l	75	APHA 3500 Ca B	8.8
9.	Magnesium (as Mg)	mg/l	30	APHA 3500 Mg B	2.6
10.	Copper (as Cu)	mg/l	0.05	APHA 3111Cu B	BDL
11.	Sodium (as Na)	mg/l	--	APHA 3500Na B	BDL
12.	Potassium (as K)	mg/l	--	APHA 3500 K B	BDL
13.	Manganese (as Mn)	mg/l	0.1	APHA 3111 B	BDL
14	Sulphate (as SO_4)	mg/l	200	APHA 4500 SO_4^{2-} E	3.6
15.	Nitrate (as NO_3)	mg/l	45	APHA 4500 NO_3^- B	0.42
16.	Fluoride (as F)	mg/l	1.0	APHA 4500 F^- D	0.46
17.	Phenolic Compounds (as C_6H_5OH)	mg/l	0.001	APHA 5530 C	BDL
18.	Mercury (as Hg)	mg/l	0.001	APHA 3112B	BDL
19.	Cadmium (as Cd)	mg/l	0.003	APHA 3111 B	BDL
20	Selenium (as Se)	mg/l	0.01	APHA 3114 B	BDL
21.	Arsenic (as As)	mg/l	0.01	APHA 3114 B	BDL
22.	Cyanide (as CN)	mg/l	0.05	APHA 4500 CN^- C,D	BDL
23.	Lead (as Pb)	mg/l	0.01	APHA 3111 B	BDL
24.	Zinc (as Zn)	mg/l	5.0	APHA 3111 B	BDL
25.	Chromium (as Cr)	mg/l	0.05	APHA 3500 Cr B	BDL
26.	Alkalinity	mg/l	200	APHA 2320 B	40.0
27.	Aluminium as(Al)	mg/l	0.03	APHA 3500 Al B	BDL
28.	Boron (as B)	mg/l	0.5	APHA 4500 B	BDL

Note : ND: Not Detected , BDL (Below detection limit)

For Visiontek Consultancy Services Pvt.Ltd

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Committed For Better Environment

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Forwdalco/19/R-0482 Date: 08/04/19

GROUND WATER QUALITY ANALYSIS REPORT-DEC 2018

1. **Name of Industry** : **M/s Hindalco Industries Limited (Unit-Aditya Aluminium), Sambalpur**
2. Sampling location : **GW-4:** Ash Pond area Bore well
3. Date of sampling : 10.12.2018
4. Date of analysis : 11.12.2018 TO 18.12.2018
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Unit	Standard as per IS - 10500:2012	Testing Method	Analysis Results
					GW-4
1.	pH Value	--	6.5-8.5	APHA 4500 H^+ B	7.12
2.	Turbidity	NTU	5	APHA 2130B	1.2
3.	Conductivity	µs/cm	--	APHA 2510 B	326.0
4.	Total Hardness (as $CaCO_3$)	mg/l	200	APHA 2340 C	18.0
5.	Iron (as Fe)	mg/l	0.3	APHA 3500 Fe B	0.21
6.	Chloride (as Cl)	mg/l	250	APHA 4500 Cl^- B	42.0
7.	Dissolved Solids	mg/l	500	APHA 2540 C	104.0
8.	Calcium (as Ca)	mg/l	75	APHA 3500 Ca B	8.6
9.	Magnesium (as Mg)	mg/l	30	APHA 3500 Mg B	1.8
10.	Copper (as Cu)	mg/l	0.05	APHA 3111Cu B	BDL
11.	Sodium (as Na)	mg/l	--	APHA 3500Na B	BDL
12.	Potassium (as K)	mg/l	--	APHA 3500 K B	BDL
13.	Manganese (as Mn)	mg/l	0.1	APHA 3111 B	BDL
14	Sulphate (as SO_4)	mg/l	200	APHA 4500 SO_4^{2-} E	3.6
15.	Nitrate (as NO_3)	mg/l	45	APHA 4500 NO_3^- B	0.26
16.	Fluoride (as F)	mg/l	1.0	APHA 4500 F^- D	0.18
17.	Phenolic Compounds (as C_6H_5OH)	mg/l	0.001	APHA 5530 C	BDL
18.	Mercury (as Hg)	mg/l	0.001	APHA 3112B	BDL
19.	Cadmium (as Cd)	mg/l	0.003	APHA 3111 B	BDL
20	Selenium (as Se)	mg/l	0.01	APHA 3114 B	BDL
21.	Arsenic (as As)	mg/l	0.01	APHA 3114 B	BDL
22.	Cyanide (as CN)	mg/l	0.05	APHA 4500 CN^- C,D	BDL
23.	Lead (as Pb)	mg/l	0.01	APHA 3111 B	BDL
24.	Zinc (as Zn)	mg/l	5.0	APHA 3111 B	BDL
25.	Chromium (as Cr)	mg/l	0.05	APHA 3500 Cr B	BDL
26.	Alkalinity	mg/l	200	APHA 2320 B	36.0
27.	Aluminium as(Al)	mg/l	0.03	APHA 3500 Al B	BDL
28.	Boron (as B)	mg/l	0.5	APHA 4500 B	BDL

Note : ND: Not Detected , BDL (Below detection limit)

For **Visiontek Consultancy Services Pvt.Ltd**

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Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Eowlab/19/R-0475 Date: 05/04/19

GROUND WATER QUALITY ANALYSIS REPORT-MARCH 2019

1. **Name of Industry** : **M/s Hindalco Industries Limited (Unit-Aditya Aluminium), Sambalpur**
2. Sampling location : **GW-1:**Ash Pond area (Bore Well)
3. Date of sampling : 14.03.2019
4. Date of analysis : 15.03.2019 TO 22.03.2019
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Unit	Standard as per IS -10500:2012	Testing Method	Analysis Results
					GW-1
1.	pH Value	--	6.5-8.5	APHA 4500 H^+ B	7.61
2.	Turbidity	NTU	5	APHA 2130B	1.0
3.	Conductivity	µs/cm	--	APHA 2510 B	274.0
4.	Total Hardness (as $CaCO_3$)	mg/l	200	APHA 2340 C	16.2
5.	Iron (as Fe)	mg/l	0.3	APHA 3500 Fe B	00.18
6.	Chloride (as Cl^-)	mg/l	250	APHA 4500 Cl^- B	40.2
7.	Dissolved Solids	mg/l	500	APHA 2540 C	164.0
8.	Calcium (as Ca)	mg/l	75	APHA 3500 Ca B	28.2
9.	Magnesium (as Mg)	mg/l	30	APHA 3500 Mg B	12.6
10.	Copper (as Cu)	mg/l	0.05	APHA 3111Cu B	<0.001
11.	Sodium (as Na)	mg/l	--	APHA 3500Na B	<0.001
12.	Potassium (as K)	mg/l	--	APHA 3500 K B	<0.001
13.	Manganese (as Mn)	mg/l	0.1	APHA 3111 B	<0.005
14	Sulphate (as SO_4)	mg/l	200	APHA 4500 SO_4^{2-} E	5.4
15.	Nitrate (as NO_3)	mg/l	45	APHA 4500 NO_3^- B	0.43
16.	Fluoride (as F)	mg/l	1.0	APHA 4500 F^- D	0.42
17.	Phenolic Compounds (as C_6H_5OH)	mg/l	0.001	APHA 5530 C	<0.001
18.	Mercury (as Hg)	mg/l	0.001	APHA 3112B	<0.001
19.	Cadmium (as Cd)	mg/l	0.003	APHA 3111 B	<0.001
20	Selenium (as Se)	mg/l	0.01	APHA 3114 B	<0.001
21.	Arsenic (as As)	mg/l	0.01	APHA 3114 B	<0.001
22.	Cyanide (as CN)	mg/l	0.05	APHA 4500 CN^- C,D	ND
23.	Lead (as Pb)	mg/l	0.01	APHA 3111 B	<0.001
24.	Zinc (as Zn)	mg/l	5.0	APHA 3111 B	<0.005
25.	Chromium (as Cr)	mg/l	0.05	APHA 3500 Cr B	<0.005
26.	Alkalinity	mg/l	200	APHA 2320 B	48.0
27.	Aluminium as(Al)	mg/l	0.03	APHA 3500 Al B	<0.001
28.	Boron (as B)	mg/l	0.5	APHA 4500 B	<0.001

Note : ND: Not Detected

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Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Konlabs/19/R-0477 Date: 08/04/19

GROUND WATER QUALITY ANALYSIS REPORT-MARCH 2019

1. **Name of Industry** : **M/s Hindalco Industries Limited (Unit-Aditya Aluminium), Sambalpur**
2. Sampling location : **GW-3:** Ash Pond area Bore well
3. Date of sampling : 14.03.2019
4. Date of analysis : 15.03.2019 TO 22.03.2019
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Unit	Standard as per IS -10500:2012	Testing Method	Analysis Results
					GW-3
1.	pH Value	--	6.5-8.5	APHA 4500 H^+ B	7.36
2.	Turbidity	NTU	5	APHA 2130B	<1.0
3.	Conductivity	µs/cm	--	APHA 2510 B	286.0
4.	Total Hardness (as $CaCO_3$)	mg/l	200	APHA 2340 C	20.0
5.	Iron (as Fe)	mg/l	0.3	APHA 3500 Fe B	0.26
6.	Chloride (as Cl)	mg/l	250	APHA 4500 Cl^- B	32.8
7.	Dissolved Solids	mg/l	500	APHA 2540 C	118.0
8.	Calcium (as Ca)	mg/l	75	APHA 3500 Ca B	24.0
9.	Magnesium (as Mg)	mg/l	30	APHA 3500 Mg B	11.6
10.	Copper (as Cu)	mg/l	0.05	APHA 3111Cu B	BDL
11.	Sodium (as Na)	mg/l	--	APHA 3500Na B	BDL
12.	Potassium (as K)	mg/l	--	APHA 3500 K B	BDL
13.	Manganese (as Mn)	mg/l	0.1	APHA 3111 B	BDL
14	Sulphate (as SO_4)	mg/l	200	APHA 4500 SO_4^{2-} E	4.2
15.	Nitrate (as NO_3)	mg/l	45	APHA 4500 NO_3^- B	0.38
16.	Fluoride (as F)	mg/l	1.0	APHA 4500 F^- D	0.41
17.	Phenolic Compounds (as C_6H_5OH)	mg/l	0.001	APHA 5530 C	BDL
18.	Mercury (as Hg)	mg/l	0.001	APHA 3112B	BDL
19.	Cadmium (as Cd)	mg/l	0.003	APHA 3111 B	BDL
20	Selenium (as Se)	mg/l	0.01	APHA 3114 B	BDL
21.	Arsenic (as As)	mg/l	0.01	APHA 3114 B	BDL
22.	Cyanide (as CN)	mg/l	0.05	APHA 4500 CN^- C,D	BDL
23.	Lead (as Pb)	mg/l	0.01	APHA 3111 B	BDL
24.	Zinc (as Zn)	mg/l	5.0	APHA 3111 B	BDL
25.	Chromium (as Cr)	mg/l	0.05	APHA 3500 Cr B	BDL
26.	Alkalinity	mg/l	200	APHA 2320 B	38.0
27.	Aluminium as(Al)	mg/l	0.03	APHA 3500 Al B	BDL
28.	Boron (as B)	mg/l	0.5	APHA 4500 B	BDL

Note : ND: Not Detected , BDL (Below detection limit)

For Visiontek Consultancy Services Pvt.Ltd

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: EnvLab/19/R-0478 Date: 08/04/19

GROUND WATER QUALITY ANALYSIS REPORT-MARCH 2019

1. **Name of Industry** : **M/s Hindalco Industries Limited (Unit-Aditya Aluminium), Sambalpur**
2. Sampling location : **GW-4:** Ash Pond area Bore well (Bamaloi)
3. Date of sampling : 14.03.2019
4. Date of analysis : 15.03.2019 TO 22.03.2019
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Unit	Standard as per IS -10500:2012	Testing Method	Analysis Results
					GW-4
1.	pH Value	--	6.5-8.5	APHA 4500 H^+ B	7.19
2.	Turbidity	NTU	5	APHA 2130B	<1.0
3.	Conductivity	µs/cm	--	APHA 2510 B	308.0
4.	Total Hardness (as $CaCO_3$)	mg/l	200	APHA 2340 C	22.0
5.	Iron (as Fe)	mg/l	0.3	APHA 3500 Fe B	0.28
6.	Chloride (as Cl)	mg/l	250	APHA 4500 Cl^- B	41.0
7.	Dissolved Solids	mg/l	500	APHA 2540 C	126.0
8.	Calcium (as Ca)	mg/l	75	APHA 3500 Ca B	11.2
9.	Magnesium (as Mg)	mg/l	30	APHA 3500 Mg B	7.8
10.	Copper (as Cu)	mg/l	0.05	APHA 3111Cu B	BDL
11.	Sodium (as Na)	mg/l	--	APHA 3500Na B	BDL
12.	Potassium (as K)	mg/l	--	APHA 3500 K B	BDL
13.	Manganese (as Mn)	mg/l	0.1	APHA 3111 B	BDL
14	Sulphate (as SO_4)	mg/l	200	APHA 4500 SO_4^{2-} E	3.8
15.	Nitrate (as NO_3)	mg/l	45	APHA 4500 NO_3^- B	0.26
16.	Fluoride (as F)	mg/l	1.0	APHA 4500 F^- D	0.22
17.	Phenolic Compounds (as C_6H_5OH)	mg/l	0.001	APHA 5530 C	BDL
18.	Mercury (as Hg)	mg/l	0.001	APHA 3112B	BDL
19.	Cadmium (as Cd)	mg/l	0.003	APHA 3111 B	BDL
20	Selenium (as Se)	mg/l	0.01	APHA 3114 B	BDL
21.	Arsenic (as As)	mg/l	0.01	APHA 3114 B	BDL
22.	Cyanide (as CN)	mg/l	0.05	APHA 4500 CN^- C,D	BDL
23.	Lead (as Pb)	mg/l	0.01	APHA 3111 B	BDL
24.	Zinc (as Zn)	mg/l	5.0	APHA 3111 B	BDL
25.	Chromium (as Cr)	mg/l	0.05	APHA 3500 Cr B	BDL
26.	Alkalinity	mg/l	200	APHA 2320 B	38.0
27.	Aluminium as(Al)	mg/l	0.03	APHA 3500 Al B	BDL
28.	Boron (as B)	mg/l	0.5	APHA 4500 B	BDL

Note : ND: Not Detected , BDL (Below detection limit)

For Visiontek Consultancy Services Pvt.Ltd

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Annexure-9

ACTION PLAN FOR ACHIEVING33% GREEN BELT DEVELOPMENT

Besides the bio-aesthetic value, the objective of greenbelt development is to reduce the effects of pollutants, arresting movement of dust. A composition of fast growing tall, medium, small trees will make the greenbelt functionally viable.

Land description:

	Area in Hectare	Area in Acre
Total area:	1347.35	3327.95
Greenbelt area	444.62	1098.21
Total area covered so far	217.04	537
Remaining area for green belt development	227.58	562

Year	Area (Ha)	Area (Acres)	No of sapling to be planted
2019-20	40	98.8	50000
2020-21	45	111.2	1,12,000
2021-22	45	111.2	1,12,000
2022-23	45	111.2	1,12,000
2023-24	52.58	129.9	1,30,000
Total	272.58		5,16,000

Selection of species:

Species which have proven ability to withstand the factory premises & suggested by the Divisional Forest Office, Sambalpur. A guideline for developing greenbelt by Central Pollution Control Board has also been considered. The fast growing species are:

1. Albizzialebbeck (Siris)
2. Azadirachtaindica (Neem)
3. Dalbergiasissoo (Shisham)
4. Pongamiapinnata (Karanj)
5. Peltophorrumferrugineum (Radhachuda)
6. Delonixregia (Gulmohar)
7. Samaneasaman (Badachakunda)
8. Casiaseamia (Rani chakunda)
9. Bauhinia sp. (kanchana)
10. Tecomagaudichaudi (Tecoma)
11. Thevetianerifolia (Kaniara)
12. Nerium oleander (Karabira)
13. Ceasalpineapuchirima (ceasalpinea

COMPLIANCE TO CREP GUIDELINES FOR SMELTER

Compliance Status up to March 2019

Sr. No.	Particulars	Compliance
1	Environmental clearance for new smelters to be given by MoEF only with pre-baked technology	Smelter design is based on pre-baked technology only.
2	Fluoride emissions should be limited to 0.8 kg/ton of aluminium production and dry scrubbing of fluorides	Fluoride emissions is being controlled by installing GTC & FTC below 0.8 kg/ton of aluminium metal produced.
3	Fluoride consumption in the smelter should be limited to 10 kg/ton of aluminium produced	Fluoride consumption (as F) is 9.02 kg/ton of aluminium production in FY 18-19.
4	The fluoride in forage should be limited to Average of 12 consecutive months - 40 ppm Average of 2 consecutive months - 60 ppm One month - 80 ppm Regular monitoring data to be submitted to SPCB and CPCB.	Forage fluoride is being monitored on quarterly basis as a part of post project monitoring activities. The monitored data is being regularly submitted to SPCB and CPCB. (Please Ref: Annexure-4)
5	The average life of the pots should be 2500 days. The possibility of using the SPL in cement or steel industry after recovery of aluminium fluoride should be explored.	The plant is designed for longer life of pots. SPL generated is being supplied (carbon part) to authorised reprocessors. The trial has been completed for disposal of Refractory part of SPL and we understand that Protocol has been issued to M/s Ramky for safe disposal in secured landfill area. M/s Ramky is establishing its facility for treatment and disposal of SPL Refractory part in its CHW-TSDF. Till that time we have stored it under covered shed.
6	The SPL should be disposed in secured landfill.	The spent pot lining generated from the smelter is having two parts. Carbon part is being supplied to M/s Green Energy Limited, Sambalpur for reprocessing and utilization, in this way the carbon part is completely recycled. Refractory part will be disposed to CHW-TSDF.
7	Achieving particulate matter limit of 50 mg/Nm3 in anode baking furnace	It is being Complied with.

COMPLIANCE TO CREP GUIDELINES FOR CPP

Compliance Status up to March 2019

Sr. No.	Conditions	Compliance
1	Implementation of Environmental Standards (emission & effluent) in non- compliant* Power Plants (31 & 27) - Submission of action plan: June 30, 2003 - Placement of order for Pollution of control equipment: September, 2003 - Installation & commission: December 31, 2005	Not Applicable
2	For existing thermal power plants, a feasibility study shall be carried out by Central Electricity Authority (CEA) to examine possibility to reduce the particulate matter emissions to 100 mg/Nm3. The studies shall also suggest the road map to meet 100 mg/Nm3. The studies shall also suggest the road map to meet 100 mg/Nm3 wherever found feasible. CEA shall submit the report by March 2004.	Not Applicable
3	New / expansion power projects to be accorded environmental clearance on or after1.4.1.2003 shall meet the limit of 100 mg/Nm3 for particulate matter.	Complied. SPM emission well below stipulated limit of 50 mg/Nm3
4	Development of SO_2 & NO_X emission standards for coal based plants by December 2003. - New/ expansion power projects shall meet the limit of SO_2 & NO_X w.e.f. 1.1.2005. - Existing power plants shall meet the limit of SO2 & NOX w.e.f.1.1.2006.	Standard for SO_2 & NOx has been published by MOEF.
5	Install/activate opacity meters/ continuous monitoring system in all the units by December 31, 2004 with proper calibration system.	Continuous monitoring system installed in the stacks attached to Power Plant for monitoring of PM, SO_2 & NOx.
6	Development of guidelines/ standards for mercury and other toxic heavy metals emissions by December 2003.	Standard for Hg emission has been published by MOEF&CC.
7	Review of stack height requirement and guidelines for power plants based on micro meteorological data by June 2003	Guideline has been published for stack height by MOEFCC in this regard.
8	Implementation of use of beneficiated coal as per GOI Notification: Power plants will sign fuel supply agreement (FSA) to meet the requirement as per the matrix prepared by CEA for compliance of the notification as short term measure. Options/mechanism for setting up of coal washeries as a long term measure	Not Applicable

	* Coal India will up its own washery * Sate Electricity Board to set up its own washery * Coal India to ask private entrepreneurs to set up washeries for CIL and taking washing charges * SEBs to select a private entrepreneur to set up a washery near pit- head installation of coal beneficiation plant	
9	Power plants will indicate their requirement of abandoned coal mines for ash disposal & Coal India/ MOC shall provide the list of abandoned mines by June 2003 to CEA.	Not Applicable
10	Power plants will provide dry ash to the users outside the premises or uninterrupted access to the users within six months.	It is being Complied with.
11	Power Plants should provide dry fly ash free of cost to the users	Dry fly ash is being provided to the users free of cost.
12	State P.W.Ds/ construction & development agencies shall also adhere to the specifications/Schedules of CPWD for ash based products utilization MoEF will take up the matter with State Governments.	Not Applicable
13 (i)	New plants to be accorded environmental clearance on or after 1.04.2003 shall adopt dry fly ash extraction or dry disposal system or Medium (35-40%) ash concentration slurry disposal system or Lean phase with hundred percent ash waste re-circulation system depending upon site specific environmental situation.	It has been installed as part of the Ash Handling Package.
13 (ii)	Existing plants shall adopt any of the systems mentioned in 13(i)by December 2004	Implemented
14	Fly ash Mission shall prepare guidelines/manuals for fly ash utilization by March 2004.	Noted
15	New plants shall promote adoption of clean coal and clean power generation technologies * Units will submit bank guarantee to respective SPCB	Noted

Annexure-11

POINT-WISE COMPLIANCE TO THE POINTS RAISED DURING PUBLIC HEARING OF ADITYA ALUMINIUM

Sl. No.	POINTS RAISED	COMPLIANCE STATUS
1	The Project Proponent should provide employment to the locals on priority basis.	The industry has already provided employment to the locals based on the eligibility in the ongoing projects and they are committed to do so in the proposed expansion project.
2	The Industry should establish an ITI training centre to train the young people in technical field so as to enable them for getting suitable employment in the plant.	The industry has proposed to upgrade the existing ITI at Rengali to facilitate the training programme for the project affected people for the technical jobs.
3	The Industry should carry out massive plantation in the vacant spaces of the surrounding villages, R.R colony etc. Trees which are not under the purview of the core plant area are to be protected and minimum 25% of the project area to be made green cover.	The industry has already planted 3, 80,500 saplings inside the factory premises till FY 18-19. Also, the industry has started plantation in the vacant spaces of the surrounding R.R. Colony and have distributed saplings to the villagers in the plant surrounding villages.
4	The Industry should inform the Public about the air pollution control measures to be adopted in the proposed plant for control of air pollution and also proactive measures to be taken by the company for control of rise in ambient temperature. Pollution measurement machines to be installed in every villages and pollution control committees to be formed to regulate the pollution.	The industry has installed ESPs, Bag filters etc to control air pollution. Greenbelt development and selecting the best environment friendly technology & equipment's for Smelter and Power plants are some of the proactive measures taken by the Company. Online ambient air quality monitoring stations are being installed inside the plant area for information on real time information on different pollutants.
5	The Project Proponent should inform the public about the peripheral developmental works to be carried out in future.	Peripheral developmental works are being carried out in consultation with the Gram Panchayats and villagers as per the CSR guideline.
6	The industry should make necessary arrangements for provision of drinking water in the affected area.	The industry has been supplying drinking water through tankers, into the project affected villages in coordination with RWSS, BDO and Sarpanch of every Gram Panchayats
7	The industry should make necessary arrangement to provide round the clock doctors for better medical service in the Lapanga area.	The industry has been very actively contributing the greater causes of Health provided 10 maternity beds to Rengali PHC, Conducted Pulse Polio facilitation in coordination with CHC Laida for 4634 nos of children, Adolescent healthcare and Nutrition programs conducted in the villages. First Aid centre has facility to local areas for free treatment by reputed doctors is

		on. Provided free treatment facility to 745 nos of local people with free treatment, medicine and consultation.
8	The Industry should make alternate arrangement to source water instead of deep bore wells in & around the project area.	The industry is getting water from the Hirakud Reservoir to meets the all the requirements of the Industry.
9	The industry should give financial support to grow small scale industries in the localities.	The industry has assured to give support to grow the livelihood of the villagers as per their CSR policy. However, many training programs have been conducted for self-employment such as Vegetable farming, Phenol making, Hand wash making, Tailoring, Plantation & various social/health awareness programs, saving programs, to the 63 nos of SHGs adopted by Industry.
10	The industry should pay financial support for each local traditional festival to villagers. Cremation ground should be provided in each village. Alternate Football ground to be provided to Bomaloi villagers as the company is occupying the existing football ground.	We are already providing financial support for each local Traditional festival to the villagers. We have already constructed one football ground at Bomaloi. We conduct football tournaments at different villages every year as a part of promoting Rural sports. The football grounds are maintained every year by industry. Two Cremation grounds have been constructed last year.
11	The industry should provide community toilets at the surrounding affected villages. Special care to be taken for physical handicapped persons in the affected areas	We have already provided Toilets to each house in village pitapali & community toilets in village Bomaloi & Tileimal. Physically challenged people are continuously supported by the company.

Annexure - 12

Expense incurred under Enterprise Social Commitment till March 2019:

Sl. Nos.	Description	Amount Spent (In Crores)	Remarks
1	G D Birla Medical Research and Education Foundation for School at Kurki	20.25	
2	Land taken on Lease from IDCO for School at Kurki	9.10	
3	Sponsorship of Kalinga Lancers in Indian Hockey league Fy15, Fy16 & Fy17	4.50	
4	CSR expenses in & around Aditya Aluminium including Hirakud areas in FY17	7.61	
5	Sponsorship for Asian Athletic Championship 2017	0.50	
6	CSR expenses in & around Aditya Aluminium including Hirakud areas during April 18 to Sept 18	4.65	
Total Expense		46.61	

Aditya Aluminium intends to continue with the following activities under Enterprise Social Commitment like:-

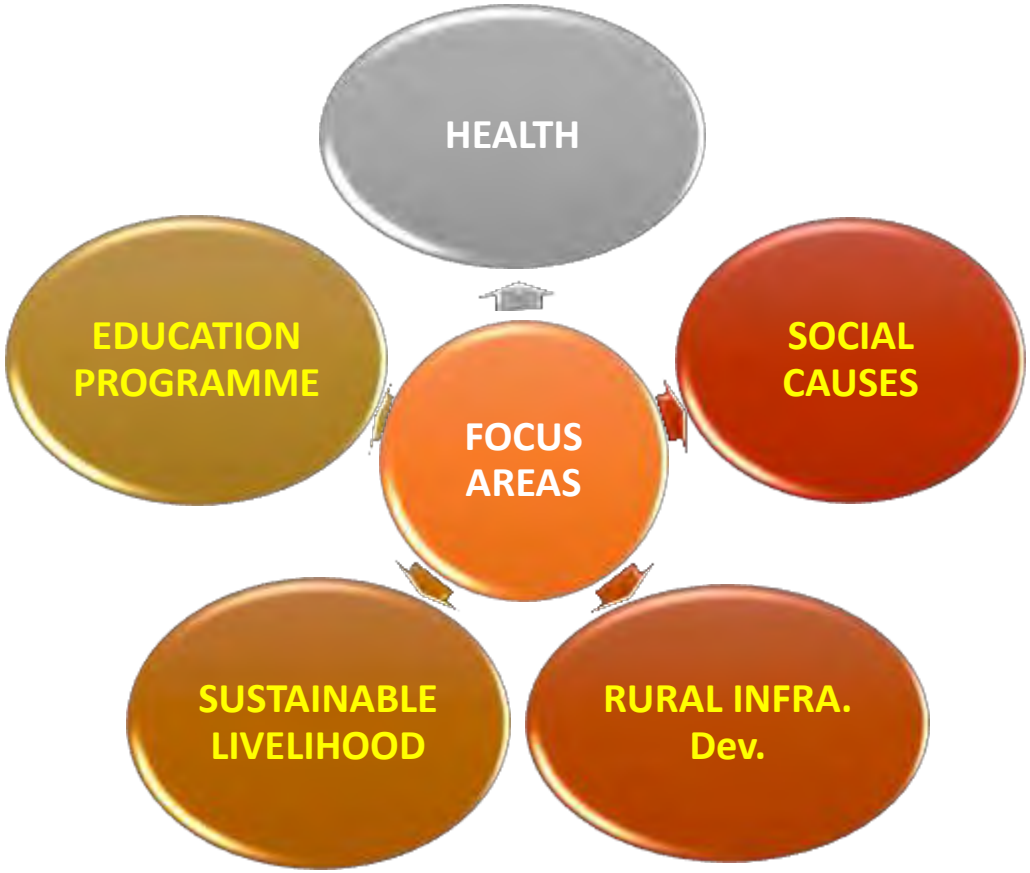
a) Infrastructure development in villages around the Project area.
b) Drinking Water supply facilities.
c) Green cover development in collaboration with State Govt. departments.
d) Football play ground or mini stadium in Bomaloi village, as stated in the minutes of Public consultation held before environmental clearance.
e) Free distribution of school books & bags to children.
f) Constructing Toilets for girls in schools/villages.
g) Scholarship to poor, talented students in the schools.
h) Providing Ash brick manufacturing machines to unemployed youth in the villages and one time assistance to establish the Unit.
i) Contributing to the development of Railway infrastructures in consultation with the railway authorities (e.g., ROB).
j) Implementation of skill development programmes and providing necessary infrastructure to existing ITI, Polytechnic colleges.
k) Development of Schools in the State of Odisha.

The remaining 5% amount for Phase-1 capacity (i.e., Smelter of 0.36 MTPA and CPP of 900 MW) is proposed to be spent over a period of 39 years from the year 2017.

CSR INITIATIVES FY-2018-19

UNIT: ADITYA ALUMINIUM

Our Key Focus Areas of CSR



Reaching …

- Villages - 18
- Population - 22000
- Blocks - 2
- District - Sambalpur

Expenses Status of Aditya Aluminium CSR

Aditya Aluminium CSR Expenses Dash Board FY-2005 - 2018			
Sl. No	**Year**	**Total CSR Expenses (Rs in lakhs)**	**Remarks**
1	2015-16	626	Completed
2	2016-17	236	Completed
3	2017-18	325	Completed
4	2018-19	284	Completed
Grand Total		**1471**	

Expenditure for the year 2018-19

YEAR	EXPENDITURE From APRIL to MAR (2018-19)	
Plan CSR Project Activities	**Total Expenses (in Lakhs)**	**Beneficiaries**
Education	8.06	6251
Health	21.92	20691
Livelihood	106.36	42210
Infrastructure	75.63	36054
Social Causes	71.85	39259
TOTAL	284.311	144465

WOMEN EMPOWERMENT HIGHLIGHTS

Dt-26-01.2019

RURAL EDUCATION: International Women's Day Celebration at Dhorropani Village

RURAL HEALTH INITIATIVES

<u>RURAL EDUCATION</u>: Healthy baby competition and mother child health care at Pondaloi RR colony, Pulse polio program, and SHG meeting held in villages.

SUSTAINABLE AGRICULTURE HIGHLIGHTS





Sustainable Livelihood: Improved seed distribution to farmers and their cultivation in the promoting Sustainable agriculture near about 660 nos of farmers benefitted out of the seed distribution.

SUSTAINABLE ENVIRONMENT HIGHLIGHTS

Sustainable Environment: Awareness building for to stop fire breaking in the jungle in the periphery villages of Aditya Aluminum in coordination with Forest Dept., Rengali and villagers.

RURAL EDUCATION HIGHLIGHTS

RURAL EDUCATION: Annual sports organized in Lapanga Govt. High school (Dt-19.01.2019)

RURAL EDUCATION HIGHLIGHTS

RURAL EDUCATION: Blankets distribution to 330 nos of Ashram girl students, sweets distribution to 1800 school students on Republic day , School vehicle provision to Gopkani village students and Free Coaching to 40 students

SHG MEETING & PRODUCT DISPLAY HIGHLIGHTS

RURAL LIVELIHOOD: Village SHG meeting and SHG Product display and sale at Rengali

ANIMAL HUSBANDRY HIGHLIGHTS

ANIMAL HUSBANDRY- There are 300 cattle and Birds vaccinated and treated in **Animal Health camp** at Lapanga and Jangla

ANIMAL HUSBANDRY HIGHLIGHTS

ANIMAL HUSBANDRY: Awareness camp on Animal Husbandry at Bomaloi and Bhurshipali Village Jangla

RURAL SPORTS HIGHLIGHTS

Sports Initiative: Football tournament at village level

RURAL INFRASTRUCTURE HIGHLIGHTS

Rural Infrastructure Development: Construction of WBM road at Budla Village

Thank You.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008

ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0466 Date: 08/04/19

AMBIENT AIR QUALITY MONITORING REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling Location : **Monitoring Station No.- AAQMS-1 (Gumkarama)**
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative.

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2018	55.8	20.8	5.8	12.4	<4.0	0.46	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
05.10.2018	56.4	21.4	5.6	12.6	<4.0	0.48	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.10.2018	54.8	22.6	5.2	13.4	<4.0	0.52	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
12.10.2018	53.8	25.4	5.4	13.8	<4.0	0.51	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.10.2018	52.8	26.2	5.1	11.8	<4.0	0.51	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
19.10.2018	57.4	27.2	5.8	11.2	<4.0	0.46	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.10.2018	58.4	28.4	6.0	10.8	<4.0	0.44	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
26.10.2018	60.2	29.6	6.1	10.6	<4.0	0.42	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.10.2018	61.2	28.4	6.2	11.1	<4.0	0.41	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
02.11.2018	56.8	28.6	5.9	11.2	<4.0	0.39	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
06.11.2018	52.8	24.8	5.8	10.2	<4.0	0.40	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.11.2018	50.8	25.6	6.1	10.4	<4.0	0.41	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
13.11.2018	48.8	26.8	6.2	11.8	<4.0	0.42	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.11.2018	52.6	24.8	6.4	11.2	<4.0	0.44	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
20.11.2018	56.4	27.2	5.2	12.4	<4.0	0.46	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.11.2018	55.8	28.8	5.6	12.6	<4.0	0.47	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
27.11.2018	54.7	29.6	5.7	12.8	<4.0	0.48	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.11.2018	56.8	30.2	5.2	12.7	<4.0	0.49	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
04.12.2018	56.6	29.4	6.1	11.4	<4.0	0.51	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
07.12.2018	60.2	28.4	6.4	11.2	<4.0	0.52	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
11.12.2018	52.8	27.6	6.2	11.1	<4.0	0.55	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
14.12.2018	53.4	28.8	5.8	10.8	<4.0	0.56	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
18.12.2018	58.2	29.1	5.1	10.2	<4.0	0.51	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
21.12.2018	56.8	30.2	6.4	10.6	<4.0	0.52	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
25.12.2018	56.2	29.4	6.2	11.4	<4.0	0.48	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
28.12.2018	57.4	29.8	6.8	11.2	<4.0	0.52	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Quarterly Average	55.62	27.17	5.82	11.59	<4.0	0.47	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling	Zarconium SPADNS Method

BDL Values: SO_2< 4 $\mu g/m^3$, NO_x< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01$\mu g/m^3$ CO-<0.1 mg/m^3

VISIONTEK CONSULTANCY SERVICES PVT LTD

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref: Envfab/19/R-0467 Date: 08/04/19

AMBIENT AIR QUALITY MONITORING REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling Location : **Monitoring Station No.- AAQMS-2 (Ghichamura)**
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2018	60.8	29.6	<4.0	11.2	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
05.10.2018	60.2	29.5	<4.0	11.8	<4.0	0.15	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.10.2018	59.2	28.6	<4.0	12.6	<4.0	0.12	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
12.10.2018	59.6	28.2	<4.0	13.2	<4.0	0.14	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.10.2018	58.8	26.8	4.6	13.4	<4.0	0.14	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
19.10.2018	58.2	25.5	4.8	12.8	<4.0	0.12	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.10.2018	56.8	25.2	4.2	12.2	<4.0	0.13	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
26.10.2018	55.6	24.8	5.1	11.7	<4.0	0.14	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.10.2018	55.4	23.8	5.6	11.2	<4.0	0.11	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
02.11.2018	54.8	23.2	5.8	11.8	<4.0	0.11	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
06.11.2018	54.2	22.4	5.2	11.6	<4.0	0.12	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.11.2018	53.8	22.8	5.2	10.8	<4.0	0.10	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
13.11.2018	52.8	23.7	5.4	13.6	<4.0	0.13	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.11.2018	52.6	23.6	5.1	14.2	<4.0	0.13	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
20.11.2018	51.8	24.9	5.9	14.8	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.11.2018	50.8	24.5	6.1	13.6	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
27.11.2018	50.6	25.6	6.4	13.2	<4.0	0.17	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.11.2018	51.2	25.2	6.6	14.1	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
04.12.2018	50.2	26.1	5.8	14.4	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
07.12.2018	56.2	26.4	5.2	15.2	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
11.12.2018	56.7	28.2	5.4	15.6	<4.0	0.21	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
14.12.2018	55.4	26.9	6.2	14.9	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
18.12.2018	55.8	26.6	6.1	14.8	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
21.12.2018	54.9	27.2	<4.0	14.2	<4.0	0.17	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
25.12.2018	54.6	27.8	<4.0	16.1	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
28.12.2018	53.8	28.2	5.6	13.9	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Quarterly Average	55.2	26.0	5.5	13.3	<4.0	0.2	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling	Zirconium SPADNS Method

BDL Values: SO_2< 4 $\mu g/m^3$, NO_x< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01 $\mu g/m^3$ CO-<0.1 mg/m^3

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0468 Date: 08/04/19

AMBIENT AIR QUALITY MONITORING REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling Location : **Monitoring Station No.- AAQMS-3 (Tileimal)**
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ug/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2018	40.6	16.8	4.9	10.8	<4.0	0.24	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
05.10.2018	40.8	17.4	5.1	11.2	<4.0	0.26	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.10.2018	41.2	17.2	5.6	11.6	<4.0	0.28	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
12.10.2018	41.8	18.2	5.2	12.4	<4.0	0.28	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.10.2018	42.2	18.8	5.4	12.6	<4.0	0.31	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
19.10.2018	40.8	19.2	5.6	13.4	<4.0	0.34	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.10.2018	40.2	19.6	4.8	13.6	<4.0	0.36	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
26.10.2018	39.6	19.2	4.2	14.1	<4.0	0.36	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.10.2018	38.8	18.6	4.6	14.6	<4.0	0.41	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
02.11.2018	40.1	18.4	5.1	13.9	<4.0	0.38	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
06.11.2018	41.8	17.8	5.2	13.2	<4.0	0.39	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.11.2018	41.2	17.6	4.6	14.2	<4.0	0.36	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
13.11.2018	42.2	16.8	5.8	15.6	<4.0	0.38	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.11.2018	42.7	16.2	5.4	15.8	<4.0	0.35	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
20.11.2018	43.6	15.9	5.6	12.9	<4.0	0.34	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.11.2018	43.4	15.6	6.1	13.4	<4.0	0.32	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
27.11.2018	45.2	14.8	6.6	13.2	<4.0	0.31	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.11.2018	45.8	14.6	5.9	13.1	<4.0	0.29	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
04.12.2018	44.8	13.9	5.8	12.8	<4.0	0.28	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
07.12.2018	44.2	13.6	5.6	12.6	<4.0	0.32	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
11.12.2018	42.8	15.4	4.8	11.8	<4.0	0.34	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
14.12.2018	41.9	15.6	4.6	13.2	<4.0	0.36	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
18.12.2018	40.6	14.9	4.4	13.6	<4.0	0.30	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
21.12.2018	41.2	14.6	4.8	11.2	<4.0	0.28	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
25.12.2018	41.8	15.2	5.2	10.8	<4.0	0.26	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
28.12.2018	42.1	14.8	5.6	10.6	<4.0	0.27	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Quarterly Average	42.0	16.6	5.3	12.9	<4.0	0.3	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Grake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling	Zirconium SPADNS Method

BDL Values: SO_2<4 µg/m³, NO_X< 9 µg/m³, O_3<4 µg/m³, Ni<0.01 ng/m³, As<0.001 ng/m³, C_6H_6<0.001 µg/m³, BaP<0.002 ng/m³, Pb<0.001 µg/m³, F<0.01µg/m³ CO-<0.1 mg/m³

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Bomaloi/19/R-0469 Date: 08/04/19

AMBIENT AIR QUALITY MONITORING REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling Location : **Monitoring Station No.- AAQMS-4 (Bomaloi)**
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2018	56.6	29.6	6.6	10.8	<4.0	0.26	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
05.10.2018	56.8	29.2	6.8	11.6	<4.0	0.25	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.10.2018	56.2	28.8	7.1	11.2	<4.0	0.24	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
12.10.2018	58.2	28.2	7.2	12.4	<4.0	0.21	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.10.2018	58.4	27.6	7.4	12.6	<4.0	0.22	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
19.10.2018	56.2	27.2	6.9	12.8	<4.0	0.23	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.10.2018	52.8	26.8	7.0	13.2	<4.0	0.24	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
26.10.2018	52.6	26.2	7.2	11.9	<4.0	0.26	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.10.2018	51.8	25.8	7.4	11.4	<4.0	0.31	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
02.11.2018	50.8	25.4	6.6	10.6	<4.0	0.32	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
06.11.2018	58.8	24.8	6.8	10.2	<4.0	0.36	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.11.2018	58.2	23.6	6.8	11.2	<4.0	0.28	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
13.11.2018	56.4	23.4	7.5	11.6	<4.0	0.29	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.11.2018	55.8	22.8	7.6	12.1	<4.0	0.30	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
20.11.2018	56.1	21.8	6.9	12.4	<4.0	0.32	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.11.2018	57.2	30.6	7.0	12.6	<4.0	0.34	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
27.11.2018	60.2	31.2	6.8	12.8	<4.0	0.36	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.11.2018	61.2	31.8	6.6	13.2	<4.0	0.38	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
04.12.2018	61.8	30.2	6.4	11.9	<4.0	0.41	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
07.12.2018	59.2	29.6	6.6	12.6	<4.0	0.39	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
11.12.2018	59.6	29.8	6.5	12.4	<4.0	0.32	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
14.12.2018	62.4	28.4	6.1	11.6	<4.0	0.36	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
18.12.2018	62.8	26.8	6.2	13.2	<4.0	0.34	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
21.12.2018	60.8	26.2	7.1	13.8	<4.0	0.31	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
25.12.2018	61.4	25.2	6.9	12.9	<4.0	0.32	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
28.06.2018	61.2	20.7	6.6	12.6	<4.0	0.28	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	–
Quarterly Average	57.8	27.0	6.9	12.1	<4.0	0.3	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling	Zirconium SPADNS Method

BDL Values: SO_2< 4 $\mu g/m^3$, NO_2< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01 $\mu g/m^3$, CO<0.1 mg/m^3

VISIONTEK CONSULTANCY SERVICES PVT LTD

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref: Envlab/19/R-0470 Date: 08/04/19

AMBIENT AIR QUALITY MONITORING REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling Location : **Monitoring Station No.- AAQMS-5 (Kapulas)**
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2018	42.8	21.2	5.2	10.2	<4.0	0.21	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
05.10.2018	44.6	21.8	5.6	10.6	<4.0	0.22	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.10.2018	43.2	22.2	6.1	11.2	<4.0	0.26	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
12.10.2018	43.8	24.2	6.4	11.8	<4.0	0.24	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.10.2018	43.6	26.1	6.6	12.1	<4.0	0.31	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
19.10.2018	42.8	26.2	7.1	12.6	<4.0	0.29	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.10.2018	42.6	26.8	7.2	12.8	<4.0	0.26	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
26.10.2018	41.8	27.1	7.4	13.2	<4.0	0.22	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.10.2018	40.2	27.2	8.1	13.6	<4.0	0.21	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
02.11.2018	40.8	27.8	8.2	13.4	<4.0	0.20	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
06.11.2018	41.2	25.6	6.4	12.8	<4.0	0.22	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.11.2018	41.4	25.8	6.6	12.4	<4.0	0.24	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
13.11.2018	40.8	25.9	6.8	11.6	<4.0	0.25	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.11.2018	40.2	26.1	6.9	11.8	<4.0	0.22	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
20.11.2018	40.6	26.8	7.0	12.4	<4.0	0.21	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.11.2018	40.8	27.4	7.1	12.2	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
27.11.2018	41.2	27.8	7.1	13.2	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.11.2018	42.2	26.9	7.2	13.6	<4.0	0.20	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
04.12.2018	42.6	26.2	6.8	11.8	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
07.12.2018	42.8	26.4	6.9	12.4	<4.0	0.21	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
11.12.2018	42.9	23.8	6.6	12.5	<4.0	0.22	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
14.12.2018	43.2	23.2	6.5	12.6	<4.0	0.24	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
18.12.2018	43.1	22.8	6.2	11.2	<4.0	0.26	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
21.12.2018	43.6	22.9	5.8	11.6	<4.0	0.25	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
25.12.2018	40.8	21.8	5.2	10.8	<4.0	0.22	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
28.12.2018	41.2	24.2	5.4	10.6	<4.0	0.24	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Quarterly Average	42.1	25.2	6.6	12.1	<4.0	0.2	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling	Zirconium SPADNS Method

BDL Values: SO_2< 4 µg/m^3, NO_X< 9 µg/m^3, O_3<4 µg/m^3, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 µg/m^3, BaP<0.002 ng/m^3, Pb<0.001 µg/m^3, F<0.01µg/m^3 CO-<0.1 mg/m^3

For *Visiontek Consultancy Services Pvt. Ltd.*

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Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0471 Date: 08/04/19

AMBIENT AIR QUALITY MONITORING REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling Location : **Monitoring Station No.- AAQMS-6 (Phulchanghal)**
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2018	51.6	31.8	4.6	8.8	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
05.10.2018	51.2	32.8	4.8	8.6	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.10.2018	52.4	36.8	5.2	8.8	<4.0	0.21	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
12.10.2018	52.8	36.2	5.4	8.9	<4.0	0.22	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.10.2018	53.2	36.4	5.6	9.6	<4.0	0.20	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
19.10.2018	53.8	35.8	4.8	9.8	<4.0	0.20	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.10.2018	55.6	35.2	5.1	10.8	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
26.10.2018	55.2	34.9	5.6	10.2	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.10.2018	55.7	34.8	5.2	11.2	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
02.11.2018	54.8	33.6	5.2	11.8	<4.0	0.17	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
06.11.2018	54.2	33.4	5.1	12.4	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.11.2018	52.8	32.8	5.0	12.6	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
13.11.2018	52.6	32.6	4.9	12.8	<4.0	0.17	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.11.2018	51.8	32.8	4.8	10.4	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
20.11.2018	50.6	31.8	4.6	10.8	<4.0	0.15	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.11.2018	50.8	31.9	4.4	8.9	<4.0	0.14	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
27.11.2018	51.4	31.9	4.8	9.6	<4.0	0.12	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.11.2018	51.6	30.6	5.1	9.8	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
04.12.2018	52.8	30.2	5.2	9.6	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
07.12.2018	52.6	30.8	5.6	9.2	<4.0	0.21	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
11.12.2018	53.7	31.2	4.9	10.8	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
14.12.2018	53.2	32.8	4.6	10.2	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
18.12.2018	53.8	34.6	4.1	11.2	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
21.12.2018	51.2	35.8	4.0	11.6	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
25.12.2018	50.6	35.2	4.4	10.9	<4.0	0.15	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
28.12.2018	50.8	37.8	4.6	10.8	<4.0	0.14	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Quarterly Average	52.7	33.6	4.9	10.4	<4.0	0.2	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemiel Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling	Zirconium SPADNS Method

BDL Values: SO_2<4 $\mu g/m^3$, NO_x< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01$\mu g/m^3$ CO-<0.1 mg/m^3

VISIONTEK CONSULTANCY SERVICES PVT LTD

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Eanlab/19/R-0472 Date: 08/04/19

AMBIENT AIR QUALITY MONITORING REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling Location : **Monitoring Station No.- AAQMS-7 (Khadiapali)**
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2018	42.2	26.8	4.6	9.6	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
05.10.2018	41.8	26.9	4.8	9.8	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.10.2018	41.6	27.4	5.1	10.2	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
12.10.2018	40.2	27.8	5.2	10.8	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.10.2018	41.8	29.2	5.6	11.2	<4.0	0.15	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
19.10.2018	42.6	29.3	5.8	11.6	<4.0	0.12	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.10.2018	42.4	30.6	6.1	12.4	<4.0	0.11	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
26.10.2018	43.8	31.2	6.2	12.8	<4.0	0.14	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.10.2018	44.6	31.4	6.8	11.2	<4.0	0.13	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
02.11.2018	45.2	32.8	6.9	11.0	<4.0	0.11	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
06.11.2018	45.8	32.6	7.1	10.8	<4.0	0.12	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.11.2018	46.2	33.8	4.9	10.2	<4.0	0.12	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
13.11.2018	44.8	34.5	4.2	11.1	<4.0	0.14	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.11.2018	44.7	34.8	5.6	11.6	<4.0	0.15	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
20.11.2018	44.2	36.2	5.2	12.4	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.11.2018	43.8	36.6	5.1	12.8	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
27.11.2018	43.2	37.2	4.8	12.9	<4.0	0.17	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.11.2018	42.9	37.8	4.9	11.4	<4.0	0.18	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
04.12.2018	42.6	36.9	5.2	11.8	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
07.12.2018	41.8	37.2	5.2	11.6	<4.0	0.19	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
11.12.2018	40.8	38.8	5.8	11.2	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
14.12.2018	40.2	40.2	6.2	10.7	<4.0	0.15	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
18.12.2018	40.1	40.8	6.1	10.2	<4.0	0.14	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
21.12.2018	41.1	41.2	6.3	10.6	<4.0	0.16	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
25.12.2018	41.2	39.6	6.4	10.8	<4.0	0.13	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
28.12.2018	42.8	39.8	5.7	11.8	<4.0	0.12	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Quarterly Average	42.8	34.3	5.6	11.3	<4.0	6.1	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Gaeke method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling	Zirconium SPADNS Method

BDL Values SO_2< 4 $\mu g/m^3$, NO_X< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01$\mu g/m^3$ CO<0.1 mg/m^3

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Committed For Better Environment

Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0473 Date: 08/04/19

AMBIENT AIR QUALITY MONITORING REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling Location : **Monitoring Station No.- AAQMS-8 (Thelkolai)**
3. Monitoring Instruments : RDS(APM 460 BL), FPS(APM 550) Envirotech, CO Monitor, VOC Sampler
4. Sample collected by : VCSPL Representative

Date	PARAMETERS												
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)	Ni (ng/m^3)	Pb ($\mu g/m^3$)	As (ng/m^3)	F ($\mu g/m^3$)
02.10.2018	45.6	31.2	6.1	12.4	6.9	0.44	25.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
05.10.2018	41.2	32.8	6.4	12.6	6.6	0.41	25.6	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.10.2018	46.8	31.1	6.8	12.8	7.1	0.44	24.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
12.10.2018	50.8	29.6	6.9	13.2	7.2	0.42	24.2	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.10.2018	41.2	29.8	7.1	13.8	7.6	0.43	23.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
19.10.2018	42.8	29.2	7.4	14.1	7.1	0.46	23.7	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.10.2018	43.2	28.4	6.2	12.8	6.8	0.45	22.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
26.10.2018	43.8	27.8	6.5	12.6	6.6	0.44	21.9	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.10.2018	44.4	26.8	5.8	13.0	6.5	0.41	21.2	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
02.11.2018	45.4	25.2	5.9	13.2	6.4	0.42	22.4	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
06.11.2018	46.2	25.8	6.1	13.4	7.2	0.41	23.4	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
09.11.2018	45.8	26.7	6.2	12.4	7.4	0.39	23.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
13.11.2018	44.8	26.4	7.4	12.2	7.6	0.38	23.2	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
16.11.2018	42.8	25.8	7.6	13.8	7.8	0.40	25.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
20.11.2018	40.8	22.4	7.8	14.1	6.9	0.42	25.6	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
23.11.2018	44.2	21.8	6.8	14.2	6.6	0.44	24.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
27.11.2018	43.2	24.7	6.9	14.6	6.5	0.45	24.2	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
30.11.2018	41.8	23.8	6.6	14.1	6.8	0.46	23.1	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
04.12.2018	40.6	23.2	6.5	15.1	6.4	0.48	23.4	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
07.12.2018	41.2	22.8	7.0	15.2	6.3	0.51	22.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
11.12.2018	42.1	22.6	7.1	14.4	6.2	0.52	22.6	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
14.12.2018	42.8	30.8	7.2	13.6	7.4	0.46	21.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
18.12.2018	43.8	30.2	7.4	13.2	7.6	0.48	21.6	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
21.12.2018	44.2	29.2	7.6	11.8	7.8	0.49	20.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
25.12.2018	45.8	29.8	6.9	12.8	7.4	0.52	21.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
28.12.2018	40.8	31.2	6.8	12.2	7.1	0.54	22.8	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
NAAQ Standard	100	60	80	80	100	4	400	05	01	20	1.0	06	--
Quarterly Average	43.7	27.3	6.8	13.4	<4.0	0.4	<20.0	<0.001	<0.002	<0.01	<0.001	<0.001	<0.01
Testing method	Gravimetric	Gravimetric	Improved West and Geake method	Modified Jacob & Hochheiser (Na-Arsenite)	Chemical Method	NDIR Spectroscopy	Indo phenol blue method	Absorption & Desorption followed by GC analysis	Solvent extraction followed by Gas Chromatography analysis	AAS method after sampling	AAS method after sampling	AAS method after sampling	Zirconium SPADNS Method

BDL Values: SO_2<4 $\mu g/m^3$, NO_X< 9 $\mu g/m^3$, O_3<4 $\mu g/m^3$, Ni<0.01 ng/m^3, As< 0.001 ng/m^3, C_6H_6<0.001 $\mu g/m^3$, BaP<0.002 ng/m^3, Pb<0.001 $\mu g/m^3$, F<0.01 $\mu g/m^3$ CO-<0.1 mg/m^3

For Visiontek Consultancy Services Pvt. Ltd.

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Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0483 Date: 08/04/19

SURFACE WATER QUALITY ANALYSIS REPORT-DEC 2018

1. Name of Industry : **M/sHindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling location : **SW-1:** Hirakud Reservoir;**SW-2:**Lapanga Pond; **SW-3:**Matwadinadi –U/S, **SW-4:**Bamloi Pond; **SW-5:** Bhedan river
3. Date of sampling : 10.12.2019
4. Date of analysis : 11.12.2019 to 18.12.2019
5. Sample collected by : VCSPL Representative

Sl. No	Parameter	Testing Methods	Unit	Standards as per IS-2296:1992 Class –'C'	Analysis Results				
					SW-1	SW-2	SW-3	SW-4	SW-5
1	pH Value	APHA 4500H+ B	--	6.0-9.0	7.26	7.31	7.38	7.41	7.4
2	Colour	APHA 2120 B, C	Hazen	300	CL	CL	CL	CL	CL
3	Taste	APHA 2160 C	--	--	AL	AL	AL	AL	AL
4	Odour	APHA 2150 B	--	--	U/O	U/O	U/O	U/O	U/O
5	Conductivity	APHA2510-B	µs/cm	--	118.2	126.8	135.8	146.2	154.8
6	Turbidity	APHA 2130 B	NTU	--	3.6	4.1	3.8	3.2	3.4
7	Total Dissolved Solids	APHA 2540 C	mg/l	1500	118.0	126.0	132.0	116.0	128.0
8	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	--	42.0	48.0	52.0	40.0	50.0
9	Total Alkalinity	APHA 2320 B	mg/l	--	38.2	41.2	44.0	45.2	46.0
10	Calcium (as Ca)	APHA 3500Ca B	mg/l	--	18.6	19.2	21.2	24.2	28.0
11	Magnesium (as Mg)	APHA 3500Mg B	mg/l	--	10.2	11.4	16.2	18.8	19.6
12	Residual, free Chlorine	APHA 4500Cl, B	mg/l	--	ND	ND	ND	ND	ND
13	Boron (as B)	APHA 4500D, B	mg/l	--	<0.01	<0.01	<0.01	<0.01	<0.01
14	Chloride (as Cl)	APHA 4500Cl B	mg/l	600	26.0	24.0	22.0	20.0	24.0
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	400	6.8	7.1	7.4	7.46	7.6
16	Fluoride (as F)	APHA 4500F C	mg/l	1.5	0.12	0.16	0.18	0.21	0.19
17	Nitrate (as NO_3)	APHA 4500 NO_3^- E	mg/l	50	1.4	1.26	1.18	1.24	1.3
18	Sodium as Na	APHA3500-Na	mg/l	--	8.4	9.2	9.6	8.8	9.1
19	Potassium as K	APHA 3500-K	mg/l	--	1.2	1.8	2.6	1.6	1.8
20	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	0.005	<0.001	<0.001	<0.001	<0.001	<0.001
21	Cyanide (as CN)	APHA 4500 CN^- C,D	mg/l	0.05	ND	ND	ND	ND	ND
22	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	1.0	<0.2	<0.2	<0.2	<0.2	<0.2
23	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001
24	Arsenic (as As)	APHA 3114 B	mg/l	0.2	<0.001	<0.001	<0.001	<0.001	<0.001
25	Copper (as Cu)	APHA 3111 B,C	mg/l	1.5	<0.05	<0.05	<0.05	<0.05	<0.05
26	Lead (as Pb)	APHA 3111 B,C	mg/l	0.1	<0.001	<0.001	<0.001	<0.001	<0.001
27	Manganese (as Mn)	APHA 3500Mn B	mg/l	--	<0.005	<0.005	<0.005	<0.005	<0.005
28	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.5	0.21	0.24	0.26	0.18	0.22
29	Chromium (as Cr^{6+})	APHA 3500Cr B	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium (as Se)	APHA 3114 B	mg/l	0.05	<0.001	<0.001	<0.001	<0.001	<0.001
31	Zinc (as Zn)	APHA 3111 B,C	mg/l	15	<0.05	<0.05	<0.05	<0.05	<0.05
32	Aluminium as(Al)	APHA 3500Al B	mg/l	--	<0.001	<0.001	<0.001	<0.001	<0.001
33	Mercury (as Hg)	APHA 3500 Hg	mg/l	--	<0.001	<0.001	<0.001	<0.001	<0.001
34	Mineral Oil	APHA 5220 B	mg/l	--	<0.001	<0.001	<0.001	<0.001	<0.001
35	Pesticides	APHA 6630 B,C	mg/l	--	Absent	Absent	Absent	Absent	Absent
36	E.Coli	APHA 9221-F	MPN/ 100 ml	--	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	APHA9221-B	MPN/ 100 ml	5000	400.0	380.0	600.0	400.0	380.0

Note: CL:Colourless, AL:Agreeable, U/O:Unobjectionable, ND: Not detected.

For Visiontek Consultancy Services Pvt. Ltd.

VISIONTEK CONSULTANCY SERVICES PVT LTD

Plot No. M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel. : 7752017905
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Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Kaulalo/19/R-0484 Date: 08/04/19

SURFACE WATER QUALITY ANALYSIS REPORT-DEC 2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Sampling location : **SW-6:** Bhedan river near Katikela;**SW-7:**Matwadinadi-D/S; **SW-8:** Hirakud reservoir near Gurupali village; **SW-9:** Salepali village; **SW-10:** Sanamal
3. Date of sampling : 10.12.2019
4. Date of analysis : 11.12.2019 to 18.12.2019
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Testing Methods	Unit	Standards as per IS-2296:1992 Class –'C'	Analysis Results				
					SW-6	SW-7	SW-8	SW-9	SW-10
1	pH Value	APHA 4500H⁺ B	--	6.0-9.0	7.4	6.9	7.2	7.4	7.2
2	Colour	APHA 2120 B, C	Hazen	300	CL	CL	CL	CL	CL
3	Taste	APHA 2160 C	--	--	AL	AL	AL	AL	AL
4	Odour	APHA 2150 B	--	--	U/O	U/O	U/O	U/O	U/O
5	Conductivity	APHA2510-B	µs/cm	--	118.2	146.0	148.0	139.6	145.2
6	Turbidity	APHA 2130 B	NTU	--	2.1	2.2	3.1	2.8	2.6
7	Total Dissolved Solids	APHA 2540 C	mg/l	1500	126.0	134.0	140.0	130.0	142.0
8	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	--	50.6	58.2	56.0	51.2	52.0
9	Total Alkalinity	APHA 2320 B	mg/l	--	42.0	48.0	46.0	52.0	50.0
10	Calcium (as Ca)	APHA 3500Ca B	mg/l	--	21.8	26.8	24.8	22.2	28.0
11	Magnesium (as Mg)	APHA 3500Mg B	mg/l	--	16.8	15.2	15.6	14.8	17.4
12	Residual, free Chlorine	APHA 4500Cl, B	mg/l	--	ND	ND	ND	ND	ND
13	Boron (as B)	APHA 4500B, B	mg/l	--	<0.01	<0.01	<0.01	<0.01	<0.01
14	Chloride (as Cl)	APHA 4500Cl B	mg/l	600	26.0	28.0	22.0	20.0	22.0
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	400	6.8	7.2	6.6	6.2	6.0
16	Fluoride (as F)	APHA 4500F C	mg/l	1.5	0.24	0.26	0.28	0.22	0.24
17	Nitrate (as NO_3)	APHA 4500 NO_3^- E	mg/l	50	2.6	2.4	2.2	2.1	2.1
18	Sodium as Na	APHA 3500-K	mg/l	--	8.6	9.2	8.4	8.6	8.2
19	Potassium as K	APHA3500-Na	mg/l	--	2.6	2.2	2.1	1.8	2.4
20	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	0.005	<0.001	<0.001	<0.001	<0.001	<0.001
21	Cyanide (as CN)	APHA 4500 CN^- C,D	mg/l	0.05	ND	ND	ND	ND	ND
22	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	1.0	<0.2	<0.2	<0.2	<0.2	<0.2
23	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001
24	Arsenic (as As)	APHA 3114 B	mg/l	0.2	<0.001	<0.001	<0.001	<0.001	<0.001
25	Copper (as Cu)	APHA 3111 B,C	mg/l	1.5	<0.05	<0.05	<0.05	<0.05	<0.05
26	Lead (as Pb)	APHA 3111 B,C	mg/l	0.1	<0.001	<0.001	<0.001	<0.001	<0.001
27	Manganese (as Mn)	APHA 3500Mn B	mg/l	--	<0.005	<0.005	<0.005	<0.005	<0.005
28	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.5	0.21	0.22	0.24	0.26	0.18
29	Chromium (as Cr^{+6})	APHA 3500Cr B	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium (as Se)	APHA 3114 B	mg/l	0.05	<0.001	<0.001	<0.001	<0.001	<0.001
31	Zinc (as Zn)	APHA 3111 B,C	mg/l	15	<0.05	<0.05	<0.05	<0.05	<0.05
32	Aluminium as(Al)	APHA 3500Al B	mg/l	--	<0.001	<0.001	<0.001	<0.001	<0.001
33	Mercury (as Hg)	APHA 3500 Hg	mg/l	--	<0.001	<0.001	<0.001	<0.001	<0.001
34	Mineral Oil	APHA 5220 B	mg/l	--	<0.001	<0.001	<0.001	<0.001	<0.001
35	Pesticides	APHA 6630 B,C	mg/l	--	Absent	Absent	Absent	Absent	Absent
36	E.Coli	APHA 9221-F	MPN/ 100 ml	--	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	APHA9221-B	MPN/ 100 ml	5000	520.0	440.0	460.0	410.0	600.0

Note: CL:Colourless, AL:Agreeable, U/O:Unobjectionable, ND: Not detected

For Visiontek Consultancy Services Pvt. Ltd.

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(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0474 Date: 04/04/19

GROUND WATER QUALITY ANALYSIS REPORT-DEC 2018

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga.**
2. Sampling location : **GW-1:** Lapanga Village; **GW-2:** Pandiol Village; **GW-3:**Bamloi Village; **GW-4:** Tilaimal Village; **GW-5:** Thelkoloi Village; **GW-6:**Ghichamura Village **GW-7:** Gumkarama Village; **GW-8:** Chaltikra Village.
3. Date of sampling : 10.12.2018
4. Date of analysis : 11.12.2018 to 18.12.2018
5. Sample collected by : VCSPL Representative

Sl. No.	Parameter	Testing Methods	Unit	Standard as per IS - 10500:2012	Analysis Result							
					GW-1	GW-2	GW-3	GW-4	GW-5	GW-6	GW-7	GW-8
1	pH Value	APHA 4500H B	--	6.5-8.5	7.2	7.4	7.6	6.9	6.8	7.2	7.4	7.1
2	Colour	APHA 2120 B, C	Hazen	5	<1.0	2.0	2.0	2.0	<1.0	3.0	2.0	2.0
3	Taste	APHA 2160 C	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	APHA 2150 B	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Conductivity	APHA2510-B	µs/cm	--	178.0	142.6	139.6	146.2	182.8	188.8	170.2	168.0
6	Turbidity	APHA 2130 B	NTU	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
7	Total Dissolved Solids	APHA 2540 C	mg/l	500	226.0	186.0	190.0	188.0	206.0	186.0	210.0	192.0
8	Total Hardness (as $CaCO_3$)	APHA 2340 C	mg/l	200	66.0	60.0	56.0	48.0	68.0	52.0	62.0	56.0
9	Total Alkalinity	APHA 2320 B	mg/l	200	52.0	50.8	51.2	52.0	56.0	48.8	52.8	54.0
10	Calcium (as Ca)	APHA 3500Ca B	mg/l	75	18.8	16.6	14.9	12.8	13.8	15.6	16.8	17.1
11	Magnesium (as Mg)	APHA 3500Mg B	mg/l	30	4.6	5.8	5.2	4.2	5.9	3.8	5.1	5.6
12	Residual. free Chlorine	APHA 4500Cl, B	mg/l	0.2	ND	ND	ND	ND	ND	ND	ND	ND
13	Boron (as B)	APHA 4500B, B	mg/l	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
14	Chloride (as Cl)	APHA 4500Cl B	mg/l	250	20.2	21.8	22.2	26.0	24.0	22.0	18.0	20.0
15	Sulphate (as SO_4)	APHA 4500 SO_4^{2-} E	mg/l	200	6.2	5.6	5.8	6.6	6.2	5.8	5.6	6.1
16	Fluoride (as F)	APHA 4500F C	mg/l	1.0	0.22	0.26	0.28	0.31	0.34	0.29	0.25	0.32
17	Nitrate (as NO_3)	APHA 4500 NO_3^- E	mg/l	45	1.8	1.6	2.1	2.4	2.2	1.6	1.4	1.6
18	Sodium as Na	APHA3500-Na	mg/l	--	12.8	11.2	11.6	10.8	11.2	12.4	12.2	11.7
19	Potassium as K	APHA 3500-K	mg/l	--	1.4	1.6	1.8	1.2	1.1	0.68	1.4	1.8
20	Phenolic Compounds (as C_6H_5OH)	APHA 5530 B,D	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
21	Cyanide (as CN)	APHA 4500 CN C,D	mg/l	0.05	ND	ND	ND	ND	ND	ND	ND	ND
22	Anionic Detergents (as MBAS)	APHA 5540 C	mg/l	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
23	Cadmium (as Cd)	APHA 3111 B,C	mg/l	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
24	Arsenic (as As)	APHA 3114 B	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
25	Copper (as Cu)	APHA 3111 B,C	mg/l	0.05	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
26	Lead (as Pb)	APHA 3111 B,C	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
27	Manganese (as Mn)	APHA 3500Mn B	mg/l	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
28	Iron (as Fe)	APHA 3500Fe, B	mg/l	0.3	0.26	0.24	0.26	0.21	0.18	0.16	0.22	0.24
29	Chromium (as Cr)	APHA 3500Cr B	mg/l	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
30	Selenium (as Se)	APHA 3114 B	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
31	Zinc (as Zn)	APHA 3111 B,C	mg/l	5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	Aluminium as(Al)	APHA 3500Al B	mg/l	0.03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
33	Mercury (as Hg)	APHA 3500 Hg	mg/l	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
34	Mineral Oil	APHA 5220 B	mg/l	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
35	Pesticides	APHA 6630 B,C	mg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E.Coli	APHA 9221-F	MPN/ 100 ml	Shall not be detectable in any 100 ml sample	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	APHA9221-B	MPN/ 100 ml	Shall not be detectable in any 100 ml sample	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Note: CL: Colourless, AL: Agreeable, U/O:Unobjectionable, ND: Not Detected.

For Visiontek Consultancy Services Pvt. Ltd.

Visiontek Consultancy Services Pvt. Ltd.

(An Enviro Engineering Consulting Cell)

ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Envlab/19/R-0490 Date: 08/04/19

SOIL QUALITY ANALYSIS REPORT

1. Name of Industry : **M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Date of Sampling : 12.12.2018
3. Sampling Location : **S-1:** Project Site; **S-2:** Thelkoloi; **S-3:** Ghichamura; **S-4:** Lapanga; **S-5:** Bamloi;**S-6:** Tileimal; **S-7:** Jangala; **S-8:** Gurupali; **S-9:** Gumkaran **S-10:** Bhadarpali.
4. Date of Analysis : 13.12.2018 TO 20.12.2018
5. Sample Collected By : VCSPL Representative

Sl.No.	Parameters	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10
1	pH	6.26	5.89	5.94	5.68	5.72	5.81	5.88	5.68	6.14	5.72
2	Conductivity	118.8	102.8	108.8	124.2	116.0	112.0	121.0	110.8	106.6	104.2
3	Soil Texture	Sandy Loamy	Clay Loamy	Clay Loamy	Sandy Loamy	Sandy Loamy	Clay Loamy	Sandy Loamy	Sandy Loamy	Sandy Loamy	Clay Loamy
4	Sand	35.2	18.8	30.8	36.2	38.8	19.6	28.8	30.8	40.2	21.8
5	Silt	12.6	20.8	18.6	19.4	14.6	12.8	11.8	19.2	20.6	18.2
6	Clay	42.8	58.2	46.0	41.2	42.0	40.8	41.2	44.2	48.0	54.2
7	Bulk Density (gm/cc)	1.26	1.28	1.34	1.38	1.41	1.38	1.42	1.26	1.31	1.36
8	Exchangeable Calcium as Ca (%)	35.2	34.0	40.8	36.0	40.0	36.0	35.8	40.2	41.8	38.6
9	Exchangeable Magnesium as Mg (%)	48.1	50.3	50.8	51.2	51.8	52.4	53.6	54.8	60.8	54.2
10	Available Sodium as Na(%)	0.012	0.018	0.016	0.021	0.022	0.021	0.022	0.026	0.018	0.022
11	Available Potassium as K (%)	0.048	0.044	0.046	0.041	0.039	0.038	0.040	0.041	0.044	0.042
12	Available phosphorous as P (%)	0.018	0.022	0.021	0.021	0.020	0.016	0.018	0.014	0.016	0.014
13	Available Nitrogen as N (%)	0.16	0.18	0.21	0.19	0.22	0.24	0.22	0.21	0.16	0.18
14	Organic Matter (%)	2.8	3.2	3.4	2.8	3.2	3.6	3.4	3.2	2.9	3.0
15	Organic Carbon (%)	1.42	1.51	1.52	1.6	1.48	1.5	1.8	1.84	1.84	1.96
16	Water soluble Chlorides as Cl (%)	0.22	0.24	0.21	0.22	0.26	0.18	0.19	0.17	0.21	0.22
17	Water soluble Sulphates as SO_4 (%)	0.12	0.14	0.16	0.14	0.12	0.10	0.11	0.11	0.12	0.10
18	Sodium Absorption Ratio (%)	0.154	0.151	0.146	0.144	0.142	0.154	0.156	0.146	0.148	0.154
19	Aluminum as Al (%)	0.0001	0.00008	0.00005	0.00008	0.00009	0.00004	0.00006	0.00002	0.00002	0.00004
20	Total Iron as Fe (%)	0.091	0.036	0.044	0.072	0.068	0.046	0.058	0.039	0.026	0.034
21	Manganese as Mn (%)	0.008	0.0014	0.0021	0.0026	0.0012	0.0018	0.0022	0.0018	0.0014	0.0016
22	Boron as B (%)	0.00012	0.00017	0.00019	0.00026	0.00022	0.00024	0.00028	0.00026	0.00016	0.00014
23	Zinc as Zn (%)	0.00028	0.00026	0.00026	0.00021	0.00018	0.00016	0.00014	0.00012	0.00011	0.00012
24	SiO_2 (%)	5.2	5.8	6.2	6.4	6.6	6.8	6.4	5.8	6.6	5.9
25	Fe_2O_3(%)	0.061	0.038	0.038	0.026	0.024	0.018	0.024	0.028	0.031	0.028
26	CaO (%)	26.2	25.4	25.2	25.8	26.0	24.8	30.6	31.8	32.2	28.6
27	MgO (%)	22.0	23.4	22.8	21.8	20.8	21.2	28.6	24.2	26.6	21.8
28	Al_2O_3 (%)	0.00002	0.00008	0.00032	0.00048	0.00037	0.00042	0.00032	0.00026	0.00038	0.00035
29	FeO (%)	0.046	0.0128	0.042	0.018	0.029	0.0178	0.0181	0.0192	0.0196	0.0211
30	MnO (%)	0.0052	0.0016	0.0012	0.0021	0.0044	0.001	0.0012	0.0012	0.0014	0.0021
31	K_2O (%)	0.0512	0.0411	0.0418	0.0496	0.0512	0.0418	0.0432	0.0518	0.0448	0.0511
32	P_2O_5 (%)	0.0084	0.0076	0.0084	0.0082	0.0086	0.0081	0.0092	0.0114	0.0076	0.0081
33	Fluoride as F (%)	0.0014	0.00032	0.00028	0.00032	0.00038	0.00041	0.00028	0.00026	0.00024	0.00018

ND: Not Detected.

For Visiontek Consultancy Services Pvt. Ltd.

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ISO 9001 : 2008
ISO 14001 : 2004
OHSAS 18001 : 2007

Ref.: Eanlab/19/R-0491 Date: 08/04/19

NOISE MONITORING REPORT

1. **Name of Industry** :**M/s Hindalco Industries Ltd (Unit- Aditya Aluminium); Lapanga**
2. Monitored By : VCSPL representative

Daytime Noise monitoring results (Noise Level in dB (A)) March-2019

TIME (6.00AM to 10.00PM)	N1:Gumkarma (07.03.2019)	N2:Ghichamura (07.03.2019)	N3:Bomaloi (09.03.2019)	N4:Tileimal (09.03.2019)	N5:Thelkoli (11.03.2019)	N6:Lapanga (11.03.2019)	N7:Lapanga Railway Station (14.03.2019)	N8:Jangala (14.03.2019)
06.00am	52.2	51.0	50.8	46.0	42.0	46.0	40.0	41.0
07.00am	54.0	52.0	51.0	46.6	44.0	47.0	41.0	43.0
08.00am	55.0	53.0	51.6	47.0	45.0	48.0	42.0	54.0
09.00am	56.0	56.0	52.0	48.8	48.0	50.0	41.0	56.0
10.00am	58.0	58.0	52.6	49.2	50.0	50.6	42.2	58.0
11.00am	58.0	57.0	55.0	50.6	51.0	51.0	43.0	60.0
12.00 noon	59.0	58.0	55.8	51.2	53.0	51.8	43.0	61.0
01.00pm	56.0	56.0	57.0	52.0	54.0	52.0	43.1	62.0
02.00pm	55.0	57.0	58.8	52.2	52.2	53.0	44.0	61.2
03.00pm	54.0	52.0	57.2	50.8	51.1	51.8	43.0	44.0
04.00pm	52.0	51.0	51.6	48.2	50.2	50.6	42.8	46.0
05.00pm	50.0	50.0	50.8	45.1	50.0	47.8	42.2	48.0
06.00pm	48.0	49.0	50.6	49.0	41.2	44.2	41.9	49.0
07.00pm	42.0	48.0	48.0	46.0	40.0	42.1	41.6	45.0
08.00pm	41.0	44.0	46.0	45.0	39.8	40.0	40.6	44.0
09.00pm	42.0	41.0	44.0	44.0	36.2	36.8	40.2	43.0
Average	**52.01**	**52.06**	**52.05**	**48.23**	**46.73**	**47.67**	**41.98**	**50.95**
Standard as per CPCB	75							

Night time Noise monitoring results (Noise Level in dB (A)) March-19

TIME (10.00PM to 6.00AM)	N1:Gumkarma (07.03.2019)	N2:Ghichamura (07.03.2019)	N3:Bomaloi (09.03.2019)	N4:Tileimal (09.03.2019)	N5:Thelkoli (11.03.2019)	N6:Lapanga (11.03.2019)	N7:Lapanga Railway Station (14.03.2019)	N8:Jangala (14.03.2019)
10.00pm	41.0	36.0	39.0	36.0	35.0	34.8	40.0	39.0
11.00pm	40.6	32.0	36.0	35.0	33.0	32.2	39.0	36.0
12.00 midnight	40.0	31.0	35.0	33.0	32.0	31.0	37.0	30.0
01.00am	39.6	38.0	32.0	30.0	31.0	30.8	35.0	29.9
02.00am	38.8	41.0	36.0	29.0	32.0	30.2	36.0	26.2
03.00am	40.0	43.0	40.2	28.0	33.0	31.0	36.8	28.0
04.00am	35.5	44.0	42.0	34.0	35.0	32.0	38.0	29.1
05.00am	51.8	45.0	48.0	40.0	40.0	40.0	38.8	29.0
Average	**40.91**	**38.75**	**38.53**	**33.13**	**33.88**	**32.75**	**37.58**	**30.90**
Standard as per CPCB	70							

For Visiontek Consultancy Services Pvt. Ltd.