M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

Compliance to Conditions stipulated in Environmental Clearance for Coke Oven Plant (1.6 MTPA) & WHRB (120 MW) at Haldia, East Midnapur, West Bengal from MoEF, New Delhi on 29th January, 2007 vide letter# F. No. J-11011//284/07- IA II (I)

Period –October 2018 – March 2019

111 1A.	**SPECIFIC CONDITIONS**
i.	*Proper and full utilization of coke oven gases in power plant using heat recovery steam generators (WHRB) shall be ensured and no flue gas shall be discharged into the air.*
Com	• The coking coal is fed after crushing into Heat Recovery type coke oven batteries consisting of chambers made of refractory. The Carbonization of coal takes place at 1100 to 1250^{o} C and the heat for carbonization is supplied by combustion of volatile matters evolved from the coal charged by admitting air into the chamber. The hot flue gas free from volatile matters is used to generate electric power by generating steam in waste heat recovery boiler. • Presently the plant is operating at rated capacity of 1.5 MTPA coke production. No expansion project of additional capacity has been taken up • From October'18 to March 2019 total coke production was **762891 DMT** (Dry Metric Ton) and Power generated is **600.58 MU**

Month	Coke Production (Tonnes) Dry	POWER GENERATION (In MU)	Boiler utilisation percentage
Oct-18	128,050	**104.154**	**98.58**
Nov-18	129,062	**103.32**	**99.74**
Dec-18	127,060	**100.554**	**99.51**
Jan-19	130,353	**95.678**	**98.40**
Feb-19	118,053	**98.75**	**99.45**
Mar-19	130,313	**98.13**	**97.77**

• The plant is having 352 numbers of coke oven batteries (1.6 MTPA coke capacity) equally divided into 4 rows. 11 numbers of ovens are forming one block so each row is having 8 nos of block. 2 nos. of blocks of 11 ovens each is now connected to one no. of WHRB & subsequently 2 nos. of WHRBs connected to one no. of combined stack of 70 m height. So each row has 4 numbers of WHRBs and 2 no. of stack. Total 8 nos of stacks and 16 nos of boilers are present in the entire plant. Stacks are designed for stack emission <50 mg/Nm3 of particulate matter.

• There is no flow meter installed for measuring the gas volume discharged into the air.

ii.	*The prescribed emission standards for coke oven plants as notified vide notification no. GSR 46 (E) dated 3rd February, 2006 shall be complied with.*

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- This is the new unit established after the notification of 2006 published, and as per notification no. GSR 46(E) the Non recovery / waste heat recovery technology has been adopted for coke making which is environment friendly method.
- The emission standard specified in the Environmental Clearance, under Specific condition (iii) for stack emission has been followed.
- To reduce the SPM, non recovery type technology is being used. The coal is being charged inside the oven under negative pressure for 70 hours (avg. in a temp of 950 – 1100 ^{0}C as a result the volatiles evolved during coal carbonization is being combusted completely in presence of controlled quantity of air so emission of any particulate matter is very low. The stack height is 70Mt from GL. The emission from all stack are much less than 50mg/Nm3 of SPM.
- Regular stack monitoring is done by registered third party. Online stack monitoring system is also installed in all 8 chimney.
- The Avg PM (month wise) data is as follows:

STACK PM Level (mg/Nm3) : By Third party

Month	PM (6% Co2 (V/V))
Oct-18	38.5
Nov-18	27.75
Dec-18	46.52
Jan-19	43.6
Feb-19	40.7
Mar-19	39
AVG	39.34

STACK PM Level (mg/Nm3) : As per Opacity Meter

Month	PM
Oct-18	28.5
Nov-18	29.8
Dec-18	24.14
Jan-19	20.62
Feb-19	22.72
Mar-19	22.5
AVG	**24.71**

iii. *Continuous stack monitoring facilities for all the major stacks and adequate air pollution control systems shall be provided to control air emissions within 100 mg/Nm3 and reports submitted to the Ministry's Regional Office at the Bhubaneswar, WBPCB & CPCB.*

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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Period –October 2018 – March 2019

Com

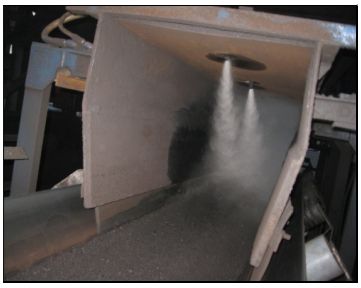
- On-line stack monitoring, the Opacity meter has been commissioned in all Chimney.
- Regular stack monitoring is done by registered third party.

Online Stack Emission (AVG Data)									
Parameter	Std (mg/ Nm3)	LOCATIONS							
		Chimney 1AB	Chimney 1 CD	Chimney 2 AB	Chimney 2 CD	Chimney 3 AB	Chimney 3 CD	Chimney 4 AB	Chimney 4 CD
PM	50	21.6	24.3	30.7	18.5	20.2	34.6	24.81	20.49

iv. *Fugitive emissions from coal handling plant shall be controlled by sprinkling water. Dry fogging system shall be installed at all the transfer points. In-plant control measures like bag filters, de-dusting and dust suppression system shall be provided to control fugitive emissions from all the vulnerable sources including material handling areas and material transfer points.*

Com

- Besides the continuous water sprinkling at coal handling plant and all transfer point; the Dust Suppression System with Dry Fogging (DF) has been commissioned. In Wagon Tippler, Coal crusher unit and all the coal transfer points the DF and dust suppression system is operational.
- Dry fog system for coal and coke handling to restrict particulate emission to within 10 mg per cu m have been installed. The system has been installed at Wagon tippler unit, coal crusher unit, Coal / coke transfer points like Junction House # 5 (Cl#7 belt discharge pt., CL#8 belt receiving pt.); Junction House # A (WCK#1, 2 belt discharge pt. WCK#3 belt receiving pt.); Junction House # B (WCK#3 belt discharge pt. RCK#1, CK#1 belt receiving pt.); Junction House # C (WCK#5, 6 belt discharge pt. CK#7 belt receiving pt.); Junction House # D (WCK#7, RCK#3 belt discharge pt. CK#1 belt receiving pt.); Screen House. In last six month 5 numbers of DF points have been constructed in coal handling area at Junction House # 1, 2 & 2A. Regular maintenance is being done for making this system effective



- The roads inside the material handling area has been paved to reduce the dust generation. The total coal yard (area of 25000 sq. Mt.) has also been concreted in order to prevent the dust generation.
- Movable water tanker with sprinkling arrangement is used for water sprinkling purpose in the road within factory and in the periphery area and also the mechanised Mobile Vacuum Cleaning system is being used regularly for arresting the fugitive emission
- All around the stock yard the boundary wall has been constructed to restrict the dust flowing outside the factory. The average height of the wall is 5 mt. 3-tier tree plantation has been incorporated to arrest the dust.
- 30 numbers of the “Rain Gun Water Sprinklers” have been installed in the coal yard to prevent the generation of fugitive emission from the coal heap. These sprinklers can rotate at 360^{O} and can spray the water at a radius of 15 meter. The height of the sprinklers are approx 2.6 mt.

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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	 • The workplace air quality, as well as ambient air quality (PM_{10} & $PM_{2.5}$) is being monitored at the regular intervals, summary of the same is given in subsequent paragraphs. The ambient air monitoring for 12 parameters as per National AAQ standard have also been done. The details data are enclosed as **: ANNEXURE 1**
v.	*Secondary fugitive emissions shall be controlled within the prescribed limits, regularly monitored and records maintained. Guidelines / Code of Practice issued by the CPCB in this regard shall be followed.*
Com	• The ovens work under the negative pressure so secondary fugitive emissions are negligible in this non recovery coke making technology • All workers are being provided with PPEs for protection • HMC is following the CPCB guidelines so far the non recovery coke oven plant operation is being concerned. • Positive sealing arrangements has been provided in the oven doors and flue gas pipes/valves • Gaseous emissions are monitored regularly; corrective action taken whenever the results found crossing the limit.
vi.	*Total requirement of the water from Haldia Development Authority for coke oven and WHRB shall not exceed 5,300 m3/day and 13,750 m3/day respectively. The effluent shall be treated in the effluent treatment plant and all the treated wastewater shall be recycled and reused either in the process or for dust suppression or green belt development. No wastewater shall be discharged outside the factory premises and 'Zero' discharge shall be adopted. Domestic effluent shall be treated in sewage treatment plant (STP) and disposed off as per norms laid down by Haldia Municipal Corporation.*

Com	• The average water taken from HDA as make-up water during October 2018 to March 2019 was **993 m3/day** approximately for coke oven (Tata Steel, Hooghly Met coke) and **7399 m3/day** approximately for WHRB (Tata Power) which is within the permissible limit granted by the MOEF. The detail water consumption report is enclosed **as : ANNEXURE 2**
	• The discharge water of power plant is being directly recycled and reused for coke quenching and for green belt development within the plant.
	• Initiatives taken for achieving Zero Discharge are:
	  ◦ A Storm water pond has been developed. The processed water along with drain water being stored in this pond which is then used for coke quenching purpose Pipe line has been laid in all 4 rows for use the same water for coke Quenching purpose
	  ◦ Pump has been installed at the end of Row#4 drain final outlet to re-circulated the water in the quenching pond .
	• As the unit is not having any township inside the factory premises **no domestic effluent** has been generated at the company's scope so STP has not been provided separately. The canteen waste water is being recycled in the process itself.
	• STP has been commissioned inside the plant and phase wise all domestic effluent is being treated in this STP. The outlet water is being stored at the storm water pond and finally used for coke quenching.

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	 11
vii.	*Permission for the drawl of water from Haldia Development Authority shall be obtained and recommendations implemented.*
Com	• HMC is purchasing the water from M/S Haldia Water Management Limited . An agreement between Haldia Development Authority and HMCPCL had taken place on 01 March 2007 , Ref no: 04AA 789559
viii.	*Coal and coke fines shall be recycled and reused in the process. All the other solid waste including broken refractory mass shall be properly disposed off in environment-friendly manner. The waste oil shall be properly disposed off as per the Hazardous Waste (Management & Handling) Rules, 1989 and subsequent amendments.*
Com	• Coal fines are reused in the process and coke fines are sent to JSR for re-using at their end. • The empty oil drum and oil filters and oil soaked jute/cotton waste generated from the process is being sent to the authorized re-processor (TSDF). • The used oil generated from the process is being sent to authorized re-processor • The organisation has taken special initiative to reduce solid waste generation by reducing the oven door consumption. The door castable (refractory bricks) material is being now electrically pre-heated as a result the door castable life has been increased and refractory brick waste generation has been reduced over the years. • The ceramic blankets are being disposed to the authorized TSDF.
ix.	*All the environment management measures given in the EIA/EMP shall be implemented and complied with.*
Com	• Implementation of protection measures as indicated in the REIA are implemented. Online stack monitoring systems are being commissioned. For dust suppression DF system has been installed. Acoustic enclosures / barriers / shields are being used to reduce noise, providing the personal protective equipments like ear plugs/ muffs etc are also being provided. • As the batteries are operating under negative pressure, no flames are visible outside the battery and the temperature in the battery area remains > 40 deg C (avg). • All the workers working at battery area are being provided with adequate PPEs like Fire registrant jacket, nose musk etc.

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	  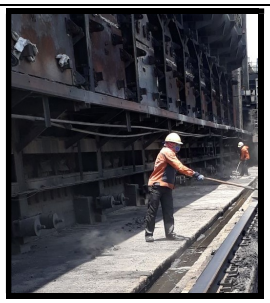
x.	*As proposed, green belt shall be developed in 27 % area as per the CPCB guidelines in consultation with DFO.*
Com	• Nearly 18.65 hector area is being considered as Green belt. **Total 32500 number** of trees are surviving as on date under Tata Steel scope. Approximately 5000 trees are existing within Tata Power scope which adds another 1.45 hector area. Total Green Belt area is approximately **27%** of the total 72.5 hector plant area. The areas where tree plantation are not feasible, and also not required to be paved, are being covered with grass, hedges and low bushes with flowering trees for beautification and to avoid soil erosion. The details of the trees planted are given below. • Every year plantation done in available space.
B.	**GENERAL CONDITIONS**
i.	*The project authority shall adhere to the stipulations made by West Bengal Pollution Control Board (WBPCB) and State Government.*
Com	Complied.
ii.	*No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.*
Com	EC for Expansion of Coke Oven Plant from 1.6 MTPA to 2.2 MTPA has been received on **23rd February, 2017 vide F. No. J-11011//284/2007- IA II (I) but as on date no expansion project work has been started.** The plant is running at 1.6 mtpa capacity only. It is being ensured that the compliance on EC will be submitted to MOEF once the expansion will take place.
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 West Bengal Pollution Control Board (WBPCB) 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 emission level shall go beyond the prescribed standards. Interlocking facilities shall be provided so that process can be automatically stopped in case emission level exceeds the limit.*
Com	Complying all the conditions stipulated by WBPCB.
iv.	*Ambient air quality monitoring stations shall be set up as per statutory requirement in consultation with the WBPCB. Ambient air quality including ambient noise levels shall not exceed the standards stipulated under EPA or by the State authorities. Monitoring of ambient air quality and shall be carried out regularly in consultation with WBPCB and data submitted to the Ministry's Regional Office at the Bhubaneswar, WBPCB & CPCB regularly. The instruments used for ambient air quality monitoring shall be calibrated time to time.*
Com	• One Ambient Air Quality monitoring station within the plant has been commissioned. • Different areas have been identified within the factory premises where Ambient Air Quality is being

	tested at a regular basis. Beside this the Work zone air quality also being tested at a regular basis by the certified 3rd party accredited by CPCB. The summary is enclosed**. ANNEXURE 1** • All the tests being carried out by third party registered by CPCB • Regular noise monitoring also been done by the accredited 3rd party. • The half yearly data are being submitted to Ministry's Regional Office at the Bhubaneswar, WBPCB, Haldia office.
v.	*The overall noise levels in and around the plant area shall 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 shall conform to the standards prescribed under Environmental (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).*
Com	• The noise level inside the plant has been recorded between specified limit • The control measures such as; silencers, enclosures, hoods, rubber pads, have been provided at the appropriate places in the existing plant. The work areas where noise levels are high, earplugs and earmuffs have been provided to reduce the noise exposure. • The detail report is enclosed as **ANNEXURE - 3**
vi.	*Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.*
Com	• PME (Periodical Medical Examination) has been done for 100% of company employees in FY19. Records are maintained at the Occupational Health Centre. • Health check up for contractors persons are conducted regularly during the time of the renewal of the respective gate pass. • 100% checkup happened for contractor employees and records are being maintained at the OHC.
vii.	*All the recommendations mentioned in the Corporate Responsibility for Environmental Protection (CREP) of CPCB issued for the steel plants shall be implemented*
Com	• The CREP has been implemented by along with Tata Steel - JSR works since this unit is the stand alone coke making unit only. • The company follows the Tata Steel CSR policy • From FY'19 this division of Tata Steel works on **"Focus Area"** approach by adopting Villages / Panchayats / Home so that the Socio – economic development can be visible. Construction of Drinking Water Projects taken up by the unit initially for CSR activity.
viii.	*The company shall undertake eco-development measures including community welfare measures in the project area.*
Com	• The local people nearly 256 people as permanent employee and over 1000 as contractual employees are being employed by the company. • As a part of welfare activity, the primary schools, mainly for BPL people, have been considered. Some infrastructural development like making toilets for girls, boundary wall around the school, electrification jobs, school furniture etc are being done. • Eleven number of Drinking Water Projects completed at different schools / society of different blocks. These are Kumarpur Sub Health Centre building, Haldia Block; Patikhali Village, Haldia Municipality; Ekterpur Primay School, Mahishadal Block; Kapaserya Bamunnya Primary School, Mahishadal Block; Dakshin Sitala Board Primary School, Mahishadal Block; Gobindpur Sitala Board Primary School, Sutahata Block , Vivekananda Lok Shiksha Mondir, Chandipur Block under "Adopt a Home" programme for both Girls and Boys Home, Mahidhadhal Raj College, Mahishadal Girls College, Mahishadal Girls High School. • The Total expenditure for CSR activity till was nearly is Rs. 45 Lakhs

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ix.	*The company shall develop rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.*
Com	• A Storm water pond has been developed. The capacity of the pond is 4000 Cu mt (approx). During rain, the roof water from all building like ADM building / Store / Laboratory / pump house are collected in a common storm water drain and this water is collected in the storm water pond. Four number of pumps were commissioned for pumping to QT. Pipe line of 3 KM has been laid in all 4 rows for using this water for coke quenching and other purposes like gardening, water spraying in the road, water sprinkling system etc.  
x.	*Proper house keeping and adequate occupational health programmes shall be taken up.*
Com	• Separate agency has been appointed for removal of scarps and maintaining proper housekeeping within the plant and for cleaning activity. • For storage of waste “COLORED BINS” have been provided at various location • Impervious pit has been constructed for storing the hazardous waste • Mobile vacuum cleaning machine is also being used at a regular interval for evacuating the dust particles • TPM initiatives has been started by the shop floor employees in terms of improving the house keeping at shop floor. Identifying KAIZENS and conducting 1s & 2s has been initiated. • Regular Housekeeping Audit is being conducted to improve the housekeeping in the plant
xi.	*A separate environmental management cell to carry out various management and monitoring functions shall be set up under the control of Senior Executive.*
Com	Tata Steel Ltd., HMC Division have an Environmental Management Section (EMS) with a permanent

	qualified designated employee at a Senior Manager level, reports directly to the General Manager of the unit, to supervise the environmental activities and environmental management programmes. This section co-ordinates and provides necessary services on environmental issues of the entire unit. This section is responsible for implementation of Environmental Management Plan and interaction with the environmental regulatory agencies, reviewing policy and planning and mitigates all statutory compliances. This section interacts with State Environment Department, Ministry of Environment & Forests (MoEF), Central Pollution Control Board (CPCB), West Bengal Pollution Control Board (WBPCB) and other environment regulatory agencies. The major responsibilities of the EMS includes: • Obtaining Consent from WBPCB. • Environmental monitoring • Analysis of environment data, reports, preparations and transmission of report to statutory authorities, Corporate cell etc. • Compliance with guidelines and statutory requirements. • Coordination with statutory bodies, functional groups of the unit, Corporate Environment Management Cell • Interaction for evolving and implementation of modification programmes to improve the availability / efficiency of pollution control devices / systems. • Environmental Appraisal (Internal) and Environmental Audit. The Corporate Environment Management Cell of Tata Steel, Jamshedpur works, headed by Chief – Environment and respective Heads – Environment also monitors and supervises the environmental activities of the HMC division at a regular basis. Tata Power has a separate Environment Management Cell for monitoring environmental activities and statutory compliances in terms of power generation and distribution
xii.	*Adequate funds shall be allocated towards the capital cost and recurring cost/annum environmental pollution control measures and utilized judiciously to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.*
Com	In HMC, Separate Fund has been allocated for carrying out continuous water spraying & sprinkling system, mobile vacuum cleaning system, within the plant area for controlling dust, installation & regular maintenance of DF system to control fugitive emission, installing Online ambient air quality monitoring system etc. Fund for Green Belt development and CSR activity have also being allocated which are used in a planned manner.
xiii.	*The Regional Office of this Ministry at Bhubaneswer / CPCB / WBPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data alongwith statistical interpretation shall be submitted to them regularly.*
Com	• Environment Statement FY 18 had been submitted to WBPCB on **10 September 2018** • Six monthly environmental performance monitoring Report for April 2018 – September 2018 has also been submitted to MOEF, Regional Office, Bhubaneswar via email and hard copy has also been couriered. The same report has been submitted to WBPCB office also.
xiv.	*The Project 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.*
Com	• All required information has been intimated to WBPCB while obtaining Consent to Operate. • **The validity of Consent to Operate is up to 31 May 2022.**

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xv.	*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 W. B. Pollution Control Board / Committee and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This should 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 shall be forwarded to the Regional office at Bhuvaneswar.*
Com	• Communication regarding grant of environment clearance were given to the community on 08.03.2008 through newspaper advertisements. Details of which are given below. o Financial Express – (English Adv.) / Aajkal – (Bengali Adv.) dated 08.03.2008. • Communication regarding grant of environment clearance for expansion project of Coke Oven Plant from 1.6 MTPA to 2.2 MTPA vide F. No. J-11011//284/2007- IA II (I) were published in the newspapers (TOI, Business Standard, The Telegraph – Kolkata etc) dated 24 February 2018. • The compliance of the same was informed to MoEF (Regional Office – Bhubaneswar) through letter dated 11.03.08 by post.

M/s Tata Steel Ltd, Hooghly Met Coke Division, Haldia

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Period –October 2018 – March 2019

AMBIENT AIR QUALITY SUMMERY REPORT

ANNEXURE - 1

Name : M/s. Tata Steel Ltd., Hooghly Met Coke Div.

Address : HFC Complex, Patikhali, Haldia, Purba Medinipur

Ambient Air Quality: (AVG VALUE) (October 2018 – March 2019)

Parameters	Std ($\mu g/m^3$)	LOCATIONS							
		Near OHC / Canteen	Near Rest Room	Near LCR#1	Near Electrical Sub Station	CCR	Near Simplex Gate	Near Engineering Store	Near Patikhali Gate
PM_{10}	100	61	77.8	69.2	49.6	86.3	47.7	47.4	77.9
$PM_{2.5}$	60	38	42.2	38.3	27.7	56.6	26	25.7	55.6
SO2	80	5.4	5.7	6.2	4.8	10.6	5.5	5.8	8.7
Nox	80	27.6	28.6	30.3	25.7	41.2	29.6	28.6	36.8

AAQ : Avg. value

Month	PM10 (µg/m3)	PM2.5 (µg/m3)	SOX (µg/m3)	NOX (µg/m3)
Oct-18	68.25	37.8	6.1	30.1
Nov-18	60.97	34.87	6	29.95
Dec-18	66.2	36.7	8.2	27.6
Jan-19	62.85	41.45	6.85	32.45
Feb-19	76.3	56.6	10.6	41.2
Mar-19	62	51	9.2	38.2

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Period –October 2018 – March 2019

ANNEXURE -2

WATER CONSUMPTION
Period : October 2018 – March 2019

Name : M/s. Tata Steel Ltd, Hooghly Met Coke Div.
Address : HFC Complex, Patikhali, Haldia, Purba Medinipur

MONTH	HMC (CUBIC. MTR) Per Month	TPC (CUBIC MTR.) Per month	WATER CONSUMED PER DAY (HMC)	WATER CONSUMED PER DAY (TPC)	TOTAL WATER CONSUMED (CUBIC MTR/Day)
Oct-18	25955	211,845	837	6834	7671
Nov-18	29305	241,595	977	8053	9030
Dec-18	38399	220201	1239	7103	8342
Jan-19	32699	223101	1055	7197	8252
Feb-19	26959	207141	963	7398	8361
Mar-19	27450	242150	885	7811	8697

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Period –October 2018 – March 2019

AMBIENT NOISE SUMMERY REPORT **ANNEXURE -3**

Period : October 2018 – March 2019

Noise Monitoring Report

INDUSTRIAL AREA	Day Time Limit: 75 dBA	Night Time Limit: 70 dBA
In Front of New Administrative Building	58	52
In Front of Canteen	60.1	53.4
Crusher house (Man less area)	77.2	76.4
Blending Bunker	66.3	66