नेशनल थर्मल पावर कारपोरेशन लिमिटेड
(भारत सरकार का उद्यम)
National Thermal Power Corporation Ltd.
(A Government of India Enterprise)

बाढ़
BARH

संदर्भ संख्या / Ref.No.: दिनांक / Date:

Ref: 4400/Barh/EMG/19/01 **Date: 27.05.2019**

To

The Regional Officer,
Ministry of Environment, Forest and Climate Change,
Regional Office (ECZ),
Bungalow No.A-2, Shyamali Colony,
Ranchi-834002, Jharkhand.

Kind Attn: Dr. T.H. Mahato, Scientist-C

Sub: Half-yearly Compliance Report of Environmental Clearance for the period October'2018 to March'19 accorded by MoEF&CC, to Barh STPP.

Dear Sir,

Please find enclosed herewith the half-yearly compliance report for the period ending March'2019 of Environmental Clearance (Stage-I and Stage-II) pertaining to NTPC Barh for your kind perusal.

Thanking You.

Yours Faithfully,

(Vishwajeet Ghosh)
AGM-(EMG), NTPC Barh

Encl.: *Compliance Report.*

Copy to:

The Member Secretary,
Bihar State Pollution Control Board (BSPCB), Patna, Bihar.

Half Yearly Compliance Report of Environmental Clearance Conditions for Barh STPP
(October'2018 – March'2019)

A. Compliance Status of Environmental Clearance Conditions for Stage-I (3x660 MW).

Sl. No.	Stipulation	Status of Implementation (As on 31.03.2019)
(i)	The acquisition of land near Barh town should be restricted to 2564 acres with following break-up: Plant area 623 acres Township 250 acres Ash disposal 1250 acres Greenbelt 225 acres Total 2564 acres	The total land requirements for both Stage-I (3x660 MW) and Stage-II (2x660 MW) has been restricted to 3200 acres by MoEF&CC vide their EC letter of Stage-II dated 23.10.2007. The total land acquisition for Stage-I and Stage-II is within 3200 acres.
(ii)	Two stacks of height 275 m (one with two flues and another with single flue) should be installed with continuous on line monitoring system at the suction side of ID Fan for smooth functioning. The exit velocity should be maintained as 24 m/s along with exit temperature of 125° C.	Two stacks of 275 m (one with two flues and another with single flue) have already been constructed. The online continuous monitoring system is provisioned and shall be installed before commissioning of units. Flue gas parameters as stipulated shall be complied with.
(iii)	Electrostatic Precipitator having efficiency of not less than 99.8% should be installed and it should be ensured that particulate emission would not exceed the prescribed limit of 100 mg/Nm^3. Space should be provided for installation of FGD plant, if required in future.	ESP with 99.9% efficiency shall be installed to limit particulate emissions to 100 mg/Nm^3. Space provision has already been kept for FGD plant.
(iv)	Make up water for the project should be drawn from river Ganga @ 9185 m^3/hr. The intake point should be in the downstream of the treated effluent discharge point in the river. The intake point should be selected in consultation with CWPRS. While designing the intake structure it should be ensured that proper care is taken to avoid trapping of dolphins and other important aquatic fauna.	Make up water requirement of 9185 m^3/hr for Stage-I (3x660 MW) shall be drawn from the river Ganga as stipulated. The intake point has been selected in the downstream of proposed effluents discharge location in consultation with CWPRS. The intake structures have been designed to avoid trapping of aquatic life including dolphins.
(v)	All effluents generated in various plant activities should be collected in the Central Effluent Plant/ Central Monitoring Basin and treated to ensure adherence to specified standards of usage.	Effluents generated in various plant activities shall be treated at respective treatment facility under Liquid Waste treatment System and thereafter will be led to Central Monitoring Basin with specific standard for usage and discharge.

(vi)	Coal for the project from Amrapali Block of North Karanpura Coal fields should be used @ 35136 TPD having gross calorific value in the range of 3230-5430 Cal/kg and sulphur content not exceeding 0.54%. Fuel should be transported through railways over a distance of 250 km up to Barh Railway Station.	It shall be complied once Stage-I is commissioned. The Railway Board vide letter dated 09.01.2001 has accorded clearance for coal movement from North Karanpura area of CCL to Barh STPP via Barakakhana - Sitarampur - Barh. The length of this route is approx. 450 km. However, the comparatively shorter track (approx. 330 km) i.e. Hazaribagh - Kokaram - Tiliya - Rajgir - Barh is under construction by Indian Railways.
(vii)	Use of borrow earth for the project should be restricted to about 11 million cum for achieving the formation level of RL 46.2 m for the plant area. The source of borrow earth in the river bed should be carefully identified for avoiding damage to habitats of aquatic fauna. Necessary permission for excavation of the fill material should be obtained from State Government as per legislation in vogue.	As stipulated, the requisite permissions from State Government has been taken before borrowing earth.
(viii)	As the transportation of borrow earth will necessitate plying of large number of trucks to and from the project site, necessary transportation schedule should be drawn for avoiding traffic congestion on NH 31.	No traffic congestion has been observed on NH-31 during transportation of earth.
(ix)	Noise level should be limited to 75 dB(A) and regular maintenance of equipment be undertaken. For people working in the area of generator halls and other high noise areas of the plant personal protective equipment should be provided.	The noise level below the stipulated limit is being maintained during construction and shall be maintained once Stage-I is in operation phase. People working in high noise areas are equipped with personal protective equipments, such as, ear muffs, ear plugs, etc.
(x)	For controlling fugitive dust, regular sprinkling of water in coal handling and other vulnerable areas of the plant should be ensured.	Regular sprinkling is being done through water tanker to control fugitive dust generation due to construction activities. Dust Suppression and Extraction System has been provisioned in coal handling area for controlling fugitive emission.

(xi)	With 45% average ash content in coal and at 80% PLF annual ash production should not exceed 4.5 million cum. As per MoEF Notification of September 1999, 100% ash utilization should be ensured within 9 years of commissioning of the plant. The use of ash disposal area accordingly should be restricted to only 1250 acres including 250 acres required for stocking.	This stipulation is based upon inputs furnished by NTPC and shall be complied. The ash generated from Stage-I coal burning shall be utilized as per the gazette stipulation of MoEF&CC.
(xii)	The ash disposal area is proposed in Tal belt which has predominant agricultural activities. The fly ash management plan, therefore, should be so drawn as to avoid increase in fugitive dust and contamination of ground water by lining.	The fugitive emissions from ash dyke shall be restricted by maintaining water cover in ash dyke. Further, the possibility of contamination of ground water has also been taken care in design aspect of ash dyke. Additionally, quality of ground water around the ash dyke is being monitored periodically.
(xiii)	Detailed socio-economic survey should be undertaken for the area proposed to be acquired for the project for preparation of Rehabilitation Plan. The plan should be got approved from District Collector and submitted to the Ministry within one year. As submitted in the EIA Report, there should be no displacement of people due to the acquisition of land.	A detailed socio-economic survey has been conducted through Xavier Institute of Social Sciences, Ranchi. Based upon the report, a detailed R&R Plan has been drawn in consultation with State Government and VDAC. The approved RAP has been submitted to MoEF&CC vide letter dated 23.06.2005. There is no displacement of people due to acquisition of land.
(xiv)	An area of 214 acres should be earmarked for creation of greenbelt of average width of 100 m along the plant boundary. In addition, extensive afforestation should be undertaken in vacant places available in other plant area, township and along ash pond. A norm of 1500-2000 trees per ha should be followed for afforestation programme. As discussed in the Expert Committee meeting, the green belt and the drainage channel should not be combined. A revised layout plan, therefore, should be submitted indicating separately the drainage and greenbelt. Financial requirement for afforestation activity should be worked out and included in the cost for the project. Detailed proposal in this regard should be submitted to the Ministry within 3 months.	Revised layout plan indicating the green belt and drainage separately has been submitted to MoEF&CC vide letter no. CC:ESE:9558:2000:GEN:01B dated 11.12.2000. Further, financial provisions for afforestation has been made in feasibility report.
(xv)	A detailed Area Drainage Plan based on findings of the study undertaken by CWPRS, Pune should be prepared and submitted to the Ministry within 3 months. Special thrust	Area Drainage Plan based on the Study undertaken by CWPRS has been submitted to MoEF&CC vide letter dated 11.12.2001. A copy of the said

	should be given to avoid further flooding of Tal area due to construction of ash dyke over 1250 acres of land. Adequate financial provisions should be made for implementation of measures such as providing additional drainage, widening of existing drains, plant area protection etc.	report has also been submitted to the Regional Office, MoEF&CC, Ranchi vide letter dated 02.03.2019. Further, financial provisions for implementation of measures such as providing additional drainage, widening of existing drains, plant area protection has been kept in feasibility report.
(xvi)	The sensitive areas should be avoided for borrow earth and a detailed scheme of work including transportation component should be worked out and submitted to the Ministry before actually initiating excavation of borrow earth. The conditions of environmental clearance should be reflected in contractual negotiations and should be strictly monitored during the entire period.	The excavation of earth had been done in consultation with MoEF&CC. Further now, this activity has been completed.
(xvii)	NTPC should confirm after in depth study of Tal area in consultation with recognized institutions, that it will not destroy the micro-habitat of migratory birds.	A study report on migratory birds in Tal area was carried by Salim Ali Center of Ornithology and submitted to MoEF&CC vide dated 11.09.2003. A copy of the said report has also been submitted to the Regional Office, MoEF&CC, Ranchi vide letter dated 02.03.2019.
(xviii)	The turbidity in river Ganga should not increase above the existing level due to discharge of treated effluents from the project and that NTPC should adhere to stipulated standards of treated waste water discharge for Thermal Power Plants.	Presently, no treated effluents is discharged in to the Ganga river, and the same shall be complied after operation of Stage-I.
(xix)	NTPC should establish special Environmental Cell at site for this project for consultation on day to day basis during project planning and implementation of the project.	An Environmental Cell has been constituted titled Environment Management Group (EMG), and the same is being in working.
(xx)	Regular monitoring for SPM, SO_2 and NOx around the power plant may be carried out and records maintained. Monitoring Stations should be established in consultation with the State Pollution Control Board.	Regular monitoring of air pollutants at 04 locations (after consultation with SPCB, Bihar) in and around the plant is being carried out, and the same being submitted to Ministry. The monitoring data of current period (Oct'18 to March'19) is enclosed at Annexure-I here.
(xxi)	The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board / Committee and	Advertisement as per the requirement has been published.

	may also be seen at Website of the Ministry of Environment & Forests at http:/www.envfor.nic.in. The advertise-ment should be made within 7 days from the date of issue of the clearance letter and a copy of the same should be forwarded to the Region Office.	
(xxii)	A monitoring committee should be constituted for reviewing the compliance of various safeguard measures by involving recognized local NGOs, Pollution Control Board, Institutions, Experts etc.	A monitoring committee has already been constituted by State Pollution Control Board.
(xxiii)	The Project Authorities should 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 start of land development work.	Final approval of the project and the date of start of land development work has been intimated to Regional office and Ministry.
(xxiv)	Full cooperation should be extended to the Scientists / Officers from the Regional Office of the Ministry at Bhubaneswar the CPCB / the SPCB who would be monitoring the compliance of environmental status. Complete set of impact assessment report and the Management Plans should be forwarded to the Regional Office for their use during monitoring.	It shall always be complied.
(xxv)	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.	
(xxvi)	In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the conditions imposed and to add additional environmental protection measures, if any.	It shall be complied.
(xxvii)	The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management and Handling) Rules, 1989, the Public Liability Insurance Act, 1991, the Impact Assessment Notification of January, 1994 and its amendments.	

B. Compliance with the Conditions Stipulated in Environmental Clearance for Stage-II (2x660 MW).

Sl. No.	Stipulations	Status of Implementation (As on 31.03.2019)
(i)	The Land requirement for Phase-I and Phase-II put together shall be restricted to 3200 acres. No additional land shall be acquired for the project or any utilities/facilities relating to the project.	Total land requirement for main plant, township, ash dyke, and other facilities of Stage-I and Stage-II has been restricted to 3200 acres, and the same being complied.
(ii)	Coal with ash content not exceeding 42% and sulphur content not exceeding 0.5% shall be used.	The condition being complied as per the stipulated values.
(iii)	Space provision shall be made for installation of FGD of requisite efficiency of removal of SO_2, if required at a later stage.	Space provision has been kept for installation of FGD within the stipulated land.
(iv)	A bi-flue stack of 275 m height with exit velocity of at least 23 m/s shall be provided with continuous online monitoring system.	A bi-flue stack of 275 m has been constructed, and the same being used in operation. Further, continuous online stack monitoring system has been commissioned, and all the parameters of flue gas is being maintained as per the stipulations.
(v)	High efficiency Electrostatic Precipitator (ESPs) shall be installed so as to ensure that particulate emissions do not exceed 100 mg/Nm^3.	ESP with 99.9% efficiency has been commissioned and the same being used to limit particulate emissions to 100 mg/Nm^3.
(vi)	Closed Cycle Cooling system with cooling towers shall be provided. COC of at least 4 shall be adopted.	Closed Cycle Cooling system has been commissioned as per the stipulation. Presently, the average COC of 5 and more being maintained.
(vii)	Treated effluents conforming to the prescribed standards shall only be discharged in to the Ganga river.	All effluents generated in various plant activities are being individually treated and reused through Central Monitoring Basin to ensure adherence to specified standards of usage. Presently, no treated effluents is discharged in to the Ganga river.
(viii)	Rain water harvesting should be adopted. Central Ground Water Authority/ Board shall be consulted for finalization of appropriate rain water harvesting technology within a period of three months from the date of clearance.	Rain water harvesting is not being done since the water table in the area is high. However, the matter is being in communication with Ground Water Authority.
(ix)	100% Fly ash shall be collected in dry form and its full utilization shall be achieved within 9 years in accordance with the notification on fly ash utilization SO 763 (E) dated 14th September, 1999 and the amendments made therein from time to time.	All efforts are being made to ensure 100% ash utilization as per notification of MoEF&CC. Further, Dry Ash Extraction System (DAES) of both Units-IV and V have been commissioned and 100% available or operation.

(x)	The ash dyke shall be so designed and constructed so as to ensure that breaching of ash dyke does not take place.	This aspect has been taken care in design aspects of ash dyke.
(xi)	A disaster management plan shall be prepared to meet any eventuality of ash dyke getting breached. A copy of the same shall be submitted to the Ministry and its Regional Office at Bhubaneswar.	Disaster management plan of NTPC, Barh (inclusive ash dyke breach management) has been prepared and submitted to the Regional Office, MoEF&CC, Ranchi vide letter dated 02.03.2019.
(xii)	Regular monitoring of groundwater around the ash pond shall be carried out. The location of the monitoring network and size of piezometer shall be decided in consultation with Central Ground Water Authority / State Ground Water Board.	Regular monitoring of groundwater at three locations around the ash pond is being carried out. Piezometers have been installed and in operation.
(xiii)	Noise levels shall be limited to 75 dBA. For people working in the high noise area, protective devices such as earplugs etc. shall be provided.	Noise level at the demarcated areas are well below the stipulated limit through regular maintenance of equipment. People working in high noise areas are equipped with personal protective equipments, such as, ear muffs, ear plugs, etc.
(xiv)	A green belt of at least 100 m width all around the periphery of the project shall be developed. Besides this, the green belt in the north-east side of the plant area, around the coal stock yard, shall be at least 180 m in width so as to contain the fugitive emission from reaching the neighboring villages.	Green belt as stipulated is being developed around the project with consultation of forest department.
(xv)	Regular monitoring of the air quality shall be carried out in and around the power plant and records shall be maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with State Pollution Control Board. Six monthly reports shall be submitted to this Ministry.	Regular monitoring of air pollutants at 04 locations (after consultation with SPCB, Bihar) in and around the plant is being carried out, and the same being submitted to Ministry. The monitoring data of current period (Oct'18 to March'19) is enclosed at Annexure-I here.
(xvi)	For controlling fugitive dust, regular sprinkling of water in vulnerable areas on the plant shall be ensured.	Regular sprinkling is being done through water tanker to control fugitive dust generation due to construction activities. Dust Suppression and Extraction System has been provisioned in coal handling area for controlling fugitive emission.
(xvii)	The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned within seven days of issue of this letter, informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the State Pollution Control	It has been complied

	Board/Committee and may also be seen in the website of the ministry of Environment and Forests in the http://envfor.nic.in.	
(xviii)	A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.	An Environmental Cell has been constituted titled Environment Management Group (EMG), and the same is being in working.
(xix)	Half yearly report on the status of implementation of the conditions and environmental safeguards should be submitted stipulated to this Ministry, the Regional Office, CPCB and SPCB,	The half-yearly compliances on status of implementation of the conditions and environmental safeguard is being submitted regularly to the stipulated regulatory agencies.
(xx)	Regional Office of the Ministry of Environment & Forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. A complete set of document including Environmental Impact Assessment Report, Environment Management Plan and the additional information/clarifications submitted subsequently of the Ministry shall be forwarded to the Regional Office for their use during monitoring.	A complete set of stipulated documents have been submitted to the Regional Office, MoEF&CC, Ranchi vide letter dated 02.03.2019.
(xxi)	Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. These cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposed and year-wise expenditure should be reported to the Ministry.	It has been done and the details have been submitted to the Regional Office, MoEF&CC, Ranchi vide letter dated 02.03.2019.
(xxii)	Full cooperation should be extended to the Scientists / Officers from the Ministry and its Regional Office at Bhubaneswar the CPCB / the SPCB during monitoring of the project.	It shall always be complied.
(xxiii)	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.	
(xxiv)	The environmental clearance accorded shall be valid for a period of 5 years from the start of production operations by the power plant.	
(xxv)	In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.	It shall be complied.
(xxvi)	The above stipulations would be enforce among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act,	

	1981, the Environment (Protection) Act 1986 and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.	
Compliance with the conditions stipulated in amendment of Environmental Clearance of Stage-II (2x800 MW) vide letter dated 08.04.2013:		
(xxvii)	Fly ash shall not be used for agricultural purpose. No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close coordination with the State Pollution Control Board.	As stipulated, the fly ash generated from the plant is being utilized by cement manufacturing and brick manufacturing industries. It is also being utilized in road construction works. Further, fly ash is not being used in agriculture and for mine void filling.
(xxviii)	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.	It is being complied. Present status of ash utilization has been submitted to the Regional Office, MoEF&CC, Ranchi vide letter dated 02.03.2019.
(xxix)	A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	The radioactive study for the project was carried out by Bhabha Atomic Research Center (BARC) and the final report is made available with NTPC. All the parameters are within the specified range.
(xx)	Continuous monitoring for heavy metals in and around the existing ash pond area shall be immediately carried out by reputed institutes like IIT.	Continuous monitoring for heavy metals (such as, Cu, Cr, Cd, Pb, As, Hg, Zn, etc.) in and around the ash pond area is being carried out by EMTRC Consultants Private Limited at 03 locations, with a periodicity of three months.
(xxi)	Fugitive emission of fly ash (dry or wet) shall be strictly controlled so that no agricultural or non-agricultural land is affected. Damage to any land, if any shall be mitigated and suitable compensation provided in consultation with the local Panchayat.	Regular sprinkling is being done to control fugitive emission of fly ash. No such damages of agriculture or non-agriculture area has been reported.

C. Implementation of Environmental Management and Monitoring Plan (Construction Phase).

Project activity/ Issue	Mitigation measures	Status (As on 31.03.2019)
Air pollution	Water sprinkling in vulnerable areas	Water sprinkling in vulnerable areas is being done regularly. Bi-weekly monitoring of PM_{10} and $PM_{2.5}$ is being done at 4 locations.
	Construction materials prone to fugitive emissions to be transported in covered/ wet condition	α) Soil/Sand being transported in moist and in covered condition. β) Cement contained in plastic bags is transported at site in covered condition.
Water pollution	Provision of washing and bathing facilities in labour colony	A labour colony with housing of about 2000 population is in place. In order to provide bathing and washing facilities to the population, adequate bore-wells, tanks, and washing platforms have been provided.
	Disposal of sewage in soak pits or by any other suitable means in labour colony	Adequate toilets and soak-pits have been provided and disposal system is functioning properly.
	Channelization of run-off water	Storm water drain has been provided for channelizing run-off water.
Hygiene	Ensure availability of drinking water and drainage facilities in labour colony	Bore-well /Hand pumps have been provided for availability of drinking water. Facility of drainage has also been provided.
Safety and occupational noise	• Ensure use of Helmets and safety belts by all personnel in construction areas • Provision of earmuffs/ earplugs to the workers in high noise areas and enforcement of its use	Required Personal Protective Equipments (PPEs) have been provided to NTPC employees by NTPC and to construction workers by the concerned contracting agencies. Enforcement of its use is monitored and implemented by Safety Department at site.
Noise	Avoid use of machinery generating high noise in night in the vicinity of villages located near the plant boundary	No high noise machines are running in night. Noise at plant boundary level is being maintained within the stipulated limit of 75 dB(A) .
Site Rehabilitation	Progressive landscaping and re-vegetation	Progressive landscaping and re-vegetation is being carried out as per plan.
Disposal of construction solid waste	Disposal of surplus earth and construction debris	Locations for disposal of debris and concrete piles have been identified at lay down area. The metal scraps are kept at identified scrap yard and are being disposed through MMTC. Excavated soil is used for land filling of township area / back filling of plant area.

Annexure- I

BARH STPP

AMBIENT AIR QUALITY MONITORING REPORT
(October'2018 to March'2019)

Months	PM_{10}	$PM_{2.5}$	SO_2	NO_x
	Range of 24 Hourly Average Values Observed ($\mu g/m^3$) at **DM Water Plant**			
Oct.'18	54-65	26-32	5.2-6.8	9.8-11.2
Nov.'18	65-74	32-36	6.8-8.5	11.5-13.5
Dec.'18	76-84	37-42	8.2-9.2	13.5-15.8
Jan.'19	80-88	38-43	8.2-9.8	14.5-17.2
Feb.'19	82-88	40-43	8.5-9.8	14.8-17.8
March'19	82-90	40-46	8.8-10.8	15.8-18.2

Months	Range of 24 Hourly Average Values Observed ($\mu g/m^3$) at **Coal Handling Plant (CHP)**			
Oct.'18	74-96	35-46	7.5-8.8	10.8-12.8
Nov.'18	82-96	40-50	8.5-9.8	13.2-14.8
Dec.'18	85-96	42-49	9.2-10.8	15.2-18.2
Jan.'19	86-96	45-47	10.2-11.2	15.8-18.6
Feb.'19	88-96	45-48	10.2-11.8	16.5-18.8
March'19	86-95	45-50	11.2-12.5	17.2-20.5

Months	Range of 24 Hourly Average Values Observed ($\mu g/m^3$) at **Material Gate**			
Oct.'18	54-68	26.35	5.2-6.8	9.5-12.8
Nov.'18	65-74	32-36	6.5-7.8	11.5-13.2
Dec.'18	76-84	36-40	7.8-8.8	12.8-14.8
Jan.'19	76-86	37-42	7.8-8.9	12.8-16.2
Feb.'19	78-87	38-42	8.2-9.2	13.5-16.5
March'19	80-86	39-45	8.5-9.5	14.5-16.5

Months	Range of 24 Hourly Average Values Observed ($\mu g/m^3$) at **Township**			
Oct.'18	52-62	25-30	4.0-6.5	9.0-11.2
Nov.'18	56-68	27-35	5.0-7.2	9.2-11.8
Dec.'18	65-76	32-37	6.8-7.8	10.5-12.8
Jan.'19	70-78	34-38	6.8-8.5	10.5-13.2
Feb.'19	74-80	36-38	7.2-8.8	12.5-14.5
March'19	74-82	36-40	7.5-8.8	12.5-13.8