W B P D C L
(A Government of West Bengal Enterprise)

Indranil Dutta
Director (Projects)

To,
The Member Secretary
Central Expert Appraisal Committee of Coal fired Thermal Power Plant,
Ministry of Environment, Forest & Climate Change
Indira Paryavaran Bhawan, Jor Bagh Road,
New Delhi-110003

Subject: Submission of documents for clarification as sought by EAC, MOEF&CC during EC meeting held on dated 26th June 2019 for EC for Proposed 1x660 MW based Coal Supercritical Sagardighi Thermal Power (Phase-III Expansion Unit–5, Village Manigram, Chandpara, Kanchanpara, Harirampur, at District Murshidabad, West Bengal

Respected Sir,

Enclosed please find information/ clarification asked by Honorable Members of 29th meeting of the Expert Appraisal Committee (EAC) on Thermal Power Projects held on 26-06-2019.

Thanking You

Yours faithfully

Director (Projects)

The West Bengal Power Development Corporation Limited
Bidyut Unnayan Bhaban, 3/C, Block – LA, Sector III, Bidhannagar, Kolkata-700 106
Phone : (91) (33) 2339 3211/2335 0552, Fax : (91) (33) 2339 3286, E-mail : i.dutta@wbpdcl.co.in, Website : www.wbpdcl.co.in

CLARIFICATIONS

AS SOUGHT BY EAC, MOEF&CC

DURING EC MEETING

DATED JUNE 26, 2019

FOR

Proposed 1x660 MW based Coal Supercritical Sagardighi Thermal Power (Phase-III Expansion Unit–5, Village Manigram, Chandpara, Kanchanpara, Harirampur, at District Murshidabad, West Bengal

(F.No.J-13012/01/2019-IA.I(T) & Proposal no.IA/WB/THE/107519/2019)

Submitted by

The West Bengal Power Development Corporation Ltd

CONTENT

Annexure-1

WEST BENGAL POLLUTION CONTROL BOARD
(Department of Environment, Govt. of West Bengal)
Paribesh Bhawan, 10A, Block - LA, Sector-III
Bidhannagar, Kolkata-700 106, India
Tel : 2335 - 9088 / 7428 / 8211 / 6731 / 0261 / 8861 / 5868 / 1625
Fax : 2335 - 5868 / 2813
City Code : 33, Country Code : 91
Website: www.wbpcb.gov.in

Memo No.615-2N-89/2008(E) **Dated:27.06.2019.**

To
Sri Indranil Dutta, Director (Projects)
The West Bengal Power Development Corporation Limited
Bidyut Unnayan Bhaban, 3/C, Block – LA
Esctor – III, Bidhannagar, Kolkata - 700098

Sub: Environmental Clearance for the proposed 1X660 MW Supercritical unit at Sagardighi Thermal Power Project

Ref: Your letter no. WBPDCL/Dir(P)/1927 dated 27.06.2019.

Sir,

With reference to the above, this is to inform you that as per condition given in Terms of Reference issued by MoEF & CC for your above mentioned proposed project, soft copies of draft EIA report as well as Executive Summary of the proposed project were uploaded in WBPCB website and notice in this regard was published in newspapers namely 'The Times of India' in English and 'Ei Samay' in Bengali on 13.05.2019. No comments or queries from the general public have been received in this regard by the State Board till date.

This is for your information in this regard.

Thanking you,

Yours faithfully,

27/6/2019

(Dr. Rajesh Kumar)
Member Secretary
West Bengal Pollution Control Board

Annexure-2

Time bound action plan for addressing public hearing comments

Action taken report on the public hearing held on 16.09.2016 for the proposed 1X660MW Coal based unit at Sagardighi Thermal Power Project, Murshidabad by The West Bengal Power Development Corporation Limited (**WBPDCL**)

Sl No	Issue Raised	WBPDCL's Action on the raised issue
1.	i. **Sri Ganesh Chandra Saha**, Manigram expressed his grievance regarding non conformity towards CSR commitments by WBPDCL in the past and requested the WBPDCL to ensure that the same is not repeated. ii. Sri Saha also requested the WBPDCL to give priority to local employment generation, proper implementation of CSR policies leading to overall development of the area & proper functioning of efficient pollution control devices continuously during process activities. iii. He further requested the WBPDCL authority and local administration to form a local level committee involving representatives from local residents, project authorities and local administration in order to plan and monitor development activities including CSR issues on a continuous basis.	i. In last three financial years WBPDCL has spent a total approx Rs.1 Crore on CSR activities in the villages near its vicinity. Activities include Construction of Road, Installation of tube wells, Supply of High & Low Benches to the local schools, Development of boundary walls in local schools, Construction and renovation of latrines, financial assistance to the self help group by providing fly ash brick manufacturing machines etc. In upcoming years many more plans will be included in the CSR activities. ii. In case of employment generation WBPDCL is having a fixed policy of recruiting all type of unskilled labours for various jobs at Plant and Township area from the list of Land Loosers, and a approx 750 numbers of local people are already working in the plant and township area in different jobs. Around 500-600 local people shall be engaged under different contractor in the construction period of unit No.5 and approx 200 nos of employment shall be generated for operation and maintenance work of unit no.5. In addition to that WBPDCL shall provide 20% of its (5th unit) generated Fly Ash free of cost basis to nearby fly ash brick manufacturers on regular basis. A good number of employments have been generated from those manufacturers also. iii. WBPDCL authority has taken a decision to form a Local level committee headed by BDO, Sagardighi, members from each panchayet and HRA personnel of WBPDCL. The committee will be formed before the said project execution. It is also decided that a quarterly meeting will be conducted where discussion on CSR activities, ongoing projects

Sl No	Issue Raised	WBPDCL's Action on the raised issue
		and prioritization of the projects will be minute regularly.
2.	i. **Sri Dhananjoy Ghosh** Member of Monigram Gram Panchayet expressed his concern regarding the continuously depleting ground water level of the locality and requested the WBPDCL as well as the local administration to take proper measures to ensure that local agricultural activities and irrigation system are not affected due to process activities of the power plant. ii. He further requested the WBPDCL to initiate extensive plantation program in and around their unit premises, to arrange for notable water supply for local villages and develop the conditions of local roads and drainage system through their CSR activities in consultation with local administration and local representative. iii. Sri Ghosh further requested the PP to ensure uninterrupted power supply to the local villages.	i. WBPDCL is not drawing any groundwater and there is no boring available inside Sagrdighi Thermal Power Project site. WBPDCL is using olnly river water. For actual characteristics of Ground Water level a detail hydro geological study is already carried out by IIEST Sibpur. According to the report there is no such depletion in ground water level. WBPDCL is drawing water from river Bhagirathi through pipe line. WBPDCL has made some arrangements in this pipeline in different points to supply water for local cultivators. ii. WBPDCL has developed as greenbelt around the periphery of the plant. Till date about 35410 nos of trees are planted by WBPDCL and 10000 nos of trees shall be planted every year. iii. Power supplies to the local villages are mainly supplied by State Distribution Company. Recently a substation has been constructed in Sagardighi which is 5 to 7 km from the plant area. Side by side new transmission lines are also being erected for supplying electricity to the whole block area. Hopefully the issue of power supply will be solved shortly.
3	Smt. Kanika Mondal, Monigram urged the WBPDCL to enhance their CSR activities and arrange for – i. Adequate number of street light in local roads, ii. Arrange for development of infrastructure of local schools and iii. Provide medical facilities to the local villagers	i. As the local area electricity distribution is maintained by West Bengal State Distribution Company Limited (WBSEDCL). So WBSEDCL install Street Lights in local areas. WBPDCL has decided that yearly 1000nos of street light shall be provided to WBSEDCL for street lighting in the Manigram, Harikantapur, Mirjapur etc local villages. ii. WBPDCL is investing fund for development of infrastructure of local schools in regular basis. iii. WBPDCL is having a Medical Unit with 12 nos of Doctors and 20 nos of nursing staff inside the Township Area and it is remained

Sl No	Issue Raised	WBPDCL's Action on the raised issue
		open 24X7 for primary treatment with medicine shop facility. WBPDCL provided primary medical facility and free medicine to local people. serve all the time in all situations. A good number of employments have been generated for various jobs at Medical units from local people.
4	Uttam Kumar Ghosh & Sri Sibaprasad Ganguly, Monigram expressed their grievances regarding the non implementation of CSR activities and requested to ensure overall socio-economic development of the villages in the immediate vicinity of the	This point is well described in point no 1

Annexure-3

iii. **The status of implementation of pollution control measures to meet new emission norms and specific water consumption as per Ministry's notification dated 7.12.2015.**

For compliance of the MOEF&CC notification 07.1.2015 West Bengal Power Development Corporation Limited has decided to install Flue-Gas Desulphurisation (FGD) and SCR system for removal of SO2 and NO2 from flue gas.

Status:

Feasibility study for installation of Limestone based Wet FGD for all four units have been carried out. Tender specifications for the common systems for material handling and effluent handling, for all the units are also carried out. Tenders for Unit 3 & 4 are floated in end February, 2019 and orders will be placed by August 2019. Units 1 & 2: Specifications for Absorbers shall be ready by December 2019. Tenders shall be floated thereafter. FGDs are expected to be commissioned by the end of 2022-23.

Details of documents in this regard are being attached with this.

Diary No. 3783, Date 02/1/18
Operation and Execution Cell
West Bengal Pollution Control Board
Kolkata-700 098

West Bengal Pollution Control Board
Received
29 DEC 2017
UNCHECKED
M & O & E Cell

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/ 15965 December 11, 2017

To

Sagardighi Thermal Power Station
West Bengal Power Generation Corporation Ltd.
Monigram, Sagardighi, Murshidabad- 742 226,
West Bengal

Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued On 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No. S.O.3305(E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO_2), Oxides of Nitrogen (NOx) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF & CC, Ministry of Power (MoP),Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

West Bengal Pollution Control Board
Diary No. 126308
Date 28.12.17

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unit wise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backword manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO_2 norms based on the SO_2 emission levels from power plants;

WHEREAS, it was also pointed out that NOx control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NOx control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NOx norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30th June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO_2) & Oxides of Nitrogen (NO_x);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in

permitted to achieve specified standards of 600 mg/Nm^3. For other plants a relaxation of 600 mg/Nm^3 in place of 300 and 100 mg/Nm^3 for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.102.17, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO_2 by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO2 emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NOx, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NOx burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new

ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO_2 emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM^3 would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW (as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO_2 emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NOx norms in the plants installed before 31.12.2003 a period of three years may be

emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPWdated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest& Climate Change , Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Sagardighi Thermal Power Station, WBPDC Ltd:

i. That plant shall retrofit/ install Electrostatic Precipitator (ESP) by December 31, 2020 and March 31, 2021 in Unit 1 & 2 respectively so as to comply with PM emission limit.

ii. That plant shall install FGD by December 31, 2020, March 31, 2021, March 31, 2022 and March 31, 2020 in Unit 1, 2,3 & 4 respectively so as to comply SO_2 emission limit

iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO_2 & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

M/s Sagardighi Thermal Power Station, WBPDC Ltd shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.

(A.K. Mehta)
Chairman

Copy to:

1. The Chairman
   West Bengal Pollution Control Board
   Paribesh Bhavan, 10-A, Block LA,
   Sector III, Salt Lake City,
   Kolkata-700 091

2. The Joint Secretary (CP Division)
   Ministry of Environment, Forests and Climate Change
   Prithvi Wing, 2nd Floor, Room No. 216
   Indira Paryavaran Bhawan, Aliganj,
   Jor Bagh Road, New Delhi - 110003

3. The Joint Secretary (Thermal)
   Ministry of Power
   Shram Shakti Bhawan, Rafi Marg
   New Delhi

4. The Regional Director,
   Central Pollution Control Board
   Southend Conclave, Block 502, 5th & 6th Floor
   1582, Rajdanga Main Road
   Kolkata - 700 107

5. The Divisional Head - IT, CPCB

(A. Sudhakar)
Member Secretary

WBPDCL
(A Government of West Bengal Enterprise)

Indranil Dutta
Director (Projects)

Memo no. Dir (P)/ 1809

Dtd:- 23.03.2018

To,

Mr. B.C.Mallick,

Chief Engineer,

Thermal Project Renovation & Modernization Division,

Central Electricity authority,

Ministry of Power, GOI,

Sub:- Status of FGD Installation and ESP Upgradation

Dear Sir,

With reference to your letter no. 2/17/CEA/TPRM/FGD & ESP/2018/143-164, on the subject, we are enclosing herewith the schedules of FGD installation and ESP upgradation for our power stations, for your kind perusal.

Thanking you,

Yours faithfully,

Indranil Dutta

(Indranil Dutta)

Director (Projects)

The West Bengal Power Development Corporation Limited
Bidyut Unnayan Bhaban, 3/C, Block - LA, Sector III, Bidhannagar, Kolkata - 700 098
Phone : +91 33 2339 3211/2335 0552, Mobile : 8336904085, E-mail : i.dutta@wbpdcl.co.in

ESP Retrofitting Schedule

STATION / UNIT	Date of Retrofitting	Tentative Order Placement	Tentative Material Receipt
Bakreswar Unit - 4	Jul-Aug'19	May'18	May'19
Bakreswar Unit - 5	Jan-Feb'20	May'18	Oct'19
Santaldih Unit - 5	Nov-Dec'19	May'18	May'19
Santaldih Unit - 6	Aug-Sep'20	May'18	Apr'20
Sagardighi Unit - 1	Aug-Sep'19	Nov'18	Jun'19
Sagardighi Unit - 2	Jul-Aug'20	Nov'18	Apr'20
Kolaghat Units 1, 2 & 3	Unit 3 – May'18, then Unit – 2 & finally Unit – 1		
NB: Shutdown schedule & Material Receipt as per 5 year rolling plan			

WBPDCL PLAN FOR IMPLEMENTATION OF FGD

Station	Unit	FGD (Type)	Initiation of Tendering process	FY:2019-20			FY:2020-21				FY:2021-22				FY:2022-23				FY:2023-24			
				2nd Qtr (Jul.-Sept)	3rd Qtr. (Oct.-Dec.)	4th Qtr. (Jan-Mar)	1st Qtr (Apr.-June)	2nd Qtr (Jul.-Sept)	3rd Qtr. (Oct.-Dec.)	4th Qtr. (Jan-Mar)	1st Qtr (Apr.-June)	2nd Qtr (Jul.-Sept)	3rd Qtr. (Oct.-Dec.)	4th Qtr. (Jan-Mar)	1st Qtr (Apr.-June)	2nd Qtr (Jul.-Sept)	3rd Qtr. (Oct.-Dec.)	4th Qtr. (Jan-Mar)	1st Qtr (Apr.-June)	2nd Qtr (Jul.-Sept)	3rd Qtr (Oct.-Dec.)	4th Qtr. (Jan-Mar)
BTPS (2x60 + 1x235 MW)	U#1	DRY																				
	U#2																					
	U#5		InPI9			←					→											
KTPS (6X210 MW)	U#1	DRY	Oct'18	←					→													
	U#2		InF20							←				→								
	U#3																					
	U#4		Mar'21											←							→	
	U#5																					
	U#6																					
SgTPP (2X 300+2X500)MW + (1x660) MW	U#1	WET Scrubber for U#1 &2 to be taken up separately Expected Completion Mid July'22	InF18	←						→												
	U#2																					
	U#3																					
	U#4																					
STPS (2X250 MW)	U#5	WET	InIv19			←											→					
	U#6																					
BkTPS (5X210 MW)	U#1	WET	Oct'20							←											→	
	U#2																					
	U#3																					
	U#4		Mar'21										←									→
	U#5																					

Annexure-4

राष्ट्रीय स्वच्छ गंगा मिशन
National Mission for Clean Ganga

F. No. TE-15015/1/2019 /NMCG

Date: 01/07/2019

To,

Director (Projects),
West Bengal Power Development Co. Ltd.,
Bidyut Unnayan Bhaban,
Kolkata-700098

Sub: In-principal approval for drawl of 74.36 cusec of water from river Bhagirathi/ Hoogly-reg.

Kind reference is invited to letter no. WBPDCL/Dir(P)/1912 and WBPDCL/Dir(P)/1913 dated 01.04.2019 and 03.06.2019 respectively regarding drawl of water from river Bhagirathi/ Hoogly for Sagardighi Thermal Power Plant.

2. Competent Authority at the National Mission for Clean Ganga (NMCG) has considered the request of WBPDCL for drawl of water from river Bhagirathi/ Hoogly for units under Phase I, II and III of Sagardighi Thermal Power Plant. In exercise of the powers conferred to NMCG under Paragraph 42 of the "River Ganga (Rejuvenation, Protection and Management) Authorities Order, dated 07.10.2016, permission is hereby accorded for '**drawl of water of quantum 74.36 cusec of water from river Bhagirathi/ Hoogly at location Latitude: 24°22'15.9"N and Longitude: 88°09'3.04"E'**, subject to the following conditions:

i. The project proponent shall make necessary commitment to use the treated sewage from STP (s) located within a distance of 50 km from the project site viz. Behrampur STP and Jangipur STP. They shall enter into an MoU with the concerned agencies handling the O&M of STP towards purchase of treated water from STP within a period of six months after which this approval will be reviewed.

ii. The project proponent shall not draw water from river during lean period i.e. from month of January to May (5 months). The required quantum of water (74.36 cusec) shall be pumped only during high flow season only i.e. from month of June to December. Suitable arrangements for storing water during non-drawl period shall be made by project proponent.

iii. The project proponent shall make sure that intake level of water withdrawal unit/structure remains above the water level corresponding to discharge (75% or appropriate dependability) values observed during the permitted period of 07 months. Additionally, project proponent shall get the detailed designs/drawings of the intake structure (along with hydraulic calculations and hydrological assessments) approved by NMCG.

This is only an **in-principal approval** subjected to compliance of above stated conditions. Project proponent shall submit necessary compliance documents/ undertaking within **six months of**

issuance of this letter for further consideration. In addition to above stated condition following conditions shall also be complied by the project proponent:

i. All the activities proposed under the project should comply with the principles laid down in River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016; provisions of the Water (Prevention & Control of Pollution) Act, 1974; the Environment (Protection) Act, 1986, especially with regard to the EIA notification 2006 (if applicable) and MSWM notification, 2016.

ii. Project proponent will make sure that the quantum of water drawn from the river Ganga is regularly monitored and reported to Irrigation & Waterways Dept., West Bengal under intimation to NMCG on monthly/quarterly basis.

iii. All conditions as imposed by other concerned agencies shall be duly complied with by project proponent. Any deviation from the stipulated conditions shall be brought to the notice of NMCG, which may reconsider its permission based on the deviations.

iv. NMCG or its authorized representative will monitor the compliance of the conditions on regular basis. NMCG will be free to withdraw the permission, in case project proponent fails to comply with above mentioned conditions or otherwise.

v. The permission granted is subjected to meeting the requirement of maintaining environmental flow in river Ganga, as and when notified by the Competent Authority.

3. NMCG reserves the right to revoke the permission in non-compliance of the stipulated conditions or in light of any future developments.

This issues with the approval of Competent Authority.

Yours faithfully,

1/7/19

(Dheeraj Singhal)
Deputy Director

Copy to:

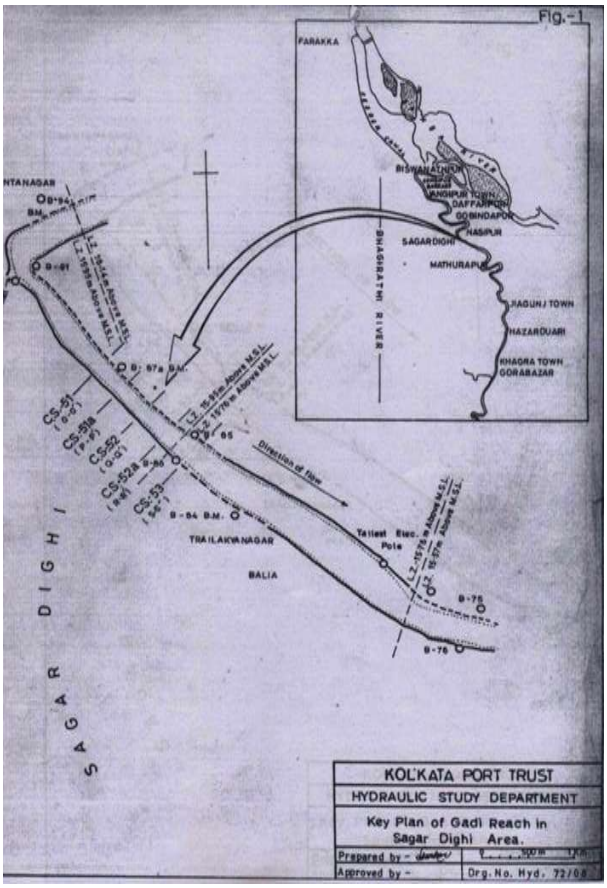
1. Project Director, SMCG Group, Unnayan Bhawan (3rd Floor), DJ-11,Sector-II,BLOCK-A,KMDA, Kolkata – 700091.

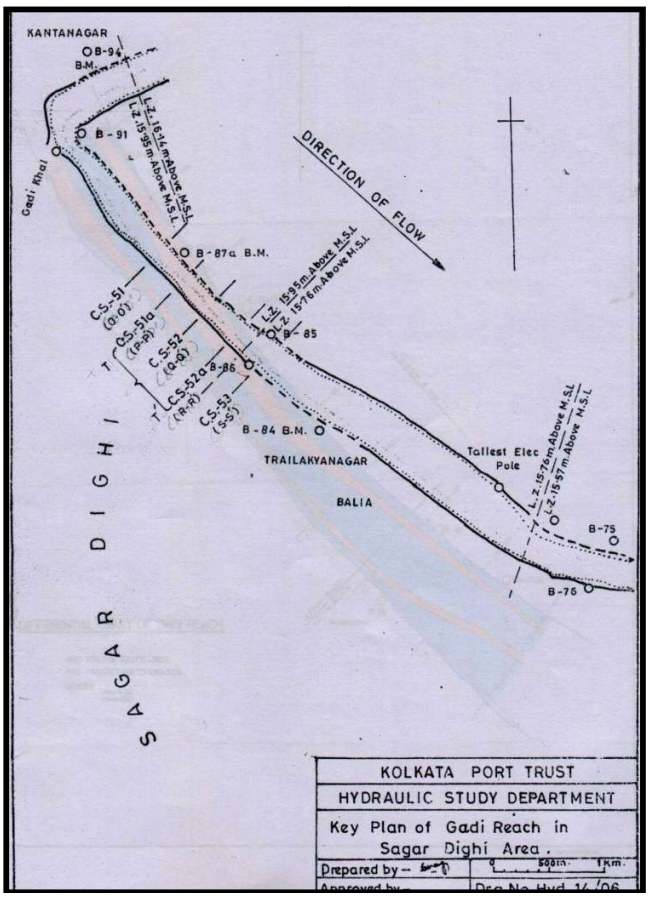
Annexure-5

WATER SUSTAINABILITY OF BHAGIRATHI RIVER FOR DRAWL OF WATER BY SAGARDIGHI THERMAL POWER PROJECT

1. SAGARDIGHI INTAKE:

Sagardighi area is situated at about 465 km upstream of Sagar(Sea-face) and at about 68 km downstream from the Farakka Barrage of River Bhagirathi/Hooghly. This river zone is Gadi Reach and both sides of the banks, is straight in nature. Joint Reconnaissance Survey was carried out by officials of Kolkata Port Trust (KoPT) and West Bengal Power Development Corporation Limited (WBPDCL) for selecting a suitable stretch at the Right Bank of the river Bhagirathi from Nayandanga to Gadikhali covering a stretch of around 2 km to conform the prima-facie requirement of availability of waterfront for construction of the Intake Structure. The Right Bank of the desired location as seen from the river is shown in the following Key Plan.





2. MAXIMUM AND MINIMUM WATER LEVEL:

Maximum and Minimum Water Level in the Gadi Reach of the River Bhagirathi has been taken into consideration. The variation of Maximum and Minimum Water Levels observed in this reach during the period from 1990 to 2005 has been depicted in below Table. During the said period, Maximum Water Level observed in this reach was 21.61 m above MSL during September 2000 and Minimum Water Level in this reach was 15.10 m. above MSL as observed in April 2008. Recently it was recorded that the water level came down to the value of 15.10m due to wide fluctuation of Farakka discharge.

Maximum and Minimum Water Level at Gadi Reach of the River Bhagirathi observed during the period from 1990 to 2005

Maximum Water Level observed in Metre above MSL	Minimum Water Level observed in Metre above MSL	Month and Year of Obserevation
19.18 M.	----------	October,1990
---------	16.56 M.	February,1990
19.16 M.	----------	September,1991
---------	16.75 M.	March,1991
18.30 M.	----------	August,1992
---------	16.44 M.	April,1992
18.98 M.	----------	September,1993
---------	16.29 M.	April,1993
18.58 M.	----------	October,1994
---------	16.76 M.	April,1994
20.40 M.	----------	October,1995
---------	16.70 M.	April,1995
19.86 M.	----------	August,1996
---------	17.28 M.	April,1996
19.00 M.	----------	September,1997
---------	15.43 M.	April,1997
18.90 M.	----------	August,1998
---------	16.90 M.	April,1998
19.18 M.	----------	September,1999
----------	16.27M.	April,1999
21.61M.	----------	September,2000
----------	16.85M.	April,2000
18.36M.	----------	October,2001
----------	15.49M.	April,2001
18.73M.	----------	September,2002
----------	16.67M.	March,2002
18.20M.	----------	October,2003
----------	16.76M.	March,2003
18.63M.	----------	October,2004
----------	16.53M.	April,2004
18.30M.	----------	August,2005
----------	15.79M.	March,2005

3. FARAKKA WATER TREATY:

A treaty between the government of the Republic of India and the government of the People's Republic of Bangladesh signed on December 12, 1996 on Sharing of the Ganga/Ganges Waters at Farakka. Sharing of pattern of water is as per the following table.

Availability at Farakka	Share of India	Share of Bangladesh
70,000 cusecs or less	50%	50%
70,000-75,000 cusecs	Balance of flow	35,000 cusecs
75,000 cusecs or more	40,000 cusecs	Balance of flow

Indicative schedule giving the implications of the sharing arrangement under above table for the period 1st January to 31st May).

Period	Average of Actual Flow (1949-1988)	India's Share	Bangladesh's Share
	cusecs	cusecs	cusecs
January			
1-10	107,516	40,000	67,516
11-20	97,673	40,000	57,673
21-31	90,154	40,000	50,154
February			
1-10	86,323	40,000	46,323
11-20	82,839	40,000	42,839
21-28	79,106	40,000	39,106
March			
1-10	74,419	39,419	35,000
11-20	68,931	33,931	35,000
21-31	63,688	35,000	29,688
April			
1-10	63,180	28,180	35,000
11-20	62,633	35,000	27,633
21-30	60,992	25,992	35,000
May			

Period	Average of Actual Flow (1949-1988)	India's Share	Bangladesh's Share
1-10	67,251	35,000	32,351
11-20	73,590	38,590	35,000
21-31	81,834	40,000	41,854

From the above table it is clear that if water flow is less the 75,000Cusec then only feeder cannel will get less than 40,000 Cusec water and that can be possible only in the month of Mid March to Mid May. For the last 15 years it has been observed that the quantity of water never comes below than 25,000 cusec water

4. WATER DRAWL FROM DOWNSTREAM OF SAGARDIGHI:

A. Industry Consumption[i]:

Sl	Industry	Industry	Water Cons. (industrial) (Cusec)
1	PMC Rubber Chemicals 103 GT Road (West) PO & PS Rishra District Hooghly Pin - 712248	Chemical	1.062
2	United phosphorus Ltd,Durga chak PO, Haldia, 721602,Purba medinipur		0.133
3	Hindustan Unilever Ltd. 63 Garden reach Road. Kolkata 700024	Chemical	0.143
4	Indian oil corporation, Haldia refinary,Haldia oil refinary PO, Hadia Dist,Purba mednapur-721606	Chemical (Oil & Gas)	6.594
5	Haldia Petrochemicals Ltd. PO Durgachak Medinipur 713203 West Bengal	Chemical (Petrochemic a l)	13.378
6	MCC PTA Corp. Pvt. Ltd, Bhunia rai chak Mednipore east,Haldia dist, 7112249	Chemical (Purified teraphthalic acid)	13.807
7	I FB Agro Industries Ltd. Village - Durgapur, PO Noorpur,	Distillery	0.963

Sl	Industry	Industry	Water Cons. (industrial) (Cusec)
8	M/S United Brewaries Limited, Kalyani Unit Plot No - 18, Block - D, Vittal Mallya Road, Kalyani, Dist - Nadia, Pin - 741235 West Bengal	Distillery	0.399
9	Aditya Birla Nuvo Ltd. [Jayashree Textiles]; 5, Panchugopal Bhaduri Sarani Rishra, District - Hooghly Pin-712249 West Bengal	Dying, Textile & Bleach	1.062
10	Dhunseri Petrochem & Tea Ltd. (South Asian Petrochem Ltd.); P.O. Khanjanchak, P.S. - Durgachak, Food, Dairy & Beverage (edible oil) West Bengal Ganga		0.451
11	Mother Dairy Calcutta P.O. Dankuni Coal Complex Pin - 712310	Food, Dairy & Beverage (Dairy)	0.382
12	Britannia Industries Ltd.; 15, Taratala Road, PO & PS Taratara, Kolkata-700088	Food,Dairy & Beverage	0.097
13	Diamond Beverages Pvt. Ltd.; P-41, Taratala Road, Pin - 700088	Food, Dairy & Beverage	0.311
14	Bengal Beverages Pvt. Ltd.; Durgapur Expressway, P.O. Dankuni Coal Complex, West Bengal	Food, Dairy	0.470
15	Dankuni Coal Complex Coal India Ltd. West Bengal	Coal fines, Coal gas, Ammonium Sulphate	0.715
16	Eveready Industries India Ltd. Unit National Carbon Plant; 5, Rustomjee Parsee Road, Kolkata-700002	Dry Cell Battery	0.018
17	Hindustan Motors Ltd. PO Hindmotor, Pin - 712233	heavy motor	0.278
18	Emami paper Mills Ltd. Gulmohor Unit, R.N. Tagore Road PO Alambazar, Kolkata 700035	Pulp & Paper	0.458
19	ITC Limited Paper Boards & Speciality Paper Division Tribeni Unit Chandrahati PO Hooghly 712504 West Bengal	Pulp & Paper	5.309
20	Supreme Paper Mills Ltd. Vill : Rainanagar, PO Chakdah Dist - Nadia West Bengal	Pulp & Paper	0.79
21	Shree Renuka sugars, City center, Behog PO, Poorba medinipore, 721651 West Bengal	sugar	0.294
22	M/S. Khaitan (India) Ltd. Khaitan Nagar PO Palasy, PS Kaliganj Dist - Nadia Pin - 741157 Sugar West Bengal Ganga		0.161
	Total		47.21

5. MUNICIPAL CONSUMPTION:

Sl	Industry	Water Consumption
1	Kolkata Municipal Corporation	474.54Cusec(1161MLD)[ii]

N.B. Kolkata municipality is the largest water drawl utility in the downstream of Hooghly. Other utilities water drawl is negligible in comparison to Kolkta municipality

From the above table it reveals that major utilities in the downstream of SgTPP are drawing approximately **521.75** Cusec water. Apart from this any other drawl from the river, if any is seems to be negligible.

6. CONCLUSION:

From the historical data of water flow through Hooghly River it appears that the quantity of water which flow never goes down below 25,000 Cusec. Moreover different river/Creek like Churni, Khari, Jalangi, Ajoy, sarwasati etc are also adding water to the Hooghly River in the downstream of SgTPP. SgTPP was allowed to draw 74.36 Cusec water by NMCG which is a meager quantity (0.297%) in comparison to the water flow through the Hooghly River. So it is evident that sustainability of downstream habitations on the river will not be affected due to this drawl of water by SgTPP.

It may be further noted that SGTPP has five raw water reservoirs for storage of **2429814** M^3 of water which can meet approx **13 days** requirement of the thermal plant.

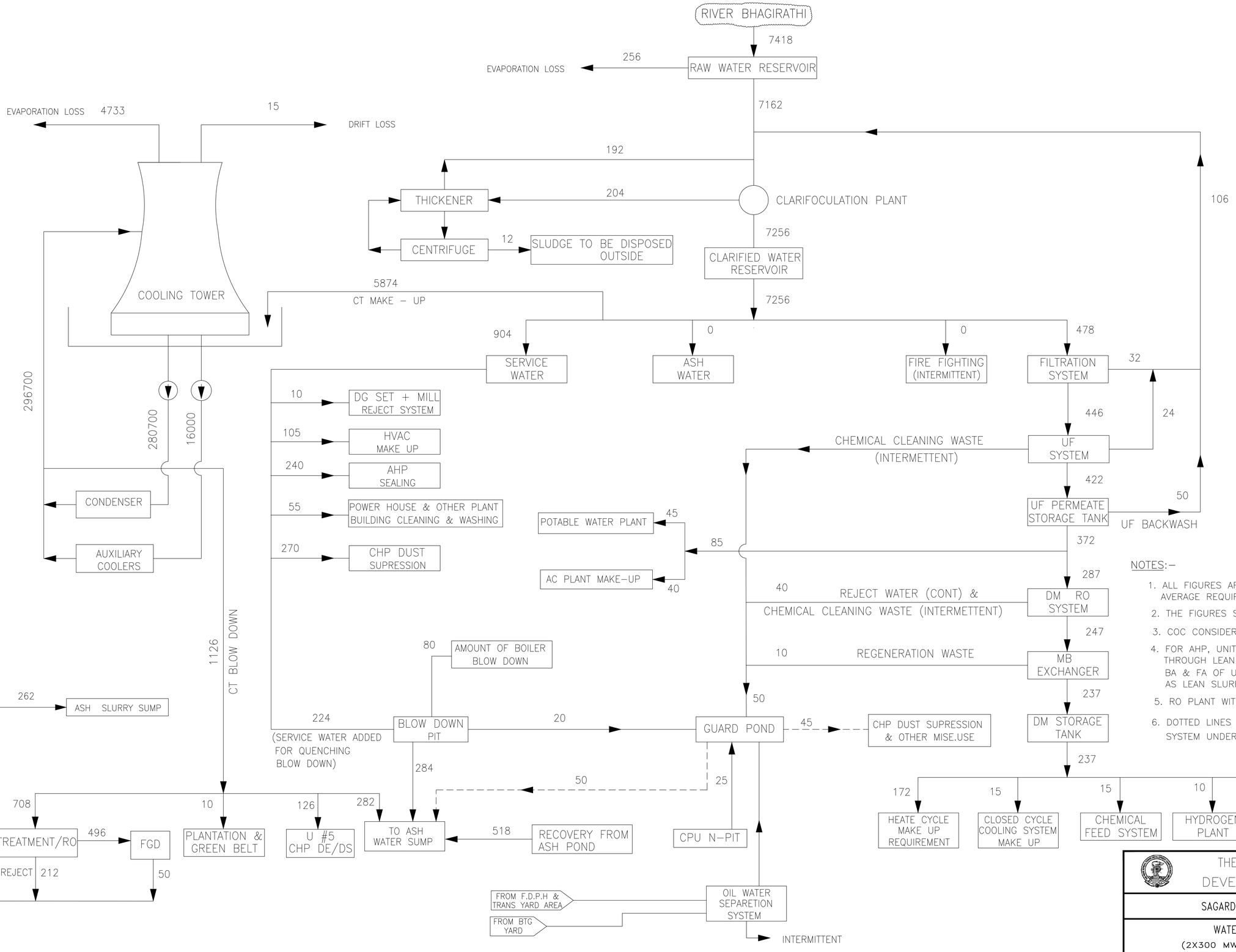
[i] Pollution Assessment : River Ganga by CPCB July 2013

[ii] Ground water information booklet, Kolkata Municipal Corporation, West Bengal

Annexure-6

VI. It has been mentioned that evaporation loss is 4733 m3/hr which accounts to be 66% of the total water requirement which is not reasonable. The revised water balance diagram with all details shall be furnished.

Water balance diagram which we have submitted is a composite diagram for five unit of capacity 2260MW and it shows that evaporation loss is 4733 m3/hr from the cooling water circuit of 296700 m3/hr. Generally evaporation loss is 2-3% of circulating water. In this case evaporation is only 1.58% which is quite reasonable.



NOTES:–

1. ALL FIGURES ARE IN CU M/HR AND DENOTE WEIGHTED AVERAGE REQUIREMENT OF UNITS #1 TO #5.
2. THE FIGURES SHOWN HERE ARE INDICATIVE ONLY.
3. COC CONSIDERED = 5
4. FOR AHP, UNIT #1 TO #4, BA+FA CONVEYING SHALL BE THROUGH LEAN SLURRY SYSTEM, WITH 70% RECOVERY. BA & FA OF UNIT #5 CONVEYING IS ALSO CONCEIVED AS LEAN SLURRY SYSTEM.
5. RO PLANT WITH 30% REJECT IS CONSIDERED.
6. DOTTED LINES (----) INDICATE RECYCLING IN FUTURE. SYSTEM UNDER CONSTRUCTION.

REVIEWED													
	S.C.						D.DE.	FIRST ISSUE	A	30.12.2018	S.K. DE	B.S.
PROCESS	MECH	C&S	ARCH	ELEC	INST	OTHER	APPROVED	DESCRIPTION	REV.	DATE	PREPD	CHECKED

THE WEST BENGAL POWER DEVELOPMENT CORPORATION LTD.

SAGARDIGHI THERMAL POWER PROJECT

WATER BALANCE DIAGRAM

(2X300 MW + 2X500 MW + 1X660 MW)

DEVELOPMENT CONSULTANTS PVT. LTD.
CONSULTING ENGINEERS
CALCUTTA , MUMBAI , MADRAS , NEW DELHI

PREPARED		JOB NO	12A05
CHECKED		SCALE	NTS
APPROVED		DATE	
DWG.NO.	12A05–DWG–M–0010–A	SHEET 1 OF 1	REV. 00

Annexure-7

Government of India

Ministry of Coal

O/o the Nominated Authority

World Trade Tower, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Second Ordinance, 2014.

Allotment order under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13

In re: **Barjora Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**

Order no.: 103/6/2015/NA

Date: March 31, 2015

In favour of: **The West Bengal Power Development Corporation Limited** incorporated in India under the Companies Act, 1956 with corporate identity number U40104WB1985SGC039154, whose registered office is at 3/C, LA-Block, Sector-III, Salt Lake, Kolkata, West Bengal - 700098, India (the "Allottee")

For utilisation in: End Use Plant situated at (i) Santaldih, Purulia, West Bengal – 723146; (ii) Mecheda, Medinipur, West Bengal – 721137; (iii) Birbhum, West Bengal – 712503; (iv) Tribeni, Hooghly, West Bengal – 712503; (v) Manigram, Murshidabad, West Bengal – 742237 as more particularly described below (the "End Use Plant")

S. No.	Name of Specified End Use Plant	Address	Configuration	Capacity
1	Santaldih TPS	Santahldih, Purulia, West Bengal- 723146	2 x 250 MW	500 MW
2	Kolaghat TPS	Mecheda, Medinipur, West Bengal- 721137	6 X 210 MW	1260 MW
3	Bakreswar TPP	Birbhum, West Bengal- 712503	5 X 210 MW	1050 MW
4	Bandel PS,	Tribeni, Hooghly, West Bengal- 712503	4 X 60 MW 1 X 210 MW	450 MW
5	Sagardihi TPP Unit 1 & 2	PO-Manigram, Distt.- Murshidabad, West Bengal-*742237*	2 X 300 MW	600 MW
6	Sagardihi TPP Unit 3 & 4	PO-Manigram, Distt.- Murshidabad, West Bengal-*742237*	2 X 500 MW	1000 MW

**MW stands for Mega Watt*

Government of India

Ministry of Coal

O/o the Nominated Authority

World Trade Tower, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Second Ordinance, 2014.

Allotment order under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13

In re: **Barjora (North) Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**

Order no.: 103/7/2015/NA

Date: March 31, 2015

In favour of: **The West Bengal Power Development Corporation Limited** incorporated in India under the Companies Act, 1956 with corporate identity number U40104WB1985SGC039154, whose registered office is at 3/C, LA-Block, Sector-III, Salt Lake, Kolkata, West Bengal - 700098, India (the "Allottee")

For utilisation in: End Use Plant situated at (i) Santaldih, Purulia, West Bengal – 723146; (ii) Mecheda, Medinipur, West Bengal – 721137; (iii) Birbhum, West Bengal – 712503; (iv) Tribeni, Hooghly, West Bengal – 712503; (v) Manigram, Murshidabad, West Bengal – 742237 as more particularly described below (the "End Use Plant")

S. No.	Name of Specified End Use Plant	Address	Configuration	Capacity
1	Santaldih TPS	Santahldih, Purulia, West Bengal- 723146	2 x 250 MW	500 MW
2	Kolaghat TPS	Mecheda, Medinipur, West Bengal- 721137	6 X 210 MW	1260 MW
3	Bakreswar TPP	Birbhum, West Bengal- 712503	5 X 210 MW	1050 MW
4	Bandel PS,	Tribeni, Hooghly, West Bengal- 712503	4 X 60 MW 1 X 210 MW	450 MW
5	Sagardihi TPP Unit 1 & 2	PO-Manigram, Distt.- Murshidabad, West Bengal-742237	2 X 300 MW	600 MW
6	Sagardihi TPP Unit 3 & 4	PO-Manigram, Distt.- Murshidabad, West Bengal-742237	2 X 500 MW	1000 MW

**MW stands for Mega Watt*

Government of India

Ministry of Coal

O/o the Nominated Authority

World Trade Tower, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Second Ordinance, 2014.

Allotment order under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13

In re: **Gangaramchak & Gangaramchak- Bhadulia Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**

Order no.: 103/8/2015/NA

Date: March 31, 2015

In favour of: **The West Bengal Power Development Corporation Limited** incorporated in India under the Companies Act, 1956 with corporate identity number U40104WB1985SGC039154, whose registered office is at 3/C, LA-Block, Sector-III, Salt Lake, Kolkata, West Bengal - 700098, India (the "Allottee")

For utilisation in: End Use Plant situated at (i) Santaldih, Purulia, West Bengal – 723146; (ii) Mecheda, Medinipur, West Bengal – 721137; (iii) Birbhum, West Bengal – 712503; (iv) Tribeni, Hooghly, West Bengal – 712503; (v) Manigram, Murshidabad, West Bengal – 742237 as more particularly described below (the "End Use Plant")

S. No.	Name of Specified End Use Plant	Address	Configuration	Capacity
1	Santaldih TPS	Santahldih, Purulia, West Bengal- 723146	2 x 250 MW	500 MW
2	Kolaghat TPS	Mecheda, Medinipur, West Bengal- 721137	6 X 210 MW	1260 MW
3	Bakreswar TPP	Birbhum, West Bengal- 712503	5 X 210 MW	1050 MW
4	Bandel PS,	Tribeni, Hooghly, West Bengal- 712503	4 X 60 MW 1 X 210 MW	450 MW
5	Sagardihi TPP Unit 1 & 2	PO-Manigram, Distt.-Murshidabad, West Bengal-*742237*	2 X 300 MW	600 MW
6	Sagardihi TPP Unit 3 & 4	PO-Manigram, Distt.-Murshidabad, West Bengal-*742237*	2 X 500 MW	1000 MW

**MW stands for Mega Watt*

Government of India

Ministry of Coal

O/o the Nominated Authority

World Trade Tower, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Second Ordinance, 2014.

Allotment order under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13

In re: **Pachhwara North Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**

Order no.: 103/12/2015/NA

Date: March 31, 2015

In favour of: **The West Bengal Power Development Corporation Limited** incorporated in India under the Companies Act, 1956 with corporate identity number U40104WB1985SGC039154, whose registered office is at 3/C, LA-Block, Sector-III, Salt Lake, Kolkata, West Bengal - 700098, India (the "Allottee")

For utilisation in: End Use Plant situated at (i) Santaldih, Purulia, West Bengal – 723146; (ii) Mecheda, Medinipur, West Bengal – 721137; (iii) Birbhum, West Bengal – 712503; (iv) Tribeni, Hooghly, West Bengal – 712503; (v) Manigram, Murshidabad, West Bengal – 742237 as more particularly described below (the "End Use Plant")

S. No.	Name of Specified End Use Plant	Address	Configuration	Capacity
1	Santaldih TPS	Santahldih, Purulia, West Bengal- 723146	2 x 250 MW	500 MW
2	Kolaghat TPS	Mecheda, Medinipur, West Bengal- 721137	6 X 210 MW	1260 MW
3	Bakreswar TPP	Birbhum, West Bengal- 712503	5 X 210 MW	1050 MW
4	Bandel PS,	Tribeni, Hooghly, West Bengal- 712503	4 X 60 MW 1 X 210 MW	450 MW
5	Sagardihi TPP Unit 1 & 2	PO-Manigram, Distt.-Murshidabad, West Bengal-*742237*	2 X 300 MW	600 MW
6	Sagardihi TPP Unit 3 & 4	PO-Manigram, Distt.-Murshidabad, West Bengal-*742237*	2 X 500 MW	1000 MW

**MW stands for Mega Watt*

Government of India

Ministry of Coal

O/o the Nominated Authority

World Trade Tower, New Delhi

Office of the nominated authority constituted under section 6 of the Coal Mines (Special Provisions) Second Ordinance, 2014.

Allotment order under clause (c) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13

In re: **Tara (East) & Tara (West) Coal Mine** (the "mine") particulars of which is specified in **Annexure 1**

Order no.: 103/10/2015/NA

Date: March 31, 2015

In favour of: **The West Bengal Power Development Corporation Limited** incorporated in India under the Companies Act, 1956 with corporate identity number U40104WB1985SGC039154, whose registered office is at 3/C, LA-Block, Sector-III, Salt Lake, Kolkata, West Bengal - 700098, India (the "Allottee")

For utilisation in: End Use Plant situated at (i) Santaldih, Purulia, West Bengal – 723146; (ii) Mecheda, Medinipur, West Bengal – 721137; (iii) Birbhum, West Bengal – 712503; (iv) Tribeni, Hooghly, West Bengal – 712503; (v) Manigram, Murshidabad, West Bengal – 742237 as more particularly described below (the "End Use Plant")

S. No.	Name of Specified End Use Plant	Address	Configuration	Capacity
1	Santaldih TPS	Santahldih, Purulia, West Bengal- 723146	2 x 250 MW	500 MW
2	Kolaghat TPS	Mecheda, Medinipur, West Bengal- 721137	6 X 210 MW	1260 MW
3	Bakreswar TPP	Birbhum, West Bengal-712503	5 X 210 MW	1050 MW
4	Bandel PS,	Tribeni, Hooghly, West Bengal- 712503	4 X 60 MW 1 X 210 MW	450 MW
5	Sagardihi TPP Unit 1 & 2	PO-Manigram, Distt.-Murshidabad, West Bengal-742237	2 X 300 MW	600 MW
6	Sagardihi TPP Unit 3 & 4	PO-Manigram, Distt.-Murshidabad, West Bengal-742237	2 X 500 MW	1000 MW

**MW stands for Mega Watt*

No.CBA1-38011/2/2017-CBA1(FTS : 334295)

भारत सरकार/Government of India

कोयला मंत्रालय/Ministry of Coal

सीबीए-I अनुभाग/CBA-I Section

दिनांक 6th जून, 2018

शास्त्री भवन, नई दिल्ली-110001

To

The Chairman & Managing Director,
The West Bengal Power Development Corporation Ltd.,
"Bidyut Unnayan Bhaban",
3/C, LA-Block, Sector-III,
Bidhannagar, Salt Lake,
KOLKATA - 700098 (West Bengal)

Subject:- Allotment of Deocha-Pachami coal block located in the State of West Bengal to The West Bengal Power Development Corporation Ltd. (the "Block Allocatee") for end use power under Rule 4 of the 'Auction by Competitive Bidding of Coal Mines Rules, 2012' read with the 'Coal Blocks Allocation Rules, 2017'.

Sir,

I am directed to refer to this Ministry's Notice Inviting ApplicationNo.13016/26/2004-CA-I/CA-III(Pt.)(Vol.II) dated 03-10-2016 and to say that the Competent Authority has approved allotment of Deocha-Pachami coal block located in the State of West Bengal to The West Bengal Power Development Corporation Ltd. ['Successful Allottee'] for generation of power as per details indicated below:

Name of Coal Block/ Location	**Resource (as per the regional exploration)**	**Allottee Company**	**End Use Plant Project**
Deocha-Pachami/ West Bengal	2102 Million Tonnes	M/s. The West Bengal Power Development Corporation Ltd. (WBPDCL)	1) **Sagardighi Phasse II (500 x 2 MW)**, P.O. Manigram, P.S. : Sagardighi, Dist: Murshidabad (WB). (2) **Sagardighi Phasse III (660 x 1 MW)**, P.O. Manigram, P.S. : Sagardighi, Dist: Murshidabad (WB) (3) **Santaldih (800 x 2 MW)**, P.O. - Santaldih TPS, Dist. - Purulia (WB) (4) **Bakreswar (660 x 1 MW)**, P.O. Bk T.P.P., Dist - Birbhum. (5) **Pit head of Deocha Pachami Coal Block**/ Durgapur Projects Ltd. (DPL) **(800 x 2 MW)**, Durgapur, Dist. Burdwan (WB)

2. In pursuance of Rule 17(2) of the Coal Blocks Allocation Rules, 2017 (CBA Rules), the remaining procedure and condition under the CBA Rules, 2017 shall be applicable in the instant allotment of Deocha Pachami coal block. Accordingly, the Successful Allottee shall enter into an agreement with the Central Government under Rule-8(1) of the CBA Rules, 2017 wherein the terms and conditions of the allotment shall be specified. Thereafter, upon entering the agreement and providing Performance Bank Guarantee, the Successful Allottee shall be entitled to receive a final allotment order in respect of Deocha Pachami coal block in accordance with Rule-8(5) of the CBA Rules, 2017.

Yours faithfully,

(रिशान रिन्नाथियग)
भारत सरकार के अवर सचिव
दूरभाष सं.- 011-23073936/ई-मेल: rishan.r75@nic.in

Copy to:

1. Secretary, Ministry of Power, Shram Shakti Bhawan, New Delhi.
2. Chief Secretary, Government of West Bengal, Nabanna (13th Floor), 325, Sarat Chatterjee Road, Shibpur, Howrah-711102.
3. Chairman, Coal India Ltd., Coal Bhawan, Premise No-04 MAR, Plot No-AF-III, Action Area-1A, Newtown,Rajarhat,Kolkata-700156
4. Office of the Coal Controller, 1, Council House Street, Kolkata-700 001.
5. Office of the Commissioner, Coal Mines Provident Fund Organization, Police Line, Hirapur, Dhanbad-826001 (Jharkhand).
6. CMD, Central Mine Planning & Design Institute Ltd.(CMPDIL), Kanke Road, Ranchi - 834031, Jharkhand.
7. Director General, Geological Survey of India, 27, J.L. Nehru Road Kolkata-700016
8. CMD, Mineral Exploration Corporation Ltd., Dr. Babasaheb Ambedkar Bhawan, Highland Drive Road, Seminary Hills, Nagpur, Maharashtra 440006.
9. Office of the Nominated Authority
10. CPAM Section
11. CLD Section

N.B. Issue of allotment order i.r.o. Deochapachami Coal block by Ministry of Coal is under process

ANNEXURE-8

VIII. RO certified EC compliance report

Government of India/ भारत सरकार
Ministry of Environment, Forest & Climate Change/ पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Eastern Regional Office/ पूर्वी क्षेत्रीय कार्यालय
A/3, Chandrasekharpur/ ए/३, चन्द्रशेखरपुर
Bhubaneswar - 751 023/ भुवनेश्वर - ७५१ ०२३

सत्यमेव जयते

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No. 102-124/05/EPE

Date: 24.12.2018

To

Dr. S. Kerketta,
Director (S),
Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhawan,
Jorbagh Road, Aliganj,
New Delhi – 110 003.
E-mail: suna1466@rediffmail.com & s.kerketta66@gov.in

Sub: Issuing of Certified Compliance Report in respect of Expansion of Sagardighi Thermal Power Station by addition of 2x500 MW (Unit-3 & 4) at village Manigram, in Sagardighi Block, in Murshidabad Distt., in West Bengal.

Ref: Ministry's EC letter No.
i. J-13011/5/93-IA-II(T) dated 06.10.2004
ii. J-13011/5/93-IA.II (T) dated 04.09.2008 &
iii. J-13011/50/2006-IA.II (T) dated 18.05.2011

The project site was visited by the undersigned on 28.09.2018. During monitoring Shri Kushal Bhowmik, Adv. (Env.), Shri Amar Nath Pal, DGM (IC, O&M), Shri Tushar Kanti Ghosh, DGM (IC, Project), Shri Amitava Choudhury, DGM (Civil), Shri Avijit Nandi, DGM (E&S), Shri Animesh Maiti, Sr.Mgr (E&S), Shri Avijit Masanta, Mgr (PS)(Env.), Shri Rajib Kundu, Safety Officer and other Officials were present. It has been observed that project has been developed in two stages viz., Stage-I for Unit-1&II with 300 MW installed capacity of each and Stage-II for Unit-III&IV with 500 MW installed capacity of each. During the day of monitoring, out of four Units installed, Unit II & III are in operation and Unit I & IV are not in operational. As per Regional Office file records, earlier the project was monitored on dated 01.02.2017 and noticed number of non-compliances which are brought to Project Anuthorities (PAs) notice vide letter dated 24.05.2017. However, no significant improvement has been observed during the day of present monitoring. The PAs have complied or are in process of complying the conditions (conditions wise compliance report enclosed) stipulated by the Ministry. In this context, information/action plans have been sought on following points.

1. It has been found that PAs are constructing residential colony behind the factory premises which seems to be more than 20000 sq m built up area. It has been informed that, more than 50 no.s of G+2 buildings and 01 no Officers club are under construction. In this regard, Regional Office vide letter dated 24.05.2017 has been communicated to project authorities (PAs) for details of the construction. However, no information has been received so far. It is again requested to provide detailed information regarding lay out along with the total constructed area (built up area) along with copy of consent to established (CTE) issued by WBPCB, to this Regional Office. It requires immediate action.

(श्री सुरेश बाबू पासुपुलेती)
(SH. SURESH BABU PASUPULETI)
उप निदेशक "वैठ"/Deputy Director (S)
भारत सरकार/Govt. of India
पर्यावरण वन एवं ज.प. मंत्रालय/Min. of Env. Forest & CC
पूर्वी क्षेत्रीय कार्यालय/Eastern Regional Office
भुवनेश्वर/Bhubaneswar- 751023

i. J-13011/5/93-IA-II(T) dated 06.10.2004
ii. J-13011/5/93-IA.II (T) dated 04.09.2008 &
iii. J-13011/50/2006-IA.II (T) dated 18.05.2011

2. It has been observed that PAs are using red bricks (conventional bricks) for above said construction. It is required to utilize fly ash and ash brick for any construction related to project. It requires immediate action.

3. It has been observed that ETP was not installed for the project and wastewater after settling pond (guard pond) is being discharged (around 13.53 m^3/hr) outside of the plant premises, which finally merge into natural drain. It is required to install ETP for treatment of wastewater generated from the plant and the treated water to be recycled. No discharge of wastewater be done outside the plant boundary/natural drain and all the waste water should be recycled and reused in the plant. It requires immediate action.

4. It has been observed that PAs do not have concrete arrangement to avoid mixing of storm and effluent water.

5. As per advisory regarding implementation of notification no. G.S.R.02 (E) dated 02.01.2014 and Ministry's OM dated 26.08.2015, it is required to conduct the coal analysis for ash and Sulphur content by NABL/MoEFCC accredited laboratory and the analysis reports to be submitted on quarterly basis. It requires immediate action.

6. It has been observed that the Particulate Matter Sensor for Unit-II is not working during the day of monitoring. The sensor needs to be serviced at the earliest.

7. It has been observed that SO_2 emissions of all Units were exceeded the prescribed limits of 600 mg/Nm^3 for Unit-I&II and 200 mg/Nm^3 for Unit-III&IV. It is required to take corrective measures to control the emissions of SO_2 at the earliest.

8. It has been informed that about 6147821 MT (50%) of generated ash was stored in the ash pond. It has been observed that PAs are not submitting the annual fly ash generation and utilization reports to the Regional Office, Bhubaneswar. It is required to achieve 100% utilization of generated fly ash and details regarding the annual ash generated and utilization reports to Regional Office, Bhubaneswar.

9. It has been observed that PAs have not conducting the mercury and other heavy metals (As, Hg, Cr, Pb, etc) in the bottom ash. It has been noticed that the management of fly ash dyke is not appropriate. The possibility of the weathered fly ash dispersion is prominent. Therefore, it is requested for controlling of fugitive emissions, water sprinkling and other alternative may extensively be used. The detailed ash utilization report to be submitted.

10. It is required to install sewage treatment plant (STP) for treatment of domestic wastewater and the treated sewage shall be used for raising greenbelt/plantation.

11. It has also been noticed that PAs are using fresh water for the controlling of fugitive emission in the CHP area and internal roads. It is required to recycle the water from guard pond and the recycle water to be utilized for dust suppression purpose.

12. It has been observed that PAs have constructed rooftop rain water harvesting system with capacity of 85 m^3 at GM building. It has been informed that ground water recharging is not permitted in the Industrial area by West Bengal Pollution Control Board. However, PAs have not consulted Central Groundwater Authority/Board for finalization of appropriate water harvesting technology within a period of three months from the date of clearance and till date. PAs have also not consulted concerned authority regarding exemption of ground water recharge.

(श्री सुरेश बाबू पासूपुलेती)
(SH. SURESH BABU PASUPULETI)
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भारत सरकार/Govt. of India
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पूर्वी क्षेत्रीय कार्यालय/Eastern Regional Office
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ii. J-13011/5/93-IA.II (T) dated 04.09.2008 &
iii. J-13011/50/2006-IA.II (T) dated 18.05.2011

13. It has been observed that PAs are not regularly submitting the Noise level monitoring reports to Regional Office, Bhubaneswar. Workers are working without proper PPEs and earplugs in the high noise areas i.e., turbine floor area. It is required to ensure that the workers working in the high noise area should wear appropriate PPEs. It requires immediate action.

14. It has been found that PAs are in process to develop the green belt in and around the plant area. They have not yet developed the 50 m green belt along the plant boundary. Overall, level of plantation conducted is not satisfactorily. Detailed time bound action plan is required and executed with utmost dedication for achieving its satisfactory level.

15. As per the AAQ monitoring results, it has been observed that the 24 hr and annual values of PM_{10} levels on various locations are found above the permissible limit of 100 and 60 $\mu g/m^3$. However, other parameters are within the permissible limit. Therefore, it is required to take appropriate action to control the PM_{10} value especially at pump house and intake locations. It is required to increase the running frequency of the water sprinkler on the road for minimization of dust.

16. It has been observed that the Mercury (Hg) is not being analyzed at AAQ monitoring stations. It requires to include Hg analysis at each AAQ station and reports to be submitted along with six monthly compliance report on regular basis.

17. It has been found that PAs are not conducting regular water sprinkling in the dust prone area for the controlling of fugitive emissions. Therefore, it is required to take immediate measure to minimize the fugitive dust emission in and around the dust prone area (coal dumping yard, internal roads, CHP area, workshop, etc.).

18. It has been informed that the reply to Chapter 6 of the REIA report already submitted in status of compliance of Environment clearances, which has already forwarded vide Memo no. Dir (P)/1815 dated. 24.04.18. However, as per Regional Office records, the said letter was not submitted. It is required to submit the detailed compliance status of all other mitigative measures as enumerated in Chapter 6 of the REIA report.

19. It is required to provide the year-wise expenditure incurred for implementation of environmental protection measures along with item-wise break-up on regular basis.

20. It has been observed that PAs have not taken appropriate safeguard measures for controlling of fire in and near the coal yard. No onsite DMP plan has been submitted to this Regional Office. It is required to take adequate safety measures in the coal yard to check/minimize spontaneous fires, especially during summer season. Copy of these measures with full details along with location plan layout to be submitted to the Ministry as well as to the Regional Office. It requires immediate action.

21. it is required to submit the Vision document specifying prospective plan for the site to Regional Office, Bhubaneswar for records.

22. It has been informed that, IIEST (formerly known as BESUS) was awarded with Detailed Hydro geological study to access the sustainability of water resources for SGTPP. However, detailed hydro-geological study (including sustainability of water source study especially during lean season) report and annual progressive details were not being submitted to Regional Office, Bhubaneswar.

23. Further, hydro-geological study to be reviewed annually from an institute/organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case any deterioration is observed specific mitigation measures to be undertaken and reports/data of water quality monitored regularly and maintained to be submitted to Regional Office, Bhubaneswar. It requires immediate action.

24. It is required to consult the competent authority of the State Government regarding suggestions/directions for minimum required environmental flow to be maintained in the Bhagirathi river even in lean season. It requires immediate action.

(श्री सुरेश बाबू पासूपुलेती)
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i. J-13011/5/93-IA-II(T) dated 06.10.2004
ii. J-13011/5/93-IA.II (T) dated 04.09.2008 &
iii. J-13011/50/2006-IA.II (T) dated 18.05.2011

25. it has been observed that, dust extraction system such as water spray system was not installed at coal storage yards, ash silos and ash pond areas. PAs are not conducting regular water sprinkling in the dust prone areas for the controlling of fugitive emissions. Therefore, it is requested to take immediate measure to minimize the fugitive dust emission in and around the dust prone area (coal dumping yard, CHP area, workshop, etc).

26. It has been informed that Officials of SgTPP along with Block Development Officer & other local authorities visited Nalhati Stone Mines for exploring possibility of pond ash disposal to the mines. Disposal could not commence till date, due to local intervention. However, for disposal of bottom ash in abandoned mines, it shall be ensured that the bottom and sides of the mined-out areas are adequately lined with clay before bottom ash is filled up. It is also required to take prior permission from the State Pollution Control Board well in advance before undertaking the activity.

27. It is required to provide the details regarding the amount earmarked for capital cost and recurring expenditure towards CSR programme along with year wise details of the activities being undertaken including item wise expenditure incurred for last three years.

28. It is required to provide the details regarding the study report of need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training, etc. can form a part of such programme. Details regarding the provision of separate budget for community development activities and income generating programmes also to be provided. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.

29. It has been observed that PAs have not complied the condition so far. It is required to develop in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time. It requires immediate action.

30. It has been informed that PAs are submitting Environmental Statement of each financial year in Form V to WBPCB. However, the same is not being submitted to Regional Office, Bhubaneswar by e-mail.

31. It has been observed that PAs are displaying the critical pollutant levels at inside the plant. It is required to replace the display board and be displayed at the main gate of the power plant.

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WBPDCL
(A Government of West Bengal Enterprise)

Indranil Dutta
Director (Projects)

Memo no. WBPDCL/Dir(P)/1915 Date:- 24.04.2019

Dr. S. Kerketta,
Director, IA.I,
Ministry of Environment, Forest & Climate Change,
Govt. of India,
3rd Floor, Vayu Block,
Indira Paryavaran Bhawan,
Jor Bagh Road,
Aliganj, New Delhi-110003

Sub:-**Proposed 1 X 660 Mw (Phase-III & Unit 5) Supercritical unit, Sagardighi Thermal Power Project**

Sir,

We write in reference to your letter no. J-13012/01/2019-IA-I(T) dated 26.03.19, wherein our proposal for issuance of TOR for the above unit was granted by the Ministry. In reference to item no. ix of the prescribed conditions in the TOR, we enclose herewith, information/action plans, regarding observations of Sri Suresh Babu, Dy. Director (S), Eastern Regional Office, MoEF&CC, Bhubhaneshwar (vide his letter dated 24.12.18), during his visit to the plant on 28.09.18.
The annexures pertaining to our remarks are also attached for your kind perusal.

Thanking you,

Yours faithfully,
Sd/-
Indranil Dutta
Director (Projects)

Enclo:- As above
Memo no. WBPDCL/Dir(P)/ Date:-
Copy to:-
1. The General Manager, SgTPP
2. The Advisor (Environment), WBPDCL.
3. Office copy

Indranil Dutta
Director (Projects)

The West Bengal Power Development Corporation Limited
Bidyut Unnayan Bhaban, 3/C, Block - LA, Sector III, Bidhannagar, Kolkata - 700 098
Phone : +91 33 2339 3203/2335 0596, Mobile : 8336904085, E-mail : i.dutta@wbpdcl.co.in

Sl. no	Observations of MoEF & CC	Remarks
1	It has been observed that PAs are constructing residential colony behind the factory premises which seems to be more than 20000 sq m built up area. It has been informed that more than 50 nos of G+2 buildings and 01 no. Officers club are under construction. In this regard Regional Office vide letter dated 24.05.2017 has been communicated to project authorities (PAs) for details of the construction. However, no information has been received so far. It is again requested to provide detailed information regarding layout along with the total constructed area (built up area) along with copy of consent to established (CTE) issued by WBPCB, to this Regional Office. It requires immediate action.	Consent to Establish was not obtained for the township when it was conceived in 2005. However Consent to operate was issued by WBPCB.(Copy Enclosed: **Annexure-I**)
2	It has been observed that PAs are using red bricks (conventional bricks) for above said construction. It is required to utilize fly ash and ash brick for any construction related to project. It requires immediate action.	Fly ash bricks are also being profusely used in construction activities at SgTPP and other power stations of WBPDCL. An order, dtd 13.09.2017 regarding the mandatory use of the ash bricks at the Power Stations of WBPDCL (**Annexure-II**) was issued by the Director (Projects and Planning), WBPDCL. As mentioned in the Order, feedbacks regarding the usage from the stations are monitored at the highest level. The enclosed database (**Annexure-III**) indicates that fly ash bricks are being widely used at SgTPP and its Township. The usage will further increase in near future as two (02) nos. semi-automatic Brick Manufacturing machines shall be installed shortly. The machines have arrived at the plant. Installation would commence soon.

3	It has been observed that ETP was not installed for the project and wastewater after settling pond (guard pond) is being discharged (around 13.53 m^3/hr) outside of the plant premises, which finally merge into natural drain. It is required to install ETP for treatment of wastewater generated from the plant and the treated water to be recycled. No discharge of wastewater is done outside the plant boundary/natural drain and all the waste water should be recycled and reused in the plant. It requires immediate action.	Construction of ETP for Stage II is completed .(Unit#3 &4) (Block Diagrams as **Annexure-IV ,IV(i) & IV(ii)** & Photographs as **Annexure-IV(iii),IV(iv),IV(v), IV(vi),IV(vii)& IV(viii)** are attached). Commissioning is underway. Existing Guard Pond Effluent recycling job is under progress. Recycling of process effluent from the existing Guard Pond outlet has been taken up. (Photographs of the ongoing executions attached as **Annexure-IV A**). The recycled water will be utilized as Ash Slurry make up, CHP dust suppression, sprinkling and road cleaning work at different areas of plant. Ash Water is being recovered from the Ash Pond on daily basis through Existing **Ash Water Recovery System** (Recovered quantity details is attached herewith **Annexure-V**).Construction of another Ash Water Recovery System has commenced. Excavation for construction of an Ash Water Lagoon as a part of the system is under way.(Order Copy as **Annexure-VA** & photograph as **Annexure-VB** are attached.)
4	It has been observed that Pas do not have concrete arrangement to avoid mixing of storm and effluent water.	Though storm water and the plant's effluent do not have separate discharge paths, the quality of discharged water at the guard pond outlet during monsoon and the rest of the year have seen so maintained that the prescribed parameters are found to be always below limits. Part of the storm water will also be collected in the new pond, which is being constructed for process effluent recirculation(ref.**Annexure-IVA).**
5	As per advisory regarding implementation of notification no. G.S.R.02 (E) dated 02.01.2014 and Ministry's OM dated 26.08.2015, it is required to conduct the coal analysis for ash and Sulphur content by NABL/MoEFCC accredited laboratory and the analysis reports to be submitted on quarterly basis. It requires immediate action.	As per the Notification No.G.S.R 02(E) dated 02.01.2014, the ash % of the monthly coal consumed is being submitted with the half yearly compliance status reports. However regarding sulphur % in the coal, reports as sought by the Dy.Director (S) shall be submitted henceforth. Report for the month of February is attached (**Annexure- V C**)

6	It has been observed that the Particulate Matter Sensor for Unit-II is not working during the day of monitoring. The sensor needs to be serviced at the earliest.	Though on 28.09.2018 the emission monitor of Unit-II was not functioning the instrument was repaired and put back in commission at 18:00 hrs on 04.10.2018, the fact can be substantiated from the Historical data available at the CPCB's portal wherein real time data are transmitted. The monitor is working all right since then.
7	It has been observed that SO, emissions of all Units were exceeded the prescribed limits of 600 mg/Nm^3 for Unit-I & II and 200 mg/Nm^3} for Unit-III & IV. It is required to take corrective measures to control the emissions of SO, at the earliest.	Since as of now there is no control mechanism for arresting the Sulphur dioxide content in the flue gas, the oxidation of sulphur content in coal which is around 0.4%, results in release of SO2 through the stack which is more than the proposed limits. The limits which are not yet prescribed shall be in force the phases from Dec'2020 to March'2022 for the 4 units as intimated by the chairman, CPCB by his letter dtd 11.12.17. Accordingly installation of wet limestone based FGDs has been taken up. Feasibility study is done by M/s GE Power. Tender specifications for material handling, dewatering system & ETP for 4 units and Absorbers for Units # 3 & 4 completed. NIT floated for Units # 3 & 4 and common systems. Orders to be placed by end June. Specifications for Units 1 & 2 are being prepared.
8	It has been informed that about 6147821 MT (50%) of generated ash was stored in the ash pond. It has been observed that PAs are not submitting the annual fly ash generation and utilization reports to the Regional Office, Bhubaneswar. It is required to achieve 100% utilization of generated fly ash and details regarding the annual ash generated and utilization reports to Regional Office, Bhubaneswar.	Station's ash utilization including Pond Ash utilization in 2018-19 till February'2019 is 98.11 %. Total dry and wet ash evacuated in this fiscal till December was around 10.75 lakh tonnes. Order has been placed on an experienced entrepreneur to install Bagging Units below the silos, along with the railway infrastructure inside the plant, to evacuate dry ash in bags for utilization in cement plants. (Order copy attached as **Annexure VI**). Erection commenced. The Annual Ash Utilization reports are being submitted to the regional office, Bhubaneswar, copies of which are attached for perusal (**Annexure VII**).
9	It has been observed that PAs have not conducting the mercury and other heavy metals (As, Hg, CE, Pb, etc) in the bottom ash. It has been noticed that the	The tests are carried out on the Pond Ash (Whole of Bottom Ash goes to the pond). (Copies are enclosed for kind perusal: **Annexure VIII**). Fugitive emissions are controlled by

	management of fly ash dyke is not appropriate. The possibility of the weathered fly ash dispersion is prominent. Therefore, it is requested for controlling of fugitive emissions, water sprinkling and other alternative may extensively be used. The detailed ash utilization report to be submitted.	water spraying carried out from time to time specially during dry seasons. Plantation around the periphery of the pond is also planned. The detail ash utilization report for the financial year 18-19 is enclosed (**Annexure IX**).
10	It is required to install sewage treatment plant (STP) for treatment of domestic wastewater and the treated sewage shall be used for raising greenbelt/plantation.	Proposal is placed for construction of STP. Presently domestic waste water is drained out after storing at soak pit and passing through chlorination chamber.
11	It has also been noticed that PAs are using fresh water for the controlling of fugitive emission in the CHP area and internal roads. It is required to recycle the water from guard pond and the recycle water to be utilized for dust suppression purpose.	As informed above re-cycling of guard pond effluent has been taken up for re-using the water in dust suppression to reduce fugitive emission.
12	It has been observed that PAs have constructed rooftop rain water harvesting system with capacity of 85 m^3 at GM building. It has been informed that ground water recharging is not permitted in the Industrial area by West Bengal Pollution Control Board. However, PAs have not consulted Central Groundwater Authority/Board for finalization of appropriate water harvesting technology within a period of three months from the date of clearance and till date. PAs have also not consulted concerned authority regarding exemption of ground water recharge.	Apart from erecting a rooftop rain water harvesting system of capacity 85 m3 near the GM Building, two other such systems have been installed near DM plant of capacity 85m3 and Stage II Power house of capacity 500m3 adding up to a total capacity 670 m3. Since ground water recharging is not permitted in Industrial areas by WBPCB (ref. the annexed report available in WBPCB's website attached in **Annexure X**), rooftop harvesting was taken up. In the EC issued to Bandel Thermal Power Station for R&M and capacity augmentation of the 5^{th} Unit, it is clearly mentioned under specific condition xiv, that "Adequate provision should be made for harvesting rain water. The unit may develop water body of adequate capacity to harvest rain water. The harvested rain water should be used for plantation, fire

		fighting, washing and cleaning etc. Recharging of ground water is not permitted. (attached **Annexure XI**)
13	It has been observed that PAs are not regularly submitting the Noise level monitoring reports to Regional Office, Bhubaneswar. Workers are working without proper PPEs and earplugs in the high noise areas i.e. turbine floor area.It is required to ensure that the workers working in the high noise area should wear appropriate PPEs. It requires immediate action.	Noise Level is monitored twice in a year in noise prone locations inside the plant. (Reports are attached hereby as **Annexure XII**) Generally workers are using PPEs. However Instructions have been given for following the norms strictly. Special drive has been initiated by the Safety department to ensure that proper usage of PPEs by all, especially at high noise and dust prone areas.
14	It has been found that PAs are in process to develop the greenbelt in and around the plant area. They have not yet developed the 50 m green belt along the plant boundary. Overall, level of plantation conducted is not satisfactorily. Detailed time bound action plan is required and executed with utmost dedication for achieving its satisfactory level.	Plantation is an ongoing process and is progressively carried out every year. Approximately 10000 saplings planted in 2017-18. During Mass Plantation Week (2018-19) 1000 nos saplings have been planted. In upcoming years such type of plantation is planned to be continued. Earmarked Green Belt Area in Plant Layout is attached herewith (**Annexure XIII).**
15	As per the AAQ monitoring results it has been observed that the 24 hr and annual values of PM_{10} levels on various locations are found above the permissible limits of 100 and 60 $\mu g/m^3$. However, the other parameters are within permissible limit. Therefore it is required to take appropriate action to control the PM_{10} value especially at the Pump house and intake locations. It is required to increase the running frequency of the water sprinkler on the road for minimization of dust.	As advised frequency of running the water sprinklers on the roads and dust prone areas have increased and Sprinklers have been installed at the coal Handling Plants and are operated regularly. (Photographs attached as Annexure-XIV A.)
16	It has been observed that the mercury (Hg) is not being analyzed at AAQ monitoring stations. It	Mercury being not one of the prescribed parameters of National Ambient Air Quality Standards was not considered for measurement. Coal being source of Hg was

	requires including Hg analysis at each of AAQ station and reports to be submitted along with six monthly compliance report on regular basis.	tested for heavy metals including mercury. The reports revealed that presence of Hg is well below the limit.(Report enclosed **Annexure-XIV**)
17	It has been found that PAs are not conducting regular water sprinkling in the dust prone area for the controlling of fugitive emissions. Therefore, it is required to take immediate measure to minimize the fugitive dust emission in and around the dust prone area (coal dumping area, internal roads, CHP area, workshop etc.)	Frequency of Water sprinkling, in and around dust prone areas, is increased post monsoon as is done every year. Water Sprinklers installed around the periphery of the coal storage yard (Photographs attached as Annexure-XIV A.)
18	It has been informed that reply to Chapter 6 of the report already submitted in status of compliance of Environmental clearances, which has already forwarded vide Memo no.Dir(P)/1815 dated 24.04.18. However, as per Regional Office records, the said letter was not submitted. It is required to submit the detailed compliance status of all other mitigative measures as enumerated in Chapter 6 of the REIA report.	A copy of the said Memo No. Dir (P)/1815, dtd 24.04.2018 which was sent to MOEFCC, Bhubaneswar with relevant enclosure, one of which being mitigation measure adopted as per Chapter-6 of Rapid EIA done. The report is annexed (**Annexure-XV**)
19	It is required to provide the year-wise expenditure incurred for implementation of environmental protection measures along with item-wise break-up on regular basis.	Approximate Expenditure for Environmental Protection Purpose for the year 2017-18 is attached as **Annexure-XVI**
20	It has been observed that PAs have not taken appropriate safeguard measures for controlling of fire in and near the coal yard. No onsite DMP plan has been submitted to this Regional Office. It is required to take adequate safety	A copy of DMP was submitted to the regional office, as annexure-N along with the status of compliance for the period from April'17 to Sep'17. The document has been uploaded in the Company's website.(Copy attached as **Annexure XVII**) Fire hydrant system, with necessary

	measures in the coal yard to check/minimize spontaneous fires, especially during summer season. Copy of these measures with full details along with location plan layout to be submitted to the Ministry as well as to the Regional Office. It requires immediate action.	alarm systems, piping, with required number of hydrant points, hose boxes, pump, auxiliary pump to operate, auxiliary power generator/backup are installed as per IS standards. Spray systems are also installed for Oil tanks, transformers etc. Sg.T.P.P is equipped with three fire tenders. These crash fire tenders are capable of extinguishing fire in running condition. They can project water/foam jet at a distance of 55 metre, rotating the nozzle at an angle 270 degree in any direction and move through fire using the front spray system
21	It is required to submit the Vision document specifying prospective plan for the site to Regional Office, Bhubaneswar for records.	Environment Management Plan is attached herewith as **Annexure XVIII**
22	It has been informed that, IIEST (formerly known as BESUS) was awarded with Detailed Hydrological study to access the sustainability of water resources for SGTPP. However, detailed hydrological study (including sustainability of water source study especially during lean season) report and annual progressive details were not being submitted to Regional Office, Bhubaneswar.	The Project study is nearing completion. Comprehensive report consisting pre, post and lean season work is enclosed. Aquifer performance test report is enclosed hereby.(**Annexure XIX and XIX contd**)
23	Further, hydro-geological study to be reviewed annually from an institute/organization of repute to assess impact of surface water and ground regime(specially around ash dyke). In case any deterioration observed specific mitigation measures to be undertaken and reports/data of water quality monitored regularly and maintained to be submitted to Regional Office, Bhubaneswar.	After completion of project study review work shall be taken up.

24	It is required to consult the competent authority of the State Government regarding suggestions/directions for minimum required environmental flow to be maintained in the Bhagirathi river even in lean season. It requires immediate action.	Government of West Bengal Irrigation and Waterways department has given their consent of drawal of 60 cusec of water /day vide letter no. 41/(3)/1-I dated 02.09.2009.(attached as **Annexure XX)**. The EC of Phase I and Phase II units had stipulated for drawing of 52698m3/day and 79,680m3/day respectively which adds up to 1,32,648m3/day. Quantity of water consumed is always less than the prescribed amount, which may ensure that environmental flow in the Bhagirathi River is not disturbed due to the quantity of water consumed at SgTPP since inception of the Plant, i.e 2008.No such issues related to disturbance of environmental flow, due to water consumption at SgTPP, has been raised by any Government statutory authority. The concerned department of the State Government is now being consulted as advised by Dy. Director (S).
25	It has been observed that, dust extraction system such as water spray system was not installed at coal storage yards, ash silos and ash pond areas. PAs are not conducting regular water sprinkling in the dust prone areas for the controlling of fugitive emissions. Therefore, it is requested to take immediate measure to minimize the fugitive dust emission in and around the dust prone area (coal dumping yard, CHP area, workshop, etc).	Sprinklers have been installed at the Coal storage yards. (ref. Sl. No. 15 above). DE system is installed in Crusher House and Bunker and DS system are installed in Track Hopper and Crusher House. Permanent Sprinkling system in the dust prone areas like coal dumping yard, CHP area, workshop, etc are installed .However to reduce fugitive emission at the dust prone areas, running frequency of the Mobile sprinklers have been increased.
26	It has been informed that Officials of SgTPP along with Block Development Officer & other local authorities visited Nalhati Stone Mines for exploring possibility of pond ash disposal to the mines. Disposal could not commence till date, due to local intervention. However, for disposal of bottom ash in abandoned mines, it shall be ensured that the	Noted.

	bottom and sides of the mined-out areas are adequately lined with clay before bottom ash is filled up. It is also required to take prior permission from the State Pollution Control Board well in advance before undertaking the activity.	
27	It is required to provide the details regarding the amount earmarked for capital cost and recurring expenditure towards CSR programme along with year wise details of the activities being undertaken including item wise expenditure incurred for last three years.	**WBPDCL has a CSR policy** & the **socio-economic development** of the local community & society at large is the key component of CSR policy of WBPDCL and WBPDCL is committed to ensure a balanced & harmonious socio-economic development of the local community. As per the CSR policy of WBPDCL, the aims & objectives of the policy is mainly improving socio-economic status of the beneficiaries, providing opportunities for sustainable improvement in the fields of income-generation, water& electricity, sanitation, communication and such other fields and also to adopt a holistic approach to community development of project-associated areas. The CSR interventions of SgTPP and the focused areas along with year wise activities for **last 3 years** being undertaken is enumerated hereunder in detail in following three broad categories: 1) Education institute, 2) Social Infrastructure, 3) Economic Infrastructure. Copy attached as **Annexure XXI**
28	It is required to provide the details regarding the study report of need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training, etc. can form a part of such programme. Details regarding the provision of separate budget for community development activities and income generating programmes also to	Impact Assessment Study of CSR initiatives undertaken by SgTPP done by M/s Webcon Consultancy (I) Ltd and report is attached as **Annexure XXII.** From the Impact assessment Study, it has been observed that SgTPP CSR initiatives were very beneficial for the overall socio-economic development of the project-affected areas and across **02 blocks viz. Sagardighi & Raghunathganj–I Development blocks of Murshidabad District**.

	be provided. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.	
29	It has been observed that PAs have not complied the condition so far. It is required to develop in- built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time. It requires immediate action.	SgTPP has also extended financial support for fly-ash brick manufacturing units. Over the years, the use of fly-ash bricks has increased & fly-ash brick manufacturing units are coming up near the vicinity of thermal power generation Units. Taking these factors into consideration, the initiative by SgTPP to setup a fly-ash brick manufacturing training centre at Sargachi Ramkrishna mission is of prime importance in aligning itself to the Skill India Mission. Potential entrepreneurs are being trained regularly to impart the requisite skills needed to setup such units which would actually lead to **socio-economic development of the country**. For extending financial support, WBPDCL authority has extended financial assistance of **Rs. 17 lakhs t**o Ramakrishna Mission Ashrama of Sargachi for execution of the said project setting up training centre for Fly-ash brick making process. **The training imparted at the said training centre by the beneficiary to setup their own fly-ash bricks manufacturing units, which in turn can provide livelihood generation for many**. SgTPP authority has also in the endeavor to look for improvement as per need-assessment in the following types of development: School Infrastructure Development, Fly ash training centre, General development of the Society. After careful examination of the needs of the community, the CSR fund is being allocated. SgTPP also supply free fly ash to the brick manufacturer units in nearby vicinity.
30	It has been informed that PAs are submitting Environmental Statement of each financial year in Form V to WBPCB. However, the same is not being	Submitting regularly to WBPCB. Will submit to regional office Bhubaneswar further. (Copy attached As **Annexure XXIII**)

	submitted to Regional Office, Bhubaneswar by e- mail.	
31	It has been observed that PAs are displaying the critical pollutant levels at inside the plant. It is required to replace the display board and be displayed at the main gate of the power plant.	As advised the pollutant levels are displayed at the Main Gate.

N.B. Annexures of the above are being sent through e-mail as the size is large

ANNEXURE-9

9.0 JUSTIFICATION ON PARTICULATE MATTER 10 (PM10) IN THE AMBIENT AIR QUALITY EXCEEDING NATIONAL STANDARD

Summary of Monitored AAQ Data

AAQ was monitored in and around the site during January 2019 to March 2019. Summary of the Ambient Air Quality data has been furnished below:

POLLUTANT	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	CO
Max Value	87.48	37.49	18.75	36.58	35.47	0.0988
Min Value	55.39	21.64	10.75	26.37	32.98	0.0305
Average	69.89	27.38	12.58	29.08	34.15	0.0471

Note : All the data are 24 hourly values in $\mu g/m^3$ except for CO which is 8 hourly values. All the data are in $\mu g/m^3$ except for Hg which is in mg/m^3. Moreover, all the values of Hg are ND.

Observations on PM10 and PM2.5 Data

Particulate Matter (PM_{10})

The maximum value of PM_{10} is 87.48 $\mu g/m^3$ and the average value of PM_{10} is 69.89 $\mu g/m^3$. All the values of PM_{10} are below the limit set for Industrial, Residential, Rural and Other areas (100 $\mu g/m^3$).

Respirable Particulate Matter ($PM_{2.5}$)

The maximum value of $PM_{2.5}$ is 37.49 $\mu g/m^3$ and the average value of $PM_{2.5}$ is 27.38 $\mu g/m^3$. All the values of $PM_{2.5}$ are well below the limit set for Industrial, Residential, Rural and Other areas (60 $\mu g/m^3$).

ANNEXURE-10

10.0 DISPERSION MODELLING FOR DIFFERENT SCENARIOS

10.1 Scenario 1 : Weather Class- E / F (Winter Season), Stack Height 150 m

MAXIMUM PREDICTED RESULTANT GLC

(ALL CONC. ARE IN 24 HR. AVERAGE BASIS IN **µg/m^3**)

Pollutant	Background Maximum Concentration	Maximum predicted Increase in GLC	Maximum resultant GLC	Distance and Direction of Max GLC
PM_{10}	87.48	7.60	95.08	7.1 km
SO_2	18.75	24.02	42.77	5.7 km
NOx	36.58	17.39	53.97	5.7 km

10.2 Scenario 2 : Weather Class- A (Summer Season), Stack Height 150 m

MAXIMUM PREDICTED RESULTANT GLC

(ALL CONC. ARE IN 24 HR. AVERAGE BASIS IN **µg/m^3**)

Pollutant	Background Maximum Concentration	Maximum predicted Increase in GLC	Maximum resultant GLC	Distance and Direction of Max GLC
PM_{10}	87.48	12.78	100.26	3.6 km
SO_2	18.75	39.04	57.79	3.6 km
NOx	36.58	29.37	65.95	3.6 km

10.3 Scenario 3 : Weather Class- D (Winter Season), Stack Height 150 m

MAXIMUM PREDICTED RESULTANT GLC

(ALL CONC. ARE IN 24 HR. AVERAGE BASIS IN **µg/m^3**)

Pollutant	Background Maximum Concentration	Maximum predicted Increase in GLC	Maximum resultant GLC	Distance and Direction of Max GLC
PM_{10}	87.48	5.87	93.35	9.9 km
SO_2	18.75	18.04	36.79	8..5 km
NOx	36.58	13.27	49.85	8.5 km

10.4 Scenario 4 : Weather Class- E / F (Winter Season), Stack Height 275 m

MAXIMUM PREDICTED RESULTANT GLC

(ALL CONC. ARE IN 24 HR. AVERAGE BASIS IN **µg/m^3**)

Pollutant	Background Maximum Concentration	Maximum predicted Increase in GLC	Maximum resultant GLC	Distance and Direction of Max GLC
PM_{10}	87.48	6.91	94.39	7.1 km
SO_2	18.75	20.48	39.23	7.1 km
NOx	36.58	14.74	51.32	7.1 km

10.5 Scenario 5 : Weather Class- A (Summer Season), Stack Height 275 m

MAXIMUM PREDICTED RESULTANT GLC

(ALL CONC. ARE IN 24 HR. AVERAGE BASIS IN **µg/m^3**)

Pollutant	Background Maximum Concentration	Maximum predicted Increase in GLC	Maximum resultant GLC	Distance and Direction of Max GLC
PM_{10}	87.48	11.87	99.35	4.5 km
SO_2	18.75	34.86	53.61	3.6 km
NOx	36.58	25.85	62.43	4.5 km

10.5 Scenario 6 : Weather Class- D (Winter Season), Stack Height 275 m

MAXIMUM PREDICTED RESULTANT GLC

(ALL CONC. ARE IN 24 HR. AVERAGE BASIS IN **µg/m^3**)

Pollutant	Background Maximum Concentration	Maximum predicted Increase in GLC	Maximum resultant GLC	Distance and Direction of Max GLC
PM_{10}	87.48	5.37	92.85	9.9 km
SO_2	18.75	16.01	34.76	9.9 km
NOx	36.58	11.58	48.16	9.9 km

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ANNEXURE-11

11.0 INPUT PARAMETERS FOR DISPERSION MODELLING

METROLOGICAL PARAMETERS

Hourly Wind direction	Recorded for three month with appropriate measuring and monitoring instrument at site
Hourly Wind speed	
Hourly Dry bulb Temperature	
Cloud cover	A value in between 1/8 to 4/8 is assumed for the three consecutive months, as applicable for the particular scenario considered
Cloud Ceiling Height	For the whole period a constant value of 3000 m has been used

STACK PARAMETERS

Description	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Stack / Flue Height (m)	275	275	275	275	150 Or 275 (as the case may be)
Flue Exit Diameter (m)	5.1	5.1	6.3	6.3	7.18
Exit Velocity of Flue Gas (m/s)	22	22	22	22	22
Temperature of Flue Gas at Stack Outlet (^{0} C)	140	140	140	140	140
SO_2 Concentration (mg/Nm^3)	600	600	200	200	100
Mass of SO_2 (g/s)	211.86	211.86	104.70	104.70	58.86
NO_X Concentration (mg/Nm^3)	300	300	300	300	100
s of NOx (g/s)	105.93	105.93	157.05	157.05	58.86
Concentration (mg/Nm^3)	50	50	50	50	30
s of PM (g/s)	17.66	17.66	26.18	26.18	17.66
rdinates of Stack (Latitude - Degree)	24.367248	24.367248	24.369291	24.369291	24.376389
rdinates of Stack (Longitude - Degree)	88.105341	88.105341	88.103635	88.103635	88.109167

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