ODISHA POWER GENERATION CORPORATION LTD.
(A Government Company of the State of Odisha)
CIN: U401040R1984SG001429

Ib Thermal Power Station
Banharpali, Dist.: Jharsuguda, Odisha - 768 234, India
Plant Manager : (+916645) 289266, Fax: (+916645) 222-230
Factory Manager : (+916645) 222224, Fax: (+916645) 222-230

OPGC
Power For Progress

Letter No. ITPS/5223/WE
September 28, 2020

To
The Member Secretary
State Pollution Control Board, Odisha
Paribesh Bhawan, A/118
Nilakantha Nagar, Unit-VIII
Bhubaneswar-751012.

Sub: **Environmental Statement for ITPS (2x210MW) for the period from 1st April 2019 to 31st March 2020.**

Sir,

Enclosed please find herewith the Annual Environmental Statement in (Form-V) for Ib Thermal Power Station (2x210MW), Banaharpali, Jharsuguda for the period from 1st April 2019 to 31st March 2020 for kind perusal.

Thanking you

Sincerely yours,

Alok Mukherjee
Director (Operations)
OPGC Ltd

Copy to-
Regional Officer, State Pollution Control Board, Plot No. 370/5971, At - Babubagicha (Cox Colony), St. Marry Hospital Road, Post – Industrial Estate, Jharsuguda for kind information.

Corporate Office : Zone-A, 7th Floor, Fortune Tower
Chandrasekharpur, Bhubaneswar - 751023, Odisha
Ph: 0674-2303765-66, Fax : 0674-2303755
website : www. opgc.co.in

OHSAS 18001 BUREAU VERITAS Certification
ISO 14001 BUREAU VERITAS Certification

ENVIRONMENTAL STATEMENT

Odisha Power Generation Corporation Ltd
Ib Thermal Power Station

Banaharpali, Jharsuguda

(2 x 210 MW)

PERIOD FROM 1st APRIL 2016 TO 31st MARCH 2017

(FORM – V)

(See Rule 14)

Environmental Statement Report for the Financial Year ending the 31st March, 2017.

PART – A

i.	Name and address of the Owner/Occupier of the Industry	: Mr. Alok Mukherjee Odisha Power Generation Corp. Ltd. Ib Thermal Power Station Banharpali, Jharsuguda Pin Code- 768234 Site Office-Ph.06645-222220, Fax. 222230 Corp. Office- 06742303754, Fax. 2303755
ii.	Production Capacity	: 2X210MWH
iii.	Year of Establishment	: 1995
iv.	Date of last Environment Statement submitted	: 29.09.2016
v.	Industry category	: Thermal Power Plant

PART – B

(Water and Raw Material Consumption)

(All values indicate Annual consumption) in m^3/day

Sl.	Description	**2015-2016**	**2016-2017**
(I)	Gross Energy Generation (MU):	3117.316	3234.884
(ii)	Total Water consumption:	25736	27926
(iii)	Ash disposal make up, Process NEBD:	5342	6778
(iv)	Cooling, Spraying, Boiler Feed:	18922	19572
(v)	Domestic*:	1174	1155
(vi)	Process, EBD	298	419

Sl No	**Name of the product**	**Process Water Consumption per Unit of Product Output**	
		2015-16	**2016-17**
01	Electricity	2.88 KL/MWH	3.05KL/MWH

NB: The Sp. Water consumption was less because of better process controls.

Name of Raw Material	**Name of the product**	**Consumption of Raw Material unit of output**			
		2015-16		**2016-17**	
Coal	Electricity	Total Consumption	2788435MT	Total Consumption	2912904MT
		Specific Consumption	0.894KG/KWH	Specific Consumption	0.900KG/KWH
Start-up Fuel Oil (LDO)	Electricity	Total Consumption	1323.562KL	Total Consumption	918.055KL
		Specific Consumption	0.425ML/KWH	Specific Consumption	0.284ML/KWH

N.B: The Specific Coal Consumption was more due to inferior coal quality. The Specific Oil consumption was less due to better process control.

PART – C
Pollution discharged to Environment and Pollution Level

PERIOD- April 2016 TO March 2017								
STACK EMISSION								
PARAMETER	**NORM**	**STACK 1**			**NORM**	**STACK 2**		
		MAX.	**MIN.**	**AVE.**		**MAX.**	**MIN.**	**AVE.**
SPM (mg/Nm^3)	**100**	135	87	100	**100**	119	79	89
CO_2 (%)	**NA**	12	10	11	**NA**	12.4	11	11
CO (PPM)	**NA**	69	12	32	**NA**	73	21	46
SO_2 (PPM)	**NA**	1522	484	819	**NA**	1567	438	831
NO_X (PPM)	**NA**	426	159	255	**NA**	406	162	250
Remark: As per action plan submitted before Board, ESPs of both the Units retrofitted, however BHEL is still working for rectification of technical problems during upcoming outages. Once these problems are resolved, PG test will be conducted to establish the emissions within stipulated norms by March 2018.								
AMBIENT AIR QUALITY								
PARAMETER	**NORM**	**INDUSTRIAL**			**NORM**	**RESIDENTIAL**		
		MAX.	**MIN.**	**AVE.**		**MAX.**	**MIN.**	**AVE.**
PM_{10} ug/m3	**100**	94	46	77	**100**	87	43	69
PM $_{2.5}$ ug/m3	**60**	46	19	32	**60**	43	16	31
SO_2 (ug/m3)	**80**	18	10	14	**80**	11	7	9
NO_x (ug/m3)	**80**	34	16	25	**80**	26	15	21
EFFLUENT QUALITY					**AMBIENT NOISE in dB(A)**			
PARAMETER	**NORM**	**MAX**	**MIN**	**AVE.**	**INDUSTRIAL**		**RESIDENTIAL**	
Temp(IN) ^oC	**T(O) - T(I) = <5 ^{0C}**	30.4	22.8	26.30	**MAX.**	**MIN.**	**MAX.**	**MIN.**
Temp(OUT) ^oC		34.6	25.3	29.56	**DAY TIME**			
pH	**5.5-9.0**	8.02	7.29	7.62	NORM			
O&G, mg/ltr.	**10.0 max**	1.3	0.5	0.79	**75**		**55**	
TSS, mg/ltr	**100 max**	61	28.5	45.92	72	65	48	38
TDS, mg/ltr	**2100 max**	377	221	295.35	**NIGHT TIME**			
R.CL2, mg/ltr	**1.0 max**	0	0	0	NORM			
BOD, mg/ltr	**30 max**	4	3	3.42	**70**		**45**	
COD, mg/ltr	**250 max**	48	28	37.65	69	61	42	34

Besides, installed continuous emission monitoring system for both the stacks, four continuous ambient air quality monitoring stations and one continuous effluent monitoring station for round the clock monitoring and control of emission/pollution parameters. These stations are connected to SPCB & CPCB servers through real time data acquisition and transmission facility. The plant is operating close to zero effluent i.e. close to 99% effluent generated is being recycled and reused. Only 1 % effluent is being discharged after meeting norms. As per action plan submitted, the final 1% effluent shall be treated & reused in OPGC-2 ETP by December 2018.

PART – D
HAZARDOUS WASTES

(As specified under Hazardous wastes/management & Handling Rules, 2008)

A. From Process:

Hazardous Waste Types	2015-16				2016-17			
	Opening stock	Generated	Sold/ Disposed	Balance	Opening stock	Generation	Sold/ Disposed	Balance
Used Lub. Oil : KL	0	13.650	0	13.650	13.650	14.390	28.040	0
Used Grease: MT	6.12	3.24	0	9.36	9.36	22.933	32.295	0
Used Transformer Oil : KL	40	0	0	40	40	22.225	62.225	0
Oily sludge during cleaning: KL	0	0	0	0	0	0	0	0
Spent Resin, KG	4600	0	0	4600	4600	0	0	4600
Discarded Asbestos, MT	36	24.67	0	60.67	60.67	0	0	60.67
Discarded Container (oil drums), Nos	114	0	0	114	114	0	0	114
Empty Chemical Jar, Nos	0	0	0	0	0	300	300	0
Used batteries	40	11	0	51	51	0	0	51

B. From Pollution Control Facilities: No generation

PART – E

SOLID WASTES

A. Ash:

Solid Wastes (Ash):	Total Quantity (MT)	
	2015-16	2016-17
From Process	232597 MT(Bottom Ash)	247474 MT(Bottom Ash)
From Pollution Control Facilities	930388 MT (Fly Ash)	989883 MT(Fly Ash)
Quantity Utilized	2,38,884 MT	434725 MT
Disposed in Ash Pond	9,24,101 MT	802632 MT

OPGC has not been achieving ash utilization target as per MoEF & CC notification, 2009. The following are the constraints in achieving the target.

The Plant is located in a rural area in which the ash brick acceptance level remains low. Moreover, utilization in the form of ash brick is a minor utilization area. With best utilization opportunity, utilization in this particular area cannot exceed more than 2 to 3%.
High volume stone quarries or low lands are not available in the locality. Hence, there is a limitation on ash utilization in low lying area filling.

In most part of our country, ash utilization in cement manufacturing has become a gainful potential utilization means. Unfortunately, even though OPGC had agreement with the only cement manufacturing unit using fly ash i,e Ultratech Cement in our locality, the unit stopped off-taking ash from OPGC and has been off taking ash from their sister concern Hindalco, Hirakud since the year 2011. In Jharsuguda Sambalpur zone, there has been large quantity fly ash generation from thermal plants like OPGC, Vedanta, Bhusan, Aditya Birla, Hindalco Power but, in this zone only one fly ash based cement manufacturing unit operates. Many cement manufacturing plants were proposed to set up in this zone but, has not been materialised, as yet. Hence, there is no scope of utilization in cement plant in near future.

OPGC is taken initiative to utilize 02 lakh MT Ash in Belpahar Fly over construction against grant of transport subsidy of Rs 150/-per MT. This was one time opportunity for OPGC in utilizing ash in road construction. No other major road construction activity is expected in near future in this locality. So, there is less scope in utilizing ash in road construction.

Export of Ash is not feasible as the site is located at a distance of 500 KM from the nearest Port. Transportation from site to nearest port through rail or any other means is highly expensive and not viable.
Considering OPGC Plant's location (Pit Head), mine void back filling of ash is the only means of utilization by which OPGC can achieve 100% ash utilization. In order to implement this viable utilization means, Mahanadi Coal Fields Ltd (MCL) has been continuously pursued directly as well as through MoEF, SPCB, Govt of Odisha since the year 2000 but the matter still remains unaddressed at MCL end. OPGC has been off taking coal from MCL since the year 1995, but not a single void mine allotment case has been considered by MCL. They are stating that no void is available with MCL.

OPGC is quite optimistic in enhancing ash utilization in coming days by utilizing the opportunities such as in bricks/asbestos manufacturing, available low lying area filling, ash dyke raising and agricultural land soil conditioning

etc. In spite of the constraints mentioned above, OPGC will make an all-out effort to achieve ash utilization up to the maximum extent possible.

PART – F

Indicate disposal practice adopted for Hazardous as well as solid waste

A. Hazardous Wastes:

OPGC has obtained Hazardous Waste Authorization from OSPCB for Collection & Storage of Hazardous waste valid up to 31st March 2021

Used Oil and grease are periodically collected from different location within plant & stored at designated place with concrete flooring, shed and secondary containment. The same is then transferred to a central storage area. This is being disposed to recyclers/reprocessors having authorization & valid consent from SPCB & registered under CPCB.

Spent resin is temporarily stored in identified impervious pits at ITPS. It has been planned to dispose of the same in CHWTSDF. Broken Asbestos generated from dismantled old civil structures so far is disposed at identified, demarcated underground pits within plant premises. Chemical discarded containers are mostly returned to the Chemical suppliers against supply of fresh chemical supply.

E- Wastes and mercury containing lights are stored in designated places under concrete floor & shed. Inventorization of the same has been made & intimated to OSPCB. Planning has been made to dispose of the e-waste being generated at plant through OSPCB Authorized E-waste collection centre.

New Batteries are procured from Battery suppliers against exchange of used/waste batteries.

B. Fly Ash and Bottom Ash

OPGC has both wet ash disposal system as well as dry ash disposal system at ITPS for handling the main solid waste i.e. fly ash & bottom ash. For wet disposal of ash, OPGC have 02 Ash Ponds out of which it's Ash Pond-B of area 98 Hectare was utilized for disposal till August 2007. After conducting expert study through IIT, Madras, it was recommended to go for another 03 meter Dry Ash Mounds on the Pond B. Based on which OPGC has constructed Ash Mounds on the Pond successfully. The 2nd Ash Pond (Ash Pond-A of area 60 Hectare) has been in service with 100% ash water recycling system since 31.08.2007. Dyke strengthening work of both the ponds was completed. OPGC is also constructing Ash Pond C of 150 acre after getting NOC from OSPCB.

OPGC has been putting efforts to utilize ash in brick manufacturing, raising of ash dyke, low land reclamation, road construction etc. OPGC has set up captive automatic fly ash brick/ block manufacturing plant. Use of 'Zero' clay brick has been ensured at ITPS since Yr.2003. Fly ash is issued by OPGC free of cost to outside entrepreneurs engaged in manufacturing of ash based products. OPGC also has established second ash brick plant to increase the brick manufacturing capacity.

Dry ash collection facility with 500 MT capacities Storage Silo for utilization of dry fly ash by Cement Industries & ash brick/block manufacturing units is already in place. The ash collected in this Silo is from Field 2 of ESPs suitable for Cement production. Provision has been made for additional storage and collection facility (60 T/Hr with Storage facility of 120 MT) from 1st fields of ESPs. This dry ash collection facility is made for adequate dry ash availability in utilizing ash in low land reclamation and road construction.

Floating particles (cenosphere) from ash pond is being collected from time to time by external agency for further processing & utilization in manufacturing of high value products.

C. Other Solid Waste of Plant and Colony (Bio-degradable)

Solid Waste of plant other than Fly Ash & Bottom Ash, like ferrous & non-ferrous scraps are collected regularly from different sites & deposited in the designated scrap yard for selling.

Kitchen waste is collected from Plant Canteen, Colony, Guest House, ITPS Market etc. and segregated as biodegradable and non-biodegradable is being disposed in an eco-friendly manner in a 1.0 Ton Capacity Bio-Gas Plant with zero effluent discharge.

Other biodegradable waste of plant & colony are regularly collected from different places & disposed on OPGC land.
Domestic effluent from Plant is disposed through Septic Tanks and Soak Pits and Sewage from colony is treated in 1.0 MLD capacity Sewage Treatment Plant (STP) with zero effluent discharge. Treated Sewage is reused for watering green belt and also used in Park for horticulture purpose.

D. Bio-medical Waste

OPGC has 18-bedded Hospital at ITPS without any Operation Theatre. Bio-medical waste is mainly non-toxic in nature and the quantity is insignificant. Wastes are treated and disposed following the prescribed method as stipulated in Bio medical waste authorization issued by OSPCB.

E. Plastic waste

Plastic waste is being segregated from Colony Garbage and packed in gunny bags. The gunny bags containing plastics are being stored in a designated place at township. The same is being given to plastic waste recycler. Process has been initiated to dispose the same through co-processing in cement plant of M/s ACC Limited. Formal agreement is already in place for disposal.

PART – G

Impact of the pollution control measures taken on conservation of natural resources and consequently on the cost of production.

- By adopting appropriate technology, operation & maintenance, monitoring practices and pollution control measures, OPGC has been successful in conserving coal, oil, water & energy through reduce /reuse/recycle.
- Through 100% Ash Water re-cycling system and maximum reuse of other liquid effluents is in process, not only control & prevention of water pollution takes place but also optimization of fresh water makeup has been taking place. Specific water consumption remains less than 3KL/MWH which indicates effective water conservation.
- Fuel oil consumption is monitored and controlled with minimum Unit light up periods and reducing number of Unit trips.
- Lubricant consumption is also monitored regularly to reduce its consumption.
- Other by product like process Ash was utilized up to 25% in manufacturing of high value product like ash brick/blocks, ash dyke raising and for low land reclamation purpose. By this top fertile soil has been conserved.
- Pond ash is being used for ash mound preparation & also for ash dyke height raising, thereby conserving soil for dyke height raising as well as increasing ash pond life.
- LED light and solar panel

IMPACT OF POLLUTION CONTROL MEASURES ON COST OF PRODUCTION:

Cost of production reduces due to

1. Process optimization to operate plant with reduced emission and higher efficiency.
2. Conservation of resources used as input (Coal, Oil, Water.)
3. Waste utilization & eco-friendly and cost effective disposal means (Solid waste and hazardous waste).

The additional investment and the above benefits balance some way by treating the pollution control and mitigation is integrated with overall efficiency of the plant and cost of the product.

PART – H

Additional investment proposal for environmental protection abatement of pollution, Prevention of pollution

1. Revival of Ash Silo dust conditions- 15 lakh
2. Tree Plantation/Green belt development- 27 lakh
3. Solar Panel- 25 lakh
4. LED lights- 50 lakh
5. Dry Fog System in CHP as replacement of existing water sprinkling systems- 150 lakh
6. Effective Ash dispersion control in Ash Pond at the time of turbulent wind flow- 30 lakh
7. Ash Disposal line replacement to reduce the risk of pipe line failure- 25 lakh
8. Ash Utilization- 550 lakh
9. Asbestos Pollution Abatement by replacing asbestos walls & roofs- 30 lakh
10. Installation of multicoloured LED display board at plant main gate- 7.5 lakh

PART- I

Any other particulars for improving the quality of environment.

- Complying with the directions and conditions of state and central pollution boards.
- Environment Management by establishing ISO 14001 EMS and Global EMS standard.
- Retrofitting ESPs of both the Units with parallel field addition along with flue gas duct replacement for emission reduction.
- Installed continuous emission monitoring system for both the stacks, four continuous ambient air quality monitoring stations and one continuous effluent monitoring station for round the clock monitoring and control of emission/pollution parameters.
- Adequate plantation and greenbelt developed to minimise air as well as noise pollution. Planted approx. 03 lakh trees. 3.6% greenbelt and plantation exits in and around plant and colony premises.
- Water conservation by 100% Ash water recirculation and other effluents recycle & reuse. Around 99% plant effluent are being recycled and reused minimizing water pollution impact.
- Housekeeping has been given highest priority. Plant & Colony premises are maintained clean all the time. Roads are black turfed to control fugitive emission.
- Water, Coal, Oil & Ash leakages & spillages are being controlled at the source itself to maintain clean work place and clean environment.
- Provided HDPE Lining on New Ash Pond (Ash Pond C) to minimize water pollution. Ash dykes are extra strengthened to prevent dyke failure.
- Implemented sound wastes management practices.
- Carrying out regular environmental audits by competent auditors and taking timely corrective measures.

Director (Operations), OPGC

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