O/C

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/5963/WE
September 25, 2019

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 2018 to 31st March 2019.**

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 2018 to 31st March 2019 for kind perusal.

Thanking you

Sincerely yours,

Alok Mukherjee
Director (Operations), OPGC

Encl: Environmental Statement

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.

ENVIRONMENTAL STATEMENT

Odisha Power Generation Corporation Ltd
Ib Thermal Power Station

Banharpali, Jharsuguda

(2 x 210 MW)

PERIOD FROM 1st APRIL 2018 TO 31st MARCH 2019

OPGC
Power for Progress

(FORM – V)

(See Rule 14)

Environmental Statement Report for the Financial Year ending the 31st March, 2018.

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	: 420 MW (2X210 MW)
iii.	Year of Establishment	: 1995
iv.	Date of last Environment Statement submitted	: 25.09.2018
v.	Industry category	: Thermal Power Plant

PART – B

(Water and Raw Material Consumption)

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

Sl.	Description	2017-2018	2018-2019
(I)	Gross Energy Generation (MU):	2842.347	3085.949
(ii)	Total Water consumption:	25098	24334
(iii)	Ash disposal make up, Process NEBD:	5055	2981
(iv)	Cooling, Spraying, Boiler Feed:	18407	19845
(v)	Domestic*:	1250	1153
(vi)	Process, EBD	386	355

Sl No	Name of the product	Process Water Consumption per Unit of Product Output	
		2017-18	2018-19
01	Electricity	3.09KL/MWH	2.77 KL/MWH

NB: The Sp. Water consumption was less because of better process controls and higher generation against fixed consumption.

Name of Raw Material	Name of the product	Consumption of Raw Material unit of output			
		2017-18		2018-19	
Coal	Electricity	Total Consumption	2582719 MT	Total Consumption	2564293 MT
		Specific Consumption	0.909 Kg/KWH	Specific Consumption	0.825 Kg/KWH
Start-up Fuel Oil (LDO)	Electricity	Total Consumption	1424.688 KL	Total Consumption	1186.53 KL
		Specific Consumption	0.501 ml/KWH	Specific Consumption	0.385 ml/KWH

PART – C
Pollution discharged to Environment and Pollution Level

PERIOD- April 2018 TO March 2019								
STACK EMISSION								
PARAMETER	NORM	STACK 1			NORM	STACK 2		
		MAX.	MIN.	AVE.		MAX.	MIN.	AVE.
SPM (mg/Nm^3)	100	95	70	81	100	96	73	86
CO_2 (%)	NA	11.5	9.4	10	NA	11.5	9.4	10
CO (mg/Nm^3)	NA	91	9	35	NA	97	7	48
SO_2 (mg/Nm^3)	NA	1619	1022	1422	NA	1706	1069	1476
NO_x (mg/Nm^3)	NA	252	172	221	NA	244	161	202

AMBIENT AIR QUALITY								
PARAMETER	NORM	INDUSTRIAL			NORM	RESIDENTIAL		
		MAX.	MIN.	AVE.		MAX.	MIN.	AVE.
PM_{10} ug/m3	100	97	15	65	100	91	12	56
PM 2.5 ug/m3	60	65	8	34	60	63	6	32
SO_2 (ug/m3)	80	19	8	13	80	11	6	9
NO_x (ug/m3)	80	33	10	23	80	28	10	20

EFFLUENT QUALITY					AMBIENT NOISE in dB(A)			
PARAMETER	NORM	MAX	MIN	AVE.	INDUSTRIAL		RESIDENTIAL	
					MAX.	MIN.	MAX.	MIN.
Temp(IN) °C	T(O) - T(I) = <5 °C	26.5	23.1	25.2				
Temp(OUT) °C		28.8	25.2	27.49	DAY TIME			
pH	5.5-9.0	8.1	6.84	7.48	NORM			
O&G, mg/ltr.	10.0 max	1.25	0.2	0.68	75		55	
TSS, mg/ltr	100 max	59	21	38.86	73	63	49	39
TDS, mg/ltr	2100 max	279	111	190.71	NIGHT TIME			
$R.Cl_2$, mg/ltr	1.0 max	-	-	-	NORM			
BOD, mg/ltr	30 max	4	3	3.51	70		45	
COD, mg/ltr	250 max	33.5	18.5	27.52	70	60	44	34

OPGC has 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 has achieved zero effluent discharge from December'18 onwards and

till December'18 only 1 % effluent had been discharged after meeting the norms.

PART – D
HAZARDOUS WASTES

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

A. From Process:

Hazardous Waste Types	2017-18				2018-19			
	Opening stock	Generated	Sold/ Disposed	Balance	Opening stock	Generation	Sold/ Disposed	Balance
Used oil or Spent oil a.Used Lub. Oil : KL b.Used Grease: MT c.Used Transformer Oil :KL	Nil a.0 KL b.0 MT c.0 KL	39.82KL a.29.98KL b.6.48MT c.3.36KL	33.34KL a.29.98KL b.0MT c.3.36KL	b. 6.48MT	6.48 a.0 KL b.6.48 MT c.0 KL	12.12KL a.3.78KL b.8.34MT c.0 KL	18.6KL a.3.78KL b.14.82MT c.0KL	Nil
Oily sludge during cleaning: KL	0	0	0	0	0	0	0	Nil
Spent Resin, MT	4.6	0	0	4.6	4.6	3	0	7.6
Discarded Asbestos, MT	60.67	0	0	60.67	60.67	0	0	60.67
Discarded Container a.oil drums (Nos) Empty Chemical Jar, Nosb b. CW chemical	114Nos. a.114 b.0	120 Nos. a.0 b.120	234Nos. a.114 b.120	Nil	Nil	420 Nos. a.120 b.300	420Nos. a.120 b.300	Nil
Used batteries(Nos.)	51	0	0	51	51	198	198	51

B. From Pollution Control Facilities: No generation

PART – E

SOLID WASTES

A. Ash:

Solid Wastes (Ash):	Total Quantity (MT)	
	2017-18	2018-19
From Process	219229 MT(Bottom Ash)	202799 MT(Bottom Ash)
From Pollution Control Facilities	876913 MT(Fly Ash)	811268 MT(Fly Ash)
Quantity Utilized	607344 MT	343411 MT
Disposed in Ash Pond	488798 MT	670674 MT

Reasons for variation from the target

1. Since the plant is situated in a remote location (pit head power plant located in rural area) there is very limited scope of ash utilization in brick manufacturing. More ever utilization in this particular area cannot exceed more than 2% to 3%.

2. Big stone quarry or low lands are not available in the locality.

3. Export of ash is not feasible since 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 not feasible.

4. Major road construction activities are taking place near Jharsuguda (Expansion of Sambalpur Rourkela Sate Highway No-10 & Expansion of Sambalpur National Highway No-42). The ash demands for these activities are met by other thermal power plants, close to the road construction areas. However, we have supplied around 8830 MT of ash in the last financial year for construction of road.

5. No scope available in major ash utilization area i.e. Cement Plant use for production of PPC cement. Only one cement plant is available in the vicinity i.e. M/s Ultratech Cement Ltd. M/s Ultratech off takes entire quantity of ash for cement manufacturing from its sister concern i.e. from M/s Aditya Aluminium (Lapanga).

6. 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. The steps so far are as follows.

i. There was progress on mine void allotment in the year 2006. With the support from Regional Office, MoEF and SPCB, MCL has consented to allot Lilari mine void to OPGC. Subsequently, in July 2007, MCL accorded consent for taking up EIA & Feasibility Study for back filling in the void based on which OPGC engaged CIMFR to conduct the studies in October 2007. During the course of the EIA study, the consent given to OPGC was withdrawn by MCL unilaterally vide their letter No MCL-3185/13.02.2008 stating "the life of Lilari Mine is extended with ten more years". Thereafter, OPGC has been pursuing MCL time and again involving regulatory as well as Govt. to reconsider the withdrawal or consider allotting any other mine void near to OPGC site but there has been no progress.

ii. State Pollution Control Board, Odisha made a proceeding on 05.06.10 for backfilling of OPGC ash in BOCM Mine void of MCL as an alternative solution against allotment of Lilari Mine void but no initiative has been taken so far from MCL side.

iii. MCL has also been directed repeatedly by OPGC Chairman & Principal Secretary, Energy, Govt of Odisha, managing Director and Director (Operation) but no positive response has so far been received from MCL.

iv. In a meeting held on 24.01.2011 with Principal secretary Energy, Govt. of Odisha, CMD, MCL has given consent to give principal approval for back filling BOCM mind void but the same has not been done, so far.

v. In response to the letter of Director (Operation), OPGC, dtd.24.08.2013 on the subject, Director (Tech. P&P), MCL negated the request on the ground of BOCM expansion towards dip slide and no scope to back fill ash in running mine even though OPGC proposed for a partition bund to separate the void space from active mine for ash back filling.

vi. In a high-level meeting held on 13.12.2013 under the Chairmanship of Chief Secretary, GoO, directions for allotment of BOCM mine void to OPGCL were issued to MCL on

03.04.2014 by Dept. of Environment & Forest, GoO. The said directions were for taking expeditious steps on this front. However, there has not been any progress as yet.

However OPGC is still working on high priority to pursue MCL, involving Government & other agency to get newly allotted nearest mine void to fulfill this important regulatory obligation.

Efforts made by OPGCL to Maximise Utilisation of Fly-Ash:

1. OPGCL has installed its own Fly-Ash brick plant with production capacity of 10,000 bricks per day, and steps have been made for all the bricks that are produced being utilised in all the ongoing and upcoming construction activities of OPGC.
2. Further, not only is OPGCL utilizing the Fly-Ash generated from its own Project in its own brick plant, OPGCL is also supplying Fly-Ash to 10 (ten) ash brick plants, which are located in and around the site of OPGCL's Project.
3. In order to further incentivise these brick plants to utilise the Fly-Ash from OPGCL's Project, OPGCL has extended a subsidy of Rs 150 per MT for use of Fly-Ash at its cost. However, ash utilization in brick manufacturing is limited to 2-3 % due to poor market demand.
4. Another avenue for Fly-Ash utilization which OPGC has explored is use in major road construction activities undertaken close to Jharsuguda or beyond Jharsuguda. The Fly-Ash demands for these activities are met by other TPPs, which are closer to the road construction areas. However OPGCL still managed to supply 8830 MT of ash for road construction in the FY 2018-19.
5. OPGCL has entered into an agreement with Visveswariya National Institute of Technology, Nagpur ("**VNIT**") to devise technological advancements for enhancing ash percentage up to 90% in production of bricks and for geopolymeric use of ash in road construction.
6. Transportation subsidy of Rs 150/- per MT has been extended by OPGCL for enhancing ash utilization in areas of manufacturing of ash brick, other Fly-Ash-based products, cement/asbestos manufacturing & road construction.
7. OPGCL has been conducting various ash utilization awareness campaigns in the nearby community by way of street plays, distribution of pamphlets, etc.
8. Strong initiatives have been taken to identify low lying area/ stone quarries in the vicinity .Publications have been made in local newspapers for execution of low land reclamation to supply ash free of cost to the owner for proper utilization of abandoned low land. OPGC now is in process of reclaiming 3 low lying areas of 6.17 acres, 1.4 acres & 1.12 acres for which consent has been taken from State Pollution Control Board, Odisha.
9. Action has been initiated to utilise ash in OPGC expansion project MGR line construction.
10. Working to get mine voids allotment from MCL.
11. OPGCL has ensured that Fly-Ash ash is utilised, instead of precious earth, in the construction of embankment for ash pond as well as raising of bund height for ash pond.
12. OPGCL has also awarded a consultancy order to Centre For Fly Ash Research & Management ("**C-FARM**") headed by Dr. Vimal Kumar (Former Mission Director & Head, Fly-Ash Unit, Department of Science and Technology, Government of India) for scientific

and technical advice for obtaining "Consent for mine void filling with fly ash". C-FARM is continuously deliberating with MCL, as well as with Central Mine Planning and Design Institute, on behalf of OPGCL for allotment of mine void for stowing with ash.

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/re-processors 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. Asbestos generated from conveyer roofs as a phase out plan is disposed in underground pits within the plant premises. Discarded chemical containers are mostly returned to the Chemical suppliers against supply of fresh chemical supply.

E- Wastes are stored in designated places under concrete floor & shed. Inventorization of the same has been made & intimated to OSPCB. OPGC has signed lifetime membership agreement with M/S Ramky Enviro Engineers for disposal of non-soluble, non-incinerable and non-recyclable hazardous wastes at Common Hazardous Wastes Treatment Storage and Disposal Facility (CHWTSDF), Jajpur. OPGC is in discussion with M/s Ramky for disposal of temporarily stored wastes (Spent resins & Asbestos).

New Batteries are procured from Battery suppliers against buy back 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. OPGC has 03 Ash Ponds i.e.

i. Ash Pond A- 150 Acres
ii. Ash Pond B- 242 Acres
iii. Ash Pond C- 115 Acres.

Ash pond B was exhausted in August 2007 and thereafter a study was conducted through IIT, Madras where 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.

Ash pond A is in partial operation and ash is evacuated from ash Pond A for utilization in low lying areas reclamation and road construction.

Ash Pond-C is operational, and ash is disposed in form of lean slurry.