ODISHA POWER GENERATION CORPORATION LTD.
(A Joint Venture of Govt. of Odisha & AES Corp. USA)

Ib Thermal Power Station
Banharpali, Dist.: Jharsuguda, Odisha - 768 234, India
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OPGC
Power For Progress

Letter No. ITPS/3143/WE
May 27, 2024

The Additional Director (S)
Ministry of Environment Forests & Climate Change
Eastern Regional Office
A/3, Chandrasekharpur
Bhubaneswar – 751023

Sub.: **Half yearly Environmental Status Report of Odisha Power Generation Corporation (2X210 MW ITPS), Banharpali, Dist. Jharsuguda for the period from October 2023- March 2024.**

Ref.: **i. ITPS Environmental Clearance No.14/13/83-EM-2, dated 27.09.1984**
ii. MoEF & CC Regional Office File No.106-12, dated 11.05.2020

Dear Sir,

This has reference to the above subject and cited references.

Kindly find enclosed the half-yearly Environmental Status report of Odisha Power Generation Corporation (2X210 MW ITPS) for the period from **October 2023- March 2024**.

We have also uploaded the half yearly compliance status for the mentioned period in OPGC ***website- www.opgc.co.in. & also have mailed the same for*** your ready reference and kind perusal.

Thanking you

Sincerely yours,

01.06.24

Manas Ranjan Rout
Director Operations & MD I/c

Enclosures as above

CC: Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar – 751 012

ANNEXURE-1

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION (2×210MW)

COMPLIANCE STATUS OF THE ENVIRONMENTAL CONDITIONS

Environment Clearance No. 14/13/83-EM-2, dated 27.09.1984

Period October 2023- March 2024

Sl. No.	Environmental Clearance Conditions	Compliance Status
1.	**AIR POLLUTION**	
I.	A common stack height not less than 200 meters should be provided for two units of 210 MW. Similarly, for other two units a common chimney of 200 meters height should be provided.	A bi flue common stack of height 220 meters has been provided for U#1&2 of 210 MW each. Unit#3&Unit#4 of capacity 660 MW have been provided with twin flue common stack of height 275 meters each.
II.	ESP of having operational efficiency of not less than 99.7% should be provided and extra fields made part of the design. The efficiency of ESPs should be monitored and recorded. Adequate training should be given to the persons engaged in the operations and maintenance of ESPs.	ESP of operational efficiency 99.82% (designed value) has been provided for both of the units ESP internals both for unit #1 & unit #2 is being repaired during annual overhauling every year. Routine maintenance practice has been followed for ensuring healthiness of ESP. ESP retrofitting job for both the units had been taken up to achieve the particulate emission norm of 100 mg/Nm3 by addition of a parallel pass consisting of 6 fields for each unit. The maximum, minimum & average PM value for the period from October 2023 to March 2024 is enclosed for kind reference.
III.	Emission and ambient air quality monitoring should be done after the commissioning of the units and data recorded and should not exceed the standards set by the Central and State Pollution Control Boards.	Stack monitoring has been taken up through two Nos. of online continuous emission monitoring system (CEMS) for parameters PM, SO_2, & NO_X for trend monitoring and taking corrective action so as to keep parameters within prescribed limit. The CEMS are connected to SPCB & CPCB servers on real time basis. Offline test is also being conducted through grab sampling by calibrated portable stack monitoring kit & Flue gas analyzers on weekly basis. These results are being recorded and reported. Monitoring is also done through third party which is NABL accredited. Five permanent ambient air monitoring stations are installed by OPGC in & around ITPS out of which 3 no stations are placed in industrial zone & 2 no in Residential zone. Ambient air monitoring has been done regularly for parameters PM_{10}, $PM_{2.5}$, SO_2, NOx & noise. In addition to the above, six online ambient air quality monitoring station has been installed out of which four are inside plant & other two are in residential area to monitor $PM_{2.5}$, PM_{10}, SO_2, & NOx. Real time data transmission to the OSPCB & CPCB servers from the ambient air quality monitoring station has been established. Besides emission, ambient air, noise & waste water quality

		are being monitored by NABL accredited third party Lab. All the results are furnished in form of maximum, minimum & average values. Monitoring reports are being sent to SPCB & CPCB every month. Half yearly reports are being sent regularly to MoEF & CC, Govt. of India and Eastern Regional Office. Maximum, Minimum and Average Emission data for the period October 2023 to March 2024 is enclosed for reference**.**
IV.	Adequate space for FGD plant should be part of the design so that they could be installed if required at a later stage.	Adequate space provision has been kept for installation of FGD in later stage as per requirement. The construction FGD for newer units (Unit#3 & Unit#4) is in progress and adequate space available for older units (Unit#1 & Unit#2) for construction of FGD.
V.	Dust suppression / control equipment should be installed in wagon tippling area, transfer points, crushers etc.	As a work zone emission improvement step, OPGC has installed dry fog system with a cost involvement of 2.5 crores in place of existing sprinkling and dust extraction systems in order to bring higher level of fugitive dust control. The effectiveness of the dry fog system has been found extremely satisfactory.
2.	**WATER POLLUTION**	
i.	Closed cooling system for condensers should be provided instead of once-through cooling system as proposed.	The process has been designed and operated with the closed cooling system. Cooling Tower blow down water as well as the drift loss water is recycled back in ash handling.
ii.	Liquid effluents emanating from the different plants such as DM plant, Boiler blow down, Ash Pond/dyke sewage etc. should be properly treated as per the standards stipulated by the State Pollution Control Board.	The plant has been reusing its liquid effluents in its different process after necessary treatment since 28.06.2008. This is in compliance to SPCB's consent condition to reuse all liquid effluents. The details of reuse processes are- ▪ Domestic sewage of Plant, Township and hospital has been treated in STP and treated effluent is being reused for watering the Green belt and Park at ITPS. ▪ No effluent from ash pond is discharged. Treated ash water is recycled 100% for reuse as make up water in wet ash handling system after necessary treatment. ▪ CW blow down effluent is being reused as make up water in wet ash handling system. ▪ Boiler and turbine effluents are being reuse as ash handling make up after necessary treatment. ▪ DM plant regeneration effluent is being reuse as cooling system make up. ▪ CT drift overflow water is recycled back in cooling tower basin. ▪ Gravity sand filter backwash water of WTP is recycled back in clarifier.

iii.	Hot water coming from the condenser should be properly cooled so as to ensure to keep the temperature of the receiving surface water as per the standard stipulated by the state Board.	Hot water coming from the condenser is being cooled through cooling tower & reused for condenser cooling in close loop. Cooling water blow down is being reused as make up water in ash slurry discharge system. There has been no hot water discharge coming from the condensers.
3.	**SOLID WASTE MANAGEMENT**	
i.	Fly ash and bottom ash should be collected in the ash dykes/ponds. The supernatants water should not contain suspended matters more than 100ppm. Dry disposal of fly ash should also be planned including the disposal in abandoned mines after mixing with the OB.	Fly Ash & bottom ash is being collected in Ash Ponds. The suspended particles of the supernatant water from ash pond are settled in Primary & Secondary settling tanks. The supernatant is also additionally treated with Alum & polyelectrolyte for more effective settling. The settled water is being re-cycled 100% for reuse as make up water in wet ash handling system at plant site. Dry disposal of fly ash is being performed through dry ash handling system with silo provisions specifically for ash utilization in brick, cement, asbestos, land reclamation, road etc. In the period from October 2023 to March 2024, 25.23% of ash has been utilized. In order to meet 100% ash utilization, OPGC needs to have nearest mine void. The requirement was indicated before MCL but no such abandoned mine allotted to OPGC so far On continuous pursuance from OPGC and with the support of MoEF& CC, Regional Office, Mahanadi Coal Field (MCL) had given clearance in the month of May 2007 for back filling of OPGC ash in Lilari OCM void from July 2009. Based on that permission, OPGC had taken immediate step for EIA and feasibility study engaging CIMFR, Dhanbad. But in the month of February 2008, the permission was withdrawn unilaterally by MCL on the ground that the anticipated life of Lilari Mine is extended for ten more years. Since then, OPGC is perusing time and again to MCL to provide any other mine void near OPGC site. In a high-level meeting with MCL on 9th February 2011, MCL has agreed to give in principle clearance to OPGC for back filling in Belpahar OCM. This has not happened so far. In further attempts 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. OPGC further seeks support of MoEF & CC for allotment of mine voids from MCL.

ii.	Green belt should be raised on the ash disposal areas filled by fly ash to check the dispersion by fly ash into the air. Additional land (Pvt. Land) should be acquired for compensatory afforestation.	Dry disposal area (Ash Mounds) is soil capped & grass turffed completely to avoid dispersion of fly ash in to air. The dry ash surface in operational pond is maintained wet or water pounded to prevent air borne of ash. Tree plantation on the slope of the dyke has been restricted by State Pollution Control Board due to the risk involved to the dyke in form of tree root channeling effect. Thereafter, the trees planted earlier on the dykes were removed for maintaining the safety of the ash dykes. Compensatory afforestation has been done by OPGC over 260 Ha of non-forest land in Deogarh, Odisha, through forest department, Govt. of Odisha.
iii.	Trees plantation work should be taken up all around the Thermal Power Plant. The species to be planted may be decided in consultation with the Forest Department.	Adequate number of trees of different species has been planted all around ITPS. Species are selected consulting Forest Department. More than 33% i.e. 34.81% of the plant area is now covered with green belt and high-density trees. This has been confirmed in report of district plantation monitoring committee, constituting of Ex Vice Chancellor & Honorary WL Warden, ACF, Jharsuguda Forest division, A.D Horticulture Jharsuguda, Asst Env Engineer Jharsuguda & Chief coordinator Eco-Club Jharsuguda. Survey report of District Plantation Committee conform to 34.6% Greenbelt is enclosed for reference. Plantation activity is also being taken up every year. Detail plantation status is enclosed as annexure**.**
iv.	Effort should be made to utilize fly ash in bricks, blocks, building materials etc.	OPGC is having its own fly ash brick plants (capacity-15000 bricks/day) for manufacturing of fly ash bricks. Apart from that OPGC has been providing fly ash free of cost to brick plants whoever shows interest to use in manufacturing of building materials. OPGC is also supplying ash to ACC Cement, OCL Cement, Shree Cement, Dalmia Cement & Star Cement etc. Newspaper publications have been made and pamphlets have been distributed in nearby villages for utilization of ash in low lying areas and in agriculture.
V.	A comprehensive re-settlement package of rehabilitation of dispersed families should be made including providing of job to at least one person per family, apart from giving cultivable land for land to those who were possessing the same.	This was already complied earlier as per our status report no ITPS/241/WE/21.01.2001 submitted in MoEF & CC regional office.
vi.	A master plan should be prepared taking into account the requirement of power plant, township, fuel requirement, human settlements, etc. in consultation with District authorities.	It was compiled at the time of the project construction & commissioning stage during the period from the year 1989 to 1995.
vii.	Timber required for the project should be procured through the Forest Corporation and not by private contractor/dealers and the former should not abrogate this responsibility by contracting the supply out and adding its	It was compiled at the time of the project construction & commissioning stage during the period from the year 1989 to 1995.

	handling charges. If the corporation is not equipped to handle this themselves the project authorities should negotiate the best terms, price and environment-wise with contractors by obtaining bids.	
4	**ADDITIONAL CONDITION FOR MEGA PROJECTS**	
i.	Continuous monitoring of stack emissions as well as ambient air quality (as per notified standards) shall be carried out and continuous records maintained. Based on the monitored data, necessary corrective measures as may be required from time to time shall be taken to ensure that the levels are within permissible limits. The results of monitoring shall also be submitted to the respective Regional Office of MoEF regularly. Besides, the results of monitoring will also be put on the website of the company in the public domain.	OPGC has installed 2 Nos of Continuous Emission Monitoring System in both the stacks for online measurement of PM, SO2 & NOx. Similarly, OPGC has installed 6 Nos of Continuous Ambient Air Quality Monitoring System in both industrial & residential location for online measurement of PM10, PM2.5, SO2 & NOx. The data is sent to SPCB/CPCB server on real-time basis. Monitoring result is submitted to MoEF &CC regional office along with the half yearly EC status report in form of maximum, minimum and average values. The same is also uploaded in OPGC website on regular basis.
ii.	The six-monthly monitoring reports as well as the monitored data on various parameters as stipulated in the environment clearance conditions shall be put on the website of the company and also regularly updated. The monitored data shall also be submitted to respective State Pollution Control Board/ UTPCCs and regional office of MoEF.	The six monthly as well as monthly monitoring reports on various parameters is being put on OPGC website and regularly updated. The data is also being submitted to OSPCB & MoEF& CC regional office.
iii.	The ambient air quality data as well as the stack emission data will also be displayed in public domain at some prominent place near the main gate of the company and updated in real time.	The ambient air quality data as well as the stack monitoring data are displayed at the Plant gate & are also uploaded in the website of OPGC along with the half yearly status report.

Prepared By:

Parthasarathi Panda
Sr. Manager (Environment)

01.06.24

Manas Ranjan Rout
Director Operations & MD I/c

ANNEXURE-II

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION (2×210MW)

COMPLIANCE STATUS OF CREP GUIDELINES

Period-October 2023- March 2024

Sl. No.	CREP Guidelines	Compliance Status/Steps initiated
1.	Implementation of Environmental standards (emission & effluent) in noncompliant power plants.	Not applicable being compliant plant. Timeline to achieve SO2 emission norm as given by CPCB is 31.12.2026.
2.	For existing thermal power plants, a feasibility study shall be carried out by CEA to examine possibility to reduce the particulate matter emissions to 100mg/Nm^3.	No such feasibility study report or guideline so far received from CEA. However, as per stipulation by State Pollution Control Board, Odisha, ESP retrofitting job was taken up to achieve revised particulate emission norm, 100 mg/Nm^3 for both the units. Both the unit's ESPs retrofitting job has been completed.
3.	New/expansion power projects to be accorded environmental clearance on or after 1.4.2003 shall meet the limit of 100 mg/Nm^3 for particulate matter.	As per point no. 2, although being an old unit the retrofitting job had been taken up.
4.	Development of SO_2 and NOx emission standards for coal-based plants by Dec.2003	MoEF & CC vide their notification dt. 7th December 2015 has issued SO_2 and NOx emission standards for coal based thermal power plants. OPGC falls under Category-C and the latest timeline for achieving norms is 31.12.2026.
	New /expansion power projects shall meet the limit w.e.f. 1.1.2015	Not Applicable as 2X210 MW ITPS of OPGC is an old plant commissioned in 1994.
	Existing power plants shall meet the limit w.e.f.01.01.2006	As per MoEF & CC notification dt. 7th December 2015, the compliance requirement is w.e.f. 01.01.2017. However, as per MoEF & CC notification dated 01.04.2021, OPGC-I Unit#1 & Unit#2 has to comply to the new emission standard of Thermal Power Plants by 31.12.2026.
5.	Install /activate opacity meters/continuous monitoring systems in all the units by December 31,2004 with proper calibration system.	Continuous emission monitoring system has been installed since June 2005. Calibration is done by comparing offline test results tested through calibrated Stack Monitoring kit.
6.	Development of guidelines/standards for mercury and other toxic heavy metal emissions by December 2003	The standard /guideline for mercury emission as per MoEF & CC notification dt. 7th December 2015 don't cover power generation capacity less than 500 MW.
7.	Review of stack height requirement and guidelines for power plants based on micro meteorological data by June 2003.	Compliance by other agency/authority. However, the stack height requirement i.e. 220 meter is fulfilled.
8.	Implementation of use of beneficiated coal as per GOI Notification.	The matter has been taken to coal supplier, Mahanadi Coal Field Ltd. For supply of washed coal.
9.	Power plants will indicate their requirement of abandoned coal mines for ash disposal and Coal	Complied

	India/MOC shall provide the list of abandoned mines by June 2003 to CEA.	
10.	Power plant will provide dry ash to the users outside the premises on uninterrupted access to the users within 06 months.	Dry fly ash is being provided to the interested users. Availability of adequate quantity of dry ash has been ensured to meet the users demand. OPGC has made 1200 MT/day dry ash collection facility which is about 35% of its total ash generation quantity.
11.	Power plant should provide dry fly ash free of cost to the users.	Complied.
12.	State P.W.Ds/ Construction and development agency shall also adhere to the specification/schedules of C.P.W.D. for ash/ ash based products utilization.	Compliance by other agency/authority.
13.	(i) New plant to be accorded Environmental clearance on or after 01.04.2003 shall adopt dry fly ash extraction or dry disposal system or medium(35 to 40%) ash concentration slurry disposal system or lean phase with 100% ash water recirculation system depending upon site specific environmental situation.	The requirement is incorporated in the design for its expansion project (unit 3 & 4). 100% dry fly ash extraction system and high concentration slurry disposal system with 100% ash water recirculation is being adopted.
	(ii) Existing plant shall adopt any of the systems mentioned in 13(i) by December 2004.	Complied. 35% dry ash collection facility has been provided. 100% ash water is being recirculated for reuse in ash handling.
14.	Fly ash mission shall prepare guide lines/manuals for fly ash utilization by March 2004.	New amended Fly Ash Notification has been published on 31.12.2021.
15.	New plant shall promote adoption of clean coal and clean power generation technologies.	Condition has been considered in Unit#3 & Unit#4

Prepared By:

Parthasarathi Panda
Sr. Manager (Environment)

Head of the Organization/Occupier:

01.06.24

Manas Ranjan Rout
Director Operations & MD I/c

Annexure-III
ODISHA POWER GENERATION CORPORATION LTD
IB THERMAL POWER STATION (2×210MW)
October 2023 – March 2024

Ash generation in MT	Ash Bricks (Own Brick Plant & Outside)	Land Reclamation	Asbestos	Cenosphere	NH/SH Road construction	Ash Dyke raising	Total Utilization
437331	2325	106200	1792	0	0	0	110317

Reasons for not meeting the Ash Utilization Target

D. 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. 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 plant 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. 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.
ii. 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.
iii. In response to the letter of Director (Operation), OPGC, dtd.24.08.2013 on the subject, Director (Tech. P&P), MCL neglected 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.
iv. 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.
v. OPGC sources entire coal from MCL mines. Coal being supplied has high ash content i.e. from 45%-47%. The utilization of this huge quantity of ash becomes additional challenge.

****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.***

Actions to overcome the challenges

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

1. OPGCL has installed its own Fly-Ash brick plant with production capacity of 15,000 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 6 (six) 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. 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.
5. OPGCL has been conducting various ash utilization awareness campaigns in the nearby community by way of street plays, distribution of pamphlets, etc.
6. 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, 1.28 acres & 1.12 acres for which consent has been taken from State Pollution Control Board, Odisha.
7. Action has been initiated to utilise ash in OPGC expansion project MGR line construction.
8. Working to get mine voids allotment from MCL.
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. 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. For this reason, OPGC has been continuously following up MCL for allotment of mine void, however the allotment of mine void has yet not been materialized. The steps taken 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 05.06.2010 for back filling of OPGC ash in BMC mine void of MCL as alternative solution against allotment of Lilari mine void but no initiative has been taken so far from MCL side.

iii. In response to the letter of Director (Operation), OPGC, dtd.24.08.2013 on the subject, Director (Tech. P&P), MCL neglected 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.

iv. 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.

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. OPGC vide Letter No. 8375, dated 13.11.2018 had requested Director (Tech/P&P), MCL for allotment of BOCM mine void for backfilling of ash, however there was no response from side of MCL.

vii. OPGC vide letter dated 10.08.2020 had again requested Director (Tech/P&P), MCL for allotment of BOCM mine void for backfilling of ash, however Director Technical, MCL vide letter dated 28.08.2020 turned down the proposal stating integration of Lakhanpur-Belpahar-Lilari mines and extraction of further seams from these mines.

viii. OPGC sources entire coal from MCL mines. Coal being supplied has high ash content i.e. from 40%-45%. The utilization of this huge quantity of ash has significant cost implication. Any relief on this matter (Like cost pass through in tariff) will be immensely helpful for companies like OPGC.

13. 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 ash.
14. A task force has been created by committee comprising representatives from CEA, MoEF &CC, Ministry of Mines, CIL, CIMFR, CMPDIL, CPCB & NTPC. The task force has listed Rampur Colliery as one of the abandoned mines for backfilling of ash nearest to OPGC. In response to the letter of CEA for a feasibility report on mine void filling, OPGC has made a preliminary survey and has found that the Rampur underground mine is at a distance of around 25 Km from the plant and can accommodate ash generated from OPGC for a period of 5 years and it is also feasible for OPGC to dispose ash in the mentioned mine void. OPGC has also proposed the name of BOCM to Central Electricity Authority which can meet the ash utilization requirement of OPGC for atleast a period of 10 years. Once the mine void is made available, OPGC shall take rapid measures to start backfilling of the mentioned mines at the earliest.
15. OPGC has made an agreement with M/s Ambuja Cement (of M/s Adani Ltd) for supply of fly ash of 1 million MT/year.
16. OPGC is in process od awarding contract to identify abundant quarries and transport ash for reclamation.
17. OPGC has awarded contract for transportation of ash to Highway Projects within lead of 100 Km.

Parthasarathi Panda
Sr. Manager Environment

ANNEXURE-IV

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION

ENVIRONMENTAL MONITORING REPORTS

Period-Oct'23 to Mar'24

A. STACK EMISSION

PARAMETER	NORM	INTERNAL MONITORING						THIRD PARTY MONITORING					
		STACK 1			STACK 2			STACK 1			STACK 2		
		MAX.	MIN.	AVE.	MAX.	MIN.	AVE.	MAX.	MIN.	AVE.	MAX.	MIN.	AVE.
SPM(mg/Nm^3)	100	91	72	81	91	77	85	75.2	70	73	74.4	74.2	74.3
SOX	NA	1111	888	993	1132	925	1033	392	376	384	418	394	406
NOX	NA	198	135	164	166	124	146	123	119	121	141	101	121

B. AMBIENT AIR QUALITY

PARAMETER	INTERNAL MONITORING			THIRD PARTY MONITORING		
	NORM	MAX.	MIN.	AVE.	MAX.	MIN.	AVE.
PM_{10} (µg/m^3)	100	92	76	82	61.4	57.8	59.6
$PM_{2.5}$ (µg/m^3)	60	58	15	44	40.2	36.2	38.2
SO_2 (µg/m^3)	80	22	10	14	16.8	16.3	16.55
NO_2 (µg/m^3)	80	32	15	24	15.2	15.1	15.15

C. AMBIENT NOISE LEVEL

	INTERNAL MONITORING				THIRD PARTY MONITORING			
	INDUSTRIAL NOISE LEVEL,dB(A)		RESIDENTIAL NOISE LEVEL,dB(A)		INDUSTRIAL NOISE LEVEL,dB(A)		RESIDENTIAL NOISE LEVEL,dB(A)	
	Day time	Night time	Day time	Night time	Day time	Night time	Day time	Night time
NORM	75	70	55	45	75	70	55	45
Minimum	67	65	39	35	61.7	51.9	48.9	39.6
Maximum	73	70	49	43	67.1	53.6	53.9	52.2
Average	69	67	44	39	64.5	52.7	50.8	42.5

D. LIQUID INDUSTRIAL EFFLUENT QUALITY

PARAMETERS	UNIT	NORM	INTERNAL MONITORING RESULT		PARAMETERS	UNIT	NORM	THIRD PARTY MONITORING RESULT	
			MAX.	MIN.				MAX.	MIN.
Temp(In)	^{0}C	T(O) - T(I) = <5^{0}C	-	-	pH	-	6.0 - 9.0	-	-
Temp(Out)			-	-	TSS	PPM	100	-	-
pH at 25^{0}C	NA	5.5-9.0	-	-	O & G	PPM	10	-	-
Chloride as Cl	PPM	1000 max	-	-	BOD	PPM	30	-	-
D.Phos as P	PPM	5.0 max	-	-	COD	PPM	250	-	-
O & G	PPM	10.0 max	-	-	Fe	PPM	3	-	-
TSS	PPM	100 max	-	-	Total Chromium	PPM	2	-	-
TDS	PPM	2100 max	-	-					
Res chlorine	PPM	1.0 max	-	-	Copper (as Cu)	PPM	3	-	-
BOD	PPM	30 max	-	-					
COD	PPM	250 max	-	-	Zinc(as Zn)	PPM	5	-	-

E. STP OUTLET

THIRD PARTY MONITORING

PARAMETERS	UNIT	NORM	RESULT	
			MAX.	MIN.
pH	-	6.5 - 9	7.32	7.25
TSS	PPM	20	10.4	9.2
BOD	PPM	10	11.4	10.8
COD	PPM	50	45.8	41.4
Total Nitrogen	PPM	10	10.4	10.1
Ammonical Nitrogen	PPM	5	8.9	8.2
Feacal Coliform	MPN/100ml	<100	17	15
Total Coliform	MPN/100ml	$	110	100

Annexure- V (A)

IB THERMAL POWER STATION

SUMMERY OF GREEN BELT & PLANTATION, TILL MARCH 2024

- Total Plantation & colony Area-**1227.5 acres**
- Greenbelt & High-Density Trees- **426.25 acres**
- % Greenbelt & High-Density Trees- **34.73**
- Total trees planted- **324749 Nos.**
- Total trees survived-**245044 Nos.**
- % of survival-**75.5**

Plantation & sapling distribution

Year	Planted	Sapling distributed
2012-13	350	2000
2013-14	1300	6000
2014-15	3000	5000
2015-16	700	4480
2016-17	8200	15000
2017-18	1885	4000
2018-19	10725	4600
2019-20	265	4500 *Grafted mango saplings-4000 Nos Forest species trees saplings-500 Nos
2020-21	300	Saplings could not be distributed due to COVID Pandemic
2021-22	200	1000 Fruit Bearing trees
2022-23	850	1000 Fruit Bearing trees
2023-24 (Till March'24)	900	3000 Fruit Bearing Trees

*Compensatory plantation of 260 acres has been done in Deogarh area.

Besides, a nursery of 25000 capacity has been developed

Parthasarathi Panda
Sr. Manager Environment

Annexure- V +A86+A1:H84

ODISHA POWER GENERATION CORPORATION LTD

IB THERMAL POWER STATION

YEAR WISE TREE PLANTATION DETAILS OF OPGC AT ITPS

Location	Name of Agency	Year	No.of trees planted	Name of the Species	No.of trees alive	Plant Area	Green Belt & High density natural green belt	
Colony,Guest House,Hallipad,	Local agencies	1991-92/92-93	12,000	Akashia	9,550			
Periphery,Pump House,Fillet				Sirish				
House,Stores etc.				Chhatim				
Periphery of Boundary Wall	O.P.G.C.	1992-93/93-94	38,500	Kadamba	23,300			
(Green Belt)				Panash				
Vacant place infront of SBI,	Sidhartha agency,	1993-94/94-95		Neem				
Old Hanuman Tample back	Jharsuguda.		23,800	Bottle brush	15,000			
side of Store yard,colony road				Bottle Palm				
side				Chakunda				
i)Back side of Autobase,	i)Sidhartha agency,	1994-95/95-96	20,000	Jhaun	15000			
Falsamunda village area.	Brukshyaropan			Sisoo				
	Samiti,Jharsuguda.			Golmohar				
ii)Coal yard side,either sides	ii)Departmentally,		37,000	Eucalyptus	31,155			
of main roads,Plant boundary,	Total:-			Gambhari				
Railway lines,inside area bet:-				Jarul				
ween D.M.Plant,R.W.pump				Litchi				
house and compound wall.				Amba				
Both sides of Rly.inline out	i)Green channel,	1995-96/96-97	40,000	Baula				
side the plant boundary and	Brukshyaropan &			Radhachuda				
Ash Pond area.	Samiti & 3 Nos.of			Deodaru				
	Club and Yuhak			Karanja				
	Sangha			Pijuli				
Jhawn &Plantation coal hand-	ii)Departmentally		34,500	Saguan				
ling plant area & other species				baxa				
on both sides of roads inside				Mandar				
plant.				Rangani				
Fuel Oil Pump house area,	iii)Local agencies		5,500	Areca Palm				
School,Hospital,Police station	Total:-			Juniperous	65,000			
Outer periphery of children				china Palm				
Parks,Playgrounds etc.				Musunda				
Ash Pond	i)Brukshyaropan		5,000	Karabira				
	Samiti			Golap				
	ii)Departmentally		5,000	Thuja				
Both side of Security road.	i)Brukshyaropan		5,000					
	Samiti							
	ii)Departmentally		5,000					
	Total				15,500			
Ash Pond		1998-99/99-00	5,500		4,500			
Ash Pond	By agencies	2000-2001	5,058		5,000			
CHP & Plant	-do-		5,966		4,842			
Colony	-do-		11,500		10,000			
Ash Filling Area(low lying area), Colony,Warehouse,SVM School(ITPS), Rengali School	-do-	2006-07	1,800		1200			
Inside Plant campus	-do-	2007-08	3,000		2300			
Distribution of fruit bearing tree in Periphery villages	-do-	2008-09	4,000	Mango, Lemon	2100			
Block Plantation in association with District Environmental Society	Majhi		3,000	Teak	2500			
Fruit bearing tree plamation at Gujapar and in Schools	do		350	Mango	50			
CHP & Learning Centre on Earth Day	Self	2009-10	120	Neem	75			
World Env Day	Self		150	Mango	90			
Govt. Land near Rengali Nursery	Karunakar Sahu		5000	Neem, Karanja, Kadamba, chakunda etc	2000			
Vatarika & Adhapada Mandir- 150 nos fruit & flower tree, Inside Colony vacant place- 100 neem trees, World Env day- 150 neem & Devdaru tree inside Plant Premises, Gujapahar- 200 Fruit bearing trees, 800 Fruit bearing, Radha Chuda etc planted in Binika & Banaharpali through villagers	Self & through villagers	2010-11	1500	Neem, Devdaru,Radhachura, Mango, Guava, Lemon, Jamun, Coconout, Lichi & Flower Plants	900	1227.6	425	
Vacant space in between Boiler area scrap yard & clarifiers	Self	2010-11	100	Neem	70			
Inside Colony Vacant Places	Self	2011-12	150	Mango, Lemon, Guava	100			
Vacant space at Coal Handling Plant	Self	2012-13	350	Neem, Devdaru	200			
Distribution of fruit bearing & Forest plant species in Periphery villages, 2000 nos	Self	2012-13	2000	Teak, Mango, Lemon	1000			
Avenue Plantation at Banharpali & Ash Pond Road & 100 nos inside Plant premises	Self	2013-14	1300	Kadamba, Limba, Karanga, Radhachuda, Teak, Devdaru etc	900			
Sapling Distribution, 6000 nos	through nearby villagers		6000	Teak, Guava, Jackfruit, Dalimb etc	3000			
Sapling Distribution, 5000 nos	through nearby villagers	2014-15	5000	Teak, Guava, Teak,etc	2500			
Block & Avenue Plantation (OPGC old Pump House vacant space , old Adhapada Shiv Temple premises near Banaharpali & Tarrini Temple premises at Pump House Para)	Self		3000		1050			
Sapling Distribution	through nearby villagers, 4480 nos	2015-16	4480	Teak, Baula, Guava, Lemon, Karanj etc	2100			
Plantation inside Plant and Colony	Self		700		650			
Plantation inside Plant and Colony	Self	2016-17	200	Baula, Mango	192			
Plantation inside Plant	Self		8000	Karanja, Neem, Baula	8000			
Saplings Distributed, 15000 nos	Others			Grafted Mango, Guava, Teak, etc				
Plantation inside plant & township * 4000 Nos of mango sapling distributed	Self	2017-18	1885	Kadamba, Neem, Bakul, Siris & Karanja	1880			
Gap Plantation	Self	2018-19	10725	Baula, Neem, Karanj, Mango, Arjun, Sisoo, Teak.	10725			
Plantation inside Plant and Colony	Self	2019-20	265	Karanj, Neem Bakul	265			
Plantation inside Plant and Colony	Self	2020-21	300	Bakul	300			
Plantation inside Plant and Colony	Self	2021-22	200	Bakul, Neem, Karanj, Sisoo	200			
Plantation inside Plant and Colony	Self	2022-23	950	Terminalia, Baula, Neem, Karanja, Arjun	950		1.26	Total Area of Green Belt
Plantation inside Plant and Colony	Self	2023-24 (Till Sep'23)	900	Terminalia, Baula, Neem, Kanchan	900		1	
Total			3,24,749		2,45,044		427.26	
% Survival				75.5				
Green Belt%				34.81				

In addition to above plantation at ITPS ,Compensatory Afforestation has been done by OPGC over 260 Ha. non-forest land in Deogarh, through Forest Department, Govt. Of Odisha.

Parthasarathi Panda
Sr. Manager- Environment

Annexure-5C

Report of Plantation Monitoring Committee

of the

District Environment Society, Jharsuguda

for the year 2017-18

Report of the Plantation Monitoring Committee of the District Environment Society, Jharsuguda-2017-18.

INTRODUCTION

The Jharsuguda District Environment Society constituted a Plantation Monitoring committee on 30.04.2013 with Prof. DR. Naik, Former Vice-Chancellor, Sambalpur University and Honorary Wildlife warden for Jharsuguda District as its Chief. The ACF, Jharsuguda Forest Division, the Chief Co-ordinator of the Eco-Club Co-ordination Committee and representatives from the State Pollution Control Board and Horticulture Department were other members. Since then the committee is inspecting industrial premises at least twice every year for monitoring the plantation activity. The report submitted by the committee was discussed in the Review meeting held on 20.12.2016 with the Collector as the Chairman. It was decided that the Plantation Monitoring Committee should inspect the industrial premises and submit its report for further action.

Inspection (2017-18):

The Plantation Monitoring Committee comprising of Prof. D.R. Naik, Former Vice-Chancellor, Sambalpur University and Honorary Wildlife Warden, Sri. P.K. Dhal, ACF, Jharsuguda Forest Division, Sri Prahallad Naik, Chief Co-ordination, Eco-Club Co-Ordination Committee, Sri Devadutta Mohanty, Assistant Environment Engineer, State Pollution Control Board and a representative of the Horticulture Department inspected in the various industrial premises as per the following schedule.

Date	Industries/Mines inspected
04.10.2017	MCL Lakhanpur Area, OPGC, Banharpali Ltd., TRL, Krosaki Ltd.
07.10.2017	Vedanta (Sesa Sterlite) Limited, Ultratech Cement Ltd., Sven Star Steel Ltd., MCL Ib Valley Area, Gobal Coalwashery.
23.08.2017	SMC Power Generation Limited, L.N. Metallic's, MCL Orient Area

General Remarks

(1) It was not intended to conduct the census of trees planted over the years. An overall estimation of the greenery in the accessible areas within the industrial premises was made. In addition, patches of vacant Govt. land outside their premises assigned to some of them for creating 'green belt' were also inspected. Care was taken to note the species of tree planted.

(2) It was found that some of the Industries/Mines have not been able to meet the 33.3% mandatory requirement. The concerned Industries have been advised to make up the deficiency by the end of 2017-18.

(3) It was noted that some Industries have planted trees like Eucalyptus and Acacia over extensive areas. These species are not environment friendly. Hence the concerned Industries were advised to undertake intercropping with other species of trees such as Neem, Jamun, Karanja, Simaruba, Jackfruit and such other species with thick foliage and big crown. In due course, Eucalyptus and Acacia may be eliminated.

(4) As Principal Chief Conservator of Forest, Odisha has allotted target of 1,25,000 nos. of seedlings to be planted during 2017-18 under Corporate Sector in Jharsuguda District, a scheme has been prepared by the Divisional Forest Officer, Jharsuguda for raising Urban/ Peri-Urban plantation which will be funded by MCL & Vedanta (Sesa Sterlite) Ltd.. Copy of the scheme has been forwarded to the appropriate authority of MCL & Vedanta (Sesa Sterlite) Ltd. vide Letter No.4411 and Date.14.12.2016 and Letter No.1016 dt. 29.03.2017 respectively. However, MCL Authorities have provided required funds the DFO, Jharsuguda for raising one lakh saplings for plantation in Urban/ Peri-Urban area of Jharsuguda District.

Table showing the Area covered and Number of Saplings planted by various Industries/Mines:

Sl No.	Name of Industries/ Mines	Total land Acquired (Ac)	33.3% of area (Ac)	Land planted (Ac) up to 2016-17	Plantation Achieved during 2017-18		Total area planted inside premises (Ac) up to 2017-18	Total nos. Of saplings planted during 2017-18 (inside & outside)	Remarks/ percentage Achieved
					Inside premises (Ac/No)	Outside premises (Ac/Km)			
1	SMC Power Ltd.	284	94.57	93.8	5.1	0	96.92	2000	34.12%
2	TRL Krosaki	386	128.53	135.0	1.54	0	136. 4	1000	35.33%
3	Global Washery	21.17	7.04	7.9	0	0	7.9	0	37.31%
4	Ultratech Cement Ltd.	165.25	55.02	55.02	0	0	55.02	0	33.33%
5	Vedanta (Sesa Sterlite)	2371.0	789.54	615.6	19.0	0	624.6	18000	26.34%
6	OPGC Ltd.	1227.5	408.75	207.0 (210.0 Ac natural forest)	7.0	0	424.0	1000	34.60% (4000 nos seedling distributed)
7	MCL Ib Valley, Area	3474.558	1158.07	458.62	0	0	458.62	0	13.19%
8	MCL Orient, Area	3472.422 (surface braking area-247.5)	82.41	143.97	0	0	143.97	0	58.16%
9	MCL Lakhanpur, Area	3610.13	1202.17	1084.32	3.51	0	1087.83	5625	30.13%
10	Seven Star Steel	59.0	19.65	21.5	1.62	0	23.12	1200	39.18%
11	LN-Metallics	25.41	8.46	12.0	1.4	0	13.4	900	52.73%
							Total: -	29,725	

Comments on the Plantation Activities of Different Industries & Mines:

1. **Ultratech Cement Ltd.:**
   A) Saplings Planted on the embankments of the reservoir and along the railway track are well maintained. The 11 acres patch lately planted during the previous season was inspected. The area was inaccessible and filled with grass. This area would be inspected again. They are advised to clean up the tall grass and take adequate care of the saplings.
   B) They have done plantation in the Arda Gramya Jungle (about 4 acres). Many of the saplings are dead. They need to be replaced with neem, Karanj, and such other saplings.
   C) The Avenue plantation from Dhutra village to Badpulia is not visible. Proper maintenance of the saplings is necessary.
   D) No plantation has been taken up during 2017-18.

2. **Seven Star Steels Ltd.:**
   A) Maintenance of plantation sites satisfactory.
   B) Damaged tree-guard/gabion for the Avenue plantation may be repaired/replaced.

3. **LN Metallic's:**
   A) Maintenance satisfactory. Care may be taken during the dry season to ensure survival of the saplings planted during the Current year. Fire-line should be maintained to check possible fire accident having summer.

4. **SMC Power Generation Ltd.:**
   A) Maintenance satisfactory. It is nice to see their greenery getting greener. Sustained efforts are necessary to keep it up.
   B) They have a nursery of their own. They are also providing sapling in the neighbouring areas. Preparatory work for the nursery may be started in January. However, the current year plantation work not up to the Mark.

5. **Vedanta (Sesa- Sterilite) Ltd.:**
   A) They have done plantation over an extensive area of their ash Pond dyke and in very small patches inside the premises of plant area. The area was inaccessible, but the greenery was visible.
   B) They have developed a nursery. Preparation for the necessary may be started in January.
   C) They may prepare a sketch map showing the green belt and number the different sectors for proper assessment of their greenery.
   D) Plantation done lately during the previous season may be properly maintained before the next inspection.
   E) Spacing between saplings should be 2 m. to 2.5m.
   F) As they have planted very small size seedlings, they have been advised to precure seedlings form Forest Department nursery form next year.

6.OPGC:

A) Maintenance of plantation sites satisfactory.

B) Saplings planted in the extension area are small. Special care need to be taken for their maintenance.

C) They have nursery for their own use and for distribution among the local community.

7.Global Coal Washery:

A) Maintenance of plantation sites satisfactory.

B) Plantation in the railway siding remains to be inspected.

8.MCL Ib Valley Area:

A) No plantation has been done by during 2017-18

9. MCL Lakhanpur Area:

A) Plantation sites of 2016-17 satisfactory. Replacement of the dead sapling advised.

B) Plantation of the current season is satisfactory an about 20,000 saplings has been planted.

10.MCL Orient Area:

They reported that they have distributed saplings to different educational institutions. These institutions have to be inspected for on the spot verification. They have planted around 200 saplings in the colony area. They may be assigned Govt. land for plantation.

11.TRL-Krosaki:

A) Plantation satisfactory.

B) They have a well maintained nursery.

(D.R. Naik) Ex VC & Honorary WL Warden	(P.K. Dhal) ACF, Jharsuguda Forest Division	(A. Lugun) A.D Horticulture Jharsuguda	(D.Mohanty) Asst. Env. Engineer Jharsuguda	(Prahallad Naik) Chief Co-ordinator, Eco-Club, Jharsuguda

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/5390/WE
September 28, 2023

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 & 2X660 MW) for the period from April 2022 to March 2023.**

Sir,

Enclosed please find herewith the annual Environmental Statement in (Form-V) for Ib Thermal Power Station (2x210MW & 2x660 MW), Banharpali, Jharsuguda for the period from 1st April 2022 to 31st March 2023 for kind perusal.

Thanking you

Sincerely yours,

Manas Ranjan Rout
Director (Operations) & Occupier

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 2022 TO 31st MARCH 2023

(FORM – V)

(See Rule 14)

Environmental Statement Report for the Financial Year ending the 31st March, 2023.

PART – A

i. Name and address of the Owner/**Occupier of the Industry** : **Mr. Manas Ranjan Rout**
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 : Unit#1-21.12.1994
: Unit#2-20.06.1996

iv. Date of last Environment Statement submitted : 27.09.2022

v. Industry category : Thermal Power Plant

OPGC
Power for Progress

PART – B

(Water and Raw Material Consumption)

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

Sl.	Description	2021-2022	2022-2023
(I)	Gross Energy Generation (MU/Year):	2951.802	2782.514
(ii)	Total Water consumption (m3/day):	23776	22353
(iii)	Ash disposal make up, Process NEBD:	3907	2763
(iv)	Cooling, Spraying, Boiler Feed:	19585	19168
(v)	Domestic*: (Excluding Township)	234	371
(vi)	Process, EBD	50	50

Sl No	Name of the product	Process Water Consumption per Unit of Product Output	
		2021-22	2022-23
01	Electricity	2.93 Kl/MWH	2.93 Kl/MWH

NB: The Sp. Water consumption was higher than previous due to lesser generation.

Name of Raw Material	Name of the product	Consumption of Raw Material unit of output			
		2021-22		2022-23	
Coal	Electricity	Total Consumption	2595424 MT	Total Consumption	2469575MT
		Specific Consumption	0.879 Kg/KWH	Specific Consumption	0.888Kg/KWH
Start-up Fuel Oil (LDO)	Electricity	Total Consumption	1186.913 KL	Total Consumption	1069.597 KL
		Specific Consumption	0.402 ml/KWH	Specific Consumption	0.384 ml/KWH

PART – C
Pollution discharged to Environment and Pollution Level

PERIOD- April 2021 TO March 2022								
STACK EMISSION								
PARAMETER	NORM	STACK 1			NORM	STACK 2		
		MAX.	MIN.	AVE.		MAX.	MIN.	AVE.
PM (mg/Nm^3)	100	93	76	85	100	92	78	86
CO_2 (%)	NA	17.8	6.9	9	NA	8.3	7.2	7.7
CO (mg/Nm^3)	NA	11.5	9.2	10.8	NA	12.1	9.3	9.9
SO_2 (mg/Nm^3)	600	1347	1006	1190	600	1386	948	1207
NO_x (mg/Nm^3)	600	225	130	170	600	210	121	173

AMBIENT AIR QUALITY								
PARAMETER	NORM	INDUSTRIAL			NORM	RESIDENTIAL		
		MAX.	MIN.	AVE.		MAX.	MIN.	AVE.
PM_{10} ug/m3	100	95	19	73	100	90	16	66
PM 2.5 ug/m3	60	58	10	40	60	54	09	37
SO_2 (ug/m3)	80	19	11	14	80	15	8	10
NO_x (ug/m3)	80	31	14	24	80	26	11	21

STP WATER QUALITY				
PARAMETER	NORM	MAX	MIN	AVE.
pH	6.5 – 9.0	7.26	6.50	6.96
TSS, mg/ltr	100	11	08	10
BOD(3 days at 27^0C), mg/ltr	30	14	8.3	10
COD, mg/ltr	250	72	32	54
Total Nitrogen(as N)	10	23.6	5.1	15
Ammonical Nitrogen(as NH_3-N)	50	19	3	11
Total coliform	--	261	132	176
Fecal coliform	<1000	94	15	43

AMBIENT NOISE in dB(A)			
INDUSTRIAL		RESIDENTIAL	
MAX.	MIN.	MAX.	MIN.
DAY TIME			
NORM			
75		55	
73	66	49	39
NIGHT TIME			
NORM			
70		45	
65	63	42	36

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	2021-22				2022-23			
	Opening stock	Generation	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	**130.297 KL** a. 17.922 KL b. 112 MT c. 0.375 KL	**25.568 KL** a. 20.258 KL b. 5.31 MT c. Nil	**14.7**	**141.165 KL**	141.165 KL a. 23.48 KL b. 117.31 MT c. 0.375 KL	72.06 KL a. 55.05 KL b. 17.01 MT c. Nil	93.16	120.065KL
Waste or Residue containing oil*	1.1MT	0.5 MT (oily cotton waste)	Nil	1.6 MT	1.6MT	0.5MT	-	2.1MT
Oily sludge during cleaning: KL	0	0	0	Nil	0	0	0	Nil
Spent Resin, MT	7.6 MT	0	0	7.6 MT	7.6 MT	0	0	7.6 MT
Discarded Container a.oil drums (Nos) Empty Chemical Jar, Nosb b. CW chemical	702	125	300	527	527	361	466	422
Used batteries(Nos.)	292 Nos	255 Nos	221 Nos	34	34	168	152	50

B. From Pollution Control Facilities: No generation

PART – E
SOLID WASTES

A. Ash:

Solid Wastes (Ash):	Total Quantity (MT)	
	2021-22	2022-23
From Process	232973 MT (Bottom Ash)	230071 MT (Bottom Ash)
From Pollution Control Facilities	931891 MT (Fly Ash)	920282 MT (Fly Ash)
Quantity Utilized	403200 MT	464849 MT

Disposed in Ash Pond	761664 MT	685504 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 me 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 voi near to OPGC site but there has been no progress.

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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.

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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 incentivize 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.
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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 2024.

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 (RE Sustainability Ltd) for disposal of non-soluble, non-incinerable and non-recyclable hazardous wastes at Common Hazardous Wastes Treatment Storage and Disposal Facility (CHWTSDF), Jajpur.

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.

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 & Brick 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.

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 is 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 vide letter No 3994 Dated 31.03.2018 & valid till 31.03.2021. OPGC has also obtained Consent to Operate under Water Act from OSPCB vide letter no 15440/IND-I-CON-6658 dated 27.12.2018 and valid till 31.03.2021

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.

OPGC has declared no usage of plastic carry bags in colony and plant area. Regular campaigns are made to restrict the use of plastic carry bags in township and peripheral areas. OPGC has distributed Jute carry bags to all its employees to promote non usage of plastic carry bags.

PART – G

A. 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.
- All bricks used for civil maintenance activities inside the plant are of ash bricks.
- 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 have led significant conservation of energy in township, as pond and street lighting

B. 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 production

PART – H

Additional investment proposal for Environmental protection abatement of pollution,

Prevention of pollution

1. Utilization of ash in low lying areas, brick plants/asbestos- 1750 lakh
2. Tree Plantation/Green belt development- 2 lakh
3. Effective Ash dispersion control in Ash Pond at the time of turbulent wind flow- 30 lakh
4. Ash Disposal line replacement to reduce the risk of pipe line failure- 25 lakh
5. Hazardous waste disposal-5 Lakhs
6. Maintenance of online analysers-10 Lakhs
7. ISO 14001:2015 recertification-2.5 Lakhs

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 14001:2015 EMS and Global EMS standard.
- Fine tuning of ESPs of both the Units for achieving desired emission level.
- Adequate plantation and greenbelt developed to minimise air as well as noise pollution. Planted approx. 3.23 lakh trees. 34.73% greenbelt and plantation exits in and around plant and colony premises.
- Water conservation by 100% Ash water recirculation and other effluents recycle & reuse. All the plant effluent is also getting recycled back in process.
- Housekeeping has been given highest priority. Plant & Colony premises are maintained clean all the time. Roads are black turfed to control fugitive emission. Colour coded bins have been provided at all generation points for proper segregation and management of wastes.
- 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.
- Carrying out Annual Hydrogeological study for studying characteristics of aquifers and quality of ground water.

Manas Ranjan Rout
Director (Operations) & Occupier

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ENVIRONMENTAL STATEMENT

Odisha Power Generation Corporation Ltd
Ib Thermal Power Station

Banharpali, Jharsuguda

(2 x 660 MW)

PERIOD FROM 1st APRIL 2022 TO 31st MARCH 2023

(FORM – V)

(See Rule 14)

Environmental Statement Report for the Financial Year ending the 31st March, 2023.

PART – A

i. Name and address of the Owner/Occupier of the Industry : **Mr. Manas Ranjan Rout**
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 : 1320 MW (2X660 MW)

iii. Year of Establishment : Unit#3-03.07.2019
Unit#4-21.08.2019

iv. Date of last Environment Statement submitted : 27.09.2022

v. Industry category : Thermal Power Plant

PART – B

(Water and Raw Material Consumption)

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

Sl.	Description	2021-2022	2022-2023
(I)	Gross Energy Generation (MU):	7236.554	8930.912
(ii)	Total Water consumption/day:	54589	59161
(iii)	Ash disposal make up, Process NEBD:	No fresh water used for handling ash	No fresh water used for handling ash
(iv)	Cooling, Spraying, Boiler Feed:	48584	52052
(v)	Domestic*: (Excluding Township)	Reported under OPGC-1 (2x210 MW)	Reported under OPGC-1 (2x210 MW)
(vi)	Process, EBD	6004	7099

Sl No	Name of the product	Process Water Consumption per Unit of Product Output	
		2021-22	2022-23
01	Electricity	2.75 KL/MWH	2.42 KL/MWH

Name of Raw Material	Name of the product	Consumption of Raw Material unit of output			
		2021-22		2022-23	
Coal	Electricity	Total Consumption	5417921 MT	Total Consumption	6264081 MT
		Specific Consumption	0.748 Kg/KWH	Specific Consumption	0.701 Kg/KWH
Start-up Fuel Oil (LDO)	Electricity	Total Consumption	2159.79 KL	Total Consumption	1334.538 KL
		Specific Consumption	0.298 ml/KWH	Specific Consumption	0.149 ml/KWH

PART – C
Pollution discharged to Environment and Pollution Level

PERIOD- April 2021 TO March 2022

STACK EMISSION

PARAMETER	NORM	STACK #3			NORM	STACK #4		
		MAX.	MIN.	AVE.		MAX.	MIN.	AVE.
PM (mg/Nm^3)	**50**	41	31	37	**50**	39	22	35
SO_2 (mg/Nm^3)	**200**	1284	1017	1213	**200**	1286	1035	1205
NO_X (mg/Nm^3)	**450**	406	381	393	**450**	407	370	387

AMBIENT AIR QUALITY

PARAMETER	NORM	INDUSTRIAL			NORM	RESIDENTIAL		
		MAX.	MIN.	AVE.		MAX.	MIN.	AVE.
PM_{10} ug/m3	**100**	95	19	73	**100**	90	16	66
PM 2.5 ug/m3	**60**	58	10	40	**60**	54	09	37
SO_2 (ug/m3)	**80**	19	11	14	**80**	15	8	10
NO_x (ug/m3)	**80**	31	14	24	**80**	26	11	21

STP WATER QUALITY

PARAMETER	NORM	MAX	MIN	AVE.
pH	**6.5 – 9.0**	7.26	6.50	6.96
TSS, mg/ltr	**100**	11	08	10
BOD(3 days at 27^0C), mg/ltr	**30**	14	8.3	10
COD, mg/ltr	**250**	72	32	54
Total Nitrogen(as N)	**10**	23.6	5.1	15
Ammonical Nitrogen(as NH_3-N)	**50**	19	3	11
Total coliform	--	261	132	176
Fecal coliform	**<1000**	94	15	43

AMBIENT NOISE in dB(A)

INDUSTRIAL		RESIDENTIAL	
MAX.	MIN.	MAX.	MIN.
DAY TIME			
NORM			
75		**55**	
73	66	49	39
NIGHT TIME			
NORM			
70		**45**	
72	64	42	36

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	2021-22				2022-23			
	Opening stock	Generation	Sold/ Disposed	Balance	Opening stock	Generation	Sold/ Disposed	Balance
Used oil/Spent oil a. Used Lub. Oil : KL b. Used Grease: MT c. Used Transformer Oil:KL	**31.625 KL**	**20.400 KL** a. 20 KL b. 0.400 KL c. Nil	Nil	**52.025 KL**	**52.025 KL**	**24.2KL** a. 24.2KL b. Nil c. Nil	Nil	**76.225KL**
Sludge contaminated with oil: KL	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Spent ion exchange resin, MT	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**	**Nil**
Waste Residue Containing Oil	2.5 MT	1.5 MT (oily cotton waste)	Nil	4 MT	4 MT	1.5MT	Nil	5.5MT
Used batteries(Nos.)	266 Nos	13 Nos	24 Nos	34 Nos	34 Nos	168 Nos	152 Nos	50 Nos

B. From Pollution Control Facilities: No generation

PART – E

SOLID WASTES

A. Ash:

Solid Wastes (Ash):	Total Quantity (MT)	
	2021-22	2022-23
From Process	**484130 MT (Bottom Ash)**	**564743 MT (Bottom Ash)**
From Pollution Control Facilities	**1936520 MT (Fly Ash)**	**2258981 MT (Fly Ash)**
Quantity Utilized	**578046 MT**	**657506 MT**
Disposed in Ash Pond	**1842604 MT**	**2166218 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.

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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 is 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 vide letter No 3994 Dated 31.03.2018 & valid till 31.03.2021. OPGC has also obtained Consent to Operate under Water Act from OSPCB vide letter no 15440/IND-I-CON-6658 dated 27.12.2018 and valid till 31.03.2021

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.

OPGC has declared no usage of plastic carry bags in colony and plant area. Regular campaigns are made to restrict the use of plastic carry bags in township and peripheral areas. OPGC has distributed Jute carry bags to all its employees to promote non usage of plastic carry bags.

PART – G

A. 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.
- All bricks used for civil maintenance activities inside the plant are of ash bricks.
- 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 have led significant conservation of energy in township, as pond and street lighting

B. 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 production

PART – H

Additional investment proposal for Environmental protection abatement of pollution,

Prevention of pollution

1. Utilization of ash in low lying areas, brick plants/asbestos- 1750 lakh
2. Tree Plantation/Green belt development- 2 lakh
3. Effective Ash dispersion control in Ash Pond at the time of turbulent wind flow- 30 lakh
4. Ash Disposal line replacement to reduce the risk of pipe line failure- 25 lakh
5. Hazardous waste disposal-5 Lakhs
6. Maintenance of online analysers-10 Lakhs
7. ISO 14001:2015 recertification-2.5 Lakhs

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 14001:2015 EMS and Global EMS standard.
- Fine tuning of ESPs of both the Units for achieving desired emission level.
- Adequate plantation and greenbelt developed to minimise air as well as noise pollution. Planted approx. 3.23 lakh trees. 34.73% greenbelt and plantation exits in and around plant and colony premises.
- Water conservation by 100% Ash water recirculation and other effluents recycle & reuse. All the plant effluent is also getting recycled back in process.
- Housekeeping has been given highest priority. Plant & Colony premises are maintained clean all the time. Roads are black turfed to control fugitive emission. Colour coded bins have been provided at all generation points for proper segregation and management of wastes.
- 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.
- Carrying out Annual Hydrogeological study for studying characteristics of aquifers and quality of ground water.

Manas Ranjan Rout
Director (Operations) & Occupier

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