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
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OPGC
Power For Progress

Letter No. ITPS/2686/WE

May 27, 2025

The Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office A/3, Chandersekharpur,
Bhubaneswar – 751023

Sub.: **Half yearly Environmental Status Report of Odisha Power Generation Corporation (2X660 MW ITPS), Banharpali, Dist. Jharsuguda for the period from October 2024- March 2025.**

Ref.: **ITPS Environmental Clearance No. No-J-13011/59/2008 for 2X660 MW Unit#3 & Unit#4 & Subsequent Amendments**

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 (2X660 MW ITPS) for the period from **October 2024- March 2025**.

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

Thanking you

Sincerely yours,

ARDash

Anjana Ranjan Dash
Director (Operations)

Enclosures as above

CC: Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar – 751012

ODISHA POWER GENERATION CORPORATION LIMITED

2x660 MW Ib Thermal Power Station
Environment Clearance No-J-13011/59/2008 & Subsequent Amendments
1st October 2024 to 31st March 2025

Cl. No.	EC Conditions	Compliance Status
4. (i)	It shall be ensured that natural drainage in the area is not disturbed due to any activity associated with operation or development of the power plant.	The original natural drainage status has been maintained in the project area. The same will not be disturbed in future. In case diversion of any drainage is required in future, permission shall be taken from competent authority.
4. (ii)	The height of the existing ash pond shall not be increased to accommodate fresh disposal of ash slurry.	➢ The height of the then existing ash pond (Ash Pond- A & Ash Pond-B in the year 2010) has not been increased to accommodate fresh disposal of ash slurry from the expansion (Unit 3 & 4). ➢ Ash from Units 3 & 4 has not been disposed in that time existing ash ponds i.e. (Ash Pond A & B). OPGC has constructed dedicated Ash Pond for its Unit#3 & Unit#4 at Tilia (Phase-1 & Phsase-2 Ash Ponds) which are operational. ➢ Recently height raising work of Ash Pond-A is in progress after obtaining CTE from OSPCB and the volume that will be created in Ash Pond-A will be used to fill up dry ash from Ash Pond-C which will create space in ash pond C for further disposal of ash slurry from Unit#1 & Unit#2. Since Ash Pond A is an old ash pond commissioned on 31.08.2007, OPGC has decided to fill up the ash pond by dry disposal considering the safety of the ash dyke. ➢ Ash Pond B has been capped & reclamation certificate has been obtained from OSPCB. ***Thus, considering the above points, OPGC is complying to the stipulated condition of EC date 04.02.2010.***
4.(iii)	Wildlife conservation plan prepared in consultation with the office of the concerned Chief Wildlife Warden shall be implemented before any expansion activity is undertaken. The status of implementation shall be submitted to the Regional Office of the Ministry within six months and from time to time.	• The Site-Specific Wild Life Conservation Plan (SSWLCP) for the power plant has been prepared and got approved from Chief Wildlife Warden, Odisha on dtd. 12th June 2014. • The payment of amount Rs 6, 62,92,000 for execution of SSWLCP was made on 18.07.2014 to Odisha CAMPA account. This payment was communicated to Forest Dept; Odisha vide our letter no 2161/WE on Dtd 19.07.2014. • Besides the above, OPGC has already spend Rs. 2.01 Crores towards plantation activities against the plantation requirement mentioned in approved wild life management plan. In the FY 2026-25, OPGC is carrying out plantation activities through OFDC by adopting Miyawaki Plantation technology near Tilia village.

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		• Under biodiversity conservation plan, OPGC has installed artificial bird nests inside its campus for protection and conservation of avifauna.
4. (iv)	Hydro-geological study of the area shall be reviewed annually, and results submitted to the Ministry and concerned agency in the State Govt. In case adverse impact on ground water quantity and quality is observed, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken.	• First hydrogeological study was carried out in the year 2014-15. In the study, no such adverse impact was observed. The report was submitted to the Ministry & OSPCB. Thereafter yearly review study has been conducted with no observance of adverse impact so far. • A comprehensive detailed Hydrogeological study covering the plant and ash pond area was carried out during 2023-24. No adverse impact was observed from the study. Report enclosed as **Annexure-1** • 16 nos. of Bore wells have been constructed in the identified locations covering all directions of the plant and ash pond for collection of water samples & piezometric analysis.
4. (v)	A twin flue stack of 275 m height shall be provided with continuous online monitoring equipment's for SOx, NOx and RSPM (PM2.5 & PM10). Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.	• A twin flue stacks of 275 meters height have been constructed with sampling port hole and safe access arrangement for carrying out manual monitoring • 2 Nos of CEMS have been installed at the twin flue stack for monitoring of SO_2, NO_X and PM parameters and real time data being transferred to SPCB & CPCB. • Exit velocity of flue gas has been maintained more than 22 m/sec (In the range of 22m/s to 25 m/s) • Mercury emission and other emission parameters (PM, SO2 & NOx) of flue gas is being monitored periodically from January 2020 onwards through NABL accredited Lab and reports are being submitted. Mercury emission of the stack is also being monitored on monthly basis through NABL accredited lab and the results are **enclosed as Annexure-2**
4. (vi)	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm3.	High efficiency ESPs are designed and installed to ensure PM emission less than 50 mg/Nm3.
4. (vii)	Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and	• Dust extraction systems (Bag Filters) have been provided at Crusher House, Boiler Bunkers and vents of Ash Silos to control the fugitive dust emission.

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	other vulnerable dusty areas shall be provided.	• Dust Suppression Systems (DSS- Dry Fog and Water sprinkling) have been installed at Track hopper, Transfer towers. • Rain Gun type water sprinkling systems have been installed at Coal stock yard to control fugitive emission during stacking and reclamation of coal.
4. (viii)	Utilisation of 100% Ash generated shall be made from 4th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	As per Fly Ash Notification December-2021, OPGC has to achieve 100% ash utilization by 31.03.2027. The first compliance cycle for OPGC is of 5 years since the ash utilization percentage of 2021-22 was less than 60%. The ash utilization percentage for 2024-25 was 15.73%, However, OPGC has taken the following steps for increasing ash utilization% ➢ With state of art technology OPGC has developed rake loading system directly from ash silos. This system can load conditioned ash & thus do not require any siding & it is very Environment friendly. ➢ OPGC has tied an agreement with Ambuja Cement & Dalmia Cement for offtake of 1 million MT ash/ Year through rakes with each vendor. ➢ OPGC has identified many abandoned stone quarries within lead of 100 Km for disposal of ash ➢ OPGC is supplying ash to NHAI projects (NH-42/NH-49 & PWD Projects) & for filling up of Railway Overbridges ➢ OPGC has setup its own fly ash brick manufacturing plant and can manufacture up to ten thousand bricks in a day. OPGC also supplies ash to private bricks & asbestos plants. Due to the following reasons OPGC has not been able to achieve 100% ash utilization. ➢ Remote location of the Plant and unavailability of good road infrastructure for dispatch of ash through roads. ➢ Unavailability of Indian Railways Rakes. ➢ Far away from the nearest port (>500 Km) ➢ Unavailability of Coal mine voids & MCL consistently denying handing over of mine void to OPGC ➢ Obtaining CTE for low lying area filling & Quarry filling from OSPCB is a tedious, complicated & time taking process ➢ Outrage of stakeholders due to unauthorized disposal of ash of major players of the area & OPGC although being

Cl. No.	EC Conditions	Compliance Status
		compliant Plant, faces the resistance from local stakeholders. ***Note: The compliance cycle of OPGC has started from 01.04.2022 & is up to 31.03.2027 as per Fly Ash Notification of December 2021. OPGC is optimistic in achieving the target within the compliance cycle.***
4. (ix)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed of in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, and Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed of in low lying area.	• Pneumatic conveyer system with 3 nos of dry ash storage silos have been constructed with capacity of 2300 m3 (2700 mT) each for storage of ash and for its further utilisation and disposal. • Unutilised fly ash is being disposed in the ash pond through HCSD system and Bottom ash is being disposed through LCSD system. • Effluent emanating from the existing ash pond is being recycled and reused for fresh slurry making. No ash pond effluent is being discharged outside. The heavy metal in ash and nearby ground water is being monitored periodically, test reports are enclosed as **Annexure-3** for kind reference. • No ash shall be disposed in low lying area without taking consent from OSPCB.
4. (x)	Ash pond shall be lined with HDP/LDP lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	The design & drawing of the ash pond has been provided by IIT Chennai. OPGC has provided all safety measures for protection of Ash Ponds like Sand Chimney, Rock Toe, Garland Drain, Grass turffing, full-fledged decanted ash water recirculation system etc. OPGC has provided 1.5 mm HDPE membrane as liner for Ash Pond-C, however since Ash Pond-A is an old ash pond commissioned in 2007 and at that time there was no stipulation of fixing liner i.e. neither from OSPCB nor in EC condition of Unit#1 & Unit#2 (EC-30.01.1987), hence HDPE lining has not been provided. ***Note: The drawing of the starter dyke & photograph of the Ash Pond C just before commissioning as a proof for the liner system has been enclosed for reference as Annexure-4***
4. (xi)	For disposal of Bottom Ash in abandoned Manoharpur mines it shall be ensured that the bottom and sides of the mined-out areas are adequately lined with clay before Bottom Ash is filled up. The	The requirement will be implemented, and approval/ clearances will be taken from State Pollution Control Board before undertaking filling of mine void using ash.

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	project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	
4. (xii)	Closed cycle cooling system with natural draft cooling towers shall be provided. The Effluents shall be treated as per the prescribed norms.	• Considering the ambient conditions, the plant has been designed with induced draft cooling tower. This deviation request was submitted to Director (Thermal), MoEF vide letter No.565 dated 8 -March-2010 • Considering our request, MoEF has granted its permission for use of Induced Draft Cooling System via EC Amendment no. J-13011/59/2008-IA.II (T) dated 22/01/2014. The blow down of the IDCT is being utilised in ash handling and dust suppression purpose.
4. (xiii)	COC 5.0 will be adopted.	The average COC for FY 2024-25 was 5.57 & the COC for Jul'25 was 5.72.
4. (xiv)	The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.	• 2 Nos of ETP of 200 m3/hour capacity each has been installed for treatment and utilisation of waste water generated from the plant. • Zero effluent discharge is being adhered. Effluent drains have been segregated from the Storm water drains. • Storm water is treated in surface water treatment system and in collected in Rain Water Harvesting Pond. The water is used back in process & in water sprinkling. Excess storm water is discharged ensuring the water quality meets discharge standards.
4. (xv)	A sewage treatment plant shall be provided, and the treated sewage shall be used for raising greenbelt/plantation.	• 1 MLD capacity Sewage Treatment Plant has been provided for treatment of sewage generated from colony and office buildings of OPGC. • Treated sewage is being used for raising greenbelt/plantation.
4. (xvi)	Rainwater harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	• Based on the detailed study on rain water harvesting technology has already been completed in May-2012 and the report is already finalised. The same was submitted to Central Ground Water Board for review and advice vide letter No. 1612/WE dated 28-June 13. After compliance submission against the observation raised by CGWB and further verification, and the approval accorded by CGWB vide letter no – 5-22/SER/CGWA/2017-18-1455 on dated 07.12.2017. After getting the approval of the technology, the rain

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		harvesting pond has been constructed. The rain water harvesting pond is operational since May'22
4. (xvii)	Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.	• Details of fire protection arrangement at coal yard with lay out map has been submitted to Regional Office, MoEF & CC • Adequate fire hydrant system has been installed in the Coal stock yard and Track hopper site to control spontaneous fire. • Coal stock yard is being managed through first in first out method to reduce spontaneous combustion. • Compaction of coal stock pile is being done at regular intervals to reduce spontaneous combustion.
4. (xviii)	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur conte nt in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	• Storage facilities for auxiliary liquid fuel has been made in consultation with Dept. of Explosive, Nagpur. Further, the facilities have been brought into operation after getting valid license from Dept. of Explosive, Nagpur. • As regards to Sulphur content, EAC (Thermal) in its monthly meeting held on 18th/19th November 2013 has accorded its consent for the use of commercially available fuel oil. • Emergency response plan has been prepared to handle any emergency
4. (xix)	Regular monitoring of ground water (especially around ash pond and plant areas) shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr, As, Pb) and records maintained and submitted to the	• Piezometers have been installed in existing ash pond and 30 nos of Bore wells have been constructed in the identified locations covering all directions of the plant and ash pond for collection of water sample. • Periodic monitoring for heavy metals is being carried out in the ground water samples from ash pond and surrounding area and reports are being submitted to the Regional Office. • The analysis of the ground water samples near the existing ash pond & nearby surrounding villages' shows that the

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	Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	concentration of heavy metals is within the permissible limits. Reports enclosed as **Annexure-5** for kind reference
4. (xx)	Monitoring surface water quantity and quality shall also be regularly conducted, and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	Surface water and ground water quality monitoring is being done regularly. The reports are enclosed as **Annexure-6**
4. (xxi)	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised, and adequate justification shall be submitted to the Ministry. Tree density shall not less than 2500 per ha with survival rate not less than 70 %.	• 3 tires of green belt of native species of more than 100 m width have been raised all along the plant boundary. Some portion of the thickness of the green belt towards the South east direction of the plant is around 50 meter wide due presence of security inspection road. • District Plantation monitoring committee lead by Wild Life Warden along with Additional Chief Conservator of Forest, Asst. Director Horticulture, Asst. Environment Engineer OSPCB & Chief Co-ordinator Eco Club of Jharsuguda has verified the plantation/green belt status through site visits which comes to be 34.86%. (The green belt percentage has now increased to 34.92 % in FY 2025-26 and will be certified by plantation committee in October'25). • The average survival rate of plants since 1991 is around 75.8 %. However, it is pertinent here to mention that, the survival rate during the last 10 years is 100% which is ensured through AMC contracts and by replacement of dead plants. • The District Plantation committee report mentioning 34.86% green cover is enclosed as **Annexure-7** for reference. Detailed Plantation report enclosed as **Annexure-8.**
4. (xxii)	First Aid and sanitation arrangements shall be made for the	Construction phase has been completed, however fully equipped 18 bedded Hospital has been established inside the

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	drivers and other contract workers during construction phase.	campus for health care of workers. Annual Health check-up of all labours is also being carried out in the same Hospital.
4. (xxiii)	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non-noisy/less noisy areas.	• Arrangements for control of noise in the working areas have been taken in the plant by provision of acoustic enclosures, silencers etc. Sufficient ear protection PPE is provided for all personnel exposed to work in noisy area. • Periodic/ Annual health check is being carried out for all employees & contractor partners. • Audiometric test is conducted annually for all employees working in noisy area & no abnormalities has been observed so far. A sample health checkup report has been enclosed as **Annexure-9**
4. (xxiv)	Regular monitoring of ground level concentration of SO_2, NO_X, RSPM ($PM_{2.5}$& PM_{10}) and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.	The project is located inside the existing plant premises. Six online CAAQ monitoring stations to monitor PM10, PM2.5, SO2, NOx & CO has been installed within impacted zone. Results are transmitted to SPCB & CPCB server on real time basis. Other than this, Ambient Air Quality is also being monitored through five permanent offline ambient air quality stations and the location of the stations has been decided in consultation with the Regional Office OSPCB. Periodic monitoring is being performed for ambient Hg. Third Party Ambient Air monitoring report has been enclosed as **Annexure-10** Necessary control measures shall be implemented in case any exceedances are observed. The half yearly compliance report is uploaded in OPGC Website. **Address:https://www.opgc.co.in/env/Half_Yearly_EC_Compliance_Report.asp**
4. (xxv)	A good action plan for R&R (if applicable) with package for the project affected persons be submitted and implemented as per	R & R plan is not applicable as there is no displacement of people due to establishment of the project.

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	prevalent R&R policy within three months from the date of issue of this letter.	***Note: The detailed R&R is applicable for Environment Clearance of OPGC-I (2X210 MW) and details are mentioned in the EC Compliance status report of OPGC-I***
4. (xxvi)	An amount of Rs 24.36 Crores shall be earmarked as one-time capital cost for CSR programme. Subsequently a recurring expenditure of Rs 4.87 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	A final expenditure of 22.19 Crores have been incurred as actual expenditure. The details has been enclosed as **Annexure-11.** **Note: Although a commitment of 24.36 crores as CSR programme, during the project CSR activity an amount of 22.19 crore was spent, however all projects committed have been accomplished.**
4. (xxvii)	As part of CSR programme the company shall conduct need-based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community' development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.	The details are enclosed as **Annexure-12**
4. (xxviii)	The project proponent shall also adequately contribute in the development of the neighbouring	This remains high on OPGC'S agenda. The approved project list sheds adequate light on how OPGC has planned elaborately to provide lasting and sustainable water solutions to people of

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	villages. Special package with implementation schedule for providing fluoride free potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	nearby villages. OPGC has also started mobilising people's opinion and support for sustainable water solutions in collaboration with experts and Jharsuguda district authority. OPGC has undertaken many projects for construction of new village ponds & deepening of existing ponds. This not only helps in harvesting of rain water which is used for irrigation, washing & bathing but also helps in recharge of ground water. At present OPGC is supplying piped drinking water to 17 villages. During summer drinking water supply is being done to 70 villages through tankers. In future the supply of drinking water shall be increased as per demand.
4. (xxix)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Construction phase has been completed.
4. (xxx)	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of	Complied. Published in Sambad (Odiya) & New India Express (English) in March 2010.

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	Environment and Forests at http://envfor.nic.in.	
4. (xxxi)	A copy of the clearance letter shall be sent by the proponent to concern Panchayat, ZilaParisad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Complied in March 2010.
4. (xxxii)	A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	A separate Environment Management Cell with qualified staff has already been functioning for the purpose. The detailed structure of the Environment Management Cell is enclosed as **Annexure-13**
4. (xxxiii)	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely, RSPM, S02, NOx (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	• The status of compliance is being uploaded in Website and reports are also being sent to the said offices. • 2 Nos of LED display boards are installed at the Plant main gate for display of environmental information. **Website path** http://www.opgc.co.in/env/half_comp_powerplant.asp

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4. (xxxiv)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well by e- mail) to the respective Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB.	Being complied. The last half yearly compliance report has been submitted to MoEF&CC vide letter no. ITPS/2686/WE Dated 27.05.2025
4. (xxxv)	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	Annual Environment Statement (Form-V) of 2X660 MW for the FY 2023-24 had been submitted to OSPCB & MoEF & CC regional office vide ITPS Letter No. 5573/WE, dated 20.09.2024 and web-hosting of Environment Statement has also been done. **The annual Environment Statement for the FY 2023-24 is enclosed as Annexure-14.** **Note: Annual Environment Statement for FY 2024-25 will be submitted by September'25**
4. (xxxvi)	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of' the environmental clearance conditions on their website and update the same periodically and simultaneously	• Reporting already commenced since October 2010. The compliance report is being sent to Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board, State Pollution Control Board and the Regional Office, OSPCB. • Web hosting of EC Compliance status is being done. **Website path** **http://www.opgc.co.in/env/half_comp_powerplant.asp**

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	send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	
4. (xxxvii)	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six-monthly bases. Criteria pollutants levels including NOx (from stack & ambient air) shall be displayed at the main gate of the power plant.	• Reporting already commenced since October 2010. • Web-hosting of compliance of stipulated in the EC conditions being done. • Criteria pollutants levels NOx (from ambient air and stack) is being displayed at the main gate of the power plant.
4. (xxxviii)	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These costs shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	Pollution Control Expenditure from the period 1st October'2024 to 31st March'2025 are as bellow: ➢ ETP and cooling tower operation & maintenance cost - 12.5 Lakhs ➢ ESP operation & maintenance cost-65Lakhs ➢ STP operation cost(Excluding manpower cost)-7.5 Lakhs ➢ Plantation cost-2.47Lakhs (1.14 Crores will be spent in FY 2025-26) ➢ Coal Handling Plant-15 Lakhs ➢ General Plant Housekeeping cost-150Lakhs ➢ Ash Silo area housekeeping cost-100Lakhs ➢ Annual Hazardous waste Audit-0.6Lakhs ➢ Annual Ash Audit-1.5Lakhs ➢ Annual Env. Monitoring cost4Lakhs ➢ Maintenance of Online equipments-26.5Lakhs

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		➢ Ash Utilization cost-28.22 Cr. ➢ CTO & CTE fee for low lying area-2.87Lakhs ➢ Celebration of Environment Events-1.6Lakhs ***Note: The above cost excludes Main Plant CTO & Authorization fees which is around 85 Lakhs in a year.***
4. (xxxix)	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	The financial closure of the project was done on 23rd November 2012. NTP was issued to BHEL and BGRE on 26th March 2014.
4.(xxxx)	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.	Being complied.
Additional Recommendations to OPGCL by MoEF in EC amendment dated 22.01.2014		
S. No	**Recommendations**	**Compliance status**
a	A long-term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter, mechanism for an inbuilt continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	Radioactivity analysis of Coal & Ash samples have been carried out by BRIT. The radioactivity analysis report is attached as **Annexure-15A**. OPGC analyses the heavy metal content of Coal & Ash on regular basis through Institute of Minerals & Materials Technology Bhubaneswar and the last results are enclosed as **Annexure-15B** for reference.

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b	Continuous monitoring for heavy metals in and around the existing ash pond area shall be immediately carried out by reputed institutes like IIT Kanpur.	The monitoring has been periodically carried out through reputed and accredited agency (M/S SGS India Ltd., Asian Geotech consultancy Services,)/Institutions (IMMT, BBSR)
c	Harnessing solar power within the premises of the plant particularly at available roof tops shall be undertaken and status of implementation shall be submitted periodically to the Regional Office of the Ministry.	Complied. Details of renewable energy initiatives of OPGC has been enclosed as **Annexure-16**
d	Fugitive emissions shall be controlled to prevent impact on agricultural or non-agricultural land.	• Adequate fugitive dust control measures had been implemented to prevent impact during construction phase • Adequate dust suppression systems (water sprinklers & Dry Fog) have been installed to suppress fugitive dust in coal and ash handling area for the operational stage • Mechanized road sweeping machines deployed for filtering loose dust from the roads.
e	No ground water shall be extracted for use in operation of the power plant even in lean season.	Ground water is not being used. All requirement of water is met from Hirakud reservoir.
f	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.	Minimum required environmental flow is being maintained as per the water agreement with Water Resource Department.
g	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/operation of the power plant.	No water bodies have been disturbed due to project and will not be disturbed in future due to operation.
h	Fly ash shall not be used for agricultural purpose. No mine void filling will be undertaken as an	• No ash generated is used for agricultural purpose at present.

Cl. No.	EC Conditions	Compliance Status
	option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.	• For mine void filling of ash, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained in close co-ordination with the State Pollution Control Board.
i	Three tier green belts shall be developed all around Ash Pond over and above the Green Belt around the plant boundary.	• Green belt already exists all along the plant boundary. Details stated in condition no 4.xxi: • OPGC is in process of developing a green belt around Tilia Ash Pond. In FY-2025-26, 16000 saplings will be planted through Miyawaki Plantation Method (11000 saplings has already been planted as on 15.08.2025). The plantation activity is carried out through Odisha Forest Development Corporation Ltd.
j	A common Green Endowment Fund shall be created, and the interest earned out of it shall be used for the development and management of green cover of the area.	OPGC has already achieved Green Belt % of 34.86% against the stipulation of 33% and has been carrying out plantation activity by keeping budget provision in its Revenue Budget. The ultimate purpose is for green belt development. The last 9 years expenditure in Green Belt Development are as below 2018-19-24 Lakhs 2019-20-34 Lakhs 2020-21- Nil (Due to COVID-19) 2021-22- 0.5 Lakhs 2022-23-18 Lakhs (17.5 Lakhs to District Administration for development of a Nursery) 2023-24-1.17 Lakhs 2024-25- 10 Lakhs 2025-26-114 Lakhs (Ongoing)

Cl. No.	EC Conditions	Compliance Status
		Note: Although OPGC has not created any Fixed Deposit in terms of Endowment Fund, The outcome of the condition is met as at present OPGC has a green belt percentage of 34.92 % and spends considerable amount each year in Green belt development.
k	It shall be ensured that in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time.	• Baseline Survey has been completed by Sutra Consultancy Services, Bhubaneswar and the Final report is already available with OPGC. Monitoring is regularly done by OPGC CSR team. • Projects are currently under execution and effectiveness of implementation will be audited through Govt. Institute. • OPGC is in process of engaging Sambalpur University (Nearest govt. institute) for conducting the baseline Social Survey and annual Social Audit.
l	An Environmental Cell shall be created at the project site itself and shall be headed by an officer of the company of appropriate seniority and qualification. It shall be ensured that the head of the Cell shall directly report to the Head of the Organization.	A separate Environment Management Cell with qualified staff has already been functioning for the purpose. A senior qualified officer heads the Cell (EHS Head) who directly reports to Unit Head (Occupier). The detailed structure of the Environment Management Cell is enclosed as **Annexure-13**
m	The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy for	OPGC has a well formulated Environment Policy. The Environment Policy is Enclosed as **Annexure-17**.

Cl. No.	EC Conditions	Compliance Status
	ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.	

Prepared By:

31/05/2025

Parthasarathi Panda
Sr.Manager (Environment)

Head of Organization:

Anjana Ranjan Dash
Director Operations & Occupier

HYDROGEOLOGICAL STUDIES

Of

ASH POND, PLANT SITE AND ITS SURROUNDING AREAS

At

Near village Banharpali,

Tehsil Lakhanpur, District Jharsuguda, Odisha

Project Proponent

ODISHA POWER GENERATION CORPORATION LIMITED

Prepared By

VISIONTEK CONSULTANCY SERVICES PVT. LTD

(Committed For Better Environment)

Plot No.:-M 22 & 23, Chandaka Industrial Estate, Patia

Bhubaneswar-751024 Dist.- Khurda Phone No.:- 91-674- 6451781

E-mail-visiontekin@gmail.com , visiontek@visiontek.org

Visit us at - www.visiontek.org

ASIAN GEOTECH RESEARCH SERVICES
(Civil Engineering Consultants & Testing Laboratory)
NABL Accreditaion & ISO 9001:2015 Certified Lab
Regd. Off : Plot No. -4704/5004, Adimata Colony,
Near Sainik, School, Bhubaneswar, Odisha - 751017

TC-6270

STACK EMISSION MONITORING TEST REPORT

Format No-AGRS/FM/45

Customer Name:	Odisha Power Generation Corporation Limited.		
Customer Address	IB Thermal Power Station Banharpali, Jharsuguda, Odisha- 768234.		
Ref. No.	PO No.: 2500004475		
Lab Sample Id	AGRS250730/ST132	**Date of Sample Receiving**	31.07.2025
Sample Description	Stack Emission	**Date of Testing**	31.07.2025-02.08.2025
Date of Sampling	30.07.2025	**Date of Reporting**	02.08.2025
Location	Unit-3	**Test Report No./ULR**	TC627025000000585F

GENERAL INFORMATION ABOUT STACK		**PHYSICAL CHARACTERISTICS OF STACK**	
Stack Connected To	ESP	**Height of the Stack from GL**	275 Meter
Emission Due To	Burning of Coal	**Diameter of the Stack**	7 Meter
Material of Construction Of Stack	RCC with MS Flue Can	**Height of the sampling from GL**	72 meter
Shape of Stack	Circular	**Area Of Stack/Duct**	38.465 M^2

ANALYSIS RESULT

Sl. No.	Parameters	UOM	Results
1	Total Mercury as Hg	mg/Nm^3	0.010

**********End of Report**********

Report prepared by
Name: Bhagyashree Pradhan
Designation: Chemical Analyst
02-08-25

Asian Geotech Research Services Bhubaneswar

Approved by
Name: Harmohan Das
Designation: Quality Manager
02/08/25

Note:

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- **The reserved of sample(s) shall be retained for 07 days.**
- **This test result shall not be used in any advertising media or evidence in the court of Law without prior written consent of the laboratory.**

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Email: bbsr@agrsindia.com, harmohan@agrsindia.com
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TC-6270

STACK EMISSION MONITORING TEST REPORT

Format No-AGRS/FM/45

Customer Name:	Odisha Power Generation Corporation Limited		
Customer Address	IB Thermal Power Station Banharpali, Jharsuguda, Odisha- 768234.		
Ref. No.	PO No.: 2500004475		
Lab Sample Id	AGRS250731/ST133	**Date of Sample Receiving**	01.08.2025
Sample Description	Stack Emission	**Date of Testing**	01.08.2025-04.08.2025
Date of Sampling	31.07.2025	**Date of Reporting**	04.08.2025
Location	Unit-4	**Test Report No./ULR**	TC627025000000586F

GENERAL INFORMATION ABOUT STACK		**PHYSICAL CHARACTERISTICS OF STACK**	
Stack Connected To	ESP	**Height of the Stack from GL**	275 Meter
Emission Due To	Burning of Coal	**Diameter of the Stack**	7 Meter
Material of Construction Of Stack	RCC with MS Flue Can	**Height of the sampling from GL**	72 meter
Shape of Stack	Circular	**Area Of Stack/Duct**	38.465 M^2

ANALYSIS RESULT

Sl. No.	Parameters	UOM	Results
1	Total Mercury as Hg	mg/Nm^3	0.012

**********End of Report**********

Report prepared by
Name: Bhagyashree Pradhan
Designation: Chemical Analyst
04-08-25

Asian Geotech Research Services Bhubaneswar

Approved by
Name: Harmohan Das
Designation: Quality Manager

Note:

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TC-6270

STACK EMISSION MONITORING TEST REPORT

Format No-AGRS/FM/45

Customer Name:	Odisha Power Generation Corporation Limited.		
Customer Address	IB Thermal Power Station Banharpali, Jharsuguda, Odisha- 768234.		
Ref. No.	PO No.: 2500004475		
Lab Sample Id	AGRS250730/ST132	**Date of Sample Receiving**	31.07.2025
Sample Description	Stack Emission	**Date of Testing**	31.07.2025-02.08.2025
Date of Sampling	30.07.2025	**Date of Reporting**	02.08.2025
Location	Unit-3	**Test Report No./ULR**	TC627025000000585F

GENERAL INFORMATION ABOUT STACK		**PHYSICAL CHARACTERISTICS OF STACK**	
Stack Connected To	ESP	**Height of the Stack from GL**	275 Meter
Emission Due To	Burning of Coal	**Diameter of the Stack**	7 Meter
Material of Construction Of Stack	RCC with MS Flue Can	**Height of the sampling from GL**	72 meter
Shape of Stack	Circular	**Area Of Stack/Duct**	38.465 M^2

ANALYSIS RESULT

Sl. No.	Parameters	UOM	Protocol	Results
1	Temperature	°C	IS 11255: Part 3 :1985 (RA 2018)	109
2	Velocity of Gas	m/sec	IS 11255: Part 3 :1985 (RA 2018)	25.31
3	Quantity of Gas flow	Nm^3/hr	IS 11255: Part 3 :1985 (RA 2018)	2511965.43
4	Concentration of Particulate Matter	mg/Nm^3	IS 11255: Part 1 :1985 (RA 2019)	44.08
5	Concentration of SO2	mg/Nm^3	IS 11255: Part 1 :1985 (RA 2019)	1216
6	Concentration of NOx	mg/Nm^3	IS 11255: Part 1 :1985 (RA 2019)	414
7	Oxygen (O_2)	%	As Per SOP Method	6.05
8	Carbon Dioxide (CO_2)	%	As Per SOP Method	13.17

**********End of Report**********

Report prepared by
02-08-25
Name: Bhagyashree Pradhan
Designation: Chemical Analyst

Asian Geotech Research Services Bhubaneswar

Approved by
02/08/25
Name: Harmohan Das
Designation: Quality Manager

Note:

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TC-6270

STACK EMISSION MONITORING TEST REPORT

Format No-AGRS/FM/45

Customer Name:	Odisha Power Generation Corporation Limited.		
Customer Address	IB Thermal Power Station Banharpali, Jharsuguda, Odisha- 768234.		
Ref. No.	PO No.: 2500004475		
Lab Sample Id	AGRS250731/ST133	**Date of Sample Receiving**	01.08.2025
Sample Description	Stack Emission	**Date of Testing**	01.08.2025-04.08.2025
Date of Sampling	31.07.2025	**Date of Reporting**	04.08.2025
Location	Unit-4	**Test Report No./ULR**	TC627025000000586F

GENERAL INFORMATION ABOUT STACK		**PHYSICAL CHARACTERISTICS OF STACK**	
Stack Connected To	ESP	**Height of the Stack from GL**	275 Meter
Emission Due To	Burning of Coal	**Diameter of the Stack**	7 Meter
Material of Construction Of Stack	RCC with MS Flue Can	**Height of the sampling from GL**	72 meter
Shape of Stack	Circular	**Area Of Stack/Duct**	38.465 M^2

ANALYSIS RESULT

Sl. No.	Parameters	UOM	Protocol	Results
1	Temperature	°C	IS 11255: Part 3 :1985 (RA 2018)	127
2	Velocity of Gas	m/sec	IS 11255: Part 3 :1985 (RA 2018)	25.29
3	Quantity of Gas flow	Nm^3/hr	IS 11255: Part 3 :1985 (RA 2018)	2574382.06
4	Concentration of Particulate Matter	mg/Nm^3	IS 11255: Part 1 :1985 (RA 2019)	45.21
5	Concentration of SO2	mg/Nm3	IS 11255: Part 1 :1985 (RA 2019)	1237
6	Concentration of NOx	mg/Nm3	IS 11255: Part 1 :1985 (RA 2019)	420
7	Oxygen (O_2)	%	As Per SOP Method	6.26
8	Carbon Dioxide (CO_2)	%	As Per SOP Method	13.12

**********End of Report**********

Report prepared by
Name: Bhagyashree Pradhan
Designation: Chemical Analyst
04-08-25

Asian Geotech Research Services Bhubaneswar

Approved by
Name: Harmohan Das
Designation: Quality Manager
04/08/25

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Email: bbsr@agrsindia.com, harmohan@agrsindia.com
website : www.agrsindia.com

सीएसआईआर - खनिज एवं पदार्थ प्रौद्योगिकी संस्थान
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
भुवनेश्वर-751013, ओडिशा, भारत
CSIR - INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY
Council of Scientific & Industrial Research
Bhubaneswar - 751013, Odisha, INDIA
Diamond Jubilee 1964-2023
सीएसआईआर
CSIR
भारत का नवाचार इंजन
The Innovation Engine of India
आज़ादी का अमृत महोत्सव

TEST REPORT

Ref. No. LT02-CCD/23/60 **Date: 29.12.2023**

Name & Address of the Party:
Mr. Parthasarathi Panda
Sr. Manager (Env.)
IB Thermal Power Station
Odisha Power Generation Corporation
Banharpalli, Jharsuguda
PIN.768234
Mobile: 7606011609

Sample Details: Two coal & two ash samples

Date of Receiving: 05.12.2023
Date of Conducting Test: 12.12.2023
Date of Completion of Test: 21.12.2023
Method Adopted/ Standard: Classical analysis, AAS & ICP-OES.

Detail Report:

Sl. No.	Parameter	Concentration in test samples, mg/kg (ppm)			
		Coal sample-1	Coal sample-2	Fly Ash	Bottom Ash
1.	Pb	20.1	21.2	77.3	19.5
2.	Ni	21.9	29.24	63.65	49.25
3.	Cd	0.27	0.23	0.49	0.71
4.	As	72.5	57.1	94.2	88.4
5	Hg	0.18	0.20	0.16	0.12
6	Cr	44.0	57.5	164.7	151.5
7	Sr	76.6	89.8	165.8	177.3
8	Cu	27.1	32.4	85.9	66.9
9	Zn	42.3	55.4	162.4	66.2
10	Se	0.48	0.42	0.89	0.68

29/12/2023
(Dr. J. Das)
Pr. Technical Officer
Central Characterization Dept.

for 29/12/2023
(Dr. B. Nayak)
Chief Scientist
& Head, CCD

N.B: The samples are not drawn by CSIR-IMMT. Liability, if any, for the institute arising in connection with the testing shall be subject to ceiling of amount received by the institute from the client. The report should not be interpreted in part.

Mitra S. K. Private Limited

Plot No-687/2428, Ekamra Villa Square,
Jaydev Vihar, 1st Floor, IRC Village,
Bhubaneswar, Khordha, Odisha-751015
[CIN: U51909WB1956PTC023037]
T :(0674) 2360917, 9777450189
F : (0674) 2362918

MSK TESTING • INSPECTION

TEST REPORT

Name & Address of the Customer :
Odisha Power Generation Corporation Limited
IB Thermal Power Station
AT/PO - Banharpali
Jharsuguda, Odisha - 768234

Report No. : BBS/201
Date : 11.04.2025
Sample No. : MSKGL/ED/2024-25/03/02162
Sampling Details : Surface Water
Sampling Location : Tilia Pond
Date of sampling : 28.03.2025

ANALYSIS RESULT

SL. No.	Test Parameters	Methods	Result
1.	pH value	IS 3025 (Part 11)-1984	7.42
2.	Total Suspended Solid (as TSS) in mg/l	IS 3025 (Part 17) : 1984	3.1
3.	Total Dissolved Solids (as TDS) in mg/l	IS 3025 (Part 16): 1984	204.0
4.	Total Chromium (as Cr) in mg/l	IS 3025 (Part 52)	<0.03
5.	Magnesium (as Mg) in mg/l	IS 3025 (Part 46)-1994	2.0
6.	Iron (as Fe) in mg/l	IS 3025 (Part 53)	<0.05
7.	Hexavalent Chromium (as Cr+6) in mg/l	IS 3025 (Part 52)	<0.03
8.	Fluoride (as F) in mg/l	APHA (24th Edition), 4500 F- C/D	1.1
9.	Copper (as Cu) in mg/l	IS 3025 (Part 2) 2004	<0.02
10.	Biochemical Oxygen Demand (as BOD) in mg/l	IS 3025 (Part 44)- 1993	5.8
11.	Chemical Oxygen Demand (COD) in mg/l	APHA (24th Edition), 5220B	25.0
12.	Lead (as Pb) in mg/l	APHA (24th Edition), 4500 F- C/D	<0.005
13.	Cadmium (as Cd) in mg/l	APHA (23rd Edition) 3120B 2017	<0.001
14.	Mercury (as Hg) in mg/l	APHA (23rd Edition)5530C 2017	<0.001
15.	Arsenic (as As) in mg/l	APHA (23rd Edition)3120B 2017 (ICP OES)	<0.005
16.	Strontium (as Sr) in mg/l	IS 3025 (Part 2)-1993	<0.5

Report Prepared by:

MITRA S. K. PRIVATE LIMITED BBSR

For Mitra S. K. Private Limited

Authorized Signatory

HDPE Membrane Installed at Ash Pond-C

SHIVALIK AGRO POLY PRODUCTS LTD
PRODUCT APPLICATION DIVISION

ice Tax No.: AACCS1454 K ST003
N : AACCS1454 K

1403, 13th Floor, R.G. Trade Tower
B-7, Netaji Subhash Place
Pitampura, New Delhi-110034 (INDIA)
Ph.: 011-32907618, 32907620
Fax : 011-42470477
E-mail: sapldelhi@shivathene.com

JOB WORK INVOICE

M/s. ODISHA POWER GENERATION CORPN. LTD.
Ib Thermal Power Station
Banharpali, Distt. Jharsuguda
ODISHA-768 234 India

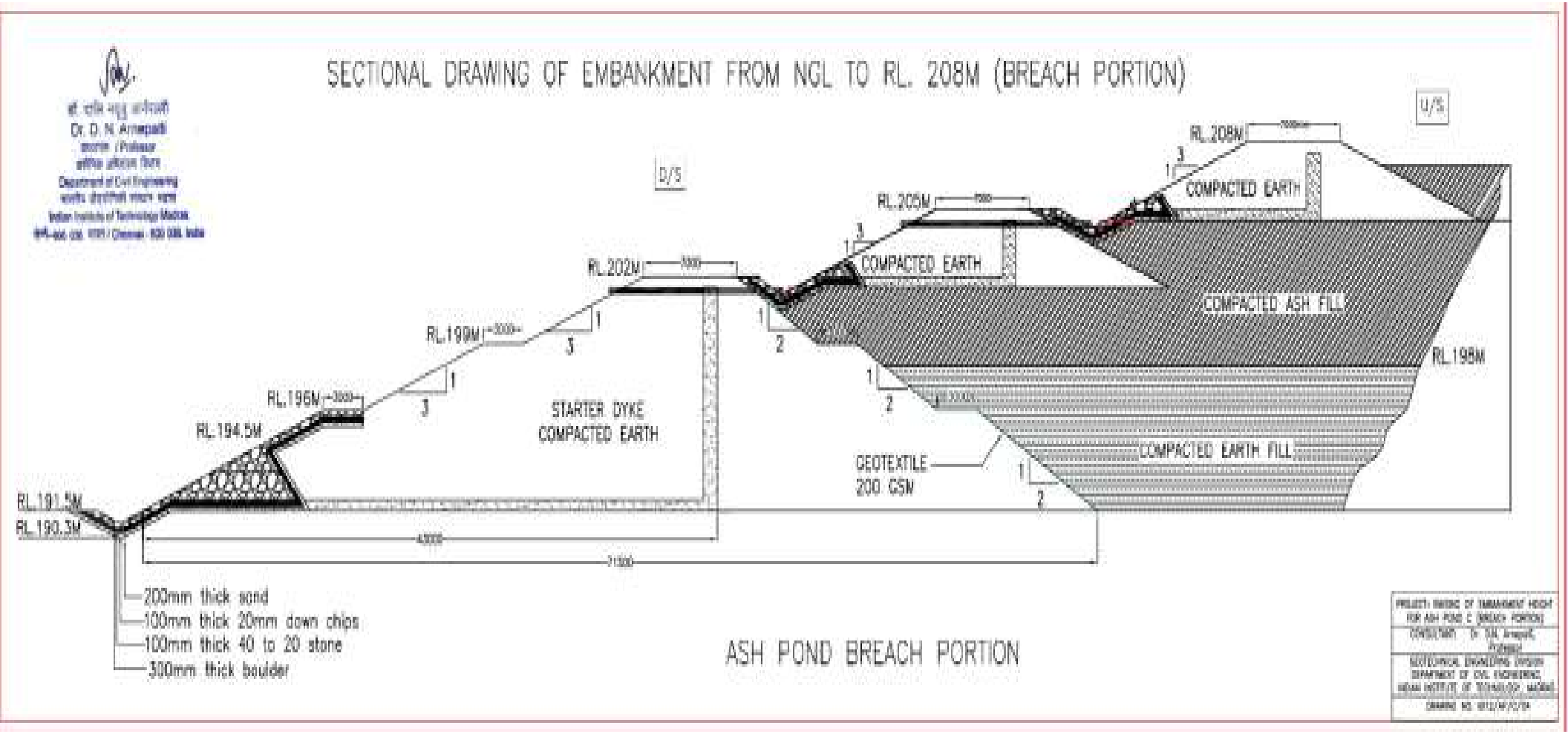
Invoice No. SAPL/DEL/PAD 005
Date 26-05-2016
Customer's Order No. ITPS/CC-CL-495/15-K/176/NE
Date 11-03-16
Job Work No.

Sl.No.	DESCRIPTION & SPECIFICATION	Area / Qty. Sqm.	RATE Rs.	P.	AMOUNT Rs.	P.
1	Laying of HDPE liners for Ash Pond 'C' at ITPS. Laying of 1.5 mm thick HDPE Geo-membrane Sheet as per the detailed Specification given in the tender.	79686/-	18-	60	13,22,787-	60
		Service Tax @ 14%.			1,85,190-	26
		Swatch Bharat Cess @ 0.5%.			6,613-	93
					15,14,591-	79
	12/5/2016 to 21/5/2016					
	(Rupees fifteen lac fourteen thousand five hundred Ninety One & Paise 79 Only)				15,14,591-	79

For & on Behalf of
SHIVALIK AGRO POLY PRODUCTS LIMITED

Authorised Signatory

Design Drawing of Ash Pond As Given By IIT-Chennai



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TC-6270

GROUND WATER TEST REPORT

Format No-AGRS/FM/45

Customer Name:	Odisha Power Generation Corporation Limited.		
Customer Address	IB Thermal Power Station Banharpali, Jharsuguda, Odisha- 768234.		
Ref. No.	PO No.: 2500004475		
Lab Sample Id	AGRS250717/0278	**Date of Sample Receiving**	17.07.2025
Sample Description	Ground water	**Date of Testing**	17.07.2025-19.07.2025
Date of Sampling	16.07.2025	**Date of Reporting**	19.07.2025
Sample Quantity	1 litre	**Environmental Condition**	Temp.-25.8^{0}C & RH- 65%
Location	Tilia village, Near 3&4 Ash pond	**Test Report No./ULR**	TC627025000000551F

ANALYSIS RESULT

Sl. No	Parameters	Testing Methods	Unit	Result
1	pH	IS 3025 (P-11):2022	--	7.14
2	Total Suspended Solids	IS 3025 (P-17):2022	mg/l	7
3	Total Dissolved Solids	IS 3025 (P-16):2023	mg/l	520
4	Magnesium as Mg	APHA 24th Edition (2023) 3500-Mg (B)	mg/l	26.73
5	Iron as Fe	IS 3025 (P-53):2003,(Cl.6) RA-2024	mg/l	0.93
6	Fluoride as F	APHA 24th Edition(2023), 4500-F$^-$ (D)	mg/l	0.082
7	Copper as Cu	APHA 24th Edition (2023), 3500-Cu	mg/l	BDL
8	Lead as Pb	APHA 24th Edition (2023) ,3500-Pb	mg/l	BDL
9	Mercury as Hg	APHA 24th Edition (2023) ,3500 Hg	mg/l	BDL
10	Cadmium as Cd	APHA 24th Edition (2023) ,3500-Cd	mg/l	BDL
11	Arsenic as As	APHA 24th Edition (2023) ,3500-As	mg/l	BDL
12	Strontium as Sr	APHA 24th Edition (2023) ,3500-Sr	mg/l	BDL
13	Hexavalent Chromium as Cr6+	APHA 24th Edition (2023), 3500- Cr	mg/l	BDL
14	Total Chromium as Cr	APHA 24th Edition (2023), 3500- Cr	mg/l	BDL

**********End of Report**********

Report prepared by
19-07-25
Name: Bhagyashree Pradhan
Designation: Chemical Analyst

Asian Geotech Research Services Bhubaneswar

Approved by
19/7/25
Name: Harmohan Das
Designation: Quality Manager

Note:

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Near Sainik, School, Bhubaneswar, Odisha - 751017

TC-6270

SURFACE WATER TEST REPORT

Format No-AGRS/FM/45

Customer Name:	Odisha Power Generation Corporation Limited		
Customer Address	IB Thermal Power Station Banharpali, Jharsuguda, Odisha- 768234		
Ref. No.	PO No.: 2500004475		
Lab Sample Id	AGRS250717/0282	**Date of Sample Receiving**	17.07.2025
Sample Description	Surface water	**Date of Testing**	17.07.2025-21.07.2025
Date of Sampling	16.07.2025	**Date of Reporting**	21.07.2025
Sample Quantity	1 litre	**Environmental Condition**	Temp.-26.4^{0}C & RH- 67%
Location	Tilia Pond Near Unit 3 & 4 ash pond	**Test Report No./ULR**	TC627025000000555F

ANALYSIS RESULT

Sl. No	Parameters	Testing Methods	Unit	Result
1	pH	IS 3025 (P-11):2022	--	7.89
2	Total Suspended Solids	IS 3025 (P-17):2022	mg/l	BDL<1
3	Total Dissolved Solids	IS 3025 (P-16):2023	mg/l	179
4	Magnesium as Mg	APHA 24th Edition (2023) 3500-Mg (B)	mg/l	7.77
5	Iron as Fe	IS 3025 (P-53):2003,(Cl.6) RA-2024	mg/l	0.039
6	Fluoride as F	APHA 24th Edition(2023), 4500-F$^-$ (D)	mg/l	0.051
7	Copper as Cu	APHA 24th Edition (2023), 3500-Cu	mg/l	BDL
8	Lead as Pb	APHA 24th Edition (2023) ,3500-Pb	mg/l	BDL
9	Mercury as Hg	APHA 24th Edition (2023) ,3500 Hg	mg/l	BDL
10	Cadmium as Cd	APHA 24th Edition (2023) ,3500-Cd	mg/l	BDL
11	Arsenic as As	APHA 24th Edition (2023) ,3500-As	mg/l	BDL
12	Strontium as Sr	APHA 24th Edition (2023) ,3500-Sr	mg/l	BDL
13	Hexavalent Chromium as Cr6+	APHA 24th Edition (2023), 3500- Cr	mg/l	BDL
14	Total Chromium as Cr	APHA 24th Edition (2023), 3500- Cr	mg/l	BDL
15	BOD at 27°C (3 days)	IS 3025 (Part-44) : 2023	mg/l	7
16	COD of O2 at 150°C	IS 3025 (Part-58) : 2023	mg/l	28

**********End of Report**********

Report prepared by
21-07-25
Name: Bhagyashree Pradhan
Designation: Chemical Analyst

Asian Geotech Research Services Bhubaneswar

21/07/25
Approved by
Name: Harmohan Das
Designation: Quality Manager

.Note:

- **The results relate only to the item(s) test.**
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- **The reserved of sample(s) shall be retained for 07 days.**
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REPORT OF THE PLANTATION MONITORING COMMITTEE OF THE DISTRICT ENVIRONMENT SOCIETY, JHARSUGUDA, 2024-25.

INTRODUCTION

The Jharsuguda District Environment Society constituted a Plantation Monitoring Committee on dt.03.04.2013 under the Chairmanship of former Collector-Cum District Magistrate, Sri Niranjan Sahu, Divisional Forest Officer, Sri Aswini Kumar Kar, Former Vice Chancellor Sambalpur University, Sri Dhurbaraj Naik, Honorary Wildlife Warden for Jharsuguda District as its Chief, Sri Prahallad Naik Chief Coordinator District Eco-Club Coordination Committee, Jharsuguda, former ACF, Jharsuguda Forest Division, Sri Basil Barla, DSP of Police, Tahasildar, Jharsuguda, ADHO, Jharsuguda, RO, SPCB, Jharsuguda and all DES and DECC Members are attend. Since then, the committee is inspecting industrial premises at least twice every year for monitoring the plantation activity.

Environment can be defined as a sum total of all the Living or biotic Elements (Animal, Plant, Forest, Fisheries & Birds) and non-living elements or non-biotic element (Water, Land, Sunlight, rocks & Air) and there effect that influence human Life. Industrialization has led to habitat destruction through deforestation, mining and other human Activities. As per the Air Quality Index (AQI) of Jharsuguda District (raising from 112 to 123) is unhealthy for Sensitive groups which can be immediately felt. Healthy individuals may experience difficulty in breathing and throat irritation with prolonged exposure. In order to protect/conserve the Environment massive plantation programme inside & outside the plants/Mines is badly necessary. in this Connection the Collector & District Magistrate Jharsuguda had Convened the district Environment Society meeting on Dated 20.07.2024 at 11.30 AM in the DMF conference Hall, Jharsuguda where all the Official of Corporate Sectors were also present in the meeting and the Plantation target of the current Year 2024-25 has been fixed to the all Corporate Sectors for greenery. Further they are instructed to cover the 33.3% greenery of the total acquired land or as per the specific term & conditions of the Environmental clearance of the concerned Corporate Sector. In order to review to the census of tree planted over the Years, the Divisional Forest Officer, Jharsuguda in his Letter No 4719(19)4F(Miss) Dt 17.08.2024 had instructed all the Corporate Sector of his District to Co-operate District Plantation Committee members during their visit.

Inspection (2024-25)

The Plantation Monitoring Committee comprising of Sri Prahallad Naik, Honorary Wildlife Warden-Cum-Chief Coordinator, Jharsuguda, Deputy Collector, Jharsuguda, Tahasildar, Jharsuguda, Asst. Director, Horticulture, Jharsuguda, Asst. Environment Engineer, State Pollution Control Board, Jharsuguda, DIPRO, Jharsuguda, DES Members Sri Tapas Rai Choudhary, Prof. Tahalu Sahu, Sri Trinath Gual, Sri Bijay Behera, Sri Benudhar Choudhary, Sri Abhisekh Lath & Asst. Conservator of Forests, Jharsuguda Forest Division inspected various industrial premises as per the following schedule.

Date	Industries/mines inspected
04.09.2024	IB Valley,MCL Lakhanpur
05.09.2024	NLC Talabira ,LN Metallicks Sripura
06.09.2024	OPGC Banharpali, Ind Barath,JSW
11.09.2024	Sesa Starlite (Vedanta Alumina) IOC
12.09.2024	TRL, Global Coal
13.09.2024	SMC Power, Comcast Stell & Power MSP Metallicks
20.09.2024	Ultra Tech Cement, Fortise Chemicalls,Jay Hanuman,Seven Star
21.09.2024	MCL Orient Area, TPSl Lahundabud.

GENERAL REMARKS:

1. It was not intendent to conduct the census of trees planted over the years. An overall estimation of the greenery in the accessible areas with the industrial areas was made which protects the health condition of the employees working inside. Also, the Govt. land allotted to them outside the plant where also inspected the main objective of district administration to make greenery around the urban areas as well as affected areas to protect the environment of this district.
2. They are advised to plant environment friendly species of plants which absorbed CO2 gas in more quantity and fruits bearing trees as well.
3. It was observed some of the industries/mines have not achieved their target assigned to them. They are advised to makeup the deficiency by end of the year.
4. To plant the trees is not important. The survival of the plant is most important. They are advised to take care of the trees with utmost care and dedication.
5. The committee observed that, some of the industries have planted outside the plants in scattered areas (in less than half acer areas), which is not advisable. They should be applied for one or more patch area at least more than two acers.
6. Further, they are advised to adopt 4 to 5 adjacent villages so that, the negative mind set of villagers towards the plants will be removed.
7. All the corporate sector are advised to follow their environment clearance points and display it on their respective websites for public visibility and social audit.
8. In some point of dumping area of MCL IB-Valley area extra funds may be provided for easy transportation/communication of labours to the top point, where plantation have been carried out. Further, they are also instructed to provide facility of Water Tanker in the said area.

Sl No.	Name of Industries/ Mines	Total land Acquired (Ac)	33.3% of area (Ac)	Land planted (Ac) up to 2023-24	Plantation Achieved during 2024-25		Total area planted inside premises (Ac) up to 2024-25	Total nos. of saplings planted during 2024-25 (inside & outside)	Remarks/ percentage Achieved
					Inside premises (Ac/No)	Outside premises (Ac/Km)			
01	MCL IB Valley	3474.558	1158.07	1132.79	12.35	180 Ac. 116800 nos	1145.25	2000	32.96%
02	MCL Orient Area (Contain data of 5 nos of mines)	361.441 Ac.	119.274 Ac	161.274 Ac.	11.268Ac.	-	148.618 Ac.	10000	
03	Integrated Lakhanpur-Belpahar-Lilari OCP Lakhanpur Area, MCL	10870.77 Ac	3587.35 Ac.	1799.55 Ac.	29.65 Ac. (7500 nos are being carried out)	149.50 Ac. 76000 nos	1799.55 Ac. have already been planted 26.65 Ac. work in progress	76000 nos outside lease area 7500 nos inside lease area (work in progress)	
4	SMC Power Generation Limited, Unit-2, Badmal	196.188 AC	65.3 AC	39.1 AC	13.06 AC	NIL	52.16 AC	6500	
5	SMC Power Generation Limited Hirma, Jharsuguda	**275.63 Ac**	90.95 Ac	**104.79 Ac**	550 nos of saplings	50 nos of saplings	0.74 Ac.	600 nos of saplings	
6	JSW Energy (Utkal) Limited	**Total Land Area-592 Acre**	196 Ac.	**25.0 Ac. (3000 nos)**	23 Acre/ 15000 nos	2 Acre/ 1000 nos	90 Acre	60000 (55000+5000)	12.7 %
7	Vedanta Ltd., Jharsuguda Smelter & CPP	1876.10	619.12	619.12	Additional area Nil/ 3000 No sapling planted in gap Filling	50 acres	619.12	3000 (inside premises)	33% achieved as per EC. Further Planting 1 Lakhs Sapling under Matrivan Project in FY 2024-25
8	Vedanta Ltd., Jharsuguda 2400 MW TPP	534.14	176.26	176.26	Additional area Nil/		176.26	2000 (inside premises)	

					2000 No sapling planted in gap Filling				
9	TRL Krosaki Refractories Ltd.	156.27	54.60	.513 Ha. 1300 Sapling		4 Ha. 1000 Sapling	.913 ha.	2300 nos	34.94 %
10	Integrated Lakhanpur-Belpahar-Lilari OCP, Lakhanpur Area, MCL	10870.77	3587.35	1799.55	29.65 / 7500 nos. are being carried out	149.50 / 76000 nos.	1799.55 Acre have already been planted. 29.65 Acre work is in process	76000 nos. outside lease area 7500 nos. inside lease area (work is in process)	
11	L N Metallics Limited	29.64	9.87	10.16	250	2000	10.16	2250	
12	Talabira II & III OCP, NLC India Limited	**Total lease area-** 4729.649 **Total acquired land** – 4162.236	1560.78	**Planted** – 7.413 **Natural vegetation** – 2103.96	18680 nos (18.532 Ac)	16000 nos (4.942 Ac)	25.945	34680 Nos	Green cover exist over 51.17 % of acquired area
13	2x210MW unit31 & Unit #2 & 2x660 MW unit#3 & Unit# IN Thermal Power Station of Odisha Power Generation Corporation Ltd.	1227.39	405	427.25	0.61	5	427.86	4700	34.86
14	IB Valley Coal Washery (10MTPA), MCl	90.36	30.08	21.35	3.78/2450 nos of trees planted	Nil	25.13 Ac have already been planted 4.95 Ac plantation work under progress	2450 nos of trees planted inside premise Plantation work for 3200 nos of saplings is	

								under progress	
15	Seven Star Steel Ltd.,	53.50	17.82	17156	744	1350	18.80	2094	35.14
16	Odisha Metallics Pvt. Ltd., Marakuta	256.54 Ac.	84.66 Ac	9.88 Ac.	6000 nos of saplings	1500 nos of saplings	12.35 Ac	7500 nos of saplings	100%
17	TPSL Lahandabud	178	71.19 Ac 40% of the total land	71.19A c.	5842	2020	Replantatio n died plants 5.5 Ac. Scattered	7862	100%
18	Ultratech Cement Ltd.	165 Ac.	55	52.8 Ac	2288 nos 2.47 Ac.	400 nos (0.4 Ac.0	55.28 Ac	2688	33.5%
19	Jai Hanuman Udyog	37.00 Ac.	12.5 Ac.	500 nos	500 nos	Patrapali to Jaihanum an (500 nos)	12.5 Ac.	1000	100%
20	OPGC, Banharpali	1227.39 Ac.	405.00 Ac.	427.25	0.61 Ac.	5	427.86 Ac.	4700	34.86 %
21	Concast Steel & Power SMC Power Unit-I, Hirma	275.63 Ac.	90.95 Ac.	104.79 Ac.	1.10 Ac.	Nil	105.98 Ac.	450 nos	
22	Fortis Chemical Pvt. Ltd.	8.02 Ac.	2.64 Ac.	1045 nos	245 nos	Both side of the road between Boundary of Apar Industries to Kendutikr a village	2.64 Ac.	1045	100%
23	APPAR	13 Ac.	4.29 Ac.	2.29 Ac.	1.25 Ac.	0.75 Ac.	3.54 Ac.	2032	27.23 %

(P. Naik) 11/12/24 — Honorary, WL Warden-cum-Chief Coordinator DECC

11/12/24 (B. Dung Dung) — ACF, Jharsuguda Forest

11/12/24 (M. Nanda) — ADHO, Jharsuguda

11/12/24 (S. Munda) — Asst. Env. Engineer, Jharsuguda

(S. Kumbhar) — Tahasildar, Jharsuguda

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,Halipad,	Local agencies	1991-92/92-93	12,000	Akashia	9,550		
Periphery,Pump House,Filter				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 Yubak			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 plantation 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		**425**
Vacant space in between Boiler area scrap yard & clarifiers	Self	2010-11	100	Neem	70	**1227.39**	
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	**1.25**

Plantation inside Plant and Colony	Self	2023-24	900	Terminalia, Baula, Neem, Kanchan	900		**1**
Plantation inside Plant and Colony	Self	2024-25	2500	Terminalia, mango, jack fruit & neem	3000		**1.15**
Plantation inside Plant and Colony	Self	2025-26 (Till 05.07.2025)	500	Mango, jack fruit & neem	500		**0.5**
Total			**3,27,749**		**2,48,544**		**428.90** Total Area of Green Belt
% Survival				**75.8**			
Green Belt%				**34.94**			

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.

ANNUAL HEALTH CHECK-UP DATA 2024-25							
		TOTAL EMPLOYEES	UNDERGONE CHECK-UP	X-RAY	SPIROMETER	AUDIOMETER	COLOUR VISION
OPGC-I	EMPLOYEES	254	252				
	CONTRACTOR	1047	865				
	TOTAL			115	217	139	85
OPGC-II	EMPLOYEES	235	233				
	CONTRACTOR	1853	1570				
	TOTAL			154	629	308	626

All the above test conducted & All found O.K at the time of examination.

ASIAN GEOTECH RESEARCH SERVICES
(Civil Engineering Consultants & Testing Laboratory)
NABL Accreditaion & ISO 9001:2015 Certified Lab
Regd. Off : Plot No. -4704/5004, Adimata Colony,
Near Sainik, School, Bhubaneswar, Odisha - 751017

TC-6270

AMBIENT AIR TEST REPORT

Format No-AGRS/FM/45

Customer Name:	Odisha Power Generation Corporation Limited.		
Customer Address	IB Thermal Power Station Banharpali, Jharsuguda, Odisha- 768234.		
Ref. No.	PO No.: 2500004475		
Lab Sample Id	AGRS250704/AA95	**Date of Sample Receiving**	05.07.2025
Sample Description	Ambient Air Quality	**Date of Testing**	05.07.2025-07.07.2025
Date of Sampling	04.07.2025	**Date of Reporting**	08.07.2025
Location	Plant Gate Security Buildings	**Test Report No./ULR**	TC627025000000521F

ANALYSIS RESULT

Sl. No.	Name of the Parameter	Unit	Limit	Analysis Method	Result
1	Particulate Matter (PM_{10})	$\mu g/m^3$	100	IS 5182 (Part 23) :2006	46.4
2	Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	60	IS 5182 (Part 24) :2019	33.1
3	Sulphur dioxide (SO_2)	$\mu g/m^3$	80	IS 5182 (Part 2) :2001	6.3
4	Nitrogen dioxide (NOx)	$\mu g/m^3$	80	IS 5182 (Part 6) :2006	14.5
5	Ozone (O3)	$\mu g/m^3$	180	IS 5182 (Part 9) :1974	BDL
6	Lead (Pb)	$\mu g/m^3$	1	IS 5182 (Part 22) :2004	BDL
7	Carbon Monoxide	mg/m^3	2	IS 5182 (Part 10) :1999	0.41
8	Mercury (Hg)	$\mu g/m^3$	--	IS 12041 :1987	BDL

**********End of Report**********

Report Prepared by
Name: Bhagyashree Pradhan
Designation: Chemical Analyst

08-07-25

Asian Geotech Research Services Bhubaneswar

Approved by
Name: Harmohan Das
Designation: Quality Manager

08/7/25

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Details of Peripheral Development

Sl. No.	Name of the Project	Amount(Rs.)
1	Supply Installation Community LED Steet Light	15903975
2	Baseline Survey in periphery Villages of ITPS	859215
3	Construction of Bathing Ghat at different villages of Kushraloi	825245.57
4	Construction Of Bus stop at Kushraloi	323184
5	Pond renovation at different village of Kushraloi Panchayat	1650870
6	Construction Of community Center at Adhapara	405566
7	Construction of Community center at Sargipali village	706137
8	Construction Of community Center at Kantatikra	752184
9	Construction of two class room at Banharpali High School	1382915.8
10	Kumarband police station sanitation Project	434670
11	Installation of LED street light at Banharpali	293899
12	Construction of canal from asthai kanta to goucharmal	1643813.69
13	Production of video films	536798
14	Water body & Bath Ghat construction work at different villages 4Tilia, Kumarbandh & Telenpali GP	2546338.31
15	Construction of High school building at Remenda	1459023
16	Construction of training hall at PHC Adhapara	647240
17	Construction of sanitation Complex Reserve Police Jharsuguda	833261
18	Construction of School Building & Anganwadi at Telenpali	990837.03
19	Construction of 10(TEN) nos community centre	1861676.2
20	Implementation of WASH project in villages near ITPS by Gram Vikas	23739200
21	Implementation of WASH project by FINISH society	35979264.6
22	Electrification of Banharpal High school building, Electrification of Sargipali Community centre, Electrification of Kantatikra Community centre	113185.06
23	Drinking water facility for Phalsamunda School	10046
24	Construction of Cycle stand at Phatapali School	452711
25	Repairing of Community Centre at Phalsamunda	500012
26	Electrification of Sahareipada village	600373
27	6 nos pond renovation & 3 nos Bathing ghat construction different villages of Chandinimal, Goudamal, Rajpur, Kanaktura & Sanghumunda GP of Jharsuguda & Sundergarh Dist.	4858193
28	Construction of Toilet for Phatapali Girls High School	202070
29	Talikanta irrigation project at Telenpali	608440
30	Kumarbandh School & College Drinking water Project 196895	
31	Pond renovation at different village of Kushraloi	580110
32	Construction Of community Centre at Adhapara	580657.92
33	Implementation of WASH project in Tilia GP & Rengali Village	63266361.48
34	Kumarbandh School & College Drinking water Project	471639
35	Internal Electrification for School Building at Bargad &Telenpali, Community centre Phalsamuinda, toilet complex Reserve police Jharsuguda	693258.82
36	Construction of School Building & Anganwadi at Telenpali	659038
37	Construction of Toilet for Phatapali Girls High School	369311.13
38	Construction of High school building at Remenda	2007528
39	Talikanta irrigation project at Telenpali	614374
40	Construction of 10(TEN) nos community centre	5580046.64
41	Construction of sanitation Complex Reserve Police Jharsuguda	1273574.92
42	Water body & Bath Ghat construction work at different location	5347532.02
43	Construction of School Building at Baragada	878483.45
44	LED street light for Belpahar Municipality	2702431
45	Supply of LED street light in Tilia	4541083
46	Construction of Cycle stand Banharpali school	275645.83
47	Construction of Bus Stop at Telenapali	383271.98
48	Construction of training hall at PHC Adhapara	515959
49	Electrification of Adhapara community Centre	37054
50	Construction Of Kalyan mandap at Tilia	2599450.4
51	Renovation of Saradhapali pond and levelling of Pathway of Kantatikira School	338955
52	Construction of concrete road at gourmal village	892599
53	Provision of sports material (Football, Carom board Big, Ludo, Ring ball, Skipping Rope & School Bag) for Sarandamal, Pandari, Adhapara, Kumbharbandh, Binka, Sapali, Lechhuapada and Kusuraloi.	118188
54	Electrification of Sahapali village, Electrification of Dhobadera village	2946924

55	Construction of Kalyan Mandap Telenpali	3232812.74
56	Construction of Kalyan Mandap at Kechobahal	3036158.46
57	Supply of Drinking water to Beleituda village	841668
58	Basic materials to Primary School Hostel (PSH) at Kanaktura (Sundargarh District)	103800.5
59	Construction of New School Building at Surbahar	1222135.4
60	Production of Video film of CSR activities	446040
61	Implementation of WASH project by Gram Vikas	6548922
62	Repair & Maintenance of LED street Light periphery of OPGC	12744
63	Internal electrification Sarbahal School Building, Kalyan mandap Telenpali,Tilia & kechobahal	475988
64	Capacity building training to community memebers	128361
65	Supply of sapling for plantation	73500
66	Covid-19 expense	1939300
67	Cricket training camp for students	60859
68	Drinking water supply project	1085103
69	Installation of LED High Mast light	869219
70	Construction of new office for the Principal, P.S. (Jr) College, new office and classroom furniture	350000
71	Financial support to PKPM High School & Arjun Gupta Girls High School, Tilia	45000
72	Miscellaneous CSR expenses	2318362
73	Admin overhead	124642
	Total	**221905330**

ACTION PLAN FOR IDENTIFICATION OF LOCAL EMPLOYABLE YOUTH FOR TRAINING IN SKILLS RELEVANT TO PHASE-III EXPANSION PROJECT OF OPGC POWER PLANT

1. **Objective:**

   Identify local youth who are employable and interested, and provide them skill development training aligned to the specific needs of the coal-fired power plant project to facilitate their employment initially in the construction phase and later in the regular operation phase of the plant.

2. **Identification of Local Youth:**

   - Engage a professional agency or in-house team to carry out a survey to identify and create a database of local employable youth aged 18-35 (or target demographic) in the target peripheral villages of the project (IB Thermal Power Station) located at Banharpali in the District of Jharsuguda, Odisha and then carry out a skill gap analysis to identify their specific training needs to make them employable in the project.
   - Conduct outreach programs, information sessions, and awareness campaigns at community level and local schools to inform the identified youth about their skill gap and training needs to become employable. This is an exercise to make them mentally ready for the training.
   - Through this agency, select candidates based on interest, basic educational qualifications, and physical fitness for specific training programme to enhance their skill level.

3. **Skill Training Program Development:**

   - Assess the skill requirements for construction and operation phases (e.g., welding, electrical work, machinery operation, safety protocols, environmental management).
   - Design an 8 to 18-week training curriculum that may include vocational training, certification courses (such as NCCER construction certification), on-the-job training, and soft skills like work readiness and safety practices.
   - Partner with reputed vocational training institutes or organizations (such as Local ITIs, Polytechnic & other skill training institutes) to deliver training.

4. **Support Services:**

   - Provide support such as transportation, health and safety facilities, counseling, and career guidance during training.
   - Arrange for mentoring or peer support groups.

5. **Training Implementation:**
    - Provide paid training on courses/skills relevant to get employed in construction and operational phase of the project through the nearby located ITIs, Polytechnic institutes and/or other skill training institutes.
    - After passing out of training institute, facilitate paid apprenticeship in the plant itself to get hands-on training.
6. **Employment Facilitation:**
    - Devise a plan of action to absorb the trainees in the relevant jobs available in the project/plant through various contractors/agencies.
    - Coordinate with project contractors and operation managers to prioritize employment of trained local youth.
    - Include job placement services and apprenticeship opportunities with onsite experience.
    - Follow up with employed youth to ensure retention and career development.

7. **Monitoring and Reporting:**
    - Maintain records of training, placement, and employment status.
    - Prepare periodic reports on the action plan's progress and outcomes to project stakeholders and local authorities.
    - Adjust the action plan based on feedback and changing project needs.

8. **Community Engagement and Inclusivity:**
    - Ensure participation of marginalized groups including women and economically backward youth.
    - Respect local customs and address any special tribal or minority community needs.
    - Link with Corporate Social Responsibility (CSR) activities for sustainable community development.

Detailed Corporate Environment Responsibility (CER) plan as per OM No. 22-65/2017-IA.III dated 30.09.2020 including an activity-wise break-up of financial commitment based on need-based assessment studies and public hearing outcomes.

Core Requirements and Framework

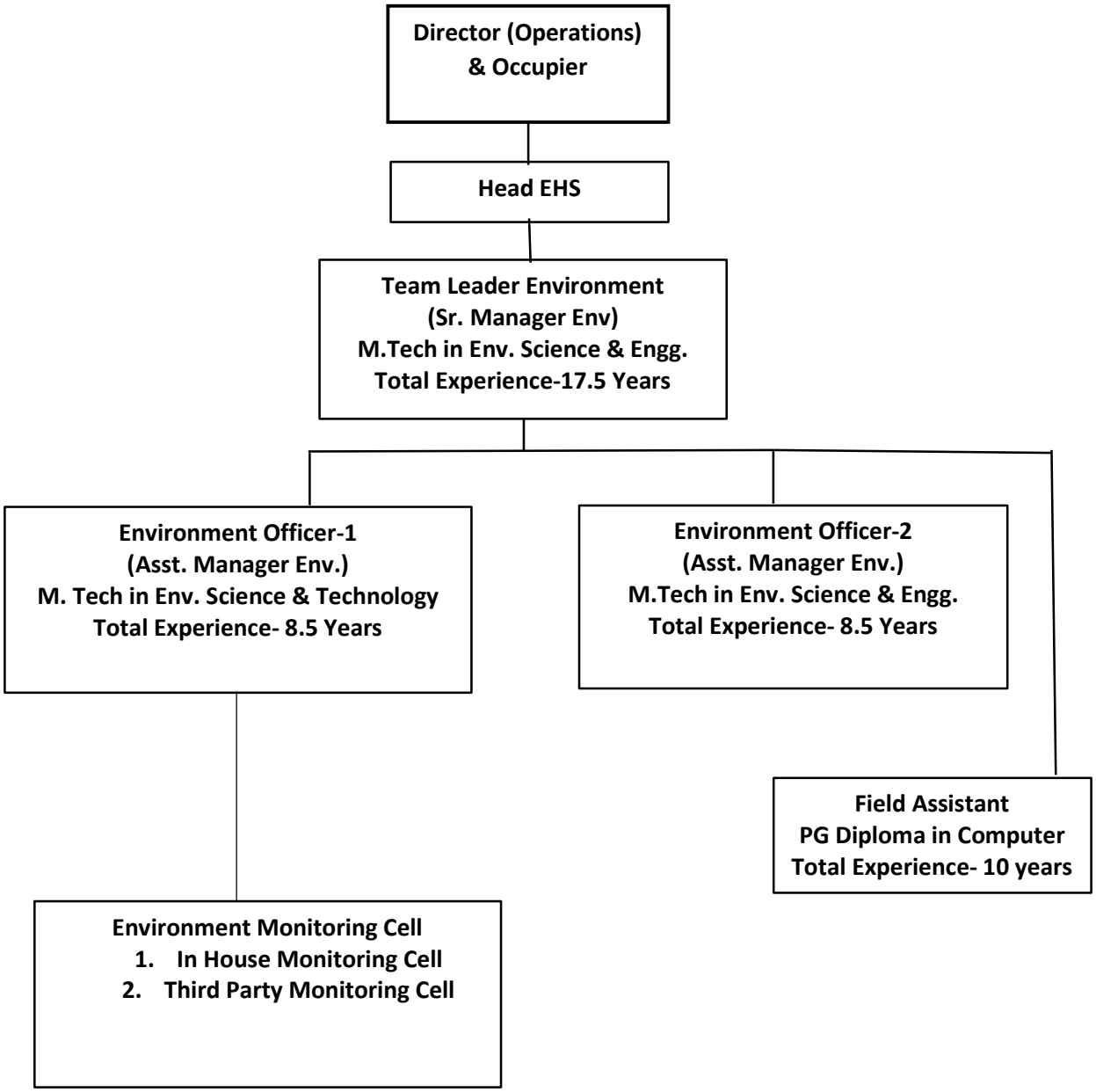
- **Identify CER Activities**: Selection of CER activities is guided by:
    - Need-based assessment studies
    - Outcomes/issues raised during the Public Hearing
    - Opportunities for sustainable income generation, preferably building upon the traditional skills of the project-affected population

- **Detailed Financial Commitment**: Each activity must have an allocated budget and a timeline for implementation

- **Integration with EMP**: Commitments must be reflected in the Environment Management Plan (EMP) and must include monitoring and social audit mechanisms.

- **Consistency with Government Schemes**: Where possible, link with ongoing Government welfare schemes for synergistic impact.

STRUCTURE OF ENVIRONMENT DEPARTMENT



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/5573/WE

September 20, 2024

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 2023 to March 2024.**

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 2023 to 31st March 2024 for kind perusal.

Thanking you

Sincerely yours,

Sukanta Mohaptra

Sukanta Mohaptra
Sr. VP (O & M)

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 2023 TO 31st MARCH 2024

(FORM – V)

(See Rule 14)

Environmental Statement Report for the Financial Year ending the 31st March, 2024.

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	: 28.09.2023
v.	Industry category	: Thermal Power Plant

PART – B

(Water and Raw Material Consumption)

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

Sl.	Description	**2022-2023**	**2023-2024**
(I)	Gross Energy Generation (MU/Year):	2782.514	2506.483
(ii)	Total Water consumption (m3/day):	22353	21312
(iii)	Ash disposal make up, Process NEBD:	2763	3133
(iv)	Cooling, Spraying, Boiler Feed:	19168	17767.279
(v)	Domestic*: (Excluding Township)	371	361.353
(vi)	Process, EBD	50	50

Sl No	**Name of the product**	**Process Water Consumption per Unit of Product Output**	
		2022-23	**2023-24**
01	Electricity	2.93 Kl/MWH	3.10 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**			
		2022-23		**2023-24**	
Coal	Electricity	Total Consumption	2469575MT	Total Consumption	2276887MT
		Specific Consumption	0.888Kg/KWH	Specific Consumption	0.908Kg/KWH
Start-up Fuel Oil (LDO)	Electricity	Total Consumption	1069.597 KL	Total Consumption	973.419 KL
		Specific Consumption	0.384 ml/KWH	Specific Consumption	0.388 ml/KWH

PART – C
Pollution discharged to Environment and Pollution Level

PERIOD- April 2023 TO March 2024								
STACK EMISSION								
PARAMETER	**NORM**	**STACK 1**			**NORM**	**STACK 2**		
		MAX.	**MIN.**	**AVE.**		**MAX.**	**MIN.**	**AVE.**
PM (mg/Nm^3)	**100**	93	72	85	**100**	92	77	84
SO_2 (mg/Nm^3)	**600**	1218	941	1041	**600**	1237	909	1087
NO_X (mg/Nm^3)	**600**	198	133	161	**600**	180	124	150

AMBIENT AIR QUALITY								
PARAMETER	**NORM**	**INDUSTRIAL**			**NORM**	**RESIDENTIAL**		
		MAX.	**MIN.**	**AVE.**		**MAX.**	**MIN.**	**AVE.**
PM_{10} ug/m3	**100**	94	14	71	**100**	90	14	68
PM 2.5 ug/m3	**60**	58	8	38	**60**	55	8	37
SO_2 (ug/m3)	**80**	22	7	13	**80**	12	6	9
NO_x (ug/m3)	**80**	29	12	21	**80**	27	12	19

STP WATER QUALITY					**AMBIENT NOISE in dB(A)**			
PARAMETER	**NORM**	**MAX**	**MIN**	**AVE.**	**INDUSTRIAL**		**RESIDENTIAL**	
pH	**6.5 – 9.0**	7.32	7.14	7.2	**MAX.**	**MIN.**	**MAX.**	**MIN.**
TSS, mg/ltr	**100**	10.4	8.9	9.75	**DAY TIME**			
BOD(3 days at 27^0C), mg/ltr	**30**	11.4	10.8	10.5	NORM			
COD, mg/ltr	**250**	48.8	41.4	45.27	**75**		**55**	
Total Nitrogen(as N)	**10**	11.9	9.8	10.58	73	63	53	39
Ammonical Nitrogen(as NH_3-N)	**50**	10.4	8.2	9.4	**NIGHT TIME**			
Total coliform	--	130	100	115	NORM			
Fecal coliform	**<1000**	23	15	17.87	**70**		**45**	
					70	51	43	35

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, 2016)

A. From Process:

Hazardous Waste Types	2022-23				2023-24			
	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	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	**120.065 KL** a. 23.53 KL b. 96.16 KL c. 0.375 KL	**15.330 KL** a. 14.49 KL b. 0.840 KL c. Nil	**23 KL** a. 23 KL b. Nil c. Nil	112.395 **KL**
Waste or Residue containing oil*	1.6MT	0.5MT	-	2.1MT	2.1 MT	0.5 MT (oily cotton waste)	Nil	2.6 MT Note- Stored securely inside PVC containers after evaporation of oil
Oily sludge during cleaning: KL	0	0	0	Nil	Nil	Nil	Nil	Nil
Spent Resin, MT	7.6 MT	0	0	7.6 MT	Nil	Nil	Nil	7.6 MT Note- Stored in impervious Pit
Discarded Container a.oil drums (Nos) Empty Chemical Jar, Nosb b. CW chemical	527	361	466	422	422	523	426 (20 nos. used in house)	519

B. From Pollution Control Facilities: No generation

PART – E

SOLID WASTES

A. Ash:

Solid Wastes (Ash):	Total Quantity (MT)	
	2022-23	2023-24
From Process	230071 MT (Bottom Ash)	188738 MT (Bottom Ash)
From Pollution Control Facilities	920282 MT (Fly Ash)	754955 MT (Fly Ash)
Quantity Utilized	464849 MT	372897 MT
Disposed in Ash Pond	761664 MT	570796 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.

vii. In a letter dated 10.08.2020 OPGC had again requested Director Technical for allotment of BOCM mine void, however the request was turned down stating various technical causes.

viii. In a letter dated 14.06.2021 OPGC had again requested Director Technical for allotment of BOCM mine void, however the request was turned down vide MCL letter No253H, dated 07.08.2021 stating the reason of excavation of bottom seam and integration of Lakhanpur, Belpahar & Lilari mines.

****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.
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 2025.

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 4732/IND-IV-BW/581 Dated 23.03.2021 & valid till 31.03.2026.

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. 34.81% 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.

Sukanta Mohapatra

Sukanta Mohapatra
Sr. VP (O & M)

****

ENVIRONMENTAL STATEMENT

Odisha Power Generation Corporation Ltd
Ib Thermal Power Station

Banharpali, Jharsuguda

(2 x 660 MW)

PERIOD FROM 1st APRIL 2023 TO 31st MARCH 2024

(FORM – V)

(See Rule 14)

Environmental Statement Report for the Financial Year ending the 31st March, 2024.

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 : 28.09.2023

v. Industry category : Thermal Power Plant

PART – B

(Water and Raw Material Consumption)

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

Sl.	Description	**2022-2023**	**2023-2024**
(I)	Gross Energy Generation (MU):	8930.912	9293.183
(ii)	Total Water consumption(m3/day):	59161	58258
(iii)	Ash disposal make up, Process NEBD:	No fresh water used for handling ash	
(iv)	Cooling, Spraying, Boiler Feed:	52052	51268
(v)	Domestic*: (Excluding Township)	Reported under OPGC-1 (2x210 MW)	
(vi)	Process, EBD	7099	6990

Sl No	**Name of the product**	**Process Water Consumption per Unit of Product Output**	
		2022-23	**2023-24**
01	Electricity	2.42 KL/MWH	2.29 KL/MWH

Name of Raw Material	**Name of the product**	**Consumption of Raw Material unit of output**			
		2022-23		**2023-24**	
Coal	Electricity	Total Consumption	6264081 MT	Total Consumption	6478715 MT
		Specific Consumption	0.701 Kg/KWH	Specific Consumption	0.697 KG/KWH
Start-up Fuel Oil (LDO)	Electricity	Total Consumption	1334.538 KL	Total Consumption	1799.453 KL
		Specific Consumption	0.149 ml/KWH	Specific Consumption	0.194 ml/KWH

PART – C

Pollution discharged to Environment and Pollution Level

PERIOD- April 2023 TO March 2024								
STACK EMISSION								
PARAMETER	**NORM**	**STACK #3**			**NORM**	**STACK #4**		
		MAX.	**MIN.**	**AVE.**		**MAX.**	**MIN.**	**AVE.**
PM (mg/Nm^3)	**50**	40	29	35	**50**	42	31	37
SO_2 (mg/Nm^3)	**200**	1318	893	1106	**200**	1273	909	1091
NO_X (mg/Nm^3)	**450**	396	321	358	**450**	389	311	350

AMBIENT AIR QUALITY								
PARAMETER	**NORM**	**INDUSTRIAL**			**NORM**	**RESIDENTIAL**		
		MAX.	**MIN.**	**AVE.**		**MAX.**	**MIN.**	**AVE.**
PM_{10} ug/m3	**100**	94	14	71	**100**	90	14	68
$PM_{2.5}$ ug/m3	**60**	58	8	38	**60**	55	8	37
SO_2 (ug/m3)	**80**	22	7	13	**80**	12	6	9
NO_x (ug/m3)	**80**	29	12	21	**80**	27	12	19

STP WATER QUALITY					**AMBIENT NOISE in dB(A)**			
PARAMETER	**NORM**	**MAX**	**MIN**	**AVE.**	**INDUSTRIAL**		**RESIDENTIAL**	
pH	**6.5 – 9.0**	7.32	7.14	7.2	**MAX.**	**MIN.**	**MAX.**	**MIN.**
TSS, mg/ltr	**100**	10.4	8.9	9.75	**DAY TIME**			
BOD(3 days at 27^0C), mg/ltr	**30**	11.4	10.8	10.5	NORM			
COD, mg/ltr	**250**	48.8	41.4	45.27	**75**		**55**	
Total Nitrogen(as N)	**10**	11.9	9.8	10.58	73	63	53	39
Ammonical Nitrogen(as NH_3-N)	**50**	10.4	8.2	9.4	**NIGHT TIME**			
Total coliform	**--**	130	100	115	NORM			
Fecal coliform	**<1000**	23	15	17.87	**70**		**45**	
					70	51	43	35

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, 2016)

A. From Process:

Hazardous Waste Types	2022-23				2023-24			
	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	52.025 KL	24.2 KL a. 24.2KL b. Nil c. Nil	Nil	76.225 KL	76.225KL	26.040 KL a. 22.890 KL b. 3.150 KL c. Nil	Nil	102.265 KL
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	4 MT	1.5MT	Nil	5.5MT	5.5 MT	1.5 MT (oily cotton waste)	Nil	7 MT Note- Stored securely inside PVC containers after evaporation of oil

B. From Pollution Control Facilities: No generation

PART – E

SOLID WASTES

A. Ash:

Solid Wastes (Ash):	Total Quantity (MT)	
	2022-23	2023-24
From Process	**564743 MT (Bottom Ash)**	**527187 MT (Bottom Ash)**
From Pollution Control Facilities	**2258981 MT (Fly Ash)**	**2108749 MT (Fly Ash)**
Quantity Utilized	**657506 MT**	**501412 MT**
Disposed in Ash Pond	**2166218 MT**	**2134524 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.

vii. In a letter dated 10.08.2020 OPGC had again requested Director Technical for allotment of BOCM mine void, however the request was turned down stating various technical causes.

viii. In a letter dated 14.06.2021 OPGC had again requested Director Technical for allotment of BOCM mine void, however the request was turned down vide MCL letter No253H, dated 07.08.2021 stating the reason of excavation of bottom seam and integration of Lakhanpur, Belpahar & Lilari mines.

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 utilize 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 utilized, 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 2025.

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 02 Ash Ponds i.e.

i. Ash Pond Phase I- 66 Acres
ii. Ash Pond Phase II- 120 Acres

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 4732/IND-IV-BW/581 Dated 23.03.2021 & valid till 31.03.2026.

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. 34.81% 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.

Sukanta Mohaptra

Sukanta Mohaptra
Sr. VP (O & M)

****

भारत सरकार
परमाणु ऊर्जा विभाग
विकिरण एवं आइसोटोप प्रौद्योगिकी बोर्ड

Government of India
Department of Atomic Energy
Board of Radiation & Isotope Technology

Certificate Tracking ID / CTID : 2400322
Date of Issue / DOI : 30-Jan-2024
Certificate Serial No. / CSN : ULR-TC1170324000001567F

TC-11703

Radioanalytical Laboratory

RADIOACTIVITY TEST CERTIFICATE

Ref : BRIT/RAL/DOM/841-856/MISC/614-629/23-24

To :
M/S. ODISHA POWER GENERATION CORPORATION LIMITED
IB-THERMAL POWER STATION,
BANHARPALI, JHARSUGUDA
ODISHA 768234

This is regarding the sample of "COAL ,FLY ASH & BOTTOM ASH" sent for radioactivity analysis vide your letter ref. no. ITPS/6739/WE dt. 20.12.2023 which as per above letter is drawn from consignment with the following markings, as shown in italics:

NAME & ADDRESS OF THE CUSTOMER : ***M/S. ODISHA POWER GENERATION CORPORATION LIMITED***
IB-THERMAL POWER STATION,
BANHARPALI, JHARSUGUDA,
ODISHA 768234

SAMPLE DESCRIPTION : ***1) OPGC-1 FEEDER COAL***
2) OPGC-2 FEEDER COAL
3) FLY ASH FROM ESP OF UNIT #4
4) BOTTOM ASH FROM CLINKER GRINDER OF UNIT #4

DATE OF SAMPLING : ***04.12.2023***

DATE OF RECEIPT OF SAMPLE: 26.12.2023 **DATE OF COMPLETION OF TEST: 25.01.2024**

The samples were analysed for U-238, Th-232,Ra-226 and K-40 radioactivity content by HPGe gamma spectrometry and the values obtained are as follows:

Sr. No	SAMPLE DESCRIPTION	U-238 (Bq/Kg)	Th-232 (Bq/Kg)	Ra-226 (Bq/Kg)	K-40(Bq/Kg)
1	OPGC-1 FEEDER COAL	31.6 ± 1.4	44.8 ± 8	26.1 ± 3.4	87 ± 6.3
2	OPGC-2 FEEDER COAL	30.1 ± 1.4	47 ± 5.0	36.3 ± 3.8	71.9 ± 5.3
3	FLY ASH FROM ESP OF UNIT NO 4	79.5 ± 2.3	125 ± 4.9	91.1 ± 6.4	229 ± 12.4
4	BOTTOM ASH FROM CLINKER GRINDER OF UNIT NO 4	82.7 ± 2.7	118 ± 12.6	63.6 ± 6.3	168 ± 11.3

Opinion: The measurement values are below the clearance level for radionuclides of natural origin in bulk solid materials, as per AERB directive 01/2010 (table-3) dated 26/11/2010.

Note: (i) The report pertains to the given sample only. (ii) The sample will be retained in this laboratory for a period of 1 month from certificate date and thereafter it will be disposed off. (iii) This report shall not be reproduced except in full, without written approval of the laboratory. (iv) The sampling is not done by this laboratory.

Checked by:
GANPAT B NAKTI
Assistant

Authorized Signatory:
AJAY NANA THAMKE
OIC, RAL

********** End of Report **********

सीएसआईआर - खनिज एवं पदार्थ प्रौद्योगिकी संस्थान
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
भुवनेश्वर-751013, ओडिशा, भारत
CSIR - INSTITUTE OF MINERALS & MATERIALS TECHNOLOGY
Council of Scientific & Industrial Research
Bhubaneswar - 751013, Odisha, INDIA
Diamond Jubilee 1964-2023
सीएसआईआर
CSIR
भारत का नवाचार इंजन
The Innovation Engine of India
आज़ादी का अमृत महोत्सव

TEST REPORT

Ref. No. LT02-CCD/23/60 **Date: 29.12.2023**

Name & Address of the Party:
Mr. Parthasarathi Panda
Sr. Manager (Env.)
IB Thermal Power Station
Odisha Power Generation Corporation
Banharpalli, Jharsuguda
PIN.768234
Mobile: 7606011609

Sample Details: Two coal & two ash samples

Date of Receiving: 05.12.2023
Date of Conducting Test: 12.12.2023
Date of Completion of Test: 21.12.2023
Method Adopted/ Standard: Classical analysis, AAS & ICP-OES.

Detail Report:

Sl. No.	Parameter	Concentration in test samples, mg/kg (ppm)			
		Coal sample-1	Coal sample-2	Fly Ash	Bottom Ash
1.	Pb	20.1	21.2	77.3	19.5
2.	Ni	21.9	29.24	63.65	49.25
3.	Cd	0.27	0.23	0.49	0.71
4.	As	72.5	57.1	94.2	88.4
5	Hg	0.18	0.20	0.16	0.12
6	Cr	44.0	57.5	164.7	151.5
7	Sr	76.6	89.8	165.8	177.3
8	Cu	27.1	32.4	85.9	66.9
9	Zn	42.3	55.4	162.4	66.2
10	Se	0.48	0.42	0.89	0.68

29/12/2023
(Dr. J. Das)
Pr. Technical Officer
Central Characterization Dept.

for 29/12/2023
(Dr. B. Nayak)
Chief Scientist
& Head, CCD

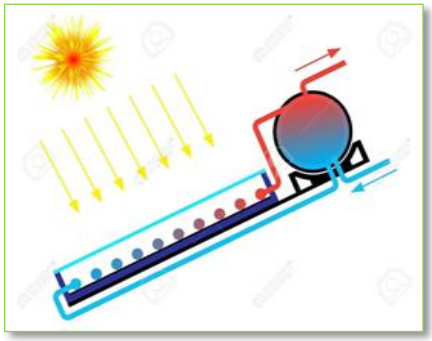
N.B: The samples are not drawn by CSIR-IMMT. Liability, if any, for the institute arising in connection with the testing shall be subject to ceiling of amount received by the institute from the client. The report should not be interpreted in part.

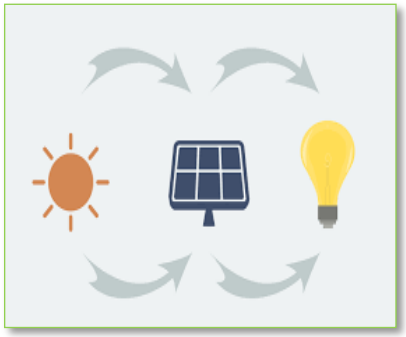
OPGC

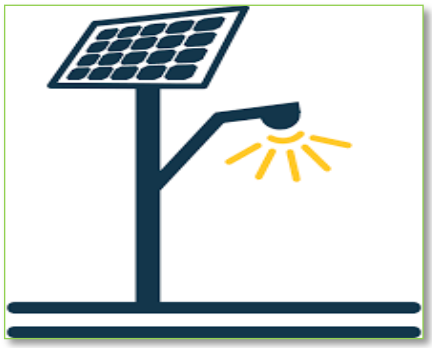
Renewable Energy Projects

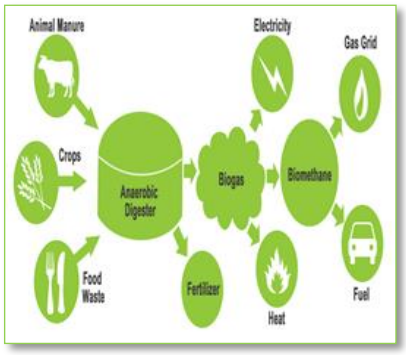
[Type the document subtitle]

Engg & Efficiency Dept.









Renewable Initiatives:

- Solar Photovoltaic Roof top plants
- Solar Powered LED Street Lights.
- Solar Water Heaters.

1. Roof top PV Plants :

Sl.no	Area	Installed Capacity	Connected Load
1	Switch yard	**3 KW**	**2.2 KW**
2	Ash Pond	**6 KW**	**4.55 KW**
3	DM Plant	**9 KW**	**7.26 KW**
4	CW Pump House	**3 KW**	**2.1 KW**
5	Plant Canteen	**9 KW**	**6 KW** + (**2.0 KW** flexible load of heater/food warmer)
6	Service Building	**9 KW**	**9KW**
	Total	**39 KW**	

a. PV Solar System at Switch Yard Roof:

3 KW PV Solar system installed at 220kV switchyard control room building commissioned in **April-2016**.

- **Connected load**: All indoor lighting of Switch yard control room, Front & rear halogen lights of Switch yard control room building.

b. PV Solar System at Ash Pond Control Room Roof:

2x3 KW PV Solar system installed at Ash Pond Control Room roof top commissioned in **June-2017.**

- **Connected load**: All indoor lighting of Switch gear control room, Battery room, Front & rear halogen lights of Ash pond switch gear room, all outdoor lighting of Ash Pond 33/6.6KV Switch yard.

c. PV Solar System at DM Plant Building Roof:

3x3 KW PV Solar system installed at DM Plant building Roof commissioned in **June-2018**.

- **Connected load**: All indoor lighting of control room, MCC room, Office rooms, Efficiency Lab, GCV Room & coal laboratory.

d. PV Solar System at CW Pump House Roof:

3 KW PV Solar system installed at CW Pump house roof commissioned in **June-2018**.

- **Connected load**: All indoor lighting of MCC room & outside lights.

e. PV Solar System at Plant Canteen building Roof:

9 KW PV Solar system installed at Plant Canteen roof commissioned in **April-2019**.

Connected load: All indoor lighting of Canteen dining, fans, Water cooler, TV, Insect killers & Portable strip warmers.

e. PV Solar System at Service Building Roof:

9 KW PV Solar system installed at service building roof commissioned in **March-2021**.

- **Connected load**: All indoor lighting, fans, water cooler of Service building 3rd floor.

Solar PV Plant in Canteen.

Solar PV Plant in DM Plant.

Solar PV Plant in Ash Pond.

Solar PV Plant at Service Building

2. Solar Powered LED Street Lights:

Solar Powered LED Street Light at Ash pond-C

- Total **60 no's** of solar 50 watt powered 30 watt LED's Street lights are installed in Ash Pond –C area.
- The total capacity of the system is **3KW**.
- Specific Features of the street lights: Pole Mounted type, Inbuilt Maintenance free Lithium Ion Battery With Motion Sensor.
- Lights are in service on an average 11 hours daily i.e. 6 pm to 5am .
- **Electrical Energy saved in a month** =60 no's x 30 watt x 11 hours x 30 days = **594 kWh**.

3. Solar Water Heater:

a. Solar Water Heater:

Solar Water Heater at Plant

900 Litre /day Solar Water Heater installed at roof of plant canteen commissioned in **March-2017**

- 3 Hot water tap points are provided at different locations inside plant canteen: for full filling the hot requirements like cooking, utensil cleaning, tea making, and vegetable washing & cleaning.
- Physical verification on **6th April 2019**, all the three hot tap points are working & serving their purpose.
- The electric geyser is in OFF condition.
- Energy Savings for geyser not in service: 2 kw X 4hrs X 30 Days=**240 KWH**
  (Also LPG Cylinder consumption savings is additional**.)**

b. Solar Water Heater at Guest House & Quarters

2000 Litre/day Solar Water Heater has been installed at ITPS Guest House (OPGC township) commissioned in **Sept-16**.

Solar water heater in :

D1 Type - 14000 LPD(7 x2000 LPD)

D3 Type-6000 LPD(3X 2000 LPD)

Purpose: To serve the hot water requirement to the individual rooms/houses.

Biogas Plant

a. Biogas supplied to guest house:

- **1 MTD**- Per day capacity (which is running at 30% capacity providing 5to6 hrs gas supply to guesthouse.)

+

Solar water heater in :

D1 Type - 14000 LPD(7 x2000 LPD)

D3 Type-6000 LPD(3X 2000 LPD)

Environment Policy

OPGC understands the importance of the Environment and *In* recognition of the interests of the society in securing sustainable industrial growth, compatible with a wholesome environment, OPGC affirms to adhere the highest possible levels of performance in environmental compliance, practices, stewardship and assigns high importance to promote and maintain a pollution-free environment in all its activities.

Objectives

- To adopt a pro-active approach and place environmental aspects as one of the prime consideration in decision-making process.
- To comply with all applicable laws governing environment protection through appropriate mechanisms.
- To constantly improve upon the standards of pollution control and provide a leadership in environment management.
- To ensure efficient and optimal use of resources such as land, water, fuel, construction materials, oils, and chemicals etc. especially the non-renewable ones.
- To use non-polluting and environment-friendly technology.
- To monitor regularly air, water, land, noise and other environmental parameters.
- To spearhead waste management by adopting the 3Rs principle (Reduce, Re-use and Recycle) and safe disposal.
- To develop employees' awareness on environmental responsibilities and encourage adherence to sound environmental practices.
- To work closely with Government and local authorities to prevent or minimise adverse consequences of the industrial activities on the environment.
- To actively participate in social welfare and environmental development activities of the locality around its Units.
- To create carbon sink by adding green cover in and around ITPS.

Effective from: 12.08.2025

Sri Anjana Ranjan Dash
Director (Operations) & Occupier