GMR Kamalanga Energy Limited

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Ref: GKEL/MOEF&CC/2024-25/8830
Date: 25.11.2025

To
The Director
Eastern Regional Office
Ministry of Environment, Forests & Climate Change, Govt. of India
A/3, Chandrasekharpur, Bhubaneswar, Odisha - 751023

Sub: **Submission of 1st Half Yearly EC Compliance Status Report Expansion by additional of 1x350 MW, TPP (Phase-II) at Village Kamalanga, Dhenkanal District, Odisha.**

Ref: Env. Clearance vides your letter No. **J-13012/73/2011-IA. II (T) dated 23.07.2025**

Dear Sir,

With reference to the subject referred above, we are pleased to submit the 1st Half Yearly EC Compliance Status Report of our 1 x 350 MW Thermal Power Plant (Phase-II) at village Kamalanga, Dhenkanal District, Odisha, for your kind perusal please.

Kindly acknowledge receipt of the same.

Thanking You,

Yours Sincerely,
for GMR Kamalanga Energy Limited

Manoj Mishra
Plant Head

Encl. – As above

Copy for kind information to:
1) Director, MoEF&CC, GOI, New Delhi
2) Regional Director, CPCB Zonal Office, Kolkata
3) Member Secretary, SPCB - Odisha, Bhubaneswar
4) Regional Officer, SPCB - Odisha, Hakimpada, Angul

Registered Office:
Skip House, 25/1, Museum Road,
Bengaluru - 560 025

EC Compliance Report

Name of the project : **GMR Kamalanga Energy Limited, Dhenkanal, Odisha**
Clearance Letter No. & Date : **File No: J-13012/73/2011-IA. II (T) dated 23.07.2025** ***(Phase-II: 1x350MW)***
Period of Compliance Report : **April 2025 to September 2025**

A. SPECIFIC CONDITIONS :

Sl.	Conditions	Compliance Status
1.1	Project proponent shall carry out community plantation with incentive scheme by distributing 50,000 saplings per year for a period of five years. Further, PP shall provide basic facilities to the nearby schools such as drinking water, sanitation facilities (sanitary napkin vending machines) and shall also develop green belt around the nearby schools. Further, PP shall organize quarterly awareness programs for school students to educate them on the significance and preservation of trees.	Being complied. GKEL has implemented a comprehensive plan to comply with the EC condition by initiating a community plantation program with an incentive scheme to distribute 50,000 saplings annually for five years, providing basic facilities such as drinking water and sanitation (including sanitary napkin vending machines) in nearby schools, and developing green belts around these schools. Additionally, quarterly awareness programs are being organized to educate students on the importance of trees and environmental conservation, ensuring active community participation and sustainable development.
1.2	Project proponent shall ensure that 100% utilization of ash generated from unit no 4 (1x350MW) in accordance with the ash utilization notification dated 31/12/2021 and its subsequent amendment. No additional ash pond for unit no 4 (1x350MW) is permitted.	Complied. Fly ash utilization of existing (3x350 MW) plant is 100% from last 05 years. By now, GKEL has not utilized Fly for mine void filling. Flyash utilization status is submitted to MoEFCC on half yearly basis through half-yearly EC compliance report. Flyash utilization status is also audited by external agency nominated by CPCP on yearly basis. FY 2024-25 fly ash audit report attached as per Annexure- I
1.3	Project proponent shall install 01 CAAQMS with micrometeorological station (Auto) at suitable location within the project site in consultation with State Pollution Control Board Odisha as committed.	GMR Kamalanga Energy Ltd has installed four Continuous Ambient Air Quality Monitoring Stations (CAAQMS), including two automatic micrometeorological stations, within the project site in consultation with the State Pollution Control Board, Odisha. Photo is attached as per Annexure- II.
1.4	The water requirement for the proposed project work (Construction Phase) is estimated as 3669 m3/day and for operation phase 32,000 m3/day of fresh water that will be obtained from the Samal Barrage on Bramhani River.	Agreed. The water requirement for the proposed project work (Construction Phase) will be obtained from the Samal Barrage on Bramhani River.
1.5	Project proponent shall store harvested rainwater in the project boundary and utilize the same for plantation, recharging water in the pond and domestic utilization in colonies. A record shall be	Agreed.

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	maintained of water collected through rainwater and its supply system. PP shall get the water audit done every year to optimize the water requirement.	
1.6	Project proponent shall implement the protective measure proposed in EMP in a time-bound manner. The budget earmarked for the same is Rs. 427 Crores and 39.3 Crore (recurring) should be kept in separate accounts and audited annually. The implementation status along with the amount spent with documentary proof shall be submitted to the concerned Regional Office for the activities carried out during the previous year.	GKEL will be implemented all protective measures proposed in the Environmental Management Plan (EMP) in a time-bound manner. A dedicated budget of ₹427 Crores (capital) and ₹39.3 Crores (recurring) has been earmarked, maintained in separate audited accounts as per the requirement. The implementation status, along with the amount spent and supporting documentary evidence, is being compiled and will be submitted to the concerned Regional Office for activities carried out during the previous year, ensuring full compliance with the stipulated condition.
1.7	Project proponent shall assess the carbon footprint of the project and develop carbon sink/carbon sequestration resources using modern technologies. The implementation report shall be submitted to the concerned Regional Office of the MoEF&CC.	Being complied.
1.8	Electric vehicles should be used as much as possible for transportation by industry and energy for domestic purposes as well other general use should be supplied through renewable energy sources such as solar energy etc. Action plan in this regard shall be submitted to the Regional Office of the MoEF&CC and CECB within 6 months from the date of grant of EC.	Being complied. Four e-cart vehicles have been purchased for plant site movement. Installation and commissioning of a 642 kWp rooftop solar plant have been completed. A total of 56 MWp solar installation is proposed and is currently under in the project stage.
1.9	The Project Proponent shall provide stack of 275 meters height and also incorporate space provision for installation of FGD in the Plant layout. Further, project proponent shall abide by the provisions of the notification number G.S.R 593 (E) dated 28/06/2018 related to FGD, as amended, and any subsequent amendment thereof pursuant to the outcome of study carried out by CPCB in this regard.	Agreed. The stack height is 275 meters and space for the installation of FGD is provided.
1.10	Project proponent shall ensure that pipelines carrying the fly ash and effluent shall be inspected regularly for any leakages.	Agree and being complied for existing plant.
1.11	Effluent of 123 KLD will be treated through Effluent Treatment Plant. As committed by the Project proponent, Zero liquid discharge shall be adopted for the existing and the proposed plant. No wastewater will be discharged outside the project site.	Being complied. Zero Liquid Discharge (ZLD) is maintained. Effluent generated from the plant is treated in the Effluent Treatment Plant (ETP), and sewage is treated in the Sewage Treatment Plant (STP).
1.12	PP shall implement the concurrent plantation plan in a time bound manner. Total of 154.72 ha area (33.10% of total plant area of 468.86 ha) will be developed as greenbelt. A 5m - 50m wide greenbelt, consisting of at least 3 tiers around plant boundary will be developed as greenbelt and green cover as per CPCB guidelines. PP shall also adopt Miyawaki plantation	➢ A green belt with indigenous species has already been developed. We have planted approximately 4,05,925 saplings as of September 2025 (including 5,750 saplings in 2025-26) around the plant and township

	technique and plantation with minimum 2 m height of the saplings in upcoming monsoon season in an area of 2 Ha by planting 10,000 trees per hectare i.e. approx. 20,000 native tree saplings. The budget earmarked for the green belt plantation including Miyawaki Plantation area shall be kept in a separate account and audited annually. PP should annually submit the audited statement of expenditure along with proof of activities viz. photographs (before & after with geolocation date & time), details of expert agency engaged, details of species planted, number of species planted, survival rate, density of plantation etc. to the Regional Office of MoEF&CC and	premises, along the railway line, and the approach road, covering a land area of 382.32 acres. ➢ Survival rate is around 90%. ➢ Under social voluntary project- Sabujima (A Green Initiative), 160 Nos. of fruit bearing trees were planted along with organic farming in the campus of Kamalanga Nodal High School, at Kamalanga Village. ➢ In addition to this, we have also developed avenue plantation and green belt in Dhenkanal area as required by District Administration. ➢ GKEL will be also adopt Miyawaki plantation technique and plantation with minimum 2 m height of the saplings in upcoming monsoon season in an area of 2 Ha by planting 10,000 trees per hectare i.e. approx. 20,000 native tree saplings. ➢ The budget earmarked for the green belt plantation including Miyawaki Plantation area will be kept in a separate account and audited annually. Yearly plantation details enclosed as per annexure- III.
1.13	Wildlife conservation plan as approved by the competent authority shall be implemented. Additional, budget shall be added in the plan, in case additional measures suggested by state wildlife department. The final Wildlife conservation plan duly approved by the CWLW shall be submitted to RO, MoEF&CC within a time frame of three months from the date of grant of EC and the budget approved by the concerned authority shall be deposited in a government account.	Being complied.
1.14	Project proponent shall install LED display of air quality (Continuous AAQ monitoring) and stack emission (Continuous emission monitoring) at prominent locations preferably outside the plant's main entrance for public viewing and in administrative complex and maintenance of devices shall be done regularly.	Complied. GKEL is installed LED display of online monitoring system at Gate- 2 & Gate- 3 for public viewing. Maintenance of device is being done regularly.
1.15	Project proponent shall carry out Water Sprinkling on roads inside the plant area/ administrative/ residential areas and outside the plant area at least for 2 KM on a regular basis to control the air pollution. A logbook shall be maintained for the activity and be in six-monthly compliance report.	The Project Proponent is complying with the stipulated condition by carrying out regular water sprinkling on roads inside the plant area, administrative and residential areas, as well as on roads outside the plant premises for a stretch of at 5 km to control air pollution by multiutility vehicle(fog cannon) and truck mounted water tankers.
1.16	PP shall deploy vacuum based vehicle for everyday cleaning of the road in and around plant site at least for 5 KM.	Complied. Vacuum based sweeping vehicle has been provided for cleaning of road.

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1.17	Environment Audit of plant shall be done annually and report shall be submitted to Regional office of the Ministry.	Agreed.
1.18	A detailed action plan regarding leachate handling shall be prepared and implemented in consultation with SPCB and the same shall be submitted to the Regional Office of the Ministry. Leachate shall be treated and reused. No treated leachate shall be discharged in any circumstances. Characteristics of Leachate and the treated leachate shall be monitored once in quarter and records shall be maintained.	Agreed.
1.19	Oil and grease recovered from the treatment plant should be disposed only through authorized recyclers.	Being complied.
1.20	Monitoring of surface water quality and Ground Water quality shall also be regularly conducted in and around the project site and records to be maintained. 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 also be undertaken and results/findings submitted along with half yearly monitoring report. The monitored data shall be submitted regularly on PARIVESH portal as part of Half Yearly compliance report	Regular monitoring of surface water and groundwater is carried out on a quarterly and half-yearly basis. The report is attached as Annexure IV(a) and IV(b).
1.21	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	The Project Proponent is complying with the stipulated condition by ensuring that DG sets meet the emission limits and stack height requirements as per the prevailing regulations and CPCB guidelines. Additionally, acoustic enclosures have been provided for all DG sets to effectively control noise pollution, thereby adhering to environmental standards. Stack monitoring report attached as per Annexure- V.
1.22	PP shall ensure that all types of plastic waste generated from the plant shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016 (as amended). In pursuant to the Ministry's OM dated 18/07/2022. PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall also be included in the six monthly compliance report submitted by PP.	GKEL is complying with the stipulated condition by ensuring that all types of plastic waste generated within the plant are stored separately in an isolated area and disposed of strictly in accordance with the Plastic Waste Management Rules, 2016 (as amended). In line with the Ministry's OM dated 18/07/2022, awareness programs have been conducted among employees and surrounding communities regarding the ban on Single Use Plastic (SUP) as per the Ministry's Notification dated 12/08/2021. Plant and Township premises are free from SUP.
1.23	Waste water generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB.	Being complied. Zero Liquid Discharge (ZLD) is maintained. Effluent generated from the plant is treated in the Effluent Treatment Plant (ETP), and sewage is treated in the Sewage Treatment Plant (STP).

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1.24	PP is advised to implement the 'Ek Ped Maa Ke Naam' Campaign which was launched on 5th June 2024 on the occasion of the World Environment Day to increase the forest cover across the Country. This plantation drive is other than Green belt development. The action in this regard shall be submitted concerned RO in six monthly report	Being complied. GKEL has implemented the "Ek Ped Maa Ke Naam" campaign and planted 5,000 saplings of indigenous species on 17th September 2025.
2. Socio-economic		
2.1	A vision document comprising prospective plan for implementation of various CER activities, plantation programme outside the project cover area, rejuvenation and conservation of water bodies within 5 km radius of the project cover area shall be prepared and submitted to the Regional Office of the Ministry within 6 months. Implementation status of the same shall be reported to the Regional office in 6 monthly compliance report.	Vision of the company has evolved continuously. Copy of the present vision and mission is enclosed as Annexure- VI which is also available on company web site. https://www.gmrgroup.in/vision-values-beliefs/
2.2	Epidemiological Study among population within 5 km radius of project cover area shall be carried out on regular interval (Once in two year) through independent agency. Necessary measures shall be taken as per findings of study in consultation with district administration. Action taken report shall be submitted to the Regional Office of the Ministry.	Agreed.
2.3	The budget proposed for PH is Rs. 11.89 Crores. The budget proposed shall be kept in a separate account and audited annually. Project proponent shall implement the action plan to address the issues raised during public hearing within a time frame of 3 years from the date of grant of EC. In addition to this, PP shall strengthen the existing Primary Health Center (PHC) & Community Health Center (CHC) in the study area for better public health as committed. Compliance status in this regard shall be submitted along with the six monthly compliance to the concerned Regional Office of MoEF&CC.	Agreed.
2.4	The establishment of a robust public grievance redressal mechanism to address concerns and complaints from local communities regarding the power plant's operations, environmental impacts, or social issues shall be developed. A Senior Officer shall review the functioning of the mechanism twice in a month.	Being complied. GKEL has established a robust public grievance redressal mechanism to address concerns and complaints from local communities regarding the power plant's operations, environmental impacts, and social issues. A dedicated system is in place for registering and resolving grievances promptly, and a Senior Officer reviews the functioning of the mechanism twice a month to ensure its effectiveness and transparency.
3. Miscellaneous		
3.1	An Environmental Cell headed by the Environment Manager with postgraduate qualification in environmental science/environmental engineering, shall be created. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.	Being complied. An environment monitoring cell with suitably qualified staff has been in place since 2013. The letter submitted to OSPCB on 31.07.2013 is enclosed as Annexure VII.

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		The environmental monitoring cell at GKEL is headed by the General Manager of EHS and includes a Manager of Environment and three other team members with backgrounds in environmental science and chemistry. Regular environmental monitoring of AAQ locations and stacks is conducted through an NABL accredited laboratory. The entire monitoring operation and schedule are coordinated by the environmental monitoring cell at GKEL.
3.2	Consent for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	Agreed.
3.3	All necessary clearance from the concerned Authority, as may be applicable should be obtained prior to commencement of project or activity.	Agreed.

Standard EC Conditions for (Thermal Power Plants)

1. Statutory Compliance

Sl.	Conditions	Compliance status
1.1	Emission Standards for Thermal Power Plants as per Ministry's Notification S.O. 3305(E) dated 7.12.2015, G.S.R.593(E) dated 28.6.2018 and as amended from time to time shall be complied.	Agreed.
1.2	Part C of Schedule II of Municipal Solid Wastes Rules, 2016 dated 08.04.2016 as amended from time to time shall be complied for power plants based on Municipal Solid Waste.	Agreed.
1.3	MoEF&CC Notifications on Water Consumption vide Notification No. S.O. 3305 (E) dated 07.12.2015 read with G.S.R 593 (E) dated 28.6.2018 as amended from time to time shall be complied	Agreed
1.4	The recommendation from Standing Committee of NBWL under the Wildlife (Protection) Act, 1972 should be obtained, if applicable.	Agreed
1.5	No Objection Certificate from Ministry of Civil Aviation be obtained for installation of requisite chimney height and its siting criteria for height clearance.	Complied. The stack height is 275 meters (a copy of the aviation clearance mentioning the stack height is attached in Annexure VIII).

2. Air Quality Monitoring And Management

Sl.	Conditions	Compliance status
2.1	Selective Catalytic Reduction (SCR) system or the Selective Non-Catalytic Reduction (SNCR) system or Low NOX Burners with Over Fire Air (OFA) system shall be installed to achieve NOX emission standard of 100 mg/Nm3.	Agreed.
2.2	High efficiency Electrostatic Precipitators (ESPs) shall be installed in each unit to ensure that particulate matter (PM) emission to meet the stipulated standards of 30 mg/Nm3.	GKEL is complying with the stipulated condition by installing high-efficiency Electrostatic Precipitators (ESPs) in the existing units to ensure that particulate

		matter (PM) emissions meet the prescribed standards. High-efficiency ESPs will also be installed in Unit-IV to achieve the emission standard of 30 mg/Nm^3.
2.3	Stack with a height of 275 meters shall be provided with continuous online monitoring instruments for SO2, Nox and Particulate Matter as per extant rules.	GKEL is complying with the stipulated condition by providing a stack of 275 meters height equipped with continuous online monitoring instruments for SO_2, NO_x, and Particulate Matter (PM) as per the applicable rules and CPCB guidelines. The system is integrated with the CEMS and data is transmitted to the regulatory authorities to ensure transparency and compliance.
2.4	Exit velocity of flue gases shall not be less than 20-25 m/s. Mercury emissions from stack shall also be monitored periodically.	Agreed.
2.5	Continuous Ambient Air Quality monitoring system shall be set up to monitor common/criteria pollutants from the flue gases such as PM10, PM2.5, SO2, NOX within the plant area at least at one location. The monitoring of other locations (at least three locations outside the plant area covering upwind and downwind directions at an angle of 120° each) shall be carried out manually.	Being complied.
2.6	Adequate dust extraction/suppression system shall be installed in coal handling, ash handling areas and material transfer points to control fugitive emissions.	A Dust Extraction (DE) system and a Dry Fog Dust Suppression (DFDS) system have been installed for the existing plant and same will be included in the further expansion.
2.7	Appropriate Air Pollution Control measures (Des/DSs) be provided at all the dust generating sources including sufficient water sprinkling arrangements at various locations viz., roads, excavation sites, crusher plants, transfer points, loading and unloading areas, etc.	Complied.
2.8	Project proponent shall abide by the provisions of the notification number G.S.R 593 (E) dated 28/06/2018 related to FGD, as amended, and any subsequent amendment thereof pursuant to the outcome of study carried out by CPCB in this regard.	Agreed.

3. Noise Pollution and Its Control Measures

Sl.	Conditions	Compliance status
3.1	The Ambient Noise levels shall meet the standards prescribed as per the Noise Pollution (Regulation and Control) Rules, 2000.	GKEL is complying with the stipulated condition by ensuring that ambient noise levels meet the standards prescribed under the Noise Pollution (Regulation and Control) Rules, 2000. Regular monitoring is carried out at designated locations within the plant and township premises, and results confirm compliance with the applicable norms.
3.2	Persons exposed to high noise generating equipment shall use Personal Protective Equipment (PPE) like earplugs/ear muffs, etc.	Agreed & being complied.
3.3	Periodical medical examination on hearing loss shall be carried out for all the workers and maintain audiometric record and for	Agreed.

	treatment of any hearing loss including rotating to non-noisy/less noisy areas.	

4. Human Health Environment

Sl.	Conditions	Compliance status
4.1	Bi-annual Health check-up of all the workers is to be conducted. The study shall take into account of chronic exposure to noise which may lead to adverse effects like increase in heart rate and blood pressure, hypertension and peripheral vasoconstriction and thus increased peripheral vascular resistance. Similarly, the study shall also assess the health impacts due to air polluting agents.	Agreed & being complied.
4.2	Impact of operation of power plant on agricultural crops, large water bodies (as applicable) once in two years by engaging an institute of repute. The study shall also include impact due to heavy metals associated with emission from power plant.	Agreed.

5. Water Quality Monitoring And Management

Sl.	Conditions	Compliance status
5.1	Induced/Natural draft closed cycle wet cooling system including cooling towers shall be set up with minimum Cycles of Concentration (COC) of 5.0 or above for power plants using fresh water to achieve specific water consumption of 3.0 m3/MWhr.of chronic exposure to noise which may lead to adverse effects like increase in heart rate and blood pressure, hypertension and peripheral vasoconstriction and thus increased peripheral vascular resistance. Similarly, the study shall also assess the health impacts due to air polluting agents.	Being complied.
5.2	In case of the water withdrawal from river, a minimum flow 15% of the average flow of 120 consecutive leanest days should be maintained for environmental flow whichever is higher, to be released during the lean season after water withdrawal for proposed power plant.	Agreed.
5.3	Records pertaining to measurements of daily water withdrawal and river flows (obtained from Irrigation Department/Water Resources Department) immediately upstream and downstream of withdrawal site shall be maintained.	Flow meters have been installed to monitor daily water withdrawal.
5.4	Regular (at least once in six months) monitoring of groundwater quality in and around the ash pond area including presence of heavy metals (Hg, Cr, As, Pb, etc.) shall be carried out as per CPCB guidelines. Surface water quality monitoring shall be undertaken for major surface water bodies as per the EMP. The data so obtained should be compared with the baseline data so as to ensure that the groundwater and surface water quality is not adversely impacted due to the project & its activities.	For regular monitoring of groundwater, a total of four piezometric wells have been developed around the ash dyke. Monitoring of these piezometric wells is conducted on a monthly basis. Groundwater quality, particularly for heavy metals (Hg, Cr, As, Pb), is monitored at eight locations, including the piezometric wells on a half yearly basis. The data from the groundwater test reports have been compared with baseline data, indicating that groundwater quality is not

		adversely affected by the project. The report is enclosed as Annexure V(b).
5.5	The treated effluents emanating from the different processes such as DM plant, boiler blow down, ash pond/dyke, sewage, etc. conforming to the prescribed standards shall be re-circulated and reused. Sludge/ rejects will be disposed in accordance with the Hazardous Waste Management Rules.	Agreed.
5.6	Hot water dispensed from the condenser should be adequately cooled to ensure the temperature of the released surface water is not more than 5 degrees Celsius above the temperature of the intake water.	Agreed.
5.7	Wastewater generation of 6509 KLD from various sources (viz. cooling tower blowdown, boiler blow down, wastewater from ash handling, etc) shall be treated to meet the standards of pH: 6.5-8.5; Total Suspended Solids: 100 mg/l; Oil & Grease: 20 mg/l; Copper: 1 mg/l; Iron:1 mg/l; Free Chlorine: 0.5; Zinc: 1.0 mg/l; Total Chromium: 0.2 mg/l; Phosphate: 5.0 mg/l.	Agreed.
5.8	Sewage generation of 96 KLD will be treated by setting up Sewage Treatment plant to maintain the treated sewage characteristics of pH: 6.5-9.0; Bio-Chemical Oxygen Demand (BOD): 30 mg/l; Total Suspended Solids: 100 mg/l; Fecal Coliforms (Most Probable Number).	Agreed.

6. Risk Mitigation And Disaster Management

Sl.	Conditions	Compliance status
6.1	Adequate safety measures and environmental safeguards shall be provided in the plant area to control spontaneous fires in coal yard, especially during dry and humid season.	To keep coal yard fire in check, various arrangements have been put in place. In the 04 nos. coal pile/stock yard inside plant boundary, we have installed adequate fire-fighting equipment i. e. 03 fire monitor points, 10 nos. fire landing valve with 50 mtr hose pipe, 10 nos. rain guns/water sprinklers to each coal pile/stock yard. Copy of these measures with full details along with location in marked in plant layout enclosed as per Annexure- IX.
6.2	Storage facilities for auxiliary liquid fuel such as LDO and HFO/LSHS shall be made as per the extant rules in the plant area in accordance with the directives of Petroleum & Explosives Safety Organisation (PESO). Sulphur Content in the liquid fuel should not exceed 0.5%.	LDO storage facility has been developed alonwith consultation with Dept. of Explosive. Sulphur content in the liquid fuel is being maintained within 0.5%. A copy of license and test report enclosed as per Annexure- X.
6.3	Ergonomic working conditions with First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Agreed.
6.4	Safety management plan based on Risk Assessment shall be prepared to limit the risk exposure to the workers within the plant boundary.	Agreed.

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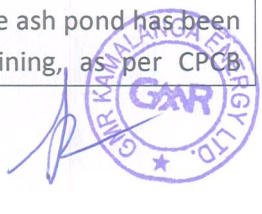
6.5	Regular mock drills for on-site emergency management plan and Integrated Emergency Response System shall be developed for all kind of possible disaster situations.	GKEL is complying with the stipulated condition by conducting regular mock drills for the On-Site Emergency Management Plan and developing an Integrated Emergency Response System to address all possible disaster scenarios. These drills are carried out periodically with proper documentation, and the system is reviewed to ensure preparedness and effective response during emergencies.

7. Green Belt And Biodiversity Conservation

Sl.	Conditions	Compliance status
7.1	Green belt shall be developed in an area of 33% of the total project with indigenous native tree species in accordance with CPCB guidelines. The green belt shall inter-alia cover an entire periphery of the plant.	➢ A green belt with indigenous species has already been developed. We have planted approximately 4,05,925 saplings as of September 2025 (including 5,750 saplings in 2025-26) around the plant and township premises, along the railway line, and the approach road, covering a land area of 382.32 acres. ➢ Survival rate is around 90%. ➢ Under social voluntary project- Sabujima (A Green Initiative), 160 Nos. of fruit bearing trees were planted along with organic farming in the campus of Kamalanga Nodal High School, at Kamalanga Village. ➢ In addition to this, we have also developed avenue plantation and green belt in Dhenkanal area as required by District Administration. Yearly plantation details enclosed as per annexure- IV.
7.2	In-situ/ex-situ Conservation Plan for the conservation of flora and fauna should be prepared and implemented.	Agreed.

8. Waste Management

Sl.	Conditions	Compliance status
8.1	Solid waste management should be planned in accordance with extant Solid Waste Management Rules, 2016.	Agreed.
8.2	Toxicity Characteristic Leachate Procedure (TCLP) test shall be conducted for any substance, potential of leaching heavy metals into the surrounding areas as well as into the groundwater.	Agreed.
8.3	Ash pond shall be lined with impervious liner as per the soil conditions. Adequate dam/dyke safety measures shall also be implemented to protect the ash dyke from getting breached.	Complied. To prevent leaching, the ash pond has been lined with an HDPE lining, as per CPCB



		standards. Condition assessments of the ash pond are conducted on an annual basis to detect any abnormalities that might result in a breach. The FY 2024-25 ash pond condition assessment report is attached as Annexure XI.
8.4	Unutilized ash if any shall be disposed off in the ash pond in the form of High Concentration Slurry method.	Agreed.
8.5	Fly ash shall be collected in dry form and ash generated shall be used in phased manner as per provisions of the Notification on Fly Ash Utilization issued by the Ministry S.O. 5481 dated 31.12.2021, S.O.6169 (E) dated 30.12.2021, S.O.05 (E) dated 01.01.2024 and amendment thereto.	Agreed.

9. Monitoring Of Compliance

Sl.	Conditions	Compliance status
9.1	Environmental Audit of the project be taken up by the third party for preparation of Environmental Statement as per Form-V & Conditions stipulated in the EC and report be submitted to the Ministry.	Agreed.
9.2	Resettlement & Rehabilitation Plan as per the extant rules of Govt. of India and respective State Govt. shall be followed, if applicable.	Not applicable.
9.3	Energy Conservation Plan to be implemented as envisaged in the EIA / EMP report. Renewable Energy Purchase Obligation as set by MoP/State Government shall be met either by establishing renewable energy power plant (such as solar, wind, etc.) or by purchasing Renewable Energy Certificates.	Agreed.
9.4	Energy and Water Audit shall be conducted at least once in two years and recommendations arising out of the Report should be followed. A report in this regard shall be submitted to Ministry's Regional Office.	Agreed.
9.5	The project proponent shall (Post-EC Monitoring): a. send a copy of environmental clearance letter to the heads of Local Bodies, Panchayat, Municipal bodies and relevant offices of the Government; b. upload the clearance letter on the web site of the company as a part of information to the general public. c. inform the public through advertisement within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment, Forest and Climate Change (MoEF&CC) at http://parviesh.nic.in. d. upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same periodically; e.monitor the criteria pollutants level namely; PM (PM10& PM2.5incase of ambient AAQ), SO2, NOx	Agreed & being complied.

GMR KAMALANGA ENERGY LTD.

	(ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company; f. submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB; g. submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company; h. inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project and the date of commencement of the land development work.	

10. Corporate Environmental Responsibility (Cer) Activities

Sl.	Conditions	Compliance status
10.1	CER activities will be carried out as per Ministry's OM F.No.22-65/2017- IA.III dated 30th September, 2020 and 22-65/2017- IA.III dated 25.02.2021 or as proposed by the PP in reference to Public Hearing or as earmarked in the EIA/EMP report along with the detailed scheduled of implementation with appropriate budgeting. Statement on the commitments (activity-wise) made during public hearing to facilitate the discussion on the CER in compliance of the shall be submitted.	A comprehensive CSR scheme has been developed based on the needs assessment of communities. A total of 9 villages within a 05 km of radius of site have been developed.

11. Ash Content/mode Of Transportation Of Coal

Sl.	Conditions	Compliance status
11.1	MoEF&CC Notification issued vide S.O. 1561 (E) dated 21.05.2020 and as amended from time to time shall be complied which inter-alia include use of coal by Thermal Power Plants, without stipulations as regards ash content or distance, shall be permitted subject to compliance of conditions prescribed under (1) Setting Up Technology Solution for emission norms, (2) Management of Ash Ponds and (3) Transportation.	Agreed.

Annexure-I

राष्ट्रीय प्रौद्योगिकी संस्थान
NATIONAL INSTITUTE OF TECHNOLOGY
राउरकेला ROURKELA-769008, ओडिशा ODISHA

RIGHT TO INFORMATION

No. NITR/CE/2025/L/0967

FTS/ 250418-3390
Date: 18/04/2025

To

The Member Secretary
The Ministry of Environment, Forest and Climate Change

Sub: Submission of Annual Ash Compliance Report (for the period of 1st April 2024-31st March 2025) of GMR Kamalanga Energy Limited, Dhenkanal, ODISHA

Respected Sir,

With reference to the subjected cited above, I am submitting herewith the softcopy of Annual Ash Compliance Report along with month wise generation and utilization data of GMR Kamalanga Energy Limited for the period of 1st April 2024-31st March 2025. The attachments also include the shapefiles of thermal power plant.

Kindly acknowledge the receipt of the same.

With warm regards,

Yours sincerely,

Spsingh
18/04/2025

Prof. Suresh Prasad Singh,
Department of Civil Engineering,
National Institute of Technology-Rourkela
Rourkela, Odisha

Cc: 1) The Member Secretary, State Pollution Control Board, ODISHA
(Email: paribesh1@ospcboard.org)

2) "power cpcb" <power.cpcb@gov.in>;

Prof. Suresh Prasad Singh
Professor & Head
Department of Civil Engineering
National Institute of Technology Rourkela
Rourkela-769008, Odisha

GMR KAMALANGA ENERGY LTD.

GMR KAMALANGA ENERGY LIMITED
Dhenkanal, Odisha

Annual Ash Compliance Report
(Period 1st April' 2024 to 31st March'2025)

Date: 18/04/2025

Sr. No.	Details	
1.	Name of Power Plant	GMR Kamalanga Energy Limited
2.	Name of the company	GMR Kamalanga Energy Limited
3.	District	Dhenkanal
4.	State	Odisha
5.	Postal address for communication:	At/Po – Kamalanga via - Meramandali P.S- Kantabania, Dist. - Dhenkanal, Odisha-759121
6.	E-mail:	manoj.mishra@gmrgroup.in
7.	Power Plant installed capacity (MW):	1050 MW (3X350 MW)
8.	Plant Load Factor (PLF):	86.41%
9.	No. of units generated (MWh):	7947619 (MWh)
10.	Total area under power plant (ha): (including area under ash ponds)	468.87 ha (1158.57 Acres)
11.	Quantity of coal consumption during reporting period (Metric Tons per Annum):	5983233 (Metric Tons per Annum)
12.	Average ash content in percentage (per cent):	45.46 %
13.	Quantity of current ash generation during reporting period (Metric Tons per Annum i.e. MTPA): **Fly ash (MTPA):** **Bottom ash (MTPA):**	**2719828.47** 2039871.93 679956.54
14.	Capacity of dry fly ash storage silo(s) (Metric Tons) :	4 x 1600 MT = 6400 MT
15.	Details of utilisation of current ash generated during reporting period (a) **Total quantity of current ash utilised (MTPA) during reporting period:**	**2719828.47**
	(b) **Quantity of fly ash utilised (MTPA):**	**2039871.93**
	(i) Fly ash based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels)	833708.23
	(ii) Cement manufacturing	852422.30
	(iii) Ready mix concrete	-
	(iv) Ash and Geo-polymer based construction material	-
	(v) Manufacturing of sintered or cold bonded ash aggregate	-
	(vi) Construction of roads, road and fly over embankment	353740.60
	(vii) Construction of dams	-
	(viii) Filling up of low lying area	-
	(ix) Filling of mine voids	-
	(x) Use in overburden dumps	-
	(xi) Agriculture	-
	(xii) Construction of shoreline protection structures in coastal districts;	-

GMR KAMALANGA ENERGY LTD.

Spsingh
18/04/2025

	(xiii) Export of ash to other countries:	-	
	(xiv) Others (please specify)	-	
	(c) Quantity of bottom ash utilised (MTPA):	**679956.54**	
	(i) Fly ash based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels):	-	
	(ii) Cement manufacturing:	-	
	(iii) Ready mix concrete:	-	
	(iv) Ash and Geo-polymer based construction material:	-	
	(v) Manufacturing of sintered or cold bonded ash aggregate:	-	
	(vi) Construction of roads, road and flyover embankment:	679956.54	
	(vii) Construction of dams:	-	
	(viii) Filling up of low lying area:	-	
	(ix) Filling of mine voids:	-	
	(x) Use in overburden dumps:	-	
	(xi) Agriculture:	-	
	(xii) Construction of shoreline protection structures in coastal districts:	-	
	(xiii) Export of ash to other countries:	-	
	(xiv) Others (please specify):	-	
	Total quantity of current ash unutilised (MTPA) during reporting period:	**NIL**	
16.	Percentage utilisation of current ash generated during reporting period (per cent):	**100%**	
17.	Details of disposal of ash in ash ponds: (a) Total quantity of ash disposed in ash pond(s) (Metric Tons) as on 31st March (excluding reporting period):	NIL	
	(b) Quantity of ash disposed in ash pond(s) during reporting period (Metric Tons):	NIL	
	(c) Total quantity of water consumption for slurry discharge into ash ponds during reporting period (m^3)	NIL	
	(d) Total number of ash ponds: (i) Active: (ii) Exhausted (yet to be reclaimed): (iii) Reclaimed:	Both Lagoon-1 & 2 NIL NIL	
	(e) Total area under ash ponds (ha):	74.90 ha	
18.	Individual ash pond details: *Ash pond-1, 2, etc. (please provide below mentioned details separately, if number of ash ponds is more than one)*	Lagoon-1	Lagoon-2
	(a) Status: Under construction or Active or Exhausted or Reclaimed	Active	Active
	(b) Date of start of ash disposal in ash pond (DD/MM/YYYY or MMYYYY):	12.11.2013	30.03.2014
	(c) Date of stoppage of ash disposal in ash pond after completing its capacity (DD/MM/YYYY or MM/YYYY): (Not applicable for active ash ponds)	Not Applicable	Not Applicable
	(d) Area (hectares):	38.46 ha	36.44 ha
	(e) Dyke height (m):	6.0 m	11.0 m
	(f) Volume (m^3):	9,58,333.33 m^3	15,63,166.67 m^3
	(g) Quantity of ash disposed as on 31st March (Metric Tons)	NIL	NIL
	(h) Available volume in percentage (per cent) and quantity of ash can be further disposed (Metric Tons): (Unit weight 1.2 g/cc)	100% 11,82,400.00	100% 19,28,648.63 MT

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GMR KAMALANGA ENERGY LTD.

	(i) Expected life of ash pond (number of years and months):	2.5 Years with present arrangement (Considering secured agreement with cement plants (around 30%))
	(j) Co-ordinates (Lat. and Long): (please specify minimum 4 co-ordinates)	NW: 20°52'10" N, 85°15'36" E NE: 20°52'01" N, 85°15'47" E SW: 20°51'28" N, 85°15'35" E SE: 20°51'21" N, 85°15'50" E
	(k) Type of lining carried in ash pond: HDPE lining or LDPE lining or clay lining or No lining	HDPE lining
	(l) Mode of disposal: Dry disposal or wet slurry (in case of wet slurry please specify whether HCSD/MCSD/LCSD)	Wet slurry disposal through HCSD System
	(m) Ratio of ash: water in slurry mix (1:___):	1:0.5
	(n) Ash water recycling system (AWRS) installed and functioning: Yes, or No	YES (Ash water recycling system installed & it's under operational)
	(o) Quantity of wastewater from ash pond discharged into land or water body (m^3):	Nil
	(p) Last date when the dyke stability study was conducted and name of the organisation who conducted the study:	19th March 2024 V Engineering Consultants
	(q) Last date when the audit was conducted and name of the organisation who conducted the audit:	Annual Certification of Ash Ponds and Dykes was conducted by NIT Warangal in April 2025
19.	**Quantity of legacy ash utilised (MTPA):** i. Fly ash based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels):	-
	ii. Cement manufacturing:	-
	iii. Ready mix concrete:	-
	iv. Ash and Geo-polymer based construction material:	-
	v. Manufacturing of sintered or cold bonded ash aggregate:	-
	vi. Construction of roads, road and flyover embankment:	-
	vii. Construction of dams:	-
	viii. Filling up of low lying area:	-
	ix. Filling of mine voids:	-
	x. Use in overburden dumps:	-
	xi. Agriculture:	-
	xii. Construction of shoreline protection structures in coastal districts;	-
	xiii. Export of ash to other countries:	-
	xiv. Others (please specify):	-

20. **Summary:**

Details	Quantity Generated (MTP)	Quantity Utilized (MTP) & (percent)	Balance Quantity (MTP)
Current ash during reporting period	**2719828.47**	**2719828.47** (100%)	NIL
Legacy ash	NIL	NIL	NIL
Total	**2719828.47**	**2719828.47 (100%)**	**NIL**

21.	Any other information: Soft copy of the annual compliance report, and shape files of power plant and ash ponds may be e-mailed to : - **moefcccoalash@gov.in**	Good Ash Management Attached 1. Audit report, 2. Month wise generation & utilisation data 3. Shape file
22.	Signature of Authorised Signatory	SPsingh 18/04/2025 **Prof. Suresh Prasad Singh** Professor & Head Department of Civil Engineering National Institute of Technology Rourkela Rourkela-769008, Odisha

GMR KAMALANGA ENERGY LTD.

GMR KAMALANGA ENERGY LIMITED, Dhenkanal, Odisha										
Ash Generation and Utilization Month-wise Report (April 2024-March 2025)										
Month	Ash Generated (MT)	Ash Utilization (MT)								
		Supply to cement plant	Brick making	Land filling	Mine filling	Road and flyover embankments	Others (Specify)	Total utilization	Utilization (%)	Remarks
April-24	243221.23	80585.25	75196.33	-	-	87439.65	-	243221.23	100.00	-
May-24	249440.12	80806.71	85145.50	-	-	83487.91	-	249440.12	100.00	-
June-24	253125.01	82106.92	46467.00	-	-	115068.10	-	243642.02	96.25	-
July-24	195873.31	66658.76	50300.10	-	-	86144.16	-	203103.02	103.69	-
Aug-24	205797.75	75397.19	59445.00	-	-	73208.95	-	208051.14	101.09	-
Sept-24	213994.48	61954.69	63900.01	-	-	88140.38	-	213994.48	100.00	-
Oct-24	170603.45	55343.33	57616.14	-	-	57643.38	-	170603.45	100.00	-
Nov-24	185909.35	60182.62	63151.36	-	-	62576.29	-	185909.35	100.00	-
Dec-24	243715.00	62263.60	89557.71	-	-	91893.66	-	243715.00	100.00	-
Jan-25	263855.00	72492.21	78873.10	-	-	112488.69	-	263855.00	100.00	-
Feb-25	235044.00	72791.94	76275.81	-	-	85976.25	-	235044.00	100.00	-
Mar-25	259249.77	81839.08	87780.17	-	-	89630.52	-	259249.77	100.00	-
Total	**2719828.47**	**852422.30**	**833708.23**	-	-	**1033697.94**	-	**2719828.47**	**100.00**	-

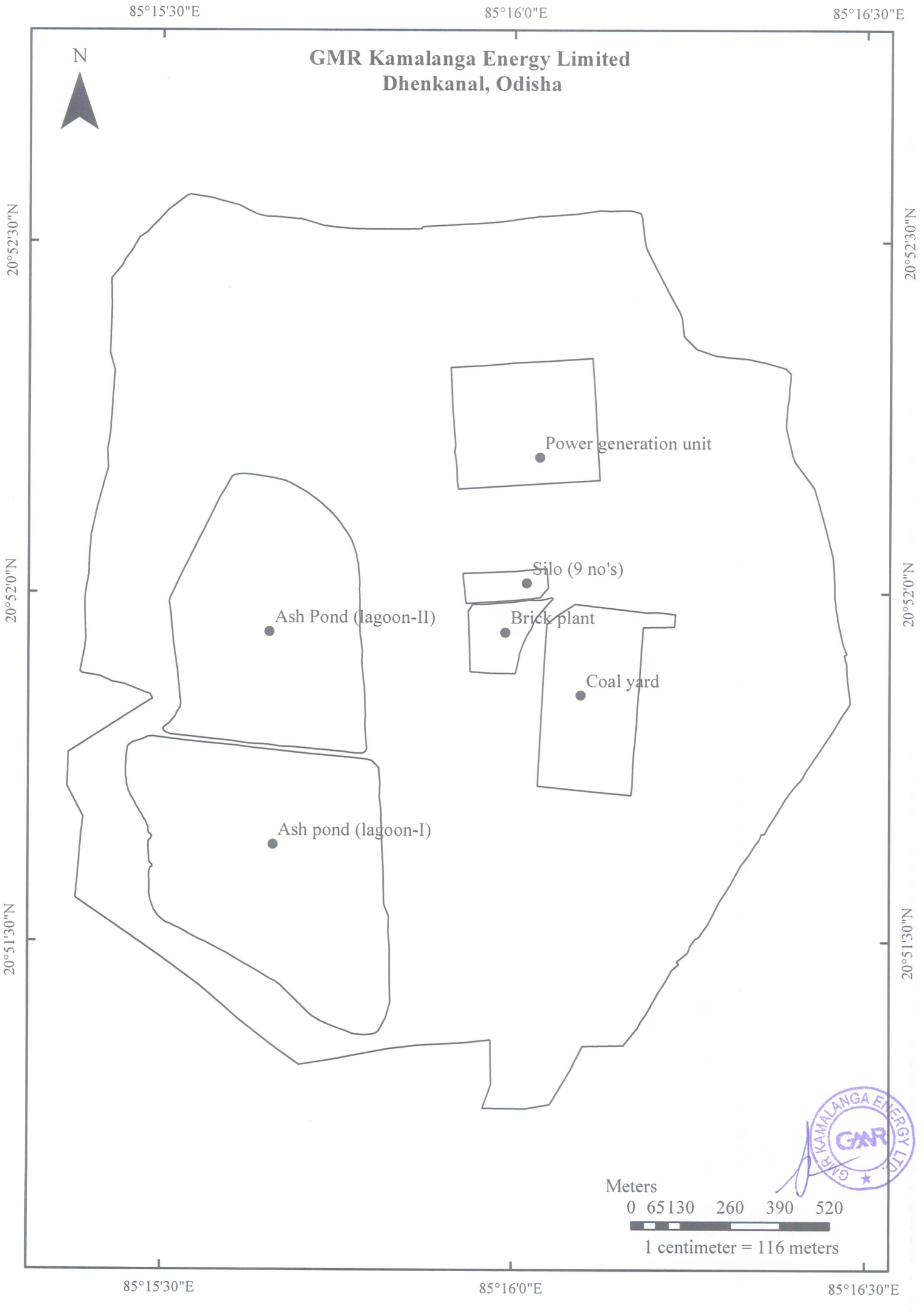
Note: The term ash indicates both fly ash and bottom ash

Spsingh
18/04/2025

Prof. Suresh Prasad Singh

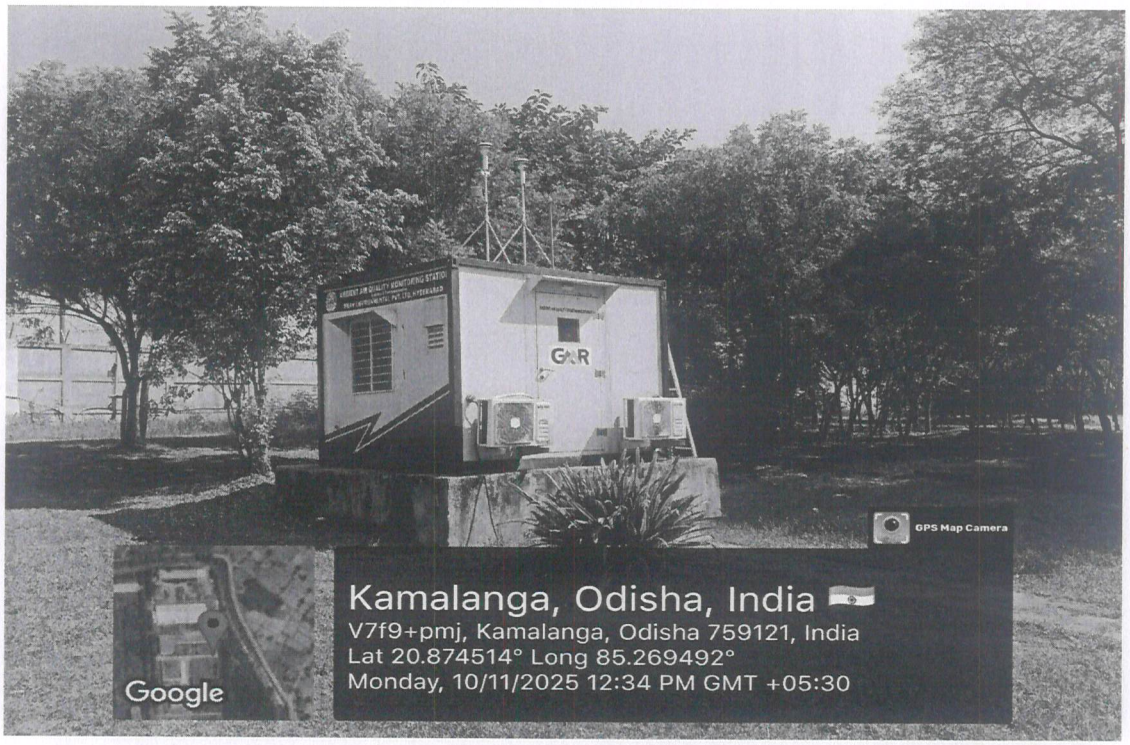
GMR KAMALANGA ENERGY LTD.

Prof. Suresh Prasad Singh
Professor & Head
Department of Civil Engineering
National Institute of Technology Rourkela
Rourkela-769008, Odisha


85°15'30"E
85°16'0"E
85°16'30"E
N
GMR Kamalanga Energy Limited
Dhenkanal, Odisha
20°52'30"N
20°52'0"N
20°51'30"N
Power generation unit
Silo (9 no's)
Ash Pond (lagoon-II)
Brick plant
Coal yard
Ash pond (lagoon-I)
GMR KAMALANGA ENERGY LTD.
Meters
0 65 130 260 390 520
1 centimeter = 116 meters

Annexure- II

Continuous Ambient Air Quality Monitoring Stations (CAAQMS), including automatic micrometeorological stations,



GMR KAMALANGA ENERGY LTD.

Annexure-III

Cumulative plantation details from 2011 to till date		
Tree plantation	Nos. of Tree planted	Species
FY: 2011-12	25000	Karanj , Teak, Peltophorum (Radhachuda), Akoshmone, Neem, Kassod (Rani chakkunda) , Shisham, Jamun, Bodom, Gamhar, Imali, Kadamb, Siris, Cheeku, Guava, Amrud, Amlatas, Maulsari, Ashok (Sita Ashok, Indian Cork Tree, White Cheesewood, Spathodea, Trumpet Tree, Bougainvillea, Krishna-chura, Guleturo, Kachnar, Kavior, Murraya (Marchula) Thevetia, kaner, Arjuna, Kachnar species, Mango, Rain tree, Acacia Species, Simarouba tree, Mahagani, Lemon, , Mosambi, Jamrul, Kamrakh, Pomagranate, Pitronjova, Karavir, pink siris, Sajana, Jack fruit, Ber etc.
FY: 2012-13	25000	
FY: 2013-14	43000	
FY: 2014-15	85134	
FY: 2015-16	50157	
FY: 2016-17	46441	
FY: 2017-18	43633	
FY: 2018-19	40350	
FY: 2019-20	24080	
FY: 2020-21	7213	
FY: 2021-22	2342	
FY: 2022-23	2958	
FY: 2023-24	2240	
FY: 2024-25	2507	
FY: 2025-26	5750	
Total	4,05,925	

GMR KAMALANGA ENERGY LTD

Annexure-IV(a)

Visiontek Consultancy Services Pvt.Ltd

(Committed For Better Environment)

Ref: **Envlab/25-26/TR-09466** *Date:* **07.07.2025**

SURFACE WATER ANALYSIS REPORT (BUFFER ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Sampling Location : **SW1**: Brahmani River Upstream
   SW2: Brahmani River Downstream
   SW3: Pond at Maniabeda Village
3. Date of Sampling : 21.06.2025
4. Date of Analysis : 23.06.2025 to 30.06.2025
5. Sample Collected By : VCSPL Representative in presence of Client's Representative

Sl. No	Parameter	Unit	Testing Methods	Standard as per IS 2296:1992 Part C	Analysis Results		
					SW-1	SW-2	SW-3
1.	Colour	Hazen	APHA 2120 B	300.0	<5	<5	<5
2.	Odour	--	APHA 2150B	---	Agreeable	Agreeable	Agreeable
3.	pH	--	APHA 4500H^+B	6.0-9.0	7.38	7.47	7.54
4.	Suspended Solids	mg/l	APHA 2540 D	---	32.3	33.8	31.4
5.	Total Dissolved Solids	mg/l	APHA 2540 C	1500.0	236.2	228.5	249.4
6.	Electrical Conductivity	µs/cm	APHA 2510 B	--	385	372	395
7.	Temperature	°C	APHA 2550 B	--	25.5	25.8	24.7
8.	Biochemical Oxygen Demand as BOD (3 days) at 27°C	mg/l	APHA 5210 B	3.0	2.7	3.1	2.9
9.	Chemical Oxygen Demand as COD	mg/l	APHA 5220 C	---	12.3	13.5	13.8
10.	Dissolved Oxygen	mg/l	APHA 4500 O C	4.0 (minimum)	4.8	5.2	4.1
11.	Oil & Grease	mg/l	APHA 5520 B	---	ND	ND	ND
12.	Arsenic (as As)	mg/l	APHA 3114 B	0.2	BDL	BDL	BDL
13.	Hexavalent Chromium (as Cr^{+6})	mg/l	APHA 3500 Cr B	0.05	BDL	BDL	BDL
14.	Total Chromium (as Cr)	mg/l	APHA 3111 B	---	BDL	BDL	BDL
15.	Copper (as Cu)	mg/l	APHA 3111 B,C	1.5	BDL	BDL	BDL
16.	Manganese (as Mn)	mg/l	APHA 3500 Mn B	---	BDL	BDL	BDL
17.	Lead (as Pb)	mg/l	APHA 3111 B,C	0.1	BDL	BDL	BDL
18.	Zinc (as Zn)	mg/l	APHA 3111 B,C	15	0.28	0.36	0.52
19.	Selenium (as Se)	mg/l	APHA 3114 B	0.05	BDL	BDL	BDL
20.	Iron (as Fe)	mg/l	APHA 3500Fe B	0.5	0.36	0.41	0.32
21.	Total Coli form	MPN/ 100ml	APHA 9221 B	5000	138	115	176
22.	Chloride (as Cl)	mg/l	APHA 4500Cl^- B	600	35.4	41.4	22.3
23.	Sodium Absorption Ratio	mg/l	By Calculation	---	0.34	0.32	0.36
24.	Boron (as B)	mg/l	APHA 4500 B,B	---	BDL	BDL	BDL
25.	Sulphate (as SO_4)	mg/l	APHA 4500 SO_4^{2-}	400	21.4	22.6	8.8
26.	Nitrates (as NO_3)	mg/l	APHA 4500 NO_3^-E	50	1.65	1.42	1.38
27.	Free Ammonia	mg/l	By Calculation	---	ND	ND	ND
28.	Fluorides (as F)	mg/l	APHA 4500 F,C	1.5	0.35	0.32	0.38
29.	Sodium (as Na)	mg/l	APHA 3500 Na B	---	7.4	8.8	5.1
30.	Calcium (as Ca)	mg/l	APHA 3500Ca B	---	32.3	30.4	22.8
31.	Magnesium (as Mg)	mg/l	APHA 3500Mg B	---	2.4	1.6	2.8
32.	Ammonical Nitrogen	mg/l	APHA 4500 NH_3F	---	1.46	1.58	1.77

Note: CL: Colourless, AE: Agreeable, U/O: Unobjectionable, ND: Not Detected. BDL (Below Detectable Limits) Values: Cu<0.05 mg/l, Mn<0.05 mg/l, C_6H_5OH<0.001 mg/l, Hg<0.002 mg/l, Cd<0.003 mg/l, Se<0.001 mg/l, As<0.004 mg/l, Pb<0.01 mg/l, Zn<0.03 mg/l, Cr^{+6}<0.01 mg/l, Al<0.01 mg/l, B<0.01 mg/l.

Reviewed by *Approved by*

Annexure-2

Ref: **Envlab/25-26/TR-01454**

Date: 02.05.2025

GROUND WATER ANALYSIS REPORT

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd,Dhenkanal**
2. Sampling Location : **GW-1: Piezometric Well – 1** **GW-2: Piezometric Well – 2**
   : GW-3: Piezometric Well – 3 **GW-4: Piezometric Well – 4**
3. Date of Sampling :08.04.2025
4. Date of Analysis :08.04.2025 to 15.04.2025
5. Sample Collected By :VCSPL Representative in presence of Client's Representative

Sl. No	Parameter	Unit	Testing Methods	Standard as per IS - 10500:2012	Analysis Results			
					GW-1	GW-2	GW-3	GW-4
1.	Colour	Hazen	APHA 2120 B	5.0	<5	<5	<5	<5
2.	Odour	--	APHA 2150B	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Taste	--	APHA 2160 C	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA 2130 B	5	1.4	2.4	<1.0	<1.0
5.	pH Value	--	APHA 4500H^+B	6.5-8.5	7.86	7.76	7.83	7.48
6.	Total Hardness (as $CaCO_3$) (max)	mg/l	APHA 2340 C	200	92.3	67.4	117.4	56.8
7.	Iron (as Fe) (max)	mg/l	APHA 3500 Fe B	1.0	0.18	0.10	0.53	<0.3
8.	Chloride (as Cl) (max)	mg/l	APHA 4500 Cl B	250.0	108	86	26.8	136
9.	Residual, free Chlorine (min)	mg/l	APHA 4500 Cl B	0.2	ND	ND	ND	ND
10.	Dissolved Solids (max)	mg/l	APHA 2540 C	500.0	436	405	385	454
11.	Calcium (as Ca) (max)	mg/l	APHA 3500 Ca B	75.0	26.2	12.8	32.2	17.2
12.	Copper (as Cu) (max)	mg/l	APHA 3111 B,C	0.05	BDL	BDL	BDL	BDL
13.	Manganese (as Mn) (max)	mg/l	APHA 3500Mn B	0.1	0.042	0.56	0.066	0.05
14.	Sulphate (as SO_4) (max)	mg/l	APHA 4500 SO_4^{2-} E	200.0	30.8	25.8	22.4	16.3
15.	Nitrate (as NO_3) (max)	mg/l	APHA 4500 NO_3^- E	45.0	0.46	0.52	0.88	0.64
16.	Fluoride (as F) (max)	mg/l	APHA 4500 F,C	1.0	0.72	0.62	0.42	0.35
17.	Phenolic Compounds (as C_6H_5OH) (max)	mg/l	APHA 5530 B,D	0.001	BDL	BDL	BDL	BDL
18.	Mercury (as Hg) (max)	mg/l	APHA 3500 Hg	0.001	BDL	BDL	BDL	BDL
19.	Cadmium (as Cd) (max)	mg/l	APHA 3111 B,C	0.003	BDL	BDL	BDL	BDL
20.	Selenium (as Se) (max)	mg/l	APHA 3114 B	0.01	BDL	BDL	BDL	BDL
21.	Arsenic (as As) (max)	mg/l	APHA 3114 B	0.01	BDL	BDL	BDL	BDL
22.	Cyanide (as CN) (max)	mg/l	APHA 4500CN^- C,D	0.05	BDL	BDL	BDL	BDL
23.	Lead (as Pb) (max)	mg/l	APHA 3111 B,C	0.01	BDL	BDL	BDL	BDL
24.	Zinc (as Zn) (max)	mg/l	APHA 3111 B,C	5.0	0.38	0.26	0.62	1.55
25.	Anionic Detergent (max)	mg/l	APHA 5540 C	0.2	BDL	BDL	BDL	BDL
26.	Chromium (as Cr^{+6}) (max)	mg/l	APHA 3500Cr B	--	BDL	BDL	BDL	BDL
27.	Mineral Oil (max)	mg/l	APHA 5520 B	0.5	ND	ND	ND	ND
28.	Alkalinity (max)	mg/l	APHA 2320 B	200.0	124.0	58.4	115.0	47.2
29.	Aluminium as Al (max)	mg/l	APHA 3500Al B	0.03	BDL	BDL	BDL	BDL
30.	Boron (max)	mg/l	APHA 4500 B,B	0.5	0.22	0.35	0.26	0.32
31.	Magnesium as Mg(max)	mg/l	APHA 3500Mg B	30	6.4	6.2	8.5	3.2
32.	Total Coliform (as TC)	MPN/100ml	APHA 9221 B	--	<1.8	<1.8	<1.8	<1.8

Note: CL: Colourless, UO: Unobjectionable, ND: Not Detected.
BDL (Below Detection Limits) [illegible] Cu<0.05 mg/l, Mn<0.05 mg/l, C6H5OH<0.05 mg/l,Hg<0.002 mg/l, Cd<0.[illegible], Se<0.001 mg/l, Ni<0.004 mg/l, Pb<0.01mg/l, Zn<0.05 mg/l, Cr<0.01 mg/l, Al<0.[illegible] mg/l, B<0.1 mg/l,. TC(MPN 0-0-0)<1.8.

Reviewed by

Approved by

Annexure-IV (b

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

VISIONTEK

Ref: **Envlab/25-26/TR-01455**

Date : 02.05.2025

GROUND WATER ANALYSIS REPORT

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Sampling Location : **GW-5: Bore well at Durgapur GW-6: Bore well at Manpur**
   : **GW-7: Bore well at Barasahi GW-8 : Bore well at Budhapanka**
3. Date of Sampling : 08.04.2025
4. Date of Analysis : 08.04.2025 to 15.04.2025
5. Sample Collected By : VCSPL Representative in presence of Client's Representative

Sl. No	Parameter	Unit	Testing Methods	Standard as per IS - 10500:2012	Analysis Results			
					GW-5	GW-6	GW-7	GW-8
1.	Colour	Hazen	APHA 2120 B	5.0	<5	<5	<5	<5
2.	Odour	--	APHA 2150B	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3.	Taste	--	APHA 2160 C	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4.	Turbidity	NTU	APHA 2130 B	5	1.4	2.2	3.4	<1.0
5.	pH Value	--	APHA 4500H^+B	6.5-8.5	7.82	7.24	7.62	7.36
6.	Total Hardness (as $CaCO_3$) (max)	mg/l	APHA 2340 C	200	214	152	144	158
7.	Iron (as Fe) (max)	mg/l	APHA 3500 Fe B	1.0	0.32	0.26	0.28	0.34
8.	Chloride (as Cl) (max)	mg/l	APHA 4500 Cl B	250.0	24.8	22.2	28.4	86.7
9.	Residual, free Chlorine (min)	mg/l	APHA 4500 Cl B	0.2	ND	ND	ND	ND
10.	Dissolved Solids (max)	mg/l	APHA 2540 C	500.0	454	384	412	428
11.	Calcium (as Ca) (max)	mg/l	APHA 3500 Ca B	75.0	48.6	42.6	32.5	52.3
12.	Copper (as Cu) (max)	mg/l	APHA 3111 B,C	0.05	BDL	BDL	BDL	BDL
13.	Manganese (as Mn) (max)	mg/l	APHA 3500Mn B	0.1	<0.05	<0.05	0.062	<0.05
14.	Sulphate (as SO_4) (max)	mg/l	APHA 4500 SO_4^{2-} E	200.0	78.8	51.4	22.8	26.7
15.	Nitrate (as NO_3) (max)	mg/l	APHA 4500 NO_3^- E	45.0	0.78	6.43	1.63	1.85
16.	Fluoride (as F) (max)	mg/l	APHA 4500 F,C	1.0	0.85	0.42	0.68	0.38
17.	Phenolic Compounds (as C_6H_5OH) (max)	mg/l	APHA 5530 B,D	0.001	BDL	BDL	BDL	BDL
18.	Mercury (as Hg) (max)	mg/l	APHA 3500 Hg	0.001	BDL	BDL	BDL	BDL
19.	Cadmium (as Cd) (max)	mg/l	APHA 3111 B,C	0.003	BDL	BDL	BDL	BDL
20.	Selenium (as Se) (max)	mg/l	APHA 3114 B	0.01	BDL	BDL	BDL	BDL
21.	Arsenic (as As) (max)	mg/l	APHA 3114 B	0.01	BDL	BDL	BDL	BDL
22.	Cyanide (as CN) (max)	mg/l	APHA 4500CN^- C,D	0.05	BDL	BDL	BDL	BDL
23.	Lead (as Pb) (max)	mg/l	APHA 3111 B,C	0.01	BDL	BDL	BDL	BDL
24.	Zinc (as Zn) (max)	mg/l	APHA 3111 B,C	5.0	BDL	BDL	1.6	BDL
25.	Anionic Detergent (max)	mg/l	APHA 5540 C	0.2	BDL	BDL	BDL	BDL
26.	Chromium (as Cr^{+6}) (max)	mg/l	APHA 3500Cr B	--	BDL	BDL	BDL	BDL
27.	Mineral Oil (max)	mg/l	APHA 5520 B	0.5	ND	ND	ND	ND
28.	Alkalinity (max)	mg/l	APHA 2320 B	200.0	168.0	136.0	142.0	152
29.	Aluminium as Al (max)	mg/l	APHA 3500Al B	0.03	BDL	BDL	BDL	BDL
30.	Boron (max)	mg/l	APHA 4500 B,B	0.5	<0.1	<0.1	0.32	0.26
31.	Magnesium as Mg(max)	mg/l	APHA 3500Mg B	30	23.5	10.7	9.6	5.4
32.	Total Coliform (as TC)	MPN/100ml	APHA 9221 B	--	<1.8	<1.8	<1.8	<1.8

Note: CL: Colourless, Al: Agreeable, Odour: Unobjectionable, ND: Not Detected.
BDL (Below Detectable Limits) Values: Cu<0.05 mg/l, Mn<0.05 mg/l, C6H5OH<0.05 mg/l,Hg<0.002 mg/l, Cd<0.003 mg/l, Se<0.004 mg/l, Pb<0.01mg/l, Zn<0.05 mg/l, Cr+6<0.05 mg/l, Al<0.1 mg/l, B<0.1 mg/l,. TC(MPN 0-0-0)<1.8.

Reviewed by

BBSR

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

BBSR

VISIONTEK CONSULTANCY SERVICES PVT. LTD.

Approved by

KAMALANGA ENERGY LTD GMR

Annexure-V

Visiontek Consultancy Services Pvt.Ltd

(Committed For Better Environment)

VISIONTEK

Ref: **Envlab/25-26/TR-12058** *Date:* **06.09.2025**

SOURCE EMISSION MONITORING REPORT AUGUST-2025

1. Name of Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Sampling Location : **ST-1 : Stack attached to ESP Outlet of UNIT-1**
   : ST-2 : Stack attached to ESP Outlet of UNIT-2
   : **ST-3 : Stack attached to ESP Outlet of UNIT-3**
3. Date of Sampling : 12.08.2025
4. Date of Analysis : 13.08.2025 to 19.08.2025
5. Sample Collected by : VCSPL Representative in presence of GMR representative

Sl. No.	Parameters	Unit of Measurement	Standard as per MoEF& CC & CPCB	Analysis Results		
				ST-1	ST-2	ST-3
Sampling Date				12.08.2025	12.08.2025	12.08.2025
1.	Stack Temperature	^0C	--	108	116	120
2.	Velocity	m/sec	--	18.37	24.51	25.22
3.	Volume of Flue gas	m^3/hour	-	1157906.87	1513154.10	1541139.61
4.	Particulate Matter as PM	mg/Nm^3	50.0	37.0	28.5	27.7
5.	Sulphur Dioxide as SO_2	mg/Nm^3	600.0	1214	1246	1285
6.	Oxides of Nitrogen as NOx	mg/Nm^3	450.0	305	346	367
7.	Carbon Monoxide as CO	mg/Nm^3	--	7.1	8.0	7.2
8.	Carbon Dioxide as CO_2	%	--	11.4	12.1	11.2
9.	Oxygen as O_2	%	--	6.5	6.8	6.4
10.	Mercury as Hg	mg/Nm^3	**0.03**	0.0142	0.0154	0.0133

Note: The value of SO2, NOx are corrected @6% O2 level in flue gas emission.

Reviewed by

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

Approved by

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

Plot No.-M-22&23, Chandaka Industrial Estate, Patia, Bhubaneswar-751024, Dist-Khurda, Odisha Tel.: 0674-3511721
E-mail : visiontek@visiontek.org, visiontekin@gmail.com
Visit us at: www.visiontek.org

GMR KAMALANGA ENERGY LTD.

OUR VALUES & BELIEFS

Humility
We value intellectual modesty and dislike false pride and arrogance

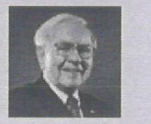
Entrepreneurship
We seek opportunities – they are everywhere

Teamwork & Respect For Individual
Nurturing a relationship of trust, collaboration and mutual respect.

Deliver the promise
We value a deep sense of responsibility and self discipline, to meet and surpass commitments made

Learning & Inner Excellence
We cherish the life long commitment to deepen our self awareness, explore, experiment and improve our potential

Social responsibility
Anticipating and meeting relevant and emerging needs of society



Financial Prudence – Frugality
We spend wisely and judiciously

GMR KAMALANGA ENERGY LTD.

Annexure-VI

Annexure-VIII

GMR Energy

GMR Kamalanga Energy Limited

Administration Office:
HIG - 28, Gangadhar Meher Marg
Jaydev Vihar
Bhubaneswar 751 013
T +91-0674-2303995
F +91-0674-2303994
W www.gmrgroup.in

Ref.No. –GKEL/OSPCB/GKEL/13-14/3164
Dated - 31.07.2013

To
The Sr. Environment Engineer (C)
State Pollution Control Board, Odisha
(Deptt. of Forest & Environment, Govt. of Odisha)
Paribesh Bhavan, A/118, Nilakantha Nagar, Unit-VIII,
Bhubaneswar, Odisha – 751 012

Sub : Environment Management Cell in the industry – Regarding.
Ref : Your office letter no – 13020/ Ind – I – Con – 1402 dated 17.07.2013 received by us on 29.07.2013

Dear Sir,

With reference to the above subject and letter cited above, we are enclosing herewith the updated status of environment management cell of our thermal power plant for your kind information and perusal please.

Kindly acknowledge receipt of the same.

Thanking you,

Yours sincerely,
for GMR Kamalanga Energy Limited

(S.Nageswara Rao)
Associate Vice President & Project Head

Encls. : Status of Environment Management Cell (Six pages)

GMR KAMALANGA ENERGY LTD.

Regd. Office:
25/1, Skip House, Museum Road,
Bangalore-560 025
Site Office:
PO. Kamalanga, Via Meramundali,
P.S. Bhusana, Tahasil. Odapada
Dist. Dhenkanal 759121, Orissa

STATUS OF ENVIRONMENTAL MANAGEMENT CELL IN M/S GMR KAMALANGA ENERGY LIMITED.

A. Total investment made for the factory:Rs.4100.00 Cr

Investment made on installation of pollution control measures: Rs.125 Cr

Recurring expenses on environmental protection (Per Annum): 1.06Cr

B. Details of persons available in the Cell:

Sl No	Name of the persons	Designation	Duty assigned	Mobil No/Email	Qualification	Experience
01	Susanta Sahoo	AGM - EHS	EHS	07894420913 susanta.sahoo@gmrgroup.in	B.Tech (Mechanical) + Diploma in Env. Management. + Diploma in Industrial Safety	19 Year
02	Chittaranjan Mahali	Manager-EHS	Environment. Conditions Compliance.	09178462822 chittaranjan.mahali@gmrgroup.in	B.Tech (Mechanical) + Post Diploma in Industrial Safety.	13 Years.
03	Sangram Dhal	Manager-Chemist	Lab In-charge	09777580328 Sangram.dhal@gmrgroup.in	B.Sc.(Chemistry) + M.Sc. (Pollution Control)	21 Years.
04	Shyamalendu Mohapatra	Associate Manager (Horticultur e)	Plantation /Green belt Development	07894471103 Shyamalendu.Mohapatra@gmrgroup .in	B.Sc.(Ag) +M.sc (Horticulture)	07 years
05	Subash Rout	Co-ordinator (Chemist)	Water Lab	07894450366	B.Sc. (Chemistry)	05 Years
06	Jayakumar T.	Sr. Co-ordinator (Chemist)	Air Lab	07894471096	B.Sc (Chemistry)	11 Years

GMR KAMALANGA ENERGY LTD.

GMR KAMALANGA ENERGY LTD.

C. Pollution control management during night hours:

Sl No	Name of the Persons	Designation	Mobil No/Email
01	Chittaranjan Mahali	Manager (EHS)	09178462822 chittaranjan.mahali@gmrgroup.in
02	Sangram Dhal	Manager-Chemist	09777580328 Sangram.dhal@gmrgroup.in

D. Laboratory facility building infrastructure if any:

a. Building /infrastructure (Sq.ft) :8000 Sq.ft.

b. Parameters analysed critical parameters of air and water:- pH, Suspended solids, Total dissolved solids & Total suspended solid (TDS & TSS),Dissolved oxygen (DO),Chemical oxygen demand (COD),Biochemical oxygen demand (BOD),Sulphide ,Residual free chlorine, Oil and grease, Total ammonical nitrogen (NH3-N),Bacteriological contamination ,PM 10, PM 2.5, Sulphur dioxide (SO2) (µg/m3), Oxides of Nitrogen (NOx) (µg /m3), Carbon monoxide (CO) (mg).

GMR KAMALANGA ENERGY LTD.

c. Name of the equipment's:

Sl No	Name of Equipment	Unit	Quantity
1	Electrical anemograph	Set	1
2	Dew Point Meter.	Set	1
3	Rain Gauge.	Set	1
4	Mercury Barometer.	Set	1
5	Maximum & Minimum Thermometer.	Set	1
	Hygrometer.	Set	
6	Dry &Wet Bulb Thermometer.	Set	1
7	High Volume Sampler.	Set	1
8	Stack Monitoring Kit.	Set	1
9	Ion Activity Meter.	Set	1
10	COD Measure instrument.	Set	1
11	Biochemical incubator.	Set	1
12	BOD measuring instrument.	Set	1

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13	Sound level meter.	Set	1
14	Redundant/ total chlorine Meter.	Set	1
15	Electromagnetic radiation detector.	Set	1

d. Accreditation if any: Action is being incited for accreditation from competent authority.

e. Frequency of sample collection and analysis

   i. Water: Thrice in a Month.
   ii. Air: Daily (on line monitoring system)
   iii. Stack: Air: Daily (on line monitoring system)

f. Monitoring done by 3rd party if any:

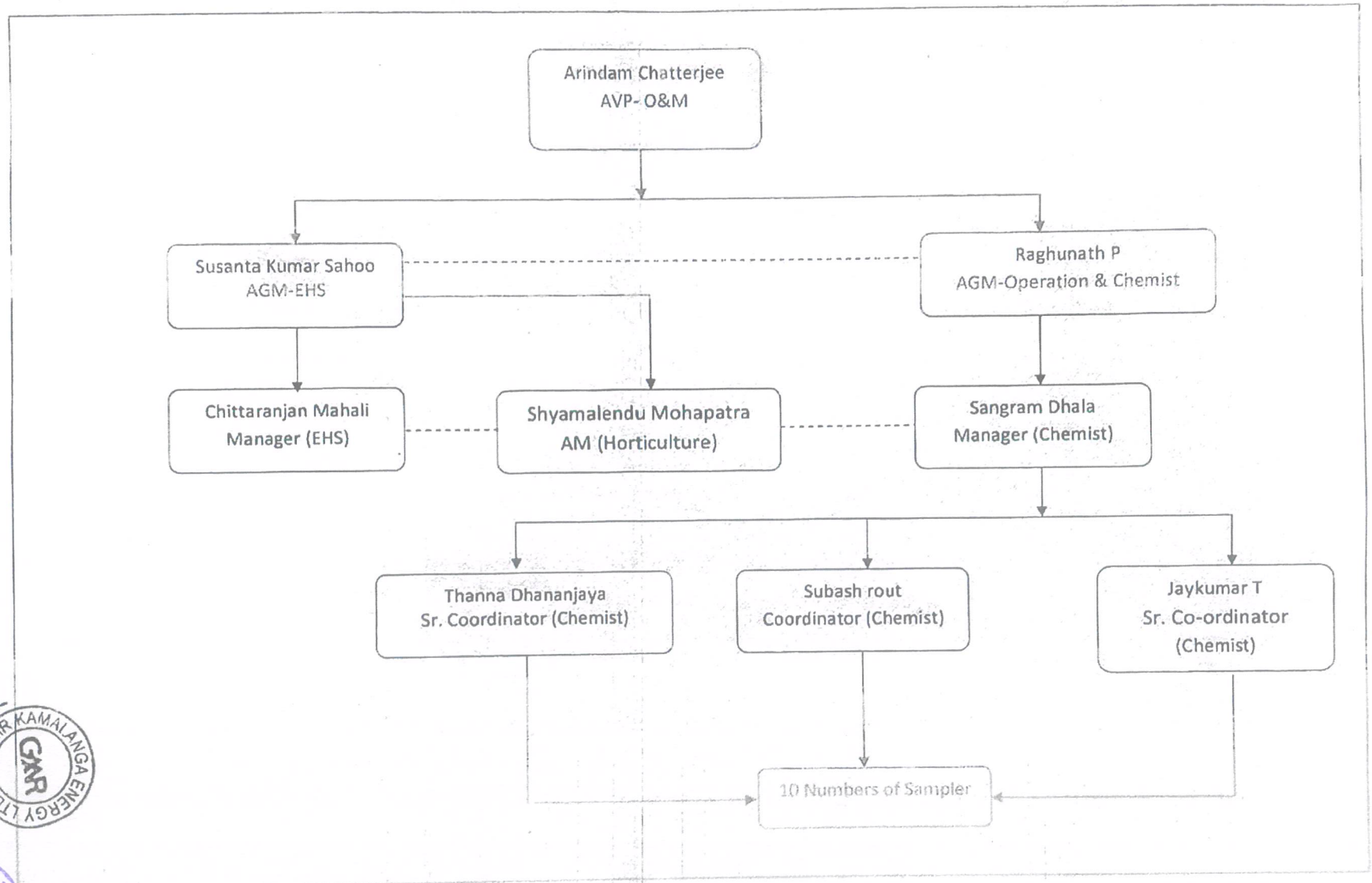
Name of the 3rd party	Parameter analyzed	Frequency of Monitoring
S. S. Environics (India) Pvt. Ltd.	**For Water & waste water analysis** pH DO (Minimum) Chloride Total Dissolved Solids Suspended Solids* Oil & Grease BOD (3) days at 270C Arsenic as As Lead as Pb Cadmium as Cd	Thrice in a Month

GMR KAMALANGA ENERGY LTD.

	Hexavalent Chromium as Cr +6 Copper as Cu Zinc as Zn Selenium as Se Cyanide as CN Fluoride as F Sulphates (SO4) Phenolic Compounds as C6H5OH Iron as Fe Nitrate as NO3	
	For AAQ Monitoring: PM 10 (particulate Matter size <10 microns)(µg/m3) PM 2.5 (particulate Matter size <2.5 microns)(µg/m3) Sulphur dioxide (SO2)(µg/m3) Oxides of Nitrogen (NOx) (µg /m3) Carbon monoxide (CO) (mg/m3)	Weekly 5 days.

E. Reporting system of the Environment Management cell (please enclose Organization Chart)

ORGANISATION CHART OF ENVIRONMENT MANAGEMENT CELL



GMR KAMALANGA ENERGY LTD.

GMR KAMALANGA ENERGY LTD.

Annexure-VIII

(13)

स्पीड पोस्ट
SPEED POST

भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA

File No. AAI/ER/NOC(257/10/ 057-060.

Date: 10.01.2011

NOC FOR HEIGHT CLEARENCE ONLY

To
N.D.Rathi
M/s GMR Kamalanga Energy Ltd.
HIG – 28, Gangadhar Meher Marg
Bhubaneswar – 751013 (Odisha)

Sub: Issue of NOC

1. Please refer to your application No.**GKEL/BBSR/AAI/10-11/508** dated **06.10.2010** on the subject mentioned above.

2. This office has no objection to the construction of the proposed **Two Chimney** by **M/s GMR Kamalanga Energy Ltd.** here in after referred to as the applicant(s) at location, **Vill – Kamalanga, Block – Odapada, Tahsil – Dhenkanal Sadar, Dist – Dhenkanal, Odisha (Chimney No.1 Lat 20° 52′ 07″ Long 85° 16′ 06″, Chimney No.2 Lat 20° 52′ 07″ Long 85° 16′ 11″)** to height [**Chimney No.1, 277.39M** (in figures) **Two Hundred and Seventy Seven decimal Three Nine Meters**(in words) Above Ground Level, **Chimney No.2, 279.39** (in figures) **Two Hundred and Seventy Nine decimal Three Nine Meters** (in words) Above Ground Level]. So that the top of the proposed structure when erected shall not exceed **347.39M (Three Hundred and Forty Seven decimal Three Nine Meters)** Above Mean Sea Level **for both the proposed chimneys.**

3. This No Objection Certificate is being issued on the express understanding that site elevation reduced level (height of Above Mean Sea Level) of **70M for Chimney No.1 and 68M for Chimney No.2** of the relative location of the proposed building/structure & its distances and bearings from the ARP/Runway ends as tendered by the applicant(s) are correct. If however, at any stage it is established that the said data as tendered by the said applicant is actually different from the actual data which could adversely affect aircraft operations, the structure or part(s) there of in respect of which this NOC is being issued will have to be demolished at his own cost or as may be directed by the Airports Authority Of India. The applicant(s) is/are therefore advised in his/their own interest to verify the elevation and other data furnished for the site, before embarking on the proposed construction.

4. The issue of this NOC is further subject to the provisions of section 9-A of the Indian Aircraft Act 1934 and those of any notifications issued there under from time to time and under which the applicant may be called upon by the Airports Authority Of India to demolish in whole or in part the structure now being authorized vide this NOC.

5. No Radio /TV Antenna lighting arresters, staircase, Mumtee Overhead water tank and attachments or fixtures of any kind shall project above the height indicated in para 2.

6. The use of oil fired or electric fired furnace is obligatory within 08Km from the Airport.

7. This certificate is valid for a period of **seven years** from the date of issue. If the building/structure/chimneys not constructed & completed within the above mentioned period of **seven years** the applicant(s) required to obtain a fresh No Objection Certificate from the Chairman, Airports Authority Of India and/or the General manager (Aerodrome)E.R. The date of completion of building/structure/chimney should be intimated to the Chairman/or the General Manager (Aerodrome)Eastern Region.

8. No light or a combination of lights which by reason of its intensity, configuration or colour may cause confusion with the aeronautical ground lights of the near by Airport shall be installed at the site at any time during or after the construction of the **Chimney**.

***** Day Marking & Night lighting with secondary power supply should be provided as per ICAO standard.**

GMR KAMALANGA ENERGY LTD.
GMR

भारत सरकार
Government of India
वाणिज्य और उद्योग मंत्रालय
Ministry of Commerce & Industry
पेट्रोलियम एवं विस्फोटक सुरक्षा संगठन (पेसो)
Petroleum & Explosives Safety Organisation (PESO)
पाँचवा तल, ए-ब्लॉक, सी.जी.ओ.कॉम्प्लेक्स, सेमिनरी हिल्स
नागपुर- 440006
5th Floor, A-Block, CGO Complex, Seminary Hills,
Nagpur - 440006

स्पीड पोस्ट
SPEED POST

E-mail : explosives@explosives.gov.in
Phone/Fax No : 0712 -2510248, Fax-2510577

संख्या /No. : P/HQ/OR/15/1135 (P280320)

दिनांक /Dated : 04/10/2016

5 OCT 2016

सेवा में /To,

M/s GMR Kamalanga Energy Ltd,
Kamalaanga Dhenkanal,
DHENKANAL,
DHENKANAL,
District: DHENKANAL,
State: Odisha
PIN: 759121

विषय /Sub : Plot No, 4259,4288,4254,4260 Sr.No.40,257,1102,1322,1459, NA, Kamalanga, District: DHENKANAL, State: Odisha, PIN: 759121 में स्थित विद्यमान पेट्रोलियम वर्ग C अधिष्ठापन में अनुज्ञप्ति सं P/HQ/OR/15/1135 (P280320) के नवीकरण के संदर्भ में ।
Existing Petroleum Class C Installation at Plot No, 4259,4288,4254,4260 Sr.No.40,257,1102,1322,1459, NA, Kamalanga, District: DHENKANAL, State: Odisha, PIN: 759121 - Licence No. P/HQ/OR/15/1135 (P280320) - Renewal regarding.

महोदय /Sir (s).

कृपया आपके पत्र क्रमांक NIL दिनांक 26/09/2016 का अवलोकन करें ।
Please refer to your letter No.: NIL, dated 26/09/2016

अनुज्ञप्ति संख्या P/HQ/OR/15/1135 (P280320) दिनांक 22/06/2012 को दिनांक 31/12/2026 तक नवीनीकृत कर इस पत्र के साथ अग्रेषित की जा रही है ।
Licence No. P/HQ/OR/15/1135 (P280320) dated 22/06/2012 is forwarded herewith duly renewed upto 31/12/2026.

कृपया पेट्रोलियम नियम 2002 के अधीन बनाए गए नियम 148 में दी गई प्रक्रिया का कडाई से पालन करें । अनुज्ञप्ति के नवीकरण हेतु समस्त दस्तावेजों को अनुज्ञप्ति की वैधता समाप्त होने की तिथि से कम से कम 30 दिन पूर्व Dy. Chief Controller of Explosives, Bhubaneswar कार्यालय को प्रेषित करें ।
Please follow the procedure strictly as laid down in rule 148 of the Petroleum Rules, 2002 and submit complete documents for the Renewal of the licence to Dy. Chief Controller of Explosives, Bhubaneswar, so as to reach his office on or before the date on which Licence expires.

कृपया पावती दें।
Please acknowledge the receipt.

भवदीय /Yours faithfully,

((डा.एस.एम.मन्नन)
(Dr. S. M. Mannan))
विस्फोटक नियंत्रक
Controller of Explosives
कृते मुख्य विस्फोटक नियंत्रक
For Chief Controller of Explosives
नागपुर
Nagpur

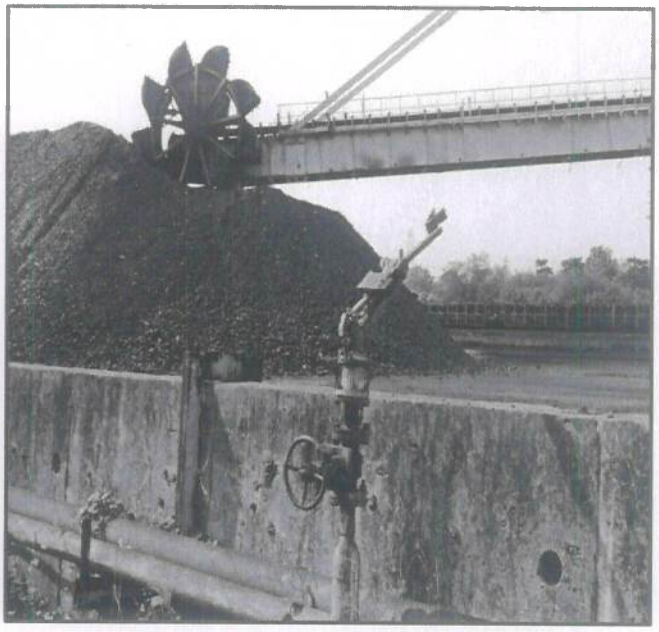
(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क तथा अन्य विवरण के लिए हमारी वेबसाइट : http://peso.gov.in देखें)
(For more information regarding status,fees and other details please visit our website: http://peso.gov.in)

GMR KAMALANGA ENERGY LTD.

Annexure- IX

Fire Fighting equipment at Coal pile/stock yard

Fire Monitor point



Fire rain gun

Rain gun (100 mtr length)

Moveable Fire monitor points(360°)

GMR KAMALANGA ENERGY LTD.

Annexure-X

1088

प्ररूप XV
(प्रथम अनुसूची का अनुच्छेद 6 देखिए)
FORM XV
(see Article 6 of the First Schedule)

अधिष्ठापनों में पेट्रोलियम के आयात और भंडारकरण के लिए अनुज्ञप्ति
LICENCE TO IMPORT AND STORE PETROLEUM IN AN INSTALLATION

अनुज्ञप्ति सं. (Licence No.) : **P/HQ/OR/15/1135(P280320)**

फीस रूपए (Fee Rs.) **15000/-** per year

M/s GMR Kamalanga Energy Ltd, Kamalaanga Dhenkanal, DHENKANAL, DHENKANAL, District: DHENKANAL, State: Odisha, PIN: 759121 को केवल इसमें यथा विनिर्दिष्ट वर्ग और मात्राओं में पेट्रोलियम **3500.00 KL** आयात करने के लिए और उसका, नीचे वर्णित और अनुमोदित नक्शा संख्या **P/HQ/OR/15/1135(P280320)** तारीख **10/09/2013** जो कि इससे उपाबद्ध है, में दिखाए गए स्थान पर भण्डारकरण के लिए पेट्रोलियम अधिनियम, 1934 के उपबंधों या उसके अधीन बनाए गए नियमों तथा इस अनुज्ञप्ति की अतिरिक्त शर्तों के अधीन रहते हुए, यह अनुज्ञप्ति अनुदत्त की जाती है ।

Licence is hereby granted to **M/s GMR Kamalanga Energy Ltd, Kamalaanga Dhenkanal, DHENKANAL, DHENKANAL, District: DHENKANAL, State: Odisha, PIN: 759121** valid only for the importation and storage of **3500.00 KL** Petroleum of the class and quantities as herein specified and storage thereof in the place described below and shown on the approved plan No **P/HQ/OR/15/1135(P280320)** dated **10/09/2013** attached hereto subject to the provisions of the Petroleum Act, 1934 and the rule made thereunder and to the further conditions of this Licence.

यह अनुज्ञप्ति **31st day of December 2026** तक प्रवृत रहेगी ।
The Licence shall remain in force till the **31st day of December 2026**

पेट्रोलियम का विवरण /Description of Petroleum	अनुज्ञप्त मात्रा (किलोलीटरों में) /Quantity licenced in KL
वर्ग क प्रपुंज पेट्रोलियम /Petroleum Class A in bulk	NIL
वर्ग क प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class A, otherwise than in bulk	NIL
वर्ग ख प्रपुंज पेट्रोलियम /Petroleum Class B in bulk	NIL
वर्ग ख प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class B, otherwise than in bulk	NIL
वर्ग ग प्रपुंज पेट्रोलियम /Petroleum Class C in bulk	3500.00 KL
वर्ग ग प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class C,otherwise than in bulk	NIL
कुल क्षमता /Total Capacity	3500.00 KL

June 22, 2012

For Chief Controller of Explosives
HQ, Nagpur

अनुज्ञप्त परिसरों का विवरण और अवस्थान
DESCRIPTION AND LOCATION OF THE LICENSED PREMISES

अनुज्ञप्त परिसर जिसकी विन्यास सीमाएं अन्य विशिष्टयां संलग्न अनुमोदित नक्शों में दिखाई गई हैं **Plot No: 4259,4288,4254,4260 Sr.No.40,257,1102,1322,1459, NA, Kamalanga, District: DHENKANAL, State: Odisha, PIN: 759121** स्थान पर अवस्थित है तथा उसमें निम्नलिखित **Four aboveground petroleum storage tanks of class C together withother connected facilities** सम्मिलित हैं ।

The licensed premises, the layout , boundaries and other particulars of which are shown in the attached approved plan are situated at **Plot No: 4259,4288,4254,4260 Sr.No.40,257,1102,1322,1459, NA, Kamalanga, District: DHENKANAL, State: Odisha, PIN: 759121** and consists of **Four aboveground petroleum storage tanks of class C together withother connected facilities** together with connected facilities.

GMR KAMALANGA ENERGY LTD.

Annexure - XI

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
(An institution of National Importance)
WARANGAL – 506 004, INDIA

Dr. M CHANDRA SEKHAR
M.Tech., Ph.D
Professor (HAG)
Former Director RGUKT (IIIT AP)

Fax: 91-870-2459547
Phone: 0870 2462134
Mobile: 9908132001
e-mail:380mcs@gmail.com/ mcs@nitw.ac.in

8/4/2025

To
IPC – II Division,
Parivesh Bhawan, East Arhun Nagar
New Delhi - 110032
EMAIL moefcc-coalash@gov.in

SUB: Ash Notification 2021 dt. 31/12/21 by MoEF &CC Stability Analysis and Safety Certification of Dykes - REPORT SUBMISSION – **M/s GMR Kamalanga Energy Limited, Dhenkanal, Odisha** – reg

REF: 1. IPC-II/TPP/CP-11/76/2022 DT. 19/12/2022 and email dt. 19/12/22
2. IPC-II/TPP/CP-11/76/2022/1252 dt 6/3/23

Dear Sir,

With reference to the subject cited above, please find enclosed Reports of Stability Analysis and Annual Safety Certification of Dykes pertaining to **M/s GMR Kamalanga Energy Limited, Dhenkanal, Odisha**.

Request you to acknowledge the receipt of the same. Also please let me know if you require hard copy. On hearing from you I will send the same.

With regards

(M. CHANDRA SEKHAR)

GMR KAMALANGA ENERGY LTD.

ANNUAL SAFETY CERTIFICATION OF ASH DYKE
FY 2024-2025

M/s GMR Kamalanga Energy Limited
Dhenkanal, Odisha

Carried out by

Prof M Chandra Sekhar
Professor, Department of Civil Engineering,
National Institute of Technology Warangal,
Warangal – 506004, Telangana, India.
Mobile: 9908132001
E-mail: mcs@nitw.ac.in

Prof Arif Ali Baig Moghal
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GMR KAMALANGA ENERGY LTD.

ANNUAL SAFETY CERTIFICATION OF ASH DYKE
M/s GMR Kamalanga Energy Limited, Dhenkanal, Odisha

S. No	Component	Observations/Remarks
1	*Name of Power Plant*	M/s GMR Kamalanga Energy Limited
2	*Name of the company*	GMR Energy
3	*District*	Dhenkanal
4	*State*	Odisha
5	*Postal address for communication:*	At/Po- Kamalanga, Via- Meramandali P.S- Kantabania, Dist. - Dhenkanal Odisha, Pin-759121
6	*E-mail:*	Sushil.Choudhury@gmrgroup.in
7	*Power Plant installed capacity (MW):*	1050 MW (3x350 MW)
8	*No. of units generated (MWh):*	1050 MW
9	*Total area under power plant (ha): (Including area under ash ponds)*	Total area under plant including ash pond-463 hectares Area of ash pond alone-80 hectares.
10	*Method of slurry discharge water consumption or conservation in disposal, ash water recycling*	Designed for HCSD discharge with 75% ash concentration, but being operated with 50 to 60 percent ash concentration.
11	*TSS of decant Water (Going outside/for recirculation)*	<50 mg/l. In the recent years, there has been no ash storage in the existing lagoons and hence no water overflow, except the rainwater during rainy season.
12	*Maintenance of Dyke.*	The dyke is maintained well.
	i. Top Width (m)	6 m
	ii. Top level of dyke	• Lagoon-1, Starter dyke top varying from EL 67.0 to 69.0 M • Lagoon-2, First raising top EL 72.5 M
	iii. Adequate Spillway Capacity	• Spillway provided with overflow pipes at three different levels.
	iv. Free board	Design free board 1 m
	v. Available volume	Lagoon- 1: 9,58,333.33 m^3 Lagoon- 2: 15,63,166.67 m^3
	vi. Earth covering and turfing	• Starter dykes in both lagoons were made with earth completely. • Turfing has been provided on the D/S slopes. • The raising in Lagoon-2 was carried out with ash hearting covered with earth on top and slopes. • D/S slope has been protected with turfing.
	vii. U/S slope protection	750 micron thick HDPE liner, covered with 50 mm thick precast concrete slab. Raising Portion of Dyke-2 lagoon is lined with CC 100mm thickness.
	viii. WBM Road	• WBM road has been provided on starter dyke top and on the top of first raising. Bund road of lagoon 2 is motorable and well maintained. • Bund road of lagoon 1 is not accessible

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		at some points due to vegetation and requires immediate maintenance
	ix. Rock Toe	• 0.4m thick rock toe with stone pitching is provided.
	Toe drain	• 1300 to 700 mm wide and 300 mm variable depth toe drain is provided around the periphery with stone pitching
	Berm	No Provision
	Rock Pitching	• Rock pitching is provided on both sides of the slopes. At some sections, rock pitching is made in 100-150 mm thick RCC.
	x. Dyke compaction	As per Design
	xi. D/S erosion control	Grass turfing with earth cover.
13	Instrumentation	
	a) Piezometer	No Provision
	b) Surface settlement	No Provision
14	Wet Patches/ softening on down Slope	There is no ash slurry being discharged into the pond. However, pooling of rain water is observed. As such, no wet patches or softening on the D/S slope is observed.
15	Gully Formation	Not Observed.
16	Rat holes/animal burrows	No rat holes/Animal burrows observed.
17	Growth of plants	Grass and shrubs are found on the D/S slopes and at a few places on the U/S slopes.
18	Toe drain and surface drainage system.	Provided as per the design. However, toe drain is choked with dry leaves and debris. Chute drains also filled with debris.
19	Facilities for inspection and maintenance of the dyke	Access for inspection is provided on the bund road. However, inspection road around the periphery at small stretches are to be cleared.
20	Flood Lighting	Provided at two locations. No lifting and charging operations in the last three years due to 100% ash utilization.
21	Seepage or Leakage	No seepage or leakage was observed. There is very limited rainwater in the pond.
22	Monolith Joints–	Not Applicable.
23	Foundation should be examined for damage or possible undermining of the downstream toe	Examined the entire part of the bund road. No undermining is observed. Rock toe is covered with vegetation and silt at certain sections.
24	Slope Stability dyke:	
	1. Dyke Slope stability, as per IS7894: Dyke structural stability to be examined as per construction drawings, quality control document, monitoring reports etc	Dyke is observed to be structurally stable and it is recommended to carry out comprehensive dyke stability analysis.
	2. Dyke slopes should be examined for irregularities in alignment and variances from smooth uniform slopes, unusual changes from original crest alignment and	No irregularities and variations observed in the alignment of the dyke. No unusual changes from the crest alignment and elevation observed. No visible cracks were noticed.

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	elevation, evidence of movement at or beyond the toe, and surface cracks which indicate movement.	Vegetation in the form of tall grown trees observed in the D/S slope of the bund at some stretches and requires immediate action. Vegetation clearance and dredging and maintenance of toe drain recommended. The vegetation clearing activity is also observed during the visit.
25	*Condition of Drainage Systems*	Chute drains and Toe Drains are choked with vegetation and silt at some stretches.
26	*Slope Protection*	Grass turfing as per design. No gully erosion and cracks.
27	*Environmental Pollution*	Complied and requires to be maintained to ensure the same.
28	*Greenbelt*	Lot of greenery is observed on the periphery of the dyke and it seves as green belt.
29	*Any other information: Soft copy of the annual compliance report, and shape files of power plant and ash ponds may be e-mailed to:- moefcccoalash@gov.in*	Detailed report with photos enclosed.
30	*Signature of Authorized*	

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GMR KAMALANGA ENERGY LTD.

M/s GMR Kamalanga Energy Limited, Dhenkanal, Odisha
Safety Certification of Ash Dyke – 2024-2025

The ash dyke(s) at M/s GMR Kamalanga Energy Limited (GKEL) were inspected by Prof. M Chandra Sekhar and Prof Arif Ali Baig Moghal, Department of Civil Engineering, National Institute of Technology Warangal along with officials of GKEL on 03 April 2025. After the inspection, the relevant documents made available by the organization were also taken into consideration for assessment of Safety certification of the Ash Dyke. The detailed report along with the proforma suggested by CPCB are enclosed.

BACKGROUND

M/s GMR Kamalanga Energy Limited (GKEL) is operating a coal based Thermal Power Project of installed capacity 3x350 MW, at Kamalanga Village, Dhenkanal District Odisha. The plant is strategically located close to the coal belt. Coal for the power plant is sourced from Mahanadi Coalfields Limited (MCL), Talcher a subsidiary of Coal India Limited (CIL) and GKEL has long term Power Purchase Agreement with PTC (Haryana), GRIDCO (Odisha), Bihar State Electricity Board and TANGEDCO. The ash dyke layout is shown in Fig 1. The physical observations made during the visit are verified with the available drawings and documents and are presented along with photographs in this report. Recommendations are also given to improve the dyke maintenance and to make the dyke safe for necessary operations.

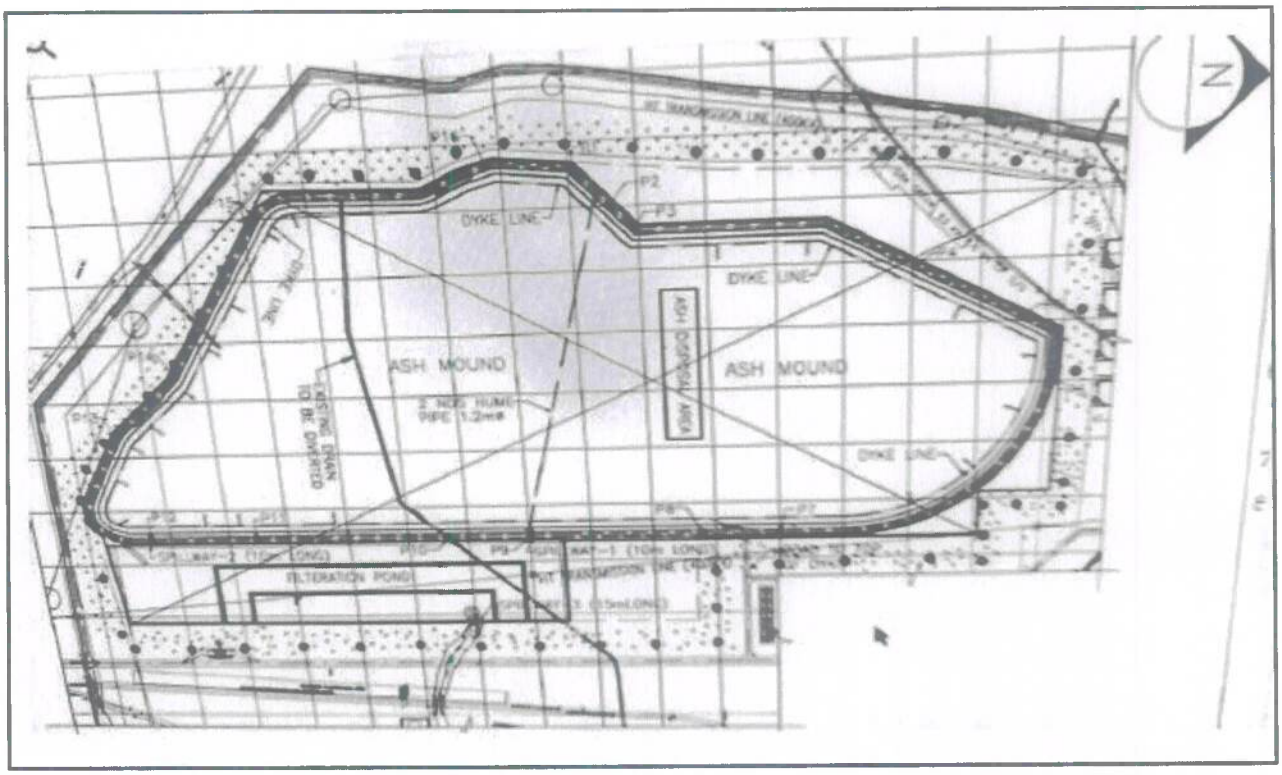

Fig 1 – Ash Pond Layout

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GMR KAMALANGA ENERGY LTD.

Visit by Expert Team to Ash Dyke Site

Bund Road

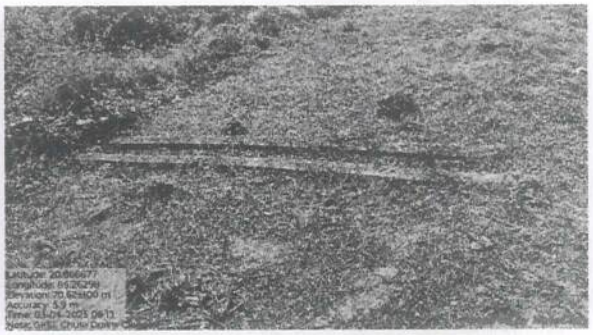
Condition of U/S Slope

Condition of D/S Slope

Tree Growth on D/S slope at Certain Sections

Vegetation Growth on U/S Slope and Pooling of Rainwater

Exposure of Geomembrane at Intersections on U/S Slope



Choked Chute Drains on the D/S Slope

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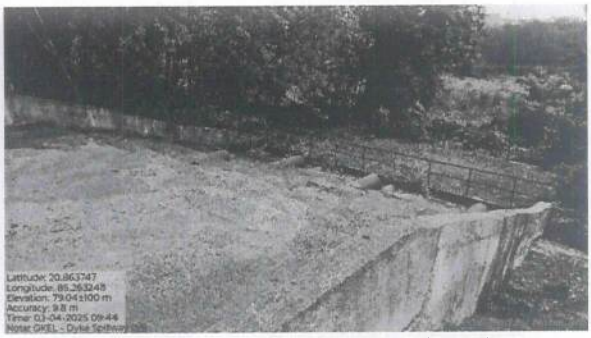
Spillway Condition on the U/S Side



Spillway Condition on the D/S Side

Condition of Toe Drain and Stone Pitching

U/S of Extended Lagoon – 1 Ash Dyke

D/S of Extended Lagoon – 1 Ash Dyke

Condition of Bund Road on Lagoon – 1 Ash Dyke

OBSERVATIONS

- The bund road is accessible, well maintained and motorable. However, bund road of lagoon 1 is to be cleared at some stretches.
- The discharge points are well designed and are intact.
- The U/S and D/S slopes are intact with no significant damage.
- Tall trees are found on the D/S slope of the bund at certain sections. Also tall grass and shrubs are also found on d/s slope.
- No Animal burrows are observed at certain sections on the D/S slope.
- Geomembrane liner protection is provided on the U/S slope and it is intact for most part with no significant damage.
- Clearing of grass and vegetation along with tall trees on the D/S slopes is in progress.
- There is no chainage marked around the periphery of the dyke to enable recording of damages and maintenance.

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- Chute drains are provided but they are covered with vegetation at certain sections.
- Toe drain with pitching is provided but it is choked with vegetation and silt.
- There is no provision for piezometers and measuring surface settlement.
- There is a provision of three-stepped spillway (with overflow pipes) to drain excess water from the ash pond as there is no provision for decantation wells.
- The D/S side of the lagoon-1 ash dyke is on par with natural ground level in some parts.
- The U/S side of the lagoon-1 ash dyke has relatively steep vertical cut due to lifting operations near the bund.
- Lot of greenery is observed around the dyke and it serves as green belt.

RECOMMENDATIONS

- The toe drains and chute drains require immediate maintenance by way of removing vegetation and silt.
- Excessive vegetation in the form of shrubs and tall grass on the U/S and D/S side of the slope has to be cleared.
- The tall trees on the D/S slope of the bund pose an immediate threat to the safety of the dyke slope and they are to be removed.
- Vegetation observed near the U/S of spillway must be cleared.
- GKEL is advised to arrange chainage on the bund to periodically monitor and record the status of bund at different sections. This will also help in taking up maintenance work regularly.
- During lifting operations, they are advised to maintain environmentally safe distance from bund (20 – 30 m) for carrying out lifting.
- It is suggested that comprehensive dyke slope stability analysis be carried out as per IS7894 standards to assess the structural stability of the dyke.

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**********END OF THE REPORT**********

GMR KAMALANGA ENERGY LTD. GMR