GMR Kamalanga Energy Limited

Plant Office:
AT/PO: Kamalanga, PS: Kantabania,
VIA: Meramundali,
DIST: Dhenkanal - 759 121, Odisha
CIN U40101KA2007PLC044809
T +91 6762 663564
W www.gmrgroup.in

53-11/25

Ref: GKEL/MOEF&CC/2025-26/8829
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 36th Half-Yearly EC Compliance Status Report of 1050 (3x350) MW, TPP at Village Kamalanga, Dhenkanal District, Odisha.**
Ref: Env. Clearance vides your letter No. J-13011/64/2007-IA.II (T) dated 5th February 2008

Dear Sir,

With reference to the subject referred above, we are pleased to submit the 36th Half Yearly EC Compliance Status Report (April 2025 to September 2025) of our 1050 (3x350) MW Thermal Power Plant 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 : ***J_13011/64/2007-IA. II(T) dated 5th Feb 2008 (Phase-I: 3x350MW)***
Period of Compliance Report : **April 2025 to September 2025**

Sl.	CONDITIONS	COMPLIANCE STATUS
1	The total land requirement shall not exceed 1050 Acres for all the activities / facilities of the power project. ***Revised Land requirement of the project is 1158.57 Acres as per the MoEF &CC, New Delhi vide amendment letter dated 11.01.2019.***	Presently 1158.57 Acres of land is in use. Land lease documents list and MoEF&CC letter received on 11.01.2019 enclosed as per annexure- I.
2	It shall be ensured that the project boundary is at least 500 m away from HFL of the river in conformity with the guideline in this regard.	The distance between the Brahmani River's High Flood Level (HFL) and the plant boundary is 1.5 km. The HFL at the intake house is 58.24 meters, which is located 1.5 km away from the plant boundary. A letter from the Superintending Engineer, R.L.B.C. Division, Kamakhyanagar, is attached as Annexure-II.
3	The plant heat rate of around 2300 kcal/kwh shall be achieved and the coal consumption shall not exceed 660 tph.	Avg. Heat Rate – 2313.55 kcl/kwh is being achieved. Coal Consumption – 678.6 tph due to higher ash content in coal supplied by MCL as per FSA. Also MoEF&CC notification S.O. 1561 (E) 21st May, 2020 has relaxed the ash content limit for near pit head plants.
4	Ash and Sulphur contents in the coal to be used in the project shall not exceed 34% and 0.5 % respectively.	Sulphur content in the coal is being maintained below 0.5%. Copy of coal test report enclosed as per annexure- III. GKEL Thermal Power Plant is based on Pit head TPP and all parameters are being achieved as per notification S.O. 1561(E) 21st May, 2020.
5	A multi–flue stack of 275 m height with exit velocity of not less than 21 m/s shall be provided with continuous online monitoring system.	The stack height is 275 meters (a copy of the aviation clearance mentioning the stack height is attached in annexure IV). The exit velocity of the flue is maintained at more than 21 m/s. The stack monitoring report for September- 2025 is enclosed in Annexure V. A Continuous Emission Monitoring System is installed, and a copy of the RT-DAS server screenshot is enclosed in annexure VI.
6	High efficiency Electrostatic precipitators (ESPs)with efficiency not less than 99.9% shall be installed so as to ensure that particulate emissions do not exceed 50 mg/Nm^3.	The efficiency of the Electrostatic Precipitator is more than 99.9%. A copy of the performance evaluation report is enclosed in annexure VII. The values of particulate emissions are within the prescribed standards. The stack monitoring report is enclosed in annexure V.
7	Appropriate mitigation measures shall be adopted to reduce the emissions of SO_2. It shall be ensured that at no point of time the ground level concentration of SO_2 in the impact zone exceeds the prescribed limit. The proponent shall now itself also provide space for installation of FGD or other suitable measures, if required at a later stage.	Appropriate mitigation measures focused on maintaining the SO2 content in the coal are being implemented. Ambient Air Quality Monitoring, including SO2, is being conducted at seven locations within a 10 km radius.

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		The SO2 GLC at all monitoring locations is found to be within the standard in all seasons. Monitoring reports are submitted on a quarterly basis and through six-monthly EC compliance reports. A copy of the monitoring report for the period FY 2024-25 Q2 is enclosed as per annexure- VIII. Space for the installation of FGD is provided in the plant layout. The map is enclosed as per annexure- IX.
8	Water requirement shall not exceed 37 cusecs. No ground water shall be extracted for the project at any stage including during construction.	Presently, 20 cusecs of water from the Brahmani River are being used for 3x350 MW operating units. Quarterly (Q-2) report file to CPCB for water consumption is enclosed as per annexure- X. No ground water extracted for the project at any stage.
9	COC of not less than 5 shall be adopted. ***Specific water consumption shall be 3.5m^3/mw as per the Ministry's Notification dated 07.12.2015***	The avg. COC of last six months is 7.00 and Specific water consumption is <2.5 m3/MW. Quarterly (Q-2) report file to CPCB for water consumption is enclosed as per annexure- X.
10	Closed circuit cooling system with induced draft cooling towers shall be provided.	Induce Draft Cooling Tower (IDCT) is provided. Copy of layout attached as per annexure- XI.
11	Waste water generated shall be recycled and reused in the plant premises. There shall be no discharge of waste water outside the plant boundary except during monsoon.	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).
12	For controlling fugitive dust, regular sprinkling of water in the coal handling area and other vulnerable areas of the plant shall be ensured.	Dust Extraction (DE) system and Dry Fog Dust Suppression System (DFDS) have been installed to control fugitive emissions. Regular water spraying is being conducted in coal handling and other dust-prone areas of the plant. Photos of the pollution control system are enclosed as per annexure XII.
13	The project authorities should adhere to the provisions stipulated in the fly ash notification of September, 1999 and as amended in august, 2003 in regard to fly ash utilization. Fly ash shall be collected in dry form. Balance fly ash shall be dispose off in the ash pond through HCSD mode and bottom ash through medium slurry mode.	We adhere to the provisions stipulated in the fly ash notification, and fly ash utilization has achieved 100% over the last five years. Dry fly ash collection facilities and HCSD system are in place. Ash generation & utilization status for the year 2025-26 (H-1) are as follow: - ➢ Total Ash generated = 13,91,991 MT ➢ Total Ash utilisation = 13,91,991 MT ➢ % of utilisation = 100 FY 2024-25 fly ash audit report attached as per annexure- XIII.
14	The ash pond shall be lined with impervious lining to avoid any leaching into ground water. The ash dyke shall be so designed and strengthened to ensure guard against breaching. Adequate safety measures shall also be taken so that pond ash does not become air borne to cause air pollution in the surrounding areas.	Impervious lining and strengthening of the ash dyke have been done and are being maintained. The FY 2024-25 Ash Pond Condition assessment report is attached as per Annexure XIV. Presently, both ash ponds are empty, and there is no probability of causing air pollution in the surrounding area due to the ash ponds.

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15	R & R plan for land oustees and homestead oustees shall be prepared in consultation with the state Revenue Authorities prepared before starting work on the project & implemented simultaneously with the start of development/ construction work on the project. A copy of the R&R plan shall also be submitted to this ministry within three months of the issue of this letter.	R&R Plan is not applicable to our project as there are no land oustees from the project area.
16	The District collector / Revenue Divisional commissioner shall be informed regarding R&R and all other benefits to be provided by the project proponent and their effective implementation shall be overseen by the District authorities.	Rehabilitation & periphery development Advisory committee (RPDAC) is overseeing this implementation.
17	Rain water harvesting should be adopted. Central Ground water Authority/Board shall be consulted for finalization of appropriate rain water harvesting technology within a period of three month from the date of clearance.	Rain water harvesting (RWH) system is in operation. Rain water harvesting plan already submitted to CGWA. Copy of the same is enclosed as per annexure- XV.
18	Regular monitoring of ground water quality including heavy metals shall be undertaken around ash dyke the project area to ascertain the change, if any water quality due to leaching of contaminants from ash disposal area.	Groundwater quality is being monitored around the ash dyke. The report is enclosed as annexure XVI.
19	A greenbelt shall be developed all along the plant and ash pond boundary covering total area of at least 320 acres.	➢ 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- XVII.
20	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	First aid and sanitation arrangements have been made for drivers and contractor workers.
21	An alternate Goucher land shall be developed in the identified 65 acres of land for use of the villagers for grazing of their cattle's. The District Authorities and the villagers shall be informed of the same for its effective utilization.	65.19 acres of land has already been surrendered to Govt. of Odisha as alternative Goucher land. Land handover letter attached as per annexure- XVIII.
22	Leq of noise level should be limited to 75dBA and regular maintenance of equipment be undertaken for people working in the high noise areas, Personal Protection devices should be provided.	Noise level is being maintained. Poster /wall paintings are also displayed for creating awareness. The average max. and min. noise levels at boundary are as follows: - ➢ Day time noise levels- 67.5 dB(A) max. and 47.1 dB(A) min. ➢ Night time noise levels- 65.3 dB(A) max. and 45.7dB(A) min.

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23	Regular monitoring of the ambient air quality shall be carried out in the impact zone and records maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Quarterly reports shall be submitted to Regional office of this Ministry.	Ambient Air Quality (AAQ) is being monitored regularly by a MoEF&CC accredited laboratory, and records are maintained. Reports are submitted quarterly to MoEF&CC and OSPCB on a monthly basis. The FY 2025-26 Q2 report is enclosed as per annexure VIII.
24	The project proponent should advertise in at least two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned within seven days of issue of this letter, informing that the project has been accorded environmental clearance and copies of clearance letters are available with the SPCB/ Committee and may also be seen website of the MoEF&CC in the http://envfor.nic.in	Grant of EC advertisement in 02 newspaper enclosed as per annexure- XIX.
25	A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.	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 per annexure XX. Environmental monitoring cell at GKLE is headed by General Manager EHS and this cell contains Manager Environment and three other team members that have background in environmental science and chemistry. Regular Environmental monitoring on AAQ locations and Stack is done through the NABL accredited laboratory and entire monitoring operation and schedule is coordinated by environmental monitoring cell at GKEL.
26	Half yearly report on the status of implementation of the conditions and environmental safeguards should be submitted to this ministry, the Regional officer, CPCB & SPCB	Being Complied. Compliance report is also available on Company URL: https://www.gmrgroup.in/kamalanga/
27	Regional officer of Ministry of environment and forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. A complete set of documents including Environment Management plan and the additional information/clarifications submitted subsequently should be forwarded to Regional office for their use during monitoring.	Submitted, Vide our letter ref: GEL/KTPP/BLR/MOEF/08/ 104 Dated 23rd May 2008. A copy of Environment Management Plan enclosed as per annexure- XXI.
28	Separate fund should be allocated for implementation of environmental protection measures along with item – wise break. These cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposes and year- wise expenditure should be reported to ministry.	Capital investment made towards environmental protection measures until March 2025 is ₹40267.21 lakhs, and operating expenditure for environmental protection measures in FY 2025-26 (H2) is ₹4,185.27lakhs.
29	Full cooperation should be extended to the scientists/ officers from the Ministry and its Regional office at Bhubaneswar/the CPCB/the SPCB during monitoring of the project.	Agreed. Being extended.

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Annexure-I

No. J-13012/73/2011-IA II (T)
Government of India
Ministry of Environment, Forest and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 11.01.2019

To

The Chief Operating Officer
M/s GMR Kamalanga Energy limited
Skip House, 25 / 1, Museum Road,
Bangalore – 560 025

Tel. No: 0672-663605; Fax: 06762-663637; E-mail: Ramesh.pai@gmrgroup.in

Sub: Expansion by addition of 1x350 MW Imported Coal based Thermal Power Plant (Phase-II) at Village Kamalanga, in Odapala Taluk, in Dhenkanal Distt. in Odisha by M/s GMR Kamalanga Energy Ltd.- reg. reconsideration for amendment EC.

Sir,

The undersigned is directed to refer to your online application no.IA/OR/THE/75/2011 dated 2.6.2017, Ministry's letter dated 1.9.2017, 12.3.2018, 24.5.2018 & 8.8.2018, Ministry's Regional Office letter dated 19.7.2018 and additional information furnished vide online submissions dated 20.12.2017, 23.3.2018 & 30.8.2018 on the above subject.

2. It has been noted that EC for the above mentioned project has been issued vide Ministry's letter dated5.12.2011 which is valid for five years. However, as per the S.O.2944(E): EIA amendment dated 14.9.2016, the Environmental Clearance is valid for seven years. As the EC dated 5.12.2011 was valid on the date of notification, the validity of the said EC is automatically get extended to seven years, i.e. till 4.12.2018. It has been noted that you have requested for amendment in the EC dated 5.12.2011 for increase in land requirement from 1038.5 acres to 1176.24 acres and extending the validity of EC up to 4.12.2021.

3. It has been noted that the project (Phase-II: 1x350 MW) is still under construction phase. However, the progress and balance of remaining activities has not been submitted. Total area as per EC for both the phases (Phase-I: 3x350 MW and Phase-II: 1x350 MW) was 1038.5 acres. It has also been noted that you have requested for amendment in increasing the land requirement from 1038.5 acres to 1176.24 acres. Unit-1, Unit-2 and Unit-3 of Phase-I have been under operation since 30.4.2013, 12.11.2013 and 25.3.2014 respectively. The incremental 137.74 acres will be used for approach road outside the plant boundary (31.02 acres), Merry Go Round Railway line outside plant boundary (30.79 acres), Realignment of PGCIL transmission

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line inside plant boundary (17.67 acres), Left-out plots inside plant boundary (31.19 acres), Periphery development at outside of plant boundary (7.33 acres), Permissive possession of Govt. land at inside of plant boundary (19.74 acres). There is no forest land involved in the proposed additional land. Plantation will be carried out along side of the approach road.

4. The proposal has been considered by the EAC in its 8th meeting held on 24.7.2017. The EAC on 24.7.2017 recommended for exemption for re-conducting the Public Hearing subject to publishing a notice in the newspapers for seeking public comments regarding increase in land. All the public comments/suggestion received within one month and submit to the Ministry after addressing the public comments for further consideration. It has also been noted that you have submitted the additional information on 20.12.2017. Notice in the newspapers Suryaprava (4thmost circulated Odia language newspaper) and The New Indian Express (English daily) has been published on 26.10.2017 for inviting suggestions/ comments from general public. One-month time was given to receive comments from Public. It has been submitted that no comments/ suggestion were received from the public on the notice.

5. The proposal was re-considered by the Expert Appraisal Committee (Thermal Power) during its 14th Meeting held on 12.1.2018 and recommended for amendment of EC. In acceptance of the recommendations of the EAC (Thermal) in its meeting held on 12.1.2018, the ***Ministry hereby amends the EC dated 5.12.2011*** **for increase in land requirement of the project from 1038.5 acres to 1158.57 acres** (120.07 acres which includes permissive possession of 19.74 acres but excludes PGCIL transmission line of 16.98 acres) subject to following additional conditions:

i. No forest land is involved in the incremental area of 120.07 acres.
ii. Avenue Plantation shall be developed along the Railway line and approach roads.
iii. Revised emission standards and water consumption as per the Ministry's notification dated 07.12.2015 and subsequent amendments notified from time to time shall be complied.
iv. Treated water from the STP located within 50 km distance from the project be reused in the project.
v. An Environmental Officer be declared to look after the matter related to the implementation of various environmental control measures. In case of any non-implementation of such control measures, the Environmental Officer shall be held responsible.
vi. A copy of Forest diversion permission under FC Act, 1980 shall be submitted for which an application has been submitted with State Forest Department.
vii. CER activities will be carried out as per Ministry's OM No. 22-65/2017-IA.II dated 01.05.2018 for implementation of various CER/CSR activities delineated in the Ministry's OM dated 01.05.2018 within the project affected and surrounding areas.

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viii. The left out area of 31.19 acres shall be used for greenbelt development. As proposed, the periphery development area of 7.33 acres shall be used for creating infrastructure and other CSR activities for the benefit of communities surrounding the project.

6. All other terms and conditions stipulated in the Environment Clearance dated 5.12.2011 shall remain the same, as applicable.

This issues with the approval of the Competent Authority.

Yours faithfully,

(Dr. S. Kerketta)
Director (IA.I)

Copy to:

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
4. The Additional Principal Conservator of Forests (APCCF), Regional Office (EZ), Ministry of Environment, Forests and Climate Change, A/3, Chandesekharpur, Bhubaneswar – 751023.
5. The Secretary (Environment), Environment Department, Government of Odisha, State Silvicultural Garden, Khandagiri, Bhubaneswar, Odisha-751003.
6. The Chairman, Odisha State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit – VIII, Bhubaneswar – 751012, Odisha.
7. The District Collector, Dhenkanal District, Govt. of Odisha, Panjia Sahi, Dhenkanal, Odisha-759001.
8. Guard file/ Monitoring File.
9. Website of the Ministry.

(Dr. S. Kerketta)
Director (IA.I)

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Forest Land

Sl. No	Village	Land	Area in Original Deed In Ac	Allotment No.& Date	Conv.deed no	Date	Area surrendered in Acre	Conveyance deed No.	Date	Net Area in Acre
1	Kamalanga	Forest	70.72	21322/24.11.2012	10501207417	12.12.2012	0.03	10501603057	07.09.2026	70.69
2	Mangalpur	Forest	6.51	21322/24.11.2012	10501207417	12.12.2012	0	-	-	6.51
3	Kamalanga	Forest	0.58	2528/03.02.2014	10501403189	28.06.2024	0	-	-	0.58
4	Mangalpur	Forest	0.22	2528/03.02.2014	10501403189	28.06.2024	0			0.22
	Sub Total (a)		**78.030**				0.03			**78.000**

Govt Land

S. No.	Name of Village	Govt. Land/ Pvt. Land	Area (in acre)	Allotment No. & date	Conveyance deed No.	Date	Area surrendered (in acre)	Conveyance deed No.	Date	Net Area in Acre
1	Mangalpur	Govt.	2.620	3558/14.02.2020	10502002287	15.09.2020	-	-	-	2.620
2	Kamalanga	Govt.	19.340	11648/20.08.2020	10502101570	31.03.2021	-	-	-	19.340
3	Mangalpur	Govt.	4.460	11648/20.08.2020	10502101570	31.03.2021	-	-	-	4.460
4	Senapatiberena	Govt.	0.350	11648/20.08.2020	10502101570	31.03.2021	-	-	-	0.350
5	Kamalanga	Govt.	3.500	220/05.01.2009	5773	24.09.2009	-	-	-	3.500
6	Senapatiberana	Govt.	0.190	220/05.01.2009	5773	24.09.2009	-	-	-	0.190
7	Senapatiberana	Govt.	1.090	8342/23.04.2010	10501003478	22.05.2010	-	-	-	1.090
8	Mangalpur	Govt	6.090	23622 dtd 14.09.2022	10502205989	27.12.2022	-	-	-	6.090
9	Kamalanga	Govt (Gochar)	26.420	523/31.03.2016	10501702122	25.07.2017	-	-	-	26.420
10	Mangalpur	Govt (Gochar)	31.800	529/31.03.2016	10501702131	25.07.2017	0.530	10501801552	10.05.2018	31.270
	Sub-total (b)		**95.860**				**0.530**			**95.330**
10	Kamalanga ##	Pvt.	515.310	2067/04.02.2010	931	09.02.2010	9.430	10501602808	09.08.2016	505.880
11	Kamalanga	Pvt.	22.840	22449/12.12.2012	10501207441	24.12.2012	0.070	10501603059	01.09.2016	22.770
12	Kamalanga	Pvt.	12.020	14417/12.07.2013	10501305240	03.09.2013	0.120	10501603058	01.09.2016	11.900
13	Manglpur	Pvt.	190.125	25658/07.12.2009	5774	24.09.2009	1.220	10501801662	18.05.2018	188.905
14	Manglpur	Pvt.	8.305	6240/09.04.2012	10501202564	20.04.2012	-	-	-	8.305
15	Mangipur	Pvt.	30.790	6100/04.04.2012	10501206749	30.10.2012	-	-	-	30.790
16	Senapatiberana	Pvt.	82.490	16948/22.09.2009	5772	24.09.2009	-	-	-	82.490
17	Bhagabatpur	Pvt.	35.400	16948/22.09.2009	5775	24.09.2009	-	-	-	35.400
18	Mangalpur	Pvt.	31.020	4237/25.02.2014	10501401850	12.03.2014	-	-	-	31.020
19	Mangalpur	Pvt.	4.960	274/03.01.2014	10501400278	15.01.2014	-	-	-	4.960
20	Kamalanga	Pvt.	7.330	18470/14.08.2015	10501503184	12.11.2015	-	-	-	7.330
21	Senapatiberena	Pvt.	1.410	3959/27.02.2016	10501601443	27.04.2016	-	-	-	1.410
22	Senapatiberena	Pvt.	1.830	5669/27.02.2016	10501601444	27.04.2016	-	-	-	1.830
23	Kamalanga##	Pvt.	4.790	5687/08.07.2016	10501602807	09.08.2016	0.250	-	-	4.540
	Sub Total (c)		**948.620**				**11.090**			**937.530**
	Sub Total (a+b+c)		**1,122.510**				**11.650**			**1,110.860**

Direct Purchase by GKEL

Sl. No	Village	Land	Area in Original Sale Deed In Ac	Allotment No.& Date	Conv.deed no	Date	Area surrendered in Acre	Conveyance deed No.	Date	Net Area in Acre
1	Kamalanga	Pvt	0.97	Nil	10501502248	25.06.2015	0	0	0	0.970
2	Banarpal	Pvt	1.34	Nil	10011502249	27.06.2015	0	0	0	1.340
3	Mangalpur	Pvt	8.02	Nil	10501502249	20.07.2015	0	0	0	8.020
4										
	Sub Total (d)		**10.330**				0			**10.330**
	Grand Total (a+b+c+d)		**1,132.840**				-			**1,121.190**

Balance land to be leased but we are in possession of the land

1	Permissive possession land	33.17
2	Other Govt Land	4.21
		1,158.57

GMR KAMALANGA ENERGY LTD.

Annexure-II

OFFICE OF THE SUPERINTENDING ENGINEER
RLBC Division, AT/P.O. Kamakhyanagar
Dist: Dhenkanal, Odisha, PIN-759018
☎: 06769-270771 Email ID - eerlbcdivision@gmail.com

Lr. No. 2818 RLBCD/2025-26 /Dated. 17.04.25

To

The Plant Head, GMR Kamalanga Energy Limited,
At/Po-Kamalanga,PS-Kantabania,
Via-Meramundali,Dist-Dhenkanal
Pin-759121,
Mob-6762663564.

Sub: High Flood Level (HFL) of River Brahmani near Kamalanga Energy Limited River Intake House.

Ref: Your Lr. No. Nil dated-16.04.2025.

Sir,

In inviting a kind reference to the letter on above cited subject, it is to intimate that High Flood Level (HFL) of River Brahmani near GMR Kamalanga Energy Limited River Intake House is found as **58.24m**.

This is for your information and necessary action.

Yours faithfully,

17/04/25
Superintending Engineer
R.L.B.C. Division,
Kamakhyanagar.
17.04.25

GMR KAMALANGA ENERGY LTD.

Annexure-III

Qualitek Labs Limited
(ITC Labs (Flourishing Subsidiary))
D2/18, Mancheswar Industrial Estate, Bhubaneswar – 751010, Odisha, India
+91 76828 57555 info@qualiteklab.com www.qualiteklab.com

TC - 12116

TEST REPORT

ULR No.: TC1211625000016780F	**Format No.: QLB/MSP/QA/012/F001**
Test Report No.: TR04MN-2510300002 P1	**Report Issue Date: 30/10/2025**
Sample Submitted/Drawn: Submitted	

Customer Details:

Name: GMR Kamalanga Energy Limited

Address: KamalangaKantabania, Dhenkanal, Odisha, India-759121

Sample Details:

Sample Name/type#:	Coal	**Item code#:**	NA
Sample qty. received:	100 g	**Sample registration no.:**	SR04MN-2510090015
Batch no./lot no.#:	FEEDER COAL U#1(24.09.2025)	**Sample conditions:**	Good
Mfg. license no.#:	NA	**Packing description:**	Intact
Mfg. date/Exp. date#:	NA	**Sample receipt date:**	09/10/2025
Ref (WO no.)#:	NA	**Sample registration date:**	09/10/2025

Sampling Details:

Sampling done by:	NA	**Sampling plan/method:**	NA
Date & time of sampling:	NA	**Sample item:**	NA
Location of sampling:	NA	**Quantity sampled:**	NA
Environmental conditions during sampling:	NA	**Any deviation occurred during sampling:**	NA

Analysis Details:

Analysis start date: 09/10/2025 **Analysis end date:** 11/10/2025

Sr. No.	Test Parameters	Unit of measurement (UOM)	Test Method	Specification	Test Result
	Discipline : Chemical				
	Group : Solid Fuels				
1	Ash	%	IS 1350 (Part-1):1984	NA	47.55

Symbol/s: # Information provided by customer for which the laboratory has no control,**Test subcontracted.

Remarks: 1.0 NA : Not Applicable 2.0 The results apply to the sample as received.

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

QUALITEK LABS LIMITED BHUBANESWAR

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

Disclaimer :

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4. If samples not consumed during analysis, it will store & retain as per the Laboratory policy.

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Qualitek Labs Limited
(ITC Labs (Flourishing Subsidiary))
D2/18, Mancheswar Industrial Estate, Bhubaneswar – 751010, Odisha, India
+91 76828 57555 info@qualiteklab.com www.qualiteklab.com

TEST REPORT

ULR No.: NA
Test Report No.: TR04MN-2510300002 P2
Sample Submitted/Drawn: Submitted
Format No.: QLB/MSP/QA/012/F001
Report Issue Date: 30/10/2025

Customer Details:

Name: GMR Kamalanga Energy Limited
Address: KamalangaKantabania, Dhenkanal, Odisha, India-759121

Sample Details:

Sample Name/type#:	Coal	**Item code#:**	NA
Sample qty. received:	100 g	**Sample registration no.:**	SR04MN-2510090015
Batch no./lot no.#:	FEEDER COAL U#1(24.09.2025)	**Sample conditions:**	Good
Mfg. license no.#:	NA	**Packing description:**	Intact
Mfg. date/Exp. date#:	NA	**Sample receipt date:**	09/10/2025
Ref (WO no.)#:	NA	**Sample registration date:**	09/10/2025

Sampling Details:

Sampling done by:	NA	**Sampling plan/method:**	NA
Date & time of sampling:	NA	**Sample item:**	NA
Location of sampling:	NA	**Quantity sampled:**	NA
Environmental conditions during sampling:	NA	**Any deviation occurred during sampling:**	NA

Analysis Details:

Analysis start date: 09/10/2025 **Analysis end date:** 11/10/2025

Sr. No.	Test Parameters	Unit of measurement (UOM)	Test Method	Specification	Test Result
	Discipline : Chemical				
	Group : Solid Fuels				
1	Mercury	ppb	QLB/STP/MN/020	NA	17
2	Ultimate Analysis Carbon	%	ASTM D5373-21:2021	NA	36.21
3	Ultimate Analysis Hydrogen	%	ASTM D5373-21:2021	NA	3.41
4	Ultimate Analysis Nitrogen	%	ASTM D5373-21:2021	NA	1.18
5	Ultimate Analysis Oxygen	%	ASTM D3176-24:2024	NA	11.13
6	Ultimate Analysis Sulphur	%	ASTM D4239-18e1:2018	NA	0.44

Symbol/s: # Information provided by customer for which the laboratory has no control,**Test subcontracted.

Remarks: 1.0 NA : Not Applicable 2.0 The results apply to the sample as received.

QUALITEK LABS LIMITED • BHUBANESWAR •

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

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+91 76828 57555 info@qualiteklab.com www.qualiteklab.com

TEST REPORT

ULR No.: NA	**Format No.: QLB/MSP/QA/012/F001**
Test Report No.: TR04MN-2510300002 P2	**Report Issue Date: 30/10/2025**
Sample Submitted/Drawn: Submitted	

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

QUALITEK LABS LIMITED BHUBANESWAR

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

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+91 76828 57555 info@qualiteklab.com www.qualiteklab.com
TC - 12116

TEST REPORT

ULR No.: TC1211625000016781F	**Format No.: QLB/MSP/QA/012/F001**
Test Report No.: TR04MN-2510300003 P1	**Report Issue Date: 30/10/2025**
Sample Submitted/Drawn: Submitted	

Customer Details:

Name: GMR Kamalanga Energy Limited

Address: KamalangaKantabania, Dhenkanal, Odisha, India-759121

Sample Details:

Sample Name/type#:	Coal	**Item code#:**	NA
Sample qty. received:	100 g	**Sample registration no.:**	SR04MN-2510090016
Batch no./lot no.#:	FEEDER COAL U#2(24.09.2025)	**Sample conditions:**	Good
Mfg. license no.#:	NA	**Packing description:**	Intact
Mfg. date/Exp. date#:	NA	**Sample receipt date:**	09/10/2025
Ref (WO no.)#:	NA	**Sample registration date:**	09/10/2025

Sampling Details:

Sampling done by:	NA	**Sampling plan/method:**	NA
Date & time of sampling:	NA	**Sample item:**	NA
Location of sampling:	NA	**Quantity sampled:**	NA
Environmental conditions during sampling:	NA	**Any deviation occurred during sampling:**	NA

Analysis Details:

Analysis start date: 09/10/2025 **Analysis end date:** 11/10/2025

Sr. No.	Test Parameters	Unit of measurement (UOM)	Test Method	Specification	Test Result
	Discipline : Chemical				
	Group : Solid Fuels				
1	Ash	%	IS 1350 (Part-1):1984	NA	48.02

Symbol/s: # Information provided by customer for which the laboratory has no control,**Test subcontracted.

Remarks: 1.0 NA : Not Applicable 2.0 The results apply to the sample as received.

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

QUALITEK LABS LIMITED BHUBANESWAR

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

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TEST REPORT

ULR No.: NA	**Format No.: QLB/MSP/QA/012/F001**
Test Report No.: TR04MN-2510300003 P2	**Report Issue Date: 30/10/2025**
Sample Submitted/Drawn: Submitted	

Customer Details:

Name: GMR Kamalanga Energy Limited

Address: KamalangaKantabania, Dhenkanal, Odisha, India-759121

Sample Details:

Sample Name/type#:	Coal	**Item code#:**	NA
Sample qty. received:	100 g	**Sample registration no.:**	SR04MN-2510090016
Batch no./lot no.#:	FEEDER COAL U#2(24.09.2025)	**Sample conditions:**	Good
Mfg. license no.#:	NA	**Packing description:**	Intact
Mfg. date/Exp. date#:	NA	**Sample receipt date:**	09/10/2025
Ref (WO no.)#:	NA	**Sample registration date:**	09/10/2025

Sampling Details:

Sampling done by:	NA	**Sampling plan/method:**	NA
Date & time of sampling:	NA	**Sample item:**	NA
Location of sampling:	NA	**Quantity sampled:**	NA
Environmental conditions during sampling:	NA	**Any deviation occurred during sampling:**	NA

Analysis Details:

Analysis start date: 09/10/2025 **Analysis end date:** 11/10/2025

Sr. No.	Test Parameters	Unit of measurement (UOM)	Test Method	Specification	Test Result
	Discipline : Chemical				
	Group : Solid Fuels				
1	Mercury	ppb	QLB/STP/MN/020	NA	19
2	Ultimate Analysis Carbon	%	ASTM D5373-21:2021	NA	35.93
3	Ultimate Analysis Hydrogen	%	ASTM D5373-21:2021	NA	3.30
4	Ultimate Analysis Nitrogen	%	ASTM D5373-21:2021	NA	1.11
5	Ultimate Analysis Oxygen	%	ASTM D3176-24:2024	NA	11.13
6	Ultimate Analysis Sulphur	%	ASTM D4239-18e1:2018	NA	0.46

Symbol/s: # Information provided by customer for which the laboratory has no control,**Test subcontracted.

Remarks: 1.0 NA : Not Applicable 2.0 The results apply to the sample as received.

QUALITEK LABS LIMITED BHUBANESWAR

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

GMR KAMALANGA ENERGY LTD.

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TEST REPORT

ULR No.: NA	Format No.: QLB/MSP/QA/012/F001
Test Report No.: TR04MN-2510300003 P2	Report Issue Date: 30/10/2025
Sample Submitted/Drawn: Submitted	

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

QUALITEK LABS LIMITED BHUBANESWAR

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

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+91 76828 57555 info@qualiteklab.com www.qualiteklab.com
TC - 12116

TEST REPORT

ULR No.: TC1211625000016782F	**Format No.: QLB/MSP/QA/012/F001**
Test Report No.: TR04MN-2510300004 P1	**Report Issue Date: 30/10/2025**
Sample Submitted/Drawn: Submitted	

Customer Details:

Name: GMR Kamalanga Energy Limited

Address: KamalangaKantabania, Dhenkanal, Odisha, India-759121

Sample Details:

Sample Name/type#:	Coal	**Item code#:**	NA
Sample qty. received:	100 g	**Sample registration no.:**	SR04MN-2510090017
Batch no./lot no.#:	FEEDER COAL U#3(24.09.2025)	**Sample conditions:**	Good
Mfg. license no.#:	NA	**Packing description:**	Intact
Mfg. date/Exp. date#:	NA	**Sample receipt date:**	09/10/2025
Ref (WO no.)#:	NA	**Sample registration date:**	09/10/2025

Sampling Details:

Sampling done by:	NA	**Sampling plan/method:**	NA
Date & time of sampling:	NA	**Sample item:**	NA
Location of sampling:	NA	**Quantity sampled:**	NA
Environmental conditions during sampling:	NA	**Any deviation occurred during sampling:**	NA

Analysis Details:

Analysis start date: 09/10/2025 **Analysis end date:** 11/10/2025

Sr. No.	Test Parameters	Unit of measurement (UOM)	Test Method	Specification	Test Result
	Discipline : Chemical				
	Group : Solid Fuels				
1	Ash	%	IS 1350 (Part-1):1984	NA	48.16

Symbol/s: # Information provided by customer for which the laboratory has no control,**Test subcontracted.

Remarks: 1.0 NA : Not Applicable 2.0 The results apply to the sample as received

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

QUALITEK LABS LIMITED BHUBANESWAR

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

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TEST REPORT

ULR No.: NA	**Format No.: QLB/MSP/QA/012/F001**
Test Report No.: TR04MN-2510300004 P2	**Report Issue Date: 30/10/2025**
Sample Submitted/Drawn: Submitted	

Customer Details:

Name: GMR Kamalanga Energy Limited

Address: KamalangaKantabania, Dhenkanal, Odisha, India-759121

Sample Details:

Sample Name/type#:	Coal	**Item code#:**	NA
Sample qty. received:	100 g	**Sample registration no.:**	SR04MN-2510090017
Batch no./lot no.#:	FEEDER COAL U#3(24.09.2025)	**Sample conditions:**	Good
Mfg. license no.#:	NA	**Packing description:**	Intact
Mfg. date/Exp. date#:	NA	**Sample receipt date:**	09/10/2025
Ref (WO no.)#:	NA	**Sample registration date:**	09/10/2025

Sampling Details:

Sampling done by:	NA	**Sampling plan/method:**	NA
Date & time of sampling:	NA	**Sample item:**	NA
Location of sampling:	NA	**Quantity sampled:**	NA
Environmental conditions during sampling:	NA	**Any deviation occurred during sampling:**	NA

Analysis Details:

Analysis start date: 09/10/2025 **Analysis end date:** 11/10/2025

Sr. No.	Test Parameters	Unit of measurement (UOM)	Test Method	Specification	Test Result
	Discipline : Chemical				
	Group : Solid Fuels				
1	Mercury	ppb	QLB/STP/MN/020	NA	17
2	Ultimate Analysis Carbon	%	ASTM D5373-21:2021	NA	36.32
3	Ultimate Analysis Hydrogen	%	ASTM D5373-21:2021	NA	3.23
4	Ultimate Analysis Nitrogen	%	ASTM D5373-21:2021	NA	1.05
5	Ultimate Analysis Oxygen	%	ASTM D3176-24:2024	NA	10.79
6	Ultimate Analysis Sulphur	%	ASTM D4239-18e1:2018	NA	0.45

Symbol/s: # Information provided by customer for which the laboratory has no control,**Test subcontracted.

Remarks: 1.0 NA : Not Applicable 2.0 The results apply to the sample as received

QUALITEK LABS LIMITED BHUBANESWAR

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

Disclaimer :

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+91 76828 57555 info@qualiteklab.com www.qualiteklab.com

TEST REPORT

ULR No.: NA	**Format No.: QLB/MSP/QA/012/F001**
Test Report No.: TR04MN-2510300004 P2	**Report Issue Date: 30/10/2025**
Sample Submitted/Drawn: Submitted	

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

Authorized by
Name : Mr. Rudranarayan Sahu
Designation : Group Leader-Mineral
Discipline : Chemical

Disclaimer :

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Annexure-IV

(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

GMR 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

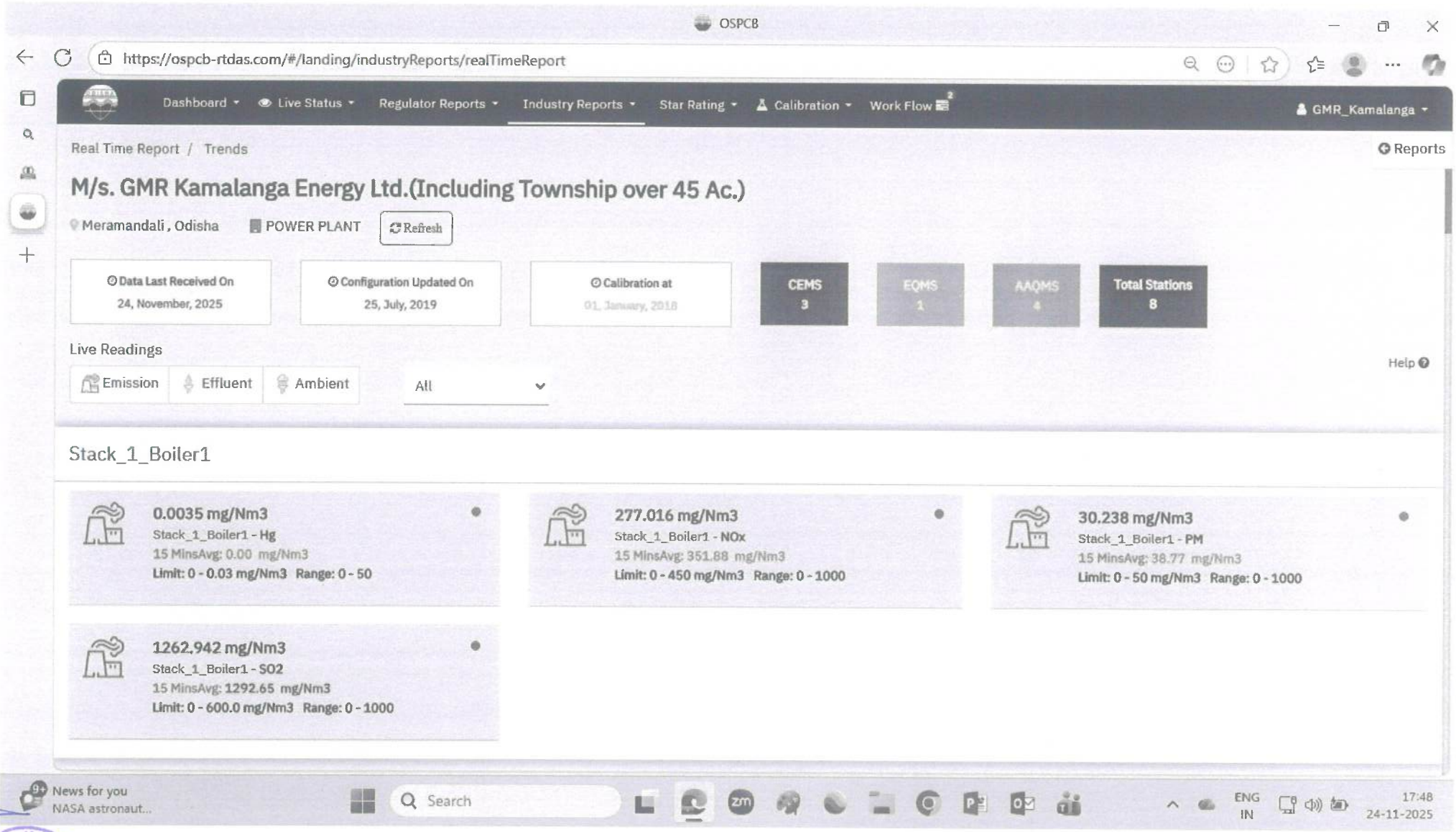
VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

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. GMR



GMR KAMALANGA ENERGY LTD.

Annexure-VI

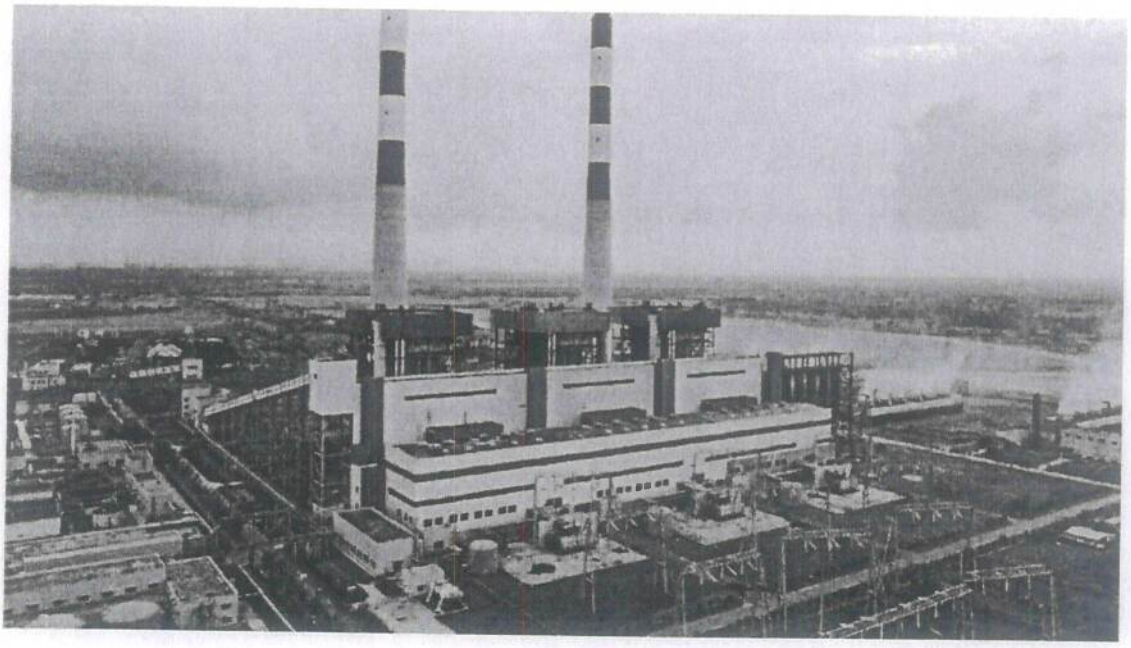
Annexure-VIII

PERFORMANCE EVALUATION STUDY FOR POLLUTION CONTROL EQUIPMENTS

Of

GMR KAMALANGA ENERGY LIMITED

(3 x 350 MW THERMAL POWER PLANT)
AT/PO - KAMALANGA, DIST. – DHENKANAL
ODISHA – 759121



Conducted by :-

Visiontek Consultancy Services Pvt. Ltd.

(Committed for Better Environment)
Plot No.-M-22&23, ChandakaIndustrialEstate, Patia, Bhubaneswar, Khurda,
Odisha-751024,India, Tel.:0674-3511721
E-mail: visiontek@vcspl.org,visiontekin@gmail.com
Visitus at:www.vcspl.org

GMR KAMALANGA ENERGY LTD.

GMR KAMALANGA ENERGY LTD.

Boiler – I (ESP)

S. No.	Sampling Location	Date of Sampling	Time	Flue gas temp ^0C	Velocity of Flue gas in M/sec	Particulate matter in mg/Nm^3	Area of cross section of Duct in m^2	Gas flow in Nm^3/sec	Pass efficiency in %	Unit Efficiency in %
1	ESP outlet Pass A	25.05.2022	14:00 to 14:30	124	26.7	42	12.6	336.42	99.94	99.93
2	ESP Inlet Pass A	25.05.2022	14:00 to 14:30	124	27.46	66780	12.25	336.42		
3	ESP Outlet Pass B	25.05.2022	14:30 to 15:00	124	28.2	44	12.6	355.32	99.93	
4	ESP Inlet Pass B	25.05.2022	14:30 to 15:00	124	29.01	65296	12.25	355.32		

Boiler – II (ESP)

S. No.	Sampling Location	Date of Sampling	Time	Flue gas temp ^0C	Velocity of Flue gas in M/sec	Particulate matter in mg/Nm^3	Area of cross section of Duct in m^2	Gas flow in Nm^3/sec	Pass efficiency in %	Unit Efficiency in %
1	ESP outlet Pass A	25.5.2022	15:30 to 16:00	131	22.3	49	12.6	280.98	99.92	99.92
2	ESP Inlet Pass A	25.5.2022	15:30 to 16:00	131	22.94	62590	12.25	280.98		
3	ESP Outlet Pass B	25.5.2022	16:00 to 16:30	131	26.4	48	12.6	332.64	99.93	
4	ESP Inlet Pass B	25.5.2022	16:00 to 16:30	131	27.15	65925	12.25	332.64		

GMR KAMALANGA ENERGY LTD.

GMR KAMALANGA ENERGY LTD.

Boiler – III (ESP)

S. No.	Sampling Location	Date of Sampling	Time	Flue gas temp ^0C	Velocity of Flue gas in M/sec	Particulate matter in mg/Nm^3	Area of cross section of Duct in m^2	Gas flow in Nm^3/sec	Pass efficiency in %	Unit Efficiency in %
1	ESP outlet Pass A	25.5.2022	17:00 to 17:30	135	26.55	41	12.6	334.53	99.94	99.94
2	ESP Inlet Pass A	25.5.2022	17:00 to 17:30	135	27.31	68439	12.25	334.53		
3	ESP Outlet Pass B	25.5.2022	17:30 to 18:00	135	27.24	39	12.6	343.224	99.94	
4	ESP Inlet Pass B	25.5.2022	17:30 to 18:00	135	28.02	67211	12.25	343.224		

GMR KAMALANGA ENERGY LTD.

GMR KAMALANGA ENERGY LTD.

Annexure-VIII

Sandeep Kumar

From: Sandeep Kumar
Sent: 25 October 2025 10:53
To: roez.bsr-mef@nic.in
Cc: GKEL kamalanga; Praveen Anant
Subject: GKEL_Quarterly AAQ Monitoring Report Q- 2, FY 2025-26
Attachments: 8800 MoEF&CC Quaterly AAQ (Q 2 FY 2025-26).pdf

Dear Sir,

Kindly find attached the quarterly AAQ Monitoring report – Q2, FY 2025-26 of our thermal power plant, GMR Kamalanga Energy Limited (GKEL), Dhenkanal, Odisha.

Thanking You,

With Regards,

Sandeep Kumar
Manager- EHS
GMR Kamlanga Energy Ltd,
Dhenkanal, Odisha
Mob. - 9479064292
Mail – sandeep.kumar2@gmrgroup.in

Cc:
Mr. Praveen Anant
Head- HSE
E-Mail- praveen.anant@gmrgroup.in

GMR KAMALANGA ENERGY LTD.

GMR Kamalanga Energy Limited

Plant Office:
AT/PO: Kamalanga, PS: Kantabania,
VIA: Meramundali,
DIST: Dhenkanal - 759 121, Odisha
CIN U40101KA2007PLC044809
T +91 6762 663564
W www.gmrgroup.in

Ref. No. GKEL/MoEF&CC/2025-26/8800
Dated – 24.10.2025

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

Sub: Quarterly AAQ Monitoring Report (Q - 2) 2025-26.
Ref: EC vide letter no J-13011/64/2007-IA II (T) dated 05.02.2008.

Dear Sir,

In compliance to the EC condition regarding the above subject, we are submitting herewith the ambient air quality report of impact zone (both core & buffer zone) for Q – 2, FY 2025-26.

Kindly acknowledge receipt of the same.

Thanking you,

Yours sincerely,
for **GMR Kamalanga Energy Limited,**

(Authorized Signatory)

Encl. – As above

GMR KAMALANGA ENERGY LTD.

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

Ref: **Envlab/25-26/TR-11226** *Date:* **07.08.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY-2025(CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer,VOC Sampler
3. Sampling Location : **AAQMS-1: Near Rain Water pump House Pit**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)	SO_2 (µg/m³)	NOx (µg/m³)	O_3 (µg/m³)	CO (mg/m³)	NH_3 (µg/m³)	Pb (µg/m³)	Ni (ng/m³)	As (ng/m³)	C_6H_6 (µg/m³)	BaP (ng/m³)
03.07.2025	37.2	18.5	11.7	24.4	BDL	0.16	15.5	BDL	BDL	BDL	BDL	BDL
07.07.2025	41.2	17.2	10.1	20.6	7.6	0.21	10.5	BDL	BDL	BDL	BDL	BDL
10.07.2025	45.5	19.2	13.4	25.0	8.2	0.52	18.8	BDL	BDL	BDL	BDL	BDL
14.07.2025	32.2	15.8	9.4	19.6	7.8	0.15	BDL	BDL	BDL	BDL	BDL	BDL
17.07.2025	42.3	16.2	10.8	21.8	8.6	0.22	16.4	BDL	BDL	BDL	BDL	BDL
21.07.2025	31.1	13.1	9.6	20.3	7.8	0.14	BDL	BDL	BDL	BDL	BDL	BDL
24.07.2025	41.4	16.2	11.0	17.4	7.5	0.28	15.5	BDL	BDL	BDL	BDL	BDL
28.07.2025	39.8	18.5	9.4	21.8	8.1	0.16	14.4	BDL	BDL	BDL	BDL	BDL
Monthly Average	**38.8**	**16.8**	**10.6**	**21.3**	**9.8**	**0.23**	**15.2**	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part 2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge Method-411	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 µg/m³, NO_X< 6 µg/m³, O_3<5 µg/m³, NH_3<20 µg/m³, Ni<2.5 ng/m³, As < 1.0 ng/m³, C_6H_6<4.0 µg/m³, BaP<0.5 ng/m³, Pb<0.02 µg/m³, CO-<0.1 mg/m³

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-11227** *Date:* **07.08.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY-2025(CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer, VOC Sample
3. Sampling Location : **AAQMS-2: Near Security Watch Tower - 3**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
03.07.2025	36.2	14.2	13.1	24.1	8.5	0.25	BDL	BDL	BDL	BDL	BDL	BDL
07.07.2025	42.5	16.6	10.1	17.3	8.6	0.26	15.5	BDL	BDL	BDL	BDL	BDL
10.07.2025	41.2	17.2	11.8	19.8	8.2	0.28	16.6	BDL	BDL	BDL	BDL	BDL
14.07.2025	36.5	13.5	9.8	17.8	7.5	0.21	15.5	BDL	BDL	BDL	BDL	BDL
17.07.2025	40.2	16.1	10.5	18.7	7.4	0.28	BDL	BDL	BDL	BDL	BDL	BDL
21.07.2025	35.5	17.2	9.8	19.3	8.1	0.32	15.8	BDL	BDL	BDL	BDL	BDL
24.07.2025	34.2	11.5	9.4	13.3	6.5	0.15	13.6	BDL	BDL	BDL	BDL	BDL
28.07.2025	41.2	17.8	9.7	18.2	6.6	0.23	16.4	BDL	BDL	BDL	BDL	BDL
Monthly Average	**38.4**	**15.5**	**10.5**	**18.6**	**7.7**	**0.25**	**15.6**	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge (Method-411)	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NO_X< 6 $\mu g/m^3$, O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$, Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-11228** *Date:* **07.08.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY-2025 (CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer,VOC Sampler
3. Sampling Location : **AAQMS-3: Near Budhapanka Material Gate(Security Watch Tower No.1)**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)	SO_2 (µg/m³)	NOx (µg/m³)	O_3 (µg/m³)	CO (mg/m³)	NH_3 (µg/m³)	Pb (µg/m³)	Ni (ng/m³)	As (ng/m³)	C_6H_6 (µg/m³)	BaP (ng/m³)
03.07.2025	37.6	17.2	12.1	20.4	8.8	0.18	17.5	BDL	BDL	BDL	BDL	BDL
07.07.2025	45.5	21.2	9.6	19.8	8.4	0.35	15.6	BDL	BDL	BDL	BDL	BDL
10.07.2025	44.3	17.7	10.2	19.3	8.2	0.32	14.3	BDL	BDL	BDL	BDL	BDL
14.07.2025	36.3	15.5	10.4	20.3	7.5	0.18	BDL	BDL	BDL	BDL	BDL	BDL
17.07.2025	45.6	21.1	10.1	18.4	7.6	0.25	19.3	BDL	BDL	BDL	BDL	BDL
21.07.2025	35.1	14.5	9.8	17.2	7.2	0.26	BDL	BDL	BDL	BDL	BDL	BDL
24.07.2025	41.1	16.2	10.1	16.3	6.6	0.32	13.6	BDL	BDL	BDL	BDL	BDL
28.07.2025	42.2	18.6	10.1	20.1	6.5	0.31	BDL	BDL	BDL	BDL	BDL	BDL
Monthly Average	**41.0**	**17.8**	**10.3**	**19.0**	**7.6**	**0.27**	**16.1**	**BDL**	**BDL**	**BDL**	**BDL**	**BDL**
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Gaeke Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge Method-411	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values:SO_2< 4 µg/m³, NO_X< 6 µg/m³,O_3<5 µg/m³, NH_3<20 µg/m³,Ni<2.5 ng/m³, As < 1.0 ng/m³, C_6H_6<4.0 µg/m³, BaP<0.5 ng/m³, Pb<0.02 µg/m³, CO-<0.1 mg/m³

Reviewed by

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

Approved by

GMR KAMALANGA ENERGY LTD.

Ref: **Envlab/25-26/TR-11229** *Date:* **07.08.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR JULY-2025 (BUFFER ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer,VOC Sampler
3. Sample Collected By : VCSPL Representative in presence of Client's Representative

Location Name	Date	PARAMETERS											
		PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
AAQMS1: Kamalanga (Township)	17.07.2025	39.8	16.5	10.5	22.5	7.6	0.25	16.6	BDL	BDL	BDL	BDL	BDL
AAQMS-2: Mangalpur	19.07.2025	41.5	14.7	10.7	9.8	6.8	0.22	15.4	BDL	BDL	BDL	BDL	BDL
AAQMS3: Budhapanka	21.07.2025	38.3	15.6	11.1	21.6	7.4	0.26	14.4	BDL	BDL	BDL	BDL	BDL
AAQMS4: Bhogamunda	22.07.2025	42.2	18.6	10.4	22.3	8.1	0.28	13.8	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard		100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD		Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge (Method-411)	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NO_X< 6 $\mu g/m^3$, O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$, Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

Reviewed by

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

Approved by

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

GMR KAMALANGA ENERGY LTD. GMR

Ref: **Envlab/25-26/TR-12054** *Date:* **06.09.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST-2025(CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer, VOC Sampler
3. Sampling Location : **AAQMS-1: Near Rain Water pump House Pit**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
04.08.2025	41.2	21.2	12.2	24.9	BDL	0.22	14.2	BDL	BDL	BDL	BDL	BDL
07.08.2025	39.8	15.9	11.2	21.7	7.2	0.18	10.6	BDL	BDL	BDL	BDL	BDL
11.08.2025	44.3	18.1	13.6	25.2	8.1	0.25	18.4	BDL	BDL	BDL	BDL	BDL
14.08.2025	40.5	21.5	10.1	20.3	8.2	0.21	BDL	BDL	BDL	BDL	BDL	BDL
18.08.2025	38.8	14.9	11.2	22.5	8.3	0.16	16.1	BDL	BDL	BDL	BDL	BDL
21.08.2025	35.4	17.2	9.8	20.5	7.7	0.15	BDL	BDL	BDL	BDL	BDL	BDL
25.08.2025	40.4	15.3	10.8	17.1	8.1	0.22	14.5	BDL	BDL	BDL	BDL	BDL
28.08.2025	44.7	23.4	10.2	22.6	8.5	0.16	15.2	BDL	BDL	BDL	BDL	BDL
Monthly Average	40.6	18.4	11.1	21.9	8.0	0.19	14.8	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part 2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge Method-411	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NO_X< 6 $\mu g/m^3$, O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$, Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

Reviewed by

Approved by

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

GMR KAMALANGA ENERGY LTD.

Ref: **Envlab/25-26/TR-12056** *Date:* **06.09.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST-2025 (CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer, VOC Sampler
3. Sampling Location : **AAQMS-3: Near Budhapanka Material Gate(Security Watch Tower No.1)**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
04.08.2025	41.5	21.5	12.5	20.8	8.5	0.25	16.5	BDL	BDL	BDL	BDL	BDL
07.08.2025	40.2	16.1	10.2	20.4	7.8	0.32	16.1	BDL	BDL	BDL	BDL	BDL
11.08.2025	42.2	16.8	10.8	20.1	8.5	0.28	15.4	BDL	BDL	BDL	BDL	BDL
14.08.2025	38.2	17.4	10.5	20.4	8.4	0.22	BDL	BDL	BDL	BDL	BDL	BDL
18.08.2025	41.5	17.2	10.6	19.1	8.8	0.18	19.6	BDL	BDL	BDL	BDL	BDL
21.08.2025	34.2	13.8	9.6	16.8	7.8	0.16	BDL	BDL	BDL	BDL	BDL	BDL
25.08.2025	40.2	17.4	10.8	17.1	8.2	0.26	16.5	BDL	BDL	BDL	BDL	BDL
28.08.2025	41.1	17.5	10.7	20.7	7.7	0.28	BDL	BDL	BDL	BDL	BDL	BDL
Monthly Average	39.9	17.2	10.7	19.4	8.2	0.24	16.8	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge Method-411	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NO_X< 6 $\mu g/m^3$, O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$, Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-12055** *Date:* **06.09.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST-2025(CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer, VOC Sample
3. Sampling Location : **AAQMS-2: Near Security Watch Tower - 3**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
04.08.2025	41.2	19.3	12.9	23.8	8.2	0.22	BDL	BDL	BDL	BDL	BDL	BDL
07.08.2025	40.5	16.2	10.4	17.7	8.2	0.24	15.2	BDL	BDL	BDL	BDL	BDL
11.08.2025	40.8	16.5	12.2	20.2	7.8	0.22	16.8	BDL	BDL	BDL	BDL	BDL
14.08.2025	37.2	14.2	10.2	18.1	7.2	0.18	16.5	BDL	BDL	BDL	BDL	BDL
18.08.2025	38.5	14.8	10.6	19.3	7.1	0.16	BDL	BDL	BDL	BDL	BDL	BDL
21.08.2025	36.1	17.9	9.5	18.8	8.3	0.15	16.2	BDL	BDL	BDL	BDL	BDL
25.08.2025	34.5	11.8	10.1	13.9	7.2	0.18	14.2	BDL	BDL	BDL	BDL	BDL
28.08.2025	40.2	16.9	10.2	18.7	8.4	0.22	17.2	BDL	BDL	BDL	BDL	BDL
Monthly Average	38.6	16.0	10.8	18.8	7.8	0.20	16.0	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge (Method-411)	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NO_X< 6 $\mu g/m^3$, O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$, Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

Reviewed by

Approved by

GMR KAMALANGA ENERGY LTD.

Ref: **Envlab/25-26/TR-12057** *Date:* **06.09.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR AUGUST-2025 (BUFFER ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer, VOC Sampler
3. Sample Collected By : VCSPL Representative in presence of Client's Representative

Location Name	Date	PARAMETERS											
		PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
AAQMS1: Kamalanga (Township)	18.08.2025	37.6	14.4	10.2	22.3	8.1	0.26	16.2	BDL	BDL	BDL	BDL	BDL
AAQMS-2: Mangalpur	19.08.2025	38.5	11.8	11.1	10.2	7.2	0.18	16.1	BDL	BDL	BDL	BDL	BDL
AAQMS3: Budhapanka	20.08.2025	37.2	14.5	10.6	21.1	7.1	0.15	14.2	BDL	BDL	BDL	BDL	BDL
AAQMS4: Bhogamunda	21.08.2025	41.1	17.5	9.8	21.8	7.8	0.16	13.1	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard		100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD		Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling, 3rd Edn.By James P. Lodge (Method-411)	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling, 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NO_X< 6 $\mu g/m^3$, O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$, Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

Reviewed by

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

Approved by

VISIONTEK CONSULTANCY SERVICES PVT. LTD. BBSR

GMR KAMALANGA ENERGY LTD.

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

Ref: **Envlab/25-26/TR- 13394** *Date:* **04.10.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER-2025(CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer,VOC Sampler
3. Sampling Location : **AAQMS-1: Near Rain Water pump House Pit**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} (µg/m³)	$PM_{2.5}$ (µg/m³)	SO_2 (µg/m³)	NOx (µg/m³)	O_3 (µg/m³)	CO (mg/m³)	NH_3 (µg/m³)	Pb (µg/m³)	Ni (ng/m³)	As (ng/m³)	C_6H_6 (µg/m³)	BaP (ng/m³)
01.09.2025	41.6	21.8	13.3	25.2	BDL	0.24	BDL	BDL	BDL	BDL	BDL	BDL
04.09.2025	39.4	16.8	10.1	20.6	7.8	0.22	BDL	BDL	BDL	BDL	BDL	BDL
08.09.2025	43.8	17.9	12.5	24.2	8.3	0.18	BDL	BDL	BDL	BDL	BDL	BDL
11.09.2025	38.5	19.4	12.3	22.5	7.8	0.16	BDL	BDL	BDL	BDL	BDL	BDL
15.09.2025	37.4	15.1	10.8	22.1	7.5	0.14	BDL	BDL	BDL	BDL	BDL	BDL
18.09.2025	36.1	18.6	10.1	20.8	7.2	0.15	BDL	BDL	BDL	BDL	BDL	BDL
22.09.2025	41.1	16.8	13.2	20.2	8.3	0.24	BDL	BDL	BDL	BDL	BDL	BDL
25.09.2025	42.5	21.2	12.5	24.9	8.8	0.21	BDL	BDL	BDL	BDL	BDL	BDL
Monthly Average	40.1	18.5	11.9	22.6	8.0	0.19	BDL	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part 2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge Method-411	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 µg/m³, NOx< 6 µg/m³,O_3<5 µg/m³, NH_3<20 µg/m³,Ni<2.5 ng/m³, As < 1.0 ng/m³, C_6H_6<4.0 µg/m³, BaP<0.5 ng/m³, Pb<0.02 µg/m³, CO-<0.1 mg/m³

Reviewed by

Approved by

GMR KAMALANGA ENERGY LTD.

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

Ref: **Envlab/25-26/TR-13395** *Date:* **04.10.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER-2025(CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer, VOC Sample
3. Sampling Location : **AAQMS-2: Near Security Watch Tower - 3**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
01.09.2025	42.2	20.1	13.1	24.2	9.2	0.25	BDL	BDL	BDL	BDL	BDL	BDL
04.09.2025	38.8	14.5	12.6	19.9	8.6	0.22	BDL	BDL	BDL	BDL	BDL	BDL
08.09.2025	41.2	16.9	13.3	21.3	8.4	0.15	BDL	BDL	BDL	BDL	BDL	BDL
11.09.2025	38.3	15.5	12.8	20.2	7.6	0.16	BDL	BDL	BDL	BDL	BDL	BDL
15.09.2025	37.5	15.1	11.5	20.4	7.3	0.18	BDL	BDL	BDL	BDL	BDL	BDL
18.09.2025	41.2	23.1	9.8	19.1	8.1	0.16	BDL	BDL	BDL	BDL	BDL	BDL
22.09.2025	42.2	16.5	13.3	16.8	9.5	0.14	BDL	BDL	BDL	BDL	BDL	BDL
25.09.2025	40.6	17.3	12.5	21.1	9.7	0.22	BDL	BDL	BDL	BDL	BDL	BDL
Monthly Average	40.3	17.4	12.4	20.4	8.6	0.19	BDL	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6 RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge (Method-411)	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NO_X< 6 $\mu g/m^3$, O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$, Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

Reviewed by

Approved by

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

Ref: **Envlab/25-26/TR-13396** *Date:* **04.10.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER-2025 (CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer,VOC Sampler
3. Sampling Location : **AAQMS-3: Near Budhapanka Material Gate(Security Watch Tower No.1)**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
01.09.2025	41.8	21.9	13.1	21.4	8.2	0.22	BDL	BDL	BDL	BDL	BDL	BDL
04.09.2025	38.8	15.6	11.3	21.6	7.4	0.28	BDL	BDL	BDL	BDL	BDL	BDL
08.09.2025	40.2	14.7	11.5	20.4	8.3	0.18	BDL	BDL	BDL	BDL	BDL	BDL
11.09.2025	38.5	17.9	9.8	19.7	8.1	0.16	BDL	BDL	BDL	BDL	BDL	BDL
15.09.2025	38.2	16.7	9.5	17.8	8.4	0.14	BDL	BDL	BDL	BDL	BDL	BDL
18.09.2025	36.6	14.8	10.2	17.1	7.6	0.15	BDL	BDL	BDL	BDL	BDL	BDL
22.09.2025	40.6	17.8	11.4	17.6	8.8	0.18	BDL	BDL	BDL	BDL	BDL	BDL
25.09.2025	42.2	18.6	12.2	22.4	9.2	0.22	BDL	BDL	BDL	BDL	BDL	BDL
Monthly Average	39.6	17.3	11.1	19.8	8.3	0.19	BDL	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge Method-411	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NOx< 6 $\mu g/m^3$,O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$,Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

Reviewed by

Approved by

Ref: **Envlab/25-26/TR-13397** *Date:* **04.10.2025**

AMBIENT AIR QUALITY MONITORING REPORT FOR SEPTEMBER-2025 (CORE ZONE)

1. Name of the Industry : **M/s GMR Kamalanga Energy Ltd, Dhenkanal**
2. Monitoring Instruments : RDS (APM 460 BL), FPS (APM 550) Envirotech, CO Analyzer, VOC Sampler
3. Sampling Location : **AAQMS-4: Near Security Watch Tower-4**
4. Sample Collected By : VCSPL Representative in presence of Client's Representative

Date	PARAMETERS											
	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NOx ($\mu g/m^3$)	O_3 ($\mu g/m^3$)	CO (mg/m^3)	NH_3 ($\mu g/m^3$)	Pb ($\mu g/m^3$)	Ni (ng/m^3)	As (ng/m^3)	C_6H_6 ($\mu g/m^3$)	BaP (ng/m^3)
01.09.2025	41.5	21.8	12.2	20.6	8.5	0.25	BDL	BDL	BDL	BDL	BDL	BDL
04.09.2025	38.8	13.8	11.2	21.5	7.6	0.22	BDL	BDL	BDL	BDL	BDL	BDL
08.09.2025	37.5	12.8	10.2	19.7	8.8	0.18	BDL	BDL	BDL	BDL	BDL	BDL
11.09.2025	36.2	15.1	9.8	19.4	7.2	0.16	BDL	BDL	BDL	BDL	BDL	BDL
15.09.2025	38.5	15.6	10.2	16.1	7.1	0.14	BDL	BDL	BDL	BDL	BDL	BDL
18.09.2025	37.2	16.3	9.6	16.8	7.4	0.15	BDL	BDL	BDL	BDL	BDL	BDL
22.09.2025	40.2	17.5	11.8	18.1	8.6	0.24	BDL	BDL	BDL	BDL	BDL	BDL
25.09.2025	41.2	17.3	12.3	22.5	9.2	0.22	BDL	BDL	BDL	BDL	BDL	BDL
Monthly Average	38.9	16.3	10.9	19.3	8.1	0.20	BDL	BDL	BDL	BDL	BDL	BDL
CPCB, New Delhi AAQ Standard	100	60	80	80	100	4	400	1	20	6	5	1
TEST METHOD	Gravimetric IS 5182: Part 23	Gravimetric EPA 1998	Improved West & Geake Method IS 5182 (Part-2) RA2023	Modified Jacob &Hochheiser Method IS 5182 (Part-6) RA2023	Chemical Method Air Sampling , 3rd Edn.By James P. Lodge (Method-411	Non Dispersive Infrared Method IS 5182 (Part-10):RA 2024	Indo Phenol Blue Method Air Sampling , 3rd Edn.By James P. Lodge (Method-401)	AAS Method IS 5182(Part -22):RA 2024			Gas Chromatography IS 5182 (Part-11):RA 2022	Solvent Extraction IS 5182 (Part-12):RA 2024

BDL Values: SO_2< 4 $\mu g/m^3$, NOx< 6 $\mu g/m^3$, O_3<5 $\mu g/m^3$, NH_3<20 $\mu g/m^3$, Ni<2.5 ng/m^3, As < 1.0 ng/m^3, C_6H_6<4.0 $\mu g/m^3$, BaP<0.5 ng/m^3, Pb<0.02 $\mu g/m^3$, CO-<0.1 mg/m^3

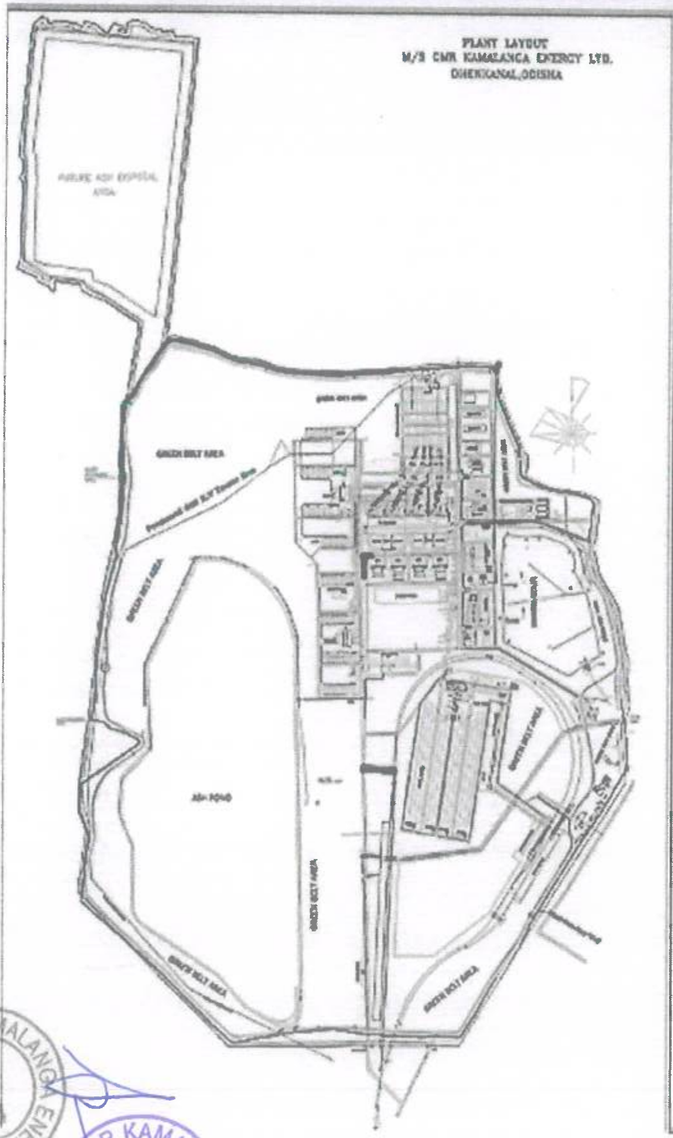
Reviewed by

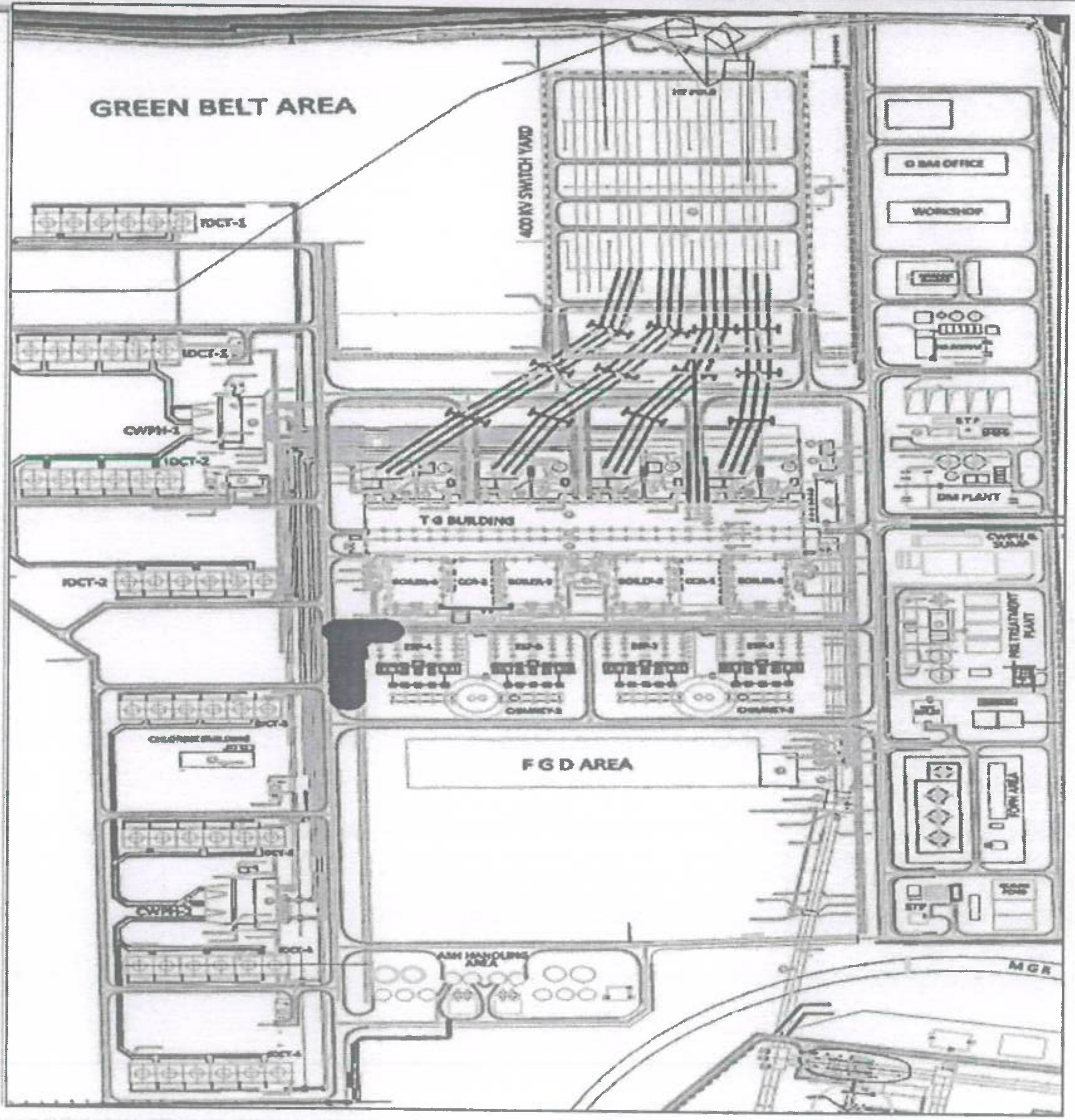
Approved by

Annexure-IX

PROJECT LAYOUT

GMR





GMR KAMALANGA ENERGY LTD.

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Annexure - X

GMR Kamalanga Energy Limited

Plant Office:
AT/PO: Kamalanga, PS: Kantabania,
VIA: Meramundali,
DIST: Dhenkanal - 759 121, Odisha
CIN U40101KA2007PLC044809
T +91 6762 663564
W www.gmrgroup.in

Ref. No. GKEL/CPCB/2025-26/8802
Dated – 24.10.2025

To
The Divisional Head – IPC II
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
New Delhi - 110032

Sub: Submission of Compliance status by TPPs with respect to Specific water consumption limit - reg.
Ref: Your office letter no B-33014/7/2019/IPC-II/TPP/ Email dated 8th July 2019

Dear Sir,

With reference to the above cited subject, we are submitting here with the quarterly specific water consumption report for Q – 2, FY 2025-26 of our 3x350 MW coal based Thermal Power Plant.

Kindly acknowledge receipt of the same.

Thanking you,

Yours sincerely,
for **GMR Kamalanga Energy Limited,**

(Authorized Signatory)

Encl. – As above

Copy for kind information to :-

1. The Member Secretary, State Pollution Control Board, Odisha, Bhubaneswar.
2. The Regional Officer, State Pollution Control Board, Odisha, Angul.

GMR KAMALANGA ENERGY LTD.

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

Format for quaterly reporting of water consumption data and compliance with respect to the limit notice vide notification dated 07.12.2015 of coal/lignite based thermal power plant.					
Name of the Power Plant	: GMR Kamalanga Energy Ltd., Dhenkanal , Odisha.				
Capacity	: Total - 1050 MW (3x350 MW each)				
Applicable SWC Standard	: 3.5 M3/MWh				
Zero waste water discharge condition mandatory OR not : Yes & Complied					
Q - 2 FY 2025-26	Date	Station Generation (MU)	Water Consumption (M3)	Specific Water Consumption (Daily Avg. in m3/mwh)	Remarks
July	01-07-2025	21.931	41949	1.91	
	02-07-2025	24.249	46298	1.91	
	03-07-2025	24.791	46743	1.89	
	04-07-2025	24.509	43566	1.78	
	05-07-2025	23.053	44046	1.91	
	06-07-2025	14.999	30577	2.04	
	07-07-2025	15.939	32833	2.06	
	08-07-2025	16.483	31640	1.92	
	09-07-2025	16.077	32758	2.04	
	10-07-2025	15.422	38324	2.49	
	11-07-2025	16.423	39940	2.43	
	12-07-2025	16.391	40480	2.47	
	13-07-2025	15.176	40099	2.64	
	14-07-2025	14.621	34503	2.36	
	15-07-2025	15.441	34683	2.25	
	16-07-2025	15.491	36311	2.34	
	17-07-2025	15.917	33228	2.09	
	18-07-2025	16.411	37286	2.27	
	19-07-2025	16.646	36570	2.20	
	20-07-2025	16.255	34240	2.11	
	21-07-2025	16.519	35872	2.17	
	22-07-2025	16.405	35596	2.17	
	23-07-2025	16.007	35955	2.25	
	24-07-2025	15.838	33715	2.13	
	25-07-2025	15.855	42390	2.67	
	26-07-2025	15.546	38114	2.45	
	27-07-2025	15.158	34519	2.28	
	28-07-2025	16.056	35068	2.18	
	29-07-2025	15.007	32265	2.15	
	30-07-2025	17.885	39004	2.18	
	31-07-2025	22.516	46470	2.06	
August	01-08-2025	22.665	45817	2.02	
	02-08-2025	23.519	48576	2.07	
	03-08-2025	22.018	42280	1.92	
	04-08-2025	23.331	44546	1.91	
	05-08-2025	23.806	45121	1.90	
	06-08-2025	23.459	48545	2.07	
	07-08-2025	23.512	45248	1.92	
	08-08-2025	24.832	47265	1.90	
	09-08-2025	22.148	42499	1.92	
	10-08-2025	20.949	41904	2.00	
	11-08-2025	23.898	47822	2.00	
	12-08-2025	23.276	47612	2.05	
	13-08-2025	23.058	46978	2.04	
	14-08-2025	23.648	46223	1.95	

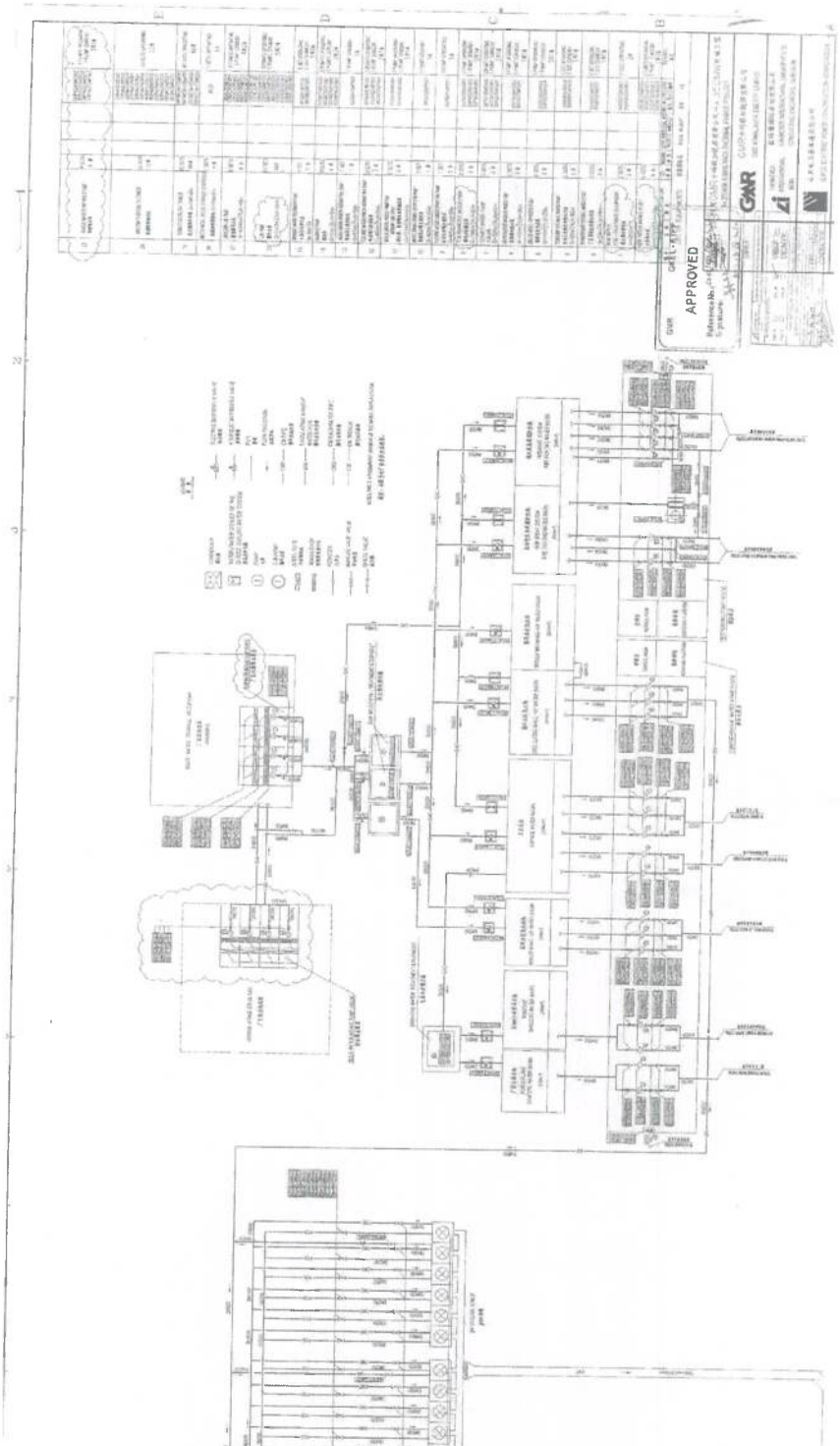
GMR KAMALANGA ENERGY LTD.

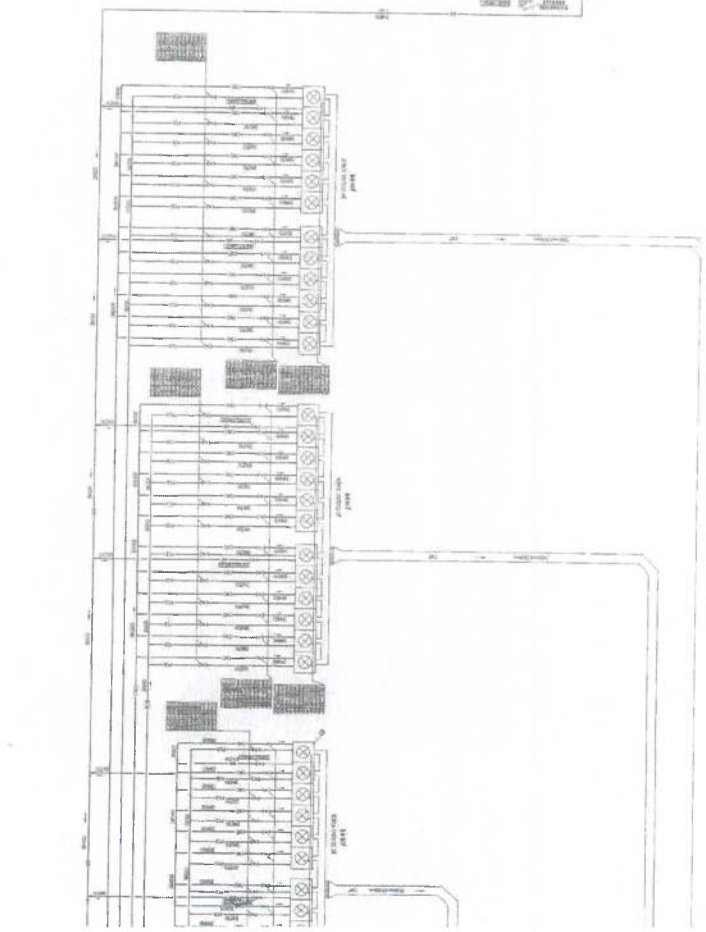
	15-08-2025	21.698	42349	1.95	
	16-08-2025	23.660	48043	2.03	
	17-08-2025	21.955	44653	2.03	
	18-08-2025	21.960	43040	1.96	
	19-08-2025	19.656	41785	2.13	
	20-08-2025	14.936	34038	2.28	
	21-08-2025	16.137	36863	2.28	
	22-08-2025	20.903	40050	1.92	
	23-08-2025	22.798	43539	1.91	
	24-08-2025	17.657	41761	2.37	
	25-08-2025	13.265	29094	2.19	
	26-08-2025	16.142	34545	2.14	
	27-08-2025	22.270	45371	2.04	
	28-08-2025	21.933	45606	2.08	
	29-08-2025	21.533	41323	1.92	
	30-08-2025	23.408	46914	2.00	
	31-08-2025	19.911	41002	2.06	
September	01-09-2025	19.013	38739	2.04	
	02-09-2025	19.521	37353	1.91	
	03-09-2025	19.843	41918	2.11	
	04-09-2025	21.444	42574	1.99	
	05-09-2025	22.160	44982	2.03	
	06-09-2025	21.899	43293	1.98	
	07-09-2025	20.829	41986	2.02	
	08-09-2025	22.999	46261	2.01	
	09-09-2025	23.972	49379	2.06	
	10-09-2025	23.727	47154	1.99	
	11-09-2025	22.404	45846	2.05	
	12-09-2025	23.432	48150	2.05	
	13-09-2025	24.385	49093	2.01	
	14-09-2025	21.400	43336	2.03	
	15-09-2025	22.533	43583	1.93	
	16-09-2025	23.076	45657	1.98	
	17-09-2025	23.519	48867	2.08	
	18-09-2025	23.596	48983	2.08	
	19-09-2025	24.523	52475	2.14	
	20-09-2025	23.033	48909	2.12	
	21-09-2025	21.610	44818	2.07	
	22-09-2025	23.432	51273	2.19	
	23-09-2025	21.884	46282	2.11	
	24-09-2025	22.580	48217	2.14	
	25-09-2025	22.771	52766	2.32	
	26-09-2025	23.045	49944	2.17	
	27-09-2025	21.825	48098	2.20	
	28-09-2025	20.599	43037	2.09	
	29-09-2025	22.250	45550	2.05	
	30-09-2025	18.841	40267	2.14	
Quaterly Avg. Value		**20.32**	**42220.04**	**2.10**	

(Authorized Signatory)

GMR KAMALANGA ENERGY LTD.

Annexure-XI





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Annexure-XII

ANNEXURE-I

Report on Environment improvement initiatives undertaken for mitigation of fugitive emission

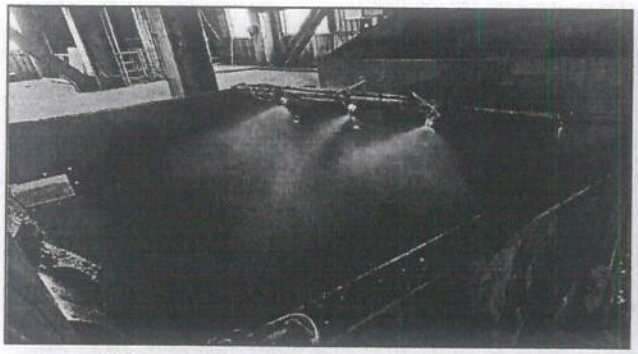
- *Installation of Dry Fog Dust Suppression System (DFDS) In CHP*
- *Fog Cannon deployment in Coal Yard*
- *Mechanize Wheel Washing System*

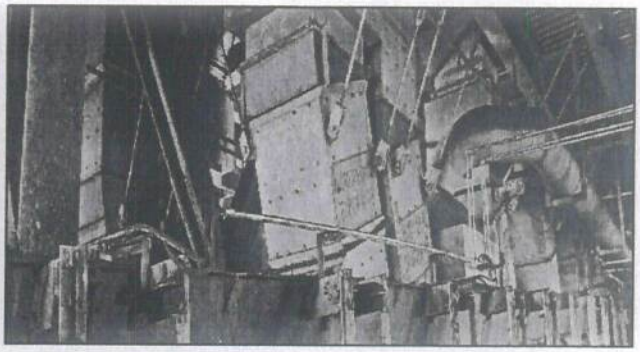
1. **INSTALLATION OF DRY FOG DUST SUPPRESSION SYSTEM (DFDS) IN CHP:**

DFDS system uses a special air-atomizing nozzle that produces a very dry fog to agglomerate and remove airborne dust particles from the material (coal) handling and processing operations. The DFDS system utilizes compressed air and plain water to produce these 1 - 10 micron droplets (true fog). These ultra-fine water droplets attach (agglomerate) to like size airborne dust particles, sometimes referred to as PM-10 (particulate matter 10 microns or smaller). Subsequently, the slightly wetted dust particles become heavy enough to be removed from the air and fall back into the process. It is important to note that it is only wet the dust, not the material. This results in very low water and power consumption, requiring no expensive chemicals or significant wetting of the product (always less than 1/2 % by weight, typically no more than 0.1% moisture addition). DFDS system installed at crusher house, TT-6 &TT-7(Bunker area), Track Hopper(210 meters), Wagon Tripler(Pre-mist & DFDS) & Truck Tripler.

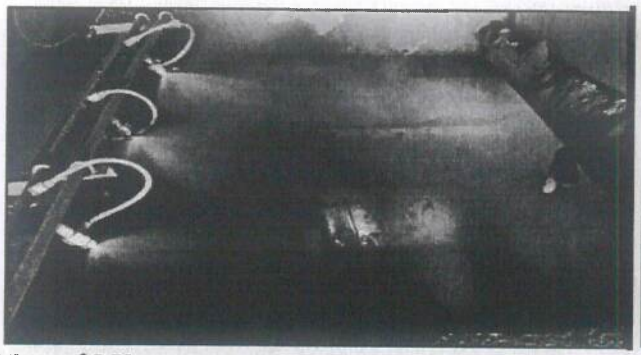
Benefit:

- Improving in Work zone and ambient air quality by effective controlling of fugitive dust emission from coal handling & processing.
- Safe and health working atmosphere for the workmen.
- Increasing of equipment efficiency.





View of DFDS system at Conveyor Belt head end - 3A/3B of Crusher House



View of DFDS system at Conveyor Belt Head end

DFDS system at Track Hopper

2. **FOG CANNON DEPLOYMENT IN COAL YARD**

02 nos. of Fog Cannon have been deployed for control of coal yard fugitive Dust. Fog Cannon has been designed to tackle the problem of airborne dust particles generated by Coal material handling activities. Fog

GMR KAMALANGA ENERGY LTD.

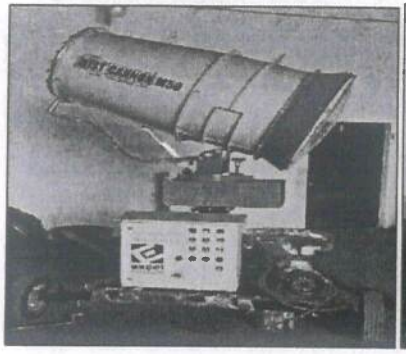
Cannon has been shown to suppress up to 95% of airborne dust particles. This fog cannon provided additional control measures apart from the high velocity jet sprinkler which is in place & working.

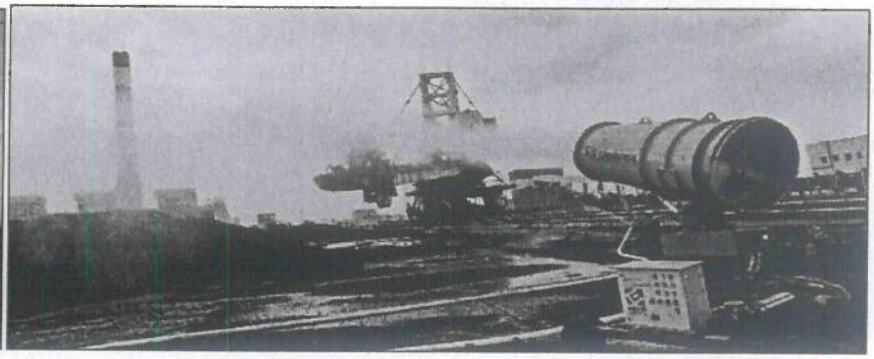
Project Detail:

1. Fog (mist) cannon model: Mist Cannon M50
2. Mist throwing range – up to 50 meter in ideal condition.
3. Cost of Rs. 9.89 Lakhs

Benefit:

- They help to Improve the workzone and ambient air quality by effective controlling of fugitive dust emission from coal handling activities like coal truck unloading, stacking, reclamation in the yard etc.
- reduce the health risk.





3. MECHANIZE WHEEL WASHING SYSTEM

In order to control the road fugitive dust, GMR Kamalanga Energy Limited has installed the Mechanised Wheel Washing System for cleaning wheels/tires and lower body parts of trucks / bulkers which are engaged in transportation of coal and fly ash. The wheel washing system is positioned just before the road weigh bridge, so that the vehicles will go to wheel washing system, then to weigh bridge and then exit from the plant area through Raw material gate.

Project Details:

1. Project cost: 42 Lakhs Appx.
2. Capacity: 35-40 Trucks/hour.
3. Clear water tank capacity: 45 m^3
4. Waste water recycle tank capacity: 60 m^3
   (With intermediate baffle wall to facilitate sedimentation process)
5. Water makeup – 10 KLD from plant recycled water.

Benefit: -To improve work zone and ambient air quality by control the road fugitive dust.

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GMR KAMALANGA ENERGY LTD. GMR

Annexure-XIII

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

Spsingh
18/04/2025

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**	-

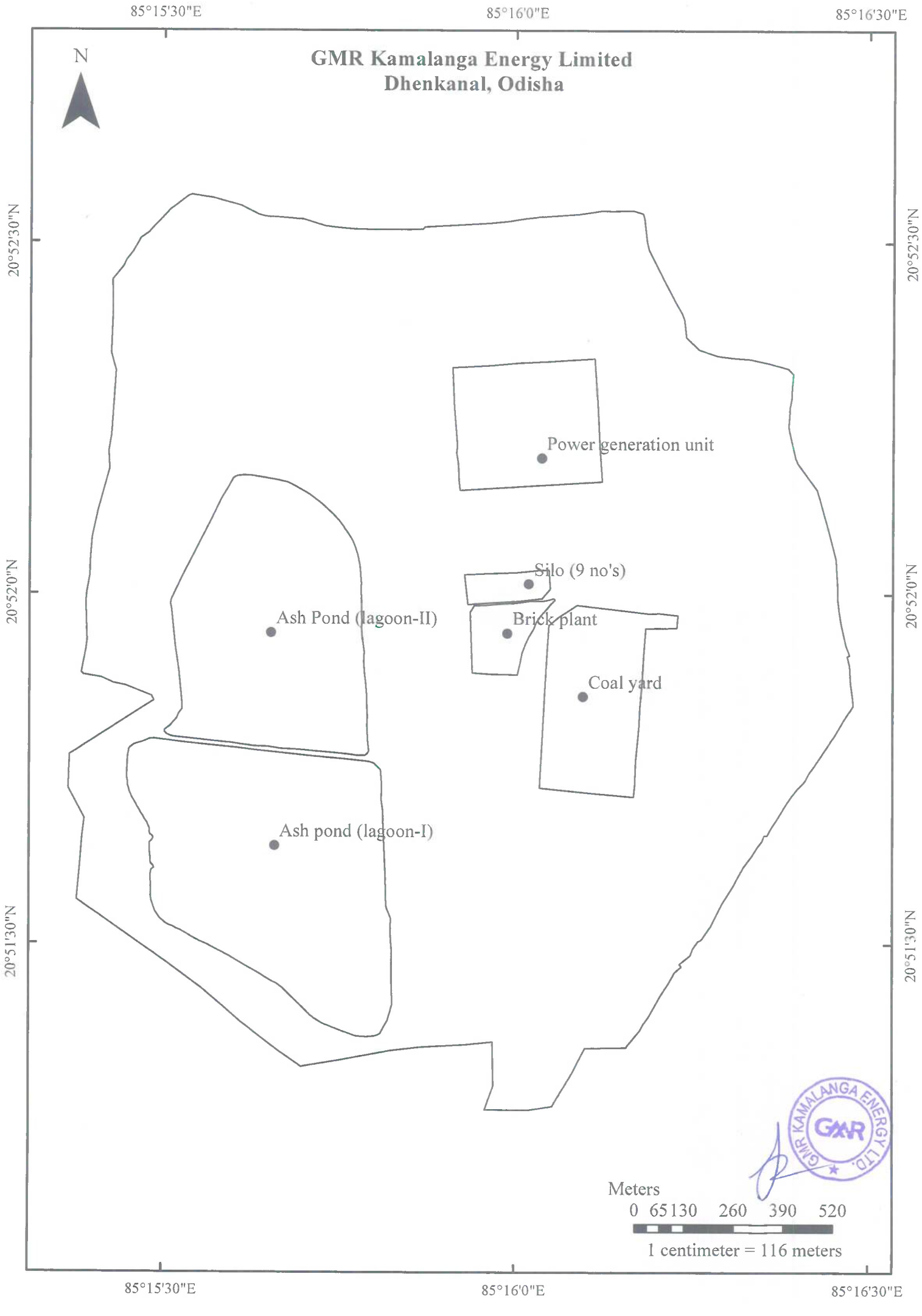
Note: The term ash indicates both fly ash and bottom ash

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-XIV

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
Professor, Department of Civil Engineering,
National Institute of Technology Warangal,
Warangal – 506004, Telangana, India.
Mobile: 9989677217
Email: baig@nitw.ac.in

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

Professor
Department of Civil Engineering
National Institute of Technology
Warangal - 506 004

GMR KAMALANGA ENERGY LTD.

Prof. M. Chandra Sekhar
Department of Civil Engineering
National Institute of Technology Warang
Ph : 9908132001
E-mail - 380mcs@gmail.com

		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.

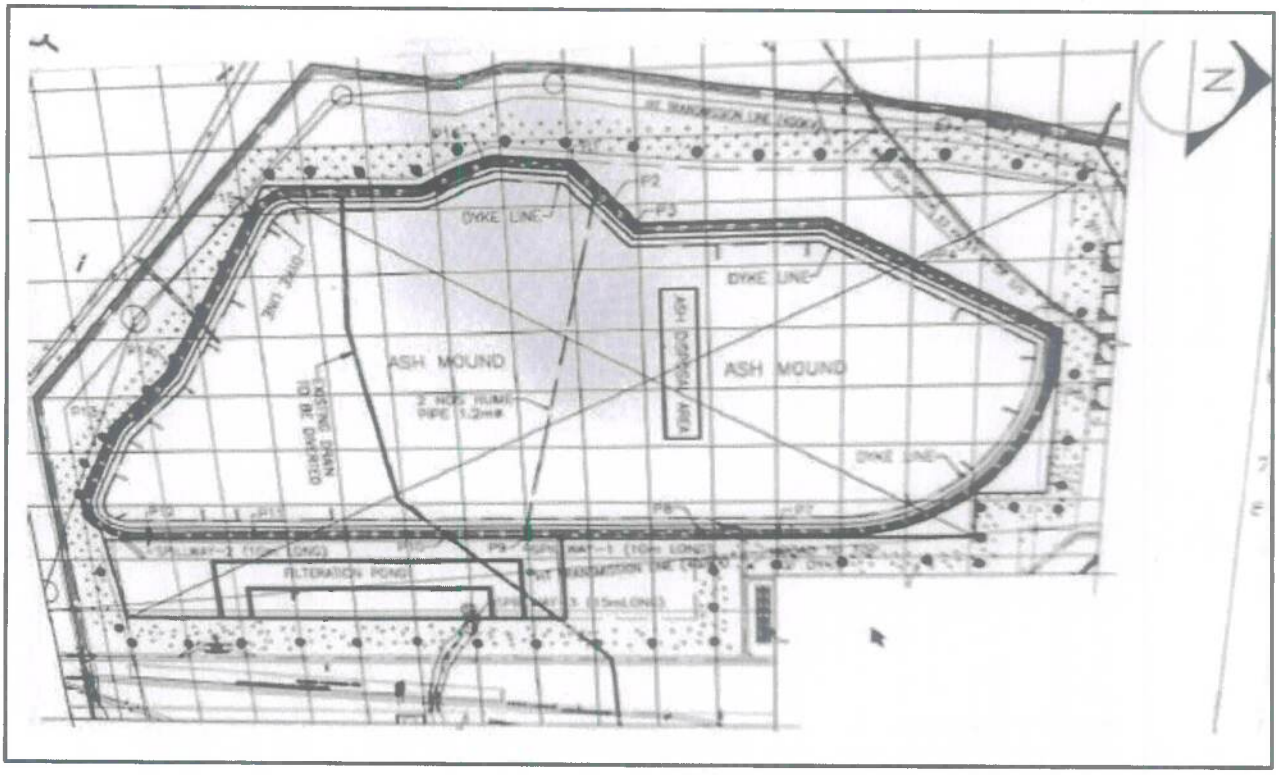

Fig 1 – Ash Pond Layout

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GMR KAMALANGA ENERGY LTD.

Visit by Expert Team to Ash Dyke Site

Bund Road

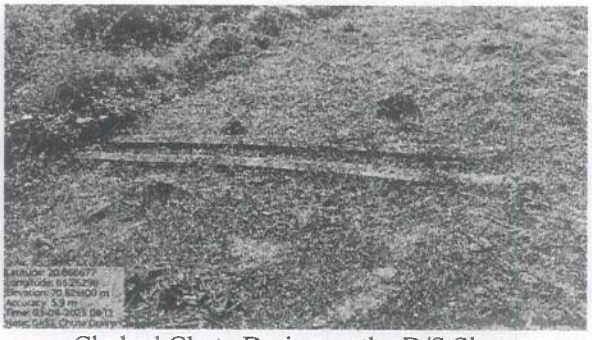
Condition of U/S Slope

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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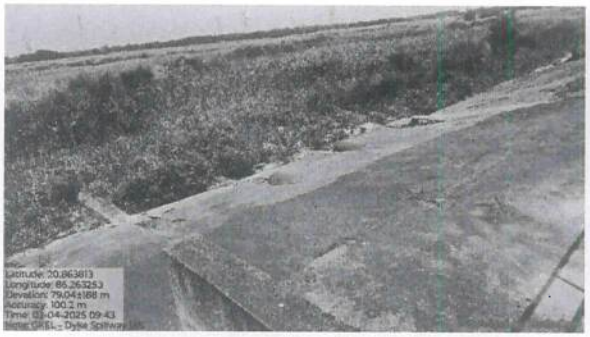
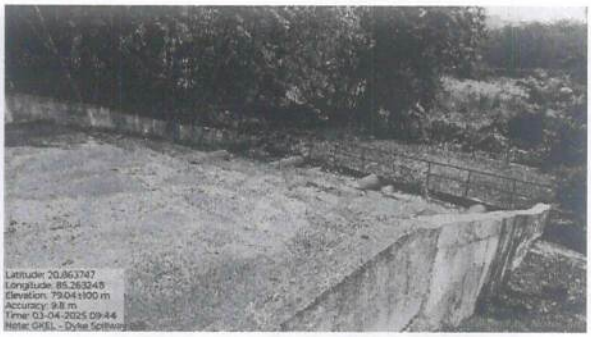
GMR KAMALANGA ENERGY LTD.



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.
- 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.

Annexure-XI

SPEED POST

No. 5-22/SER/CGWA/2012 – 73
Govt. of India
Central Ground Water Board
South Eastern Region
Bhujal Bhawan, Khandagiri,
Bhubaneswar –751030.
Date: 18.01.2012
19

To

The Member Secretary
Central Ground Water Authority
Ministry of Water Resources
West Block -2, Wing-3 (Ground Floor),
Sector-1, R.K. Puram,
New Delhi – 110066.

Sub: Forwarding of Report on Rain Water Harvesting in respect of M/s. GMR Kamalanga Energy Limited, Vill:- Kamalanga, Dhenkanal, Odisha – Reg.

Sir,

As per the conditions on NOC to M/s. GMR Kamalanga Energy Limited, Vill:- Kamalanga, Dhenkanal, Odisha, the firm has submitted report on Rain Water Harvesting for its Thermal Power Plant . The same is being forwarded for your kind perusal and necessary action.

Encl:- As above.

Yours faithfully,

O/C

19/1

(D.Y Sirsikar)
Regional Director

Copy to: M/s. GMR, HIG-28,Gangadhar Meher Marg, Jaydev Vihar, Bhubaneswar, Odisha - 751013, for information.

19/1

(D.Y Sirsikar)
Regional Director

O/C

GMR KAMALANGA ENERGY LTD.

GMR Energy

GMR Kamalanga Energy Limited

GMR

Administration Office:
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Jaydev Vihar
Bhubaneswar 751 013
T +91-0674-2303995
F +91-0674-2303994
W www.gmrgroup.in

Ref. No.: GKEL/BBSR/CGWA/11-12/1417

Date: 29.11.2011

To

The Regional Director,
Central Ground Water Board,
South Eastern Region,
Bhujal Bhawan,
Khandagiri Square,
Bhubaneswar - 751030

Ref. **Your Letter 21-4(64)/SER/CGWA/2008/985, Dt.15th Sep. 2008**

Sub. : **Submission of Rain Water Harvesting Report For M/s GMR Energy Ltd..for its Thermal power plant at Village-Kamalanga, Block-Odopada, Tehsil-Dhenkanal Sadar, Dist. Dhenkanal,Orissa.**

Dear Sir,

Herewith we are submitting the detailed rain water harvesting report for approval from your end.

Thanking you.
Yours faithfully,

For **M/s. GMR Kamalanga Energy Ltd.**

K V V RAO
MANAGING DIRECTOR

Encl:
1. Rain Water Harvesting report

Received with Report
29/11/2011

Despatcher
Central Ground Water Board
South Eastern Region
Bhujal Bhawan
Khandagiri Square, N.H-V
Bhubaneswar-751 030

GMR KAMALANGA ENERGY LTD.

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Site Office:
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P.S. Bhuvana, Tahasi, Odapada
Dist: Dhenkanal-759121, Orissa

GMR KAMALANGA ENERGY LTD.

Annexure-XVI

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

VISIONTEK

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 Detectable Limits) 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<0.001 mg/l, As<0.004 mg/l, Pb<0.01mg/l, Zn<0.05 mg/l, Cr6<0.01 mg/l, Al<0.03 mg/l, B<0.1 mg/l,. TC(MPN 0-0-0)<1.8.

Reviewed by

Approved by

GMR KAMALANGA ENERGY LTD.

VISIONTEK

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

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, UO: Unobjectionable, ND: Not Detected.
BDL (Below Detectable Limits) Phenol<0.001 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, Cu<0.05 mg/l,. TC(MPN 0-0-0)<1.8.

Reviewed by

Approved by

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

Annexure-XVI

7586.

e-Registration ID No. EC100 7615
e-Registration document No. 10 2100 7739
Book No. 1 Date 24.11.10
Year 2010

Registering Officer
Dhenkanal 24/11/10

District Sub-Registrar
Dhenkanal 24/11/10

DEED OF SURRENDER OF LEASE

THIS DEED OF SURRENDER is made this 24th day of November 2010

BETWEEN

M/s. GMR Kamalanga Energy Ltd., being a Company incorporated under the Companies Act, 1956 (Act 1 of 1956) having its registered office at Skip House, 25/1, Museum Road, Bangalore-560025 & having its Corporate Office at HIG-28 BDA, Gangadhar Meher Nagar, Jaydev Vihar, Bhubaneswar-751013 represented by Sri K.V.V.Rao, Managing Director, S/o Late K.Bhanumurty, aged about 59 years, resident at 2C, Santhrupti, 3rd Block, 14C Cross, MCHS Colony, 6th Sector, HSR Layout, Bangalore who has been authorized to execute the Deed for and on behalf of the Company (hereinafter called "The Company" or "the Lessee") which expression unless excluded or repugnant to the context includes its administrator, successors, representative and assignees of the ONE PART.

AND

For GMR KAMALANGA ENERGY L.

(K.V.V. RAO)
MANAGING DIRECTOR
24.11.010

Divisional Head
DCO, Angul Divisi
24.11.010

GMR KAMALANGA ENERGY LTD.

True Copy

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THE ORISSA NDUSTRIAL INFRASTRUCTURE DEVELOPMENT CORPORATION established under CIIDC Act,1960 (Orissa Act 1 of 1981) and having its Head Office at IDCO TOWERS, Janapath, Sahidnagar, Bhubaneswar – 751 022, represented by its authorized representative Sri Biranchi Narayan Barik, Divisional Head, IDCO, Angul Division (hereinafter called "The Corporation" or the "Lessor") which expression shall, unless excluded or repugnant to the context, include his successors and assigns) of the OTHER PART

WHEREAS a piece of Pvt. land measuring **Ac.228.025** in villages Mangalpur under Odapada Tahasil in the District of Dhenkanal was transferred in favour of the Company for a period of 90 years for establishment of industries for a consideration amount of **Rs.9,78,78,090.99** (Rupees nine crores seventy eight lakhs seventy eight thousand ninety & paise ninety nine) only by the Corporation as per Registered Deed No.5774/09 dated.24.9.09 of District Sub-Registrar, Dhenkanal.

WHEREAS the above Company desires to surrender the lease hold land measuring **Ac.37.90** in village Mangalpur under Odapada Tahasil in the District of Dhenkanal more fully described in Schedule – A in favour of Corporation (The Orissa Industrial Infrastructure Development Corporation) for its subsequent utilization for establishment of industries (Exchange of Govt. Gochar land).The consideration amount of the surrendered land measuring **Ac.37.90** is **Rs.1,62,68,302.37** (Rupees one crore sixty two lakhs sixty eighty thousand three hundred two & paise thirty seven) only proportionately

AND WHEREAS the rent reserved by and contained in the Deed of lease on the part of the Corporation to be paid has been paid by the said Corporation up to the date of this deed.

AND WHEREAS at the request of the Company, the Corporation has agreed to accept from the Company the surrender of the property described in Schedule – A annexed hereto for its eventual utilization for establishment of industries (Exchange of Govt. Gochar land).

NOW THIS DEED WITNESSES as follows:

That in consideration of the above agreement the said Company as beneficial owner hereby surrenders to the Corporation the property as described in the Schedule-A and demised under the Deed of lease to the intent that the residue of the said term of 90 in words (Ninety) Years created by the said deed of lease and all other rights and interest of the said "Company" in the said property shall cease to be in force and to exist in the Company from the date of this surrender.

The lessee aforesaid do hereby surrender and relinquish all his rights, title, interest and possession in the said properties more particularly described in the Schedule–A, annexed hereto, absolutely and for ever.

For GMR KAMALANGA ENERGY LTD.

(K.V.V. RAO)
MANAGING DIRECTOR
24.11.010

Divisional Head
IDCO, Angul Division
24.11.010

GMR KAMALANGA ENERGY LTD.

True Copy

R.D 8/12/10

GMR KAMALANGA ENERGY LTD.

The said Lessee hereafter entitled to deal with the said properties described in Schedule-A for establishment of Industries. The Lessee hereby releases the said Lessor, the Lessee from all claims, demands and liabilities in respect of the said lease.

The balance land measuring Ac.190.125 described in Schedule-A shall remain in possession of M/s GMR Kamalanga Energy Ltd. and all his right, title, interest and possession thereto in any way shall not be affected by this deed of Surrender.

The Lessor shall also re-fix the land premium, ground rent, cess etc. there-to.

All the covenants and conditions contained in the said earlier lease deed shall continue and remain in force & this deed of Surrender shall be supplemental to the original Lease deed No.5774/09 dated 24.9.09.

The Original Lease Deed shall be read as the deed for an area of **Ac.190.125** instead of **Ac.228.025**. Both the parties hereto shall not claim any compensation / damages for any constructions and improvements erected on the said land.

SCHEDULE – A (Pvt. Land)

Village: Mangalpur, Police Station:Mottanga

Tahasil : Odapada, District : Dhenkanal

Declaration No.26357 dt.19.6.08.

Sl. No.	Khata No.	Plot No.	Lease area in Ac.	Surrender area in Ac.	Balance area in Ac.
1	2	3	4	5	6
1	316	1550(P)	0.57	0.30	0.27
2	330	1553(P)	0.07	0.07	0.00
3	407	1491(P)	0.07	0.07	0.00
		Total:-	0.71	0.44	0.27
Exchange of Gochar Land.					
4	38	3693	0.90	0.90	0.00
5	38	3693 7522	0.32	0.32	0.00
6	58	4021	0.02	0.02	0.00
7	58	4030	0.11	0.11	0.00
8	60	4063	0.12	0.12	0.00
9	60	4066	0.10	0.10	0.00
10	60	4064(P)	0.10	0.10	0.00
11	70	3865(P)	2.48	2.48	0.00
12	79	3031	0.24	0.24	0.00
13	79	3032	0.78	0.78	0.00
14	79	3033	0.04	0.04	0.00
15	79	3036	0.47	0.47	0.00
16	79	3037	0.72	0.72	0.00

For GMR KAMALANGA ENERGY LTD.

(K.V.V. RAO)
MANAGING DIRECTOR
24.11.010

Divisional Head
DCO, Angul Division
24.11.010

GMR KAMALANGA ENERGY LTD.

True Copy

R.O 8/12/10

Annexure-XIX

Attachment for point no 24

PUBLIC NOTICE

It is hereby published for the general public that our project "1050MW" Thermal Power Project at Village-Kamalanga, District– Dhenkanal, Orissa by M/s. GMR Energy Limited, Bangalore" has been accorded environmental clearance by the Ministry of Environment & Forests, New Delhi. The copies of the clearance letters are available with the State Pollution Control Board / Committee and also available in the Website of the Ministry of Environment and Forests in the http://envfor.nic.in

Sd/- Manager

INDIAN EXPRESS
Dt. 11/02/2008

ନୋଟିସ୍ / ବିଜ୍ଞାପନ

ଏତଦ୍‌ଦ୍ୱାରା ସର୍ବସାଧାରଣଙ୍କ ଅବଗତି ନିମନ୍ତେ ଜଣାଇ ଦିଆଯାଉଅଛି ଯେ, ଜିଏମ୍‌ଆର ଏନର୍ଜି, ବାଙ୍ଗାଲୋର ଦ୍ୱାରା ୧୦୫୦ ମେଗାୱାଟ୍ ଥରମାଲ ପାୱାର ପ୍ରୋଜେକ୍ଟ ଗ୍ରାମ-କମଳାଙ୍ଗ, ଜିଲ୍ଲା-ଢେଙ୍କାନାଳ, ଓଡିଶା ରେ ଅବସ୍ଥାପିତ କରାଯାଉଅଛି । ଏଥିନିମନ୍ତେ ପରିବେଶ ଏବଂ ଜଙ୍ଗଲ ମନ୍ତ୍ରଣାଳୟ,ଭାରତ ସରକାରଙ୍କ ଦ୍ୱାରା ପରିବେଶ ମଞ୍ଜୁରୀ ପାଇଅଛି । ମଞ୍ଜୁରୀ ପତ୍ରର ଅବିକଳ ନକଲ ରାଜ୍ୟ ପରିବେଶ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ, କମିଟିଙ୍କ ନିକଟରେ ଉପଲବ୍ଧ ଏବଂ ପରିବେଶ ଓ ଜଙ୍ଗଲ ମନ୍ତ୍ରଣାଳୟର Website http://envfor.nic.in ରେ ମଧ୍ୟ ଉପଲବ୍ଧ ଅଟେ ।

Sd/ Manager

DHARITRI
Dt. 11/02/2008

GMR KAMALANGA ENERGY LTD.

Annexure-XXI

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 Meramunda
P.S. Bhusana, Tahasil, Odapada
Dist. Dhenkanal 759121, Orissa

GMR KAMALANGA ENERGY LTD.

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

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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).

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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

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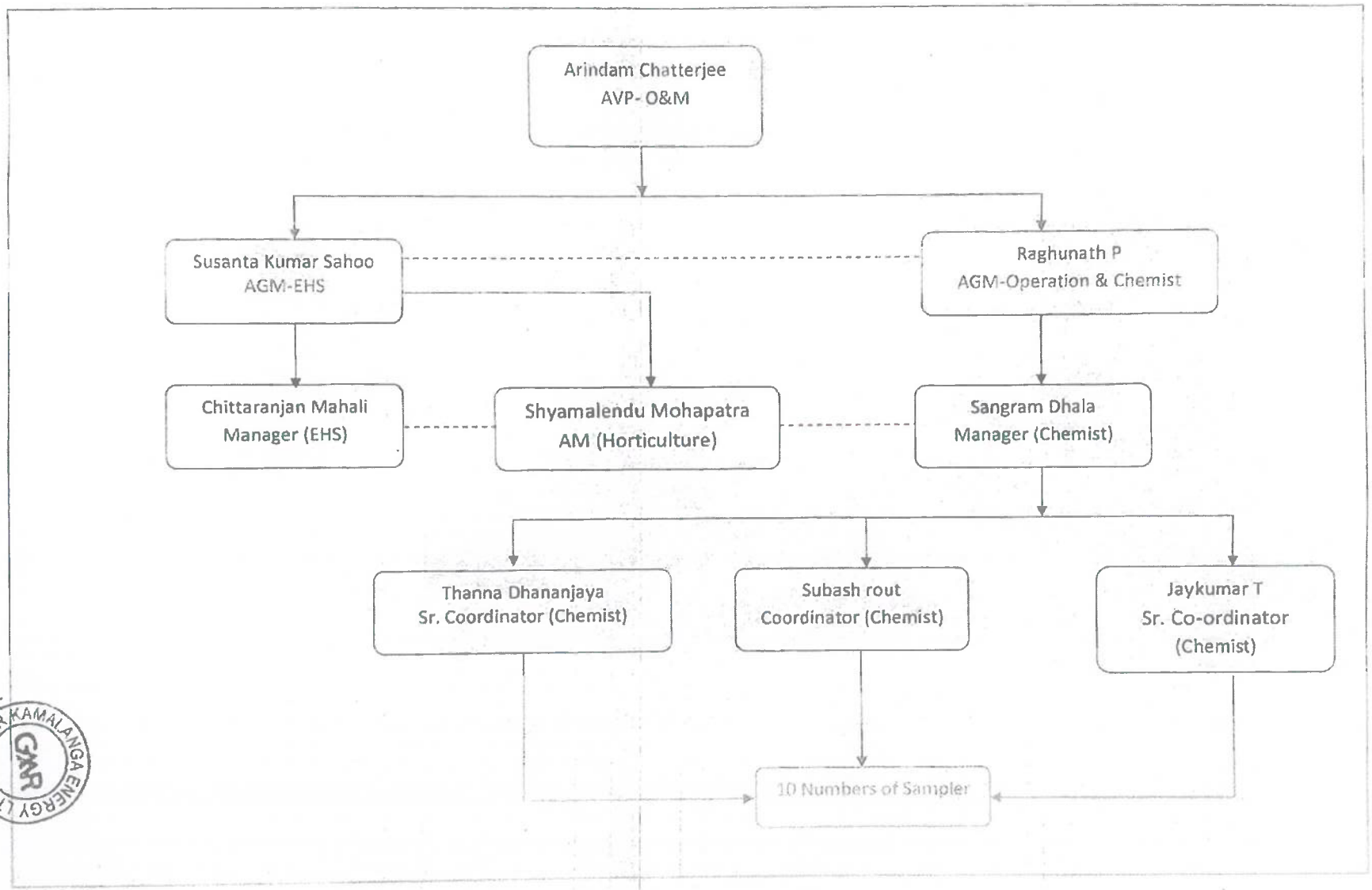
	Hexavalent Chromium as Cr +6 Copper as Cu Zinc as Zn Selenium as Se Cyanide as CN Fluoride as F Sulphates (SO4) Phenolic Compounds as C6H5OH Iron as Fe Nitrate as NO3	
	For AAQ Monitoring: PM 10 (particulate Matter size <10 microns)(µg/m3) PM 2.5 (particulate Matter size <2.5 microns)(µg/m3) Sulphur 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.

Annexure-XXII

Creating tomorrow today

ENVIRONMENT MANAGEMENT PLAN

For

GMR KAMALANGA ENERGY LIMITED

(4x350 MW THERMAL POWER PLANT)

DHENKANAL, ODISHA.

GMR KAMALANGA ENERGY LTD.

GMR KAMALANGA ENERGY LTD.

CORPORATE EHSQ POLICY & IMS POLICY

Group Environment, Health, Safety and Quality (EHSQ) Policy

We, at GMR Group with interests in diversified businesses, driven by our core Values & Beliefs, are committed to our stakeholders and meet customer satisfaction through integrated EHSQ management system to achieve Corporate Sustainability, in all our existing and future businesses.

To attain this objective, we shall

- Implement and maintain an integrated EHSQ management system to achieve sustainable performance
- Adopt and sustain a Business Excellence framework for continual business process improvement
- Protect environment, conserve natural resources, reduce energy consumption, improve occupational health and safety performance and mitigate risks by adopting optimal production processes and services, driven by environment friendly technologies
- Comply and endeavour to exceed all applicable legal and other requirements
- Continuously strive to achieve satisfaction of all stakeholders through contribution to social development
- Communicate effectively about the EHSQ system across the Group; create awareness and increase the competency of all employees through training
- Establish specific organizational structure for guidance, implementation and regular review of EHSQ management system

G M Rao
Group Chairman

15th June 2013
Revision 1

Effective from: 08-March-2013

GMR KAMALANGA ENERGY LTD.

GMR

GMR Kamalanga Energy Limited

Integrated Management System Policy
(ISO 9001:2015, ISO 14001:2015, ISO 45001:2018)

GMR Kamalanga Energy Limited is committed to establish and follow an Integrated Management System in line with the GMR Corporate EHSQ Policy and through which it aims to be amongst the sustainable and competitive producer of power in terms of quality, cost and delivery by focusing on total customer satisfaction with a commitment to maintain environment friendly, safe, healthy and sustainable working conditions in all its operations creating opportunities for people and wealth for all stake holders.

To achieve the above, our priorities lie in the following areas:

- Ensure Continual Improvement in processes through review mechanism & feedback system from all its stake holders.
- Comply all applicable legal and other requirements of Environment, Health & Safety with commitment, consultation & participation from entire chain of work force from all category and ensure continual improvement in EHS performance through management review.
- Ensure optimization of natural resources through continuous monitoring and review of our processes.
- Prevention of pollution, injury & ill health; and continual improvement in EHSQ performance by appropriate supervision, operational practices & Technologies.
- Involvement of employees at all levels to inculcate EHSQ culture by identifying Risks & opportunities for continual improvement in the processes.
- Provide Training & Learning to employees to ensure competence and awareness in order to effectively carry out the requirements of Integrated Management System.

Date: 1-Aug-19

S N Barde
CEO (Energy)
GMR Energy Limited

Effective from: 08-March-2013

GMR KAMALANGA ENERGY LTD.

TABLE OF CONTENTS

FIGURE/TABLE/ANNEXURE

GMR KAMALANGA ENERGY LTD.

1.1 INTRODUCTION

As a principal Employer, we consider Environment, Health & Safety Protection (EHS) as an integral part of our business. We are committed to protect the environment in which we operate and to ensure the health and safety of the employees, contractors, visitors and community. In addition to relevant statutory requirements, we have adopted these guidelines for all workmen and community in order to maintain the desired standards.

It is the responsibility of the contractors, GMR and Client's representatives to ensure that the workmen of contractors and any subcontractors are fully informed of the environment Management plan / procedures and that they follow it in their work.

We declare emission and discharge from all our activities/processes will be within the prescribed standards.

The GMR Kamalanga Energy Ltd., EHS team is the owner of this Environment Management Plan.

To revise this document, discuss your suggestion with the EHS team in writing and seek approval for change through the EHS team. If your proposal is accepted, this document will be revised to include your suggestion and then re-issued with the current revision and approvals posted on the cover sheet.

1.2 EHS Policy:

GMR GROUP has declared a written **Corporate Environment, Health, Safety and Quality Policy (EHSQ Policy)** signed by the GMR Group Chairman, appropriate to the scale and nature of the risks involved in the Project/ Process activities. This policy will be implemented in a transparent manner. All employees of GMR GROUP should be familiar with the EHSQ Policy and shall implement this policy in compliance with Safety, Health and Environmental standards and code of practices of its customers and in accordance with applicable law and regulations.

GMR KAMALANGA ENERGY LTD.

1.3 Environment Management Plan:

Prevention is better than cure. To achieve the objective of prevention of any environmental pollution/ hazard, awareness of Environment norms to be followed precautionary measures to be taken. This is possible only if all pollution control equipments established as per requirement, maintained properly, regular awareness/training programmes are conducted and actions taken in the light of Environment audits conducted from time to time.

1.4 Applicable Environment, Health and Safety Requirements:

The GMR Kamalanga Energy Ltd., employees and agencies shall be required to achieve compliance with the following applicable standards and also others if any as per requirement.

- The Environment (Protection) Act, 1986 as amended thereon,
- The Environment (Protection) Rules, 1986 as amended thereon, 2014,
- The Water (Prevention & Control of Pollution) Act, 1974,
- The Water (prevention and control of pollution) Cess Act, 1977,
- Air (Prevention & Control of Pollution) Act,1981,
- Public Liability Insurance Act, 1991,
- Noise Pollution (Regulation and Control) Rules, 2000 as amended thereon 2009,
- Ozone Depleting Substances (Regulation) Rules, 2000,
- Environmental Impact Assessment Notification 2006,
- Fly Ash Notification 1999 as amendment thereon 2009 and 2016,
- Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016,
- Batteries (Management and Handling) Rules, 2001 and 2011,
- Solid Waste Management Rules, 2016,
- e-Waste Management Rules, 2016,
- Construction and Demolition Waste Management Rules, 2016,
- Plastic Waste Management Rules 2016,
- Bio-Medical Waste Management Rules, 2016,
- Notified standards for industrial emissions, effluents, noise level, vehicular emission etc.
- The Indian Electricity Act 2003 & Indian Electricity Rules 1956,
- The Indian Explosive Act- 1984 Amended 1985 & Rules,
- The Motor Vehicle Act- 1988,
- Gas Cylinder Rules, 2004.
- Factories Act 1948 or any modifications thereof or any other law relating thereto and state rules there under introduced from time to time.

GMR KAMALANGA ENERGY LTD.

1.5 Responsibility:

The GKEL Management is committed for the protection of Environment. The Management acknowledges responsibility for promoting the highest environment protection standards and is committed in developing appropriate systems and procedures to achieve the objective of emission and discharge well within the prescribed standards.

2.1 Profile of Organization & Plant Details:

GMR Kamalanga Energy Ltd. (GKEL) is a SPV of GMR Energy Ltd. of Infrastructure major GMR Group. GMR Group has in its portfolio Airports, Power Plants, Urban Infrastructure, Highway and Agri Business. GMR Group spread its wings domestically and internationally in all sectors like Airport, Power plants, Infrastructure development.

2.2 Location and Accessibility

The power plant is proposed to be located at Village-Kamalanga, District -Dhenkanal, Odisha and has the following coordinates

Latitude : 200 51' 11.82'' N to 200 52' 33.2'' N

Longitude : 850 15' 24.84'' E to 850 16' 29.7'' E

Site Elevation : 65m to 75m AMSL

Total area of 1158.57 acres has been acquired for 4x350 MW. The topography of the site is moderately undulated with an average elevation of 70 m AMSL. The site is optimally suited for considering the topography and availability of fuel and water at the proximity.

Highway: NH 55 at a distance of 2.5 km and NH 23 at a distance of about 4.2 km from the project site.

Rail: The nearest railway station is Budhapank on Nirgundi –Talcher section of East Coast Railway, at a distance of about 2 Km.

Airport: The nearest airport is Bhubaneswar at a distance of 135 Km.

Port: Nearest port is Paradeep at a distance of 180 Km.

Water Source: River Brahmani is at 1.5 Km which is water source for the proposed project.

GMR KAMALANGA ENERGY LTD.

2.3 **Plant Details:-**The process for power generation system comprises of Boiler (steam generator), Turbine with accessories, Generator unit, Transformer and equipment's all arranged to operate as complementary parts of a complete monolithic set. The super saturated steam from the boilers of designated pressure and temperature drives the turbine thereby converting thermal energy into mechanical energy, which in turn drives the generator where mechanical energy is converted into electrical energy.

The salient features of the plant area -

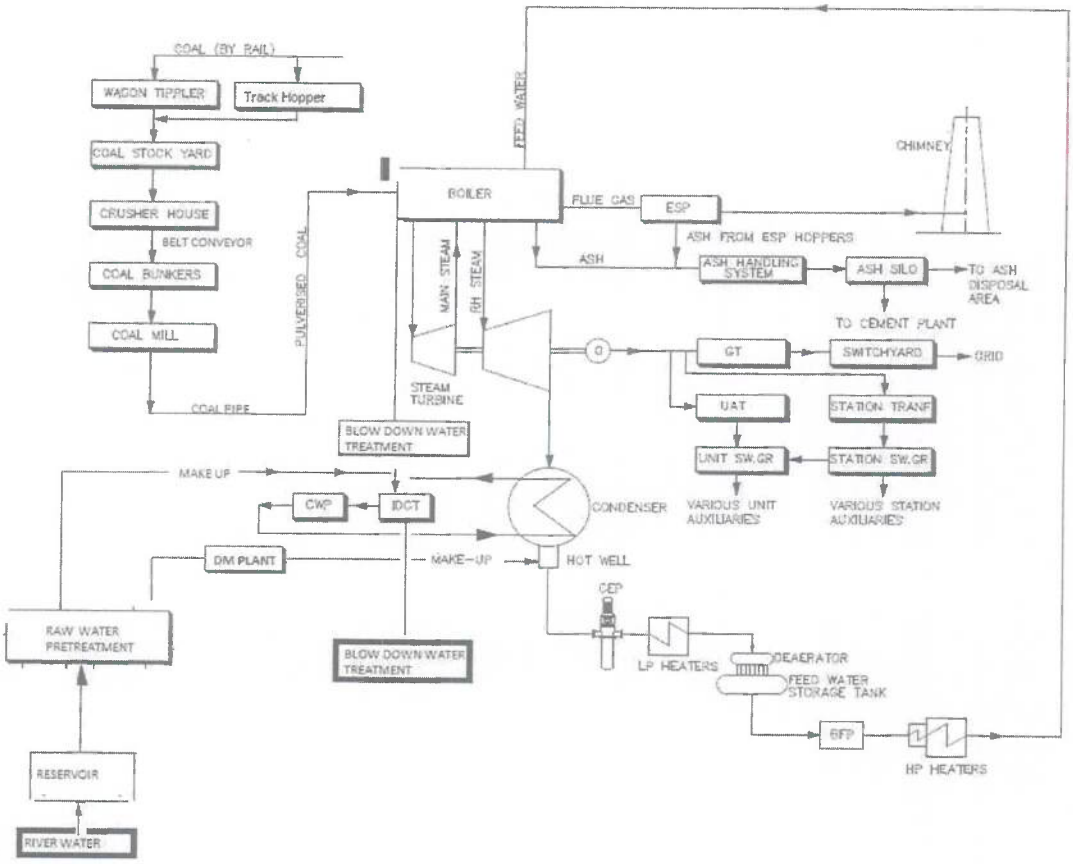
1. STEAM TURBINE - 4 x 350 MW
2. PF FIRED BOILERS - 4 x 1185 TPH
3. MULTI FLUE CHIMNEY - 2 x 275 METERS.
4. ESP - 4 NOS.
5. COAL HANDLING PLANT - 2000 TPH
6. TRACK HOPPER– 1, WAGON TIPPLER – 1, STACKER RE-CLAIMER - 2
7. ASH HANDLING WITH HCSD SYSTEM and ASH POND.
8. ASSOCIATED UTILITY SYSTEMS
9. RAW WATER RESERVOIR & RLY LINE.
10. FLY ASH BRICKS/BLOCK MAKING PLANT – 1 X 1000NOS./HOUR

Process flow sheet of the proposed power generation process is presented in Figure below.

The process for power generation system comprises of Boiler (steam generator), Turbine with accessories, Generator unit, Transformer and equipment's all arranged to operate as complementary parts of a complete monolithic set. The super saturated steam from the boilers of designated pressure and temperature drives the turbine thereby converting thermal energy into mechanical energy, which in turn drives the generator where mechanical energy is converted into electrical energy.

Coal from the coal mines in BOBR / Box wagons is transported by rail via Budhapank railway station and in plant rail tracks up to our coal yard. The coal wagons are weighed on in-motion weighing platforms before they are pneumatically discharged to the track hoppers/Wagon tippler.

Process Flow Diagram:-



Coal from the track hoppers is conveyed directly to the crusher building. Coal is crushed in the crushers from 300mm to 25mm or less as required for process. This crushed coal is conveyed up to the coal bunkers and stored there. Required amount of crushed coal is fed to the pulverizer mills through coal feeders. Pulverizer mills crush the coal to the required size for firing inside the boiler.

Natural circulation, drum type, two pass, radiant, single reheat, balanced draft, semi outdoor type coal fired steam generating units are used for steam generation. Initial lighting is achieved through the oil firing (First LDO followed by HFO) and subsequently the load gets transferred to coal firing on stabilization. Plant is deigned to use E grade coal (3300 Kcal/Kg) for better heat transfer. Boiler feed water for steam generation is recycled through condenser hot well, make up water requirement being

GMR KAMALANGA ENERGY LTD.

met by DM plant. Condenser cooling water requirement is made by the induced draft cooling water system in the plant.

The maximum rating for the boiler is 1185 TPH with final SH outlet steam temperature being 540^{0}C @178 Kg/Cm^2. In the steam coming out from the SH enters into the HP turbine where it gets expanded and returns back to RH at 326 ^{0}C @ 36.73 Kg/Cm^2 and comes out of RH outlet header at 540 ^{0}C @ 35.59 Kg/Cm^2. The steam from the header moves to IP turbine where it further expands and then moves towards LP turbine. After final expansion in LP turbine it moves to condenser where it changes its phase giving out its latent heat (hear steam converts in to water) and thus the cycle continues. In the second pass economizer utilize the heat from the flue gas and add this sensible heat to feed water there by increasing its temperature. The second pass also contains the low temperature SH which utilize the sensible heat of flue gas and increases the steam temperature to derive more work.

The turbine-generator converts the heat enthalpy to electrical energy through 400 kV switchyard of power station. Power distribution is achieved for end user areas via 33kV, 6.6 kV & 440 V sub-stations.

Suitable electro static precipitator receives the flue gas from steam generators. Dust collection efficiency has been so designed to keep the SPM level less than equal to 50 Mg/m^3. The collected dust from ESP hopper pneumatically conveyed with the support of the service air to ash storage silos. Bottom ash from boiler hoppers also conveyed and stored in dewatering beans in ash handling system. Ash handling system has provisions for dry ash unloading after suitably conditioning it and wet ash conveying to ash storage reservoir with help of high concentration slurry discharge system.

The whole plant is designed for Zero liquid discharge system. All excess liquid effluents will be treated for reuse in the process.

3.1 Air Environment

Coal based thermal power plants emit fly ash as the major pollutant besides varying degree of other pollutants namely: coal dust, Sulphur dioxide and oxides of nitrogen, carbon monoxide/carbon dioxide, heat etc.

The coal characteristics as considered in predication of impacts, i.e. sulfur: 0.36% and ash content: 33-44% as well as ESP efficiency (not less than 99.95%) shall be maintained in long run of project to restrict the ground level impacts within predicted levels.

GMR KAMALANGA ENERGY LTD.