

SIX MONTHLY COMPLIANCE REPORT OF ENVIRONMENT CLEARANCE (EC)

FOR

1370 MW (2x685MW) Thermal Power Plant

At

**Village Raikheda, Gaitara and Chicholi,
Tilda Block, Raipur District, Chhattisgarh**

Submitted to:

**West Central Zone, Regional Office
Ministry of Environment, Forests & Climate Change,
Central Pollution Control Board, New Delhi &
Chhattisgarh Environment Conservation Board, Raipur**



Submitted by:

Environment Management Department

Raipur Energen Limited

Village Raikheda, Block Tilda,
District Raipur, Chhattisgarh

October'2020 – March '2021

Table of Content

SL. No	Title	Annexures
1	Introduction	
2	Compliance status of Environment Clearances (EC)	
List of Annexures		
i.	Environmental Monitoring Reports	Annexure - I
ii.	Fly Ash Generation & Utilization details	Annexure - II
iii.	Green Belt/Plantation Details	Annexure - III
iv.	Detailed report of Corporate Social Responsibility (CSR)	Annexure - IV

Raipur Energen Limited
1370 MW (2x685 MW) Coal Based Thermal Power Plant

INTRODUCTION

Raipur Energen Limited (formerly known as GMR Chhattisgarh Energy Generation Limited) has set up a coal based Thermal Power Plant of capacity 2x685 MW at village Raikheda, Gaitara and Chicholi in Tilda block of Raipur District, Chhattisgarh.

Environmental Clearance has been granted by Hon'ble MoEF&CC to M/s GMR Energy Ltd. vide letter No. J-13012/62/2008-IA.II (T), dated 09/05/2011. It was subsequently amended vide letter dated 13.06.2013, 18.11.2014, 04.02.2015 and 09.12.2015.

The company has been taken over by Adani Power Ltd & name of the company has been changed from M/s GMR Chhattisgarh Energy Limited to Raipur Energen Limited with effect from 20th August 2019 and it is to note that Raipur Energen Limited is 100% subsidiary of M/s Adani Power Limited.

REL has also obtained transferred EC vide letter No. J-13012/62/2008-IA.II (T), dated 05.11.2019.

REL has a well-established Environmental Laboratory with equipped monitoring equipment, which used to monitor and test environmental parameters.

The company has adopted three peripheral villages and executing most of the CSR works which is supported by the Adani Foundation, in those villages in the field of their livelihood, infrastructure development, cleanliness, community health and education.

REL has engaged NABL Accredited Lab for their service of sampling, monitoring and analysis of Environmental parameters as per statutory guidelines.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

Compliance Status of Environmental Clearance

vide letter No. J-13012/62/2008-IA.II (T), dated: 09th May 2011 and amendment dated:
13.06.2013, 18.11.2014, 04.02.2015 & 09.12.2015.

Sl. No.	Conditions of EC	Compliance Status
A.	Specific Conditions	
(i)	Vision document specifying prospective plan for the site shall be formulated and submitted to the Ministry within six months.	Complied. The Vision document of the previous company was submitted with the previous compliance report. Name of the company has been changed to Raipur Energen Limited from 1 st July 2019 and company is now a subsidiary of Adani Power Limited.
(ii)	In case source of fuel supply now proposed to be run on imported coal from South Africa for running the power plant is proposed to be changed to domestic coal at a later stage, the project proponent shall apply for such a change in environmental clearance along with necessary documents as required under EIA notification, 2006 (and its amendments). In such a case the necessity for holding public hearing again or otherwise will be determined by the Ministry in consultation with the Expert Appraisal Committee (Thermal Power).	Being complied. Use of 100% domestic coal sourced from tolling linkage and open market. Talabira-1 Mine is not under operation as Mining Plan has expired and the revised mining plan is due for approval. Sulphur and Ash content of coal being used are within prescribed limits of MoEFCC & CECB.
(iii)	Provision for installation of FGD shall be provided for future use.	Complied. Space provision for FGD have been provided as per the guidelines of CPCB vide letter No. B-33014/07/2017/IPC-II/TPP/15848 dated 11.12.2017. However, as per MoEF&CC's Notification dated 31 st March 2021, Raipur TPP is falling under Category "C" Non- retiring TPPs and the timelines for compliance of SO ₂ emission is up to December 2024. Accordingly the work is under progress for compliance as per CPCB direction.
(iv)	Stack of 275 m height shall be installed and provided with continuous online monitoring equipment's for SO _x , NO _x , PM _{2.5} & PM ₁₀ . Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack may also monitored on periodic basis.	Complied. Stack Height of 275 meter has been provided. On-line continuous emission monitoring system (CEMS) has been installed for PM, SO ₂ & NO _x . Monitoring of Hg in stack emission is also carried out by authorized laboratory by MoEF & CC. The exit gas velocity is ensured @ 22m/sec.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

Sl. No.	Conditions of EC	Compliance Status
		The Environment Monitoring report is enclosed herewith as Annexure I .
(v)	High Efficiency Electrostatic Precipitators (ESPs) shall be installed followed by installation of Bag Filter and it shall be ensured that particulate emission does not exceed 50 mg.Nm ³ .	Complied. High efficiency Electrostatic Precipitators (ESP) has been considered to meet revised emission standard of <50 mg/ Nm ³ for PM. The monitoring report for stack emission is enclosed in Annexure I .
(vi)	Adequate dust extraction system such as cyclones, bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	Complied. Dust extraction system has been installed in coal crusher, AHP & coal bunker. Dust suppression system through dry fog method has been installed in coal conveyor transfer point & water spray system in coal yard has also been installed for dust suppression.
(vii)	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5 % and 34 % respectively at any given time. In case of variation of coal quality at any point of time fresh reference shall be made to MOEF for suitable amendments to environmental clearance condition wherever necessary.	Being Complied. Sulphur and Ash content in coal being used in project as fired coal is being ensured within prescribed standards < 0.7% and Ash content is within 34%.
(viii)	Transport of coal to the plant site shall be strictly by rail. The project proponent shall therefore immediately take up the matter with the Railways. Status of implementation shall be submitted to the Regional Office of the Ministry from time to time.	Complied. The transportation of Coal through rail has been started. Avenue plantation all along the road has already been done inside the plant premises.
(ix)	Existing de-generated water bodies (if any) within 5.0 Km of the site shall be regenerated at the project proponent's expenses in consultation with the state govt.	Complied. REL has regenerated around 6 numbers of Water bodies in nearby villages including 2 numbers of ponds are deepened and beautification has been done in consultation with state government.
(x)	The proponent shall sponsor a detailed study regarding water availability in Mahanadi River for all competing sources such as drinking, agriculture, industrial, minimum flow of water in the river during the lean season etc. through institutions like IIT, Delhi/IIT Roorkee. The draft terms of reference shall be submitted within three months which shall be finalized by the Expert Appraisal Committee. The	Complied. Water allocation is from Mahanadi River and maintained by WRD, Chhattisgarh. REL has no role in regulating the water flow downstream & distribution

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

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	preliminary report on the above study shall be submitted within one year.	
(xi)	The project proponent shall undertake proactive water harvesting measures and water storage for a larger period not less than 30 days storage shall be developed. The rain water harvesting system shall be put in place before commissioning of the plant. Central Groundwater Authority Board shall be consulted for finalization of appropriate rainwater harvesting technology design within a period of three months from the date of this clearance and details shall be furnished. The design of rain water harvesting shall comprise of rain water collection from the built up and open area in the plant premises. Action plan and road map for implementation shall be submitted to the Ministry within six months.	Rainwater harvesting design is approved by CGWA. Copy of approval letter is submitted to MoEF&CC. Rainwater harvesting system has been implemented & further improvement is ongoing.
(xii)	Hydrogeology in and around the project area shall be reviewed annually from an institute. organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case and deterioration is observed specific mitigation measures shall be undertaken and reports. data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.	Complied. The annual review of hydrogeology study has been carried out, and submitted with compliance report for the period of April'2020 to September'2020.
(xiii)	No ground water shall be extracted for use in operation of the power plant even in lean season.	Being Complied. Ground water is not used for operation of plant.
(xiv)	No water bodies (including natural drainage system) in the area shall be disturbed due to activities associated with the setting up. operation of the power plant.	Complied. No water bodies have been disturbed during construction & operational activity of the plant.
(xv)	Water requirement shall be optimized to around 32 MCM and shall accordingly adopt higher COC of at least not less than 5.0.	Complied. Water requirement is being restricted to 25 MCM. It has been incorporated in the plant design and COC is being maintained more than 5.0.
(xvi)	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the	Complied. REL has revised and optimized water requirements by reusing and recycling approaches, the water allotment has been

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

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	Channel. Rivers (as applicable) even in lean season.	reduced from 37 to 25 MCM per annum by Water Resource Department, Government of Chhattisgarh considering the minimum water flow requirement in the river.
(xvii)	Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr, As, Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project	Complied. Six nos. piezometers constructed around periphery of the ash pond. Seasonal monitoring of ground water level and quality is being done and monitoring data is being submitted to the MOEF, CPCB & CECB regularly. The ground water analysis data is attached in Annexure I .
(xviii)	Monitoring surface water quality in the region shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	Complied. Seasonal monitoring of Surface water is being done. The monitored data is being submitted to MOEF, CPCB & CECB regularly. The surface water analysis data is attached in Annexure I .
(xix)	Additional soil for levelling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.	Complied. Completed during construction phase. No major construction is being executed in operation phase.
(xx)	The project proponent shall undertake measures and ensure that no fugitive fly ash emissions take place at any point of time.	Complied. All the preventive measures have been ensured to restrict fugitive emission from fly ash.
(xxi)	Utilization of 100% Fly Ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	Complied. Fly ash is being supplied to nearest cement industries and brick manufacturer. Fly Ash generation and utilization is attached as Annexure II
(xxii)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the	Being Complied. Fly ash is being collected in dry form and unutilized fly ash is being disposed in dedicated ash storage ponds. As per MoEF & CC Office Memorandum dated 28 th August 2019, utilization of fly ash in low lying areas has been permitted and the existing condition

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

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	existing ash pond. No ash shall be disposed off in low lying area.	in Environmental Clearance may stand replaced, accordingly organization has started utilization of fly ash in low lying areas and land reclamation. Mercury and heavy metals are being monitored in bottom ash. No effluent is emanated from ash pond.
(xxiii)	Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	Complied. Ash ponds is constructed in the way that no leachate takes place any point of time.
(xxiv)	For disposal of Bottom Ash in abandoned mines (if proposed to be undertaken) shall be done after obtaining due permission from DGMS and after ensuring that the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	Noted. Compliance assured.
(xxv)	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 75 m width shall be raised. Tree density shall not less than 2500 per ha with survival rate not less than 80 %.	Complied. Plantation / Greenbelt development is being developed as per guidelines & in consultation with forest department for local species. Greenbelt Report is enclosed.
(xxvi)	At least three nearest village shall be adopted and basic amenities like development of roads, drinking water supply, primary health centre, primary school etc shall be developed in co-ordination with the district administration.	Complied. The Company undertakes various CSR activities with expenditure within the framework of the CSR Rules under the Companies Act. Community services in three nearby villages namely Raikheda, Chicholi & Gaitera is conducted with focus and Sontara, Gaurkheda and Murra village area also covered. The outreach is also expanded to other nearby villages namely Khamariya, Konari, Tulsi, Tarashiv, Bartori, Chatod and Samoda. The thematic area of work in villages is improving quality of education, access of health care and sanitation, empowerment and livelihood thought SHGs, individual income generation & community vocational training centre and community development.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

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		Please refer the attached annual report for latest updates as Annexure IV
(xxvii)	The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for providing potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	Being complied. The Company is undertaking CSR activities within 10 km radius area with focus on project affected and Railway siding villages namely Sontara, Gaurkheda, Khamariya, Konari Murra, Tulsi, Tarashiv, Bartori, Chatod located on western and northern boundary of the proposed plant. The development work in these villages is implemented in planned and time bound manner.
(xxviii)	A time bound implementation of the CSR shall be formulated within six months and submitted to the Ministry. While identifying CSR activities it shall be ensured that need based assessment for the nearby villages within study area shall be conducted to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people shall be undertaken. Development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. Vocational training programme for possible self-employment and jobs shall be imparted to identify villagers free of cost.	Being complied. CSR Plan for the villages is made as per local need and CSR activities are identified by Social work professionals employed exclusively for CSR through the company in consultation with communities and their representatives. Poorest of the poor families are identified basing village Panchayats statistics and special interventions have been planned for their up-liftment. Separate budget has been allocated for community development activities, income generation activities. Vocational training is being provided to youth for self-employment free of cost. We have started Pratibha Center for local youths. To increase access of youth to educational and employment opportunities through helping them become aware of and to prepare for these. To prepare youth to become self-reliant through education and employment opportunities at Pratibha centers. Please refer the attached annual report for latest updates as Annexure IV
(xxix)	An amount of Rs 33.16 Crores shall be earmarked as one time capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs 6.63 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six	Time bound implementation of CSR activities have been carried out & CSR budget has earmarked for CSR activities being implemented in nearby project villages.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

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	month along with road map for implementation.	
(xxx)	It shall be ensured that in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time	Complied. Annual review of Social Audit has been carried out in year 2020 by Indian Institute of Social Welfare and Business Management, Management House, College Square, West Kolkata. The report has already been submitted with compliance report for period of April'2020 to Spetember'2020
B.	General Conditions;	
(i)	The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. Arrangements shall be made that effluents and storm water do not get mixed.	Complied. The treated effluents conforming to the prescribed standards only are re-circulated and reused within the plant. Plant layout has been designed so that effluents and storm water do not get mixed. The ETP analysis report is attached as Annexure I.
(ii)	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt plantation.	Complied. A well-equipped Sewage Treatment Plant has been installed and is already operational. Treated Water is being used within plant premises for plantation & horticulture.
(iii)	Adequate safety measures shall be provided in the plant area to check minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the ministry.	Complied. Drawings & other details are already submitted to the MoEF&CC, Delhi as well as Regional Office, MoEF&CC.
(iv)	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	Complied. Approval for storage facilities for auxiliary liquid fuel such as LDO/ HFO/LSHS has been obtained from Department of Explosives, Nagpur and the same has been submitted. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan also is in place.
(v)	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied.
(vi)	Noise levels emanating for turbines shall be so controlled such that the noise in the work	Complied.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

Sl. No.	Conditions of EC	Compliance Status
	zone shall be limited to 85 dBA from the source. For people working in the high noise area, requisite personal protective equipment like ear plugs, ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc. shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non-noisy, less noisy areas.	Engineering control for noise such as acoustic enclosure, silencer have been installed in the turbine. Other than engineering controls, PPE's like ear plug, muff etc. are provided to workers in high noise area. Noise level monitoring report is attached in Annexure I .
(vii)	Regular monitoring of ambient air ground level concentration of SO ₂ , NO _x , PM _{2.5} & PM ₁₀ and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.	Complied. REL has installed three nos. of stationary AAQMS station at periphery of the plant for Ambient air quality monitoring. Environment Monitoring Data as part of the six-monthly compliance is being submitted to MoEF&CC and is also made available at company's website. https://www.adanipower.com/Downloads The ambient air quality monitoring report is attached as Annexure I .
(viii)	Provision shall be made for the housing of construction labor (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after completion of the project.	Complied.
(ix)	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project. one of which shall be in the vernacular language of the Quality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance an copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of environment and Forests at http://envfor.nic.in	Complied. Advertisement has been published in local daily News Papers & details submitted with previous compliance report.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

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(x)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad, Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions, representations. If any, receive while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Complied. The environment clearance letter is available at website of Adani Power. https://www.adanipower.com/Downloads
(xi)	An Environmental Cell comprising of at least one expert in environmental science, engineering, occupational health and social scientist, shall be created at the project site itself and shall be headed by an officer of appropriate superiority and qualification it shall be ensured that the Head the Cell shall directly report to the head of the organization and he shall be held responsible for implementation of environmental regulations and social impact improvement, mitigation measures.	Complied. REL has a well-established Environment Management Dept. headed by a competent experienced Manager with relevant academic qualification supported by Environmental Engineers, Chemist & Horticulturist. Environmental laboratory has already been established & is operational to monitor Environmental Quality Parameters for Ambient Air, Water, Stack emission monitoring etc.
(xii)	The proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely SPM, RSPM (PM2.5 & PM10), SO2, NOX (ambient levels as well as stack emissions) shall display at a convenient location near the main gate of the company in the public domain.	Complied. Display board has been installed at main gate of TPP. Environment compliance report will be uploaded in company website. www.adanipower.com/Downloads
(xiii)	The environment statement for each financial year ending 31 March in Form- V as is mandated to be submitted by the project proponent to the concerned: State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices at the Ministry.	Complied. The Environmental Statement Form V has been submitted vide Letter No, REL/EMD/Sept/72 dated 21 st September 2020.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

Sl. No.	Conditions of EC	Compliance Status
(xiv)	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	Being Complied. Six monthly compliance on the Environmental Clearance granted by MoEF is being submitted to MoEF, CPCB & CECB regularly. Compliance status updated on company's website. www.adanipower.com/Downloads Compliance report for the period of April'2020 to September'2020 had been submitted to your good office vide letter no.: REL/TPP/EMD/MoEF/EC/1125/20 dated 25.11.2020
(xv)	Regional Office of the Ministry of Environment, forest and climate change will monitor the implementation of the stipulated conditions. A complete set of documents including environmental impact Assessment Report and Environment Management Plan along with the additional, information submitted from time to time shall be forwarded to the regional office for their use during monitoring. Project proponent will upload the compliance status in their website and update the same from time to time at least six monthly basis Criteria pollutants levels including NOX (from stack & ambient air) shall be displayed at the main gate of the power plant.	Being Complied. EIA & EMP report with all necessary document & information are already submitted to RO, MoEF&CC and CECB.
(xvi)	Separate funds shall be allocated for implementation of environmental, protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	Complied. Separate fund has been already allocated for environmental protection.
(xvii)	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the date of start	Complied. Financial Closure granted on 10 th Dec'10. The Project development started after receiving Consent to establish dated 13 th Jun'11.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

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	of land development work a commissioning of plant.	
(xviii)	Full cooperation shall be extended to the Scientists/Officers from the Ministry Regional Office of the Ministry at Bangalore/CPCB/SPCB who would be monitoring the compliance of environmental status.	Noted. Full co-operation always extended.
Conditions of Amended EC dated 13.06.2013		
(v)	High Efficiency Electrostatic Precipitators (ESPs) shall be installed and it shall be ensured that particulate emission does not exceed 50 mg/Nm ³ "	Complied. High efficiency Electrostatic Precipitators (ESP) has been considered to meet revised emission standard of <50 mg/ Nm ³ for PM. The monitoring report for stack emission is enclosed as Annexure I.
(xxxii)	The GCV of the imported coal from South Africa shall not be less than 4911 Kcal/kg and the ash and sulphur contents shall not exceed the limits stated under: Ash contents: 33.7% Sulphur contents: 0.7%	Being Complied. Sulphur and Ash content in coal being used in project as fired coal is being ensured within prescribed standards <0.7% and Ash content is within 34%.
(xxxiii)	A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	Radioactivity analysis in coal and ash has been carried out by Board of Radiation and Isotope Technology (BRIT) Government of India,
(xxxiiii)	Continuous monitoring for heavy metals in and around the ash pond area shall be carried out through reputed institutes like IIT, Kanpur and records/ data maintained.	Being complied.
Conditions of Amended EC Extension dated 18.11.2014		
(i)	The coal transportation by road shall be through mechanically covered trucks to the extent feasible, else, shall be through tarpaulin covered trucks.	Complied. The transportation through rail is being done.
(ii)	Avenue plantation of 2/3 rows all along the road shall be carried out by the project proponent at its own expenses in consultation with the State Government Authorities.	Complied. The coal transportation through rail has been started. Avenue plantation all along the road has already been done inside the plant premises.
(iii)	Periodic maintenance of the road shall be done by the project proponent at its own expenses and shall facilitate the traffic	Complied after EC amendment. The coal transportation through rail has been started.

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

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	control on the road in consultation with the State Government Authorities.	Avenue plantation all along the road has already been done inside the plant premises.
(iv)	The PP shall advertise in the newspaper and place on the website, the amendment issued by the Ministry for public information.	Complied. Advertisement has been published in local daily News Papers. & details submitted with previous compliance report. Original Env. Clearance along with its amendment from time to time has been kept in public domain at the website of holding company https://www.adanipower.com/Downloads
(xxxiv)	Harnessing solar power within the premises of the plant particularly at available rooftops shall be undertaken and status of implementation shall be submitted periodically to the Regional Office of the Ministry.	Being Complied. The feasibility study has been done & the work is awarded to M/s Mundra Solar PV Limited (MSPVL).
(xxxv)	Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.	Complied. Greenbelt development report is attached as Annexure III .
(xxxvi)	The project proponent shall formulate a well-laid Corporate Environment Policy, identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.	Complied. REL has implemented ISO 14001:2015 under Integrated Management System consist of Environment, Health & Safety, Quality and Energy Management Systems. We have formulated a Corporate policy as per the requirement of Integrated Management System (IMS), Biodiversity Conservation Policy has already been framed and incorporated in existing IMS policy. REL has well established Environment Management Dept. which is headed by experience Manager & supported by Env. Engineer & Lab Chemist. Environmental laboratory has been established to monitor Environmental Quality Parameters for Ambient Air, Water, Stack emission monitoring etc. Environmental Management System as per EMS ISO 14001:2015 implemented under Integrated Management System.
Conditions of Amended EC Extension dated 04.02.2015		
(i)	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.7 % and 34% respectively for at any given time. In case of variation of coal quality at any point	Being Complied. Sulphur and Ash content in coal being used in project as fired coal is being ensured within

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

Sl. No.	Conditions of EC	Compliance Status
	of time, fresh reference shall be made to the Ministry for suitable amendments to environmental clearance condition wherever necessary.	prescribed standards of <0.7% and Ash content is within 34%.
(ii)	The PP shall advertise in the local newspapers and place on the website, the proposed amendment for public information.	Complied. Advertisement has been published in local daily News Papers. & details submitted with previous compliance report.
Conditions of Amended EC Extension dated 09.12.2015		
(i)	The Sulphur and ash contents in the coal shall not exceed 0.7 % and 34% respectively. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for consideration.	Being Complied. Sulphur and Ash content in coal being used in project as fired coal is being ensured within prescribed standards of 0.7% and Ash content is within 34%.
(ii)	The PP shall advertise in the local leading newspapers and place on the website, the proposed amendment of EC (after receipt from Ministry) for change in source of coal for public information.	Complied. Advertisement has been published in local daily News Papers & details already submitted along with compliance report.

EC amendment – MoEF&CC notification vide letter number S.O. 1561 (E) dated 21st May, 2020		
Sl. No.	Condition of Notification	Compliance Status
1)	Setting up technology solution for emission norms i) Compliance of specified emission norms for Particulate Matter, as per extent notifications and instructions of Central Pollution Control Board, issued from time to time. ii) In case of washeries, middling and rejects to be utilized in FBC (Fluidised Bed Combustion) technology based thermal power plant. Washery to have linkage for middling and rejects in Fluidised Bed Combustion plants.	Noted. i) Technology solutions are being implemented for mitigating fugitive emissions of Particulate Matter. ii) Washeries, middling and rejects are not applicable for this Thermal Power Plant.
2)	Management of Ash Ponds i) The thermal power plants shall comply with conditions, as notified in the Fly Ash notifications issued from time to time, without being entitled to additional capacity of fly ash pond (for existing power generation capacity) on ground of switching from washed coal to unwashed coal.	i) Noted & being complied. Fly ash is being supplied to nearest cement industries and brick manufacturer. Fly Ash generation and utilization is regularly submitted to MoEFCC, CPCB, CEA & CECB. Please refer Annexure II . ii) Water requirement is being restricted to 25 MCM. Optimization of water has

Raipur Energen Limited

1370 MW (2x685 MW) Coal Based Thermal Power Plant

	<p>ii) Appropriate Technology solutions shall be applied to optimise water consumption for Ash management.</p> <p>iii) The segregation of ash may be done at the Electro- Static Precipitator stage, if required, based on site specific conditions, to ensure maximum utilisation of fly ash</p> <p>iv) Subject to 2(i) above, the thermal power plants to dispose fly ash in abandoned or working mines (to be facilitated by mine owner) with environmental safeguards.</p>	<p>been incorporated as part of plant design and COC is being maintained more than 5.0</p> <p>iii) Noted & being complied</p> <p>iv) Noted & will be complied as & when fly ash is disposed in abandoned or working mines.</p>
3)	<p>Transportation</p> <p>i) Coal transportation may be undertaken by covered Railway wagon (railway wagons covered by tarpaulin or other means) and/or covered conveyor beyond the mine area. However, till such time enabling Rail transport/conveyer beyond infrastructure is not available, road transportation may be undertaken in trucks, covered by tarpaulin or other means.</p> <p>ii) It shall be ensured by the thermal power plant that</p> <p>a) Rail siding facility or conveyer facility is set up at or near the power plant, for transportation by rail or conveyer; and</p> <p>b) If transportation by rail or conveyer facility is not available, ensure that the coal is transported out from the Delivery Point of the respective mine in covered trucks (by tarpaulin or other means), or any mechanized closed trucks by roads.</p>	<p>i) Noted & being complied. Rail siding facility has been made operational & coal is being transported through covered rail wagons</p> <p>ii)</p> <p>a) Rail siding facility has been made operational & coal is being transported through covered rail wagons</p> <p>b) Not applicable as Rail siding facility has been made operational & coal is being transported through covered rail wagons</p>

Environmental Monitoring Report



Submitted To:

M/s Raipur Energen Limited

Formerly GMR Chhattisgarh Energy Ltd.

Village: Raikheda, Block-Tilda, Dist.-Raipur (Chhattisgarh)

Conducted by:

M/s Vardan EnviroLab

Plot no. 82A, Sector-5, IMT Manesar, Gurugram (Haryana)

(Recognized by MoEF & CC, NABL Government of India)

PREFACE

The growing concern for environmental protection and the passing of various environmental legislations have increased the responsibilities of Ministry of Environment, Forests & Climate Change, Pollution Control boards in many folds. Besides enforcing the various environmental legislations MoEF&CC, CPCB & SPCB strive to propagate the necessity awareness regarding the various legal provisions and environmental protection measures in the country.

Electric Power scenario has occupied a significant place in the development program of the country. Development and environment can neither be separated nor ignored. In fact, they are complimentary to each other. These issues have become a concern of the community, particularly the environment impact due to industries in the developing countries.

However, the prerequisite for sustainable development is judicious planning of environmental status, likely impacts of the approach adopted on the environment including inhabitants of the locality, availability of the eco-friendly technology, emerging waste disposal and waste utilization processes, techniques of land reclamation for the restoration of aesthetic beauty and soon.

M/s Raipur Energen Limited, Formerly GMR Chhattisgarh Energy Ltd. Village: Raikheda, Block-Tilda, Dist.-Raipur (Chhattisgarh), India, has engaged M/S Vardan EnviroLab, Gurugram, (HR) to provide Environmental Services in respect of ambient air quality monitoring, stack emission, noise level monitoring & Sampling and Analysis of ground water quality, surface water quality, treated effluent sewage, effluent water from ETP, and soil for Raipur Energen Limited, Raipur district of Chhattisgarh, as per guidelines of MoEF & CC and CPCB Gazette notification.

M/S Vardan EnviroLab, Gurugram, (HR) has deployed entirely its own personnel, facilities and expertise for doing this service. Sampling / Monitoring Stations were identified by the Environmental Officer of Raipur Energen Limited, Raipur, The samples were analyzed partly at site and partly at our MoEF Recognized laboratory situated at Gurugram (HR).

*This report presents the data generated for the period from 15th Dec. 2020 to 19th Dec. 2020 , **i.e. for Third quarter which** includes sampling locations, Methodology, testing procedure and compilation for the Environmental parameters i.e. Air, Water, Soil & Noise with a view to evaluate the impact due to the thermal power plant activities.*

During the course of our operations for the above task, the staff and management of Raipur Energen Limited,. were extremely co-operative. We are grateful to them for their invaluable support and assistance rendered to us during the course of the sampling and monitoring.

Date :

Authorized Signatory

INDEX

Sr.No.	Contents	Page No.
1.0	Introduction	3
2.0	Project Profile	4
2.1	Topography and Drainage	4
2.2	Location	4
2.3	Climate	4
2.4	Communication	4
2.5	Location Map	5
3.0	Scope of Study and Methodology	6
3.1	Scope of Study	6
3.2	Methodology	6
3.2.1	Air Environment	6
3.2.2	Water Environment	6
3.2.3	Noise Environment	7
3.2.4	Soil	7
4.0	Sampling Location Map and Analysis Reports	8
4.1	Ambient Air Quality Monitoring	9 to 18
4.2	Noise Level Monitoring	19 to 27
4.3	Ground water Quality Analysis	28 to 48
4.4	Surface water Quality Analysis	49 to 61
4.5	Soil Quality Analysis	62-64
4.6	Effluent Sample Analysis Report	65-67
4.7	Stack Emission Analysis	68-72
5.0	Conclusion	73
5.1	Air Environment	73
5.2	Water Environment	73
5.3	Noise Environment	73

Chapter - 1.0

INTRODUCTION

M/s Raipur Energen Limited., a subsidiary of Adani Power, is a power generation company based at Raipur in the State of Chhattisgarh. Raipur Energen Limited., has commissioned its Thermal Power Plant 1370 MW (2x685 MW) Unit at Village Raikheda, Block -Tilda, Dist- Raipur, Chhattisgarh (India).

Raipur Energen Limited., is also committed towards the environment and the community it operates in. It has successfully implemented several community welfare schemes in the field of livelihood, infrastructure, community health and education which has so far benefited over 60,000 people from close to 75 villages.



Figure No.1. Raipur Energen Limited.

Chapter – 2.0

PROJECT PROFILE

2.1 Topography & Drainage

Topography of this area is generally undulating. The area is drained by Raikheda Talab approximately 2.5 km. away from plant in SW direction and Bangoli dam approximately 2 km. away from plant in SW direction. Mura Talab approximately 5 km. away from plant in South direction. Chhicholi Talab approximately 2 km. away from plant in East direction.

2.2 Location

Plant is bounded by Northern Latitudes of 21° 26' 23" to 21° 27' 48" and Eastern Longitude of 81° 50'34.6" to 81° 52'08.5". This area falls in the survey of India toposheet no. 64 G/14, 64 G/15 in parts(1:50000 Scale) The location of the Plant area is shown in **Fig. No. 2**

2.3 Climate

The climate of the area is Sub-tropical type. It is in the zone of humid tropic climate where temperature and humidity of air are very high. The temperature varies from the minimum - maximum temperature range between 29.5°C - 49 °C in summer, and 8°C - 25 °C in winter. The humidity varies from 35% to 82%. The annual average rainfall in the area is about 1300 mm.

2.4 Communication

The nearest railway station is Tilda, which is at a distance of ~14 Km towards West direction. The area is well connected with S.H. No. 9. Nearest Airport is Raipur ~32 km in SW direction. Nearest village is Raikheda ~ 1.5 km. in South direction and nearest town is Raipur ~31 km. in SW direction.

2.5 Location Map

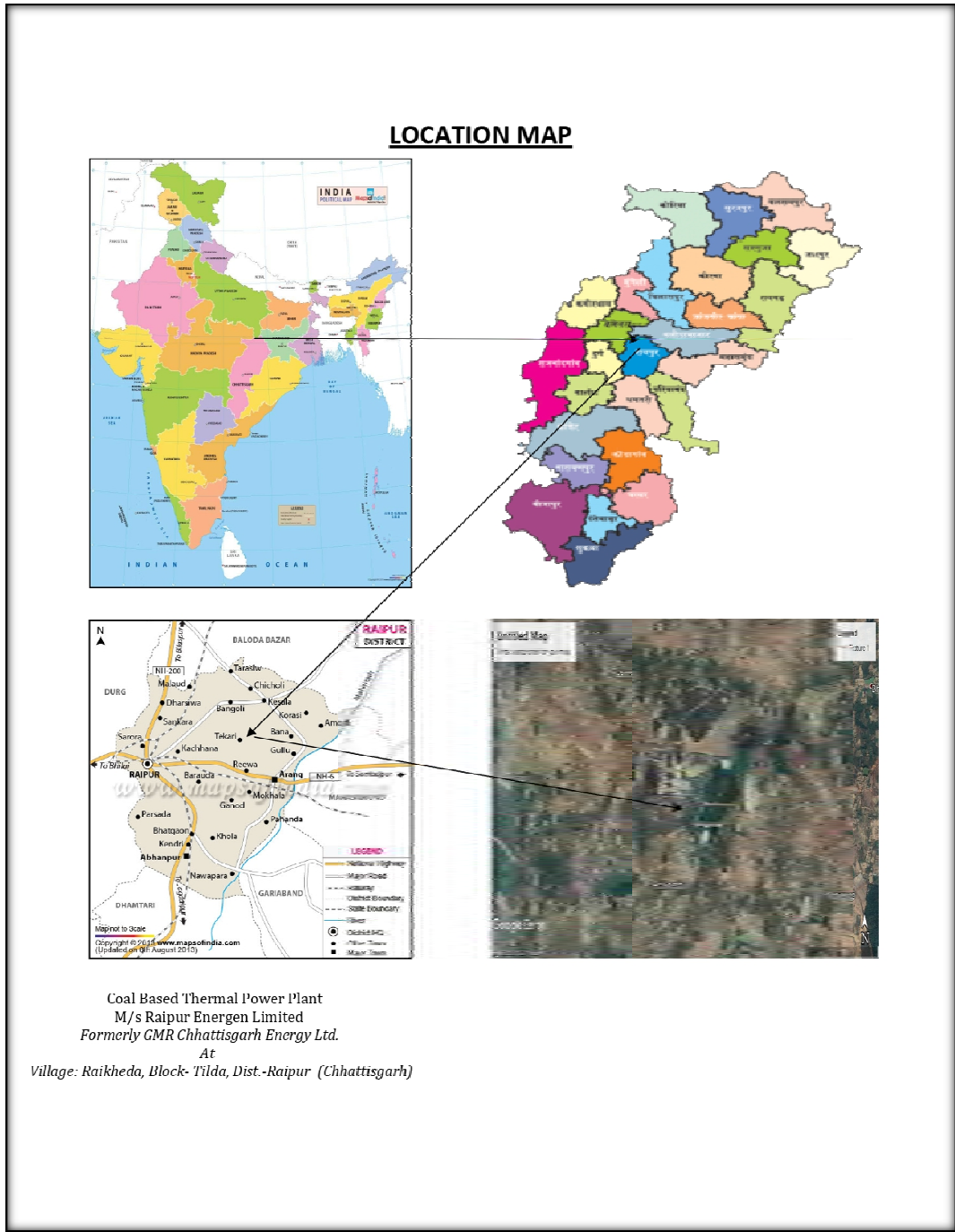


Figure No.2. Location Map

Chapter – 3.0

SCOPE OF STUDY AND METHODOLOGY

3.1 Scope of Study

The scope of study includes Environmental Services in respect of ambient air quality monitoring, noise level monitoring & Sampling and Analysis of ground water quality, surface water quality, treated effluent sewage, effluent water from ETP and soil.

3.2 Methodology

As mentioned in the scope of work covering the various Environmental components monitoring and sampling and its analysis was carried out on the basis of guidelines of Ministry of Environment Forest & Climate Control of Government of India & Chattisgarh State Pollution Control Board. Sampling procedure method reference and Analysis procedure method reference are mentioned in monitoring reports.

3.2.1 Ambient Air Quality Monitoring

The ambient air quality has been carried out at various sources of air pollution surrounding and in the Plant. The prime objective of the ambient air quality monitoring is to assess the existing air quality of the area.

The ambient air quality monitoring was carried out for 24 hours at each station. At all stations SO₂, NO₂, PM₁₀, PM_{2.5}, CO and Mercury were monitored. All the samples collected were analyzed for quantitative analysis of various pollutants.

The ambient air quality sampling locations were identified by the Environmental Officer of Raipur Energen Limited.

3.2.2 Water Environment

The ground water samples, surface water samples were collected from selected locations in two liter sterilized plastic cans. These samples were analyzed as per IS 10500:2012. The domestic effluent and Industrial effluent samples were collected and analyzed for parameters: pH, Total suspended solids, Biochemical Oxygen Demand, Chemical Oxygen Demand and Oil & Grease.

3.2.3 Noise Environment

Sound level meter was used to know the sound levels generated due to plant activities at different locations. The measurements were taken for Equivalent sound level over a time period for day and night which is expressed in dB(A).

3.2.4 Soil

The Soil samples were collected from selected locations. These samples were analyzed for Physico-Chemical parameters including heavy metals.

Chapter – 4.0

SAMPLING LOCATION MAP AND ANALYSIS REPORTS

4.1 Ambient Air Quality Monitoring



Figure No.3. Plan Showing Ambient Air Quality Location Map

Location Code: -

- A1- Raikheda Village
- A2- Mura Village
- A3- Near Doosan
- A4- Near STP
- A5- Chicholi Chatamura Chock



Test Report

Sample Number : AAQM - IV **Report No. :** VEL/A/2012230011/A
Name & Address of the Party : M/s Raipur Energen Limited **Format No :** 7.8 F-01
 Formerly GMR Chhattisgarh Energy Ltd. Village: **Party Reference No :** NIL
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh **Report Date :** 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020

Sample Description : AMBIENT AIR

General Information

Sampling Location : Village- Raikheda (Near Ramesh House)
Sample Collected by : VEL Team
Sampling Equipment used : RDS/FPS
Instrument Code : VEL/JAI/RDS/FPS/01
Instrument Calibration Status : Calibrated
Latitude : 21°27'34"
Longitude : 81°51'31"
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 18/12/2020 To 19/12/2020
Time of Monitoring : 09.00 to 09.00 Hrs.
Ambient Temperature (°C) : Min. 15° Max. 26°
Surrounding Activity : Human, Vehicular & Other Activities
Scope of Monitoring : Regulatory Requirement
Sampling & Analysis Protocol : IS :5182
Sampling Duration : 24 Hrs.
Parameter Required : As Per Work Order

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P- 23)-2006,RA. 2017	77.71	µg/m ³	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2019	36.20	µg/m ³	60
3	Nitrogen Dioxides (as NO ₂)	IS:5182 (P- 6)-2006 RA.2017	23.63	µg/m ³	80
4	Sulphur Dioxide (as SO ₂)	IS:5182 (P- 2)-2001, RA. 2017	11.76	µg/m ³	80
5	Ozone (as O ₃)	IS 5182 (P-9):1974 RA.2014	9.47	µg/m ³	180.0

*BDL-Below Detection Limit, **DL-Detection Limit

End of Report

(Checked By)





Test Report

Sample Number : AAQM - III
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh
Report No. : VEL/A/2012230012/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020

Sample Description : AMBIENT AIR

General Information

Sampling Location : Near STP
Sample Collected by : VEL Team
Sampling Equipment used : RDS/FPS
Instrument Code : VEL/JAI/RDS/FPS/01
Instrument Calibration Status : Calibrated
Latitude : 21°26'38"
Longitude : 81°51'50"
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/12/2020 To 16/12/2020
Time of Monitoring : 09.50 to 09.55 Hrs.
Ambient Temperature (°C) : Min. 15° Max. 26°
Surrounding Activity : Human, Vehicular & Other Activities
Scope of Monitoring : Regulatory Requirement
Sampling & Analysis Protocol : IS :5182
Sampling Duration : 24 Hrs.
Parameter Required : As Per Work Order

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P- 23)-2006,RA. 2017	74.18	µg/m ³	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2019	37.96	µg/m ³	60
3	Nitrogen Dioxides (as NO ₂)	IS:5182 (P- 6)-2006 RA.2017	19.75	µg/m ³	80
4	Sulphur Dioxide (as SO ₂)	IS:5182 (P- 2)-2001, RA. 2017	10.23	µg/m ³	80
5	Ozone (as O ₃)	IS 5182 (P-9):1974 RA.2014	9.47	µg/m ³	180.0

BDL-Below Detection Limit DL Detection Limit

End of Report

(Checked By)





Test Report

Sample Number : AAQM - V

Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/A/2012230013/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 31/12/2020

Period of Analysis : 23/12/2020-31/12/2020

Receipt Date : 23/12/2020

Sample Description : AMBIENT AIR

General Information

Sampling Location : Village - Mura (Near Petrol Pump)

Sample Collected by : VEL Team

Sampling Equipment used : RDS/FPS

Instrument Code : VEL/JAI/RDS/FPS/02

Instrument Calibration Status : Calibrated

Latitude : 21°26'23"

Longitude : 81°52'10"

Meteorological condition during monitoring : Clear Sky

Date of Monitoring : 18/12/2020 To 19/12/2020

Time of Monitoring : 09.30 to 09.20 Hrs.

Ambient Temperature (°C) : Min. 15° Max. 27°

Surrounding Activity : Human, Vehicular & Other Activities

Scope of Monitoring : Regulatory Requirement

Sampling & Analysis Protocol : IS :5182

Sampling Duration : 24 Hrs.

Parameter Required : As Per Work Order

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P- 23)-2006,RA. 2017	73.58	µg/m ³	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2019	36.22	µg/m ³	60
3	Nitrogen Dioxides (as NO ₂)	IS:5182 (P- 6)-2006 RA.2017	18.10	µg/m ³	80
4	Sulphur Dioxide (as SO ₂)	IS:5182 (P- 2)-2001, RA. 2017	10.93	µg/m ³	80
5	Ozone (as O ₃)	IS 5182 (P-9):1974 RA.2014	8.61	µg/m ³	180.0

BDL-Below Detection Limit DL Detection Limit

End of Report

(Checked By)

(Approved By)





Test Report

Sample Number : AAQM - II
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/A/2012230014/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020

Sample Description : AMBIENT AIR

General Information

Sampling Location : Near Doosan (Old Project)
Sample Collected by : VEL Team
Sampling Equipment used : RDS/FPS
Instrument Code : VEL/JAI/RDS/FPS/03
Instrument Calibration Status : Calibrated
Latitude : 21°27'14"
Longitude : 81°50'57"
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/12/2020 To 16/12/2020
Time of Monitoring : 09.40 to 09.45 Hrs.
Ambient Temperature (°C) : Min. 15° Max. 25°
Surrounding Activity : Human, Vehicular & Other Activities
Scope of Monitoring : Regulatory Requirement
Sampling & Analysis Protocol : IS :5182
Sampling Duration : 24 Hrs.
Parameter Required : As Per Work Order

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P- 23)-2006,RA. 2017	76.48	µg/m ³	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2019	36.53	µg/m ³	60
3	Nitrogen Dioxides (as NO ₂)	IS:5182 (P- 6)-2006 RA.2017	21.54	µg/m ³	80
4	Sulphur Dioxide (as SO ₂)	IS:5182 (P- 2)-2001, RA. 2017	12.31	µg/m ³	80
5	Ozone (as O ₃)	IS 5182 (P-9):1974 RA.2014	10.33	µg/m ³	180.0

BDL-Below Detection Limit DL Detection Limit

End of Report


 (Checked By)


 (Approved By)
 Authorised Signatory



Test Report

Sample Number : AAQM - II
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/A/2012230015/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020

Sample Description : AMBIENT AIR

General Information

Sampling Location : Village- Chicholi Chatamura Chock
Sample Collected by : VEL Team
Sampling Equipment used : RDS/FPS
Instrument Code : VEL/JAI/RDS/FPS/02
Instrument Calibration Status : Calibrated
Latitude : 21°27'14"
Longitude : 81°50'57"
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/12/2020 To 16/12/2020
Time of Monitoring : 09.40 to 09.45 Hrs.
Ambient Temperature (°C) : Min. 15° Max. 25°
Surrounding Activity : Human, Vehicular & Other Activities
Scope of Monitoring : Regulatory Requirement
Sampling & Analysis Protocol : IS :5182
Sampling Duration : 24 Hrs.
Parameter Required : As Per Work Order

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P- 23)-2006,RA. 2017	84.26	µg/m ³	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2019	38.30	µg/m ³	60
3	Nitrogen Dioxides (as NO ₂)	IS:5182 (P- 6)-2006 RA.2017	20.81	µg/m ³	80
4	Sulphur Dioxide (as SO ₂)	IS:5182 (P- 2)-2001, RA. 2017	11.31	µg/m ³	80
5	Ozone (as O ₃)	IS 5182 (P-9):1974 RA.2014	9.47	µg/m ³	180.0

BDL-Below Detection Limit DL Detection Limit

End of Report

(Checked By)

(Approved By)



4.2 Noise Level Monitoring



Figure No.4. Plan Showing Noise Level Monitoring Location Map

Ambient Noise Level Monitoring Locations

- Location Code: -
- N1- Admin Building
 - N2- Field Hostel
 - N3- Gate-1 Main gate
 - N4- Gate-2 Gaitara Gate
 - N5- Gate-3 Bhatapara
 - N6- Near Mura Village Gate
 - N7- Near OHC
 - N8- Near Weigh Bridge



Test Report

Sample Number : VEL/AN/01

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/N/2012230012/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 30/12/2020

Receipt Date : 23/12/2020

Sampling Duration : 24 Hrs.

Sample Collected by : VEL Team

Instrument : Calibrated

Calibration Status

Sample Description : Ambient Noise
Scope of Monitoring : Regulatory Requirement
Protocol Used : IS 9989; IS 9876
Instrument Used : SLM

General Information

Sampling Location : Near Gate No.- 1
Instrument Code : VEL/JAI/SLM/05
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/12/2020 To 16/12/2020
Time of Monitoring : 06.00 to 06.00 Hrs.
Ambient Temperature (°C) : Min. 22° Max. 30°
Surrounding Activity : Human, Vehicular & Other Activities
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB (A)	
			Day Time	Night Time
1	L max	IS: 9989-1981, IS 9876: 1981	65.9	55.6
2	L min	IS: 9989-1981, IS 9876: 1981	45.9	41.3
3	Leq	IS: 9989-1981, IS 9876: 1981	57.18	45.68

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM
3. Silence Zone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, loudspeaker and bursting of crackers is banned in these zones.
Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

(Checked By)





Test Report

Sample Number : VEL/AN/02

Report No. : VEL/N/2012230013/A

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 30/12/2020
Receipt Date : 23/12/2020
Sampling Duration : 24 Hrs.
Sample Collected by : VEL Team
Instrument : Calibrated
Calibration Status

Sample Description : Ambient Noise
Scope of Monitoring : Regulatory Requirement
Protocol Used : IS 9989; IS 9876
Instrument Used : SLM

General Information

Sampling Location : Field Hostel
Instrument Code : VEL/JAI/SLM/06
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/12/2020 To 16/12/2020
Time of Monitoring : 06.00 to 06.00 Hrs.
Ambient Temperature (°C) : Min. 22° Max. 30°
Surrounding Activity : Human, Vehicular & Other Activities
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB (A)	
			Day Time	Night Time
1	L max	IS: 9989-1981, IS 9876: 1981	64.3	51.8
2	L min	IS: 9989-1981, IS 9876: 1981	42.6	40.6
3	Leq	IS: 9989-1981, IS 9876: 1981	54.67	44.53

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM
3. SilenceZone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, ludspeaker and bursting of crackers is banned in these zones.
Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

(Checked By)





Test Report

Sample Number : VEL/AN/03
Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/N/2012230014/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 30/12/2020
Receipt Date : 23/12/2020
Sampling Duration : 24 Hrs.
Sample Collected by : VEL Team
Instrument : Calibrated
Calibration Status

Sample Description : Ambient Noise
Scope of Monitoring : Regulatory Requirement
Protocol Used : IS 9989; IS 9876
Instrument Used : SLM

General Information

Sampling Location : Gate No.-2 (Gaitara Gate)
Instrument Code : VEL/JAI/SLM/07
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/12/2020 To 16/12/2020
Time of Monitoring : 06.00 to 06.00 Hrs.
Ambient Temperature (°C) : Min. 22° Max. 30°
Surrounding Activity : Human, Vehicular & Other Activities
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB (A)	
			Day Time	Night Time
1	L max	IS: 9989-1981, IS 9876: 1981	65.2	52.5
2	L min	IS: 9989-1981, IS 9876: 1981	44.7	40.5
3	Leq	IS: 9989-1981, IS 9876: 1981	56.03	44.58

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

- Day Time is from 6.00 AM to 10.00 PM.
 - Night Time is reckoned between 10.00 PM to 6.00 AM
 - Silence Zone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, loudspeaker and bursting of crackers is banned in these zones.
- Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

(Checked By)





Test Report

Sample Number : VEL/AN/04

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/N/2012230015/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 30/12/2020

Receipt Date : 23/12/2020

Sampling Duration : 24 Hrs.

Sample Collected by : VEL Team

Instrument : Calibrated

Calibration Status

Sample Description : Ambient Noise
Scope of Monitoring : Regulatory Requirement
Protocol Used : IS 9989; IS 9876
Instrument Used : SLM

General Information

Sampling Location : Near Weigh Bridge
Instrument Code : VEL/JAI/SLM/08
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 15/12/2020 To 16/12/2020
Time of Monitoring : 06.00 to 06.00 Hrs.
Ambient Temperature (°C) : Min. 22° Max. 30°
Surrounding Activity : Human, Vehicular & Other Activities
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB (A)	
			Day Time	Night Time
1	L max	IS: 9989-1981, IS 9876: 1981	63.5	53.5
2	L min	IS: 9989-1981, IS 9876: 1981	44.9	40.4
3	Leq	IS: 9989-1981, IS 9876: 1981	55.48	44.69

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

- Day Time is from 6.00 AM to 10.00 PM.
 - Night Time is reckoned between 10.00 PM to 6.00 AM
 - SilenceZone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, loudspeaker and bursting of crackers is banned in these zones.
- Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

(Checked By)





Test Report

Sample Number : VEL/AN/05
Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/N/2012230016/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 30/12/2020
Receipt Date : 23/12/2020
Sampling Duration : 24 Hrs.
Sample Collected by : VEL Team
Instrument : Calibrated
Calibration Status

Sample Description : Ambient Noise
Scope of Monitoring : Regulatory Requirement
Protocol Used : IS 9989; IS 9876
Instrument Used : SLM

General Information

Sampling Location : Near Admin Building
Instrument Code : VEL/JAI/SLM/05
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 16/12/2020 To 17/12/2020
Time of Monitoring : 06.00 to 06.00 Hrs.
Ambient Temperature (°C) : Min. 20° Max. 32°
Surrounding Activity : Human, Vehicular & Other Activities
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB (A)	
			Day Time	Night Time
1	L max	IS: 9989-1981, IS 9876: 1981	69.2	53.3
2	L min	IS: 9989-1981, IS 9876: 1981	45.6	41.8
3	Leq	IS: 9989-1981, IS 9876: 1981	58.01	45.71

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM
3. Silence Zone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, loudspeaker and bursting of crackers is banned in these zones.
Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

(Checked By)





Test Report

Sample Number : VEL/AN/06
 Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/N/2012230017/A
 Format No : 7.8 F-01
 Party Reference No : NIL
 Report Date : 30/12/2020
 Receipt Date : 23/12/2020
 Sampling Duration : 24 Hrs.
 Sample Collected by : VEL Team
 Instrument : Calibrated
 Calibration Status

Sample Description : Ambient Noise
 Scope of Monitoring : Regulatory Requirement
 Protocol Used : IS 9989; IS 9876
 Instrument Used : SLM

General Information

Sampling Location : Near Mura Village Gate
 Instrument Code : VEL/JAI/SLM/06
 Meteorological condition during monitoring : Clear Sky
 Date of Monitoring : 16/12/2020 To 17/12/2020
 Time of Monitoring : 06.00 to 06.00 Hrs.
 Ambient Temperature (°C) : Min. 20° Max. 32°
 Surrounding Activity : Human, Vehicular & Other Activities
 Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB (A)	
			Day Time	Night Time
1	L max	IS: 9989-1981, IS 9876: 1981	65.1	55.4
2	L min	IS: 9989-1981, IS 9876: 1981	45.9	40.8
3	Leq	IS: 9989-1981, IS 9876: 1981	54.01	44.63

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
 2. Night Time is reckoned between 10.00 PM to 6.00 AM
 3. Silence Zone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, loudspeaker and bursting of crackers is banned in these zones.
- Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

(Checked By)

(Approved By)



Test Report

Sample Number : VEL/AN/07

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/N/2012230018/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 30/12/2020

Receipt Date : 23/12/2020

Sampling Duration : 24 Hrs.

Sample Collected by : VEL Team

Instrument : Calibrated

Calibration Status

Sample Description : Ambient Noise
Scope of Monitoring : Regulatory Requirement
Protocol Used : IS 9989; IS 9876
Instrument Used : SLM

General Information

Sampling Location : Near OHC
Instrument Code : VEL/JAI/SLM/07
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 16/12/2020 To 17/12/2020
Time of Monitoring : 06.00 to 06.00 Hrs.
Ambient Temperature (°C) : Min. 22° Max. 32°
Surrounding Activity : Human, Vehicular & Other Activities
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB (A)	
			Day Time	Night Time
1	L max	IS: 9989-1981, IS 9876: 1981	63.5	52.8
2	L min	IS: 9989-1981, IS 9876: 1981	44.4	39.3
3	Leq	IS: 9989-1981, IS 9876: 1981	54.68	43.76

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

- Day Time is from 6.00 AM to 10.00 PM.
 - Night Time is reckoned between 10.00 PM to 6.00 AM
 - SilenceZone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, loudspeaker and bursting of crackers is banned in these zones.
- Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

(Checked By)





Test Report

Sample Number : VEL/AN/08

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/N/2012230019/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 30/12/2020

Receipt Date : 23/12/2020

Sampling Duration : 24 Hrs.

Sample Collected by : VEL Team

Instrument : Calibrated

Calibration Status

Sample Description : Ambient Noise
Scope of Monitoring : Regulatory Requirement
Protocol Used : IS 9989; IS 9876
Instrument Used : SLM

General Information

Sampling Location : Gate -3 (Bhatapora)
Instrument Code : VEL/JAI/SLM/08
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 16/12/2020 To 17/12/2020
Time of Monitoring : 06.00 to 06.00 Hrs.
Ambient Temperature (°C) : Min. 20° Max. 32°
Surrounding Activity : Human, Vehicular & Other Activities
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB (A)	
			Day Time	Night Time
1	L max	IS: 9989-1981, IS 9876: 1981	63.3	54.6
2	L min	IS: 9989-1981, IS 9876: 1981	45.9	40.9
3	Leq	IS: 9989-1981, IS 9876: 1981	53.22	43.20

Category of Zones	Leq in dB(A)	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Silence Zone	50	40

- Day Time is from 6.00 AM to 10.00 PM.
 - Night Time is reckoned between 10.00 PM to 6.00 AM
 - SilenceZone is defined as an area up to 100m around premises of Hospitals, Educational Institutions and Courts. Use of vehicle horn, loudspeaker and bursting of crackers is banned in these zones.
- Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

(Checked By)



4.3 Ground water Quality Analysis



Figure No.5. Plan Showing Ground Water Quality Monitoring Location Map

Location Code: -

GW1- Village- Craitara Hand Pump Water

GW2- Village – Raikhera Tap Water

GW3- Village- Chicholi Hand Pump Water

GW4- Near Field Hostel

GW5- Village- Mura Hand Pump Water



Test Report

Sample Number : VEL/GW//012/20-02

Name & Address of the Party : M/s Raipur Energen Limited

Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VELW/2012230033/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER

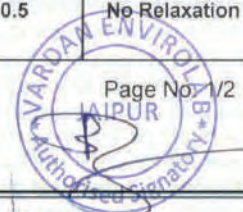
Location : Village- Craitara Hand Pump Water

Sample Collected by : VEL Team

Preservation : Suitable Preservation

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.52	--	6.5 to 8.5	No Relaxation
2	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	324.00	mg/l	500	2000
3	Total Alkalinity (as CaCO3)	IS: 3025 (Part 23): 1986, Reaff. 2019	197.80	mg/l	200	600
4	Total Hardness (as CaCO3)	IS: 3025 (Part 21): 2009, Reaff. 2019	218.36	mg/l	200	600
5	Nitrate (as NO3)	IS: 3025 (Part 34): 1988, Reaff. 2019	2.63	mg/l	45	No Relaxation
6	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	57.43	mg/l	250	1000
7	Sulphate (as SO4)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	17.23	mg/l	200	400
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019	79.26	mg/l	75	200
9	Magnesium (as Mg)	IS: 3025 (Part 46): 1994, Reaff. 2009 (EDTA method)	5.01	mg/l	30	100
10	Fluorides (as F)	APHA 23rd Edition 2017, 4500 FD	0.35	mg/l	1.0	1.5
11	Total Iron (as Fe)	IS 3025(P-53): 2003 Reaffirm 2019	0.23	mg/l	0.3	No Relaxation
12	Arsenic (as As)	APHA (23rd edition-2017), 3114 C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	0.05
13	Copper (as Cu)	APHA 23rd Edition Year 2017 Method No. 3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	1.5
14	Zinc (as Zn)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.20 mg/l)	mg/l	5.0	15
15	Selenium (as Se)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation
16	Turbidity	IS 3025 (Part 10): 1984, Ref: 2017, (Nephelometric Method)	*BDL(**DL 1.0 NTU)	NTU	1	5
17	Aluminium	IS 3025 (Part-55): 2003, Reaff. 2019	*BDL(**DL-0.03 mg/l)	mg/l	0.03	0.2
18	Manganese (as Mn)	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	*BDL(**DL-0.05 mg/l)	mg/l	0.1	0.3
19	Ammonia (as NH3)	IS-3025 (Part-34)- 1988, RA. 2019	*BDL(**DL-0.3 mg/l)	mg/l	0.5	No Relaxation





Test Report


Sample Number : VEL/GW//012/20-02

Report No. : VEL/W/2012230033/A

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
20	Boron (as B)	APHA 23rd Edition Year 2017 Method No. 4500B	*BDL(**DL-0.2 mg/l)	mg/l	0.5	1.0
21	Sulphide	IS: 3025 (Part 29): 1986, RA. 2009 Turbidity Method	*BDL(**DL-0.1 mg/l)	mg/l	200	400
22	Phenolic Compound	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l	0.001	0.002
23	Free Residual Chlorine	IS: 3025 (Part 26): 1986 RA 2019	*BDL(**DL-0.2 mg/l)	mg/l	0.2	1

*BDL-Below Detection Limit, **DL-Detection Limit.

End of Report


(Checked By)





Test Report

Sample Number : VEL/GW//012/20-02

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/W/2012230033/B

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER
Location : Village- Craitara Hand Pump Water
Sample Collected by : VEL Team
Preservation : Suitable Preservation
Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	Total Coliform (By MPN Method)	IS:1622	Absent	MPN/10 0 ml	Shall not be Detectable in any 100 ml sample	NA
2	E-Coli	IS:1622	Absent	per 100 ml	Absent/100 ml	Absent/100 ml
3	Cyanide (as CN)	APHA 23rd Edition 2017, 4500CN D	*BDL(**DL-0.05 mg/l)	mg/l	0.05	No Relaxation
4	Colour	IS 3025: 1983 (P-4) RA.. 2017	*BDL(**DL 1.0 Hazen)	Hazen Unit	5	15
5	Odour	IS 3025 (P-5): RA. 2018	Agreeable	Qualitative	Agreeable	Agreeable
6	Taste	IS 3025(P-8):1984 RA. 2017	Agreeable	Qualitative	Agreeable	Agreeable
7	Anionic Surface Active Agent	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l	0.2	1.0
8	Mineral Oil	IS 3025(P-39)	*BDL(**DL-0.05 mg/l)	mg/l	0.5	No Relaxation
9	Barium as (Ba)	APHA3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.7	No Relaxation
10	Faecal Caliform	IS:1622	Absent	MPN/10 0 ml	Shall not be Detectable in any 100 ml sample	

✓






Test Report

Sample Number : VEL/GW//012/20-02

Report No. : VEL/W/2012230033/B

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report


(Checked By)


(Approved By)



Test Report

Sample Number : VEL/GW//012/20-03
Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/W/2012230034/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 01/01/2021
Period of Analysis : 23/12/2021-01/01/2021
Receipt Date : 23/12/2020
Sampling Date : 14/12/2020
Sampling Quantity : 2 Ltr.
Sampling Type : Grab

Sample Description : GROUND WATER
Location : Village- Raikheda Tap Water
Sample Collected by : VEL Team
Preservation : Suitable Preservation
Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.32	--	6.5 to 8.5	No Relaxation
2	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	360.00	mg/l	500	2000
3	Total Alkalinity (as CaCO3)	IS: 3025 (Part 23): 1986, Reaff. 2019	215.00	mg/l	200	600
4	Total Hardness (as CaCO3)	IS: 3025 (Part 21): 2009, Reaff. 2019	230.72	mg/l	200	600
5	Nitrate (as NO3)	IS: 3025 (Part 34): 1988, Reaff. 2019	2.29	mg/l	45	No Relaxation
6	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	65.09	mg/l	250	1000
7	Sulphate (as SO4)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	18.92	mg/l	200	400
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019	80.91	mg/l	75	200
9	Magnesium (as Mg)	IS: 3025 (Part 46): 1994, Reaff. 2009 (EDTA method)	7.01	mg/l	30	100
10	Fluorides (as F)	APHA 23rd Edition 2017, 4500 FD	0.30	mg/l	1.0	1.5
11	Total Iron (as Fe)	IS 3025(P-53): 2003 Reaffirm 2019	0.15	mg/l	0.3	No Relaxation
12	Arsenic (as As)	APHA (23rd edition-2017), 3114 C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	0.05
13	Copper (as Cu)	APHA 23rd Edition Year 2017 Method No. 3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	1.5
14	Zinc (as Zn)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.20 mg/l)	mg/l	5.0	15
15	Selenium (as Se)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation
16	Turbidity	IS 3025 (Part 10): 1984, Ref: 2017, (Nephelometric Method)	*BDL(**DL 1.0 NTU)	NTU	1	5
17	Aluminium	IS 3025 (Part-55): 2003, Reaff. 2019	*BDL(**DL-0.03 mg/l)	mg/l	0.03	0.2
18	Manganese (as Mn)	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	*BDL(**DL-0.05 mg/l)	mg/l	0.1	0.3
19	Ammonia (as NH3)	IS-3025 (Part-34)- 1988, RA. 2019	*BDL(**DL-0.3 mg/l)	mg/l	0.5	No Relaxation





Test Report

Sample Number : VEL/GW//012/20-03

Report No. : VEL/W/2012230034/A

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
20	Boron (as B)	APHA 23rd Edition Year 2017 Method No. 4500B	*BDL(**DL-0.2 mg/l)	mg/l	0.5	1.0
21	Sulphide	IS: 3025 (Part 29): 1986, RA. 2009 Turbidity Method	*BDL(**DL-0.1 mg/l)	mg/l	200	400
22	Phenolic Compound	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l	0.001	0.002
23	Free Residual Chlorine	IS: 3025 (Part 26): 1986 RA 2019	*BDL(**DL-0.2 mg/l)	mg/l	0.2	1

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report


(Checked By)





Test Report

Sample Number : VEL/GW//012/20-03

Name & Address of the Party : M/s Raipur Energen Limited

Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/W/2012230034/B

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER

Location : Village- Raikheda Tap Water

Sample Collected by : VEL Team

Preservation : Suitable Preservation

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	Total Coliform (By MPN Method)	IS:1622	Absent	MPN/10 0 ml	Shall not be Detectable in any 100 ml sample	NA
2	E-Coli	IS:1622	Absent	per 100 ml	Absent/100 ml	Absent/100 ml
3	Cyanide (as CN)	APHA 23rd Edition 2017, 4500CN D	*BDL(**DL-0.05 mg/l)	mg/l	0.05	No Relaxation
4	Colour	IS 3025: 1983 (P-4) RA.. 2017	*BDL(**DL 1.0 Hazen)	Hazen Unit	5	15
5	Odour	IS 3025 (P-5): RA. 2018	Agreeable	Qualitative	Agreeable	Agreeable
6	Taste	IS 3025(P-8):1984 RA. 2017	Agreeable	Qualitative	Agreeable	Agreeable
7	Anionic Surface Active Agent	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l	0.2	1.0
8	Mineral Oil	IS 3025(P-39)	*BDL(**DL-0.05 mg/l)	mg/l	0.5	No Relaxation
9	Barium as (Ba)	APHA3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.7	No Relaxation
10	Faecal Caliform	IS:1622	Absent	MPN/10 0 ml	Shall not be Detectable in any 100 ml sample	



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Note: Terms & conditions refer on backside of test report.



Test Report

Sample Number : VEL/GW//012/20-03

Report No. : VELW/2012230034/B

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report


(Checked By)


(Approved By)



Test Report

Sample Number : VEL/GW//012/20-03

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/W/2012230035/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

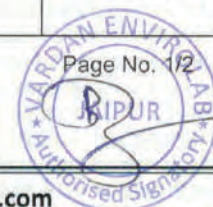
Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER
Location : Village- Chicholi Hand Pump Water
Sample Collected by : VEL Team
Preservation : Suitable Preservation
Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.56	--	6.5 to 8.5	No Relaxation
2	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	303.00	mg/l	500	2000
3	Total Alkalinity (as CaCO3)	IS: 3025 (Part 23): 1986, Reaff. 2019	184.90	mg/l	200	600
4	Total Hardness (as CaCO3)	IS: 3025 (Part 21): 2009, Reaff. 2019	189.52	mg/l	200	600
5	Nitrate (as NO3)	IS: 3025 (Part 34): 1988, Reaff. 2019	1.77	mg/l	45	No Relaxation
6	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	53.60	mg/l	250	1000
7	Sulphate (as SO4)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	19.43	mg/l	200	400
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019	66.05	mg/l	75	200
9	Magnesium (as Mg)	IS: 3025 (Part 46): 1994, Reaff. 2009 (EDTA method)	6.01	mg/l	30	100
10	Fluorides (as F)	APHA 23rd Edition 2017, 4500 FD	0.31	mg/l	1.0	1.5
11	Total Iron (as Fe)	IS 3025(P-53): 2003 Reaffirm 2019	0.16	mg/l	0.3	No Relaxation
12	Arsenic (as As)	APHA (23rd edition-2017), 3114 C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	0.05
13	Copper (as Cu)	APHA 23rd Edition Year 2017 Method No. 3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	1.5
14	Zinc (as Zn)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.20 mg/l)	mg/l	5.0	15
15	Selenium (as Se)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation
16	Turbidity	IS 3025 (Part 10): 1984, Ref: 2017, (Nephelometric Method)	*BDL(**DL 1.0 NTU)	NTU	1	5
17	Aluminium	IS 3025 (Part-55): 2003, Reaff. 2019	*BDL(**DL-0.03 mg/l)	mg/l	0.03	0.2
18	Manganese (as Mn)	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	*BDL(**DL-0.05 mg/l)	mg/l	0.1	0.3
19	Ammonia (as NH3)	IS-3025 (Part-34)- 1988, RA. 2019	*BDL(**DL-0.3 mg/l)	mg/l	0.5	No Relaxation





Test Report

Sample Number : VEL/GW//012/20-03

Report No. : VEL/W/2012230035/A

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
20	Boron (as B)	APHA 23rd Edition Year 2017 Method No. 4500B	*BDL(**DL-0.2 mg/l)	mg/l	0.5	1.0
21	Sulphide	IS: 3025 (Part 29): 1986, RA. 2009 Turbidity Method	*BDL(**DL-0.1 mg/l)	mg/l	200	400
22	Phenolic Compound	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l	0.001	0.002
23	Free Residual Chlorine	IS: 3025 (Part 26): 1986 RA 2019	*BDL(**DL-0.2 mg/l)	mg/l	0.2	1

*BDL-Below Detection Limit, **DL-Detection Limit.

End of Report


(Checked By)





Test Report

Sample Number : VEL/GW//012/20-03

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/W/2012230035/B

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

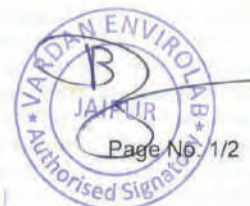
Sampling Type : Grab

Sample Description : GROUND WATER
Location : Village- Chicholi Hand Pump Water
Sample Collected by : VEL Team
Preservation : Suitable Preservation
Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	Total Coliform (By MPN Method)	IS:1622	Absent	MPN/100 ml	Shall not be Detectable in any 100 ml sample	NA
2	E-Coli	IS:1622	Absent	per 100 ml	Absent/100 ml	Absent/100 ml
3	Cyanide (as CN)	APHA 23rd Edition 2017, 4500CN D	*BDL(**DL-0.05 mg/l)	mg/l	0.05	No Relaxation
4	Colour	IS 3025: 1983 (P-4) RA.. 2017	*BDL(**DL 1.0 Hazen)	Hazen Unit	5	15
5	Odour	IS 3025 (P-5): RA. 2018	Agreeable	Qualitative	Agreeable	Agreeable
6	Taste	IS 3025(P-8):1984 RA. 2017	Agreeable	Qualitative	Agreeable	Agreeable
7	Anionic Surface Active Agent	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l	0.2	1.0
8	Mineral Oil	IS 3025(P-39)	*BDL(**DL-0.05 mg/l)	mg/l	0.5	No Relaxation
9	Barium as (Ba)	APHA3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.7	No Relaxation
10	Faecal Caliform	IS:1622	Absent	MPN/100 ml	Shall not be Detectable in any 100 ml sample	

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Note: Terms & conditions refer on backside of test report.





Test Report

Sample Number : VEL/GW//012/20-03

Report No. : VELW/2012230035/B

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report


(Checked By)





Test Report

Sample Number : VEL/GW//012/20-05

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/W/2012230036/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 15/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER

Location : Near Field Hostel

Sample Collected by : VEL Team

Preservation : Suitable Preservation

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.36	--	6.5 to 8.5	No Relaxation
2	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	310.00	mg/l	500	2000
3	Total Alkalinity (as CaCO3)	IS: 3025 (Part 23): 1986, Reaff. 2019	163.40	mg/l	200	600
4	Total Hardness (as CaCO3)	IS: 3025 (Part 21): 2009, Reaff. 2019	168.92	mg/l	200	600
5	Nitrate (as NO3)	IS: 3025 (Part 34): 1988, Reaff. 2019	1.83	mg/l	45	No Relaxation
6	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	63.17	mg/l	250	1000
7	Sulphate (as SO4)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	16.05	mg/l	200	400
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019	49.54	mg/l	75	200
9	Magnesium (as Mg)	IS: 3025 (Part 46): 1994, Reaff. 2009 (EDTA method)	11.01	mg/l	30	100
10	Fluorides (as F)	APHA 23rd Edition 2017, 4500 FD	0.26	mg/l	1.0	1.5
11	Total Iron (as Fe)	IS 3025(P-53): 2003 Reaffirm 2019	0.15	mg/l	0.3	No Relaxation
12	Arsenic (as As)	APHA (23rd edition-2017), 3114 C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	0.05
13	Copper (as Cu)	APHA 23rd Edition Year 2017 Method No. 3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	1.5
14	Zinc (as Zn)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.20 mg/l)	mg/l	5.0	15
15	Selenium (as Se)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation
16	Turbidity	IS 3025 (Part 10): 1984, Ref: 2017, (Nephelometric Method)	*BDL(**DL 1.0 NTU)	NTU	1	5
17	Aluminium	IS 3025 (Part-55): 2003, Reaff. 2019	*BDL(**DL-0.03 mg/l)	mg/l	0.03	0.2
18	Manganese (as Mn)	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	*BDL(**DL-0.05 mg/l)	mg/l	0.1	0.3
19	Ammonia (as NH3)	IS-3025 (Part-34)- 1988, RA. 2019	*BDL(**DL-0.3 mg/l)	mg/l	0.5	No Relaxation



Test Report

Sample Number : VEL/GW//012/20-05

Report No. : VELW/2012230036/A

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
20	Boron (as B)	APHA 23rd Edition Year 2017 Method No. 4500B	*BDL(**DL-0.2 mg/l)	mg/l	0.5	1.0
21	Sulphide	IS: 3025 (Part 29): 1986, RA. 2009 Turbidity Method	*BDL(**DL-0.1 mg/l)	mg/l	200	400
22	Phenolic Compound	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l	0.001	0.002
23	Free Residual Chlorine	IS: 3025 (Part 26): 1986 RA 2019	*BDL(**DL-0.2 mg/l)	mg/l	0.2	1

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report

(Checked By)

(Approved By)





Test Report

Sample Number : VEL/GW//012/20-05

Name & Address of the Party : M/s Raipur Energen Limited

Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VELW/2012230036/B

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 15/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER

Location : Near Field Hostal

Sample Collected by : VEL Team

Preservation : Suitable Preservation

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	Total Coliform (By MPN Method)	IS:1622	Absent	MPN/100 ml	Shall not be Detectable in any 100 ml sample	NA
2	E-Coli	IS:1622	Absent	per 100 ml	Absent/100 ml	Absent/100 ml
3	Cyanide (as CN)	APHA 23rd Edition 2017, 4500CN D	*BDL(**DL-0.05 mg/l)	mg/l	0.05	No Relaxation
4	Colour	IS 3025: 1983 (P-4) RA.. 2017	*BDL(**DL 1.0 Hazen)	Hazen Unit	5	15
5	Odour	IS 3025 (P-5): RA. 2018	Agreeable	Qualitative	Agreeable	Agreeable
6	Taste	IS 3025(P-8):1984 RA. 2017	Agreeable	Qualitative	Agreeable	Agreeable
7	Anionic Surface Active Agent	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l	0.2	1.0
8	Mineral Oil	IS 3025(P-39)	*BDL(**DL-0.05 mg/l)	mg/l	0.5	No Relaxation
9	Barium as (Ba)	APHA3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.7	No Relaxation
10	Faecal Caliform	IS:1622	Absent	MPN/100 ml	Shall not be Detectable in any 100 ml sample	

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Note: Terms & conditions refer on backside of test report.





Test Report

Sample Number : VEL/GW//012/20-05

Report No. : VEL/W/2012230036/B

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report


(Checked By)


(Approved By)



Test Report

Sample Number : VEL/GW/012/20-04

Name & Address of the Party : M/s Raipur Energen Limited

Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VELW/2012230037/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER

Location : Village- Mura Hand Pump Water

Sample Collected by : VEL Team

Preservation : Suitable Preservation

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.48	--	6.5 to 8.5	No Relaxation
2	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	290.00	mg/l	500	2000
3	Total Alkalinity (as CaCO3)	IS: 3025 (Part 23): 1986, Reaff. 2019	172.00	mg/l	200	600
4	Total Hardness (as CaCO3)	IS: 3025 (Part 21): 2009, Reaff. 2019	177.16	mg/l	200	600
5	Nitrate (as NO3)	IS: 3025 (Part 34): 1988, Reaff. 2019	1.83	mg/l	45	No Relaxation
6	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	76.57	mg/l	250	1000
7	Sulphate (as SO4)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	20.10	mg/l	200	400
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019	62.75	mg/l	75	200
9	Magnesium (as Mg)	IS: 3025 (Part 46): 1994, Reaff. 2009 (EDTA method)	5.01	mg/l	30	100
10	Fluorides (as F)	APHA 23rd Edition 2017, 4500 FD	0.28	mg/l	1.0	1.5
11	Total Iron (as Fe)	IS 3025(P-53): 2003 Reaffirm 2019	0.15	mg/l	0.3	No Relaxation
12	Arsenic (as As)	APHA (23rd edition-2017), 3114 C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	0.05
13	Copper (as Cu)	APHA 23rd Edition Year 2017 Method No. 3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	1.5
14	Zinc (as Zn)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.20 mg/l)	mg/l	5.0	15
15	Selenium (as Se)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation
16	Turbidity	IS 3025 (Part 10): 1984, Ref: 2017, (Nephelometric Method)	*BDL(**DL 1.0 NTU)	NTU	1	5
17	Aluminium	IS 3025 (Part-55): 2003, Reaff. 2019	*BDL(**DL-0.03 mg/l)	mg/l	0.03	0.2
18	Manganese (as Mn)	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	*BDL(**DL-0.05 mg/l)	mg/l	0.1	0.3
19	Ammonia (as NH3)	IS-3025 (Part-34)- 1988, RA. 2019	*BDL(**DL-0.3 mg/l)	mg/l	0.5	No Relaxation





Test Report

Sample Number : VEL/GW//012/20-04

Report No. : VEL/W/2012230037/A

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
20	Boron (as B)	APHA 23rd Edition Year 2017 Method No. 4500B	*BDL(**DL-0.2 mg/l)	mg/l	0.5	1.0
21	Sulphide	IS: 3025 (Part 29): 1986, RA. 2009 Turbidity Method	*BDL(**DL-0.1 mg/l)	mg/l	200	400
22	Phenolic Compound	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l	0.001	0.002
23	Free Residual Chlorine	IS: 3025 (Part 26): 1986 RA 2019	*BDL(**DL-0.2 mg/l)	mg/l	0.2	1

*BDL-Below Detection Limit, **DL-Detection Limit.

End of Report


(Checked By)





Test Report

Sample Number : VEL/GW//012/20-04

Name & Address of the Party : M/s Raipur Energen Limited

Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/W/2012230037/B

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER

Location : Village- Mura Hand Pump Water

Sample Collected by : VEL Team

Preservation : Suitable Preservation

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	Total Coliform (By MPN Method)	IS:1622	Absent	MPN/100 ml	Shall not be Detectable in any 100 ml sample	NA
2	E-Coli	IS:1622	Absent	per 100 ml	Absent/100 ml	Absent/100 ml
3	Cyanide (as CN)	APHA 23rd Edition 2017, 4500CN D	*BDL(**DL-0.05 mg/l)	mg/l	0.05	No Relaxation
4	Colour	IS 3025: 1983 (P-4) RA.. 2017	*BDL(**DL 1.0 Hazen)	Hazen Unit	5	15
5	Odour	IS 3025 (P-5): RA. 2018	Agreeable	Qualitative	Agreeable	Agreeable
6	Taste	IS 3025(P-8):1984 RA. 2017	Agreeable	Qualitative	Agreeable	Agreeable
7	Anionic Surface Active Agent	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l	0.2	1.0
8	Mineral Oil	IS 3025(P-39)	*BDL(**DL-0.05 mg/l)	mg/l	0.5	No Relaxation
9	Barium as (Ba)	APHA3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.7	No Relaxation
10	Faecal Caliform	IS:1622	Absent	MPN/100 ml	Shall not be Detectable in any 100 ml sample	



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Note: Terms & conditions refer on backside of test report.



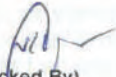
Test Report

Sample Number : VEL/GW//012/20-04

Report No. : VEL/W/2012230037/B

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report


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4.4 Surface water Quality Analysis



Figure. No. 6. Plan Showing Surface Water Quality Monitoring Location Map

Location Code: - SW1. Raikheda Talab

SW2. Bangoli Dam

SW3. Mura Talab

SW4. Chhicholi Talab



Test Report

Sample Number : VEL/SW//012/20-01

Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Name of the Project :

Sample Description : SURFACE WATER
 Location : Village- Raikheda (Pond Water)

Sample Collected by : VEL Team
 Parameter Required : As Per Work Order

Sampling and Analysis Protocol : IS 2296

Report No. : VEL/W/2012230029/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Preservation : Suitable Preservation

S.No.	Test Parameters	Test Method	Results	Units
1	pH value	IS 3025 (P-11): 1983 Reaff. 2017	7.31	--
2	Turbidity	IS 3025 (Part 10): 1984, Reaff: 2017, (Nephelometric Method)	2.00	NTU
3	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	146.00	mg/l
4	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	44.03	mg/l
5	Sulphate as (SO ₄)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	6.42	mg/l
6	Total Alkalinity (as CaCO ₃)	IS: 3025 (Part 23): 1986, Reaff. 2019	98.90	mg/l
7	Total Hardness (CaCO ₃)	IS: 3025 (Part 21): 2009, Reaff. 2019	86.52	mg/l
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019 (EDTA method)	29.72	mg/l
9	Magnesium	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	3.01	mg/l
10	Fluoride (as F)	APHA 23rd Edition 2017, 4500FD	0.23	mg/l
11	Nitrate (as NO ₃)	IS: 3025 (Part 34): 1988, Reaff. 2019 (Chromotropic Method)	1.11	mg/l
12	Phenolic compounds	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l
13	Dissolved oxygen	IS : 3025 (Part-38) : 1989, Ref: 2019	5.80	mg/l
14	Iron	IS:3025(P-53):2003,RA.2019:2003	0.17	mg/l
15	Zinc as (Zn)	APHA (23rd edition), 3030D,3113B	*BDL(**DL-0.20 mg/l)	mg/l
16	Copper (Cu)	APHA (23rd edition), 3111B	*BDL(**DL-0.02 mg/l)	mg/l
17	Manganese as Mn	APHA3111B	*BDL(**DL-0.05 mg/l)	mg/l





Test Report

Sample Number : VEL/SW//012/20-01

Report No. : VEL/W/2012230029/A

S.No.	Test Parameters	Test Method	Results	Units
18	Lead as Pb	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.005 mg/l)	mg/l
19	Arsenic as As	APHA (23rd edition), 3030D,3114C, 2017	*BDL(**DL-0.005 mg/l)	mg/l
20	Boron	APHA (23rd edition) 4500B, 2017	*BDL(**DL-0.2 mg/l)	mg/l
21	Selenium as Se	APHA (23rd edition),3114C, 2017	*BDL(**DL-0.005 mg/l)	mg/l
22	Cadmium as Cd	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.002 mg/l)	mg/l
23	Chromium as Cr	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.02 mg/l)	mg/l
24	Mercury as Hg	APHA (23rd edition),3114C, 2017	*BDL(**DL-0.0005 mg/l)	mg/l
25	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (Part-44): 1993, Ref: 2019	3.60	mg/l
26	Chemical Oxygen Demand (COD)	IS : 3025 (Part 58) : 2006fef: 2017	20.26	mg/l

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report


(Checked By)





Test Report

Sample Number : VEL/SW//012/20-01
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh
Name of the Project :
Sample Description : SURFACE WATER
Location : Village- Raikheda (Pond Water)
Sample Collected by : VEL Team
Parameter Required : As Per Work Order
Sampling and Analysis Protocol : IS 2296

Report No. : VEL/W/2012230029/B
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 01/01/2021
Period of Analysis : 23/12/2021-01/01/2021
Receipt Date : 23/12/2020
Sampling Date : 14/12/2020
Sampling Quantity : 2 Ltr.
Sampling Type : Grab
Preservation : Suitable Preservation

S.No.	Test Parameters	Test Method	Results	Units
1	Colour	IS 3025: 1987 (P-4) Reaff.2017	*BDL(**DL 1.0 Hazen)	Hazen
2	Odour	IS 3025 (P-5) : 2018	Agreeable	--
3	Anionic Surface active agents (as MBAS)	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l
4	Residual Free Chlorine	IS:3025(P-26):1986,RA:2019:1986	*BDL(**DL-0.2 mg/l)	mg/l
5	Cyanide as CN	APHA 4500 CN -D	*BDL(**DL-0.05 mg/l)	mg/l
6	Aluminium as Al	IS 3025 (P-55) 2003, RA 2019	*BDL(**DL-0.03 mg/l)	mg/l
7	O & G	IS 3025 (P-39) 1991, RA 2019	*BDL(**DL-0.5 mg/l)	mg/l

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report

(Checked By)

(Approved By)





Test Report

Sample Number : VEL/SW/012/20-03

Name & Address of the Party : M/s Raipur Energen Limited

Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Name of the Project :

Sample Description : SURFACE WATER

Location : Village- Chicholi (Pond Water)

Sample Collected by : VEL Team

Parameter Required : As Per Work Order

Sampling and Analysis Protocol : IS 2296

Report No. : VEL/W/2012230030/A

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Preservation : Suitable Preservation

S.No.	Test Parameters	Test Method	Results	Units
1	pH value	IS 3025 (P-11): 1983 Reaff. 2017	7.23	--
2	Turbidity	IS 3025 (Part 10): 1984, Reaff: 2017, (Nephelometric Method)	3.00	NTU
3	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	213.00	mg/l
4	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	67.00	mg/l
5	Sulphate as (SO4)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	20.27	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (Part 23): 1986, Reaff. 2019	133.30	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (Part 21): 2009, Reaff. 2019	156.56	mg/l
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019 (EDTA method)	46.24	mg/l
9	Magnesium	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	10.01	mg/l
10	Fluoride (as F)	APHA 23rd Edition 2017, 4500FD	0.29	mg/l
11	Nitrate (as NO3)	IS: 3025 (Part 34): 1988, Reaff. 2019 (Chromotropic Method)	6.24	mg/l
12	Phenolic compounds	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l
13	Dissolved oxygen	IS : 3025 (Part-38) : 1989, Ref: 2019	6.30	mg/l
14	Iron	IS:3025(P-53):2003,RA.2019:2003	0.24	mg/l
15	Zinc as (Zn)	APHA (23rd edition), 3030D,3113B	*BDL(**DL-0.20 mg/l)	mg/l
16	Copper (Cu)	APHA (23rd edition), 3111B	*BDL(**DL-0.02 mg/l)	mg/l
17	Manganese as Mn	APHA3111B	*BDL(**DL-0.05 mg/l)	mg/l



Test Report

Sample Number : VEL/SW//012/20-03

Report No. : VEL/W/2012230030/A

S.No.	Test Parameters	Test Method	Results	Units
18	Lead as Pb	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.005 mg/l)	mg/l
19	Arsenic as As	APHA (23rd edition), 3030D,3114C, 2017	*BDL(**DL-0.005 mg/l)	mg/l
20	Boron	APHA (23rd edition) 4500B, 2017	*BDL(**DL-0.2 mg/l)	mg/l
21	Selenium as Se	APHA (23rd edition),3114C, 2017	*BDL(**DL-0.005 mg/l)	mg/l
22	Cadmium as Cd	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.002 mg/l)	mg/l
23	Chromium as Cr	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.02 mg/l)	mg/l
24	Mercury as Hg	APHA (23rd edition),3114C, 2017	*BDL(**DL-0.0005 mg/l)	mg/l
25	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (Part-44): 1993, Ref: 2019	15.60	mg/l
26	Chemical Oxygen Demand (COD)	IS : 3025 (Part 58) : 2006fef: 2017	50.64	mg/l

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report

(Checked By)





Test Report

Sample Number : VEL/SW/012/20-03
 Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh
 Name of the Project :
 Sample Description : SURFACE WATER
 Location : Village- Chicholi (Pond Water)
 Sample Collected by : VEL Team
 Parameter Required : As Per Work Order
 Sampling and Analysis Protocol : IS 2296

Report No. : VEL/W/2012230030/B
 Format No : 7.8 F-01
 Party Reference No : NIL
 Report Date : 01/01/2021
 Period of Analysis : 23/12/2021-01/01/2021
 Receipt Date : 23/12/2020
 Sampling Date : 14/12/2020
 Sampling Quantity : 2 Ltr.
 Sampling Type : Grab
 Preservation : Suitable Preservation

S.No.	Test Parameters	Test Method	Results	Units
1	Colour	IS 3025: 1987 (P-4) Reaff.2017	2.00	Hazen
2	Odour	IS 3025 (P-5) : 2018	Agreeable	--
3	Anionic Surface active agents (as MBAS)	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l
4	Residual Free Chlorine	IS:3025(P-26):1986,RA:2019:1986	*BDL(**DL-0.2 mg/l)	mg/l
5	Cyanide as CN	APHA 4500 CN -D	*BDL(**DL-0.05 mg/l)	mg/l
6	Aluminium as Al	IS 3025 (P-55) 2003, RA 2019	*BDL(**DL-0.03 mg/l)	mg/l
7	O & G	IS 3025 (P-39) 1991, RA 2019	*BDL(**DL-0.5 mg/l)	mg/l

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report

(Checked By)

(Approved By)





Test Report

Sample Number : VEL/SW//012/20-04
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh
Name of the Project :
Sample Description : SURFACE WATER
Location : Bangoli Dam
Sample Collected by : VEL Team
Parameter Required : As Per Work Order
Sampling and Analysis Protocol : IS 2296

Report No. : VEL/W/2012230031/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 01/01/2021
Period of Analysis : 23/12/2021-01/01/2021
Receipt Date : 23/12/2020
Sampling Date : 14/12/2020
Sampling Quantity : 2 Ltr.
Sampling Type : Grab
Preservation : Suitable Preservation

S.No.	Test Parameters	Test Method	Results	Units
1	pH value	IS 3025 (P-11): 1983 Reaff. 2017	7.32	—
2	Turbidity	IS 3025 (Part 10): 1984, Reaff: 2017, (Nephelometric Method)	4.00	NTU
3	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	207.00	mg/l
4	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	61.26	mg/l
5	Sulphate as (SO ₄)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	30.41	mg/l
6	Total Alkalinity (as CaCO ₃)	IS: 3025 (Part 23): 1986, Reaff. 2019	129.00	mg/l
7	Total Hardness (CaCO ₃)	IS: 3025 (Part 21): 2009, Reaff. 2019	152.44	mg/l
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019 (EDTA method)	44.59	mg/l
9	Magnesium	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	10.01	mg/l
10	Fluoride (as F)	APHA 23rd Edition 2017, 4500FD	0.31	mg/l
11	Nitrate (as NO ₃)	IS: 3025 (Part 34): 1988, Reaff. 2019 (Chromotropic Method)	5.87	mg/l
12	Phenolic compounds	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l
13	Dissolved oxygen	IS : 3025 (Part-38) : 1989, Ref: 2019	5.70	mg/l
14	Iron	IS:3025(P-53):2003,RA.2019:2003	0.22	mg/l
15	Zinc as (Zn)	APHA (23rd edition), 3030D,3113B	*BDL(**DL-0.20 mg/l)	mg/l
16	Copper (Cu)	APHA (23rd edition), 3111B	*BDL(**DL-0.02 mg/l)	mg/l
17	Manganese as Mn	APHA3111B	*BDL(**DL-0.05 mg/l)	mg/l



Test Report

Sample Number : VEL/SWII/012/20-04

Report No. : VEL/W/2012230031/A

S.No.	Test Parameters	Test Method	Results	Units
18	Lead as Pb	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.005 mg/l)	mg/l
19	Arsenic as As	APHA (23rd edition), 3030D,3114C, 2017	*BDL(**DL-0.005 mg/l)	mg/l
20	Boron	APHA (23rd edition) 4500B, 2017	*BDL(**DL-0.2 mg/l)	mg/l
21	Selenium as Se	APHA (23rd edition),3114C, 2017	*BDL(**DL-0.005 mg/l)	mg/l
22	Cadmium as Cd	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.002 mg/l)	mg/l
23	Chromium as Cr	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.02 mg/l)	mg/l
24	Mercury as Hg	APHA (23rd edition),3114C, 2017	*BDL(**DL-0.0005 mg/l)	mg/l
25	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (Part-44): 1993, Ref: 2019	13.20	mg/l
26	Chemical Oxygen Demand (COD)	IS : 3025 (Part 58) : 2006ef: 2017	40.51	mg/l

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report

(Checked By)

(Approved By)





Test Report

Sample Number : VEL/SW//012/20-04	Report No. : VEL/W/2012230031/B
Name & Address of the Party : M/s Raipur Energen Limited Formerly GMR Chhattisgarh Energy Ltd. Village: Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh	Format No : 7.8 F-01 Party Reference No : NIL
Name of the Project :	Report Date : 01/01/2021
Sample Description : SURFACE WATER	Period of Analysis : 23/12/2021-01/01/2021
Location : Bangoli Dam	Receipt Date : 23/12/2020
Sample Collected by : VEL Team	Sampling Date : 14/12/2020
Parameter Required : As Per Work Order	Sampling Quantity : 2 Ltr.
Sampling and Analysis Protocol : IS 2296	Sampling Type : Grab
	Preservation : Suitable Preservation

S.No.	Test Parameters	Test Method	Results	Units
1	Colour	IS 3025: 1987 (P-4) Reaff.2017	3.00	Hazen
2	Odour	IS 3025 (P-5) : 2018	Agreeable	---
3	Anionic Surface active agents (as MBAS)	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l
4	Residual Free Chlorine	IS:3025(P-26):1986,RA:2019:1986	*BDL(**DL-0.2 mg/l)	mg/l
5	Cyanide as CN	APHA 4500 CN -D	*BDL(**DL-0.05 mg/l)	mg/l
6	Aluminium as Al	IS 3025 (P-55) 2003, RA 2019	*BDL(**DL-0.03 mg/l)	mg/l
7	O & G	IS 3025 (P-39) 1991, RA 2019	*BDL(**DL-0.5 mg/l)	mg/l

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report

(Checked By)

(Approved By)





Test Report

Sample Number : VEL/SW//012/20-02

Name & Address of the Party : M/s Raipur Energen Limited
Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Name of the Project :

Sample Description : SURFACE WATER
Location : Village- Mura (Pond Water)
Sample Collected by : VEL Team
Parameter Required : As Per Work Order
Sampling and Analysis Protocol : IS 2296

Report No. : VEL/W/2012230032/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 01/01/2021
Period of Analysis : 23/12/2021-01/01/2021
Receipt Date : 23/12/2020
Sampling Date : 14/12/2020
Sampling Quantity : 2 Ltr.
Sampling Type : Grab
Preservation : Suitable Preservation

S.No.	Test Parameters	Test Method	Results	Units
1	pH value	IS 3025 (P-11): 1983 Reaff. 2017	7.49	--
2	Turbidity	IS 3025 (Part 10): 1984, Reaff: 2017, (Nephelometric Method)	4.00	NTU
3	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	179.00	mg/l
4	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	47.86	mg/l
5	Sulphate as (SO4)	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	11.82	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (Part 23): 1986, Reaff. 2019	81.70	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (Part 21): 2009, Reaff. 2019	90.64	mg/l
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019 (EDTA method)	29.72	mg/l
9	Magnesium	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	4.01	mg/l
10	Fluoride (as F)	APHA 23rd Edition 2017, 4500FD	0.33	mg/l
11	Nitrate (as NO3)	IS: 3025 (Part 34): 1988, Reaff. 2019 (Chromotropic Method)	3.93	mg/l
12	Phenolic compounds	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l
13	Dissolved oxygen	IS : 3025 (Part-38) : 1989, Ref: 2019	5.60	mg/l
14	Iron	IS:3025(P-53):2003,RA.2019:2003	0.27	mg/l
15	Zinc as (Zn)	APHA (23rd edition), 3030D,3113B	*BDL(**DL-0.20 mg/l)	mg/l
16	Copper (Cu)	APHA (23rd edition), 3111B	*BDL(**DL-0.02 mg/l)	mg/l
17	Manganese as Mn	APHA3111B	*BDL(**DL-0.05 mg/l)	mg/l



Test Report

Sample Number : VEL/SW//012/20-02

Report No. : VEL/W/2012230032/A

S.No.	Test Parameters	Test Method	Results	Units
18	Lead as Pb	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.005 mg/l)	mg/l
19	Arsenic as As	APHA (23rd edition), 3030D,3114C, 2017	*BDL(**DL-0.005 mg/l)	mg/l
20	Boron	APHA (23rd edition) 4500B, 2017	*BDL(**DL-0.2 mg/l)	mg/l
21	Selenium as Se	APHA (23rd edition),3114C, 2017	*BDL(**DL-0.005 mg/l)	mg/l
22	Cadmium as Cd	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.002 mg/l)	mg/l
23	Chromium as Cr	APHA (23rd edition), 3030D,3113B, 2017	*BDL(**DL-0.02 mg/l)	mg/l
24	Mercury as Hg	APHA (23rd edition),3114C, 2017	*BDL(**DL-0.0005 mg/l)	mg/l
25	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (Part-44): 1993, Ref: 2019	6.00	mg/l
26	Chemical Oxygen Demand (COD)	IS : 3025 (Part 58) : 2006fef: 2017	30.38	mg/l

*BDL-Below Detection Limit, **DL-Detection Limit.

End of Report


(Checked By)


(Approved By)



Test Report

Sample Number : VEL/SW//012/20-02

Name & Address of the Party : M/s Raipur Energen Limited

Formerly GMR Chhattisgarh Energy Ltd. Village:
Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Name of the Project :

Sample Description : SURFACE WATER

Location : Village- Mura (Pond Water)

Sample Collected by : VEL Team

Parameter Required : As Per Work Order

Sampling and Analysis Protocol : IS 2296

Report No. : VEL/W/2012230032/B

Format No : 7.8 F-01

Party Reference No : NIL

Report Date : 01/01/2021

Period of Analysis : 23/12/2021-01/01/2021

Receipt Date : 23/12/2020

Sampling Date : 14/12/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Preservation : Suitable Preservation

S.No.	Test Parameters	Test Method	Results	Units
1	Colour	IS 3025: 1987 (P-4) Reaff.2017	4.00	Hazen
2	Odour	IS 3025 (P-5) : 2018	Agreeable	--
3	Anionic Surface active agents (as MBAS)	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l
4	Residual Free Chlorine	IS:3025(P-26):1986,RA:2019:1986	*BDL(**DL-0.2 mg/l)	mg/l
5	Cyanide as CN	APHA 4500 CN -D	*BDL(**DL-0.05 mg/l)	mg/l
6	Aluminium as Al	IS 3025 (P-55) 2003, RA 2019	*BDL(**DL-0.03 mg/l)	mg/l
7	O & G	IS 3025 (P-39) 1991, RA 2019	*BDL(**DL-0.5 mg/l)	mg/l

*BDL-Below Detection Limit,**DL-Detection Limit.

End of Report


(Checked By)



4.5 Soil Quality Analysis



Figure No. 8. Plan Showing Soil Sample Monitoring Location Map

Location Code: -

S1- Near Field Hostel



Test Report

Sample Number : VEL/S/12/20-01	Report No. : VEL/S0/2012230004/A
Name & Address of the Party : M/s Raipur Energen Limited Formerly GMR Chhattisgarh Energy Ltd. Village: Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh	Format No : 7.8 F-01 Party Reference No : NIL Report Date : 31/12/2020 Period of Analysis : 23/12/2020-31/12/2020
Sample Description : SOIL	Receipt Date : 23/12/2020
Location : Near Field Hostal	Sampling Date : 15/12/2020
Sample Collected by : VEL Team	Sampling Quantity : 2 Kg.
Parameter Required : As Per Work Order	Sampling Type : Composite
Sampling and Analysis Protocol : IS 2720, APHA & USDA	Packing Status : Temp. Sealed

S.No.	Parameters	Test Method	Results	Units
1	pH (at 25°C)	IS : 2720 (P- 26): 1987,RA: 2016	3.52	-
2	Electrical Conductivity	IS 14767: 2000 RA:2016	0.149	mS/cm
3	Bulk density	USDA:1954 (Page-96) RA: 2014	1.34	gm/cc
4	Chloride	USDA:1954 Method 13 (Page-98) RA: 2010	267.34	mg/kg
5	Calcium (as Ca)	Lab SOP no. VEL/STP/01: 2018	254.30	mg/kg
6	Sodium (as Na)	USDA:1954 Method 10A (Page-96) RA: 2010	139.10	mg/kg
7	Potassium (as K)	Lab SOP no. VEL/STP/01: 2018	89.02	kg/hect.
8	Organic Matter	IS 2720 (P-22) 1972 RA:2015	0.33	%
9	Magnesium (as Mg)	Lab SOP no. VEL/STP/01: 2018	167.55	mg/kg
10	Available Nitrogen (as N)	IS : 14684,1999 RA: 2015	255.89	kg. /hect.
11	Available Phosphorus	Lab SOP no. VEL/STP/01: 2018	41.50	kg. /hect.
12	Total Zinc (as Zn)	USEPA 3050 B: 1996	44.01	mg/kg
13	Total Manganese (as Mn)	USEPA 3050	170.05	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	14.02	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050	9.00	mg/kg
16	Total Copper (as Cu)	USEPA 3050 B: 1996	11.99	mg/kg

End of Report


(Checked By)


(Approved By)
Authorised Signatory



Test Report

Sample Number : VEL/S/12/20-01	Report No. : VEL/S0/2012230004/B
Name & Address of the Party : M/s Raipur Energen Limited Formerly GMR Chhattisgarh Energy Ltd. Village: Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh	Format No : 7.8 F-01 Party Reference No : NIL Report Date : 31/12/2020 Period of Analysis : 23/12/2020-31/12/2020
Sample Description : SOIL	Receipt Date : 23/12/2020
Location : Near Field Hostel	Sampling Date : 15/12/2020
Sample Collected by : VEL Team	Sampling Quantity : 2 Kg.
Parameter Required : As Per Work Order	Sampling Type : Composite
Sampling and Analysis Protocol : IS 2720, APHA & USDA	Packing Status : Temp. Sealed

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed,2010	Grey	-
2	Water holding capacity	USDA:1954-Reaffirmed,2010	20.97	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	6.22	mg/kg
4	Soil Texture	IS:2720 (P-4) RA:2006	Silty Clay	--

End of Report

(Checked By)



4.6 Effluent Sample Analysis Report



Locations

1. STP Outlet
2. ETP Outlet



TC-6852

Laboratory: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur (Rajasthan) 302020
 MoEF & CC Recognized | ISO 9001 | ISO 45001

Test Report

Sample Number : VEL/WW/15/20-02
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/WW/2012230008/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020
Sampling Date : 15/12/2020
Sampling Quantity : 2 Ltr.
Sampling Type : Grab
Packing Status : Temp. Sealed

Sample Description : Waste Water
Location : STP Outlet
Sample Collected by : VEL Team
Parameter Required : As Per Work Order
Sampling and Analysis Protocol : IS 3025

S.No.	Test Parameters	Test Method	Result	Unit	Prescribed Limit
1	pH	IS 3025 (P-11): 1983 RA2017	7.64	-	5.5 - 9.0
2	Total Suspended Solids	IS: 3025 (Part 17): 1984, RA2017	19.3	mg/l	100.0
3	Oil & Grease	IS 3025(P-39):1991 RA 2019	1.2	mg/l	10.0
4	BOD (3 days @ 27°C)	IS: 3025 (Part-44): 1993, RA: 2019	16.5	mg/l	30.0
5	COD	IS : 3025 (Part 58) : 2006 RA: 2017	91.2	mg/l	250.0

End of Report

(Checked By)

(Approved By)





Test Report

Sample Number : VEL/WWW/15/20-02	Report No. : VEL/WWW/2012230009/A
Name & Address of the Party : M/s Raipur Energen Limited Formerly GMR Chhattisgarh Energy Ltd. Village: Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh	Format No : 7.8 F-01 Party Reference No : NIL Report Date : 31/12/2020 Period of Analysis : 23/12/2020-31/12/2020
Sample Description : Waste Water	Receipt Date : 23/12/2020
Location : ETP Outlet	Sampling Date : 15/12/2020
Sample Collected by : VEL Team	Sampling Quantity : 2 Ltr.
Parameter Required : As Per Work Order	Sampling Type : Grab
Sampling and Analysis Protocol : IS 3025	Packing Status : Temp. Sealed

S.No.	Test Parameters	Test Method	Result	Unit	Prescribed Limit
1	pH	IS 3025 (P-11): 1983 RA2017	7.75	-	5.5 - 9.0
2	Total Suspended Solids	IS: 3025 (Part 17): 1984, RA2017	8.5	mg/l	100.0
3	Oil & Grease	IS 3025(P-39):1991 RA 2019	1.5	mg/l	10.0
4	BOD (3 days @ 27°C)	IS: 3025 (Part-44): 1993, RA: 2019	13.5	mg/l	30.0
5	COD	IS : 3025 (Part 58) : 2006 RA: 2017	70.9	mg/l	250.0

End of Report

(Checked By)

(Approved By)



4.7 Stack Emission Analysis Report

Locations

1. TPP (Unit-1)
2. TPP (Unit-2)



Test Report

Sample Number : VEL/S/01 **Report No. :** VEL/S/2012230007/A
Name & Address of the Party : M/s Raipur Energen Limited **Format No :** 7.8 F-01
 Formerly GMR Chhattisgarh Energy Ltd. Village: **Party Reference No :** NIL
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh **Report Date :** 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020

Sample Description : Stack Emission Monitoring

General Information

Sampling Location : TPP (Unit-I)
Sample Collected by : VEL Team
Date of Sampling : 15/12/2020
Sampling duration (Minutes) : 26 Min. (16.10 to 16.36 hrs.)
Stack attached to : ESP
Make of stack : MS Plate & RCC
Diameter of stack(m) : 7.5 M
Height of stack(m) : 275 M
Instrument calibration status : Calibrated
Meteorological Condition : Clear Sky
Ambient Temperature - Ta (°C) : 27
Temperature of Stack Gases - Ts (°C) : 131
Velocity of Stack Gases (m/sec.) : 27.4
Flow rate of PM (LPM) : 52
Flow rate of Gas (LPM) : 2.0
Sampling condition : Ok
Protocol used : IS 11255 & EPA

S.No.	Parameters	Test Method	Results	Units	Limits
1	Particulate Matter (as PM)	IS: 11255 (Part1) : 1985, RA 2014	39.92	mg/Nm3	50.0
2	Sulphur Dioxide (as SO2)	IS: 11255(P- 2): 1985, RA.2014	1153.63	mg/Nm3	--
3	Ammonia (as NH3)	IS: 11255 (P-6) : 1999, RA.2014	8.20	mg/Nm3	--
4	Hydrogen Sulphide	IS: 11255(Part 4): 2006 RA: 2017	2.10	mg/Nm3	--
5	Oxide of Nitrogen as NO2	IS-11255 P-7, RA 2017	321.52	mg/Nm3	--

BDL-Below Detection Limit DL Detection Limit

End of Report

(Checked By)





Test Report

Sample Number : VEL/S/01
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Sample Description : Stack Emission Monitoring

Report No. : VEL/S/2012230007/B
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020

General Information

Sampling Location : TPP (Unit-I)
Sample Collected by : VEL Team
Date of Sampling : 15/12/2020
Sampling duration (Minutes) : 26 Min. (16.10 to 16.36 hrs.)
Stack attached to : ESP
Make of stack : MS Plate & RCC
Diameter of stack(m) : 7.5 M
Height of stack(m) : 275 M
Instrument calibration status : Calibrated
Meteorological Condition : Clear Sky
Ambient Temperature - Ta (°C) : 27
Temperature of Stack Gases - Ts (°C) : 131
Velocity of Stack Gases (m/sec.) : 27.4
Flow rate of PM (LPM) : 52
Flow rate of Gas (LPM) : 2.0
Sampling condition : Ok
Protocol used : IS 11255 & EPA

S.No.	Parameters	Test Method	Results	Units	Limits
1	Water Vapor	Gas Analyzer	3.10	%	--
2	Carbon Monoxide (as CO)	Co By Analyzer	7.44	mg/Nm3	--
3	Carbon Dioxide	IS:13270, Orsat Analysis, RA:2005	7.40	%	--
4	Oxygen	SOP, SP-188, Issue No.01:2018	6.40	%	--
5	Mercury as Hg	APHA 3rd edition 2017, 303A (Page No. 365)	BDL(DL 0.005)	mg/Nm3	0.03

BDL-Below Detection Limit DL Detection Limit

End of Report


 (Checked By)


 (Approved By)
 Authorised Signatory



Test Report

Sample Number : VEL/S/02
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Sample Description : Stack Emission Monitoring

Report No. : VEL/S/2012230008/A
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020

General Information

Sampling Location : TPP (Unit-II)
Sample Collected by : VEL Team
Date of Sampling : 15/12/2020
Sampling duration (MInutes) : 33 Min. (15.25 to 15.58 hrs.)
Stack attached to : ESP
Make of stack : MS Plate & RCC
Diameter of stack(m) : 7.5 M
Height of stack(m) : 275 M
Instrument calibration status : Calibrated
Meteorological Condition : Clear Sky
Ambient Temperature - Ta (°C) : 28
Temperature of Stack Gases - Ts (°C) : 133
Velocity of Stack Gases (m/sec.) : 21.5
Flow rate of PM (LPM) : 41
Flow rate of Gas (LPM) : 2.0
Sampling condition : Ok
Protocol used : IS 11255 & EPA

S.No.	Parameters	Test Method	Results	Units	Limits
1	Particulate Matter (as PM)	IS: 11255 (Part1) : 1985, RA 2014	44.18	mg/Nm3	50.0
2	Sulphur Dioxide (as SO2)	IS: 11255(P- 2): 1986, RA.2014	1159.34	mg/Nm3	--
3	Ammonia (as NH3)	IS: 11255 (P-6) : 1999, RA.2014	7.42	mg/Nm3	--
4	Hydrogen Sulphide	IS: 11255(Part 4): 2006 RA: 2017	2.30	mg/Nm3	--
5	Oxide of Nitrogen as NO2	IS-11255 P-7, RA 2017	456.68	mg/Nm3	--

BDL - Below Detection Limit DL Detection Limit

End of Report

(Checked By)

(Approved By)





Test Report

Sample Number : VEL/S/02
Name & Address of the Party : M/s Raipur Energen Limited
 Formerly GMR Chhattisgarh Energy Ltd. Village:
 Raikheda, Block - Tilda, Dist. Raipur Chhattisgarh

Report No. : VEL/S/2012230008/B
Format No : 7.8 F-01
Party Reference No : NIL
Report Date : 31/12/2020
Period of Analysis : 23/12/2020-31/12/2020
Receipt Date : 23/12/2020

Sample Description : Stack Emission Monitoring

General Information

Sampling Location : TPP (Unit-II)
Sample Collected by : VEL Team
Date of Sampling : 15/12/2020
Sampling duration (Minutes) : 33 Min. (15.25 to 15.58 hrs.)
Stack attached to : ESP
Make of stack : MS Plate & RCC
Diameter of stack(m) : 7.5 M
Height of stack(m) : 275 M
Instrument calibration status : Calibrated
Meteorological Condition : Clear Sky
Ambient Temperature - Ta (°C) : 28
Temperature of Stack Gases - Ts (°C) : 133
Velocity of Stack Gases (m/sec.) : 21.5
Flow rate of PM (LPM) : 41
Flow rate of Gas (LPM) : 2.0
Sampling condition : Ok
Protocol used : IS 11255 & EPA

S.No.	Parameters	Test Method	Results	Units	Limits
1	Water Vapor	Gas Analyzer	3.30	%	--
2	Carbon Monoxide (as CO)	Co By Analyzer	8.24	mg/Nm3	--
3	Carbon Dioxide	IS:13270, Orsat Analysis, RA:2005	7.60	%	--
4	Oxygen	SOP, SP-188, Issue No.01:2018	6.80	%	--
5	Mercury as Hg	APHA 3rd edition 2017, 303A (Page No. 365)	BDL(DL 0.005)	mg/Nm3	0.03

BDL - Below Detection Limit DL Detection Limit

End of Report


 (Checked By)


 (Approved By)

Chapter – 5.0 CONCLUSION

RAIPUR ENERGEN LIMITED., authorities have been taken successful steps in controlling environmental pollution in and around the project. This fact is clear from analytical results of different environmental parameters. A brief conclusion is as follows.

Sr. No.	Environmental Parameters	Conclusion
5.1	Air Environment	After analysis of the samples from five different locations it is observed that both the individuals and average concentration of air pollutants in respect of SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5} , CO and Mercury are well within the prescribed limits of NAAQM standards. People of township and of surrounding villages do not have any problems regarding the air quality and have no grievances because of Thermal Power Plant activities.
5.2	Water Environment	The analytical result of the samples from the ground water of villages, surface water from river, and domestic & industrial effluent after treatment shows that the concentrations of different water parameters are well within prescribed limits and will not cause any adverse impact on human health and on surrounding area. People of surrounding areas express satisfaction about the water quality of That area.
5.3	Noise Environment	The observations taken at four village location during day and night time shows that the noise level are well within prescribed limits of CPCB. Hence there is no possibility of any adverse effect of noise generated due to Thermal Power Plant activities on peoples of Surrounding areas.

All the above details show that Thermal Power Plant of RAIPUR ENERGEN LIMITED. is not causing any adverse impact on the human health and ecological balance.

Raipur Energen Limited

Sl. No.	ASH GENERATION AND UTILIZATION (LMT)				MODE OF ASH UTILIZATION AND UTILIZATION IN EACH MODE (in LMT)					
	Month	Fly Ash Generation	Fly Ash Utilization	% age Utilization	In making of Fly Ash based Bricks / Blocks / Tiles etc.	In manufacture of Portland Pozzolana Cement	In construction of Highways & Roads including Flyovers	In reclamation of low lying area	In Mine Filling	In Agriculture /Waste Land Development
1	Oct-20	1.8698	1.6962	90.72%	0.0461	1.2731	0.0285	0.3485	0.0000	0.0000
2	Nov-20	1.8002	1.6569	92.04%	0.0388	1.1667	0.0114	0.4325	0.0075	0.0000
3	Dec-20	1.8556	1.8358	98.93%	0.0727	1.3166	0.0175	0.4110	0.0181	0.0000
4	Jan-21	1.8348	2.4818	135.26%	0.0945	1.7951	0.0171	0.5353	0.0397	0.0000
5	Feb-21	0.7704	1.4211	184.47%	0.0684	1.0492	0.0087	0.2824	0.0123	0.0000
6	Mar-21	1.2908	1.3569	105.12%	0.0509	0.9016	0.0097	0.3079	0.0869	0.0000
	Total	9.42154	10.44871	110.90%	0.37143	7.50232	0.0929	2.31762	0.164	0.000

Greenbelt Details

Sl. No.	Description	Quantity /Unit
1.	Plantation on 33% land of 850 acre	280 acre
2.	Density of plantation	2500 plants/ Hectare
3.	Area required per plant	4.0 SQM
4.	Total no. of plantation since commissioning	235200 Nos.
5.	Total no. of plantation in FY 2019-20	1,984
6.	Total no. of plantation in FY 2020-21	5,000
7.	Survival Rate	>70%
Plant species planted at Raipur Energen Limited, Raipur		
Sl. No.	Scientific Name	Common Name
1.	<i>Mangifera indica</i>	Mango
2.	<i>Azadirachta indica</i>	Neem
3.	<i>Ficus religiosa</i>	Pipal
4.	<i>Delonix regia</i>	Gulmohar
5.	<i>Millettia pinnata</i>	Karanj
6.	<i>Terminalia arjuna</i>	Arjun
7.	<i>Peltophorum pterocarpum</i>	Peltafarm
8.	<i>Syzygium cumini</i>	Jamun
9.	<i>Acacia mangium</i>	Arkesia
10.	<i>Roystonea regia</i>	Royal Palm
11.	<i>Phyllanthus emblica</i>	Amla
12.	<i>Artocarpus heterophyllus</i>	Jackfruit
13.	<i>Psidium guajava</i>	Guava



ADANI FOUNDATION – RAIPUR ANNUAL REPORT – 2020-21



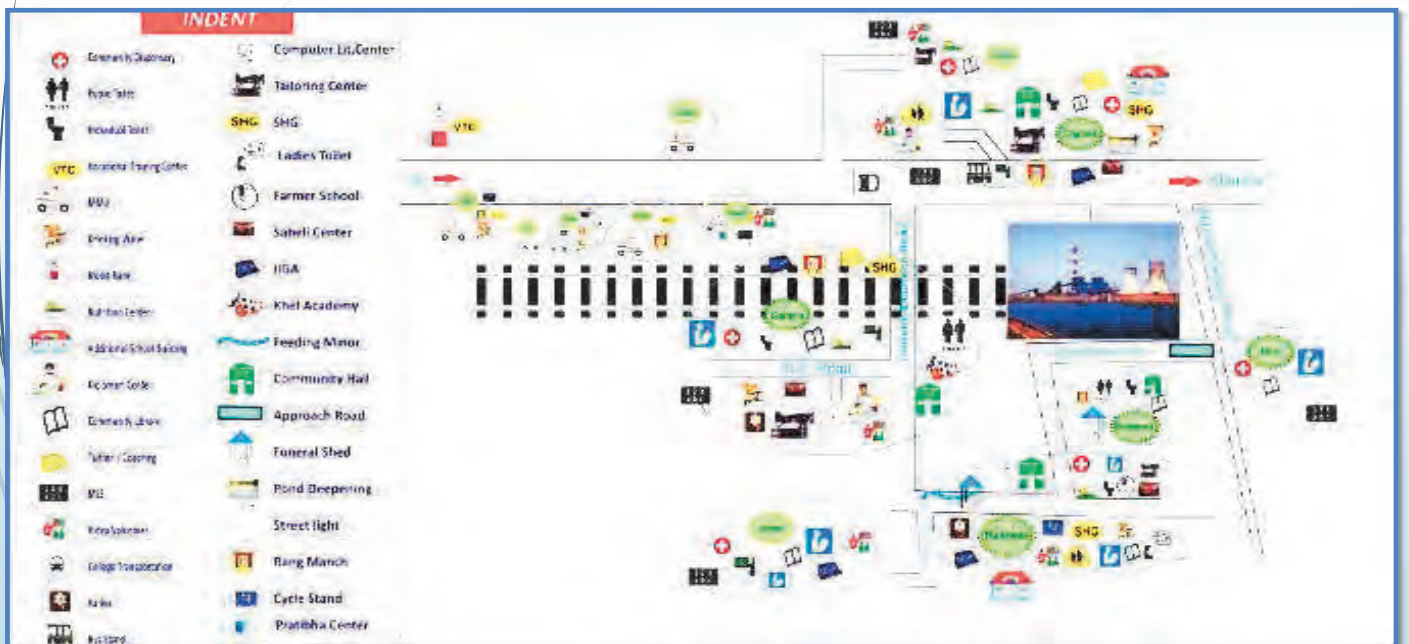
Site - RAIPUR ENERGEN LTD. RAIKHEDA

AR-20-21



AR-20-21

Program Interventions at a Glance

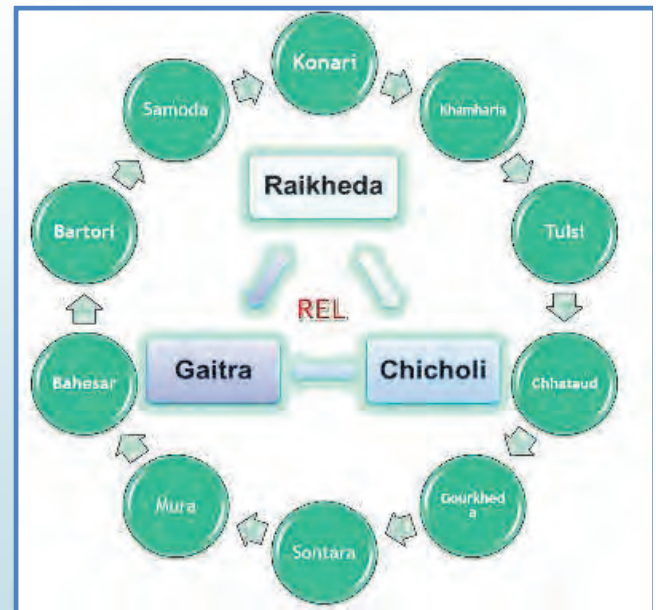


AR-20-21

Project Voyage

Adani power Ltd has acquired, 1370 MW supercritical thermal Power plant at Raikheda baptized Raipur Energen Ltd by. in July 2019 and carried forward the CSR interventions in PAV's & RAV's by Adani Foundation, Ahmedabad (AF) a CSR arm of Adani group of companies. Adani Foundation of Raipur Energen Ltd. (REL) mainly works in 13 villages & 12 Gram Panchayats, name Raikheda, Chicholi, Gaitra, Gourkheda, Sontara, Murra, Tulsi, Khamharia, Konari, Bartori, Tarashiv Chhataud and Samoda in Tilda and Aarang block of Raipur District in Chhattisgarh. Approximately 37,000 individuals are covered in all the villages.

The district is intensely dependent on agriculture. Majority of the population belongs to the other backward caste (OBC) and Scheduled Caste (SC) community. Around 80% of landowners are marginal farmers with less than 2 acres of agricultural land. They depend on single Kharif crop of Paddy.



AR-20-21

Pinnacles of CSR Programs

Measures initiated during Covid Pandemic

- 4500 kg Daal & 2500 kg Rice with vegetable & cooking oil donated to the Janpad Tilda & Raipur smart city.
- Total 27000 nose masks disseminated 4 gram panchayats with distt & Block administration & plant workers.
- Chemical sanitization done in 17 surrounding Nagar, Janpad, & Gram Panchayats named Tilda, Kharora, of Raipur district.
- Testing of body temperature to total 1700 workers & villagers conducted successfully
- Awareness banners of COVID-19 displayed at prominent locations of all 13 villages.

Education

- 4 Navodaya Coaching centers for Navodaya Entrance Examination.
- Transportation facility to the girls from the project affected villages to attend the college.
- Praya's career counselling & coaching center for the youths, recruitment in entrance exams.

Community Health,

- Mobile Medical Unit Services reached out to 13 PAV's & RAV's villages.
- Provided door to door medical services to elderly people too.
- Suposhan Program for PW,LW,AG & SAM, MAM children in 3 Panchayats under Suposhan.
- Health Awareness Programs & Specialized Health Camps in Community .
- Conducted awareness camps on personal hygiene and sanitation.
- Diyang Swawlamban Yojna conducted for Differently abled. 79 beneficiaries have received equipment's as per .

Empowerment and Livelihoods

- Provided support to youth in computer training at the Computer Literacy Center.
- Women & Girls skilled with an advanced tailoring course runs under ASDC Saksham.
- Women received bulk order to stitch petticoats & nighties from wholesaler of Raipur.
- Women of 4 SHG's supported under IGA for the sustainable livelihood.

AR-20-21

CSR Programs Overview

Start Date : Sustained interventions started from June'09. Scale up done in Railway siding Village in 2014-2015 and in village Samoda in 15-16.

Team : 1 Unit CSR Head, 1 Sr. Project Officer, 3 Project Officers in upkeep with group CSR & REL Management

Education

- Navodaya Coaching,
- Prayas -30.
- Digital literacy
- Noni Laari
- Gurusangi

Community Health,

- Mobile Medical Unit
- Suposhan project
- Health Awareness
- Specialized health camps

Sustainable Livelihood

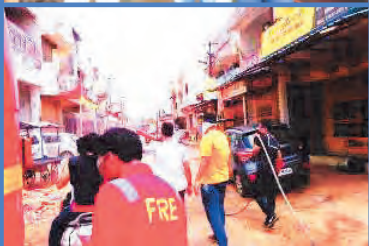
- IGA Support
- VTC training to youth,
- Promote women SHGs and facilitate cash credit for IGA,
- Agricultural Support
- Tailoring training & Production center for Women

Community Infrastructure Development

- Sheetala Mandir renovation, Bahesar
- Borewell digging at Tilda CHC. & Gaitara.
- Construction work @ Tarashi Gauthan.

AR-20-21

Measures initiated during Covid Pandemic



- 4500 kg Daal & 2500 kg Rice with vegetable & cooking oil donated to the Janpad Tilda & Raipur smart city in the pandemic
- Total 27000 nose masks disseminated in 4 gram panchayats with distt & Block administration & plant workers stitched at our tailoring production center by 4S SHG group
- Sanitization done in 17 surrounding Nagar, Janpad, & Gram Panchayats named Tilda, Kharora, of Raipur district.
- Testing of body temperature to total 1700 workers & villagers conducted successfully
- Awareness banners of COVID-19 displayed at prominent locations of all 13 villages.



AR-20-21

Education (1/2)

Navodaya
Coaching Centre

In view of the Jawahar Navodaya school entrance examination foundation has established 4 Navodaya Coaching Centers at Raikheda, Gaitara, Tarashiv and Chicholi in 2010. Till 2019, total 38 students from our coaching centers have secured their seats and currently studying in Jawahar Navodaya school – Mana.



48 Students are registered for the Navodaya Coaching in 2020-21 session at Our NCC. Online classes as well as offline center based classes are continued in our 4 centers. Despite of the Covid pandemic when all schools were closed our faculties have given their input by doing **door-to-door meetings** with the parents and taught the students by following all Covid guidelines at the child's home and progress report has also being shared with the parents by conducting weekly test in a month. Final exam is awaited to be held.



AR-20-21

Education (2/2)

Prayas career
Coaching Centre

Prayas career counselling center was established at village Tarashiv in 2012-13. More than 24 students have got selection in various competitive exams in past 7 years.



A batch of "Prayas-30" was made by selection of 30 students from an entrance exam.

All the beneficiaries girls are continued to teaching free tuition classes to students of standard 1st to 8th at their home under Swa-daan Yojna. As this year education schools has not been started yet.



Noni Laari

Transportation facility "Noni Laari" exclusively for girls for their further studies from our 6 Project Affected Villages (PAV) since from 2010, The girl students who desire to pursue their higher education can opt this facility for going to PG College-Tilda which is about 22 kms. away from PAV. 300 girls from PAV's have completed their graduation from PG College so far as there was not connection to commute the colleges from said villages earlier.

AR-20-21

Community Health (1/2)

Mobile Healthcare Unit

The primary health services to the community are being provided free of cost by team of experienced Doctor, Nurse & compounder of MHCU in surrounding 13 villages.



This yr. total 16284 beneficiaries have taken consultation from MHCU at our 13 villages as per below details.

This year 30 Gynecology camps conducted at 5 core villages under suposhan program. In Totality more than 2300 Lactating, Pregnant women & adolescent girls have consulted with the Dr.



Child	Youth	Old	Total
1750	7198	7336	16284



Hypertensive	Diabetic	Asthmatic	General
5824	2358	759	7343

AR-20-21

Community Health (2/2)

Suposhan Program

Suposhan Program initiated at Raikheda, Bhatapara, Gaitara, Chicholi & Gaurkheda village in the view of proper Care & nutrition to pregnant & lactating mothers.

1475 Anthropometric measurement done for children under age of 5 yrs. 60 health checkup done for Lactating & Pregnant Women along with Adolescent Girls. International Women's Day celebrated by suposhan Sanginis. Poshan messages have given to the beneficiaries with help of Rangolies by family counselling done in Month of March on Suposhan program. Poshan Munadi conducted with help of MMHCU where Sanginis have described about the Poshan in the villages under Poshan Pakhwada amid 27 to 31 March 21

24 Focus Group Discussion done with Lactating & Pregnant women and Adolescent girls under Suposhan program. Kitchen garden developed at LW & PW house. **Suposhan month, breastfeeding week & Hand washing day also observed**



AR-20-21

Sustainable Livelihood Development (1/2)

Women Empowerment

To encourage women self help groups for Income Generation Activity. Arranging financial linkages training, exposure visits as per requirement. Encourage bank linkage. 15 women of "Saheli Shashakt Silai Samooh" (4S) & 15 trainee girls are engaged on sewing work in our Tailoring production center.



Income Generation Activities (IGA) :

- 4 SHG's are engaged in IGA and earning income as below..
- 1 SHG is making Sleeper.
- 1 SHG is making dona Pattal.
- 2 SHG's are running Utensil rental Stores.

Tailoring Production Center:

Team of 4S stitched more than 27K nose masks, 10K nighties & petticoats in FY 20-21

New Initiatives:

- MOU signed between Lingo focus techno pvt. ltd , Kondagaon and Chirag Mahila Vikas Samiti Raikheda for raw Material supply and buyback of produced LED bulbs by the CMVS .
- LED Bulb Commercial Production Unit inaugurated on 31st March 21 at Tarashiv by Sarpanch of Tarashiv, President of CMVS Head CSR & AF-REL staff. Tarshiv sarpanch said that It is unique unit in Tilda block and AF has taken excellent initiative to encourage the SHG women for LED bulb manufacturing unit. He also assured for the help to get the orders of bulbs from the panchayats & offices



AR-20-21

Sustainable Livelihood Development (2/2)

Agriculture & Livestock Care Support

To encourage women self help groups for Income Generation Activity. Arranging financial assistance, training, exposure visits as per requirement. Encourage bank linkage.



Agriculture Support

- Training & Orientation given to 30 women of 3 SHG groups & 26 farmers for Mushroom cultivation & vegetable farming.
- 60 kg Mushroom spawn disseminate to 20 women of 2 SHG group of Bhatapara, Gaitara & Chicholi.
- Vegetable seeds disseminate to 16 Farmer and 10 Poshan Vatika beneficiaries.
- Supported 50 kg Elesia Fetida earth worms with training to 10 farmers of Konari village under the IGA.
- Training given to the sorted Farmers for the Azola & Vermicomposting & Tetra vermin & Azola bed also planned distribution free of cost to increase the income of farmers in RAV's for eco farming.

Livestock care Support :

- 4 vaccination & treatment camp conducted at Raikheda, Gaitara & Chicholi under Gau Jatan program total 2000 cattle & 500 goats vaccinated with
- Reflective Tags tied to 200 stray cattle under Gau Jatan Program for reducing the road accidents.



AR-20-21

Community Infrastructure Development

Infrastructure Development

Community Infrastructure works initiated at villages Bahesar & Tilda.

- Sheetala Temple renovation work started at village Bahesar.
- Borewell digging work initiated at CHC Tilda.



AR-20-21

Events & Othrs (1/3)

Van Mahotsava Week

A tree planting festival observed globally from 1st July to 7th July. It is celebrated to raise awareness among the masses about the importance of trees, their plantation and conservation.

In order to realize this objective, we have taken an initiative to celebrate Van Mahotsava week, where we had developed the 4 small gardens with the name of Navagrah Vatika & Nakshtra Vatika at the govt. high schools & Middle schools of Tarashiv Bhatapara, Chicholi, & Konari so that children may get the knowledge of each tree and their relations with the various Graha & Nakshatra according to Hindu dharma shashtra and might have the reason to care and love the nature and trees divinely.



Teachers Day

The "GURU SAMMAN" Program celebrated on the occasion of Teachers' Day with theme "Teachers: Redefining the Future by leading in Crisis".

An effort to strengthen the education world and to honor them in front of their family, so that their enthusiasm and morale increase and understand their importance to keep moving forward. Despite the Covid pandemic situation, the AF team with employees of REL felicitated 80 teachers of our surrounding village govt. schools with ShreePhal, Diary, Pen, Nose Masks & Hand Sanitizers by visiting at the home of each teacher.



AR-20-21

Events & Othrs (2/3)

Global Hand washing & World Food Day



The Global hand washing day on Oct,15th and World food day on Oct 16th ,2020 have been observed in our 5 adjacent villages.

Around 81 women, girls, kids with Aganwadis supervisors & workers participated in the program. Block Project Officer of ICDS also witnessed the occasion & informed about 11 steps of hand washing.

- Around 150, lactating mothers, pregnant women's and adolescent girls with AWS & AWW participated on the world food day program conducted at Chicholi, Gaitara, Raikheda where the information related to importance of carbohydrates, vitamins, minerals and proteins in food with the right process of food cooking have also given.



World Toilet Day & New Born Care Week



- under the theme of sustainable sanitation and climate change". An awareness program conducted on 19th Nov to Observe world Toilet Day in five villages where 67 people participated in the program.

- An awareness among people about the importance of newborn care for eradicating neonatal deaths and increase survival rate. Newborn care is of utmost importance as the first 28 days of baby's Life.



AR-20-21

Events & Othrs (3/3)

Health Camp



4 health Camp conducted Under "Swasth Samudaya & Swasth School"

Specialized health camp conducted in Panchayats Bhavan Gaitara on 12th Dec 2020 for the recipients of Raikheda, Bhatapara, Gaitara, Chicholi, Gaurkheda, Khapari, Gaitara, Tarashiv, Chhatoude, Khamariya Konar, & Bartori 273 patients have been consulted with the Dr's of the Camp as per specialization of Cardiology, Endocrinology, Orthopedic, Urology, Gastroenterology, Nephrology. Patients also had free diagnosis of B.P. Sugar, ECG, Echocardiogram as per Dr's advised. Covid-19 rapid test counter was also available at the camp with the help of CHC Tilda. Following Dr's have given their services in the camp.

Dr. Snehil (Cardiology), Dr. Shivedra Verma (Endocrinology), Dr. Ankur Gupta (Orthopedic), Dr. Varun Sharma (Urology), Dr. Abhishek Jain (Gastroenterology), Dr. Ravi (Nephrology). All the team have felicitated with memento by the Station Head Mr. Rambhav Gattu & Head CSR Mr. Atul Gupta.



Disability Camp



Disability Camp conducted under "Divyang Swawlamban Yojna"

Divyan Swawlamban Yojan program for the differently abled has been conducted at Raikheda on 31st Dec 2020. 79 differently abled have been distributed the equipment's on the program. Before this AF has arranged the Testing & sorting camp by team of expert Dr's at our all 12 PAV's & RAV's. President Janpad Panchayat with all gram sarpanchs graced the program. Following items were disseminated. **Wheel chair - 17, Tricycle - 16, Blind stick-07, Elbow Crutches - 03 Hearing machine-25, Stick- 05, Crutch- 04, Walker - 02**



AR-20-21 **Community Sports & Othrs.**

Cricket Tournament

Encourage cricket & Other sports within the youths of community



A cricket tournament was organized under the aegis of "Adani Foundation" and "Youth Cricket Team". In which more than 70 teams participated. Cricket Uniform gave to the teams of 13 villages adopted by the Adani Foundation, In addition, first prize money was also awarded. Hon'ble MLA of Dharswa constituency inaugurates the tournament by batting first ball of the match.



International Women's Day

Observed International Women's Day within the community



International Women's day celebrated at Village Sontara where the group of SHG with Raikheda & Gaitara have participated in sports & cultural Jhhaki competition. Winner of the program was rewarded with award & mementos.



AR-20-21 **Formation of UNNATI MANCH**

Khamriya-Konari Unnati Manch

Village Unnati Manch is planned with theme of various development works associated to Hamlets



The Khamriya-Konari Unnati Manch formed under the presidentship of sarpanchs Nemsing Katariya. Total 15 members out which 3 are women in the group. Unnati Manch meeting held in Tarashiva and Khamharia. All the deputed members were present in the meeting and discussed on Ayushman Yojana, Widow pension, Divyang Pension card to be provided to the beneficiaries by conduction camps.



Tarshiv Unnati Manch

Village Unnati Manch is planned with theme of various development works associated to Hamlets



Farmers to be identified for Vermicomposting, & SRI etc. Under Tarashiv Unnati Munch Ayushman Card preparation camp conducted at Tarashiv where total 493 cards have been prepared in two days. Farmers brought for the exposure visit at Krishi Vigyan Kendra Raipur They have oriented about the various scopes & Techniques farming e.g. vermicomposting, FPO, & SRI, etc.



AR-20-21

Media Says about Adani Foundation Raipur

Raipur Media coverage at a Glance

Raipur being a capital of the Chhattisgarh state has very aggressive media in every aspects

AR-20-21

Media Says about Adani Foundation Raipur

Raipur Media coverage at a Glance

Raipur being a capital of the Chhattisgarh state has very aggressive media in every aspects

AR-20-21 Budget Vs. Actual Exp.

Sr. No	Particulars	Budget F.Y. 2020-21			Expenses till March 21	Utilization %
		CAPEX	OPEX	Total	A+B	
1	General Management & Administration	1.07	18.06	19.13	13.09	68.43%
2	Education	0.05	37.39	37.44	9.74	26.02%
3	Community Health	0.00	35.09	35.09	31.27	89.11%
4	Sustainable Livelihood Development	0.75	15.25	16.00	8.57	53.54%
5	Community Infrastructure Development	0.05	4.96	5.01	4.26	85.03%
6	Community Engagements , Sports & Events etc.	0.00	1.42	1.42	0.83	58.45%
	Total	1.92	112.17	114.09	67.76	59.39%

AR-20-21 Annual Report 2020-21 Culminates

Team AF REL

1. Shri Rambhav Gattu (SH)
2. Mr. Jayanta Mohanty (RCH)
3. Mr. Atul Kumar Gupta (UCH)
4. Mrs. Preeti Prajapati (Sr. PO)
5. Mr. Khileshwar Mahmalla (PO)
6. Mr. Daulal Kaushle (PO)
7. Ms. Deepali Das (PO)



Thank You



AF HO Address

Adani Foundation
7th Floor, Adani Corporate House II
Adani Shantigram Township
Near Vasnodevi Circle
SG Highway ,
Ahmedabad – 382421 (GJ)
www.adanifoundation.org

AF Site Address

Adani Foundation
C/o Raipur Energen Ltd.
Village – Raikheda, Block – Tilda,
Distt- Raipur
PIN – 493225 (Chhattisgarh - India)
www.adanifoundation.org