

# SIX MONTHLY COMPLIANCE REPORT OF ENVIRONMENT CLEARANCE (EC)

FOR

## Talabira I Opencast Coal Mine Project

At

Village Khinda, Tehsil Rengali, District Sambalpur,  
Odisha

*Submitted to:*

Eastern Regional Office  
Ministry of Environment, Forests & Climate Change,  
Central Pollution Control Board, New Delhi &  
Odisha State Pollution Control Board, Bhubaneswar



*Submitted by:*

**Environment Management Department**

**Raipur Energen Limited**

Adani Corporate House, Shantigram,  
SG Highway, Ahmedabad – 382 421

**April'2020 – September'2020**

**Raipur Energen Limited**

Talabira I Opencast Coal Mine Project  
Village Khinda, Tehsil Rengali, District Sambalpur, Odisha

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## **Raipur Energen Limited**

Talabira I Opencast Coal Mine Project  
at village Khinda, Tehsil Rengali, District Sambalpur, Odisha

### **INTRODUCTION**

M/s Hindalco Industries Ltd. had obtained an Environmental Clearance (EC) for expansion of Talabira-I Opencast Coal mine Project (1.5 MTPA to 3.0 MTPA) in an ML area of 170.30 Ha. at village Khinda, Tehsil Rengali, District Sambalpur, Odisha vide letter No. J-11015/58/2009-IA.II (M) dated 08<sup>th</sup> November, 2011.

The Supreme Court in pursuant to its order dated 25<sup>th</sup> August, 2014 read with its order dated 24<sup>th</sup> September, 2014, and Ministry of Coal in accordance with provisions of the Coal Mines (Special Provisions) Second Ordinance, 2014 and the Coal Mines (Special Provisions) Rules 2014, the nominated authority completed the auction of the de-allocated mines.

In this regards, Ministry of Coal vide Vesting Order under clause (b) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13 and Order no. 104/2/2015/NA dated 23<sup>rd</sup> March, 2015 allocated Talabira-I Coal Mines to M/s GMR Chhattisgarh Energy Limited, as successful bidder.

M/s GMR Chhattisgarh Energy Limited obtained transfer of Environmental Clearance vide MoEF&CC letter no. **J-11015/58/2009-IA.II (M) dated 16.04.2015.**

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

Raipur Energen Limited has also obtained EC transfer from MoEF&CC for Talabira-I Opencast Coal Mine vide letter no. **J-11015/58/2009-IA.II (M) dated 04.11.2020**

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### Compliance Status of Environmental Clearance granted for Talabira Coal Mine vide letter no. -11015/58/2009-IA.II (M) dated 16<sup>th</sup> April 2015 and its subsequent transfers vide letter dated 10.06.2015 & 22.10.2020

Sl. No.	EC Conditions	Compliance status																		
<b>A.</b>	<b>Specific conditions</b>																			
(i)	Production of coal shall not exceed 3.0 MTPA. The project proponent shall obtain prior EC for expansion in production beyond 3.0 MTPA.	Coal production is NIL during the period of April'2020 to September'2020. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Sl. No.</th> <th style="text-align: center;">Financial Year</th> <th style="text-align: center;">Coal Production (Million Metric Tons)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td style="text-align: center;">2015-2016</td> <td style="text-align: center;">0.560</td> </tr> <tr> <td style="text-align: center;">2.</td> <td style="text-align: center;">2016-2017</td> <td style="text-align: center;">0.151</td> </tr> <tr> <td style="text-align: center;">3.</td> <td style="text-align: center;">2017-2018</td> <td style="text-align: center;">0.270</td> </tr> <tr> <td style="text-align: center;">4.</td> <td style="text-align: center;">2018-2019</td> <td style="text-align: center;">0.00</td> </tr> <tr> <td style="text-align: center;">5.</td> <td style="text-align: center;">2019-2020</td> <td style="text-align: center;">0.00</td> </tr> </tbody> </table>	Sl. No.	Financial Year	Coal Production (Million Metric Tons)	1.	2015-2016	0.560	2.	2016-2017	0.151	3.	2017-2018	0.270	4.	2018-2019	0.00	5.	2019-2020	0.00
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4.	2018-2019	0.00																		
5.	2019-2020	0.00																		
(ii)	No coal washery shall be established without prior EC from this MOEF.	Complied No washery has been established at Mine site till date.																		
(iii)	No fly ash shall be dumped into the de-coaled voids without prior approval of the MOEF.	Being complied No fly ash is dumped into the de-coaled voids till date. No fly ash will be dumped without prior approval from MoEFCC.																		
(iv)	The embankment shall be stabilised with stone pitching on the reservoir side and compacted and plantation using a mix of native species shall be developed. Additional safety and protection measures including continued operation of high capacity pumps shall be in operation to prevent mine inundation. Prior approval of disaster management plan shall be obtained.	As per initial EC dated 08/11/2011, originally issued to M/s Hindalco Industries Ltd, embankment related activities have already been executed by the prior Mine Allottee (M/s Hindalco) under the guidance of DoWR, Odisha.  The embankment is of 1.92 Km length and 1.5 m height and 10 m wide at the top and 3 m above the HFL of Hirakud Reservoir. The embankment has been stabilised with side-sloping on either side and plantation using a mix of native species is developed. There is a provision of high capacity pump for de-watering. The disaster Management plan is in place and submitted to Directorate of Mines Safety also.																		
(v)	Top soil, if generated, should be properly stacked with proper slope at earmarked dump site (S) with adequate measures and shall be used for reclamation and development of green belt and for reclamation of back filled quarry should be used for reclamation and rehabilitation of mined out areas within a year of generation.	Complied After taking over of Mines by M/s GMR Chhattisgarh Energy Limited, topsoil of 8,000 Cubic Meter had been spread over the external dump slope to facilitate Bio-reclamation and 12,000 Cubic Meter has been conserved in external Top soil dump and 8,925 Cubic meter has been preserved and properly stacked in internal top soil dump up to 31 <sup>st</sup> March 2018. Reclamation of back filled quarry and rehabilitation of mined out area will be done as per approved mine closure plan.																		

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Sl. No.	EC Conditions	Compliance status
		No generation of top soil from mine since April' 2018 as mining operations were suspended.
(vi)	The entire OB generated in the expansion project shall be back filled and reclaimed and stabilized with plantation using a mix of species found in the reserve forests in the buffer zone. Monitoring and management of the existing reclaimed dump site shall continue until the vegetation becomes self-sustaining and no dumping of OB on reclaimed dumps shall be permitted. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on yearly basis.	OB generated by prior allottee was stacked in three external dumps (Dump- 1, Dump- 2 & Dump- 3). Mine closure activities such as back filling, reclamation & stabilization with plantation will be done as per approved Mine Plan & Mine closure plan and status of compliances will be submitted to the Ministry of Environment, Forest & Climate Change and its Regional Office located at Bhubaneswar on yearly basis.
A	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly de - silted and maintained properly. Garland drains (Size, Gradient & Length) and sump capacity shall be designed keeping 50% safety margin over & above the peak sudden rain fall and maximum discharge in the area adjoining the mine site. Sump capacity also provide adequate retention period to allow proper settling of silt material.	Being complied Catch drains of average width 2.5 m and length 2.9 Km had been constructed and maintained along the toe of OB dumps. Water is collected in mine sump which is being utilized for water spraying in mine area, roads, green belt development etc. The drains are cleaned before every monsoon and maintained properly.  Garland drains & sump capacity are designed by taking factor of safety 2.0 to deal with the sudden rain fall. There are no adjoining mines.
(viii)	Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check the run-off and siltation shall be based on the rain fall data.	Complied Retaining wall at the toe of the dumps and OB benches within the mine to check the run-off and siltation is done by prior allottee. Maintenance & periodic repair of retaining wall has been undertaken by Raipur Energen Limited (Erstwhile, GMR Chhattisgarh Energy Limited).
(ix)	Mist type water sprinkling system shall be provided to check fugitive emissions from conveyor system, haulage roads, transfer points etc. Water sprinkling (Fixed & Mist type, mobile) shall be regularly carried out along the main haul roads.	There is no conveyor system in Talabira-1 mine. Mine operations are temporarily suspended/ hold. During mine operation, mist type mobile tankers are used for water sprinkling along haul roads, stock yards, transfer points etc.
(x)	No blasting shall be carried out.	Complied No blasting practice is adopted in mine.
(xi)	A feasibility plan for transportation of coal to the railway siding by closed overhead	Feasibility plan for transport of coal to railway siding by closed overhead conveyor has been

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	conveyors shall be prepared and furnished to the MOEF within 6 months.	submitted by M/s REL after taking over the mine in April, 2015
(xii)	Area brought under afforestation shall not be less than 137.905 Ha which includes reclaimed external OB dump area (45 Ha), backfilled area (60 Ha), along ML boundary, green belt (28.905 Ha) and top soil dump area (6.0 Ha) by using a mix of species found in the natural forests in the buffer zone in consultation with the local DFO / Agricultural department. The density of the trees shall be around 2500 plants per Ha.	Being complied 37940 No's of additional saplings were planted by REL in addition to Green belt area developed. Total 33.79 Ha within mining lease area is covered with plantation. Back filling, reclamation & plantation work will be carried out as per approved mine plan & mine closure plan after exhaustion of coal in mine.
(xiii)	A progressive mine closure plan shall be implemented and OB generated during the balance life of the mine shall be concurrently back filled and the area reclaimed with a mix of native species and at the end of mine life the balance area 24.4 Ha of de-coaled void shall also be reclaimed with the OB and the entire worked out area shall be back filled up to ground level. There shall be no water bod created at the post – mining stage.	Back filling in de-coaled void, reclamation & plantation work will be carried out as per approved mine plan & mine closure plan. Revised Mining plan and mine closure plan submitted in October'2016 was not approved. The existing mine plan & mine closure plan is already expired on 31.03.2018. As on date, company is not authorized to take any activity related to mining in mine, without approved mining plans from Ministry of Coal for Talabira-1 mine.
(xiv)	A conservation plan comprising for in-situ and ex-situ conservation of schedule I and II, Fauna found within the core & buffer zone shall be implemented in consultation with the State Govt. for the balance life of the project and include a plan for habitat restoration at the post mining stage and which also includes a plan for development of 150 Ha of grass lands for the elephants visiting the area. The activities there under along with status of implementation (including expenditure) shall be regularly reported as part of the compliance reports furnished to MOEF RO, Bhubaneswar and also uploaded on the company website.	Complied Conservation plan including plan for habitat restoration at post mining stage has been prepared which is duly approved by Chief Wildlife Warden (CWLW). Approved amount of Rs. 257 Lacs has been deposited with PCCF, Orissa for implementation of above conservation plan. Conservation plan and status of implementation were submitted to RO MOEFC, Bhubaneswar and also uploaded on our website. <a href="https://adanipower.com/Downloads">https://adanipower.com/Downloads</a> Approved plan and Approval letter of conservation plan with payment details for implementation of conservation plan, Screenshot of the web link was submitted with previous compliance report.
(xv)	Regular monitoring of ground water level on the quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times in a year pre-monsoon (May), monsoon (August), Post- Monsoon (November) and winter (January) seasons	A NABL accredited testing agency has been carried out monthly monitoring of the ground water. It is being collected from the existing wells at the nearby villages and also from piezometer installed in front of site office of Talabira-1 mine.

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	and for quality in May. Monitoring of heavy metals including mercury shall be carried out and data furnished as part of the compliance report. Data, thus collected shall be submitted to the Ministry of Environment & Forests and to the central Pollution Control board quarterly and regularly uploaded on the company website.	Analysis of ground water is being done by NABL certified lab and report is being submitted on quarterly basis to the office. Photographs of Installed piezometer were submitted with previous compliance report. Environmental monitoring report for the period of April'20 to Sept'20 is enclosed as <b>Annexure I</b> Six month compliance report including environmental monitoring report has been uploaded on the company website. <a href="https://adanipower.com/Downloads">https://adanipower.com/Downloads</a>
(xvi)	The extent of use of water in the mining operations shall be reduced by recycling and reuse. The company shall put up artificial ground water recharge measures for augmentation of water resource if the water table shows a declining trend. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine. Mine water to be discharged into the Hirakud reservoir shall be treated to prescribed standards before discharge.	Only stagnated water in the sump of mine is being used for mining operations and plantation. Water is contained in the pits within ML, which facilitates recharging the ground water. Hirakud reservoir backwater is adjacent to the mine. Hence, ground Water table varies according to the level of Hirakud reservoir back water. REL is supplying water to nearby villages by 6 no's of water tankers throughout the year. Water from mine is not being discharged to Hirakud Reservoir.
(xvii)	Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any through any local/regional health institutions and the results reported to the this ministry and to DGMS.	Being complied, Periodic health check- up including occupational disease and hearing impairment was done as per Rule 29 (b) of Mining Rules, 1955. There was no occupational disease and hearing impairment to any workers.
(xviii)	For monitoring land use pattern and for post mining land use, time series of land use maps, based on satellite imagery (on a scale of 1:5000) of the core zone and buffer zone, from the start of the project, until the end of the mine life shall be prepared once in three years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its regional office at Bhubaneswar.	The land use analysis based on satellite imagery for core zone of the mine including the land use of 10 km buffer zone has been done for 2015 and 2018 and submitted along with previous compliance report.
(xix)	A detailed Final Mine Closure Plan along with details of corpus fund submitted to the Ministry of Environment & Forest which shall be implemented from 2017-18. The	All the provisions of mine closure plan will be implemented after the approval of mine plan and mine closure plan as previous plan is expired on 01 <sup>st</sup> April, 2018.

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	time period for reclamation shall be completed within a year of completion of project. The plan for habitat restoration plan for a minimum period of five years (under the MMDR Act) shall be under taken after completion of reclamation in consultation with and a joint inspection carried with the state forest department.	
<b>(xx)</b>	CSR would be implemented in 8 villages – Talabira, Nua Khinda, Purana Khinda, Lapanga, Bhudiapalli, Matul Camp, Behara Munda and Mundapara. Budgetary provisions at @ Rs. 10 per tonne of Coal should be made for CSR activities. The socio-economic development of the villages shall be monitored over the life of the project using UNDP. Human development indices and reported as part of the report submitted to MOEF RO, Bhubaneswar.	<p>Budgetary provision of @ Rs 10/ Ton of coal was kept. Total Expenditure made for CSR activities by REL from April'2015 to Sept.2020) is Rs <b>1, 42, 88,914.00</b>. (up to Sept-19), + Rs. 9,86,000 for FY 2019-2020 (up to Sept.2020),</p> <p><b>Total = Rs. 1,52,74,914/-</b></p> <p>Mine operations are temporarily suspended/ hold since 01<sup>st</sup> April' 2018.</p> <p>Preliminary report on socio-economic development of the villages has been Prepared and submitted along with previous compliance report.</p> <p>Company shall be taking socio economic development assessment in the area every three years after the approval of revised mining plan.</p>
<b>B.</b>	<b>General Conditions</b>	
<b>(i)</b>	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forest.	Complied There is no change in mining technology in mines.
<b>(ii)</b>	No change in the calendar plan including excavation, quantum of mineral coal and waste shall be made.	Complied Adhered to the mine plan.
<b>(iii)</b>	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring PM10, PM 2.5, SO2, NOx and heavy metals such as Hg, Pb, Cr, As etc. Location of the stations shall be decided based on Meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the state pollution control board.	Being complied Five numbers Ambient air quality monitoring stations are established in core zone as well as in the buffer zone for monitoring PM10, PM 2.5, SO2, NOx and heavy metals such as Hg, Pb, Cr by external agency (Approved by MOEFC / NABL) and report is being submitted to MOEFC, Bhubaneswar on quarterly basis. Environmental Report is uploaded in company website. <a href="https://adanipower.com/Downloads">https://adanipower.com/Downloads</a>
<b>(iv)</b>	Data on ambient air quality (PM10, PM 2.5, SO2, NOx and heavy metals such as Hg, Pb, Cr, As etc.) shall be regularly submitted to the ministry including its regional office at Bhubaneswar and to the State Pollution	Being complied, Data of ambient air quality (PM10, PM 2.5, SO2, NOx and heavy metals such as Hg, Pb, Cr, As etc.) is being monitored on quarterly basis by external agency (Approved by MoEFCC / NABL)



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Sl. No.	EC Conditions	Compliance status
	Control Board and Central pollution Control Board once in Six Months.	engaged for this purpose and reports are being submitted to the concerned authorities. Environmental Report is uploaded in company website. <a href="https://adanipower.com/Downloads">https://adanipower.com/Downloads</a>
<b>(v)</b>	Fugitive dust emissions quality (PM <sub>10</sub> , PM <sub>2.5</sub> and heavy metals such as Hg, Pb, Cr, As etc.) from all the sources shall be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul road, wagon loading and dump trucks (Loading & un loading) points shall be provided and properly maintained.	Fugitive dust emissions quality (PM <sub>10</sub> , PM <sub>2.5</sub> and heavy metals such as Hg, Pb, Cr, As etc.) from all the sources are being monitored by external agency (Approved by MOEF&CC / NABL accredited) and reports are being submitted. During mine operation, water spraying arrangement on haul road, wagon loading and dump trucks (Loading & un loading) points were provided and maintained. Recent Environmental Report is uploaded in company website. <a href="https://adanipower.com/Downloads">https://adanipower.com/Downloads</a>
<b>(vi)</b>	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc. shall be provided with ear plugs/muffs.	Noise level within ML is well below the stipulated norms. Ear plugs/muffs are also issued to HEMM operators. No drilling & blasting is practiced in mine.
<b>(vii)</b>	Industrial waste water (workshop and waste water from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 <sup>th</sup> May 1993 and 31 <sup>st</sup> December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	Grease and Oil Trap has been provided in the workshop to treat the waste water. The treated water is being stored and reused for water spraying and cleaning of vehicles in the wash bay.
<b>(viii)</b>	Vehicular emissions shall be kept under control and regularly monitored.	Being complied During the mine operation, regular maintenance of vehicles was being done to control the vehicular emissions.
<b>(ix)</b>	Environmental laboratory shall be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.	Environmental monitoring and analysis is being carried out by external agency, approved by MOEF&CC / NABL Environmental Monitoring Report is uploaded in company website. <a href="https://adanipower.com/Downloads">https://adanipower.com/Downloads</a>
<b>(x)</b>	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of worker shall be undertaken	Dust masks were issued to all employees working in dusty environment. Initial & refresher training was imparted to contractual employees as per Mines Vocational Rules 1966, Being complied

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	periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed. A separate environmental management cell with suitable qualified personnel shall be set up under the control of senior executive, who will report directly to the Head of the company.	Periodical Medical Examination of 140 no's of employees were conducted to observe any contractions due to exposure to dust.														
(xi)	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted to other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.	<p>Being complied</p> <p>There is a separate fund centre maintained for the fund earmarked for environmental protection.</p> <p>Total expenditure incurred towards Environment protection measures is as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Financial Year</th> <th style="text-align: center;">Total expenditure incurred</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">FY 2015-16</td> <td style="text-align: center;">Rs.62.61 Lacs</td> </tr> <tr> <td style="text-align: center;">FY 2016-17</td> <td style="text-align: center;">Rs. 118.23 Lacs</td> </tr> <tr> <td style="text-align: center;">FY 2017-18</td> <td style="text-align: center;">Rs. 89.48 Lacs</td> </tr> <tr> <td style="text-align: center;">FY 2018-19</td> <td style="text-align: center;">Rs. 2.5 Lacs</td> </tr> <tr> <td style="text-align: center;">FY 2019-20</td> <td style="text-align: center;">Rs. 11.25 Lacs</td> </tr> <tr> <td style="text-align: center;">April 2020 - Sept 2020</td> <td style="text-align: center;">Rs. 4.0 Lacs</td> </tr> </tbody> </table>	Financial Year	Total expenditure incurred	FY 2015-16	Rs.62.61 Lacs	FY 2016-17	Rs. 118.23 Lacs	FY 2017-18	Rs. 89.48 Lacs	FY 2018-19	Rs. 2.5 Lacs	FY 2019-20	Rs. 11.25 Lacs	April 2020 - Sept 2020	Rs. 4.0 Lacs
Financial Year	Total expenditure incurred															
FY 2015-16	Rs.62.61 Lacs															
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FY 2018-19	Rs. 2.5 Lacs															
FY 2019-20	Rs. 11.25 Lacs															
April 2020 - Sept 2020	Rs. 4.0 Lacs															
(xii)	A copy of the environmental clearance shall be marked to concerned Panchayat / local NGO, if any, from whom any suggestion/ representation has been received while processing the proposal.	<p>This EC was originally issued to M/s Hindalco in year 2011 and 2015, the EC has been now transferred to M/s REL (Formerly GMR Chhattisgarh Energy Ltd).</p> <p>Copy of the Environmental Clearance (EC) and Public Notice Advertisements in Newspapers related to EC have been displayed in Panchayat Office, Khinda and Sambalpur.</p>														
(xiii)	State Pollution Control Board shall display a copy of clearance letter at the Regional Office, District Industry Centre and Collectors Office/ Tehsil Office for 30 days.	Complied														
(xiv)	The project authorities shall advertise at least in two local newspapers widely circulated around the projects, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of clearance letter is available with State Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forest at <a href="http://envfor.nic.in">http://envfor.nic.in</a> . The compliance status including data on monitoring of environmental quality (air, water and noise)	<p>Advertisements have been published in two local newspapers of Odisha state namely Samay (Dt.01.10.2016, Odisha newspaper) and in Dainik Jagaran (Dt.01.10.2016, Hindi newspaper).</p> <p>Data on monitoring of environmental quality (air, water &amp; noise) and status of compliance have been uploaded in the company's website. <a href="https://adanipower.com/Downloads">https://adanipower.com/Downloads</a></p>														

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	shall also be uploaded by the project authorities in their website and also at their main gate of project premises and office so as to bring the same in the public domain.	
(3)	The Ministry or any other competent authority may stipulate any further condition for environmental protection.	Noted & agreed
(4)	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.	Noted.
(5)	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules. The proponent shall ensure to undertake and provide for costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water and occupation and other diseases due to the mining operations.	Noted & agreed
<b>EC Transferred / Amendment dated 16.04.2015</b>		
(i)	Any change in scope of work will attract the provisions of Environment Protection Act (EPA), 1986 and Environmental Impact Assessment Notification, 2006 in conjunction with the subsequent amendments / circular.	Noted & agreed
(ii)	All conditions stipulated in the EC Letter no. J-11015/58/2009-IA.II (M) dated 08 <sup>th</sup> November, 2011 shall remain unchanged	Noted & compliance assured
(iii)	The successful bidder shall be liable, if any, for any act of violation of the EPA 1986/ EIA Notification 2006 / subsequent amendments and circulars which it has inherited during the transfer.	As per the para no (3) of Section 14 of The Coal Mines (Special Provisions) Act, 2015, <i>"Every liability of any prior allottee in relation to a Schedule I coal mine in respect of any period prior to the vesting order or allotment order, shall be the liability of such prior allottee and shall be enforceable against it and not against the successful bidder or allottee or the Central Government"</i> .
(iv)	Successful bidder shall be liable for compliance of all court directions, if any.	Noted & compliance assured

**Project Name:** Talabira I Opencast Coal mine

**Company Name:** Raipur Energen Limited

Village Raikheda, Block- Tilda, Dist.-Raipur – 493 225 (Chhattisgarh)

**Half Yearly Environmental Monitoring Report**

# **Half Yearly Environmental Monitoring Report** (April 2020 – September 2020)

**For**

**Talabira I Open Cast Coal Mine**

**At**

**Village Khinda, Tehsil Rengali, District Sambalpur,  
Odisha**

**Submitted to:**

**M/s Raipur Energen Limited.**

**Village Raikheda, Block- Tilda, District Raipur – 493 225  
(Chhattisgarh)**

**Conducted by:**

**M/s Vardan EnviroLab**

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

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

## **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.

M/s Raipur Energen Limited, Talabira Mines 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, Talabira Mines, Village Raikheda, District-Raipur -493225, CG, India, has engaged **M/S Vardan EnviroLab, Gurugram, (HR)** to provide Environmental Services in respect of ambient air quality monitoring, noise level monitoring & Sampling and Analysis of ground water quality, treated effluent sewage, and soil for **Raipur Energen Limited, Talabira mines, 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 Raigarh Energy Generation Ltd. 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 May 2020 to September 2020, **i.e. for Half Yearly** which includes sampling locations, Methodology, testing procedure and compilation for the Environmental parameters i.e. Air, Water & Noise with a view to evaluate the impact due to the Mining activities.

During the course of our operations for the above task, the staff and management of Raipur Energen Limited, Talabira Mines, 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 :

28/8/2020



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## **Chapter – 1.0**

### **INTRODUCTION**

Talabira I Opencast Coalmine is a Coal generation unit for Raipur Energen Limited, a subsidiary of Adani Power Limited based at Raikheda, Dist. Raipur in the state of Chhattisgarh.

Talabira I Opencast Coalmine is also committed towards the environment and the community. It has successfully implemented several community welfare schemes in the field of livelihood, infrastructure, community health and education.

## **Chapter – 2.0**

### **PROJECT PROFILE**

#### **2.1 Adani Group**

ADANI Group, is one of the leading business houses of the country with combined market capitalization of around US\$ 14 billion, a sales turnover of US\$ 9.4 billion, employing over 10,000 people and having diverse interests in global trading, development and operation of Ports, IDC Terminal, establishment of SEZ, Oil Refining, Logistics, Gas Distribution, Power Generation, Power Transmission and Power Trading etc. Adani Port at Mundra promoted by the ADANI Group is operational since 1998.

#### **2.2 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 21.5°C - 42 °C in summer, and 10°C - 28 °C in winter. The humidity varies from 38% to 85%.

## **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 and soil monitoring.

#### **3.2 Methodology**

As mentioned in the scope of work covered the various Environmental components monitoring and sampling and its analysis was carried out on the basis of guidelines of Ministry of Environment Forest & Climate Change, Government of India & Odisha 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 primary 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 location. At all stations SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO 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 Groundwater Quality Monitoring**

The ground water samples, surface water samples were collected from selected locations in two liter sterilized plastic bottles. 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 Ambient Noise Level Monitoring**

Sound level meter was used to know the sound levels generated due to 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 Quality Analysis**

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

## **Chapter – 4.0**

### **SAMPLING LOCATION AND ANALYSIS REPORTS**

#### **4.1 Ambient Air Quality Monitoring**

**Location Code: -**

- A1- R & R Colony, 3.2Km in NE from the mines
- A2- Weigh Bridge 0.5 Km in South from the mines
- A3- Near Petrol pump
- A4- In front of the Mines office
- A5- Rest Shelter 1.5 Km in SE from the mines
- A6- Khinda village 3 Km in SE from the mines
- A7- Babu Khinda 3.5 Km in NE from the mines
- A8- A1 Downwind point of Talabira-1 mine area

#### **4.2 Noise Level Monitoring**

**Ambient Noise Level Monitoring Locations**

**Location Code:**

- N1- Near Weigh Bridge
- N2- Near petrol pump
- N3- In front of Mining Office

#### **4.3 Ground water Quality Analysis**

**Location Code: -**

- GW1- R & R Colony (Open well)

#### **4.4 Soil Quality Analysis**

**Location Code: -**

- S1- Khinda Village

#### **4.5 Effluent Sample Analysis Report**

**Locations**

- 1. STP Outlet



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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Certificate

Sample Number: VEL/REL/A/01 Report No.: VEL/A/2005250001  
Name & Address of the Party: M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 30/05/2020  
Receipt Date: 25/05/2020 Period of Analysis: 25-30/05/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : R & R Colony, 3.2 Km in NE from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/01 & VEL/FPS/01  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 18/05/2020 to 19/05/2020  
Time of Monitoring : 24 hours (09:00 Hrs to 09:00 Hrs)  
Ambient Temperature (°C) : Min. 24.0 Max. 32.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	39.5	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	73.4	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	20.3	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	8.75	µg/m <sup>3</sup>	80
5.	Mercury as Hg	CPCB Guidelines	BDL (DL 0.5)	ng/m <sup>3</sup>	--
6.	Lead as Pb	IS: 5182 (P-22), Reaffirmed-2009	BDL (DL 0.02)	µg/m <sup>3</sup>	01
7.	Arsenic as As	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 302: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	06
8.	Chromium as Cr	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 807: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	--

\* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009

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MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Certificate

Sample Number: VEL/ REL /A/02 Report No.: VEL/A/2005250002  
Name & Address of the Party: M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 30/05/2020  
Receipt Date: 25/05/2020 Period of Analysis: 25-30/05/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Weigh Bridge 0.5 Km in South from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/02 & VEL/FPS/02  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 18/05/2020 to 19/05/2020  
Time of Monitoring : 24 hours(10:00 Hrs to 10:00 Hrs)  
Ambient Temperature (°C) : Min. 24.0 Max. 32.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	34.9	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	62.4	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	19.2	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	8.15	µg/m <sup>3</sup>	80

\* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Certificate

Sample Number: VEL/ REL /A/03 Report No.: VEL/A/2005250003  
Name & Address of the Party: M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 30/05/2020  
Receipt Date: 25/05/2020 Period of Analysis: 25-30/05/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Near Petrol pump  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/03 & VEL/FPS/01  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 18/05/2020 to 19/05/2020  
Time of Monitoring : 24 hours(10:30 Hrs to 10:30 Hrs)  
Ambient Temperature (°C) : Min. 24.0 Max. 32.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any :  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	34.7	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	56.3	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	17.8	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	7.6	µg/m <sup>3</sup>	80

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MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Certificate

Sample Number: VEL/ REL /A/04 Report No.: VEL/A/2005250004  
Name & Address of the Party: M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 30/05/2020  
Receipt Date: 25/05/2020 Period of Analysis: 25-30/05/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : In front of the Mines office  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/03 & VEL/FPS/01  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 18/05/2020 to 19/05/2020  
Time of Monitoring : 24 hours(10:30 Hrs to 10:30 Hrs)  
Ambient Temperature (°C) : Min. 24.0 Max. 32.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	37.3	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	67.5	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	18.6	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	10.35	µg/m <sup>3</sup>	80

\* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.

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MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Certificate

Sample Number: VEL/ REL /A/05 Report No.: VEL/A/2005250005  
Name & Address of the Party: M/s Raipur Energen Limited, Format No.: 5.10 F-01  
Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Party Reference No.: NIL  
Reporting Date: 30/05/2020  
Receipt Date: 25/05/2020 Period of Analysis: 25-30/05/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Rest Shelter 1.5 Km in SE from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/02 & VEL/FPS/04  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 18/05/2020 to 19/05/2020  
Time of Monitoring : 24 hours(11:00 Hrs to 11:00 Hrs)  
Ambient Temperature (°C) : Min. 24.0 Max. 32.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	42.4	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	71.8	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	19.5	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	9.26	µg/m <sup>3</sup>	80
5.	Mercury as Hg	CPCB Guidelines	BDL (DL 0.5)	ng/m <sup>3</sup>	--
6.	Lead as Pb	IS: 5182 (P-22), Reaffirmed-2009	BDL (DL 0.02)	µg/m <sup>3</sup>	01
7.	Arsenic as As	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 302: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	06
8.	Chromium as Cr	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 807: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	--

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Certificate

Sample Number: VEL/ REL /A/06 Report No.: VEL/A/2005250006  
Name & Address of the Party: M/s Raipur Energen Limited, Format No.: 5.10 F-01  
Village: Raikheda, Block-Tilda, Dist. Party Reference No.: NIL  
Raipur - 493225 (CG) Reporting Date: 30/05/2020  
Receipt Date: 25/05/2020 Period of Analysis: 25-30/05/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Khinda village 3 Km in SE from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/02 & VEL/FPS/04  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 18/05/2020 to 19/05/2020  
Time of Monitoring : 24 hours(11:00 Hrs to 11:00 Hrs)  
Ambient Temperature (°C) : Min. 24.0 Max. 32.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	45.7	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	72.5	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	20.4	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	12.32	µg/m <sup>3</sup>	80
5.	Mercury as Hg	CPCB Guidelines	BDL (DL 0.5)	ng/m <sup>3</sup>	--
6.	Lead as Pb	IS: 5182 (P-22), Reaffirmed-2009	BDL (DL 0.02)	µg/m <sup>3</sup>	01
7.	Arsenic as As	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 302: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	06
8.	Chromium as Cr	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 807: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	--

\* NAAQS – National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009

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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Certificate

Sample Number: VEL/ REL /A/07 Report No.: VEL/A/2005250007  
Name & Address of the Party: M/s Raipur Energen Limited, Format No.: 5.10 F-01  
Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Party Reference No.: NIL  
Reporting Date: 30/05/2020  
Receipt Date: 25/05/2020 Period of Analysis: 25-30/05/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Babu Khinda 3.5 Km in NE from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/02 & VEL/FPS/04  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 18/05/2020 to 19/05/2020  
Time of Monitoring : 24 hours(11:00 Hrs to 11:00 Hrs)  
Ambient Temperature (°C) : Min. 24.0 Max. 32.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO, Hg

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	41.6	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	70.9	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	22.4	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	10.15	µg/m <sup>3</sup>	80
5.	Mercury as Hg	CPCB Guidelines	BDL (DL 0.5)	ng/m <sup>3</sup>	--
6.	Lead as Pb	IS: 5182 (P-22), Reaffirmed-2009	BDL (DL 0.02)	µg/m <sup>3</sup>	01
7.	Arsenic as As	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 302: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	06
8.	Chromium as Cr	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 807: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	--

\* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009

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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Certificate

Sample Number: VEL/ REL /A/08 Report No.: VEL/A/2005250008  
Name & Address of the Party: M/s Raipur Energen Limited, Format No.: 5.10 F-01  
Village: Raikheda, Block-Tilda, Dist. Party Reference No.: NIL  
Raipur - 493225 (CG) Reporting Date: 30/05/2020  
Receipt Date: 25/05/2020 Period of Analysis: 25-30/05/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : A1 Downwind point of Talabira-1 mine area  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/02 & VEL/FPS/04  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 18/05/2020 to 19/05/2020  
Time of Monitoring : 24 hours(11:00 Hrs to 11:00 Hrs)  
Ambient Temperature (°C) : Min. 24.0 Max. 32.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO, Hg

S. No.	Parameter	Protocol	Result	Unit
1.	Total VOC	IS 5182 (P-11)-2006 RA. 2017	BDL (DL 1.0)	µg/m <sup>3</sup>
2.	PAH	IS 5182 (P-12)-2004 RA. 2014	BDL (DL 0.5)	µg/m <sup>3</sup>

\* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.

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# Vardan EnviroLab

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number: VEL/REL/A/01 Report No.: VEL/A/2007030001  
Name & Address of the Party: M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 07/07/2020  
Receipt Date: 03/07/2020 Period of Analysis: 03- 07/07/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : R & R Colony, 3.2 Km in NE from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/01 & VEL/FPS/01  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 29/06/2020 to 30/06/2020  
Time of Monitoring : 24 hours (08:00 Hrs to 08:00 Hrs)  
Ambient Temperature (°C) : Min. 32.0 Max. 41.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	38.7	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	71.5	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	19.4	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	9.12	µg/m <sup>3</sup>	80
5.	Mercury as Hg	CPCB Guidelines	BDL (DL 0.5)	ng/m <sup>3</sup>	--
6.	Lead as Pb	IS: 5182 (P-22), Reaffirmed-2009	BDL (DL 0.02)	µg/m <sup>3</sup>	01
7.	Arsenic as As	Methods of air sampling and analysis, 3rd Ed., 1988, Method No. 302: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	06
8.	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed., 1988, Method No. 807: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	--

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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number: VEL/ REL /A/02  
Name & Address of the Party: M/s Raipur Energen Limited,  
Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)  
Report No.: VEL/A/2007030002  
Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 07/07/2020  
Period of Analysis: 03- 07/07/2020  
Receipt Date: 03/07/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Weigh Bridge 0.5 Km in South from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/02 & VEL/FPS/02  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 29/06/2020 to 30/06/2020  
Time of Monitoring : 24 hours(09:00 Hrs to 09:00 Hrs)  
Ambient Temperature (°C) : Min. 32.0 Max. 41.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	32.9	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	65.7	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	18.7	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	8.15	µg/m <sup>3</sup>	80

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number: VEL/ REL /A/03  
Name & Address of the Party: M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)  
Report No.: VEL/A/2007030003  
Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 07/07/2020  
Period of Analysis: 03- 07/07/2020  
Receipt Date: 03/07/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Near Petrol pump  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/03 & VEL/FPS/03  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 29/06/2020 to 30/06/2020  
Time of Monitoring : 24 hours(09:40 Hrs to 09:40 Hrs)  
Ambient Temperature (°C) : Min. 32.0 Max. 41.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	33.1	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	60.4	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	18.5	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	7.87	µg/m <sup>3</sup>	80

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number: VEL/REL/A/04  
Name & Address of the Party: M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)  
Report No.: VEL/A/2007030004  
Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 07/07/2020  
Period of Analysis: 03-07/07/2020  
Receipt Date: 03/07/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : In front of the Mines office  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/04 & VEL/FPS/04  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 29/06/2020 to 30/06/2020  
Time of Monitoring : 24 hours(10:20 Hrs to 10:20 Hrs)  
Ambient Temperature (°C) : Min. 32.0 Max. 41.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	36.4	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	68.9	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	17.4	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	10.76	µg/m <sup>3</sup>	80

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# Vardan EnviroLab

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number: VEL/ REL /A/05 Report No.: VEL/A/2007030005  
Name & Address of the Party: M/s Raipur Energen Limited, Format No.: 5.10 F-01  
Village: Raikheda, Block-Tilda, Dist. Party Reference No.: NIL  
Raipur - 493225 (CG) Reporting Date: 07/07/2020  
Receipt Date: 03/07/2020 Period of Analysis: 03- 07/07/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Rest Shelter 1.5 Km in SE from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/01 & VEL/FPS/01  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 30/06/2020 to 01/07/2020  
Time of Monitoring : 24 hours(10:00 Hrs to 10:00 Hrs)  
Ambient Temperature (°C) : Min. 34.0 Max. 42.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	40.9	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	73.4	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	21.4	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	9.85	µg/m <sup>3</sup>	80
5.	Mercury as Hg	CPCB Guidelines	BDL (DL 0.5)	ng/m <sup>3</sup>	--
6.	Lead as Pb	IS: 5182 (P-22), Reaffirmed-2009	BDL (DL 0.02)	µg/m <sup>3</sup>	01
7.	Arsenic as As	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 302: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	06
8.	Chromium as Cr	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 807: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	--

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# Vardan EnviroLab

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number: VEL/ REL /A/06 Report No.: VEL/A/2007030006  
Name & Address of the Party: M/s Raipur Energen Limited, Format No.: 5.10 F-01  
Village: Raikheda, Block-Tilda, Dist. Party Reference No.: NIL  
Raipur - 493225 (CG) Reporting Date: 07/07/2020  
Receipt Date: 03/07/2020 Period of Analysis: 03- 07/07/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Khinda village 3 Km in SE from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/02 & VEL/FPS/02  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 30/06/2020 to 01/07/2020  
Time of Monitoring : 24 hours(10:35 Hrs to 10:35 Hrs)  
Ambient Temperature (°C) : Min. 34.0 Max. 42.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	42.3	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	74.5	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	23.7	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	12.21	µg/m <sup>3</sup>	80
5.	Mercury as Hg	CPCB Guidelines	BDL (DL 0.5)	ng/m <sup>3</sup>	--
6.	Lead as Pb	IS: 5182 (P-22), Reaffirmed-2009	BDL (DL 0.02)	µg/m <sup>3</sup>	01
7.	Arsenic as As	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 302: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	06
8.	Chromium as Cr	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 807: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	--

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# Vardan EnviroLab

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number: VEL/ REL /A/07 Report No.: VEL/A/2007030007  
Name & Address of the Party: M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 07/07/2020  
Receipt Date: 03/07/2020 Period of Analysis: 03- 07/07/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : Babu Khinda 3.5 Km in NE from the mines  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/03 & VEL/FPS/03  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 30/06/2020 to 01/07/2020  
Time of Monitoring : 24 hours(11:00 Hrs to 11:00 Hrs)  
Ambient Temperature (°C) : Min. 34.0 Max. 42.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit	NAAQS* Limit
1.	Particulate Matter (PM <sub>2.5</sub> )	IS 5182(P- 24): 2019	42.1	µg/m <sup>3</sup>	60
2.	Particulate Matter (PM <sub>10</sub> )	IS:5182 (P- 23)-2006, RA. 2017	72.3	µg/m <sup>3</sup>	100
3.	Nitrogen Dioxide (NO <sub>2</sub> )	IS: 5182 (P- 6)-2006 RA. 2017	23.2	µg/m <sup>3</sup>	80
4.	Sulphur Dioxide (SO <sub>2</sub> )	IS: 5182 (P-2), 2001 RA. 2017	11.55	µg/m <sup>3</sup>	80
5.	Mercury as Hg	CPCB Guidelines	BDL (DL 0.5)	ng/m <sup>3</sup>	--
6.	Lead as Pb	IS: 5182 (P-22), Reaffirmed-2009	BDL (DL 0.02)	µg/m <sup>3</sup>	01
7.	Arsenic as As	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 302: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	06
8.	Chromium as Cr	Methods of air sampling and analysis,3rd Ed.,1988, Method No. 807: 1988	BDL (DL 1.0)	ng/m <sup>3</sup>	--

\* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised [ISO 9001 | OHSAS 45001]

## Test Report

Sample Number: VEL/ REL /A/08 Report No.: VEL/A/2007030008  
Name & Address of the Party: M/s Raipur Energen Limited, Format No.: 5.10 F-01  
Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG) Party Reference No.: NIL  
Reporting Date: 07/07/2020  
Receipt Date: 03/07/2020 Period of Analysis: 03- 07/07/2020

Sample Description: AMBIENT AIR QUALITY MONITORING

### General Information:-

Client Representative : Mr. Amit Kumar Soni  
Sample collected by : Vardan EnviroLab Representative  
Sampling Location : A1 Downwind point of Talabira-1 mine area  
Instrument Used : RDS & FPS sampler with all Accessories  
Instrument Code : VEL/RDS/04 & VEL/FPS/04  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 30/06/2020 to 01/07/2020  
Time of Monitoring : 24 hours(11:20 Hrs to 11:20 Hrs)  
Ambient Temperature (°C) : Min. 34.0 Max. 42.0  
Surrounding Activity : Human and Vehicular activities  
Scope of Monitoring : Regulatory Requirement  
Control measure if Any : ---  
Sampling & Analysis Protocol : IS-5182  
Parameter Required : As per work order

S. No.	Parameter	Protocol	Result	Unit
1.	Total VOC	IS 5182 (P-11)-2006 RA. 2017	BDL (DL 1.0)	µg/m <sup>3</sup>
2.	PAH	IS 5182 (P-12)-2004 RA. 2014	BDL (DL 0.5)	µg/m <sup>3</sup>

\* NAAQS - National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 18.11.2009.

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/A/2007230001

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2007230001

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/07/2020

Period of Analysis : 23/07/2020-30/07/2020

Receipt Date : 23/07/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Rest Shalter 1.5 k.m. in SE From the Mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/01  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 17/07/2020 To 18/07/2020  
Time of Monitoring : 09.30 am to 09.30 am  
Ambient Temperature (°C) : Min. 27°C, Max 46°C  
Surrounding Activity : Human & Vehicular Act.  
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), Gravimetric Method, RA:2006	72.69	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS: 5182 (P-24), 2019	40.97	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	20.08	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P-2), Modified West and Gaeke, RA:2012	9.02	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS:5182 (P-22), Air Acetylene Method, RA:2009	BDL (*DL 0.02 )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.302	BDL (*DL1.0 )	ng/m <sup>3</sup>	6.0
7	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL0.5)	µg/m <sup>3</sup>	--
8	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/A/2007230002

Report No. : VEL/A/2007230002

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

Format No : 7.8 F-01

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Party Reference No : NIL

Reporting Date : 30/07/2020

Period of Analysis : 23/07/2020-30/07/2020

Receipt Date : 23/07/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Village - Khinda 3 k.m. In SE from the Mine  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/02  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 17/07/2020 To 18/07/2020  
Time of Monitoring : 10.30 am to 10.30 am  
Ambient Temperature (°C) : Min. 27°C, Max 46°C  
Surrounding Activity : Human & Vehicular Act.  
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), Gravimetric Method, RA:2006	70.93	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS: 5182 (P-24), 2019	43.27	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	19.57	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P-2), Modified West and Gaeke, RA:2012	12.47	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS:5182 (P-22), Air Acetylene Method, RA:2009	BDL (*DL 0.02)	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.302	BDL (*DL1.0)	ng/m <sup>3</sup>	6.0
7	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL0.5)	µg/m <sup>3</sup>	--
8	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/A/2007230003

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2007230003

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/07/2020

Period of Analysis : 23/07/2020-30/07/2020

Receipt Date : 23/07/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Babu Khinda 3.5 k.m. in NE from the mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/03  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 17/07/2020 To 18/07/2020  
Time of Monitoring : 11.30 am to 11.30 am  
Ambient Temperature (°C) : Min. 27°C, Max 46°C  
Surrounding Activity : Human & Vehicular Act.  
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), Gravimetric Method, RA:2006	71.73	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS: 5182 (P-24), 2019	39.33	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	22.46	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P-2), Modified West and Gaeke, RA:2012	10.00	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS:5182 (P-22), Air Acetylene Method, RA:2009	BDL (*DL 0.02 )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.302	BDL (*DL1.0 )	ng/m <sup>3</sup>	6.0
7	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0)	µg/m <sup>3</sup>	--
8	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/A/2007230004

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2007230004

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 31/07/2020

Period of Analysis : 23/07/2020-27/07/2020

Receipt Date : 23/07/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : A1 Downwind point of talabira -1 Mine area  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/04  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 17/07/2020 To 18/07/2020  
Time of Monitoring : 12.30 pm to 12.30 pm  
Ambient Temperature (°C) : Min. 27°C, Max 46°C  
Surrounding Activity : Human & Vehicular Act.  
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	Volatile Organic Compound (as BTX)	IS:5182 (P-11) :2004	*BDL(**DL-1.0)	µg/m <sup>3</sup>	--
2	Polycyclic Aromatic Hydrocarbon (as PAH)	IS:5182 (P-12):2004	*BDL(**DL-5.0)	ng/m <sup>3</sup>	--

\*BDL- Below Detication Limits. DL- Detication Limit.

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

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/A/2007230005

Report No. : VEL/A/2007230005

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

Format No : 7.8 F-01

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Party Reference No : NIL

Reporting Date : 30/07/2020

Period of Analysis : 23/07/2020-30/07/2020

Receipt Date : 23/07/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : R&R Colony, 3.2 km. in NE from the mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/01  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 16/07/2020 To 17/07/2020  
Time of Monitoring : 09.00 am to 09.00 am  
Ambient Temperature (°C) : Min. 28°C, Max 47°C  
Surrounding Activity : Human & Vehicular Act.  
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), Gravimetric Method, RA:2006	74.71	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS: 5182 (P-24), 2019	32.21	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	20.14	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P-2), Modified West and Gaeke, RA:2012	10.09	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS:5182 (P-22), Air Acetylene Method, RA:2009	BDL (*DL 0.02 )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.302	BDL (*DL1.0 )	ng/m <sup>3</sup>	6.0
7	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0 )	µg/m <sup>3</sup>	--
8	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/A/2007230006

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2007230006

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 31/07/2020

Period of Analysis : 23/07/2020-31/07/2020

Receipt Date : 23/07/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Weigh Bridge 0.5 km. in south from the mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/02  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 16/07/2020 To 17/07/2020  
Time of Monitoring : 10.30 am to 10.30 am  
Ambient Temperature (°C) : Min. 28°C, Max 47°C  
Surrounding Activity : Human & Vehicular Act.  
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), Gravimetric Method, RA:2006	62.73	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS: 5182 (P-24), 2019	35.31	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	19.58	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P-2), Modified West and Gaeke, RA:2012	8.78	µg/m <sup>3</sup>	80

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

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/A/2007230007

Report No. : VEL/A/2007230007

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

Format No : 7.8 F-01

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Party Reference No : NIL

Reporting Date : 31/07/2020

Period of Analysis : 23/07/2020-31/07/2020

Receipt Date : 23/07/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Near Petrol Pump  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/03  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 16/07/2020 To 17/07/2020  
Time of Monitoring : 12.30 pm to 12.30 pm  
Ambient Temperature (°C) : Min. 28°C, Max 47°C  
Surrounding Activity : Human & Vehicular Act.  
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), Gravimetric Method, RA:2006	59.96	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS: 5182 (P-24), 2019	36.17	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	16.06	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P-2), Modified West and Gaeke, RA:2012	8.73	µg/m <sup>3</sup>	80

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

  
(Checked By)

  
(Approved By)

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/A/2007230008

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2007230008

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 31/07/2020

Period of Analysis : 23/07/2020-31/07/2020

Receipt Date : 23/07/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : In Front Of The Mine Office  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/04  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 16/07/2020 To 17/07/2020  
Time of Monitoring : 13.00 pm to 13.00 pm  
Ambient Temperature (°C) : Min. 28°C, Max 47°C  
Surrounding Activity : Human & Vehicular Act.  
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), Gravimetric Method, RA:2006	67.19	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS: 5182 (P-24), 2019	31.91	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	17.77	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gaeke, RA:2012	9.38	µg/m <sup>3</sup>	80

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

  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AA/01

Name & Address of the Party : M/s Raipur Energen Limited  
Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220002/A  
Format No : 7.8 F-01  
Party Reference No : NIL  
Reporting Date : 28/08/2020  
Period of Analysis : 22/08/2020-28/08/2020  
Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Rest Shalter 1.5 k.m. in SE From the Mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/01  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Cloud Cover  
Date of Monitoring : 19/08/2020 To 20/08/2020  
Time of Monitoring : 09.30 to 09.30 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 31  
Surrounding Activity : Human, Vehicular and Plant Activity  
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	71.54	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 2)-2001, RA. 2017	40.34	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	20.34	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	9.61	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS 5182 (P-22) : 2004 RA.2014	BDL (*DL 0.02 µg/m <sup>3</sup> )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	BDL (*DL1.0 ng/m <sup>3</sup> )	ng/m <sup>3</sup>	6.0

\* BDL Below Detection Limit \* DL Detection Limit

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

(Checked By)



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d) This report is not to be reproduced wholly or in part and cannot be used as evidence in the court of law



Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AA/01

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220002/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Rest Shalter 1.5 k.m. in SE From the Mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/01  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Cloud Cover  
Date of Monitoring : 19/08/2020 To 20/08/2020  
Time of Monitoring : 09.30 to 09.30 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 31  
Surrounding Activity : Human, Vehicular and Plant Activity  
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	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0 ng/m <sup>3</sup> )	µg/m <sup>3</sup>	--
2	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

\* BDL Below Detection Limit \* DL Detection Limit

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

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AA/02

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220003/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Village- Khinda 3 k.m. In SE from the Mine  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/02  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Cloud Cover  
Date of Monitoring : 19/08/2020 To 20/08/2020  
Time of Monitoring : 10.25 to 10.25Hrs.  
Ambient Temperature (°C) : Min. 25 Max 31  
Surrounding Activity : Human, Vehicular and Rural Activity  
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	68.51	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 2)-2001, RA. 2017	42.98	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	19.34	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	12.26	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS 5182 (P-22) : 2004 RA.2014	BDL (*DL 0.02 µg/m <sup>3</sup> )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	BDL (*DL1.0 ng/m <sup>3</sup> )	ng/m <sup>3</sup>	6.0

\* BDL Below Detection Limit \* DL Detection Limit

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

(Tested By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AA/02

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220003/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Village- Khinda 3 k.m. In SE from the Mine  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/02  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Cloud Cover  
Date of Monitoring : 19/08/2020 To 20/08/2020  
Time of Monitoring : 10.25 to 10.25Hrs.  
Ambient Temperature (°C) : Min. 25 Max 31  
Surrounding Activity : Human, Vehicular and Rural Activity  
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	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0 ng/m <sup>3</sup> )	µg/m <sup>3</sup>	--
2	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

\* BDL Below Detection Limit \* DL Detection Limit

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

  
(Tested By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised [ISO 9001 | OHSAS 45001]

## Test Report

Sample Number : VEL/REL/AA/03

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220004/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Babu Khinda 3.5 k.m. in NE from the mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/03  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Cloud Cover  
Date of Monitoring : 19/08/2020 To 20/08/2020  
Time of Monitoring : 11.10 to 11.10 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 31  
Surrounding Activity : Human, Vehicular and Other Activity  
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	70.07	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 2)-2001, RA. 2017	38.05	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	21.60	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	10.32	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS 5182 (P-22) : 2004 RA.2014	BDL (*DL 0.02 µg/m <sup>3</sup> )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	BDL (*DL1.0 ng/m <sup>3</sup> )	ng/m <sup>3</sup>	6.0

\* BDL Below Detection Limit \* DL Detection Limit

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

(Tested By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AA/03

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220004/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Babu Khinda 3.5 k.m. in NE from the mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/03  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Cloud Cover  
Date of Monitoring : 19/08/2020 To 20/08/2020  
Time of Monitoring : 11.10 to 11.10 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 31  
Surrounding Activity : Human, Vehicular and Other Activity  
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	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0 ng/m <sup>3</sup> )	µg/m <sup>3</sup>	--
2	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

\* BDL Below Detection Limit \* DL Detection Limit

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

(Tested By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/REL/AA/04

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220005/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : A1 Downwind point of talabira-1 Mine area  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/04  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Cloud Cover  
Date of Monitoring : 19/08/2020 To 20/08/2020  
Time of Monitoring : 12.35 to 12.35 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 31  
Surrounding Activity : Human & Vehicular Activity  
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	Volatile Organic Compound (as BTX)	IS:5182 (P-11):2004	*BDL(**DL-1.0µg/m <sup>3</sup> )	µg/m <sup>3</sup>	--
2	Polycyclic Aromatic Hydrocarbon (as PAH)	IS:5182 (P-12):2004	*BDL(**DL-5.0ng/m <sup>3</sup> )	ng/m <sup>3</sup>	--

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

  
(Tested By)



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Page No. 1/1



Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AA/05

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220006/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : R&R Colony, 3.2 km. in NE from the mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/01  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 20/08/2020 To 21/08/2020  
Time of Monitoring : 09.50 to 09.50 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 32  
Surrounding Activity : Human & Vehicular Activity  
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	73.62	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 2)-2001, RA. 2017	33.62	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	19.76	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	9.33	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS 5182 (P-22) : 2004 RA.2014	BDL (*DL 0.02 µg/m <sup>3</sup> )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	BDL (*DL1.0 ng/m <sup>3</sup> )	ng/m <sup>3</sup>	6.0

\* BDL Below Detection Limit \* DL Detection Limit

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

(Tested By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AA/05

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220006/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : R&R Colony, 3.2 km. in NE from the mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/01  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 20/08/2020 To 21/08/2020  
Time of Monitoring : 09.50 to 09.50 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 32  
Surrounding Activity : Human & Vehicular Activity  
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	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0 ng/m <sup>3</sup> )	µg/m <sup>3</sup>	--
2	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

\* BDL Below Detection Limit \* DL Detection Limit

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

  
(Tested By)

  
(Approved By)

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/REL/AA/06

Report No. : VEL/A/2008220007/A

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

Format No : 7.8 F-01

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Weigh Bridge 0.5 km. in south from the mines  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/02  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 20/08/2020 To 21/08/2020  
Time of Monitoring : 11.10 to 11.10 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 32  
Surrounding Activity : Human & Vehicular Activity  
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	63.58	µg/m³	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 2)-2001, RA. 2017	34.07	µg/m³	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P- 6)-2006 RA.2017	18.74	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2017	9.46	µg/m³	80

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

  
(Checked By)

  
(Approved By)

**Note:** a) The results listed refer only to the tested samples & applicable parameters  
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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/REL/AA/07

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220008/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Near Petrol Pump  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/03  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 20/08/2020 To 21/08/2020  
Time of Monitoring : 11.55 to 11.55 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 32  
Surrounding Activity : Human & Vehicular Activity  
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	60.14	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 2)-2001, RA. 2017	35.08	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	16.97	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	8.61	µg/m <sup>3</sup>	80

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

(Checked By)

(Approved By)

**Note:** a) The results listed refer only to the tested samples & applicable parameters  
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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AA/08

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2008220009/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : In Front Of The Mine Office  
Sample Collected by : VEL Team  
Sampling Equipment used : RDS/FPS  
Instrument Code : VEL/RDS/FPS/04  
Instrument Calibration Status : Calibrated  
Latitude : --  
Longitude : --  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 20/08/2020 To 21/08/2020  
Time of Monitoring : 13.10 to 13.10 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 32  
Surrounding Activity : Human & Vehicular Activity  
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	69.50	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 2)-2001, RA. 2017	30.94	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	17.96	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	9.59	µg/m <sup>3</sup>	80

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

(Checked By)

(Approved By)

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/RELM/AA/01

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250001/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location

: Rest Shalter 1.5 K.M. in SE From The mine

Sample Collected by

: VEL Team

Sampling Equipment used

: RDS/FPS

Instrument Code

: VEL/RDS/17/FPS/15

Instrument Calibration Status

: Calibrated

Latitude

: --

Longitude

: --

Meteorological condition during monitoring

: Clear Sky

Date of Monitoring

: 19/09/2020 To 20/09/2020

Time of Monitoring

: 11.00 TO 11.00 Hrs.

Ambient Temperature (°C)

: Min. 23° Max 34°

Surrounding Activity

: Human &amp; Vehicular Activity

Scope of Monitoring

: Regulatory Requirement

Sampling &amp; 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	71.05	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2001, RA. 2017	38.69	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	19.18	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	9.11	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS 5182 (P-22) : 2004 RA.2014	BDL (*DL 0.02 µg/m <sup>3</sup> )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	BDL (*DL1.0 ng/m <sup>3</sup> )	ng/m <sup>3</sup>	6.0
7	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988,Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

\* BDI Below Detection Limit \*\* DL Detection Limit

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

  
 (Checked By)


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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/RELM/AA/01

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250001/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Rest Shalter 1.5 K.M. in SE From The mine

Sample Collected by : VEL Team

Sampling Equipment used : RDS/FPS

Instrument Code : VEL/RDS/17/FPS/15

Instrument Calibration Status : Calibrated

Latitude : -

Longitude : -

Meteorological condition during monitoring : Clear Sky

Date of Monitoring : 19/09/2020 To 20/09/2020

Time of Monitoring : 11.00 TO 11.00 Hrs.

Ambient Temperature (°C) : Min. 23° Max 34°

Surrounding Activity : Human & Vehicular Activity

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	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0 ng/m <sup>3</sup> )	µg/m <sup>3</sup>	--

\* BDL Below Detection Limit \*\* DL Detection Limit

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

*Miel*  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised [ISO 9001 | OHSAS 45001]

## Test Report

Sample Number : VEL/RELM/AA/05

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250002/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : R & R Colony, 3.2 KM In NE From The Mines

Sample Collected by : VEL Team

Sampling Equipment used : RDS/FPS

Instrument Code : VEL/RDS/17/FPS/15

Instrument Calibration Status : Calibrated

Latitude : --

Longitude : --

Meteorological condition during monitoring : Clear Sky

Date of Monitoring : 20/09/2020 To 21/09/2020

Time of Monitoring : 11.30 TO 11.30 Hrs.

Ambient Temperature (°C) : Min. 23° Max 34°

Surrounding Activity : Human & Vehicular Activity

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	72.97	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2001, RA. 2017	33.64	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	20.18	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	11.10	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS 5182 (P-22) : 2004 RA.2014	BDL (*DL 0.02 µg/m <sup>3</sup> )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	BDL (*DL1.0 ng/m <sup>3</sup> )	ng/m <sup>3</sup>	6.0
7	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988,Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

\* BDI Below Detection Limit \*\* DL Detection Limit

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

*Mishra*  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/RELM/AA/05

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250002/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : R & R Colony, 3.2 KM In NE From The Mines

Sample Collected by : VEL Team

Sampling Equipment used : RDS/FPS

Instrument Code : VEL/RDS/17/FPS/15

Instrument Calibration Status : Calibrated

Latitude : --

Longitude : --

Meteorological condition during monitoring : Clear Sky

Date of Monitoring : 20/09/2020 To 21/09/2020

Time of Monitoring : 11.30 TO 11.30 Hrs.

Ambient Temperature (°C) : Min. 23° Max 34°

Surrounding Activity : Human & Vehicular Activity

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	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0 ng/m <sup>3</sup> )	µg/m <sup>3</sup>	--

\* BDL Below Detection Limit \*\* DL Detection Limit

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

*Mun*  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/RELM/AA/02

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250003/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Vill.-Khinda, 3 KM In SE From The Mine  
 Sample Collected by : VEL Team  
 Sampling Equipment used : RDS/FPS  
 Instrument Code : VEL/RDS/18/FPS/16  
 Instrument Calibration Status : Calibrated  
 Latitude : --  
 Longitude : --  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 19/09/2020 To 20/09/2020  
 Time of Monitoring : 11.30 TO 11.30 Hrs.  
 Ambient Temperature (°C) : Min. 23° Max 34°  
 Surrounding Activity : Human & Vehicular Activity  
 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	70.87	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2001, RA. 2017	42.59	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	18.62	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	12.92	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS 5182 (P-22) : 2004 RA.2014	BDL (*DL 0.02 µg/m <sup>3</sup> )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.302	BDL (*DL 1.0 ng/m <sup>3</sup> )	ng/m <sup>3</sup>	6.0
7	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988, Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

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

  
 (Checked By)


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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/RELM/AA/02

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250003/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Vill.-Khinda,3 KM In SE From The Mine

Sample Collected by : VEL Team

Sampling Equipment used : RDS/FPS

Instrument Code : VEL/RDS/18/FPS/16

Instrument Calibration Status : Calibrated

Latitude : --

Longitude : --

Meteorological condition during monitoring : Clear Sky

Date of Monitoring : 19/09/2020 To 20/09/2020

Time of Monitoring : 11.30 TO 11.30 Hrs.

Ambient Temperature (°C) : Min. 23° Max 34°

Surrounding Activity : Human & Vehicular Activity

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	Mercury (Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	BDL (*DL1.0 ng/m <sup>3</sup> )	µg/m <sup>3</sup>	--

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

*Mud*  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/RELM/AA/06

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250004/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location

: Weight Bridge 0.5 KM In South From The Mines

Sample Collected by

: VEL Team

Sampling Equipment used

: RDS/FPS

Instrument Code

: VEL/RDS/18/FPS/16

Instrument Calibration Status

: Calibrated

Latitude

: --

Longitude

: ---

Meteorological condition during monitoring

: Clear Sky

Date of Monitoring

: 20/09/2020 To 21/09/2020

Time of Monitoring

: 12.15 TO 12.15 Hrs.

Ambient Temperature (°C)

: Min. 23° Max 35°

Surrounding Activity

: Human, Vehicular &amp; Mining Activity

Scope of Monitoring

: Regulatory Requirement

Sampling &amp; 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	63.57	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2001, RA. 2017	25.64	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	19.22	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	8.71	µg/m <sup>3</sup>	80

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

  
 (Checked By)


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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/RELM/AA/07

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250005/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Near Petrol Pump  
 Sample Collected by : VEL Team  
 Sampling Equipment used : RDS/FPS  
 Instrument Code : VEL/RDS/19/FPS/17  
 Instrument Calibration Status : Calibrated  
 Latitude : -  
 Longitude : -  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 20/09/2020 To 21/09/2020  
 Time of Monitoring : 13.10 TO 13.10 Hrs.  
 Ambient Temperature (°C) : Min. 23° Max 34°  
 Surrounding Activity : Human, Vehicular Activity  
 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	70.57	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2001, RA. 2017	39.45	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO <sub>2</sub> )	IS:5182 (P- 6)-2006 RA.2017	21.76	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO <sub>2</sub> )	IS:5182 (P- 2)-2001, RA. 2017	10.27	µg/m <sup>3</sup>	80
5	Lead (as Pb)	IS 5182 (P-22) : 2004 RA.2014	BDL (*DL 0.02 µg/m <sup>3</sup> )	µg/m <sup>3</sup>	1.0
6	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	BDL (*DL1.0 ng/m <sup>3</sup> )	ng/m <sup>3</sup>	6.0
7	Chromium as Cr	Methods of air sampling and analysis, 3rd Ed, 1988,Method No.807:1988	BDL(DL 1.0)	µg/m <sup>3</sup>	--

\* BDL Below Detection Limit \*\* DI Detection Limit

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

  
 (Checked By)


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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/RELM/AA/07

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250005/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Near Petrol Pump  
 Sample Collected by : VEL Team  
 Sampling Equipment used : RDS/FPS  
 Instrument Code : VEL/RDS/19/FPS/17  
 Instrument Calibration Status : Calibrated  
 Latitude : --  
 Longitude : --  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 20/09/2020 To 21/09/2020  
 Time of Monitoring : 13.10 TO 13.10 Hrs.  
 Ambient Temperature (°C) : Min. 23° Max 34°  
 Surrounding Activity : Human, Vehicular Activity  
 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	Mercury (Hg)	Methods of air sampling and analysis, 3rd ed., 1988, Method No.317	BDL (*DL1.0 ng/m <sup>3</sup> )	µg/m <sup>3</sup>	--

\* BDL Below Detection Limit \*\* DI Detection Limit

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

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/RELM/AA/07

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250006/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Near Petrol Pump  
 Sample Collected by : VEL Team  
 Sampling Equipment used : RDS/FPS  
 Instrument Code : VEL/RDS/19/FPS/17  
 Instrument Calibration Status : Calibrated  
 Latitude : --  
 Longitude : --  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 20/09/2020 To 21/09/2020  
 Time of Monitoring : 13.10 TO 13.10 Hrs.  
 Ambient Temperature (°C) : Min. 23° Max 34°  
 Surrounding Activity : Human, Vehicular Activity  
 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	57.77	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2001, RA. 2017	36.73	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P- 6)-2006 RA.2017	15.07	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2017	9.11	µg/m <sup>3</sup>	80

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

  
 (Checked By)


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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/RELM/AA/04

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/A/2009250007/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

Sampling Location : A1 Downwind point of Talabira -1 Mine Area

Sample Collected by : VEL Team

Sampling Equipment used : RDS/FPS

Instrument Code : VEL/RDS/20/FPS/18

Instrument Calibration Status : Calibrated

Latitude : --

Longitude : --

Meteorological condition during monitoring : Clear Sky

Date of Monitoring : 19/09/2020 To 20/09/2020

Time of Monitoring : 12.15 TO 12.15 Hrs.

Ambient Temperature (°C) : Min. 23° Max 34°

Surrounding Activity : Human, Vehicular & Mining Activity

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	Volatile Organic Compound (as BTX)	IS:5182 (P-11) :2004	*BDL(**DL-1.0)	µg/m <sup>3</sup>	--
2	Polycyclic Aromatic Hydrocarbon (as PAH)	IS:5182 (P-12):2004	*BDL(**DL-5.0)	ng/m <sup>3</sup>	--

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

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

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
 Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
 MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/RELM/AA/08

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
 (CG)Talabira Mines

Report No. : VEL/A/2009250008/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/10/2020

Period of Analysis : 25/10/2020-30/10/2020

Receipt Date : 25/09/2020

Sample Description : AMBIENT AIR

### General Information

#### Sampling Location

: In front of the mine

#### Sample Collected by

: VEL Team

#### Sampling Equipment used

: RDS/FPS

#### Instrument Code

: VEL/RDS/20/FPS/18

#### Instrument Calibration Status

: Calibrated

#### Latitude

: -

#### Longitude

: -

#### Meteorological condition during monitoring

: Clear Sky

#### Date of Monitoring

: 20/09/2020 To 21/09/2020

#### Time of Monitoring

: 13.30 TO 13.30 Hrs.

#### Ambient Temperature (°C)

: Min. 23° Max 34°

#### Surrounding Activity

: Human, Vehicular & Mining Activity

#### 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	67.71	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	IS:5182 (P- 24)-2001, RA. 2017	32.07	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P- 6)-2006 RA.2017	18.76	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2017	9.42	µg/m <sup>3</sup>	80

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

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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Certificate

Sample Number: **VEL/REL/AN/01** Report No.: **VEL/N/2005250001-03**  
Name & Address of the Project: **M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)** Format No.: **5.10 F-01**  
Party Reference No.: **--**  
Reporting Date: **30/05/2020**  
Sample Description: **Ambient Noise Level Monitoring** Receipt Date: **25/05/2020**  
Sample Collected by: **Vardan EnviroLab Team** Protocol Used: **IS: 9989/CPCB Guidelines**

### Ambient Noise Level Monitoring Results

SL.No.	Locations	Monitoring Date	Leq. In dB (A)	
			Day Time Noise Level (6:00AM-10:00PM)	Night Time Noise Level (10:00PM-6:00AM)
1.	Near Weigh Bridge	18-19/05/2020	58.4	43.8
2.	Near Petrol Pump	18-19/05/2020	57.5	43.2
3.	In front of mining Office	18-19/05/2020	60.5	51.9
CPCB Limits in dB(A) Leq (Commercial Area)			65.00	55.00
Industrial Area			75.00	70.00
Residential Area			55.00	45.00
Silence Zone			50.00	40.00

  
(Checked By)



Page 1 of 1

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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number: **VEL/REL/AN/01** Report No.: **VEL/N/2007030001-03**  
Name & Address of the Project: **M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)** Format No.: **5.10 F-01**  
Party Reference No.: **--**  
Sample Description: **Ambient Noise Level Monitoring** Reporting Date: **07/07/2020**  
Sample Collected by: **Vardan EnviroLab Team** Receipt Date: **03/07/2020**  
Protocol Used: **IS: 9989/CPCB Guidelines**

### Ambient Noise Level Monitoring Results

SL.No.	Locations	Monitoring Date	Leq. In dB (A)	
			Day Time Noise Level (6:00AM-10:00PM)	Night Time Noise Level (10:00PM-6:00AM)
1.	Near Weigh Bridge	29-30/06/2020	60.3	44.2
2.	Near Petrol Pump	29-30/06/2020	58.9	43.8
3.	In front of mining Office	29-30/06/2020	62.1	52.3
CPCB Limits in dB(A) Leq (Commercial Area)			65.00	55.00
Industrial Area			75.00	70.00
Residential Area			55.00	45.00
Silence Zone			50.00	40.00

  
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Page 1 of 1

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

**Sample Number :** VEL/N/2007230001  
**Name & Address of the Party :** M/s Raipur Energen Limited  
Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG) Talabira Mines

**Report No. :** VEL/N/2007230001  
**Format No :** 7.8 F-01  
**Party Reference No :** NIL  
**Reporting Date :** 28/07/2020  
**Receipt Date :** 23/07/2020  
**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/SLM/04  
**Meteorological condition during monitoring :** Clear Sky  
**Date of Monitoring :** 16/07/2020 To 17/07/2020  
**Time of Monitoring :** 06.00 am to 06.00 am  
**Ambient Temperature (°C) :** Min. 27°C, Max 46°C  
**Surrounding Activity :** Human & Vehicular Act.  
**Parameter Required :** As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	61.45	45.64

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\*\*\*

(Tested By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

**Sample Number :** VEL/N/2007230002  
**Name & Address of the Party :** M/s Raipur Energen Limited  
Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

**Report No. :** VEL/N/2007230002  
**Format No :** 7.8 F-01  
**Party Reference No :** NIL  
**Reporting Date :** 28/07/2020  
**Receipt Date :** 23/07/2020  
**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 Petrol Pump  
**Instrument Code :** VEL/SLM/05  
**Meteorological condition during monitoring :** Clear Sky  
**Date of Monitoring :** 16/07/2020 To 17/07/2020  
**Time of Monitoring :** 06.00 am to 06.00 am  
**Ambient Temperature (°C) :** Min. 27°C, Max 46°C  
**Surrounding Activity :** Human & Vehicular Act.  
**Parameter Required :** As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	57.61	42.87

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\*\*\*

(Tested By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

**Sample Number :** VEL/N/2007230003  
**Name & Address of the Party :** M/s Raipur Energen Limited  
Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

**Report No. :** VEL/N/2007230003  
**Format No :** 7.8 F-01  
**Party Reference No :** NIL  
**Reporting Date :** 28/07/2020  
**Receipt Date :** 23/07/2020  
**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 :** In Front of Mining Office  
**Instrument Code :** VEL/SLM/04  
**Meteorological condition during monitoring :** Clear Sky  
**Date of Monitoring :** 17/07/2020 To 18/07/2020  
**Time of Monitoring :** 06.00 am to 06.00 am  
**Ambient Temperature (°C) :** Min. 27°C, Max 46°C  
**Surrounding Activity :** Human & Vehicular Act.  
**Parameter Required :** As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	61.25	51.67

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.  
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\*\*\*End of Report\*\*\*

(Tested By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number :	VEL/REL/AN/01	Report No. :	VEL/N/2008220001/A
Name & Address of the Party :	M/s Raipur Energen Limited Village: Raikheda, Block-Tilda Dist. Raipur -493225 (CG)Talabira Mines	Format No :	7.8 F-01
		Party Reference No :	NIL
		Reporting Date :	26/08/2020
		Receipt Date :	22/08/2020
		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 : In Front of Mining Office  
Instrument Code : VEL/SLM/01  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 20/08/2020 To 21/08/2020  
Time of Monitoring : 06.00 to 06.00 Hrs.  
Ambient Temperature (°C) : Min. 25 Max 31  
Surrounding Activity : Human, Vehicular & Mining Activity  
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	60.86	49.67

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\*\*\*

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# Vardan EnviroLab



Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
 Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
 MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AN/02  
 Name & Address of the Party : M/s Raipur Eriergen Limited  
 Village: Raikheda, Block-Tilda Dist. Raipur -493225  
 (CG)Talabira Mines

Report No. : VEL/N/2008220002/A  
 Format No : 7.8 F-01  
 Party Reference No : NIL  
 Reporting Date : 26/08/2020  
 Receipt Date : 22/08/2020  
 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 Petrol Pump  
 Instrument Code : VEL/SLM/02  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 19/08/2020 To 20/08/2020  
 Time of Monitoring : 06.00 to 06.00 Hrs.  
 Ambient Temperature (°C) : Min. 25 Max 31  
 Surrounding Activity : Human, Vehicular & Mining Activity  
 Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	57.16	43.04

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\*\*\*

  
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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number :	VEL/REL/AN/03	Report No. :	VEL/N/2008220003/A
Name & Address of the Party :	M/s Raipur Energen Limited Village: Raikheda, Block-Tilda Dist. Raipur -493225 (CG)Talabira Mines	Format No :	7.8 F-01
		Party Reference No :	NIL
		Reporting Date :	26/08/2020
		Receipt Date :	22/08/2020
Sample Description :	Ambient Noise	Sampling Duration :	24 hrs.
Scope of Monitoring :	Regulatory Requirement	Sample Collected by :	VEL Team
Protocol Used :	IS 9989: IS 9876	Instrument :	Calibrated
Instrument Used :	SLM	Calibration Status :	

### General Information

Sampling Location :	Near Weigh Bridge
Instrument Code :	VEL/SLM/01
Meteorological condition during monitoring :	Clear Sky
Date of Monitoring :	19/08/2020 To 20/08/2020
Time of Monitoring :	06.00 to 06.00 Hrs.
Ambient Temperature (°C) :	Min. 25 Max 31
Surrounding Activity :	Human, Vehicular & Other Activity
Parameter Required :	As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	60.35	45.37

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\*\*\*

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
 Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
 MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

**Sample Number :** VEL/REL/AN/01  
**Name & Address of the Party :** M/s Raipur Energen Limited  
 Village: Raikheda, Block-Tilda Dist. Raipur -493225  
 (CG)Talabira Mines

**Report No. :** VEL/N/2009250001/A  
**Format No :** 7.8 F-01  
**Party Reference No :** NIL  
**Reporting Date :** 30/09/2020  
**Receipt Date :** 25/09/2020  
**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 :** In Front Of Mine Office  
**Instrument Code :** VEL/SLM/07  
**Meteorological condition during monitoring :** Clear Sky  
**Date of Monitoring :** 19/09/2020 To 20/09/2020  
**Time of Monitoring :** 06.00 TO 06.00 Hrs.  
**Ambient Temperature (°C) :** Min. 23° Max 31°  
**Surrounding Activity :** Human, Vehicular & Mining Activity  
**Parameter Required :** As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	59.23	48.84

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.
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\*\*\*End of Report\*\*\*

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/REL/AN/02

Name &amp; Address of the Party : M/s Raipur Erogen Limited

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/N/2009250002/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Receipt Date : 25/09/2020

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 Petrol Pump  
Instrument Code : VEL/SLM/07  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 20/09/2020 To 21/09/2020  
Time of Monitoring : 06.00 TO 06.00 Hrs.  
Ambient Temperature (°C) : Min. 24° Max 35°  
Surrounding Activity : Human & Vehicular Activity  
Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	56.83	42.48

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\*\*\*

*Mishra*  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised | ISO 9001 | OHSAS 45001

## Test Report

Sample Number : VEL/REL/AN/03

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Sample Description : Ambient Noise

Scope of Monitoring : Regulatory Requirement

Protocol Used : IS 9989: IS 9876

Instrument Used : SLM

Report No. : VEL/N/2009250003/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 30/09/2020

Receipt Date : 25/09/2020

Sampling Duration : 24 Hrs.

Sample Collected by : VEL Team

Instrument : Calibrated

Calibration Status

### General Information

Sampling Location : Near Weight Bridge

Instrument Code : VEL/SLM/07

Meteorological condition during monitoring : Clear Sky

Date of Monitoring : 21/09/2020 To 22/09/2020

Time of Monitoring : 06.00 TO 06.00 Hrs.

Ambient Temperature (°C) : Min. 23° Max 36°

Surrounding Activity : Human &amp; Vehicular Activity

Parameter Required : As Per Work Order

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981	59.10	44.22

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, 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)


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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
 Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
 MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Certificate

Sample Number:	VEL/REL/W/01	Report No.:	VEL/W/2005250001
Name & Address of the Party:	M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)	Format No.:	5.10 F-01
Sample Description:	GROUND WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	R & R Colony (open Well)	Reporting Date:	30/05/2020
Sample Collected by:	Vardan EnviroLab Representative	Period of Analysis:	25-30/05/2020
Preservation:	Refrigerated	Receipt Date:	25/05/2020
Parameter Required:	As per IS 10500-2012	Sampling Date:	22/05/2020
Sampling and Analysis Protocol:	IS-10500-2012, APHA 23rd Edition 2017	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS 3025 (P-11) Reaffirmed 2017, 1983	7.36	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (P-4) Reaffirmed 2017, 1983	*BDL (**DL 5 Hazen)	Hazen	5	15
3.	Turbidity	IS 3025 (P-10) Reaffirmed 2017, 1984	*BDL (**DL 0.1 NTU)	NTU	1	5
4.	Odour	IS 3025 (P-5) 2018	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (P-8) Reaffirmed 2017, 1984	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	IS 3025 (P-21) Reaffirmed 2019, 2009	145.6	mg/l	200	600
7.	Calcium as Ca	IS 3025(P-40) Reaffirmed 2019, 1991	56.3	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	IS 3025 (P-23) Reaffirmed 2019, 1986	104.0	mg/l	200	600
9.	Chloride as Cl	IS 3025 (P-32) Reaffirmed 2019, 1988	32.5	mg/l	250	1000
10.	Residual free Chlorine	IS 3025(P-26) Reaffirmed 2019, 1986	*BDL(**DL 0.2mg/l)	mg/l	0.2	1
11.	Cyanide as CN <sup>-</sup>	APHA (23 <sup>rd</sup> Edition)2017, 4500 CN <sup>-</sup> D	*BDL(**DL 0.02 mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS 3025 (P-46) Reaffirmed 2019, 1994	1.25	mg/l	30	100
13.	Total Dissolved Solids	IS 3025 (P-16) Reaffirmed 2017, 1984	226.0	mg/l	500	2000
14.	Sulphate as SO <sub>4</sub>	IS 3025(P-24) Reaffirmed 2009, 1986	24.3	mg/l	200	400
15.	Fluoride as F	APHA (23 <sup>rd</sup> Edition)2017, 4500-F <sup>-</sup> D	0.21	mg/l	1.0	1.5
16.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34) Reaffirmed 2019, 1988	2.3	mg/l	45	No Relaxation
17.	Iron as Fe	IS 3025 (P-53) Reaffirmed 2019, 2003	*BDL(**DL 0.1 mg/l)	mg/l	0.3	No relaxation
18.	Aluminium as Al	IS 3025 (P-55) Reaffirmed 2019, 2003	*BDL(**DL 0.03 mg/l)	mg/l	0.03	0.2
19.	Boron	APHA (23 <sup>rd</sup> Edition)2017, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	0.5	1
20.	Total Chromium as Cr	APHA (23 <sup>rd</sup> Edition)2017, 3113 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	No Relaxation

(Checked By) 

(Approved By) 

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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Certificate

Sample No.:		VEL/REL/W/01		Report No: VEL/W/2005250001		
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
21.	Phenolic Compounds	APHA (23 <sup>rd</sup> Edition)2017, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	0.001	0.002
22.	Anionic Detergents as MBAS	APHA (23 <sup>rd</sup> Edition)2017, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	APHA (23 <sup>rd</sup> Edition)2017, 3113 B	*BDL(**DL 0.03 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA (23 <sup>rd</sup> Edition)2017, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA (23 <sup>rd</sup> Edition)2017, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA (23 <sup>rd</sup> Edition)2017, 3113 B	*BDL(**DL 0.06 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA (23 <sup>rd</sup> Edition)2017, 3113 B	*BDL(**DL 0.13 mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA (23 <sup>rd</sup> Edition)2017, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA (23 <sup>rd</sup> Edition)2017, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	0.05
30.	Mercury as Hg	APHA (23 <sup>rd</sup> Edition)2017, 3114 C	*BDL (**DL 0.001 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	Absegt	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - \*BDL-Below Detection Limit, \*\*DL- Detection Limit

  
(Checked By)



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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
 Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
 MoEF & CC Recognised IISO 9001 | OHSAS 45001)

## Test Report

Sample Number:	VEL/REL/W/01	Report No.:	VEL/W/2007030001
Name & Address of the Party:	M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)	Format No.:	5.10 F-01
Sample Description:	GROUND WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	R & R Colony (open Well)	Reporting Date:	07/07/2020
Sample Collected by:	Vardan EnviroLab Representative	Period of Analysis:	03-07/07/2020
Preservation:	Refrigerated	Receipt Date:	03/07/2020
Parameter Required:	As per IS 10500-2012	Sampling Date:	30/06/2020
Sampling and Analysis Protocol:	IS-10500-2012, APHA 23rd Edition 2017	Sampling Quantity:	2.0 Ltr
		Sampling Type:	Grab

S. No.	Parameter	Test-Method	Result	Unit	Limits of IS:10500 -2012	
					Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	IS 3025 (P-11) Reaffirmed 2017, 1983	7.29	--	6.5 to 8.5	No Relaxation
2.	Colour	IS 3025 (P-4) Reaffirmed 2017, 1983	*BDL (**DL 5 Hazen)	Hazen	5	15
3.	Turbidity	IS 3025 (P-10) Reaffirmed 2017, 1984	*BDL (**DL 0.1 NTU)	NTU	1	5
4.	Odour	IS 3025 (P-5) 2018	Agreeable	--	Agreeable	Agreeable
5.	Taste	IS 3025 (P-8) Reaffirmed 2017, 1984	Agreeable	--	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	IS 3025 (P-21) Reaffirmed 2019, 2009	156.6	mg/l	200	600
7.	Calcium as Ca	IS 3025(P-40) Reaffirmed 2019, 1991	62.7	mg/l	75	200
8.	Alkalinity as CaCO <sub>3</sub>	IS 3025 (P-23) Reaffirmed 2019, 1986	112.3	mg/l	200	600
9.	Chloride as Cl	IS 3025 (P-32) Reaffirmed 2019, 1988	38.58	mg/l	250	1000
10.	Residual free Chlorine	IS 3025(P-26) Reaffirmed 2019, 1986	*BDL(**DL 0.2mg/l)	mg/l	0.2	1
11.	Cyanide as CN	APHA (23 <sup>rd</sup> Edition)2017, 4500 CN <sup>-</sup> D	*BDL(**DL 0.02 mg/l)	mg/l	0.05	No Relaxation
12.	Magnesium as Mg	IS 3025 (P-46) Reaffirmed 2019, 1994	*BDL(**DL 2.0 mg/l)	mg/l	30	100
13.	Total Dissolved Solids	IS 3025 (P-16) Reaffirmed 2017, 1984	220.0	mg/l	500	2000
14.	Sulphate as SO <sub>4</sub>	IS 3025(P-24) Reaffirmed 2009, 1986	26.5	mg/l	200	400
15.	Fluoride as F	APHA (23 <sup>rd</sup> Edition)2017, 4500-F <sup>-</sup> D	0.23	mg/l	1.0	1.5
16.	Nitrate as NO <sub>3</sub>	IS 3025 (P-34) Reaffirmed 2019, 1988	1.85	mg/l	45	No Relaxation
17.	Iron as Fe	IS 3025 (P-53) Reaffirmed 2019, 2003	*BDL(**DL 0.1 mg/l)	mg/l	0.3	No relaxation
18.	Aluminium as Al	IS 3025 (P-55) Reaffirmed 2019, 2003	*BDL(**DL 0.03 mg/l)	mg/l	0.03	0.2
19.	Boron	APHA (23 <sup>rd</sup> Edition)2017, 4500B C	*BDL(**DL 0.1 mg/l)	mg/l	0.5	1
20.	Total Chromium as Cr	APHA (23 <sup>rd</sup> Edition)2017, 3113 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	No Relaxation

(Checked By)



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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample No.:		VEL/REL/W/01	Report No: VEL/W/2007030001			
S. No	Parameter	Test-Method	Result	Unit	Limits of IS:10500-2012	
					Requirement (Acceptable) Limit	Permissible limit in the Absence of Alternate Source
21.	Phenolic Compounds	APHA (23 <sup>rd</sup> Edition)2017, 5530 C	*BDL(**DL 0.001 mg/l)	mg/l	0.001	0.002
22.	Anionic Detergents as MBAS	APHA (23 <sup>rd</sup> Edition)2017, 5540 C	*BDL(**DL 0.02 mg/l)	mg/l	0.2	1.0
23.	Zinc as Zn	APHA (23 <sup>rd</sup> Edition)2017, 3113 B	*BDL(**DL 0.03 mg/l)	mg/l	5	15
24.	Copper as Cu	APHA (23 <sup>rd</sup> Edition)2017, 3111 B	*BDL(**DL 0.03 mg/l)	mg/l	0.05	1.5
25.	Manganese as Mn	APHA (23 <sup>rd</sup> Edition)2017, 3111 B	*BDL(**DL 0.06 mg/l)	mg/l	0.1	0.3
26.	Cadmium as Cd	APHA (23 <sup>rd</sup> Edition)2017, 3113 B	*BDL(**DL 0.06 mg/l)	mg/l	0.003	No Relaxation
27.	Lead as Pb	APHA (23 <sup>rd</sup> Edition)2017, 3113 B	*BDL(**DL 0.13mg/l)	mg/l	0.01	No Relaxation
28.	Selenium as Se	APHA (23 <sup>rd</sup> Edition)2017, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	No Relaxation
29.	Arsenic as As	APHA (23 <sup>rd</sup> Edition)2017, 3114 B	*BDL(**DL 0.01 mg/l)	mg/l	0.01	0.05
30.	Mercury as Hg	APHA (23 <sup>rd</sup> Edition)2017, 3114 C	*BDL (**DL 0.001 mg/l)	mg/l	0.001	No Relaxation
31.	Total Coliform	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	
32.	E. Coli	IS 1622,1981(Reaffirmed 2003)	Absent	MPN/100ml	Shall not be detectable in any 100 ml sample	

Note: - \*BDL-Below Detection Limit, \*\*DL- Detection Limit

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
 Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
 MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/W/2007230001

Report No. : VEL/W/2007230001

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

Format No : 7.8 F-01

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Party Reference No : NIL

Reporting Date : 31/07/2020

Period of Analysis : 23/07/2020-31/07/2020

Receipt Date : 23/07/2020

Sample Description : GROUND WATER

Sampling Date : 18/07/2020

Location : R&R Colony (Open Well)

Sampling Quantity : 4.0 Ltr

Sample Collected by : VEL Team

Sampling Type : Grab

Preservation : 25°C

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits (as)	Permissible Limits (as per IS:
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.39	NA	6.5 to 8.5	No Relaxation
2	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	234.00	mg/l	500	2000
3	Total Alkalinity (as CaCO <sub>3</sub> )	IS: 3025 (Part 23): 1986, Reaff. 2019	97.00	mg/l	200	600
4	Total Hardness (as CaCO <sub>3</sub> )	IS: 3025 (Part 21): 2009, Reaff. 2019	152.00	mg/l	200	600
5	Nitrate (as NO <sub>3</sub> )	IS: 3025 (Part 34): 1988, Reaff. 2019	2.20	mg/l	45	No Relaxation
6	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	39.14	mg/l	250	1000
7	Sulphate (as SO <sub>4</sub> )	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	15.13	mg/l	200	400
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019	57.72	mg/l	75	200
9	Magnesium (as Mg)	IS: 3025 (Part 46): 1994, Reaff. 2009 (EDTA method)	*BDL(**DL- 2 mg/l)	mg/l	30	100
10	Fluorides (as F)	APHA 23rd Edition 2017, 4500 FD	0.23	mg/l	1.0	1.5
11	Total Iron (as Fe)	IS 3025(P-53): 2003 Reaffirm 2019	*BDL(**DL-0.1 mg/l)	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	Mercury (as Hg)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.0005 mg/l)	mg/l	0.001	No Relaxation
14	Lead (as Pb)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation
15	Cadmium (as Cd)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.002 mg/l)	mg/l	0.003	No Relaxation
16	Chromium (as Cr)	APHA 23rd Edition Year 2017 Method No. 3113 B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	No Relaxation
17	Copper (as Cu)	APHA 23rd Edition Year 2017 Method No. 3111B	*BDL(**DL-0.02mg/l)	mg/l	0.05	1.5
18	Zinc (as Zn)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.20 mg/l)	mg/l	5.0	15
19	Selenium (as Se)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
 Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
 MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/W/2007230001

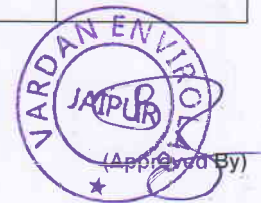
Report No. : VEL/W/2007230001

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits (as	Permissible Limits (as per IS:
19			mg/l)			
20	Total Coliform (By MPN Method)	IS:1622	Absent	MPN/100 ml	Shall not be Detectable in any 100 ml sample	NA
21	E-Coli	IS:1622	Absent	per 100 ml	Absent/100 ml	Absent/100 ml
22	Turbidity	IS 3025 (Part 10): 1984, Ref: 2017, (Nephelometric Method)	*BDL(**DL-1.0 NTU)	NTU	1	5
23	Aluminium	IS 3025 (Part-55): 2003, Reaff. 2019	*BDL(**DL-0.03mg/l)	mg/l	0.03	0.2
24	Manganese (as Mn)	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	*BDL(**DL-0.05 mg/l)	mg/l	0.1	0.3
25	Boron (as B)	APHA 23rd Edition Year 2017 Method No. 4500B	*BDL(**DL-0.2 mg/l)	mg/l	0.5	1.0
26	Cyanide (as CN)	APHA 23rd Edition 2017, 4500CN D	*BDL(**DL-0.05mg/l)	mg/l	0.05	No Relaxation
27	Colour	IS 3025: 1983 (P-4) Reaff. 2017	*BDL(**DL-1 Hazen )	Hazen	5	15
28	Odour	IS 3025 (P-5):2018	Agreeable	Qualitative	Agreeable	Agreeable
29	Taste	IS 3025(P-8):1984 Reaff. 2017	Agreeable	Qualitative	Agreeable	Agreeable
30	Phenolic Compound	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l	0.001	0.002
31	Anionic Surface Active Agent	APHA 23rd Edition 2017, 5540C	*BDL(**DL-0.05 mg/l)	mg/l	0.2	1.0
32	Free Residual Chlorine	IS: 3025 (Part 26): 1986 Reaff. 2019	*BDL(**DL-0.2 mg/l)	mg/l	0.2	1

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

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

  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

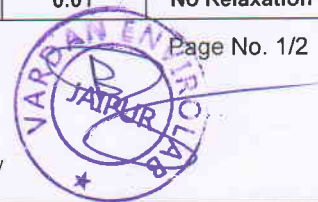
Sample Number : VELW/01  
Name & Address of the Party : M/s Raipur Energen Limited  
Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Sample Description : GROUND WATER  
Location : R&R Colony (Oper Well)  
Sample Collected by : VEL Team  
Preservation : 25°C  
Sampling and Analysis Protocol : IS 10500 -2012

Report No. : VELW/2008220003/A  
Format No : 7.8 F-01  
Party Reference No : NIL  
Reporting Date : 28/08/2020  
Period of Analysis : 22/08/2020-28/08/2020  
Receipt Date : 22/08/2020  
Sampling Date : 21/08/2020  
Sampling Quantity : 2 Ltr.  
Sampling Type : Grab

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits (as)	Permissible Limits (as per IS:
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.38	--	6.5 to 8.5	No Relaxation
2	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	241.00	mg/l	500	2000
3	Total Alkalinity (as CaCO <sub>3</sub> )	IS: 3025 (Part 23): 1986, Reaff. 2019	121.52	mg/l	200	600
4	Total Hardness (as CaCO <sub>3</sub> )	IS: 3025 (Part 21): 2009, Reaff. 2019	170.28	mg/l	200	600
5	Nitrate (as NO <sub>3</sub> )	IS: 3025 (Part 34): 1988, Reaff. 2019	1.58	mg/l	45	No Relaxation
6	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	44.68	mg/l	250	1000
7	Sulphate (as SO <sub>4</sub> )	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	22.37	mg/l	200	400
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019	65.07	mg/l	75	200
9	Magnesium (as Mg)	IS: 3025 (Part 46): 1994, Reaff. 2009 (EDTA method)	*BDL(**DL- 2 mg/l)	mg/l	30	100
10	Fluorides (as F)	APHA 23rd Edition 2017, 4500 FD	0.24	mg/l	1.0	1.5
11	Total Iron (as Fe)	IS 3025(P-53): 2003 Reaffirm 2019	*BDL(**DL-0.1 mg/l)	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	Mercury (as Hg)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.005 mg/l)	mg/l	0.001	No Relaxation
14	Lead (as Pb)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.05 mg/l)	mg/l	0.01	No Relaxation
15	Cadmium (as Cd)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.002 mg/l)	mg/l	0.003	No Relaxation
16	Chromium (as Cr)	APHA 23rd Edition Year 2017 Method No. 3113 B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	No Relaxation
17	Copper (as Cu)	APHA 23rd Edition Year 2017 Method No. 3111B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	1.5
18	Zinc (as Zn)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.20 mg/l)	mg/l	5.0	15
19	Selenium (as Se)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.05 mg/l)	mg/l	0.01	No Relaxation

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSA 45001

## Test Report

Sample Number : VEL/W/01

Report No. : VEL/W/2008220003/A

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits (as	Permissible Limits (as per IS:
19			mg/l			
20	Turbidity	IS 3025 (Part 10): 1984, Ref: 2017, (Nephelometric Method)	*BDL(**DL 1.0 NTU)	NTU	1	5
21	Aluminium	IS 3025 (Part-55): 2003, Reaff. 2019	*BDL(**DL-0.03 mg/l)	mg/l	0.03	0.2
22	Manganese (as Mn)	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	*BDL(**DL-0.05 mg/l)	mg/l	0.1	0.3
23	Boron (as B)	APHA 23rd Edition Year 2017 Method No. 4500B	*BDL(**DL-0.2 mg/l)	mg/l	0.5	1.0
24	Phenolic Compound	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l	0.001	0.002

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

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

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/W/01

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/W/2008220003/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sampling Date : 21/08/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Sample Description : GROUND WATER

Location : R&R Colony (Oper Well)

Sample Collected by : VEL Team

Preservation : 25°C

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits (as	Permissible Limits (as per IS:
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) Reaff. 2017	*BDL(**DL 1.0 Hazen)	Hazen Unit	5	15
5	Odour	IS 3025 (P-5):2018	Agreeable	Qualitative	Agreeable	Agreeable
6	Taste	IS 3025(P-8):1984 Reaff. 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	Free Residual Chlorine	IS: 3025 (Part 26): 1986 Reaff. 2019	*BDL(**DL-0.2 mg/l)	mg/l	0.2	1

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

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

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/RELM/GW/01

Report No. : VEL/W/2009250001/A

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

Format No : 7.8 F-01

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Party Reference No : NIL

Reporting Date : 30/09/2020

Period of Analysis : 25/09/2020-30/09/2020

Receipt Date : 25/09/2020

Sample Description : GROUND WATER

Sampling Date : 22/09/2020

Location : R & R Colony (Open Well)

Sampling Quantity : 2 Ltr.

Sample Collected by : VEL Team

Sampling Type : Grab

Preservation : Suitable Preservation

Sampling and Analysis Protocol : IS 10500 -2012

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits (as)	Permissible Limits (as per IS:
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.45	NA	6.5 to 8.5	No Relaxation
2	Total Dissolved Solids	IS 3025 (P-16): 1984 Reaff 2017	218.00	mg/l	500	2000
3	Total Alkalinity (as CaCO <sub>3</sub> )	IS: 3025 (Part 23): 1986, Reaff. 2019	113.12	mg/l	200	600
4	Total Hardness (as CaCO <sub>3</sub> )	IS: 3025 (Part 21): 2009, Reaff. 2019	138.60	mg/l	200	600
5	Nitrate (as NO <sub>3</sub> )	IS: 3025 (Part 34): 1988, Reaff. 2019	2.46	mg/l	45	No Relaxation
6	Chloride (as Cl)	IS: 3025 (Part 32): 1988, Reaff. 2019	35.22	mg/l	250	1000
7	Sulphate (as SO <sub>4</sub> )	IS: 3025 (Part 24): 1986, Reaff. 2019 Turbidity Method	11.49	mg/l	200	400
8	Calcium (as Ca)	IS: 3025 (Part 40): 1991 Reaff. 2019	52.38	mg/l	75	200
9	Magnesium (as Mg)	IS: 3025 (Part 46): 1994, Reaff. 2009 (EDTA method)	*BDL(**DL- 2 mg/l)	mg/l	30	100
10	Fluorides (as F)	APHA 23rd Edition 2017, 4500 FD	0.21	mg/l	1.0	1.5
11	Total Iron (as Fe)	IS 3025(P-53): 2003 Reaffirm 2019	*BDL(**DL-0.1 mg/l)	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	Mercury (as Hg)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.0005 mg/l)	mg/l	0.001	No Relaxation
14	Lead (as Pb)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation
15	Cadmium (as Cd)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.002 mg/l)	mg/l	0.003	No Relaxation
16	Chromium (as Cr)	APHA 23rd Edition Year 2017 Method No. 3113 B	*BDL(**DL-0.02 mg/l)	mg/l	0.05	No Relaxation
17	Copper (as Cu)	APHA 23rd Edition Year 2017 Method No. 3111B	*BDL(**DL-0.02mg/l)	mg/l	0.05	1.5
18	Zinc (as Zn)	APHA (23rd edition-2017), 3030D, 3113 B	*BDL(**DL-0.20 mg/l)	mg/l	5.0	15
19	Selenium (as Se)	APHA (23rd edition-2017), 3114C	*BDL(**DL-0.005 mg/l)	mg/l	0.01	No Relaxation

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised |ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/RELM/GW/01

Report No. : VEL/W/2009250001/A

S.No.	Parameters	Protocols	Results	Units	IS:10500-2012	
					Acceptable Limits (as)	Permissible Limits (as per IS)
19			mg/l)			
20	Turbidity	IS 3025 (Part 10): 1984, Ref: 2017, (Nephelometric Method)	*BDL(**DL-1.0 NTU)	NTU	1	5
21	Aluminium	IS 3025 (Part-55): 2003, Reaff. 2019	*BDL(**DL-0.03 mg/l)	mg/l	0.03	0.2
22	Manganese (as Mn)	IS: 3025 (Part 46): 1994, Reaff. 2019 (EDTA method)	*BDL(**DL-0.05 mg/l)	mg/l	0.1	0.3
23	Boron (as B)	APHA 23rd Edition Year 2017 Method No. 4500B	*BDL(**DL-0.2 mg/l)	mg/l	0.5	1.0
24	Phenolic Compound	APHA 23rd Edition 2017, 5530C	*BDL(**DL-0.1 mg/l)	mg/l	0.001	0.002
25	Free Residual Chlorine	IS: 3025 (Part 26): 1986 Reaff. 2019	*BDL(**DL-0.2 mg/l)	mg/l	0.2	1

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

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

  
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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
 Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
 MoEF & CC Recognised [ISO 9001 | OHSAS 45001]

## Test Report

Sample Number : VEL/RELM/GW/01  
 Name & Address of the Party : M/s Raipur Energen Limited  
 Village: Raikheda, Block-Tilda Dist. Raipur -493225  
 (CG)Talabira Mines

Report No. : VEL/W/2009250001/B  
 Format No : 7.8 F-01  
 Party Reference No : NIL  
 Reporting Date : 30/09/2020  
 Period of Analysis : 25/09/2020-30/09/2020  
 Receipt Date : 25/09/2020  
 Sampling Date : 22/09/2020  
 Sampling Quantity : 2 Ltr.  
 Sampling Type : Grab

Sample Description : GROUND WATER  
 Location : R & R Colony (Open Well)  
 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 (as)	Permissible Limits (as per IS:
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) Reaff. 2017	*BDL(**DL-1 Hazen )	Hazen	5	15
5	Odour	IS 3025 (P-5):2018	Agreeable	Qualitative	Agreeable	Agreeable
6	Taste	IS 3025(P-8):1984 Reaff. 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

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

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

*Miel*  
(Checked By)



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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Certificate

**Sample Number:** VEL/REL/S/01  
**Name & Address of the Party:** M/s Raipur Energen Limited,  
Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)  
**Report No.:** VEL/ S/2005250001  
**Format No.:** 5.10 F-01  
**Party Reference No.:** NIL  
**Reporting Date:** 30/05/2020  
**Sample Description:** SOIL SAMPLE  
**Period of Analysis:** 25-30/05/2020  
**Sample Location:** Khinda Village  
**Receipt Date:** 25/05/2020  
**Sample Collected by:** Vardan EnviroLab Team  
**Sampling Date:** 22/05/2020  
**Packing Status:** Temp Sealed  
**Sampling Quantity:** 2.0 Kg  
**Parameter Required:** As per Work Order  
**Sampling Type:** Composite  
**Sampling and Analysis Protocol:** IS 2720, USEPA 3050B & USDA

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P- 26): 1987, RA: 2016	6.89	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2016	0.108	mS/cm
3.	Color	USDA Method, 1968	Grey	--
4.	Organic Matter	IS:2720 (P-22, RA2009)	1.45	%
5.	Zinc (as Zn)	USEPA 3050B	68.0	mg/kg
6.	Manganese (as Mn )	USEPA 3050B	226.4	mg/kg
7.	Lead (as Pb)	USEPA 3050B	21.3	mg/kg
8.	Cadmium (as Cd )	USEPA 3050B	3.56	mg/kg
9.	Chromium (as Cr)	USEPA 3050B	5.72	mg/kg
10.	Copper (as Cu )	USEPA 3050B	14.35	mg/kg

  
(Checked By)

  
(Approved By)

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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number: VEL/REGL/S/01  
Name & Address of the Party: M/s Raipur Energen Limited,  
Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)  
Sample Description: SOIL SAMPLE  
Sample Location: Khinda Village  
Sample Collected by: Vardan EnviroLab Team  
Packing Status: Temp Sealed  
Parameter Required: As per Work Order  
Sampling and Analysis Protocol: IS 2720, USEPA 3050B & USDA

Report No.: VEL/ S/2007030001  
Format No.: 5.10 F-01  
Party Reference No.: NIL  
Reporting Date: 07/07/2020  
Period of Analysis: 03-07/07/2020  
Receipt Date: 03/07/2020  
Sampling Date: 30/06/2020  
Sampling Quantity: 2.0 Kg  
Sampling Type: Composite

S. No.	Parameter	Test-Method	Result	Unit
1.	pH (at 25 °C)	IS : 2720 (P- 26): 1987, RA: 2016	6.75	--
2.	Conductivity	IS:14767-2000 Reaffirmed 2016	0.124	mS/cm
3.	Soil Texture	IS : 2720 (P-4, RA1995)	Silty Clay	--
4.	Color	USDA Method, 1968	Grey	--
5.	Water holding capacity	USDA Method, 1968	43.6	%
6.	Bulk density	USDA Method, 1968	1.38	gm/cc
7.	Chloride as Cl	USDA Method, 1968	49.5	mg/kg
8.	Calcium as Ca	USDA Method, 1968	164.6	mg/kg
9.	Sodium as Na	USDA Method, 1968	124.3	mg/kg
10.	Potassium as K	USDA Method, 1968	96.4	kg/hect.
11.	Organic Matter	IS:2720 (P-22, RA2009)	1.53	%
12.	Magnesium as Mg	USDA Method, 1968	148.6	mg/kg
13.	Available Nitrogen as N	IS:14684, RA2006	87.4	kg/hect.
14.	Available Phosphorus	USDA Method, 1968	34.2	kg/hect.

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/S0/2007230001

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Sample Description : SOIL

Location : Village-Khinda

Sample Collected by : VEL Team

Parameter Required : As Per Work Order

Sampling and Analysis Protocol : IS 2720, APHA & USDA

Report No. : VEL/S0/2007230001

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 27/07/2020

Period of Analysis : 23/07/2020-27/07/2020

Receipt Date : 23/07/2020

Sampling Date : 18/07/2020

Sampling Quantity : 2.0 Kg.

Sampling Type : Composite

Packing Status : Temp. Packing

S.No.	Parameters	Test Method	Results	Units
1	pH (at 25°C)	IS : 2720 (P- 26): 1987,	7.2	-
2	Electrical Conductivity	IS 14767: 2000 RA.:	0.14	mS/cm
3	colour	USDA:1954-Reaffirmed,2010	Grey	-
4	Water holding capacity	USDA:1954-Reaffirmed,2010	42.3	%
5	Bulk density	USDA:1954 (Page-96) RA: 2014	1.30	gm/cc
6	Chloride	USDA:1954 Method 13 (Page-98) RA: 2010	58.54	mg/kg
7	Calcium (as Ca)	Lab SOP no. VEL/STP/01: 2018	147.5	mg/kg
8	Sodium (as Na)	USDA:1954 Method 10A (Page-96) RA: 2010	175.23	mg/kg
9	Potassium (as K)	Lab SOP no. VEL/STP/01: 2018	105.05	mg/kg
10	Organic Matter	IS 2720 (P-22) 1972 RA:	1.10	%
11	Magnesium (as Mg)	Lab SOP no. VEL/STP/01: 2018	129.86	mg/kg
12	Available Nitrogen (as N)	IS : 14684,1999 RA: 2015	179.1	kg./hec.
13	Phosphorus	Lab SOP no. VEL/STP/01: 2018	31.2	kg./hec.
14	Soil Texture	IS:2720 (P-4) RA:2006	Silty Clay	--

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

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/S/01  
Name & Address of the Party : M/s Raipur Energen Limited  
Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Sample Description : SOIL  
Location : Village- Khinda  
Sample Collected by : VEL Team  
Parameter Required : As Per Work Order  
Sampling and Analysis Protocol : IS 2720, APHA & USDA

Report No. : VEL/S0/2008220001/A  
Format No : 7.8 F-01  
Party Reference No : NIL  
Reporting Date : 28/08/2020  
Period of Analysis : 22/08/2020-28/08/2020  
Receipt Date : 22/08/2020  
Sampling Date : 21/08/2020  
Sampling Quantity : 2 Kg.  
Sampling Type : Composite  
Packing Status : Temp. Sealed

S.No.	Parameters	Test Method	Results	Units
1	pH (at 25°C)	IS : 2720 (P- 26): 1987,RA: 2016	7.44	-
2	Electrical Conductivity	IS 14767: 2000 RA:2016	0.148	mS/cm
3	Water holding capacity	USDA:1954-Reaffirmed,2010	41.8	%
4	Bulk density	USDA:1954 (Page-96) RA: 2014	1.36	gm/cc
5	Chloride	USDA:1954 Method 13 (Page-98) RA: 2010	57.13	mg/kg
6	Calcium (as Ca)	Lab SOP no. VEL/STP/01: 2018	149.2	mg/kg
7	Sodium (as Na)	USDA:1954 Method 10A (Page-96) RA: 2010	178.24	mg/kg
8	Potassium (as K)	Lab SOP no. VEL/STP/01: 2018	114.6	mg/kg
9	Organic Matter	IS 2720 (P-22) 1972 RA:2015	1.2	%
10	Magnesium (as Mg)	Lab SOP no. VEL/STP/01: 2018	108.74	mg/kg
11	Available Nitrogen (as N)	IS : 14684,1999 RA: 2015	158.12	kg. /hec.
12	Available Phosphorus	Lab SOP no. VEL/STP/01: 2018	46.8	kg. /hec.

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

(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/S/01

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Sample Description : SOIL

Location : Village- Khinda

Sample Collected by : VEL Team

Parameter Required : As Per Work Order

Sampling and Analysis Protocol : IS 2720, APHA & USDA

Report No. : VEL/S0/2008220001/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sampling Date : 21/08/2020

Sampling Quantity : 2 Kg.

Sampling Type : Composite

Packing Status : Temp. Sealed

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed,2010	Grey	-
2	Soil Texture	IS:2720 (P-4) RA:2006	Silty Clay	--

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

  
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# Vardan EnviroLab

Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001

## Test Certificate

Sample Number:	VEL/REL/WW/01	Report No.:	VEL/WW/2005250001
Name & Address of the Party:	M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)	Format No.:	5.10 F-01
Sample Description:	WASTE WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	STP Outlet	Reporting Date:	30/05/2020
Sample Collected by:	Vardan EnviroLab Representative	Period of Analysis:	25/05/2020 to 30/05/2020
Preservation:	Refrigerated	Receipt Date:	25/05/2020
Parameter Required:	As Per Work order	Sampling Date:	22/05/2020
Sampling and Analysis Protocol:	APHA 23rd Edition 2017	Sampling Quantity:	2.0 Ltr

S. No.	Parameter	Test-Method	Result	Unit	*Standards		
					In-Land Surface Water	Public Sewers	Land for Irrigation
1.	pH (at 25 °C)	IS 3025 (P-11): 1983, RA: 2017	7.39	--	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
2.	BOD (3 Days at 27 °C)	IS: 3025 (P-44): 1993, RA: 2019	21.5	mg/l	30	350	100
3.	COD	IS : 3025 (P- 58) : 2006, RA: 2017	78.6	mg/l	250	--	--
4.	Total Suspended Solids	IS: 3025 (P-17): 1984, RA: 2017	16.5	mg/l	100	600	200
5.	Oil & Grease	IS 3025(P- 39):1991 RA : 2019	0.74	mg/l	10	20	10

Note: - \*BDL-Below Detection Limit, \*\*DL- Detection Limit

  
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# Vardan EnviroLab

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Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number:	VEL/REL/WW/01	Report No.:	VEL/WW/2007030001
Name & Address of the Party:	M/s Raipur Energen Limited, Village: Raikheda, Block-Tilda, Dist. Raipur - 493225 (CG)	Format No.:	5.10 F-01
Sample Description:	WASTE WATER SAMPLE	Party Reference No.:	NIL
Sample Location:	STP Outlet	Reporting Date:	07/07/2020
Sample Collected by:	Vardan EnviroLab Representative	Period of Analysis:	03/07/2020 to 07/07/2020
Preservation:	Refrigerated	Receipt Date:	03/07/2020
Parameter Required:	As Per Work order	Sampling Date:	30/06/2020
Sampling and Analysis Protocol:	APHA 23rd Edition 2017	Sampling Quantity:	2.0 Ltr

S. No.	Parameter	Test-Method	Result	Unit	*Standards		
					In-Land Surface Water	Public Sewers	Land for Irrigation
1.	pH (at 25 °C)	IS 3025 (P-11): 1983, RA: 2017	7.42	--	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
2.	BOD (3 Days at 27 °C)	IS: 3025 (P-44): 1993, RA: 2019	21.0	mg/l	30	350	100
3.	COD	IS : 3025 (P- 58) : 2006, RA: 2017	79.3	mg/l	250	--	--
4.	Total Suspended Solids	IS: 3025 (P-17): 1984, RA: 2017	18.3	mg/l	100	600	200
5.	Oil & Grease	IS 3025(P- 39):1991 RA : 2019	0.66	mg/l	10	20	10

Note: - \*BDL-Below Detection Limit, \*\*DL- Detection Limit

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised [ISO 9001 | OHSAS 45001]

## Test Report

Sample Number : VEL/WW/2007230001

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Report No. : VEL/WW/2007230001

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 27/07/2020

Period of Analysis : 23/07/2020-27/07/2020

Receipt Date : 23/07/2020

Sampling Date : 18/07/2020

Sampling Quantity : 2.0 Ltr

Sampling Type : Grab

Sample Description : Waste Water

Location : STP Outlet

Sample Collected by : VEL Team

Preservation : 25°C

Parameter Required : As Per Work Order

Analysis Protocol : IS 3025

S.No.	Test Parameters	Test Method	Result	Unit	Standards		
					Inland Surface Water	Public Sewers	Land for irrigation
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.36	-	5.5 - 9.0	5.5 - 9.0	5.5 - 9.0
2	Total Suspended Solids	IS: 3025 (Part 17): 1984, Reaff. 2017	19.1	mg/l	100.0	600.0	200.0
3	Oil & Grease	IS 3025(P-39):1991 RA 2019	0.80	mg/l	10.0	20.0	10.0
4	BOD (3 days @ 27°C )	IS: 3025 (Part-44): 1993, Ref: 2019	16.5	mg/l	30.0	350.0	100.0
5	COD	IS : 3025 (Part 58) : 2006 Ref: 2017	69.13	mg/l	250.0	--	--

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

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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035  
Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051  
MoEF & CC Recognised | ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/WW/01

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

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Sample Description : Waste Water

Location : STP Outlet

Sample Collected by : VEL Team

Parameter Required : As Per Work Order

Sampling and Analysis Protocol : IS 3025

Report No. : VEL/WW/2008220001/A

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 28/08/2020

Period of Analysis : 22/08/2020-28/08/2020

Receipt Date : 22/08/2020

Sampling Date : 21/08/2020

Sampling Quantity : 2 Ltr.

Sampling Type : Grab

Packing Status : Temp. Sealed

S.No.	Test Parameters	Test Method	Result	Unit	Prescribed Limit
1	pH	IS 3025 (P-11): 1983 Reaff. 2017	7.42	-	5.5 - 9.0
2	Total Suspended Solids	IS: 3025 (Part 17): 1984, Reaff. 2017	21.7	mg/l	100.0
3	Oil & Grease	IS 3025(P-39):1991 RA 2019	0.70	mg/l	10.0
4	BOD (3 days @ 27°C )	IS: 3025 (Part-44): 1993, RA: 2019	19.2	mg/l	30.0
5	COD	IS : 3025 (Part 58) : 2006 RA: 2017	79.4	mg/l	250.0

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

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## Test Report

<b>Sample Number :</b> VEL/RELM/WW/01	<b>Report No. :</b> VEL/WW/2009250001/A
<b>Name &amp; Address of the Party :</b> M/s Raipur Energen Limited Village: Raikheda, Block-Tilda Dist. Raipur -493225 (CG)Talabira Mines	<b>Format No :</b> 7.8 F-01
	<b>Party Reference No :</b> NIL
	<b>Reporting Date :</b> 29/09/2020
	<b>Period of Analysis :</b> 25/09/2020-29/09/2020
<b>Sample Description :</b> Waste Water	<b>Receipt Date :</b> 25/09/2020
<b>Location :</b> STP Outlet	<b>Sampling Date :</b> 22/09/2020
<b>Sample Collected by :</b> VEL Team	<b>Sampling Quantity :</b> 2 Ltr.
<b>Parameter Required :</b> As Per Work Order	<b>Sampling Type :</b> Grab
<b>Sampling and Analysis Protocol :</b> IS 3025	<b>Packing Status :</b> Temp. Sealed

S.No.	Test Parameters	Test Method	Result	Unit	Prescribed Limit
1	pH	IS 3025 (P-11): 1983 RA2017	7.53	-	5.5 - 9.0
2	Total Suspended Solids	IS: 3025 (Part 17): 1984, RA2017	24.7	mg/l	100.0
3	Oil & Grease	IS 3025(P-39):1991 RA 2019	1.1	mg/l	10.0
4	BOD (3 days @ 27°C )	IS: 3025 (Part-44): 1993, RA: 2019	16.8	mg/l	30.0
5	COD	IS : 3025 (Part 58) : 2006 RA: 2017	72.1	mg/l	250.0

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

*Mie*  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF &amp; CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/RELM/S/01

Report No. : VEL/S0/2009250001/A

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

Format No : 7.8 F-01

Village: Raikheda, Block-Tilda Dist. Raipur -493225  
(CG)Talabira Mines

Party Reference No : NIL

Reporting Date : 29/09/2020

Period of Analysis : 25/09/2020-29/09/2020

Sample Description : SOIL

Receipt Date : 25/09/2020

Location : Village- Khinda

Sampling Date : 22/09/2020

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 &amp; USDA

Packing Status : Temp. Sealed

S.No.	Parameters	Test Method	Results	Units
1	pH (at 25°C)	IS : 2720 (P- 26): 1987,RA: 2016	7.58	-
2	Electrical Conductivity	IS 14767: 2000 RA:2016	0.162	mS/cm
3	Water holding capacity	USDA:1954-Reaffirmed,2010	43.10	%
4	Bulk density	USDA:1954 (Page-96) RA: 2014	1.31	gm/cc
5	Chloride	USDA:1954 Method 13 (Page-98) RA: 2010	77.7	mg/kg
6	Calcium (as Ca)	Lab SOP no. VEL/STP/01: 2018	141.3	mg/kg
7	Sodium (as Na)	USDA:1954 Method 10A (Page-96) RA: 2010	184.32	mg/kg
8	Potassium (as K)	Lab SOP no. VEL/STP/01: 2018	121.24	kg/hect.
9	Organic Matter	IS 2720 (P-22) 1972 RA:2015	0.91	%
10	Magnesium (as Mg)	Lab SOP no. VEL/STP/01: 2018	114.03	mg/kg
11	Available Nitrogen (as N)	IS : 14684,1999 RA: 2015	164.6	kg. /hect.
12	Available Phosphorus	Lab SOP no. VEL/STP/01: 2018	43.0	kg. /hect.

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

*Mia*  
(Checked By)



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Laboratory: Plot No. 24, 25, Narayan Vihar B Block, Jaipur (Raj.) 302035

Corp. Off.: Plot No. 82A, Sector- 5, IMT Manesar, Gurugram- 122051

MoEF & CC Recognised (ISO 9001 | OHSAS 45001)

## Test Report

Sample Number : VEL/RELM/S/01

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

Village: Raikheda, Block-Tiida Dist. Raipur -493225  
(CG)Talabira Mines

Sample Description : SOIL

Location : Village- Khinda

Sample Collected by : VEL Team

Parameter Required : As Per Work Order

Sampling and Analysis Protocol : IS 2720, APHA & USDA

Report No. : VEL/S0/2009250001/B

Format No : 7.8 F-01

Party Reference No : NIL

Reporting Date : 29/09/2020

Period of Analysis : 25/09/2020-29/09/2020

Receipt Date : 25/09/2020

Sampling Date : 22/09/2020

Sampling Quantity : 2 Kg.

Sampling Type : Composite

Packing Status : Temp. Sealed

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed,2010	Grey	-
2	Soil Texture	IS:2720 (P-4) RA:2006	Silty Clay	--

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

*Mud*  
(Checked By)



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## Chapter – 5.0

### CONCLUSION

M/s. Raipur Energen Limited, Talabira I Opencast Coalmine 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.

<b>Sr. No.</b>	<b>Environmental Parameters</b>	<b>Conclusion</b>
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 <sub>2</sub> , NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , 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 Mining activities of M/s Raipur Energen Limited at Talabira I Opencast Coalmine is not causing any adverse impact on the human health and ecological balance.