Essar Oil and Gas Exploration and Production Ltd
Essar House - Durgapur
Village & Post Office – Molandighi
Block - Kanksa
Durgapur Sub-Division
Dist. - Paschim Bardhhaman
Durgapur – 713212
West Bengal
India

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EOGEPL/ CBM-RG (E)/ HSE/2024/5800

18th May, 2024

The Regional Director
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office, Kolkata
IB – 198, Sector-III, Salt Lake City, Kolkata – 700106.

Sub: Submission of the Six-monthly Compliance Report of Environment Clearance, Phase-III and its amendments by Essar Oil Gas Exploration and Production Limited (EOGEPL) reg.

Ref: *Environmental Clearance, Phase-III vide F. No. J-11011/491/2011-IA II (I) dated 26th February, 2013 and its amendments dated* 27th November, 2017; *9th May 2019 &* 14th August, 2023.

Respected Sir/Madam,

We submit herewith the six-monthly compliance report w.r.t. the stipulated conditions of prior Environment Clearance, Phase III vide F. No. J-11011/491/2011-IA II (I), dated 26th February 2013 and its amendments dated 27th November, 2017; 9th May 2019 & 14th August, 2023.

The six-monthly compliance report is considered for the period of October'23 to March'24.

Thanking you for your continued support.

For Essar Oil and Gas Exploration and Production Limited

Warm Regards,

Vikram Goday

Vice President & Head- Facilities
Raniganj East, CBM Project-Durgapur

Enclosed: Annexure I, II, III, IV, V, VI, VII, VIII, IX, X

Copy to:

1. The Environmental Engineer, Durgapur Regional Office, WBPCB, Durgapur-713216

Essar Oil and Gas Exploration and Production Limited

RG (East)-CBM-2001/1 (Phase-III) Six-monthly Environment Clearance Progressive Compliance Report

(October'23 to March' 24)

Ref: Environmental Clearance F. No. J-11011/491/2011-IA II (I), dated 26th February 2013 and its amendment dated 27th November, 2017, 9th May, 2019 & 14th August, 2023.

<table>
<tr><th>S. No</th><th>Condition</th><th>Compliance Status</th></tr>
<tr><td>2.0</td><td>The Ministry of Environment & Forest has examined your application. It is noted that the proposal is for drilling of development & production wells along with Surface Facilities, Phase-III of CBM Block RG (E)-CBM-2001/1, Raniganj CBM Block, West Bengal by M/s Essar Oil Ltd. (E&P Division). Essar Oil Ltd. & Govt. of India signed a contract for exploration and production of coal bed methane (CBM) from block RG (East)-CBM-2001/1 on 26th July, 2002. Block is located in Raniganj Coal Field, West Bengal at latitude 23°21'45''N & 23°41'12"N and longitude 87°14'40"E & 87°28'46"E. Total block area is 500 Km^2 & spread in Burdwan, Birbhum and Bankura districts of West Bengal. Land requirement will be 2 acres/well site and 5 acres per GGS/MCS. Following are the co-ordinates of Block.
<table>
<tr><th>S.N.</th><th colspan="3">Latitude (N)</th><th colspan="3">Longitude (N)</th></tr>
<tr><td>A</td><td>23°</td><td>41'</td><td>12"</td><td>87°</td><td>25'</td><td>02"</td></tr>
<tr><td>B</td><td>23°</td><td>40'</td><td>38"</td><td>87°</td><td>26'</td><td>45"</td></tr>
<tr><td>C</td><td>23°</td><td>40'</td><td>00"</td><td>87°</td><td>27'</td><td>16"</td></tr>
<tr><td>D</td><td>23°</td><td>39'</td><td>05"</td><td>87°</td><td>27'</td><td>09"</td></tr>
<tr><td>E</td><td>23°</td><td>38'</td><td>50"</td><td>87°</td><td>25'</td><td>52"</td></tr>
<tr><td>F</td><td>23°</td><td>37'</td><td>14"</td><td>87°</td><td>25'</td><td>33"</td></tr>
<tr><td>G</td><td>23°</td><td>34'</td><td>47"</td><td>87°</td><td>26'</td><td>17"</td></tr>
<tr><td>H</td><td>23°</td><td>32'</td><td>51"</td><td>87°</td><td>28'</td><td>46"</td></tr>
<tr><td>I</td><td>23°</td><td>31'</td><td>45"</td><td>87°</td><td>28'</td><td>46"</td></tr>
<tr><td>J</td><td>23°</td><td>30'</td><td>00"</td><td>87°</td><td>27'</td><td>35"</td></tr>
<tr><td>K</td><td>23°</td><td>29'</td><td>15"</td><td>87°</td><td>26'</td><td>45"</td></tr>
<tr><td>L</td><td>23°</td><td>27'</td><td>35"</td><td>87°</td><td>27'</td><td>25"</td></tr>
<tr><td>M</td><td>23°</td><td>26'</td><td>35"</td><td>87°</td><td>27'</td><td>25"</td></tr>
<tr><td>N</td><td>23°</td><td>23'</td><td>00"</td><td>87°</td><td>26'</td><td>10"</td></tr>
<tr><td>O</td><td>23°</td><td>22'</td><td>10"</td><td>87°</td><td>26'</td><td>00"</td></tr>
<tr><td>P</td><td>23°</td><td>21'</td><td>45"</td><td>87°</td><td>25'</td><td>00"</td></tr>
<tr><td>Q</td><td>23°</td><td>24'</td><td>15"</td><td>87°</td><td>20'</td><td>00"</td></tr>
<tr><td>R</td><td>23°</td><td>27'</td><td>30"</td><td>87°</td><td>16'</td><td>30"</td></tr>
<tr><td>S</td><td>23°</td><td>30'</td><td>00"</td><td>87°</td><td>14'</td><td>40"</td></tr>
<tr><td>T</td><td>23°</td><td>32'</td><td>10"</td><td>87°</td><td>15'</td><td>45"</td></tr>
<tr><td>U</td><td>23°</td><td>35'</td><td>10"</td><td>87°</td><td>18'</td><td>00"</td></tr>
<tr><td>V</td><td>23°</td><td>37'</td><td>00"</td><td>87°</td><td>20'</td><td>00"</td></tr>
<tr><td>W</td><td>23°</td><td>39'</td><td>45"</td><td>87°</td><td>25'</td><td>20"</td></tr>
</table></td><td>Complied with.

Company Name change was done from Essar Oil Ltd. (E & P Division) to Essar Oil and Gas Exploration and Production Ltd. (EOGEPL) vide F. No. J-11011/491/2011-IA II (I) dated 27th November, 2017 from MoEF&CC.

The EC amendment for the exploration of shale gas was granted vide MoEF&CC F. No. J-11011/491/2011-IA II (I) dated 9th May, 2019.

Till EOGEPL drilled only 236 nos. of CBM wells in non-forest area under the EC, Phase III. Whereas, in total EOGEPL drilled 412 nos. of wells through different phases (Phase-I, II & III) of ECs.

No activities as per phase I & II are now pending or presently being carried out.

Out of 9.8 Km^2 area outside of the block boundary, 7 Km^2 granted by DGH outside the block boundary vide F. No. Expl- 11019(18)/611/2017-Expl.I-PNG (E-10267) dated 5th September, 2023.

The project cost and the activities proposed are well noted.

Out of the activities proposed the details completed as of date is presented in the table below.
<table>
<tr><th>Type</th><th>Approved</th><th>Completed/ongoing</th><th>Balance</th></tr>
<tr><td>CBM development & production well</td><td>630</td><td>236</td><td>394</td></tr>
<tr><td>Shale well (exploration)</td><td>20</td><td>ongoing</td><td>20</td></tr>
<tr><td>Gas Gathering Station (GGS)</td><td>8</td><td>3</td><td>5</td></tr>
<tr><td>Main Compressor Station (MCS)</td><td>1</td><td>1</td><td>0</td></tr>
</table>
Interconnecting and transportation pipeline network with a diameter range of 4"-18" has been laid.

Total estimated production of CBM from the proposed project is 5 million m^3/day.

Presently, we reached to produce ~0.9 MMSCMD CBM gas</td></tr>
</table>

	Out of 500 Km^2 block area, phase – III project is proposed in 190.3 Km^2 block area. Out of 180.5 Km^2 area falls within the existing CBM block in Burdwan district, WB with an additional 9.8 Km^2 area located outside the block abutting the western boundary. No national park/sanctuary is located within 10 Km radius of the block. No diversion of forest land is involved. River Damodar and River Ajay are flowing in the block. Total project cost is Rs. 2866 Crore. Following activities are proposed: i) Total no. of wells-650 (each well pad will have one vertical and several directional wells, optimized for the location and geology of the well pad) with the target depth of ~2000 m (618 wells in 180.5 Km^2 of block area and 32 wells in 9.8 Km^2 of additional area). Out of the total 650 wells, 107 wells falling within the Durgapur Municipal Corporation Boundary. ii) 8 Nos. of Group Gathering Station (GGS) with the capacity 0, 45 MMSCMD each and 1 No. of Main Compressor Station (MCS) with capacity 3.0 MMSCMD. iii) Interconnecting and transportation pipeline network with a diameter range of 4"-18". iv) Total estimated production of CBM from the proposed project is 5 million m^3/day. Each well is estimated to generate a peak production of 15,000 m^3/day.	
3.0	Air emissions from DG sets will be dispersed by providing adequate stack height. Flaring will be done as per the CPCB guidelines. Fresh water requirement will be 125 m^3/well during drilling and 1 m^3/day for GGS/MCS operation. Water based mud (WBM) and synthetic based mud will be used. Effluent comprising mud will be treated in compact effluent treatment plant (ETP) comprising equalization, chemical quagulation, flocculation and clarification by settling. Residual unusable mud will be collected in lined pits and solar evaporated. Remaining mud will be reused in the drilling process. Produced water will be generated around 50 m^3/day and treated through reverse osmosis (RO) before utilizing for agriculture, domestic purposes, preparation of mud. Drill cutting (DC) will be separated from water based mud (WBM) and washed properly and unusable drilling fluids (DF) will be disposed off in well-designed lined pit with impervious liner for solar drying. Disposal of drill cuttings and drill mud will be carried out in accordance with the GSR 546 (E) dated 30th August, 2005. Used oil will be sent to authorised recyclers.	DG sets are in used confirming to CPCB guidelines providing adequate stack height. Generated produced water is treated through RO system and fulfilling the water requirement of project and operation. Minimal quantity of fresh water is being used whenever necessary. The produced water generated 50 m^3/well/day is completely reused for drilling and washing purpose. Only water based mud is being used for drilling. Drilling waste processing plant is operational to treat the effluent comprising mud and drill cuttings. Non-hazardous drill cuttings are used for well pad development and unusable drilling fluid is disposed off in well-designed lined pit with impervious liner for solar drying. We are in compliance with the GSR 546 (E) dated 30th August, 2005. Used oil are sent to authorize recyclers.
4.0	All the oil and gas production projects are listed at S.N. 1(b) under Category 'A' and appraised at the central level.	Noted.
5.0	The proposal was considered by the Expert Appraisal Committee (Industry-2) in its 30th meeting held during 15th – 16th December, 2011 and reconstituted Expert Appraisal Committee (Industry) in its 2nd meeting held during 29th – 31st October, 2012 respectively.	Noted.
6.0	Public Hearing/ Public Consultation meeting conducted by the W.B. Pollution Control Board on 24th May, 2012.	Noted.
7.0	The Ministry of Environment and Forest hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 14th September, 2006 subject to strict compliance of the following specific and general conditions.	Noted.

Ref: Environmental Clearance F. No. J-11011/491/2011-IA II (I), dated 26th February 2013 and its amendment dated 27th November, 2017, 9th May, 2019 & 14th August, 2023.

A	Specific Conditions	
I.	Compliance to all the environmental conditions stipulated in the environmental clearance letter nos.J-11011/660/2007-IA-II(I) dated 6th May, 2008, J-11011/351/2009-IA-II(I) dated 23.09.2011 and its subsequent amendment shall be satisfactorily implemented.	Compliance to the environmental conditions stipulated in the Environment Clearance (EC) vide letter no. J-11011/660/2007-IA-II(I) dated 6th May, 2008, J-11011/351/2009-IA-II(I) dated 23.09.2011 and its' amendment dated 18th June 2012 are being satisfactorily implemented. Currently, no further activities are being undertaken with respect to the above mentioned EC and therefore no further change in status. The last compliance report was submitted to the Regional office of MoEF&CC on 6th December 2023.
II.	Compensation for the land acquisition to the land oustees, if any, and also for standing crop shall be paid as per the National Resettlement and Rehabilitation Policy (NRRP) 2007 or State Government norms. It may be ensured that compensation provided shall not be less than the norms of the NRRP, 2007	Land acquisition is conducted directly with the land owners and the compensation is paid as per the prevailing market rate and mutual consent. There are no involvement of Rehabilitation and Resettlement.
III.	Prior permission from the Ministry of Defence shall be obtained regarding impact of proposed plant on Panagarh, if any.	We don't have any major operation in Panagarh and hence no such impact. Prior permission from the Ministry of Defence has been obtained for Group/Gas Gathering Station (GGS) and Main Compressor Station (MCS), located around 12 km. apart from nearest GGS.
IV.	As proposed, no forest land shall be used for the proposed facilities	No forest land is used for the construction of well pads and installation of surface facilities in the project area.
V.	Ambient Air Quality shall be monitored near the closest human settlements as per the National Ambient Air Quality Emission Standards (NAAQES) issued by the Ministry vide G.S.R No. 826(E) dated 16th November, 2009 for PM10, PM2.5, SO2, NOx, CO, CH4, VOCs, HC, Non-Methane HC etc. Efforts shall be made to improve the ambient air quality of the area.	Ambient Air Quality (AAQ) Monitoring being carried out by the NABL accredited laboratory at well sites near to the closest human settlements as per the Ambient Air Quality Standards (NAAQS) issued by the Ministry vide G.S.R No. 826(E) dated 16th November, 2009 for PM10, PM2.5, SO2, NOX, CO, CH4, VOCs, HC, Non-methane HC. The AAQ monitoring results of last six months, i.e. October'23 to March'24 refer to ***Annexure I*.** Efforts to improve the AAQ of the area is being implemented through green belt development, water sprinkling and proper maintenance of equipment.
VI.	Mercury shall also be analysed in air, water and drill cuttings twice during drilling period	Mercury is being analysed in produced water, ambient air and drill cuttings, where Mercury level is below detection of the specified limit. The analysis results of Ambient Air (refer to ***Annexure I***), Produced Water (refer to **Annexure II***)* and toxicology analysis of drill cutting reveals that the mercury concentration observed below the detection limit, refer to ***Annexure III***.
VII.	The flare system shall be designed as per good oil field practices and Oil Industry Safety Directorate (OISD) guidelines. The company shall take necessary measures to prevent fire hazards and soil remediation as needed. At the place of ground flaring, the flare pit shall be lined with refractory bricks and efficient burning system. In case of overhead flare stacks, the stack height shall be provided as per the regulatory	The overhead flaring system has been installed as per OISD guidelines. The flare stack height is 30 m. for GGS and 50 m. for MCS. The measures delineated in the EIA/EMP are being maintained to prevent fire hazards. The following measures have been implemented.

	requirements and emission from stacks shall meet the MoEF/CPCB guidelines.	• Installation of electrical equipment has been done as per the approved hazardous zone classification of DGMS. • Major facilities like GGS, MCS, Warehouse etc. are well equipped with Fire hydrant system. • Dry chemical fire extinguishers are available at site. • Online methane gas analysers (CH_4) and portable multi gas detectors are in place. • Flame proof type lighting fixtures, push buttons and switches are used at drill site and facilities.
VIII.	The company shall make the arrangement for control of noise from the drilling activity, compressor station and DG sets by providing necessary mitigation measures such as proper acoustic enclosures to DG sets and meet the norms notified by the MoEF. Height of all the stacks/vents shall be as per the CPCB guidelines.	DG sets, Gas Generator Sets are in used confirming to CPCB guidelines of acoustic enclosure and providing adequate stack height. Regular noise monitoring is carried out at nearby localities. The results of noise monitoring refer to ***Annexure IV***.
IX.	The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR.546 (E) dated 30th August, 2005.	Compliance with. Drill cutting (non-toxic)) and drilling fluids (non-hazardous "Water Base Mud") are collected in HDPE lined pit at site. After that at treatment site, it is stored in RCC pit for further treatment through Drilling Waste Processing Plant. After treatment, the solid waste, drill cutting/dry cutting is used for well pad development.
X.	Total fresh water requirement should not exceed 125m3 for each well during drilling phase 1 m3/day for GGS/MCS. Prior permission shall be obtained from the Competent Authority and a copy submitted to the Ministry's Regional Office at Bhubaneswar	RO treated produced water is recycled/ reused in project activities and operation, therefore, no fresh water is used for drilling/project activities and operation. Ground water is used for potable purposes, where the permission is obtained from State Water Investigation Directorate (SWID), Govt. of West Bengal. Permission copy was submitted to Ministry's R.O at Bhubaneswar.
XI.	During well drilling, wastewater should be segregated into waste drilling fluid and drill cuttings. Drill cutting should be stored onsite impervious HDPE lined pit for solar evaporation and drying. Effluent should be properly treated and treated effluent should conform to CPCB standards. As proposed, produced water should be treated by reverse osmosis and reuse in drilling of new wells, fire hydrant system and other beneficial purposes. Domestic effluent should be disposed off through septic tank followed by soak pit.	Drilling wastewater (non-hazardous) & drill cuttings (non-toxic) collected in onsite impervious HDPE lined pit. At treatment site, it is stored in RCC pit for further treatment through Drilling Waste Processing Plant where drilling fluid and drill cutting are separated & treated. Treated effluent is conforming to the specified limit. Pit residual is solar evaporated and dry. Produced water is treated through Reverse Osmosis (RO) system (capacity 8100 cu. m. per day) and reused for drilling of new wells, fire hydrant and other beneficial purposes. RO water analysis results attached herewith, refer to ***Annexure V***. Domestic effluent is disposed off through septic tank to soak pit.
XII.	Ground water quality monitoring should be done to assess if produced water storage or disposal has any effect.	The ground water quality monitoring has been carried out in post-monsoon season (November'23).

		The Ground water analysis results refer to ***Annexure VI***.
XIII.	Drilling wastewater including drill cuttings, wash water shall be collected in disposal pit lined with HDPE lining, evaporated or treated and shall comply with the notified standards for on-shore disposal on land. Proper toxicological analysis shall be done to ensure there is no hazardous material. Copy of toxicological analysis shall be submitted to Ministry's Regional Office at Bhubaneswar.	Drilling wastewater including drill cuttings, wash water is collected onsite impervious HDPE lined pit at site. After that at treatment site, it is stored in RCC pit for further treatment through Drilling Waste Processing Plant. Treated effluent is conforming to the notified standards for onshore disposal at nearby stream. Dry cuttings are used for well pad development. Toxicological analysis of drill cutting refer to **Annexure III** reveals that all tested parameters are within the permissible limit.
XIV.	Water base drilling mud or synthetic based mud shall be used	Water base mud is used for drilling.
XV.	The company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during operation.	The necessary preventive measures have taken in place to prevent fire hazards, oil spill and soil remediation as follows. • Installation of electrical equipment has been done as per the approved hazardous zone classification of DGMS. • Major facilities like GGS, MCS, Ware House etc. are well equipped with fire hydrant system • Dry chemical fire extinguishers are available at all well sites. • Fixed and Portable type multi gas detectors are in used for work zone monitoring. Detectable gases are, CH_4, O_2, CO, H_2S. • Flame proof type lighting fixtures, push buttons and switches are used at drill site and facilities. • Impervious lining, secondary containment and spill kits are ensured, whenever there is a possibility of soil contamination. The overhead flaring stack with knockout drums have been installed to minimize gaseous emissions during operation.
XVI.	The company shall take necessary measures to prevent fire hazards and soil remediation as needed. The stacks of adequate height shall be provided to flare the gas, if required, to minimize gaseous emissions and heat load during flaring	The necessary preventive measures have taken in place to prevent fire hazards and soil remediation as follows. • Installation of electrical equipment has been done as per the approved hazardous zone classification of DGMS. • Major facilities like GGS, MCS, Warehouse etc. are well equipped with fire hydrant system • Dry chemical fire extinguishers are available at all well site. • Fixed and Portable type multi gas detectors are in used for work zone monitoring. Detectable gases are, CH_4, O_2, CO, H_2S. • Flame proof type lighting fixtures, push buttons and switches in the drill site facilities are used. • Impervious surface, secondary containment and spill kits are provided

		whenever there is a possibility of soil contamination. The overhead flaring stack with adequate height of 30 m. for GGS and 50 m. for MCS are provided to flare the gas, if required, to minimize gaseous emissions and heat load during flaring. During the period of October'23 to March'24, there was only ~0.04% technical/operational flaring of total production.
XVII.	To prevent underground coal fire, preventive measures shall be taken for ingress of ambient air during withdrawal inside the coal seams by adopting technologies including vacuum suction. Gas detectors for the detection of CH_4 and H_2S shall be provided.	There is no chance of ingress of ambient air, as the well is arrested with drive head and operational through Progressive Cavity Pump. Fixed and Portable type multi gas detector is used for the detection of CH_4, H_2S, O_2 and CO at Gas Gathering Station and production sites.
XVIII.	The design, material of construction, assembly, inspection, testing and safety aspects of operation and maintenance of pipeline and transporting the natural gas/oil shall be governed by ASME/ANSI B 31.8/B31.4 and OISD standard 141. Pipeline wall thickness and minimum depth of burial at river crossing and casings at rails, major road crossings should be in conformity with ANSI/ASME requirements.	All the surface facilities and pipelines have been installed as per the ASME/ANSI B 31.8 and OISD standards 141/226.
XIX.	The company shall develop a contingency plan for H_2S release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided with personal H_2S detectors in locations of high risk of exposure along with self-containing breathing apparatus.	H_2S is not present as per the analysis of gas tapped from the wells. However, all the necessary safety measures are delineated as per the Emergency Response Plan (ERP). Multi Gas detector is used at drilling and production sites to check the presence of gases in the work zone. All workforce is ensured with the standard PPEs according to the job requirement. Self-contained breathing apparatus is ensured as per the requirement.
XX.	Adequate well protection system shall be provided like Blow Out Preventer (BOP) or diverter systems as required based on the geological formation of the blocks.	CBM well hydrostatic pressures are normally less than 1.5 psi/m. However, considering the hydrostatic pressures and sensitivity of well, Blow Out Preventer or Diverter system adopted at the well head during drilling. Apart from this, other well control measures are ensured with, such as proper pre-well planning and drilling fluid logging to maintain hydrostatic pressure.
XXI.	The top soil removed shall be stacked separately for reuse during restoration process.	The top soil is spreaded over the designated areas for green belt development at facilities/well pad.
XXII.	Emergency Response Plan shall be based on the guidelines prepared by OISD, DGMS and Govt. of India. Recommendations mentioned in the Risk Assessment & Consequence Analysis and Disaster Management Plan shall be strictly followed.	Petroleum & Natural Gas Regulatory Board (PNGRB) approved Emergency Response & Disaster Management Plan (ERDMP) is operational.
XXIII.	Project proponent shall comply with the environment protection measures and safeguards recommended in the EIA/EMP/risk analysis report/disaster management plan	Environmental protection measures and safeguards recommended in EMP / Risk Analysis / Disaster Management Plan are being implemented and maintained.
XXIV.	The company shall take measures after completion of drilling process by well plugging and secured enclosures, decommissioning of rig upon abandonment of the well and drilling site shall be restored in original condition. In the event that no economic quantity of hydrocarbon is found a full abandonment shall be implemented for the drilling site in accordance with the applicable Indian Petroleum Regulations.	Till now no such full abandonment is done for any of the drilling site, however standard practices as per OISD and Indian Petroleum regulations are being followed for plugging and securing the drilled wells and it is taken into production process. It is noted that upon full abandonment/closure of

		wells/site, the site shall be restored to its original condition.
XXV.	Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.	All employees have undergone pre-employment medical examination. Periodical occupational health surveillance is conducted as per the approved schedule of Directorate- General of Mine Safety (DGMS).
XXVI.	Company shall adopt Corporate Environment Policy as per the Ministry's O.M.No.J-11013/41/2006-IA II(I) dated 26th April, 2011 and implemented.	Corporate Environment Policy has been framed and is being implemented and maintained.
XXVII.	All the commitments made to the public during the Public Hearing/Public Consultation meeting held on 24th May, 2012 shall be satisfactorily implemented and a separate budget for implementing the same shall be allocated and information submitted to the Ministry's Regional Office at Bhubaneswar.	Commitments given in the public hearing are being implemented. The amount, INR 32,61,552.00 has been utilized judicially towards socio-welfare development at thrust areas like Health, Education & Empowerment, Cultural Event, Infrastructure Development etc. of the villages surrounding of the project area for the FY 2023-24.
XXVIII.	At least 5% of the total cost of the project should be earmarked towards the enterprise social commitment and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program shall be ensured accordingly in a time bound manner.	The expenditure towards enterprise social commitment for the last six months, i.e. October'23 to March'24 refer to ***Annexure VII***.
XXIX.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied with, EOGEPL engage local labour for project activities. However, all the necessary infrastructure and facilities like porta- cabins, mobile toilets, septic tank & soak pit, safe drinking water, medical health care etc. are being provided.
B	**General Conditions**	
I.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.	EOGEPL is in compliance to the stipulations made by the State Pollution Control Board (SPCB), State Government and other statutory bodies.
II.	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	The Environment Clearance (EC) has been amended vide F. No. J-11011/491/2011-IA-II (I) dated 9th May, 2019. by the MoEF&CC for the modification of wells to be drilled (630 CBM wells with a target depth ~2000 m. and 20 exploratory wells for Shale gas with a target depth ~3000 m.). Thereafter, the said EC also got amended vide F. No. IA- J-11011/491/2011-IA-II (I) dated 14th August, 2023 by the MoEF&CC w.r.t. validity extension. Another proposal for the expansion of project vide Proposal No.- IA/WB/IND2/444341/2023 has been submitted by which ToR has been issued for the EIA study.
III.	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.	We comply the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Also, we are in compliance with the directions/guidelines/approval of Oil Mines Regulations 2017, Oil Industry Safety Directorate, Directorate General of Mine Safety and Petroleum and Explosives Safety Organization for CBM operation.

IV.	The project authorities must strictly comply with the rules and regulation with regarding to handling and disposal of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 wherever applicable. Authorization from the State Pollution Control Board must be obtained for collections/treatment/storage/ disposal of hazardous wastes.	We are in compliance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and obtained Hazardous Waste Authorization vide Memo No. - 190/2S (HW)-2449/2008, date- 28/12/2023. Annual return of the hazardous waste is submitted to WBPCB through online portal every year within the schedule time frame.
V.	The overall noise levels in and around the plant area shall be kept within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75dBA (daytime) and 70 dBA (night time)	DG sets, Gas Generator Sets are in used confirming to CPCB guidelines of acoustic enclosure and providing adequate stack height. Regular noise monitoring is carried out at nearby localities. The results of noise monitoring refer to ***Annexure IV***.
VI.	A separate Environmental Management Cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	A dedicated Environment Management Cell is functional for implementing the environment management plan at large. We conduct environmental monitoring by M/s Scientific Research laboratory, Kolkata (MoEF&CC recognized and NABL accredited).
VII.	As proposed, Rs.2.80 Crore earmarked for environment pollution control measures shall be used to implement the conditions	Complied with. The expenditure towards environment pollution control measures for the period of October'23 to March'24 refer to ***Annexure VIII***.
VIII.	The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	We always endeavour in coordination with the Regional office of this Ministry/Central Pollution Control Board/State Pollution Control Board for monitoring the stipulated conditions. Six-monthly compliance report along with annexures is submitted regular basis. Last submission date- 06/12/2023.
IX.	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/ Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	Complied with.
X.	The project proponent shall upload the status of compliance for the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF, the respective Zonal Office of CPCB and the WBPCB. The criteria pollutant levels namely; PM_{10}, $PM_{2.5}$, SO_2, NOx, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	The compliance report of environment clearance conditions including results of monitoring data is uploaded on EOGEPL website periodically and send it to the Regional Offices of MOEF&CC and WBPCB at regular intervals. The ambient air quality monitoring is carried out as per the National Ambient Air Quality Standards (NAAQS) issued by CPCB vide G.S.R No. 826(E) dated 16th November, 2009. The criteria pollutant levels namely; $PM_{2.5}$, SO_2, NOx, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) are monitored schedule wise and displayed at the main gate of warehouse. AAQ monitoring results refer to ***Annexure I.*** Stack emissions results refer to ***Annexure IX***.
XI.	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the	The six-monthly report on the status of the compliance of the stipulated environmental conditions including results of environmental

	Regional Office of MoEF, the respective Zonal Office of CPCB and the WBPCB. The Regional Office of this Ministry/CPCB/WBPCB shall monitor the stipulated conditions.	monitored data is submitted through e-mail to the Regional Office of MoEF&CC and hard copy is submitted to Durgapur Regional Office of WBPCB schedule wise.
XII.	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MoEF by e-mail	The Environmental Statement in Form-V is submitted to the Durgapur Regional Office, West Bengal Pollution Control Board in hard copy and Integrated Regional Office (IRO), MoEF&CC, Kolkata by e-mailing of the soft copy within the schedule time frame every year. The same is also uploaded on the EOGEPL website also.
XIII.	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the WBPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional Office.	Complied with.
XIV.	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	We obtained approval from Directorate General of Hydrocarbon (DGH) by submitting of Field Development Plan and Annual/ Revised Budget.
8.	The Ministry may revoke or suspend the clearance .if implementation of any of the above condition is not satisfactory	Noted.
9.	The ministry reserves the right to stipulate additional conditions if found necessary. The company in a time bound manner shall implement these conditions.	Noted.
10.	The above conditions will be enforced ,inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act,1981, the Environment (Protection) Act.1986, Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules , 2008 and the Public Liability Insurance Act ,1991 along with their amendments and rules.	Noted.
Ref.: Amendment of EC vide F. No. J-11011/491/2011-IA II (I) dated 27th November, 2017		
2	The Ministry had earlier issued environmental clearance for development & Production Wells along with Surface Facilities, Phase-III of CBM Block RG (E)-CBM-2001/1, Raniganj CBM Block, West Bengal in favour of M/s Essar Oil Limited (E&P Division) vide letter dated 26th February, 2013.	Noted.
3	M/s Essar Oil Limited has demerged its Exploration and Production (E&P) Division, which has now been transferred to a newly created wholly owned subsidiary namely M/s Essar Oil and Gas Exploration and Production Ltd (EOGEPL) and thus necessitating transfer of all requisite approvals in the name of new company.	Complied with.
4	M/s Essar Oil Limited has given 'No Objection Certificate' for transfer of environmental clearance granted vide letter dated 26th February, 2013 in the name of M/s Essar Oil and Gas Exploration and Production Limited.	Noted.
5	M/s Essar Oil and Gas Exploration and Production Limited has submitted an affidavit to abide by the terms and conditions stipulated in the environment clearance dated 26th February, 2013 issued in the name of M/s Essar Oil Limited (E&P Division).	Noted.

<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>6</td><td>As per the relevant provisions of the EIA Notification, 2006, the environmental clearance to the project 'Development & Production Wells alongwith Surface Facilities, Phase-III of CBM Block RG(E)-CBM-2001/1, Raniganj CBM Block, West Bengal granted by the Ministry vide letter No. J-11011/491/2011-IA-II dated 26th February, 2013 is hereby transferred from M/s Essar Oil Limited (E&P Division) to M/s Essar Oil and Gas Exploration and Production Limited, on the same terms and conditions under which prior environmental clearance was initially granted and for the same validity period.</td><td>Noted.</td></tr>
<tr><td>7</td><td>This issues with the prior approval of the Competent Authority</td><td>Noted.</td></tr>
<tr><td colspan="3">Ref.: Amendment of EC vide F. No. J-11011/491/2011-IA-II (I) dated 9th May ,2019</td></tr>
<tr><td>2</td><td>The proposal has been submitted for extension of validity of the said environmental clearance for a period of 3 years, and also amendment therein, with the details as under: -
<table>
<tr><th>S. No</th><th>Para of EC</th><th>Details as per the EC</th><th>To be revised/read as</th></tr>
<tr><td>1</td><td>2 (i)</td><td>Total no. of wells- 650 nos.</td><td>Out of total 650 wells. 20 wells proposed for exploration of shale gas</td></tr>
<tr><td>2</td><td>2 (i)</td><td>With the target depth of ~ 2000 m</td><td>With the target depth of ~ 2000 m of CBM 1 wells and ~3000 m of Shale Gas Well</td></tr>
</table></td><td>Noted.</td></tr>
<tr><td>3</td><td>The proposal was considered by the Expert Appraisal Committee (Industry-2) in the Ministry in its meeting held on 29-31 January, 2019. The Committee has recommended for the proposed amendment as above, and also extension of validity of the environmental clearance for a period of three years i.e. up to 26th February, 2023.</td><td>Noted.</td></tr>
<tr><td>4</td><td>Based on recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords approval to the proposed amendment in the environmental clearance dated 26th February, 2013, and extension of its validity for a period of three years i.e. up to 26th February, 2023.</td><td>Noted.</td></tr>
</table>

Ref: Environmental Clearance F. No. J-11011/491/2011-IA II (I), dated 26th February 2013 and its amendment dated 27th November, 2017, 9th May, 2019 & 14th August, 2023.

<table>
<tr><td>5</td><td>All other terms and conditions stipulated in the environmental clearance dated 26th February, 2013 shall remain unchanged.</td><td>Noted.</td></tr>
<tr><td colspan="3">Ref.: Amendment of EC vide F. No. IA- J-11011/491/2011-IA-II(I) dated 14th August, 2023</td></tr>
<tr><td>2</td><td>The Ministry of Environment, Forest and climate change has considered the above proposal for amendment in the environmental clearance granted by the Ministry vide F. No. J-11011/491/2011-IA-II(I) dated 26th February, 2013 for the project titled "Development & Production Wells along with Surface Facilities, Phase- III of CBM Block RG (E)–CBM-2001/1 located at Raniganj CBM Block, Durgapur, West Bengal by M/s Essar Oil and Gas Exploration and Production Limited". The project was given extension vide letter dated F. No. J-11011/491/2011-IA-II(I) dated 9th May, 2019 for three years which was valid up to 26th February, 2023.</td><td>Noted</td></tr>
<tr><td>3</td><td>The Project proponent requested to amendment for extension in the validity of EC with the details is as under.
<table>
<tr><th>S. No</th><th>Para of EC issued by MoEF&CC</th><th>Details as per the EC</th><th>To be revised/read as</th><th>Justification /Reason</th></tr>
<tr><td>01</td><td>Para-4 of EC vide F. No. J11011/491/2011-IA-II(I) dated 9th May ,2019</td><td>Based on the recommendation of the EAC, the Ministry of Environment, Forest and climate Change hereby accords approval to the proposed amendment in the environment clearance</td><td>Extension of validity of the Environment Clearance (EC) vide F. No. J-11011/491/2011-IA-II(I) dated 9th May, 2019 for a period of another 01 year i.e. up to 25th February ,2024, under the notification–S.O. 1807 (E), dated</td><td>Lagging Indicator:

EOGEPL has drilled only 193 CBM wells out of the planned 630 CBM wells under phase III development.

Drilling campaign was temporarily stopped in 2017, due to delay in pipeline connectivity poising a significant constrain to evacuate the CBM gas produced.

The pipeline commissioning timeliness further got extended due the pandemic situation created by COVID 19 Coronavirus and the nation-wide lockdown.

Non availability of the evacuation pipeline and the pandemic has badly affected our operations</td></tr>
</table></td><td>Noted.</td></tr>
</table>

			dated 26th Februar y ,2013, and extensi on of its validity for a period of 3 years i e. up to 26th Februar y ,2023.	12th April 2022 of the Ministry.	and delayed the planned development activities **Leading Indicator** Urja Ganga Pipeline (UGPL) was commissioned and connectivity to our CBM block was established. Connectivity with the national gas grid has ensured seamless evacuation of the entire CBM gas Produced from the block since June 2021. EOGEPL is now geared up to commence major developmental activities to enhance gas production from the Raniganj CBM block. ML valid till May, 2032. CBM contract valid till May, 2041	
4	During deliberations, EAC discussed following issues: • EAC noted that the extension has been already been given to the project vide letter dated F. No. J-11011/491/2011-IA-II (I) dated 9th May, 2019 which was valid up to 26th February, 2023.						Noted.
	After detailed deliberations EAC found the justification for amendment sought satisfactory and recommended for extension of EC till 25th February, 2024 as proposed by the project proponent with the following Additional condition: i. PP shall sensitize and create awareness among the people working within the project area as well as its surrounding area on the ban of Single Use Plastic in order to ensure the compliance of Notification published by MOEFCC on 12th August.2021. A report along with photographs on the measures taken shall also be included in the six-monthly compliance report being submitted to concerned authority.						EOGEPL conducted the awareness campaign "Ban of Single Use Plastic" as mentioned below. i) Among the students, teaching & non-teaching staffs of a High School, Name-Bhurkunda N. C. Institution High School (Kantaberia). ii) Among the Govt. Officials (DGMS, GAIL, Fire Brigade and villagers. The report refer to ***Annexure X.***

6	Based on recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords approval to the proposed amendment for extension in the validity of environmental clearance dated 26th February, 2013 as stated above, for the project Development and Production Wells along with Surface Facilities Phase - III of CBM Block RG (East) - CBM- 2001/1, Raniganj CBM Block, West Bengal by M/s. Essar Oil and Gas Exploration and Production Ltd.	Noted.
7	Upon examination in the Ministry, it is concluded that as per S.O. 1807 (E), dated 12th April 2022, the validity of EC of instant project shall be 10 years and as per SO 221 (E) dated 18.01.2021 the period from the 1st April, 2020 to the 31st March, 2021 shall not be considered for the purpose of calculation of the period of validity of EC granted under the provisions of this notification in view of outbreak of Corona Virus (COVID-19) and subsequent lockdowns. Hence the validity of EC is till 25th February, 2024. Further, as per S.O. 1807 (E), dated 12th April 2022 the validity of EC can be extended for one more year. As per request for extension made by PP and recommendation of EAC, the validity of EC shall be till 25th February, 2025. However, all other terms and conditions mentioned in EC issued vide. F No. J-11011/491/2011-IA-II (I) dated 26th February, 2013 shall remain unchanged.	Noted.
8	This issues with approval of the competent authority.	Noted.

ANNEXURE I

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE I**

(Period: October'23 - March'24)

Name of Location			MCS						GGS- 01					
Month			Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Parameter	UoM	NAAQS LIMIT												
$PM_{2.5}$	$\mu g/m^3$	60	27.34	31.52	35.15	46.65	52.61	56.98	32.77	41.40	46.25	47.82	49.62	49.17
PM_{10}	$\mu g/m^3$	100	59.30	69.19	77.80	88.03	96.77	95.43	76.80	75.37	85.63	96.64	87.92	94.57
Nitrogen Dioxide	$\mu g/m^3$	80	24.71	24.82	29.30	29.74	31.55	33.36	24.54	25.54	28.58	29.30	31.20	33.12
Sulphur Dioxide	$\mu g/m^3$	80	4.61	4.28	4.65	4.92	4.59	4.95	4.84	4.26	4.94	4.77	4.82	4.71
Carbon Monoxide	mg/m^3	2	0.42	0.44	0.45	0.46	0.46	0.47	0.44	0.44	0.45	0.46	0.45	0.47
Hydrocarbon	mg/m^3	NIL	1.12	1.59	1.84	1.92	1.96	2.04	1.54	1.80	2.07	2.08	1.73	2.08
Mercury	mg/m^3			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	$\mu g/m^3$			2.85			3.53			3.17			3.20	
Benzo(a)Pyrene	ng/m^3	1		0.30			0.45			0.44			0.36	
Ammonia	$\mu g/m^3$	400		29.08			30.04			32.03			28.13	
Ozone	$\mu g/m^3$	180		33.13			34.97			36.28			32.17	
Lead	$\mu g/m^3$	1		0.08			0.12			0.13			0.08	
Nickel	ng/m^3	20		9.63			10.45			11.04			8.19	
Arsenic	ng/m^3	6		1.38			1.93			1.62			1.62	
Benzene	$\mu g/m^3$	5		1.57			2.02			1.83			1.74	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE I**

(Period: October'23 - March'24)

Name of Location			GGS- 02						PARULIA					
Month			Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Parameter	UoM	NAAQS LIMIT												
$PM_{2.5}$	$\mu g/m^3$	60	27.12	41.39	42.55	49.96	44.64	52.47	41.45	33.88	34.92	42.92	47.82	50.83
PM_{10}	$\mu g/m^3$	100	50.78	72.32	79.13	92.33	84.97	97.17	80.47	70.87	79.03	90.64	94.33	94.72
Nitrogen Dioxide	$\mu g/m^3$	80	24.76	24.06	29.29	31.68	32.49	32.50	26.93	25.48	28.11	29.86	30.75	31.33
Sulphur Dioxide	$\mu g/m^3$	80	4.46	4.23	4.68	4.61	4.54	4.46	4.47	4.22	4.67	4.86	4.87	4.84
Carbon Monoxide	mg/m^3	2	0.40	0.43	0.44	0.46	0.46	0.46	0.44	0.44	0.45	0.44	0.44	0.47
Hydrocarbon	mg/m^3	NIL	1.04	1.70	1.91	1.94	1.69	1.92	1.54	1.68	1.88	1.82	1.82	2.24
Mercury	mg/m^3			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	$\mu g/m^3$			2.97			2.98			2.93			3.29	
Benzo(a)Pyrene	ng/m^3	1		0.37			0.34			0.31			0.41	
Ammonia	$\mu g/m^3$	400		30.73			27.51			29.85			28.95	
Ozone	$\mu g/m^3$	180		34.91			31.12			34.07			33.34	
Lead	$\mu g/m^3$	1		0.11			0.07			0.09			0.10	
Nickel	ng/m^3	20		10.08			7.83			10.03			9.58	
Arsenic	ng/m^3	6		1.54			1.59			1.42			1.71	
Benzene	$\mu g/m^3$	5		1.71			1.67			1.60			1.86	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE I**

(Period: October'23 - March'24)

Name of Location			SARASWATIGUNJ						PRATPPUR					
Month			Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Parameter	UoM	NAAQS LIMIT												
$PM_{2.5}$	$\mu g/m^3$	60	35.29	33.70	38.59	42.14	47.72	56.40	32.14	47.72	37.08	47.86	51.26	56.17
PM_{10}	$\mu g/m^3$	100	78.33	73.78	73.47	73.32	88.90	89.65	74.71	87.08	76.78	95.53	95.69	97.25
Nitrogen Dioxide	$\mu g/m^3$	80	24.64	25.68	27.35	27.82	30.62	32.22	25.26	25.89	28.08	30.79	31.96	32.33
Sulphur Dioxide	$\mu g/m^3$	80	4.63	4.52	4.66	4.43	4.57	4.77	4.44	4.16	4.82	4.68	4.37	4.42
Carbon Monoxide	mg/m^3	2	0.46	0.43	0.45	0.43	0.46	0.48	0.44	0.45	0.45	0.44	0.44	0.47
Hydrocarbon	mg/m^3	NIL	1.42	1.74	1.64	1.72	1.86	1.96	1.60	2.04	1.81	1.96	2.18	2.16
Mercury	mg/m^3			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	$\mu g/m^3$			3.04			3.35			3.46			3.87	
Benzo(a)Pyrene	ng/m^3	1		0.40			0.42			0.54			0.56	
Ammonia	$\mu g/m^3$	400		31.57			29.11			34.12			34.49	
Ozone	$\mu g/m^3$	180		35.81			33.68			38.39			38.87	
Lead	$\mu g/m^3$	1		0.12			0.10			0.17			0.16	
Nickel	ng/m^3	20		10.51			9.87			12.52			13.43	
Arsenic	ng/m^3	6		1.59			1.76			1.94			2.19	
Benzene	$\mu g/m^3$	5		1.77			1.89			2.12			2.33	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE I**

(Period: October'23 - March'24)

Name of Location			BANSIA						JAMGORA					
Month			Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Parameter	UoM	NAAQS LIMIT												
$PM_{2.5}$	$\mu g/m^3$	60	34.72	36.88	38.75	47.08	52.54	46.85	47.15	43.61	39.28	49.40	55.60	51.83
PM_{10}	$\mu g/m^3$	100	75.44	79.96	81.70	97.84	95.11	89.39	83.74	80.02	76.17	92.98	96.30	93.27
Nitrogen Dioxide	$\mu g/m^3$	80	27.23	25.23	26.81	29.39	31.31	31.16	26.96	25.26	27.88	29.80	32.65	32.48
Sulphur Dioxide	$\mu g/m^3$	80	4.82	4.33	4.66	4.66	4.60	4.58	4.26	4.30	4.79	4.69	4.14	4.42
Carbon Monoxide	mg/m^3	2	0.43	0.44	0.45	0.45	0.44	0.46	0.46	0.46	0.45	0.45	0.45	0.46
Hydrocarbon	mg/m^3	NIL	1.48	1.91	1.98	1.86	1.99	2.16	1.56	1.93	1.75	1.96	2.09	2.04
Mercury	mg/m^3			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	$\mu g/m^3$			3.28			3.59			3.32			3.69	
Benzo(a)Pyrene	ng/m^3	1		0.45			0.46			0.48			0.51	
Ammonia	$\mu g/m^3$	400		32.76			30.57			33.07			32.37	
Ozone	$\mu g/m^3$	180		36.93			35.18			37.11			36.94	
Lead	$\mu g/m^3$	1		0.14			0.12			0.15			0.14	
Nickel	ng/m^3	20		11.48			10.71			11.81			12.17	
Arsenic	ng/m^3	6		1.70			1.97			1.78			2.10	
Benzene	$\mu g/m^3$	5		1.93			2.05			1.97			2.21	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE I**

(Period: October'23 - March'24)

Name of Location			KULDIHA						JATGORIA					
Month			Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Parameter	UoM	NAAQS LIMIT												
$PM_{2.5}$	$\mu g/m^3$	60	29.74	42.39	42.41	49.34	48.95	44.27	34.24	34.74	39.98	50.92	49.27	55.42
PM_{10}	$\mu g/m^3$	100	55.94	84.19	81.67	97.43	92.44	90.37	71.69	73.90	70.66	96.45	93.38	92.52
Nitrogen Dioxide	$\mu g/m^3$	80	23.71	25.80	28.59	30.93	32.39	32.44	26.26	25.60	26.84	30.34	32.52	31.17
Sulphur Dioxide	$\mu g/m^3$	80	4.02	4.76	4.91	4.74	4.84	4.54	4.44	4.16	4.67	4.45	4.82	4.46
Carbon Monoxide	mg/m^3	2	0.41	0.44	0.46	0.45	0.46	0.46	0.45	0.42	0.44	0.45	0.45	0.47
Hydrocarbon	mg/m^3	NIL	0.98	1.98	1.96	1.88	2.07	2.12	1.54	1.77	1.52	1.92	2.27	2.18
Mercury	mg/m^3			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	$\mu g/m^3$			3.38			3.67			3.09			4.03	
Benzo(a)Pyrene	ng/m^3	1		0.51			0.50			0.42			0.59	
Ammonia	$\mu g/m^3$	400		33.58			31.56			31.68			36.14	
Ozone	$\mu g/m^3$	180		37.69			36.19			35.89			39.71	
Lead	$\mu g/m^3$	1		0.16			0.13			0.12			0.18	
Nickel	ng/m^3	20		12.07			11.39			10.42			14.89	
Arsenic	ng/m^3	6		1.86			2.05			1.62			2.32	
Benzene	$\mu g/m^3$	5		2.03			2.16			1.80			2.49	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE I**

(Period: October'23 - March'24)

Name of Location			Gopalpur Warehouse						KANTABERIA					
Month			Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Parameter	UoM	NAAQS LIMIT												
$PM_{2.5}$	$\mu g/m^3$	60	24.37	27.39	35.18	42.88	49.57	50.32	36.34	35.51	37.15	49.96	52.98	56.25
PM_{10}	$\mu g/m^3$	100	57.69	66.56	73.84	82.13	93.14	96.36	74.22	77.34	71.20	98.89	94.67	97.28
Nitrogen Dioxide	$\mu g/m^3$	80	23.95	23.75	27.96	29.36	31.11	31.58	25.96	24.53	28.79	31.73	31.21	31.58
Sulphur Dioxide	$\mu g/m^3$	80	4.41	4.31	4.52	4.66	4.69	4.68	4.69	4.15	4.57	4.70	4.46	4.57
Carbon Monoxide	mg/m^3	2	0.40	0.43	0.44	0.45	0.45	0.47	0.46	0.44	0.45	0.46	0.46	0.46
Hydrocarbon	mg/m^3	NIL	1.04	1.48	1.70	1.80	1.90	1.98	1.46	1.85	1.59	1.96	2.12	2.12
Mercury	mg/m^3			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	$\mu g/m^3$			2.80			3.46			3.21			3.81	
Benzo(a)Pyrene	ng/m^3	1		0.29			0.43			0.46			0.53	
Ammonia	$\mu g/m^3$	400		28.17			29.57			32.29			33.15	
Ozone	$\mu g/m^3$	180		32.24			34.06			36.51			37.44	
Lead	$\mu g/m^3$	1		0.08			0.11			0.14			0.15	
Nickel	ng/m^3	20		9.17			10.16			11.26			12.96	
Arsenic	ng/m^3	6		1.33			1.82			1.67			2.13	
Benzene	$\mu g/m^3$	5		1.52			1.93			1.88			2.28	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE I**

(Period: October'23 - March'24)

Name of Location			NACHAN						SARENGA					
Month			Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Parameter	UoM	NAAQS LIMIT												
$PM_{2.5}$	$\mu g/m^3$	60	33.93	34.36	38.43	47.90	52.43	52.12	38.96	27.92	43.94	46.50	49.17	50.83
PM_{10}	$\mu g/m^3$	100	79.98	73.37	76.90	94.58	92.20	95.25	76.17	66.48	80.36	86.48	90.96	97.63
Nitrogen Dioxide	$\mu g/m^3$	80	27.56	26.33	29.23	32.01	32.69	31.05	25.59	24.86	27.71	28.47	32.21	32.24
Sulphur Dioxide	$\mu g/m^3$	80	4.49	4.15	4.80	4.58	4.64	4.92	4.59	4.37	4.73	4.12	4.34	4.46
Carbon Monoxide	mg/m^3	2	0.45	0.45	0.44	0.45	0.44	0.46	0.43	0.44	0.44	0.43	0.45	0.48
Hydrocarbon	mg/m^3	NIL	1.58	1.71	1.78	1.94	1.91	2.10	1.48	1.44	1.94	1.74	2.04	2.06
Mercury	mg/m^3			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	$\mu g/m^3$			3.11			3.51			2.76			3.64	
Benzo(a)Pyrene	ng/m^3	1		0.41			0.44			0.28			0.48	
Ammonia	$\mu g/m^3$	400		31.24			29.77			27.34			30.81	
Ozone	$\mu g/m^3$	180		35.69			34.28			31.83			35.73	
Lead	$\mu g/m^3$	1		0.12			0.11			0.08			0.13	
Nickel	ng/m^3	20		10.84			10.29			3.74			11.08	
Arsenic	ng/m^3	6		1.56			1.87			1.30			2.01	
Benzene	$\mu g/m^3$	5		1.79			1.98			1.48			2.09	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE I**

(Period: October'23 - March'24)

Name of Location			LABNAPARA					
Month								
Parameter	UoM	NAAQS LIMIT	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
$PM_{2.5}$	$\mu g/m^3$	60	38.45	39.06	40.22	46.25	45.42	47.92
PM_{10}	$\mu g/m^3$	100	82.57	70.25	78.11	70.80	90.87	91.40
Nitrogen Dioxide	$\mu g/m^3$	80	27.03	24.73	28.22	28.78	30.02	32.30
Sulphur Dioxide	$\mu g/m^3$	80	4.92	4.10	4.56	4.32	4.56	4.56
Carbon Monoxide	mg/m^3	2	0.46	0.43	0.45	0.43	0.45	0.46
Hydrocarbon	mg/m^3	NIL	1.54	1.64	1.86	1.68	1.78	2.02
Mercury	mg/m^3			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	$\mu g/m^3$			2.92			3.27	
Benzo(a)Pyrene	ng/m^3	1		0.33			0.38	
Ammonia	$\mu g/m^3$	400		30.19			28.58	
Ozone	$\mu g/m^3$	180		34.05			32.78	
Lead	$\mu g/m^3$	1		0.10			0.09	
Nickel	ng/m^3	20		10.24			8.96	
Arsenic	ng/m^3	6		1.47			1.67	
Benzene	$\mu g/m^3$	5		1.65			1.79	

ANNEXURE II

ANNEXURE II

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Period: October'23 - March'24)

MONTH				Oct.'23										
S. No.	Parameter	Unit	Onshore Discharge Standard (Not to exceed)	EDD-50-D2 (NACHAN)	EDD-06-D1 (BANGORIA)	EDN-179-D3 (GOPALPUR)	EDN-172-V1 (SARENGA)	`EDN-099-D1 (KULDIHA)	EDI-123-D5 (LOHAGURI)	EDI-120-D1 (HARKI)	EDI-40-D4 (SARASWATIGUNJ)	EDI-71-D3 (MALANDIGHI)	EDH-065-D2 (AKANDARA)	EDH-058-D2 (LABNAPARA)
1	pH		5.5-9.0	8.51	8.66	7.97	7.70	7.83	7.62	8.10	8.34	7.91	8.39	8.43
2	Temperature	deg. C	40 deg. C	29.9°C	35.1°C	35.2°C	32.2°C	31.7°C	34.9°C	34.1°C	33.2°C	34.7°C	33.7°C	30.9°C
3	Suspended Solids	mg/l	100	16	<2	3	41	56	12	<2	<2	3	14	4
4	Total Dissolved Solids	mg/l	2100	2836	1992	2470	11174	12960	12108	12208	9658	10622	4120	4468
5	Chlorides	mg/l	600	685	98	1240	6325	7225	6954	7015	5375	5820	1035	1680
6	Sulphates	mg/l	1000	8.2	7.0	5.9	15.7	24.1	18.3	21.1	11.5	19.0	8.2	9.4
7	BOD	mg/l	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	3	<2
8	COD	mg/l	100	<8	<8	<8	8.0	<8	<8	<8	<8	<8	12.0	8.0
9	Oil & Grease	mg/l	10	<5.0	<5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5
10	Phenolic Compounds	mg/l	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	0.79	0.53	0.62	1.78	2.24	1.88	1.39	0.76	1.73	0.64	0.39
13	Total Chromium	mg/l	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	0.014	0.018	0.022	0.021	0.024	0.031	0.018	0.014	0.012	0.013	0.019
15	Copper	mg/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	96.2	97.0	96.3	86.5	93.6	93.9	94.6	96.9	95	98.8	98.6

ANNEXURE II

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Period: October'23 - March'24)

MONTH				Nov.'23											
S. No.	Parameter	Unit	Onshore Discharge Standard (Not to exceed)	EDI-071-D6 (MALANDIGHI)	EDD-046-D2 (AKANDARA)	EDI-037-D9 (AKANDARA)	EDI-70-D7 (MALANDIGHI)	`EDP-300-D1 (JATGORIA)	EDP-364-D3 (GOPEDANGA)	EDP-364-V1 (GOPEDANGA)	EDI-41-D4 (SARASWATIGUNJ)	EDN-162-D2 (VALUKANDA)	EDN-163-D1 (VALUKANDA)	EDN-169-D1 (KESHABPUR)	EDN-169-D2 (KESHABPUR)
1	pH		5.5-9.0	7.87	8.41	8.35	7.93	8.53	8.60	8.47	7.72	7.88	7.81	7.95	7.66
2	Temperature	deg. C	40 deg. C	30.7°C	34.7°C	33.7°C	32.7°C	29.8°C	30.4°C	32.9°C	28.1°C	32.8°C	31.4°C	28.5°C	29.9°C
3	Suspended Solids	mg/l	100	17	6	10	14	<2	<2	<2	4	11	22	26	18
4	Total Dissolved Solids	mg/l	2100	17268	5754	7824	7158	2698	1814	2286	6180	8138	9224	9860	8718
5	Chlorides	mg/l	600	9840	2155	3875	3215	450	112	185	3525	4380	4920	5460	4255
6	Sulphates	mg/l	1000	8.3	6.9	7.6	8.9	5.8	4.9	6.2	5.0	9.2	4.2	7.9	6.7
7	BOD	mg/l	30	3	<2	<2	2	<2	<2	<2	<2	2	2	<2	4
8	COD	mg/l	100	10.0	<8	8.0	9.0	<8	<8	<8	8.0	10.0	9.0	8.0	16.0
9	Oil & Grease	mg/l	10	<5.0	<5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
10	Phenolic Compounds	mg/l	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	0.98	1.35	1.82	0.81	0.52	0.43	0.73	0.96	1.48	0.019	0.015	0.012
13	Total Chromium	mg/l	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	0.019	0.015	0.013	0.017	0.011	0.021	0.016	0.022	0.011	0.029	0.022	0.018
15	Copper	mg/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	95.1	98.5	96.7	96.6	98.1	97.5	98.5	94.8	89.1	91	82.8	86.9

ANNEXURE II

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Period: October'23 - March'24)

MONTH				Dec.'23									
S. No.	Parameter	Unit	Onshore Discharge Standard (Not to exceed)	EDE-301-V1 (FULJURI)	EDE-300-D1 (FULJURI)	EDD-256-D1 (GOPEDANGA)	EDD-07-D2 (GOPEDANGA)	`EDD-004-D5 (BANGORIA)	EDD-244-D1 (NACHAN)	EDC-409-D7 (PRATAPPUR)	EDC-072-D9 (PARULIA)	EDP-240-D1 (PARULIA)	EDP-240-D2 (PARULIA)
1	pH		5.5-9.0	8.46	8.50	8.53	8.49	8.42	8.53	8.41	8.52	8.37	8.45
2	Temperature	deg. C	40 deg. C	30.4°C	30.6°C	28.7°C	30.1°C	28.4°C	28.2°C	28.4°C	28.3°C	28°C	28.6°C
3	Suspended Solids	mg/l	100	7	<2	6	10	12	<2	9	4	19	3
4	Total Dissolved Solids	mg/l	2100	1998	2782	2758	2032	3514	3622	2992	3446	1680	1210
5	Chlorides	mg/l	600	325	530	470	280	1690	1075	355	755	355	211
6	Sulphates	mg/l	1000	5.7	6.4	7.1	6.4	7.9	8.5	7.8	6.1	4.8	5.1
7	BOD	mg/l	30	7	<2	4	<2	<2	<2	14	<2	2	<2
8	COD	mg/l	100	22.0	<8	16.0	8.0	8.0	<8	39.0	<8	9.0	<8
9	Oil & Grease	mg/l	10	<5.0	<5.0	<5	<5	<5	<5	<5	<5	<5	<5
10	Phenolic Compounds	mg/l	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	1.89	2.04	1.47	0.81	0.98	1.05	1.62	0.88	0.92	0.68
13	Total Chromium	mg/l	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	0.016	0.019	0.012	0.012	0.01	0.019	0.021	0.024	0.014	0.011
15	Copper	mg/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	92.3	96.6	97.3	96.5	96.1	96.1	93.3	96.6	93.5	93

ANNEXURE II

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Period: October'23 - March'24)

MONTH				Jan.'24												
S. No.	Parameter	Unit	Onshore Discharge Standard (Not to exceed)	EDI-36-D4 (AKANDARA)	EDI-36-D5 (AKANDARA)	EDI-36-D6 (AKANDARA)	EDI-36-D5 (AKANDARA)	EDI-34-D6 (AKANDARA)	EDI-32-D6 (AKANDARA)	EDI-32-D7 (AKANDARA)	EDI-303-D2 (JATGORIA)	EDE-364-V1 (GOPEDANGA)	EDE-364-D1 (GOPEDANGA)	EDE-364-D2 (GOPEDANGA)	EDE-364-D3 (GOPEDANGA)	EDD-256-D2 (GOPEDANGA)
1	pH		5.5-9.0	8.46	8.39	7.95	8.37	8.40	8.60	8.45	8.63	8.58	8.62	8.55	8.51	8.42
2	Temperature	deg. C	40 deg. C	24.9°C	26.5°C	27.9°C	27.2°C	28.3°C	26.8°C	27.3°C	26.8°C	29.4°C	31.7°C	33.6°C	34.6°C	37.8°C
3	Suspended Solids	mg/l	100	9	6	2	5	12	7	3	<2	<2	7	4	<2	6
4	Total Dissolved Solids	mg/l	2100	8384	9280	10460	9018	8894	3784	6278	2340	2416	2182	2076	1812	2548
5	Chlorides	mg/l	600	4070	4365	5105	3982	3789	1210	2875	135	193	107	96	58	210
6	Sulphates	mg/l	1000	8.2	5.1	7.4	6.9	8.3	7.4	7.6	5.8	6.2	4.7	7.6	9.0	6.1
7	BOD	mg/l	30	2	<2	<2	<2	2	2	4	<2	<2	<2	<2	<2	2
8	COD	mg/l	100	10.0	<8	8.0	<8	11.0	9.0	16.0	<8	<8	<8	8.0	<8	11.0
9	Oil & Grease	mg/l	10	<5.0	<5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
10	Phenolic Compounds	mg/l	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	1.10	1.45	0.8	0.68	1.02	0.89	1.33	0.93	1.52	0.48	1.24	0.71	0.79
13	Total Chromium	mg/l	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	0.021	0.013	0.018	0.016	0.02	0.013	0.019	0.015	0.012	0.018	0.014	0.023	0.012
15	Copper	mg/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	96.9	96.4	96.3	98.3	98.1	97.1	98.6	95.8	97.8	98.3	98.4	96.7	97.2

ANNEXURE II

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Period: October'23 - March'24)

MONTH				Feb.'24												
S. No.	Parameter	Unit	Onshore Discharge Standard (Not to exceed)	EDI-042-D5 (SARASWATIGUNJ)	EDI-037-D7 (AKANDARA)	EDI-046-D1 (AKANDARA)	EDI-046-D2 (AKANDARA)	EDI-046-D3 (AKANDARA)	EDI-046-D4 (AKANDARA)	EDI-041-D4 (GHATAKDANGA)	EDI-041-D5 (GHATAKDANGA)	EDI-038-D4 (SARASWATIGUNJ)	EDI-038-D5 (SARASWATIGUNJ)	EDI-038-D6 (SARASWATIGUNJ)	EDI-039-D4 (SARASWATIGUNJ)
1	pH		5.5-9.0	8.44	8.49	8.55	8.61	8.40	8.57	8.46	8.39	8.66	8.70	8.58	8.74
2	Temperature	deg. C	40 deg. C	28.5°C	29.2°C	29.4°C	31.5°C	32.5°C	32.9°C	32.6°C	32.9°C	31.9°C	32.8°C	32.9°C	30.4°C
3	Suspended Solids	mg/l	100	11	17	7	3	9	<2	<2	12	4	<2	7	4
4	Total Dissolved Solids	mg/l	2100	8320	8294	7620	5974	5256	5144	7204	7040	5512	5520	5610	5098
5	Chlorides	mg/l	600	4160	4086	3570	2140	1815	1740	3975	3805	1810	1970	1692	1485
6	Sulphates	mg/l	1000	3.9	7.6	6.0	5.3	7.1	6.5	5.8	3.9	8.4	5.6	6.2	4.7
7	BOD	mg/l	30	<2	3	2	<2	2	<2	<2	<2	3	<2	<2	<2
8	COD	mg/l	100	8.0	18.0	10.0	<8	10.0	<8	8.0	<8	12.0	<8	9.0	<8
9	Oil & Grease	mg/l	10	<5.0	<5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
10	Phenolic Compounds	mg/l	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	1.42	0.87	0.63	0.68	0.83	0.91	0.39	1.30	0.88	0.70	0.81	0.93
13	Total Chromium	mg/l	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	0.017	0.011	0.024	0.014	0.019	0.011	0.017	0.012	0.011	0.015	0.02	0.013
15	Copper	mg/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	96	95.5	97.7	98.4	97.7	96.7	96.4	95.6	97.1	94.7	97.4	96.6

ANNEXURE II

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Period: October'23 - March'24)

MONTH				Mar.'24												
S. No.	Parameter	Unit	Onshore Discharge Standard (Not to exceed)	EDI-71-D6 (MALANDIGHI)	EDI-71-D (MALANDIGHI)	EDI-70-D4 (SARASWATIGUNJ)	EDI-70-D5 (SARASWATIGUNJ)	EDI-70-D6 (SARASWATIGUNJ)	EDI-70-D7 (SARASWATIGUNJ)	EDN-162-D2 (VALUKANDA)	EDN-163-D1 (VALUKANDA)	EDN-163-D4 (VALUKANDA)	EDN-169-D1 (SARENGA)	EDN-169-D2 (SARENGA)	EDD-242-D3 (NACHAN)
1	pH		5.5-9.0	8.41	8.37	8.34	8.49	8.38	8.45	8.43	8.51	8.35	8.47	8.50	8.47
2	Temperature	deg. C	40 deg. C	30.2°C	29.7°C	31.8°C	31.9°C	21.2°C	29.1°C	34.6°C	31.2°C	31.2°C	34.2°C	34.4°C	28.5°C
3	Suspended Solids	mg/l	100	12	8	10	4	2	11	21	15	48	10	17	24
4	Total Dissolved Solids	mg/l	2100	15720	14890	9088	9720	4970	7540	7896	10398	9140	11924	13084	1446
5	Chlorides	mg/l	600	8946	7885	5642	5645	2062	3795	4015	5475	4356	6815	7230	328
6	Sulphates	mg/l	1000	8	7.2	6.1	6.2	4.9	5.3	9.0	8.3	10.2	8.0	9.7	6.3
7	BOD	mg/l	30	3	2	<2	<2	<2	<2	<2	<2	3	<2	2	2
8	COD	mg/l	100	10.0	9.0	8.0	<8	<8	<8	9.0	8.0	14.0	8.0	10.0	11.0
9	Oil & Grease	mg/l	10	<5.0	<5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5.0
10	Phenolic Compounds	mg/l	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	0.98	1.4	0.73	0.82	0.69	1.30	0.87	1.25	1.05	1.45	1.60	0.82
13	Total Chromium	mg/l	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	0.024	0.027	0.019	0.012	0.02	0.022	0.013	0.020	0.027	0.019	0.024	0.023
15	Copper	mg/l	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	95.5	93.7	93.6	95.9	95.9	94.6	90.1	95.1	92.8	87.2	89	93.5

ANNEXURE III

Drill Cutting Analysis Report of CBM Raniganj Project by Essar Oil and Gas Exploration and Production Ltd. **ANNEXURE III**

(Period: October'23 - March'24)

Well Name				EDI-47-D2	EDI-71-D7	EDN-163-D4	EDC-409-D7	EDG-074-D7	EDN-166-D9	EDI-045-D2	EDN-166-D6
Location				Akandara	Malan Dighi	Gopalpur	Parulia	Pratappur	Keshabpur	Akandhara	Keshabpur
Date				31.10.2023	31.10.2023	31.10.2023	30.11.2023	31.11.2023	30.12.2023	30.12.2023	30.01.2024
Sl No.	Parameter	Unit	Limit as per G.S.R No. 395 E,dtd- 4th Apr,2016 Schedule-II, Class-A	Result							
1	Barium (as Ba)	mg/l	100.0	0.22	0.32	0.19	0.20	0.25	BDL (DL:0.1)	BDL (DL:0.1)	0.8
2	Selenium (as Se)	mg/l	1.0	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
3	Cadmium (as Cd)	mg/l	1.0	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
4	Lead (as Pb)	mg/l	5.0	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
5	Mercury (as Hg)	mg/l	0.2	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)	BDL (DL:0.05)
6	Chloroform	mg/l	6.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
7	2,4-D	mg/l	10.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
8	Ignitability	None		Non Flammable	Non Flammable	Non Flammable	Non Flammable	Non Flammable	Non Flammable	Non Flammable	Non Flammable
9	Benzene	mg/l	0.5	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
10	Chlorobenzene	mg/l	100.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
11	Trichloroethylene	mg/l	0.5	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
12	Hexachlorobutadiene	mg/l	0.5	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
13	Endrin	mg/l	0.02	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
14	Corrosivity	mg/l		Non Corrosive	Non Corrosive	Non Corrosive	Non Corrosive	Non Corrosive	Non Corrosive	Non Corrosive	Non Corrosive
15	Reactivity	None		Non Reactive	Non Reactive	Non Reactive	Non Reactive	Non Reactive	Non Reactive	Non Reactive	Non Reactive
16	Heptachlor	mg/l	0.008	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
17	Chlorodane	mg/l	0.03	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
18	1,2, Dichloroethane	mg/l	0.5	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
19	1,1 Dichloroethylene	mg/l	0.7	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
20	2,4, Dinitrotoluene	mg/l	0.13	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
21	Hexachlorobenzene	mg/l	0.13	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
22	Hexachloroethene	mg/l	3.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
23	Vinyl Chloride	mg/l	0.2	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
24	2,4,5 TP(Silvex)	mg/l	1.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
25	2,4,6, Trichlorophenol	mg/l	2.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
26	Lindane	mg/l	0.4	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
27	Methoxychlor	mg/l	10	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
28	Methyl Ethyl Ketone	mg/l	200.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
29	Nitrobenzene	mg/l	2.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
30	Pentachlorophenol	mg/l	100.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
31	Pyridine	mg/l	5.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
32	Toxaphene	mg/l	0.5	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)	BDL (DL:0.005)
33	Arsenic	mg/l	5.0	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)	BDL (DL:0.02)
34	Total Chromium	mg/l	5.0	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
35	m-Cresol	mg/l	200.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
36	o-Cresol	mg/l		BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
37	p-Cresol	mg/l		BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
38	1,4 diclorobezene	mg/l	7.5	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
39	Carbon tetrachloride	mg/l	0.5	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
40	Tetra chloro ethylene	mg/l	0.7	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)	BDL (DL:0.2)
41	Silver	mg/l	5.0	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)	BDL (DL:0.1)
42	Cresols	mg/l	200.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)
43	2,4,5 -Trichlorophenol	mg/l	400.0	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)	BDL (DL:1.0)

ANNEXURE IV

ANNEXURE IV

Ambient Noise Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.

(Period: October'23 to March'24)

Ambient Noise Monitoring Result				
Location	DAY TIME		NIGHT TIME	
	Limit as per the EC, dBA	Noise Level (Leq) dBA	Limit as per the EC, dBA	Noise Level (Leq) dBA
KULDIHA [EDN # 099]	75	59.14	70	53.41
MCS-MALANDIGHI	75	63.84	70	53.05
SARASWATIGUNJ [EDI # 039]	75	60.96	70	52.08
GOPALPUR WAREHOUSE	75	63.85	70	51.53
GGS#002 NEAR MAIN GATE SECURITY ROOM	75	64.01	70	54.97
JAMGORA [EDP # 406]	75	57.40	70	50.87
NACHAN [EDD – 053]	75	62.44	70	52.62
PRATAPPUR [EDD # 049]	75	56.83	70	50.72
JATGORIA [EDD – 005]	75	53.15	70	50.30
KANTABERIA [EDD-012]	75	60.87	70	54.31
PARULIA [EDC-413]	75	56.39	70	52.37
KHATGORIA [GGS # 001]	75	62.31	70	51.69
BANSIA [EDD – 411]	75	61.05	70	51.60
LABNAPARA [EDH # 064]	75	61.33	70	53.82
SARENGA	75	55.93	70	50.45

ANNEXURE V

ANNEXURE V

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month					Oct.'23											
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGS-01 RO			EDD-50 RO			EDH-64 RO			EDN-99 RO		
					Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	7.61	7.46	7.89	7.75	7.57	7.93	7.48	7.15	7.82	7.71	7.78	7.86
2	Temperature	deg. C	40 deg. C		33.9°C	33.5°C	31.9°C	31.8°C	31.8°C	29.9°C	29.3°C	32.8°C	29.7°C	33.1°C	30.2°C	33.4°C
3	Suspended Solids	mg/l	100	100	5	3	7	3	<2	6	4	<2	7	5	<2	8
4	Total Dissolved Solids	mg/l	2100	---	2762	1126	4430	3226	978	4438	7178	912	11160	6226	1562	8540
5	Chlorides	mg/l	600	---	875	388	1535	980	452	1386	2170	336	3675	1987	478	2645
6	Sulphates	mg/l	1000	---	4.9	3.0	5.6	5.9	44	7.00	9.8	38	11.4	7.3	36.0	10.2
7	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8	<8	8	<8	10	<8	<8	8
9	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
10	Phenolic Compounds	mg/l	1.2	1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.95	0.81	1.15	0.76	0.62	0.97	1.49	1.02	2.50	1.83	0.49	2.21
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.017	0.014	0.020	0.013	0.011	0.019	0.024	0.015	0.029	0.028	0.017	0.033
15	Copper	mg/l	0.2	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	.....	98.6	47.4	99.2	98.7	49.6	99.1	97.7	47.8	97.2	91.9	48.2	92.8

ANNEXURE V

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month					Nov.'23											
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGS-01 RO			EDD-50 RO			EDH-64 RO			EDN-99 RO		
					Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	7.48	7.15	7.60	7.84	7.56	7.97	7.47	7.60	7.88	7.96	7.76	8.01
2	Temperature	deg. C	40 deg. C		29.3°C	28.5°C	25.4°C	28.6°C	27.8°C	27.0°C	27.4°C	28.6°C	27.5°C	29.2°C	26.5°C	26.7°C
3	Suspended Solids	mg/l	100	100	4	<2	6	5	2	6	3	<2	6	7	<2	10
4	Total Dissolved Solids	mg/l	2100	---	2770	1186	4638	3196	1126	4322	5054	524	9692	7288	1574	9598
5	Chlorides	mg/l	600	---	1035	350	1570	948	326	1460	1750	206	3586	2445	431	3148
6	Sulphates	mg/l	1000	---	6.3	4.2	7.5	5.8	4.3	6.5	6.8	3.6	9	8.9	4.2	10.2
7	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8	<8	<8	<8	<8	8	<8	9
9	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
10	Phenolic Compounds	mg/l	1.2	1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	2	1.35	0.58	1.30	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	<0.05	<0.05	<0.05	0.89	0.41	1.10	1.48	0.91	1.62	1.96	1.30	2.06
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.018	0.011	0.023	0.022	0.016	0.028	0.017	0.011	0.022	0.024	0.019	0.027
15	Copper	mg/l	0.2	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	.....	98.9	57.8	99.6	98.4	56.8	98.7	97.7	59.13	98	93.6	57.17	94.9

ANNEXURE V

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month					Dec.'23											
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGS-01 RO			EDD-50 RO			EDH-64 RO			EDN-99 RO		
					Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	7.6	7.35	7.66	7.75	7.57	7.14	7.78	7.61	7.72	8.51	7.80	7.47
2	Temperature	deg. C	40 deg. C		28.3°C	26.7°C	27.3°C	26.6°C	26.3°C	22.9°C	23.1°C	23.3°C	23.4°C	30.1°C	28.3°C	29.6°C
3	Suspended Solids	mg/l	100	100	4	<2	6	6	<2	8	4	<2	6	5	<2	7
4	Total Dissolved Solids	mg/l	2100	---	2620	1102	4122	3168	1280	4230	5292	910	7416	7176	1622	10352
5	Chlorides	mg/l	600	---	1010	373	1680	1240	362	1530	1518	454	2950	2275	456	4150
6	Sulphates	mg/l	1000	---	5.9	4.5	7.3	4.0	3.8	6.7	5.9	4.1	6.6	6.8	5.5	8.1
7	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
10	Phenolic Compounds	mg/l	1.2	1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.83	0.41	0.96	0.61	0.33	0.88	0.79	0.36	0.88	0.94	0.52	1.45
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.018	0.012	0.019	0.016	0.014	0.018	0.017	0.013	0.020	0.023	0.017	0.021
15	Copper	mg/l	0.2	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	.....	60	57	62.2	90.8	57.6	93.8	92.8	52.4	95	87.6	56.3	91.8

ANNEXURE V

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month					Jan.'24											
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGS-01 RO			EDD-50 RO			EDH-64 RO			EDN-99 RO		
					Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	8.41	8.36	8.39	8.37	8.30	8.44	8.35	7.96	8.40	8.34	7.88	8.38
2	Temperature	deg. C	40 deg. C		26.5°C	23.3°C	24.6°C	25.2°C	24.3°C	20.9°C	21.1°C	22.8°C	19.6°C	26.1°C	19.2°C	25.9°C
3	Suspended Solids	mg/l	100	100	4	<2	6	3	<2	6	5	<2	8	5	2	7
4	Total Dissolved Solids	mg/l	2100	---	3108	1332	3692	3350	1220	4382	6622	916	9174	6944	1658	9456
5	Chlorides	mg/l	600	---	1012	188	1315	1148	422	1490	3035	518	4165	4210	596	4615
6	Sulphates	mg/l	1000	---	6.2	4.6	7.3	6.1	4.6	7.5	9.6	4.5	10.4	7.6	5	9.2
7	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8	<8	<8	<8	8.0	8.0	<8	9.0
9	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
10	Phenolic Compounds	mg/l	1.2	1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.91	0.62	0.97	1.18	0.79	1.43	1.51	0.53	1.64	1.17	0.93	1.46
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.016	<0.01	0.012	0.019	0.012	0.023	0.012	<0.01	0.018	0.022	0.015	0.028
15	Copper	mg/l	0.2	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	.....	98.2	59	98.2	98.8	54.3	98.4	96.3	56.6	96.4	88.6	58.9	92.7

ANNEXURE V

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month					Feb.'24											
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGS-01 RO			EDD-50 RO			EDH-64 RO			EDN-99 RO		
					Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	7.64	7.81	7.95	7.11	7.38	7.72	7.68	7.42	7.91	6.93	7.50	7.88
2	Temperature	deg. C	40 deg. C		25.8°C	26.9°C	25.8°C	28.1°C	27.7°C	27.5°C	27.6°C	26.9°C	27.8°C	30.0°C	27.9°C	29.9°C
3	Suspended Solids	mg/l	100	100	<2	<2	6	2	<2	5	3	<2	4	5	<2	8
4	Total Dissolved Solids	mg/l	2100	---	3032	908	4540	3176	1128	4966	6940	1092	9476	6102	1214	8034
5	Chlorides	mg/l	600	---	1086	405	1840	1260	398	2074	1830	380	2570	1570	425	2160
6	Sulphates	mg/l	1000	---	6.8	5.1	7.7	4.1	<2.5	5.1	4.9	<2.5	5.6	6.9	<2.5	7.5
7	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
10	Phenolic Compounds	mg/l	1.2	1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.89	0.38	0.97	0.55	0.38	0.63	0.59	0.38	0.64	0.61	0.43	0.72
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.011	<0.01	0.014	0.014	<0.01	0.016	0.018	0.014	0.020	0.015	<0.01	0.018
15	Copper	mg/l	0.2	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	.....	98	58.26	98.70	97.6	53.39	98.4	96	58.79	97	86.8	57.08	87.7

ANNEXURE V

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month					March'24											
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGS-01 RO			EDD-50 RO			EDH-64 RO			EDN-99 RO		
					Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	7.93	7.76	7.98	7.45	7.82	7.91	7.62	7.50	7.82	7.95	7.62	7.40
2	Temperature	deg. C	40 deg. C		27.4°C	26.4°C	25.8°C	28.4°C	26.1°C	27.1	28.0°C	27°C	26.7°C	25.8°C	26.9°C	25.8°C
3	Suspended Solids	mg/l	100	100	<2	<2	<2	3	<2	6	<2	<2	5	3	<2	7
4	Total Dissolved Solids	mg/l	2100	---	3030	1432	3874	2340	1340	3126	5504	1146	9690	5162	1298	7858
5	Chlorides	mg/l	600	---	810	307	920	710	412	830	1950	380	2622	1380	382	2115
6	Sulphates	mg/l	1000	---	5.2	<2.5	6.1	6.0	3.8	7.1	4.3	3.0	5.7	6.9	4.2	7.8
7	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
10	Phenolic Compounds	mg/l	1.2	1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.69	0.41	0.73	0.6	0.38	0.69	0.50	0.37	0.59	0.73	0.50	0.83
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.015	0.011	0.018	0.014	<0.01	0.019	0.016	0.011	0.02	0.014	<0.01	0.017
15	Copper	mg/l	0.2	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Nickel	mg/l	3	3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Lead	mg/l	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
19	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	% Sodium	mg/l	60	.....	94.3	53.4	94.5	91.4	55.4	92.4	92.8	59	98.1	97	54.1	97.10

ANNEXURE VI

Ground Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Period: October'23 - March'24)

Annexure VI

Date of Sampling					22.11.2023	22.11.2023	22.11.2023	22.11.2023	22.11.2023	22.11.2023
Sample Identification Number					GW-338-2023	GW-339-2023	GW-340-2023	GW-341-2023	GW-342-2023	GW-343-2023
Latitude & Longitude					Lat:23°30'03.1"N, Long:87°23'56.1"E	Lat:23°31'31.4"N, Long:87°24'59.4"E	Lat:23°34'59.3"N, Long:87°24'27.0"E	Lat:23°35'12.3"N, Long:87°24'55.5"E	Lat:23°36'97.3"N, Long:87°23'43.2"E	Lat:23°36'49"N, Long:87°22'18"E
S. No.	Parameter	Drinking Water Specification(Second Revision)-IS:10500 -2012 and Amendment No. 4 November 2021		Method of Analysis	Gopalpur near House of Manik Mondal Tubewell	Sarenga Village near Sarenga Primary School Tubewell	Ghatakdanga Village near Atchala Tubewell	Saraswatiganj village near Hari Mandir Tubewell	Jatgoria Village (Near House of Sk Niashar) Tubewell	Kantaberia Village(Near Gopalpur Mandir) Tubewell
		Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source							
1	Colour, Hazen Units	5	15	APHA 23rd Edition, 2120 B	<5	<5	<5	<5	<5	<5
2	pH Value	6.5-8.5	No relaxation	APHA 23rd Edition, 4500-H^+ B	6.81	6.75	6.6	6.92	6.69	6.94
3	Turbidity, NTU	1	5	APHA 23rd Edition, 2130B	4.8	3	3.5	<1	2.1	3.9
4	Total Dissolved Solids, mg/l	500	2000	APHA 23rd Edition, 2540 C	162	256	48	36	86	104
5	Total Suspended Solids, mg/l	---	---	APHA 23rd Edition, 2540 D	4	<2 (BDL)	<2 (BDL)	<2 (BDL)	<2 (BDL)	17
6	Aluminium (as Al), mg/l	0.03	0.2	APHA 23rd Edition, 3500 –Al B	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
7	Ammonia (as total ammonia -N), mg/l	0.5	No relaxation	APHA 23rd Edition, 4500-NH_3 F	0.19	0.18	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)
8	Anionic Detergents (as MBAS), mg/l	0.2	1	APHA 23rd Edition, 5540 C	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)
9	Barium (as Ba), mg/l	0.7	No relaxation	APHA 23rd Edition, 3111 D	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
10	Boron (as B), mg/l	0.5	1.0	APHA 23rd Edition, 4500-B C	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)
11	Calcium (as Ca), mg/l	75	200	APHA 23rd Edition, 3500-Ca B	26	58	11	5	22	19
12	Chloride (as Cl), mg/l	250	1000	APHA 23rd Edition, 4500 –Cl^-B	45	31	8	6	16	23
13	Copper (as Cu), mg/l	0.05	1.5	APHA 23rd Edition, 3111 B	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
14	Fluoride (as F), mg/l	1	1.5	APHA 23rd Edition, 4500 –F^-D	0.08	0.15	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
15	Free Residual Chlorine ,mg/l	0.2	1	IS 3025 (Part 26)-1986	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL))
16	Iron (as Fe), mg/l	1	No relaxation	APHA 23rd Edition, 3500-Fe B	1.55	0.37	0.41	0.19	0.36	2.68
17	Magnesium (as Mg), mg/l	30	100	APHA 23rd Edition, 3500-Mg B	2	15	<2 (BDL)	2	2	6
18	Manganese (as Mn), mg/l, Max.	0.1	0.3	APHA 23rd Edition, 3111 B	0.058	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	0.093
19	Mineral Oil, mg/l, Max	1	No relaxation	IS 3025 (Part 39):1991	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)
20	Nitrate (as NO_3), mg/l	45	No relaxation	APHA 23rd Edition, 4500-NO_3 -B	6.04	3.59	2.39	4.3	2.26	<0.5 (BDL)
21	Phenolic Compounds (as C_6H_5OH) ,mg/l	0.001	0.002	APHA 23rd Edition, 5530 C	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)
22	Sulphate (as SO_4), mg/l, Max.	200	400	APHA 23rd Edition, 4500-SO_4^{2-}E	21.7	<2.5 (BDL)	<2.5 (BDL)	<2.5 (BDL)	<2.5 (BDL)	<2.5 (BDL)
23	Silver (as Ag), mg/l	0.1	No relaxation	APHA 23rd Edition, 3114 B	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)
24	Sodium (as Na), mg/l	---	---	APHA 23rd Edition, 3500 –Na B	48	32	5	4	11	15
25	Selenium (as Se), mg/l	0.01	No relaxation	APHA 23rd Edition, 3114 C	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)
26	Cadmium (as Cd), mg/l	0.003	No relaxation	APHA 23rd Edition, 3111 B	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)
27	Cyanide (as CN), mg/l	0.05	No relaxation	APHA 23rd Edition, 4500 –CN^-E	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)
28	Lead (as Pb), mg/l	0.01	No relaxation	APHA 23rd Edition, 3111 B	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
29	Mercury (as Hg), mg/l	0.001	No relaxation	APHA 23rd Edition, 3112 B	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)
30	Total Arsenic (as As), mg/l	0.01	No relaxation	APHA 23rd Edition, 3114 C	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
31	Polynuclear aromatic hydrocarbons (as PAH), mg/l	0.0001	No relaxation	APHA 23rd Edition, 6440 B	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)
32	Pesticide Residues,µg/l	0.01	No relaxation	APHA 23rd Edition, 6630 B&C	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
33	Total Coliform Count, MPN/100 ml	Shall not be detectable in any 100 ml sample		IS 1622 : 1981 (Reaffirmed 2009)	<2 (BDL)	<2 (BDL)	<2 (BDL)	<2 (BDL)	<2 (BDL)	<2 (BDL)
34	Odour	Agreeable	Agreeable	IS: 3025 (Part 5) - 1983	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
35	Polychlorinated Biphenyls, mg/l	0.0005	No relaxation	APHA 23rd Edition, 6630	Not Detectable	Not Detectable	Not Detectable	Not Detectable	Not Detectable	Not Detectable
36	Chloramines,mg/l	4	No relaxation	APHA 23rd Edition, 4500 Cl G	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)
37	Molybdenum,mg/l	0.07	No relaxation	APHA 23rd Edition, 3111 D	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
38	Sulphide,mg/l	0.05	No relaxation	APHA 23rd Edition, 4500-S^{2-} F	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)
39	Electrical Conductivity at 25° C, µmhos/cm	---	---	APHA 23rd Edition, 2510 B	.	441	80	61	149	172
40	Phosphorus(as P), mgl	---	---	APHA 23rd Edition, 4500 P D	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
41	Nickel, mg/l	0.02	No relaxation	APHA 23rd Edition, 3111 B	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)
42	Total Chromium,mg/l	0.05	No relaxation	APHA 23rd Edition, 3111 B	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
43	Zinc,mg/l	5	15	APHA 23rd Edition, 3111 B	0.013	0.016	<0.01	<0.01	<0.01	0.015
44	Total Alkalinity as $CaCO_3$,mg/l	200	600	APHA 23rd Edition, 2320 B	40	176	36	16	52	60
45	Total Hardness,mg/l	200	600	APHA 23rd Edition, 2340 C	72	204	32	20	60	72

Annexure VI

Ground Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Period: October'23 - March'24)

Date of Sampling					22.11.2023	22.11.2023	22.11.2023	22.11.2023	22.11.2023	22.11.2023	22.11.2023
Sample Identification Number					GW-344-2023	GW-345-2023	GW-346-2023	GW-347-2023	GW-348-2023	GW-349-2023	GW-350-2023
Latitude & Longitude					Lat:23°37'15.4"N, Long:87°21'48.9"E	Lat:23°35'15.19"N, Long:87°22'08.5"E	Lat:23°36'97.3"N, Long:87°22'23.9"E	Lat:23°34'27.0"N, Long:87°23'00.1"E	Lat:23°37'46.6"N, Long:87°20'15.7"E	Lat:23°37'34.6"N, Long:87°19'00.1"E	Lat:23°36'38.4"N, Long:87°20'09.0"E
S. No.	Parameter	Drinking Water Specification(Second Revision)-IS:10500 -2012 and Amendment No. 4 November 2021		Method of Analysis	Bargoria Village near EDD-003 Bauri Para Tubewell	Dhabani Village near house of Sapan Bauri house Tubewell	Labnapara village near house of Sunil Kisku Tubewell	Akandara Village Near Adibasi Para (House of Kishor Soren)	Kalikapur Village near Durga Mandir Tubewell	Bansia Village near ICDS Washpara Tubewell	Nachan Village near House of Arup Ghatak Tubewell
		Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source								
1	Colour, Hazen Units	5	15	APHA 23rd Edition, 2120 B	<5	<5	<5	<5	<5	<5	<5
2	pH Value	6.5-8.5	No relaxation	APHA 23rd Edition, 4500-H^+ B	6.58	7.02	6.61	6.78	6.9	7.03	6.84
3	Turbidity, NTU	1	5	APHA 23rd Edition, 2130B	4.6	3	2.8	4.1	4.8	3.9	4.4
4	Total Dissolved Solids, mg/l	500	2000	APHA 23rd Edition, 2540 C	30	42	284	62	354	336	544
5	Total Suspended Solids, mg/l	---	---	APHA 23rd Edition, 2540 D	2	<2 (BDL)	<2 (BDL)	3	11	<2 (BDL)	2
6	Aluminium (as Al), mg/l	0.03	0.2	APHA 23rd Edition, 3500 –Al B	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
7	Ammonia (as total ammonia -N), mg/l	0.5	No relaxation	APHA 23rd Edition, 4500-NH_3 F	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	0.48	<0.01 (BDL)	<0.01 (BDL)
8	Anionic Detergents (as MBAS), mg/l	0.2	1	APHA 23rd Edition, 5540 C	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)
9	Barium (as Ba), mg/l	0.7	No relaxation	APHA 23rd Edition, 3111 D	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
10	Boron (as B), mg/l	0.5	1.0	APHA 23rd Edition, 4500-B C	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)
11	Calcium (as Ca), mg/l	75	200	APHA 23rd Edition, 3500-Ca B	3	6	53	8	63	42	87
12	Chloride (as Cl), mg/l	250	1000	APHA 23rd Edition, 4500 –Cl^-B	4	6	41	10	139	133	72
13	Copper (as Cu), mg/l	0.05	1.5	APHA 23rd Edition, 3111 B	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
14	Fluoride (as F), mg/l	1	1.5	APHA 23rd Edition, 4500 –F^-D	<0.05 (BDL)	<0.05 (BDL)	0.18	<0.05 (BDL)	<0.05 (BDL)	0.21	0.27
15	Free Residual Chlorine ,mg/l	0.2	1	IS 3025 (Part 26)-1986	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)
16	Iron (as Fe), mg/l	1	No relaxation	APHA 23rd Edition, 3500-Fe B	0.72	0.55	0.47	1.92	2.65	0.74	0.99
17	Magnesium (as Mg), mg/l	30	100	APHA 23rd Edition, 3500-Mg B	2	3	20	4	7	17	27
18	Manganese (as Mn), mg/l, Max.	0.1	0.3	APHA 23rd Edition, 3111 B	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	0.061	0.093	<0.05 (BDL)	<0.05 (BDL)
19	Mineral Oil, mg/l, Max	1	No relaxation	IS 3025 (Part 39):1991	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)	<1 (BDL)
20	Nitrate (as NO_3), mg/l	45	No relaxation	APHA 23rd Edition, 4500-NO_3 -B	4.65	4.87	19.5	2.08	12.5	<0.5	3.23
21	Phenolic Compounds (as C_6H_5OH) ,mg/l	0.001	0.002	APHA 23rd Edition, 5530 C	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)	<0.002 (BDL)
22	Sulphate (as SO_4), mg/l, Max.	200	400	APHA 23rd Edition, 4500-SO_4^{2-}E	<2.5 (BDL)	<2.5 (BDL)	<2.5 (BDL)	<2.5 (BDL)	7	7.3	11.5
23	Silver (as Ag), mg/l	0.1	No relaxation	APHA 23rd Edition, 3114 B	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)
24	Sodium (as Na), mg/l	---	---	APHA 23rd Edition, 3500 –Na B	2	4	27	8	91	87	49
25	Selenium (as Se), mg/l	0.01	No relaxation	APHA 23rd Edition, 3114 C	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)	<0.005 (BDL)
26	Cadmium (as Cd), mg/l	0.003	No relaxation	APHA 23rd Edition, 3111 B	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)	<0.003 (BDL)
27	Cyanide (as CN), mg/l	0.05	No relaxation	APHA 23rd Edition, 4500 –CN^- E	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)
28	Lead (as Pb), mg/l	0.01	No relaxation	APHA 23rd Edition, 3111 B	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
29	Mercury (as Hg), mg/l	0.001	No relaxation	APHA 23rd Edition, 3112 B	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)	<0.001 (BDL)
30	Total Arsenic (as As), mg/l	0.01	No relaxation	APHA 23rd Edition, 3114 C	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
31	Polynuclear aromatic hydrocarbons (as PAH), mg/l	0.0001	No relaxation	APHA 23rd Edition, 6440 B	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)	<0.0001 (BDL)
32	Pesticide Residues,µg/l	0.01	No relaxation	APHA 23rd Edition, 6630 B&C	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
33	Total Coliform Count, MPN/100 ml	Shall not be detectable in any 100 ml sample		IS 1622 : 1981 (Reaffirmed 2009)	<2 (BDL)	<2 (BDL)	<2 (BDL)	<2 (BDL)	<2 (BDL)	<2 (BDL)	<2 (BDL)
34	Odour	Agreeable	Agreeable	IS: 3025 (Part 5) - 1983	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
35	Polychlorinated Biphenyls, mg/l	0.0005	No relaxation	APHA 23rd Edition, 6630	Not Detectable	Not Detectable	Not Detectable	Not Detectable	Not Detectable	Not Detectable	Not Detectable
36	Chloramines,mg/l	4	No relaxation	APHA 23rd Edition, 4500 Cl G	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)	<0.1 (BDL)
37	Molybdenum,mg/l	0.07	No relaxation	APHA 23rd Edition, 3111 D	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
38	Sulphide,mg/l	0.05	No relaxation	APHA 23rd Edition, 4500-S^{2-} F	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)	<0.5 (BDL)
39	Electrical Conductivity at 25° C, µmhos/cm	---	---	APHA 23rd Edition, 2510 B	52	75	490	105	610	575	895
40	Phosphorus(as P), mgl	---	---	APHA 23rd Edition, 4500 P D	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)	<0.01 (BDL)
41	Nickel, mg/l	0.02	No relaxation	APHA 23rd Edition, 3111 B	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)	<0.02 (BDL)
42	Total Chromium,mg/l	0.05	No relaxation	APHA 23rd Edition, 3111 B	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)	<0.05 (BDL)
43	Zinc,mg/l	5	15	APHA 23rd Edition, 3111 B	<0.01	<0.01	0.017	0.012	0.02	0.014	0.024
44	Total Alkalinity as $CaCO_3$,mg/l	200	600	APHA 23rd Edition, 2320 B	16	24	184	36	48	44	328
45	Total Hardness,mg/l	200	600	APHA 23rd Edition, 2340 C	16	28	216	36	184	172	328

ANNEXURE VII

ANNEXURE VII

Expenditure towards Enterprise Social Commitment for CBM Project, Raniganj
by Essar Oil and Gas Exploration and Production Ltd.
Period: October'23 - March'24

Thematic Area	Projects	Beneficiaries (No.)	Expenditure (INR)
HEALTH	Community Health Care Services through Mobile Medical Van	**9526**	**12,82,481.00**
EDUACATION	Basic Aminities support to 6 anganwari centre under Kanksa Block	**2379**	**3,12,163.00**
SPORTS AND CULTURAL EVENT	Support to sports	**3131**	**1,37,390.00**
COMMUNITY INFRASTRUCTURE DEVELOPMENT	Support to community	**2000**	**1,33,675.00**
TOTAL		**17036**	**18,65,709.00**

ANNEXURE VIII

ANNEXURE VIII

Expenditure towards Environment Protection Measures at CBM Project, Raniganj by Essar Oil and Gas Exploration and Production Ltd. (October'23 to March'24)		
S. No.	**Particular**	**Expenses (INR)**
1	Operation & maintenance of the RO system & pumps and water tanker services-Opex	1,30,23,853

ANNEXURE IX

Annexure IX

Stack Emissions Monitoring Report of CBM Project, Raniganj
by Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month		Nov-23					
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	EDD - 403	EDD 007	EDI - 030	EDE - 060	EDE - 300	EDE - 301
Village Name		KHATGORIA	GOPEDANGA	AKANDARA	JATGORIA	FULJHORA	FULJHORA
Date of Sampling		21.11.2023	22.11.2023	22.11.2023	22.11.2023	22.11.2023	22.11.2023
Stack connected to		50 KVA GG Set [Sl.No. KEHM 112691]	63 KVA GG Set [Sl.No. NGHM 110972]	50 KVA GG Set [Sl.No. DBHM 102967]	62.5 KVA GG Set [Sl.No. MBHM 113352]	62.5 KVA GG Set [Sl.No. NGHM 110966]	50 KVA GG Set [Sl.No. D 111013008]
Emission due to		Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular	Circular	Circular	Circular
Height of the stack from ground level		4.26 m.	4.00 m.	4.21 m.	3.65 m.	4.21 m.	3.60 m.
Height of the sampling point from ground level		3.65 m.	3.32 m.	3.65 m.	3.00 m.	4.09 m.	3.12 m.
Diameter of the stack at Sampling Point		0.1015 m.	0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m
Fuel used		CBM	CBM	CBM	CBM	CBM	CBM
Temperature of emission, (deg. C)		72	82	68	62	64	58
Barometric pressure, (mm of Hg)		757	757	757	757	757	757
Velocity of gas in stack, (m/sec)		8.97	10.77	8.92	8.85	8.87	8.79
Quantity of gas flow, (Nm^3/hr)		219.43	257.31	221.17	214.90	219.93	224.85
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.1225	0.1646	0.1516	0.1058	0.0970	0.1235
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0009	0.0009	0.0007	0.0007	0.0007	0.0008
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.7	0.1234	0.1655	0.1523	0.1065	0.0977	0.1243
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.10	0.11	0.09	0.07	0.07	0.09
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.3	N.A	N.A	N.A	N.A	N.A	N.A

Annexure IX

Stack Emissions Monitoring Report of CBM Project, Raniganj
by Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month		Nov-23					
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	EDE - 364 (A)	EDE - 300	EDD - 240	EDD - 244	EDH - 034 (B)	EDI - 032©
Village Name		FULJHORA	JATGORIA	PANURIA	NACHAN	AKANDARA	AKANDARA
Date of Sampling		22.11.2023	23.11.2023	24.11.2023	24.11.2023	25.11.2023	25.11.2023
Stack connected to		62.5 KVA GG Set [Sl.No. NGHM 110981]	63 KVA DG Set [Sl.No. NGHM 110966]	62.5 KVA GG Set [Sl.No. NGHM - 110979]	62.5 KVA GG Set [Sl.No. KXHM - 412277]	63 KVA GG Set [Sl.No.: MDHM - 110856]	63 KVA GG Set [Sl. No.- 110978]
Emission due to		Combustion of CBM	Combustion of HSD	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular	Circular	Circular	Circular
Height of the stack from ground level		4.00 m.	4.21 m.	3.65 m.	4.00 m.	4.57 m.	3.65 m.
Height of the sampling point from ground level		3.21 m.	3.65 m.	3.04 m.	3.12 m.	3.65 m.	3.04 m.
Diameter of the stack at Sampling Point		0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m
Fuel used		CBM	HSD	CBM	CBM	CBM	CBM
Temperature of emission, (deg. C)		58	51	53	74	68	71
Barometric pressure, (mm of Hg)		757	757	757	757	757	757
Velocity of gas in stack, (m/sec)		7.86	7.78	9.56	8.99	9.76	9.80
Quantity of gas flow, (Nm^3/hr)		200.21	204.01	247.17	219.07	241.54	240.82
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.1293	0.1856	0.1152	0.0960	0.0938	0.0906
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0006	0.0006	0.0006	0.0009	0.0007	0.0008
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.7	0.1299	0.1862	0.1158	0.0969	0.0945	0.0914
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.08	0.13	0.10	0.07	0.08	0.08
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.3	N.A	0.09	N.A	N.A	N.A	N.A

Annexure IX

Stack Emissions Monitoring Report of CBM Project, Raniganj
by Essar Oil and Gas Exploration and Production Ltd.
(Period: October'23 - March'24)

Month		Nov-23		
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	EDI - 046 (B)	EDN - 099	EDI - 071 (A)
Village Name		AKANDARA	PATHARDIHA	MCS MALANDIGHI
Date of Sampling		26.11.2023	27.11.2023	27.11.2023
Stack connected to		63 KVA GG Set [Sl.No. - NGHM 110967]	63 KVA GG Set [Sl.No.: NGHM - 110976]	63 KVA GG Set [Sl.No. - NQHM - 110975]
Emission due to		Combustion of CBM	Combustion of CBM	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular
Height of the stack from ground level		3.65 m.	4.21 m.	4.21 m.
Height of the sampling point from ground level		3.12 m.	3.21 m.	3.08 m.
Diameter of the stack at Sampling Point		0.1015 m	0.1015 m	0.1015 m
Fuel used		CBM	CBM	CBM
Temperature of emission, (deg. C)		65	60	63
Barometric pressure, (mm of Hg)		757	757	757
Velocity of gas in stack, (m/sec)		9.72	8.82	9.73
Quantity of gas flow, (Nm^3/hr)		243.12	222.68	243.74
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.0975	0.0936	0.9887
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0007	0.0007	0.0007
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.7	0.0982	0.0943	0.0996
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.07	0.07	0.08
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.3	N.A	N.A	N.A

Annexure IX

Stack Emissions Monitoring Report of CBM Raniganj Project
by Essar Oil and Gas Exploration and Production Ltd.
(Period: Oct'^{23} - Mar'^{24})

Month		Nov-23					
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	EDD - 009	EDD - 017(A)	EDD - 017(B)	EDD - 023	EDD - 020	EDE - 018
Village Name		BARGORIA	PRATAPPUR	PRATAPPUR	FULJHORE	JAMBON	JATGORIA
Date of Sampling		21.11.2023	21.11.2023	21.11.2023	21.11.2023	21.11.2023	21.11.2023
Stack connected to		125 KVA GG Set [Sl. No. KXHM 412776]	125 KVA GG [Sl.No. KEHM 111924]	125 KVA GG [Sl.No. LMHM 115276]	125 KVA GG [Sl.No. LMHM 113676]	125 KVA GG [Sl.No. DPHM 416543]	125 KVA GG Set [Sl.No. DCHM 400072]
Emission due to		Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular	Circular	Circular	Circular
Height of the stack from ground level		4.03 m.	4.26 m.	3.65 m.	4.26 m.	4.00 m.	4.26 m.
Height of the sampling point from ground level		3.35 m.	3.65 m.	3.00 m.	3.65 m.	3.70 m.	3.20 m.
Diameter of the stack at Sampling Point		0.1015 m.	0.1015 m.	0.1015 m	0.1015 m	0.1015 m	0.1015 m
Fuel used		CBM	CBM	CBM	CBM	CBM	CBM
Temperature of emission, (deg. C)		94	100	97	92	84	102
Barometric pressure, (mm of Hg)		757	757	757	757	757	757
Velocity of gas in stack, (m/sec)		10.14	11.03	10.18	10.10	10.78	10.23
Quantity of gas flow, (Nm^3/hr)		232.34	250.10	233.00	234.67	253.33	226.85
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.1093	0.1186	0.1127	0.1104	0.1192	0.0962
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0006	0.0007	0.0007	0.0006	0.0008	0.0007
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.0	0.1099	0.1193	0.1134	0.1110	0.1200	0.0969
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.13	0.13	0.12	0.13	0.14	0.12
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.2	N.A	N.A	N.A	N.A	N.A	N.A

Annexure IX

Stack Emissions Monitoring Report of CBM Raniganj Project
by Essar Oil and Gas Exploration and Production Ltd.
(Period: Oct'23 - Mar'24)

Month		Nov-23					
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	EDD - 013	EDI - 048	EDE - 364 (B)	EDP - 404	EDP - 405 (A)	EDP - 405 (B)
Village Name		JATGORIA	JATGORIA	FULJHORA	KALIKAPUR	KALIKAPUR	KALIKAPUR
Date of Sampling		21.11.2023	22.11.2023	22.11.2023	23.11.2023	23.11.2023	23.11.2023
Stack connected to		125 KVA GG Set [Sl.No. DXHM 407718]	125 KVA GG Set [Sl.No. FAHM 412382]	125 KVA GG Set [Sl.No. PNHM 105668]	125 KVA GG Set [Sl.No. JBHM 428269]	125 KVA GG Set [Sl.No. EBHM 407477]	125 KVA GG Set [Sl.No. EXHM 412156]
Emission due to		Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular	Circular	Circular	Circular
Height of the stack from ground level		4.26 m.	4.12 m.	4.26 m.	4.21 m.	5.20 m.	5.20 m.
Height of the sampling point from ground level		3.65 m.	3.65 m.	4.00 m.	3.65 m.	4.21 m.	4.21 m.
Diameter of the stack at Sampling Point		0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m
Fuel used		CBM	CBM	CBM	CBM	CBM	CBM
Temperature of emission, (deg. C)		97	108	102	76	89	90
Barometric pressure, (mm of Hg)		757	757	757	757	757	757
Velocity of gas in stack, (m/sec)		10.16	10.30	11.06	9.88	10.86	10.88
Quantity of gas flow, (Nm^3/hr)		232.21	227.97	249.06	239.40	253.34	230.71
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.1054	0.1131	0.1167	0.1200	0.1227	0.1102
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0008	0.0006	0.0007	0.0007	0.0007	0.0007
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.0	0.1062	0.1137	0.1174	0.1207	0.1234	0.1109
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.12	0.12	0.13	0.12	0.13	0.12
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.2	N.A	N.A	N.A	N.A	N.A	N.A

Annexure IX

Stack Emissions Monitoring Report of CBM Raniganj Project
by Essar Oil and Gas Exploration and Production Ltd.
(Period: Oct'23 - Mar'24)

Month		Nov-23					
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	EDC - 074 (B)	EDC - 074 (a)	EDC - 072 (A)	EDC - 072 (B)	EDC - 072 ©	EDC - 409
Village Name		PARULIA	PARULIA	NACHAN	NACHAN	NACHAN	PRATAPPUR
Date of Sampling		23.11.2023	23.11.2023	23.11.2023	23.11.2023	23.11.2023	24.11.2023
Stack connected to		125 KVA DG Set [Sl.No. LMHM - 115275]	125 KVA GG Set [Sl.No. KXHM 412782]	125 KVA GG Set [Sl.No. EDHM 4018286]	125 KVA GG Set [Sl.No. EDHM 401826]	125 KVA DG Set [Sl.No. NFHN 112836]	125 KVA GG Set [Sl.No.: KXHM - 412778]
Emission due to		Combustion of HSD	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of HSD	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular	Circular	Circular	Circular
Height of the stack from ground level		3.65 m.	3.80 m.	4.21 m.	4.21 m.	4.21 m.	4.00 m.
Height of the sampling point from ground level		3.20 m.	3.65 m.	3.12 m.	3.12 m.	3.65 m.	3.45 m.
Diameter of the stack at Sampling Point		0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m
Fuel used		HSD	CBM	CBM	CBM	HSD	HSD
Temperature of emission, (deg. C)		88	92	84	86	102	101
Barometric pressure, (mm of Hg)		757	757	757	757	757	757
Velocity of gas in stack, (m/sec)		10.85	10.91	11.52	11.56	11.04	11.04
Quantity of gas flow, (Nm^3/hr)		253.45	254.00	248.51	247.75	247.09	249.33
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.1652	0.1235	0.1213	0.1302	0.1590	0.1183
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0007	0.0006	0.0007	0.0007	0.0006	0.0007
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.0	0.1659	0.1241	0.1220	0.1309	0.1596	0.1190
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.17	0.13	0.13	0.13	0.17	0.12
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.2	0.06	N.A	N.A	N.A	0.08	N.A

Annexure IX

Stack Emissions Monitoring Report of CBM Raniganj Project
by Essar Oil and Gas Exploration and Production Ltd.
(Period: Oct'^{23} - Mar'^{24})

Month		Nov-23					
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	EDD - 054	EDD - 026	EDH - 058	EDH - 065	EDH - 034	EDI - 037 (A)
Village Name		NACHAN	KANTABERIA	LABNAPARA	AKANDARA	AKANDARA	AKANDARA
Date of Sampling		24.11.2023	24.11.2023	24.11.2023	24.11.2023	25.11.2023	25.11.2023
Stack connected to		125 KVA GG Set [Sl.No. - KXHM - 412783]	125 KVA GG Set [Sl.No. - EDHM - 401930]	125 KVA GG Set [Sl.No.: DCHM 400071]	125 KVA GG Set [KXHM - 412771]	125 KVA GG Set [Sl.No - PNHM - 101639]	125 KVA GG Set [Sl.No. - DAHM - 404441]
Emission due to		Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular	Circular	Circular	Circular
Height of the stack from ground level		4.21 m.	4.30 m.	4.12 m.	5.18 m.	4.26 m.	4.03 m.
Height of the sampling point from ground level		3.65 m.	3.65 m.	3.21 m.	4.76 m.	3.65 m.	3.65 m.
Diameter of the stack at Sampling Point		0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m
Fuel used		CBM	CBM	CBM	CBM	CBM	CBM
Temperature of emission, (deg. C)		94	103	97	105	94	103
Barometric pressure, (mm of Hg)		757	757	757	757	757	757
Velocity of gas in stack, (m/sec)		10.91	11.05	11.69	11.84	10.91	11.84
Quantity of gas flow, (Nm^3/hr)		252.19	248.85	268.48	265.72	251.68	268.29
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.1256	0.1266	0.1300	0.1334	0.1175	0.1256
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0007	0.0007	0.0007	0.0008	0.0008	0.0009
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.0	0.1263	0.1273	0.1307	0.1342	0.1183	0.1265
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.12	0.12	0.13	0.13	0.13	0.14
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.2	N.A	N.A	N.A	N.A	N.A	N.A

Annexure IX

Stack Emissions Monitoring Report of CBM Raniganj Project
by Essar Oil and Gas Exploration and Production Ltd.
(Period: Oct'23 - Mar'24)

Month		Nov-23					
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	ED1 - 037 (B)	EDI - 039 (B)	EDI - 040	EDI - 041 (A)	ED1 - 041 (B)	EDI - 046 (A)
Village Name		AKANDARA	SARASWATIGUNGE	SARASWATIGUNGE	SARASWATIGUNGE	SARASWATIGUNGE	AKANDARA
Date of Sampling		25.11.2023	25.11.2023	25.11.2023	26.11.2023	26.11.2023	26.11.2023
Stack connected to		125 KVA GG Set [Sl.No.- EDHM - 401931]	125 KVA GG Set [Sl.No.- PLHM - 105083]	125 KVA GG Set [Sl.No. JAHM 437323]	125 KVA GG Set [Sl. No. HCHM - 412976]	125 KVA GG Set [Sl. No.- MHHM - 107179]	125 KVA GG Set [Sl.No. DSHZ412617]
Emission due to		Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular	Circular	Circular	Circular
Height of the stack from ground level		4.03 m.	4.57 m.	4.03 m.	4.03 m.	4.26 m.	4.21 m.
Height of the sampling point from ground level		3.65 m.	3.65 m.	3.35 m.	3.00 m.	3.10 m.	3.65 m.
Diameter of the stack at Sampling Point		0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m
Fuel used		CBM	CBM	CBM	CBM	CBM	CBM
Temperature of emission, (deg. C)		106	98	106	107	99	92
Barometric pressure, (mm of Hg)		757	757	757	757	757	757
Velocity of gas in stack, (m/sec)		11.88	11.77	11.89	11.88	11.75	11.64
Quantity of gas flow, (Nm^3/hr)		265.43	267.80	265.95	264.06	267.76	269.71
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.1265	0.1296	0.1267	0.1205	0.1377	0.1396
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0008	0.0008	0.0007	0.0008	0.0008	0.0008
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.0	0.1273	0.1304	0.1274	0.1213	0.1385	0.1404
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.14	0.13	0.13	0.13	0.14	0.14
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.2	N.A	N.A	N.A	N.A	N.A	N.A

Annexure IX

Stack Emissions Monitoring Report of CBM Raniganj Project
by Essar Oil and Gas Exploration and Production Ltd.
(Period: Oct'^{23} - Mar'^{24})

Month		Nov-23					
Site Name	Limit, G.S.R.281(E) dated 07/03/2016	EDI - 070 (A)	EDI - 070 (B)	EDI - 042 (B)	EDN-162	EDI - 071 (B)	EDI - 123 (A)
Village Name		GHATAKDANGA	GHATAKDANGA	SARASWATIGUNGE	BHALUKUDHA	MCS MALANDIGHI	LOHAGHURI
Date of Sampling		26.11.2023	26.11.2023	27.11.2023	27.11.2023	27.11.2023	27.11.2023
Stack connected to		125 KVA GG Set [Sl.No. PNHM - 101636]	125 KVA GG Set [Sl.No. FAHM - 412380]	125 KVA GG Set [Sl. No. PLHM - 105848]	125 KVA DG Set [Sl.No. P 84075228]	125 KVA GG Set [Sl.No. - DPHM - 416543]	125 KVA GG Set [Sl.No.- EXHM - 412154]
Emission due to		Combustion of CBM	Combustion of CBM	Combustion of CBM	Combustion of HSD	Combustion of CBM	Combustion of CBM
Material of construction of stack		M.S.	M.S.	M.S.	M.S.	M.S.	M.S.
Shape of stack		Circular	Circular	Circular	Circular	Circular	Circular
Height of the stack from ground level		4.21 m.	4.21 m.	4.21 m.	4.00 m.	4.00 m.	3.65 m.
Height of the sampling point from ground level		3.65 m.	3.65 m.	3.65 m.	3.18 m.	3.08 m.	3.12 m.
Diameter of the stack at Sampling Point		0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m	0.1015 m
Fuel used		CBM	CBM	CBM	HSD	CBM	CBM
Temperature of emission, (deg. C)		95	97	105	103	126	132
Barometric pressure, (mm of Hg)		757	757	757	757	757	757
Velocity of gas in stack, (m/sec)		11.72	11.71	11.89	11.83	12.18	12.29
Quantity of gas flow, (Nm^3/hr)		269.36	267.99	264.17	268.07	257.11	255.85
Concentration of Nitrogen Dioxide, (g/Kw-hr)		0.1332	0.1297	0.1335	0.1831	0.1278	0.1299
Concentration of Non-Methane Hydrocarbon (as CH_4), (g/Kw-hr)		0.0008	0.0009	0.0008	0.0008	0.0007	0.0007
Total Conc. Nox + NMHC , (g/Kw-hr)	≤ 4.0	0.1340	0.1306	0.1343	0.1839	0.1285	0.1306
Concentration of Carbon Monoxide, (g/Kw-hr)	≤ 3.5	0.14	0.13	0.13	0.19	0.12	0.12
Concentration of Particulate Matter, (g/Kw-hr)	≤ 0.2	N.A	N.A	N.A	0.09	N.A	N.A

ANNEXURE X

Annexure X

Awareness Campaign "Ban of Single Use Plastic"

Within the CBM Block, RG(East)-CBM-2001/1.

Location : Bhurkunda N. C. Institution High School (Kantaberia)
Date : 29.11.2023
Topic : Single use plastic pollution and its impact on Environment & Health, Non-use of plastic carry bag for household purposes, Providing of jute bag as a token of initiation.
Participants : Students, Teaching & Non-Teaching Staffs.

Photographs:

Awareness Campaign at Bhurkunda N. C. Institution (Kantaberia)

Annexure X

Awareness Campaign "Ban of Single Use Plastic"

Within the CBM Block, RG(East)-CBM-2001/1.

Location : MVT Training Centre at GGS#1
Date : 20.03.2024
Topic : Single use plastic pollution and its impact on Environment & Health, Non-use of plastic carry bag for household purposes, Providing of jute bag as a token of initiation.
Participants : DGMS Officials, Fire Brigade Team- Durgapur, GAIL Officials and nearby Villagers.

Photographs: