

EOGEPL/ CBM-RG (E)/ HSE/2022/4660

**1<sup>st</sup> June 2023**

The Regional Director  
Ministry of Environment, Forests and Climate Change  
Integrated Regional Office  
IB-194, Sector III, Salt Lake  
Kolkata-700106  
West Bengal

Essar Oil and Gas Exploration and Production Ltd  
AN 81 B Sector 2B  
Martin Luther King Road  
Bidhan Nagar  
Durgapur - 713212  
India

CIN: U11203GJ2016PLC091903

T + 91 3432532202  
F +91 3432532201  
E [eoqepl@essarenp.co.in](mailto:eoqepl@essarenp.co.in)  
[www.essar.com](http://www.essar.com)

**Sub: Submission Six-monthly Compliance Report of the Environmental Clearance (Phase-II and Amendment) by Essar Oil Gas Exploration and Production Limited (EOGEPL) reg.**

**Ref: Environmental Clearance of Phase-II vide F. No. J-11011/351/2009- IA II (I) dated 23.09.2011; Amendment dated 18.06.2012; Transfer of EC from EOL to EOGEPL dated 06.11.2017**

Dear Sir

We submit herewith the six-monthly compliance report for the period of October'22 to March'23, as stipulated conditions of prior environmental clearance vide F. No. J-11011/351/2009- IA II (I), dated 23<sup>rd</sup> September, 2011 and it's amendment dated 18<sup>th</sup> June 2012 granted by its' ministry (MoEF&CC) to Essar Oil and Gas Exploration and Production Ltd., for the Pilot cum Production Phase (Phase-II) of CBM project activities.

Thank 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, VA, 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-II) Six-monthly Environment Clearance Compliance Report**  
**(October'22 to March'23)**

**Ref: Environment Clearance no. F. No. J-11011/351/2009- IA II (I) dated 23.09.2011**

S. No.	EC Conditions	Compliance Status
<b>A. Specific Conditions</b>		
i.	As proposed, Only 58 pilot-cum-production wells shall be drilled up to a depth of 1000 m. No additional wells shall be drilled without prior permission from this Ministry.	Only 53 pilot-cum-production wells has been drilled up to a depth of 1000 m.
ii	As proposed, no drilling of well and any construction work shall be carried out in forest land. No forest land shall be used for installation of Group Gathering Stations (GGSs) and pipeline laying in the proposed location.	All the facilities including well sites & Gas Gathering Stations are located outside the forest area.
iii	Recommendations of the State Forest Department shall be obtained regarding likely impact of the proposed plant on the surrounding protected forests viz. Durgapur PF & Ukhra PF and implemented.	The Conservator of Forests (South East Circle), Forest Department, West Bengal has carried out site Survey. The Additional PCCF, West Bengal forwarded his recommendations to the Additional PCCF, MoEF&CC (Eastern Regional Office). (A copy of the letter has already been submitted along with compliance report earlier).
iv	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 has been conducted directly with the land owners and the compensation is paid as per the prevailing market rate. There is no involvement of Rehabilitation and Resettlement.
v	Prior permission from the Ministry of Defense shall be obtained regarding impact of proposed plant on Panagarh air base, if any.	3 (Three) Gas Gathering Station (GGS) and 1 (One) Main Compressor Station (MCS) have been installed as per the condition of the NOC of Ministry of Defense (MoD).
vi	The surface facilities shall be installed as per the applicable codes and standards, international practices and applicable local regulations.	Surface facilities have been designed as per applicable Code and Standard, i.e. OISD guidelines.

S. No.	EC Conditions	Compliance Status
vii	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 PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , CO, CH <sub>4</sub> , 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 with a NABL accredited laboratory at well sites near to the closest human settlements as per the Ambient Air Quality Emission Standards (NAAQES) issued by the Ministry vide G.S.R No. 826(E) dated 16th November, 2009 for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , CO, CH <sub>4</sub> , VOCs, HC, Non-methane HC.  AAQ monitoring results of last six months, i.e. October'22 to March'23 refer to <b>Annexure I</b> .
viii	The company shall monitor data on methane and non-methane hydrocarbon at the drilling site, GGS, CGS and at the SV station from where the gas is supplied to the customers.	Methane and non-methane hydrocarbons are monitored. It is a part of the Ambient Air Quality Monitoring plan at major facilities (GGS, MCS) and villages.  The monitoring results refer to <b>Annexure I</b> .
ix	Mercury shall also be analyzed in air, water and drill cuttings twice during drilling period.	Mercury is being analyzed in produced water, ambient air and drill cuttings, where Mercury level is in below detection of specified limits. The analysis results of Air (refer to <b>Annexure I</b> ), Water (refer to <b>Annexure II</b> ) and drill cuttings (refer to <b>Annexure III</b> ).
x	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 requirements and emissions from stacks shall meet the MOEF/CPCB guidelines.	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. <ul style="list-style-type: none"> <li>• Installation of electrical equipment as per approved hazardous zone classification as communicated to DGMS.</li> <li>• Major facilities like GGS, MCS, Warehouse etc. are well equipped with Fire hydrant system.</li> <li>• Dry chemical fire extinguishers are available at site.</li> <li>• Online methane gas analyzers (CH<sub>4</sub>) are available.</li> <li>• Flame proof type lighting fixtures, push buttons and switches at the drill site facilities are used.</li> </ul>

S. No.	EC Conditions	Compliance Status
xi	<p>The company shall make the arrangement for control of noise from the drilling activity 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.</p>	<p>CPCB approved models of silent generator sets are installed which are incorporated with acoustic enclosure. Once the gas production starts at the well site, the Diesel Generator (DG) sets are replaced with Gas Generator (GG) sets. In production well sites Gas Generator sets are operational.</p> <p>Regular noise monitoring is carried out in the activity area and surrounding habitat. The results of noise monitoring refer to <b>Annexure IV</b>.</p>
xii	<p>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 30'August, 2005.</p>	<p>Drill cuttings and drilling fluids are collected in HDPE lined pit at site. Thereafter, at treatment site, it is stored in RCC pit for further treatment through drilling waste processing plant. We are in compliance with the guidelines, for the disposal of solid waste, drill cuttings and drilling fluids for onshore drilling operation notified vide GSR.546 (E) dated 30th August, 2005.</p>
xiii	<p>Total fresh water requirement from local approved water suppliers shall not exceed 75 m<sup>3</sup>/day/well and prior permission shall be obtained from the concerned Authority and a copy submitted to the Ministry's Regional Office at Bhubaneswar. No ground water shall be used without permission of CGWA.</p>	<p>The treated RO water is reused in drilling, HF, work over and other activities.</p> <p>Ground water is not used &amp; withdrawn for Industrial operation.</p>
xiv	<p>The produced water during drilling operations shall be collected in HDPE lined waste pit to prevent ground water contamination. Effluent shall be properly treated and treated effluent shall conform to CPCB standards. As proposed, produced water may also be used in operational coal mines of Eastern Coal Fields for dust suppression, slurry activities and post-mining restoration efforts etc. Domestic effluent shall be disposed through septic tank followed by soak pit. No effluent shall be discharged outside the premises and 'zero' discharge shall be adopted</p>	<p>Produced water is collected &amp; stored in adequate designed over surface Zn-Al tanks installed at all sites. In case of excess volume of water is stored HDPE lined pits. Then it transported through pumping with connected pipelines to Reverse Osmosis (RO) plant for treatment. Currently RO treatment plants of total capacity 6900 m<sup>3</sup>/day are operational.</p> <p>The treated water is used for the projects internal operations (drilling, HF, work over &amp; site preparation activities). Excess treated water is discharged to nearby stream only after complying with the discharge standards.</p> <p>Domestic effluent is treated in septic tank followed by soak pits.</p>

S. No.	EC Conditions	Compliance Status
xv	Water produced during drilling shall be reused in drilling of other core/test wells.	Water produced during drilling is reused in drilling of wells and the excess is treated through drilling waste processing plant.
xvi	Reverse Osmosis plant shall be installed for further treatment of the wastewater in case the TDS is > 2000 mg/l and treated wastewater shall be reused or discharge on the land after meeting the norms.	<p>Reverse Osmosis (RO) plants total capacity of 6900 m<sup>3</sup>/day operational to treat the produced water generated from production wells. Produced water quality analysis result refer to <b>Annexure II</b>.</p> <p>RO Plant water quality monitoring results refer to <b>Annexure V</b>.</p> <p>The treated water is reused in drilling, HF, work over and other activities. Excess water is discharged to nearby streams, after meeting the discharge standard. Surface water quality monitoring results refer to <b>Annexure V A</b>.</p> <p>The monitoring results submitted herewith for the period of October'22 to March'23. The sampling and analysis are conducted by the NABL accredited laboratory.</p>
Xvii	Ground water quality monitoring shall be done to assess if produced water storage or disposal has any effect.	The ground water quality monitoring carried out in Post-Monsoon (November'22). The ground water analysis results refer to <b>Annexure VI</b> .
xviii	Drilling waste water including drill cuttings wash water shall be collected in disposal pit lined with HDPE lining and evaporated or treated and shall comply with the notified standards for on-shore disposal. The treated waste water should be reused in other wells during drilling operations. The membership of common TSDf shall be obtained for the disposal of drill cuttings and hazardous waste. Otherwise secured land fill shall be created at the site as per the design of the secured shall be approved by the CPCB and obtain the authorization of the WBPCB. Copy of authorization or membership of TSDf shall be submitted to Ministry's Regional Office at Bhubaneswar.	<p>Drilling wastewater including drill cuttings wash water is collected in onsite HDPE lined pit at site. Thereafter, at treatment site it is stored in RCC pit and treated through drilling waste processing plant.</p> <p>Membership Certificate has been obtained from West Bengal Waste Management Limited, Saltora, to use TSDf facility for disposing of hazardous waste. A copy of the membership certificate refer to <b>Annexure VII</b>).</p> <p>The analysis result of drill cutting refer to <b>Annexure III</b> reveals that all tested parameters are well within the permissible limit. The onsite disposal process has been communicated to WBPCB. (A copy of the letter had already been submitted along with the earlier compliance report).</p>
xix	Only water based drilling mud shall be used. The drilling mud shall be recycled. Hazardous waste shall be disposed of as per Hazardous Waste	Water based mud drilling is carried out. The drilling mud is recycled and reused for further drilling. We are in compliance with the Hazardous and Other Wastes

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	(Management, Handling and Trans-boundary Movement) Rules, 2008. The recyclable waste (oily sludge) and spent oil shall be disposed of to the authorized recyclers/re-processors.	(Management and Transboundary Movement) Rules, 2016. Oil contaminated waste, waste filters and silica gel disposed of through TSD facility, Saltora which is operated by the authorized agency- M/s West Bengal Waste Management Ltd. Used oil being sent to the authorized recycler- M/s Inspec Oils Ltd. The Manifest copy (Form 10) for the period of October'22 to March'23 refer to <b>Annexure VIII</b> .
xx	The Company shall carry out long term subsidence study by collecting base line data before initiating drilling operation till the project lasts. The data so collected shall be submitted six monthly to the Ministry and its Regional Office at Bhubaneswar.	Land Subsidence Study conducted on July'22, prior to present drilling campaign ramp up. The report of the land subsidence study has already been submitted along with last six-monthly compliance report (April'22 to September'22).
xxi	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 are in place to prevent fire hazards, oil spill and soil remediation as follows. <ul style="list-style-type: none"> <li>• Installation of electrical equipment as per approved hazardous zone classification as communicated to DGMS.</li> <li>• Major facilities like GGS, MCS, Ware House etc. are well equipped with fire hydrant system</li> <li>• Dry chemical fire extinguishers are available at all well site.</li> <li>• Portable methane gas analyzers (CH4) are available.</li> <li>• Flame proof type lighting fixtures, push buttons and switches in the drill site facilities are used.</li> <li>• Impervious surface, secondary containment and spill kits are provided whenever there is a possibility of soil contamination.</li> </ul>
xxii	The project authorities shall install SCADA system with dedicated optical fiber based telecommunication link for safe operation of pipeline and Leak Detection System. Additional sectionalizing valves in the residential area and	SCADA System has been installed and operational for monitoring of wells and Gas Gathering Station. Safe Operation of the pipeline is ensured through the continuous motoring of parameter at the Control Room and regular patrolling. Sectionalizing valves are in place.

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	sensitive installations shall be provided to prevent the amount of gas going to the atmosphere in the event of pipeline failure. Intelligent pigging facility shall be provided for the entire pipeline system for internal corrosion monitoring. Coating and impressed current cathodic protection system shall be provided to prevent external corrosion.	Coating and impressed current cathodic protection system has been provided along the length of pipeline to prevent the corrosion. The design and laying of surface facilities have been confirmed to the standards of OISD.
xxiii	All the surface facilities including GGS, CGS and SV station shall be as per applicable codes and standards, international practices and applicable local regulations.	All the surface facilities including GGS, CGS and SV stations have been established as per applicable codes and standards of OISD.
xxiv	The design, material of construction, assembly, inspection, testing and safety recommendations 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.
xxv	Annual safety audit should be carried out for the initial three years by an independent agency and report submitted to this Ministry for ensuring the strict compliance of safety regulations on operations and maintenance.	Safety audit is conducted annually by the competent certified agency every year and achieved certificates for the compliance of ISO 45001: 2018 and ISO 14001: 2015
xxvi	The project authorities shall patrol and inspect the pipeline regularly for detection of faults as per OISD guidelines and continuous monitoring of pipeline operation by adopting non-destructive method (s) of testing as envisaged in the EMP. Pearson survey and continuous potential survey should be carried out at regular intervals to ensure the adequacy of cathodic protection system.	Regular patrolling and inspection of laid pipeline are being carried out for detection of faults as per OISD guidelines. Pipeline operations shall be continuously monitored by adopting non-destructive methods of testing as envisaged in the EIA/EMP. Pearson survey and continuous potential survey being carried out at regular intervals, as per OISD Standard to ensure the adequacy of cathodic protection system.  Pearson survey and continuous potential survey conducted in the year 2019.
xxvii	The company shall develop a contingency plan for H <sub>2</sub> S release including all necessary	H <sub>2</sub> S is not present as per the analysis of gas tapped from the wells. However all the necessary safety measures

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	recommendations from evacuation to resumption of normal operations. The workers shall be provided with personal H <sub>2</sub> S detectors in locations of high risk of exposure along with self-containing breathing apparatus.	are delineated as per the emergency response plan. Gas detectors are kept at the drilling and production sites to check the presence of gases in the work zone. All workforce are ensured with the standard PPEs according to the job requirement. Self-contained breathing apparatus is in place as per the requirement.
xxviii	Adequate well protection system shall be provided like BOP or diverter systems as required based on the geological formation of the blocks.	Adequate well control measures along with BOP have been adopted to ensure necessary level of safety.
xxix	Blow Out Preventer (BOP) system shall be installed to prevent well blowouts during drilling operations. BOP measures during drilling shall focus on maintaining well bore hydrostatic pressure by proper pre-well planning and drilling fluid logging etc.	CBM well hydrostatic pressures are normally less than 2psi. However considering the hydrostatic pressures and sensitivity of well, Blow Out Preventers or Diverter systems are adopted at the well head during drilling. Along with other well control measures is ensured, such as proper pre-well planning and drilling fluid logging to maintain the hydrostatic pressure.
xxx	The top soil removed shall be stacked separately for reuse during restoration process	The top soil is spreaded over the designated area for green belt development at the project's facilities.
xxxii	Emergency Response Plan shall be based on the guidelines prepared by OISO, DGMS and Govt. of India. Recommendations mentioned in the Risk Assessment & Consequence Analysis and Disaster Management Plan shall be strictly followed.	Emergency Response & Disaster Management Plan has been prepared as per the OISD & DGMS guidelines. Recommendations mentioned in risk assessment & consequence analysis are being duly implemented.
xxxiii	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 have been implemented and being maintained.
xxxiiii	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 plan shall be implemented for the drilling site in accordance with the applicable Indian Petroleum Regulations.	Well will be abandoned and restore to natural position if found unsuitable for hydrocarbon extraction. Well will be fully abandoned in compliance with Indian Petroleum Regulations in the event of no economic quantity of hydrocarbon is found.



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xxxiv	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).
xxxv	In case the commercial viability of the project is established, the Company shall prepare a detailed plan for development of gas fields and obtain fresh environmental clearance from the Ministry.	MoEF&CC granted amendment in phase II EC for drilling 4 nos. of additional supporting wells at each well site to meet the production capacity over and above 5 lakh m3 per day. Thereafter MoEF&CC granted another EC refer to F. No. J-11011/1491/2011-IA II (I), dated- 26 <sup>th</sup> February, 2013 for total no. of 650 wells, 8 nos. GGS, 1 no. MCS, depth up to 2000 m and interconnecting & transportation pipelines for proposed production 5 million m3 per day.
xxxvi	All the commitments made to the public during the Public Hearing / Public Consultation meeting held on 26th March, 2010 shall be satisfactorily implemented.	Commitments made during the public hearing are being implemented.
xxxvii	Company shall adopt Corporate Environment Policy as per the Ministry's O.M. No. J-11 013/41/2006-1A.II (1) dated 26th April, 2011 and implemented.	Corporate Environmental Policy is in place and being implemented. The copy of the same was already enclosed in the earlier Compliance report.
xxxviii	Provision shall be made for the housing of construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project	We do not intend to bring labor from outside; hence construction of colony is not envisaged. We have been hiring local labor for all construction work. Nonetheless, we are providing all the necessary infrastructure and facilities like porta- cabins, mobile toilets, septic tank & soak pit, safe drinking water, medical health care etc.
<b>B. General Condition</b>		
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.	We are in compliance to the stipulations made by the State Pollution Control Board (SPCB), State Government and 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	For any further expansion and modification in project configuration, we would approach to MoEF&CC for the prior Environmental Clearance.

S. No.	EC Conditions	Compliance Status
	<p>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</p>	
iii	<p>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.</p>	<p>We comply the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently.</p> <p>We are in compliance of OMR- 2017 and OISD guidelines of Directorate- General of Mine Safety (DGMS) for CBM operation and PESO approval obtained wherever applicable.</p>
iv	<p>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</p>	<p>We are in compliance with the rules and regulations regarding to handling and disposal of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.</p> <p>Authorization from the West Bengal Pollution Control Board has been obtained and valid till October- 2023. The copy of the same was already enclosed along with the earlier six-monthly compliance report.</p>
v	<p>The overall noise levels in and around the plant area shall be kept well 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. 75 dBA (daytime) and 70 dBA (nighttime).</p>	<p>CPCB approved models of silent generator sets are in used which are incorporated with acoustic enclosure conforming to the specified limit. Regular noise monitoring is being carried out at the activity area and surrounding habitat. The results of noise monitoring refer to <b>Annexure IV</b>.</p>
vi	<p>A separate Environmental Management Cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.</p>	<p>A dedicated environment management cell is functional for implementing the environment management plan at large.</p> <p>We conduct environmental monitoring by M/s Scientific Research laboratory, Kolkata (MoEF&amp;CC recognized and NABL accredited).</p>
vii	<p>As proposed, Rs. 7.80 Crores earmarked for</p>	<p>Proposed Rs. 7.80 Crore earmarked for environment</p>

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	environment protection and pollution control measures shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.	pollution control measures is being utilized judiciously. The expenditure towards pollution control measures, period October'22 to March'23 refer to <b>Annexure IX</b> .
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 endeavor in coordination with the Regional office of this Ministry/Central Pollution Control Board/State Pollution Control Board for monitoring the stipulated conditions.  We submit six monthly compliance report along with monitoring data regularly.
ix	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, ZilaParishad / 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	A copy of Environmental Clearance (EC) has been circulated to the local administration and uploaded on the Company's website.
x	The project proponent shall upload the status of compliance of 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; SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> , 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 being uploaded on company's website periodically. It also sent to the Regional Offices of MOEF&CC and WBPCB at regular basis.  The ambient air quality monitoring is carried out as per the NAAQS. The criteria pollutant levels namely; SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> , HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) are monitored periodically and displayed at the main entrance of the Gas Gathering Station.
xi	The project proponent shall also submit six monthly reports on the status of the compliance of the	We submit six-monthly compliance reports on the status of the compliance of stipulated environmental conditions

S. No.	EC Conditions	Compliance Status
	stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the 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.	including results of environmental monitoring (both in hard copies and through e-mail) to the Regional Office of MoEF&CC and the respective Zonal Office of WBPCB.
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 for the financial year (FY 2021-22) ending 31 <sup>st</sup> March 2022 in Form-V has been submitted to West Bengal Pollution Control Board and the same has been uploaded on the company's website.  The copy of the environment statement (Form V) for the FY 2021-22 already submitted to Integrated Regional Office (IRO), Kolkata of MoEF&CC alongwith the last six monthly compliance report (April'22 to September'22).
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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> . 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.	The advertisement of granting environment clearance had been published in The Telegraph, Calcutta and Anandabazar Patrika dated 30th September, 2011. A copy of the same has been submitted with the six-monthly compliance report for the period Apr'11-Sep'11.
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	Financial closure has been prepared in the year of 2010. The development work was commenced on 7th Dec, 2011 after obtaining consent to establish from WBPCB.

**Ref: Amendment of Environment Clearance vide F. No. J-11011/351/2009- IA II (I) dated 18.06.2012**

S. No.	EC Conditions	Compliance Status
4(i)	As proposed, supporting wells (4 nos.) on each pilot-cum-production wells (58 nos.) shall be drilled up to a depth of 1000m. No additional wells/support well shall be drilled without prior permission of this Ministry.	4 supporting wells have been drilled at each pilot-cum-production wells (Out of 58x4=232 wells, total 158 wells drilled under this clearance.). No additional wells will be drilled without prior approval from MoEF&CC.
4(ii)	Unit shall monitor ground water table within one Km radius of each well during pre-monsoon (i.e. May) and winter season (November). Trend analysis shall be carried out and report shall be submitted to the Ministry's regional office at Bhubaneswar.	Monitoring of ground water table has been carried out in November'22. The monitoring results refer to <b>Annexure X</b> .
4(iii)	Permission from CGWA for dewatering shall be obtained and submitted to the Ministry's Regional Office at Bhubaneswar.	Dewatering is an inherent process of CBM extraction & operation at much deeper depths (>500 m), which does not disturb the usable drinking water aquifers located at the shallow depths. "No Objection Certificate" regarding for the same has been obtained from State Water Investigation Directorate (SWID) and Water Resources Investigation & Development Department, Govt. of West Bengal. A copy of the permission has been enclosed along with the earlier six-monthly compliance report.
4(iv)	Smokeless flare shall be installed	Flare system ensure complete combustion of CBM during flaring. Whereas, we are approaching to zero flaring, in the period of October'22 to March'23, <0.5% flaring, as a part of technical flaring conducted.
4(v)	All measures shall be taken to control noise pollution during drilling process. Acoustic enclosure/barrier shall be installed.	CPCB approved models of silent generator sets are in used which are incorporated with acoustic enclosure to meet the specified noise limit. Earplug is provided to the working personnel at site. Regular noise monitoring results refer to <b>Annexure IV</b> .
4(vi)	Any produced water shall be treated and recycled/ reused within the project area. Any excess water shall be discharged after treatment and meeting the standards prescribed by the CPCB/SPCB. Regular water quality monitoring shall be carried out and monitoring report shall be submitted to the respective	Produced water is treated with Reverse Osmosis (RO) system. Treated water is being recycled/ reused in drilling, HF, work-over & other activities. Excess treated water is discharged to the nearby streams only after complying with the discharge limit. RO plant water quality monitoring results refer to <b>Annexure V</b> .

S. No.	EC Conditions	Compliance Status
	Regional Office of the MoEF.	Also, the surface water quality monitoring results refer to <b>Annexure V A</b> .
4(vii)	Approach road shall be constructed prior to the drilling	Approach road has been constructed wherever the access is not available.
4(viii)	Land subsidence shall be monitored regularly and monitoring report shall be submitted to CPCB, SPCB and respective Ministry's regional office	Land Subsidence Study conducted on July'22, prior to present drilling campaign ramp up. The report has already been submitted with last six-monthly compliance report (April'22 to September'22). We are in process to conduct it this year by the competent institution. We are in compliance of this, since the year 2012 regularly and there are no significant land subsidence observed. .
5	All the specific conditions and general conditions specified in the environmental clearance accorded vide Ministry's letter no.J-11011/351/2009-IA II (I) dated 23rd September, 2011 shall be implemented	All the specific and general conditions of the environment clearance vide Ministry's letter no.J-11011/351/2009-IA II (I) dated 23rd September, 2011 (Phase-II) and its' amendment dated 18th June, 2012 are being implemented.
6	Consent to Establish & Operate for the revised proposal shall be obtained from the W.B. Pollution Control Board	We are in compliance for obtaining of Consent to Establish & Operate from W. B. Pollution Control Board.
7	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and 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 if required, if any.	No further expansion or modification will be done in the project configuration without prior approval of the MoEF&CC.

# **ANNEXURE I**

**Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.**  
(Period: Oct.' 22 - Mar.'23)

ANNEXURE I

Name of Location			MCS						GGS- 01					
Month			Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23	Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m <sup>3</sup>	60	17.66	27.74	40.85	48.51	46.14	44.22	22.50	34.23	38.94	47.88	45.91	44.36
PM 10	µg/m <sup>3</sup>	100	46.30	69.42	73.13	90.92	86.54	90.52	51.64	80.46	76.62	89.97	82.61	75.49
Nitrogen Dioxide	µg/m <sup>3</sup>	80	28.22	25.62	24.81	25.57	25.43	24.35	25.83	24.23	26.34	24.15	25.33	24.71
Sulphur Dioxide	µg/m <sup>3</sup>	80	4.38	4.27	4.75	4.60	5.12	4.90	4.48	4.61	4.94	4.79	5.12	4.45
Carbon Monoxide	mg/m <sup>3</sup>	2	0.354	0.396	0.432	0.438	0.468	0.472	0.328	0.394	0.432	0.462	0.464	0.438
Hydrocarbon	mg/m <sup>3</sup>	NIL	1.27	1.21	1.13	1.70	1.49	1.58	1.44	1.58	1.24	1.65	1.63	1.38
Mercury	mg/m <sup>3</sup>			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m <sup>3</sup>	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	µg/m <sup>3</sup>			2.34			2.99			2.98			3.08	
Benzo(a)Pyrene	ng/m <sup>3</sup>	1		0.29			0.36			0.44			0.44	
Ammonia	µg/m <sup>3</sup>	400		24.84			28.34			31.28			31.23	
Ozone	µg/m <sup>3</sup>	180		35.07			38.91			42.19			41.27	
Lead	µg/m <sup>3</sup>	1		0.08			0.12			0.16			0.15	
Nickel	ng/m <sup>3</sup>	20		8.02			10.49			13.17			11.62	
Arsenic	ng/m <sup>3</sup>	6		1.15			1.44			1.56			1.53	
Benzene	µg/m <sup>3</sup>	5		1.27			1.73			1.67			1.84	



**Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.**  
(Period: Oct.' 22 - Mar.'23)

ANNEXURE I

Name of Location			GG5- 02						PARULIA					
Month			Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23	Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m <sup>3</sup>	60	18.02	34.44	53.39	48.31	43.61	49.76	20.66	31.17	43.65	43.52	45.40	47.12
PM 10	µg/m <sup>3</sup>	100	49.07	82.10	90.19	88.21	81.57	81.51	48.81	76.65	73.58	85.37	79.92	92.76
Nitrogen Dioxide	µg/m <sup>3</sup>	80	27.95	25.52	26.40	25.20	24.75	24.77	26.88	24.68	26.49	24.58	25.19	23.50
Sulphur Dioxide	µg/m <sup>3</sup>	80	4.47	4.53	4.67	4.53	4.98	4.99	4.84	4.47	4.78	4.82	4.97	4.55
Carbon Monoxide	mg/m <sup>3</sup>	2	0.344	0.392	0.412	0.452	0.458	0.466	0.332	0.398	0.436	0.442	0.457	0.442
Hydrocarbon	mg/m <sup>3</sup>	NIL	1.39	1.67	1.69	1.58	1.78	1.89	1.34	1.46	1.19	1.45	1.47	1.65
Mercury	mg/m <sup>3</sup>			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m <sup>3</sup>	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	µg/m <sup>3</sup>			3.12			3.36			2.72			2.95	
Benzo(a)Pyrene	ng/m <sup>3</sup>	1		0.48			0.49			0.34			0.34	
Ammonia	µg/m <sup>3</sup>	400		32.41			33.05			29.12			27.13	
Ozone	µg/m <sup>3</sup>	180		44.29			44.78			40.14			38.04	
Lead	µg/m <sup>3</sup>	1		0.20			0.19			0.11			0.11	
Nickel	ng/m <sup>3</sup>	20		14.77			13.39			11.98			10.08	
Arsenic	ng/m <sup>3</sup>	6		1.65			1.71			1.37			1.40	
Benzene	µg/m <sup>3</sup>	5		1.72			1.98			1.55			1.68	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.' 22 - Mar.'23)

ANNEXURE I

Name of Location			SARASWATIGUNJ						PRATPPUR					
Month			Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23	Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m <sup>3</sup>	60	21.76	35.94	48.29	47.55	46.05	49.40	26.89	30.14	42.98	44.61	46.08	39.17
PM 10	µg/m <sup>3</sup>	100	63.98	74.20	82.69	91.31	84.47	89.73	64.73	77.22	79.51	85.06	81.85	79.71
Nitrogen Dioxide	µg/m <sup>3</sup>	80	27.69	26.69	26.68	25.75	26.86	25.90	26.01	26.48	26.16	24.25	25.22	23.69
Sulphur Dioxide	µg/m <sup>3</sup>	80	4.17	4.36	4.72	5.05	4.98	4.81	4.42	4.32	4.70	4.73	5.10	4.64
Carbon Monoxide	mg/m <sup>3</sup>	2	0.414	0.374	0.408	0.428	0.452	0.438	0.378	0.394	0.408	0.432	0.452	0.458
Hydrocarbon	mg/m <sup>3</sup>	NIL	1.48	1.40	1.35	1.74	1.27	2.02	1.46	1.49	1.3	1.42	1.59	1.41
Mercury	mg/m <sup>3</sup>			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m <sup>3</sup>	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	µg/m <sup>3</sup>			2.63			2.68			2.81			3.05	
Benzo(a)Pyrene	ng/m <sup>3</sup>	1		0.37			0.27			0.41			0.42	
Ammonia	µg/m <sup>3</sup>	400		28.12			23.72			30.46			30.69	
Ozone	µg/m <sup>3</sup>	180		38.53			33.62			41.57			40.81	
Lead	µg/m <sup>3</sup>	1		0.15			0.07			0.13			0.14	
Nickel	ng/m <sup>3</sup>	20		11.59			7.84			12.08			11.29	
Arsenic	ng/m <sup>3</sup>	6		1.30			1.12			1.41			1.49	
Benzene	µg/m <sup>3</sup>	5		1.48			1.43			1.59			1.81	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.' 22 - Mar.'23)

ANNEXURE I

Name of Location			BANSIA						JAMGORA					
Month			Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23	Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m <sup>3</sup>	60	28.58	31.41	46.62	44.24	43.57	43.79	29.90	31.12	48.06	42.91	46.18	45.06
PM 10	µg/m <sup>3</sup>	100	66.64	75.75	83.19	80.53	72.67	83.85	69.91	78.96	86.85	82.28	79.29	89.08
Nitrogen Dioxide	µg/m <sup>3</sup>	80	26.35	24.49	25.96	23.83	25.53	24.85	26.24	26.78	25.94	25.39	26.51	24.53
Sulphur Dioxide	µg/m <sup>3</sup>	80	4.08	4.17	4.97	4.77	4.98	4.77	4.46	4.64	4.58	4.64	5.12	4.65
Carbon Monoxide	mg/m <sup>3</sup>	2	0.388	0.404	0.442	0.458	0.469	0.462	0.388	0.384	0.430	0.428	0.448	0.436
Hydrocarbon	mg/m <sup>3</sup>	NIL	1.51	1.42	1.44	1.12	1.56	1.47	1.64	1.51	1.55	1.27	1.38	1.54
Mercury	mg/m <sup>3</sup>			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m <sup>3</sup>	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	µg/m <sup>3</sup>			2.67			3.03			2.77			2.88	
Benzo(a)Pyrene	ng/m <sup>3</sup>	1		0.38			0.40			0.40			0.31	
Ammonia	µg/m <sup>3</sup>	400		28.69			30.18			29.73			25.84	
Ozone	µg/m <sup>3</sup>	180		39.18			40.08			41.94			36.42	
Lead	µg/m <sup>3</sup>	1		0.10			0.14			0.18			0.09	
Nickel	ng/m <sup>3</sup>	20		11.84			11.05			12.29			9.61	
Arsenic	ng/m <sup>3</sup>	6		1.31			1.51			1.47			1.32	
Benzene	µg/m <sup>3</sup>	5		1.51			1.78			1.56			1.61	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.' 22 - Mar.'23)

ANNEXURE I

Name of Location			KULDIHA						JATGORIA					
Month			Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23	Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m <sup>3</sup>	60	26.85	31.62	47.21	46.26	47.77	45.85	27.15	32.38	45.75	44.91	44.63	48.34
PM 10	µg/m <sup>3</sup>	100	60.43	72.19	80.23	89.92	89.91	83.76	65.06	80.77	72.68	93.59	80.37	78.20
Nitrogen Dioxide	µg/m <sup>3</sup>	80	28.08	26.61	27.56	25.83	26.54	25.79	26.46	25.51	28.19	25.27	25.34	26.23
Sulphur Dioxide	µg/m <sup>3</sup>	80	4.31	4.52	4.68	4.72	5.12	4.98	4.36	4.52	5.03	4.85	5.00	5.17
Carbon Monoxide	mg/m <sup>3</sup>	2	0.398	0.388	0.422	0.438	0.438	0.442	0.402	0.402	0.422	0.456	0.472	0.472
Hydrocarbon	mg/m <sup>3</sup>	NIL	1.41	1.37	1.28	1.62	1.35	1.76	1.55	1.63	1.08	1.77	1.55	1.81
Mercury	mg/m <sup>3</sup>			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m <sup>3</sup>	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	µg/m <sup>3</sup>			2.7			2.83			3.04			3.02	
Benzo(a)Pyrene	ng/m <sup>3</sup>	1		0.32			0.30			0.46			0.39	
Ammonia	µg/m <sup>3</sup>	400		26.17			25.18			31.73			29.52	
Ozone	µg/m <sup>3</sup>	180		37.09			35.37			43.48			39.87	
Lead	µg/m <sup>3</sup>	1		0.10			0.09			0.15			0.13	
Nickel	ng/m <sup>3</sup>	20		10.17			9.02			13.48			10.64	
Arsenic	ng/m <sup>3</sup>	6		1.26			1.23			1.59			1.48	
Benzene	µg/m <sup>3</sup>	5		1.42			1.56			1.70			1.76	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.' 22 - Mar.'23)

ANNEXURE I

Name of Location			Gopalpur Warehouse						KANTABERIA					
Month			Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23	Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m <sup>3</sup>	60	27.24	29.41	52.34	49.91	42.28	50.08	28.63	29.34	49.30	46.69	48.89	40.31
PM 10	µg/m <sup>3</sup>	100	63.79	71.83	86.58	96.01	85.64	85.32	65.79	73.67	85.55	80.91	84.98	65.48
Nitrogen Dioxide	µg/m <sup>3</sup>	80	27.90	25.69	25.93	23.97	25.15	24.13	27.14	26.46	27.74	25.39	23.90	23.70
Sulphur Dioxide	µg/m <sup>3</sup>	80	4.51	4.51	4.63	4.93	5.22	5.01	4.38	4.76	4.91	4.57	5.05	4.32
Carbon Monoxide	mg/m <sup>3</sup>	2	0.408	0.368	0.416	0.428	0.465	0.462	0.386	0.388	0.416	0.446	0.458	0.442
Hydrocarbon	mg/m <sup>3</sup>	NIL	1.45	1.34	1.47	1.86	1.72	2.14	1.59	1.38	1.51	1.18	1.32	1.23
Mercury	mg/m <sup>3</sup>			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m <sup>3</sup>	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	µg/m <sup>3</sup>			2.6			3.27			2.58			2.71	
Benzo(a)Pyrene	ng/m <sup>3</sup>	1		0.30			0.46			0.33			0.29	
Ammonia	µg/m <sup>3</sup>	400		25.59			32.61			27.44			24.37	
Ozone	µg/m <sup>3</sup>	180		36.24			43.54			37.94			34.28	
Lead	µg/m <sup>3</sup>	1		0.11			0.17			0.09			0.08	
Nickel	ng/m <sup>3</sup>	20		9.84			12.68			11.27			8.36	
Arsenic	ng/m <sup>3</sup>	6		1.22			1.63			1.33			1.17	
Benzene	µg/m <sup>3</sup>	5		1.39			1.94			1.36			1.48	

Ambient Air Quality Monitoring Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.' 22 - Mar.'23)

ANNEXURE I

Name of Location			NACHAN						SARENGA					
Month			Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23	Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m <sup>3</sup>	60	23.01	31.06	48.42	43.83	47.96	49.28	25.58	34.14	42.90	45.42	43.85	44.6
PM 10	µg/m <sup>3</sup>	100	62.77	79.91	83.81	83.41	88.19	92.66	63.47	73.84	80.69	93.92	73.42	81.38
Nitrogen Dioxide	µg/m <sup>3</sup>	80	26.46	25.60	25.27	26.09	24.31	26.24	26.23	23.80	25.41	24.30	23.32	25.63
Sulphur Dioxide	µg/m <sup>3</sup>	80	4.23	4.44	4.79	4.74	5.15	5.03	4.06	4.06	4.90	4.89	5.16	4.76
Carbon Monoxide	mg/m <sup>3</sup>	2	0.368	0.372	0.418	0.452	0.462	0.458	0.396	0.392	0.422	0.438	0.475	0.468
Hydrocarbon	mg/m <sup>3</sup>	NIL	1.42	1.55	1.41	1.34	1.67	1.85	1.4	1.35	1.33	1.81	1.52	1.69
Mercury	mg/m <sup>3</sup>			< 0.002			< 0.002			< 0.002			< 0.002	
Hydrocarbon as Non Methane	mg/m <sup>3</sup>	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	µg/m <sup>3</sup>			2.81			3.12			2.62			2.97	
Benzo(a)Pyrene	ng/m <sup>3</sup>	1		0.42			0.45			0.36			0.37	
Ammonia	µg/m <sup>3</sup>	400		30.56			32.17			27.82			29.04	
Ozone	µg/m <sup>3</sup>	180		42.63			42.16			38.07			39.53	
Lead	µg/m <sup>3</sup>	1		0.21			0.16			0.09			0.13	
Nickel	ng/m <sup>3</sup>	20		12.64			11.93			10.96			10.82	
Arsenic	ng/m <sup>3</sup>	6		1.54			1.56			1.28			1.46	
Benzene	µg/m <sup>3</sup>	5		1.63			1.87			1.40			1.75	

# **ANNEXURE II**















# **ANNEXURE III**



# **ANNEXURE IV**



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

**(Period: Oct.'22 to Mar.'23)**

<b>Ambient Noise Monitoring Result</b>				
<b>Location</b>	<b>DAY TIME</b>		<b>NIGHT TIME</b>	
	<b>Limit as per the EC, dBA</b>	<b>Noise Level (Leq) dBA</b>	<b>Limit as per the EC, dBA</b>	<b>Noise Level (Leq) dBA</b>
KULDIHA [ EDN # 099 ]	75	57.65	70	49.00
MCS- MALANDIGHI	75	60.47	70	50.00
SARASWATIGUNJ [ EDI # 039 ]	75	59.13	70	50.04
GOPALPUR WAREHOUSE	75	55.75	70	43.76
GG#002 NEAR MAIN GATE SECURITY ROOM	75	58.96	70	51.62
JAMGORA [ EDP # 406 ]	75	55.43	70	49.66
NACHAN [ EDD – 053 ]	75	55.69	70	49.12
PRATAPPUR [ EDD # 049 ]	75	59.4	70	52.39
JATGORIA [ EDD – 005 ]	75	48.78	70	45.66
KANTABERIA [ EDD-012 ]	75	51.93	70	48.70
PARULIA [ EDC-413 ]	75	51.95	70	42.59
KHATGORIA [ GGS # 001]	75	56.12	70	46.01
BANSIA [ EDD – 411 ]	75	55.25	70	48.91
LABNAPARA [ EDH # 064]	75	57.16	70	45.79
SARENGA	75	57.56	70	48.67

# **ANNEXURE V**

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					Oct.'22				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGs-01 RO			EDD-50 RO	
					Inlet	Outlet	Reject	Inlet	Outlet
1	pH		5.5-9.0	5.5 to 9.0	7.63	7.49	7.58	7.81	7.79
2	Temperature	deg. C	40 deg. C		32.9°C	31.9°C	33.4°C	32.2°C	34.4°C
3	Suspended Solids	mg/l	100	100	<2	<2	3	<2	<2
4	Total Dissolved Solids	mg/l	2100	---	1426	816	2092	2276	1218
5	Chlorides	mg/l	600	---	628	307	885	865	480
6	Sulphates	mg/l	1000	---	4.8	3.0	5.6	5.1	3.6
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.95	0.6	1.05	1.60	0.83
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.014	0.011	0.017	0.022	0.017
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3					

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					Oct.'22				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDH-64 RO				
					Reject	Inlet	Outlet	Reject	Inlet
1	pH		5.5-9.0	5.5 to 9.0	7.53	8.02	7.98	7.45	7.45
2	Temperature	deg. C	40 deg. C		32.3°C	29.3°C	29.7°C	28.9°C	32.3°C
3	Suspended Solids	mg/l	100	100	<2	2	<2	4	2
4	Total Dissolved Solids	mg/l	2100	---	3126	6618	544	9156	6766
5	Chlorides	mg/l	600	---	1170	2894	215	3280	2870
6	Sulphates	mg/l	1000	---	6.80	8.4	5.9	9.1	5.6
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.75	1.04	0.9	1.4	1.3
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.026	0.033	0.028	0.041	0.019
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3					

**R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)**

ANNEXURE V

Month						
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDN-99 RO	
					Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	7.80	7.65
2	Temperature	deg. C	40 deg. C		31.2°C	32.4°C
3	Suspended Solids	mg/l	100	100	<2	3
4	Total Dissolved Solids	mg/l	2100	---	1720	9128
5	Chlorides	mg/l	600	---	585	3890
6	Sulphates	mg/l	1000	---	3.9	6.20
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2
8	COD	mg/l	100	250	<8	<8
9	Oil & Grease	mg/l	10	10	<5.0	<5.0
10	Phenolic Compounds	mg/l	1.2	1	<0.002	<0.002
11	Sulphides	mg/l	2	2	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.75	1.85
13	Total Chromium	mg/l	1	2	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.015	0.025
15	Copper	mg/l	0.2	3	<0.05	<0.05
16	Nickel	mg/l	3	3	<0.05	<0.05
17	Lead	mg/l	0.1	0.1	<0.1	<0.1
18	Mercury	mg/l	0.01	0.01	<0.001	<0.001
19	Cyanide	mg/l	0.2	0.2	<0.02	<0.02
20	Hexavalent Chromium	mg/l	0.1	0.1	<0.01	<0.01
21	Iron	mg/l	.....	3		

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

S. No.	Parameter	Unit	Month		Nov.'22				
			Onshore Discharge Standards	CPCB Limit for Discharge	GGs-01 RO			EDD-50 RO	
					Inlet	Outlet	Reject	Inlet	Outlet
1	pH		5.5-9.0	5.5 to 9.0	7.37	7.80	7.16	7.37	7.55
2	Temperature	deg. C	40 deg. C		29.9°C	28.8°C	28.9°C	28.9°C	29.7°C
3	Suspended Solids	mg/l	100	100	3	<2	5	<2	<2
4	Total Dissolved Solids	mg/l	2100	---	1798	1042	2462	2558	1530
5	Chlorides	mg/l	600	---	895	470	1085	1140	510
6	Sulphates	mg/l	1000	---	4.8	3.0	5.8	4.7	3.6
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.7	0.92	2.1	1.50	0.98
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.022	0.018	0.027	0.019	0.014
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	<0.1	<0.1	0.45	<0.1	<0.1

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					Nov.'22				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDH-64 RO				
					Reject	Inlet	Outlet	Reject	Inlet
1	pH		5.5-9.0	5.5 to 9.0	7.90	7.3	8.1	7.63	7.05
2	Temperature	deg. C	40 deg. C		29.3°C	26.6°C	24.8°C	26.4°C	29.7°C
3	Suspended Solids	mg/l	100	100	<2	3	<2	7	2
4	Total Dissolved Solids	mg/l	2100	---	3314	5318	752	8216	5066
5	Chlorides	mg/l	600	---	1534	2046	310	3780	2218
6	Sulphates	mg/l	1000	---	6	5.9	4	6.7	6.9
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	2	<2
8	COD	mg/l	100	250	<8	8.0	<8	10.0	8.0
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.95	1.93	0.88	2.2	2.2
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.026	0.018	0.013	0.027	0.031
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	<0.1	<0.1	<0.1	<0.1	0.22

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					Dec				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDN-99 RO		GGs-01 RO		
					Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	7.95	7.24	7.70	7.81	7.20
2	Temperature	deg. C	40 deg. C		29.5°C	29.6°C	26.8°C	26.0°C	27.8°C
3	Suspended Solids	mg/l	100	100	<2	6	4	<2	6
4	Total Dissolved Solids	mg/l	2100	---	1470	8378	2192	1598	2886
5	Chlorides	mg/l	600	---	565	3518	960	510	1260
6	Sulphates	mg/l	1000	---	3.1	7.80	4.8	<2.5	5.30
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	3	<2	<2	<2
8	COD	mg/l	100	250	<8	9	<8	<8	8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.15	2.65	1.6	1.1	1.75
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.024	0.039	0.028	0.013	0.033
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	<0.1	0.53	0.2	0.15	0.14



R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					'22				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDD-50 RO			EDH-64 RO	
					Inlet	Outlet	Reject	Inlet	Outlet
1	pH		5.5-9.0	5.5 to 9.0	7.1	7.25	7.19	6.75	6.70
2	Temperature	deg. C	40 deg. C		28.4°C	26.1°C	25.3°C	24.9°C	25.3°C
3	Suspended Solids	mg/l	100	100	3	<2	5	<2	<2
4	Total Dissolved Solids	mg/l	2100	---	2384	912	4544	4962	934
5	Chlorides	mg/l	600	---	946	406	1940	2170	460
6	Sulphates	mg/l	1000	---	5.9	<2.5	6.5	6.9	4.5
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.2	0.8	1.65	1.43	0.7
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.014	<0.01	0.019	0.021	0.011
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.26	0.19	0.65	0.52	0.14

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

S. No.	Parameter	Unit	Month		Dec.'22				
			Onshore Discharge Standards	CPCB Limit for Discharge	Reject	EDN-99 RO		Reject	Inlet
						Inlet	Outlet		
1	pH		5.5-9.0	5.5 to 9.0	6.65	6.85	6.68	6.73	6.86
2	Temperature	deg. C	40 deg. C		24.1°C	26.9°C	24.3°C	27.9°C	26°C
3	Suspended Solids	mg/l	100	100	3	3	<2	7	<2
4	Total Dissolved Solids	mg/l	2100	---	7968	3438	1622	7358	2532
5	Chlorides	mg/l	600	---	3365	1425	585	3358	1120
6	Sulphates	mg/l	1000	---	7.30	6.5	5	7.7	4.9
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.55	0.95	0.63	1.15	0.79
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.026	0.018	0.014	0.022	0.014
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.41	1.23	0.19	0.37	0.12

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					Jan.'23				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGs-01 RO		EDD-50 RO		
					Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	7.18	7.30	6.78	6.90	7.09
2	Temperature	deg. C	40 deg. C		27.9°C	26.2°C	25.3°C	25.5°C	23.6°C
3	Suspended Solids	mg/l	100	100	<2	<2	<2	<2	2
4	Total Dissolved Solids	mg/l	2100	---	1566	4260	2380	1292	4622
5	Chlorides	mg/l	600	---	488	1895	885	465	1962
6	Sulphates	mg/l	1000	---	2.9	5.7	7.8	3.5	8.30
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.68	1.13	0.95	0.8	1.35
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.010	0.017	0.019	0.013	0.024
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.25	0.22	0.35	0.3	0.73

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					Jan.'23				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDH-64 RO			EDN-99 RO	
					Inlet	Outlet	Reject	Inlet	Outlet
1	pH		5.5-9.0	5.5 to 9.0	6.69	6.95	7.28	7.2	7.55
2	Temperature	deg. C	40 deg. C		23.8°C	24.5°C	22.7°C	24.3°C	22.0°C
3	Suspended Solids	mg/l	100	100	4	<2	2	<2	<2
4	Total Dissolved Solids	mg/l	2100	---	4882	754	7982	6210	1682
5	Chlorides	mg/l	600	---	2115	310	3063	2765	785
6	Sulphates	mg/l	1000	---	6.8	4.2	7.70	7.3	4.6
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.6	0.45	1.93	1.73	0.82
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.023	0.019	0.025	0.015	0.012
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.98	<0.1	0.3	0.15	0.16

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					Feb.'23				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	GGS-01 RO				
					Reject	Inlet	Outlet	Reject	Inlet
1	pH		5.5-9.0	5.5 to 9.0	7.35	8.6	8.55	8.57	8.59
2	Temperature	deg. C	40 deg. C		25.1°C	29.1°C	23.8°C	27.7°C	29.4°C
3	Suspended Solids	mg/l	100	100	3	<2	<2	4	4
4	Total Dissolved Solids	mg/l	2100	---	7838	3374	1038	4038	3856
5	Chlorides	mg/l	600	---	3445	1115	171	1380	1610
6	Sulphates	mg/l	1000	---	8.9	6.9	4.8	7.4	5.9
7	BOD, 3 Days at 27°C	mg/l	30	30	2.6	<2	<2	<2	<2
8	COD	mg/l	100	250	10.0	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	2.6	1.96	0.85	2.11	0.98
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.026	0.018	0.012	0.022	0.015
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.95	0.26	0.22	0.49	0.62

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					Feb				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDD-50 RO		EDH-64 RO		
					Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	8.40	8.62	8.48	8.35	8.52
2	Temperature	deg. C	40 deg. C		28.1°C	29.6°C	26.4°C	27.8°C	27.4°C
3	Suspended Solids	mg/l	100	100	<2	6	3	<2	5
4	Total Dissolved Solids	mg/l	2100	---	972	5432	7432	826	8538
5	Chlorides	mg/l	600	---	387	2095	3645	429	4260
6	Sulphates	mg/l	1000	---	5	6.50	7.3	5.1	8.00
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.68	1.08	1.8	0.75	2.11
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.011	0.016	0.024	0.013	0.029
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.34	1.18	0.77	0.39	1.02

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					'23				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDN-99 RO			GGs-01 RO	
					Inlet	Outlet	Reject	Inlet	Outlet
1	pH		5.5-9.0	5.5 to 9.0	7.6	8.37	7.88	7.89	7.96
2	Temperature	deg. C	40 deg. C		30.3°C	29.1°C	33.6°C	33.7°C	32.6°C
3	Suspended Solids	mg/l	100	100	4	<2	7	<2	<2
4	Total Dissolved Solids	mg/l	2100	---	5982	1326	6780	2834	1234
5	Chlorides	mg/l	600	---	2465	582	3160	1033	530
6	Sulphates	mg/l	1000	---	6.3	4.8	7.9	5.5	3.0
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	8.0	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.35	0.8	2.6	1.15	0.65
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.019	0.011	0.023	0.016	0.014
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.85	0.42	1.22	0.21	0.12

R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					March'23				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDD-50 RO				
					Reject	Inlet	Outlet	Reject	Inlet
1	pH		5.5-9.0	5.5 to 9.0	8.48	7.48	7.85	7.22	7.62
2	Temperature	deg. C	40 deg. C		33.2°C	29.4°C	31.6°C	29.4°C	28.3°C
3	Suspended Solids	mg/l	100	100	3	6	<2	8	5
4	Total Dissolved Solids	mg/l	2100	---	4142	2754	876	4078	5296
5	Chlorides	mg/l	600	---	1565	940	375	1085	2321
6	Sulphates	mg/l	1000	---	6.10	6.4	3.9	7.30	6.6
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	<2	<2	<2
8	COD	mg/l	100	250	<8	<8	<8	<8	<8
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	1.4	0.75	0.61	0.88	1.2
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.018	0.017	0.011	0.020	0.019
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.61	0.81	0.18	0.95	0.47



R.O. water analysis report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V

Month					March'23				
S. No.	Parameter	Unit	Onshore Discharge Standards	CPCB Limit for Discharge	EDH-64 RO		EDN-99 RO		
					Outlet	Reject	Inlet	Outlet	Reject
1	pH		5.5-9.0	5.5 to 9.0	8.15	7.73	8.43	8.11	7.95
2	Temperature	deg. C	40 deg. C		29.8°C	27.6°C	32°C	32.1°C	32.7°C
3	Suspended Solids	mg/l	100	100	<2	10	4	<2	7
4	Total Dissolved Solids	mg/l	2100	---	1032	10828	7485	1714	8118
5	Chlorides	mg/l	600	---	408	4512	3460	590	3590
6	Sulphates	mg/l	1000	---	<2.5	9.8	9.1	6.3	12.4
7	BOD, 3 Days at 27°C	mg/l	30	30	<2	<2	2	<2	3
8	COD	mg/l	100	250	<8	8.0	10.0	<8	18.0
9	Oil & Grease	mg/l	10	10	<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
11	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
12	Fluorides	mg/l	1.5	2	0.92	1.75	1.62	0.94	1.7
13	Total Chromium	mg/l	1	2	<0.05	<0.05	<0.05	<0.05	<0.05
14	Zinc	mg/l	0.1	5	0.012	0.024	0.023	0.018	0.027
15	Copper	mg/l	0.2	3	<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
17	Lead	mg/l	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
19	Cyanide	mg/l	0.2	0.2	<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
21	Iron	mg/l	.....	3	0.29	0.75	0.52	0.23	0.78

# **ANNEXURE VA**

Surface Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V A

Date				Oct.'22						Nov.'22					
S. No.	Parameter	Unit	CPCB Limit for Discharge of Environmental Pollutants (Inland surface water)	Kunur Nala Upstream Near GGS#1	GGS#001(R. O Discharge)	EDH-64(Discharge)	Kunur Nala Downstream between EDH 58 & 64	Kunur Nala Downstream RI - AKANDARA	Kunur Nala Downstream Near Kuldiha Bridge	Kunur Nala Upstream Near GGS#1	GGS#001(R. O Discharge)	EDH-64(Discharge)	Kunur Nala Downstream between EDH 58 & 64	Kunur Nala Downstream Near Kuldiha Bridge	
1	pH	---	5.5 to 9.0	7.88	7.45	7.67	7.75	7.80	7.9	8.42	8.52	8.36	8.38	8.39	
2	Temperature	°C	---	30.0°C	32.5°C	30.1°C	31.1°C	30.4°C	31.6°C	28.2°C	28.1°C	25.1°C	28.0°C	28.7°C	
3	Total Suspended Solids	mg/l	100	8	<2	<2	10	6	3	<2	4	<2	11	6	
4	Biochemical Oxygen Demand	mg/l	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
5	Chemical Oxygen Demand	mg/l	250	9	<8	<8	8	<8	<8	<8	<8	<8	<8	<8	
6	Oil & Grease	mg/l	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
7	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	1.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
8	Sulphides (as S <sub>2</sub> ) in mg/l	mg/l	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
9	Fluoride	mg/l	2.0	0.26	1.3	1.25	0.35	0.42	0.48	0.73	1.20	0.33	0.35	0.48	
10	Total Chromium	mg/l	2.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
11	Zinc	mg/l	5.0	0.022	0.024	0.016	0.024	0.018	0.022	0.02	0.031	0.011	0.015	0.015	
12	Copper	mg/l	3.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
13	Nickel	mg/l	3.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
14	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	
15	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	
16	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	
17	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	
18	Nitrate Nitrogen(as N),mg/L	mg/l	10	0.07	0.48	0.11	0.2	0.85	0.87	1.55	2.4	1.86	4.3	0.95	
19	Vanadium	mg/l	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
20	Iron	mg/l	3	1.85	0.45	0.21	2.05	0.88	0.82	1.85	0.65	0.75	2.15	0.80	
21	Manganese	mg/l	2	0.065	<0.05	<0.05	0.087	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
22	Dissolved Phosphate	mg/l	5.0	0.21	0.08	0.09	0.19	0.1	0.15	0.15	0.09	0.07	0.08	0.08	
23	Selenium	mg/l	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
24	Cadmium(as Cd)	mg/l	2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
25	Total Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
26	Free Ammonia(as NH <sub>3</sub> )	mg/l	5.0	0.08	0.03	0.05	0.08	0.03	0.1	0.34	0.31	0.32	0.19	0.23	
27	Total Kjeldahl Nitrogen (as N)	mg/l	100	3.2	2.5	2.9	4.1	2.3	4.2	4.3	3.9	4.7	2.8	3.9	
28	Ammoniacal Nitrogen (as N)	mg/l	50	2	1.3	1.6	2.8	1.1	2.5	3.1	2.2	2.9	1.7	2.1	
29	Total Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
30	Colour	Hazen Units	Colourless	5	<5	<5	5	<5	<5	<5	<5	<5	<5	<5	
31	Odour		Odourless	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	

Surface Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V A

S. No.	Parameter	Unit	CPCB Limit for Discharge of Environmental Pollutants (Inland surface water)	Dec.'22						Jan.'23					
				Kunur Nala Upstream Near GGS#1	GGS#001(R.O Discharge)	EDH-64(Discharge)	Kunur Nala Downstream between EDH 58 & 64	Kunur Nala Downstream RI - AKANDARA	Kunur Nala Downstream Near Kuldih Bridge	Kunur Nala Upstream Near GGS#1	GGS#001(R.O Discharge)	EDH-64(Discharge)	Kunur Nala Downstream between EDH 58 & 64	Kunur Nala Downstream RI - AKANDARA	Kunur Nala Downstream Near Kuldih Bridge
1	pH	---	5.5 to 9.0	8.10	8.36	8.58	8.39	7.90	8.84	8.59	8.63	7.88	8.50	7.69	7.73
2	Temperature	°C	---	27.9°C	29.8°C	25.1°C	26.7°C	27.2°C	28.4°C	25.6°C	25.5°C	23.6°C	25.9°C	27.2°C	23.4°C
3	Total Suspended Solids	mg/l	100	10	<2	<2	12	8	4	<2	<2	<2	8	9	2
4	Biochemical Oxygen Demand	mg/l	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
5	Chemical Oxygen Demand	mg/l	250	9	<8	<8	8	<8	<8	<8	8	<8	<8	<8	<8
6	Oil & Grease	mg/l	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
7	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	1.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
8	Sulphides (as S <sub>2</sub> ) in mg/l	mg/l	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
9	Fluoride	mg/l	2.0	0.65	1.05	0.54	0.41	0.33	0.51	0.63	1.40	0.37	1.33	0.51	0.22
10	Total Chromium	mg/l	2.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
11	Zinc	mg/l	5.0	0.014	0.023	0.021	0.013	<0.01	0.011	0.011	0.014	0.019	0.017	0.014	0.011
12	Copper	mg/l	3.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
13	Nickel	mg/l	3.0	<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	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
15	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
16	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
17	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
18	Nitrate Nitrogen(as N),mg/L	mg/l	10	1.1	2.35	1.5	3.75	0.85	0.61	0.62	0.93	2.4	1.2	0.42	0.97
19	Vanadium	mg/l	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Iron	mg/l	3	0.95	0.23	0.22	0.86	0.71	0.55	0.26	<0.1	<0.1	1.22	1.05	0.59
21	Manganese	mg/l	2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.069	0.058	<0.05
22	Dissolved Phosphate	mg/l	5.0	0.12	0.18	0.1	0.11	0.08	0.1	0.12	0.17	0.15	0.21	0.12	0.09
23	Selenium	mg/l	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
24	Cadmium(as Cd)	mg/l	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
25	Total Arsenic (as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Free Ammonia (as NH <sub>3</sub> )	mg/l	5.0	0.19	0.46	0.06	0.31	0.04	0.63	0.4	0.72	0.12	0.41	0.06	0.08
27	Total Kjeldahl Nitrogen (as N)	mg/l	100	4.3	5.1	4.0	4.3	2.3	3.7	3.9	6.3	4.7	4.6	3.3	3.7
28	Ammoniacal Nitrogen (as N)	mg/l	50	3.1	4.2	1.9	2.8	1.1	2.5	2.2	4	3	2.9	2	2.6
29	Total Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30	Colour	Hazen Units	Colourless	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
31	Odour		Odourless	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

Surface Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)

ANNEXURE V A

S. No.	Parameter	Unit	CPCB Limit for Discharge of Environmental Pollutants (Inland surface water)	Feb.'23						Mar.'23					
				Kunur Nala Upstream Near GGS#1	GGS#001(R.O Discharge)	EDH-64(Discharge)	Kunur Nala Downstream between EDH 58 & 64	Kunur Nala Downstream RI - AKANDARA	Kunur Nala Downstream Near Kuldih Bridge	Kunur Nala Upstream Near GGS#1	GGS#001(R.O Discharge)	EDH-64(Discharge)	Kunur Nala Downstream between EDH 58 & 64	Kunur Nala Downstream RI - AKANDARA	Kunur Nala Downstream Near Kuldih Bridge
1	pH	---	5.5 to 9.0	8.49	8.63	7.92	8.50	8.10	7.78	8.49	8.42	8.36	8.40	7.81	7.93
2	Temperature	°C	---	27.1°C	29.0°C	27.4°C	29.1°C	29.2°C	26.2°C	33.7°C	34.4°C	28.5°C	30.2°C	30.3°C	29.0°C
3	Total Suspended Solids	mg/l	100	12	3	<2	16	9	21	<2	<2	4	<2	7	11
4	Biochemical Oxygen Demand	mg/l	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
5	Chemical Oxygen Demand	mg/l	250	<8	<8	<8	9	<8	<8	<8	<8	<8	<8	<8	<8
6	Oil & Grease	mg/l	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
7	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	mg/l	1.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
8	Sulphides (as S <sub>2</sub> ) in mg/l	mg/l	2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
9	Fluoride	mg/l	2.0	0.81	1.25	0.92	0.72	0.68	0.73	0.85	0.82	0.49	0.97	0.37	0.59
10	Total Chromium	mg/l	2.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
11	Zinc	mg/l	5.0	0.012	0.014	0.023	0.023	0.019	0.014	0.019	0.027	0.017	0.023	0.012	0.013
12	Copper	mg/l	3.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
13	Nickel	mg/l	3.0	<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	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
15	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
16	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
17	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
18	Nitrate Nitrogen(as N),mg/L	mg/l	10	0.85	1.5	2.3	2.95	1.85	1.95	0.75	0.95	1.63	0.61	2.4	
19	Vanadium	mg/l	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
20	Iron	mg/l	3	1.80	0.69	0.21	2.25	1.62	2.86	0.36	0.31	0.75	0.43	1.05	1.40
21	Manganese	mg/l	2	0.059	<0.05	<0.05	<0.05	0.061	0.083	<0.05	<0.05	<0.05	<0.05	0.065	
22	Dissolved Phosphate	mg/l	5.0	0.11	0.16	0.17	0.2	0.11	0.2	0.08	0.12	0.07	0.16	0.09	0.19
23	Selenium	mg/l	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
24	Cadmium(as Cd)	mg/l	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
25	Total Arsenic(as As)	mg/l	0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Free Ammonia(as NH <sub>3</sub> )	mg/l	5.0	0.39	0.85	0.12	0.38	0.23	0.08	0.22	0.22	0.16	0.25	0.03	0.17
27	Total Kjeldahl Nitrogen (as N)	mg/l	100	3.7	5.8	4.9	4.0	6.1	3.7	2.8	3.1	2.2	3.4	1.8	5.1
28	Ammonical Nitrogen(as N)	mg/l	50	2.8	4.7	3	2.7	3.8	2.6	1.6	1.8	1.3	2.1	1	4.3
29	Total Residual Chlorine	mg/l	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
30	Colour	Hazen Units	Colourless	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
31	Odour		Odourless	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable

# **ANNEXURE VI**

**Ground Water Analysis of Surrounding Areas of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.**  
**Period: Oct.'22 to Mar.'23**

ANNEXURE VI

GROUND WATER SAMPLE FOR THE MONTH OF NOV,2022					18.11.2022	18.11.2022	18.11.2022	18.11.2022	18.11.2022
Date of Sampling					18.11.2022	18.11.2022	18.11.2022	18.11.2022	18.11.2022
Latitude & Longitude					Lat:23°34'27.0"N, Long:87°23'00.1"E	Lat:23°35'15.19"N, Long:87°22'08.5"E	Lat:23°36'38.4"N, Long:87°20'09.0"E	Lat:23°37'34.6"N, Long:87°19'00.1"E	Lat:23°37'46.6"N, Long:87°20'15.7"E
S. No.	Parameter	Minimum Detection Limit	Drinking Water Specification(Second Revision)- IS:10500 - 2012 and Amendment No. 4 November 2021		Akandara Village Near Adibasi Para (House of Kishor Soren)	Dhabani Village near house of Sapan Bauri house Tubewell	Nachan Village near House of Arup Ghatak Tubewell	Bansia Village near ICDS Washpara Tubewell	Kalikapur Village near Durga Mandir Tubewell
			Requirement (Acceptable Limit)	Permissible limit in the Absence of Alternate Source					
1	Colour, Hazen Units	5	5	15	BDL	BDL	BDL	BDL	BDL
2	pH Value	2	6.5-8.5	No relaxation	7.1	6.9	7.92	7.3	6.91
3	Turbidity, NTU	1	1	5	BDL	BDL	8	1.6	2.4
4	Total Dissolved Solids, mg/L	10	500	2000	72	52	418	324	288
5	Total Suspended Solids, mg/L	2	---	---	BDL	BDL	3	BDL	BDL
6	Aluminium (as Al), mg/L	0.01	0.03	0.2	BDL	BDL	BDL	BDL	BDL
7	Ammonia (as total ammonia -N), mg/L	0.1	0.5	No relaxation	BDL	BDL	BDL	BDL	BDL
8	Anionic Detergents (as MBAS), mg/L	0.1	0.2	1	BDL	BDL	BDL	BDL	BDL
9	Barium (as Ba), mg/l	0.05	0.7	No relaxation	BDL	BDL	BDL	BDL	BDL
10	Boron (as B), mg/L	0.5	0.5	1.0	BDL	BDL	BDL	BDL	BDL
11	Calcium (as Ca), mg/L	2	75	200	19	8	86	46	59
12	Chloride (as Cl), mg/L	2	250	1000	9	18	11	9	62
13	Copper (as Cu), mg/L	0.05	0.05	1.5	BDL	BDL	BDL	BDL	BDL
14	Fluoride (as F), mg/L	0.05	1	1.5	BDL	0.18	0.28	0.61	0.5
15	Free Residual Chlorine ,mg/L	0.1	0.2	1	BDL	BDL	BDL	BDL	BDL
16	Magnesium (as Mg), mg/L	2	30	100	7	4	26	15	21
17	Manganese (as Mn), mg/L, Max.	0.05	0.1	0.3	BDL	BDL	0.067	BDL	BDL
18	Mineral Oil, mg/L, Max	1	1	No relaxation	BDL	BDL	BDL	BDL	BDL
19	Nitrate (as NO <sub>3</sub> ), mg/L	0.5	45	No relaxation	BDL	BDL	0.81	0.78	BDL
20	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH) ,mg/L	0.001	0.001	0.002	BDL	BDL	BDL	BDL	BDL
21	Sulphate (as SO <sub>4</sub> ), mg/L, Max.	2.5	200	400	BDL	BDL	10.5	6.8	4.5
22	Silver (as Ag), mg/L	0.1	0.1	No relaxation	BDL	BDL	BDL	BDL	BDL
23	Sodium (as Na), mg/L	1	---	---	11	7	83	88	56
24	Selenium (as Se), mg/L	0.005	0.01	No relaxation	BDL	BDL	BDL	BDL	BDL
25	Cadmium (as Cd), mg/L	0.003	0.003	No relaxation	BDL	BDL	BDL	BDL	BDL
26	Cyanide (as CN), mg/L	0.02	0.05	No relaxation	BDL	BDL	BDL	BDL	BDL
27	Lead (as Pb), mg/L	0.01	0.01	No relaxation	BDL	BDL	BDL	BDL	BDL
28	Mercury (as Hg), mg/L	0.001	0.001	No relaxation	BDL	BDL	BDL	BDL	BDL
29	Total Arsenic (as As), mg/L	0.01	0.01	No relaxation	BDL	BDL	BDL	BDL	BDL
30	Polynuclear aromatic hydrocarbons (as PAH), mg/L	0.0001	0.0001	No relaxation	BDL	BDL	BDL	BDL	BDL
31	Pesticide Residues,µg/L	0.01	0.01	No relaxation	BDL	BDL	BDL	BDL	BDL
32	Total Coliform Count, MPN/100 ml	<1	Shall not be detectable in any 100 ml sample		Absent	Absent	Absent	Absent	Absent
33	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
34	Polychlorinated Biphenyls, mg/L	0.0005	0.0005	No relaxation	BDL	BDL	BDL	BDL	BDL
35	Chloramines,mg/L	0.1	4	No relaxation	BDL	BDL	BDL	BDL	BDL
36	Molybdenum,mg/L	0.05	0.07	No relaxation	BDL	BDL	BDL	BDL	BDL
37	Sulphide,mg/L	0.5	0.05	No relaxation	BDL	BDL	BDL	BDL	BDL
38	Electrical Conductivity at 25° C, µmhos/cm	10	---	---	120	88	696	546	490
39	Phosphorus(as P), mg/L	0.01	---	---	BDL	BDL	BDL	BDL	BDL
40	Nickel, mg/L	0.02	0.02	No relaxation	BDL	BDL	BDL	BDL	BDL
41	Total Chromium,mg/L	0.05	0.05	No relaxation	BDL	BDL	BDL	BDL	BDL
42	Zinc,mg/L	0.01	5	15	0.013	BDL	0.024	0.017	0.02
43	Total Alkalinity as CaCO <sub>3</sub> ,mg/L	5	200	600	36	24	346	286	143
44	Total Hardness,mg/L	5	200	600	75	36	321	178	234

**Ground Water Analysis of Surrounding Areas of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Ltd.**  
**Period: Oct.'22 to Mar.'23**

ANNEXURE VI

GROUND WATER SAMPLE FOR THE MONTH OF NOV,2022					18.11.2022	18.11.2022	18.11.2022	19.11.2022	19.11.2022
Date of Sampling					18.11.2022	18.11.2022	18.11.2022	19.11.2022	19.11.2022
Latitude & Longitude					Lat:23°36'30.2"N, Long:87°22'14.0"E	Lat:23°36'97.3"N, Long:87°23'43.2"E	Lat:23°35'12.3"N, Long:87°24'55.5"E	Lat:23°34'59.3"N, Long:87°24'27.0"E	Lat:23°31'31.4"N, Long:87°24'59.4"E
S. No.	Parameter	Minimum Detection Limit	Drinking Water Specification(Second Revision)- IS:10500 - 2012 and Amendment No. 4 November 2021		Kantaberia Village(House of Toofan Das) Tubewell	Jatgoria near Masjid (House of Sk Niashar) Tubewell	Saraswatiganj village near Hari Mandir Tubewell	Ghatkandanga Village near Atchala Tubewell	Sarenga Village near Sarenga Primary School Tubewell
			Requirement(Acceptable Limit)	Permissible limit in the Absence of Alternate Source					
1	Colour, Hazen Units	5	5	15	BDL	BDL	BDL	BDL	BDL
2	pH Value	2	6.5-8.5	No relaxation	7.15	7.45	7.6	6.92	7.22
3	Turbidity, NTU	1	1	5	1.3	3.3	1.9	24	115
4	Total Dissolved Solids, mg/L	10	500	2000	130	172	186	64	98
5	Total Suspended Solids, mg/L	2	---	---	BDL	BDL	BDL	8	52
6	Aluminium (as Al), mg/L	0.01	0.03	0.2	BDL	BDL	BDL	BDL	BDL
7	Ammonia (as total ammonia -N), mg/L	0.1	0.5	No relaxation	BDL	BDL	BDL	BDL	BDL
8	Anionic Detergents (as MBAS), mg/L	0.1	0.2	1	BDL	BDL	BDL	BDL	BDL
9	Barium (as Ba), mg/l	0.05	0.7	No relaxation	BDL	BDL	BDL	BDL	BDL
10	Boron (as B), mg/L	0.5	0.5	1.0	BDL	BDL	BDL	BDL	BDL
11	Calcium (as Ca), mg/L	2	75	200	21	32	29	14	19
12	Chloride (as Cl), mg/L	2	250	1000	17	26	79	10	11
13	Copper (as Cu), mg/L	0.05	0.05	1.5	BDL	BDL	BDL	BDL	BDL
14	Fluoride (as F), mg/L	0.05	1	1.5	BDL	0.53	0.41	0.19	0.27
15	Free Residual Chlorine ,mg/L	0.1	0.2	1	BDL	BDL	BDL	BDL	BDL
16	Magnesium (as Mg), mg/L	2	30	100	7	12	13	7	11
17	Manganese (as Mn), mg/L, Max.	0.05	0.1	0.3	BDL	BDL	BDL	0.082	0.411
18	Mineral Oil, mg/L, Max	1	1	No relaxation	BDL	BDL	BDL	BDL	BDL
19	Nitrate (as NO <sub>3</sub> ), mg/L	0.5	45	No relaxation	BDL	0.8	0.91	0.58	0.65
20	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH) ,mg/L	0.001	0.001	0.002	BDL	BDL	BDL	BDL	BDL
21	Sulphate (as SO <sub>4</sub> ), mg/L, Max.	2.5	200	400	BDL	6.3	5.9	BDL	BDL
22	Silver (as Ag), mg/L	0.1	0.1	No relaxation	BDL	BDL	BDL	BDL	BDL
23	Sodium (as Na), mg/L	1	---	---	38	42	58	15	24
24	Selenium (as Se), mg/L	0.005	0.01	No relaxation	BDL	BDL	BDL	BDL	BDL
25	Cadmium (as Cd), mg/L	0.003	0.003	No relaxation	BDL	BDL	BDL	BDL	BDL
26	Cyanide (as CN), mg/L	0.02	0.05	No relaxation	BDL	BDL	BDL	BDL	BDL
27	Lead (as Pb), mg/L	0.01	0.01	No relaxation	BDL	BDL	BDL	BDL	BDL
28	Mercury (as Hg), mg/L	0.001	0.001	No relaxation	BDL	BDL	BDL	BDL	BDL
29	Total Arsenic (as As), mg/L	0.01	0.01	No relaxation	BDL	BDL	BDL	BDL	BDL
30	Polynuclear aromatic hydrocarbons (as PAH), mg/L	0.0001	0.0001	No relaxation	BDL	BDL	BDL	BDL	BDL
31	Pesticide Residues,µg/L	0.01	0.01	No relaxation	BDL	BDL	BDL	BDL	BDL
32	Total Coliform Count, MPN/100 ml	<1	Shall not be detectable in any 100 ml sample		Absent	Absent	Absent	Absent	Absent
33	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
34	Polychlorinated Biphenyls, mg/L	0.0005	0.0005	No relaxation	BDL	BDL	BDL	BDL	BDL
35	Chloramines,mg/L	0.1	4	No relaxation	BDL	BDL	BDL	BDL	BDL
36	Molybdenum,mg/L	0.05	0.07	No relaxation	BDL	BDL	BDL	BDL	BDL
37	Sulphide,mg/L	0.5	0.05	No relaxation	BDL	BDL	BDL	BDL	BDL
38	Electrical Conductivity at 25° C, µmhos/cm	10	---	---	220	290	315	110	170
39	Phosphorus(as P), mg/L	0.01	---	---	BDL	BDL	BDL	BDL	BDL
40	Nickel, mg/L	0.02	0.02	No relaxation	BDL	BDL	BDL	BDL	BDL
41	Total Chromium,mg/L	0.05	0.05	No relaxation	BDL	BDL	BDL	BDL	BDL
42	Zinc,mg/L	0.01	5	15	0.014	0.018	0.013	0.012	0.01
43	Total Alkalinity as CaCO <sub>3</sub> ,mg/L	5	200	600	71	98	23	25	49
44	Total Hardness,mg/L	5	200	600	79	127	123	63	91



# **ANNEXURE VII**



## MEMBERSHIP CERTIFICATE

THIS IS TO CERTIFY THAT M/S.ESSAR OIL AND GAS EXPLORATION AND PRODUCTION LIMITED HAVING ITS UNIT AT B-2, VILL & P.O.- GOPALPUR, GOPALPUR SARENGA ROAD, P.S.-KANKSHA, DURGAPUR-713212 IS A REGISTERED LIFETIME MEMBER OF **INTEGRATED COMMON HAZARDOUS WASTE TREATMENT STORAGE AND DISPOSAL FACILITY (ICHW-TSDF)** AT JL. 80, VILL. PABAYAN, P.S. SALTORA, DIST.- BANKURA, WEST BENGAL- 722158. OPERATED BY WEST BEMGAL WASTE MANAGEMENT LTD.

THE MEMBERSHIP IS WBWML/HZW/HzW/DGPR/E- 004 AND VALID TILL 31<sup>st</sup> March 2024.

WEST BENGAL WASTE MANAGEMENT LIMITED

Sustainability

PROJECT HEAD

West Bengal Waste Management Limited  
(A Division of Re Sustainability Limited)

Site Address:  
CHW-TSDF at: Plot No.- 80,  
Vill.-Pabayan, P.S.: Saltora,  
Dist.- Bankura, West Bengal 722 158, India

Registered Office:  
Level 11, Aurobindo Galaxy,  
Hyderabad Knowledge City,  
HITECH City Road, Hyderabad-500 081. India.  
CIN No. U74140TG1994PLC018833


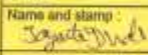
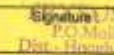
T: +91 74777 96110  
E: [wbwml.saltora@resustainability.com](mailto:wbwml.saltora@resustainability.com)  
[resustainability.com](http://resustainability.com)

# **ANNEXURE VIII**

FORM 10

[See rule 19 (1)]

MANIFEST FOR HAZARDOUS AND OTHER WASTE

1. Sender's name and mailing address (including Phone No. and e-mail)	ESSAR OIL AND GAS EXPLORATION AND PRODUCTION LTD. VILLAGE 4, PALAMU DIST. JHARKHAND INDIA 713212		
2. Sender's authorisation No.	205 125 (H/W) 2443/2008		
3. Manifest Document No.	ND19H030		
4. Transporter's name and address (including Phone No. and e-mail)	SOLUB LUB SOLUB ROAD, BOHARANI, BOHARA, PO. MULLA BAR, DIST. HOOGLY, PIN-712250		
5. Type of vehicle	(Truck / Tanker / Special Vehicle)		
6. Transporter's registration No.	03/75 (H/B)-391/2019		
7. Vehicle registration No.	WB19H2504/WB1923884		
8. Receiver's name and mailing address (including Phone No. and e-mail)	SOLUB LUB SOLUB ROAD, BOHARANI, BOHARA, PO. MULLA BAR, DIST. HOOGLY, PIN-712250		
9. Receiver's authorisation No.	03/75 (H/B)-391/2019		
10. Waste description	used oil		
11. Total quantity No. of Containers	5000 Ltr _____ m <sup>3</sup> or MT _____ Nos.		
12. Physical form	(Solid / Semi-Solid / Sludge / Clay / Tarry / Slurry / Liquid)		
13. Special handling instructions and additional information	Handle with care		
14. Sender's Certificate	I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are categorised, packed, marked, and labelled, and are in all respects in proper conditions for transport by road according to applicable national government regulations.		
Name and stamp:	Signature:	Month	Day Year
		02	13 2023
15. Transporter acknowledgement of receipt of Wastes			
Name and stamp:	Signature:	Month	Day Year
	 PO Mollabar Dist. Hoogly, 712250	02	13 2023
16. Receiver's certification for receipt of hazardous and other waste			
Name and stamp:	Signature:	Month	Day Year
		02	13 2023



**FORM 10**  
[See rule 19 (1)]

**MANIFEST FOR HAZARDOUS AND OTHER WASTE**

1.	Sender's name and mailing address (including Phone No. and e-mail)	ESSAR OIL AND GAS EXPLORATION AND PRODUCTION LIMITED VILL AND POST -> MOLANDITHI DIST -> PASCHIM BARDHAMAN 713212		
2.	Sender's authorisation No.	:	205 125 (H/W)-2449/2008	
3.	Manifest Document No.	:		
4.	Transporter's name and address : (including Phone No. and e-mail)	Inspection oils Limited A/122, phase III, Block-A, Kalyani		
5.	Type of vehicle	:	(Truck / Tanker / Special Vehicle)	
6.	Transporter's registration No.	:	188/DE (HW)-2545/2009,	
7.	Vehicle registration No.	:	WB03C7075	
8.	Receiver's name and mailing address (including Phone No. and e-mail)	Inspection oils Limited A/122, phase III, Block-A Kalyani, Nadia.		
9.	Receiver's authorisation No.	:	188/DE (HW)-2545/2009.	
10.	Waste description	:	- Used oil -	
11.	Total quantity No. of Containers	:	8000 LTR .....m <sup>3</sup> or MT/225 .....k.O.....Nos.	
12.	Physical form	:	(Solid / Semi-Solid / Sludge / Oily / Tarry / Slurry / Liquid)	
13.	Special handling instructions and additional information	:	Handle with care	
14.	Sender's Certificate	I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are categorised, packed, marked, and labelled, and are in all respects in proper conditions for transport by road according to applicable national government regulations.		
	Name and stamp	Signature :	Month	Day
			01	24
			20	23
15.	Transporter acknowledgement of receipt of Wastes			
	Name and stamp	Signature :	Month	Day
			01	24
			20	23
16.	Receiver's certification for receipt of hazardous and other waste			
	Name and stamp	Signature :	Month	Day

FORM 10

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WEST BENGAL WASTE MANAGEMENT LIMITED

J.L. No. - 80, Vill. : Pabayan, P.O. : Bishjore, P.S. : Saltora, Bankura, W.B. 722158

MANIFEST FOR HAZARDOUS AND OTHER WASTE

1	Sender's name and mailing address (including Phone No. and e-mail) :	ESSAR OIL AND GAS EXPLORATION AND PRODUCTION LTD VILL and Post -> Molandighi Dist - Paschim Bardwan, 713212		
2	Sender's authorization No. :	205/25 (N/W) - 2449/2008		
3	Manifest Document No. :	1 474		
4	Transporter's name and address (including Phone No. and e-mail) :	West Bengal Waste Management Limited J.L. No. - 80, Mouza : Pabayan, P.S. : Saltora, Dist. : Bankura West Bengal, Pin- 722158		
5	Type of vehicle :	(Truck/Tanker/Special Vehicle)		
6	Transporter's registration No. :	1-MD(E)/X/06		
7	Vehicle registration No. :	WB 41F 9569		
8	Receiver's name and mailing address (including Phone No. and e-mail) :	West Bengal Waste Management Limited J.L. No. - 80, Mouza : Pabayan, P.S. : Saltora, Dist. : Bankura West Bengal, Pin- 722158		
9	Receiver's authorization No. :			
10	Waste description :	Waste filter -> 1.70 TON, Cotton waste -> 1.61 TON		
11	Total quantity No. of Containers :	3.310 TON ..... m3 or MT ..... Nos.		
12	Physical form :	(Solid/Semi-Solid/Sludge/Oily/Tarry/Slurry/Liquid)		
13	Special handling instructions and additional information	Safety shoe, Hand gloves, goggle, Helmets		
14	Sender's Certificate	I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping categorized, packed, marked and name and are labeled and are in all respects in proper conditions for transport by road according to applicable National Government Regulations.		
	Name and stamp	Signature	Day	Month Year
			28	02 2023
15	Transporter's acknowledgement of receipt of Wastes :			
	Name and stamp	Signature	Day	Month Year
			28	02 2023
16	Receiver's certification for receipt of hazardous and other waste :			
	Name and stamp	Signature	Day	Month Year

- 1. White Colour forwarded to WBPCB by HzW Sender
- 3. Pink Colour retained by HzW Receiver
- 5. Green Colour forwarded to WBPCP offer disposal by HzW Receiver

- 2. Yellow Colour retained by HzW sender
- 4. Orange Colour retained by transporter
- 6. Blue Colour returned to sender after disposal by HzW Receiver


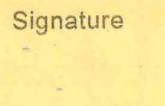
FORM 10

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WEST BENGAL WASTE MANAGEMENT LIMITED

J.L. No. - 80, Vill. : Pabayan, P.O. : Bishjore, P.S. : Saltora, Bankura, W.B. 722158

MANIFEST FOR HAZARDOUS AND OTHER WASTE

1	Sender's name and mailing address (including Phone No. and e-mail) :	ESSAR OIL AND GAS EXPLORATION AND PRODUCTION LIMITED WILL AND POST → MOLANDIHTI BLOCK → KANKSA DIST → PASCHIM BARDHAMAN 713212		
2	Sender's authorization No. :	205125 (HW) - 2449/2008		
3	Manifest Document No. :	1 <b>386</b>		
4	Transporter's name and address (including Phone No. and e-mail) :	West Bengal Waste Management Limited J.L. No. - 80, Mouza : Pabayan, P.S. : Saltora, Dist. : Bankura West Bengal, Pin- 722158		
5	Type of vehicle :	(Truck/Tanker/Special Vehicle)		
6	Transporter's registration No. :	1-MD(E)/X/06		
7	Vehicle registration No. :	WB 31N 0098		
8	Receiver's name and mailing address (including Phone No. and e-mail) :	West Bengal Waste Management Limited J.L. No. - 80, Mouza : Pabayan, P.S. : Saltora, Dist. : Bankura West Bengal, Pin- 722158		
9	Receiver's authorization No. :			
10	Waste description :	oil filter, waste cotton, silica, filter.		
11	Total quantity No. of Containers :	3.580 m3 or MT Nos.		
12	Physical form :	(Solid/Semi-Solid/Sludge/Oily/Tarry/Slurry/Liquid)		
13	Special handling instructions and additional information	SAFETY shoe, Hand gloves, goggles, helmet		
14	Sender's Certificate	I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping categorized, packed, marked and name and are labeled and are in all respects in proper conditions for transport by road according to applicable National Government Regulations.		
	Name and stamp	Signature	Day	Month Year
			10	11 2022
15	Transporter acknowledgement of receipt of Wastes :			
	Name and stamp	Signature	Day	Month Year
			10	11 2022
16	Receiver's certification for receipt of hazardous and other waste :			
	Name and stamp	Signature	Day	Month Year

- 1. White Colour forwarded to WBPCB by HzW Sender
- 2. Yellow Colour retained by HzW sender
- 3. Pink Colour retained by HzW Receiver
- 4. Orange Colour retained by transporter
- 5. Green Colour forwarded to WBPCB after disposal by HzW Receiver
- 6. Blue Colour returned to sender after disposal by HzW Receiver

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FORM 10

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WEST BENGAL WASTE MANAGEMENT LIMITED

J.L. No. - 80, Vill. : Pabayan, P.O. : Bishjore, P.S. : Saltora, Bankura, W.B. 722158

MANIFEST FOR HAZARDOUS AND OTHER WASTE

1	Sender's name and mailing address (including Phone No. and e-mail) :	FSSAR OIL AND GAS EXPLORATION AND PRODUCTION LIMITED Vill and Post - Malandi Block - Kankra Dist - Paschim Bardhaman DURGAPUR 713212		
2	Sender's authorization No. :	205/25 (HW) - 2449/2008		
3	Manifest Document No. :	1 432		
4	Transporter's name and address (including Phone No. and e-mail) :	West Bengal Waste Management Limited J.L. No. - 80, Mouza : Pabayan, P.S. : Saltora, Dist. : Bankura West Bengal, Pin- 722158		
5	Type of vehicle :	(Truck/Tanker/Special Vehicle)		
6	Transporter's registration No. :	1-MD(E)/X/06		
7	Vehicle registration No. :	WB 31N 0062		
8	Receiver's name and mailing address (including Phone No. and e-mail) :	West Bengal Waste Management Limited J.L. No. - 80, Mouza : Pabayan, P.S. : Saltora, Dist. : Bankura West Bengal, Pin- 722158		
9	Receiver's authorization No. :			
10	Waste description :	Oil (contaminated waste, filter, silica)		
11	Total quantity No. of Containers :	4.73 m3 or MT Nos.		
12	Physical form :	(Solid/Semi-Solid/Sludge/Oily/Tarry/Slurry/Liquid)		
13	Special handling instructions and additional information	Safety shoe, Hand gloves, goggles, Helmets		
14	Sender's Certificate	I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping categorized, packed, marked and name and are labeled, and are in all respects in proper conditions for transport by road according to applicable National Government Regulations.		
	Name and stamp	Signature	Day	Month Year
			11	10 2022
15	Transporter acknowledgement of receipt of Wastes :			
	Name and stamp	Signature	Day	Month Year
			11	10 2022
16	Receiver's certification for receipt of hazardous and other waste :			
	Name and stamp	Signature	Day	Month Year

- 1. White Colour forwarded to WBPCB by HzW Sender
- 3. Pink Colour retained by HzW Receiver
- 5. Green Colour forwarded to WBPCP after disposal by HzW Receiver

- 2. Yellow Colour retained by HzW sender
- 4. Orange Colour retained by transporter
- 6. Blue Colour returned to sender after disposal by



# **ANNEXURE IX**

<b>Expenditure towards Environmental Protection Measures by Essar Oil and Gas Exploration and Production Ltd. Compliance Period: October'22 to March'23</b>		
<b>S. No.</b>	<b>Particular</b>	<b>Expenses</b>
		<b>(INR)</b>
1	System upgradation of existing water handling system -Capex	32,86,078
2	Operation & maintenance of the RO system & pumps and water tanker services-Opex	1,53,37,877
<b>TOTAL</b>		<b>1,86,23,955</b>

# **ANNEXURE X**

**Ground Water Level report of surrounding areas of CBM Ranigan project of  
Essar Oil and Gas Exploration and Production Ltd.  
(Period: Oct.'22 - Mar.'23)**

**ANNEXURE X**

<b>S. No.</b>	<b>Location</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Parapet wall height (m)</b>	<b>Well Diameter (m)</b>	<b>Depth to Water from Parapet top (m)</b>	<b>Depth to Water below ground level (m)</b>
1	Nachan	23°36'42.4"N	87°19'58.9"E	0.6	1	1.93	1.33
2	kalikapur	23°37.24.8"N	87°20.12.9"E	0.66	1.85	2.08	1.42
3	Dhabani	23°35'51.9"N	87°22.0.85"E	0.93	1.8	2.1	1.17
4	Bansia	23°37.34.3"N	87°19'00.1"E	0.76	0.97	2.13	1.37
5	Labnapara	23°35'05.36N	87°22'15.8"E	1.2	1.5	2.99	1.79
7	Akandara	23°34'46.1"N	87°23'0.13"E	0.6	1.85	3.58	2.98
8	Saraswatiganj	23°35'22.6"N	87°24'78.4"E	0.45	1.75	2.74	2.29
9	Ghtakdanga	23°34'14.7"N	87°24'30.8"E	0.83	2.4	3.14	2.31
10	Sarenga	23°31'36.22"N	87°24'58.12"E	1.01	1.67	2.94	1.93
11	Gopalpur	23°30'63.9"N	87°23'40.8"E	0.5	1.53	2.53	2.03
12	Jatgoria	23°36'97.03"N	87°23'43.02"E	0.6	1.8	2.71	2.11
13	Kantaberia	23°36'82.9"N	87°22'24.02"E	0.83	1.3	2.92	2.09
14	Bargoria	23°37'58.0"N	87°21'39.7"E	0.73	2.5	2.18	1.45