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 eogepl@essarenp.co.in
www.essar.com

EOGEPL/ CBM-RG (E)/ HSE/2022/3885
Date 31st May 2022

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

Sub: Submission Half-Yearly Compliance Report of the Environmental Clearance (Phase-III) by Essar Oil Gas Exploration and Production Limited reg.

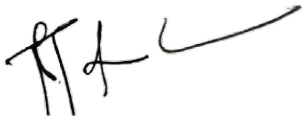
Ref: Environmental Clearance of Phase-III granted by MoEF vide letter no.J-11011/491/2011-IA II(I) dated 26th February, 2013; Transfer of EC from EOL to EOGEPL dated 27.11.2017

Dear Sir

We are enclosing herewith the half-yearly compliance report in respect of the stipulated prior environmental clearance terms and conditions for the Production and Development Phase (Phase-III) of CBM project activities for the period of October' 2021 to March' 2022.

Thank you for your continued support.

Warm Regards,
For Essar Oil and Gas Exploration and Production Limited



Kannan Rajendran
Chief Operating Officer
Raniganj East, CBM Project-Durgapur

Enclosed: Phase-III Compliance Report

Copy to:

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

Essar Oil and Gas Exploration and Production Limited

RG (East)-CBM-2001/1 (Phase-III) Half Yearly Environment Clearance Compliance Report (October' 21 to March' 22)

Ref: Environmental Clearance F.No.J-11011/491/2011-IA II (I), dated 26th February, 2013

S. No	Condition	Compliance Status
A	**Specific Conditions**	
i.	Compliance to all the environmental conditions stipulated in the environmental clearance letter nos.J-11011/660/2007-IA-II(I) dated 6th May, 2008, J-11011/351/2009-IA-II(I) dated 23.09.2011 and its subsequent amendment shall be satisfactorily implemented.	Compliance to the environmental conditions of Phase- II & II (A) are being satisfactorily implemented and the compliance reports are regularly submitted to the Regional office of the MoEF.
ii.	Compensation for the land acquisition to the land oustees, if any, and also for standing crop shall be paid as per the National Resettlement and Rehabilitation Policy (NRRP) 2007 or State Government norms. It may be ensured that compensation provided shall not be less than the norms of the NRRP, 2007	Land acquisition is being directly done with the land owners and the compensation is paid as per the prevailing market rate. There is no involvement of Rehabilitation and Resettlement.
iii.	Prior permission from the Ministry of Defence shall be obtained regarding impact of proposed plant on Panagarh, if any.	Total three (3) nos. of GGS and One (1) no. of MCS flaring stack are constructed as per the NOC obtained from the MoD. One GGS 4 not in Operation at the Moment.
iv.	As proposed, no forest land shall be used for the proposed facilities	Forest land is not being used for construction of well pads or and surface facilities of the project.
v.	Ambient Air Quality shall be monitored near the closest human settlements as per the National Ambient Air Quality Emission Standards (NAAQES) issued by the Ministry vide G.S.R No. 826(E) dated 16th November, 2009 for PM10, PM2.5, SO2, NOx, CO, CH4, VOCs, HC, Non-Methane HC etc. Efforts shall be made to improve the ambient air quality of the area.	Ambient Air Quality Monitoring has been carried out 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 PM10, PM2.5, SO2, NOX, CO, CH4, VOCs, HC, Non-methane HC. Monitoring activity has been carried out from Oct'21 to Mar'22 through a recognized laboratory based in Kolkata. Please find the ambient air quality monitoring results from Oct'21 to Mar' 22 attached with this report as **Annexure I.**

S. No	Condition	Compliance Status
vi.	Mercury shall also be analysed in air, water and drill cuttings twice during drilling period	The Drilling has been temporarily suspended from April' 17 till date.
vii.	The flare system shall be designed as per good oil field practices and Oil Industry Safety Directorate (OISD) guidelines. The company shall take necessary measures to prevent fire hazards and soil remediation as needed. At the place of ground flaring, the flare pit shall be lined with refractory bricks and efficient burning system. In case of overhead flare stacks, the stack height shall be provided as per the regulatory requirements and emission from stacks shall meet the MoEF/CPCB guidelines.	Elevated flare system is designed as per OISD guidelines. Measures delineated in the EIA/EMP have been taken to prevent fire hazards. The overhead flaring is installed at a height of 30 m. The following measures have been implemented to prevent fire hazard: ▪ Installation of electrical equipment as per approved hazardous zone classification as communicated to DGMS ▪ Dry chemical fire extinguishers are available at all well-sites & facilities. ▪ Portable methane gas analyzers (CH4) are available. ▪ Flame proof type lighting fixtures, push buttons and switches in the drill site facilities are used.
viii.	The company shall make the arrangement for control of noise from the drilling activity, compressor station and DG sets by providing necessary mitigation measures such as proper acoustic enclosures to DG sets and meet the norms notified by the MoEF. Height of all the stacks/vents shall be as per the CPCB guidelines.	Only CPCB approved models of silent generator sets have been installed with acoustic enclosures. Once the gas production starts at the well site, the Diesel Generator (DG) sets are replaced with Gas Generator (GG) sets. In operational wells gas generator sets are operational. Noise monitoring has been carried out in the surrounding habitats and major activity area. Please find the noise monitoring reports attached with report as **Annexure II**.
ix.	The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR.546€ dated 30th August, 2005.	The drilling is temporarily suspended from April, 2017 till date.
x.	Total fresh water requirement should not exceed 125m3 for each well during drilling phase 1 m3/day for GGS/MCS. Prior	The drilling was temporarily suspended from April 2007 to till date.

S. No	Condition	Compliance Status
	permission shall be obtained from the Competent Authority and a copy submitted to the Ministry's Regional Office at Bhubaneswar	
xi.	During well drilling, wastewater should be segregated into waste drilling fluid and drill cuttings. Drill cutting should be stored onsite impervious HDPE lined pit for solar evaporation and drying. Effluent should be properly treated and treated effluent should conform to CPCB standards. As proposed, produced water should be treated by reverse osmosis and reuse in drilling of new wells, fire hydrant system and other beneficial purposes. Domestic effluent should be disposed-off through septic tank followed by soak pit.	The drilling is temporarily suspended from April' 2017 till date. Produced water is treated through Reverse Osmosis (RO) system. The treated produced water is reused in other operations. Please find the RO water analysis results attached with this report as **Annexure III.** Monitoring activity has been carried out from Oct'21 to Mar'22 through a recognized laboratory based in Kolkata. Domestic effluent is disposed of through septic tank to soak pit.
xii.	Ground water quality monitoring should be done to assess if produced water storage or disposal has any effect.	The ground water monitoring carried out in Post-Monsoon (November) month. The Ground water Analysis reports attached with report as **Annexure IV**.
xiii.	Drilling wastewater including drill cuttings, wash water shall be collected in disposal pit lined with HDPE lining, evaporated or treated and shall comply with the notified standards for on-shore disposal on land. Proper toxicological analysis shall be done to ensure there is no hazardous material. Copy of toxicological analysis shall be submitted to Ministry's Regional Office at Bhubaneswar.	Drilling is temporarily suspended from April' 2017 till date.
xiv.	Water base drilling mud or synthetic based mud shall be used	Water based mud was used in the drilling.
xv.	The company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during operation.	All the precautionary measures is implemented to prevent fire hazards & Oil Spills. Elevated flaring is carried out. No ground flaring is done.

S. No	Condition	Compliance Status
xvi.	The company shall take necessary measures to prevent fire hazards and soil remediation as needed. The stacks of adequate height shall be provided to flare the gas, if required, to minimize gaseous emissions and heat load during flaring	Gas detectors & sensors available to prevent the fire hazards. Flare stack height of 30m is maintained at Gas Gathering Stations (GGS) and 50 m at Main Compressor Stations (MCS).
xvii.	To prevent underground coal fire, preventive measures shall be taken for ingress of ambient air during withdrawal inside the coal seams by adopting technologies including vacuum suction. Gas detectors for the detection of CH4 and H2S shall be provided.	Gas detectors for Methane, H2S and other gases are provided at the Gas Gathering Station and production sites. There is not any ingress of ambient air since the well is arrested at the head with drive head and progressive cavity pump.
xviii.	The design, material of construction, assembly, inspection, testing and safety aspects of operations 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 are installed as per the applicable practise and standards.
xix.	The company shall develop a contingency plan for H2S release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided with personal H2S detectors in locations of high risk of exposure along with self-containing breathing apparatus.	H_2S is not present as per the analysis of gas tapped from the test wells & pilot wells. However all the necessary safety measures are taken as per the Emergency Response Plan. Gas detectors are kept at the Gas Gathering Station and production sites to check any presence of gases which are beyond threshold values. All workers are provided with standard PPEs according to job requirement.
xx.	Adequate well protection system shall be provided like Blow Out Preventor (BOP) or diverter systems as required based on the geological formation of the blocks.	CBM well hydrostatic pressures are found to be less than 2psi. However considering the hydrostatic pressures and sensitivity of well, Blow Out Preventers or diverter systems are provided at the well head during drilling along with other well control measures such as proper pre-well planning and drilling fluid

S. No	Condition	Compliance Status
		logging to maintain the hydrostatic pressure.
xxi.	The top soil removed shall be stacked separately for reuse during restoration process.	The top soil being spread out in designated area for green belt development at project area.
xxii.	Emergency Response Plan shall be based on the guidelines prepared by OISD, DGMS and Govt. of India. Recommendations mentioned in the Risk Assessment & Consequence Analysis and Disaster Management Plan shall be strictly followed.	Emergency Response plan has been prepared as per the OISD & DGMS guidelines and sent for the DGMS approval and has been certified. The certificate has already attached with previous compliance report.
xxiii.	Project proponent shall comply with the environment protection measures and safeguards recommended in the EIA/EMP/risk analysis report/disaster management plan	Environmental protection measures and safeguards recommended in EMP/risk analysis report/disaster management plan are implemented.
xxiv.	The company shall take measures after completion of drilling process by well plugging and secured enclosures, decommissioning of rig upon abandonment of the well and drilling site shall be restored in original condition. In the event that no economic quantity of hydrocarbon is found a full abandonment shall be implemented for the drilling site in accordance with the applicable Indian Petroleum Regulations.	Wells will be abandoned and restored to natural position if found not suitable for hydrocarbon extraction. Wells will be fully abandoned in compliance with Indian Petroleum Regulations in the event of no economic quality of hydrocarbon is found.
xxv.	Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.	Occupational health surveillance of the workers has been carried out as per the Mines Act 1952. Periodical Occupational Health Surveillance records are being maintained.
xxvi.	Company shall adopt Corporate Environment Policy as per the Ministry's O.M.No.J-11013/41/2006-IA.II(I) dated 26th April, 2011 and implemented.	Company has framed Corporate Environment Policy which is duly implemented.
xxvii.	All the commitments made to the public during the Public Hearing/Public Consultation	Commitments given in the public hearing are strictly implemented. A separate budget has already been

S. No	Condition	Compliance Status
	meeting held on 24th May, 2012 shall be satisfactorily implemented and a separate budget for implementing the same shall be allocated and information submitted to the Ministry's Regional Office at Bhubaneswar.	provided for the FY 2021-2022 as part of pervious phases of the project for the welfare of surrounding villages in thrust areas like Health, Education & Empowerment etc. under CSR budget.
xxviii.	At least 5% of the total cost of the project should be earmarked towards the enterprise social commitment and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program shall be ensured after the completion of the project.	The expenditure towards enterprise social commitment showing as **Annexure V.** The budgetary allocation has been made for the FY 2022-23 for the CBM Project which is about INR 52 Lacs. The fund is being utilized judicially for the development of villages and people in the vicinity of the project area.
B	**General Conditions**	
i.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.	We comply with the stipulations made by the State Pollution Control Board (SPCB), State Government and all other statutory bodies.
ii.	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	We restrict to the project configuration that is described in the Environmental Clearance. For any further expansion and modification in project configuration, we would approach MoEF for the prior Environmental Clearance.
iii.	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever	We comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals will be obtained from appropriate authority.

S. No	Condition	Compliance Status
	applicable.	
iv.	The project authorities must strictly comply with the rules and regulation with regarding to handling and disposal of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 wherever applicable. Authorization from the State Pollution Control Board must be obtained for collections/treatment/storage/ disposal of hazardous wastes.	We comply with the rules and regulations with regard to handling and disposal of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. Authorization from the West Bengal Pollution Control Board has been obtained with regard to storage, treatment and disposal of hazardous waste, valid till 31st October, 2023.
v.	The overall noise levels in and around the plant area shall be kept within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75dBA (daytime) and 70 dBA (night time)	Acoustic hoods, silencers, enclosures are provided to high noise generating equipment. Noise levels will be restricted to the standards prescribed under EPA Rules, 1989. Personal Protective Equipment (earmuffs and plugs) have been provided to the working personnel.
vi.	A separate Environmental Management Cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	A dedicated environment management cell is currently in operation and functioning for implementation of environment management plan at large. The sampling and analysis of environmental parameters is been carried out by Scientific Research Laboratory (MoEF recognized).
vii.	As proposed, Rs.2.80 Crore earmarked for environment pollution control measures shall be used to implement the conditions	Rs.2.80 Crore earmarked for environment pollution control measures has been judicially utilised. The former expenditure towards environmental protection has been submitted with previous compliance reports of EC Phase II (Environment Clearance no. F. No. J-11011/351/2009- IA II (I) dated 23.09.2011) & EC Phase III (F.No.J-11011/491/2011-IA II (I), dated 26th February, 2013) The environmental protection expenditure from Oct' 21 to Mar' 21 is attached with this report as **Annexure VI**.

S. No	Condition	Compliance Status
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.	Support is being extended to the Regional office of this Ministry/Central Pollution Control Board/State Pollution Control Board for monitoring the stipulated conditions. Six Monthly Compliance Reports will be regularly be submitted to MoEF Regional Office.
ix.	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/ Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	A copy of Clearance letter has been uploaded on the company's website. The notice of obtaining environmental clearance has been published two new papers. Also a copy of clearance has been circulated to major administrative offices.
x.	The project proponent shall upload the status of compliance for the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEF, the respective Zonal Office of CPCB and the WBPCB. The criteria pollutant levels namely; PM10, PM2.5, SO2, NOx, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Compliance reports have been uploaded on company's website (www.essar.com) & sent to Regional Office of the MOEF, the respective Zonal Office of CPCB and the WBPCB. The Ambient air quality monitoring is already being carried out in the nearest settlements as per revised NAAQM criteria. The criteria pollutant levels namely; SPM, RSPM, S02, NOx, HC (Methane & Non-methane), VOCs are being monitored periodically and displayed at the main entrance of the existing Gas Gathering Stations.
xi.	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF, the respective Zonal Office of CPCB and the WBPCB. The	We are submitting the six monthly compliance reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (via e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the WBPCB.

S. No	Condition	Compliance Status
	Regional Office of this Ministry/CPCB/WBPCB shall monitor the stipulated conditions.	
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 each financial year ending 31st March in Form-V as is being regularly submitted to West Bengal Pollution Control Board and the same is been uploaded on the company's website along with the status of compliance report. The Copy of the latest Form V (FY 2020-21) already submitted with earlier compliance report.
xiii.	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the WBPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional Office.	The advertisement regarding the grant of environmental clearance has been published in two newspapers viz The Statesman (English) and Anand Bazaar Pathrika (Bengali/Vernacular) on 28th February, 2013. A copy of the advertisement is already submitted with Half yearly compliance of Oct 12 – Mar 13 period
xiv.	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	We are currently working with financial institutions regarding funding for the phase-III project activities. The date of financial closure will be informed to the MoEF (Eastern Regional Office) as and when achieved. The approval from concerned authorities and the commencement of the activities will also be informed to your kind office.

ANNEXURE I

Name of Location			MCS						GGS- 01					
Month			Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m^3	60	30.22	35.92	39.66	41.57	40.81	45.06	26.34	35.71	38.79	38.72	37.67	39.04
PM 10	µg/m^3	100	84.74	89.95	88.91	82.08	82.80	89.52	79.85	80.48	85.64	79.44	80.87	80.35
Nitrogen Dioxide	µg/m^3	80	35.04	41.98	38.65	42.91	43.82	42.70	32.94	43.08	39.89	43.05	43.35	43.72
Sulphur Dioxide	µg/m^3	80	5.03	6.00	5.78	6.09	6.23	6.01	5.33	5.97	5.40	5.97	6.03	6.13
Carbon Monoxide	mg/m^3	2	0.470	0.484	0.478	0.484	0.498	0.568	0.456	0.466	0.482	0.498	0.488	0.588
Hydrocarbon	mg/m^3	NIL	1.71	1.78	1.92	2.02	1.77	1.91	1.62	1.64	1.82	1.92	1.67	1.82
Mercury	mg/m^3		-	-	-	-	< 0.002	-	-	-	-	-	< 0.002	-
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	µg/m^3		-	-	-	-	3.07	-	-	-	-	-	2.89	-
Benzo(a)Pyrene	ng/m^3	1	-	-	-	-	0.37	-	-	-	-	-	0.36	-
Ammonia	µg/m^3	400	-	-	-	-	34.06	-	-	-	-	-	30.55	-
Ozone	µg/m^3	180	-	-	-	-	42.35	-	-	-	-	-	40.51	-
Lead	µg/m^3	1	-	-	-	-	0.13	-	-	-	-	-	0.13	-
Nickel	ng/m^3	20	-	-	-	-	15.33	-	-	-	-	-	14.88	-
Arsenic	ng/m^3	6	-	-	-	-	1.78	-	-	-	-	-	1.75	-
Benzene	µg/m^3	5	-	-	-	-	1.73	-	-	-	-	-	1.64	-

ANNEXURE I

Name of Location			GGS- 02						PARULIA					
Month			Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m^3	60	24.16	38.08	37.98	41.90	43.31	37.04	27.78	37.85	32.50	37.12	39.88	45.34
PM 10	µg/m^3	100	71.68	86.46	83.20	84.48	87.25	78.88	75.46	82.34	71.19	79.96	81.20	91.90
Nitrogen Dioxide	µg/m^3	80	36.03	42.85	38.15	42.65	45.04	41.63	33.33	44.34	35.43	41.93	43.69	41.74
Sulphur Dioxide	µg/m^3	80	5.89	5.97	5.93	5.94	6.17	5.84	5.21	5.95	5.66	6.00	6.08	5.98
Carbon Monoxide	mg/m^3	2	0.456	0.468	0.472	0.468	0.504	0.526	0.408	0.464	0.464	0.508	0.488	0.574
Hydrocarbon	mg/m^3	NIL	1.45	1.86	1.84	2.02	1.95	1.68	1.56	1.92	1.68	2.08	1.72	1.95
Mercury	mg/m^3		-	-	-	-	< 0.002	-	-	-	-	-	< 0.002	-
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	µg/m^3		-	-	-	-	3.29	-	-	-	-	-	2.97	-
Benzo(a)Pyrene	ng/m^3	1	-	-	-	-	0.43	-	-	-	-	-	0.39	-
Ammonia	µg/m^3	400	-	-	-	-	35.66	-	-	-	-	-	32.39	-
Ozone	µg/m^3	180	-	-	-	-	45.04	-	-	-	-	-	43.56	-
Lead	µg/m^3	1	-	-	-	-	0.18	-	-	-	-	-	0.16	-
Nickel	ng/m^3	20	-	-	-	-	17.32	-	-	-	-	-	15.89	-
Arsenic	ng/m^3	6	-	-	-	-	1.93	-	-	-	-	-	1.71	-
Benzene	µg/m^3	5	-	-	-	-	1.89	-	-	-	-	-	1.69	-

ANNEXURE I

Name of Location			SARASWATIGUNJ						PRATPPUR					
Month														
Parameter	UoM	NAAQS LIMIT	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22
PM 2.5	µg/m^3	60	31.82	35.63	43.01	34.62	37.04	35.08	28.01	35.34	34.83	38.63	41.96	31.97
PM 10	µg/m^3	100	89.62	82.49	91.86	72.33	79.03	76.09	83.46	79.40	81.14	84.86	82.90	74.39
Nitrogen Dioxide	µg/m^3	80	35.16	42.08	41.17	42.04	43.44	43.23	32.85	41.89	39.52	42.53	42.81	41.22
Sulphur Dioxide	µg/m^3	80	5.61	6.01	5.69	5.88	6.24	5.97	5.17	5.89	5.13	6.03	6.30	5.99
Carbon Monoxide	mg/m^3	2	0.462	0.494	0.476	0.506	0.506	0.454	0.462	0.498	0.482	0.496	0.512	0.534
Hydrocarbon	mg/m^3	NIL	1.74	1.92	1.88	2.04	1.63	1.65	1.69	1.64	1.82	1.88	1.79	1.63
Mercury	mg/m^3		-	-	-	-	< 0.002	-	-	-	-	-	< 0.002	-
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	µg/m^3		-	-	-	-	2.72	-	-	-	-	-	3.16	-
Benzo(a)Pyrene	ng/m^3	1	-	-	-	-	0.32	-	-	-	-	-	0.44	-
Ammonia	µg/m^3	400	-	-	-	-	28.42	-	-	-	-	-	33.76	-
Ozone	µg/m^3	180	-	-	-	-	39.68	-	-	-	-	-	42.77	-
Lead	µg/m^3	1	-	-	-	-	0.12	-	-	-	-	-	0.14	-
Nickel	ng/m^3	20	-	-	-	-	13.81	-	-	-	-	-	15.88	-
Arsenic	ng/m^3	6	-	-	-	-	1.64	-	-	-	-	-	1.73	-
Benzene	µg/m^3	5	-	-	-	-	1.58	-	-	-	-	-	1.76	-

ANNEXURE I

Name of Location			BANSIA						JAMGORA					
Month														
Parameter	UoM	NAAQS LIMIT	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22
PM 2.5	µg/m^3	60	26.83	34.45	38.44	43.63	49.74	32.45	26.42	36.76	36.17	41.14	42.06	32.93
PM 10	µg/m^3	100	74.28	82.91	84.98	86.02	90.59	68.79	74.58	80.68	77.48	80.23	88.50	68.04
Nitrogen Dioxide	µg/m^3	80	35.13	41.87	38.15	41.38	43.84	41.83	33.50	41.22	37.09	43.03	44.04	42.97
Sulphur Dioxide	µg/m^3	80	5.32	5.76	5.33	5.91	5.91	5.86	5.03	5.78	6.15	6.14	6.22	5.88
Carbon Monoxide	mg/m^3	2	0.418	0.468	0.456	0.524	0.492	0.442	0.474	0.488	0.470	0.502	0.502	0.423
Hydrocarbon	mg/m^3	NIL	1.38	1.78	1.72	1.84	2.07	1.52	1.52	1.84	1.78	1.98	1.99	1.59
Mercury	mg/m^3		-	-	-	-	< 0.002	-	-	-	-	-	< 0.002	-
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	µg/m^3		-	-	-	-	3.38	-	-	-	-	-	3.23	-
Benzo(a)Pyrene	ng/m^3	1	-	-	-	-	0.53	-	-	-	-	-	0.46	-
Ammonia	µg/m^3	400	-	-	-	-	35.24	-	-	-	-	-	32.21	-
Ozone	µg/m^3	180	-	-	-	-	47.05	-	-	-	-	-	44.81	-
Lead	µg/m^3	1	-	-	-	-	0.22	-	-	-	-	-	0.19	-
Nickel	ng/m^3	20	-	-	-	-	19.54	-	-	-	-	-	17.96	-
Arsenic	ng/m^3	6	-	-	-	-	2.01	-	-	-	-	-	1.94	-
Benzene	µg/m^3	5	-	-	-	-	2.03	-	-	-	-	-	1.93	-

ANNEXURE I

Name of Location			KULDIHA						JATGORIA					
Month														
Parameter	UoM	NAAQS LIMIT	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22
PM 2.5	µg/m^3	60	29.25	37.05	38.98	38.93	47.43	33.82	27.35	36.37	31.88	37.95	37.20	41.83
PM 10	µg/m^3	100	78.44	87.48	89.80	84.36	89.36	70.87	80.21	78.65	73.66	76.71	81.88	82.62
Nitrogen Dioxide	µg/m^3	80	35.47	41.55	37.43	42.50	43.27	41.38	34.29	42.43	36.39	41.92	43.64	42.23
Sulphur Dioxide	µg/m^3	80	5.76	6.07	5.93	5.88	6.14	5.77	5.72	5.86	5.85	5.86	6.15	6.11
Carbon Monoxide	mg/m^3	2	0.452	0.478	0.468	0.524	0.498	0.462	0.466	0.484	0.466	0.518	0.502	0.518
Hydrocarbon	mg/m^3	NIL	1.58	1.84	1.76	1.88	1.88	1.54	1.63	1.76	1.72	1.92	1.78	1.86
Mercury	mg/m^3		-	-	-	-	< 0.002	-	-	-	-	-	< 0.002	-
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	µg/m^3		-	-	-	-	3.34	-	-	-	-	-	3.05	-
Benzo(a)Pyrene	ng/m^3	1	-	-	-	-	0.48	-	-	-	-	-	0.39	-
Ammonia	µg/m^3	400	-	-	-	-	33.27	-	-	-	-	-	31.78	-
Ozone	µg/m^3	180	-	-	-	-	45.23	-	-	-	-	-	42.05	-
Lead	µg/m^3	1	-	-	-	-	0.21	-	-	-	-	-	0.15	-
Nickel	ng/m^3	20	-	-	-	-	18.02	-	-	-	-	-	14.81	-
Arsenic	ng/m^3	6	-	-	-	-	1.96	-	-	-	-	-	1.88	-
Benzene	µg/m^3	5	-	-	-	-	1.98	-	-	-	-	-	1.72	-

ANNEXURE I

Name of Location			Gopalpur Warehouse						KANTABERIA					
Month														
Parameter	UoM	NAAQS LIMIT	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22
PM 2.5	µg/m^3	60	32.51	39.89	36.06	38.86	41.59	43.18	29.80	35.65	39.17	40.69	45.12	43.16
PM 10	µg/m^3	100	90.24	91.29	83.64	74.93	81.65	87.37	79.65	81.14	85.01	86.98	90.81	86.77
Nitrogen Dioxide	µg/m^3	80	35.19	41.22	38.20	43.40	44.60	42.82	33.05	42.75	38.87	42.59	43.31	43.35
Sulphur Dioxide	µg/m^3	80	5.47	6.10	5.93	6.06	6.12	5.85	5.69	6.09	5.02	5.75	6.09	5.99
Carbon Monoxide	mg/m^3	2	0.458	0.488	0.470	0.512	0.498	0.524	0.452	0.478	0.480	0.522	0.498	0.562
Hydrocarbon	mg/m^3	NIL	1.79	1.88	1.94	2.02	1.71	1.75	1.61	1.77	1.84	1.96	2.12	1.88
Mercury	mg/m^3		-	-	-	-	< 0.002	-	-	-	-	-	< 0.002	-
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	µg/m^3		-	-	-	-	2.78	-	-	-	-	-	3.48	-
Benzo(a)Pyrene	ng/m^3	1	-	-	-	-	0.35	-	-	-	-	-	0.51	-
Ammonia	µg/m^3	400	-	-	-	-	29.84	-	-	-	-	-	34.92	-
Ozone	µg/m^3	180	-	-	-	-	41.89	-	-	-	-	-	46.74	-
Lead	µg/m^3	1	-	-	-	-	0.14	-	-	-	-	-	0.23	-
Nickel	ng/m^3	20	-	-	-	-	14.17	-	-	-	-	-	18.87	-
Arsenic	ng/m^3	6	-	-	-	-	1.70	-	-	-	-	-	2.05	-
Benzene	µg/m^3	5	-	-	-	-	1.69	-	-	-	-	-	2.08	-

ANNEXURE I

Name of Location			NACHAN						SARENGA					
Month														
Parameter	UoM	NAAQS LIMIT	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22	Oct'21	Nov'21	Dec'21	Jan'22	Feb'22	Mar'22
PM 2.5	µg/m^3	60	25.56	35.56	32.72	40.76	43.42	39.21	28.61	39.79	39.78	37.29	42.04	33.79
PM 10	µg/m^3	100	74.93	79.62	70.96	82.52	83.71	73.50	81.65	88.54	86.23	81.75	81.74	74.60
Nitrogen Dioxide	µg/m^3	80	35.61	44.40	36.17	42.04	42.67	42.19	34.42	43.29	38.88	42.13	43.43	42.98
Sulphur Dioxide	µg/m^3	80	5.58	6.06	5.80	6.03	6.01	5.80	5.22	5.53	5.16	6.15	6.08	6.00
Carbon Monoxide	mg/m^3	2	0.450	0.474	0.462	0.512	0.502	0.538	0.438	0.458	0.482	0.496	0.502	0.534
Hydrocarbon	mg/m^3	NIL	1.48	1.90	1.70	1.94	1.81	1.57	1.66	192.00	1.88	1.96	1.75	1.61
Mercury	mg/m^3		-	-	-	-	< 0.002	-	-	-	-	-	< 0.002	-
Hydrocarbon as Non Methane	mg/m^3	NIL	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
VOC's	µg/m^3		-	-	-	-	3.21	-	-	-	-	-	3.02	-
Benzo(a)Pyrene	ng/m^3	1	-	-	-	-	0.41	-	-	-	-	-	0.34	-
Ammonia	µg/m^3	400	-	-	-	-	35.18	-	-	-	-	-	31.45	-
Ozone	µg/m^3	180	-	-	-	-	43.22	-	-	-	-	-	41.18	-
Lead	µg/m^3	1	-	-	-	-	0.15	-	-	-	-	-	0.12	-
Nickel	ng/m^3	20	-	-	-	-	16.17	-	-	-	-	-	16.78	-
Arsenic	ng/m^3	6	-	-	-	-	1.82	-	-	-	-	-	1.77	-
Benzene	µg/m^3	5	-	-	-	-	1.79	-	-	-	-	-	1.70	-

ANNEXURE II

Ambient Noise Monitoring Result				
LOCATION	DAY TIME		NIGHT TIME	
	Permissible Limit as per CPCB dB(A)	Noise Level dB(A)	Permissible Limit as per CPCB dB(A)	Noise Level dB(A)
Jatgoria Village	75	60.04	70	57.3
Saraswatigunj Village	75	58.45	70	56.33
Kantaberia Village	75	57.19	70	55.68
Jamgora Village	75	54.8	70	50.65
Kuldiha Village	75	64.13	70	63.7
Pratappur Village	75	59.24	70	42.71
Bansia Village	75	58.05	70	55.15
Parulia Village	75	55.32	70	50.03
Nachan Village	75	55.31	70	53.22
Sarenga Village	75	52.53	70	43.76
Akandara Village (GGS 2)	75	65.82	70	64.12
Khatgoria Village (GGS 1)	75	68.34	70	68.13
Gopalpur Warehouse	75	65.11	70	60.91
Malandighi (MCS)	75	66.15	70	62.34
Akandara Village (RO Plant)	75	65.89	70	63.89

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Compliance Period: Oct'21 -Mar'22)

ANNEXURE III

MONTH					Oct'21											
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDN-184 D4 (Gopalpur)	EDN-162-D5 (Bhalukonda)	EDI-038-D2 (Saraswatigunj)	EDI-032-D4 (Akandara)	EDD-052-D5 (Pratappur)	EDD-003-D6 (Bargoria)	EDD-401-D2 (Khatgoria)	EDD-406-D2 (Jamgora)	EDD-429-D2 (Jamgora)	EDD-403-D2 (Khatgoria)	EDG-074-D1 (Parulia)	EDD-405-D5 (Kalikapur)
1	pH		5.5 to 9.0	5.5-9.0	6.80	6.63	6.7	6.89	6.95	7.12	7.20	7.08	7.31	7.11	7.80	7.65
2	Temperature			40 deg	35.9°C	37.5°C	33.8°C	33.6°C	34.3°C	34.8°C	32.9°C	32.4°C	34.6°C	31.8°C	33.4°C	37.0°C
3	Total Suspended Solids	mg/l	100	100	2	7	64	17	<2	<2	3	<2	3	<2	2	<2
4	Total Dissolved Solids	mg/l	---	2100	940	4886	4924	5168	2146	1882	946	744	784	1036	1788	1294
5	Chloride	mg/l	---	600	335	1940	2106	2235	795	670	325	275	245	340	695	425
6	Total Hardness	mg/l	---	1000	42	991	262	107	34	23	11	27.00	31.00	15.00	27.00	31.00
7	Sulphate	mg/l	---	1000	5.90	7.00	8.6	6	4.50	3.90	5.8	5.0	4.2	4.0	5.1	3.8
8	Calcium	mg/l		100	9.0	257.0	65	25.00	8.0	5.0	3	6	8	3	6	8
9	Magnesium	mg/l	---	10	5.0	85.0	24	11.0	4	3	1	3.0	3.0	2.0	3.0	3.0
10	Dissolved Oxygen	mg/l		1.2	4.5	3.9	3.2	4.3	5.2	5.0	4.9	5.2	4.5	5.5	4.8	4.1
11	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2
12	COD	mg/l	250	100	<8	<8	9.0	<8	<8	<8	<8	<8	<8	<8	<8	<8
13	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14	Phenolic Compounds	mg/l	1	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
15	Sulphide	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
16	Fluoride	mg/l	2	1.5	0.95	2.6	3.15	2.91	1.08	0.85	0.68	0.53	0.45	1.15	1.6	0.98
17	Total Chromium	mg/l	2	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Zinc	mg/l	---	0.1	0.021	0.030	0.028	0.014	0.019	0.012	0.017	0.014	0.010	0.014	0.026	0.019
19	Copper	mg/l	---	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Nickel	mg/l		3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	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
22	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Bicarbonate	mg/l			275	866	958	1007	744	555	317	220	262	378	433	463
24	Sodium	mg/l	---		420	2130	2238	2380	905	810	415	307	360	470	730	590
25	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	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
27	Aluminium	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
28	Lithium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
29	Molybdenum	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
30	Palladium	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
31	Selenium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
32	Cadmium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
33	Cobalt	mg/l			---	---	---	---	---	---	---	---	---	---	---	---

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Compliance Period: Oct'21 -Mar'22)

ANNEXURE III

MONTH					Nov'21											
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDG-077 D1 (Kamalpur)	EDD-053-D1 (Nachan)	EDD-053-D2 (Nachan)	EDD-053-D3 (Nachan)	EDD-053-D4 (Nachan)	EDD-053-D5 (Nachan)	EDD-053-V1 (Nachan)	EDD-052-D4 (Pratappur)	EDD-026-D4 (Kantaberia)	EDE-024-D3 (Jambon)	EDD-018-D1 (Jatgoria)	EDH-044-D1 (Akandara)
1	pH		5.5 to 9.0	5.5-9.0	6.80	6.63	6.58	6.80	6.78	6.65	6.70	6.51	6.61	7.05	6.85	7.20
2	Temperature			40 deg	32.6°C	29.9°C	32.4°C	29.1°C	29.9°C	29.7°C	28.4°C	29.4°C	28.9°C	30.9°C	28.4°C	27.8°C
3	Total Suspended Solids	mg/l	100	100	4	2	5	<2	4	7	2	2	3	<2	2	<2
4	Total Dissolved Solids	mg/l	---	2100	1068	2274	2612	2240	1686	2516	3322	2716	1278	2196	1652	898
5	Chloride	mg/l	---	600	373	908	1078	839	641	1014	1281	1078	489.00	728.00	636	350
6	Total Hardness	mg/l	---	1000	26	23	26	23	26.00	26.00	36	36	63.0	30.0	23.00	40.00
7	Sulphate	mg/l	---	1000	4.70	6.20	5.9	4.60	7.0	8.2	4.9	5.70	4	6.3	5.2	3.5
8	Calcium	mg/l		100	5.0	5.0	5	5.0	5	5	8	8.0	15.0	7.0	5	9
9	Magnesium	mg/l	---	10	3.0	2.0	3	2	3.0	3.0	4	4	6.0	3.0	2.0	4.0
10	Dissolved Oxygen	mg/l		1.2	5.4	5.7	4.9	5.3	5.6	4.4	4	4.8	5.5	4.7	4.8	5.9
11	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
12	COD	mg/l	250	100	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
13	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14	Phenolic Compounds	mg/l	1	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
15	Sulphide	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
16	Fluoride	mg/l	2	1.5	2.2	3.15	1.08	1.85	0.9	1.40	3.05	2.45	0.85	1.65	1.83	0.68
17	Total Chromium	mg/l	2	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Zinc	mg/l	---	0.1	0.019	0.024	0.022	0.017	0.018	0.023	0.015	0.011	<0.01	0.024	0.020	0.016
19	Copper	mg/l	---	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Nickel	mg/l		3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	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
22	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Bicarbonate	mg/l			360	525	622	580	378	903	1202	781	384	622	527	249
24	Sodium	mg/l	---		465	1050	1175	750	780	990	1350	1195	560	810	720	405
25	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	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
27	Aluminium	mg/l	---		**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	**<0.01**	<0.01	<0.01	<0.01	<0.01	<0.01
28	Lithium	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
29	Molybdenum	mg/l	---		**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	<0.05	<0.05	<0.05	<0.05	<0.05
30	Palladium	mg/l	---		**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	<0.5	<0.5	<0.5	<0.5	<0.5
31	Selenium	mg/l			**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	**<0.005**	<0.005	<0.005	<0.005	<0.005	<0.005
32	Cadmium	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
33	Cobalt	mg/l			**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	<0.02	<0.02	<0.02	<0.02	<0.02

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Compliance Period: Oct'21 -Mar'22)

ANNEXURE III

MONTH					Nov'21					Dec'21						
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDH-044-D2 (Akandara)	EDH-044-D3 (Akandara)	EDH-044-D4 (Akandara)	EDN-103-D4 (Kuldiha)	EDN-179-D3 (Gopalpur)	EDC-072 V1 (Parulia)	EDC-411-D2 (Bangia)	EDC-409-D4 (Pratappur)	EDD-049-D4 (Pratappur)	EDD-017-D4 (Pratappur)	EDD-015-D1 (Bargoria)	EDD-023-D1 (Gopedanga)
1	pH		5.5 to 9.0	5.5-9.0	6.90	7.10	6.75	7.95	6.92	6.71	6.65	7.2	7.08	6.86	6.75	6.80
2	Temperature			40 deg	27.8°C	27.8°C	27.8°C	27.8°C	27.8°C	28.3°C	28.5°C	28.9°C	29.2°C	28.7°C	28.4°C	30.1°C
3	Total Suspended Solids	mg/l	100	100	<2	21	<2	40	5	6.0	21.0	15.0	22.0	5.0	30.0	3.0
4	Total Dissolved Solids	mg/l	---	2100	5460	4764	3626	996	2862	2548.0	1468.0	2278.0	2496.0	2352.0	2974.0	1762.0
5	Chloride	mg/l	---	600	2074	1959	1341	332	1111	1129.0	493.0	968.0	1046.0	972.0	1272.0	714.0
6	Total Hardness	mg/l	---	1000	73.00	103.00	66.00	458.00	113.00	63.1	39.8	49.8	70.0	83.0	113.0	40.0
7	Sulphate	mg/l	---	1000	9.0	7.6	8.6	4.8	5.3	6.1	4.7	5.3	5.9	4.9	7.0	4.2
8	Calcium	mg/l		100	19	27	16	121	29	16.0	11.0	12.0	17.0	21.0	28.0	9.0
9	Magnesium	mg/l	---	10	6.0	9.0	6.0	38.0	10.0	6.0	3.0	5.0	6.0	7.0	11.0	4.0
10	Dissolved Oxygen	mg/l		1.2	3.9	4.3	4.1	5.5	3.7	5.9	4.8	5.1	4.8	5.5	4.1	6.1
11	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
12	COD	mg/l	250	100	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
13	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14	Phenolic Compounds	mg/l	1	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
15	Sulphide	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
16	Fluoride	mg/l	2	1.5	3.05	2.6	2.25	0.65	1.75	1.05	0.95	1.2	1.35	1.6	2.10	0.75
17	Total Chromium	mg/l	2	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Zinc	mg/l	---	0.1	0.028	0.024	0.022	0.013	0.019	0.019	0.015	0.018	0.021	0.027	0.020	0.012
19	Copper	mg/l	---	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Nickel	mg/l		3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	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
22	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Bicarbonate	mg/l			1495	1135	1324	238	708	390	451	360	490	482	622	372
24	Sodium	mg/l	---		2160	2095	1515	370	1290	1185	560	1080	1165	1090	1340	825
25	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	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
27	Aluminium	mg/l	---		<0.01	<0.01	<0.01	<0.01	<0.01	---	---	---	---	---	---	---
28	Lithium	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1	---	---	---	---	---	---	---
29	Molybdenum	mg/l	---		<0.05	<0.05	<0.05	<0.05	<0.05	---	---	---	---	---	---	---
30	Palladium	mg/l	---		<0.5	<0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---
31	Selenium	mg/l			<0.005	<0.005	<0.005	<0.005	<0.005	---	---	---	---	---	---	---
32	Cadmium	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1	---	---	---	---	---	---	---
33	Cobalt	mg/l			<0.02	<0.02	<0.02	<0.02	<0.02	---	---	---	---	---	---	---

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Compliance Period: Oct'21 -Mar'22)

ANNEXURE III

MONTH					Dec'21				Jan'22							
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDI-032-D1 (Akandara)	EDI-042-D4 (Saraswatigunj)	EDI-040-V1 (Saraswatigunj)	EDI-042-D4 (Saraswatigunj)	EDC-184 D2 (Monerkonda)	EDN-142-D7 (Bhalukonda)	EDI-041-D2 (Ghatakdanga)	EDI-018-D3 (Swaraswatigunj)	EDH-044-D1 (Akandara)	EDD-022-D3 (Gopedanga)	EDD-406-D3 (Jamgora)	EDD-401-D1 (Khatgoria)
1	pH		5.5 to 9.0	5.5-9.0	6.72	6.60	6.58	6.85	6.78	6.90	6.65	6.81	6.89	7.06	7.15	6.95
2	Temperature			40 deg	29.1°C	26.2°C	26.8°C	27.9°C	30.4°C	32.4°C	29.7°C	30.6°C	29.2°C	29.3°C	29.9°C	29.3°C
3	Total Suspended Solids	mg/l	100	100	26.0	8.0	40.0	47.0	2.0	88.0	9.0	3.0	4.0	11.0	<2	<2
4	Total Dissolved Solids	mg/l	---	2100	4892.0	7184.0	3788.0	7164.0	1092.0	6558.0	6102.0	4360.0	1186.0	1540.0	908.0	1206.0
5	Chloride	mg/l	---	600	2161.0	3161.0	1525.0	2973.0	373.0	2839.0	2682.0	1876.0	410.0	594.0	336.0	429.0
6	Total Hardness	mg/l	---	1000	110.0	382.0	252.0	365.0	59.0	725.0	283.0	77.0	70.0	44.0	29.0	33.0
7	Sulphate	mg/l	---	1000	6.6	7.8	5.9	8.0	5.2	7.2	8.1	6.0	3.8	4.8	3.0	4.9
8	Calcium	mg/l		100	28.0	99.0	63.0	93.0	13.0	196.0	69.0	18.0	16.0	10.0	6.0	7.0
9	Magnesium	mg/l	---	10	10.0	33.0	23.0	32.0	6.0	57.0	27.0	8.0	7.0	4.0	3.0	3.0
10	Dissolved Oxygen	mg/l		1.2	4.2	5.9	4.5	4.0	4.2	3.0	3.3	4.0	5.3	4.8	5.5	5.0
11	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	2	<2	3	2	<2	<2	<2	<2	<2
12	COD	mg/l	250	100	<8	<8	<8	8.0	<8	10.0	9.0	<8	<8	<8	<8	<8
13	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14	Phenolic Compounds	mg/l	1	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
15	Sulphide	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
16	Fluoride	mg/l	2	1.5	1.5	2.55	1.55	2.8	0.68	1.9	2.15	1.15	0.65	0.91	0.35	0.68
17	Total Chromium	mg/l	2	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Zinc	mg/l	---	0.1	0.024	0.033	0.019	0.028	0.014	0.020	0.017	0.029	0.018	0.014	0.012	0.018
19	Copper	mg/l	---	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Nickel	mg/l		3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	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
22	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Bicarbonate	mg/l			769	1061	891	1482	440	915	994	848	433	501	256	384
24	Sodium	mg/l	---		2295	3345	1703	3310	462	3010	2811	2015	520	665	410	540
25	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	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
27	Aluminium	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
28	Lithium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
29	Molybdenum	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
30	Palladium	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
31	Selenium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
32	Cadmium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
33	Cobalt	mg/l			---	---	---	---	---	---	---	---	---	---	---	---

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Compliance Period: Oct'21 -Mar'22)

ANNEXURE III

MONTH					Jan'22				Feb'22							
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDD-405-D5 (Kalikapur)	EDD-407-D1 (Jamgora)	EDG-074-V1 (Parulia)	EDG-077-D5 (Kamalpur)	EDN-184 D4 (Monerkonda)	EDN-162-D5 (Bhalukonda)	EDN-162-D6 (Bhalukonda)	EDD-022-D1 (Gopedanga)	EDD-003-D2 (Bargoria)	EDD-401-D2 (Khatgoria)	EDD-403-D2 (Khatgoria)	EDD-406-D2 (Jamgoria)
1	pH		5.5 to 9.0	5.5-9.0	7.10	7.18	7.30	6.92	7.45	6.90	6.81	6.89	6.97	7.20	6.98	6.75
2	Temperature			40 deg	30.8°C	32.6°C	29.6°C	28.4°C	30.5°C	33.6°C	34.3°C	34.3°C	35.3°C	34.3°C	34.2°C	34.6°C
3	Total Suspended Solids	mg/l	100	100	<2	3.0	10.0	<2	<2	18.0	58.0	4.0	3.0	3.0	<2	<2
4	Total Dissolved Solids	mg/l	---	2100	1388.0	1172.0	1962.0	2418.0	956.0	7388.0	5096.0	1502.0	2176.0	1064.0	1102.0	678.0
5	Chloride	mg/l	---	600	535.0	452.0	783.0	926.0	359.0	2889.0	1976.0	563.0	869.0	417.0	390.0	239.0
6	Total Hardness	mg/l	---	1000	37.0	48.0	37.0	40.0	45.0	1081.0	718.0	24.0	41.0	24.0	24.0	24.0
7	Sulphate	mg/l	---	1000	5.8	4.3	6.1	5.4	4.0	8.2	7.0	5.0	6.3	4.2	4.0	<2.5
8	Calcium	mg/l		100	9.0	10.0	9.0	9.0	10.0	284.0	186.0	5.0	10.0	5.0	5.0	5.0
9	Magnesium	mg/l	---	10	3.0	5.0	3.0	4.0	5.0	90.0	61.0	3.0	4.0	3.0	3.0	3.0
10	Dissolved Oxygen	mg/l		1.2	4.9	4.9	4.0	3.7	5.7	4.5	3.8	5.3	4.1	5.9	5.8	6.0
11	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	2	3	<2	<2	<2	<2	<2
12	COD	mg/l	250	100	<8	<8	<8	<8	<8	8.0	14.0	<8	<8	<8	<8	<8
13	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14	Phenolic Compounds	mg/l	1	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
15	Sulphide	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
16	Fluoride	mg/l	2	1.5	0.8	0.78	0.62	1.3	0.6	2.4	1.85	0.54	0.95	0.43	0.86	0.43
17	Total Chromium	mg/l	2	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Zinc	mg/l	---	0.1	0.022	0.015	0.025	0.031	0.012	0.024	0.020	0.016	0.030	0.019	0.017	0.010
19	Copper	mg/l	---	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Nickel	mg/l		3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	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
22	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Bicarbonate	mg/l			445	368	567	775	226	1781	1171	397	503	256	348	207
24	Sodium	mg/l	---		590	498	860	1085	425	3260	2245	715	940	495	455	310
25	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	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
27	Aluminium	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
28	Lithium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
29	Molybdenum	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
30	Palladium	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
31	Selenium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
32	Cadmium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
33	Cobalt	mg/l			---	---	---	---	---	---	---	---	---	---	---	---

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Compliance Period: Oct'21 -Mar'22)

ANNEXURE III

MONTH					Feb'22				Mar'22							
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDC-411-D1 (Bansia)	EDG-074-D3 (Parulia)	EDG-075-D1 (Parulia)	EDG-075-D7 (Parulia)	EDN-184 D2 (Monerkonda)	EDI-115-V1 (Swaraswatigunj)	EDI-38-D2 (Swaraswatigunj)	EDD-008-V1 (Jambon)	EDD-008-D2 (Jambon)	EDD-404-D2 (Kalikapur)	EDD-017-D6 (Pratappur)	EDD-049-D4 (Pratappur)
1	pH		5.5 to 9.0	5.5-9.0	7.05	7.05	7.25	6.85	6.90	6.65	7.05	6.75	7.10	6.50	6.78	7.11
2	Temperature			40 deg	35.2°C	33.9°C	34.4°C	35.0°C	37.3°C	36.3°C	37.3°C	38.9°C	38.1°C	38.5°C	38.5°C	38.2°C
3	Total Suspended Solids	mg/l	100	100	2.0	<2	<2	<2	<2	5	11	22	7	74	23	7
4	Total Dissolved Solids	mg/l	---	2100	1312.0	2562.0	1084.0	1876.0	1068	1598	4852	2836	4682	1846	3596	2330
5	Chloride	mg/l	---	600	505.0	1086.0	368.0	736.0	430	651	2016	1157	1967	727	1480	962
6	Total Hardness	mg/l	---	1000	33.0	33.0	49.0	53.0	42	31	115	129	70	52	167	59
7	Sulphate	mg/l	---	1000	4.7	6.8	3.9	5.6	5.00	6.30	7.7	5.30	6.2	4.2	5.9	4.70
8	Calcium	mg/l		100	6.0	6.0	11.0	11.0	10.0	7.0	29	33.0	17	12	45	14.0
9	Magnesium	mg/l	---	10	4.0	4.0	5.0	6.0	4	3	10	11	6.0	5.0	13	6
10	Dissolved Oxygen	mg/l		1.2	4.8	6.0	6.3	4.7	5.9	4.2	3.8	4.9	4.0	5.4	4.7	5.1
11	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
12	COD	mg/l	250	100	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
13	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14	Phenolic Compounds	mg/l	1	1.2	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
15	Sulphide	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
16	Fluoride	mg/l	2	1.5	0.92	1.25	1.09	2.33	1.9	2.25	2.8	1.86	2.2	1.35	2.65	1.3
17	Total Chromium	mg/l	2	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Zinc	mg/l	---	0.1	0.023	0.023	0.018	0.014	0.011	0.019	0.022	0.015	0.012	0.019	0.023	0.018
19	Copper	mg/l	---	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Nickel	mg/l		3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	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
22	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Bicarbonate	mg/l			403	622	372	519	311	384	1196	759	1238	598	1019	641
24	Sodium	mg/l	---		560	1140	485	835	470	725	2180	1240	2015	810	1530	1025
25	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
26	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
27	Aluminium	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
28	Lithium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
29	Molybdenum	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
30	Palladium	mg/l	---		---	---	---	---	---	---	---	---	---	---	---	---
31	Selenium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
32	Cadmium	mg/l			---	---	---	---	---	---	---	---	---	---	---	---
33	Cobalt	mg/l			---	---	---	---	---	---	---	---	---	---	---	---

Produced Water Analysis Report of CBM Raniganj Project of Essar Oil and Gas Exploration and Production Limited
(Compliance Period: Oct'21 -Mar'22)

ANNEXURE III

MONTH					Mar'22				
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDG-075-V1 (Parulia)	EDD-053-D5 (Nachan)	EDD-052-D5 (Nachan)	EDD-049-D2 (Pratappur)	EDG-077-D1 (Kamalpur)
1	pH		5.5 to 9.0	5.5-9.0	6.89	7.25	6.97	7.30	6.86
2	Temperature			40 deg	39.5°C	37.5°C	39.1°C	34.5°C	36.2°C
3	Total Suspended Solids	mg/l	100	100	<2	<2	<2	12	4
4	Total Dissolved Solids	mg/l	---	2100	1824	3024	2560	3024	856
5	Chloride	mg/l	---	600	740.00	1245.00	1024	1161	315
6	Total Hardness	mg/l	---	1000	49	45	52	49	38
7	Sulphate	mg/l	---	1000	3.6	6.4	4.3	5.7	4.0
8	Calcium	mg/l		100	11.0	10.0	12	11	8
9	Magnesium	mg/l	---	10	5	5	5	5	4
10	Dissolved Oxygen	mg/l		1.2	5.9	4.3	5.5	3.8	4.6
11	BOD, 3 Days at 27ºC	mg/l	30	30	<2	<2	<2	<2	<2
12	COD	mg/l	250	100	<8	<8	<8	<8	<8
13	Oil & Grease	mg/l	10	10	<5.0	<5.0	<5.0	<5.0	<5.0
14	Phenolic Compounds	mg/l	1	1.2	<0.002	<0.002	<0.002	<0.002	<0.002
15	Sulphide	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
16	Fluoride	mg/l	2	1.5	0.95	1.15	1.9	2.15	0.75
17	Total Chromium	mg/l	2	0.1	<0.05	<0.05	<0.05	<0.05	<0.05
18	Zinc	mg/l	---	0.1	0.022	0.014	0.018	0.017	0.011
19	Copper	mg/l	---	0.2	<0.05	<0.05	<0.05	<0.05	<0.05
20	Nickel	mg/l		3	<0.05	<0.05	<0.05	<0.05	<0.05
21	Lead	mg/l		0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22	Mercury	mg/l	0.01	0.01	<0.001	<0.001	<0.001	<0.001	<0.001
23	Bicarbonate	mg/l			525	891	744	1074	256
24	Sodium	mg/l	---		795	1310	1080	1285	390
25	Cyanide	mg/l	0.2	0.2	<0.02	<0.02	<0.02	<0.02	<0.02
26	Hexavalent Chromium	mg/l	0.1		<0.01	<0.01	<0.01	<0.01	<0.01
27	Aluminium	mg/l	---		---	---	---	---	---
28	Lithium	mg/l			---	---	---	---	---
29	Molybdenum	mg/l	---		---	---	---	---	---
30	Palladium	mg/l	---		---	---	---	---	---
31	Selenium	mg/l			---	---	---	---	---
32	Cadmium	mg/l			---	---	---	---	---
33	Cobalt	mg/l			---	---	---	---	---

Ground Water Level report of surrounding areas of CBM Ranigan project by EOGEPL
Compliance Period: Oct'21 to Mar'22

ANNEXURE IV

S. No.	Location	Latitude	Longitude	Parapet Height (m)	Well Diameter (m)	Depth to Water from Parapet top (m)	Depth to Water below ground level (m)
1	Nachan	23°36’42.4”N	87°19’58.9”E	0.68	1	1.95	1.27
2	Bansia	23°37.464”N	87°20.151”E	0.76	0.97	1.8	1.04
3	Kalikapur	23°37.464”N	87°20.151”E	0.8	1.85	1.26	0.46
4	Bargoria	23°37’580”N	87°21’397”E	0.7	2.5	1.82	1.12
5	Jatgoria	23°36’973”N	87°23’432”E	0.6	1.8	2.03	1.43
7	Dhabani	23°35’519”N	87°22.085”E	0.95	1.8	2	1.05
8	Labnapara	23°35’05.36N	87°22’15.8”E	1.2	1.5	1.95	0.75
9	Akandara	23°34’461”N	87°23’013”E	0.65	1.85	1.93	1.28
10	Sarenga	23°31’665”N	87°24’400”E	0	0.6	2.33	1.32
11	Saraswatigunj	23°35’226”N	87°24’784”E	0.6	1.75	1.87	1.27
12	Ghatakdanga	23°34’147”N	87°24’308”E	1	2.4	2.13	1.13
13	Kantaberia	23°36’829”N	87°22’242”E	0.6	1.3	2.38	1.78
14	Gopalpur	23°30’639”N	87°23’408”E	0.5	1.53	2.48	1.98

ANNEXURE V

Expenditure towards Corporate Social Responsibility at EOGEPL CBM Project, Raniganj
(Oct' 21 to Mar' 22)

Thematic Area	Projects	Beneficiaries (No.)	Expenditure (INR)
HEALTH	Community Health Care Services through Mobile Medical Van	**5300**	**6,34,536.00**
SPORTS AND CULTURAL EVENT	Support to sports	**1575**	**90,636.00**
COMMUNITY INFRASTRUCTURE DEVELOPMENT	Support to community	**2500**	**5,63,429.83**
TOTAL		**9375**	**Rs. 12,88,601.83**

ANNEXURE VII

Expenditure towards Environmental Protection Measures at EOGEPL CBM Project, Raniganj
(October' 21 to March' 22)

S. No.	Particular	Expenses (INR)
1	Installation of Reverse Osmosis Treatment System for Produced Water Treatment (Recurring)	Rs. 1,77,67,508.00
2	Environmental Monitoring Activities (Recurring)	Rs. 5,03,315.00
3	HDPE liners for produced water storage at site when needed (Capital)	Rs. 2,90,820.00
4	Non Hazardous Waste Disposal (Recurring)	Rs. 3,98,709.00
5	Hazardous Waste Disposal (Recurring)	Rs. 2,65,448.00
6	Green Belt	Rs. 80,000.00
TOTAL		**Rs. 1,93,05,800.00**