

Ref No. EOGEP/CBM-RG (E)/MoEF&CC /2020/3115

Date: 23rd November, 2020

Essar Oil and Gas Exploration and Production Ltd.

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To
The Director
Ministry of Environment and Forests
Eastern Regional Office
A/3 Chandrasekharpur
Bhubaneswar-751 023
Orissa

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 EOGEP 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 April' 2020 to September' 2020.

Thanking you for your continued support,

With Best 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. Member Secretary (Industry), MoEF, CGO Complex, Paryavan Bhavan, New Delhi-110003
2. 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
(April' 20 to September' 20)**

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 6 th 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 four (4) nos. of GGS and One (1) no. of MCS are constructed as per the NOC obtained from the MoD.
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 16 th 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 16 th November, 2009 for PM10, PM2.5, SO2, NOX, CO, CH4, VOCs, HC, Non-methane HC. Monitoring activity has been carried out from Jul'20 to Sep'20 through a recognized laboratory based in Kolkata. However, monitoring could not be carried out

S. No	Condition	Compliance Status
		due to the restrictions imposed by Gol due to the ongoing COVID 19 pandemic, and also the laboratory was closed from Apr'20 to Jun'20. Please find the ambient air quality monitoring results from Jul'20 to Sep' 20 and also monitoring report of Mar' 20 attached with this report as Annexure I .
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: <ul style="list-style-type: none"> ▪ 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	The drilling is temporarily suspended from April, 2017 till date.

S. No	Condition	Compliance Status
	cutting and drilling fluids for onshore drilling operation notified vide GSR.546€ dated 30 th August, 2005.	
x.	Total fresh water requirement should not exceed 125m ³ for each well during drilling phase 1 m ³ /day for GGS/MCS. Prior permission shall be obtained from the Competent Authority and a copy submitted to the Ministry's Regional Office at Bhubaneswar	The drilling was temporarily suspended from April 2007 to till date.
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.	<p>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.</p> <p>Monitoring activity has been carried out from Jul'20 to Sep'20 through a recognized laboratory based in Kolkata. However, monitoring could not be carried out due to the restrictions imposed by Gol due to the ongoing COVID 19 pandemic, from Apr'20 to Jun'20, as the laboratory was closed. Reports from Mar'20 and Jul' 20 to Sep' 20 are attached.</p> <p>Domestic effluent is disposed of through septic tank to soak pit.</p>
xii.	Ground water quality monitoring should be done to assess if produced water storage or disposal has any effect.	<p>The ground water monitoring is plan in pre-monsoon (May) and Post-Monsoon (November) month.</p> <p>However, monitoring could not be carried out due to the restrictions imposed by Gol due to the ongoing COVID 19 pandemic, from Apr'20 to Jun'20, and also the laboratory was closed.</p>
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.	Drilling is temporarily suspended from April' 2017 till date.

S. No	Condition	Compliance Status
	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.	
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.
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 and 50 m at Main Compressor Stations.
xvii.	To prevent underground coal fire, preventive measures shall be taken for ingress of ambient air during withdrawal inside the coal seams by adopting technologies including vacuum suction. Gas detectors for the detection of CH ₄ and H ₂ S shall be provided.	Gas detectors for Methane, H ₂ S 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	All the surface facilities are installed as per the applicable practise and standards.

S. No	Condition	Compliance Status
	rails, major road crossings should be in conformity with ANSI/ASME requirements.	
xix.	The company shall develop a contingency plan for H ₂ S release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided with personal H ₂ S detectors in locations of high risk of exposure along with self-containing breathing apparatus.	H ₂ S 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 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,	Wells will be abandoned and restored to natural position if found not suitable for hydrocarbon extraction.

S. No	Condition	Compliance Status
	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 fully abandoned in compliance with Indian Petroleum Regulations in the event of no economic quantity 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 26 th 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 meeting held on 24 th May, 2012 shall be satisfactorily implemented and a separate budget for implementing the same shall be allocated and information submitted to the Ministry's Regional Office at Bhubaneswar.	Commitments given in the public hearing are strictly implemented. A separate budget has already been provided for the FY 2019-2020 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 only INR 39,750/- and beneficiary is only 150 nos. No external stockholder involved Mass activity was taken place due to lockdown and restriction imposed by GOI during COVID-19 pandemic. The budgetary allocation has been made for the FY 2020-21 for the CBM Project which is about INR 35.1 Lacs. The fund is being utilized judiciously for the development of villages and people in the vicinity of the project area.
B	General Conditions	

S. No	Condition	Compliance Status
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 applicable.	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.
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 31 st October, 2023.
v.	The overall noise levels in and around the plant area shall be kept within the	Acoustic hoods, silencers, enclosures are provided to high noise generating equipment. Noise levels will be

S. No	Condition	Compliance Status
	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)	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 26 th February, 2013) The environmental protection expenditure from April' 20 to September' 20 is attached with this report as Annexure VI.
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/	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.

S. No	Condition	Compliance Status
	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.	
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.	<p>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.</p> <p>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, SO2, NOx, HC (Methane & Non-methane), VOCs are being monitored periodically and displayed at the main entrance of the existing Gas Gathering Stations.</p>
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 Regional Office of this Ministry/CPCB/WBPCB shall monitor the stipulated conditions.	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.
xii.	The environmental statement for each financial year ending 31 st 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	The environmental statement for each financial year ending 31 st March in Form-V as is being regularly submitted to West Bengal Pollution Control Board and the same is being uploaded on the company's website along with the status of compliance report. The Copy of

S. No	Condition	Compliance Status
	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 Form V (FY 2019-20) enclosed herewith as Annexure V.
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 28 th 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.

Name of Location			MCS				GGs- 01				GGs- 02			
Date			Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m ³	60	37.59	37.89	28.07	24.69	51.52	35.76	32.59	24.72	43.38	34.63	30.30	30.09
PM 10	µg/m ³	100	76.99	72.33	63.20	56.12	84.37	71.93	67.24	63.46	88.08	66.68	63.18	61.69
Nitrogen Dioxide	µg/m ³	80	39.62	40.87	38.83	39.86	37.51	40.22	39.01	39.18	38.35	40.49	39.89	40.53
Sulphur Dioxide	µg/m ³	80	6.32	6.26	5.75	5.21	6.32	5.78	5.71	4.85	5.88	6.17	6.01	4.85
Carbon Monoxide	mg/m ³	2	0.472	0.458	0.434	0.412	0.472	0.470	0.428	0.424	0.456	0.456	0.433	0.438
Hydrocarbon	mg/m ³	NIL	1.82	1.98	1.77	1.56	1.93	1.89	1.58	1.69	1.78	1.72	1.60	1.62
Mercury	mg/m ³		< 0.002	< 0.002	-	-	< 0.002	<0.002	-	-	< 0.002	< 0.002	-	-
Hydrocarbon as Non Methane	mg/m ³	NIL	< 0.003	< 0.003	-	-	< 0.003	<0.003	-	-	< 0.003	< 0.003	-	-
VOC's	µg/m ³		3.08	3.23	-	-	3.15	3.14	-	-	3.05	2.76	-	-
Benzo(a)Pyrene	ng/m ³	1	0.46	0.42	-	-	0.47	0.39	-	-	0.43	0.27	-	-
Ammonia	µg/m ³	400	30.05	31.57	-	-	29.77	30.12	-	-	28.81	27.76	-	-
Ozone	µg/m ³	180	45.28	44.19	-	-	44.76	40.67	-	-	4.57	43.19	-	-
Lead	µg/m ³	1	0.19	0.20	-	-	0.19	0.17	-	-	0.18	0.15	-	-
Nickel	ng/m ³	20	18.88	19.23	-	-	17.70	18.37	-	-	18.29	14.88	-	-
Arsenic	ng/m ³	6	1.82	1.88	-	-	1.82	1.79	-	-	1.78	1.70	-	-
Benzene	µg/m ³	5	1.80	1.78	-	-	1.89	1.73	-	-	1.83	1.59	-	-

Name of Location			Gopalpur Warehouse				PARULIA				SARENGA			
Date			Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m ³	60	42.98	39.72	30.15	29.97	43.78	36.44	31.17	30.25	37.45	37.97	29.14	36.35
PM 10	µg/m ³	100	89.38	68.70	66.18	63.09	91.59	69.20	60.15	65.05	75.83	68.44	61.55	78.20
Nitrogen Dioxide	µg/m ³	80	39.94	41.50	39.34	38.26	39.27	41.43	40.78	39.21	40.59	40.53	40.76	38.80
Sulphur Dioxide	µg/m ³	80	6.28	5.64	5.76	5.91	6.50	5.66	5.64	4.86	6.50	5.97	5.96	6.03
Carbon Monoxide	mg/m ³	2	0.465	0.462	0.402	0.468	0.485	0.466	0.436	0.422	0.456	0.455	0.422	0.448
Hydrocarbon	mg/m ³	NIL	1.89	1.85	1.68	1.67	1.88	1.85	1.80	1.47	1.95	1.80	1.68	1.76
Mercury	mg/m ³		< 0.002	< 0.002	-	-	< 0.002	< 0.002	-	-	< 0.002	< 0.002	-	-
Hydrocarbon as Non Methane	mg/m ³	NIL	< 0.003	< 0.003	-	-	< 0.003	< 0.003	-	-	< 0.003	< 0.003	-	-
VOC's	µg/m ³		3.17	2.79	-	-	2.84	2.93	-	-	3.23	2.82	-	-
Benzo(a)Pyrene	ng/m ³	1	0.51	0.32	-	-	0.36	0.40	-	-	0.54	0.34	-	-
Ammonia	µg/m ³	400	29.73	28.31	-	-	25.12	27.45	-	-	30.96	29.55	-	-
Ozone	µg/m ³	180	45.59	44.78	-	-	40.48	42.76	-	-	46.17	44.24	-	-
Lead	µg/m ³	1	0.21	0.14	-	-	0.15	0.17	-	-	0.22	0.16	-	-
Nickel	ng/m ³	20	19.14	13.62	-	-	15.84	16.34	-	-	19.35	15.88	-	-
Arsenic	ng/m ³	6	1.93	1.86	-	-	1.63	1.71	-	-	1.99	1.74	-	-
Benzene	µg/m ³	5	1.92	1.65	-	-	1.70	1.66	-	-	1.97	1.61	-	-

Name of Location			SARASWATIGUNJ				NACHAN				PRATPPUR			
Date			Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m ³	60	40.14	38.48	29.26	32.89	47.46	36.69	29.94	24.33	37.77	40.11	30.60	29.10
PM 10	µg/m ³	100	84.46	70.43	64.09	72.27	87.79	68.29	59.81	58.53	75.20	70.90	64.62	64.08
Nitrogen Dioxide	µg/m ³	80	36.47	39.51	38.90	39.29	40.81	41.55	39.31	39.45	39.94	41.59	39.56	38.83
Sulphur Dioxide	µg/m ³	80	6.28	6.05	5.89	6.05	6.28	5.97	5.65	5.09	6.28	6.48	5.48	5.22
Carbon Monoxide	mg/m ³	2	0.485	0.472	0.432	0.472	0.492	0.454	0.412	0.402	0.470	0.464	0.446	0.428
Hydrocarbon	mg/m ³	NIL	1.92	1.82	1.72	1.89	1.81	1.78	1.78	1.53	2.05	1.95	1.62	1.65
Mercury	mg/m ³		< 0.002	<0.002	-	-	< 0.002	< 0.002	-	-	< 0.002	< 0.002	-	-
Hydrocarbon as Non Methane	mg/m ³	NIL	< 0.003	<0.003	-	-	< 0.003	< 0.003	-	-	< 0.003	< 0.003	-	-
VOC's	µg/m ³		3.03	2.95	-	-	3.01	2.83	-	-	3.19	3.15	-	-
Benzo(a)Pyrene	ng/m ³	1	0.42	0.33	-	-	0.40	0.31	-	-	0.53	0.34	-	-
Ammonia	µg/m ³	400	29.05	28.45	-	-	26.33	29.33	-	-	30.52	28.12	-	-
Ozone	µg/m ³	180	43.16	42.58	-	-	41.72	42.29	-	-	45.53	42.27	-	-
Lead	µg/m ³	1	0.15	0.16	-	-	0.17	0.16	-	-	0.21	0.19	-	-
Nickel	ng/m ³	20	14.84	16.73	-	-	16.29	15.89	-	-	19.07	13.82	-	-
Arsenic	ng/m ³	6	1.61	1.63	-	-	1.74	1.78	-	-	1.97	1.75	-	-
Benzene	µg/m ³	5	1.79	1.67	-	-	1.75	1.62	-	-	2.01	1.74	-	-

Name of Location			BANSIA				GG5-04				KANTABERIA			
Date			Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m ³	60	39.66	35.87	31.47	34.93	42.84	33.91	28.50	43.72	51.52	34.96	34.13	27.57
PM 10	µg/m ³	100	83.01	67.23	63.14	63.02	83.53	69.59	61.89	82.22	84.37	70.40	66.31	61.38
Nitrogen Dioxide	µg/m ³	80	38.35	41.35	40.21	38.56	41.91	41.08	39.75	38.74	37.51	39.45	38.78	38.60
Sulphur Dioxide	µg/m ³	80	6.21	6.26	5.84	4.77	6.50	5.76	5.79	5.94	6.32	6.16	6.00	5.11
Carbon Monoxide	mg/m ³	2	0.474	0.468	0.428	0.418	0.468	0.454	0.426	0.468	0.472	0.468	0.422	0.418
Hydrocarbon	mg/m ³	NIL	2.11	1.92	1.84	1.59	1.84	1.79	1.72	1.79	1.93	1.84	1.68	1.63
Mercury	mg/m ³		< 0.002	<0.002	-	-	< 0.002	< 0.002	-	-	< 0.002	<0.002	-	-
Hydrocarbon as Non Methane	mg/m ³	NIL	< 0.003	<0.003	-	-	< 0.003	< 0.003	-	-	< 0.003	<0.003	-	-
VOC's	µg/m ³		3.28	2.88	-	-	3.12	2.97	-	-	3.15	2.89	-	-
Benzo(a)Pyrene	ng/m ³	1	0.57	0.36	-	-	0.48	37.00	-	-	0.47	0.35	-	-
Ammonia	µg/m ³	400	31.17	27.46	-	-	27.74	28.45	-	-	29.77	28.89	-	-
Ozone	µg/m ³	180	45.88	41.27	-	-	45.04	43.36	-	-	44.76	43.37	-	-
Lead	µg/m ³	1	0.23	0.16	-	-	0.20	0.13	-	-	0.19	0.15	-	-
Nickel	ng/m ³	20	19.78	16.04	-	-	18.87	17.65	-	-	17.70	13.29	-	-
Arsenic	ng/m ³	6	2.03	1.68	-	-	1.84	1.73	-	-	1.82	1.76	-	-
Benzene	µg/m ³	5	2.12	1.65	-	-	1.85	1.63	-	-	1.89	1.69	-	-

Ambient Air Analysis Report of CBM Raniganj Project of Essar Oil Gas Exploration Production Limited
(Compliance Period: Mar' 20 - Sep'20)

ANNEXURE I

Name of Location			JAMGORA				JATGORIA				KULDIHA			
Date			Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20	Mar' 20	Jul' 20	Aug' 20	Sep' 20
Parameter	UoM	NAAQS LIMIT												
PM 2.5	µg/m ³	60	44.65	37.56	29.64	25.17	44.65	30.15	30.37	24.56	44.44	31.04	30.60	38.43
PM 10	µg/m ³	100	80.41	65.87	60.33	58.04	80.41	71.72	67.25	58.18	91.60	66.18	62.94	78.12
Nitrogen Dioxide	µg/m ³	80	41.47	41.50	40.37	39.20	41.47	39.32	37.94	37.59	37.51	38.88	37.78	40.43
Sulphur Dioxide	µg/m ³	80	6.50	6.03	5.73	5.06	6.50	6.28	5.77	4.92	6.10	5.74	5.62	6.18
Carbon Monoxide	mg/m ³	2	0.464	0.484	0.430	0.432	0.464	0.462	0.408	0.402	0.492	0.488	0.045	0.480
Hydrocarbon	mg/m ³	NIL	1.81	1.76	1.70	1.57	1.81	1.74	1.70	1.71	1.85	1.78	1.64	1.83
Mercury	mg/m ³		< 0.002	<0.002	-	-	< 0.002	<0.002	-	-	< 0.002	<0.002	-	-
Hydrocarbon as Non Methane	mg/m ³	NIL	< 0.003	<0.003	-	-	< 0.003	<0.003	-	-	< 0.003	<0.003	-	-
VOC's	µg/m ³		2.99	2.71	-	-	2.99	3.05	-	-	2.97	2.81	-	-
Benzo(a)Pyrene	ng/m ³	1	0.39	0.31	-	-	0.39	0.37	-	-	0.37	0.28	-	-
Ammonia	µg/m ³	400	27.76	27.31	-	-	27.76	29.32	-	-	27.14	26.56	-	-
Ozone	µg/m ³	180	43.18	44.58	-	-	43.18	41.16	-	-	42.29	41.77	-	-
Lead	µg/m ³	1	0.18	0.13	-	-	0.18	0.18	-	-	0.18	0.12	-	-
Nickel	ng/m ³	20	18.49	13.08	-	-	18.49	15.84	-	-	18.23	14.45	-	-
Arsenic	ng/m ³	6	1.85	1.65	-	-	1.85	1.75	-	-	1.77	1.59	-	-
Benzene	µg/m ³	5	1.76	1.56	-	-	1.76	1.71	-	-	1.71	1.54	-	-

Noise in Surrounding Villages (Leq dB (A))					
Date of sampling	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)
21.09.2020 TO 22.09.2020	Jatgoria (EDD 005)	75	68.18	70	59.08
14.09.2020 TO 15.09.2020	Saraswatigunj (EDI 039)	75	62.54	70	59.05
19.09.2020 TO 20.09.2020	Kantaberia EDD 012	75	69.33	55	67.56
19.09.2020 TO 20.09.2020	Khatgoria (GGS 001)	75	65.41	70	60.07
15.09.2020 TO 16.09.2020	Jamgora (EDD 429)	75	66.17	70	58.52
14.09.2020 TO 15.09.2020	Kuldiha (EDN 099)	75	68.96	70	57.94
18.09.2020 TO 19.09.2020	Pratappur (EDD 049)	75	67.28	70	60.41
23.09.2020 TO 24.09.2020	Bansia (EDD 411)	75	65.94	70	63.66
22.09.2020 TO 23.09.2020	Parulia (EDC 413)	75	67.76	70	62.69
22.09.2020 TO 23.09.2020	Nachan (EDD 053)	75	68.33	70	67.97
16.09.2020 TO 17.09.2020	Akandara	75	68.58	70	66.08
16.09.2020 TO 17.09.2020	Gopalpur Warehouse	75	65.14	70	59.72
22.09.2020 TO 23.09.2020	Malandighi	75	63.68	70	59.04
15.09.2020 TO 16.09.2020	Gopalpur (GGS 004)	75	67.39	70	62.54
15.09.2020 TO 16.09.2020	Sarenga	75	63.29	70	58.97

R.O. water analysis report of CBM Raniganj Project of EOGEP
 (Compliance period: Mar'20 to Sep'20)

ANNEXURE III

Date					March' 20						
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	GGS 01			EDD 050			EDH 044
					R.O-Inlet	R.O-Outlet	R.O-Reject	R.O-Inlet	R.O-outlet	R.O-Reject	R.O Inlet
30	Cadmium	mg/l			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
31	Cobalt	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
32	Bicarbonate	mg/l			592.0	226.0	671.0	580.0	232.0	692.0	885.0
33	Sodium	mg/l	---	---	1170.0	295.0	1420.0	835.0	360.0	1180.0	1185.0
34	Hexavalent Chromium	mg/l	0.1		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
35	Cyanide	mg/l	0.2		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
36	% Sodium				97.9	95.9	98	97.3	96.2	97.7	94.2

R.O. water analysis report of CBM Raniganj Project of EOGEP
 (Compliance period: Mar'20 to Sep'20)

ANNEXURE III

Date					March' 20		March' 20			July' 20	
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDH 044		EDN 099			EDD-50	
					R.O Outlet	R.O Reiect	R.O Inlet	R.O Outlet	R.O Reiect	R.O Inlet	R.O Outlet
30	Cadmium	mg/l			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
31	Cobalt	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
32	Bicarbonate	mg/l			183.0	1269.0	1122.0	153.0	1366.0	732.0	342.0
33	Sodium	mg/l	---	---	310.0	1820.0	1070.0	330.0	1460.0	965.0	410.0
34	Hexavalent Chromium	mg/l	0.1		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
35	Cyanide	mg/l	0.2		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
36	% Sodium				98.0	95.2	94.8	96.8	97.2	98.7	97.4

R.O. water analysis report of CBM Raniganj Project of EOGEP
 (Compliance period: Mar'20 to Sep'20)

ANNEXURE III

Date					July' 20						
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDD-50	GGS-01			EDH 044		
					R.O Reject	R.O Inlet	R.O Outlet	R.O Reject	R.O Inlet	R.O Outlet	R.O Inlet
30	Cadmium	mg/l			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
31	Cobalt	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
32	Bicarbonate	mg/l			1074.0	793.0	402.0	1196.0	1354.0	305.0	756.0
33	Sodium	mg/l	---	---	1090.0	970.0	510.0	1425.0	1980.0	412.0	1240.0
34	Hexavalent Chromium	mg/l	0.1		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
35	Cyanide	mg/l	0.2		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
36	% Sodium				98.5	95.4	97.6	97.4	97.2	95.8	87.4

R.O. water analysis report of CBM Raniganj Project of EOGEP
 (Compliance period: Mar'20 to Sep'20)

ANNEXURE III

Date					July' 20		August' 20				
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDN 099		GGs 01			EDD 050	
					R.O Outlet	R.O Reject	R.O Inlet	R.O Outlet	R.O Reject	R.O Inlet	R.O Outlet
30	Cadmium	mg/l			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
31	Cobalt	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
32	Bicarbonate	mg/l			317.0	1476.0	549.0	171.0	672.0	768.0	311.0
33	Sodium	mg/l	---	---	510.0	2040.0	760.0	402.0	795.0	1080.0	325.0
34	Hexavalent Chromium	mg/l	0.1		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
35	Cyanide	mg/l	0.2		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
36	% Sodium				89.2	91.1	96.8	95.7	97.3	98.2	95.1

R.O. water analysis report of CBM Raniganj Project of EOGEP
 (Compliance period: Mar'20 to Sep'20)

ANNEXURE III

Date					August' 20					August' 20	
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDD 050		EDH 044			EDN 099	
					R.O Reject	R.O Inlet	R.O Outlet	R.O Reject	R.O Inlet	R.O Outlet	R.O Reject
30	Cadmium	mg/l			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
31	Cobalt	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
32	Bicarbonate	mg/l			939.0	1110.0	415.0	1408.0	1196.0	647.0	1318.0
33	Sodium	mg/l	---	---	1230.0	1740.0	590.0	2085.0	1180.0	680.0	1225.0
34	Hexavalent Chromium	mg/l	0.1		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
35	Cyanide	mg/l	0.2		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
36	% Sodium				98.1	95	86.7	95.2	87.4	89.3	83.5

R.O. water analysis report of CBM Raniganj Project of EOGEP
 (Compliance period: Mar'20 to Sep'20)

ANNEXURE III

Date					September' 20						
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDH 044			GGS-01			R.O Inlet
					R.O Inlet	R.O Outlet	R.O Reject	R.O Inlet	R.O Outlet	R.O Reject	
30	Cadmium	mg/l			<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
31	Cobalt	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
32	Bicarbonate	mg/l			769.0	232.0	939.0	470.0	250.0	866.0	744.0
33	Sodium	mg/l	---	---	1235.0	375.0	1630.0	580.0	325.0	980.0	1035.0
34	Hexavalent Chromium	mg/l	0.1		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
35	Cyanide	mg/l	0.2		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
36	% Sodium				96.6	95.4	96.4	96.7	96.8	98	98.5

R.O. water analysis report of CBM Raniganj Project of EOGEP
(Compliance period: Mar'20 to Sep'20)

ANNEXURE III

Date					September' 20				
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDD 050		EDN 099		
					R.O Outlet	R.O Reiect	R.O Inlet	R.O Outlet	R.O Reiect
1	pH		5.5 to 9.0	5.5-9.0	7.80	8.19	6.84	7.20	7.08
2	Temperature	deg C			35.4°C	33.3°C	33.4°C	30.9°C	34.7°C
3	Total Suspended Solids	mg/l	100	100	<2	3	<2	<2	<2
4	Total Dissolved Solids	mg/l	---	2100	688	2980	3048	1168	4360
5	Chlorides	mg/l	---	600	255	1125	1085	485	1620
6	Total Hardness	mg/l	---	---	35.6	47.5	348.5	114.8	566.3
7	Sulphates	mg/l	---	1000	<2.5	6.5	7.0	4.0	5.5
8	Calcium	mg/l			7.9	11.1	89.0	28.5	147.6
9	Magnesium	mg/l	---	---	3.8	4.8	30.8	10.6	48.1
10	Dissolved Oxygen	mg/l			4.9	4.4	4.0	4.8	3.7
11	BOD	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	Sulphides	mg/l	2	2	<0.5	<0.5	<0.5	<0.5	<0.5
16	Fluorides	mg/l	2	1.5	0.7	1.45	2.6	1.1	2.4
17	Total Chromium	mg/l	2	1	<0.05	<0.05	<0.05	<0.05	<0.05
18	Zinc	mg/l	---	---	0.011	0.026	0.033	0.015	0.040
19	Copper	mg/l	---	---	<0.05	<0.05	<0.05	<0.05	<0.05
20	Nickel	mg/l			<0.05	<0.05	<0.05	<0.05	<0.05
21	Lead	mg/l			<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	Sodium Absorption Ratio		---	---	19.6	68.8	26.2	13.9	31.4
24	Aluminum	mg/l	---	---	<0.01	<0.01	<0.01	<0.01	<0.01
25	Lithium	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1
26	Molybednum	mg/l	---	---	<0.05	<0.05	<0.05	<0.05	<0.05
27	Palladium	mg/l	---	---	<0.5	<0.5	<0.5	<0.5	<0.5
28	Selenium	mg/l			<0.005	<0.005	<0.005	<0.005	<0.005
29	Vanadium	mg/l	---	---	<0.1	<0.1	<0.1	<0.1	<0.1

R.O. water analysis report of CBM Raniganj Project of EOGEP
 (Compliance period: Mar'20 to Sep'20)

ANNEXURE III

Date					September' 20				
S. No.	Parameter	Unit	CPCB Limit for Discharge	Onshore Discharge Standards	EDD 050		EDN 099		
					R.O Outlet	R.O Reiect	R.O Inlet	R.O Outlet	R.O Reiect
30	Cadmium	mg/l			<0.02	<0.02	<0.02	<0.02	<0.02
31	Cobalt	mg/l			<0.1	<0.1	<0.1	<0.1	<0.1
32	Bicarbonate	mg/l			256.0	1159.0	952.0	495.0	1196.0
33	Sodium	mg/l	---	---	270.0	1090.0	1125.0	342.0	1715.0
34	Hexavalent Chromium	mg/l	0.1		<0.01	<0.01	<0.01	<0.01	<0.01
35	Cyanide	mg/l	0.2		<0.02	<0.02	<0.02	<0.02	<0.02
36	% Sodium				94.3	98	87.6	86.7	86.9

**Expenditure towards Environmental Protection Measures at EOGEP L CBM Project, Raniganj
(April' 20 to September' 20)**

S. No.	Particular	Expenses (INR)
1	Installation of Reverse Osmosis Treatment System for Produced Water Treatment (Recurring)	Rs. 56,73,527.00
2	Environmental Monitoring Activities (Recurring)	Rs. 5,48,004.00
3	HDPE liners for produced water storage at site when needed (Capital)	Rs. 1,32,275.00
4	Non Hazardous Waste Disposal (Recurring)	Rs. 73,100.00
5	Green Belt Development (Recurring)	Rs. 25,000.00
6	Hazardous Waste Disposal (Recurring)	Rs. 1,16,178.00
7	Land subsidence study (Recurring)	Rs. 4,01,200.00
TOTAL		Rs. 65,68,084.00



EOGEPL/CBM- RG (E)/ HSE/ 2020/3057
Date: 26th September 2020

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

Corporate Identity Number :
U11203GJ2016PLC091903

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www.essar.com

To
The Environmental Engineer and In-Charge
Durgapur regional Office
West Bengal Pollution Control Board
Sahid Khudiram Sarani, City Centre
Durgapur, Paschim Bardhaman 713216

Sub: Submission of Form V: Environmental Statement (FY 2019-20)

Dear Sir,

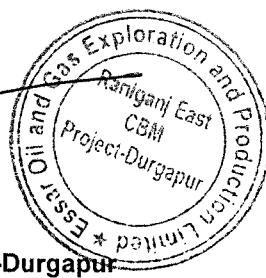
We are enclosed herewith the Environmental Statement for (FY 2019-20) of Raniganj East CBM Block-
RG (E)- CBM-2001/1 Durgapur West Bengal of Essar Oil and Gas Exploration and Production Limited.

Thanking you for your continued support,

With Best Regards,

For Essar Oil and Gas Exploration and Production Limited


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



Enclosures: Form V: Environmental Statement of FY 2019-20

Copy to

1. Senior Environmental Engineer, Head Office, WBPCB, Kolkata
2. The Director, Easter Regional Office, MOEFCC, Bhubaneswar, Orissa

FORM-V
(See rule 14)

Environmental Statement for the financial year ending with 31st March 2020

PART- A

- i. **Name and address of the owner/occupier of the industry operation or process.**
Pankaj Kalra – Mines Owner, Raniganj CBM-Durgapur
Essar Oil and Gas Exploration and Production Limited,
3rd Floor, Essar House, 11 K. K. Marg, Mahalaxmi, Mumbai-400034, Maharashtra
- ii. **Industry category Primary-(STC Code) :**Coal Bed Methane (Exploration & Production)
Secondary- (STC Code)
- iii. **Production Capacity-** ~ 52,200,000 m³/month
- iv. **Year of establishment-** Established in year 2008-09.
- v. **Date of the last environmental statement submitted:** 06-07-2019

PART - B

Water and Raw Material Consumption:

i. Water consumption in m³/d

Process: Nil

Cooling: Not applicable

Domestic: 15 m³ per day

Sr. No.	Name of Products	Process water consumption per unit of products	
		During the previous financial year	During the current financial year
1	Coal Bed Methane	Nil	Nil

ii. Raw material consumption

Sr. No.	Name of raw materials*	Name of Products	Consumption of raw material per unit of Output	
			During the previous financial year (2018-2019)	During the current financial year (2019-2020)
1	Main raw material during drilling phase- Water based Mud		No Drilling operation	No Drilling operation

* Industry may use codes if disclosing details of raw material would violate contractual obligations, otherwise all industries have to name the raw materials used.



PART- C**Pollution discharged to environment/unit of output**

(Parameter as specified in the consent issued)

Sr. No.	Parameter	Pollutants Quantity of Pollutants discharged (mass/day)	Concentration of Pollutants discharged (mass/volume)	Percentage of variation from prescribed standards with reasons
A	Water	Nil	Nil	-
B	Air	Nil	Nil	-

PART- D**HAZARDOUS WASTES**

(as specified under Hazardous Wastes (Management & Handling Rules, 1989).

Sr. No	Area	Hazardous Wastes	Total Quantity (Kg)	
			During the previous financial year (2018-2019)	During the current financial year (2019-2020)
1	From Process	1. Waste Oil/used oil 2. Oil contaminated Waste 3. Used Battery	33.390 KL 3.215 MT 195 Nos	34. 650 KL 1.640 MT 00 Nos
2	From Pollution Control Facilities	Nil	Nil	Nil

PART - E**SOLID WASTES:**

Sr. No	Area	Solid Wastes	Total Quantity (Kg)	
			During the previous financial year	During the current financial year
A	From Process	Waste Mud & Drill Cutting during drilling	No drilling Operation	No drilling Operation
B	From Pollution Control Facilities		-	-
C	1. Quantity recycled or re-utilized within the unit. 2. Solid 3. Disposed		-	-

PART - F

Please specify the characteristics (in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Sr. No.	Types of Waste	Quantity	Mode of Disposal
1	Hazardous Waste- Waste/used Oil	34.650 Litres	Sold to authorize recycler. Address of recycler: M/S Bristol Petroleum Pvt Ltd 26E/5/D-E, A M Ghosh Road Budge Budge, 24 Pargana (South) Pin : 700137, WB
2	Oil contaminated waste	1.640 MT	Sent to TSDF, Haldia Address: West Bengal Waste Management Limited, J.I.no-103, Mouza-Purba Srikrishnapur, P.O & P.S.-Sutahata, PIN-721635, Haldia, Dist-Purba Midnapur

PART- G

Impact of the pollution control measures taken on conservation of natural resources and consequently on the cost of production.

1. Reuse of treated produced water in dust suppression and as utilities.
2. Gas based Generator Sets used at well sites and facilities (i.e GGS 1, 2, 3,4 and MCS).
3. Connected all well pads with GGS/MCS and Customer end with CGS through pipeline. Maximum Sale of Coal bed Methane Gas and minimized the Gas flaring.
4. Installation RO (5100 KLD) for the treatment of Produced water generated from CBM wells and 2 MLD RO is in advance stage and will be in operation shortly
5. Oil & water separator installed in all Compressor stations as a precautionary measure.

PART - H

Additional measures/investment proposal for environmental protection including abatement of pollution.

1. Regular environmental monitoring through CPCB/NABL approved laboratory for Ambient Air and Noise Quality monitoring and DG set Stack emission monitoring, sampling and Analysis of Produced water, Ground water. The analysis and monitoring report was submitted with half yearly Environmental Clearance compliance report.



2. Three Bin waste Management System (different colour code) is developed at all the major site to segregate the waste generated at source.
3. Initiative started for onsite bio manure from the food waste generated at site
4. Around 642 sapling planted in Main compressor station and New RO plant at Akandara Village. The survival rate is more than 95 %.

A Ceramic Filter will be installed for more effective separation of Oil and water which reduced the quantity of used oil generation, It's a new technology of Water pollution prevention.

PART - I

Any Other Particulars for improving the Quality of the Environment.

As a part of our corporate social responsibility the following has been taken up towards improving the quality of environment.

1. Project 'Neelsikha Rannaghar' – A Green Kitchen

The dream of a smoke & dust free kitchen run on gas as fuel for cooking mid-day meal finally came true at the Anganwadi (ICDS) centre of Dhabani village under Pratappur GP of Durgapur-Faridpur Block of Paschim Burdwan District with the inauguration of the "**Neelsikha Rannaghar**" (নীল শিখা রান্নাঘর) in September 2019 where henceforth CBM gas will be used as fuel instead of firewood, as is commonly done. The objective of the initiative is to provide a clean & healthy environment of education to the beneficiaries of the ICDS Centre along with the opportunity to get food (mid-day meal) cooked in hygienic conditions.

"Green Kitchen" was inaugurated by the SDM – Durgapur, Sri. Anirban Koley and the former MD & CEO of EOGEP. Sri. Vilas Tawde in presence of the Block Development Officer and other eminent guests. The SDM in his speech appreciated the initiative as one of its kind.

2. Community Infrastructure Development/ Stakeholder Support -

To address the problem of acute shortage of drinking water during the summer season Essar has been distributing drinking water through tankers to villages in Pratappur Gram Panchayat benefitting more than **6500** people. The villages are identified by the BDO of Laudoha block. Since several years now, Essar has been providing drinking water to these villages during the very hot days of beginning from end of April to early June.

Similarly in 2019, the supply of drinking water started from last week of April and continued throughout the month of May and ended on 7th of June. Villages that received potable water this season are Jamgora (Adivasipara and Bagdipara), Bansia (Washpara and Aguripara), Nachan (Domepara), Kalikapur (Bauripara), Pratappur (Hazrapara and Badyakarpara). Each of these areas (para) received 1 tanker of water every day.

