

**Annexure-A**

**Subject: Half yearly return in compliance to Environmental Clearance regarding "Drilling of development wells (406 nos. oil and gas wells) in the oil fields of Ahmedabad Asset at Kheda, Gandhinagar and Ahmedabad Districts of Gujarat by M/S ONGC.**

**Reference:** File. No. J-11011/92/2012-IA II (I) dated 22.03.2016

1. Period of compliance: **July to December 2021**
2. No. of development wells drilled during the period i.e. 2<sup>nd</sup> & 3<sup>rd</sup> Quarter of 2021 = **10 Nos.**

<b>A. SPECIFIC CONDITIONS:</b>		
<b>Sl. No.</b>	<b>Conditions</b>	<b>Compliance</b>
i.	Compliance to all the environmental conditions stipulated in the environmental clearance letter no. J-11011/218/2008-IA II(I) dated 3rd July, 2008 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Bhopal.	Yes. Regional Office, Bhopal has issued Certificate of Compliance vide letter No.5-251/2008(ENV)/325 dated 06/07/2015
ii.	The environmental clearance is subject to obtaining prior clearance from Wildlife angle including clearance from the Standing Committee of the National Board for Wildlife as applicable.	As there is no Reserve Forest / Wildlife Sanctuary falls in the project area, hence prior clearance from Wildlife angle is not applicable.
iii.	Gas produced during testing shall be flared with appropriate flaring booms. The flare system shall be designed as per good oil field practices and Oil Industry Safety Directorate (OISD) guidelines. The stack height shall be provided as per the regulatory requirements and emissions from stacks will meet the MOEF/CPCB guidelines.	Flare system with adequate stack height is used to separate and flare the entire quantity of gas generated during testing. All the quantity of gas come across testing is flared through elevated flare equipped with separator and knock out drum. No ground flaring is resorted to.
iv.	Ambient air quality shall be monitored at the nearest human settlements as per the National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R.No.826(E) dated 16 <sup>th</sup> November, 2009 for PM <sub>10</sub> PM <sub>2.5</sub> SO <sub>2</sub> , NO <sub>x</sub> , CO, CH <sub>4</sub> , HC, Non-methane HC etc.	Ambient air quality is being monitored through a Third party for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , CO, methane & Non-methane HC, within and upto the premises of drill site. Monitoring of AAQM has also been carried out near the closest human settlement. It is evident from the monitoring reports placed at Annexure-I that the concentrations of all parameters are within prescribed limits.
v.	Mercury shall also be analyzed in air, water and drill cuttings twice during drilling period.	Mercury is being analyzed in Air, Water and Drill Cuttings at different intervals (Copy of Monitoring Report at Annexure-II).
vi.	Approach road shall be made pucca to minimize	Approach roads to drill site are made pucca

	generation of suspended dust.	to minimize generation of suspended dust during transportation of rig equipment, etc.
vii.	The company shall make the arrangement for control of noise from the drilling activity. Acoustic enclosure shall be provided to DG sets and proper stack height shall be provided as per CPCB guidelines.	Acoustic enclosures have been provided to DG sets to reduce noise within permissible limits (Noise level monitoring divulge the efficiency of the acoustic enclosures, pl refer reports placed as Annexure-I). The height of Stack of 3 nos. of DG sets each of 1250 KVA ranges from 8 - 9ft. Though as per formula referred by CPCB guidelines, the stack height of 1250 KVA Gen sets should be 7.0 meter. However, the GLC of various parameters prescribed in NAAQM are within the permissible limits which qualifies the spirit under which stack height standards has been set by CPCB. Please refer to AAQM reports placed at Annexure-I. It is notable that the increase in the present height of stacks of DG sets inherent with the OEM design shall reduce the efficiency of DG sets, as assessed internally. In light of this, present stack height of the DG sets should be considered as appropriate.
viii.	Total water requirement from ground water source shall not exceed 35 m <sup>3</sup> / day / well and prior permission should be obtained from the Competent Authority.	During the drilling activity, the average water requirement is less than 35 m <sup>3</sup> per day. Prior permission is being obtained from the appropriate authority.
ix.	The company shall construct the garland drain all around the drilling site to prevent runoff of any oil containing waste into the nearby water bodies. Separate drainage system shall be created for oil contaminated and non-oil contaminated. Effluent shall be properly treated and treated waste water shall conform to CPCB standards.	The garland drains are not constructed as diesel storage tank, POL storage area, mud pumps, cellar pit, mud tanks, etc. have their dedicated containment which drain wastewater in HDPE lined waste pit. The waste pits have enough volume to take care of wastewater and prevent any run off. The drilled cuttings and other wastes collected in HDPE lined waste pits and solar dried. It is notable that Gujarat is rain deficient area and chance of runoff from drill site area is very remote. As the drill site effluent is a soft effluent, the suspended particles like bentonite clay are settled leaving clear supernatant water which at times is recycled for washing purpose. Precautions are being taken to stop run-off of oil containing waste by using HDPE lining in waste pit. Separate drainage system is being provided to meet CPCB standards.

x.	Drilling waste water 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. The membership of common TSDF shall be obtained for the disposal of drill cuttings and hazardous waste. Otherwise, secured land fill shall be created at the site as per the design approved by the CPCB and obtain authorization from the SPCB. Copy of authorization or membership of TSDF shall be submitted to Ministry's Regional Office at Bhopal.	Drilling wastewater including drill cuttings wash water is collected in disposal pit lined with HDPE lining and solar dried.  Further, Drill cuttings from water based mud have been removed from the category of hazardous waste [Schedule I - rule 3 (1) (17) (i) of MOEFCC notification dt: 14.04.2016].  ONGC Ahmedabad is a member of TSDF at M/s. BEIL, Bharuch placed at Annexure-III.
xi.	No effluent/drilling mud/drill cutting shall be discharged/disposed off into nearby surface water bodies.	All the wastewater, mud and cuttings generated from drilling activity are being stored in HDPE lined pits and solar evaporated.
xii.	Produced water (1500 m <sup>3</sup> /day) shall be treated in ETP. Treated produced water shall be disposed off through injection well as per CPCB/MoEF guidelines.	On successful drilling, the producing wells through which crude oil evacuated to the nearest GGS through pipeline or tankers and after processing the crude oil, the produced water (Effluent) generated is routed to ETP for treatment.  The treated effluent is being re-injected back in to the reservoir below 1000 m in compliance to EPA Rules-1986 vide Schedule-I Sl. No.72A 1(ii) and CCA from Gujarat Pollution Control Board.  Presently, two ETPs are operational in the project area with a total capacity of treatment of 2600 m <sup>3</sup> /day.  The ONGC installations including ETPs are audited by Schedule-II auditors recognized by GPCB vide Hon'ble High Court of Gujarat order.
xiii.	Good sanitation facility shall be provided at the drilling site. Domestic sewage shall be disposed off through septic tank / soak pit.	Appropriate sanitation facility provided at the drill site. Domestic sewage is disposed of through provision of adequate septic tanks and soak pits.
xiv.	Oil spillage prevention and mitigation scheme shall be prepared. In case of oil spillage/contamination, action plan shall be prepared to clean the site by adopting proven technology. The recyclable waste (oily sludge) and spent oil shall be disposed of to the	Oil spillage prevention plan like containments of diesel storage tank, POL shed and testing tank (during production testing) and drainage leading to waste pit are in place. However, in case of oil spill and contamination of soil thereof, ONGC is equipped with the

	authorized recyclers.	<p>technology of bioremediation to address such eventualities. It is notable that ONGC has a step down company M/s ONGC-TERI Bioremediation Limited (OTBL) which has developed a consortium of bacteria capable of digesting entire range of hydrocarbons. Recyclable hazardous waste like Spent oil, POL barrels etc. are recycled centrally through authorized re-cyclers.</p> <p>Further, ONGC has developed an onsite and offsite emergency management plan i.e. DMP as well as site specific Emergency Response Plan (ERP) for averting any untoward incident including oil spill contingency management.</p>
xv.	The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR.546(E) dated 30 <sup>th</sup> August,2005.	<p>Solid waste like drill cuttings and left over drilling fluids (water based) are collected in HDPE lined waste pits which is eventually back filled and covered with local soil after the drilling operations are over. Other solid wastes like oil contaminated hand gloves, cotton waste, filters, chemical sack, etc. are deposited at TSDF site.</p> <p>Further, Drill cuttings from water based mud have been removed from the category of hazardous waste [Schedule I - rule 3 (1) (17) (i) of MoEF&amp;CC notification dt: 14.04.2016].</p>
xvi.	The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. Possibility of using ground flare shall be explored. At the place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during operation.	<p>Each drilling rig in ONGC has fixed fire fighting system and portable extinguishers in accordance to OISD 189. All personnel posted at Drill site are trained in fire fighting. Hot jobs are controlled through a permit system i.e. "Hot Work Permit" system. As mentioned above in point 14, in case of oil spill and contamination of soil thereof, ONGC is equipped with the technology of bioremediation to address such eventualities. It is notable that ONGC has a step down company M/s ONGC-TERI Bioremediation Limited (OTBL) which has developed a consortium of bacteria capable of digesting entire range of hydrocarbons.</p> <p>All the quantity of gas come across testing is flared through elevated flare equipped with separator and knock out drum. No ground flaring is resorted to.</p>
xvii.	The company shall develop a contingency plan for H <sub>2</sub> S release including all necessary aspects from	Emergency response plan for H <sub>2</sub> S release is available. H <sub>2</sub> S detectors are available at

	evacuation to resumption of normal operations. The workers shall be provided with personal H <sub>2</sub> S detectors in locations of high risk of exposure along with self containing breathing apparatus.	drilling rigs. However, it is pertinent to mention that H <sub>2</sub> S is usually not encountered during drilling operations in oil fields of Ahmedabad Asset.
xviii.	The Company shall carry out long term subsidence study by collecting base line data before initiating drilling operation till the project lasts. The data so collected shall be submitted six monthly to the Ministry and its Regional Office at Bhopal.	<p>As stated in EIA Report under Land Subsidence due to Exploration of Oil &amp; Gas:</p> <p><i>Quote:</i></p> <p>In order to study occurrence of Land Subsidence due to exploration of oil and gas, DGH has under taken study through Central Mining Research Institute to assess the land subsidence in a gas field in Gujarat.</p> <p>“It was concluded that during these nine campaigns from Feb 2004 to May 2006, only few seasonal local minor negligible level changes are detected in the area under study, indicating overall the area is stable. Also, the trend in the behavior of some points, which had been observed in a particular region, has also now been proven to be due to seasonal variations and no resultant subsidence is observed.”</p> <p>In light of above, it is explicitly clear that no resultant subsidence is observed even when the reservoir is at very low depth (about 200 m below the ground surface level) and at a higher withdrawal rate of gas.</p> <p><i>Unquote:</i></p>
xix.	Blow Out Preventor (BOP) system shall be installed to prevent well blowouts during drilling operations. BOP measures during drilling shall focus on maintaining well bore hydrostatic pressure by proper pre-well planning and drilling fluid logging etc.	Appropriate Blow Out Preventor (BOP) system having a set of Annular and RAM BOP is installed to prevent well blowouts during drilling operations. Function test of BOPs are carried out frequently as per OISD Standard and care is taken to maintain proper hydrostatic pressure in the well bore during drilling, logging and other well operations by maintaining requisite mud weight.
xx.	Emergency Response Plan (ERP) shall be based on the guidelines prepared by OISD, DGMS and Govt. of India.	ONGC has Site Specific Emergency Response Plan (ERP) and Contingency Plans and Disaster Management Plan (DMP) based on relevant and realistic emergency scenarios. ERP and contingency plan are duly approved

		by DGMS whereas offsite DMP is approved by local district authorities (copies already submitted with earlier compliance).
xxi.	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 the area in original condition. In the event that no economic quantity of hydrocarbon is found a full abandonment plan shall be implemented for the drilling site in accordance with the applicable Indian Petroleum Regulations.	ONGC has formulated a well defined and plausible abandonment and restoration procedure which shall be followed in the event of decision taken to abandon the well.
xxii.	All the commitments made to the public during public hearing/public consultation meeting held on 04.07.2015 for Gandhinagar District, on 8-07-2015 for Kheda District, 09-07-2015 for Ahmedabad district shall be satisfactorily implemented and adequate budget provision shall be made accordingly.	All the recommendations of Public Hearing are complied with and are part of Final EIA report submitted to EAC for granting of EC.
xxiii.	At least 5% of the total cost of the project shall be earmarked towards the Enterprise Social Commitment based on Public Hearing Issues, locals need and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Bhopal. Implementation of such program shall be ensured accordingly in a time bound manner.	2% of average net profit of ONGC is earmarked for CSR (Corporate Social Responsibility) projects which include components of health, education, water, solar lights, ecological development in and around operational area, as directed by GOI.
xxiv.	Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.	PME of all employees is carried out as per Company Policy and guidelines issued by DGMS during 10 <sup>th</sup> National Safety conference.
xxv.	In case the commercial viability of the project (for exploratory drilling) is established, the Company shall prepare a detailed plan for development of oil and gas fields and obtain fresh environmental clearance from the Ministry.	In case of commercial viability of (for exploratory drilling) oil/gas is established, fresh EC is obtained for the entire block. The present EC is for development drilling wherein the successful well will be connected to the nearest GGS/EPG for processing of crude oil/gas.
xxvi.	Restoration of the project site shall be carried out satisfactorily and report shall be sent to the Ministry's Regional Office at Bhopal.	No well was abandoned during the period in question. However, in case of any abandonment & restoration of project site, report shall be conveyed to Ministry's regional office at Bhopal. Further, ONGC has formulated a well-defined

		and plausible abandonment and restoration procedure which shall be followed in the event of decision taken to abandon the well.
xxvii.	Oil content in the drill cuttings shall be monitored by some Authorized agency and report shall be sent to the Ministry's Regional Office at Bhopal.	Drill cuttings are analyzed for oil content through GPCB recognized laboratory. (Copy of Monitoring Report at Annexure-II).
xxviii.	An audit shall be done to ensure that the Environment Management Plan is implemented in totality and report shall be submitted to the Ministry's Regional Office.	Biannual Air / Stack / Noise monitoring is carried out by the third party.  Apart from this, annual external audit and surveillance audit of Environment Management System (EMS) is carried out in accordance to the protocol of ISO 14001. It is notable that all drilling rigs are maintaining 3 <sup>rd</sup> party certified EMS based on ISO 14001.
xxix.	Company shall have own Environment Management Cell having qualified persons with proper background.	Environment Management Cell is at Corporate HSE of ONGC, New Delhi. HSE set up at unit level are also having qualified safety & environment officers.
xxx.	Company shall prepare operating manual in respect of all activities. It shall cover all safety & environment related issues and system. Measures to be taken for protection. One set of environmental manual shall be made available at the drilling site/project site. Awareness shall be created at each level of the management. All the schedules and results of environmental monitoring shall be available at the project site office. Remote monitoring of site should be done.	Standard Operating Procedures for drilling operations covering safety and environmental aspects of operations and management thereof have been given to supervisors and concerned persons at all drilling rigs. Safe Work Practices is also made available at all rigs. Regular safety and environment training is being provided to the employees by our various in- house training institutes like IPSHEM Goa, IDT and ONGC Academy, Dehradun and GVTC, etc. QHSE Management System procedures are in place with regular internal and external audits. Ambient Air, Stack Emission and Ambient Noise Level Monitoring and potable water analysis done on regular basis and reports are available at rig site.
xxxi.	On completion of drilling, the company has to plug the drilled wells safely and obtain certificate from environment safety angle from the concerned authority.	On completion of drilling, the well is equipped with a Christmas tree which safely regulates the flow of oil & gas. However, if any well is abandoned, it is plugged with a cement column as prescribed in OMR-2017

		and the same is communicated to DGMS.
<b>B.</b>	<b>GENERAL CONDITIONS :</b>	
i.	The project authorities must strictly adhere to the stipulations made by the Gujarat Pollution Control Board (GPCB), State Government and any other statutory authority.	Consent to Establish (CTE) for exploratory drilling is obtained from Gujarat Pollution Control Board prior to commencement of exploratory drilling and conditions stipulated in CTE are complied with. Apart from it, all the oil and gas processing installations, wherein the oil and gas produced from successful wells during exploratory and development drilling is processed, are operating under Consolidated Consent and Authorization (CCA) from GPCB. Monthly and annual returns are filed online on XGN site as per the conditions stipulated in GPCB CCA.
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.	So far no expansion or modification in the project has been carried out. In future if any expansion or modification in the project to be taken-up, the same shall be intimated to MoEF&CC.
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.	During drilling only water base mud is used and no hazardous /toxic chemicals are used. All the mud systems got tested through National Institute of Oceanography (NIO), Goa and found non-hazardous and non-toxic. Hence this point is not applicable. However as a precautionary measure MSDS of chemicals are displayed at site. Permission for storage, transportation and use of explosives for perforation of well are taken from Chief Controller of Explosives.
iv.	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	The overall noise levels in and around the rig area is kept well within the standards by keeping provision of acoustic enclosures and regular condition monitoring of equipment. The ambient noise levels are monitored during day and night time (Recent monitoring reports are annexed at Annexure-I) which reveals that the ambient noise level



		is within prescribed standards. Environment Management Cell is at Corporate HSE of ONGC, New Delhi. HSE set up at unit level are also having qualified safety & environment officers
v.	A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	Environment Management Cell is functional under Head HSE which is responsible for environment management, monitoring and compliance to regularity bodies.
vi.	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.	The communication of the environmental clearance has been made to all the relevant stakeholders by way of publishing the same in the leading news papers. The EC is also posted on the Web Site of ONGC as well as communicated to concerned panchayat and local authorities.
vii.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the GPCB. The criteria pollutant levels namely; PM <sub>10</sub> , SO <sub>2</sub> , NO <sub>x</sub> , HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Being Complied. The drilling activity is a temporary and short duration (2-3 months) process. Ambient Air, Stack Emission and Ambient Noise Levels were monitored on regular basis through a third party. <ul style="list-style-type: none"> <li>- Displayed monitoring report at the main gate.</li> <li>- Six monthly compliance report submitted to Regional Office, MoEF&amp;CC, GPCB and CPCB on regular basis.</li> </ul>
viii.	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 GPCB. The Regional Office of this Ministry / CPCB / GPCB shall monitor the stipulated conditions. Environmental Clearance and six monthly compliance status reports shall be posted on the website of the company.	Complied.
ix.	The environmental statement for each financial year ending 31 <sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as	Complied.  Consent to Establish (CTE) for exploratory drilling is obtained from Gujarat Pollution

	<p>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.</p>	<p>Control Board prior to commencement of exploratory drilling and conditions stipulated in CTE are complied with.</p> <p>Apart from it, all the oil and gas processing installations, wherein the oil and gas produced from successful wells during exploratory and development drilling is processed, are operating under Consolidated Consent and Authorization (CCA) from GPCB. Monthly and annual returns are filed online on XGN site as per the conditions stipulated in GPCB CCA.</p>
x.	<p>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 GPCB and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.</p>	<p>Complied.</p> <p>Advertisement published in Gujarat Samachar dated 15.04.2016 and Times of India dated 14.04.2016.</p>
xi.	<p>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.</p>	<p>Not applicable.</p> <p>The drilling activities in the Asset are not a new project and these activities are of continuous nature and happening since 1961.</p>