ऑयल इंडिया
OIL INDIA

**HSE Department**
Oil India Limited
Duliajan, Dibrugarh, 786602, Assam
Phone : 0374-2800542
Email: safety@oilindia.in

संदर्भ सं./Ref. No.: S&E/E/43C-1/588

दिनांक/Date: 28.05.2024

| | | |
|---|---|---|
| **From** | : | Executive Director (HSE & ESG) |
| **To** | : | Deputy Director General of Forests (Central),<br>Sub Office, Guwahati (under Regional Office, Shillong),<br>4th Floor, Housefed Building, Rukminigaon,<br>Guwahati-781022.<br>(**Email :** iro.guwahati-mefcc@gov.in, iro.moefcc.ghy@gmail.com) |
| **Subject** | : | Submission of Half-yearly (October 2023 to March 2024) compliance reports of the conditions stipulated in the Environment Clearance (EC) granted to Oil India Limited. |

Sir,

Reference to above subject, please find enclosed herewith the Half-yearly (**October 2023 to March 2024**) compliance reports of the conditions stipulated in the Environment Clearance (EC) granted to Oil India Limited. List of the EC are tabulated below:

| S.No | EC Identification No/File No. | Name of the EC proposal |
|---|---|---|
| 1. | F. No. J-11011/413/2008-IA II (I) dated 24.01.2011 | OCS Bhogpara. |
| 2. | F. No. J-11011/1251/2007-IA II (I) dated 01.11.2011 | Exploratory Drilling of 01 (One) well at Doomdooma-Pengry Area, District Tinsukia, Assam. |
| 3. | F. No. J-11011/682/2008-IA II (I) dated 17.06.2013 | Expansion of Gas field Development in Tengakhat-Naharkatia-Jorajan area and Doomdooma Pengry area, Assam by M/s Oil India Ltd. |
| 4. | F. No. J-11011/116/2018-IA II (I) dated 07.01.2020 | Onshore Oil & Gas Exploration & Development Drilling and Production in Ningru Oil & Gas Field in Districts Changlang and Namsai for Ningru PML Block (Arunachal Pradesh) |
| 5. | F. No. J-11011/1260/2007-IA II (I) dated 09.04.2020 | Onshore Oil & Gas Development Drilling and Production in Mechaki Area covering Mechaki, Mechaki Extension, Baghjan and Tinsukia Extension PMLs on District Tinsukia (Assam). |
| 6. | F. No. J-11011/150/2016- IA II (I) dated 11.05.2020 | Extension Drilling & Testing of Hydrocarbons at 7 (seven) Locations under Dibru-Saikhowa National Park Area, North-West of Baghjan PML, District Tinsukia, Assam. |
| 7. | F. No. J-11011/1253/2007-IA II (I) dated 28.12.2020 | Onshore Oil & Gas development drilling and production by M/S Oil India Ltd in Dibrugarh district under Dibrugarh, Chabua, Higrijan and Tinsukia PMLs. (Dibrugarh- Bhogpara) |
| 8. | F. No. J-11011/375/2016-IA II (I) dated 28.12.2020 | Onshore Oil & Gas Development Drilling and Production (179 wells and 9 Production |

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| | | |
|---|---|---|
| | | Installations) in North Hapjan – Tinsukia – Dhola area under Tinsukia district, Assam. |
| 9. | F. No. J-11011/35/2018-IA II (I) dated 26.02.2021 | Onshore Oil & Gas development drilling and production by M/S Oil India Ltd. Located in Khagorijan Oil & Gas Field in Dibrugarh & Tinsukia District under Tinsukia PML, Tinsukia Extension PML and Chabua PML District: Dibrugarh, Assam |
| 10. | F. No. J-11011/186/2016-IA II (I) dated 03.03.2021 | Onshore Oil & Gas development drilling and production in Borhat-Titlagarh area, Dibrugarh, Sibsagar and Charaideo Districts under Sapkaintb, Borhat, Moran Extension and Doomdooma PMLs. |
| 11. | EC22A002AS110311<br>F. No. J-11011/156/2017-IA II (I) dated 28.11.2022 | Oil & Gas development drilling and production (16 exploratory, 73 developmental drilling wells and 9 Production Installations) in Moran Area under Dibrugarh, Sibsagar and Charaideo districts, Assam. |
| 12. | EC23A002AS125690<br>F. No. J-11011/1254/2007-IA II (I) dated 13.01.2023 | Oil & Gas development drilling and production (68 developmental drilling wells and 9 Production Installations) in Khowang Shalmari Area under Dibrugarh, Sibsagar districts, Assam. |
| 13. | EC23A002AS188131<br>F.No J-11011/1257/2007- IA II (I) dated 17.04.2023 | Onshore Oil & Gas development drilling and production (167 wells and 7 production Installations) in Tengakhat-Kathaloni-Dikom (TKD) under Dibrugarh district, Assam. |
| 14. | EC23A002AS198872<br>F. No. J-11011/388/2016-IA II (I) dated 31.07.2023 | Onshore Oil & Gas development drilling (67 wells) in Jorajan Area under Dibrugarh, Charaideo and Tinsukia districts, Assam. |
| 15. | EC23A002AS146942<br>F.No. J-11011/546/2017-IA(I) dated 20.09.2023 | Onshore Oil & Gas development drilling and production (294 wells and 2 Production Installations) in Naharkatiya-Deohal-Bogapani-Nagajan (NDBN) area under Dibrugarh & Tinsukia districts, Assam. |

This is for your kind information please.

Thanking you.

राजेन्द्र सिंह गार्बाल
Rajendra Singh Garbyal
कार्यपालक निदेशक (एचएसई एवं ईएसजी)
Executive Director (HSE & ESG)
नोडल अधिकारी (ईसी/एफसी/एनबीडब्ल्यूएल)
Nodal Officer (EC/FC/NBWL)
ऑयल इंडिया लिमिटेड/Oil India Limited

(Rajendra Singh Garbyal)
**Executive Director (HSE & ESG)**
**Nodal Officer (EC, FC, NBWL)**
**For Resident Chief Executive**

ऑयल इंडिया
OIL INDIA

**HSE Department**
Oil India Limited
Duliajan, Dibrugarh, 786602, Assam
Phone : 0374-2800542
Email: safety@oilindia.in

Encl: As above

Copy:

1. Director, Monitoring Cell, MoEF, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003.
2. Zonal Office, Central Pollution Control Board, "TUM-SIR", Lower Motinagar, Near Fire Brigade Headquarter, Shillong-793014.
3. Chairman, Assam Pollution Control Board, Bamunimaidan, Guwahati-781021, Assam.
4. Chairman, Arunachal Pradesh State Pollution Control Board, Office of the Principal Chief and Secretary (E&F) Conservator of Forests, Govt. of Arunachal Pradesh, Itanagar-791111, Arunachal Pradesh.

- **Name of the Project:** Onshore Oil & Gas development drilling and production (294 wells and 2 Production Installations) in Naharkatiya-Deohal-Bogapani-Nagajan (NDBN) area under Dibrugarh & Tinsukia districts, Assam.
- **EC Identification No., File No and date:** EC23A002AS146942, F.No. J-11011/546/2017-IA(I) dated 20.09.2023
- **Period of Compliance Report:** October 2023 to March 2024.

**Specific Conditions:**

| S. No. | CONDITION | COMPLIANCE STATUS |
|---|---|---|
| I. | The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented (Annexure – I). | **Being Complied**<br><br>All the environmental protection measures proposed in the EIA – EMP are being implemented. |
| II. | The environmental clearance is subject to obtaining prior clearance from the wildlife angle, including clearance from the Standing Committee of the National Board for Wildlife as per the Ministry's OM dated 8th August, 2019 and 16th July, 2020. Grant of environmental clearance does not necessarily imply that Wildlife Clearance shall be granted to the project and that their proposal for Wildlife Clearance will be considered by the respective authorities on its merit and decision taken. PP shall also strictly follow the conditions mentioned in existing NBWL clearance. | **Complied**<br>No drilling activity was carried out within the 10 Km from the boundary of Protected Area. |
| III. | The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of schedule-I species in the study area). | **Complied**<br>OIL has submitted Site-Specific wildlife conservation plan and wildlife management plan to Chief WildLife Warden, Assam for approval. Copy of the same is enclosed as **Annexure – I.** |
| IV. | PP shall conduct third party audit of compliance of EC condition at an interval one year and its report shall be submitted to IRO, MoEF&CC. | **Will be complied**<br>Third party audit of compliance of EC condition will be carried out. |
| V. | Implementation of Action Plan on the issues raised during the Public Hearing shall be ensured. The Project Proponent shall undertake all the tasks as per the Action Plan submitted with budgetary provisions during the Public Hearing. | **Being Complied.**<br>Details of the CER expenditure incurred by OIL is enclosed as **Annexure – II.** |
| VI. | As proposed, no pipelines or its part shall be laid and drilling of exploratory/production/development wells to be carried out in the Forest land/Protected Area without prior permission/approval from the Competent Authority. | **Complied**<br>No pipeline is laid in Forest land/ Protected Area |
| VII. | The project proponent will treat and reuse the treated water within the drilling site and no waste or treated water shall be discharged outside the premises under | **Complied**<br><br>Zero Liquid Discharge is maintained |

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| | any condition. Mobile ETP coupled with RO and mobile STP shall be installed to treat the waste water and sewage waste respectively. | at the drilling location. Mobile ETP coupled with RO is installed to treat the effluent generated from the drilling location. Quantity of domestic sewage generated from the drilling locations is minimum and is being treated in ETP.<br>Test report of ETP treated effluent of the location HAAK is enclosed as **Annexure – III.** |
| VIII. | During production, storage and handling, the fugitive emission of methane, if any, shall be monitored using appropriate technology. | **Complied**<br><br>Portable Multi-gas detector & Explosimeter are used to detect fugitive emissions of Methane (if any). |
| IX. | The project proponent also to ensure trapping/storing of the $CO_2$ generated, if any, during the process and handling. | **Complied**<br>No $CO_2$ generated is generated during drilling. |
| X. | Approach road to drilling well shall be made pucca to minimize generation of suspended dust. | **Complied**<br>Approach road to the drilling location is made pucca to minimize dust generation. |
| XI. | The project proponent shall make all arrangements for control of noise from the drilling activity. Acoustic enclosure shall be provided for the DG sets along with the adequate stack height as per CPCB guidelines. | **Complied**<br>Regular maintenance of equipment/ machinery is being carried to minimize noise generation.<br>Acoustic enclosures are provided around DG sets and also adequate Stack Height is provided for DG sets as per CPCB guidelines. |
| XII. | Total fresh water requirement shall be 25 KLPD which will be met from ground water. Extraction of ground water shall not be done without obtaining prior permission of CGWA/concerned authority. | **Complied**<br>NOC from CGWA will be obtained before extracting groundwater. |
| XIII. | The company shall construct the garland drain 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. | **Complied**<br>Garland drains are constructed around the periphery of the drilling location to prevent runoff of any oil containing waste into the nearby water bodies. Separate drainage system is created for oil contaminated and non- oil contaminated. |
| XIV. | Drill cuttings separated from drilling fluid shall be adequately washed and disposed in HDPE lined pit. Waste mud shall be tested for hazardous contaminants and disposed according to HWMH Rules, 2016. No effluent/drilling mud shall be discharged/disposed off into nearby surface water bodies. The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR.546(E) dated 30th August, 2005. | **Complied**<br><br>Drill cuttings separated from drilling fluid are disposed in HDPE lined pit and mud is tested for Hazardous contaminants as per Hazardous and Other Wastes (Management & Transboundary) Movement Rules, 2016. Toxicity test of drilling fluid and Report of Hg & Cd in Barite used in the preparation of Drilling Mud is |

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| | | enclosed as **Annexure – IV.** |
| XV. | 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 authorized recyclers. | **Complied**<br><br>Oil Spill Contingency Plan is in place. In case of Oil spillage/ contamination, action will be taken as per the Oil spill contingency plan prepared by OIL. Recyclable waste (oily sludge) and spent oil is sent to Pollution Control Board, Assam authorized recyclers. |
| XVI. | The project proponent shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At fixed installations or plants use of 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. | **Complied**<br>Fixed firefighting system is installed at drilling locations and in case of any oil spillage necessary remediation actions will be taken as per the Oil Spill Contingency Plan. |
| XVII. | The project proponent shall develop a contingency plan for $H_2S$ release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided with personal $H_2S$ detectors in locations of high risk of exposure along with self-containing breathing apparatus. | **Complied**<br>Contingency Plan for $H_2S$ release is in place. OIL never encountered $H_2S$ and no such evidence exists in our field of operation. However, multi-gas detector and Self Containing Breathing Apparatus (SCBA) are kept available to meet the emergency situation, if any. |
| XVIII. | Blow Out Preventer system shall be installed to prevent well blowouts during drilling operations. | **Complied**<br><br>BOP systems are installed at the drilling locations for prevention of Blowouts. |
| XIX. | On completion of the project, necessary measures shall be taken for safe plugging of wells with secured enclosures to restore the drilling site to the original condition. The same shall be confirmed by the concerned regulatory authority from environment safety angle. In case of hydrocarbon not found economically viable, a full abandonment plan shall be implemented for the drilling site in accordance with the applicable DGH/ Indian Petroleum Regulations. | **Will be complied**<br><br>On completion of the drilling activity, plugging of abandoned wells will be carried out as per the OIL's Well Abandonment, Site Restoration and Reclamation policy. |
| XX. | As per the action plan submitted by the project proponent all activities proposed in extended EMP (CER) for corpus of Rs. 3.28 crores shall be completed within 2 years (Annexure-II). | **Being Complied**<br><br>Details of the CER expenditure incurred by OIL is enclosed as **Annexure – II.** |

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| XXI. | Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules. All workers & employees shall be provided with required safety kits/mask for personal protection. | **Complied**<br><br>Occupational Health Surveillance of workers engaged in drilling operation is being carried out on regular basis. All workers & employees engaged in drilling operation are provided with Personal Protective Equipment (PPE). IME & PME record of the personnel engaged in drilling operation at location HAAK is enclosed as **Annexure – V.** |
| XXII. | Oil content in the drill cuttings shall be monitored if oil-based mud is used and report & shall sent to the Ministry's Regional Office. | **Not Applicable**<br>Water-Based Mud is used for the drilling operations. |
| XXIII. | The project proponent shall prepare operating manual in respect of all activities, which would cover all safety & environment related issues and 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. | **Complied**<br>SOPs for all the operations covering safety and environment related issues are prepared. OIL has prepared Environmental manual which is made available at the drilling location. Copy of the same is enclosed **Annexure – B.** Also, all the environmental monitoring reports related to ambient air quality, Stack Gas monitoring, ETP effluent, Noise level are maintained at the drilling location. |

**General Conditions:**

| S. No. | CONDITION | COMPLIANCE STATUS |
|---|---|---|
| I. | No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. 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/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any. | **Will be complied**<br>No further expansion or modifications will be carried out other than the activities mentioned in the Environment Clearance without the prior approval of MoEF&CC. |
| II. | The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment. | **Complied**<br>LED lights are installed for lighting purposes at the drilling locations. |
| III. | 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, | **Complied**<br><br>Noise level in the drilling sites is kept within the permissible limits by |

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| | silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). | providing acoustic enclosures around DG sets. |
| IV. | The company shall undertake all relevant measures for improving the socioeconomic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration and shall be implemented. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment. | **Being Complied**<br>Details of the CER expenditure incurred by OIL is enclosed as **Annexure – II.** |
| V. | The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions<br>stipulated herein. The funds so earmarked for environment management/pollution control measures shall not be diverted for any other purpose. | **Complied**<br>OIL has earmarked funds for environment management/ pollution control measures. |
| VI. | A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. | **Complied** |
| VII. | The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company. | **Complied.**<br>EC compliance report for the period April 2023 to September 2023 was submitted to Sub-RO, Guwahati, Zonal Office CPCB, Shillong and, Chairman - Pollution Control Board Assam vide L.No. S&E/E/43C-1/52 dated 11.01.2024. Also, copy of the EC and Six-monthly compliance report are uploaded to OIL website under the link https://www.oil-india.com/Environmental.aspx |
| VIII. | The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted 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 clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail. | **Complied.**<br>Environment Statement (Form – V) for the F.Y. 2022-23 was submitted to Pollution Control Board, Assam vide No. S&E/E/21(B)/940 dated 20.09.2023. Copy of the same is enclosed as **Annexure – C.** |
| IX. | 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 SPCB/Committee and may also be seen at Website of the Ministry and at | **Complied.**<br>Advertisement regarding the issuance of the Environment Clearance was published in two newspapers i.e., Dainik Janambhumi and The Sentinel |

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| | https://parivesh.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 concerned Regional Office of the Ministry. | dated 27.09.2023. Copies of the same are enclosed as **Annexure – VI.** |
| X. | The 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 start of the project. | **Will be Complied.** |
| XI. | This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project. | **Agreed.** |

**Annexure - I**

ऑयल इंडिया लिमिटेड
( भारत सरकार का उद्यम )
**Oil India Limited**
(A Government of India Enterprise)

*Safety & Environment Department*
P.O. DULIAJAN-786602,
ASSAM, INDIA
Phone : 0374-2800542
Fax : 0374-2801796
Email: safety@oilindia.in

Ref: S&E/E-39/1565

Date: 25.11.2021

**The Principal Chief Conservator of Forest & Chief Wild Life Warden**
**Office of the Principal Chief Conservator of Forest & Head of Forest Force**
**Department of Environmnet and Forest, Govt. of Assam**
**Guwahati Bhawan, Panjabari**
**Guwahati – 781037, Assam**

**Sub:** Submission of Wildlife conservation Plan in connection with Environment clearance applied for the project "For Onshore Oil & Gas Development Drilling And Production In Naharkatiya-Deohal-Bogapani-Nagajan, Dibrugarh & Tinsukia District under Nahorkatiya Extension, Tinsukia Extension, Hugrijan, Chabua, Borhapjan, Dumdumada Hugrijan Extension (Proposed) PMLs of Oil India Ltd.

Sir,

In connection with the Environment Clearance (EC) application for "Onshore Oil & Gas Development Drilling And Production In Naharkatiya-Deohal-Bogapani-Nagajan, Dibrugarh & Tinsukia District under Nahorkatiya Extension, Tinsukia Extension, Hugrijan, Chabua, Borhapjan, Dumdumada Hugrijan Extension (Proposed) PMLs of Oil India Limited, we are Submitting herewith the Wildlife Conservation Plan for Schedule-I species.

This is for information and approval please.

Thanking you

Yours faithfully
OIL INDIA LIMITED

(S Basumatary)
Chief General Manager (HSE)
**For Resident Chief Executive**

Encl: as stated

Nodal Officer (EC/FC/NBWL)
OIL INDIA LIMITED

Received
26/11/2021

# WILDLIFE CONSERVATION PLAN FOR SCHEDULE-I SPECIES FOR ONSHORE OIL & GAS DEVELOPMENT DRILLING AND PRODUCTION IN NAHARKATIYA-DEOHAL-BOGAPANI-NAGAJAN, Dibrugarh & Tinsukia District under Nahorkatiya Extension, Tinsukia Extension, Hugrijan, Chabua, Borhapjan, Dumdumada Hugrijan Extension (Proposed) PMLs

ऑयल इंडिया लिमिटेड
(भारत सरकार का उद्यम)
Oil India Limited
(A Government of India Enterprise)

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## *ABBREVIATIONS*

| | |
|---|---|
| CC | Community Consultation |
| CPCB | Central Pollution Control Board |
| DG | Diesel Generator |
| EIA | Environmental Impact Assessment |
| EN | Endangered |
| ETP | Effluent Treatment Plant |
| FD | Discussion with Forest Department |
| FGGS | Field Group Gathering Station |
| FSI | Forest Survey of India |
| GBH | Girth at Breast Height |
| GCS | Gas Compressor Station |
| GG | Gas Generator |
| HSD | High Speed Diesel |
| IUCN | International Union for the Conservation of Nature |
| IVI | Important Value Index |
| KLD | Kilo Liter per Day |
| KW | Kilo Watt |
| LARR | Land Acquisition, Rehabilitation and Resettlement Act, 2013 |
| LC | Least Concern |
| MMT | million metric ton |
| MoEF&CC | Ministry of Environment, Forest and Climate Change |
| NDBN | Naharkatiya-Deohal-Bogapani-Nagajan |
| NH | National Highway |
| NT | Near Threatened |
| OCS | Oil Collection System |
| OIL | Oil India Limited |
| OWS | Oil Water Separator |
| PML | Petroleum Mining Lease |
| PS | Primary survey |
| RCC | Reinforced Cement Concrete |
| RD | Relative Density |
| RF | Reserved Forest |
| USA | United States of America |
| VU | Vulnerable |
| WPA | Wildlife Protection Act |
| WWF | World Wide Fund |

# 1 INTRODUCTION

## 1.1 BACKGROUND

Oil India Limited (OIL), a Government of India Navaratna Enterprise, is currently engaged in carrying out exploration activities for hydrocarbon in its operational areas of Upper Assam, Arunachal Pradesh and Mizoram in the North Eastern part of India. OIL has significant presence in pan-India and overseas. Government of Assam has awarded Petroleum Mining Lease (PML) in Dibrugarh and Tinsukia districts and adjoining areas for exploration and development of oil and gas to OIL covering Naharkatiya-Deohal-Bogapani-Nagajan (NDBN) area in Dibrugarh & Tinsukia district under Nahorkatiya Extension, Tinsukia Extension, Hugrijan, Chabua, Borhapjan, Dumdumada Hugrijan Extension Proposed) PMLs.

OIL is currently planning for drilling of 294 onshore exploratory & developmental wells, 2 nos. of production installations and laying of approximately 500 km of assorted oil & gas flow lines/delivery pipelines from 50 mm to 300mm in NDBN area under Dibrugarh and Tinsukia districts of Assam.

Development and production activities in NDBN area is part of OIL's larger plan of development of hydrocarbons in 10 hydrocarbon Blocks in Dibrugarh, Tinsukia, Sibsagar and Charaideo districts of Assam Upper Assam region.

## 1.2 OVERVIEW OF THE PROJECT

The project include OIL's proposed onshore Oil & Gas exploration and development drilling, installation of production facility and laying of 500 km assorted pipeline (50 mmto 300 mm) in NDBN area in Dibrugarh and Tinsukia Districts under under Nahorkatiya Extension, Tinsukia Extension, Hugrijan, Chabua, Borhapjan, Dumdumada Hugrijan Extension (Proposed)PMLs.

The area includes Tinsukia, Digboi, Duliajan, Makum, Tigrai areas. OIL is presently producing crude oil and gas from the NDBN area which is spread over the administrative districts of Tinsukia, and Dibrugarh in Assam. In order to further enhance production activities in the area OIL is proposing to drill 294 (Two Hundred Ninety Four) exploratory & developmental wells along with construction of 2 production facilities and laying of 500 k.m. assorted pipeline in Nahorkatiya Extension, Tinsukia Extension, Hugrijan, Chabua, Borhapjan, Dumdumada Hugrijan Extension (Proposed)PMLs covering a project area of 657 sq. km. In the event of successful completion of drilling of the additional wells, it is expected to further augment the production of the crude oil from the said block by around 15 million metric ton (MMT) per year.

## 1.3 OBJECTIVES OF PROPOSED DRILLING AND PRODUCTION ACTIVITY

The project will ultimately cater to fulfil the energy requirement of India. The dependency of India on other countries will be lessened to an extent. Additionally, the project will benefit people living in neighbouring villages in relation to direct & indirect employment associated with various project activities and will boost the local economy. Specific objectives of the proposed drilling activities are summarized below:

- To develop and produce hydrocarbons safely,
- To augment National Production of oil and gas.

## 1.4 AREA LOCATION AND ACCESSIBILITY

### 1.4.1 *Area Location*

The NDBN area is located in Tinsukia and Dibrugarh districts of Assam. Total area of NDBN is 657 sq. km. The coordinates of the four corners of the NDBN area is presented in ***Table 1.1***. The regional setting map of NDBN area is presented in ***Figure 1.1*** and the location of the NDBN area on toposheet (nos. 83M3, 83M7, 83M11; scale 1:50000) and satellite imagery is shown in ***Figure*** 2.2 and ***Figure*** 1.2.

*Table 1.1* ***Details of Coordinates of NDBN Area***

| Point | Latitude | Longitude |
|---|---|---|
| A | 27°19'60.00"N | 95°13'00.00"E |
| B | 27°29'00.00"N | 95°13'00.00"E |
| C | 27°29'00.00"N | 95°36'60.00"E |
| D | 27°19'60.00"N | 95°36'60.00"E |

### 1.4.2 *Accessibility*

### 1.4.3 *Accessibility*

NDBN Field can be accessed by NH 37 which connects Dibrugarh and Tinsukia town with the state capital Guwahati. The eastern portion of the Field can be accessed by NH 38 which branches off from NH 37 near Makum town and connects Digboi and Margherita. Duliajan is the major town within the Field where headquarter of OIL is located. Duliajan is connected with major towns like Dibrugarh, Tinsukia and Digboi by PWD roads. Main settlements, tea gardens, industries and educational institutions within the Field can also be accessed by PWD roads. Duliajan is the major railway station within the area and is located at the Guwahati-Dibrugarh line of North East Frontier railway. Tinsukia, New Tinsukia and Makum are the major junction stations located at the northern boundary of the Field. Dibrugarh is the nearest Airport located about 20 kilometres from the NDBN.

## 1.5 *Environmental Settings of the Wells and Production Facility*

NDBN area is located within Upper Brahmaputra valley. The main drainage channels traversing through the Field are within the Tingrai, Tipling and Digboi and are all tributaries of Buri Dihing River. Rivers flow mainly from south eastern side towards Buri Dihing. Land use classes in the NDBN comprise of settlements, tea gardens, homestead plantations, reserved forests and agricultural lands. Forest areas within the Field are mostly located at the eastern side (at Tinsukia district) and included primarily under Upper Dihing Reserve Forest. Apart from Upper Dihing R. F., Borajan Segment of Bherjan-Borajan and Padumoni Wildlife Sanctuary is also located at the central position of the NDBN Field. Dehing Patkai Wildlife Sanctuary is located at a distance of 1.7 km from the field boundary at the south-eastern side. Two Elephant Corridors between Upper Dihing R. F. East and West Blocks at Bogapani and Golai-Powai are located within the NDBN field on the eastern boundary. Duliajan is the major town within the Field. The Field is included under the existing oil and gas producing area of OIL.

## 1.6 *Project Activities*

*Land Procurement*

The land required for the well sites and production facilities will be procured from the local villagers or tea garden authority through direct purchase. Generally, OIL will procure the required land through private negotiation. In few cases, OIL may request district authority to acquired land under LARR act 2013, if private negotiation is not successful. Land procurement will be done including crop compensation. No physical displacement will not occur; hence, resettlement and rehabilitation will not be applicable for this project.

*Site Preparation & Construction Drill site*

Site preparation will involve levelling, filling and consolidation of the site for staging equipment and machinery. Individual sites will be duly fenced to a height of about 2 m using jingle wired fencing or XPM fencing.

Preparation and construction of drill sites and production facilities will involve top soil scraping and storage for future use, elevating the site by excavated material from the site and material brought from authorized quarry area. Reinforced Cement Concrete (RCC) will be used for the construction of foundation system at drill sites. For making foundations of the main rig structure, cast in-situ bored under- reamed piles of specified lengths will also be used.

*Drilling & Testing*

The exploitation of hydrocarbons requires the construction of a conduit between the surface and the reservoir. This is achieved by the drilling process. The exploration wells will be drilled using a standard land rig or a "Mobile

Land Rig" with standard water based drilling fluid treatment system. This rig will be suitable for deep drilling up to the desired depth of 3900 metres as planned for the project.

During drilling operations, a fluid known as drilling fluid (or 'mud') is pumped through the drill string down to the drilling bit and returns between the drill pipe –casing annulus up to surface back into the circulation system after separation of drill cuttings /solids through solids control equipment. Drilling fluid is essential to the operation and helps in controlling down hole pressure, lift soil/rock cuttings to the mud pit, prevent cuttings from settling in the drill pipe, lubricate, cool and clean the drill bit.

Drill cuttings generated will be collected and separated using a solid control system and temporarily stored on-site in HDPE lined pits. Drilling and wash wastewater generated will also be stored at an onsite HDPE lined pit. The water will be adequately treated in a mobile ETP to ensure conformance to the S No. 72 A (ii) Schedule I - Standards for Emission or Discharge of Environmental Pollutants from Oil Drilling and Gas Extraction Industry of CPCB and will be reused.

There will be other ancillary facilities like Drilling mud system, Effluent Treatment System (ETP), Cuttings disposal, Drill Cementing, equipment etc. and utilities to supply Power (DG sets), water, fuel (HSD) to the drilling process and will be set up as a part of the project.

Between drilling operations for different zones, logging operations will be undertaken to provide information on the potential type and quantities of hydrocarbons present in the target formations.

*Well Site decommissioning*

On completion of activities, the wells will be either plugged and connected with flow lines or suspended. In the event of a decision to suspend the well, it will be filled with a brine solution containing very small quantities of inhibitors to protect the well. After the activities, the well will be sealed with a series of cement plugs, all the wellhead equipment will be removed leaving the surface clear of any debris and site will be restored.

*Production Installations*

Four Production installations planned within the Khagorijan Field. The production installation may include Oil Collection System (OCS), Gas Compressor Station (GCS), Field Group Gathering Station (FGGS) and Quick Production Set-up (QPS).

## 1.7 *Utilities and Resource Requirements*

*Power*: The power requirement for each drill site construction will be met through the 100 KW DG Sets. During drilling, DG sets of 1000 KW capacities,

will be used to meet the power requirement for drilling. Lighting and other power requirements at drill sites will met through 200KW DG sets. It is estimated that 3.5 KLD of diesel will be required during drilling phase. Power requirement for the production installations will be met through Gas Generator (GG) sets of 216 KW capacity.

*Water*: During the drilling operations, water requirement at a drill site is expected to be 50 $m^3$ per day. The water requirement at the drilling sites during construction and drilling phase will be met groundwater after obtaining necessary permission. Potable water requirement at site will be met through packaged drinking water. In addition, a water storage pit of around 1000 $m^3$ is proposed to store water for fire water supply the likely source being surface water. For production facility approximately, 5 $m^3$ per day water will be required for construction and 3 $m^3$ per day for workers during construction phase. Approximately 20 $m^3$ per day water is required during the operation of the production installations. The water requirement will be met groundwater after obtaining necessary permission.

*Manpower:* The estimated employment would be approximately 80 un-skilled temporary workers during the peak construction phase that will be primarily sourced from nearby villages. Additionally, 20 permanent OIL employees will supervise the construction phase. The drilling rig will be operated by approximately 40-50 persons on the rig at any particular time. Approximately 10 persons per shift will be hired during operation phase of production facility. Production facilities are operated in three shifts with approximately 10 persons operating per shift. Personnel involved in a production facility include the Installation Manager, supervisors and other technical staffs.

## 1.8 POLLUTION SOURCES

- *Air emissions*: Point source air emissions will be generated from DG/GG sets. Fugitive emissions will occur from vehicles involved in the drilling operations and from windblown dust from storage and staging areas within the drill sites and production facilities.
- *Noise & Vibrations*: Noise and vibration will be generated due to operation of drilling rig, DG/GG sets and vehicles.
- *Liquid wastes:* During the drilling phase, wastewater will be generated as a result of rig wash and dewatering of spent mud and washing of drill cuttings. The wastewater will be treated in an Effluent Treatment System (ETP) at site. The treated water would be reused. Domestic wastewater will be generated from the drill sites would be treated in septic tanks and soak pits. In production facilities, produced formation water will be reused after necessary treatment; surface Runoff after treatment through Oil Water Separator (OWS) and sedimentation tank will be reused.
- *Drill cuttings & spent mud:* Approximately 350-400$m^3$ of drill cuttings and 900-1200 $m^3$of spent mud will be generated per site. Drill cuttings and spent mud will be disposed off in a well-designed pit lined with impervious liner located on site.

## 1.9 *PROJECT TIMELINE*

Drilling of each well location is expected to take three to four months. After development phase the wells if converted to production wells will continue till the life of the well. Construction of production facility will require approximately 2 years. The production facility would be permanent. The developmental drilling, construction of production facilities and pipelines would be conducted within 7 years.

## 1.10 *PROJECT COST*

Total cost of the project would be INR 9734.60 crore which also includes cost of in-built mitigation measures.

# Annexure - II

| CER expenditure in Crores during F.Y. 2022-23 to F.Y. 2023-24 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **District** | **Health Care** | **Education** | **Plantation** | **Skill development of women** | **Industrial Training for students** | **Sports & Cultural events** | **Social Development/Infrastructure (Drinking Water, Toilets, Road repair, Flood Protection/Erosion control etc.,)** | **Total** |
| **Tinsukia (Assam)** | 8.27 | 10.32 | 9.38 | 1.82 | 3.03 | 1.14 | 38.40 | **72.36** |
| **Dibrugarh (Assam)** | 8.12 | 8.86 | 0.00 | 4.41 | 3.63 | 0.65 | 19.45 | **45.12** |

Annexure - III

ENVIROCON
*Recognised By*
**Pollution Control Board, Assam**

Envirocon Building, I.O.C.L (AOD) New Market
P.O.: Digboi, Dist.: Tinsukia, Assam – 786 171
Ph: 03751-264414, 9435008657, 8876028672
E-mail: envirocon@rediffmail.com

ISO 9001:2015 Certified
ISO 45001:2018 Certified

**Report No.: ENV/ARDS/23-24/S-03/WW-03/01** **Order No.: Telecon**
**Date : 14/03/2024** **Date :**

**Report Issued To :** **ADITI R & D SERVICES**
Nilesh Buisness Complex, A. T. Road, Digboi, Assam

## TEST RESULTS

Sample Ref. No. : ARDS/2024/S-03/0603/01 Sample Source : Rig S#3/HAAK, Makum Sample Type : ETP Treated Water (RO)
Collected On : 06-03-2024 Received On : 06-03-2024 Collected By : ETP Supervisor, ARDS

| Sl. No. | Parameters | Results | Limit [G.S.R. 176(E), 02.04.1996] |
|---|---|---|---|
| 1 | Colour | Colourless | Colourless |
| 2 | Odour | Odourless | Odourless |
| 3 | pH value | 6.98 | 5.5 – 9.0 |
| 4 | Temperature, $^0$C | 25.3 | 40 $^0$C |
| 5 | TSS, mg/l | 8.8 | 100 |
| 6 | BOD, mg/l | <1 | 30 |
| 7 | COD, mg/l | 24 | 100 |
| 8 | Chlorides (as Cl), mg/l | 13 | 600 |
| 9 | Sulfates (as $SO_4$), mg/l | 11 | 1000 |
| 10 | TDS, mg/l | 92 | 2100 |
| 11 | Sodium, (%) | 3.5 | 60 |
| 12 | Oil & Grease, mg/l | <4.0 | 10 |
| 13 | Phenolic Compounds as $C_6H_5OH$, mg/l | <0.001 | 1.2 |
| 14 | Cyanides , mg/l | <0.001 | 0.2 |
| 15 | Fluorides (as F), mg/l | <0.01 | 1.5 |
| 16 | Sulfide (as S), mg/l | <0.01 | 2.0 |
| 17 | Chromium ($Cr^{+6}$), mg/l | <0.001 | 0.1 |
| 18 | Chromium (Total) , mg/l | <0.001 | 1.0 |
| 19 | Copper, mg/l | <0.001 | 0.2 |
| 20 | Lead, mg/l | <0.001 | 0.1 |
| 21 | Mercury, mg/l | <0.001 | 0.01 |
| 22 | Nickel, mg/l | <0.001 | 3.0 |
| 23 | Zinc, mg/l | <0.01 | 2.0 |

Analysis Protocol: IS 3025

ENVIROCON * DIGBOI, ASSAM * Date

*Checked By*: Mr. Pankaj Baroi, **ENVIROCON**

NOTE:
1. Results reported are valid at the time of and under the prevailing conditions of measurement.
2. Results refer only to the particular parameters tested.
3. This test report shall not be reproduced except in full, without the written permission of ENVIROCON, I.O.C.L (AOD) New Market, Digboi – 786171, Assam.

Annexure - IV

গ্রীনটেক্ এনভাইৰনমেন্টল ইঞ্জিনিয়াৰ এণ্ড কন্সালটেন্টছ্
**GREEN TECH ENVIRONMENTAL ENGINEER & CONSULTANTS**
House No-11, Champaknagar, Narayan Path, Bhetapara, Guwahati-781028, www.greentecheec.in
Telefax -0361 3501950 Mobile: 9435046677, 9954089052, E-mail: green_pranjal@hotmail.com, info@greentecheec.in
TC-5991

## TEST REPORT

GEEC/FM/450A

| | | | |
|---|---|---|---|
| ULR Number: TC599124000000015F | | | |
| Report No:GEEC/FL/23/TOX/2024/01/03 | | Date: | 29/01/2024 |
| Name of the Industry: | **OIL INDIA Ltd.** | Lab ID | GEEC/TT/2024/01/03 |
| Address: | Oil India Ltd.<br>Duliajan<br>District: Dibrugarh,<br>State : Assam | Date of Sampling/Collection: | 09/01/2024 |
| | | Date of Receipt in Duliajan: | 10/01/2024 |
| | | Date of Receipt in Lab: | 11/01/2024 |
| Rig | **S-3** | Test Start Date: | 11/01/2024 |
| Location: | **HAAK** | Test End Date: | 15/01/2024 |

**DRILL FLUID QUALITY FOR TOXICITY**

SAMPLING RESULT

| | | | |
|---|---|---|---|
| Depth | 253 m | Mud Weight (MW,pcf) | 66 |
| Mud Type | BS-mud | MFV sec | 60 |
| **Dose** | **Sample Concentration** | **Mortality (In%)** | **Test Method** |
| 1 | Control sample | 0 | IS 6582 (Part 2) Bioassay using Zebra Fish |
| 2 | 5000 mg/L | 10 | |
| 3 | 10000 mg/L | 20 | |
| 4 | 20000 mg/L | 20 | |
| 5 | 30500 mg/L | 30 | |
| 6 | 40000 mg/L | 40 | |
| 7 | 50000 mg/L | 50 | |

**Sample Drawn By : Client**

Remarks: Limit for Toxicity of Drill Fluid 96 Hrs LC 50 > 30000 mg/l by fish toxicity.

Checked by:

Dr. Belinda Lahon
Quality Manager

Reviewed by:

Pranjal Buragohain
Authorised Signatory

* The results relate only to the item tested.
* The test report shall not be produced except in full, without written approval of the laboratory.
* The test report cannot be used as evidence in the court of law without prior writtten approval of the laboratory

********** End of report **********

Annexure - V

| Sl No. | Name | Designation | Last IME/PME | PME DUE |
|---|---|---|---|---|
| 1 | ENAMUL HUSSAIN | RIG SUPDT | 20.12.2023 | 19.12.2028 |
| 2 | AJAY KR. GURUNG | RIG SUPDT | 02.02.2021 | 01.02.2024 |
| 3 | GOBINDA SAIKIA | TOOL PUSHER | 02.02.2021 | 01.02.2026 |
| 4 | MIRDHA M HUSSAIN | TOOL PUSHER | 02.02.2021 | 01.02.2026 |
| 5 | JITEN TAMULY | TOUR PUSHER | 22.01.2020 | 22.01.2025 |
| 6 | RANA MAJUMDAR | TOUR PUSHER | 02.02.2021 | 01.02.2026 |
| 7 | MRIDUL GOGOI | DRILLER | 02.02.2021 | 01.02.2026 |
| 8 | GHANA K MOHAN | DRILLER | 02.02.2021 | 01.02.2026 |
| 9 | SUJIT TANTI | DRILLER | 02.02.2021 | 01.02.2026 |
| 10 | KISHOR KR GOGOI | DRILLER | 02.02.2021 | 01.02.2026 |
| 11 | UTPAL GOGOI | HSE OFFICER | 02.02.2021 | 01.02.2026 |
| 12 | NABAJYOTI SAIKIA | HSE OFFICER | 20.12.2023 | 19.12.2028 |
| 13 | SIMANTA BORSAIKIA | ELECTRICAL ENGINEER | 03.02.2021 | 02.02.2026 |
| 14 | PRIYANKU PACHANI | ELECTRICAL ENGINEER | 03.02.2021 | 02.02.2026 |
| 15 | PREM KT CHANGMAI | MECHANICAL ENGINEER | 03.02.2021 | 02.02.2026 |
| 16 | KASHYAP BORA | MECHANICAL ENGINEER | 22.01.2020 | 21.01.2025 |
| 17 | BEDABYASH GOGOI | MUD ENGINEER | 03.02.2021 | 02.02.2026 |
| 18 | CHIRANJIB CHUTIA | MUD ENGINEER | 20.12.2023 | 19.12.2028 |
| 19 | BHUPENDRA GOGOI | MUD ENGINEER | 20.12.2023 | 19.12.2028 |
| 20 | GULAP SAIKIA | MUD ENGINEER | 22.01.2020 | 21.01.2025 |
| 21 | ANJAN SAIKIA | MEDIC | 13.02.2021 | 01.02.2026 |
| 22 | BIJOY PHUKAN | MEDIC | 02.02.2021 | 01.02.2026 |
| 23 | MINTU SHYAM | ASSISTANT DRILLER | 02.02.2021 | 01.02.2026 |
| 24 | BHASKAR J SENAPATI | ASSISTANT DRILLER | 22.01.2020 | 21.01.2025 |
| 25 | BASUDEV SHARMA | ASSISTANT DRILLER | 02.02.2021 | 01.02.2026 |
| 26 | BHODESWAR GOGOI | ASSISTANT DRILLER | 13.02.2021 | 12.02.2024 |
| 27 | BIDYUT B. BORAH | RIG ELECTRICIAN | 13.02.2021 | 12.02.2026 |
| 28 | BIKASH R. GOGOI | RIG ELECTRICIAN | 03.02.2021 | 02.02.2026 |
| 29 | ABHIJIT DUTTA | RIG ELECTRICIAN | 03.02.2021 | 02.02.2026 |
| 30 | JATIN KAKOTI | RIG ELECTRICIAN | 03.02.2021 | 02.02.2026 |
| 31 | SOURAV PHUKAN | ASSITANT ELECTRICIAN | 03.02.2021 | 02.02.2026 |
| 32 | MOMIN DUTTA | ASSITTANT ELECTRICIAN | 03.02.2021 | 02.02.2026 |
| 33 | ANKUR HAZARIKA | ASSITTANT ELECTRICIAN | 13.02.2021 | 12.02.2026 |
| 34 | PRAKASH RAI | TOP MAN | 02.02.2021 | 01.02.2026 |
| 35 | SUMESWAR DHADUMIA | TOP MAN | 02.02.2021 | 01.02.2026 |
| 36 | BHUBAN KAKOTI | TOP MAN | 02.02.2021 | 01.02.2026 |
| 37 | BHRIGU BORAH | TOP MAN | 03.02.2021 | 02.02.2026 |
| 38 | GYANDEEP GOGOI | TOPMAN | 02.02.2021 | 01.02.2026 |
| 39 | SEKHOR TAMANG | TOPMAN | 02.02.2021 | 01.02.2026 |

| | | | | |
|---|---|---|---|---|
| 40 | KAMAL SAIKIA | TOP MAN | 22.01.2020 | 22.01.2020 |
| 41 | ROMEN KALITA | TOP MAN | 13.02.2021 | 13.02.2026 |
| 42 | DINKU GOGOI | RIGMAN | 03.02.2021 | 02.02.2026 |
| 43 | BIPUL URANG | RIG MAN | 03.02.2021 | 02.02.2026 |
| 44 | MONUJ GHURASOWA | RIG MAN | 03.02.2021 | 02.02.2026 |
| 45 | HEMANTA BORAH | RIG MAN | 03.02.2021 | 02.02.2026 |
| 46 | SURESH PHUKAN | RIGMAN | 13.02.2021 | 12.02.2026 |
| 47 | BHADESWAR GOGOI | RIG MAN | 13.02.2021 | 12.02.2026 |
| 48 | BIRINCHI GOGOI | RIG MAN | 03.02.2021 | 02.02.2026 |
| 49 | RAJIB SAIKIA | RIG MAN | 03.02.2021 | 02.02.2026 |
| 50 | ANJAN BORGOHAIN | RIG MAN | 03.02.2021 | 02.02.2026 |
| 51 | RATUL DUTTA | RIG MAN | 03.02.2021 | 02.02.2026 |
| 52 | NABAJYOTI GOGOI | RIG MAN | 03.02.2021 | 02.02.2026 |
| 53 | ANKUR. J. HAZARIKA | RIG MAN | 03.02.2021 | 02.02.2026 |
| 54 | GUNIN HAZARIKA | RIG MAN | 03.02.2021 | 02.02.2026 |
| 55 | DIGANTA CHETIA | RIGMAN | 03.02.2021 | 02.02.2026 |
| 56 | PAPU BORAH | RIGMAN | 03.02.2021 | 02.02.2026 |
| 57 | BITUL SONOWAL | RIGMAN | 13.02.2021 | 12.02.2026 |
| 58 | ARUN CHETIA | RIG MAN | 03.02.2021 | 02.02.2026 |
| 59 | DHRUBAJYOTI BORUAH | RIG MAN | 03.02.2021 | 02.02.2026 |
| 60 | LAKHYADHAR GOGOI | RIG MAN | 13.02.2021 | 12.02.2026 |
| 61 | CHANDRAMONI DUTTA | RIG MAN | 03.02.2021 | 02.02.2026 |
| 62 | HIMANSHU SARMA | RIGMAN | 03.02.2021 | 02.02.2026 |
| 63 | DEUTI BORAH | MECHANIC ICE | 13.02.2021 | 12.02.2026 |
| 64 | PROSENJIT BORUAH | MECHANIC ICE | 03.02.2021 | 02.02.2026 |
| 65 | DIPANKAR KALITA | MECHANIC ICE | 13.02.2021 | 12.02.2026 |
| 68 | MUKTA NATH NARAH | MECHANIC ICE | 13.02.2021 | 12.02.2026 |
| 67 | JOHN YEAM | ASST MECH ICE | 03.02.2021 | 02.02.2026 |
| 69 | NOBIN GOGOI | ASSIT. MECHANICAL ICE | 13.02.2021 | 12.02.2026 |
| 70 | BIREN RAJKONWAR | MECHANIC PUMP | 03.02.2021 | 02.02.2026 |
| 71 | BINANDA GOGOI | MECH PUMP | 13.02.2021 | 12.02.2026 |
| 72 | BIDYUT KONWAR | MECH PUMP | 03.02.2021 | 02.02.2026 |
| 73 | PARAG JYOTI DUTTA | MECHANIC PUMP | 13.02.2021 | 12.02.2026 |
| 74 | AMRIT BORAH | ASST. MECHANIC PUMP | 20.12.2023 | 19.12.2028 |
| 75 | MADHUJYA DUTTA | ASST. MECHANIC PUMP | 03.02.2021 | 02.02.2026 |
| 76 | RAJU KONWAR | ASST. MECHANIC PUMP | 03.02.2021 | 02.02.2026 |
| 77 | PRANJAL GOGOI | GAS LOGGER | 03.02.2021 | 02.02.2026 |
| 78 | LAKHI CHETIA | GAS LOGGER | 03.02.2023 | 02.02.2026 |
| 79 | SIDDHARTHA KONWAR | GAS LOGGER | 20.12.2023 | 19.12.2028 |
| 80 | APURBA PHUKAN | GAS LOGGER | 03.02.2021 | 02.02.2026 |
| 81 | UTPAL DAS | WELDER | 03.02.2021 | 02.02.2026 |
| 82 | KALYAN MECH | WELDER | 03.02.2021 | 02.02.2026 |
| 83 | PHANIDHAR KONWAR | CRANE OPERATOR | 13.02.2021 | 12.02.2026 |
| 84 | ABHIJIT GOGOI | CRANE OPERATOR | 22.01.2020 | 21.01.2025 |

THE SENTINEL WEDNESDAY 27 SEPTEMBER 2023 DIBRUGARH

ऑयल इंडिया लिमिटेड
( भारत सरकार का उद्यम )
**Oil India Limited**
(A Government of India Enterprise)

G20

P.O. Duliajan - 786602, Assam, India. CIN: L11101AS1959GOI001148

The Ministry of Environment, Forest and Climate Change (MoEF&CC) has accorded Environmental Clearance for Onshore Oil & Gas development drilling and production against the proposal No. IA/AS/IND2/246799/2018 under the provisions of EIA Notification, 2006.

The copy of Environmental Clearance, F.No.J-11011/546/2017 -IA(I) dated 20.09.2023 is available for reference with Pollution Control Board, Assam (PCBA) and may also be seen at the website of MoEF&CC at https://parivesh.nic.in/.

Nodal Officer EC/FC/NBWL, Oil India Limited

**Tinsukia, Wednesday, September 27, 2023**

**দৈনিক জনমভূমি**

তিনিচুকীয়া, বুধবাৰ, ৯ আহিন, ১৯৪৫ শক

ऑयल इंडिया लिमिटेड
( भारत सरकार का उद्यम )
**Oil India Limited**
(A Government of India Enterprise)

G20

P.O. Duliajan - 786602, Assam, India. CIN: L11101AS1959GOI001148

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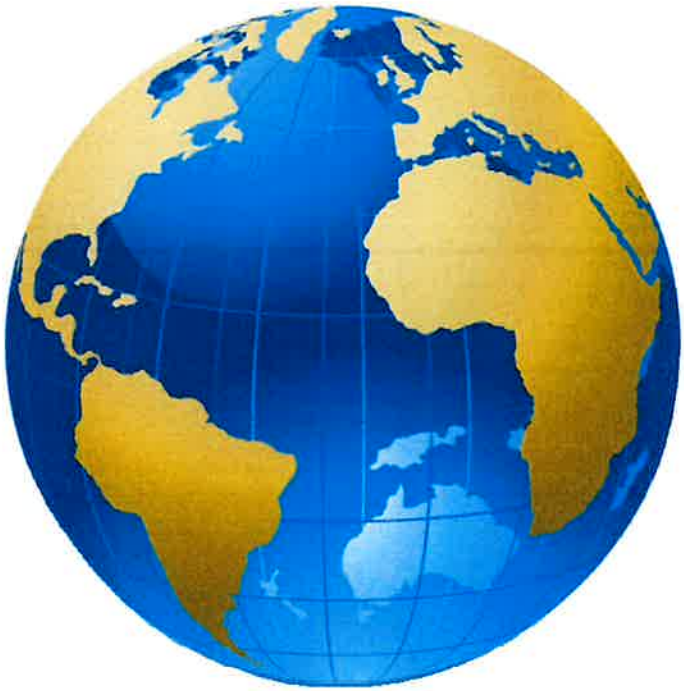
Nodal Officer EC/FC/NBWL, Oil India Limited

**ANNEXURE - A**

## ENVIRONMENT MANAGEMENT CELL OF OIL INDIA LIMITED – FHQ, DULIAJAN

| S.No | NAME | DESIGNATION | QUALIFICATION |
|---|---|---|---|
| 1. | Sri. Rupam Jyoti Sutradhar | Deputy General Manager (HSE) | B.Sc (Chemistry), M.Sc (Chemistry) |
| 2. | Sri. Swapnanil Kakaty | Deputy Chief Engineer (HSE) | B.E (Electrical Engineering) |
| 3. | Sri. Sachin Kumar Verma | Superintending Engineer (HSE) | B.Tech (Environmental Engineering) |
| 4. | Sri. Akash Neel Das | Superintending Engineer (HSE) | B.E (Mechanical Engineering), PG Diploma (Fire & Safety Management), PGDM |
| 5. | Sri. Bantupalli Sai Venkatesh | Superintending Engineer (HSE) | B.E (Civil Engineering), M.Tech (Environmental Engineering) |

# Common Environment Management Plan for Onshore Oil & Gas Drilling Activity



## Contents

## 1.0 INTRODUCTION:

OIL INDIA LIMITED (OIL), a Government of India Maharatna Enterprise, is currently engaged in carrying out hydrocarbon exploration and production activities mostly in its operational areas in Upper Assam, Arunachal Pradesh and Mizoram in the North Eastern part of India. OIL is also undertaking hydrocarbon exploration activities in few Indian states and few overseas countries. Oil India Limited was incorporated on 18th February 1959 to expand and develop the newly discovered oil fields of Naharkatia and Moran in the Indian North East. In 1961, it became a joint venture company between the Indian Government and Burmah Oil Company Limited, UK. In 1981, OIL became a wholly owned Government of India enterprise. Today, OIL is a premier Indian National Oil Company engaged in the business of exploration, development and production of crude oil and natural gas, transportation of crude oil and production of LPG.

Govt. of India and Assam has awarded Petroleum Mining Leases (PML) to OIL for exploration and development of oil & gas at Dibrugarh, Chabua, Tinsukia, Hugrujan, Naharkatiya Extn, Dholiya and Dumduma areas including the adjoining areas in Dibrugarh, Tinsukia and Sibsagar Districts.

## 2.0 Environmental Management Plan

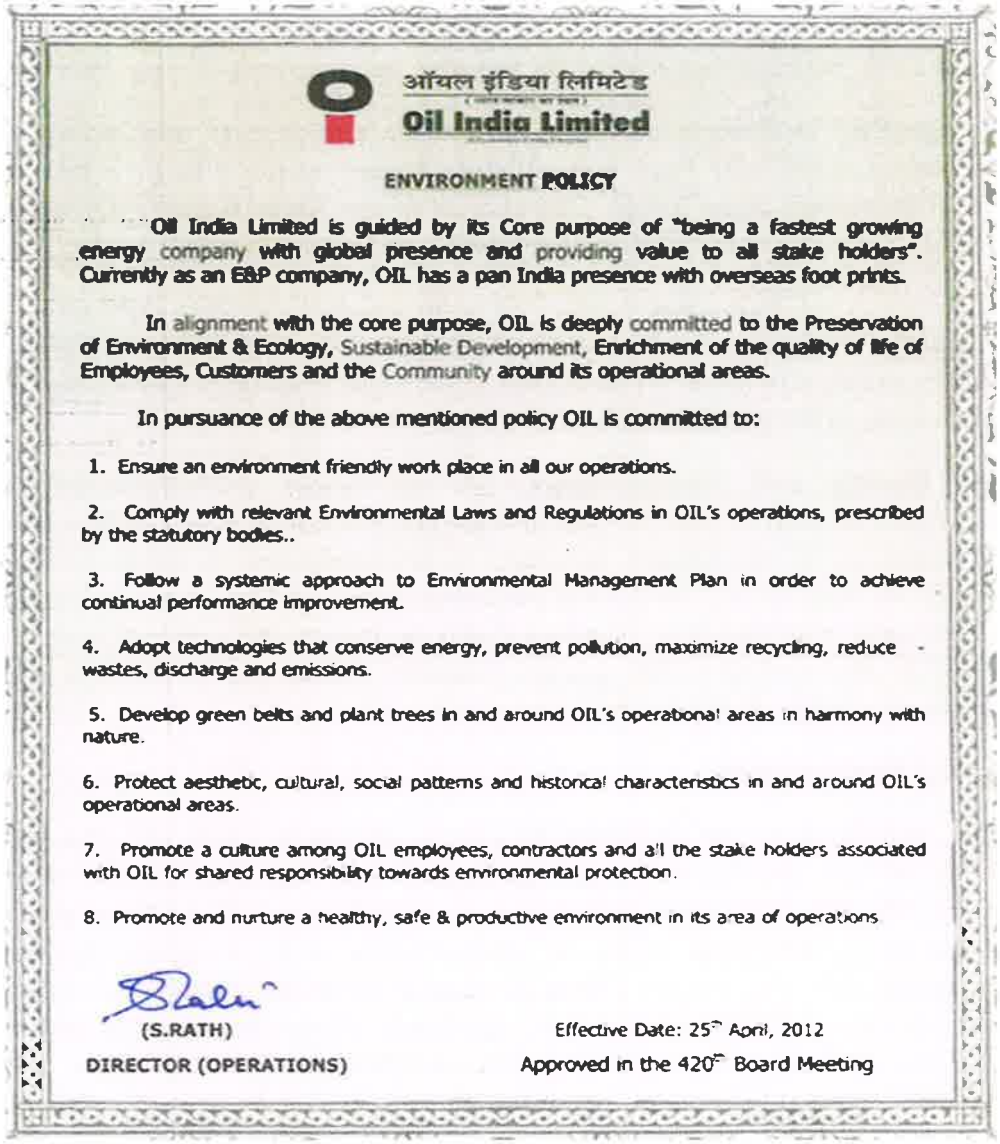
This Environmental Management Plan and Monitoring Framework is a site-specific document for the drilling activities that have been developed to ensure that OIL can implement the project in an environmentally conscious manner and where all contractors, understand the potential environmental risks arising out of the proposed project and take appropriate actions to properly manage such risk.

This EMP will be an overview document that will guide environmental management of all aspects of OIL's activities i.e. construction and operation of drilling wells. This EMP will be backed up by more specific Environmental Action Plans, Procedures and Bridging Documents.

The EMP describes the actions to be adopted in terms of:

- National Policies and Regulations;
- Best Practices and guides; and
- Local Environmental and Social Sensitivities.

**The Environment Policy of OIL is presented below.**



ऑयल इंडिया लिमिटेड
(भारत सरकार का उपक्रम)
**Oil India Limited**

**ENVIRONMENT POLICY**

Oil India Limited is guided by its Core purpose of "being a fastest growing energy company with global presence and providing value to all stake holders". Currently as an E&P company, OIL has a pan India presence with overseas foot prints.

In alignment with the core purpose, OIL is deeply committed to the Preservation of Environment & Ecology, Sustainable Development, Enrichment of the quality of life of Employees, Customers and the Community around its operational areas.

In pursuance of the above mentioned policy OIL is committed to:

1. Ensure an environment friendly work place in all our operations.
2. Comply with relevant Environmental Laws and Regulations in OIL's operations, prescribed by the statutory bodies..
3. Follow a systemic approach to Environmental Management Plan in order to achieve continual performance improvement.
4. Adopt technologies that conserve energy, prevent pollution, maximize recycling, reduce wastes, discharge and emissions.
5. Develop green belts and plant trees in and around OIL's operational areas in harmony with nature.
6. Protect aesthetic, cultural, social patterns and historical characteristics in and around OIL's operational areas.
7. Promote a culture among OIL employees, contractors and all the stake holders associated with OIL for shared responsibility towards environmental protection.
8. Promote and nurture a healthy, safe & productive environment in its area of operations.

(S.RATH)
DIRECTOR (OPERATIONS)

Effective Date: 25th April, 2012
Approved in the 420th Board Meeting

## 3.0 IMPACT ASSESSMENT

The potential impacts arising due to the construction and operation of the drilling activitiesare given below:

**3.1 Air Quality:** The operation of DG/GG sets, movement of vehicles and machineries during construction and drilling at drill sites will result in the generation of air pollutants viz. PM, NOx and SOx that may affect the ambient air quality temporarily. Air pollutants like particulate matter, hydrocarbons and NOx will also be generated during drilling operations.

**3.2 Noise Quality:** Operation of heavy machinery/equipments and vehicular movement during site preparatory and road strengthening/construction activities may result in the generation of increased noise levels. Operational phase noise impacts are anticipated from therunning of drilling rig and ancillary equipment *viz.* shale shakers, mud pumps and diesel generators, gas generators.

**3.3 Soil Quality:** Stripping of top soil will affect the soil fertility of the well sites temporarily. Potential adverse impacts on soil quality may also result from improper storage and handling of fuel, lubricants, drilling mud and drill cuttings.

**3.4 Water Quality and Hydrogeology:** All wastewater discharged from the drilling operations will be treated in the ETP and discharges will conform to CPCB standards. As the volume of water to be discharged is small, it is anticipated to cause minor increase in pollution load for specific parameters in receiving water bodies.Uncontrolled surface runoff from the drill sites may compose of waste fluids or storm water mixed with oil and grease and may pollute the surface water quality. However, the surface runoff will be treated with sedimentation tank and oil water separator at site.

**3.5 Biological Environment:**

The existing vegetation at the proposed drill sites, approach roads and RoU of the pipeline will be felled for site development.Noise generated from drilling operations and vehicular movement within the drill sites and approach roads may affect the reptiles, birds and mammals adversely and may result in their moving away from the project area for a temporary period. OIL will obtain Forest Clearance from MoEF&CC for drilling within the forestlands; all the conditions mentioned in the forest clearance would be complied. Surface runoff from the drill sites contaminated with sediment, may reachsurface water channels and increase the suspended solids load of the channel water. Increaseof suspended solid will increase the turbidity of river water that ultimately will adversely affect the DO level in the water. The turbid water and lower DO may affect the primary productivity of the impacted areas of the rivers. The process effluent will be adequately treated in the ETP to meet the industrial effluent discharge standards. The discharge of treated effluent is not expected to cause perceptible changes in the water quality of the receiving stream.

**3.6 Socio-Economic Environment:**Approximately 3 ha. land would be required for each well.Land will be purchased from local communities however; no physical displacement during land procurement is anticipated. Additionally, land will also be procured for construction of 100-200 m approach road to the drill site from existing roads. Anticipated number of families directly impacted would be limited to 2-5 nos. for each of the drill sites. The dependency of the landowner in case of generation of livelihood is limited as the land is classified as monocropped agricultural land.

OIL/its contractors would endeavour to provide maximum employment to the local people; however, certain percentage of semi-skilled and highly skilled migrant labour would be used by contractors for manning technical activities. It is anticipated that occasional conflicts would arise with the local community over the recruitment of migrant workers. Discomfort due to dust and noise to adjoining communities, influx of people are likely to occur.

The construction phase of the project is likely to generate both direct and indirect opportunities for employment. The estimated direct employment would be approximately 50 un-skilled workers during the peak construction phase that will primarily sourced from nearby areas. Indirect employment would be primarily in the supply chain as vendors, which are anticipated to be set up to support the construction.

**3.7 Impact on Community Health & Safety:**Community health and safety of inhabitants residing close to the proposed well sites stand to get affected from frequent heavy vehicular movements along village access roads and due to noise from drilling rig operations, movement of heavy vehicles during construction etc.

## 4.0 DETAIL ENVIRONMENTAL MANAGEMENT PLAN

### 4.1 Air Quality Management Plan

- Vehicles delivering raw materials like fine aggregates will be covered to prevent fugitive emissions.
- Sprinkling of water on earthworks, material haulage and transportation routes on a regular basis during construction and decommissioning phase of the wells.
- Flare stacks of adequate height would be provided.
- DG/GG set stacks would have adequate height, as per statutory requirements, to be able to adequately disperse exhaust gases
- Periodic monitoring of DG/GG set stack emission will be carried out in accordance with the Environmental Monitoring Plan to assess compliance with CPCB DG set exhaust standards.

### 4.2 Noise Management Plan

- Selection and use of low noise generating equipment with in-built engineering controls viz. mufflers, silencers, etc.
- All DG/GG sets would be provided with acoustic enclosures.
- Appropriate PPEs (e.g. ear plugs) will be used for by workers while working near high noise generating equipment.

- All vehicles utilized in transportation of raw materials and personnel will have valid Pollution under Control Certificates (PUC).
- All high noise generating equipment will be identified and subjected to periodic preventive maintenance.
- No night time operation of vehicles and construction activities will be undertaken.

### 4.3 Soil Quality Management Plan

- Drip trays to be used during vehicular/equipment maintenance and during re-fuelling operations.
- Spill kits will be made available at all fuel and lubricant storage areas. All spills/leaks contained, reported and cleaned up immediately.
- Dedicated paved storage area will be identified for the drilling chemicals, fuel, lubricants and oils within the drill sites.
- 1.5 mm HDPE lined pits will be considered for the disposal of unusable drilling mud cuttings and drilling wastewater etc.

### 4.4 Surface Water Quality Management Plan

- Levelling and grading operations will be undertaken with minimal disturbance to the existing site contours thereby maintaining the general slope and topographical profile of the site.
- During site preparation and construction, surface water run-off will be channelized through appropriately designed drainage system.
- Sediment filters and oil-water separators will be installed to intercept run-off and remove sediment before it enters water courses.
- Domestic wastewater generated from drill sites will be treated through septic tank and soak pit system and then discharged.
- Process wastewater would be treated in Effluent Treatment Plant (ETP)at drill sites.

### 4.5 Ground Water Quality Management Plan

- Water based mud would be used as a drilling fluid for the proposed project.
- Eco-friendly synthetic based mud if required for deeper sections, will be used after providing intimation to the Pollution Control Board;
- The drill cutting along with spent mud will be stored in HDPE lined pit.

### 4.6 Waste Management Plan

- Use of low toxicity chemicals for the preparation of drilling fluid.
- Management of drill cuttings, waste drilling mud, waste oil and domestic waste, wastewater in accordance with Standards for Emission or Discharge of Environmental Pollutants from Oil Drilling and Gas Extraction Industry of CPCB as modified in 2005.
- The hazardous waste (waste and used oil) will be managed in accordance with Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2016.
- The kitchen waste will be disposed in nearest municipal/village dumping site on a daily basis through approved waste handling contractors.
- The sewage generated will be treated through septic tank and soak pit system.
- Used batteries will be recycled through the vendors supplying lead acid batteries as required under the Batteries (Management & Handling) Rules, 2001.
- The drilling cuttings pit will be bunded and kept covered using tarpaulin sheets during monsoon.

### 4.7 Wildlife Management Plan

- Movement of heavy vehicles will be restricted at night time, especially if access roads pass though forest areas, as most of the mammals movement occurs during night;
- Noise levels at the drill siteswill be controlled through selection of low noise generating equipment and installation of sufficient engineering controls viz. mufflers, silencers etc.
- No temporary electric supply connection line from the grid will be laid for the proposed project activity. All electric requirements will be supplied from the internal DG sets.
- OIL will have to take Forest Clearance from MoEFCC for development of drill sites, access roads and laying of pipeline within forest areas.

### 4.8 Road Safety & Traffic Management Plan

- The condition of roads and bridges identified for movement of vehicles and drilling rig will be assessed and if required strengthened by OIL to ensure their safe movement.
- Precautions will be taken by the contractor to avoid damage to the public access routes including highways during vehicular movement.
- Traffic flows will be scheduled wherever practicable during period of increased commuter movement.

### 4.9 Occupation Health & Safety Management Plan

- All machines to be used in the construction will conform to the relevant Indian Standards (IS) codes, will be kept in good working order, will be regularly inspected and properly maintained as per IS provisions and to the satisfaction of the site Engineer.
- Hazardous and risky areas, installations, materials, safety measures, emergency exits, etc. shall be appropriately marked.

### 4.10 Management of Social issues and concerns

- People from adjoining areas especially given job preference through local contractors according to the skill sets possessed.
- Prior to the commencement of the proposed activity, a consultation program will be conducted by OIL with the target groups and local authorities. The primary objective of such consultation will be to share with the concerned villagers/stakeholders the objective of the proposed project associated impacts and their mitigation.
- OIL will give more emphasis and priority on periphery development, development of health facilities and provision for drinking water facility as per Corporate Social Responsibility (CSR) Plan.
- The drill sites would be fenced and gates would be constructed so that the children are refrained from straying into the site.

### 4.11 Emergency Response Plan

- Drilling rig and related equipment to be used for drilling will be conformed to international standards specified for such equipment.
- Blow-out preventers and related well control equipment shall be installed, operated, maintained and tested generally in accordance with internationally recognized standards.
- Appropriate gas and leak detection system will be made available at each of the drill sites.
- Adequate fire-fighting equipment shall be provided at each drilling site.

The environmental mitigation measures and plans are presented in form of a matrix according to the sequential flow of activities in the project life cycle. The matrix focuses on strategies to be adopted for safe guard of the environment from possible impacts resulting out of the project activities. The strategies have further been detailed out as management procedures and programmes in subsequent sections.

The EMP helps establish the linkage between the activities environmental impacts and mitigation measures and presents the monitoring framework i.e. the Environmental Performance Indicator (EPI) No. as well as the Environmental Quality Indicator (EQI).

## 5.0 Environment Management Matrix

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Physical Presence of drill site, rig and other machinery. | 1.1 | Change in visual characteristics of the area due to installation of drilling setup | Temporary change in landscape | On completion of works (in phases) all temporary structures, surplus materials and wastes will be completely removed. Only structure required for safety purposes would be retained on the bare drill site. | Site Inspection | Construction &Drilling | OIL/Contractor | Waste Management Plan |
| | | 1.2 | Increase of illumination at night time due to installation of drilling setup | Temporary disturbance of the nearby villagers | Appropriate shading of lights to prevent scattering | Grievance records/ Consultation with Villagers | Construction &Drilling | OIL/Contractor | Management of social issues & concerns |
| | | 1.3 | Influx of man power & immigrant labour force to nearby villages | Possibility Cultural and behavioural conflict | Preference used of local labour forces to the extent possible | Grievance records | Construction &Drilling | OIL/Contractor | Management of social issues & concerns |
| 2. | Storage & Handling of Materials & Spoils | 2.1 | Emission of fugitive dust from loading & unloading operation | Temporary impact on air quality especially SPM | All loading and unloading activities to be carried out as close as possible to the storage facilities. | Site Inspection | Construction &Drilling | OIL/Contractor | Air Quality Management |
| | | 2.2 | Accidental spillage of oil & chemicals | Potential contamination surface water body resulting impact on aquatic ecosystem | All spills to be reported and contained to prevent entry of spilled chemicals/fuels to any surface water body or drainage channel | Records of spills/Community Grievances | Construction &Drilling | OIL/Contractor | Surface water quality management plan, Wildlife Management Plan |
| | | | | Potential impact on soil quality | All spills to be reported and remedial measures to be taken for clean-up of the spill. | Records of Spills/Site Inspection | Construction &Drilling | OIL/Contractor | Spill management plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| 3. | Transport of Materials, Spoils and Machinery | 3.1 | Emission of gaseous pollutants from vehicle during transportation of materials, spoils and machinery | Temporary deterioration on air quality along transport route | All diesel-powered equipment will be regularly maintained and idling time reduced to minimise emissions;<br><br>Vehicle / equipment air emissions will be controlled by good practice procedures (such as turning off equipment when not in use);<br><br>Vehicle / equipment exhausts observed emitting significant black smoke in their exhausts will be serviced/ replaced | Records and Site Inspection | Construction &Drilling | OIL/Contractor | Air Quality Management plan |
| | | 3.2 | Noise emission during transport of materials, spoils and machinery | Temporary deterioration in ambient noise along the transportation route | Undertake preventive maintenance of vehicles and machinery to reduce noise levels.<br><br>Restriction on unnecessary use of horns by trucks and vehicle in settlement area | Site<br><br>Inspection/Records of<br><br>repairs | Construction &Drilling | OIL/Contractor | Noise Quality Management Plan |
| 4. | Operation & maintenance of rig and associated machinery. | 4.1 | Emission of air pollutant from DG/GG sets | Temporary impact on air quality due to increase in concentration of gaseous pollutants e.g. NOx , HC | Preventive maintenance of DG sets to be undertaken as per manufacturers schedule | Site<br><br>Inspection/Records of<br><br>repairs | Drilling | OIL/Contractor | Air Quality Management plan |
| | | 4.2 | Emission of Noise from DG/GG sets | Temporary increase of ambient as well a | All workers working near high noise generating equipment to be provided | Recording of Noise | Drilling | OIL/Contractor | Noise Quality Management Plan and |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | work place noise level | with Personal Protective equipment<br><br>Preventive maintenance of machinery to be undertaken as per manufacturers schedule<br><br>Install sufficient engineering control (mufflers) to reduce noise level at source | | | | Occupational Health & Safety Management Plan |
| | | 4.3 | Emission of noise from operation of the rig | Temporary increase of ambient as well a work place noise level | All workers working near high noise generating equipment to be provided with Personal Protective equipment<br><br>Preventive maintenance of machinery to be undertaken as per manufacturers schedule | Site<br><br>Inspection | Drilling of Wells | OIL/Contractor | Noise Quality Management Plan and Occupational Health & Safety Management Plan |
| | | 4.4 | Abstraction of ground water for project usage | Depletion of ground water resources | Optimize use of water during drilling operations | Record Keeping and Auditing | Construction &Drilling | OIL/Contractor | None |
| | | 4.5 | Noise from mud pump during preparation of drilling mud | Temporary increase of ambient & work place noise level | Preventive maintenance of machinery to be undertaken as per manufacturers schedule | Recording of Noise | Drilling of Wells | OIL/Contractor | Noise Quality Management Plan and Occupational Health &Safety Management |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | All workers working near high noise generating equipment to be provided with Personal Protective equipment | | | | Plan |
| | | 4.6 | Accidental spillage of chemicals during preparation drill mud | Contamination of soil resulting loss of soil living organism | Manage spills of contaminants on soil | Records of spills | Drilling of Wells | OIL/Contractor | Spill Management plan |
| | | 4.7 | Accidental spillage of chemicals during preparation drill mud | Potential impact on surface water quality and aquatic ecosystem | All spill to be contained so that it does not reach any surface water body or drainage channels | Records of spills | Drilling of Wells | OIL/Contractor | Surface water quality management plan |
| 5. | Operation & maintenance of Vehicles | 5.1 | Emission of Noise from vehicles | Temporary increase of noise level in areas abutting transport route | Preventive maintenance of vehicles to be undertaken as and when required | Maintenance Records | Construction &Drilling | OIL/Contractor | Noise quality management plan |
| | | 5.2 | Emission of gaseous air pollutant from vehicles | Temporary deterioration air quality in areas abutting transport routes | Preventive maintenance of vehicles to be undertaken as and when required | Site Inspection/Records of repairs | Construction &Drilling | OIL/Contractor | Air quality management plan |
| | | 5.3 | Spillage of fuels & lubricants from vehicles | Contamination of soil resulting loss of soil living organism | Adopt best practices e.g. use pumps and dispensing nozzle for transfer of fuel, use of drip trays. Etc. | Site Inspections/Audits | Construction &Drilling | OIL/Contractor | Spill Management plan |
| | | | | Impact on surface water quality and | The drainage system on site to be provided with Sedimentation tank and Oil- | Site Inspection/Audits | Drilling | OIL/Contractor | Surface water quality management |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | aquatic ecosystem | water Separator to prevent contamination especially oil and grease from being carried off by runoff. | | | | plan and Spill Management plan |
| 6. | Casing & cementing of well | 6.1 | Noise from machinery during preparation of cement slurry | Temporary increase of ambient noise level | Install sufficient engineering control on equipment and machineries (like mufflers in DG sets) to reduce noise and vibration emission levels at source, carry out proper maintenance and subject them to rigid noise and vibration control procedures. | Site Inspection | Drilling of Wells | OIL/Contractor | Noise quality management plan |
| | | 6.2 | Loss of drilling mud and cement slurry during casing of well | Potential contamination of ground water aquifer | Proper engineering controls during cementing operation to prevent migration of drilling mud and cement slurry into ground water aquifer | Site Inspection | Drilling of Wells | OIL/Contractor | Ground water quality management plan |
| 7. | Temporary storage, handling & disposal of process waste | 7.1 | Accidental spillage of process waste (unused cement slurry, return mud & drill cuttings) at the temporary storage site | Potential for contamination of soil and ground water | Proper engineering controls for the drilling and cementing operations; | Drilling and Decommissioning Phases | Drilling and Decommissioning Phases | OIL/Contractor | Ground water quality management plan |
| | | 7.2 | Surface runoff from temporary storage site of drill cuttings & unused mud into surface water bodies | Impact on surface water quality and aquatic ecosystem | All Temporary waste storage area will have proper bunds to prevent any escape of contaminated runoff<br><br>Ensure that any runoff from such temporary storage area | Site Inspection and Record keeping | Drilling and Decommissioning Phases | OIL/Contractor | Surface water quality management plan and Spill Management plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | are channelized into ETP | | | | |
| | | 7.3 | Accidental leakage/spillage of oils and lubricants and fuel from temporary storages | Contamination of soil resulting in loss of soil living organism | Dispose process waste and domestic waste as per regulation/ best practices<br><br>Dispose debris and waste in designated areas and as per plan to prevent degradation of land | Site Inspection | Construction &Drilling | OIL/Contractor | Waste Management Plan and Spill Management plan |
| | | 7.4 | Accidental leakage/spillage of oils and lubricants from temporary storages | Contamination of surface water resulting in deterioration of surface water quality and adverse impact on aquatic ecosystem | All chemical and fuel storage areas will have proper bunds so that contaminated run-off cannot escape into the storm-water drainage system.<br><br>The waste pits (waste water and drill cuttings) will be bounded and covered by tarpaulin sheet to prevent mixing of runoff water with waste water and leachate from waste pit and also reduce the volume of waste water. | Site Inspection | Construction &Drilling | OIL/Contractor | Waste Management Plan and Spill Management plan |
| | | 7.5 | Disposal/spillage of spent oils & lubricants into environmental media | Contamination of soil resulting loss of soil living organism<br><br>Contamination of surface water resulting deterioration of surface water quality and aquatic | Ensure recycling of spent oil & lubricant through authorized dealer | Site Inspection | Construction &Drilling | OIL/Contractor | Waste Management Plan and Spill Management plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ecosystem | | | | | |
| | | 7.6 | Disposal of used battery & spent filters in environmental media | Potential for contamination of soil, ground water and surface water body | Ensure recycling of waste through authorized waste recycler | Site Inspection and Record Keeping | Construction &Drilling | OIL/Contractor | Waste Management Plan and Spill Management plan |
| | | 7.7 | Offsite disposal of metallic, packing, scrap | Localized visual impacts | | Site Inspection and Record Keeping | Construction &Drilling | OIL/Contractor | Waste Management Plan |
| 8. | Testing & Flaring of natural gas | 8.1 | Emission of air pollutants from flare stack at drill site . | Temporary localized deterioration air quality (NOx, HC) | Proper engineering controls to ensure complete combustion of gas<br><br>Location of Flare stack to be chosen considering the sensitive receptors adjoining the site | Engineering Designs /Site inspections | Construction & Drilling | OIL S& E Teamand Drilling team | Waste Management Plan |
| 9. | Storage of materials (equipment, chemicals, fuel) | 9.1 | Accidental spillage during storage and handling of materials | Potential for contamination of soil & ground water | Impervious storage area, especially for fuel & lubricant, chemical, hazardous waste, etc. | Site Inspection | Construction &Drilling | OIL/Contractor | Spill Management plan |
| | | | | Safety concerns for workers involved in handing of hazardous materials | Personal protective equipment to be provided to workers involving in handling of hazardous materials | Site Inspection | Construction &Drilling | OIL/Contractor | Health and Safety Plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| 10. | Technical Emergencies | 10.1 | Probability of accidental leakage of gas/ liquid hydro-carbons due to failure of safety devices | Potential adverse impact on personnel, environment & assets | Proper engineering controls to prevent leakage of sour gases<br><br>Obtain an early warning of emergency conditions so as to prevent a negative impact on personnel, the environment, and assets<br><br>Safeguard personnel to prevent injuries or loss of life by either protecting personnel from the hazard and/or evacuating them from the facilities<br><br>Minimize the impact of such an event on the environment and the facilities by mitigating the potential for escalation and, where possible, containing the release<br><br>Develop evacuation procedures to handle emergency situations. | Site Inspection | Drilling | OIL/Contractor | Emergency Response Plan |
| 11. | Dismantling of rig & associated machineries | 11.1 | Emission of noise during dismantling of rig | Temporary deterioration of ambient noise quality resulting in discomfort | All noise generating activities will be restricted during day time | Site Inspection | Well Decommissioning Phase | OIL/Contractor | Noise quality management plan |
| | | 11.2 | Generation of waste during dismantling of rig | Temporary visual impacts | Storage of waste in designated areas only recyclable waste should be recycled through authorized | Site Inspection | Well Decommissioning Phase | OIL/Contractor | Waste Management Plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | water recycler | | | | |
| | | 11.3 | Disposal/spillage of spent oils &lubricants into environmental media | Contamination of soil resulting loss of soil living organism<br><br>Contamination of surface water resulting deterioration of surface water quality and aquatic ecosystem | Manage spills of contaminants on soil | Site Inspection and Record keeping | Well Decommissioning Phase | OIL/Contractor | Waste Management Plan |
| 12. | Transportation of drilling facilities | 12.1 | Emission of gaseous air pollutant during transportation of drilling facilities | Temporary localized deterioration of air quality due to emission gaseous pollutants | Vehicle / equipment air emissions will be controlled by good practice procedures (such as turning off equipment when not in use); and<br><br>Vehicle / equipment exhausts observed emitting significant black smoke in their exhausts will be serviced/ replaced | Site Inspection and Record keeping | Well Decommissioning Phase | OIL/Contractor | Air quality management plan |
| | | 12.2 | Fugitive emissions due to re-entrainment of dust during transport of drilling facilities | Temporary localized deterioration of air quality due to increase in SPM levels | Approach road to be sprinkled daily with water | Site Inspection | Well Decommissioning Phase | OIL/Contractor | Air quality management plan |
| | | 12.3 | Emission of noise during transport of drilling facilities | Temporary deterioration of noise quality | Restrict all noise generating operations, except drilling, to daytime | Site Inspection | Well Decommissioning Phase | OIL/Contractor | Noise quality management plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Restriction on unnecessary use of horns by trucks and vehicle in settlement area | | | | |

## 6.0 Summary and Conclusion

The EMP has been made to assess the potential significant adverse environmental effects due to the proposed construction and drilling activities.

Mitigation measures have been proposed as part of EMP to minimize adverse environmental impacts, if any. Risk assessment includes Jet Fire and Vapour Cloud Explosion for blowout of wells. The existing Emergency Management Plan of OIL will be extended to this project, strengthened as necessary and implemented in the event of any emergency arising due to above mentioned risks.

The present impact assessment study indicates that the overall impact from the proposed project will be short to medium term, reversible, localised and are not expected to contribute significantly to the surrounding environment. Also, with the implementation of the pollution control and strengthen the existing environment management measures, these anticipated impacts due to proposed site preparation and drilling operation and decommissioning activities of the proposed project will be mitigated. Summary of impact significance without mitigation measures and with mitigation measures is presented at the table below.

**Summary of Impact Significance without and with Mitigation Measures**

| Impact | Impact significance without mitigation measures | Impact significance with mitigation measures |
|---|---|---|
| Aesthetic & visual | Moderate | Minor |
| Land Use | Negligible | - |
| Soil Quality | Moderate | Minor |
| Air Quality | Moderate | Minor |
| Noise Quality | Major | Moderate |
| Road & Traffic | Moderate | Minor |
| Surface Water Quality | Moderate | Moderate |
| Ground water resource | Minor | Minor |
| Ground Water Quality | Moderate | Minor |
| Terrestrial Ecology | Negligible | - |
| | Minor | Minor |
| | Major | Moderate |
| Aquatic Ecology | Moderate | Moderate |
| Livelihood & Income generation | Moderate | Moderate |
| Conflict with local people | Moderate | Moderate |
| Benefit to Local Enterprises | Positive | - |
| Employment Generation | Positive | - |
| Occupational health & safety | Moderate | Minor |
| Community health & safety | Moderate | Minor |

OIL will also ensure that the environmental performances of all the activities are monitored throughout execution of the project during site preparation, drilling and decommissioning phases. Monitoring will be carried out for ambient air quality, stack emission, noise quality, quality of treated effluents, surface and groundwater qualities, waste generated and disposed etc. and verified that they meet the prescribed standards. OIL will continue to report environmental performance and submit monitoring reports regularly to statutory authorities.

The effective management system coupled with monitoring of environmental components and efforts for continual improvements will result in satisfactory environmental performance of the proposed oil and gas drilling and development project.

# THANKS YOU

**Annexure - C**

ऑयल इंडिया लिमिटेड
( भारत सरकार का उद्यम )
**Oil India Limited**
(A Government of India Enterprise)

*Health Safety & Environment Department*
P.O. DULIAJAN-786602,
ASSAM, INDIA
Phone : 0374-2800542
Fax : 0374-2801796
Email: safety@oilindia.in

Ref. No.: S&E/E/21(B)/940

Date: 20.09.2023

**To**
**The Member Secretary,**
**Pollution Control Board, Assam,**
**Bamunimaidam, Guwahati- 781021.**

**Sub:** Submission of Environmental Statement (Form-V) under Environment (Protection) Rules, 1986.

Sir,

With reference to the above subject, we are submitting herewith the Environmental Statement (Form-V) for the financial year ending 31st March, 2023 pertaining to the operations of Oil India Limited in the districts of Dibrugarh, Tinsukia, Sivsagar and Charaideo in Assam.

Thanking You,

Yours faithfully
OIL INDIA LIMITED

(Ajit Chandra Haloi)
Executive Director (HSE)
For **Resident Chief Executive**

Encl: As above.

**Copy:**
1. Regional Executive Engineer,
   Pollution Control Board Assam,
   Back Side of ASTC Bus Station,
   Chowkidinghee, Dibrugarh,
   PIN: 786001.

2. Executive Engineer,
   Regional Laboratory cum Office,
   Pollution Control Board Assam,
   Melachakar, Sibsagar,
   PIN: 785640.

**FORM – V**
**(See Rule 14)**
**ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2023**

## PART – A

(i) **Name and address of the owner/occupier of the industry operation or process.**

OIL INDIA LIMITED
P.O. DULIAJAN
DIST. DIBRUGARH
ASSAM -786602.

***Note:*** Environmental Statement (Form – V) is pertaining to the operations of Oil India Limited in the districts of Dibrugarh, Tinsukia, Sivasagar and Charaideo in Assam.

(ii) **Industry category:** Red - Oil and gas extraction (on-shore extraction through drilling wells)

(iii) **Production capacity – Units**

OIL's production target is fixed as per the Memorandum of Understanding (MoU) with Ministry of Petroleum and Natural Gas, Govt. of India, which varies from year to year.
Production details during F.Y. 2022-23:

- **Crude Oil:** 3.114 MMT.
- **Natural Gas:** 2809.214 MMSCM
- **LPG:** 32,100 MT.

(iv) **Year of establishment:**
OIL INDIA LTD. was formed in 1961 as a joint venture with M/S. Burma Oil Company, UK and on 14th Oct. 1981, OIL became a fully owned Govt. of India Enterprise.

(v) **Date of last Environmental Statement submitted:** 20.09.2022.

## PART – B
## WATER AND RAW MATERIAL CONSUMPTION

(I) Water consumption $m^3/d$:

| S.No | Purpose | Water Consumption ($m^3$/ day) |
|---|---|---|
| 1. | Process & Cooling | 14473.7 |
| 2. | Domestic | 16038.63 |
| **TOTAL** | | **30512.33** |

| Name of Products | Process water consumption per unit of product output | |
|---|---|---|
| | During F.Y. 2021-22 | During F.Y. 2022-23 |
| (1) | (2) | (3) |
| Hydrocarbon (Crude Oil, Natural Gas, LPG) | 1.12 $m^3$/MT (Approx.) | 1 $m^3$/MT (Approx.) |

(II) Raw material consumption

| *Name of raw materials | Name of products | Consumption of raw material per unit | |
|---|---|---|---|
| | | During F.Y. 2021-22 | During F.Y. 2022-23 |
| No raw materials are used as Oil India Limited is engaged in Exploratory and development drilling activities & production of Crude Oil and Natural Gas. However, chemicals such as Bentonite are used for preparation of Water based drilling mud. | | | |

## PART – C
## POLLUTION DISCHARGED TO ENVIRONMENT/UNIT OF OUTPUT

(Parameter as specified in the consent issued).

| Pollutants | Quantity of Pollutants Discharged (mass/day) | Concentrations of pollutants in discharges (mass/volume) | Percentage of variation from prescribed standards with reasons |
|---|---|---|---|
| (a) Water | **NIL.**<br>There is no discharge of pollutants from drilling locations and Production Installations.<br>• Wastewater generated from drilling locations is treated in Effluent Treatment Plant (ETP) and reused back in the drilling operation.<br>• The formation water generated after separation from crude oil and | • Quality of ETP treated water from the drilling locations is analyzed frequently. (Test report is enclosed as ***Annexure – I***).<br>• Quality of Formation water is analyzed frequently (Test report enclosed as ***Annexure-*** | No variation is observed.<br><br>All parameters of treated effluent and Formation water are within the permissible limits. |

| | | | |
|---|---|---|---|
| | treatment is pumped back to the underground formation (depth greater than 1600 m) through formation water disposal wells. | ***II***) | |
| (b) Air | No major air pollutants are emitted from Oil & Gas exploratory and development drilling and production activities except Stack Gas emissions at drilling locations and Production Installations & Flaring at Oil Collecting Stations. | Stack Gas and Ambient Air Quality (AAQ) monitoring is carried out frequently at drilling locations and Production Installations (Test report enclosed as ***Annexure- III***) | No variation is observed.<br><br>All parameters of Stack Gas emissions and Ambient Air are within the permissible limits. |

## PART – D
## HAZARDOUS WASTES

(As specified under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016)

| **Hazardous Wastes** | **Category of Hazardous Waste as per Schedule - I of HW Rules, 2016** | **Total Quantity generated** | |
|---|---|---|---|
| | | **During F.Y. 2021-22** | **During F.Y. 2022-23** |
| a) From process | S.No. 2.2 Sludge containing Oil | 9943 MT | 4671.52 MT |
| | S.No. 5.1 Used or Spent Oil | 60 KL | 208 KL |
| | S.No. 33.1 Empty barrels/ containers/liners contaminated with hazardous chemicals/ wastes | 41569 Nos. | 26616 Nos. |
| | S.No. 33.2 Contaminated cotton rags or other cleaning materials | 3.7 MT | 6.19 MT |
| b) From pollution control facilities | S.No. 33.5 Chemical sludge from waste water treatment | 2600 KL | 120.84 KL |

## PART – E
## SOLID WASTES

| Solid Wastes | Total Quantity | |
|---|---|---|
| | During F.Y. 2021-22 | During F.Y. 2022-23 |
| *(a) From process*<br><br>Drill Cuttings | 23,000 $m^3$ (Approx.) | 27,000 $m^3$ (Approx.) |
| *(b) From pollution control facilities* | NIL | |
| *(c)*<br>(1) Quantity recycled or re-utilized within the unit.<br>(2) Sold<br>(3) Disposed | N/A<br><br>N/A<br>N/A | |

## PART – F
## PLEASE SPECIFY THE CHARACTERIZATION (IN TERMS OF COMPOSITION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES.

**(I) Hazardous Wastes:**

| Name of the Hazardous Waste | Quantity generated during F.Y. 2022-23 | Disposal Practices |
|---|---|---|
| a) Sludge containing Oil | 4671.52 MT | Sent to Sludge Processing Plant for oil recovery followed by Bioremediation |
| b) Used or Spent Oil | 208 KL | Stored in barrels under covered shed and sold to authorized recyclers through auction |
| c) Empty barrels/ containers/liners contaminated with hazardous chemicals/ wastes | 26616 Nos | Sold to authorized recyclers through auction |
| d) Contaminated cotton rags or other cleaning materials | 6.19 MT | Bioremediation |
| e) Chemical sludge from waste water treatment | 120.84 KL | Disposed in HDPE lined pits |

**(I) Solid Wastes:**

| Name of the Solid Waste | Quantity generated during F.Y. 2022-23 | Disposal Practices |
|---|---|---|
| a) Drill Cuttings | 27,000 $m^3$ (Approx.) | Disposed in HDPE lined pits |

## PART – G

## IMPACT OF THE POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION

- Acoustic enclosures have been provided around all gensets to reduce noise levels.
- Recovery of drilling mud from drill cuttings by using a combination of Vertical Cutting Dryer (VCD) and a high-performance centrifuge.
- Wastewater generated from drilling locations is collected in HDPE lined pits, treated in Effluent Treatment Plant (ETP) with Reverse Osmosis unit and the treated effluent is reused back in the drilling operation.
- Formation water generated from Production Installations is treated in Effluent Treatment Plant (ETP) before disposal in the abandoned/ water disposal wells.
- Processing of oily sludge for recovery of Crude oil and further treatment of sludge through Bioremediation.
- Construction of central concrete pit for disposal of waste mud.
- Treatment of Biomedical waste through incinerator.
- Plantation of 50,000 saplings was carried out at 8 nos. of abandoned OIL well sites.

## PART – H

**Additional measures/investment proposal for environmental protection, abatement of pollution, prevention of pollution.**

- MoU with District Administration, Tinsukia for treating the legacy waste of Tinsukia Municipality through the process of Biomining.
- Proposal for construction of Community Sewage Treatment Plant (STP) at Duliajan.
- MoU with Digboi Forest division, Assam for carrying out afforestation in 100 Ha of degraded forest area.
- MoU with IIT Guwahati to study the feasibility of using treated drill cutting as a building material.

## PART – I

## ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT.

**********

ENVIROCON
Recognised By
Pollution Control Board, Assam

Envirocon Building, I.O.C.L (AOD) New Market
P.O.: Digboi, Dist.: Tinsukia, Assam – 786 171
Ph: 03751-264414, 9435008657, 8876028672
E-mail: envirocon@rediffmail.com

Annexure - I

ISO 9001:2015 Certified
ISO 45001:2018 Certified

Report No.: ENV/ARDS/22-23/S-07/WW-03/01
Date : 22/03/2023

Order No.: Telecon
Date :

Report Issued To : **ADITI R & D SERVICES**
Nilesh Buisness Complex, A. T. Road, Digboi, Assam

## TEST RESULTS

Sample Ref. No. : ARDS/2023/S-07/1303/01 Sample Source : Rig S#7/MFT, Sonari Sample Type : ETP Treated Water (RO)
Collected On : 13-03-2023 Received On : 14-03-2023 Collected By : ETP Supervisor, ARDS

| Sl. No. | Parameters | Results | Limit [G.S.R. 176(E), 02.04.1996] |
|---|---|---|---|
| 1 | Colour | Colourless | Colourless |
| 2 | Odour | Odourless | Odourless |
| 3 | pH value | 7.16 | 5.5 – 9.0 |
| 4 | Temperature, °C | 25.6 | 40 °C |
| 5 | TSS, mg/l | 3.9 | 100 |
| 6 | BOD, mg/l | <1.0 | 30 |
| 7 | COD, mg/l | 13 | 100 |
| 8 | Chlorides (as Cl), mg/l | 3.6 | 600 |
| 9 | Sulfates (as $SO_4$), mg/l | <1.0 | 1000 |
| 10 | TDS, mg/l | 61 | 2100 |
| 11 | Sodium, (%) | 1.6 | 60 |
| 12 | Oil & Grease, mg/l | <4.0 | 10 |
| 13 | Phenolic Compounds as $C_6H_5OH$, mg/l | <0.001 | 1.2 |
| 14 | Cyanides , mg/l | <0.001 | 0.2 |
| 15 | Fluorides (as F), mg/l | <0.01 | 1.5 |
| 16 | Sulfide (as S), mg/l | <0.01 | 2.0 |
| 17 | Chromium ($Cr^{+6}$), mg/l | <0.001 | 0.1 |
| 18 | Chromium (Total) , mg/l | <0.001 | 1.0 |
| 19 | Copper, mg/l | <0.001 | 0.2 |
| 20 | Lead, mg/l | <0.001 | 0.1 |
| 21 | Mercury, mg/l | <0.001 | 0.01 |
| 22 | Nickel, mg/l | <0.001 | 3.0 |
| 23 | Zinc, mg/l | <0.01 | 2.0 |

Analysis Protocol: IS 3025

*Checked By*: Mr. Pankaj Baroi, **ENVIROCON**

NOTE: 1. Results reported are valid at the time of and under the prevailing conditions of measurement.
2. Results refer only to the particular parameters tested.
3. This test report shall not be reproduced except in full, without the written permission of ENVIROCON, I.O.C.L (AOD) New Market, Digboi – 786171, Assam.

Annexure - II

ऑयल इंडिया लिमिटेड
Oil India Limited

**CHEMICAL LABORATORY**

*(An ISO 9001 : 2015 Certified Laboratory)*

CHEMICAL DEPARTMENT, DULIAJAN 786 602, ASSAM, INDIA
(Phone : 91-374-2800439, Fax : 91-374-2801680/2800633.
Email : chemical@oilindia.in)

For internal use only

Ref. No.: Chem/Ana/Misc/466/DJN/23 Date: 23.03.2023

CGM - PSS

Attn.: Prajesh Das, Dy.CE(PSS) & IM -STF

**Sub: WATER SAMPLE ANALYSIS REPORT OF STF MADHUBAN**

Ref.:- PSS/ STF-35/2022-23/434, Date:- 21.03.2023

Reference above, please find below the test results of the water sample forwarded to us from your end for laboratory testing.

| Characteristics | Unit | Clarified water sample | Test Method/ Instrument used |
|---|---|---|---|
| pH | - | 8.4 | Metrohm pH meter |
| TSS | mg/l | 56 | Gravimetric method |
| TDS | mg/l | 4100 | Gravimetric method |
| Salinity as NaCl | mg/l | 2100 | Titraton with silver nitrate |
| Oil & Grease | mg/l | Nil | Horiba oil content analyser |
| Turbidity | NTU | 6.02 | Turbidity meter |

**Sample details :**

The above clarified water sample was collected by PSS Department from STF Madhuban on 21.03.2023 & received at Analytical & Environmental laboratory on 21.03.2023 for necessary laboratory testing.

***Note: Parameters were tested as per requirement of the customer mentioned in the memo.***

*Tested by :- WR/PJK/PS/NC*

Pranab Jyoti Das
Suptdg. Chemist (Lab)
For DGM-Chemical (Lab)

Copy : Analytical & Environmental sec. file
ChemLab/Ana/Report/Water/04

Mitra S. K. Private Limited

Annexure - III

# STACK GAS MONITORING REPORT

| Name & Address of the Customer | Report No. | : MSK/2022-23/1881 |
|---|---|---|
| "M/s OIL INDIA LIMITED" | Report Date | : 31.01.2023 |
| Duliajan, Dibrugarh, Assam-786602 | Nature of Sample | : Stack Emission |
| | Sample Mark | : GCS TENGAKHAT |
| | Sample Number | : MSK/GL/ED/2022-23/12/00398 |

Ref. No.:W.O. NO.- 8125981 of Contract No. 6116895

| Date of Sampling | Sample Received Date | Analysis Start Date | Analysis Complete Date |
|---|---|---|---|
| 14.12.2022 | 17.12.2022 | 17.12.2022 | 24.12.2022 |

## ANALYSIS RESULT

| | | |
|---|---|---|
| A. | General information about stack : | : GB-1 |
| 1 | Stack connected to | : GAS COMORESSOR |
| 2. | Emission due to | : NG |
| 3. | Material of construction of Stack | : MS |
| 4. | Shape of Stack | : Circular |
| 5. | Whether stack is provided with permanent platform & ladder | : Yes |
| 6. | DG capacity | : NIL |
| B. | Physical characteristics of stack : | |
| 1 | Height of the stack from ground level | : 3.6576 m |
| 2. | Diameter of the stack at sampling point | : 0.2032 m |
| 3. | Area of Stack | : 0.03241 m2 |
| C. | Analysis/Characteristic of stack:<br>1. Fuel used : NG | |

| D. | Result of sampling & analysis of gaseous emission | Result | Limit as per CPCB | Method |
|---|---|---|---|---|
| 1 | Temperature of emission (°C) | 187 | ... | USEPA Part 2, 25.09.1996 |
| 2. | Barometric Pressure (mm of Hg) | 762.0 | ... | USEPA Part 2, 25.09.1996 |
| 3. | Velocity of gas (m/sec.) | 24.4 | ... | USEPA Part 2, 25.09.1996 |
| 4. | Quantity of Gas Flow (Nm3/hr) | 1854 | ... | USEPA Part 2, 25.09.1996 |
| 5. | Concentration of Oxygen (%v/v) | 13.6 | ... | IS:13270 :1992 Reaff, 2014 |
| 6. | Concentration of Carbon Monoxide (mg/Nm3) | 25.1 | ... | IS:13270 :1992 Reaff, 2014 |
| 7 | Concentration of Carbon Dioxide (%v/v) | 5.8 | ... | IS:13270 :1992 Reaff, 2014 |
| 8. | Concentration of Sulphur Dioxide (mg/Nm3) | 20.5 | ... | USEPA-29, 25/06/1996 |
| 9. | Concentration of Nitrogen Oxide (ppmv) | 69.3 | ... | USEPA Part-6, 25/09/1996 |
| 10. | Concentration of Lead (mg/Nm3) | <0.005 | ... | USEPA Part-7, 12/03/1996& USEPA 18 -25.09.1996 |
| 11 | Concentration of Particulate matter (mg/Nm3) | 35.9 | ... | USEPA Part-17, 16/08/1996 |
| 12. | Concentration of Hydrocarbons (ppm) | 13.46 | ... | USEPA 18 -25.09.1996 |
| E. | Pollution control device :<br>Details of pollution control devices attached with the stack : Nil | | | Remarks:Nil |

**Analyzed By:**

Signature :
Name : Mr. Dipankar Mazumdar
Designation. : Executive Chemist

**Prepared By:**

Signature :
Name : Mr. Dhrubajyoti Das
Designation. : Assistant Chemist

**Authorized Signatory**
**For Mitra S.K. Private Limited**

Signature :
Name : Mr. Tapajit Thapa
Designation : Branch Manager

- *The results relate only to the item(s) tested.*
- *This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.*
- *Our Lab is Approved by NABL & MOEF, Lab Address :P-48 Udayan Industrial Estate,3 Pagladanga Road Kol-700015*

**Head Office: Shruchi Centre (5th floor), 74B, A.J.C. Bose Road, Kolkata - 700 016. West Bengal, India.**
**Tel. : 91 33 40143000 / 22650006 / 22650007 Fax : 91 33 22650008**
**Email : info@mitrask.com Website: www.mitrask.com**

**Approved by**
Uttam Prodhan
Suptdg. Research Scientist. R&D Dept..
Oil India Ltd., Duliajan, Assam

# Ambient Air Quality Monitoring Report

| | |
|---|---|
| Name & Address of the Customer : | Report No. : MSK/2022-23/1463 |
| "M/s OIL INDIA LIMITED",<br>Duliajan, Dibrugarh, Assam-786602 | Report Date : 30.12.2022<br>Sample Description : Ambient Air<br>Sample Number : MSKGL/ED/2022-23/12/00252<br>**Sampling Location : GCS TENGAKHAT** |
| Ref. No.:W.O. NO.- 8125981 of Contract No. 6116895 | GPS Reading : N 27°23'55", E 95°06'56" |

| Date of Sampling | Sample Received Date | Analysis Start Date | Analysis Complete Date |
|---|---|---|---|
| 15.11.2022 | 18.11.2022 | 18.11.2022 | 25.11.2022 |

Enviromental Conditions During Sampling & Transport Condition :Temperature : 26°C, Rain fall : NO

## Analysis Result

| Sl. No. | Test Parameter | Method | Unit | Results | CPCB Limit |
|---|---|---|---|---|---|
| 1 | Particulate Matter ( $PM_{10}$) | IS : 5182 (Part-23)-2006 | (µg/m3) | 59.2 | 100 |
| 2 | Particulate Matter ( $PM_{2.5}$) | IS : 5182 (Part-24) | (µg/m3) | 28.1 | 60 |
| 3. | Sulphur Dioxide ( $SO_2$) | IS : 5182 (Part-2)-2001 | (µg/m3) | <6.0 | 80 |
| 4 | Nitrogen Dioxide ( $NO_2$ ) | IS : 5182 (Part-6)-2006 | (µg/m3) | 16.8 | 80 |
| 5 | Carbon Monoxide ( CO ) | IS 5182 : (Part-10) :1999 | (mg/m3) | 0.59 | 2 |
| 6 | Ozone ( $O_3$ ) | IS:5182 (Part-IX)-1974 Reaffirmed-2019 | (µg/m3) | <20.0 | 180 |
| 7 | Ammonia ( $NH_3$ ) | IS 5182 (Part 25) : 2018 | (µg/m3) | <10.0 | 400 |
| 8 | Lead ( Pb ) | USEPA IO-3.4 | (µg/m3) | <0.01 | 1 |
| 9 | Nickel ( Ni ) | USEPA IO-3.4 | (ng/m3) | <0.5 | 20 |
| 10 | Arsenic ( As ) | USEPA IO-3.4 | (ng/m3) | <1.0 | 6 |
| 11 | Benzene ( $C_6H_6$ ) | IS 5182 : (Part 11) :2006 | (µg/m3) | <4.2 | 5 |
| 12. | Benzo(a)Pyrene ( BaP ) | IS 5182 : (Part 12) :2004 | (ng/m3) | <0.5 | 1 |
| 13. | Mercury ( Hg ) | USEPA IO-5.0 | (µg/m3) | <0.002 | |
| 14. | Methane (Hydrocarbon) | IS 5182 : (Part 17) | ppm | 1.38 | |
| 15. | Non-methane (Hydrocarbon) | IS 5182 : (Part 17) | ppm | <0.5 | |
| 16 | Total Hydrocarbon | IS 5182 : (Part 17) | ppm | 1.38 | |
| 17 | Volatile Organic Compounds (VOC) | IS 5182 : (PART-11):2006 | (µg/m3) | <4.2 | |

Limit as per CPCB notification, New Delhi, 18th Nov, 2009. for Ambient air quality

**Analyzed By:**
Signature
Name : Mr. Dipankar Mazumdar
Designation. : Executive Chemist

**Prepared By:**
Signature :
Name : Mr. Dhrubajyoti Das
Designation. : Assistant Chemist

**Authorized** Signatory
For **Mitra S.K. Private Limited**
Signature
Name
Designation : Project Manager

- *The results relate only to the item(s) tested.*
- *This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limited.*
- *Our Lab is Approved by NABL & MOEF, Lab Address :P-43 Udayan Industrial Estate,3 Pagladanga Road Kol-700015*

**Head Office: Shrachi Centre (5th floor), 74B, A.J.C. Bose Road, Kolkata - 700 016. West Bengal, India.**
**Tel. : 91 33 40143000 / 22650006 / 22650007 Fax : 91 33 22650008**
**Email : info@mitrask.com. Website: www.mitrask.com**

**Approved by**
Uttam Prodhan
Suptdg. Research Scientist, R&D Dept.,
Oil India Ltd., Duliajan, Assam

**Annexure - D**


# Pollution Control Board:: Assam
Bamunimaidam; Guwahati-21
(Department of Environment & Forests:: Government of Assam)
Phone: 0361-2652774 & 3150318; Fax: 0361-3150319
Website: www.pcbassam.org


No. WB/T-311/21-22/329 Dated Guwahati the 13th October, 2022

## FORM – 2
## [See Rule 6(2)]

### [Grant of Authorization under the Provision of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016]

1. Number of Authorisation and date of issue : **No. WB/T-311/21-22/ dtd. .10.2022**
2. Reference of application (No. and date) : **1292415**
3. **M/s OIL INDIA LIMITED, Percy Evans Road, Duliajan, Dibrugarh,Assam-786602** is hereby granted an authorisation based on the signed inspection report for Generation, storage and transportation of Hazardous or Other wastes or both.

### DETAILS OF AUTHORISATION

| Sl. No. | Category of Hazardous Waste as per the Schedules-I, II & III of these rules | Authorised mode of disposal or recycling or utilisation or co-processing, etc. | Quantity (ton/annum) | Mode of Management |
|---|---|---|---|---|
| 1 | Schedule-I, Sl No. 2.2 Sludge containing oil | Generation, Storage & Transportation | 4000 T/Annum | Transportation to authorized actual user/ Disposal agencies/ Captive treatment through Bio-remediation as per prescribed norms after recovery of oil |
| 2 | Schedule-I, Sl No. 33.2 Contaminated cotton rags or other cleaning materials | Generation, Storage & Transportation | 300 T/Annum | Transportation to authorized Disposal agencies for incineration/ Co-Processing in cement plant. |
| 3 | Schedule-I, Sl No. 33.1 Empty barrels/containers/liners contaminated with hazardous chemicals /wastes | Generation, Storage & Transportation | 15000 Nos./Annum | Transportation to authorized actual user/Recyclers |
| 4 | Schedule-I, Sl.No. 5.1 Used or spent oil | Generation, Storage & Transportation | 500 Kl /Annum | Transportation to authorized actual user/Recyclers |
| 5 | Schedule-I, Sl.No. 35.3 Chemical sludge from waste water treatment | Generation, Storage & Transportation | 7000 T/Annum | Transportation to authorized actual user/Disposal agencies/ Co-processing in cement plant |

4. **This authorisation shall be in force in force for the period of five years up to 31.03.2027 unless otherwise revoked or withdrawn within this period.**
5. The authorisation is subject to the following general and specific conditions:

**A. GENERAL CONDITIONS OF AUTHORISATION:**

1. The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorisation or its renewal shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.
3. The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorization.
4. The agencies should ensure that the barrels are decontaminated before collection in the premises of the occupier / generator equipped with adequate effluent treatment plant.
5. Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorization.
6. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time.

7. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc and their possible impacts and also carry out mock drill in this regard at regular interval of time.
8. The person authorised shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty".
9. It is the duty of the authorised person to take prior permission of the State Pollution Control Board to close down the facility.
10. The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean up operation.
11. The record of consumption and fate of the imported hazardous and other wastes shall be maintained.
12. The hazardous and other waste which gets generated during recycling or reuse or recovery or pre-processing or utilisation of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorization.
13. The importer or exporter shall bear the cost of import or export and mitigation of damages if any.
14. An application for the renewal of an authorisation shall be made as laid down under these Rules.
15. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.
16. Annual return shall be filed by June 30th for the period ensuring 31st March of the year.

B. SPECIFIC CONDITIONS:

1. The unit shall maintain the records of Hazardous & Other Wastes in Form-3 under provision of Rules 6(5), 13(7), 14(6), 16(5) & 20(1).
2. The Unit Shall Provide The Transporter With The Relevant Information In Form 9 Regarding The Hazardous Nature Of The Wastes And Measures To Be Taken In Case Of An Emergency.
3. The unit shall submit Annual Returns in Form-4 to State Pollution Control Board by 30th June of every year for the preceding period April to March.
4. The unit shall prepare 6 (six) copies of the manifest in From 10 as per Rules 19(1) for every transit of consignment of hazardous Waste under this authorization.
5. Any other conditions for compliance as per the guidelines issued by the Ministry of Environment, Forests & Climate Change, GOI, New-Delhi & Central Pollution Control Board, Delhi shall be complied.
6. The unit shall submit an Environmental Statement for the financial year ending on 31st March, in Form–V of the Environment (Protection) Rules, 1986 before 30th September every year.
7. Any occupier handling hazardous or other wastes and operator of the treatment, storage and disposal facility shall ensure that the hazardous and other wastes are packaged in a manner suitable for safe handling, storage and transport as per the guidelines issued by the Central Pollution Control Board from time to time. The labelling shall be done as per Form 8.
8. The unit shall submit the report on any accident occurs at their facility immediately to the state Pollution Control Board, in Form-11 of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
9. The transport of the hazardous and other waste shall be in accordance with the provisions of Rule 18 of Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.
10. The unit shall install a display board in the prescribed format in accordance with PCBA notification vide WB/T-237/ 19-20/95 dated 17.08.2020 and regularly update the same.

(Shantanu Kr. Dutta)
Member Secretary

Memo No. WB/T-311/21-22/329-A 30D

Dated Guwahati the, 13/K Oct, 2022

Copy to:

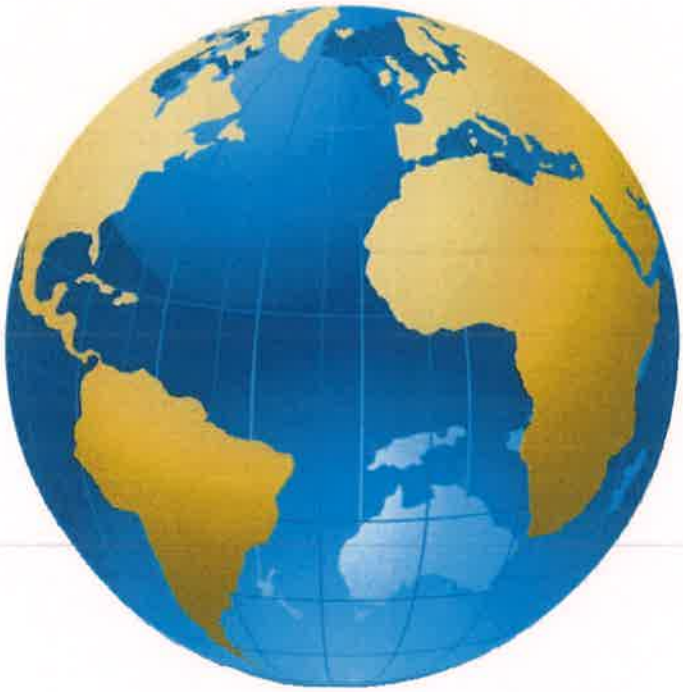
1. M/s OIL INDIA LIMITED, Percy Evans Road, Duliajan, Dibrugarh Assam-786602 for information & compliance of conditions.

13/10/22

(Shantanu Kr. Dutta)
Member Secretary

Annexure - B

# Common Environment Management Plan for Onshore Oil & Gas Drilling Activity



## Contents

## 1.0 INTRODUCTION:

OIL INDIA LIMITED (OIL), a Government of India Maharatna Enterprise, is currently engaged in carrying out hydrocarbon exploration and production activities mostly in its operational areas in Upper Assam, Arunachal Pradesh and Mizoram in the North Eastern part of India. OIL is also undertaking hydrocarbon exploration activities in few Indian states and few overseas countries. Oil India Limited was incorporated on 18th February 1959 to expand and develop the newly discovered oil fields of Naharkatia and Moran in the Indian North East. In 1961, it became a joint venture company between the Indian Government and Burmah Oil Company Limited, UK. In 1981, OIL became a wholly owned Government of India enterprise. Today, OIL is a premier Indian National Oil Company engaged in the business of exploration, development and production of crude oil and natural gas, transportation of crude oil and production of LPG.

Govt. of India and Assam has awarded Petroleum Mining Leases (PML) to OIL for exploration and development of oil & gas at Dibrugarh, Chabua, Tinsukia, Hugrujan, Naharkatiya Extn, Dholiya and Dumduma areas including the adjoining areas in Dibrugarh, Tinsukia and Sibsagar Districts.

## 2.0 Environmental Management Plan

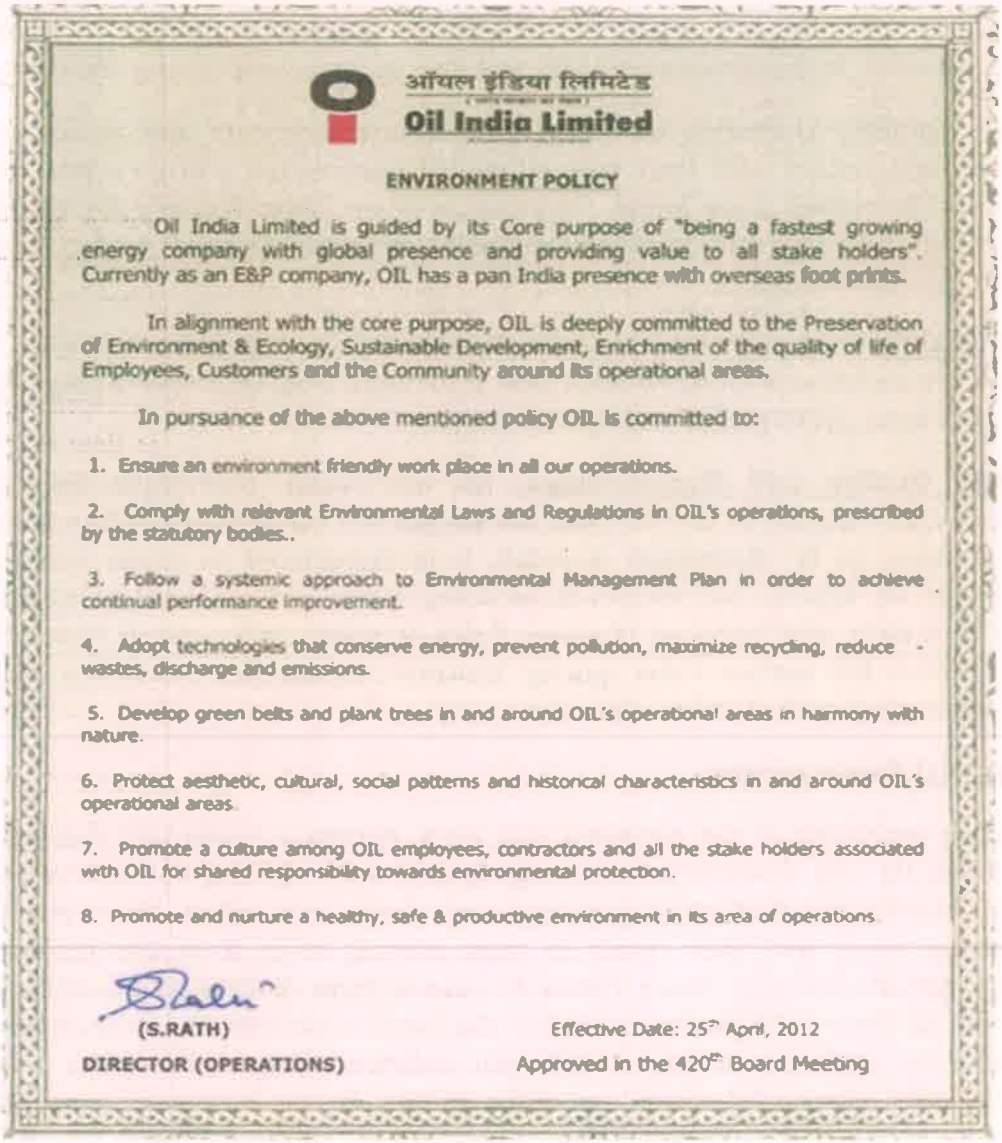
This Environmental Management Plan and Monitoring Framework is a site-specific document for the drilling activities that have been developed to ensure that OIL can implement the project in an environmentally conscious manner and where all contractors, understand the potential environmental risks arising out of the proposed project and take appropriate actions to properly manage such risk.

This EMP will be an overview document that will guide environmental management of all aspects of OIL's activities i.e. construction and operation of drilling wells. This EMP will be backed up by more specific Environmental Action Plans, Procedures and Bridging Documents.

The EMP describes the actions to be adopted in terms of:

- National Policies and Regulations;
- Best Practices and guides; and
- Local Environmental and Social Sensitivities.

**The Environment Policy of OIL is presented below.**



ऑयल इंडिया लिमिटेड

**Oil India Limited**

**ENVIRONMENT POLICY**

Oil India Limited is guided by its Core purpose of "being a fastest growing energy company with global presence and providing value to all stake holders". Currently as an E&P company, OIL has a pan India presence with overseas foot prints.

In alignment with the core purpose, OIL is deeply committed to the Preservation of Environment & Ecology, Sustainable Development, Enrichment of the quality of life of Employees, Customers and the Community around its operational areas.

In pursuance of the above mentioned policy OIL is committed to:

1. Ensure an environment friendly work place in all our operations.
2. Comply with relevant Environmental Laws and Regulations in OIL's operations, prescribed by the statutory bodies..
3. Follow a systemic approach to Environmental Management Plan in order to achieve continual performance improvement.
4. Adopt technologies that conserve energy, prevent pollution, maximize recycling, reduce wastes, discharge and emissions.
5. Develop green belts and plant trees in and around OIL's operational areas in harmony with nature.
6. Protect aesthetic, cultural, social patterns and historical characteristics in and around OIL's operational areas.
7. Promote a culture among OIL employees, contractors and all the stake holders associated with OIL for shared responsibility towards environmental protection.
8. Promote and nurture a healthy, safe & productive environment in its area of operations.

(S.RATH)
DIRECTOR (OPERATIONS)

Effective Date: 25th April, 2012
Approved in the 420th Board Meeting

## 3.0 IMPACT ASSESSMENT

The potential impacts arising due to the construction and operation of the drilling activitiesare given below:

**3.1 Air Quality:** The operation of DG/GG sets, movement of vehicles and machineries during construction and drilling at drill sites will result in the generation of air pollutants viz. PM, NOx and SOx that may affect the ambient air quality temporarily. Air pollutants like particulate matter, hydrocarbons and NOx will also be generated during drilling operations.

**3.2 Noise Quality:** Operation of heavy machinery/equipments and vehicular movement during site preparatory and road strengthening/construction activities may result in the generation of increased noise levels. Operational phase noise impacts are anticipated from therunning of drilling rig and ancillary equipment *viz.* shale shakers, mud pumps and diesel generators, gas generators.

**3.3 Soil Quality:** Stripping of top soil will affect the soil fertility of the well sites temporarily. Potential adverse impacts on soil quality may also result from improper storage and handling of fuel, lubricants, drilling mud and drill cuttings.

**3.4 Water Quality and Hydrogeology:** All wastewater discharged from the drilling operations will be treated in the ETP and discharges will conform to CPCB standards. As the volume of water to be discharged is small, it is anticipated to cause minor increase in pollution load for specific parameters in receiving water bodies.Uncontrolled surface runoff from the drill sites may compose of waste fluids or storm water mixed with oil and grease and may pollute the surface water quality. However, the surface runoff will be treated with sedimentation tank and oil water separator at site.

**3.5 Biological Environment:**

The existing vegetation at the proposed drill sites, approach roads and RoU of the pipeline will be felled for site development.Noise generated from drilling operations and vehicular movement within the drill sites and approach roads may affect the reptiles, birds and mammals adversely and may result in their moving away from the project area for a temporary period. OIL will obtain Forest Clearance from MoEF&CC for drilling within the forestlands; all the conditions mentioned in the forest clearance would be complied. Surface runoff from the drill sites contaminated with sediment, may reachsurface water channels and increase the suspended solids load of the channel water. Increaseof suspended solid will increase the turbidity of river water that ultimately will adversely affect the DO level in the water. The turbid water and lower DO may affect the primary productivity of the impacted areas of the rivers. The process effluent will be adequately treated in the ETP to meet the industrial effluent discharge standards. The discharge of treated effluent is not expected to cause perceptible changes in the water quality of the receiving stream.

**3.6 Socio-Economic Environment:**Approximately 3 ha. land would be required for each well.Land will be purchased from local communities however; no physical displacement during land procurement is anticipated. Additionally, land will also be procured for construction of 100-200 m approach road to the drill site from existing roads. Anticipated number of families directly impacted would be limited to 2-5 nos. for each of the drill sites. The dependency of the landowner in case of generation of livelihood is limited as the land is classified as monocropped agricultural land.

OIL/its contractors would endeavour to provide maximum employment to the local people; however, certain percentage of semi-skilled and highly skilled migrant labour would be used by contractors for manning technical activities. It is anticipated that occasional conflicts would arise with the local community over the recruitment of migrant workers. Discomfort due to dust and noise to adjoining communities, influx of people are likely to occur.

The construction phase of the project is likely to generate both direct and indirect opportunities for employment. The estimated direct employment would be approximately 50 un-skilled workers during the peak construction phase that will primarily sourced from nearby areas. Indirect employment would be primarily in the supply chain as vendors, which are anticipated to be set up to support the construction.

**3.7 Impact on Community Health & Safety:**Community health and safety of inhabitants residing close to the proposed well sites stand to get affected from frequent heavy vehicular movements along village access roads and due to noise from drilling rig operations, movement of heavy vehicles during construction etc.

## 4.0 DETAIL ENVIRONMENTAL MANAGEMENT PLAN

### 4.1 Air Quality Management Plan

- Vehicles delivering raw materials like fine aggregates will be covered to prevent fugitive emissions.
- Sprinkling of water on earthworks, material haulage and transportation routes on a regular basis during construction and decommissioning phase of the wells.
- Flare stacks of adequate height would be provided.
- DG/GG set stacks would have adequate height, as per statutory requirements, to be able to adequately disperse exhaust gases
- Periodic monitoring of DG/GG set stack emission will be carried out in accordance with the Environmental Monitoring Plan to assess compliance with CPCB DG set exhaust standards.

### 4.2 Noise Management Plan

- Selection and use of low noise generating equipment with in-built engineering controls viz. mufflers, silencers, etc.
- All DG/GG sets would be provided with acoustic enclosures.
- Appropriate PPEs (e.g. ear plugs) will be used for by workers while working near high noise generating equipment.

- All vehicles utilized in transportation of raw materials and personnel will have valid Pollution under Control Certificates (PUC).
- All high noise generating equipment will be identified and subjected to periodic preventive maintenance.
- No night time operation of vehicles and construction activities will be undertaken.

### 4.3 Soil Quality Management Plan

- Drip trays to be used during vehicular/equipment maintenance and during re-fuelling operations.
- Spill kits will be made available at all fuel and lubricant storage areas. All spills/leaks contained, reported and cleaned up immediately.
- Dedicated paved storage area will be identified for the drilling chemicals, fuel, lubricants and oils within the drill sites.
- 1.5 mm HDPE lined pits will be considered for the disposal of unusable drilling mud cuttings and drilling wastewater etc.

### 4.4 Surface Water Quality Management Plan

- Levelling and grading operations will be undertaken with minimal disturbance to the existing site contours thereby maintaining the general slope and topographical profile of the site.
- During site preparation and construction, surface water run-off will be channelized through appropriately designed drainage system.
- Sediment filters and oil-water separators will be installed to intercept run-off and remove sediment before it enters water courses.
- Domestic wastewater generated from drill sites will be treated through septic tank and soak pit system and then discharged.
- Process wastewater would be treated in Effluent Treatment Plant (ETP)at drill sites.

### 4.5 Ground Water Quality Management Plan

- Water based mud would be used as a drilling fluid for the proposed project.
- Eco-friendly synthetic based mud if required for deeper sections, will be used after providing intimation to the Pollution Control Board;
- The drill cutting along with spent mud will be stored in HDPE lined pit.

### 4.6 Waste Management Plan

- Use of low toxicity chemicals for the preparation of drilling fluid.
- Management of drill cuttings, waste drilling mud, waste oil and domestic waste, wastewater in accordance with Standards for Emission or Discharge of Environmental Pollutants from Oil Drilling and Gas Extraction Industry of CPCB as modified in 2005.
- The hazardous waste (waste and used oil) will be managed in accordance with Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2016.
- The kitchen waste will be disposed in nearest municipal/village dumping site on a daily basis through approved waste handling contractors.
- The sewage generated will be treated through septic tank and soak pit system.
- Used batteries will be recycled through the vendors supplying lead acid batteries as required under the Batteries (Management & Handling) Rules, 2001.
- The drilling cuttings pit will be bunded and kept covered using tarpaulin sheets during monsoon.

### 4.7 Wildlife Management Plan

- Movement of heavy vehicles will be restricted at night time, especially if access roads pass though forest areas, as most of the mammals movement occurs during night;
- Noise levels at the drill siteswill be controlled through selection of low noise generating equipment and installation of sufficient engineering controls viz. mufflers, silencers etc.
- No temporary electric supply connection line from the grid will be laid for the proposed project activity. All electric requirements will be supplied from the internal DG sets.
- OIL will have to take Forest Clearance from MoEFCC for development of drill sites, access roads and laying of pipeline within forest areas.

### 4.8 Road Safety & Traffic Management Plan

- The condition of roads and bridges identified for movement of vehicles and drilling rig will be assessed and if required strengthened by OIL to ensure their safe movement.
- Precautions will be taken by the contractor to avoid damage to the public access routes including highways during vehicular movement.
- Traffic flows will be scheduled wherever practicable during period of increased commuter movement.

### 4.9 Occupation Health & Safety Management Plan

- All machines to be used in the construction will conform to the relevant Indian Standards (IS) codes, will be kept in good working order, will be regularly inspected and properly maintained as per IS provisions and to the satisfaction of the site Engineer.
- Hazardous and risky areas, installations, materials, safety measures, emergency exits, etc. shall be appropriately marked.

### 4.10 Management of Social issues and concerns

- People from adjoining areas especially given job preference through local contractors according to the skill sets possessed.
- Prior to the commencement of the proposed activity, a consultation program will be conducted by OIL with the target groups and local authorities. The primary objective of such consultation will be to share with the concerned villagers/stakeholders the objective of the proposed project associated impacts and their mitigation.
- OIL will give more emphasis and priority on periphery development, development of health facilities and provision for drinking water facility as per Corporate Social Responsibility (CSR) Plan.
- The drill sites would be fenced and gates would be constructed so that the children are refrained from straying into the site.

### 4.11 Emergency Response Plan

- Drilling rig and related equipment to be used for drilling will be conformed to international standards specified for such equipment.
- Blow-out preventers and related well control equipment shall be installed, operated, maintained and tested generally in accordance with internationally recognized standards.
- Appropriate gas and leak detection system will be made available at each of the drill sites.
- Adequate fire-fighting equipment shall be provided at each drilling site.

The environmental mitigation measures and plans are presented in form of a matrix according to the sequential flow of activities in the project life cycle. The matrix focuses on strategies to be adopted for safe guard of the environment from possible impacts resulting out of the project activities. The strategies have further been detailed out as management procedures and programmes in subsequent sections.

The EMP helps establish the linkage between the activities environmental impacts and mitigation measures and presents the monitoring framework i.e. the Environmental Performance Indicator (EPI) No. as well as the Environmental Quality Indicator (EQI).

## 5.0 Environment Management Matrix

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Physical Presence of drill site, rig and other machinery. | 1.1 | Change in visual characteristics of the area due to installation of drilling setup | Temporary change in landscape | On completion of works (in phases) all temporary structures, surplus materials and wastes will be completely removed. Only structure required for safety purposes would be retained on the bare drill site. | Site Inspection | Construction &Drilling | OIL/Contractor | Waste Management Plan |
| | | 1.2 | Increase of illumination at night time due to installation of drilling setup | Temporary disturbance of the nearby villagers | Appropriate shading of lights to prevent scattering | Grievance records/ Consultation with Villagers | Construction &Drilling | OIL/Contractor | Management of social issues & concerns |
| | | 1.3 | Influx of man power & immigrant labour force to nearby villages | Possibility Cultural and behavioural conflict | Preference used of local labour forces to the extent possible | Grievance records | Construction &Drilling | OIL/Contractor | Management of social issues & concerns |
| 2. | Storage & Handling of Materials & Spoils | 2.1 | Emission of fugitive dust from loading & unloading operation | Temporary impact on air quality especially SPM | All loading and unloading activities to be carried out as close as possible to the storage facilities. | Site Inspection | Construction &Drilling | OIL/Contractor | Air Quality Management |
| | | 2.2 | Accidental spillage of oil & chemicals | Potential contamination surface water body resulting impact on aquatic ecosystem | All spills to be reported and contained to prevent entry of spilled chemicals/fuels to any surface water body or drainage channel | Records of spills/Community Grievances | Construction &Drilling | OIL/Contractor | Surface water quality management plan, Wildlife Management Plan |
| | | | | Potential impact on soil quality | All spills to be reported and remedial measures to be taken for clean-up of the spill. | Records of Spills/Site Inspection | Construction &Drilling | OIL/Contractor | Spill management plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| 3. | Transport of Materials, Spoils and Machinery | 3.1 | Emission of gaseous pollutants from vehicle during transportation of materials, spoils and machinery | Temporary deterioration on air quality along transport route | All diesel-powered equipment will be regularly maintained and idling time reduced to minimise emissions;<br><br>Vehicle / equipment air emissions will be controlled by good practice procedures (such as turning off equipment when not in use);<br><br>Vehicle / equipment exhausts observed emitting significant black smoke in their exhausts will be serviced/ replaced | Records and Site Inspection | Construction &Drilling | OIL/Contractor | Air Quality Management plan |
| | | 3.2 | Noise emission during transport of materials, spoils and machinery | Temporary deterioration in ambient noise along the transportation route | Undertake preventive maintenance of vehicles and machinery to reduce noise levels.<br><br>Restriction on unnecessary use of horns by trucks and vehicle in settlement area | Site Inspection/Records of repairs | Construction &Drilling | OIL/Contractor | Noise Quality Management Plan |
| 4. | Operation & maintenance of rig and associated machinery. | 4.1 | Emission of air pollutant from DG/GG sets | Temporary impact on air quality due to increase in concentration of gaseous pollutants e.g. NOx , HC | Preventive maintenance of DG sets to be undertaken as per manufacturers schedule | Site Inspection/Records of repairs | Drilling | OIL/Contractor | Air Quality Management plan |
| | | 4.2 | Emission of Noise from DG/GG sets | Temporary increase of ambient as well a | All workers working near high noise generating equipment to be provided | Recording of Noise | Drilling | OIL/Contractor | Noise Quality Management Plan and |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | work place noise level | with Personal Protective equipment<br><br>Preventive maintenance of machinery to be undertaken as per manufacturers schedule<br><br>Install sufficient engineering control (mufflers) to reduce noise level at source | | | | Occupational Health & Safety Management Plan |
| | | 4.3 | Emission of noise from operation of the rig | Temporary increase of ambient as well a work place noise level | All workers working near high noise generating equipment to be provided with Personal Protective equipment<br><br>Preventive maintenance of machinery to be undertaken as per manufacturers schedule | Site<br><br>Inspection | Drilling of Wells | OIL/Contractor | Noise Quality Management Plan and Occupational Health & Safety Management Plan |
| | | 4.4 | Abstraction of ground water for project usage | Depletion of ground water resources | Optimize use of water during drilling operations | Record Keeping and Auditing | Construction &Drilling | OIL/Contractor | None |
| | | 4.5 | Noise from mud pump during preparation of drilling mud | Temporary increase of ambient & work place noise level | Preventive maintenance of machinery to be undertaken as per manufacturers schedule | Recording of Noise | Drilling of Wells | OIL/Contractor | Noise Quality Management Plan and Occupational Health &Safety Management |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | All workers working near high noise generating equipment to be provided with Personal Protective equipment | | | | Plan |
| | | 4.6 | Accidental spillage of chemicals during preparation drill mud | Contamination of soil resulting loss of soil living organism | Manage spills of contaminants on soil | Records of spills | Drilling of Wells | OIL/Contractor | Spill Management plan |
| | | 4.7 | Accidental spillage of chemicals during preparation drill mud | Potential impact on surface water quality and aquatic ecosystem | All spill to be contained so that it does not reach any surface water body or drainage channels | Records of spills | Drilling of Wells | OIL/Contractor | Surface water quality management plan |
| 5. | Operation & maintenance of Vehicles | 5.1 | Emission of Noise from vehicles | Temporary increase of noise level in areas abutting transport route | Preventive maintenance of vehicles to be undertaken as and when required | Maintenance Records | Construction &Drilling | OIL/Contractor | Noise quality management plan |
| | | 5.2 | Emission of gaseous air pollutant from vehicles | Temporary deterioration air quality in areas abutting transport routes | Preventive maintenance of vehicles to be undertaken as and when required | Site Inspection/Records of repairs | Construction &Drilling | OIL/Contractor | Air quality management plan |
| | | 5.3 | Spillage of fuels & lubricants from vehicles | Contamination of soil resulting loss of soil living organism | Adopt best practices e.g. use pumps and dispensing nozzle for transfer of fuel, use of drip trays. Etc. | Site Inspections/Audits | Construction &Drilling | OIL/Contractor | Spill Management plan |
| | | | | Impact on surface water quality and | The drainage system on site to be provided with Sedimentation tank and Oil- | Site Inspection/Audits | Drilling | OIL/Contractor | Surface water quality management |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | aquatic ecosystem | water Separator to prevent contamination especially oil and grease from being carried off by runoff. | | | | plan and Spill Management plan |
| 6. | Casing & cementing of well | 6.1 | Noise from machinery during preparation of cement slurry | Temporary increase of ambient noise level | Install sufficient engineering control on equipment and machineries (like mufflers in DG sets) to reduce noise and vibration emission levels at source, carry out proper maintenance and subject them to rigid noise and vibration control procedures. | Site Inspection | Drilling of Wells | OIL/Contractor | Noise quality management plan |
| | | 6.2 | Loss of drilling mud and cement slurry during casing of well | Potential contamination of ground water aquifer | Proper engineering controls during cementing operation to prevent migration of drilling mud and cement slurry into ground water aquifer | Site Inspection | Drilling of Wells | OIL/Contractor | Ground water quality management plan |
| 7. | Temporary storage, handling & disposal of process waste | 7.1 | Accidental spillage of process waste (unused cement slurry, return mud & drill cuttings) at the temporary storage site | Potential for contamination of soil and ground water | Proper engineering controls for the drilling and cementing operations; | Drilling and Decommissioning Phases | Drilling and Decommissioning Phases | OIL/Contractor | Ground water quality management plan |
| | | 7.2 | Surface runoff from temporary storage site of drill cuttings & unused mud into surface water bodies | Impact on surface water quality and aquatic ecosystem | All Temporary waste storage area will have proper bunds to prevent any escape of contaminated runoff<br><br>Ensure that any runoff from such temporary storage area | Site Inspection and Record keeping | Drilling and Decommissioning Phases | OIL/Contractor | Surface water quality management plan and Spill Management plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | are channelized into ETP | | | | |
| | | 7.3 | Accidental leakage/spillage of oils and lubricants and fuel from temporary storages | Contamination of soil resulting in loss of soil living organism | Dispose process waste and domestic waste as per regulation/ best practices<br><br>Dispose debris and waste in designated areas and as per plan to prevent degradation of land | Site Inspection | Construction &Drilling | OIL/Contractor | Waste Management Plan and Spill Management plan |
| | | 7.4 | Accidental leakage/spillage of oils and lubricants from temporary storages | Contamination of surface water resulting in deterioration of surface water quality and adverse impact on aquatic ecosystem | All chemical and fuel storage areas will have proper bunds so that contaminated run-off cannot escape into the storm-water drainage system.<br><br>The waste pits (waste water and drill cuttings) will be bounded and covered by tarpaulin sheet to prevent mixing of runoff water with waste water and leachate from waste pit and also reduce the volume of waste water. | Site Inspection | Construction &Drilling | OIL/Contractor | Waste Management Plan and Spill Management plan |
| | | 7.5 | Disposal/spillage of spent oils & lubricants into environmental media | Contamination of soil resulting loss of soil living organism<br><br>Contamination of surface water resulting deterioration of surface water quality and aquatic | Ensure recycling of spent oil & lubricant through authorized dealer | Site Inspection | Construction &Drilling | OIL/Contractor | Waste Management Plan and Spill Management plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ecosystem | | | | | |
| | | 7.6 | Disposal of used battery & spent filters in environmental media | Potential for contamination of soil, ground water and surface water body | Ensure recycling of waste through authorized waste recycler | Site Inspection and Record Keeping | Construction &Drilling | OIL/Contractor | Waste Management Plan and Spill Management plan |
| | | 7.7 | Offsite disposal of metallic, packing, scrap | Localized visual impacts | | Site Inspection and Record Keeping | Construction &Drilling | OIL/Contractor | Waste Management Plan |
| 8. | Testing & Flaring of natural gas | 8.1 | Emission of air pollutants from flare stack at drill site | Temporary localized deterioration air quality (NOx, HC) | Proper engineering controls to ensure complete combustion of gas<br><br>Location of Flare stack to be chosen considering the sensitive receptors adjoining the site | Engineering Designs /Site inspections | Construction & Drilling | OIL S& E Teamand Drilling team | Waste Management Plan |
| 9. | Storage of materials (equipment, chemicals, fuel) | 9.1 | Accidental spillage during storage and handling of materials | Potential for contamination of soil & ground water | Impervious storage area, especially for fuel & lubricant, chemical, hazardous waste, etc. | Site Inspection | Construction &Drilling | OIL/Contractor | Spill Management plan |
| | | | | Safety concerns for workers involved in handing of hazardous materials | Personal protective equipment to be provided to workers involving in handling of hazardous materials | Site Inspection | Construction &Drilling | OIL/Contractor | Health and Safety Plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| 10. | Technical Emergencies | 10.1 | Probability of accidental leakage of gas/ liquid hydro-carbons due to failure of safety devices | Potential adverse impact on personnel, environment & assets | Proper engineering controls to prevent leakage of sour gases<br><br>Obtain an early warning of emergency conditions so as to prevent a negative impact on personnel, the environment, and assets<br><br>Safeguard personnel to prevent injuries or loss of life by either protecting personnel from the hazard and/or evacuating them from the facilities<br><br>Minimize the impact of such an event on the environment and the facilities by mitigating the potential for escalation and, where possible, containing the release<br><br>Develop evacuation procedures to handle emergency situations. | Site Inspection | Drilling | OIL/Contractor | Emergency Response Plan |
| 11. | Dismantling of rig & associated machineries | 11.1 | Emission of noise during dismantling of rig | Temporary deterioration of ambient noise quality resulting in discomfort | All noise generating activities will be restricted during day time | Site Inspection | Well Decommissioning Phase | OIL/Contractor | Noise quality management plan |
| | | 11.2 | Generation of waste during dismantling of rig | Temporary visual impacts | Storage of waste in designated areas only recyclable waste should be recycled through authorized | Site Inspection | Well Decommissioning Phase | OIL/Contractor | Waste Management Plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | water recycler | | | | |
| | | 11.3 | Disposal/spillage of spent oils &lubricants into environmental media | Contamination of soil resulting loss of soil living organism<br><br>Contamination of surface water resulting deterioration of surface water quality and aquatic ecosystem | Manage spills of contaminants on soil | Site Inspection and Record keeping | Well Decommissioning Phase | OIL/Contractor | Waste Management Plan |
| 12. | Transportation of drilling facilities | 12.1 | Emission of gaseous air pollutant during transportation of drilling facilities | Temporary localized deterioration of air quality due to emission gaseous pollutants | Vehicle / equipment air emissions will be controlled by good practice procedures (such as turning off equipment when not in use); and<br><br>Vehicle / equipment exhausts observed emitting significant black smoke in their exhausts will be serviced/ replaced | Site Inspection and Record keeping | Well Decommissioning Phase | OIL/Contractor | Air quality management plan |
| | | 12.2 | Fugitive emissions due to re-entrainment of dust during transport of drilling facilities | Temporary localized deterioration of air quality due to increase in SPM levels | Approach road to be sprinkled daily with water | Site Inspection | Well Decommissioning Phase | OIL/Contractor | Air quality management plan |
| | | 12.3 | Emission of noise during transport of drilling facilities | Temporary deterioration of noise quality | Restrict all noise generating operations, except drilling, to daytime | Site Inspection | Well Decommissioning Phase | OIL/Contractor | Noise quality management plan |

| S No | Activity | Ref | Aspect | Impact | Mitigation Measures | Monitoring | Timing/ Frequency | Responsible Party | Related Plans |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Restriction on unnecessary use of horns by trucks and vehicle in settlement area | | | | |

## 6.0 Summary and Conclusion

The EMP has been made to assess the potential significant adverse environmental effects due to the proposed construction and drilling activities.

Mitigation measures have been proposed as part of EMP to minimize adverse environmental impacts, if any. Risk assessment includes Jet Fire and Vapour Cloud Explosion for blowout of wells. The existing Emergency Management Plan of OIL will be extended to this project, strengthened as necessary and implemented in the event of any emergency arising due to above mentioned risks.

The present impact assessment study indicates that the overall impact from the proposed project will be short to medium term, reversible, localised and are not expected to contribute significantly to the surrounding environment. Also, with the implementation of the pollution control and strengthen the existing environment management measures, these anticipated impacts due to proposed site preparation and drilling operation and decommissioning activities of the proposed project will be mitigated. Summary of impact significance without mitigation measures and with mitigation measures is presented at the table below.

**Summary of Impact Significance without and with Mitigation Measures**

| Impact | Impact significance without mitigation measures | Impact significance with mitigation measures |
|---|---|---|
| Aesthetic & visual | Moderate | Minor |
| Land Use | Negligible | - |
| Soil Quality | Moderate | Minor |
| Air Quality | Moderate | Minor |
| Noise Quality | Major | Moderate |
| Road & Traffic | Moderate | Minor |
| Surface Water Quality | Moderate | Moderate |
| Ground water resource | Minor | Minor |
| Ground Water Quality | Moderate | Minor |
| Terrestrial Ecology | Negligible | - |
| | Minor | Minor |
| | Major | Moderate |
| Aquatic Ecology | Moderate | Moderate |
| Livelihood & Income generation | Moderate | Moderate |
| Conflict with local people | Moderate | Moderate |
| Benefit to Local Enterprises | Positive | - |
| Employment Generation | Positive | - |
| Occupational health & safety | Moderate | Minor |
| Community health & safety | Moderate | Minor |

OIL will also ensure that the environmental performances of all the activities are monitored throughout execution of the project during site preparation, drilling and decommissioning phases. Monitoring will be carried out for ambient air quality, stack emission, noise quality, quality of treated effluents, surface and groundwater qualities, waste generated and disposed etc. and verified that they meet the prescribed standards. OIL will continue to report environmental performance and submit monitoring reports regularly to statutory authorities.

The effective management system coupled with monitoring of environmental components and efforts for continual improvements will result in satisfactory environmental performance of the proposed oil and gas drilling and development project.

# THANKS YOU

**Annexure - C**

ऑयल इंडिया लिमिटेड
( भारत सरकार का उद्यम )
**Oil India Limited**
(A Government of India Enterprise)

*Health Safety & Environment Department*
P.O. DULIAJAN-786602,
ASSAM, INDIA
Phone : 0374-2800542
Fax : 0374-2801796
Email: safety@oilindia.in

Ref. No.: S&E/E/21(B)/940

Date: 20.09.2023

**To**
**The Member Secretary,**
**Pollution Control Board, Assam,**
**Bamunimaidam, Guwahati- 781021.**

**Sub:** Submission of Environmental Statement (Form-V) under Environment (Protection) Rules, 1986.

Sir,

With reference to the above subject, we are submitting herewith the Environmental Statement (Form-V) for the financial year ending 31st March, 2023 pertaining to the operations of Oil India Limited in the districts of Dibrugarh, Tinsukia, Sivsagar and Charaideo in Assam.

Thanking You,

Yours faithfully
OIL INDIA LIMITED

(Ajit Chandra Haloi)
Executive Director (HSE)
For **Resident Chief Executive**

Encl: As above.

**Copy:**
1. Regional Executive Engineer,
   Pollution Control Board Assam,
   Back Side of ASTC Bus Station,
   Chowkidinghee, Dibrugarh,
   PIN: 786001.

2. Executive Engineer,
   Regional Laboratory cum Office,
   Pollution Control Board Assam,
   Melachakar, Sibsagar,
   PIN: 785640.

**FORM – V**
**(See Rule 14)**
**ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH, 2023**

**PART – A**

(i) **Name and address of the owner/occupier of the industry operation or process.**

OIL INDIA LIMITED
P.O. DULIAJAN
DIST. DIBRUGARH
ASSAM -786602.

***Note:*** Environmental Statement (Form – V) is pertaining to the operations of Oil India Limited in the districts of Dibrugarh, Tinsukia, Sivasagar and Charaideo in Assam.

(ii) **Industry category:** Red - Oil and gas extraction (on-shore extraction through drilling wells)

(iii) **Production capacity – Units**

OIL's production target is fixed as per the Memorandum of Understanding (MoU) with Ministry of Petroleum and Natural Gas, Govt. of India, which varies from year to year.
Production details during F.Y. 2022-23:

- **Crude Oil:** 3.114 MMT.
- **Natural Gas:** 2809.214 MMSCM
- **LPG:** 32,100 MT.

(iv) **Year of establishment:**
OIL INDIA LTD. was formed in 1961 as a joint venture with M/S. Burma Oil Company, UK and on 14th Oct. 1981, OIL became a fully owned Govt. of India Enterprise.

(v) **Date of last Environmental Statement submitted:** 20.09.2022.

**PART – B**
**WATER AND RAW MATERIAL CONSUMPTION**

(I) Water consumption $m^3/d$:

| S.No | Purpose | Water Consumption ($m^3$/ day) |
|---|---|---|
| 1. | Process & Cooling | 14473.7 |
| 2. | Domestic | 16038.63 |
| | **TOTAL** | **30512.33** |

| Name of Products | Process water consumption per unit of product output | |
|---|---|---|
| | During F.Y. 2021-22 | During F.Y. 2022-23 |
| (1) | (2) | (3) |
| Hydrocarbon (Crude Oil, Natural Gas, LPG) | 1.12 $m^3$/MT (Approx.) | 1 $m^3$/MT (Approx.) |

(II) Raw material consumption

| *Name of raw materials | Name of products | Consumption of raw material per unit | |
|---|---|---|---|
| | | During F.Y. 2021-22 | During F.Y. 2022-23 |
| No raw materials are used as Oil India Limited is engaged in Exploratory and development drilling activities & production of Crude Oil and Natural Gas. However, chemicals such as Bentonite are used for preparation of Water based drilling mud. | | | |

## PART – C
## POLLUTION DISCHARGED TO ENVIRONMENT/UNIT OF OUTPUT

(Parameter as specified in the consent issued)

| Pollutants | Quantity of Pollutants Discharged (mass/day) | Concentrations of pollutants in discharges (mass/volume) | Percentage of variation from prescribed standards with reasons |
|---|---|---|---|
| (a) Water | **NIL.** There is no discharge of pollutants from drilling locations and Production Installations.<br>• Wastewater generated from drilling locations is treated in Effluent Treatment Plant (ETP) and reused back in the drilling operation.<br>• The formation water generated after separation from crude oil and | • Quality of ETP treated water from the drilling locations is analyzed frequently. (Test report is enclosed as ***Annexure – I***).<br>• Quality of Formation water is analyzed frequently (Test report enclosed as ***Annexure-*** | No variation is observed.<br><br>All parameters of treated effluent and Formation water are within the permissible limits. |

| | | | |
|---|---|---|---|
| | treatment is pumped back to the underground formation (depth greater than 1600 m) through formation water disposal wells. | ***II)*** | |
| (b) Air | No major air pollutants are emitted from Oil & Gas exploratory and development drilling and production activities except Stack Gas emissions at drilling locations and Production Installations & Flaring at Oil Collecting Stations. | Stack Gas and Ambient Air Quality (AAQ) monitoring is carried out frequently at drilling locations and Production Installations (Test report enclosed as ***Annexure- III)*** | No variation is observed.<br><br>All parameters of Stack Gas emissions and Ambient Air are within the permissible limits. |

## PART – D
## HAZARDOUS WASTES

(As specified under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016)

| **Hazardous Wastes** | **Category of Hazardous Waste as per Schedule - I of HW Rules, 2016** | **Total Quantity generated** | |
|---|---|---|---|
| | | **During F.Y. 2021-22** | **During F.Y. 2022-23** |
| a) From process | S.No. 2.2 Sludge containing Oil | 9943 MT | 4671.52 MT |
| | S.No. 5.1 Used or Spent Oil | 60 KL | 208 KL |
| | S.No. 33.1 Empty barrels/ containers/liners contaminated with hazardous chemicals/ wastes | 41569 Nos. | 26616 Nos. |
| | S.No. 33.2 Contaminated cotton rags or other cleaning materials | 3.7 MT | 6.19 MT |
| b) From pollution control facilities | S.No. 33.5 Chemical sludge from waste water treatment | 2600 KL | 120.84 KL |

## PART – E
## SOLID WASTES

| Solid Wastes | Total Quantity | |
|---|---|---|
| | During F.Y. 2021-22 | During F.Y. 2022-23 |
| *(a) From process*<br><br>Drill Cuttings | 23,000 $m^3$ (Approx.) | 27,000 $m^3$ (Approx.) |
| *(b) From pollution control facilities* | NIL | |
| *(c)*<br>(1) Quantity recycled or re-utilized within the unit.<br>(2) Sold<br>(3) Disposed | N/A<br><br>N/A<br>N/A | |

## PART – F

**PLEASE SPECIFY THE CHARACTERIZATION (IN TERMS OF COMPOSITION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES.**

**(I) Hazardous Wastes:**

| Name of the Hazardous Waste | Quantity generated during F.Y. 2022-23 | Disposal Practices |
|---|---|---|
| a) Sludge containing Oil | 4671.52 MT | Sent to Sludge Processing Plant for oil recovery followed by Bioremediation |
| b) Used or Spent Oil | 208 KL | Stored in barrels under covered shed and sold to authorized recyclers through auction |
| c) Empty barrels/ containers/liners contaminated with hazardous chemicals/ wastes | 26616 Nos | Sold to authorized recyclers through auction |
| d) Contaminated cotton rags or other cleaning materials | 6.19 MT | Bioremediation |
| e) Chemical sludge from waste water treatment | 120.84 KL | Disposed in HDPE lined pits |

**(I) Solid Wastes:**

| Name of the Solid Waste | Quantity generated during F.Y. 2022-23 | Disposal Practices |
|---|---|---|
| a) Drill Cuttings | 27,000 $m^3$ (Approx.) | Disposed in HDPE lined pits |

## PART – G

## IMPACT OF THE POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION

- Acoustic enclosures have been provided around all gensets to reduce noise levels.
- Recovery of drilling mud from drill cuttings by using a combination of Vertical Cutting Dryer (VCD) and a high-performance centrifuge.
- Wastewater generated from drilling locations is collected in HDPE lined pits, treated in Effluent Treatment Plant (ETP) with Reverse Osmosis unit and the treated effluent is reused back in the drilling operation.
- Formation water generated from Production Installations is treated in Effluent Treatment Plant (ETP) before disposal in the abandoned/ water disposal wells.
- Processing of oily sludge for recovery of Crude oil and further treatment of sludge through Bioremediation.
- Construction of central concrete pit for disposal of waste mud.
- Treatment of Biomedical waste through incinerator.
- Plantation of 50,000 saplings was carried out at 8 nos. of abandoned OIL well sites.

## PART – H

**Additional measures/investment proposal for environmental protection, abatement of pollution, prevention of pollution.**

- MoU with District Administration, Tinsukia for treating the legacy waste of Tinsukia Municipality through the process of Biomining.
- Proposal for construction of Community Sewage Treatment Plant (STP) at Duliajan.
- MoU with Digboi Forest division, Assam for carrying out afforestation in 100 Ha of degraded forest area.
- MoU with IIT Guwahati to study the feasibility of using treated drill cutting as a building material.

## PART – I

## ANY OTHER PARTICULARS FOR IMPROVING THE QUALITY OF THE ENVIRONMENT.

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