

Monitoring of Environmental Compliance of Exploratory Drilling of 30 Wells in PEL/MI Blocks of South Assam Shelf Block (Golaghat, Jorhat, Nagoan Morrighaon North Cachar Darrang and Sonipur District by M/s ONGC Ltd.



Monitored by:

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Shillong-793021










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AUGUST 2013

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PART I

SALIENT FEATURES OF THE PROJECT

 Project type	: Exploratory Drilling (Mining Operation).
 Name of the project	: Exploratory Drilling of 30 Wells in PEL/MI Blocks of South Assam Shelf Block (Golaghat, Jorhat, Nagoan Morrigaon North Cachar Darrang And Sonipur District by M/s ONGC Ltd.
 Clearance letter no.& date	: J-11011/147/2008-IA II (I) dated 24.6.2009
 Location	: Golaghat, Jorhat, Nagoan Morrigaon North Cachar Darrang and Sonipur District, Assam.
 Address of correspondence	: DGM (HSE), M/s Oil and Natural Gas Corporation Ltd., A & AA Arakan basin Jorhat, 2 nd Floor Luit Bhavan, Cinnamara Complex, Jorhat-785 704.
 Environmental Management Plan	: i. Waste management (domestic waste, food waste, water waste, Biomedical waste, drilling waste, chemical waste, oil waste etc.) ii. Proper restoration of drilled sites, iii. Creation of Environmental Management Cell, iv. Only water based drilling mud shall be used for drilling operations, v. Establishment of mobile ETP, vi. Monitoring and vii. Providing acoustic enclosure to DG sets
 Forest land required	: All drilled wells located in the agricultural land.
 Person available	: Mr. D. Paul, Sr. Geophysist. Mob No. 09435718455.
 Present status of the project	: So far only thirteen (13) wells, drilling have been Completed viz., HZAB, NOAA, MRAI, HZAC, KHAT, TBAA, KSAC , KHAX, KSAF , KSAG , NRAE, KPAE & KHAV. HZAB, NOAA, MRAI, HZAC, KHAT, TBAA, KSAC , NRAE & KSAF wells are dry and abandoned. KPAE, KHAX & KHAV wells are under extended testing. KSAG Oil bearing well presently well is closed due to complication.

PART II
COMPLIANCE STATUS OF SPECIFIC CONDITIONS AND GENERAL
CONDITIONS

A. SPECIFIC CONDITIONS:

Stipulation I. Compensation for the land acquisition to the land outsees (if any) and for standing crop shall be paid as per the National Resettlement and Rehabilitation Policy (NRRP) 2007/State Government norms. It may be ensure that compensation provided shall not be less that the norms of the NRRP 2007.

Status of Compliance: *Complied with.* Compensation has been implemented as per norms laid down by the State Government of Assam. It is also informed that the lease duration ranges from 30 to 35 years.

Stipulation II. The company shall obtain forest clearance under Forests Conservation Act 1980 for the sites located within the forest area.

Status of Compliance: *Complied with.* It is informed that so far all drilled wells are under agricultural lands. No forest clearance is required.

Stipulation III. The company shall obtain permission to establish under Air and water from State Pollution Control Board for each well and copy submitted to Ministry's Regional Office at Shillong.

Status of Compliance: *Complied with.* No Objection Certificate (NOC) to establish under Air and Water Acts has been obtained from Assam State Pollution Control Board.

Stipulation IV. The Company shall inform the details of the each drill site to Ministry's Regional Office at Shillong.

Status of Compliance: *Complied with.* Information has been included in the six monthly compliance report.

Stipulation V. The Company shall make arrangement for control of noise from the drilling activity and from DG sets.

Status of Compliance: *Complied with.* Acoustic enclosure is provided in the system. Personal protective equipment like ear muffs was provided for safety of the workers.

Stipulation VI. 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.

Status of Compliance: *Partially Complied with.* It was told during monitoring that drill cuttings has been properly washed prior releasing to waste pit, no hazardous chemicals were used in water base mud and effluents were treated on regular basis. *However, HDPE impervious lining were provided without leachate collection system.*

Stipulation VII. The surface facilities shall be installed as per applicable codes and standards, international practices and applicable local regulations.

Status of Compliance: *Complied with.* The company is following Directorate General of Mines and Safety (DGMS) regulations, Oil Industry Safety Directorate (OISD) & American Petroleum Institute (API) standard.

Stipulation VIII. The top soil removed shall be stacked separately for reuse during restorations process.

Status of Compliance: *Complied with.* It is informed that top soil has been stacked separately as stipulated and used during restoration process as stipulated.

Stipulation IX. Drilling waste water including drill cuttings wash water shall be collected in disposal pit lined with HDPE lining evaporated or treated and shall comply with the notified standards for on-shore disposal. The membership of common TSDF shall be obtained for the disposal of drill cuttings and hazardous waste. Otherwise secured land fill shall be created at the site as per the design of the secured shall be approved by the CPCB and obtain the authorization of the SPCB.

Status of Compliance: *Partially complied with.* The waste pits are properly lined with HDPE lining. *However, HDPE impervious lining were provided without leachate collection system. Project authorities could not also provide a copy of authorization for disposal of drill cuttings and solid wastes from the SPCB as stipulated.*

Stipulation X. The company shall construct the garland drain all around the drilling site to prevent runoff of any oil containing waste in to the nearby water bodies.

Status of Compliance: *Complied with.*

Stipulation XI. The recyclable waste (oily sludge) and spent oil shall be disposed of to the authorized recyclers.

Status of Compliance: *Partially complied with.* It was told during monitoring that all spent oil was given to authorized recyclers. It is also informed that oil spills were regularly collected and transferred to bioremediation pond. *However, copy of approval from the Ministry of Environment and Forests/State Pollution Control Board for using bio-remediation method in the treatment of crude oil escaped due to*

pipe leakage, transportation etc., could not be provided by PP during monitoring as stipulated in G.S.R.546 (E) dated 30th August, 2005.

Stipulation XII. Only water based drilling mud shall be used. The drilling mud shall be recycled. In case of use of synthetic oil based mud due to any problem due geological formation for drilling, low toxicity. Oil Based Mud (OBM) having aromatic content < 1% shall be used. If it is intended to use such OBM/ SBM to mitigate specific whole problem, it should be intimated to Ministry of Environment and Forests/ SPCB.

Status of Compliance: *Complied with.* It was informed that no oil based mud was used by the project authorities. Only water based drilling mud was used.

Stipulation XIII. Quantities of storage and chemicals and additives required for drilling mud preparation shall be below the specified threshold for specified storage permitted under the MSIHC Rules.

Status of Compliance: *Complied with.* It was informed that storage of chemicals and additives use for drilling mud preparation is below the threshold storage unit. The MSIHS rules were followed.

Stipulation XIV. Pre hire inspection, safety meetings, tool box meeting, job safety analysis and audits shall be carried out to identify hidden/ potential hazardous.

Status of Compliance: *Complied with.* It was informed that OMR, OISD and RCP guidelines were followed for equipment and employees.

Stipulation XV. The company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emission during flaring.

Status of Compliance: *Complied with.* It was informed that OMR, OISD and RCP guidelines were followed to prevent fire hazard.

Stipulation XVI. The company shall take necessary measures to reduce noise levels at drill site by providing mitigation measures such as proper acoustic enclosure to the DG set and meet the norms notified by the MoEF. Height of all the stack/vents shall be provided as per the CPCB guidelines.

Status of Compliance: *Complied with.* It is informed during monitoring that to reduce noise levels all necessary measures has been taken during drilling stage. Acoustic enclosures were provided to all DG sets.

Stipulation XVII. To prevent fire and explosion at Oil and Gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material should be in place.

Status of Compliance: *Complied with.* Guidelines of OMR, OISD and RCP were followed to prevent fire and explosions from potential explosion.

Stipulation XVIII. The company shall develop a contingency plan for H₂S release including all necessary aspects from evacuation to resumption of normal operations. The workers should be provided with personal H₂S detectors in locations of high risk of exposure along with self-containing breathing apparatus.

Status of Compliance: *Complied with.* It was informed that no H₂S gas was encountered in all drilling sites.

Stipulation XIX. To prevent well blow outs during drilling operations, Blow Out Preventor (BOP) system shall be installed. Blow Out Preventor measures during drilling shall focus on maintaining well bore hydrostatic pressure by proper pre-well planning and drilling fluid logging etc.

Status of Compliance: *Complied with.* It was informed that BOP was tested as per DGMS and API guidelines.

Stipulation XX. The company shall take measures after completion of drilling process by well plugging and secured enclosures, decommissioning of rig upon abandonment of the well and drilling site shall be restored the are in original condition. In the event that no economic quantity of hydrocarbon is found a full abandonment plan shall be implemented for the drilling site in accordance with the applicable Indian Petroleum Regulations.

Status of Compliance: *Partially complied with.* It is observed during monitoring that in wells already declared dry and abandoned, well plugging have been done. *However, removal of cemented structure has not been done as observed at TBAA.*



Fig. concrete structures still remain to be broken up at TBAA

Stipulation XXI. Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.

Status of Compliance: *Complied with.* It has been informed that that regular pre-medical examination for all workers is being done.

Stipulation XXII. In case the commercial viability of the project of the project is established, the Company shall prepare a detailed plan for development of oil and gas fields and obtain fresh clearance from the Ministry.

Status of Compliance: *Will be complied with.* It is informed during monitoring that in case any wells are found commercially viable; they will prepare a detailed plan for development of oil and gas field and apply for fresh clearance from Ministry as stipulated.

Stipulation XXIII. The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Status of Compliance: *Complied with.*

B. GENERAL CONDITIONS:

Stipulation I. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board, the State Government and any other statutory.

Status of Compliances: *Complied with.* It is informed that conditions made by Assam State Pollution Control Boards as well as the State Government were strictly implemented.

Stipulation II. No further expansion or modifications in the project shall be carried out without prior approval of the ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, afresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.

Status of Compliance: *Complied with.* Agreed by project authorities that no further expansion or modifications in the project shall be carried out without prior approval of the ministry of Environment and Forests

Stipulation III. The emissions of (RSPM, SPM, SO₂, NO_x, HC & VOC) from DG set and from flare stack shall conform to the standards prescribed by the SPCB. Regular monitoring of Ambient Air for HC and VOC shall be carried out as per CPCB guidelines. Stack height attached to DG sets shall be in- conformance with the environment protection acts and rules.

Status of Compliance: *Partially complied with.* It was informed that emissions of RSPM, SPM, SO₂, NO_x, HC & VOC from DG set and from flare stack was being done as per guidelines. Analysis of ambient air is being carried out through an outside agency. *However, no monitoring of stipulated parameter has been conducted at KPAE, KHAX & KHAV wells further testing is going on and DG sets are still operating.*

Stipulation IV. The project authorities must strictly comply with the rules and regulations under Manufacture, storage and Import of Hazardous chemicals Rules, 1989 as amended subsequently. Prior approvals from Chief Inspectorate of factories, Chief Controller of Explosive, Fire Safety Inspectorate etc. must be obtained, wherever applicable.

Status of Compliance: *Being complied with.*

Stipulation V. The project authorities must strictly comply with the rules and regulation with regard to handling and disposal of Hazardous wastes (Management and Handling) Rules, 1989/ 2003 wherever applicable. Authorization from the State pollution Control Board must be obtained for collections/ treatment/ storage/disposal of hazardous wastes.

Status of Compliance: *Complied with.* It is informed that no hazardous chemicals are being used during drilling.

Stipulation VI. The overall noise levels in and around the plant area shall within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz.75 dBA (daytime) and 70 bBA (nighttime).

Status of Compliance: *Partially complied with.* Acoustic enclosures are provided to all DG sets. Ear muffs and ear plugs are provided for all workers working near the DG sets. *However no monitoring of noise has been conducted in KPAE, KHAX & KHAV wells where further testing are going on.*

Stipulation VII. A separate Environment Management Cell equipped with full-fledged laboratory facilities must be set up carry out the environmental management and monitoring functions.

Status of Compliance: *Partially complied with.* Environment Management Cell equipped with full-fledged laboratory facilities must be set up in which a separate HSE section is looking after Environment Management. *Environmental Management Cell equipped with full-fledged laboratory facilities has not been set up as stipulated.*

Stipulation VIII. The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.

Status of Compliance: *Partially complied with. Details of funds for implementation of environmental conditions could not be provided.*

IX. The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.

Status of Compliance: *Partially complied with. Submissions of six monthly compliance reports are very irregular.*

Stipulation X. 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 and may also be seen at website of the Ministry of Environmental and Forest at <http://envfor.nic.in>. This shall be advertised within seven days of the issue of this letter in at least two local newspaper that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned.

Status of Compliance: *Complied with.*

Stipulation XI. Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

Status of Compliance: *Partially complied with. Project authorities have informed the date of commencing the land development work of some drilling sites. However, the date of financial closure will be informed at a later date.*

GENERAL REMARKS:

Overall implementation of Environmental conditions is found satisfactory. Some observations made during monitoring and conveyed to project officials present during monitoring for full compliance include:

1. Waste pits have not been provided with leachate collection system as stipulated in G.S.R.546 (E) dated 30th August, 2005 (Specific Conditions VI & IX).
2. Copy of approval from the Ministry of Environment & Forests/State Pollution Control Board for using bio-remediation method in the treatment of crude oil escaped due to pipe leakage, transportation etc., could not be provided by PP during monitoring as stipulated in G.S.R.546 (E) dated 30th August, 2005 (Specific Condition XI).
3. At TBAA well, the site have not been properly restored. Many concrete structures remained to be broken up (Specific Condition XX).
4. No monitoring of RSPM, SPM, SO₂, NO_x, HC & HOC from DG set has been conducted at KPAE, KHAX & KHAV wells where further testing is going on and DG sets are still operating (General Condition III).
5. No monitoring of noise has been conducted in KPAE, KHAX & KHAV wells where further testing is going on (General Condition VI).
6. Environmental Management Cell equipped with full-fledged laboratory facilities has not been set up as stipulated (General Condition VII).
7. Details of funds for implementation of environmental conditions could not be provided (General Condition VIII).
8. Submissions of six monthly compliance reports are very irregular (General Condition IXI).



(Dr. H.Tynsong)
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