

File No: IA-J-11011/420/2021-IA-II(I)

Government of India Ministry of Environment, Forest and Climate Change IA Division



Date 12/10/2023



To,

Rajeeva Kumar

M/s. OIL AND NATURAL GAS CORPORATION LIMITED

Deendayal Urja Bhavan, 5, Nelson Mandela Marg, Vasant Kunj, SOUTH, DELHI, , 110070

head_env@ongc.co.in

(vii) Name of Project

Subject:

Onshore Development & Production from 5 wells (viz. BMDH, GODA, GODB, GODD and RO#15A) falling in forest area of 3 PML blocks in South Tripura, Sephaijala and West Tripura districts by M/s. Oil and Natural Gas Corporation (ONGC) - Consideration of Environmental Clearance reg.

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/TR/IND2/437553/2023 dated 29th August, 2023 for grant of prior Environmental Clearance (EC) to the proposed project under the provision of the EIA Notification 2006 and as amended thereof.

2. The particulars of the proposal are as below:

(i) EC Identification No. EC23A0303TR5103571N (ii) File No. IA-J-11011/420/2021-IA-II(I)

(iii) Clearance Type Fresh EC

(iv) Category

(v) **Project/Activity Included Schedule No.** 1(b) Off-shore and onshore oil and gas exploration,

development and production

(vi) Sector Industrial Projects - 2

Onshore development & production from 5 wells falling in forest area of 3 PML blocks in South Tripura, Sepahijala and West Tripura districts,

Tripura

(viii) Name of Company/Organization

OIL AND NATURAL GAS CORPORATION

LIMITED

(ix) Location of Project (District, State) South Tripura, TRIPURA

(x) Issuing Authority MoEF&CC

No

3.The Ministry of Environment, Forest and Climate Change has examined the proposal seeking environmental clearance for Onshore Development & Production of 5 wells falling in forest area of 3 PML blocks in South Tripura, Sepahijala and West Tripura districts, Tripura Plant located at Atuthangbari, Tekka Tulsi RF & Bansibari, Tehsil Mandai, Satchand, Melaghar, District: West Tripura, South Tripura, Sepahijala, State Tripura by M/s. Oil and Natural Gas Corporation(ONGC), Tripura.

4.All Offshore and onshore oil and gas exploration, development & Production are listed at S.N. 1(b) Of Schedule of Environmental Impact Assessment (EIA) Notification under Category 'A' and are appraised at Central Level by Expect Appraisal Committee (EAC).

5.The details of products and capacity are placed at **Annexure-II.**Details of PML Block and 5 nos. of development Location-Post ToR are placed at **Annexure-II.**Production Profile – Gas details are placed at **Annexure-II.**

6.The Proposed Well Co-Ordinates are placed at Annexure-III.

7.Standard ToR has been issued by Ministry vide F. No. IA-J-11011/420/2021-IA – II (I), dated 09.10.2021. It was informed that no litigation pending against the project.

Public Hearing for the proposed project had been conducted by the Tripura State Pollution Control Board on 02-06-2023 at 11.00 am at Agni Beena Community Hall, Jirania chaired by Additional District Magistrate & Collector; West Tripura District. The main issues raised during the public hearing and their action plan are placed at Annexure-IV.

Public Hearing for the proposed project had been conducted by the Tripura State Pollution Control Board on 06-06-2023 at 11.30 am at Krishnanagar Community Hall, Hrishyamukh chaired by Additional District Magistrate & Collector, South Tripura District. The main issues raised during the public hearing and their action plan are placed at Annexure-IV.

Public Hearing for the proposed project had been conducted by the Tripura State Pollution Control Board on 08-06-2023 at 11.30 am at Rangapania H.S. School, Bishalgarh, Sepahijala Tripura chaired by Additional District Magistrate & Collector, Sepahijala District. The main issues raised during the public hearing and their action plan are placed at **Annexure-IV**.

8.Total land area required for the drilling site is 10.6822 hectares. Greenbelt will be developed with reference to the conditions provided in forest clearance of each well (**Annexure-V**). The estimated project cost is Rs. 150 Crores. Capital cost of EMP would be Rs. 97,00,000 and recurring cost for EMP would be Rs.14,90,000 per annum. Industry proposes to allocate Rs. 1.5 Crores towards Extended EMP (Corporate Environment Responsibility). Total Employment will be 324 persons as direct & indirect.

9. There are no of national parks, 1 no of wildlife sanctuaries, no Biosphere Reserves, no Tiger/Elephant Reserves, no Wildlife Corridors etc. within 10 km distance from the proposed development location. Clouded Leopard NP at distance of 8.8 km from proposed development location-RO-15A towards ENE direction. There is a wildlife sanctuary within 10 km distance from well-Sepahijala WLS at distance of 8.6 km from proposed development location-RO-15A towards ENE direction. There are 2 of wildlife sanctuaries within 10 km distance from PML-Gumti WLS ESZ at distance of 9.71 km from Baramura Field PML & Baramura Extn-IV PML towards E direction, Trishna WLS within Gojalia PML. PP informed that no wells will be drilled in the ESZ of any WLS or National Parks.

Reserve forests/protected forests: Baramura Deotamura RF Within Baramura Field PML & Baramura Extn-IV PML, Kachigang RF at a distance 4.08 km in WSW direction from Baramura Field PML & Baramura Extn-IV

PML, Atharamura Kalajhari RF at a distance 8.20 km in E direction from Baramura Field PML & Baramura Extn-IV PML, Pathalia RF at a distance 9.16 km in W direction from Baramura Field PML & Baramura Extn-IV PML, Tekka Tulsi RF Within Gojalia PML, Muharipur RF at a distance 3.95 km in E direction from Gojalia PML, Chandrapur RF at a distance 6.03 km in N direction from Gojalia PML, Baramura Deotamura RF at a distance 9.61 km in E direction from Gojalia PML, North Sonamura RF at a distance 2.52 km in SE direction from Rokhia (RO-15) PML, Charilam RF at a distance 7.9 km in NE direction from Rokhia (RO-15) PML. Conservation plan for schedule I species has been submitted to PCCF & HoFF dated 02.08.2023 and a budget of 0.185 Crores has been earmarked for the same. The Eco-Sensitive Zone is spread over an area 3.12 square kilometres with an extent varying from 10 metres to 50 metres around the boundary of Sepahijala Wildlife Sanctuary and Clouded Leopard National Park. The Proposed development location-RO-15A is located 8.6 Km from notified Sepahijala Wildlife Sanctuary ESZ towards ENE direction. Conservation plan for schedule I species has been submitted to PCCF & HoFF dated 02.08.2023 and a budget of 0.185 Crores has been earmarked for the same.

Water bodies: Within Baramura Field PML & Baramura Extn-IV PML 15 nos. of water bodies such as Chhota Gangrai Chhara, Chhaimarwa Chhara, Tailangordai Chhara, Paiku Chhara, Buri Gang, Milchhi Chhara, Paranga Chhara, Dhanlekha Chhara, Rabung Chhara, Palka Chhara, Dondra Chhara, Sarbang Chhara, Ghoramara Chhara, Lalma Chhara and Trinal Chhara is at a 1.27 Km distance of W direction, Lailak Chhara is at a 1.3 Km distance of S direction, Anglak Chhara is at a 1.47 Km distance of S direction, San Gang is at a 1.45 Km distance of ESE direction, Bara Gangrai Chhara is at a 1.66 Km distance of S direction, Rupanglonga Chhara is at a 2.37 Km distance of E direction, Sankoma Chhara is at a 2.45 Km distance of W direction, Ampi Chhara is at a 2.88 Km distance of E direction, Sonal Gang is at a 2.91 Km distance of NW direction, Taichhlang Chhara is at a 3.46 Km distance of E direction, Jayang Chhara is at a 4.32 Km distance of S direction, Ekjan Chhara is at a 4.65 Km distance of SSE direction, Marwa Chhara is at a 5.26 Km distance of SSE direction, Tuicharang Chhara is at a 5.34 Km distance of W direction, Jambuk Chhara is at a 6.09 Km distance of E direction, Kundarai Chhara is at a 6.32 Km distance of W direction, Bacheng Chhara is at a 7.00 Km distance of SW direction, Nagrai Chhara is at a 7.84 Km distance of S direction, Tuibaklai Chhara is at a 8.66Km distance of S direction, Billiyai Chhara is at a 9.16 Km distance of W direction, Sona Chhara is at a 9.61 Km distance of SE direction, Lohar N is at a 9.07 Km distance of W direction, Within Gojalia PML 6 nos. of water bodies such as Chhaygharia Chhara, Tuichhama Chhara, Nalua Chhara, Ghuria Chhara, Sonai Chhara, Muhari R, Manu N and Fenny R is at a 0.28 Km distance of SSW direction, Lao Gang is at a 0.77 Km distance of E direction, Takma Chhara is at a 0.87 Km distance of E direction, Naraiphang Chhara is at a 0.94 Km distance of E direction, Baikhora Chhara is at a 0.99 Km distance of E direction, Charakbai Chhara is at a 1.22 Km distance of E direction, Kaia Chhara is at a 1.90 Km distance of E direction, Rani Gang is at a 2.33 Km distance of N direction, Ganga Chhara is at a 6.01 Km distance of N direction. With reference to Rokhia (RO-15) PML-Buri Gang is at a 4.29 Km distance of NNE direction, Andi Gang is at a 4.50 Km distance of ENE direction, Durlabhnarayan Chhara is at a 6.17 Km distance of SE direction, Rangmala Chhara is at a 7.23 Km distance of E direction, Rangapani N is at a 4.44 Km distance of NNE direction.

10.Ambient air quality monitoring was carried out at 8 locations during 27th October 2022 - 24th January 2023 and the baseline data indicates the ranges of concentration as: minimum and maximum levels of PM₁₀ (28.53 to 63.01g/m³), PM_{2.5} (10.28 to 31.96g/m³), SO₂ (6.14 to 25.36g/m³), NO₂ (10.00 to 43.05g/m³), CO (0.12mg/m³-0.56 mg/m³). AAQ modelling study for point source emissions indicates that the resultant incremental GLCs after the proposed project would be (Case-I: Baramura Field PML & Baramura Extn-IV PML) - 63.14g/m³, 25.37g/m³, 43.83g/m³, (Case-II-Gojalia PML) - 63.11g/m³, 25.37g/m³, 43.64g/m³, (Case-III-Rokhia (RO-15) PML) -63.26g/m³, 25.38g/m³, 44.51g/m³ with respect to PM10, SO2 and NOx. The resultant concentrations are well within the National Ambient Air Quality Standards (NAAQS).

11.Total water requirement will be 25 KLPD which will be met from Local Vendors through Tankers. Effluent generation will be 6 KLPD which will be treated through proposed mobile Effluent Treatment Plant of capacity 10KLPD. Domestic wastewater generation will be 2.5 KLPD, which will be treated through proposed mobile Sewage Treatment Plant of capacity 3 KLPD. The plant is based on Zero Liquid discharge system and hence treated effluent will not be discharged outside the drilling premises.

Produced Water Management

- I. Produced Water of Baramura-GCS is dispatching through Tankers to ADB GCS/Konaban-GCS for treatment and after treatment it will be disposed in designated ED Wells at ADB GCS/Konaban-GCS.
- II. Produced (Effluent) Water generated at Gojalia-GCS is dispatching through Tankers to Agartala Dome-GCS for treatment and after treatment it will be disposed in designated ED Wells at Agartala Dome GCS.
- III. Produced Water of Rokhia-GCS is dispatching through Tankers to Konaban-GCS for treatment and after treatment it will be disposed in designated ED Wells at Konaban-GCS (Annexure-VI).

No installation of additional GCS is envisaged under the proposed project. Produced Gas will be transported to existing production facilities of ONGC Tripura Asset as placed at (Annexure-VII).

12.Power requirement will be 4290 kVA which will be sourced from Diesel Generators having capacity, 3 nos x 1430 kVA (running). 1 x 1430 kVA DG set will be used as standby during power failure and stack height 18 m above ground level and flare height of about 30m above the ground level will be provided as per CPCB norms.

13.Details of Process emissions generation and its management:

The source of stack are 4nos of 1430kVA Diesel Generator (1no will be standby) having a stack height of 18m having emission per stack for PM_{10} , SO_2 and NOx are to be 0.0276g/s, 0.0019g/s and 0.1650g/s for each stack respectively. In addition to it, Flare stack height of 30m having emission per stack for PM_{10} , SO_2 and NOx are to be 0.012g/s, 0.0063g/s and 0.018g/s respectively.

With respect to Case-I on Baramura Field PML and Baramura Extn-IV PML, the cumulative incremental concentrations of PM_{10} , SO_2 and NOx are observed to be $0.13 \text{g/m}^3, 0.01 \text{g/m}^3$ and 0.8g/m^3 respectively. The total pollutant concentrations of PM_{10} , SO_2 and NO_x are $63.14 \text{g/m}^3, 25.37 \text{g/m}^3$ and 43.85g/m^3 respectively.

With respect to Case-II on Gojalia PML, the cumulative incremental concentrations of PM_{10} , SO_2 and NOx are observed to be $0.102 g/m^3$, $0.009 g/m^3$ and $0.588 g/m^3$ respectively. The total pollutant concentrations of PM_{10} , SO_2 , NO_x and CO are $63.11 g/m^3$, $25.37 g/m^3$, $43.64 g/m^3$ respectively.

With respect to Case-III on Rokhia(RO-15) PML, the cumulative incremental concentrations of PM₁₀, SO₂ and NOx are observed to be 0.25g/m^3 , 0.02g/m^3 and 1.47g/m^3 respectively. The total pollutant concentrations of PM₁₀, SO₂, NO_x and CO are 63.26g/m^3 , 25.38g/m^3 , 44.52 g/m^3 respectively.

Selective Catalytic Reduction (SCR) is recommended as an air pollution control measure for the reduction of Nox emission (90% reduction for SCR) from DG With respect to Case-III on Rokhia(RO-15) PML.

After implementation of APC with respect to Case-III on Rokhia(RO-15) PML, the cumulative incremental concentrations of PM_{10} , SO_2 and NOx are observed to be $0.25 \text{g/m}^3, 0.02 \text{g/m}^3$ and 0.28g/m^3 respectively. The total pollutant concentrations of PM_{10} , SO_2 and NO_x are $63.26 \text{g/m}^3, 25.38 \text{g/m}^3, 43.33 \text{g/m}^3$ respectively.

14.Details of solid waste/Hazardous waste generation and its management:

During Construction Phase, 13.5 kg/day of Organic Municipal Solid Waste and 9kg/day of Inorganic Municipal solid waste will be generated in which the Organic Waste will be Disposed off nearby municipal disposal site via local vendors & Inorganic waste will be Proper segregation and storage of recyclable waste in designated bins onsite. Recyclables will be periodically sold to local waste recyclers.

During Drilling Phase, 73.44 kg/day of Organic Municipal Solid Waste and 48.96kg/day of Inorganic Municipal solid waste will be generated in which the Organic Waste will be Disposed off nearby municipal disposal site via local vendors & Inorganic waste will be Proper segregation and storage of recyclable waste in designated bins onsite. Recyclables will be periodically sold to local waste recyclers.

During Production Phase, 0.54kg/day of Organic Municipal Solid Waste and 0.36kg/day of Inorganic Municipal solid waste will be generated in which the Organic Waste will be Disposed off nearby municipal disposal site via local vendors & Inorganic waste will be Proper segregation and storage of recyclable waste in designated bins onsite. Recyclables will be periodically sold to local waste recyclers.

Hazardous Waste Generation - Used/ spent oil (Category 5.1) of quantity 0.9KL per well will be collected in HDPE drums in secured dyked area and disposed to CPCB/ TSPCB registered used oil recyclers/ facilities via

authorized vendor(s)/transporter(s). In addition, Discarded containers/ barrels/liners contaminated with hazardous waste (Category 33.1) of quantity 50 No.s/Year will be Stored in secure manner in covered/ isolated area and Handed over to TSPCB authorized. The ETP sludge leftover will be sent to TSDF or TSPCB approved secured Landfill.

15. The details of Forest clearance have been placed at Annexure-VIII.

16. Details of CER with proposed activities and budgetary allocation are placed at Annexure-IX.

17. During deliberations, EAC discussed following issues:

During deliberations, the Committee noted that initial proposal was for onshore Development & Production of 6 wells falling in forest area of 4 PML blocks in South Tripura, Sepahijala and West Tripura districts, Tripura. The revised proposal is for Onshore Development & Production from 5 wells (viz. BMDH, GODA, GODB, GODD and RO#15A) falling in forest area of 3 PML blocks in South Tripura, Sephaijala and West Tripura districts. It was informed that the development location BMDK in Baramura Field is currently under technical review and has been kept in abeyance. Further, EAC discussed following issues:

- PP informed that the Corporate Environmental Responsibilities (CER) for the amount of 1.5 crores have been allocated to address the public hearing issues in 3 nos. of districts.
- PP confirmed that dedicated Regional crisis management Team (RCMT) is available to handle all emergency scenarios i.e., blowout etc., Further, DMP is available in assert level to address the emergency scenarios.
- Revised Form1, Part-A, Part-B and Part-C has been submitted by PP for revised configuration for drilling of 5 wells instead of 6 wells.

The committee was satisfied with the response provided by PP on above information.

18.The proposal was considered by the EAC (Meeting ID: EC/AGENDA/EAC/619956/8/2023) held on 05th September, 2023 in the Ministry, wherein the project proponent and the accredited Consultant M/s. Hubert Enviro Care Systems (p) Limited (NABET certificate no. NABET/EIA/1922/RA0172 and validity 27.07.2024), presented the case. The Committee **recommended** the project for grant of environmental clearance.

19. The Committee noted that the EIA/EMP report is in compliance of the ToR issued for the project, reflecting the present environmental concerns and the projected scenario for all the environmental components. The Committee has found the baseline data is within NAAQ standards. The Committee has deliberated the action plan proposed by the project proponent to arrest the incremental GLC due to the project. The Committee has also deliberated on the CER plan and found to be addressing the issues in the study area. The EAC has deliberated the proposal and has made due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The Experts Members of the EAC have found the proposal in order and have **recommended** for grant of Environmental Clearance.

20.The Committee noted that the EIA/EMP report is in compliance of the ToR issued for the project, reflecting the present environmental concerns and the projected scenario for all the environmental components. The Committee has found the baseline data is within NAAQ standards. The Committee has deliberated the action plan proposed by the project proponent to arrest the incremental GLC due to the project. The Committee has also deliberated on the CER plan and found to be addressing the issues in the study area. The EAC has deliberated the proposal and has made due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The Experts Members of the EAC have found the proposal in order and have **recommended** for grant of Environmental Clearance.

21. The environmental clearance granted to the project/activity is strictly under the provisions of the EIA

Notification 2006 and its amendments. It does not tantamount/construe to approvals/consent/ permissions etc. required to be obtained or standards/conditions to be followed under any other Acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project. The project proponent shall obtain necessary permission as mandated under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, as applicable from time to time, from the State Pollution Control Board, prior to construction & operation of the project.

22.Based on the proposal submitted by the project proponent and recommendations of the EAC (Industry-2), Ministry of Environment, Forest and Climate Change hereby accords environmental clearance for Onshore Development & Production from 5 wells (viz. BMDH, GODA, GODB, GODD and RO#15A) falling in forest area of 3 PML blocks in South Tripura, Sephaijala and West Tripura districts by M/s. Oil and Natural Gas Corporation(ONGC), under the provisions of the EIA Notification, 2006, and the amendments therein, subject to compliance of the terms and conditions.

- 23. The Ministry reserves the right to stipulate additional conditions, if found necessary at subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the environmental clearance, if implementation of any of the above conditions is not found satisfactory.
- **24.**Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- **25.**Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
- **26.**The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 read with subsequent amendments therein.
- **27.** This issues with the approval of the competent authority.

Copy To

- 1. The Chief Secretary, Government of Tripura, State Civil Secretariat, New Capital Complex. PO- Kunjaban, Agartala, Tripura(West), PIN 799010
- 2. The Regional Officer, Ministry of Env., Forest and Climate Change, Integrated Regional Office, Law-U-Sib, Lumbatngen, Near MTC Workshop, Shillong
- 3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi -32
- 4. The Member Secretary, Tripura State Pollution Control Board, Parivesh Bhawan, PO-Kunjaban, Gorkhabasti, Agartala, Tripura 799006
- 5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi
- 6. The District Collector, South Tripura, Sephaijala and West Tripura, Tripura
- 7. Guard File/Monitoring File/Parivesh portal/Record File

Annexure 1

Specific EC Conditions for (Off-shore and onshore oil and gas exploration, development and production)

1. Off-shore and onshore oil and gas exploration, development and production

S. No	EC Conditions
	1.As proposed by the Project Proponent, out of 6 wells, the proposal for drilling of 1 well i.e. BMDK has been dropped from EC application, where forest clearance is pending. Now, PP has to apply separately for the consideration of environmental clearance for the remaining 1 well i.e. BMDK. Therefore, environmental clearance has been granted for Onshore Development and Production of oil and gas from 5 wells.
	2.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.
	3. The project proponent shall prepare a site specific conservation plan and wildlife management plan in case of the presence of Schedule-1 species in the study area, as applicable to the project, and submit to Chief Wildlife Warden for approval. The recommendations shall be implemented in consultation with the State Forest/Wildlife Department in a time bound manner.
	4.No drilling activities shall be carried out within 500 m from the water bodies.
20	5.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.
\sim	6.No pipelines or its part shall be laid in the Forest land/Protected Area without prior permission/approval from the Competent Authority.
1.1	7.Total fresh water requirement shall not exceed 25 m3/day and will be met through Tankers Supply. Prior permission shall be obtained from the concerned regulatory authority.
	8.The project proponent will treat and reuse the treated water within the factory and no waste or treated water shall be discharged outside the premises. Mobile ETP coupled with RO shall be installed to reuse the treated water in drilling system. Size of the waste shall be equal to the hole volume+ volume of drill cutting and volume of discarded mud if any. Two feet free board may be left to accommodate rain water. There shall be separate storm water channel and rain water shall not be allowed to mix with waste water. Alternatively, if possible pit less drilling be practiced instead of above.
	9.As proposed, produced water separation from subsurface (well) fluid and other effluent shall be treated at on-site ETP and after treatment of produced water & other treated effluents shall be disposed off in abandoned well/deep dump well as per the GSR 546 (E). No discharge shall be done to the surface.
	10.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.
	11.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.
	12. During production, storage and handling, the fugitive emission of methane, if any, shall be monitored using Infra-red camera/appropriate technology.
	13. The project proponent also to ensure trapping/storing of the CO2 generated, if any, during

S. No	EC Conditions
	the process and handling.
	14. Approach road shall be made pucca to minimize generation of suspended dust.
	15. 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.
	16. 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.
	17.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.
KYZ	18.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.
	19. 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.
6.0	20.The project proponent shall develop a contingency plan for H2S release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided with personal H2S detectors in locations of high risk of exposure along with self-containing breathing apparatus.
	21.Blow Out Preventer system shall be installed to prevent well blowouts during drilling operations.
	22.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.
	23.As per the Ministry's OM dated 30.09.2020 superseding the OM dated 01.05.2018 regarding the Corporate Environmental Responsibility (Rs. 1.5 Crores), and as per the action plan proposed by the project proponent to address the socio-economic and environmental issues in the study area, the project proponent, as committed, shall provide education funds in technical training centers/ support in nearby village's schools, support in health care facilities, drinking water supply and funds for miscellaneous activities like solar street lights, battery, solar panel etc., in the nearby villages. The action plan shall to be completed within time as proposed.
	24.No lead acid batteries shall be utilized in the project/site.

S. No	EC Conditions
	25.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.
	26.Oil content in the drill cuttings shall be monitored and report & shall sent to the Ministry's Regional Office.
	27. 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.
	28.PP shall sensitize and create awareness among the people working within the project area as well as its surrounding area on the ban of Single Use Plastic in order to ensure the compliance of Notification published by MOEFCC on 12th August, 2021. A report along with photographs on the measures taken shall also be included in the six-monthly compliance report being submitted to concerned authority.

Standard EC Conditions for (Off-shore and onshore oil and gas exploration, development and production)

1 General Conditions

S. No	EC Conditions
1.1	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.
1.2	The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment.
1.3	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
1.4	The company shall undertake all relevant measures for improving the socio-economic 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.
1.5	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

S. No	EC Conditions
	stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
1.6	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.
The project proponent shall also submit six monthly reports on the status of compliand stipulated Environmental Clearance conditions including results of monitored data (both copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respection of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliant report shall be posted on the website of the company.	
1.8	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.
1.9	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 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.
1.10	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.
1.11	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.

e-Payments

Annexure 2

Details of Products & By-products

	Name of the product /By- product	Product / By- product	Quantity	Unit	Mode of Transport / Transmission	Remarks (eg. CAS number)
(Gas	Product	315000	SCMD	Pipeline	

S. No.	PML Name	Name of developmen t location	Objective Sand	Target Depth, m (MSL)	Expected Potential (m3/d)	Area (Ha)
1	Baramura Field PML	BMDH	B-I-I	650	12,247	1.74
2	Baramura Extn-IV PML	BMDK**	B-II-I	950	30,932	1.36
3		GODA	GS-I-I	850	30,137	3.52
4	Gojalia PML	GODB	GS-IIA	2100	48,767	1.74
5		GODD	GS-I-I	850	39,890	1.56
6	Rokhi <mark>a(RO-</mark> 15) PML	RO-15A	MP-51A	2400	41,370	0.7629
		2,03,343	10.6829			

^{**} BMDK is dropped after ToR application, The Development location BMDK in Baramura Field is currently under technical review and has been kept in abeyance.

Details of PML Block and 5 nos. of development Location-Post ToR

S. N	PML Name	Name of development location	Expected Potential As per ToR (m3/d)	Revised Expected Potential (m3/d)
1	Baramura Field PML	BMDH	30,000	12,247
2	Baramura Extn-IV PML	BMDK **	35,000	-(Dropped)
3	70c	GODA	50,000	30,137
4	Gojalia PML	GODB	50,000	48,767
5		GODD	50,000	39,890
6	Rokhia (RO- 15) PML	RO-15A	50,000	41,370
Total			2,35,000	1,72,411

Note: ** BMDK is dropped after ToR application, The Development location BMDK in Baramura Field is currently under technical review and has been kept in abeyance.

Production Profile - Gas

Year	Gas Rate Cum Gas Wate		Water Rate	Pressure
Teal	m3/d	(MMm3)	m3/Day	Kg/cm2
2023-24 to	1,72,411	629	20	53

2033-34		
2033-34		

Annexure -III

Coordinates of the proposed development location (6nos)

S. No.	PML Name	Name of development location	Latitude of development location	Longitude of development location
1	Baramura Field PML	вмон	23°50'5.596"N	91°33'38.265"E
2	Baramura Extn-IV PML	BMDK(Dropped)	23°46'14.980"N	91°34'12.920"E
3		GODA	23°05'26.631"N	91°35'07.601"E
4	Goja <mark>lia</mark> PML	GODB	23°02'05.733"N	91°36'07.939"E
5		GODD	23°06'16.776"N	91°34'49.259"E
6	Rokhia(RO- 15) PML	RO-15A	23°36'14.693"N	91°13'13.753"E

Coordinates of the Proposed Baramura Field PML

Label	Latitude	Longitude
A	23°51 <mark>'36.3</mark> 0"N	91° <mark>3</mark> 3'28.00"E
В	23°51 <mark>'36</mark> .30"N	91° <mark>34</mark> '12.00"E
С	23°46'57.00"N	91° <mark>33</mark> '28.00"E
D	23°46'57.00"N	91° <mark>3</mark> 4'12.00"E

Coordinates of the Proposed Baramura Extn-IV PML

Label	Latitude	Longitude
А	23°55'16.24"N	91°34'11.02"E
В	23°40'0.00"N	91°36'13.47"E
С	23°40'0.00"N	91°32'51.42"E
D	23°55'16.24"N	91°30'48.98"E

Coordinates of the Proposed Gojalia PML

Label	Latitude	Longitude
Α	23°22'48.65"N	91°26'0.00"E
В	23°23'40.54"N	91°28'45.88"E
С	23°8'28.69"N	91°35'17.89"E
D	23°8'28.69"N	91°38'7.50"E
E	23°1'38.91"N	91°38'7.50"E
F	22°59'40.81"N	91°39'7.06"E
G	22°58'29.19"N	91°36'24.71"E

Coordinates of the Proposed Rokhia(RO-15) PML

Label	Latitude	Longitude
М	23°36'22.00"N	91°13'12.50"E
N	23°36'22.00"N	91°13'40.50"E
0	23°35'51.50"N	91°13'40.50"E
Р	23°35'51.50"N	91°13'12.50"E

Annexure - IV

The main issues raised during the public hearing and their action plan are as follows:

West Tripura District:

S.No	Issue Raise <mark>d by</mark>	Issue	Reply by ONGC	Commitment on fund allocation	Timeline
1	Shri Prithhiraj Majumder, Councilor, Jirania Nagar Panchayet	In his speech, discussed about the different aspects of the proposed project. He has raised the demand for installation of Solar Street Lights at Local Markets and also requested the ONGC Ltd to provide gas pipeline connection in the area for the benefits of local people	Noted and will be implemented.	A budget of 5lakhs will be allocated under CER for the installation of Solar Street Lights at Local Markets.	It will be implemented within period of two years from date of commissioning of the project.
2	Shri Manoranjan Basu, Jirania	He has raised a demand for providing Solar Street Lights, Gas pipeline connection and Drinking Water Facilities for the local people under the CSR fund	Noted and will be implemented.	A budget of 10lakhs will be allocated under CER for the installation of Solar Street Lights, Gas pipeline connection and Drinking Water Facilities for the local people.	It will be implemented within periodof two years from date of commissioning of the project.
3	Shri Rabindra Lal Das, Jirania	He raised a demand for providing	Noted and will be implemented.	A budget of 2lakhs will be allocated under	It will be implemented within period of two years

S.No	Issue Raised by	Issue	Reply by ONGC	Commitment on fund allocation	Timeline
		Water Supply connection for supplies of potable drinking water to the domestic households those who		CER for providing Water Supply connection, one desktop computer.	from date of commissioning of the project.
		living in Ward No.5 of the Jirania Nagar Panchayat. He has also raised a demand for providing one desktop computer in the S. N. Colony High School for the benefits of students	IV I	CAL	

South Tripura District:

S.No	Issue Raised by	Issue	Reply by ONGC	Commitmen t on fund allocation	Timeline
1.	Shri Kanti Mallik, Pradhan, Krishna Nagar Gram Panchayet	He has requested ONGC Ltd to fulfill the following demands for the benefits local people under the CSR fund. Revamping school ground to encourage the students for sports. To set up a Veterinary hospital in the area of Krishna Nagar Gram Panchayet. To construct a community toilet near Krishna Nagar school shed for the benefit of local people. To provide Solar Street Lights in Krishna Nagar	Noted and will be implemented .	A budget of 2lakhs will be allocated under CER for Revamping school ground. A budget of 15lakhs will be allocated under CER to set up a Veterinary hospital A budget of 2lakhs will be allocated under CER to construct a community toilet. A budget of 5lakhs will be allocated under CER to construct a community toilet. A budget of 5lakhs will be allocated under CER to provide Solar	It will be implemented within period of within period of years from date of commissioning of the project.

S.No	Issue Raised by	Issue	Reply by ONGC	Commitmen t on fund allocation	Timeline
		Gram Panchayet area. Construction of boundary wall of Krishna Nagar Gram Panchayat. Providing and laying floor tiles in the Ramthakur Seva Mandir Ashram		Street Lights. A budget of Slakhs will be allocated under CER to construct boundary wall. A budget of 2lakhs will be allocated under CER to lay floor tiles in the Ramthakur Seva Mandir Ashram.	
2.	Shri Jayanta Sen Chowdhury , Krishna Nagar	He raised a demand for providing and constructing a Water Storage Tank facility for Community use. He has also requested to provide required number of doctors in Krishna Nagar Public Health Centre and also providing uninterrupted power supply for the local people under the CSR fund.	Noted and will be implemented .	A budget of 2lakhs will be allocated under CER for constructing a Water Storage Tank facility	It will be implemented within period of within period of years from date of commissioning of the project.
3.	Shri Tapan Bhowmik, Krishna Nagar	He raised a demand for constructing the boundary wall of Ramthakur Seva Mandir Ashram for the benefit of local people under the CSR fund.	Noted and will be implemented .	A budget of 2lakhs will be allocated under CER for constructing the boundary wall of Ramthakur Seva Mandir Ashram	It will be implemented within period of within period of two years from date of commissioning of the project.
4.	Smt. Priti Sen Chowdhury , Krishna Nagar	He raised a demand for providing a Gym for local people and for proving fund for physically challenged/disable d child under the CSR fund.	Noted and will be implemented	A budget of 3lakhs will be allocated under CER for providing a Gym for local people. A budget of 2lakhs will be allocated	It will be implemented within period of within period of two years from date of commissioning of the project.

S.No	Issue Raised by	Issue	Reply by ONGC	Commitmen t on fund allocation	Timeline
				under CER for providing fund for physically challenged/disabled child.	
5 .	Smt. Shikha Acharjee, Krishna Nagar	He raised a demand for providing Solar Street Lights along the road side of Krishna Nagar Gram Panchayet and also providing a children park for the child of Krishna Nagar Gram Panchayet under the CSR fund.	Noted and will be implemented .	A budget of 5lakhs will be allocated under CER for providing Solar Street Lights A budget of 2lakhs will be allocated under CER for providing children park	It will be implemented within period of within period of years from date of commissioning of the project.

Sepa<mark>hijala Distri</mark>ct:

S.No	Issue Raised by	Issue	Reply by ONGC	Commitment on fund allocation	Timeline
1.	Shri Subodh Debbarma, Hon'ble MLA, Charilam Assembly Constituency	He highlighted various environmental issues related to drilling activities and requested ONGC to take necessary actions in the public interest. He has requested ONGC Ltd. to incur CSR fund for overall development of Bongshibari Village Council. At the same time, he has also requested local people to extend necessary cooperation to the ONGC Limited to meet the objectives of the project.	Noted and will be implemented.	A budget of 2lakhs will be allocated under CER for overall development of Bongshibari Village Council	It will be implemented within period of within period of two years from date of commissioning of the project.

S.No	Issue Raised by	Issue	Reply by ONGC	Commitment on fund allocation	Timeline
		He has given importance to maintain ecological balance of the surrounding area of drilling well at any cost.			
2	Shri Bijoy Debbarma, Panchayet Secretary	On behalf of villagers of Bongshibari Village Council expressed his concern about various kind of environmental pollution mainly noise pollution, soil pollution, air pollution and releases of toxic gases if any, during drilling activity which may leads to environmental degradation of the surrounding area. In this	Noted and will be implemented.	EMP for environmental pollution Management is being carried out at each wells site	Will be implemented during commissioning stage.
	e Complie	regard, he has requested ONGC Ltd. to take necessary measures to combat environmental pollution.	C GREE	No.	Se
3	Sri Pandab Debbarma and others of Bongshibari ADC Village	Have submitted a written demand through ADM, Sepahijala District to execute the followings works under the CSR fund for the benefits of local people Construction of boundary wall of Rangapania English Medium High School.	Noted and will be implemented.	A budget of 2lakhs will be allocated under CER for construction of boundary wall. A budget of 2lakhs will be allocated under CER for construction of Children Park. A budget of 3lakhs will be allocated under CER for construction of sports gallery.	It will be implemented within period of within period of two years from date of commissioning of the project.

S.No	Issue Raised by	Issue	Reply by ONGC	Commitment on fund allocation	Timeline
	KVA	Construction of Children Park of Rangapania English Medium High School Construction of Sports Gallery of Rangapania English Medium High School Providing & installation of 100 Nos. of Solar Street Light. Providing compensation to the land owner. Construction of Road with black top carpeting from Bahuchandra Para to 83 Rubber Garden under Bongshibari Village Council.	I V	A budget of 2lakhs will be allocated under CER to install Solar Street Lights. A budget of 7lakhs will be allocated under CER for construction of road from Bahuchandra Para to 83 Rubber Garden under Bongshibari Village Council.	DSS

Annexure - V

Land details:

S. No.	PML Name	Name of development location	Compensatory afforestation with reference to the Forest Clearance of each Well
1	Baramura Field PML	вмон	3.47 Ha identified at Mouja –Dinakobr, CS plot no 416, Khatian no. 2/2 under Baramura Forest Division, Baramura Debtamura block in West district of Tripura
2	Baramura Extn-IV PML	BMDK (Dropped)	2.72 Ha in Compartment No.9 , Rev. C/S Plot 1116, Khatian No. 2/1 , Mouja – Sriramkhara , Chakmaghat Block, Teliamuar Forest subdivision , Khowai District
3	Gojalia PML	GODA	7.04Ha double degraded forest land in C/S Plot 435, Khatian No. 1/48, Tekka Mouja RF, Hrishya Mukh range, Bagafa Forest subdivision in South district of Tripura
4		GODB	3.47 Ha identified at CS plot no 1932 of

S. No.	PML Name	Name of development location	Compensatory afforestation with reference to the Forest Clearance of each Well			
			Khatian 4/6 , Sabroom sub-division , Srinagar range in South district of Tripura			
5		GODD	3.12 Ha in degraded forest land identified one patch under Dalshin Sonaichari Mouunder Hrishyamukh Range of Bagafa Sudivision.			
6	Rokhia-15 PML	RO-15A	1.554 Ha in at CS plot no . 3658, Kh. No. 2/2 under degraded forest land identified in one patch under Mouja Madhya –Ghaniamar , Jampuijala Range, Pathaliaghat RF			

Annexure - VI

		Produc ed Water Treatm ent Locatio n	Mode of Transf er of Produ ced water to ETP	Disposal of Treated Produced Water from ETP	Mode of Transfer of Treated Produced Water from ETP to ED Wells	Location of ED Wells		
Develop ment Location Name	GCS Name					Latitude	Longitud e	
		ADB GCS/	z		2///2	2 <mark>3°</mark> 44′28. 37″N	91°21′12. 30″E	
вмон	Baram ura	Konaban -GCS - (4-5km away)	Str. C.	Effluent Disposal Well (ED Wells)	Pipeline	37 10	30 E	
GODA		ADB GCS - (4-5km away)	Tanker			23°44′13.	91°20′26.	
GODB	Gojali		S			165″N	898″E	
GODD	а					23°42′54. 19″N	91°11′17. 44″E	
RO-15A	Rokhia	Konaban -GCS - (4-5km away)				15 14	77 L	

Annexure - VII

Location	GCS Name	GCS pr	ocessing capa	Distance of Wells	
Name		Design	Operating	Post Operating	from GCS (kms)
BMDH	Baramura	0.75	0.11	0.122	3.1
GODA					4.3
GODB	Gojalia	0.5	0.12	0.239	9.5
GODD					3.8
RO-15A	Rokhia	0.5	0.14	0.181	3.5

Annexure - VIII

S. N	PML Name	Name of development location	Area (Ha)	Forest Clearance file no.	Dated	Approval Status		
1	. Baramura	aramura		F.No.3-TR B 116/2019-SHI/3296- 97	17.03.2022	Stage-I Approval issued		
1	Field PML	BMDH	1.74	F.No.3-TR B 116/2019-SHI/1471- 72	10.08.2022	Final Stage-II Approval issued		
2	Baramura Extn-IV	BMDK	1.36	F.No.3-TR B 007/2022-SHI/2349- 50	15.11.2022	Stage-I Approval issued		
	PML	(Dropped)		F.No.3-TR B 007/2022-SHI/69-70	12.04.2023	Stage-II Approval issued		
3	3 4 Gojalia PML		2.52	F.No.3-TR B 095/2020-SHI/272- 73	17.06.2021	Stage-I Approval issued		
3			GODA	Q	3.32	F.No.3-TR B 095/2020-SHI/752- 53	08.11.2021	Final Stage-II Approval issued
			1.74	F.No.3-TR B 075/2020-SHI/264- 65	17.06.2021	Stage-I Approval issued		
4			PML GODB 1.74	PML F.No.3-1R B 075/2020-SHI/16:	075/2020-SHI/1619-	21.10.2021	Final Stage-II Approval issued	
_	5	GODD 1.56	F.No.3-TR B 048/2021-SHI/2327- 28	23.12.2021	Stage-I Approval issued			
			1.50	F.No.3-TR B 048/2021-SHI/1666- 67	05.07.2022	Final Stage-II Approval issued		
6	Rokhia-15 PML	RO-15A	0.76229	F.No.3-TR B 009/2022-SHI/3145- 46	08.02.2023	Stage-I Approval issued		

Annexure - IX

<u>Details of extended EMP (CER) with proposed activities and budgetary allocation:</u>

S. No	Activities under CER	2024- 25	2025- 26	Total				
	West Tripura district							
1	Solar Street Lights at Local Markets	5	5	10				
2	Solar Street Lights, Gas pipeline connection and Drinking Water Facilities for the local people	6	6	12				
3	Water Supply connection, one desktop computer.	2	2	4				
	South Tripura district							
4	Revamping school ground to encourage the students	2	2	4				

	for sports					
5	To set up a Veterinary hospital in the area of Krishna Nagar Gram Panchayet	7.5	7.5	15		
6	To construct a community toilet near Krishna Nagar school shed for the benefit of local people	5	5	10		
7	To provide Solar Street Lights in Krishna Nagar Gram Panchayet area	6	6	12		
8	Construction of boundary wall of Krishna Nagar Gram Panchayat	2.5	2.5	5		
9	Providing and laying floor tiles in the Ramthakur Seva Mandir Ashram	2	2	4		
10	Constructing a Water Storage Tank facility	2	2	4		
11	Constructing the boundary wall of Ramthakur Seva Mandir Ashram	2	2	4		
12	Gym for local people.	2	2	4		
13	Fund for physically challenged/ disabled child	2	2	4		
14	Providing Solar Street Lights along the road side of Krishna Nagar Gram Panchayet	5.5	5.5	11		
15	Providing a children park for the child of Krishna Nagar Gram Panchayet	2	2	4		
	Sepahijala district					
16	Overall development of Bongshibari Village Council.	2	2	4		
17	Construction of boundary wall of Rangapania English Medium High School.	2	2	4		
18	Construction of Children Park of Rangapania English Medium High School	2	2	4		
19	Construction of Sports Gallery of Rangapania English Medium High School	2	2	4		
20	Providing & installation of 100 Nos. of Solar Street Light	10	10	20		
21	Construction of Road with black top carpeting from Bahuchandra Para to 83 Rubber Garden under Bongshibari Village Council	3.5	3.5	7		
	Total (Lakhs)	75	75	150		

^{e-}Pavments