

## **Pre-Feasibility Report**

### **Onshore Oil & Gas Development Drilling and Production of hydrocarbons at location TULD in AA/ONDSF/TULAMARA/2018 PML area in Gomati District in the state of Tripura**

#### **1.0 PREAMBLE**

OIL INDIA LIMITED (OIL), a Government of India Navaratna Enterprise, is currently engaged in carrying out exploration activities in its operational areas in Upper Assam, Arunachal Pradesh and Mizoram in the North Eastern part of India for hydrocarbon exploration. OIL is also undertaking hydrocarbon exploration activities in few Indian states and few overseas countries. Oil India Limited was incorporated on 18<sup>th</sup> 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.

The Ministry of Petroleum & Natural Gas (MoP&NG), Govt. of India has awarded the DSF Block: AA/ONDSF/TULAMARA/2018 to OIL in the north eastern state of Tripura under the new liberalized policy to increase domestic oil production of the country. The contract area was earlier a part of West Tripura PEL area operated by ONGC and was awarded to Oil India Limited in DSF Round-II bidding during early 2019. The total area of the block is 47.23 Sq.km. The Revenue Sharing Contract (RSC) was signed between the Government and Oil India Limited on 7th March, 2019.

In pursuance of the RSC signed between OIL and MoP&NG, Govt. of India, the Petroleum Mining Lease (PML) for the block was awarded by Government of Tripura on 14th Nov, 2019. Oil India Limited (OIL) presently holds 100% participating interest in the block.

The DSF Block : AA/ONDSF/TULAMARA/2018 falls partly in South Tripura and Gomati districts in the State of Tripura near the Bangladesh Border. The block area comprises of villages, suburban areas and parts of Baramura Deotamura Reserve Forest near Silachari/Sukanchari areas. Population density is light to medium. The general elevation of the block ranges between 200-50 m.

As per CWP of the RSC, OIL is to drill minimum four (4) locations in this PML block. Accordingly, based on the existing seismic data as well as drilling well evidence from Well No. Tulamara-1, four (4) drillable locations (TULA, TULB, TULC & TULD) have been identified where civil survey has already been completed. This feasibility report is prepared as a whole for the block and also for location TULD. For information that gas was established during production testing in Well No. Tulamara-1 completed by ONGC in 2008. Production setup has now been planned to establish at Tulamara-1 plinth with around 30 km assorted pipeline (4/6 & 8 inches) to evacuate oil/gas from this field.

## **2.0 LOCATION OF THE PROJECT SITE DSF BLOCK: AA/ONDSF/TULAMARA/2018**

### **2.1.0 Block Location & Description**

#### **2.1.1 Location**

The AA/ONDSF/TULAMARA/2018 Block, covers an area of 47.23 Sq. km and is located in South Tripura and Gomati districts of Tripura. The block lies in the southern corner of South Tripura and Gomati districts. The eastern boundary of the DSF block is close to border of Bangladesh (Fig-1). The area is mainly hilly (50-200 masl) with Baramura-Deotamura RF and plain land towards border. There is no major river inside the block except small streams but the Feni river flows from north to south towards eastern border down to Bangladesh.

The drilling location at TULD is planned in Roshi Chandra Para village under Silachari Revenue Circle within Baramura-Deotamura Reserve Forest area. Total 5.47 ha of forest land has been proposed for diversion for construction of Approach road, Plinth, Flare pit and boiler placement during drilling operation.



Map Showing Locations for Drilling Site at South Tripura  
under Oil India Limited

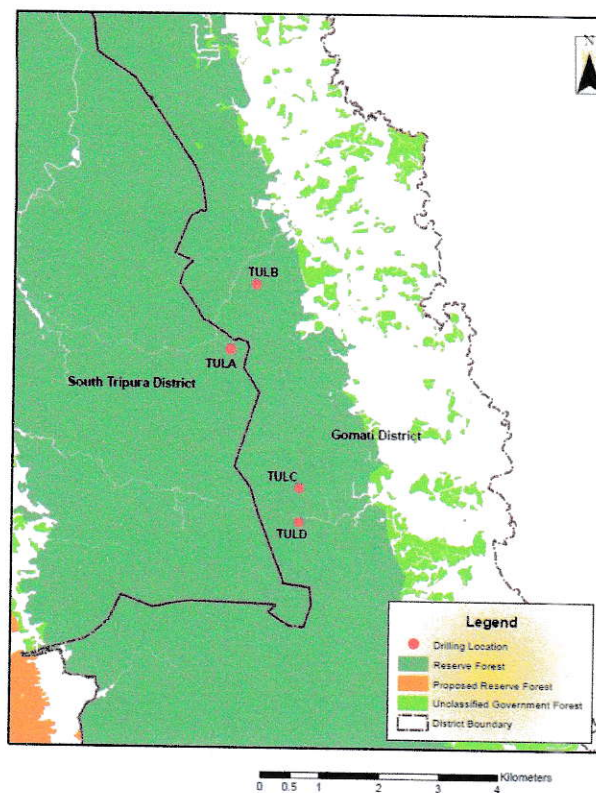


Figure -1

Coordinates of the Block boundary is given below : -

| Pt. | Longitude (East) |      |      | Latitude (North) |      |      |
|-----|------------------|------|------|------------------|------|------|
|     | Deg.             | Min. | Sec. | Deg.             | Min. | Sec. |
| A   | 91               | 44   | 00   | 23               | 16   | 00   |
| B   | 91               | 46   | 00   | 23               | 16   | 00   |
| C   | 91               | 46   | 00   | 23               | 14   | 00   |
| D   | 91               | 47   | 00   | 23               | 14   | 00   |
| E   | 91               | 47   | 00   | 23               | 11   | 00   |
| F   | 91               | 48   | 00   | 23               | 11   | 00   |
| G   | 91               | 48   | 00   | 23               | 10   | 00   |
| H   | 91               | 45   | 00   | 23               | 10   | 00   |
| I   | 91               | 45   | 00   | 23               | 12   | 00   |
| J   | 91               | 44   | 00   | 23               | 12   | 00   |

FIGURE-2: THE DSF BLOCK: AA-ONDSF/TULAMARA/2018 WITH BLOCK COORDINATES

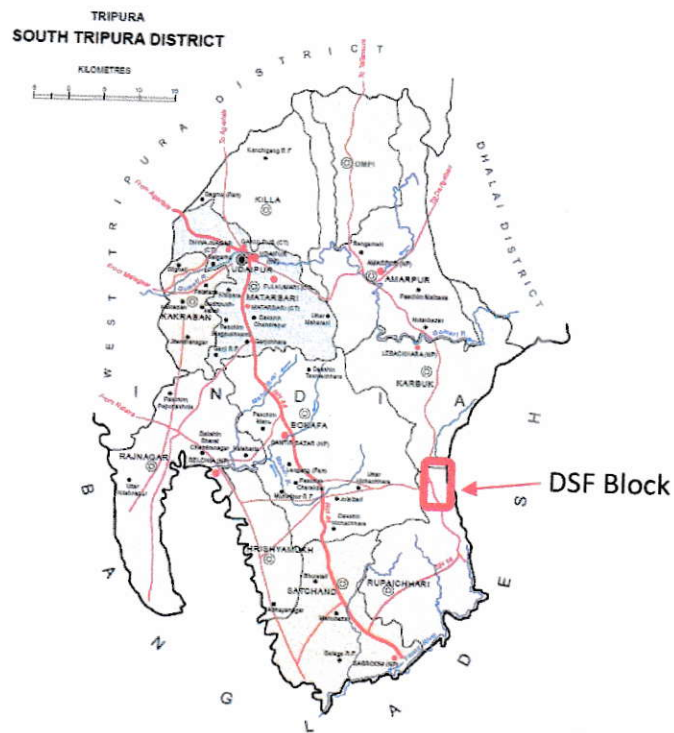


Figure-3: Location of Project Site in South Tripura and Gomati District

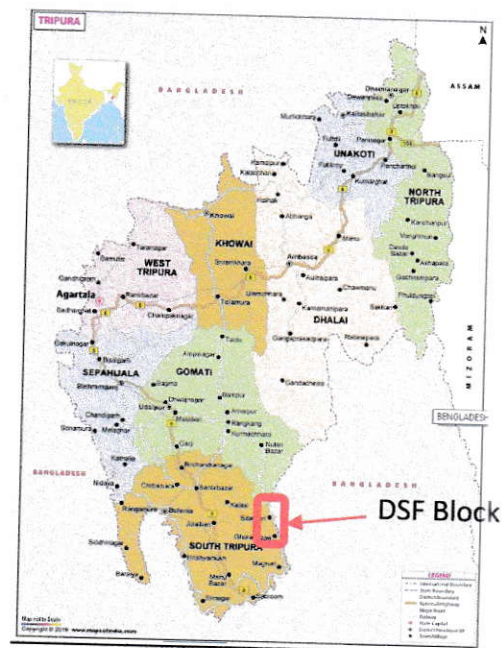


Figure-4: Project Site Location South Tripura and Gomati Districts

### 2.1.2 Block Description

The block area comprises of mainly forest of Baramura Deotamura reserve forest. Towards eastern part about 10-15% area is plain land with villages, suburban areas of Barabil, Silachari, Sukanchari and Ghorkappa areas. There is no wildlife sanctuaries or National Park within the block or within 10 km radius of the block. International Border (Indo-Bangladesh border) lies within 1 km from the eastern boundary of the block.

### 2.1.3 Drainage System of the Block Area

The DSF block lies mainly on a NNE-SSE trending hilly area with Baramura-Deotamura reserve forest of Tripura. There is no major river inside the block except small streams to meet the river Feni towards east and outside the block. Feni river flows towards eastern side of the DSF Block and flows southwards down to Bangladesh.

### 2.1.4 Logistics

The project site can be easily accessed from Agartala by road (NH-8) or by train. Agartala is well connected with other states by air, road and train. The nearest commercial railway station is at Sabroom at about 25 Km from the DSF block and the domestic airport is at Agartala about 120 Km. The main road is a state highway within the block and is entering near from Jalaibari town through Srikantabari, Barabil and Silachari area. The national highway (NH-8) runs from Agartala to Sabroom (South Tripura) in the state of Tripura. It links with the 'Maitri Setu' border road between India and Bangladesh near Sabroom town and this was recently inaugurated by Hon'ble Prime Minister of India and Bangladesh on 09.03.2021. This link (150 m long) will help to reach the nearest Chitagong sea port of Bangladesh for importing oil field equipment/materials by sea in future. Further it will reduce more than 1500 km road distance via Guwahati, Assam. Another state road is available from Sabroom through eastern boundary of the block to Amarpur and Teliamura and links with other main road of Tripura. At present, village road conditions are good though they generally degrade marginally during the peak monsoon season. Sabroom is a sub-divisional head quarter of South Tripura.



### Topography of DSF Block: AA/ONDSF/TULAMARA/2018 in Tulamara Area

The project site (TULD) lies in the Tulamara area of Gomati district in the state of Tripura. The block covers 47.23 Sq.km out of which 90% is reserve forest (Moderately dense forest) under Gomati Forest Division near Indo Bangladesh border towards east. Moreover, the area consists of small hillocks from where the name derives. The General elevation of the block ranges between 200-50 m. No major river is available within the block however, small streams/rivulets traverses the block.

### **3.0 TECHNICAL FEASIBILITY OF THE BLOCK: AA/ONDSF/TULAMARA/2018**

#### 3.1 Geo-scientific works carried out in the block:

The DSF block was earlier a part of West Tripura PML operated by ONGC. ONGC has carried out 2D/3D seismic surveys at different times and established few gas fields in Gajalia, Matabari and Baramura areas.

#### **3.2 Geophysical Survey:**

**Seismic Data:** After the award of DSF block OIL has not acquired any seismic data within the block. However, there are total 85 GLKM of 2D seismic data acquired at different times by ONGC since 2006 to 2011. Few seismic information adjacent to OIL's block was also used for better understanding of geological model.

#### **3.3 Exploratory Drilling:**

**Well Data:** Only one well (Tulamara-1) was drilled in this DSF block in 2008. However, nearest wells in Matabari, Gajalia and Baramura areas have probed to be commercial gas bearing and hence the same continuation of structures are considered to be persistent in the DSF block area.

#### **3.4 Technical Assessment & Geological Modeling:**

The recent review and interpretation of seismic data has resulted in identification of four (4) drillable locations, two in Upper Bhuvan and two in Middle Bhuvan formations with a maximum target depth of around 3500 m. The locations may be deepened down to Lower Bhuvan depending upon the drilling evidence. The total estimate of Gas in-place is placed around 1760 MMSCM in Upper Bhuvan and

Middle Bhuban together. The overall techno-economic calculation of the block under the aforesaid strategy shows that the revenue after royalty for the project is around 40 Million USD for 16 years of production and the Share of contractor (OIL) after tax is around 1 Million USD during the same time. Coordinate of the location TULD is given below.

| Location | Latitude     | Longitude    | Depth (m) |
|----------|--------------|--------------|-----------|
| TULD     | 23°12'32.35" | 91°45'10.30" | 3200      |

Note: Planned production set up at existing plinth of Tulamara-1.

### **Stratigraphy of the Tulamara DSF block :**

3.5 The Bokabil Formation is exposed in Tulamara area and the expected stratigraphy within the block is as follows:

|                          | Age                      | Group  | Formation/Member |        | Lithology   | Thickness |
|--------------------------|--------------------------|--------|------------------|--------|---|-----------|
| Neogene                  | Miocene                  | Surma  | Bokabil          |        | Fine grained sandstone/siltstone with intervening claystone layers. | 700-1500  |
|                          |                          |        | Bhuban           | Upper  | Sandstone and sandy claystone/shale layers                          | 650-1200  |
|                          |                          |        |                  | Middle | Shale and occasional fine grained sandstone                         | 650-1200  |
|                          |                          |        |                  | Lower  | Alternations of sandstone and shale                                 | 700-1000  |
| ----- Unconformity ----- |                          |        |                  |        |   |           |
| Paleogene                | Oligocene to Late Eocene | Barail | Renji            |        | Dominantly sandstone with thin shale layers                         | 700-1000  |
|                          |                          |        | Jenam            |        | Shale and occasional sandstone                                      | 900-1500  |
|                          |                          |        | Laisong          |        | Alternations of thin sandstone and shale beds                       | 1500-2000 |
|                          | Eocene                   | Disang | Disang           |        | Dark grey shale with thin beds of sandstone                         | 1750      |



#### 4.0 OPERATIONAL FEASIBILITY OF DSF Block: AA/ONDSF/TULAMARA/2018

##### 4.1.1 Accessibility of the Block Area (Project Area)

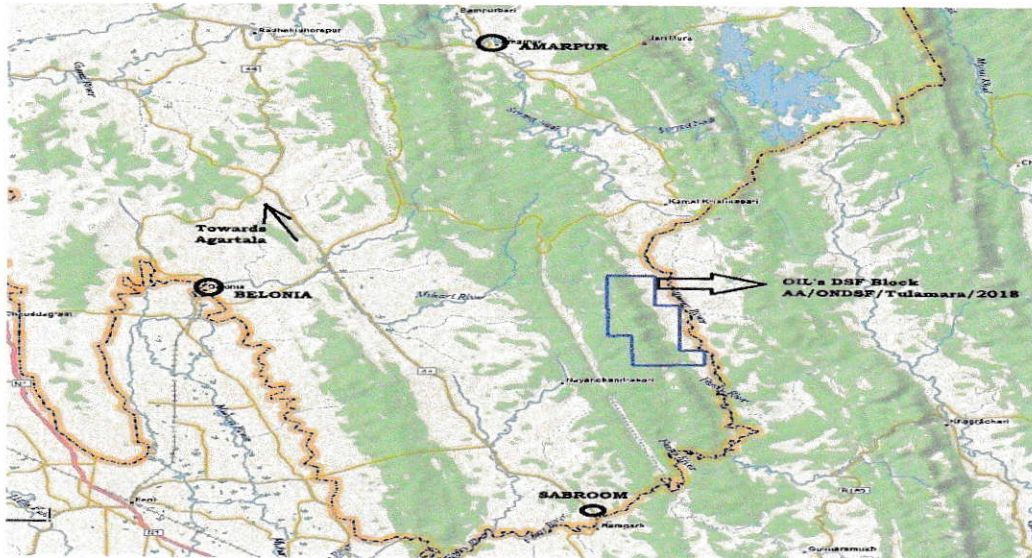


Figure-5: Accessibility Map of the Block Area

##### **Road**

The block can be reached from Sabroom town via NH8 (Karimganj-Agartala-Sabroom) first and further about 40 km through State PWD road. Another State highway road (Teliamura-Amarpur-Silachari) also can be approached to reach the block.

##### **Ferry**

The area is land locked from all sides and that too through hilly terrain adjacent to Indo-Bangladesh border. At this moment the ferry service is not effective to initiate operation in this DSF block.

##### **Railway**

Sabroom Railway Station is the nearest (40 km) railway station. It is the last station of Tripura and 113 Km away through BG line from Agartala. It is in the bank of river Feni near Bangladesh border. The newly constructed railway line was operational w.e.f October 2019 and the line is expected to extend from Sabroom to Chitagong sea port of Bangladesh as agreed by the Hon'ble Prime Ministers of both countries.



**Airport:**

Nearest domestic/commercial airport to the Block is located at Agartala in West Tripura district, about 120 km from the Block. Daily flights are available from Guwahati, Kolkata and other parts of the country.

**4.1.2 Accessibility to the Proposed Drilling Location**

Tulamara DSF block is around 1000 km from Duliajan by road through Karimganj-Agartala-Sabroom National Highway. Railway connectivity is also there upto Sabroom town of South Tripura district. There are also state highway roads available to reach the drilling locations. However, about 5 km approach road will be required to be constructed from the state highway road.

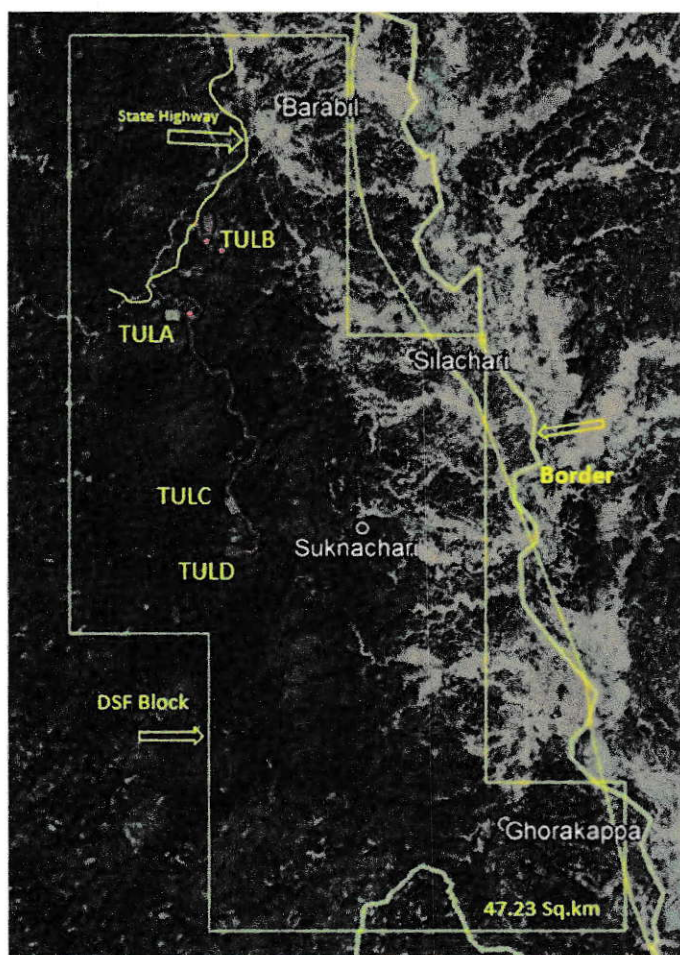
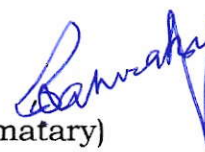


Figure-6: Accessibility Map to the proposed locations

## 5.0 ECONOMIC FEASIBILITY

The petroleum system is available in this DSF block as gas was probed in the first well at Tulamara-1 drilled by ONGC though the commercial expect is yet to be established. However, ONGC is commercially producing gas from neighbouring Gajalia and Baramura gas fields. With the fast gas based economy and further market in the State of Tripura, it is envisaged that during the next three year period, AA/ONDSF/TULAMARA/2018 PML block to offer a tenable cost-benefit scenario for carrying out the exploration activities in Tripura.



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