

**HYDROCARBON EVALUATION USING GEOLOGICAL,  
GEOPHYSICAL AND WELL DATA ANALYSIS OF BITRISIM AREA**



**SUBMITTED BY**

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## DEDICATION

Dedicated to our Parents, friends and families Most importantly to our fellow countryman

*“Out of the night that covers me,  
Black as the Pit from pole to pole,  
I thank whatever gods may be  
For my unconquerable soul.*

*In the fell clutch of circumstance  
I have not winced nor cried aloud.  
Under the bludgeonings of chance  
My head is bloody, but unbowed.*

*Beyond this place of wrath and tears  
Looms but the Horror of the shade,  
And yet the menace of the years  
Finds, and shall find, me unafraid.*

*It matters not how strait the gate,  
How charged with punishments the scroll.  
I am the master of my fate:  
I am the captain of my soul.”*

(William Ernest Henley)

## ABSTRACT

The seismic interpretation of Bitrisim area was done to identify the faults in the study area, in order to identify the structural and stratigraphic traps which may exist in the block. The faults indicates an extensional regime in the area. These are normal faults and form horst and graben structures. Prominent reflectors are marks and formation are identified on the seismic data. The target horizon was Lower Goru Formation which is the proven reservoir in the area. The basal part of Lower Goru Formation contain substantial organic content which act as source to B Sand of Lower Goru Formation. The TWT and depth structure contour mapping of marked reflectors was done. Traps were identified on contour maps.

The analysis of expected reservoir B Sand is done using rock physics. The relationship between  $V_p$ ,  $V_s$ , Porosity, Density, Depth,  $V_p/V_s$  and Elastic Parameters help us understand the changes that resulted in B Sand due to overburden, tectonic activities, transition zones, increase in depth, porosity and due to the presence of fluids in the reservoir.

The rock physics information was correlated with Petrophysics data which was obtained from well Fateh-01. Water resistivity, water saturation and hydrocarbon saturation in the reservoir was established. Using GR log lithology variation with depth chart was constructed. Further using Shale cut-off, water cut-off a net pay zone was established whose thickness came out to be 6m. Further, using the GR log curve, the environment of deposition was noted and hence forth, the stacking pattern was established.

Furthermore, 1D forward modeling of the study area was done only to confirm our Poisson's ration variation trend in our study area and more importantly our reservoir. Synthetic seismogram was also constructed to correlate the lithologies on the seismic section with the well data in order to have the well control.

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With Your prolific praise, O Owner of Honour, I desire to begin  
A limitless praise, with which You are Pleased

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