

## **Sedimentation of Tura Formation in North Assam Shelf, Upper Assam Basin, India**

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Tura Formation of Early Eocene age, also known as Basal Clastic, is the oldest sedimentary sequence and it nonconformably overlies Pre-Cambrian granitic basement in entire North Assam Shelf. Time to time, the earlier workers subdivided this sedimentary sequence in three/four units on the basis of lithofacies assemblages, electrolog characters and envisaged depositional environments. In general, Tura lower unit/units have been interpreted to be deposited in distal alluvial fan setting with subordinate fluvial braided channel fill and the upper unit is considered to be deposited in an overall transgressive shallow to marginal marine near shore depositional environment. In present study, Tura Formation have been divided into two parts viz. Tura Lower and Tura Upper, strictly on the basis of log characters. Tura Upper unit is a dominantly sandy unit which gradually becomes shaly towards bottom. Till date, all HC production from Tura formation (Basal Clastic) in North Assam Shelf has been confined to the sands of Tura Upper unit only and sands of Tura Lower unit have invariably produced water with mild gas during initial testing. The sediments of Tura Lower unit do not show any particular trend on logs except the topmost shale/claystone band, which is characterized by high gamma count and generally high resistivity compared to underlying sand. Moreover, a sudden increase in silty kaolinitic clay content is reported in well cuttings across the area close to top of this unit. Based on detailed analyses of selected well logs integrated with sedimentological description of various laboratory reports of entire North Assam Shelf, an attempt has been made for the first time to describe this Tura Lower unit as paleo-soil formed by in-situ weathering of Pre-Cambrian granitic rocks, termed as “regolith”. As an additional effort to establish a surface to subsurface correlation, some photographs on newly cut road section along National Highway-37 near Guwahati, where weathered basement is exposed, are shown as evidence of occurrence of this „regolith“.