

PETROGRAPHY AND PROVENANCE STUDY OF NEOGENE SANDSTONES OF A PART OF TRIPURA FOLD BELT, INDIA

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Abstract

The aim of this research work was to evaluate petrographic characteristics and provenance of the Neogene Surma Group sandstones collected from three wells of a gas field located in the western part of the Tripura Fold Belt. The study reveals that the samples consist of sand to silt-sized particles of mainly detrital origin. The component grains are sub-angular to sub-rounded, moderately sorted to well sorted and texturally sub-mature to mature. Sandstones encountered in the studied wells have been classified as sublithic-arenite and subfeldspathic-arenite types. The detrital framework grains of the analysed sandstones in order of abundance are quartz 58.31-43.3%, lithic fragments 8.06-16.28% and feldspars 1.68-10.9%. Both plagioclase and K-feldspar are present. The metamorphic and sedimentary rock fragments are abundant whereas volcanic lithic fragments are rare. QFL, Q_mFL_t, LmLvLs, QpLvLs triangular plots reveal that these studied sandstones are the products of a quartzose recycled orogenic province such as a thrust-fold province or a collision suture zone characterised by a moderate to high quartz content, low feldspar, very low volcanic fragments and abundant metamorphic and sedimentary lithic fragments. From the diamond plot of Basu et al., (1975) it is observed that the sediments were derived mainly from upper- low rank metamorphic sources.

Keywords: Petrography, Provenance, Surma Group, Tripura Fold Belt