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Sequence Stratigraphy Analysis of Fluvial to Tidal Deposits Using Borehole Images, Well Data and Outcrop Data The Eocene Ishikari Group , Hokkaido , Japan

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Abstract Formation evaluation using borehole image logs has recently been becoming a useful tool for hydrocarbon exploration and production. Borehole images log can provide important information on the properties and distributions of hydrocarbon reservoir. In this study, borehole images log data obtained from the Eocene Ishikari Group, Hokkaido, Japan, were used for the sedimentary facies analysis. Detailed borehole image log obtained by Fullbore Formation Microimager (FMI) have been analyzed for the MITI Yubari well, where fluvio-tidal depositional systems are identified. Sedimentary structures estimated from FMI images and wireline log data were used to classify fourteen sedimentary facies, including coal, coaly mudstone, channel sandstone, tidal interbedded sandstone and massive mudstone. Then, the fourteen sedimentary facies were assembled into fluvial, estuarine and tidal facies associations based on the interpretation of these facies and their stacking patterns. The result indicated that the Ishikari Group was deposited under bay to fluvial environment. The pattern of the facies succession revealed that the Ishikari Group consists of repetitive stacks of transgressive and regressive systems, which were considered to be formed in response to relative sea-level changes. It is concluded that borehole images can provide useful information on detailed sedimentary facies and succession patterns.