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Use of Reservoir and Environment Friendly Bio-Polymers in the Reservoir Drilling Fluid of Upper Assam Basin

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Abstract: Drilling fluid or mud is believed as the most important component of oil and gas well drilling operation.The drilling of the wells from surface to the pay-zones with same conventional drilling fluid may decreasethe production and ultimate recovery by damaging the producing interval. Reservoir Drilling Fluid (RDF) is an environmental friendly polymer mud system without having the traditional clay and baritecomponent mostly used in the pay-zone sections of development wells and specifically in horizontal wells to avoid formation damage. In this study some specific biopolymers such as XC-Polymer (XCP), Pregelatinized starch (PGS) and Polyanioniccellulose(PAC) have been used in the laboratory formulation of RDF designed especially for the oilfields of Upper Assam Basin (UAB). The XCPhasbeen basically used as the rheology control agent as a replacement of the clay in the conventional mud due to the non-degradation nature of the clay. The PGS hasbeen basically used as the fluid loss control agent although it has amild effect in controlling the rheology. The PAChasalso been used as the fluid loss control agentsince it is more resistant to the biodegradation and the degradation due to high temperature than the PGS. A rigorous study has been performed on the mud properties and found their excellent role in respective purposes in the RDF. Also, an attempt has been made to optimize their composition in the RDF for the oilfields of Upper Assam Basin.

Key Words: Reservoir Drilling Fluid; Bio-Polymers; XC-Polymer; PGS; PAC; Reservoir friendly; Environment friendly; Formation Damage; Upper Assam Basin.

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