A New Oil Migration Model for the Bakken Petroleum System of the Williston Basin

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A new migration model for the Bakken Petroleum System in the Williston Basin has been developed. This model defines three basic play types for the Bakken: a highly overpressured, high oil saturated resource play, an overpressued less oil saturated resource play and a normally pressured migrated oil play.

The distribution of these plays is controlled in large part by the occurrence of mature Bakken source rocks, Bakken stratigraphy and the magnitude and direction of fluid movement driven by both hydraulic head and fluid density differences in the Basin.

This model can be used to diminish exploration risks by predicting areas of oil charge for both in-situ and migrated unconventional oil plays in Manitoba, Saskatchewan, North Dakota and Montana.