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Winnipeg, Technology, Geological Manitoba Energy Surv and Mines

Waskada Axis (BWA; N Waskada Axis (BWA; N roughly through the mi (Figure 10). Isopach and of faults running parallel these faults were active are herein mary reservoir (Unit 4) st of the SBZ margins, s exposed as a plateau of some wells east of the S der the right trapping co e play yet to be discove ferred to as the Sinclair fault and Sinclair fault offset, ng an en echelon extention of the former (Figure 10). along these faults caused the preservation of the rvoir (Unit 4) of the Three Forks Formation east and BZ margins, while secondary reservoir unit (Unit 2) as a plateau on the BWA. The preservation of Unit 4 s east of the SBZ margin opens up the possibility that, ht trapping conditions, there may be another Sinclair-to be discovered east of Range 24W1 of the r ural (SBZ fault and Sincl Q Prea this ern extent of liggest th le the Superior Birdtail-998) runs the SBZ presence margins; ese faults

his faulting theory, Dietrich *et* using seismic data along a tran-t to southwestern Manitoba, or the presence of Unit 4, which ame transect identified a fault r Range 25W1, which may expla-te eastern limit of the SBZ. A ver-4, which is 1 d a fault runn may *al.* (1998) identified ect from southeastern e of which coincides s truncated in Range nning roughly north-n the preservation of ell defined basement preserva efined ba



Figure 4: Core photos of Sinclair reservoir Yellow fluorescence is oil, and blue fluores

sub

29W1

unit 4b }-29W

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units 4b and 4c taken in white (left) and ultraviolet (right) light e is anhydrite.

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Three Forks Exploration

Exploration of the Three Forks Formation in Manitoba has been combined with the Bakken Formation exploration. The two formations are often considered a continuous, commingled reservoir and are pooled together. The Three Forks is currently productive in the Sinclair Field, Daly Field, Kirkella Field and Township 4 Range 29W1. As a rather new exploration target, it has not been explored in other areas of the province.

Future development exists potentially along the north-south trend of the isopach thick of Unit 4. Unit 2 has development potential in areas where its best production where Subunit 2b is present and where Subunit 2c has been minimally affected by redox haloing.

New exploration efforts should be targeted northward and eastward of Sinclair Field within Unit 2, and possibly Unit 1. The fact that Unit 1 is productive in a small pool in Sinclair, suggests that more potential exists in this unit in all areas where Three Forks is present. Log signatures of Unit 1 look promising west of the Unit 2 subcrop edge, but core of this unit is not available to correlate with the log signatures. Possible target zones may occur along the north-south trend parallel to the eastern limit of the SBZ, from Range 24W1 and 25W1 where local occurrences of Unit 4 have been preserved, based on log correlations. It is possible that another Sinclair is yet to be discovered along this eastern trend. Range 2 been pr another

Conclusions

The uppermost of the Th most productive reserve Township 4 Range 29W a secondary reservoir most productive reservo Township 4 Range 29W1 a secondary reservoir Thinning of the Three F eastward suggests that th may be limited. In contra south along Range 29W1 southern expansion of the Daly and Kirkella Fiel Township 4 Range 29W1 The Daly Three Forks units, Unit 4, is the primary and voir at Sinclair Field and in the pool in V1. Production is also derived from Unit 2, c at Sinclair, Daly and Kirkella Fields. Forks Formation and truncation of Unit 4 the eastern expansion of the Sinclair Field trast, the thick isopach trend running north-V1, where Unit 4 is still present, suggests a the Sinclair Field and northern expansion of ields may also be successful. Much of V1 remains unexplored.

Isopach and structural ev occurred in the wester Township 9. This faulti subsequent erosional trun limits of Range 28W1. T boundary in determining The identification of a faulti Ranges 24 and 25W1, sections of Unit 4 and U the west. Future potenti ctural evidence suggests block faulting may have western sections of Range 28W1 south of is faulting would have resulted in uplift and the onal truncation of Unit 3 and Unit 4 along eastern 28W1. The fault trend may serve as a geological rmining the eastern boundary of the Sinclair Field. n of a fault on the eastern edge of the BWA along 25W1, coinciding with wells having preserved 4 and Unit 3, may provide a similar reservoir in e potential for another Sinclair-type oil play may 4W







