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# *Interactive comment on* "Comparison of performance of tile drainage routines in SWAT 2009 and 2012 in an extensively tile-drained watershed in the Midwest" *by* Tian Guo et al.

**Anonymous Referee #2**

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The author evaluates performance of tile drainage routines in SWAT 2009 (revision 528) and 2012 (revisions 615 and 645) at two points in mildly sloped LVR watershed based on runoff, Nitrate, etc., I suggest major revision owing to following comments below: i)I think scientific merit of this paper can be improved from its current form by showing how (under changing climate and irrigation practices) contamination of water has changed owing to tile drainage; after setting up well calibrated routines and simulating N-contamination for long-term till last year or so. ii) Author can try to discuss on how modified curve number improves SWAT 2012 tile drainage routines. iii) Fig 3c and d, Tile flow simulated from Rev.528 show constant overestimation at E and hence I feel still there is scope of improving (calibration) parameters. This may be leading to



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following conclusion on page 19 line4-5: old routine were better at site B, while new routine were better as site E. Difference in performance of different routines at B and E should be discussed. Is this based on different routines performing differently in different land-use at B and E or is there other physical process of routines linked to this difference. iv) The area covered by surface and sub-surface station is as low as in range of 0.05 km2. What is HRU size corresponding to drainage area for B and E? This information will reveal how well drainage is simulated in the considered drainage area. v) Leave-few-year out approach may be more suitable for calibration and validation. vi) Introduction can be reconstructed. In current form science question are repeated at two places on page 2 line 5 and page 4 line 32. vii) (line 20) Explanation is required on how uncalibrated routines give 'reasonable but unsatisfactory' performance. viii) Page 5 line 25 citation is improper ix) Page 9 line 27 variables of equation are not properly defined. x) Repetition: Page 14 line 13-14, Two sentences can be merge in 1. Page 14-19 looks like repetition of sentences. xi) Page 18 line 31, 'both routines' which two? Is not clear.

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