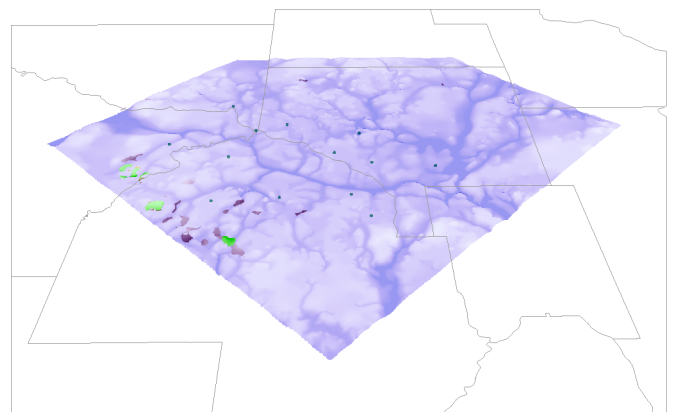
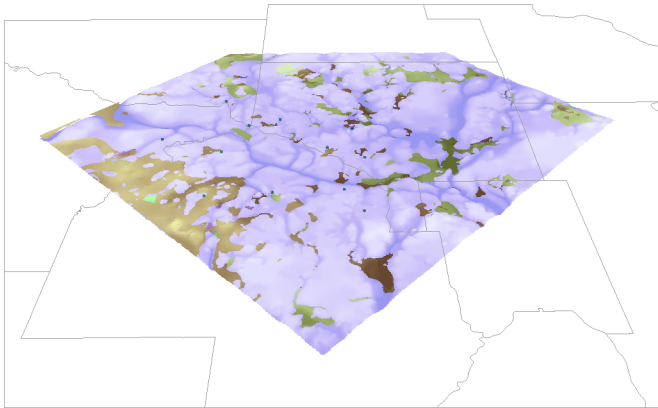


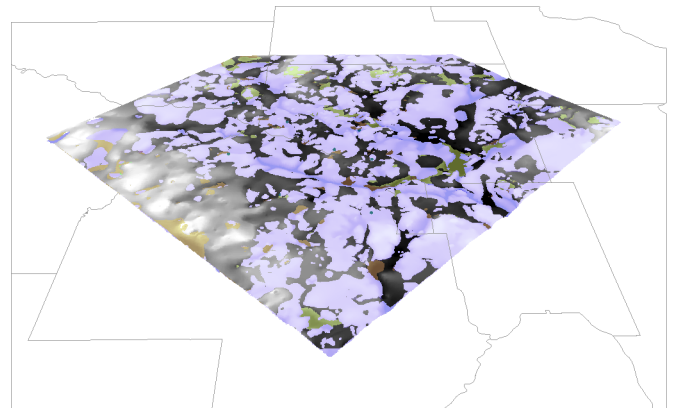
a.



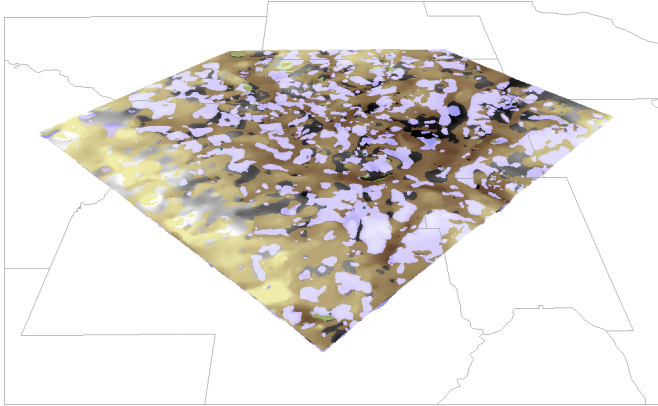
b.



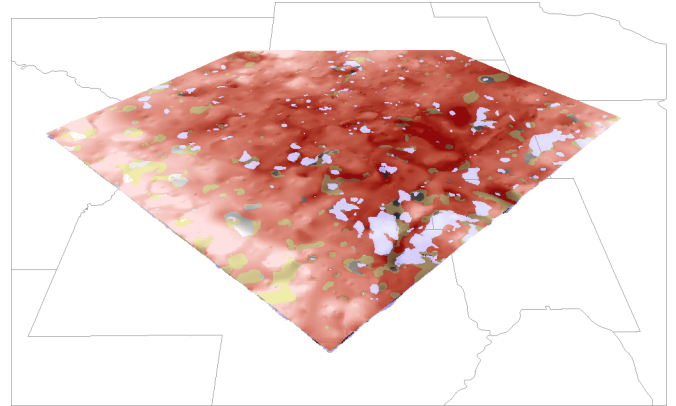
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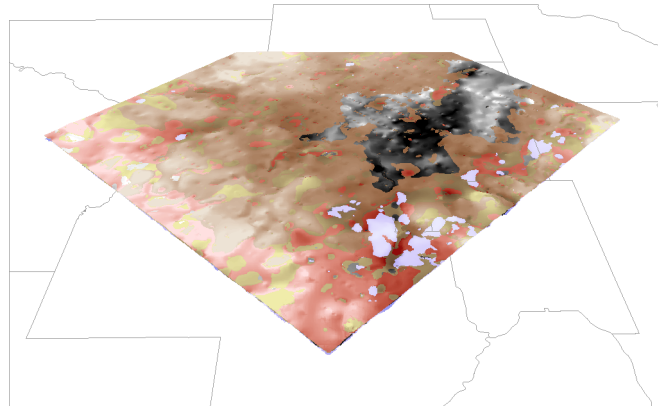
d.



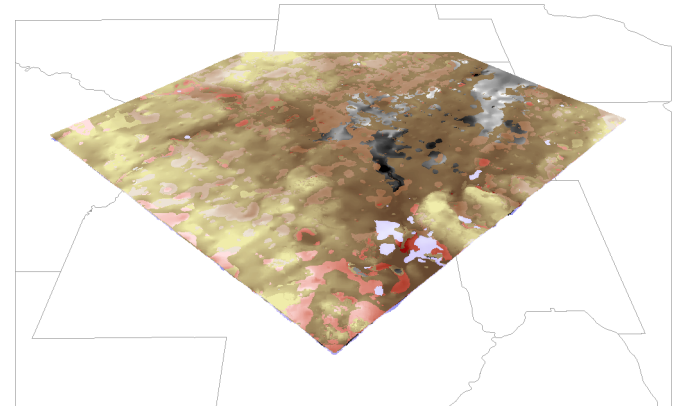
e.



f.

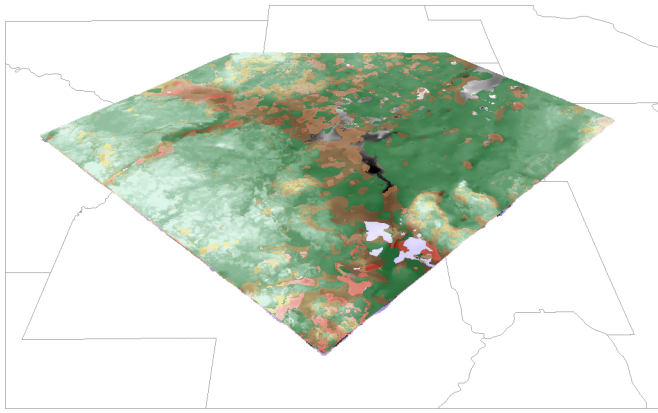


g.

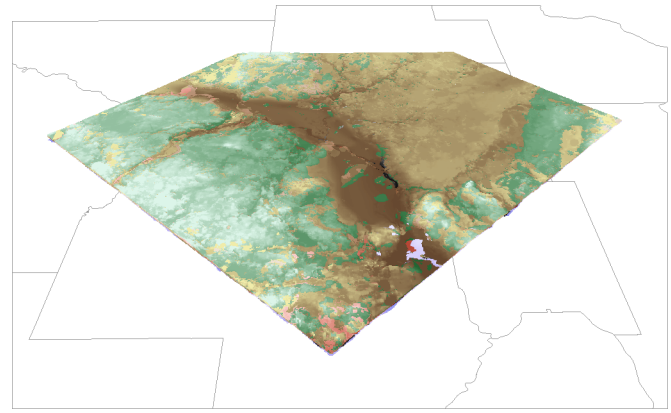


h.

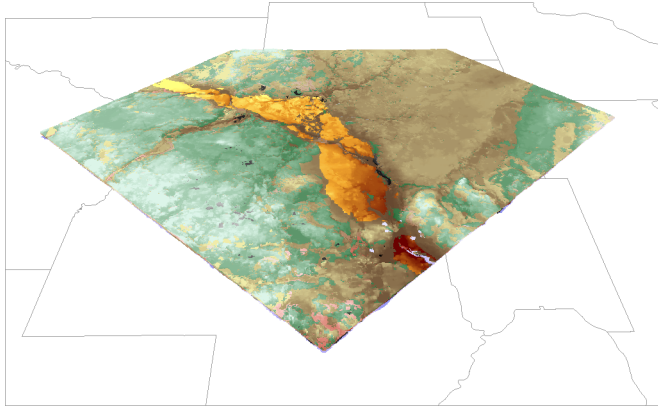
Figure 2. (caption on following page).



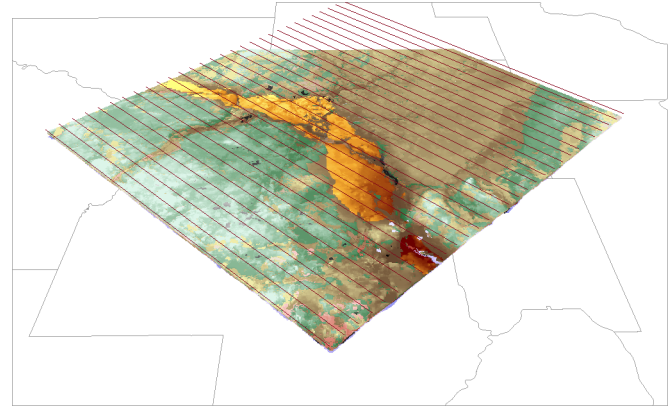
i,



j.

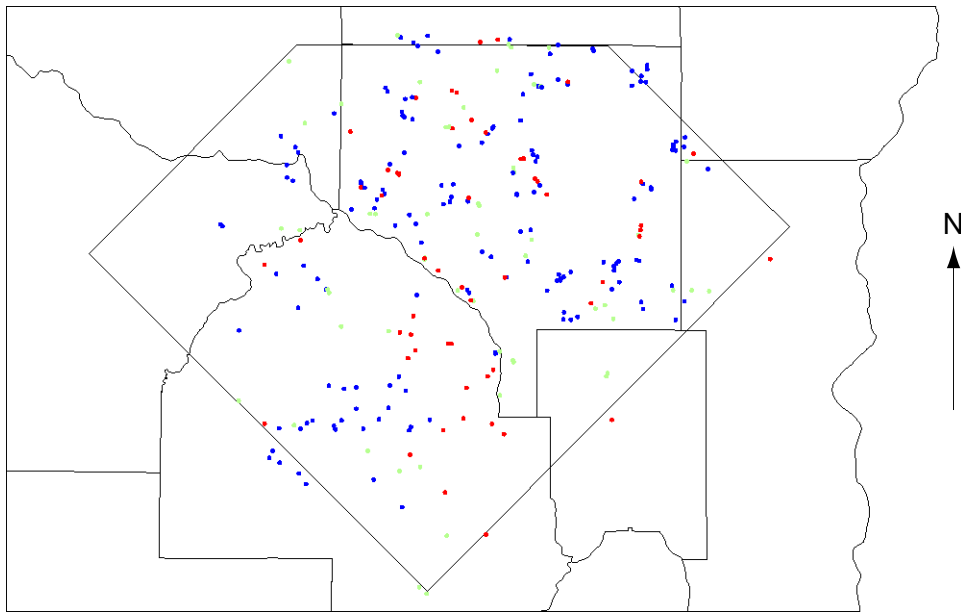


k.

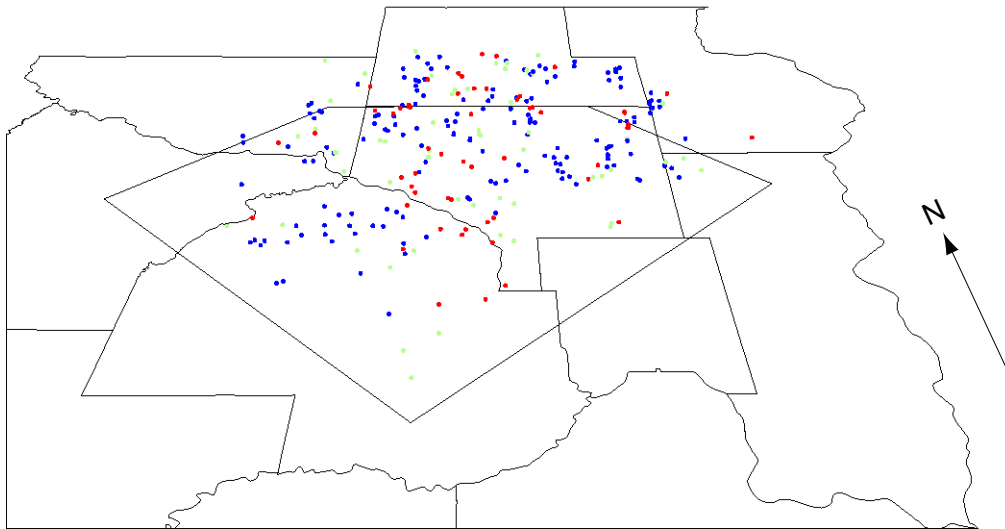


l.

Figure 2. (continued from previous page) Series of maps showing **a.** bedrock topography within the geologic framework model area viewed at an oblique angle from the south, and **(b.- l.)** overlying coarse and fine-grained lithologic units in superpositional order (vertical exaggeration 2x): **b.** unit po - outwash, unit pt - till, unit vo - outwash, unit vt - till; **c.** unit ro - outwash, unit rt - till, unit xo - outwash; **d.** unit xt - till; **e.** unit co - outwash; **f.** unit ct - till; **g.** unit col - outwash, unit ct1 - till, unit cl - lacustrine; **h.** unit no - outwash; **i.** unit nt - till; **j.** unit no2 - outwash; **k.** unit nl - lacustrine and terrace deposits; **l.** all units with cross section locations used to build the model shown. Units are shaded by elevation, with lighter shades of each color indicating higher elevation. See Appendix a for description of map units.

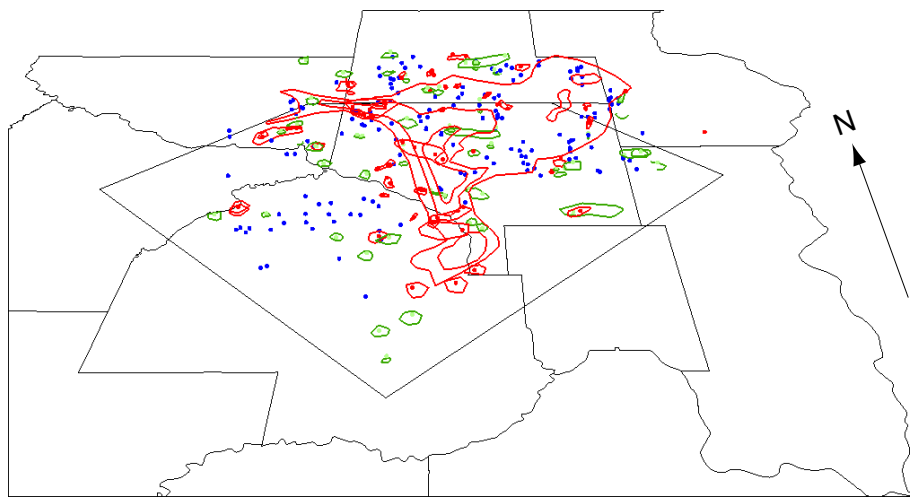


a.

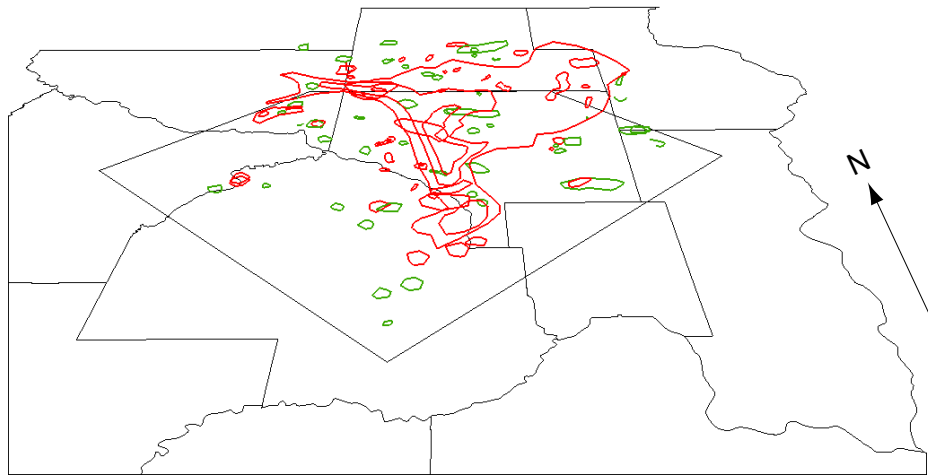


b.

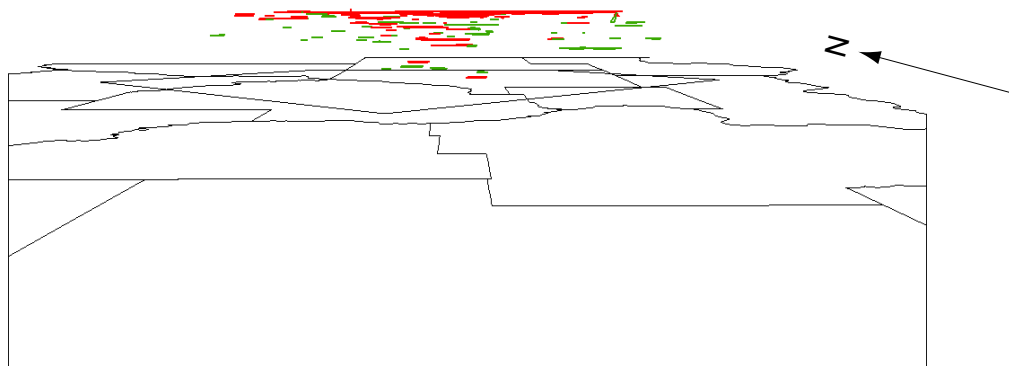
Figure 3 a. Tritium concentrations from wells within the study area with elevation and depth completed information. Wells are color-coded according to interpreted age designation: red indicates predominantly “recent” water, with tritium values greater than 10, blue indicates predominantly “vintage” water with non-detectible tritium, and green indicates an intermediate “mixed” water with tritium values between 1 and 10. See text for discussion of age designations. **b.** Perspective view of tritium concentrations. Location of the well dot in three dimensional space in this and subsequent perspective view based on utm coordinates and bottom-of-hole elevation (vertical exaggeration 10x).



a.



b.



c.

Figure 4 a. Perspective view of elevation contours of recent and mixed tritium concentrations within the study area, based on interpreted age designations. Contours were used to help characterize the three-dimensional distribution of recent and mixed waters that is less distinguishable based on point values alone. Position of upper most contours estimated based on the bottom of surficial sand elevations from the framework model. b. Contours with points removed. c. Low angle perspective view of contours. Depth of recent waters within the study area in eastern Hennepin County are visible (vertical exaggeration 10x).

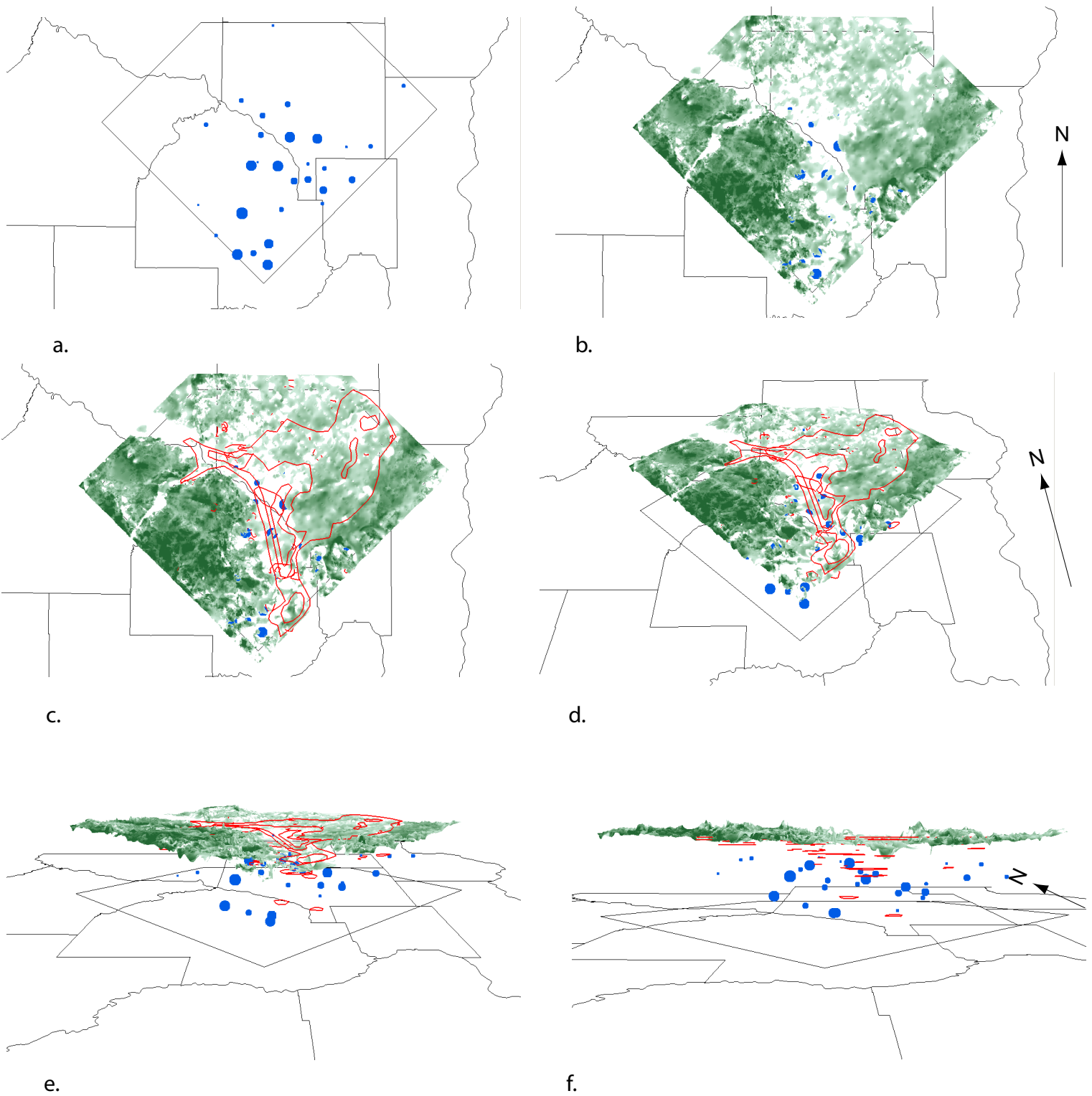


Figure 5 a. Average 2004 daily pumping levels for cities and communities within the study area shown with distribution and thickness of unit nt (Des Moines Lobe). **b.** Perspective view of 2004 pumping levels, tritium elevation contours, and thickness of unit nt. Elevation of the thickness grid set to the top of unit nt. **c-f.** Perspective views of same elements at an increasingly oblique angles. Presence of recent waters at increasing depths below areas where unit nt is absent, focused on high capacity pumping centers is visible (vertical exaggeration 10x).

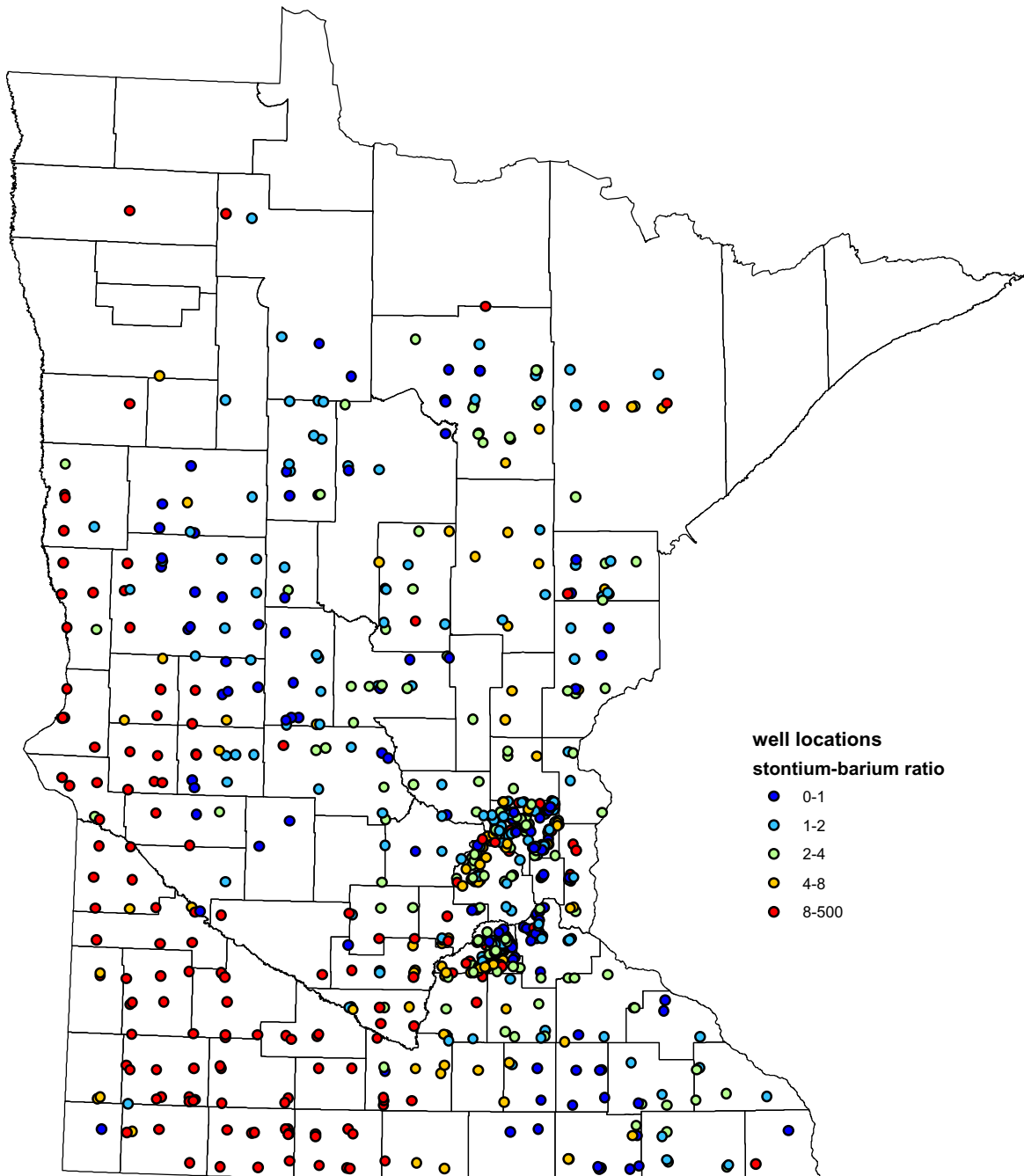


Figure 6 State-wide strontium/barium ratios in ground water from historic water chemistry data assembled as part of this investigation. Higher ratios associated with northwest provenance tills (Des Moines Lobe and Grantburg sublobe – unit nl) are visible.