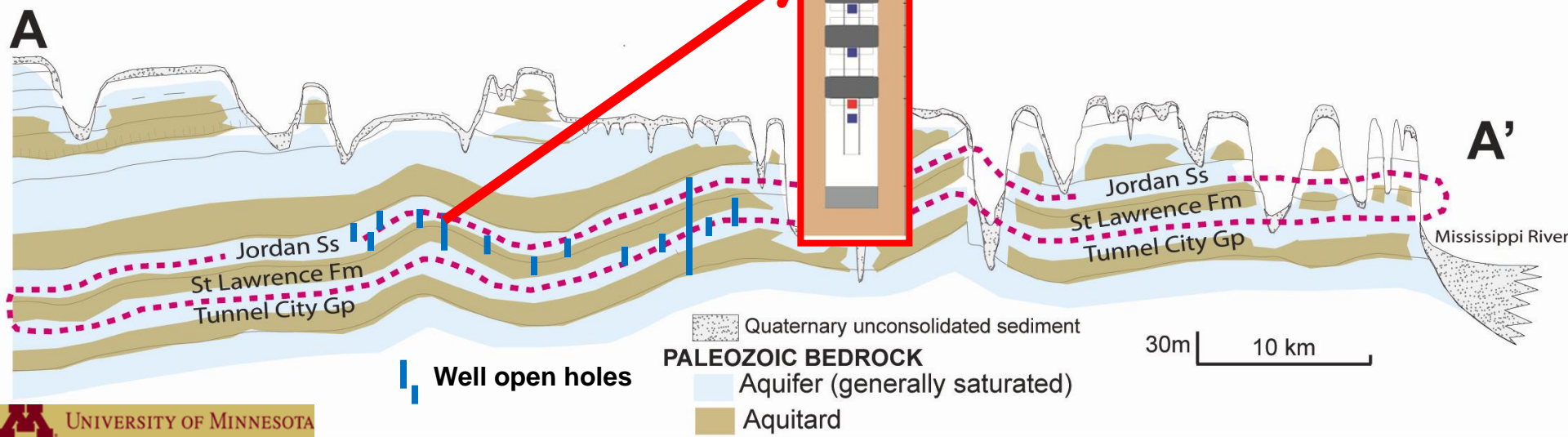


Maximizing hydrogeologic data from a single borehole

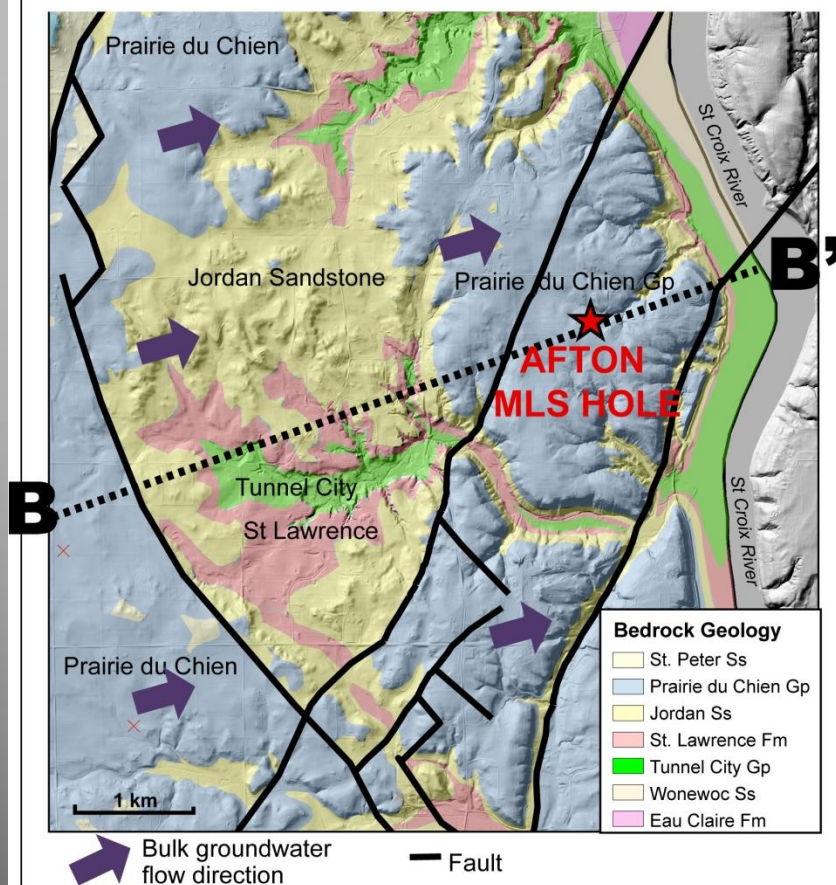
Runko, J. C. ⁽¹⁾; Tipping, Robert R. ⁽¹⁾; Meyer, J. R. ⁽²⁾; Steenberg, Julia R. ⁽¹⁾; Parker, J. ⁽²⁾; Jones, Perry M. ⁽³⁾; Retzler, A. ⁽¹⁾,

(1) Minnesota Geological Survey,
(2) School of Engineering, University of Guelph,
(3) US Geological Survey

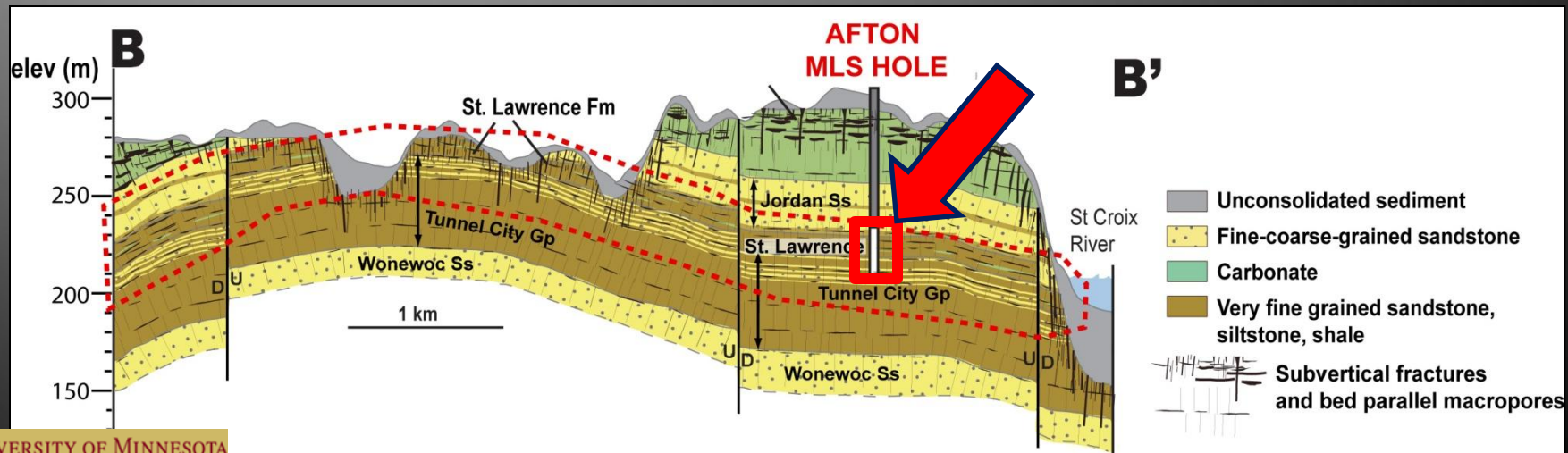
Funded primarily by the Environment and Natural Resource Trust (ENRTF) as recommended by the Legislative and Citizen Commission on Minnesota Resources (LCCMR)

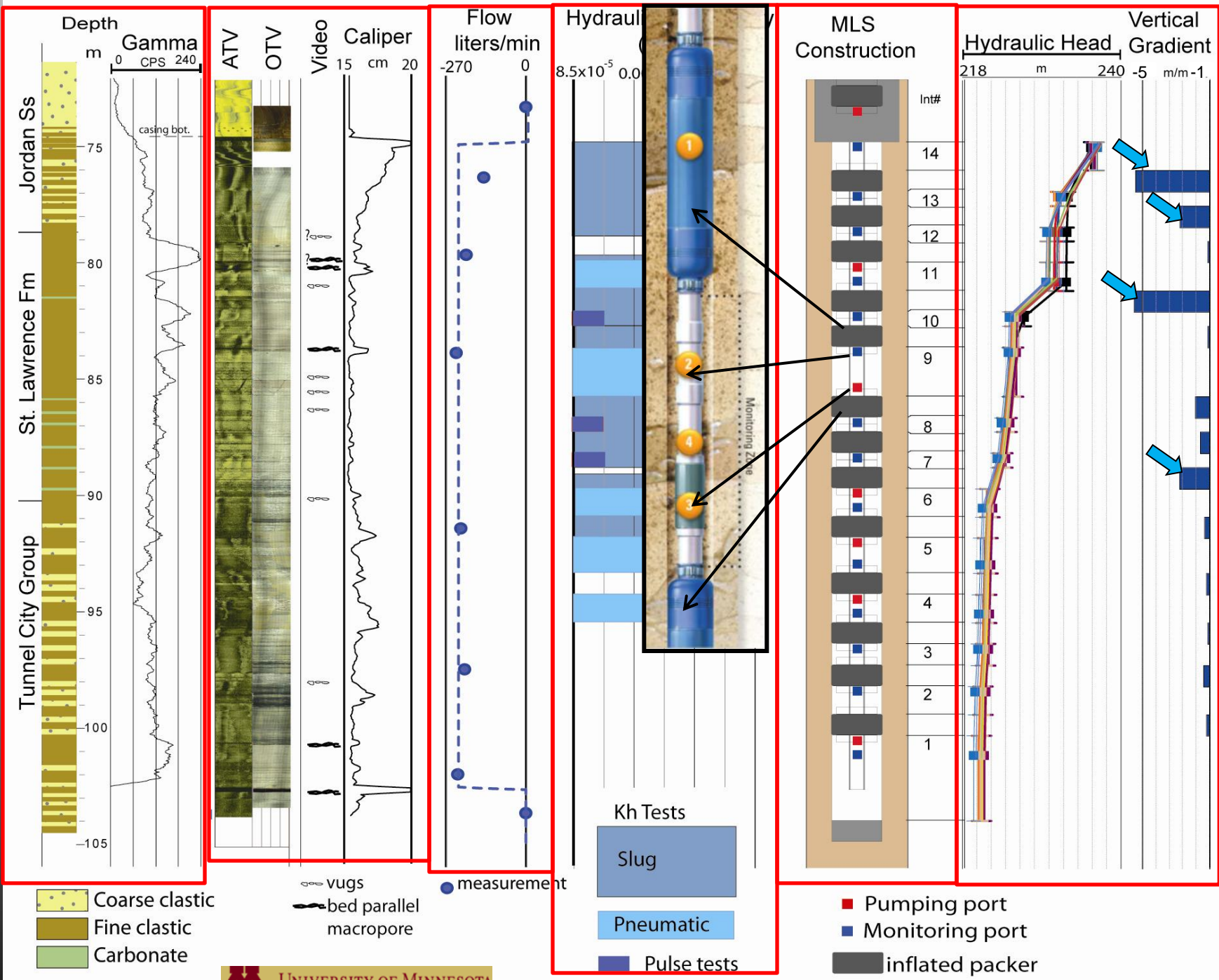


HURRY!

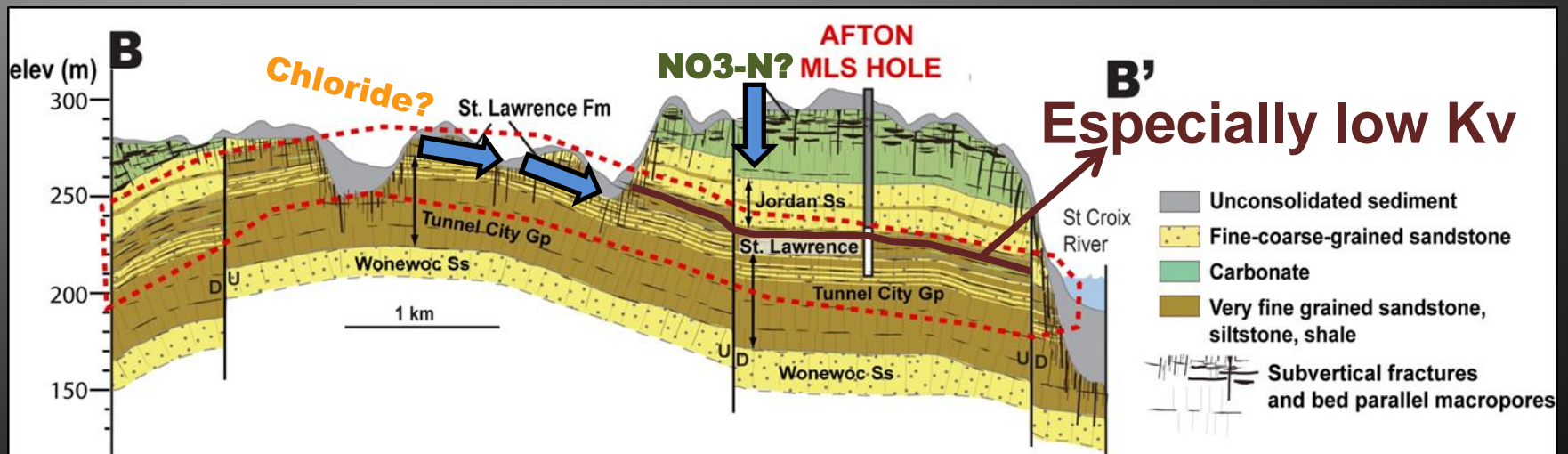
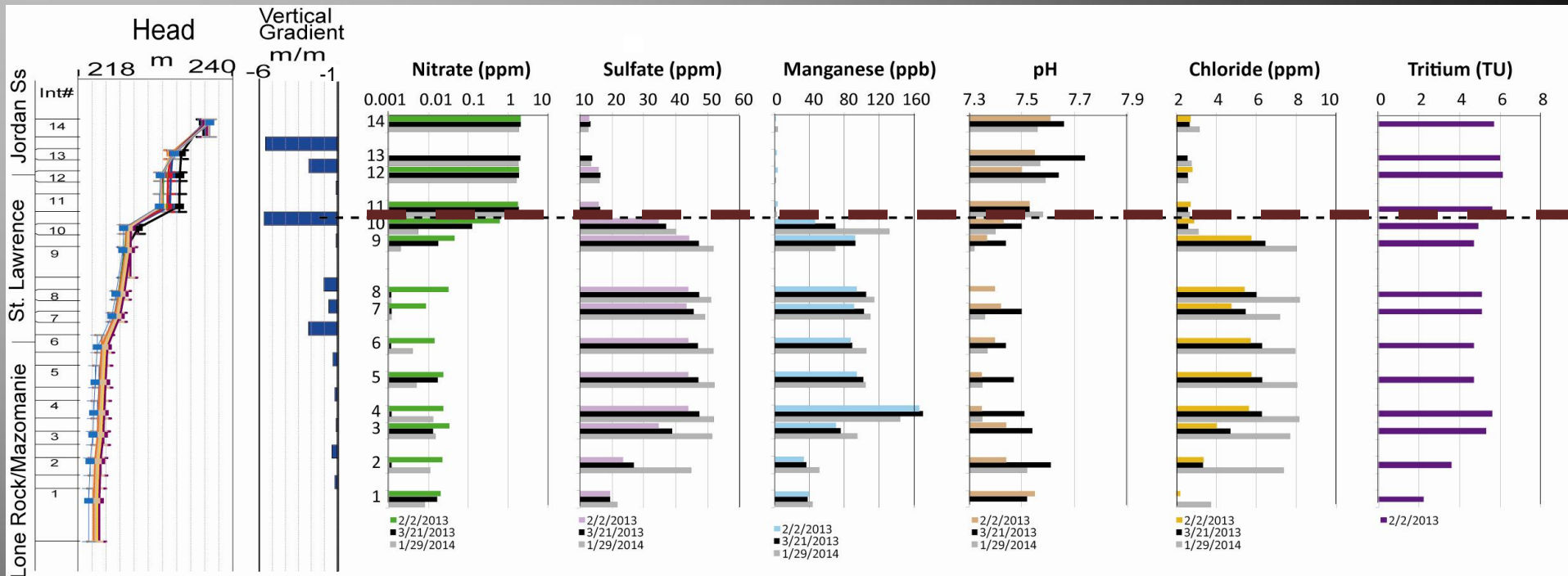


MLS Site Afton State Park

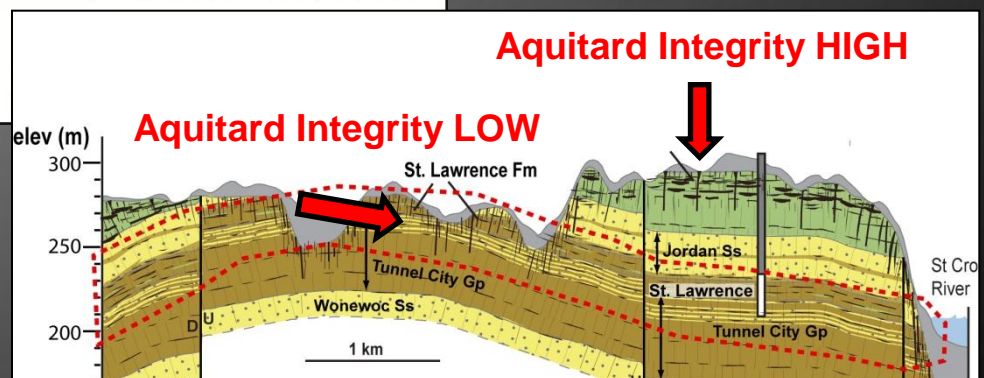
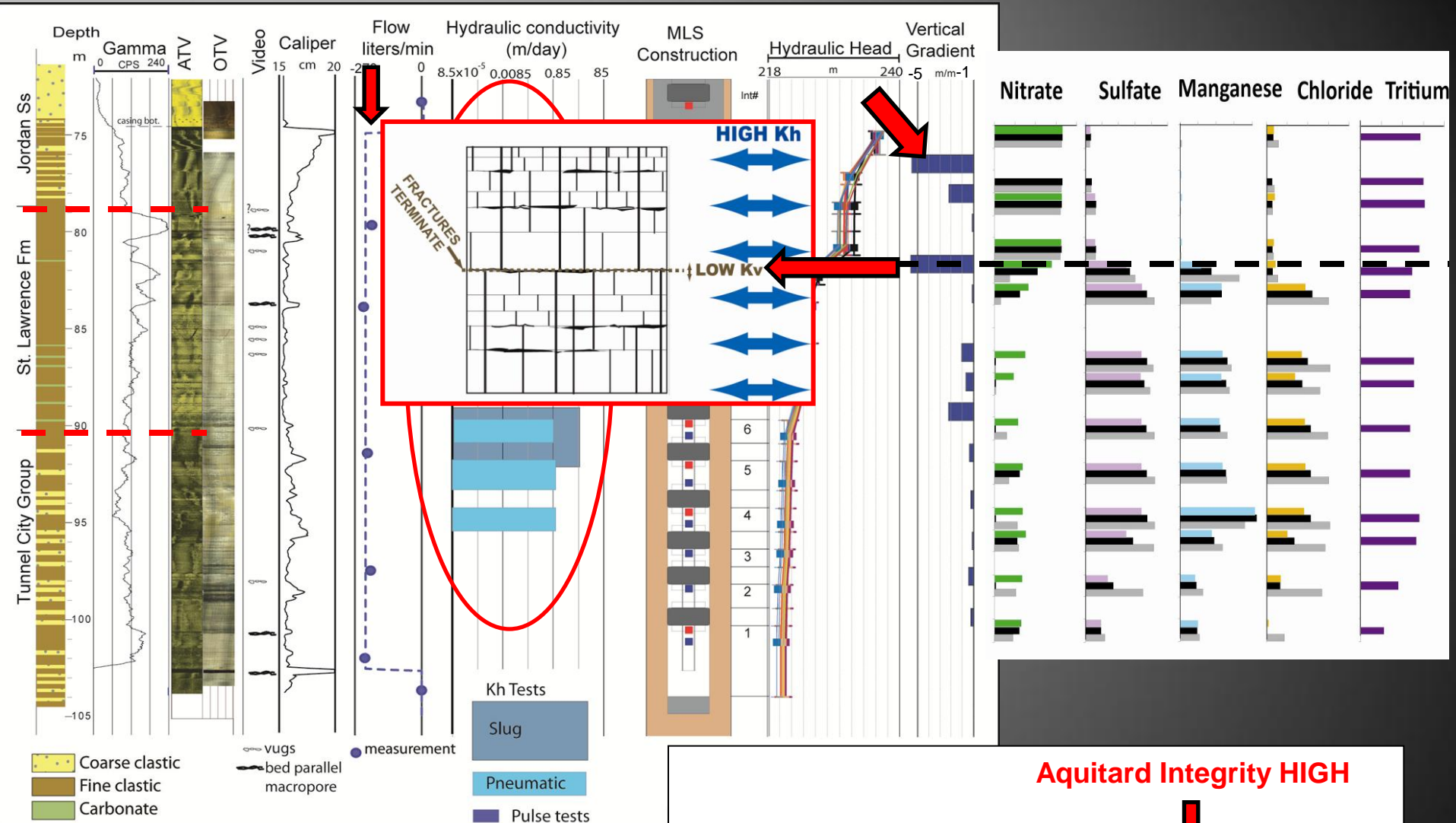




DISCRETE INTERVAL WATER CHEMISTRY

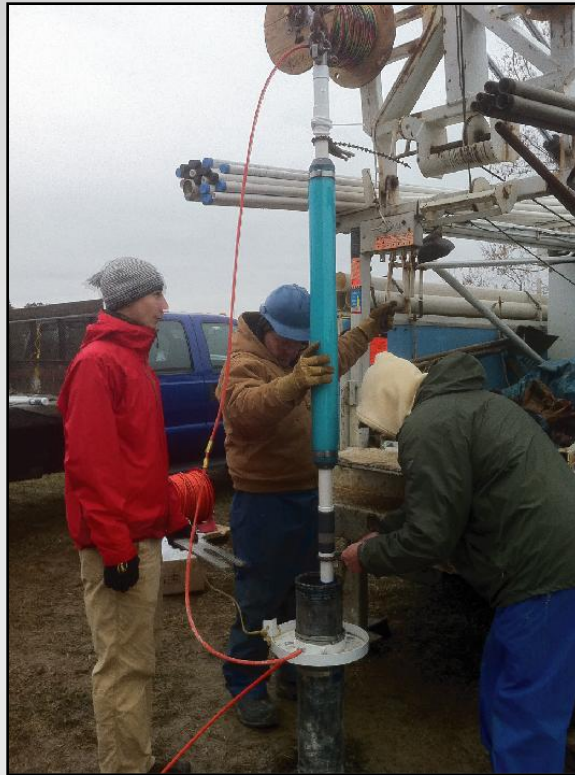
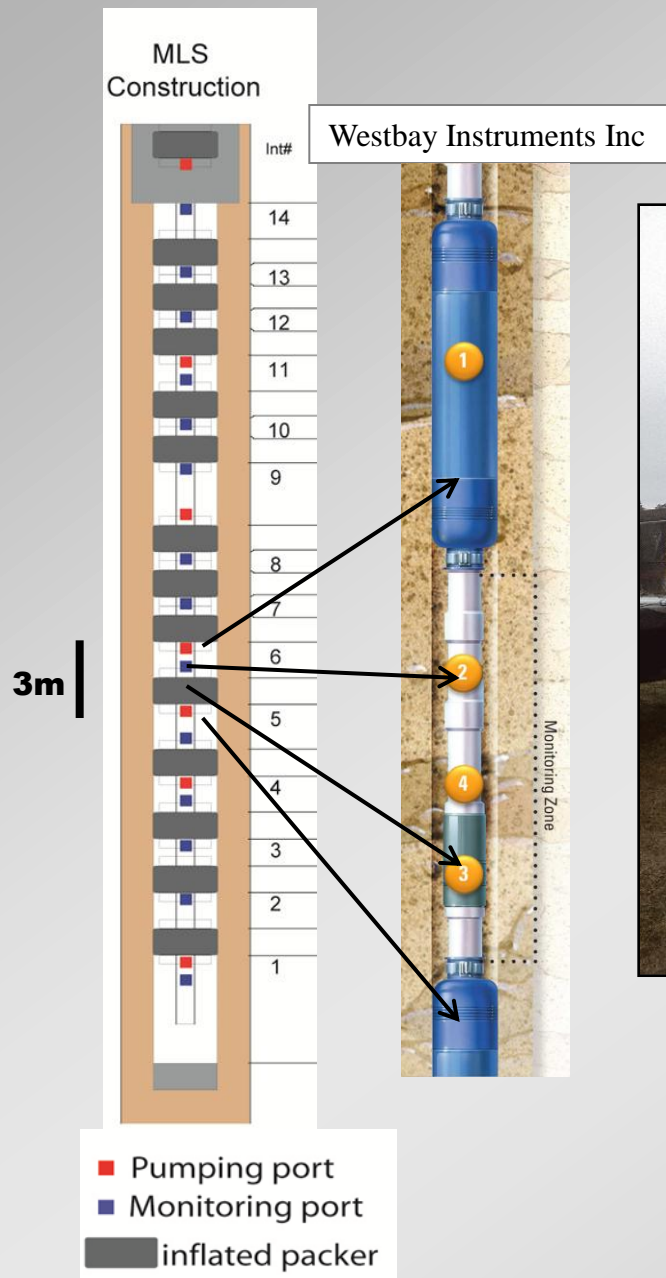


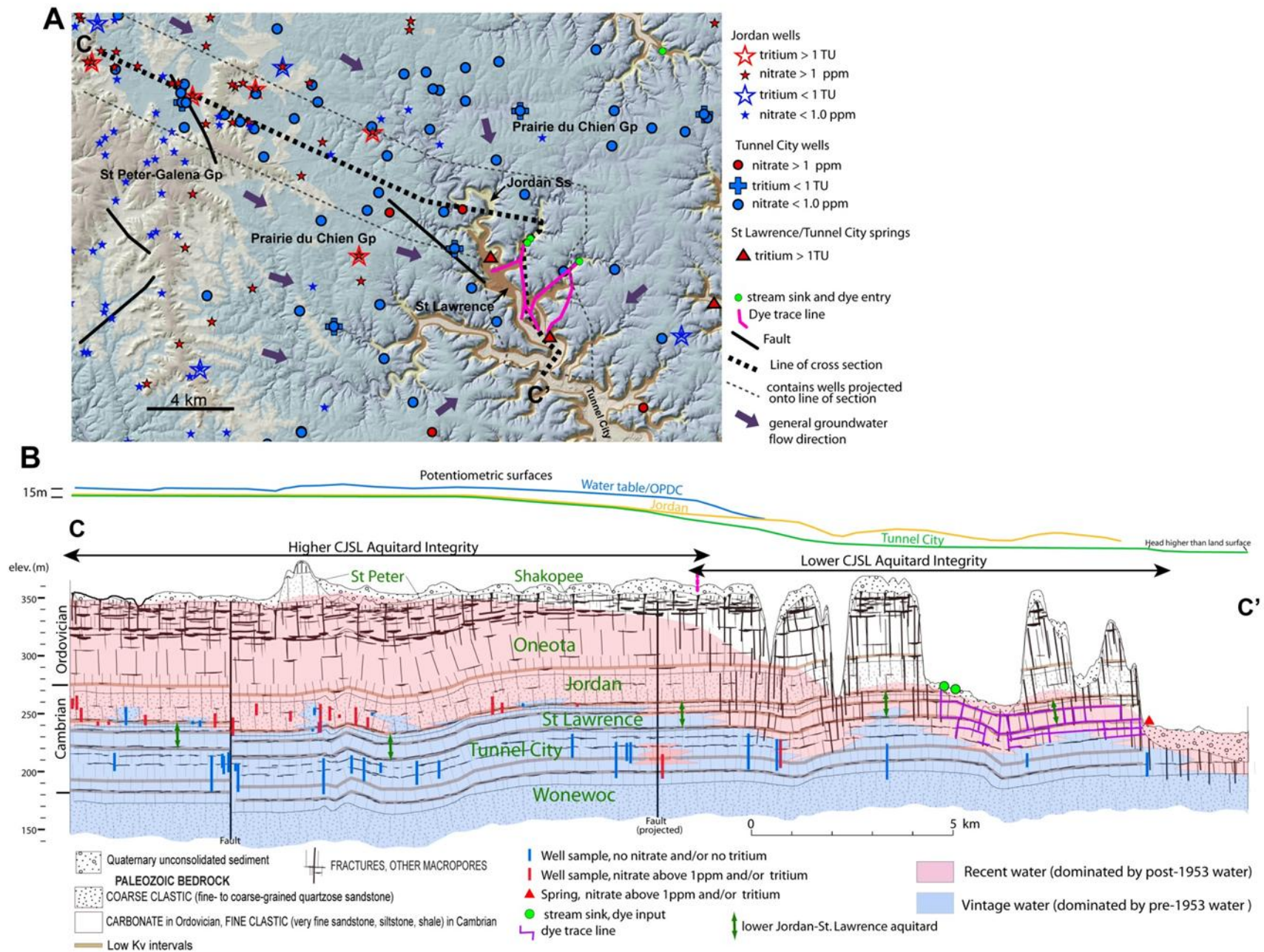
WHAT DID WE LEARN?



END

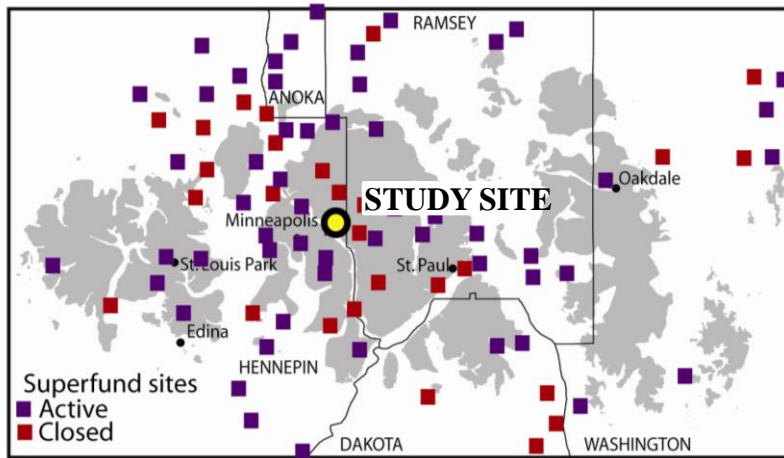
MULTILEVEL SYSTEM (MLS) INSTALLATION AND MEASURING/SAMPLING





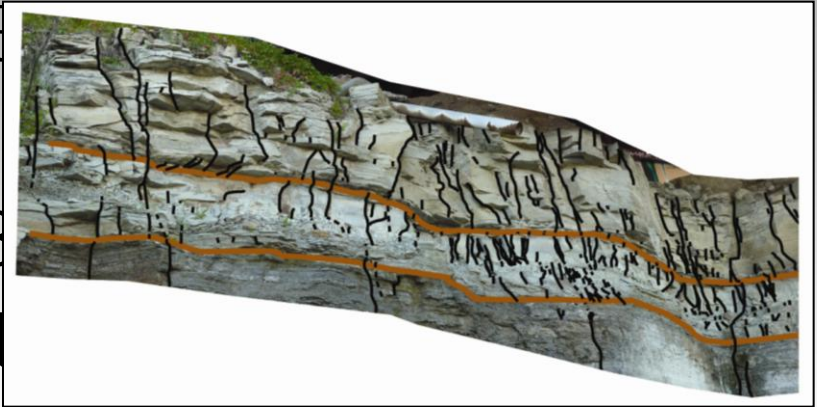
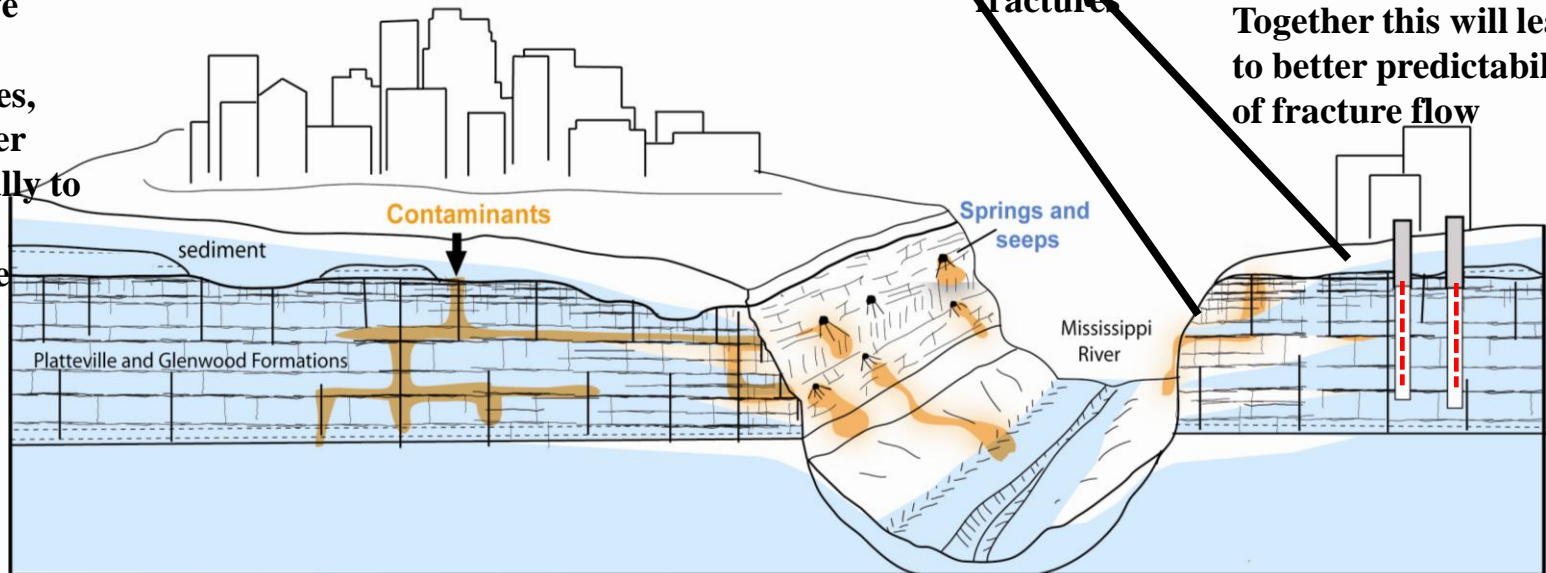
Runkel et al Fig 15

PROPOSED PROJECT: LINK



The Platteville limestone (gray) is one of the most heavily polluted formations in the state

Contaminants move through a complex network of fractures, downward to deeper aquifers and laterally to rivers in an unpredictable manner



Fracture patterns will be documented at exposures

Pressure and temperature in wells will record water flow through fractures

Together this will lead to better predictability of fracture flow