

# HEC-WAT Hydraulics for PFHA

Brennan B. Beam PE, CFM

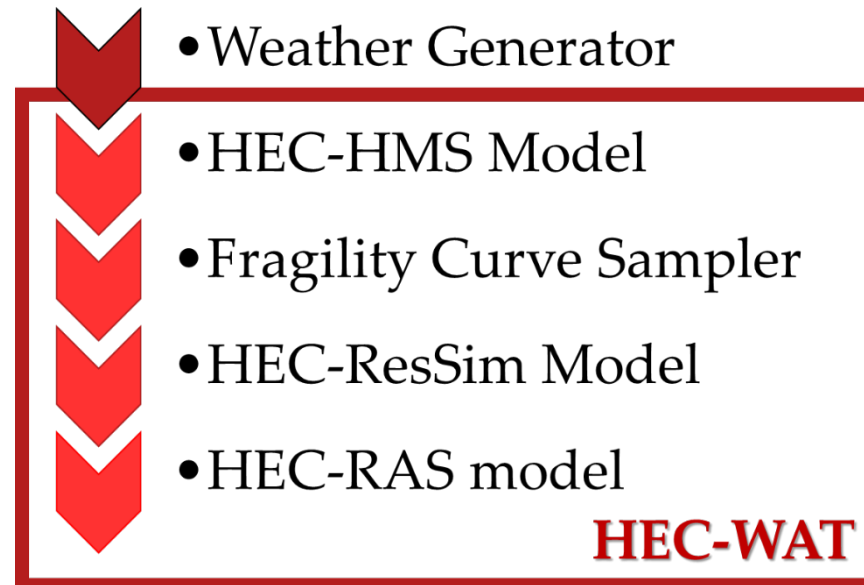
USACE Hydrologic Engineering Center

# Background

- The Nuclear Regulatory Commission (NRC) requested HEC assistance with methods to include dam failure in their probabilistic flood hazard assessment (PFHA) process.
- The analysis includes evaluation of stochastic precipitation events and random dam failures to drive the hydrologic loading, which were routed through HEC RAS to create the hydraulic hazard frequency curves.

# The Bigger Picture

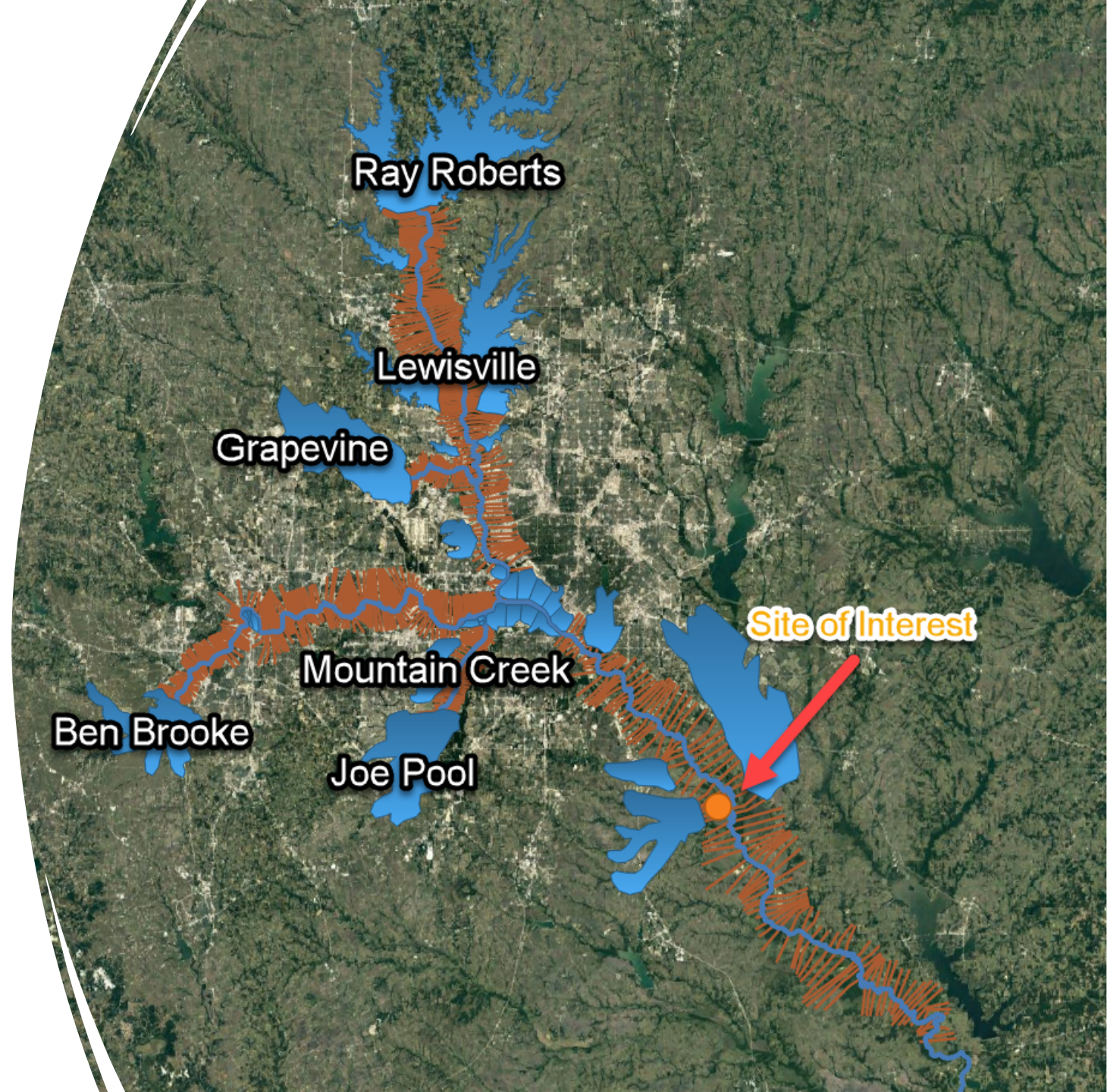
- For each event, HEC-RAS will use lateral inflows provided by HEC-HMS, and reservoir elevations and flows provided by HEC-ResSim, and dam breach thresholds from the fragility curve sampler to calculate maximum stages at a point of interest. The result of many thousands of iterations will be used to calculate stage frequency curves.



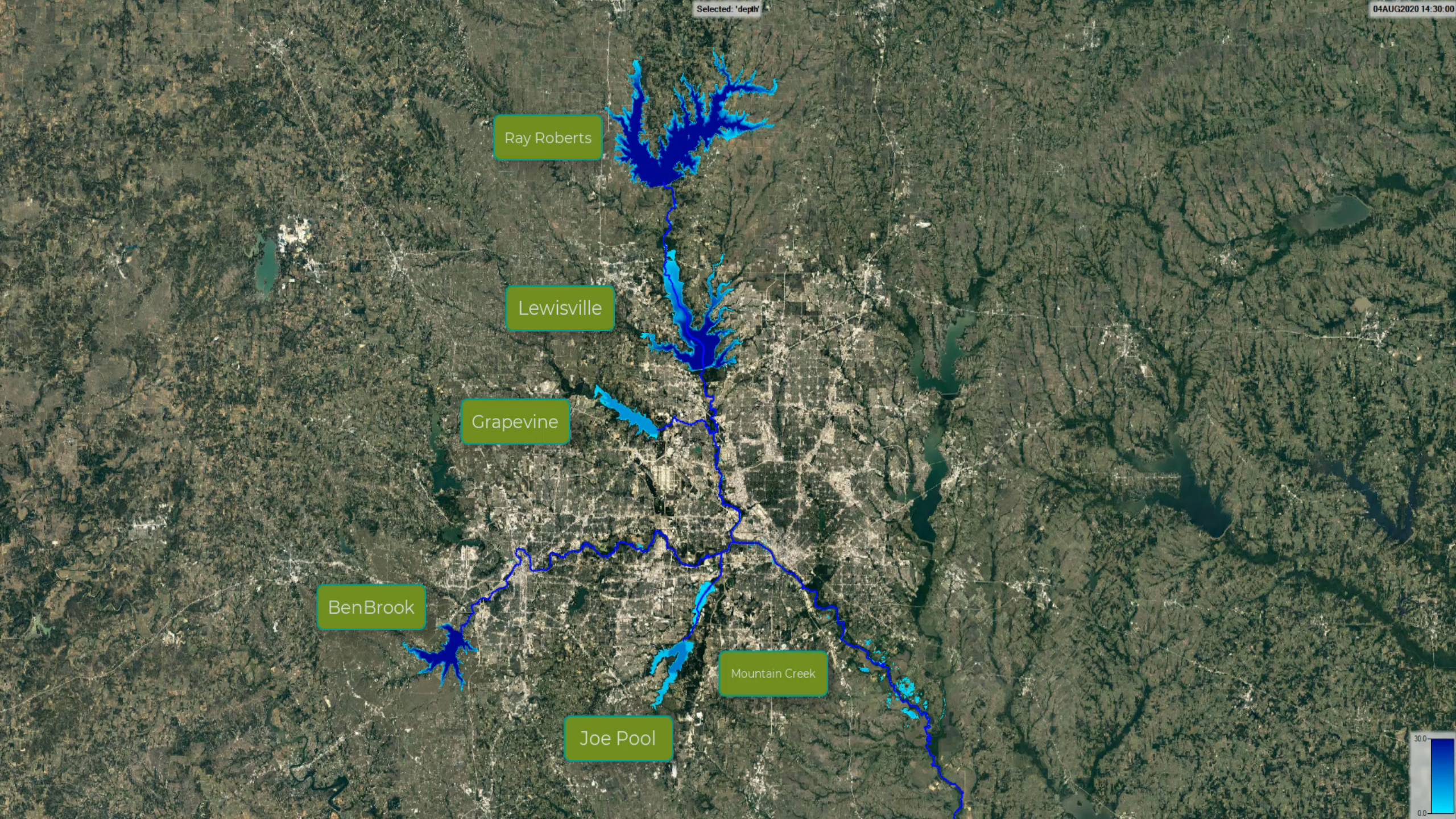
# Hydraulic Model

---

- Trinity River Watershed
- Dallas, TX
- Six Breaching Dams
- Two Sets in Series







Ray Roberts

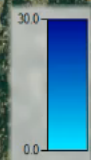
Lewisville

Grapevine

BenBrook

Mountain Creek

Joe Pool





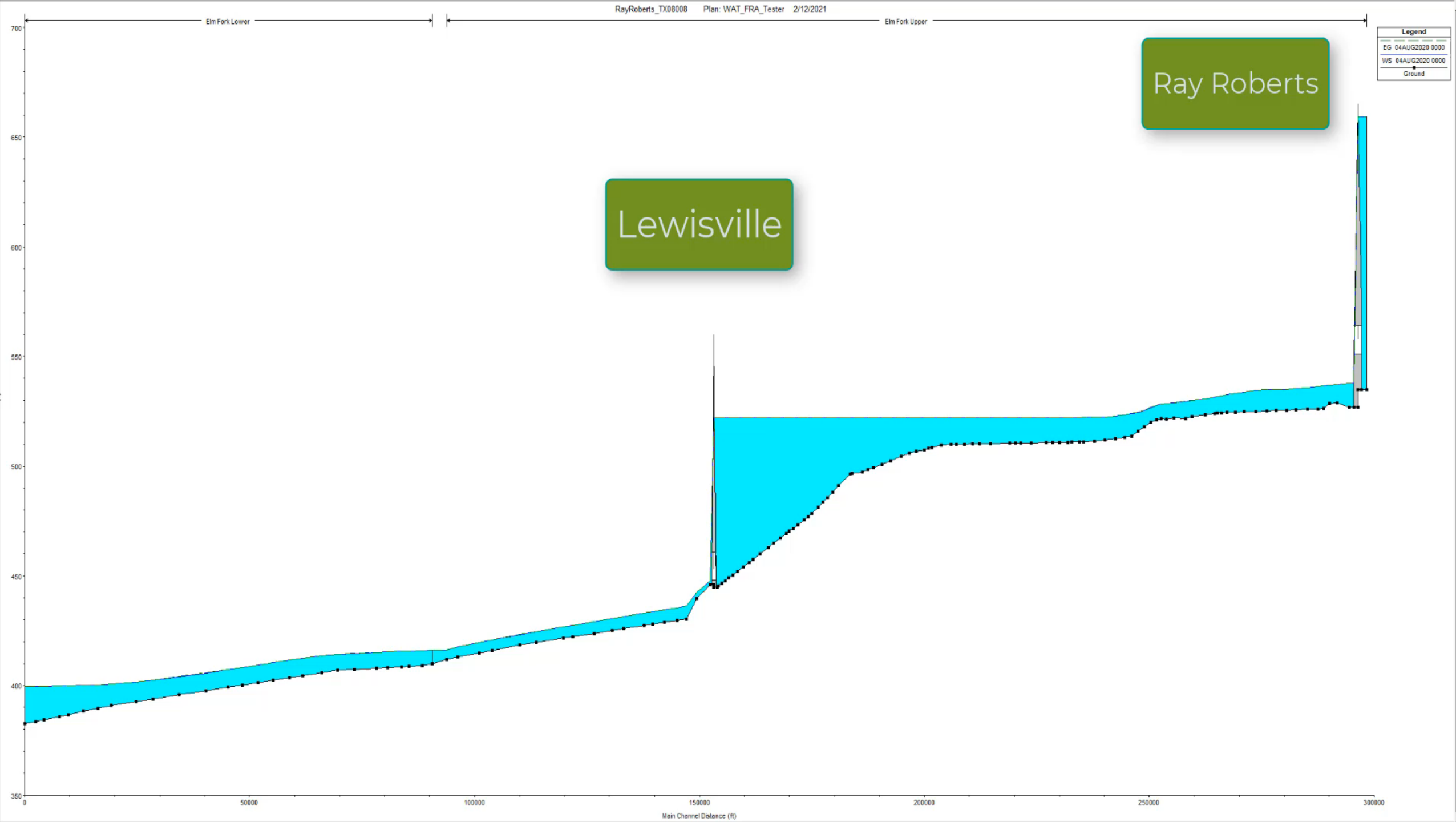
Elm Fork Lower

Elm Fork Upper

Legend	
EG 04AUG2020 0000	
WS 04AUG2020 0000	
Ground	

Ray Roberts

Lewisville





Selected: 'depth'

