



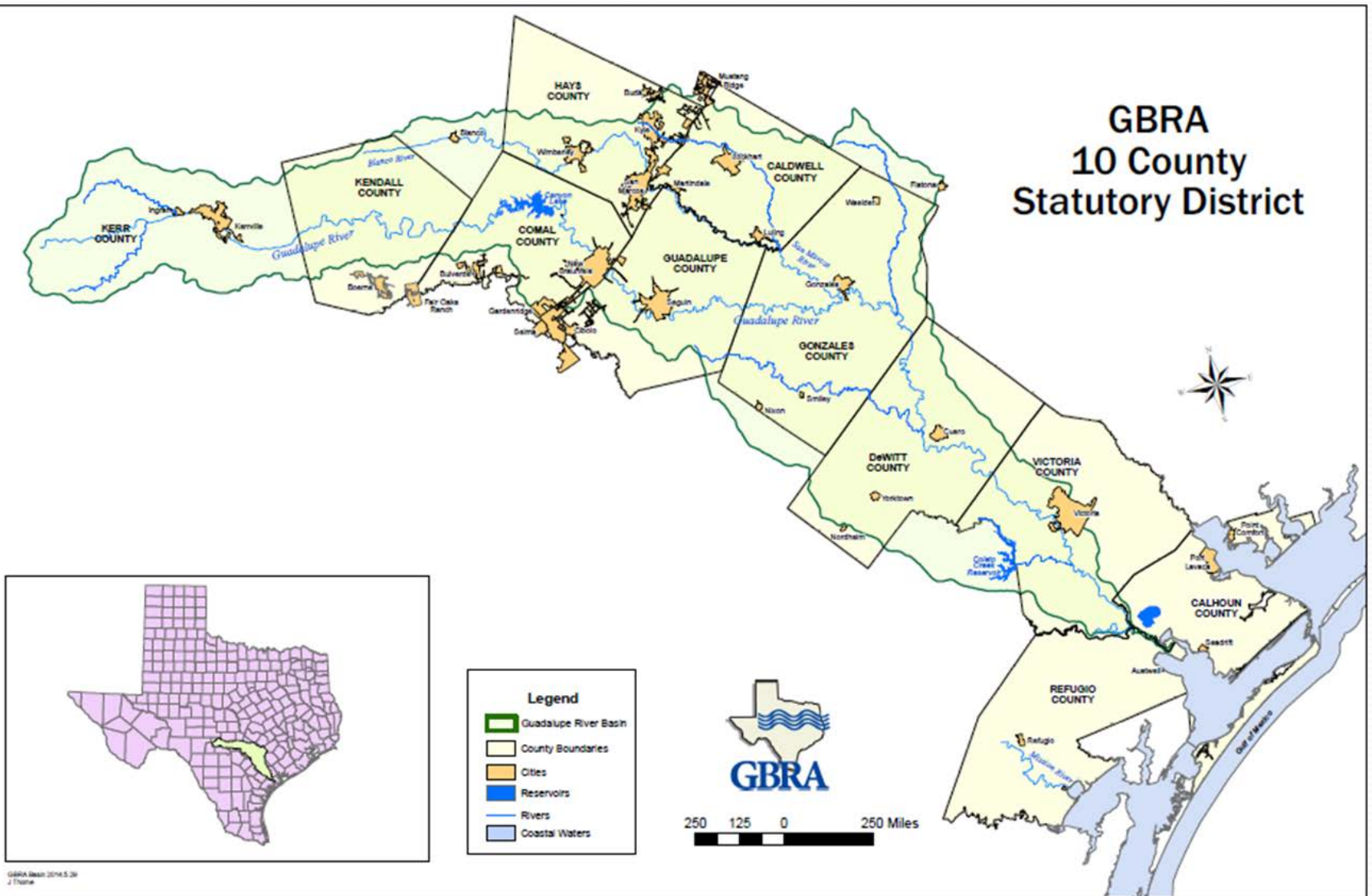
# Matrix Spikes and CRP

## Know your basin

1/7/2014

### TCEQ-CRP QA Workshop

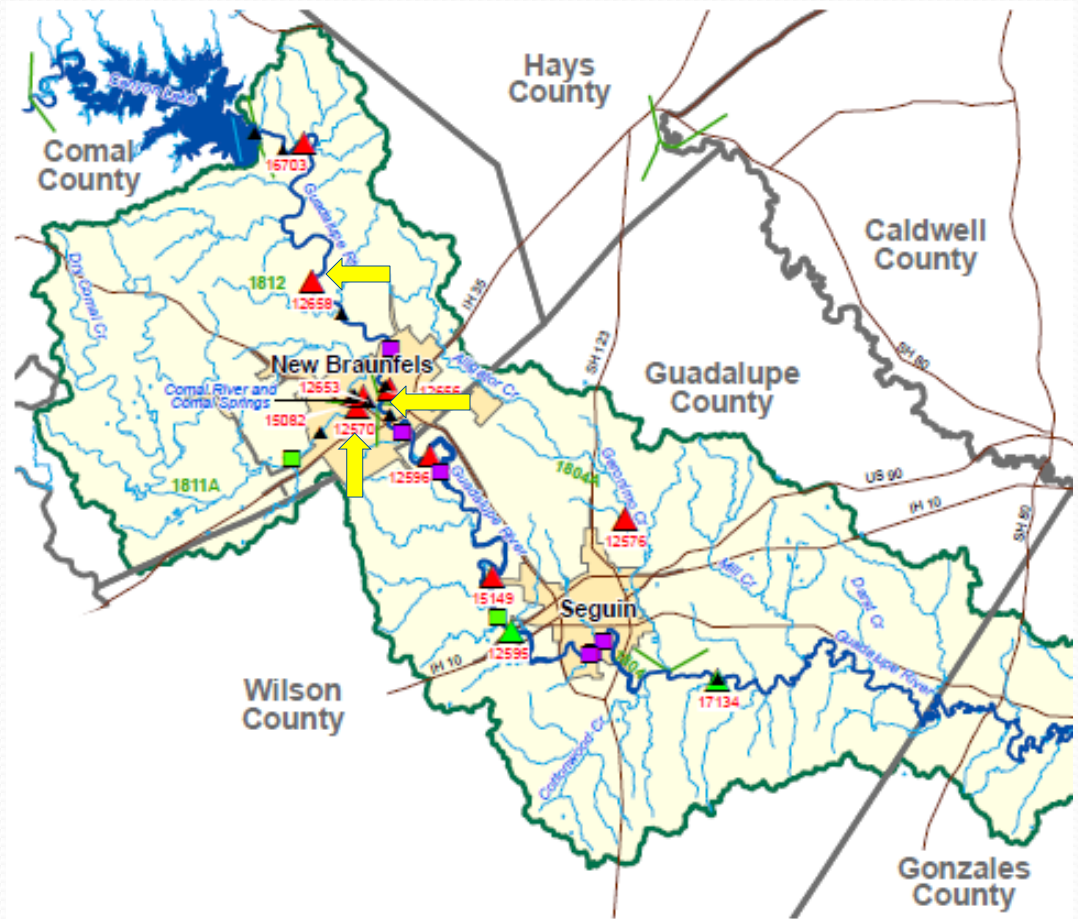
# GBRA 10 County Statutory District



# Middle Guadalupe River Watershed

<u>TCEQ Station ID</u>	<u>Description</u>
12658	Guadalupe River at River Road Second Crossing
12653	Comal River at Hinman Island
12570	Dry Comal Creek at Seguin St., New Braunfels

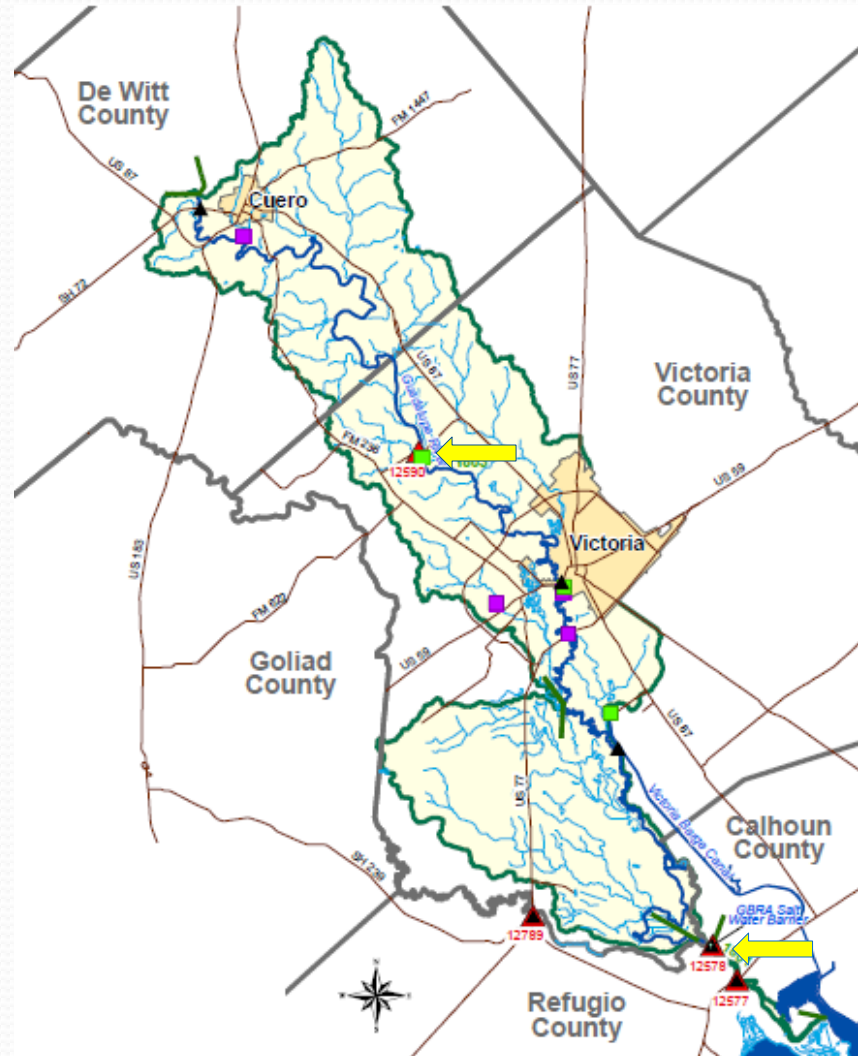
Matrix Spike %Recoveries at these locations are usually in a 90-110%Rec range for Nitrates



# Lower Guadalupe River Watershed

<u>TCEQ Station ID</u>	<u>Description</u>
12590	Guadalupe River at FM 447, west of Nursery and upstream of South Texas Electric
12578	Guadalupe River upstream of Lower Guadalupe Diversion Dam and Salt Water Barrier

Matrix Spike %Recoveries at these locations are usually in a 80-120%Rec range for Nitrates





# Matrix Spikes and Surface Water Samples


- Some methods used for analysis of CRP samples are EPA 1993 methods originally developed for drinking water analysis.
- Strict conditions for quality control in EPA 1993 methods may not make sense for some surface water analysis due to the increased variability and possible interferences in surface water.
  - e.g. Matrix Spike recovery requirement of 90-110% (EPA Method 350.1 section 9.4.2 to 9.4.3 for ammonia analysis)



# Matrix Spike Language

## Laboratory Measurement Quality Control Requirements and Acceptability Criteria

Matrix spike recoveries are compared to the same acceptance criteria established for the associated LCS recoveries, rather than the matrix spike recoveries published in the mandated test method. The EPA 1993 methods (i.e. ammonia-nitrogen, ion chromatography, TKN) that establish matrix spike recovery acceptance criteria are based on recoveries from drinking water that has very low interferences and variability and do not represent the matrices sampled in the CRP. If the matrix spike results are outside laboratory-established criteria, there will be a review of all other associated quality control data in that batch. If all of quality control data in the associated batch passes, it will be the decision of the laboratory QAO or GBRA Project Manager to report the data for the analyte that failed in the parent sample to TCEQ or to determine that the result from the parent sample associated with that failed matrix spike is considered to have excessive analytical variability and does not meet project QC requirements. Depending on the similarities in composition of the samples in the batch, GBRA may consider excluding all of the results in the batch related to the analyte that failed recovery.

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- GBRA Regional Laboratory relies on the professional judgment of the laboratory QAO or GBRA Project manager to determine whether data with a failing matrix spike will be reportable to TCEQ, taking into consideration variables such as wet weather events and dry weather events, turbidity, historical results, etc.
  - Samples should be examined for possible interferences such as high sediment, low flow or high salt content.



# Questions?

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