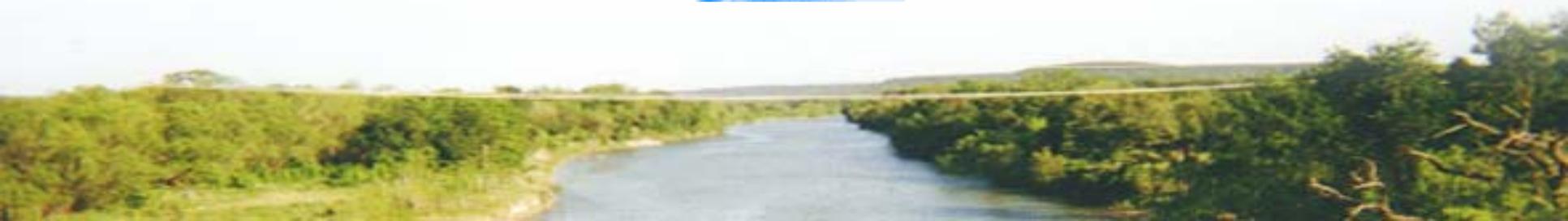


# *Introduction*

**Kyle Headley**  
**Regional Environmental Planner**  
**(Central Basin)**  
**Brazos River Authority**



# *Agenda*

- **Introduction** *Kyle Headley (BRA)*
- **Exposure Concepts and Human Exposure** *David Ebersold (MWH)*
- **Ecological Exposure** *Todd Anderson (TIEHH)*
- **Summary of Findings** *Wayne Elliott (USACE)*





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# *Project Team Members*

- **U.S. Army Corps of Engineers** – project management and technical support
- **Texas Commission on Environmental Quality (TCEQ)** - advisory to study team, liaison with Interagency Perchlorate Steering Committee
- **Brazos River Authority (BRA)** – technical services and stakeholder coordination
- **The Institute of Environmental and Human Health (TIEHH) at Texas Tech University** – toxicological and ecological studies
- **MWH** – watershed hydrological studies, fate and transport, conceptual modeling, exposure assessment
- **U.S. Environmental Protection Agency** – advisory to study team, regulatory liason
- **Stakeholder Consortium** – advisory to study team, community interface





# ***The Bosque/Leon River Watershed Stakeholders Alliance***

- City of Belton
- City of Bruceville-Eddy
- City of Copperas Cove
- City of Gatesville
- City of Harker Heights
- City of Hewitt
- City of Killeen
- City of Lorena
- City of Moody
- Bluebonnett Water Supply Corporation
- Bell County and McLennon County Health Districts
- Central Texas American Water Works Association
- City of Morgan's Point
- City of Nolanville
- City of Robinson
- City of Temple
- City of Troy
- City of Waco
- City of Woodway
- Bell County WCID #1
- Bell County WCID #3





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# *Ammonium Perchlorate - A national technical asset integral to strategic defense systems*





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# *High-Pressure Water Washout of Solid Propellant*

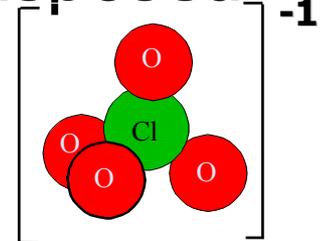




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# *What is Perchlorate?*

- Primary ingredient in solid rocket propellant
- Large supplies of perchlorate have been disposed of at ammunition facilities
- Negatively charged ion,  $\text{ClO}_4^-$
- Dissolves easily in water, transported through groundwater and surface water
- Known to interfere with iodide uptake in the thyroid and may disrupt production of thyroid hormones

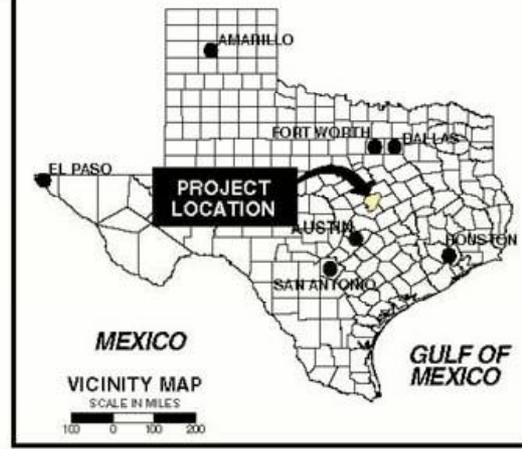
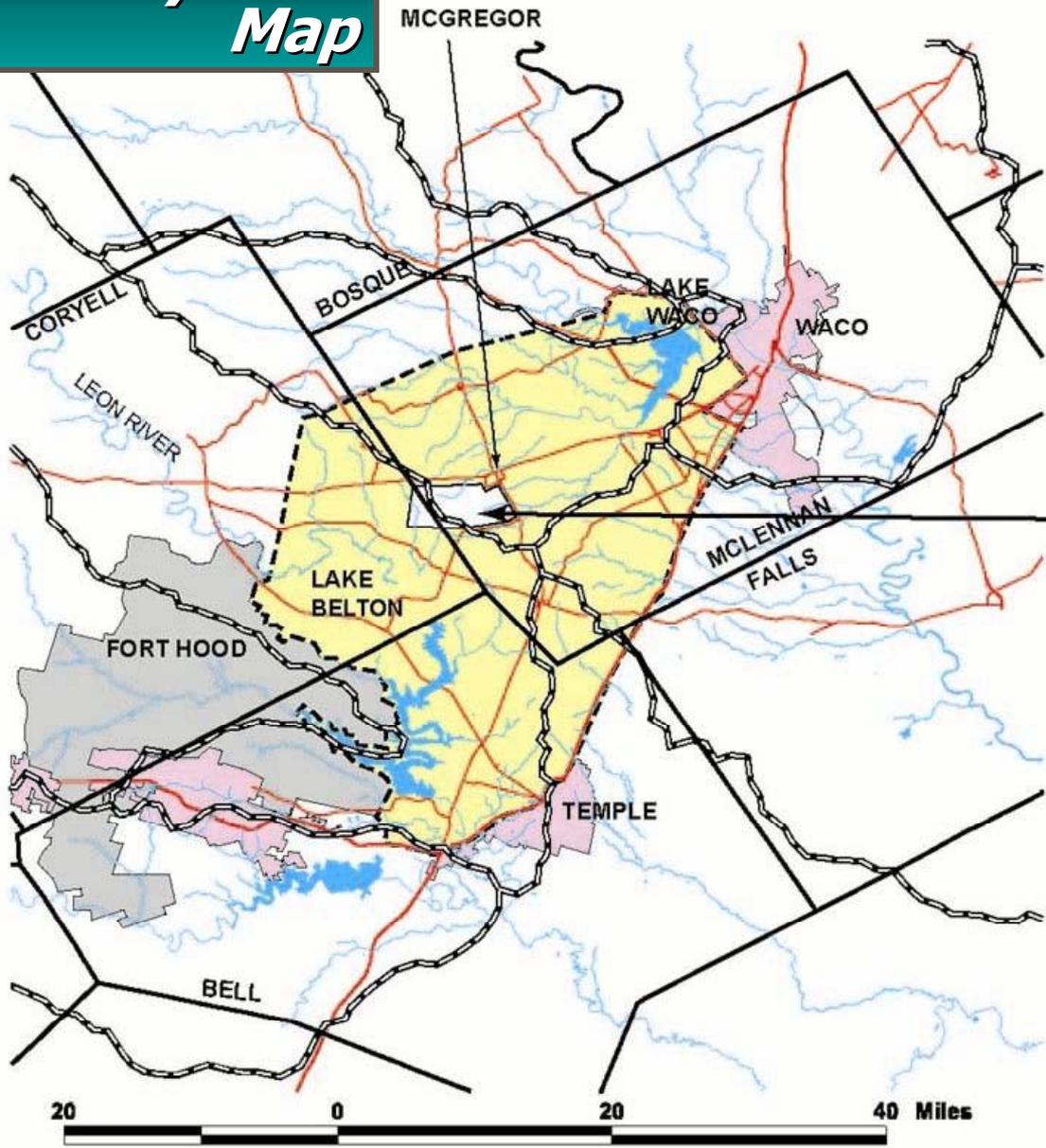


# *Why is Perchlorate a Concern in this Region?*

- Known source at NWIRP McGregor
- Documented migration beyond the NWIRP boundary; detected in streams and groundwater
- Streams and groundwater flow to Lakes Belton and Waco
- Lakes Belton and Waco serve as public water supply for 500,000 people



# Study Area Map



NAVAL WEAPONS  
INDUSTRIAL RESERVE  
PLANT

**LEGEND**

- STUDY AREA
- RIVER BASINS

BRAZOS RIVER BASIN, TEXAS  
**BOSQUE & LEON RIVER BASINS**  
 1 JANUARY 2001  
 U.S. ARMY ENGINEER DISTRICT, FORT WORTH, TEXAS  
 SOUTHWESTERN DIVISION