• Trichloroethylene (TCE) is a significant contaminant in Kansas groundwater.

• Since the 1980’s KDHE has identified 298 sites with TCE contamination in groundwater. About 8% of all contaminated sites (not including petroleum storage tanks)
• Manufacturing Facilities: 88 sites with TCE in groundwater: 30% of the TCE contamination inventory

• Where there is manufacturing, TCE contamination of groundwater is common.
• North Industrial Corridor (NIC) Wichita

• TCE is the most common contaminant in groundwater

• Remediation: pump and treat for groundwater, air sparge/SVE at source areas
TCE Contamination in Kansas Groundwater

- Wichita is the largest manufacturing city in the state
- TCE contamination is significant in the industrial areas of the city, such as the North Industrial Corridor and southward at the Boeing (now Spirit) facility
- A major aquifer associated with the Arkansas River is co-located with the industrial center of the city
- KDHE has expended significant resources in remedial actions to cleanup TCE contamination in Wichita and other cities in the state
Boeing site, Wichita

Current Site Conditions

- TCE is the most common contaminant

- Remediation:
  Pump & Treat, In situ Bioremediation + recirculating extraction and reinjection, Permeable Reactive Barriers with Fe\(^0\), Excavation, Monitored Natural Attenuation, Land Use Controls

Total Volatile Organic Compound (TVOC) concentrations
• TCE contamination = releases at manufacturing facilities?

• Also common at Military bases and a breakdown product of PCE at Dry Cleaner sites and a variety of other sites: landfills, maintenance shops, etc.

• Drycleaning sites complicate our picture:
  Reducing Conditions: PCE $\rightarrow$ TCE $\rightarrow$ 1,2,DCE $\rightarrow$ VC

• TCE contaminant sources are not the greatest in number, but are a dominant contaminant at many sites
McConnell AFB, Wichita, KS

- Most common groundwater contaminant is TCE

Remediation: Pneumatic fracturing accompanied by various injections to stimulate Bioremediation, or Oxidation, or Reduction.
• TCE Contamination in Kansas Groundwater

Former Schilling AFB, Salina, KS

• Most common groundwater contaminant is TCE

• Remediation planned:
  Soil excavation, Pump & Treat
  Recirculation, Thermal Conductive Heating, Bioremediation,
  Permeable Reactive Barriers, Monitored Natural Attenuation,
  Land Use Controls
Gilbert & Mosely, Wichita, KS

- Contamination source is mostly from PCE released from Dry Cleaning facilities, but TCE is a major part of the contaminant mix

- Reducing Conditions:
  
  PCE → TCE → 1,2,DCNE → VC

- Remediation: Pump & Treat, Excavation, Air Sparge/SVE; permanganate injection
Thank You