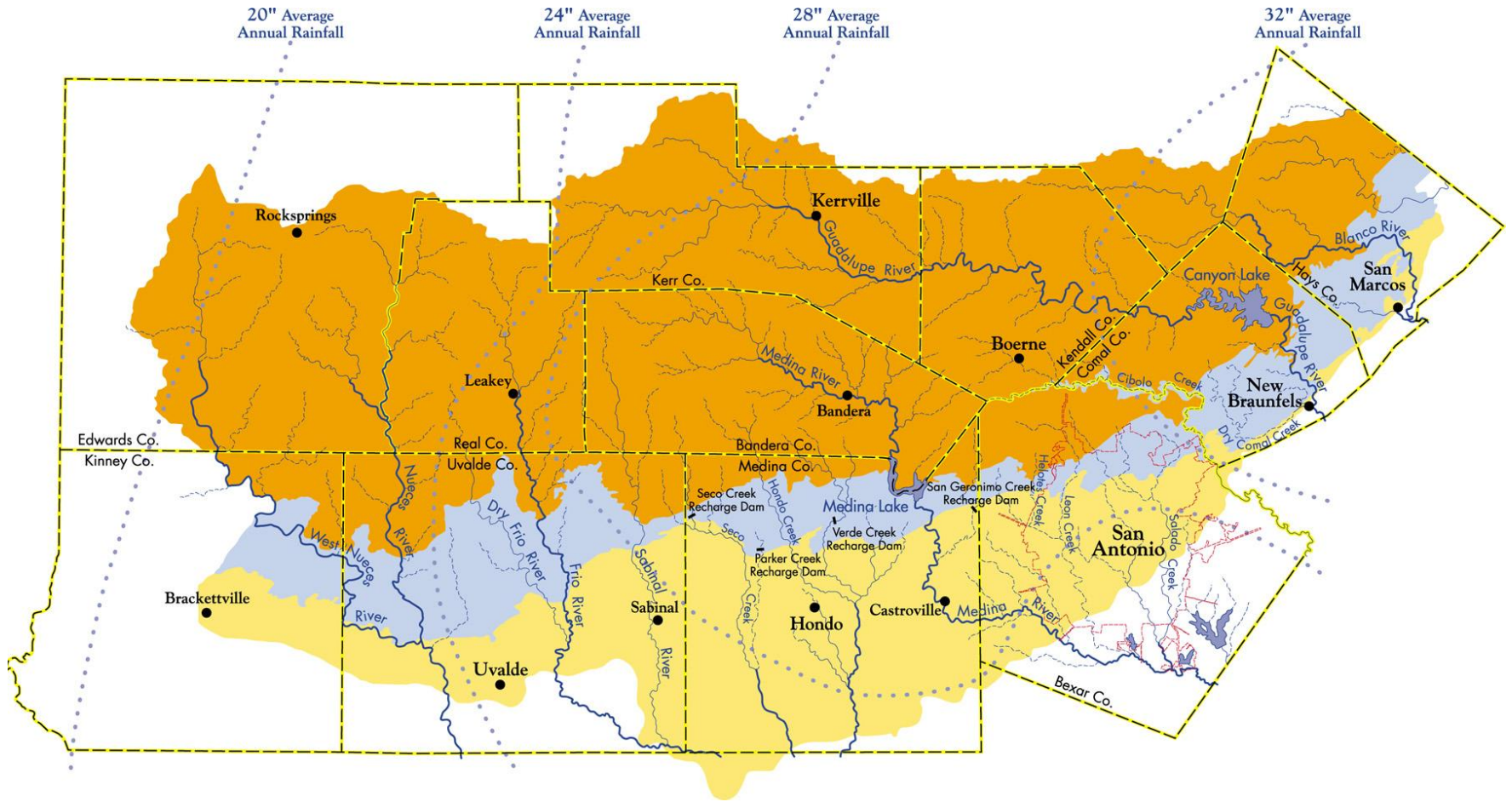


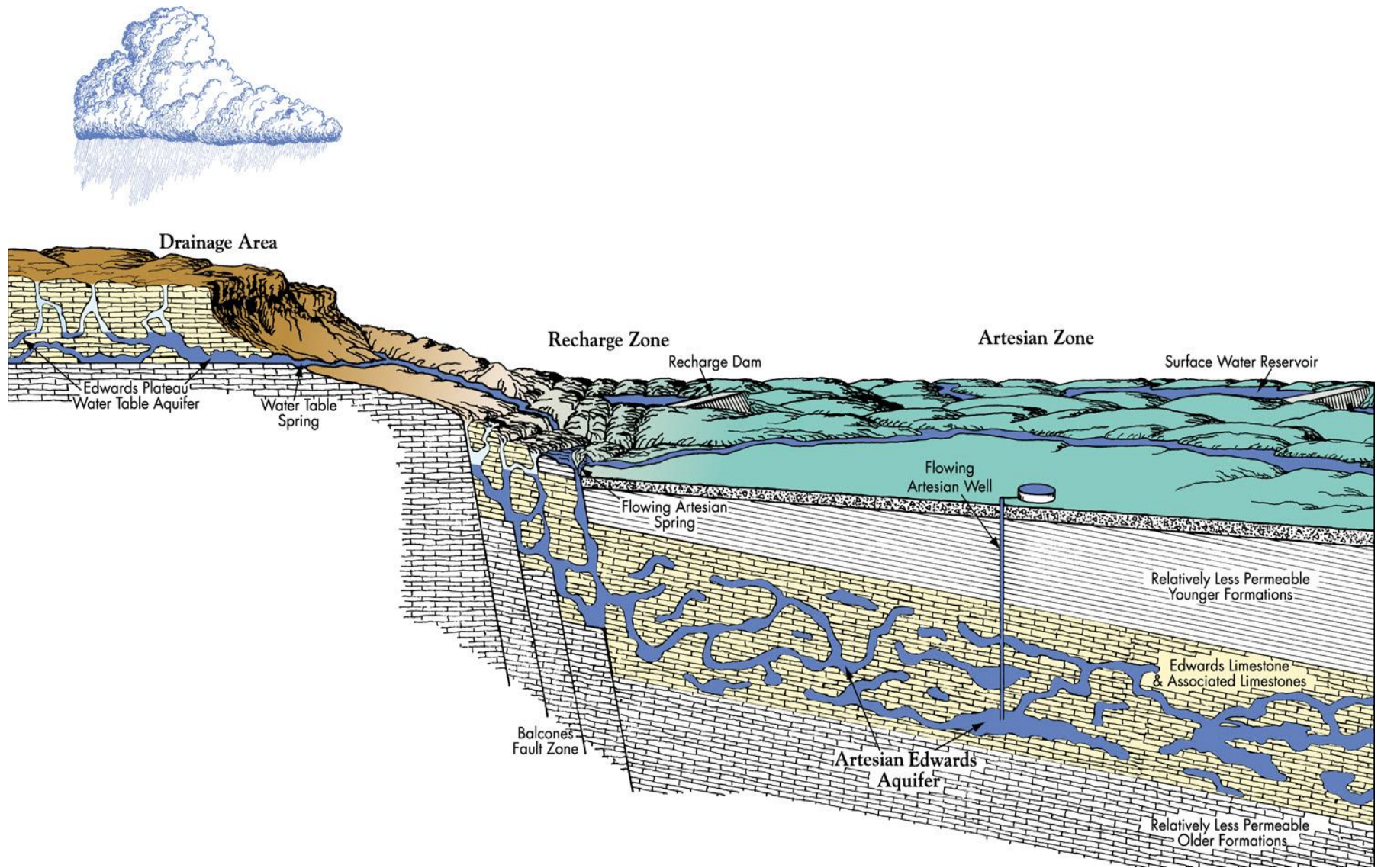
# **Development and Degradation of Water Quality**

**Presentation to the  
Air & Waste Management Association**

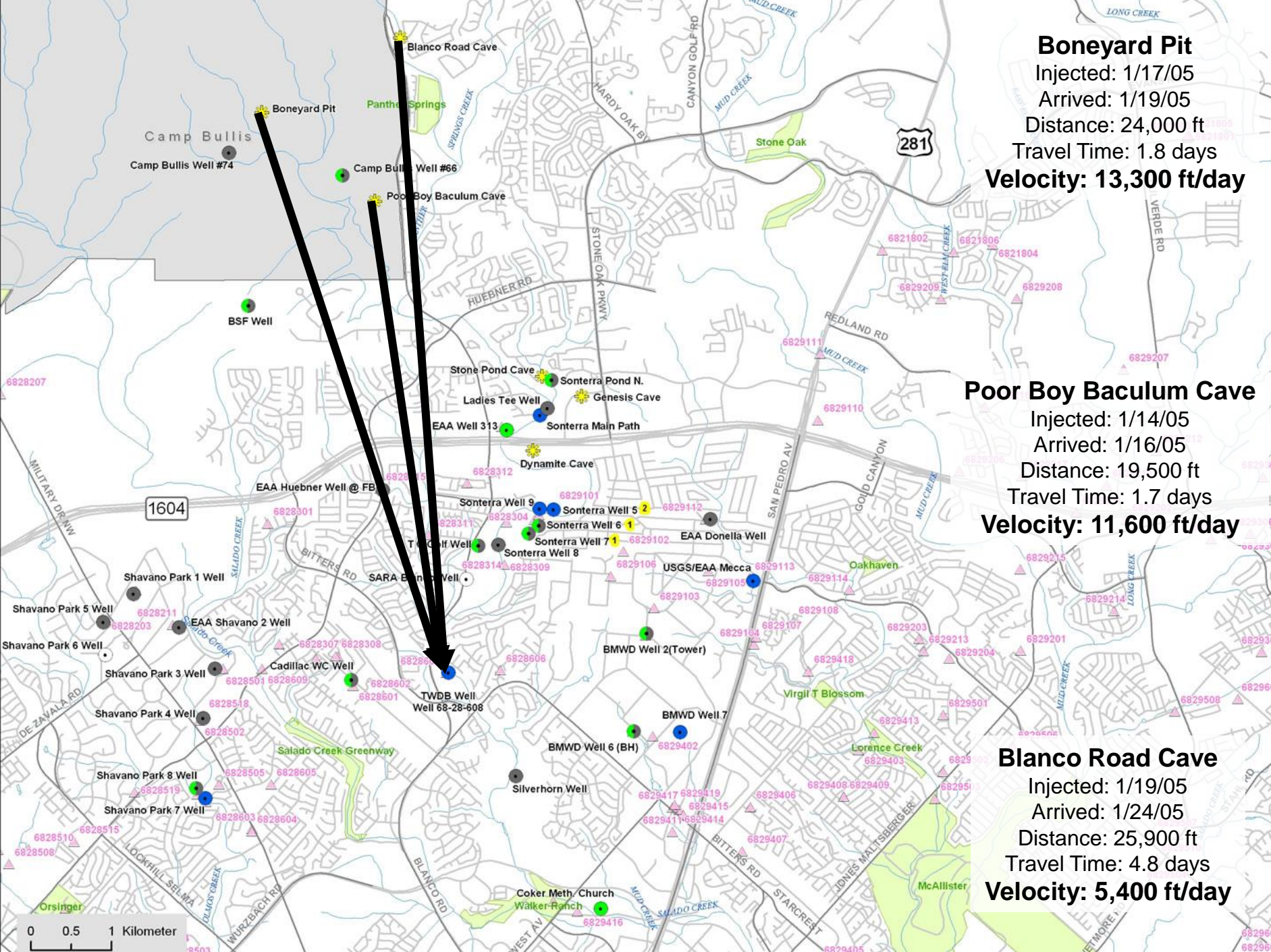
**George Rice  
November 17, 2005**



**Edwards Aquifer – Map View**



**Edwards Aquifer – Cross Section**

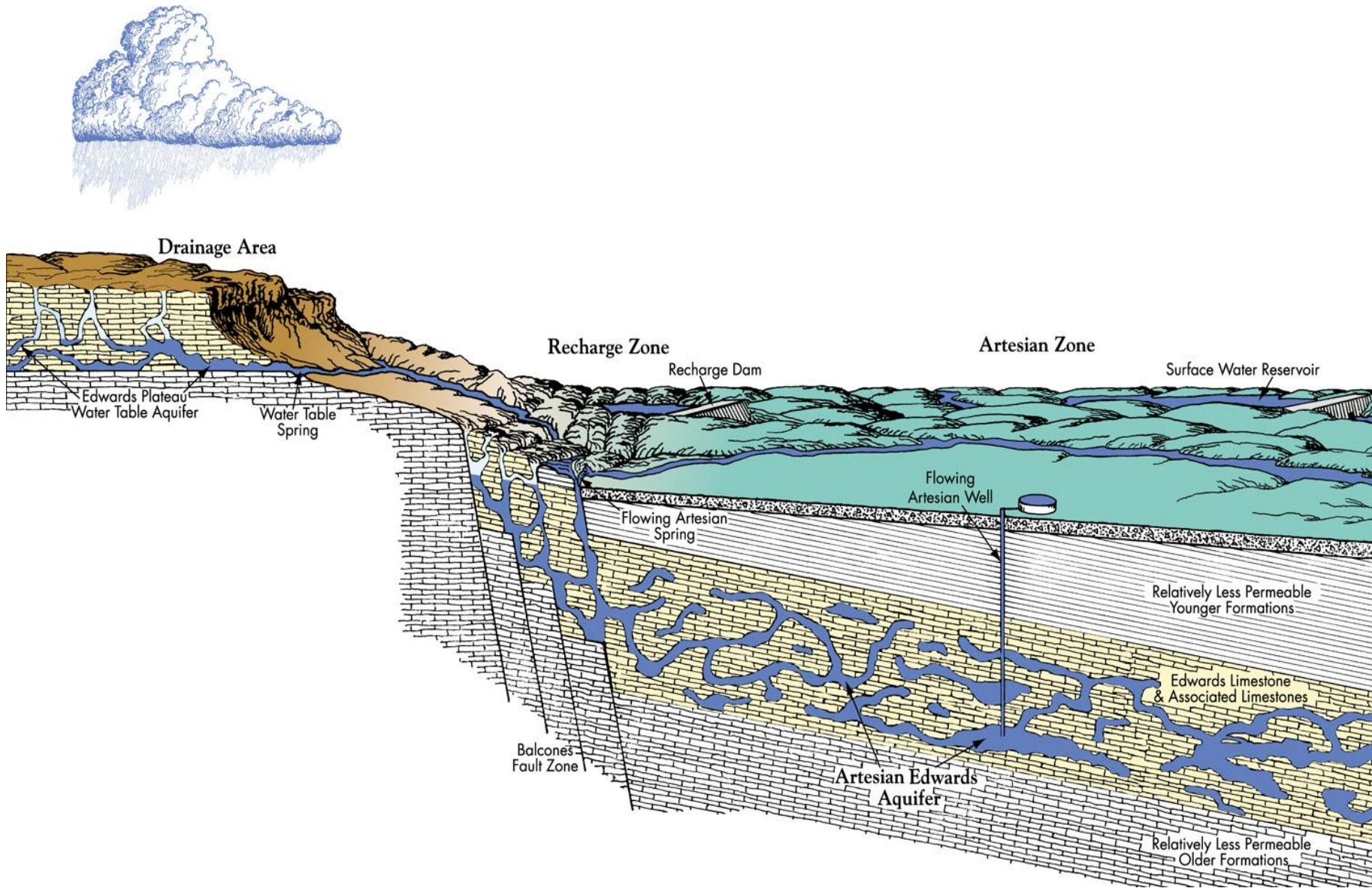


**Boneyard Pit**  
 Injected: 1/17/05  
 Arrived: 1/19/05  
 Distance: 24,000 ft  
 Travel Time: 1.8 days  
**Velocity: 13,300 ft/day**

**Poor Boy Baculum Cave**  
 Injected: 1/14/05  
 Arrived: 1/16/05  
 Distance: 19,500 ft  
 Travel Time: 1.7 days  
**Velocity: 11,600 ft/day**

**Blanco Road Cave**  
 Injected: 1/19/05  
 Arrived: 1/24/05  
 Distance: 25,900 ft  
 Travel Time: 4.8 days  
**Velocity: 5,400 ft/day**

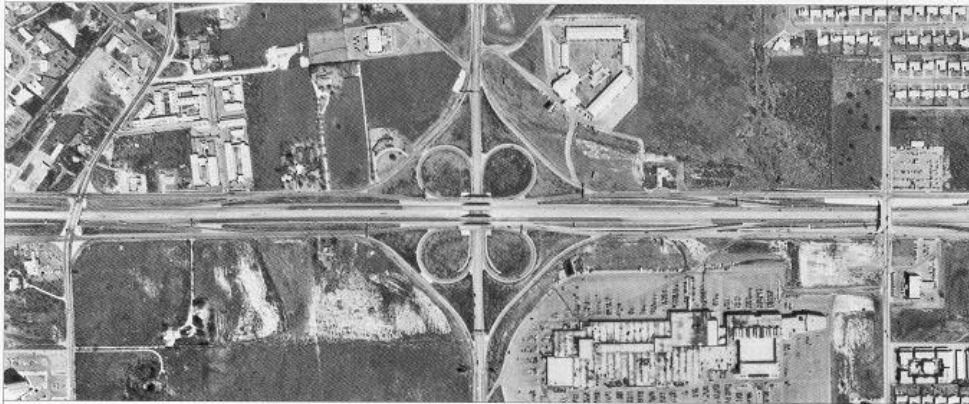




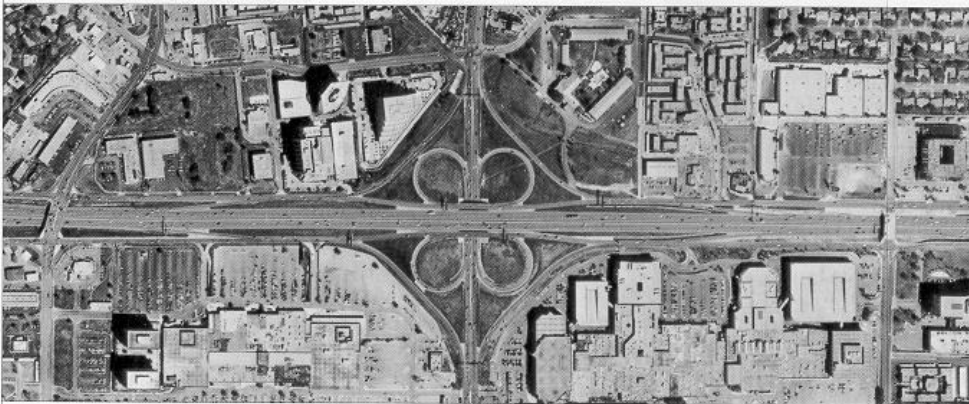
**Edwards Aquifer – Cross Section**



1939



1966

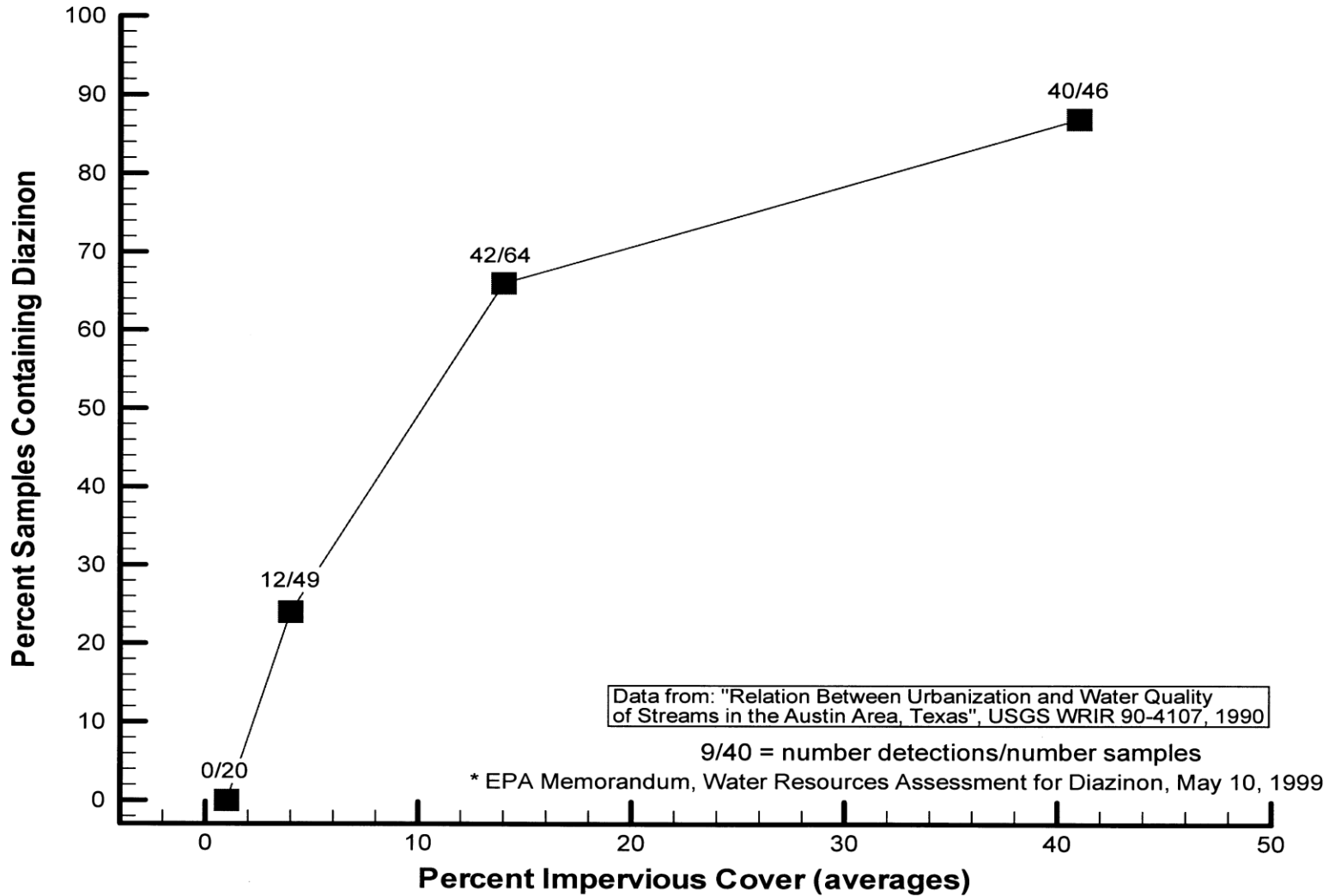


1991

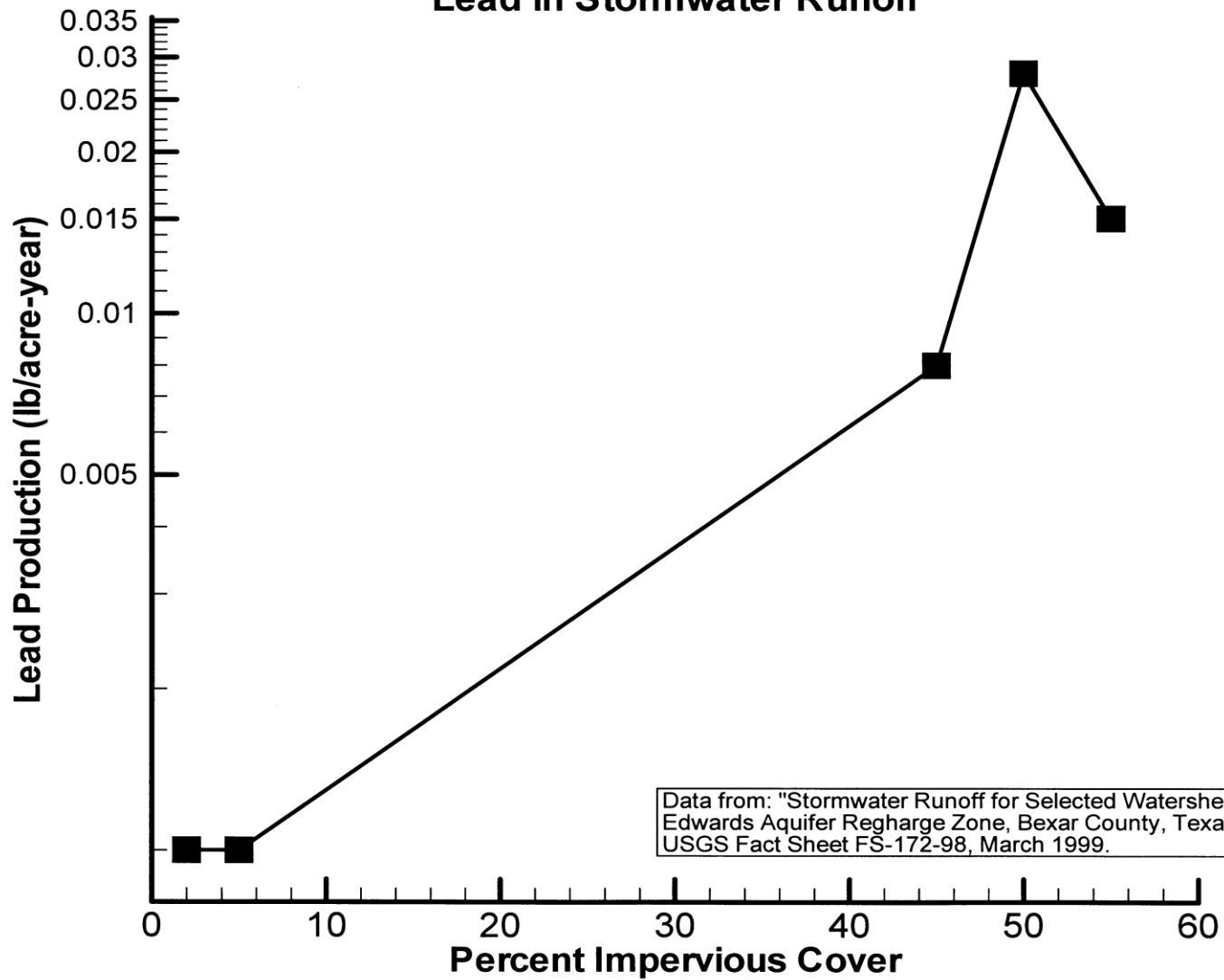
Intersection of Interstate Highway 410 and San Pedro Avenue, San Antonio, Texas  
illustrates population growth in Bexar County

### Austin Study Percent Diazinon Detections as a Function of Impervious Cover

(Concentration range = 0.1 - 0.84 ppb, HAL = 0.6 ppb\*)



### Edwards Aquifer Recharge Zone Northern Bexar County Lead in Stormwater Runoff



Data from: "Stormwater Runoff for Selected Watersheds in the Edwards Aquifer Recharge Zone, Bexar County, Texas, 1996-98" USGS Fact Sheet FS-172-98, March 1999.

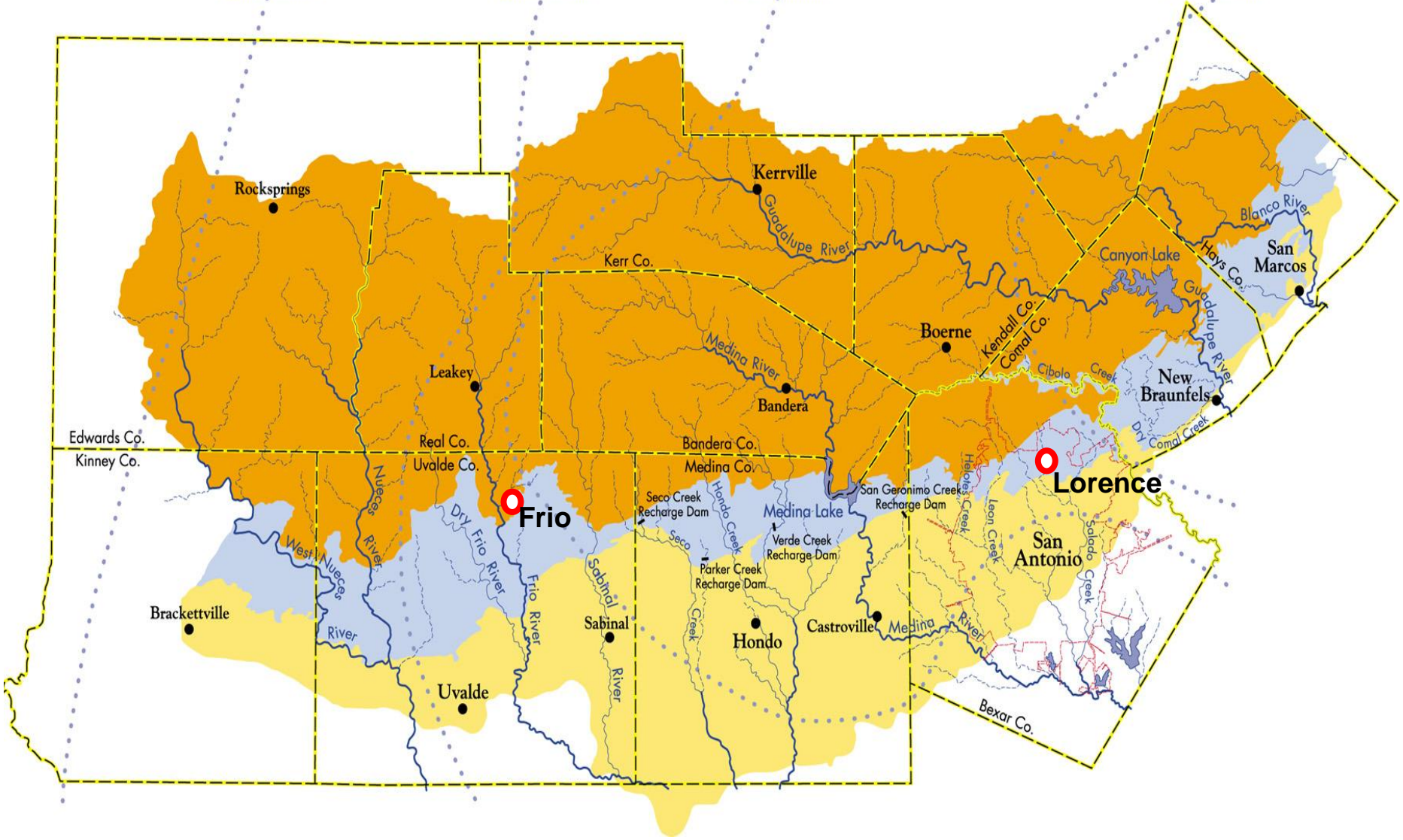


20" Average Annual Rainfall

24" Average Annual Rainfall

28" Average Annual Rainfall

32" Average Annual Rainfall



Rocksprings

Kerrville

San Marcos

Kerr Co.

Hays Co.

Blanco River

Guadalupe River

Canyon Lake

Guadalupe River

Boerne

Kendall Co.

Comal Co.

New Braunfels

Leakey

Bandera

Lorence

Edwards Co.

Kinney Co.

Real Co.

Uvalde Co.

Bandera Co.

Medina Co.

San Antonio

Frio

Sabinal

Hondo

Castroville

Brackettville

West Nueces River

Nueces River

Dry Frio River

Frio River

Sabinal River

Seco Creek

Hondo Creek

Verde Creek

San Geronimo Creek

Medina River

Leon Creek

Salado Creek

Uvalde

Seco Creek Recharge Dam

Parker Creek Recharge Dam

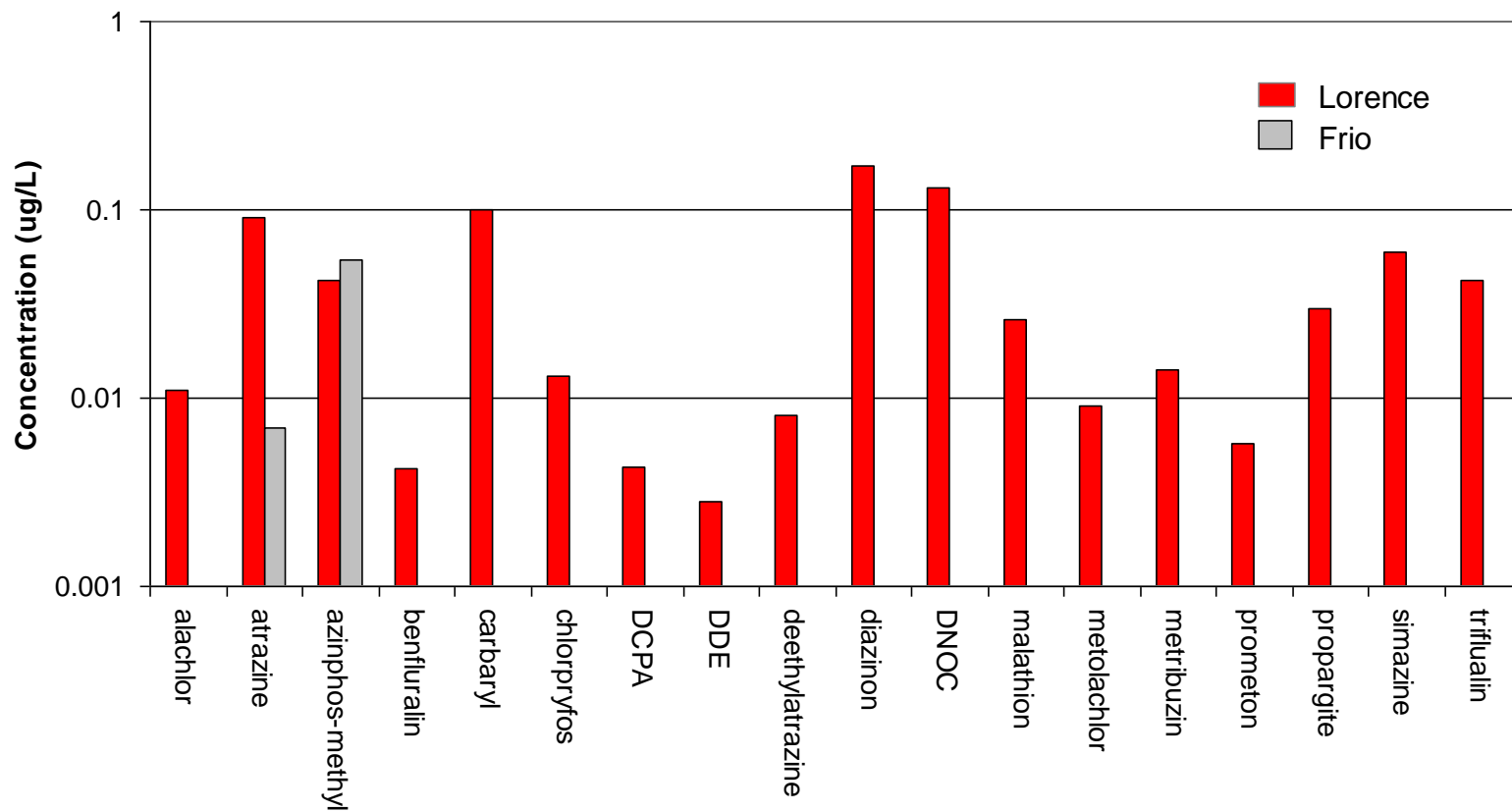
Verde Creek Recharge Dam

San Geronimo Creek Recharge Dam

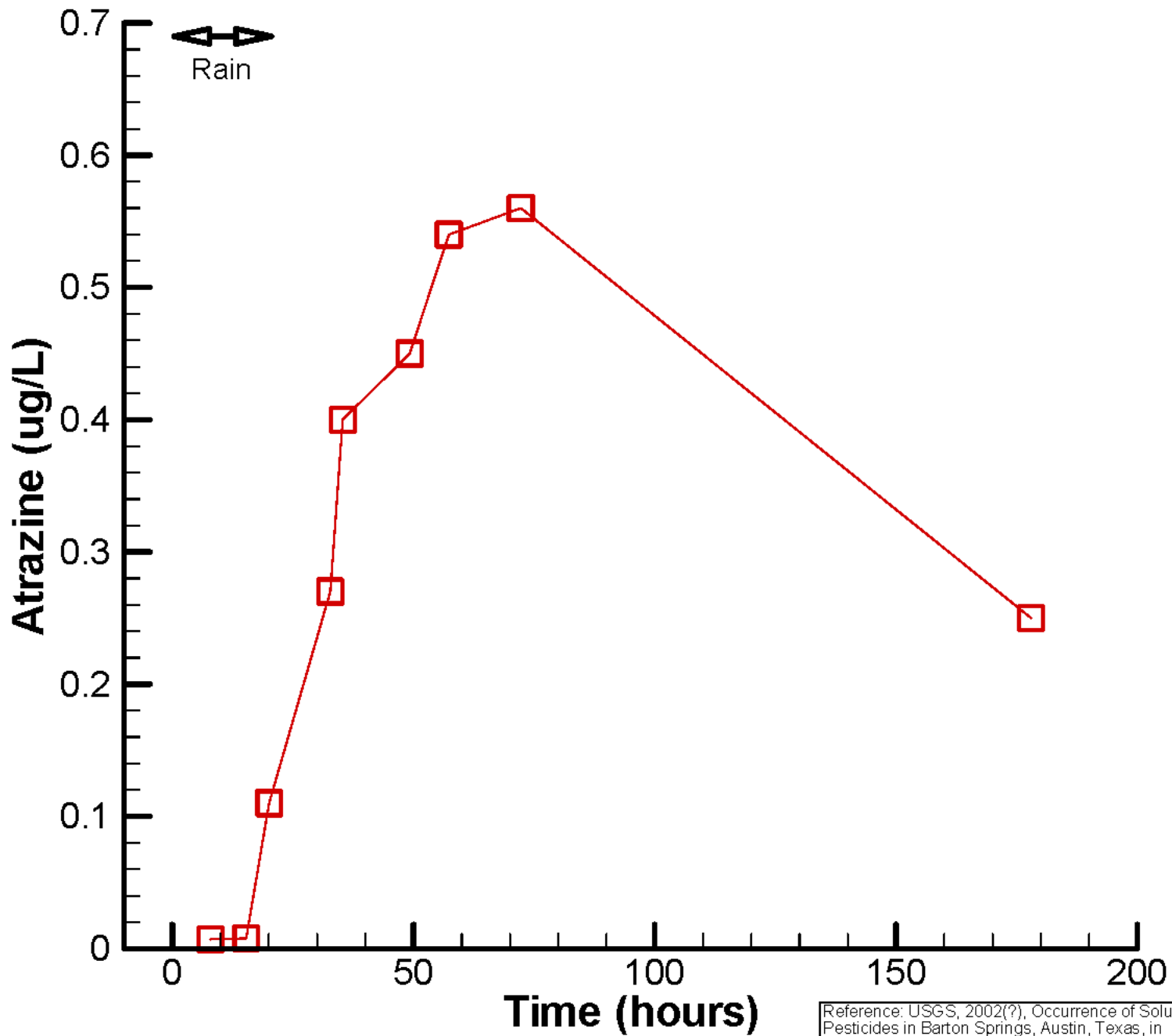
Bexar Co.

# Pesticides in Lorence Creek and Frio Tributary

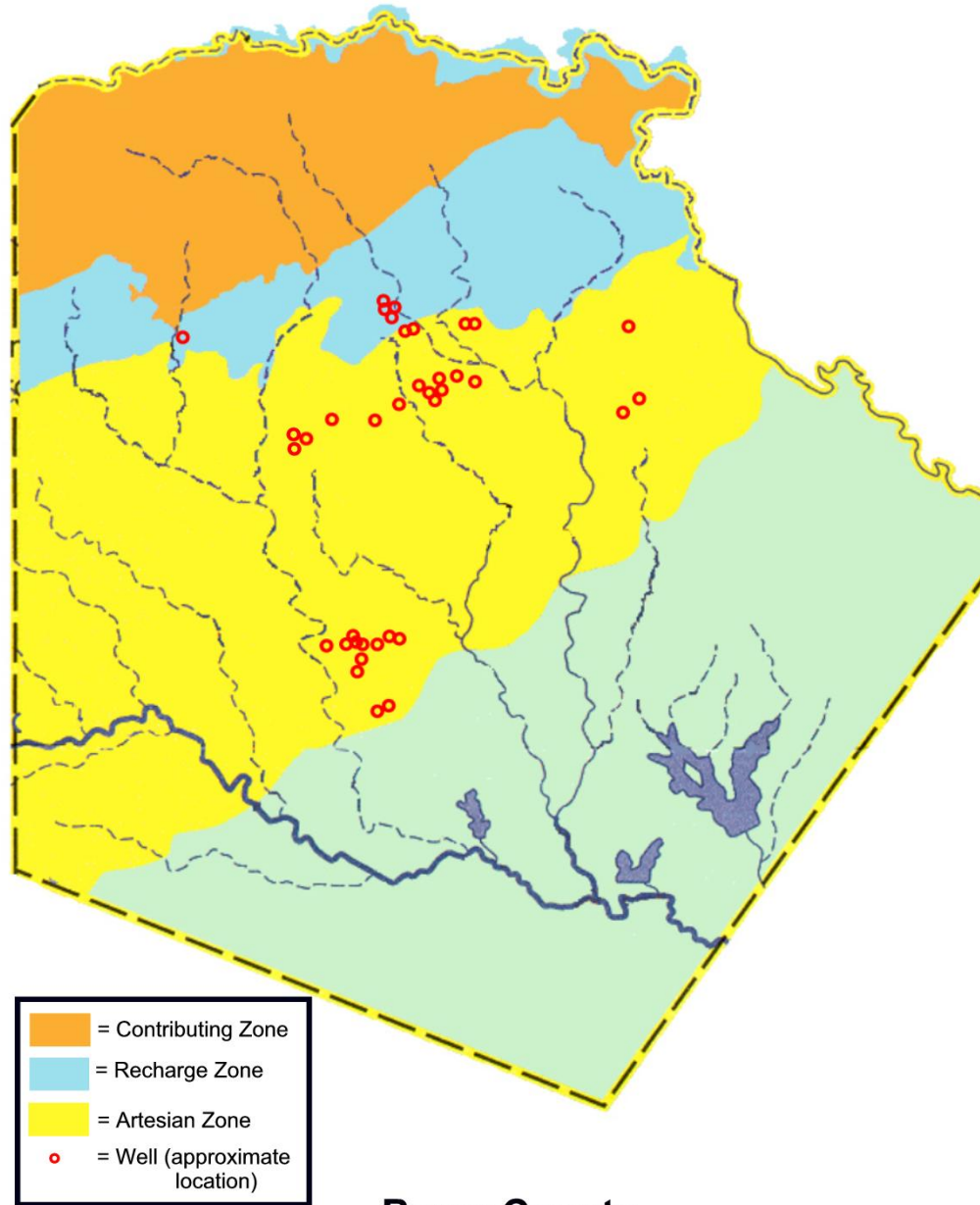
(Data Source: USGS Open-File Report 99-245, 1999, *Quality of Stormwater Runoff from an Urbanizing Watershed and a Rangeland Watershed in the Edwards Aquifer Recharge Zone, Bexar and Uvalde Counties, Texas, 1996-98*)



# Atrazine Concentrations in Barton Springs (Main Spring) May 1 - May 8, 2000



Reference: USGS, 2002(?), Occurrence of Soluble Pesticides in Barton Springs, Austin, Texas, in Response to Rain Events. P. A. Mielke and D.C. Van Meter



**Bexar County  
Public Supply Wells Found to  
Contain Chlorinated Solvents**





# Schematic Cross Section

