

Successes from recent Hays and Travis County well owner education campaigns



ROBIN GARY & JACKIE VAY

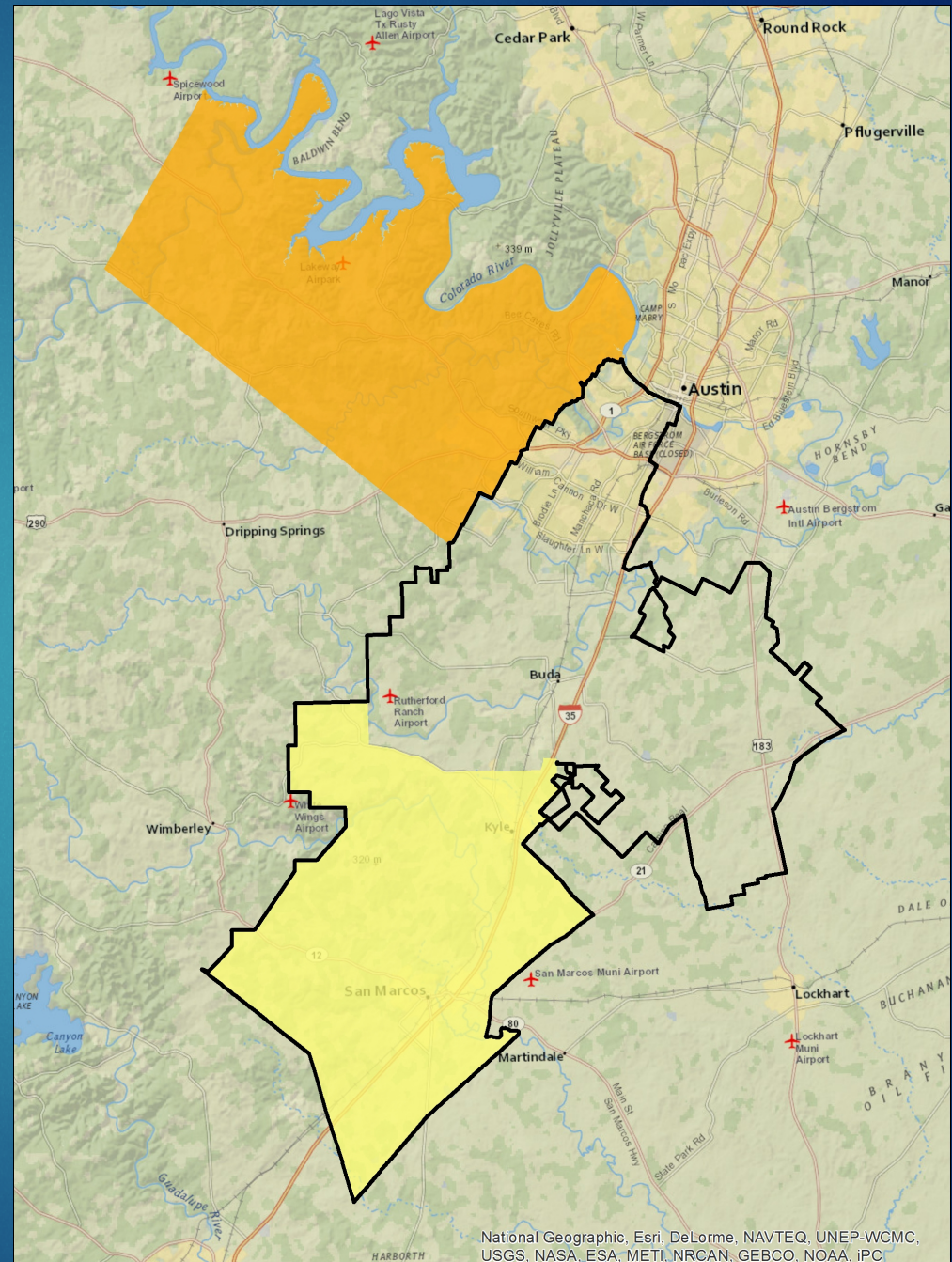
BARTON SPRINGS/EDWARDS AQUIFER CONSERVATION DISTRICT

2 new areas of interest

Barton Springs
Edwards Aquifer
Conservation District

2015 annexation of
Shared Territory with
the EAA to manage Trinity
groundwater resources in a
portion of Hays Co.

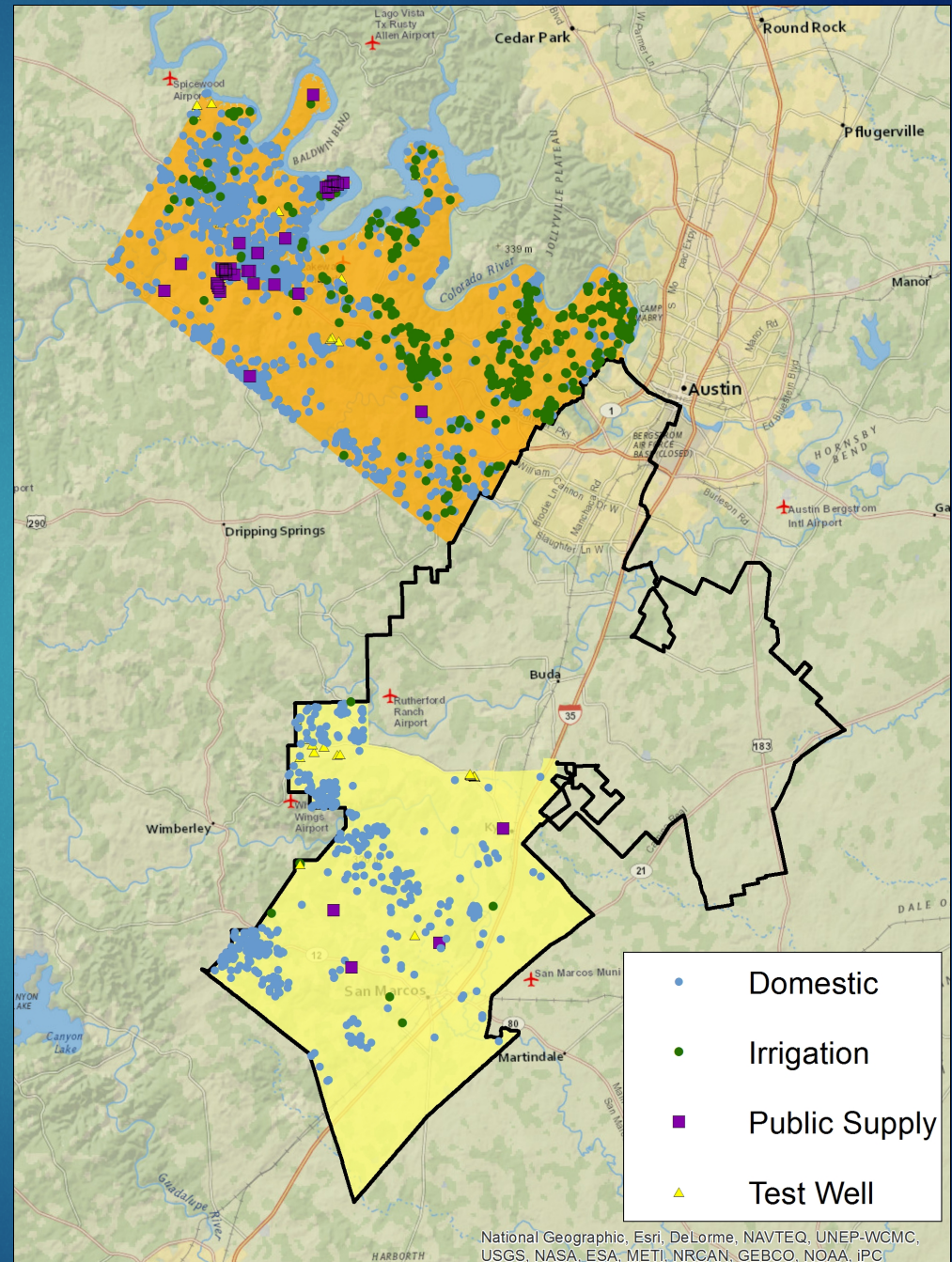
2018 collaboration with
Travis Co. for a
groundwater study of the
SW Travis Co. portion of
the Hill Country PGMA



Lots of known wells

(recorded in Submitted Well Drillers database since 2003)

	BSEACD Shared	SW TC PGMA
Domestic	412	1456
Irrigation	9	461
PWS	4	39
Test	28	39
total	453	1995



The challenge:

How to meet well owners to:

- ▶ Measure water levels and water quality
- ▶ Better understand aquifer dynamics
- ▶ Document geologic controls
- ▶ Establish a monitoring network to track water level fluctuations over time

Avoid



Avoid



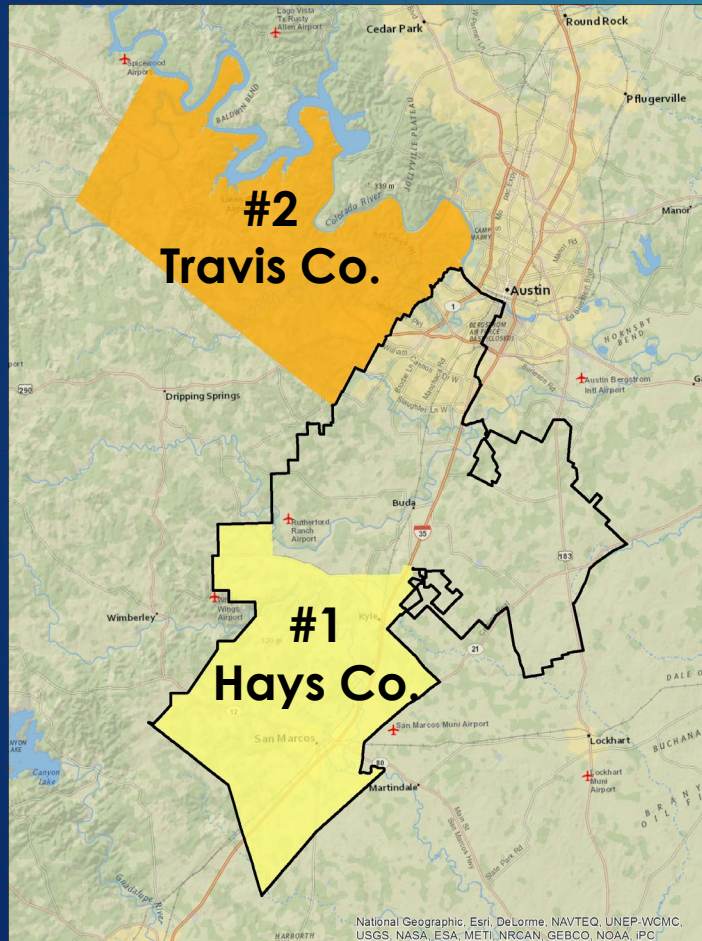
GOAL!



The solution:

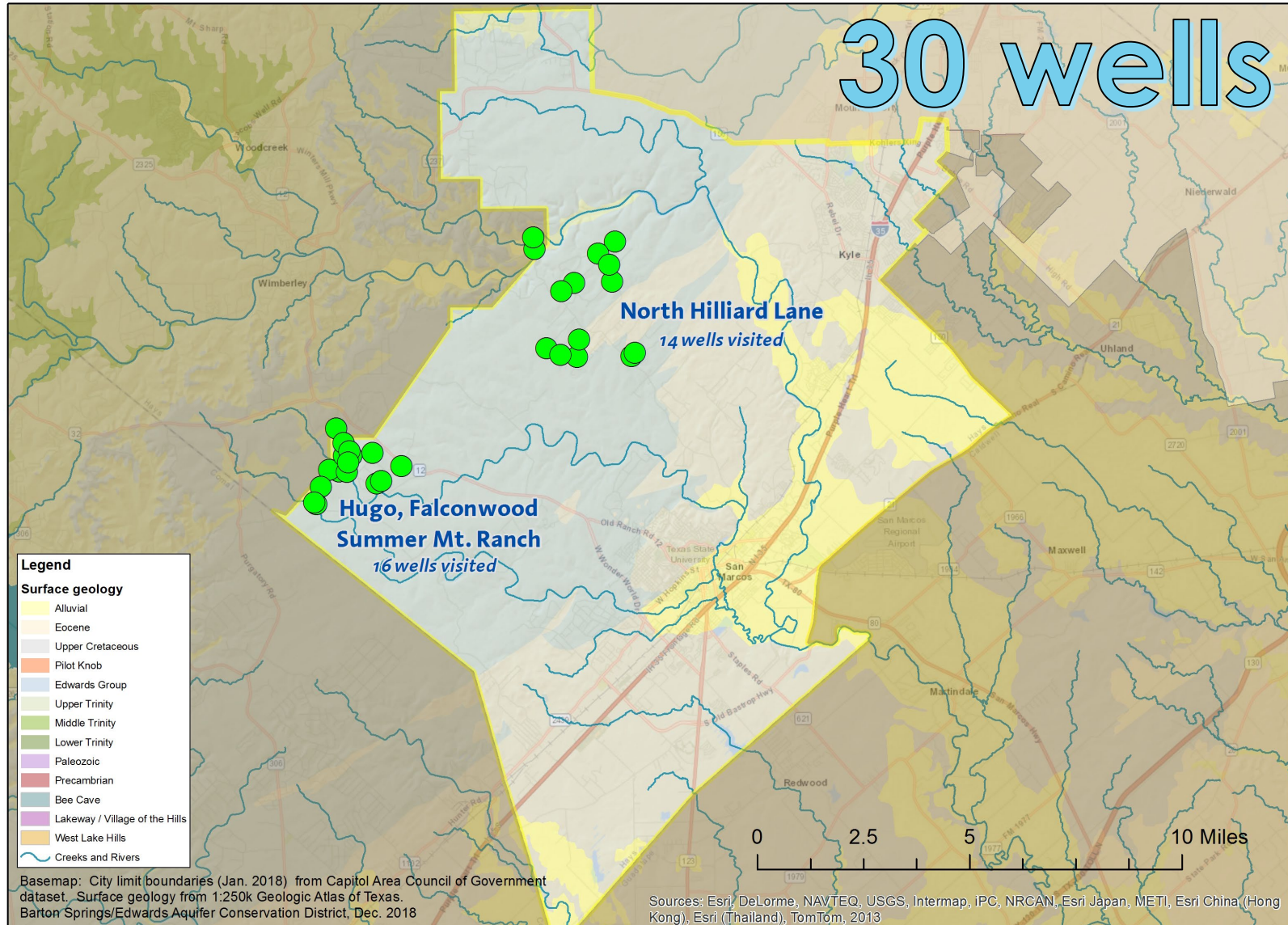
Neighborhood Site Visits

Provide a free service &
make it relevant to the well owner.



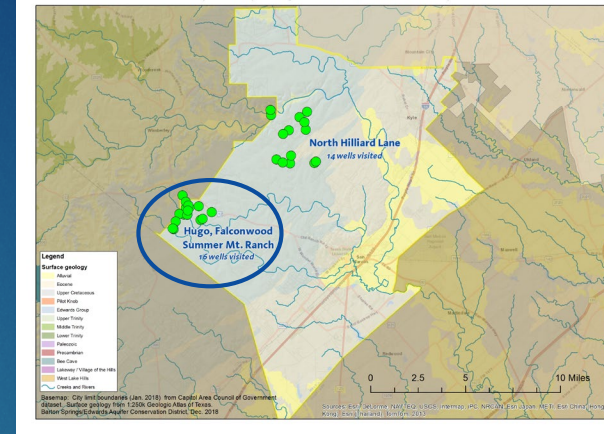
Hays Co Site Visits (May)

Hays County - Neighborhood Site Visit Summary



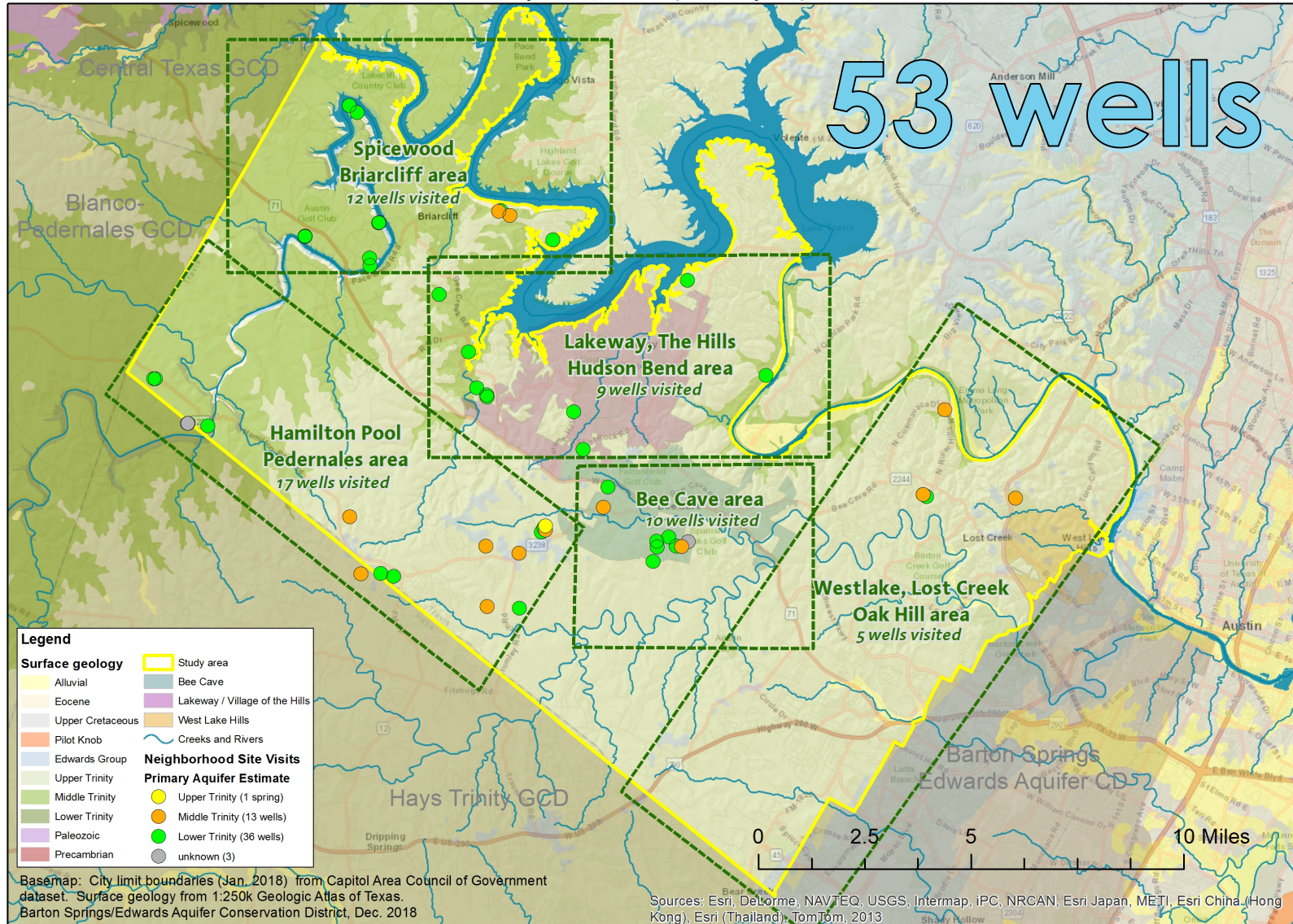
Then August happened

- ▶ Drought conditions
- ▶ High volume water user
- ▶ Complaints from neighbors



Travis Co. Site Visits (Oct-Nov)

Travis County Groundwater Study - Neighborhood Site Visit Summary Wells by estimated primary aquifer



Water level measurements (depth to water)

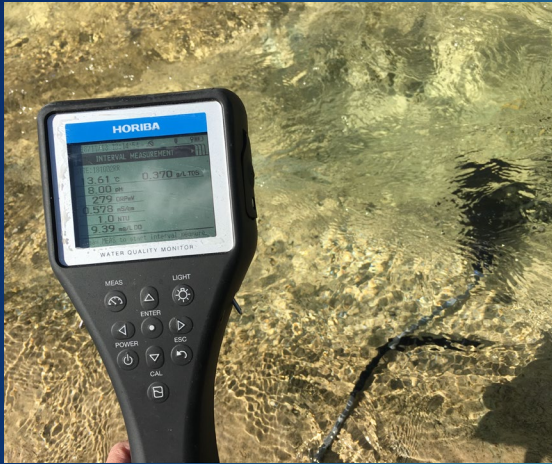


Electric tape (E-line)



Sonic meter

Water Quality (field parameters)

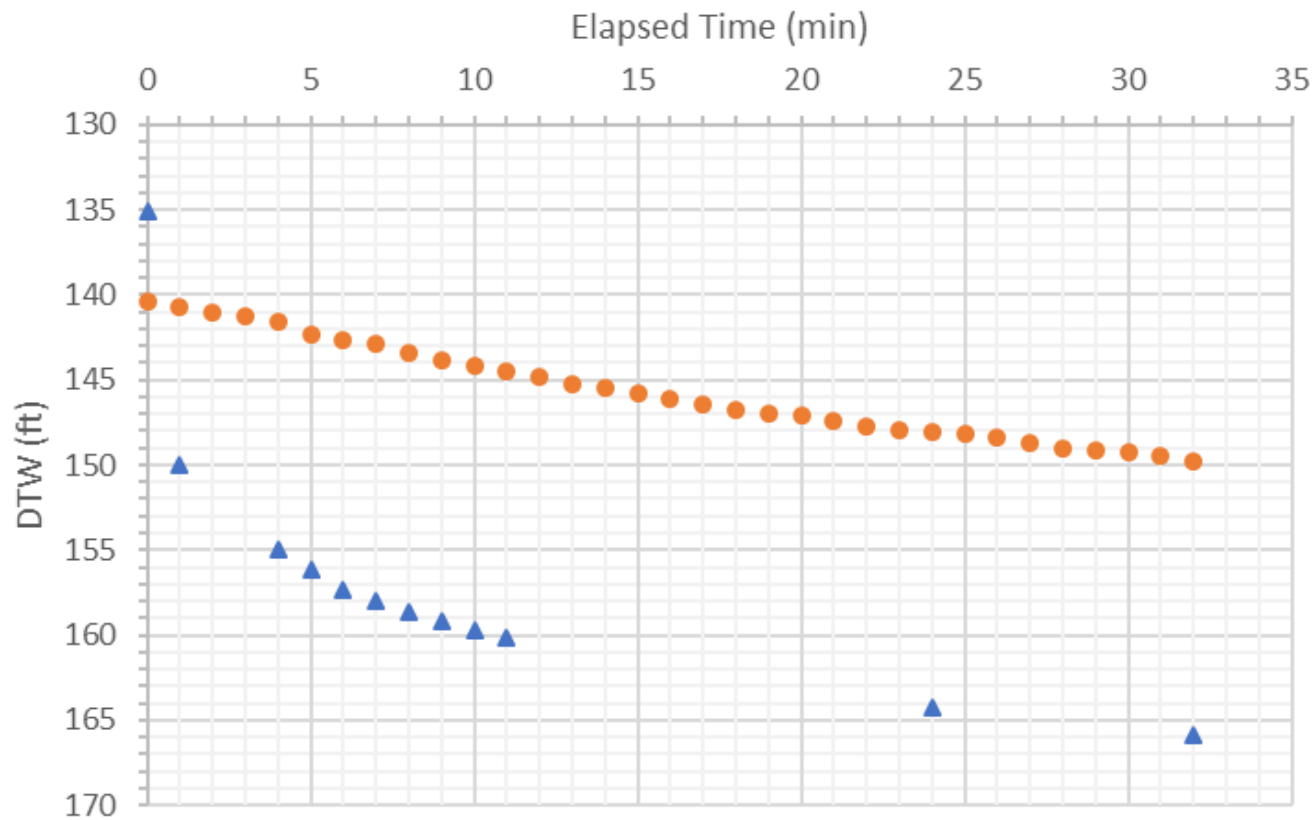


- ▶ Conductivity
- ▶ Total Dissolved Solids
- ▶ Nitrate/Nitrite
- ▶ Estimated Primary Aquifer



Drawdown – aquifer permeability

Fowler Wells - Mini Aquifer Test



- ▲ Active well
- Inactive well



Well owner discussions

- ▶ Yield, availability
- ▶ Sediment
- ▶ Iron
- ▶ Bacteria
- ▶ TDS

2018 Neighborhood Site Visit Summary

Area	Estimated primary aquifer (Number of measured wells*)	Total Well depth (feet)	Water level range (Depth to water, feet)	Conductivity range (microSiemens/cm)	Estimated Total Dissolved Solids range (TDS, ppm)
Hamilton Pool, Pedernales	Middle Trinity Aquifer wells (6)	Generally shallower than 550'	41' – 464'	1,010 – 2,910	645 – 1,860
Hamilton Pool, Pedernales	Lower Trinity Aquifer wells (8)	Generally deeper than 550'	164' – 323'	751 – 3,720	480 – 2,380
Spicewood, Briarcliff	Middle Trinity Aquifer wells (2)	Generally shallower than 300'	174' – 232'	609 - 913	390 - 584
Spicewood, Briarcliff	Lower Trinity Aquifer wells (10)	Generally deeper than 300'	36' – 247'	645 – 3,280	419 – 2,100
Lakeway, The Hills, Hudson Bend	Lower Trinity Aquifer wells (9)	Generally deeper than 400'	111' – 643'	1,470 – 3,200	938 – 2,050
Bee Cave	Lower Trinity Aquifer wells (6)	Generally deeper than 750'	602' – 708'	1,490 – 1,620	962 – 1,040
Westlake, Lost Creek, Oak Hill	Middle Trinity Aquifer wells (3)	Highly variable	24' – 451'	1,330 – 2,070	851 – 1,320
Westlake, Lost Creek, Oak Hill	Lower Trinity Aquifer wells (2)	Generally deeper than 750'	521' – 548'	1,480 – 1,610	948 – 1,030

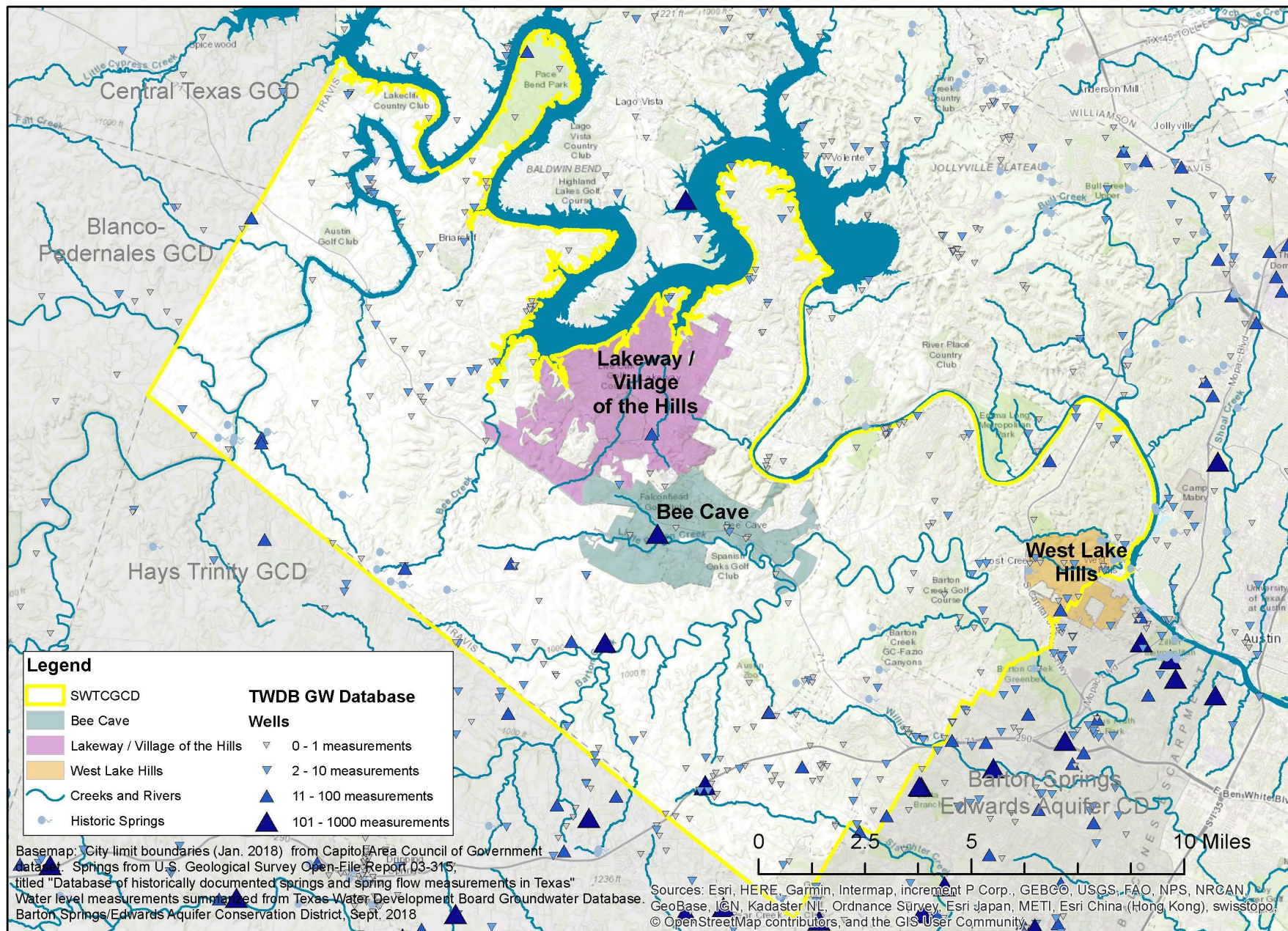
*Wells with available well construction records



Next steps

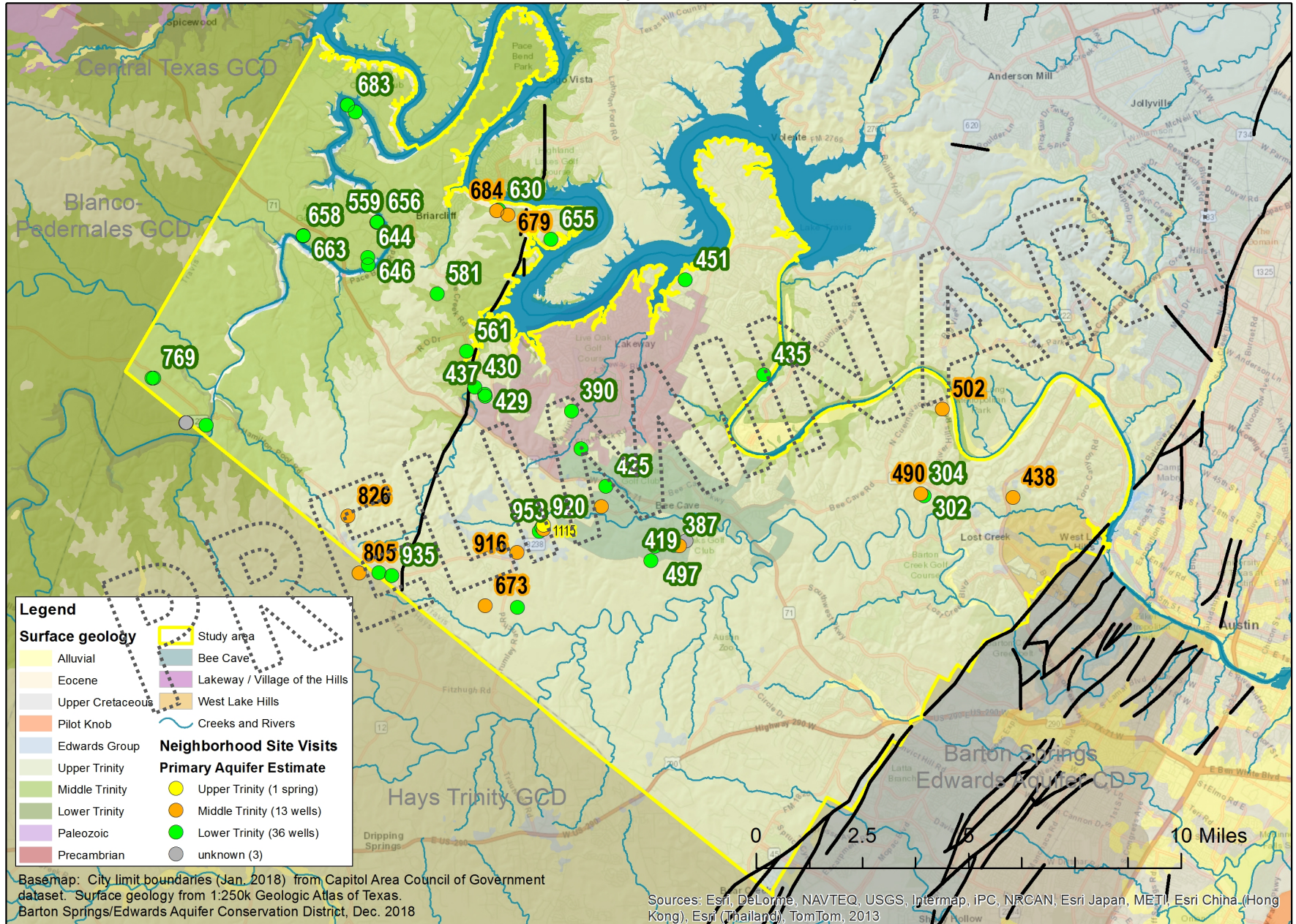
- ▶ Water levels – existing TWDB monitor sites
- ▶ Potentiometric surface maps (water level elevations by aquifer)
- ▶ Downhole video
- ▶ Geophysical logs
- ▶ Detailed chemistry

Texas Water Development Board Groundwater Database Wells with Water Level Measurements

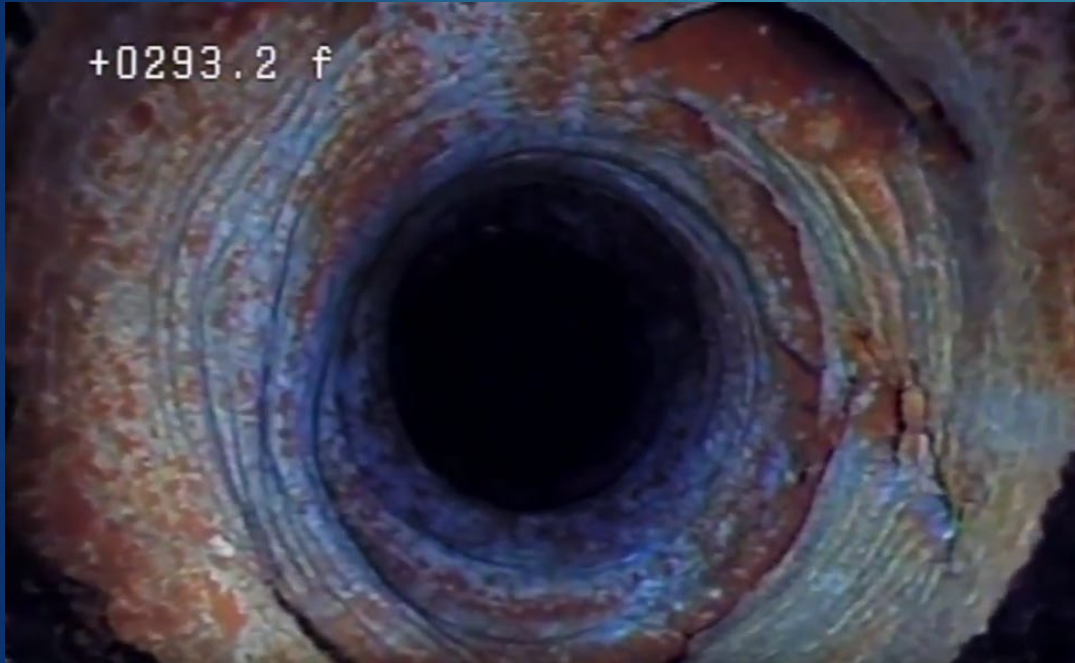


Travis County Groundwater Study - Neighborhood Site Visit Summary

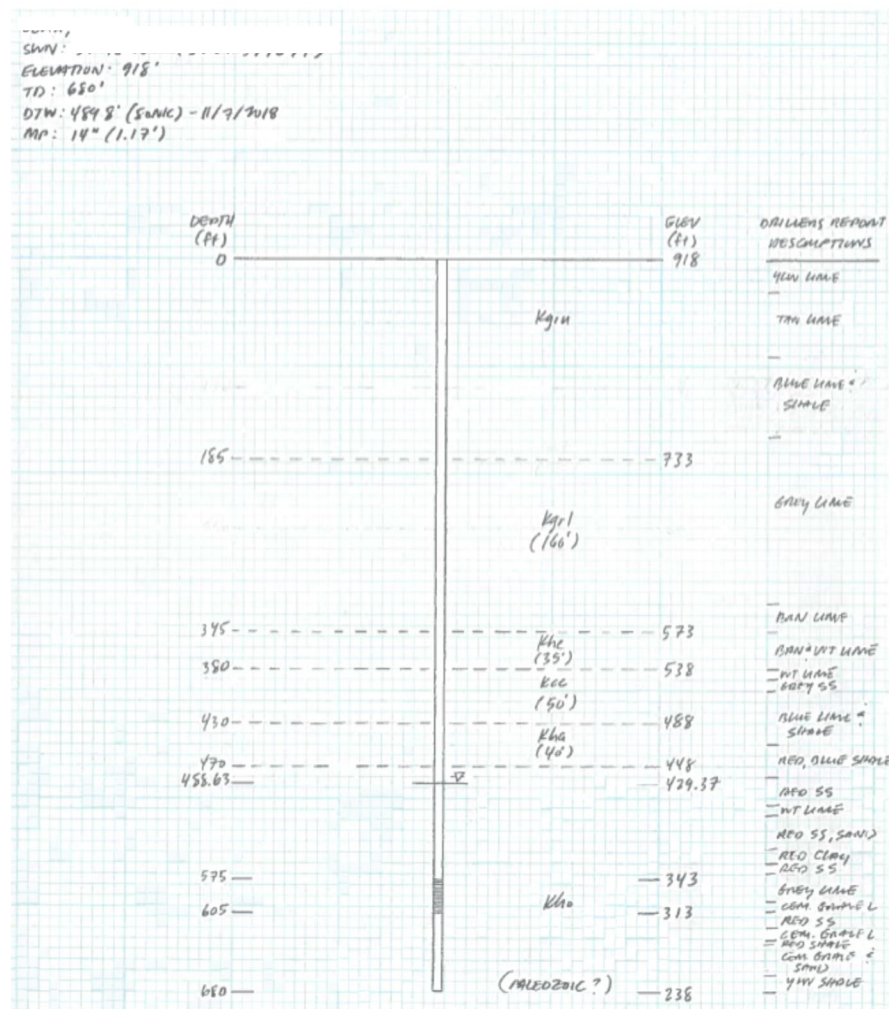
Preliminary Water level elevations by estimated primary aquifer



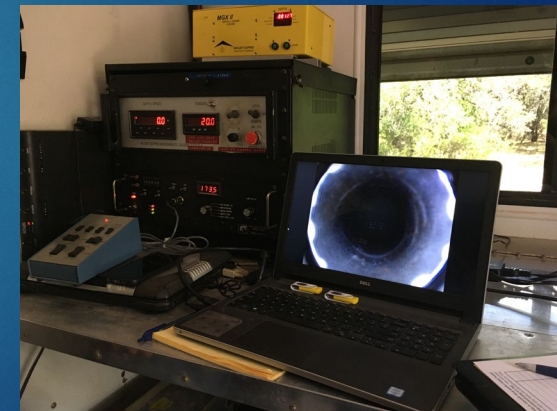
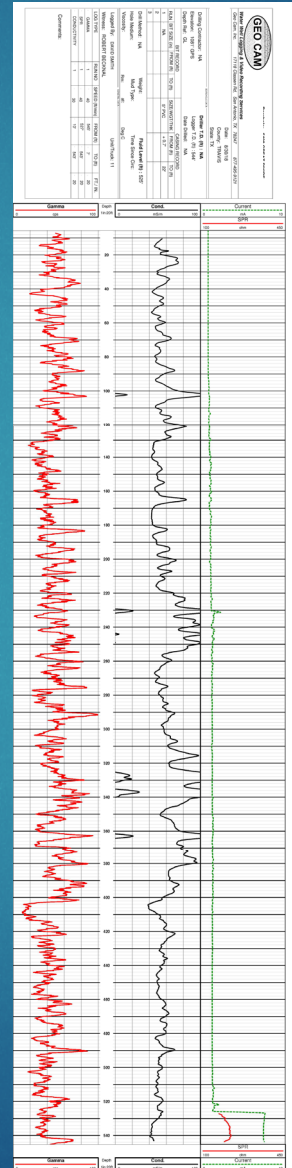
Downhole video



Drillers Reports / Geophysical logs



SURFACE GEOLOGY, Kgr1/Kgr2 SURFACE INFERRED FROM COLLINS, 2017
GEOLOGIC MAP OF THE SHANKS HILL - ... - HAMMETS CASSINE AREA, CENTRAL TEXAS
+ UNIT THICKNESSES, ELEVATIONS INFERRED FROM DRILLERS DESCRIPTIONS, AND FROM
GEOPHYSICAL LOG FROM NEARBY DEE CREEK STUDIES WELL (57-48-3 BCS)
NOTE: FAULT(S) TO WEST (SEE COLLINS, 2017 GEOLOGIC MAP)



Detailed chemistry

- ▶ Texas Water Development Board supports detailed chemistry sampling
- ▶ 10 pre-site visits
- ▶ 14 during site visits
- ▶ What does it tell us?



The successes

- ▶ **Education** – well owners were curious about their well, interested in knowing more about groundwater, and sought advice for issues
- ▶ **Relationships** – contacts with well owners, lots of invitations to visit again
- ▶ **Public Relations** – transparency about what a GCD does
- ▶ **Data** – synoptic water level survey, water quality data, geologic info

Many thanks to...

- ▶ BSEACD staff: Brian Hunt, Robin Gary, Justin Camp, Lane Cockrell
- ▶ Travis County Commissioners
- ▶ Travis County Hydrogeologist, Vicky Kennedy
- ▶ Southwest Travis County GCD Directors

- ▶ ALL THE WELL OWNERS who participated

Good science is built on good well owner relationships.

Good policy is informed by good science.