



Oasis Well Pumping Test May 2018

Observations and Insights.

by

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Test
preparation
was a large
effort by a
“community”



The Pumping well



Water Quantity

Water Levels



Flow Rate



Water Quality

Spot check



Continuous flow data



An
Observation
well



The Community

- CUWCD District/management
- Oasis LLC Client
- Water suppliers Industry
- Baylor University Education (research)





- Hands-on experience
- Real-world activities
- Professional interaction

Baylor University Students

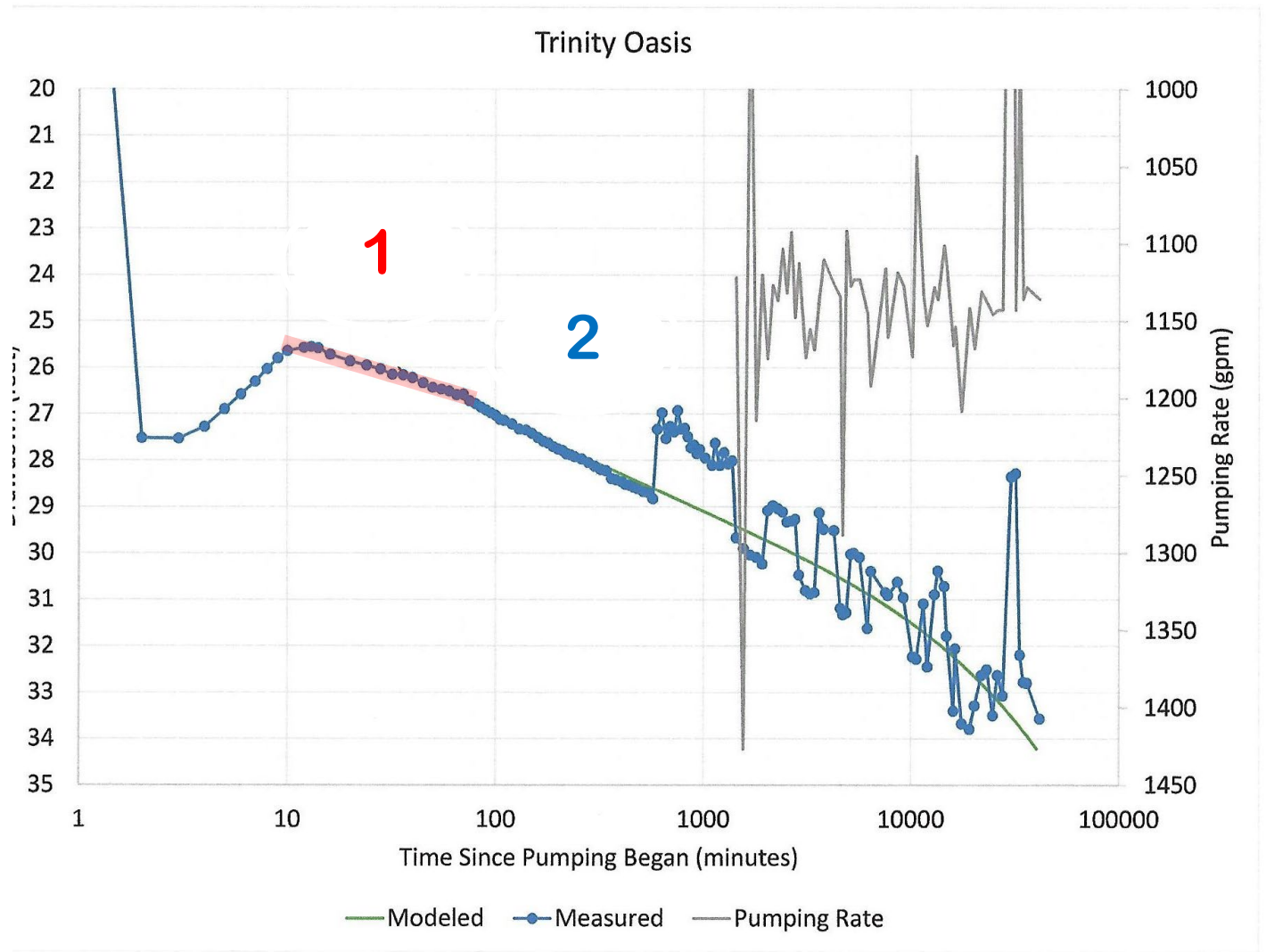
Pumping Well Drawdown

- Temperature effects
- Fairly straight line
- Pumping variations
- Follows the model ?



Pumping Well Drawdown

- Aquifer Transmissivity
 - **1 – 200,000 gpd/ft**
 - **2 – 125,000 gpd/ft**
 - < 5,000 ft?
- **Acres Well – 75,000 gpd/ft**
 - > 35,000 ft.



Specific Conductance

$\mu\text{S}/\text{cm}$

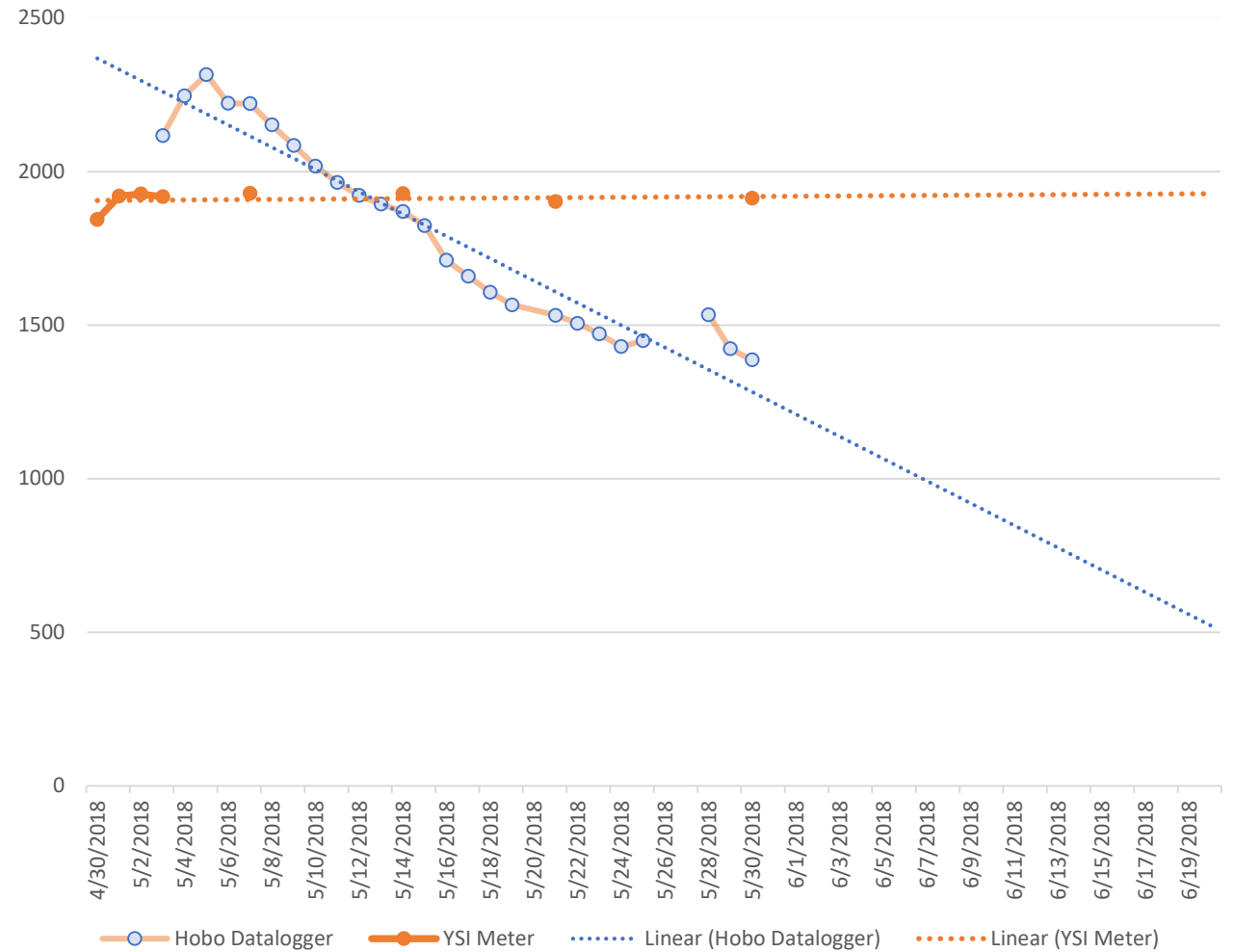
Spc was measured using a YSI Pro 30 meter
and

A hobo conductivity data logger

The YSI is considered the accurate
measurement and the data logger is
experiencing drift.

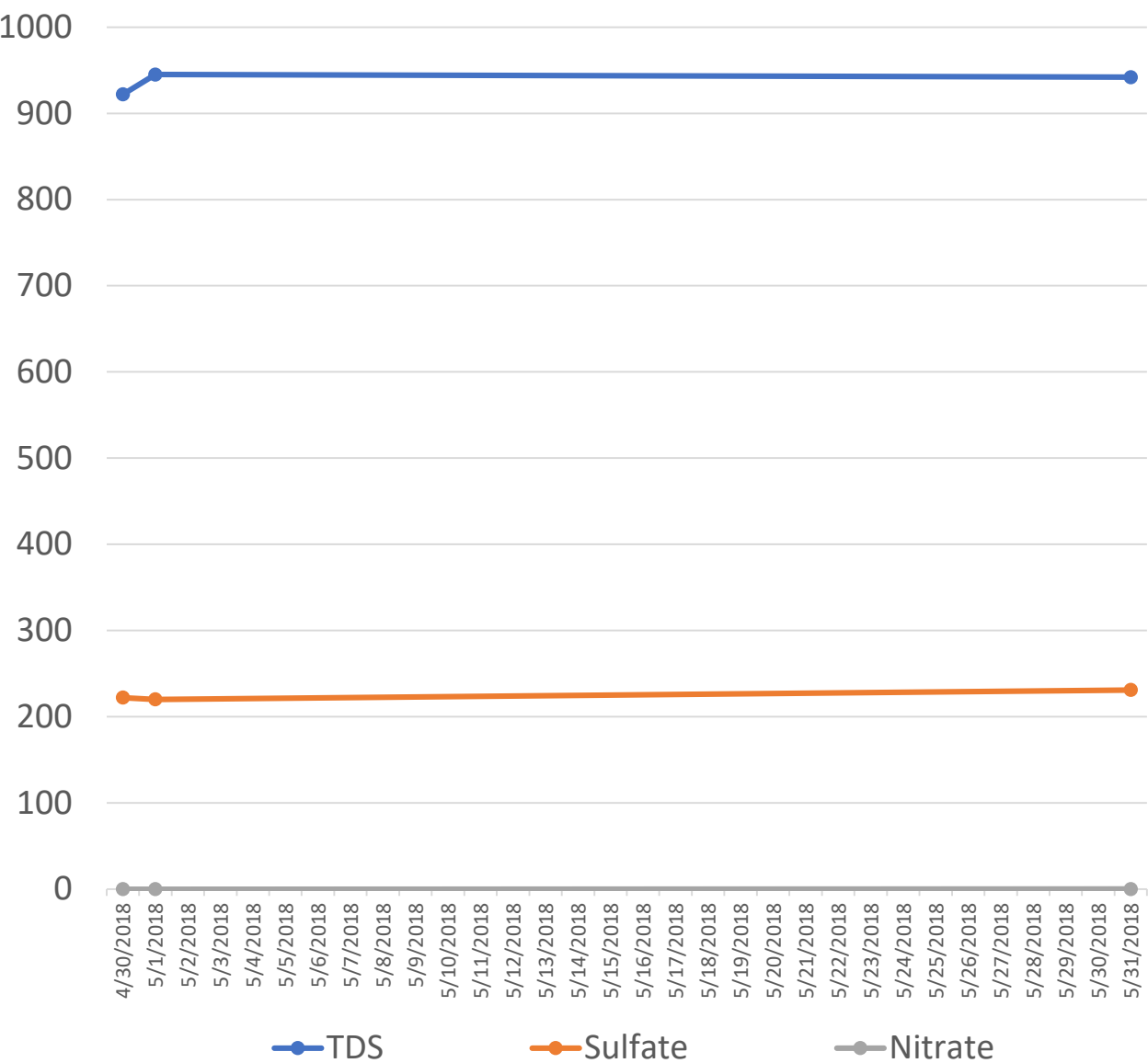
Temperature measurements did not show
drift on the datalogger like the Spc.

Therefore, water quality did not appear to
change over the pumping period.



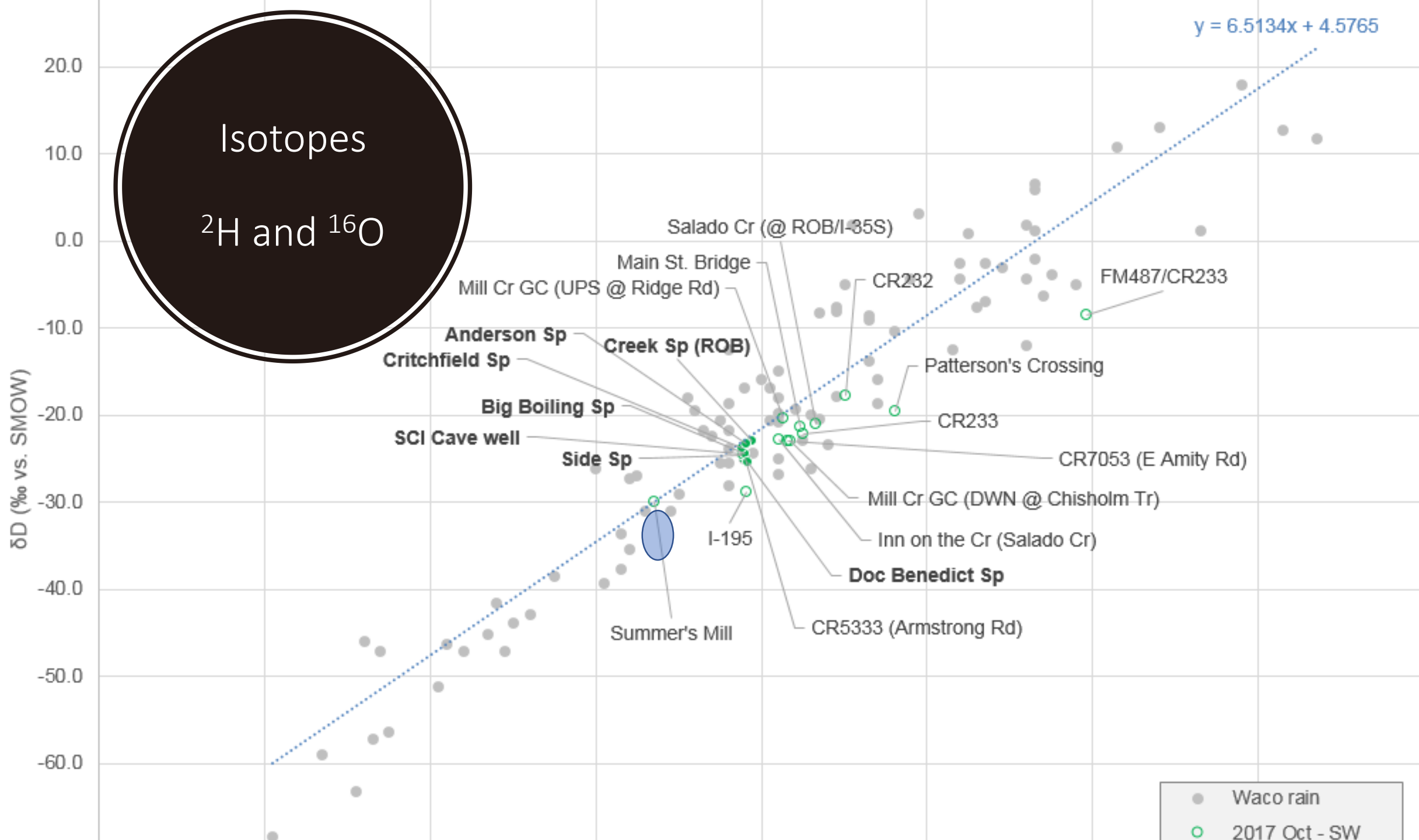
Water Chemistry during the Test

Date	TDS mg/l	Sulfate mg/l	Nitrate mg/l
4/30/2018	922	222	0.007
5/01/2018	945	220	0.007
5/31/2018	942	231	0.009



Isotopes

^2H and ^{16}O



TRINITY OASIS WATER APPARENT AGE

Baylor University

Report Date: 5/22/2018

Material Received: 5/14/2018

Sample Data	pMC	F14C	d13C o/oo	d18O o/oo	dD o/oo
Beta - 494283	< 0.44 pMC	< 0.0044	-8.0	-5.3	-34.59

JHW

AMS-Standard delivery

MATERIAL/PRETREATMENT: (water DIC) acidify-gas strip

COMMENTS: The equivalent **"Apparent" radiocarbon age to the reported pMC/fMDN values is ~ > 43500 BP BP** (not adjusted for any hydro-geochemical effects on meteoric water $^{14}\text{CO}_2$). Given the complex nature of groundwater DIC 14 chemistry, duplicate measurements within 1-2 pMC are reasonable for a single water sample. For very low DIC concentration waters (< 20 mg/L HCO_3) DIC 14 and waters with complex organic chemistry, results can vary significantly outside of this expectation.

TRINITY OASIS LLC

AQUIFER TEST

INSIGHTS

1. WE KNOW MORE ABOUT THE LOWER TRINITY AQUIFER IN BELL COUNTY THAN EVER BEFORE
2. BOUNDARIES OCCUR BUT THEY APPEAR SEMI-PERMEABLE AND LOCATIONS ARE NOT EXACT
3. THE PUMPING WELL IS IN A MORE PRODUCTIVE AREA THAN MOST OF THE AQUIFER
4. THE WATER CHEMISTRY REMAINED CONSISTENT THROUGHOUT THE TEST
5. THE WATER IS QUITE OLD AND NOT BEING RECHARGED FROM CURRENT RAINFALL
6. COOPERATIVE EFFORTS BY THE GROUNDWATER "COMMUNITY" IN BELL COUNTY MADE THIS A SUCCESS