



To: Mountain Regional Water Administrative Control Board Members
From: Sam Grenlie
Date: April 18th, 2024
Re: Summit County Concurrency Update

Background

Concurrency is a program implemented by Summit County to evaluate water supplier's ability to supply existing customers and accommodate new growth in the Snyderville Basin (excluding Park City Public Utilities). In addition to water supply and demands, the program also looks into water quality and other possible system constraints.

Mountain Regional has completed its internal 2024 Concurrency effort (for the 2023 production year). Part of this effort for the past three years is to write a 'Supplementary Report' which is attached to this memorandum. This resulted from increased water quality scrutiny from the Summit County Concurrency team.

This report gives a quick overview of our groundwater sources and water quality. There is a chart included for every groundwater source in the District with text boxes providing insight to any trends or observations.

This is solely for the Board's information, and there are no action items requested. The entire Concurrency review can be provided upon request for additional background information.



Attachment 1

Mountain Regional Water
Supplemental Memo to
Concurrency Report



Memorandum

To: Phil Bondurant, Water Concurrency Officer

From: Sam Grenlie, District Engineer
Jess DiCaprio, Staff Engineer

Date: March 25, 2024

Subject: Mountain Regional Water (MRW) Supplemental Memo to Concurrency Report

The following memorandum contains supplemental information to MRW's 2023 Water Concurrency Annual Report and provides a more detailed understanding of MRW groundwater resources.

In previous years, the Summit County Water Concurrency Engineer, David Hansen, provided comments regarding Total Dissolved Solids (TDS) and water level trends in the District. Appendix B includes figures that show static groundwater level, dynamic (drawdown) water level, and TDS for each MRW groundwater source, updated to include 2023 data. The figures also include lines to identify federal and state standards:

- Utah Division of Drinking Water (DDW) Maximum Contaminant Level (MCL) for TDS (2,000 milligrams per liter or mg/L)
- US Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL) for TDS (500 mg/L)

David Hansen expressed concern about water quality at five sources in particular, listed below:

- Atkinson Well 2
- Jailhouse Well 3
- Silver Creek Well 10
- Blackhawk Well 2R
- Gorgoza Well 6

MRW shares this concern and is paying close attention to the water quality at these wells. As a reminder, MRW contracted with Loughlin Water Associates (LWA) in 2021 to better understand the groundwater chemistry and optimize operation of the wells. LWA completed an extensive study in 2022 which was provided in a previous concurrency report.

To briefly summarize the findings, chloride anions are the primary driver for increasing TDS levels over time. The application of road salt is thought to be the main cause of increasing chloride amounts (rather than operational practices). While MRW suspects that chlorides are driving TDS trends more so than operations, total production has been limited in some wells to see if operational practices impact TDS trends. Atkinson Well 2 provides an excellent case study with high levels of TDS and significant changes to production. First, one can look at production over time using **Table 1** which shows total production each year along with the increase or decrease (in gallons and percentage) compared to 2019 values.

Table 1: Source Production Since 2019

Source	Production (gallons)					Production Increase or (Decrease) from 2019 to 2023	
	2019	2020	2021	2022	2023	%	gallons
Silver Creek Well 10	26,902,000	37,517,000	27,287,000	26,966,000	28,328,000	5%	1,426,000
Jailhouse Well 3	8,306,000	8,143,000	8,159,000	8,182,000	12,427,000	33%	4,121,000
Atkinson Well 2	43,969,000	33,313,000	3,645,000	4,000,000	4,147,000	-960%	(39,822,000)
Blackhawk Well 2R	1,191,700	803,700	1,018,200	958,600	10,692,000	89%	9,500,300
Gorgoza Well 6	32,279,000	28,854,000	13,845,000	9,686,000	32,221,000	0%	(58,000)
Totals	112,647,700	108,630,700	53,954,200	49,792,600	87,815,000	-28%	(24,832,700)

Note the significant decrease in production in 2021 and 2022. Production increased in 2023, but remained below 2019 and 2020 values. Specifically looking at Atkinson Well 2 over the past two years, production was around a tenth of what it was in 2019. Turning to TDS levels, **Figure 1** shows groundwater levels (blue and grey points) and TDS levels (yellow points and yellow trendline) in Atkinson Well 2 since 2013.

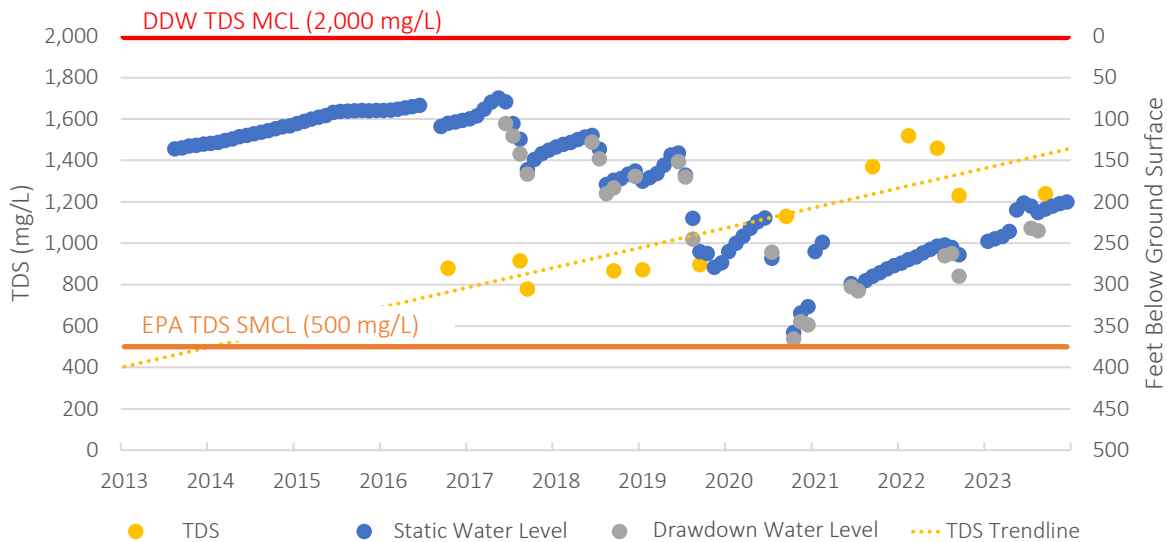


Figure 1: Groundwater and TDS levels in Atkinson Well 2 Over Time

Despite a decrease in production and recovering groundwater levels, TDS continues to trend upwards. This further supports LWA’s findings and emphasizes a need to improve source protection programs to address the use and storage of road salt in the Snyderville Basin.

Please contact us with any questions or clarifications.

Sincerely,

Sam Grenlie, District Engineer

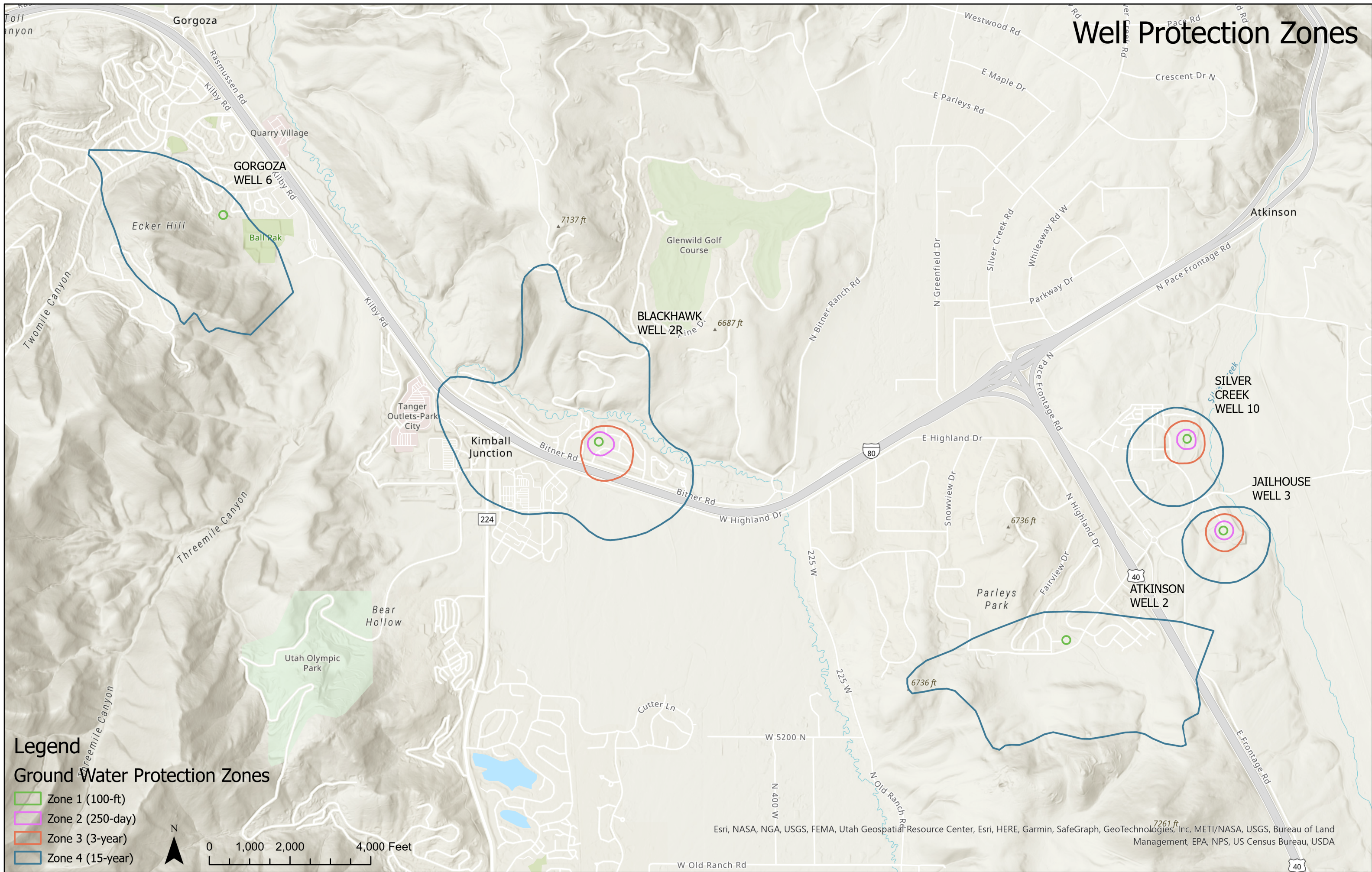
Jess DiCaprio, Staff Engineer



Appendix A

Well Locations and Source Protection Zones

Well Protection Zones



Legend Ground Water Protection Zones

- Zone 1 (100-ft)
- Zone 2 (250-day)
- Zone 3 (3-year)
- Zone 4 (15-year)



0 1,000 2,000 4,000 Feet

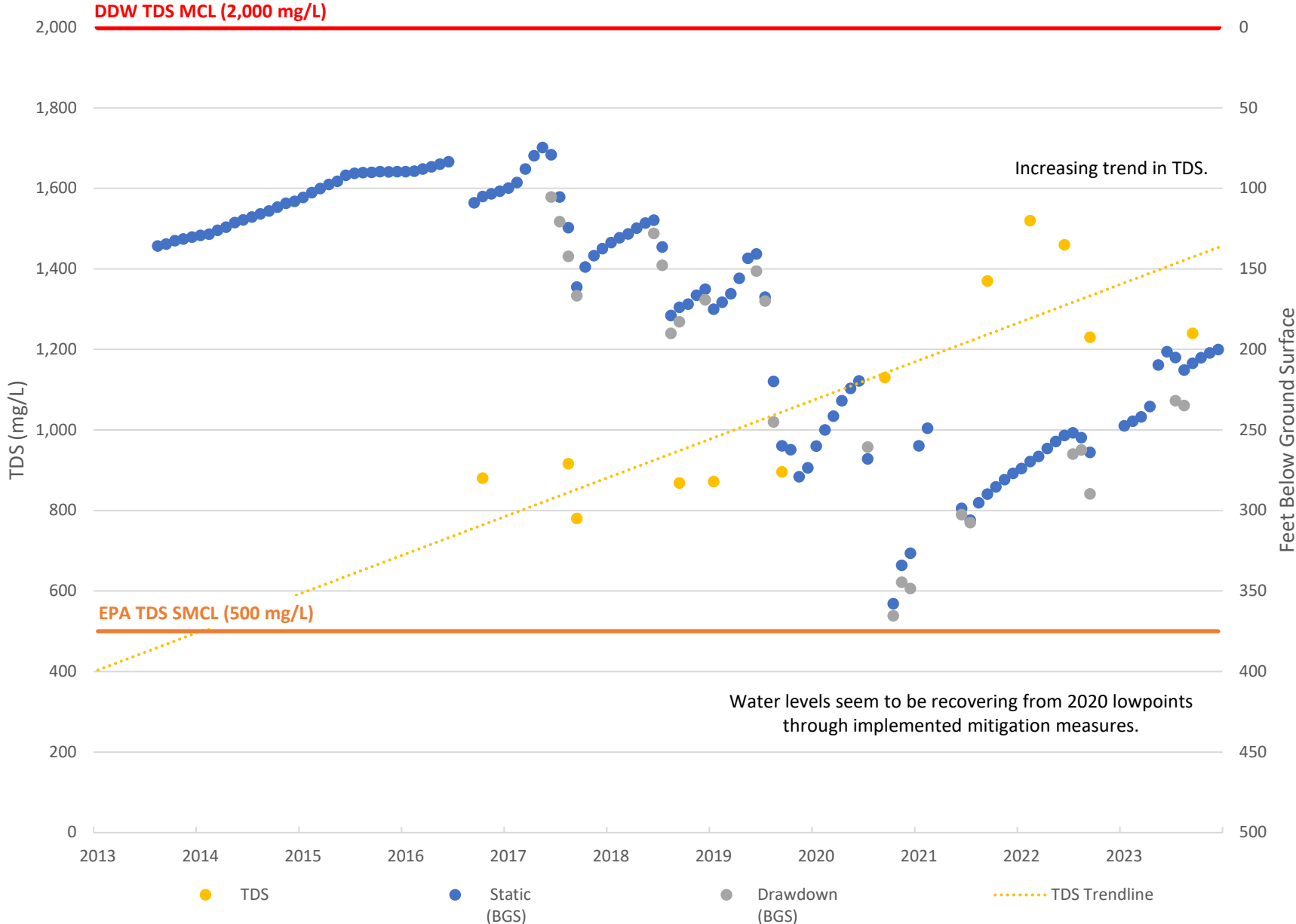
Esri, NASA, NGA, USGS, FEMA, Utah Geospatial Resource Center, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA



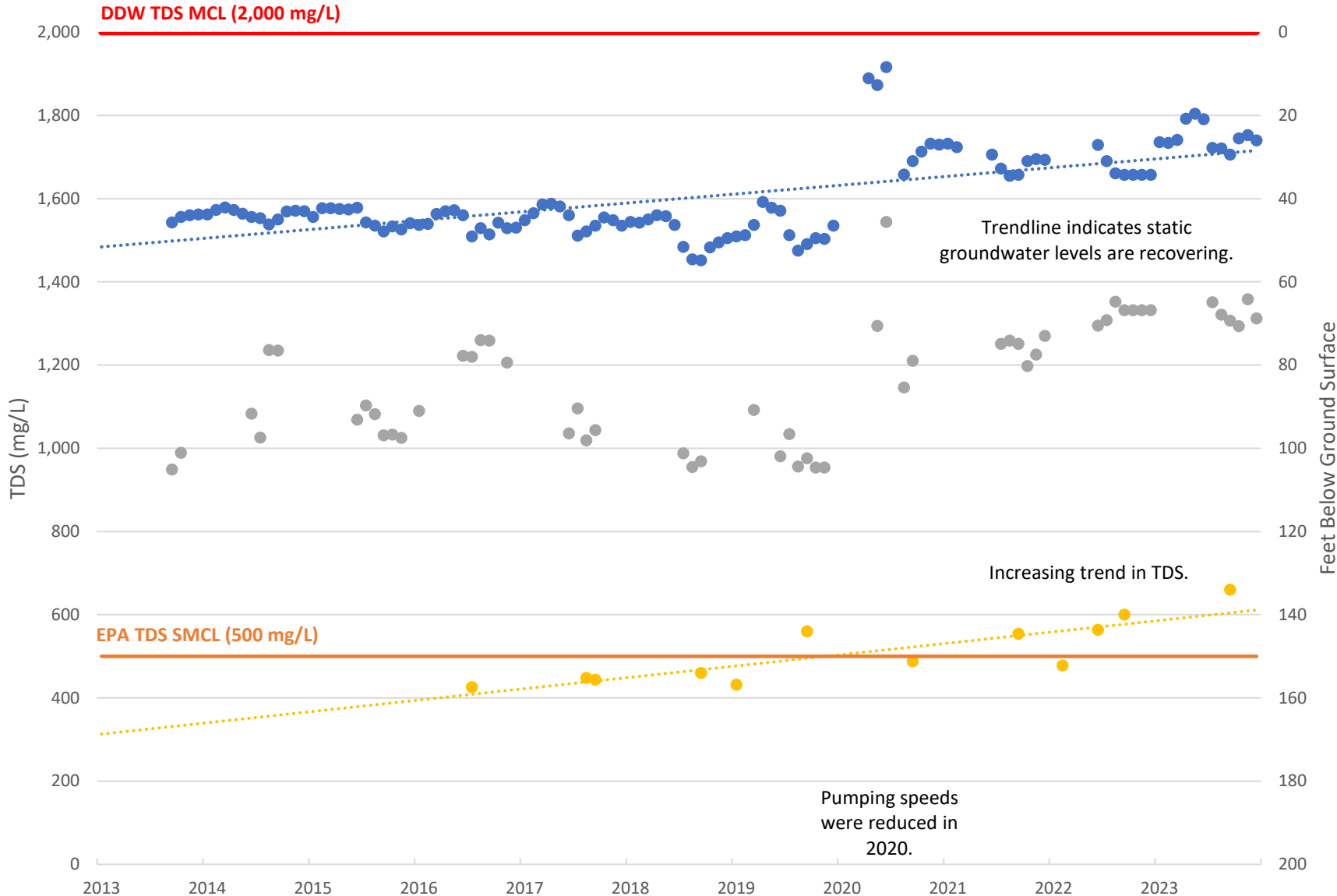
Appendix B

Mountain Regional Well Analysis

Atkinson Well 2

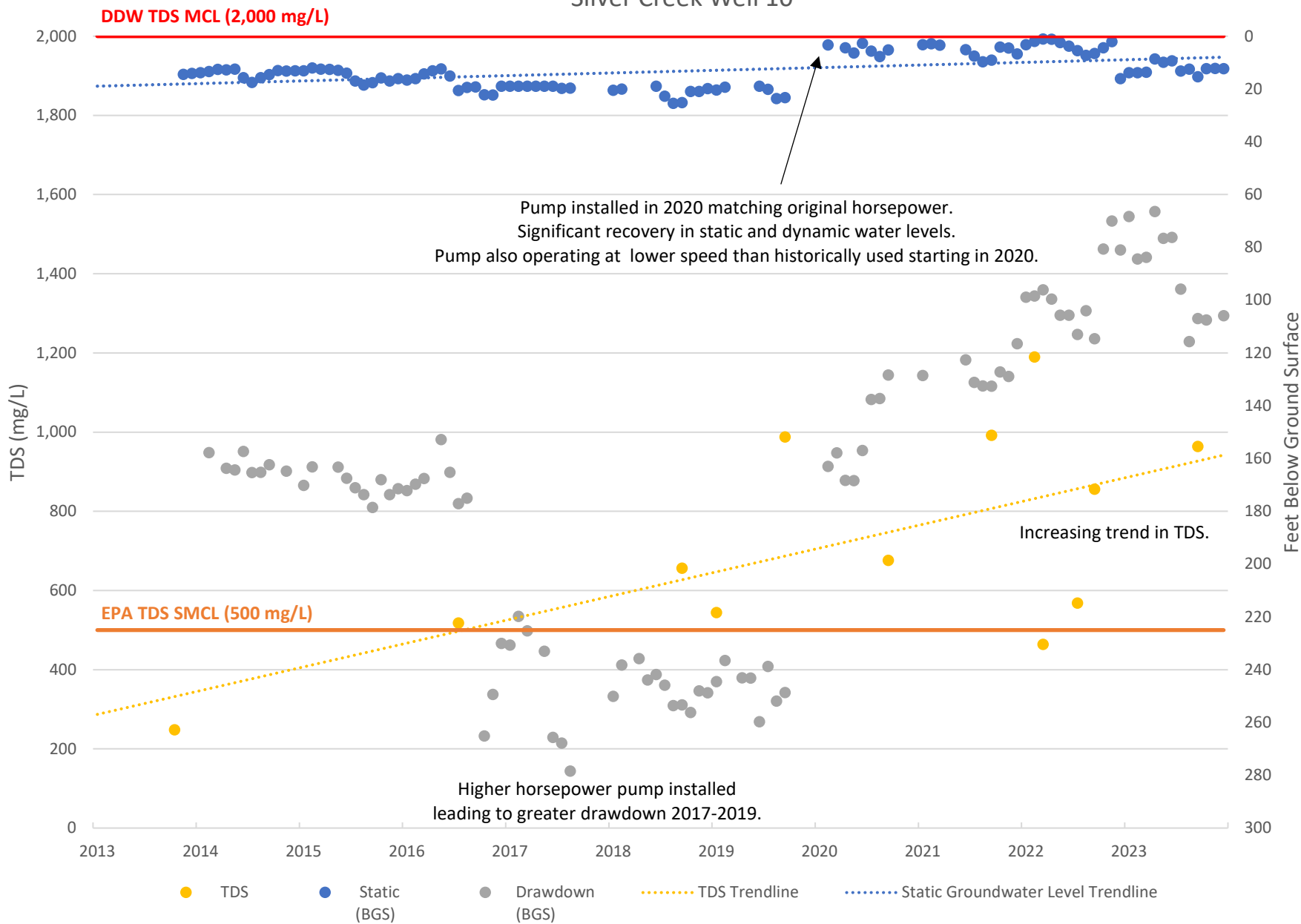


Jailhouse Well 3

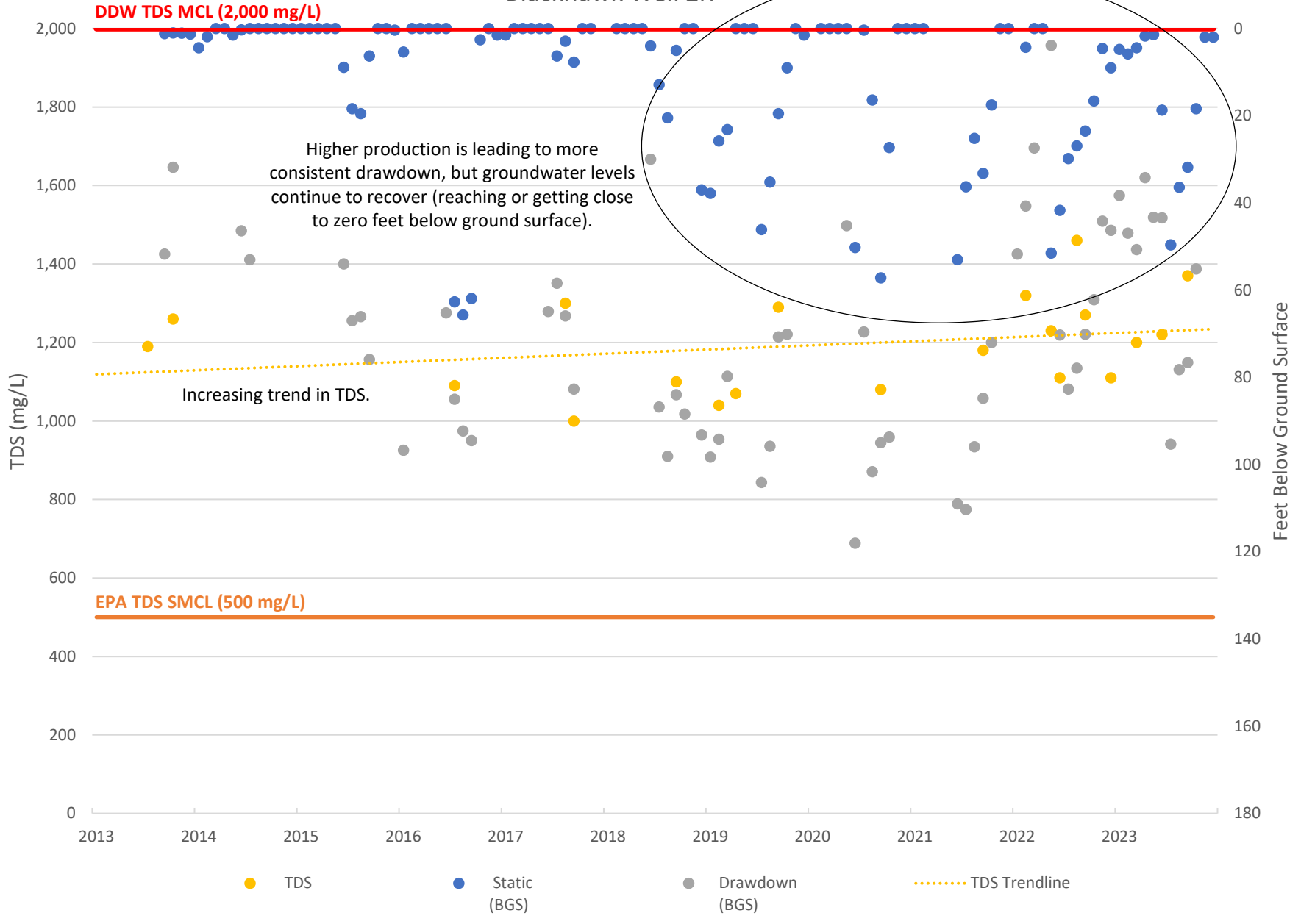


- TDS
- Static (BGS)
- Drawdown (BGS)
- TDS Trendline
- Static Groundwater Level Trendline

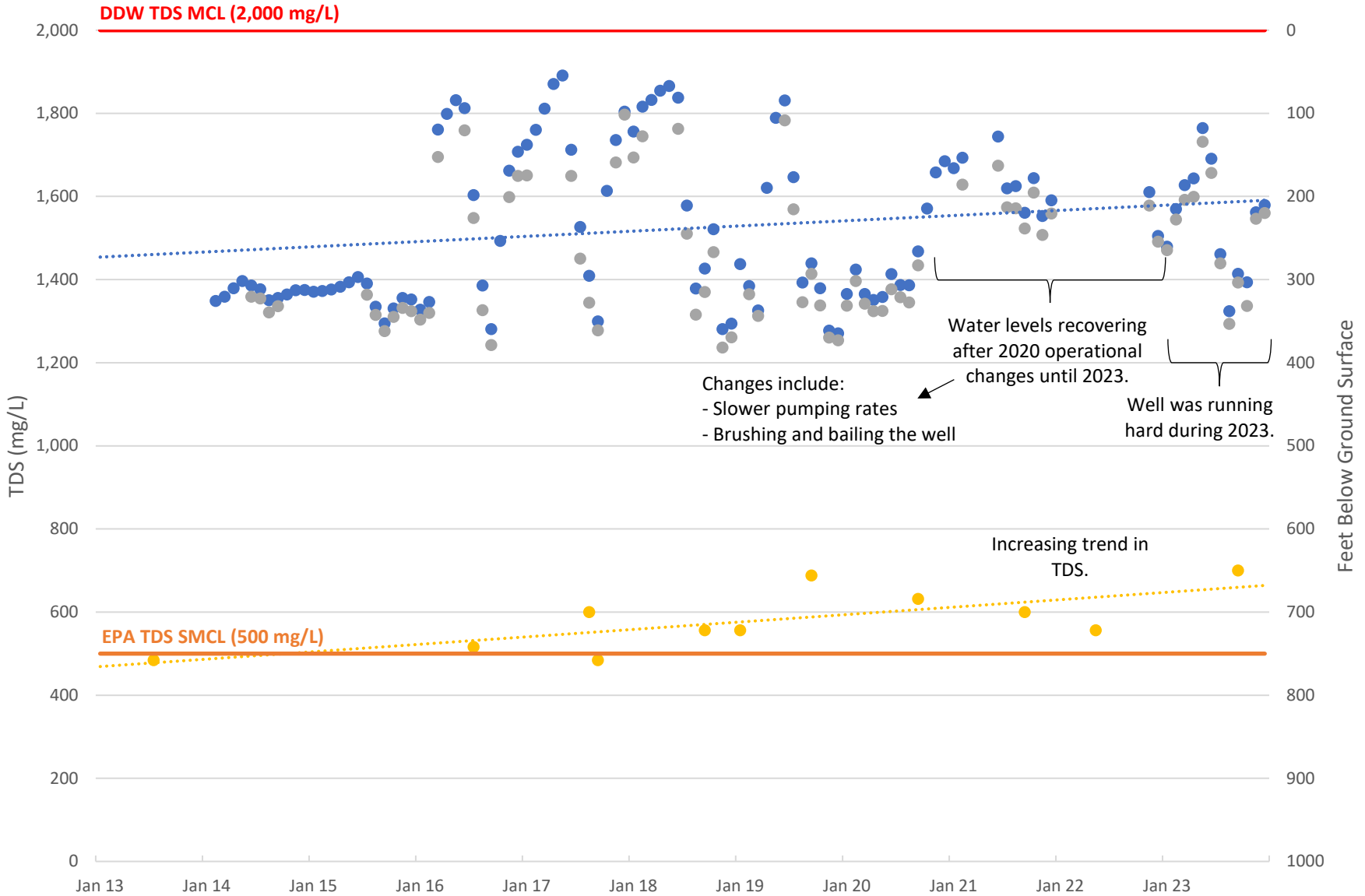
Silver Creek Well 10



Blackhawk Well 2R

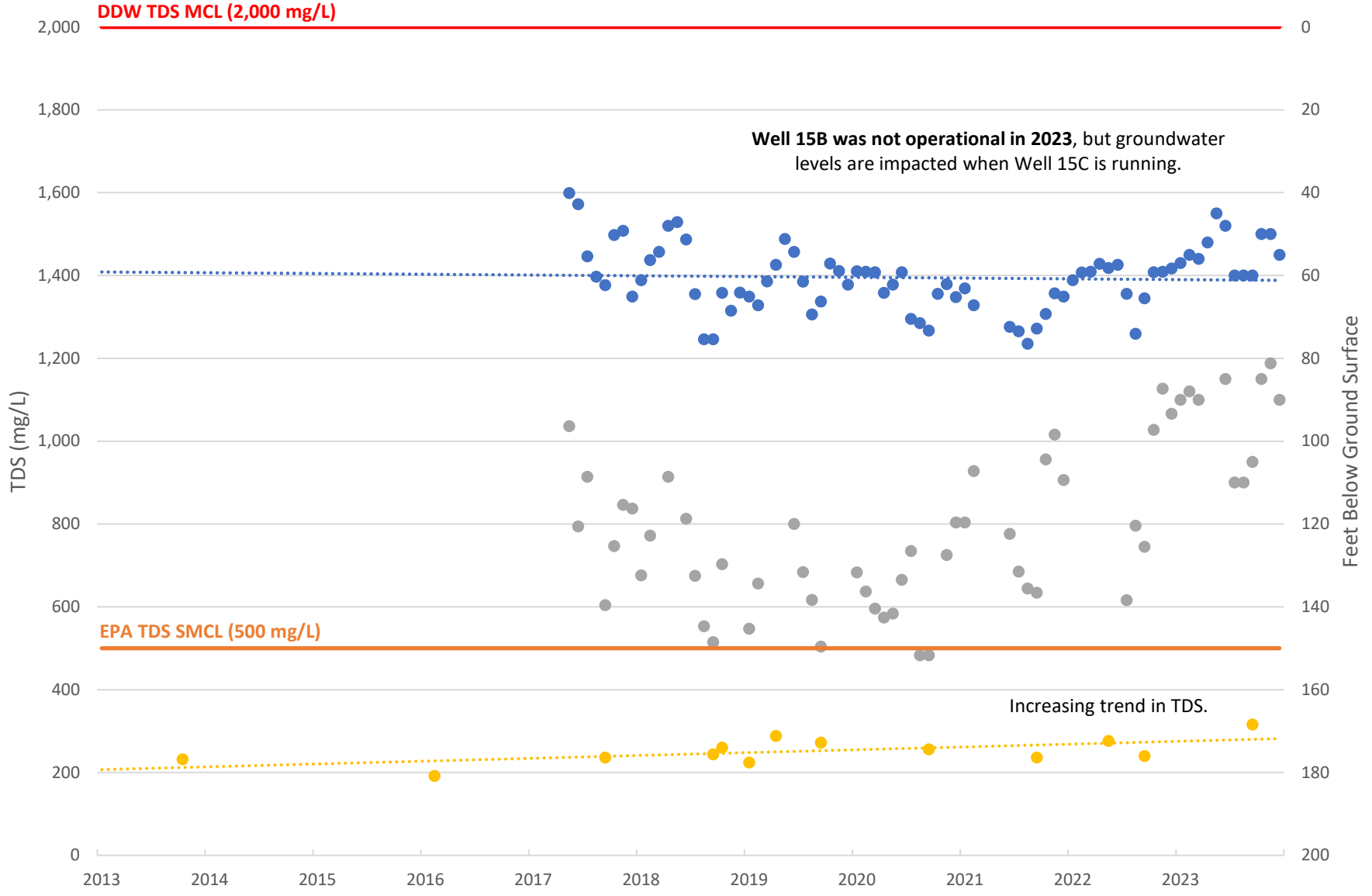


Gorgoza Well 6



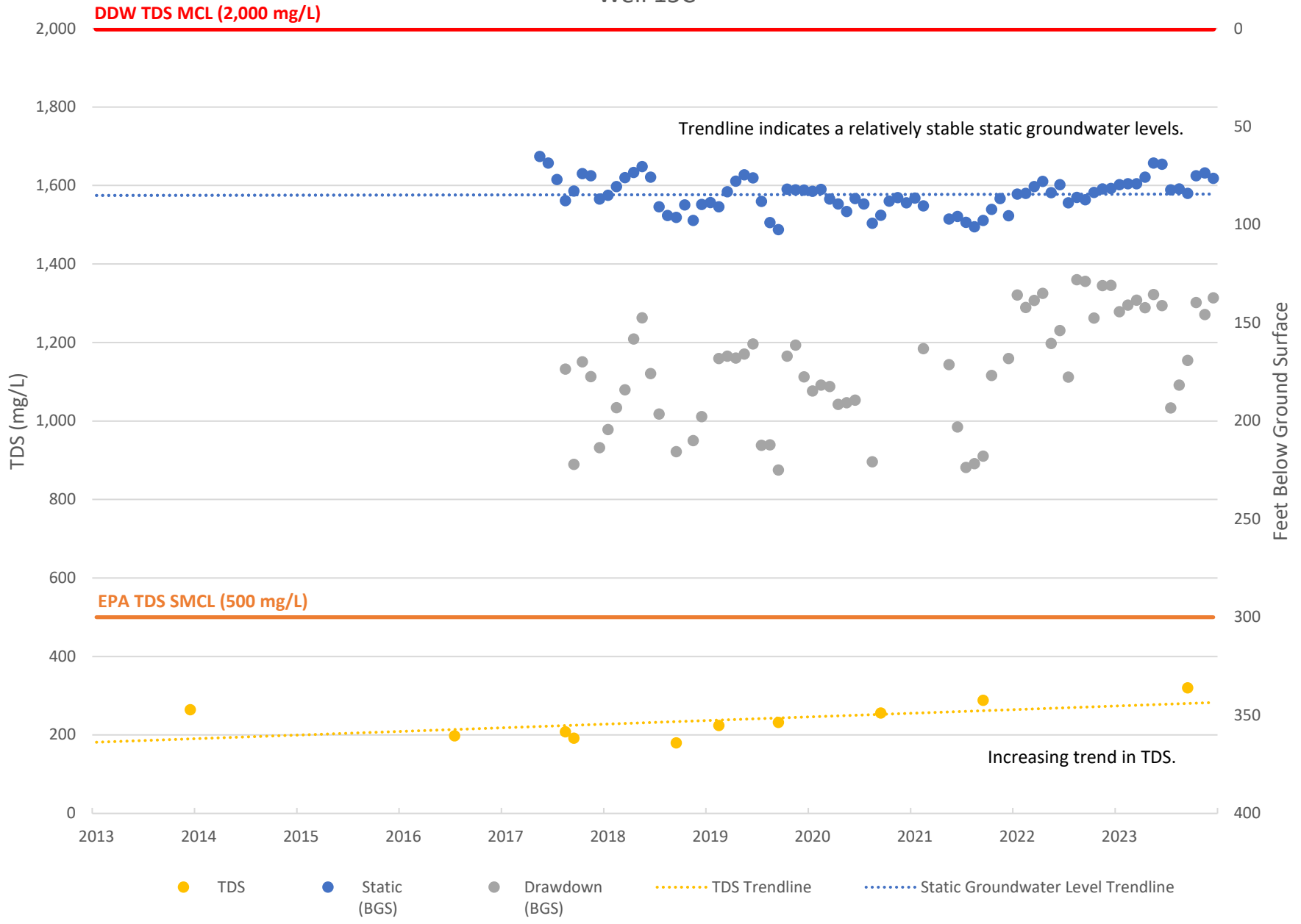
● TDS ● Static (BGS) ● Drawdown (BGS) TDS Trendline Static Groundwater Level Trendline

Well 15B

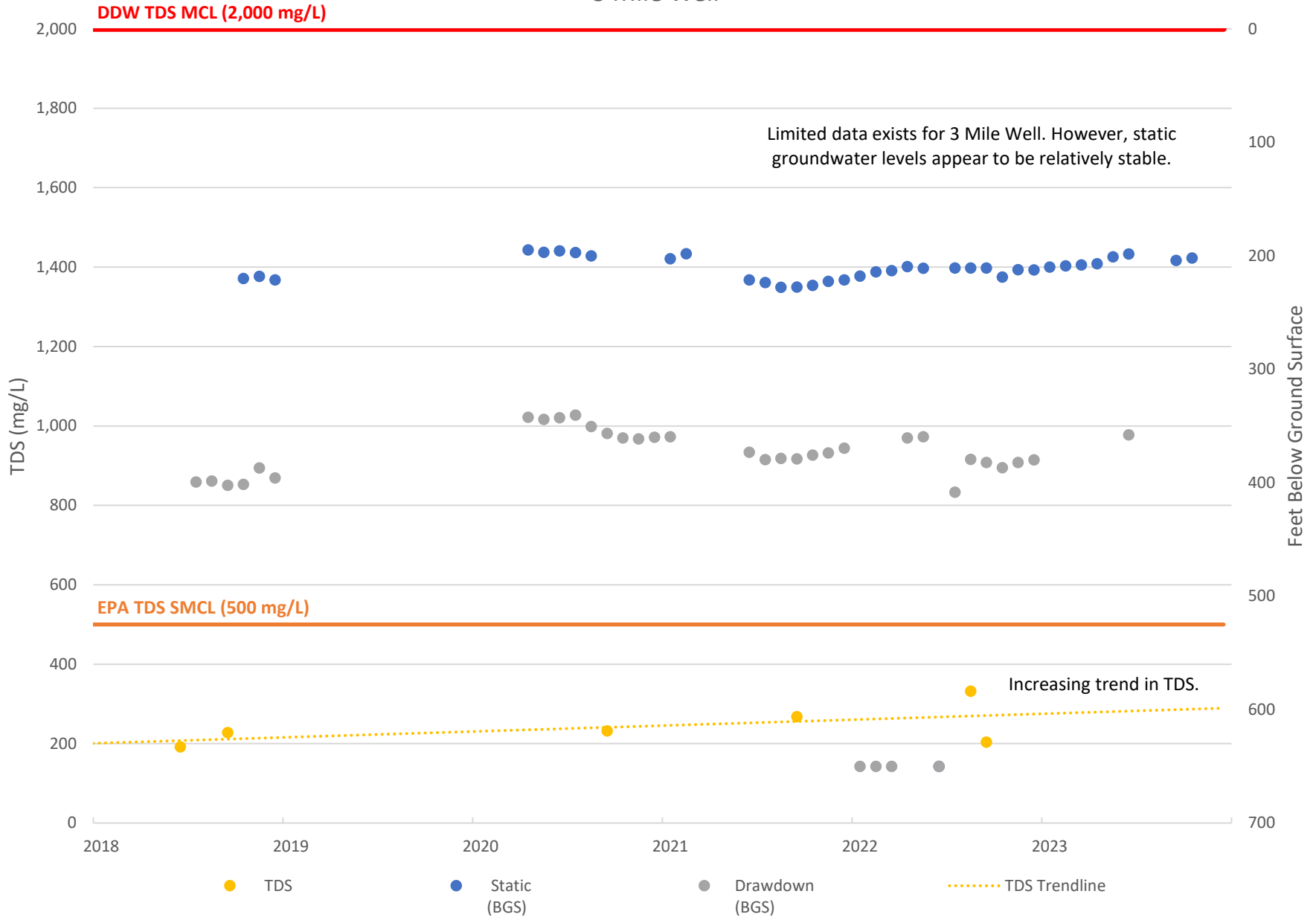


- TDS
- Static (BGS)
- Drawdown (BGS)
- TDS Trendline
- Static Groundwater Level Trendline

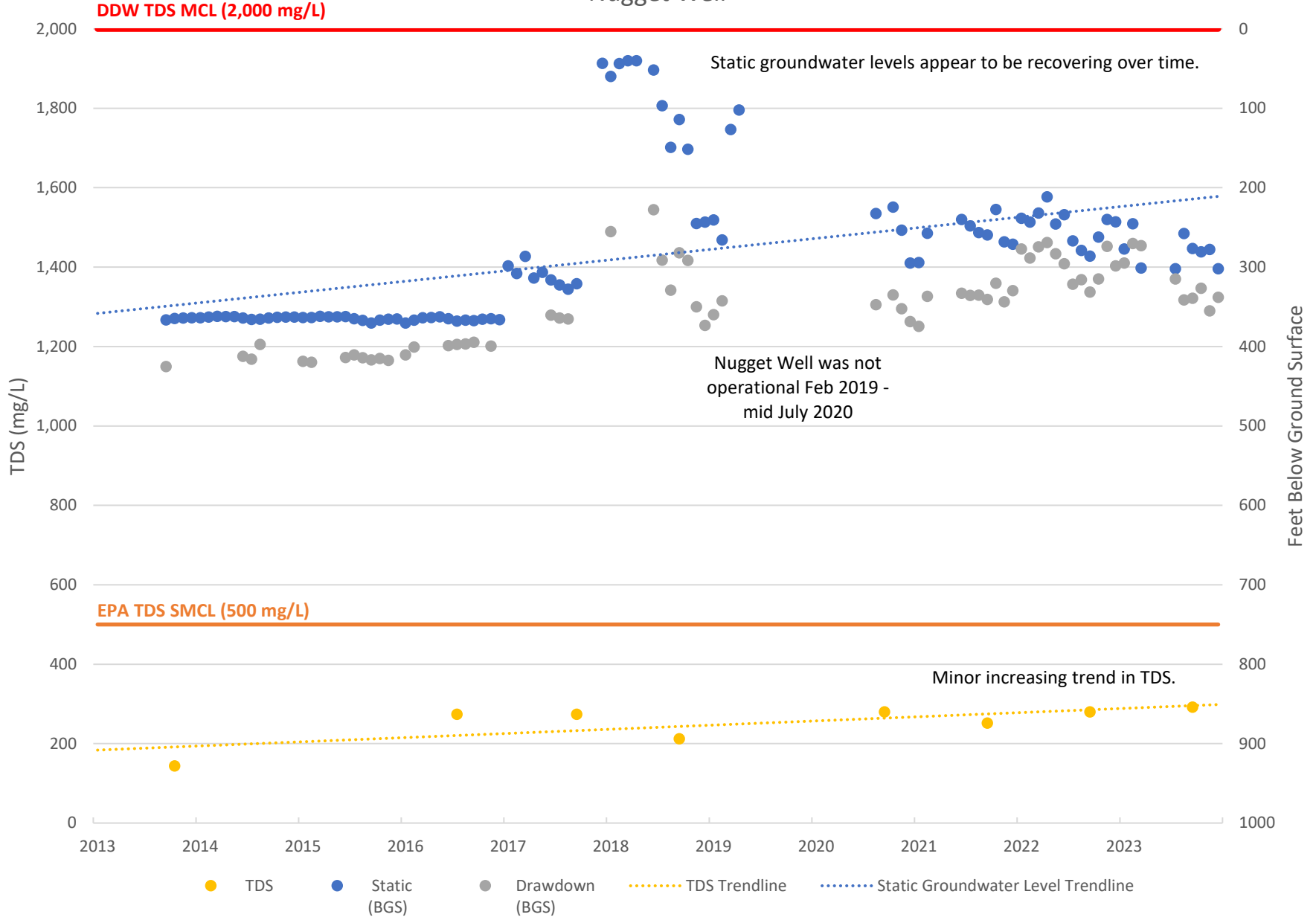
Well 15C

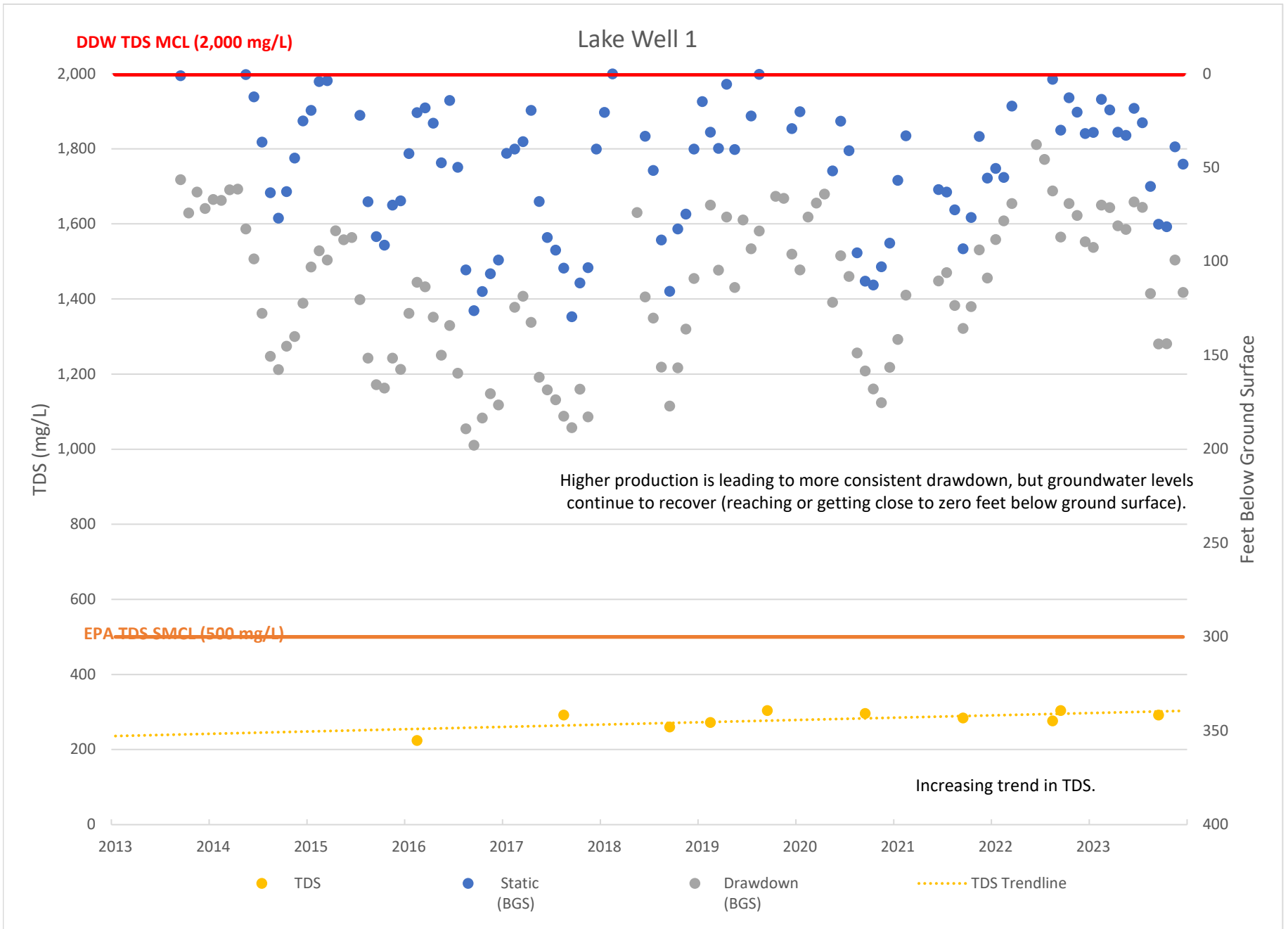


3 Mile Well



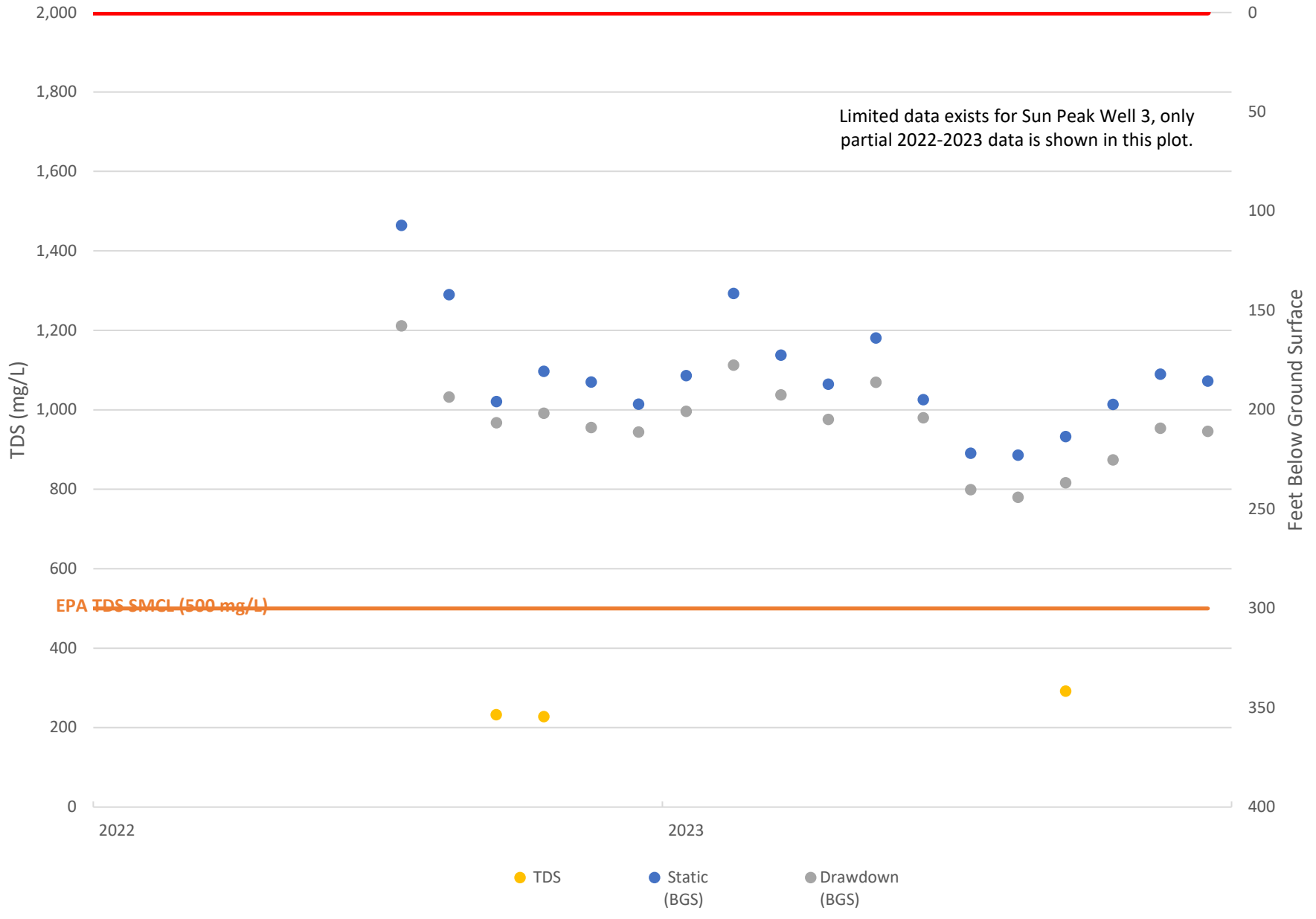
Nugget Well



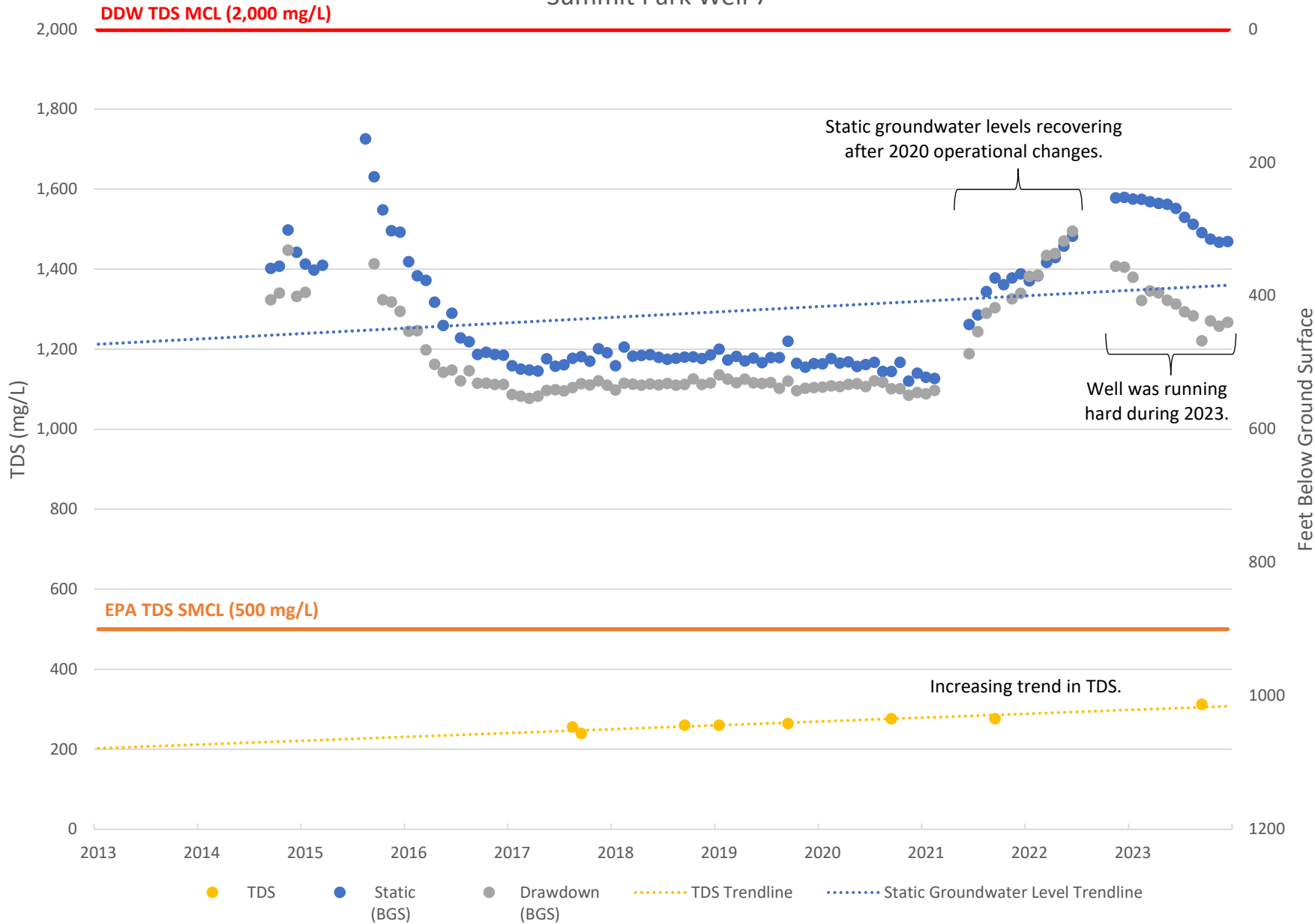


Sun Peak Well 3

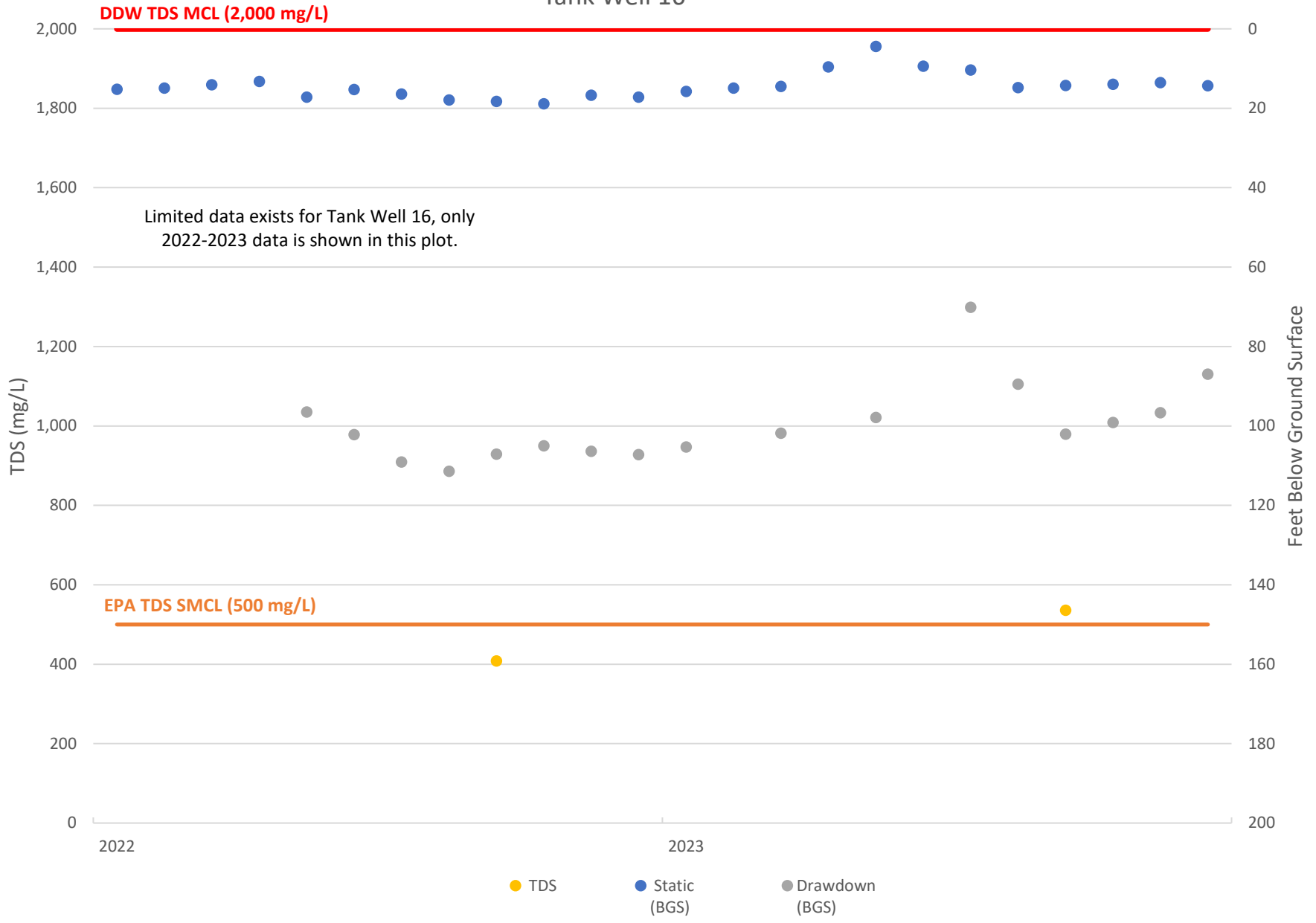
DDW TDS MCL (2,000 mg/L)



Summit Park Well 7



Tank Well 16



Wagon Trail Well 2



Gulch Well

