FEBRUARY ADVISORY COMMITTEE MEETINGS

Butte Valley Groundwater Advisory Committee Meeting

LARRY WALKER ASSOCIATES
science | policy | solutions

Stantec

Topics

- GSP Determination and Next Steps
- Annual Report Updates (Water Year 2023)
- Monitoring data review, network expansion, and data gaps
- Model Updates
- Implementation Projects and Schedule Updates
- DMS Introduction and Summary

GSP Determination and Next Steps

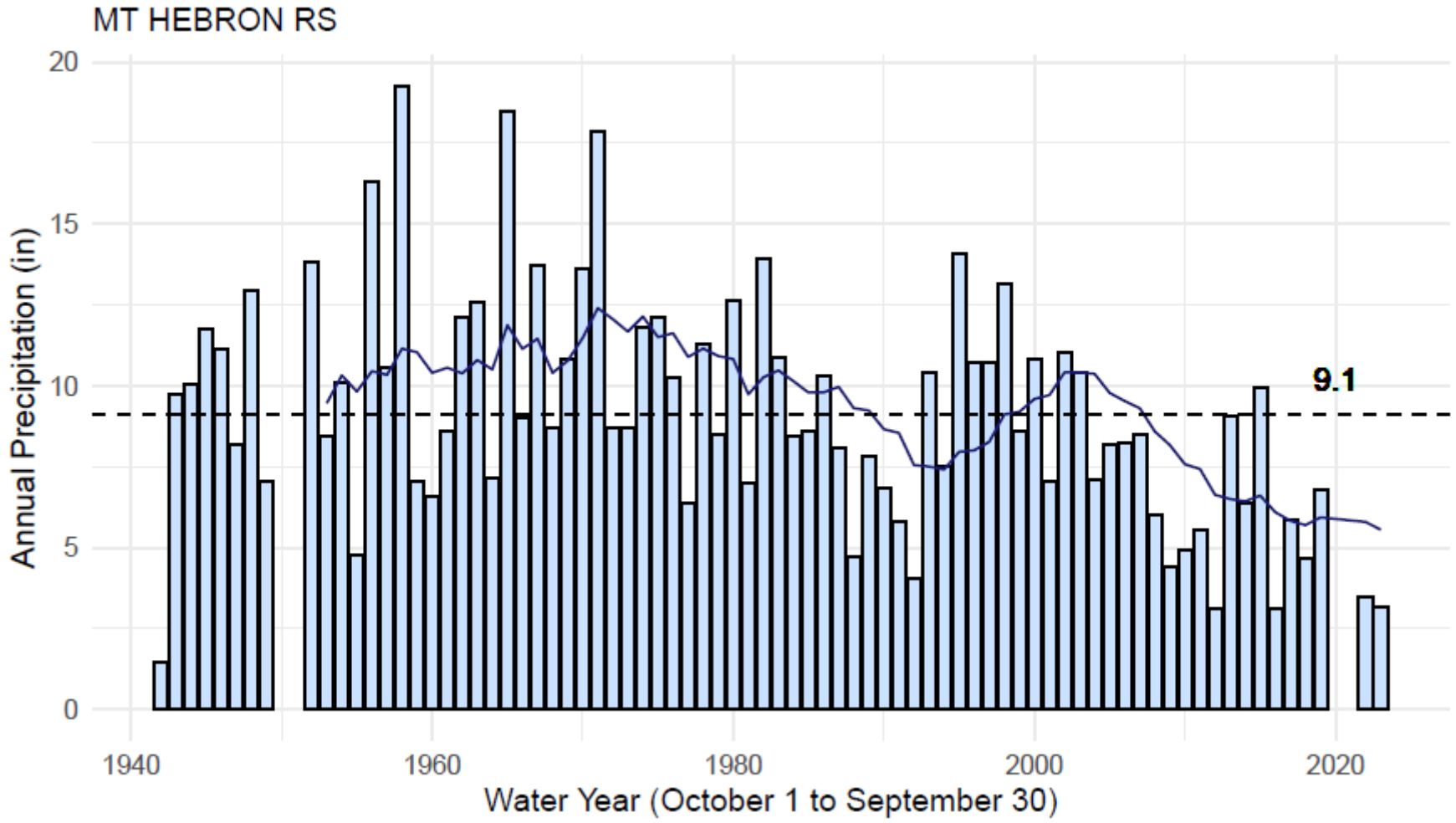
- Two corrective actions required for GSP approval
- **Corrective Action 1 -** Reconduct the assessment of overdraft conditions and describe management actions to mitigate overdraft.
  - Refine the water budget, and better understand overdraft/no overdraft
  - Provide “reasonable means” to mitigate overdraft (describe feasible management actions)
- **Corrective Action 2 -** Further justify the SMCs set for water levels, and quantitatively describe the effects of the criteria on users of groundwater.
  - Describe the specific, quantitative undesirable results that are planned to be avoided
  - MTs should be set at a level where depletion of supply across the Basin may lead to undesirable results

GSP Determination and Next Steps

- Monthly meetings with DWR
- Refinement of water budget
- Review of model results and boundary conditions
- Quantitative description of undesirable results for users of groundwater

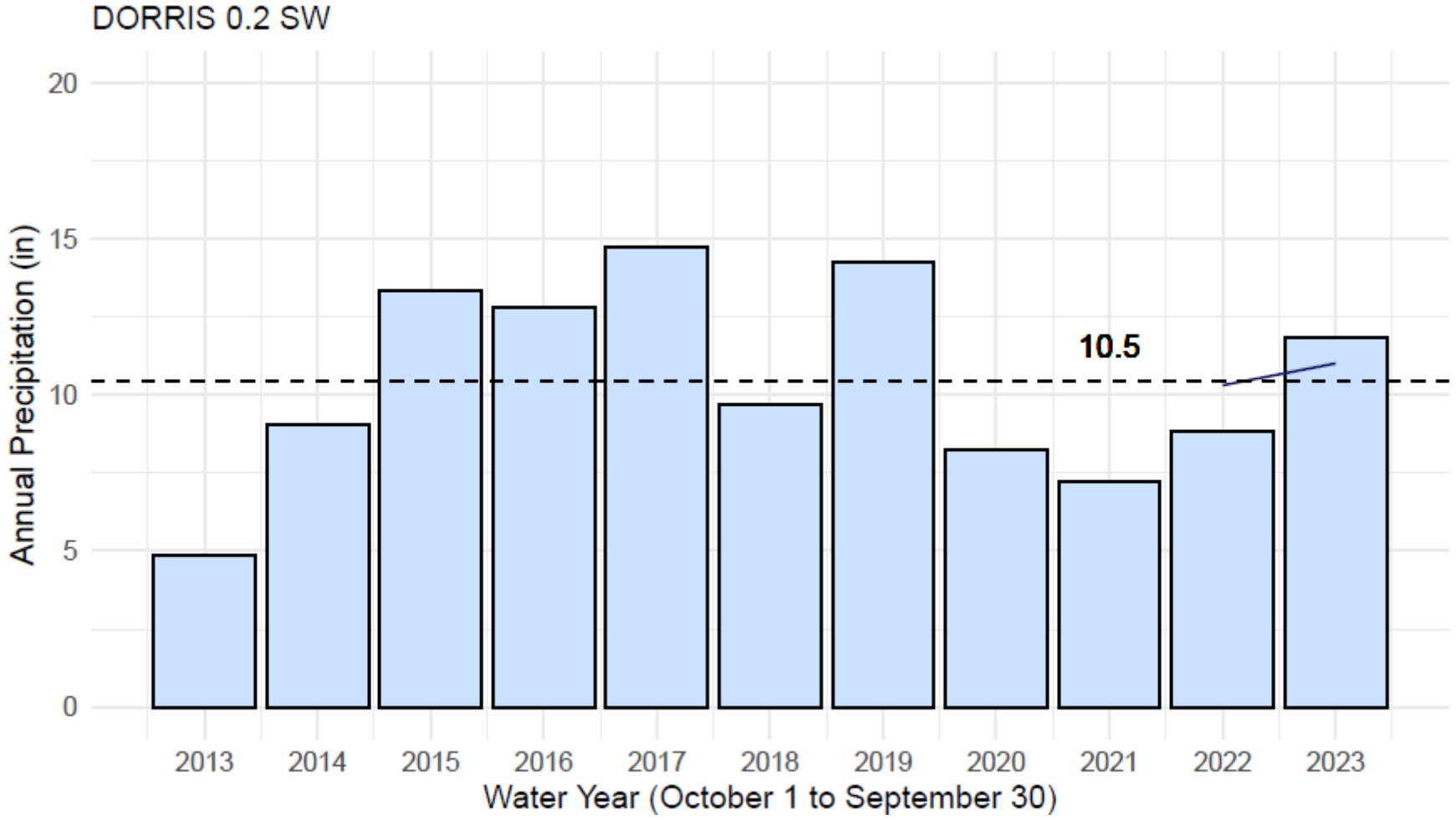
Annual Report Updates

Hydrologic Conditions-Precipitation



Annual Report Updates

Hydrologic Conditions-Precipitation



Annual Report Updates

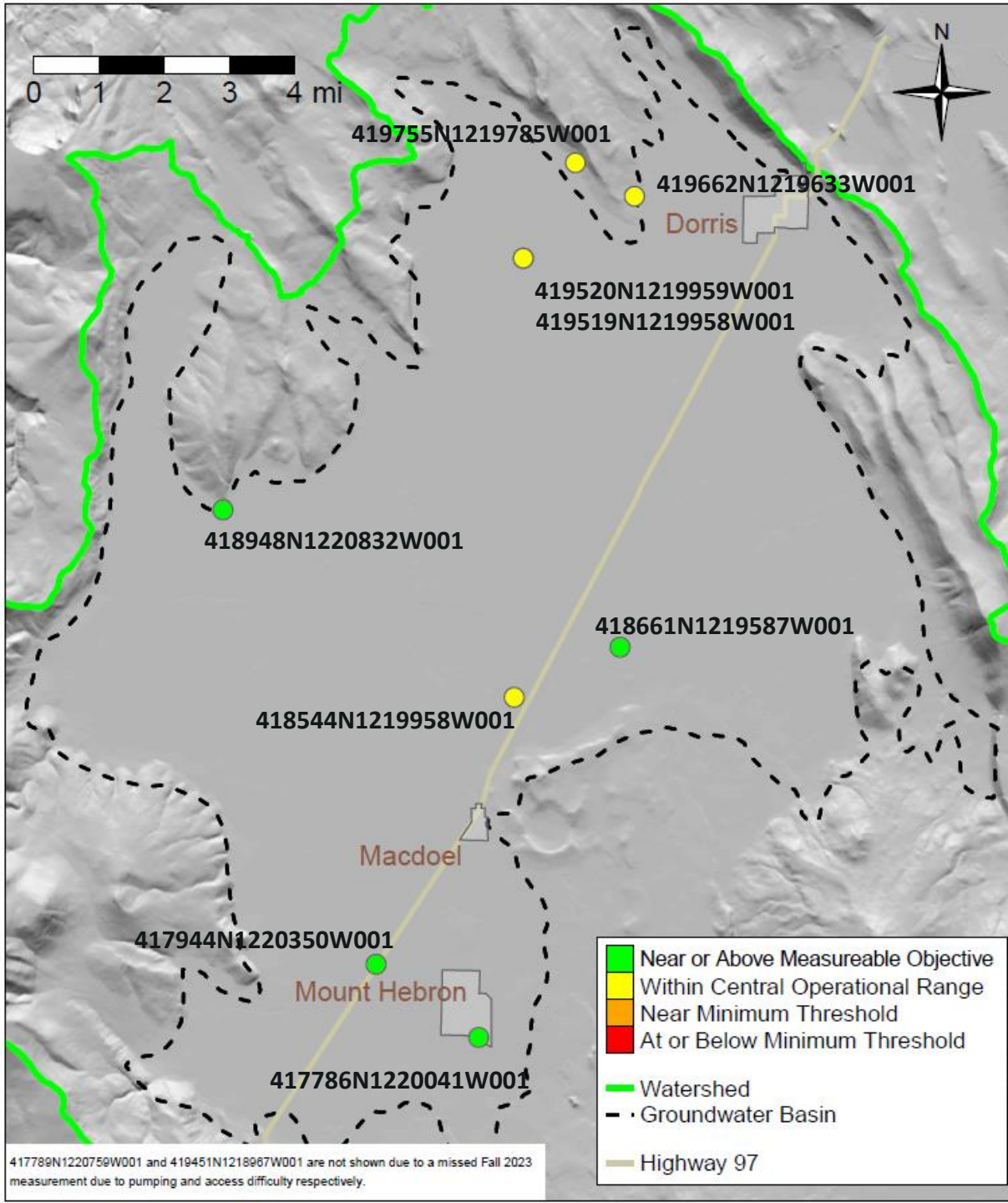
WY 2023 RMP Status

Representative Monitoring Point/Well	WY 2023 Minimum (ft)	WY 2023 Maximum (ft)	Measurable Objective Minimum (ft)	Measurable Objective Maximum (ft)	First Manage-ment Action Trigger (ft)	Soft Landing Trigger (ft)	Extended Minimum Thresh-old (ft)
417786N1220041W001	4177.83	4186.33	4181	4225	4163.0	4145	4130
417789N1220759W001	4192.91	4212.51	4213	4237	4208.0	4203	4188
417944N1220350W001	4211.33	4229.83	4190	4225	4187.5	4185	4170
418512N1219183W001	NA	NA	4193	4214	4187.0	4181	4166
418544N1219958W001	4206.32	4206.82	4211	4224	4203.0	4195	4180
418661N1219587W001	4184.50	4184.50	4186	4214	4174.5	4163	4148
418948N1220832W001	NA	NA	4193	4216	4181.5	4170	4155
419021N1219431W001	NA	NA	4203	4216	4196.0	4189	4174
419451N1218967W001	4142.23	4149.03	4129	4158	4126.5	4124	4109
419519N1219958W001	4224.44	4224.84	4229	4237	4226.0	4223	4208
419520N1219959W001	4228.64	4228.84	4231	4242	4228.5	4226	4211
419662N1219633W001	4152.76	4176.46	4161	4199	4150.0	4139	4124
419755N1219785W001	4170.40	4188.90	4187	4217	4179.0	4171	4156

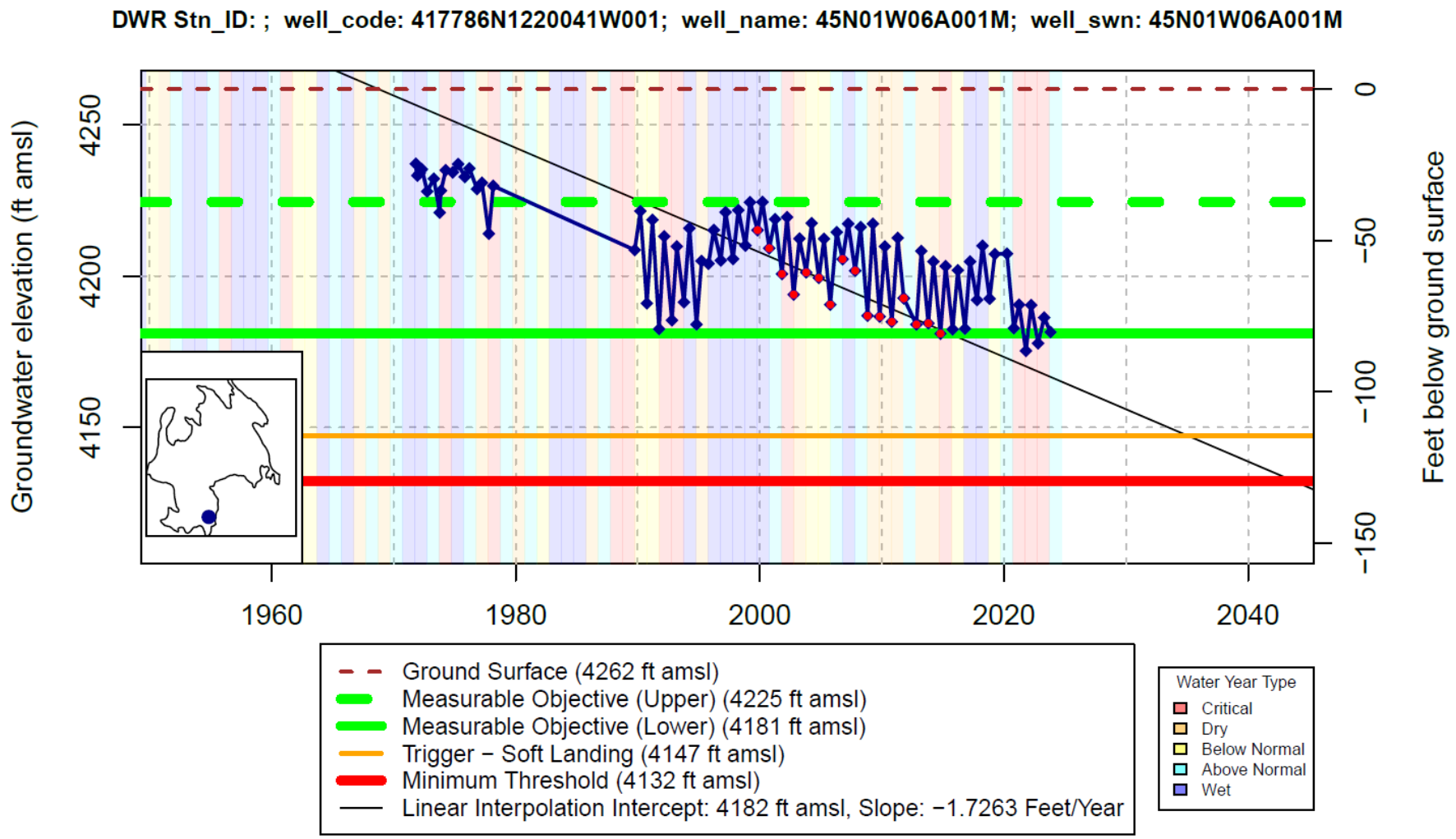
Annual Report Updates

Status of Water Level RMPs

- Fall 2023

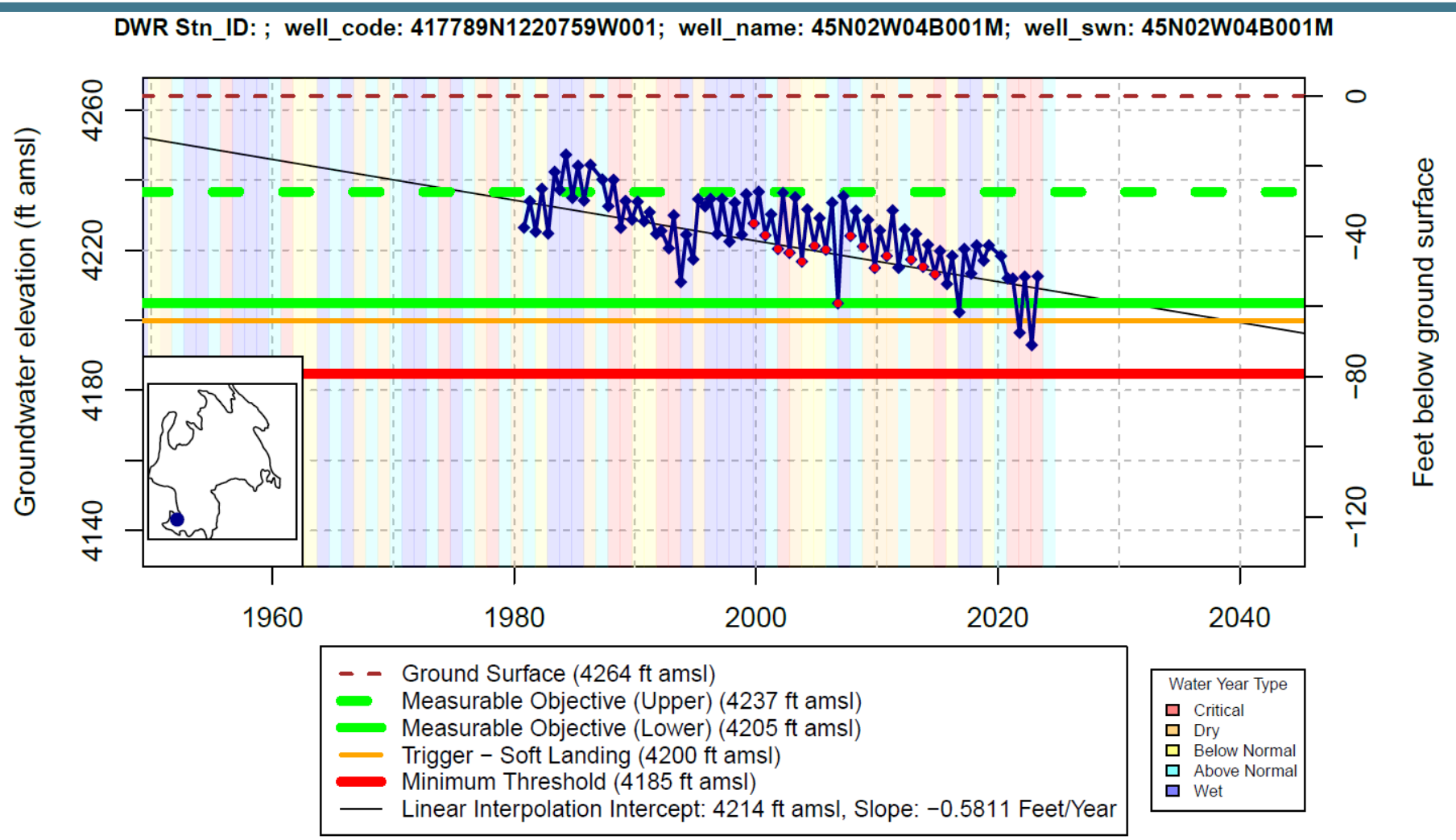


Groundwater Level Updates



Water Year Types from WY 2019−2023 are preliminary results calculated based on SGMA Water Year Type Dataset Development Report. The results will be finalized once DWR updates the water year type dataset for these years.

Groundwater Level Updates



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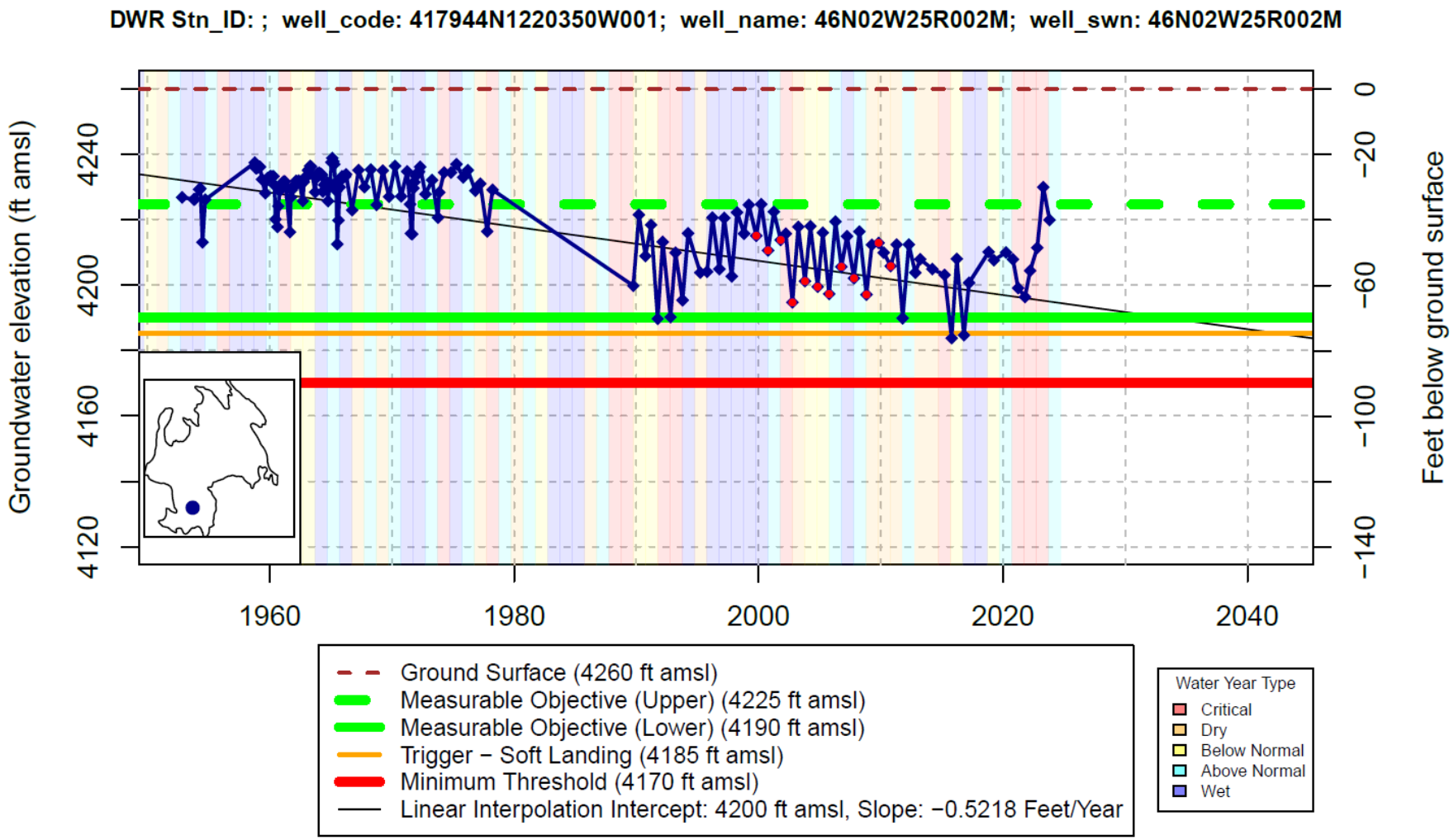

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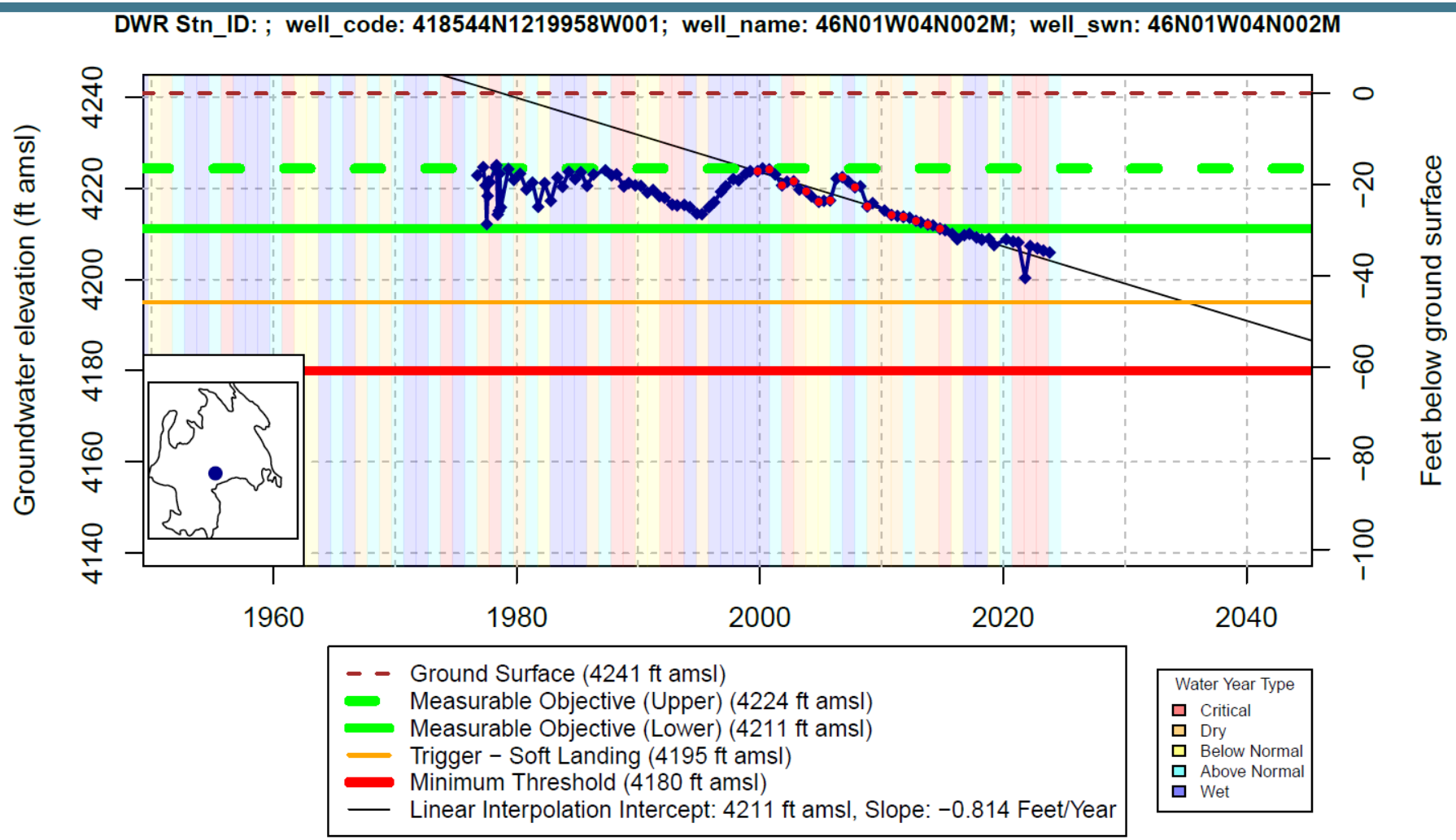

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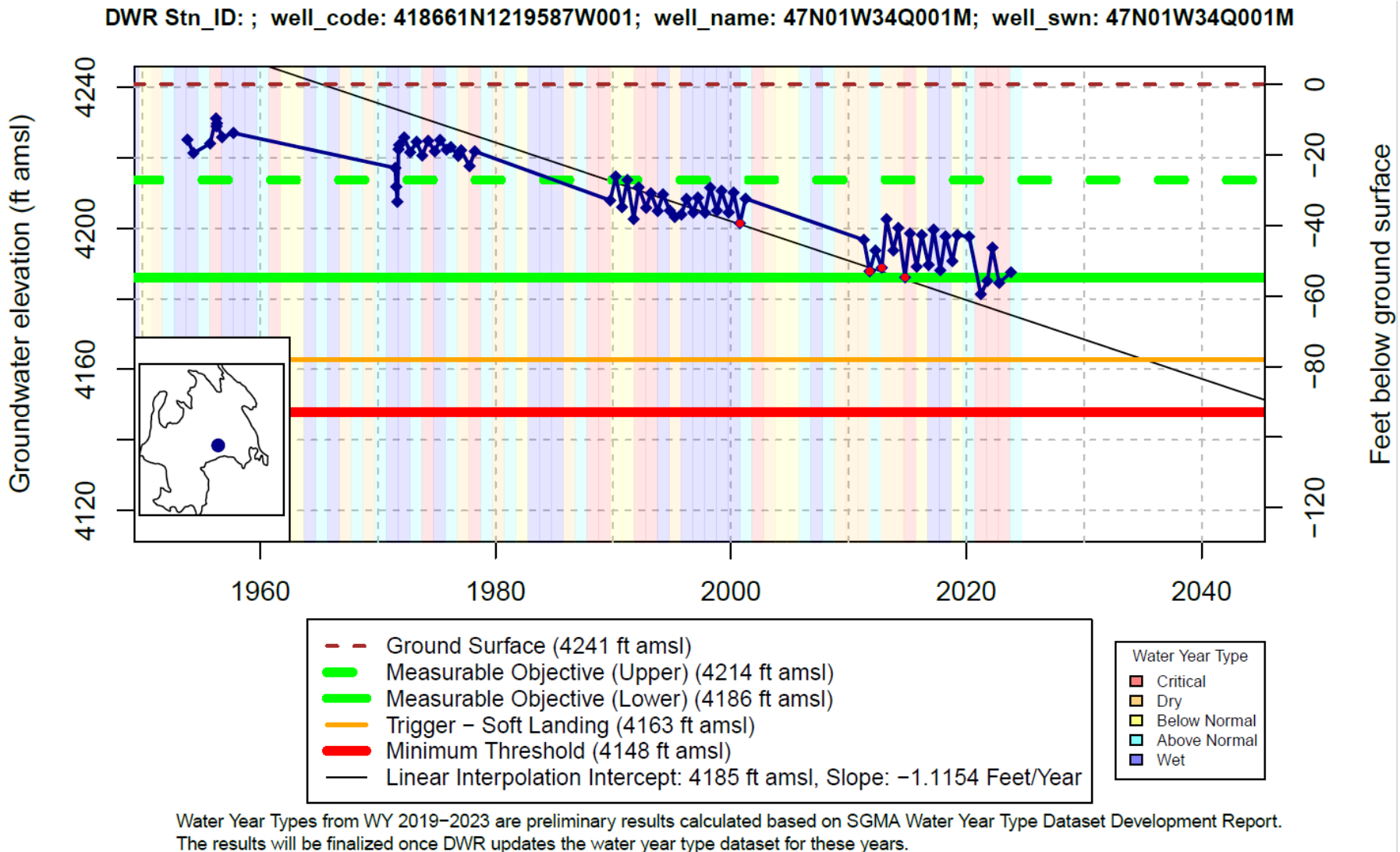

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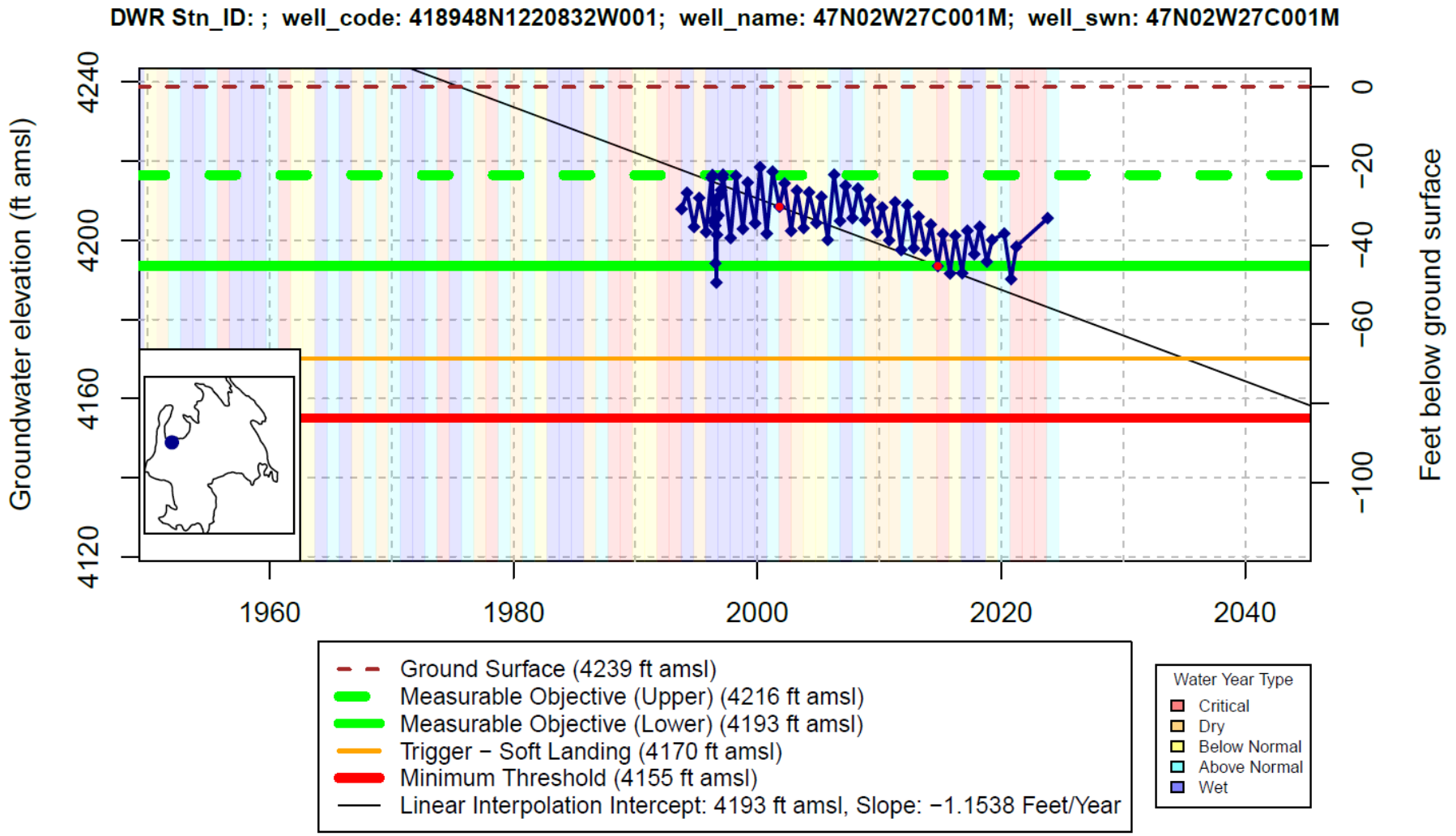

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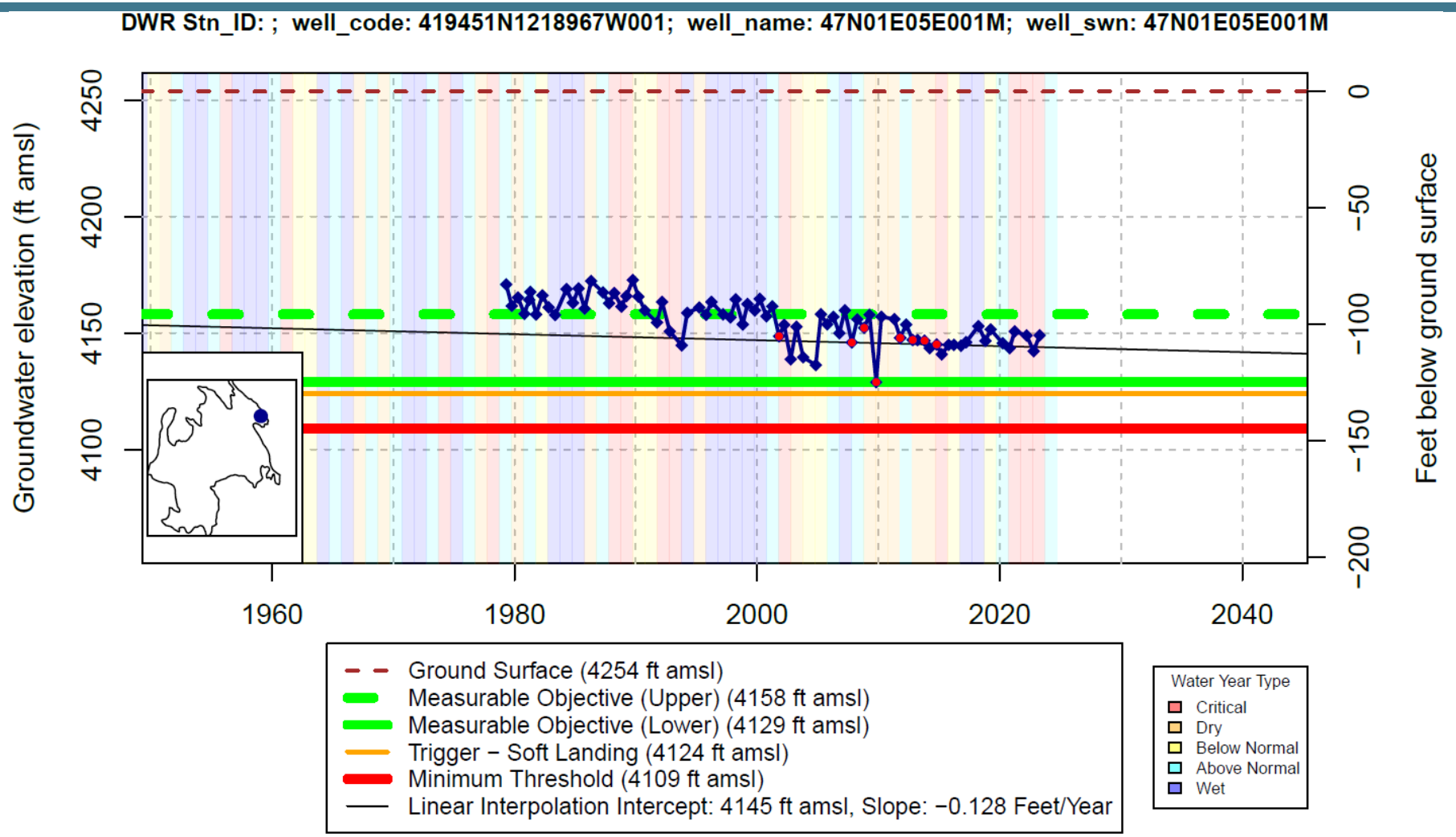

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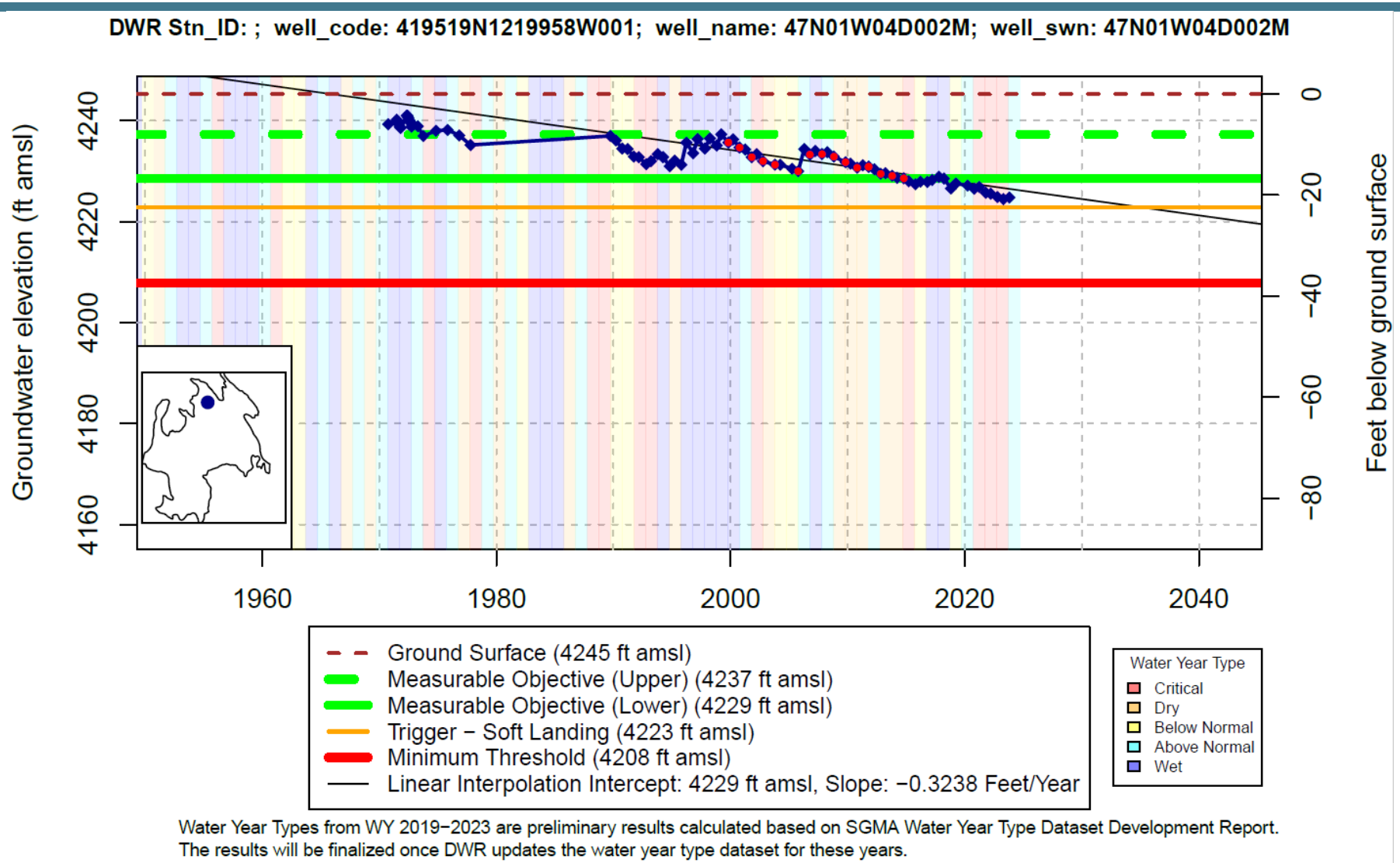

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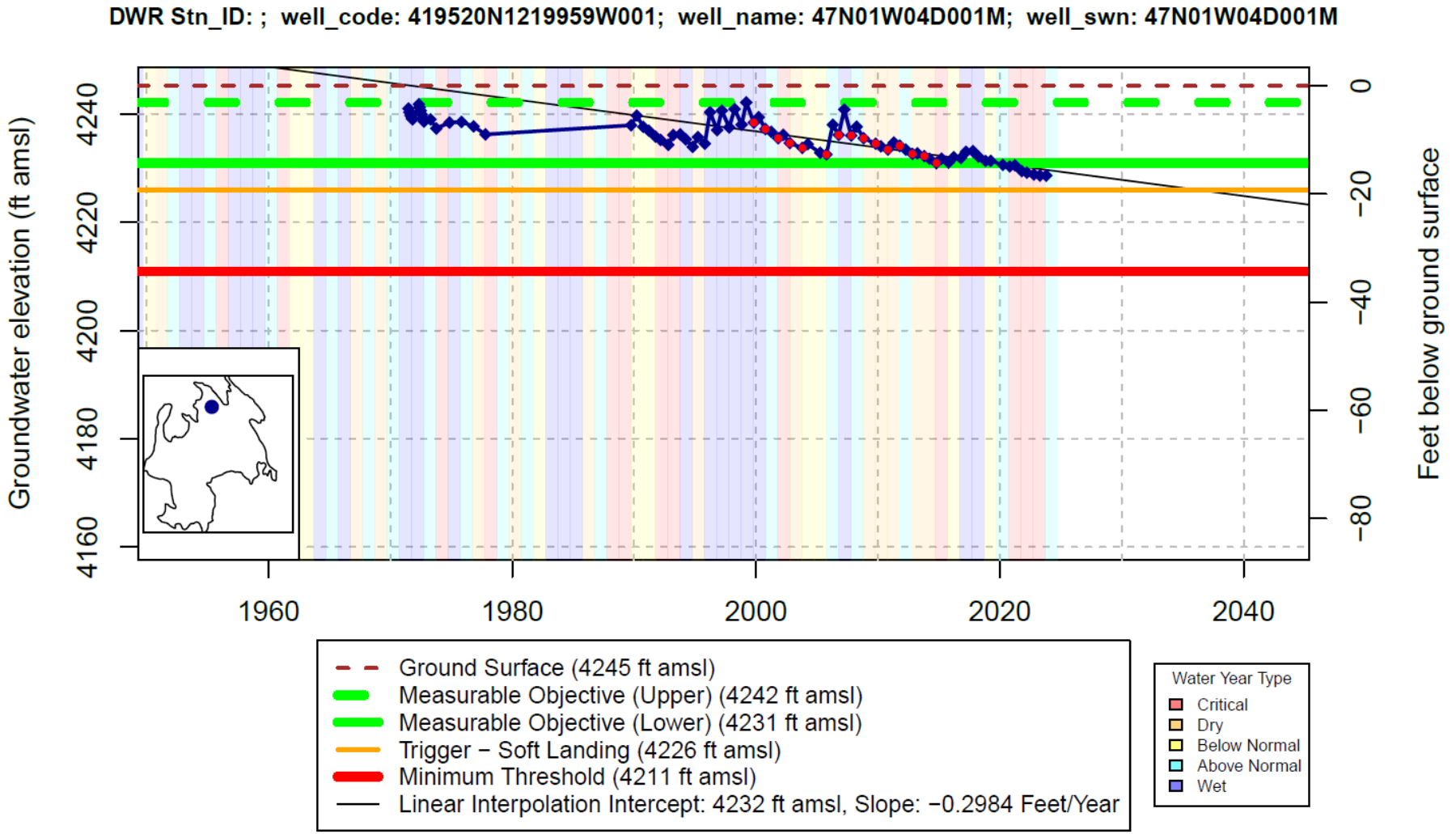

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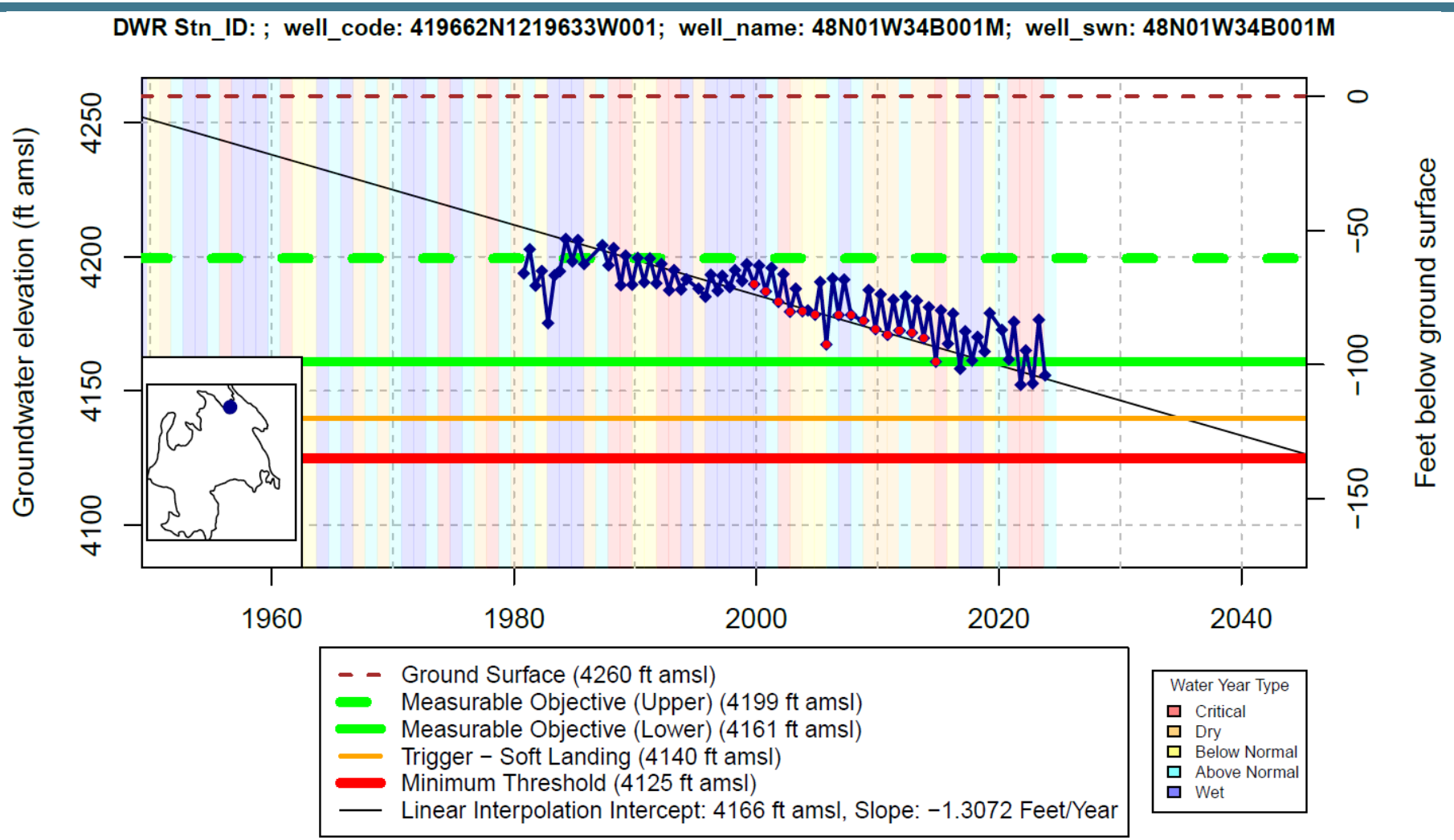

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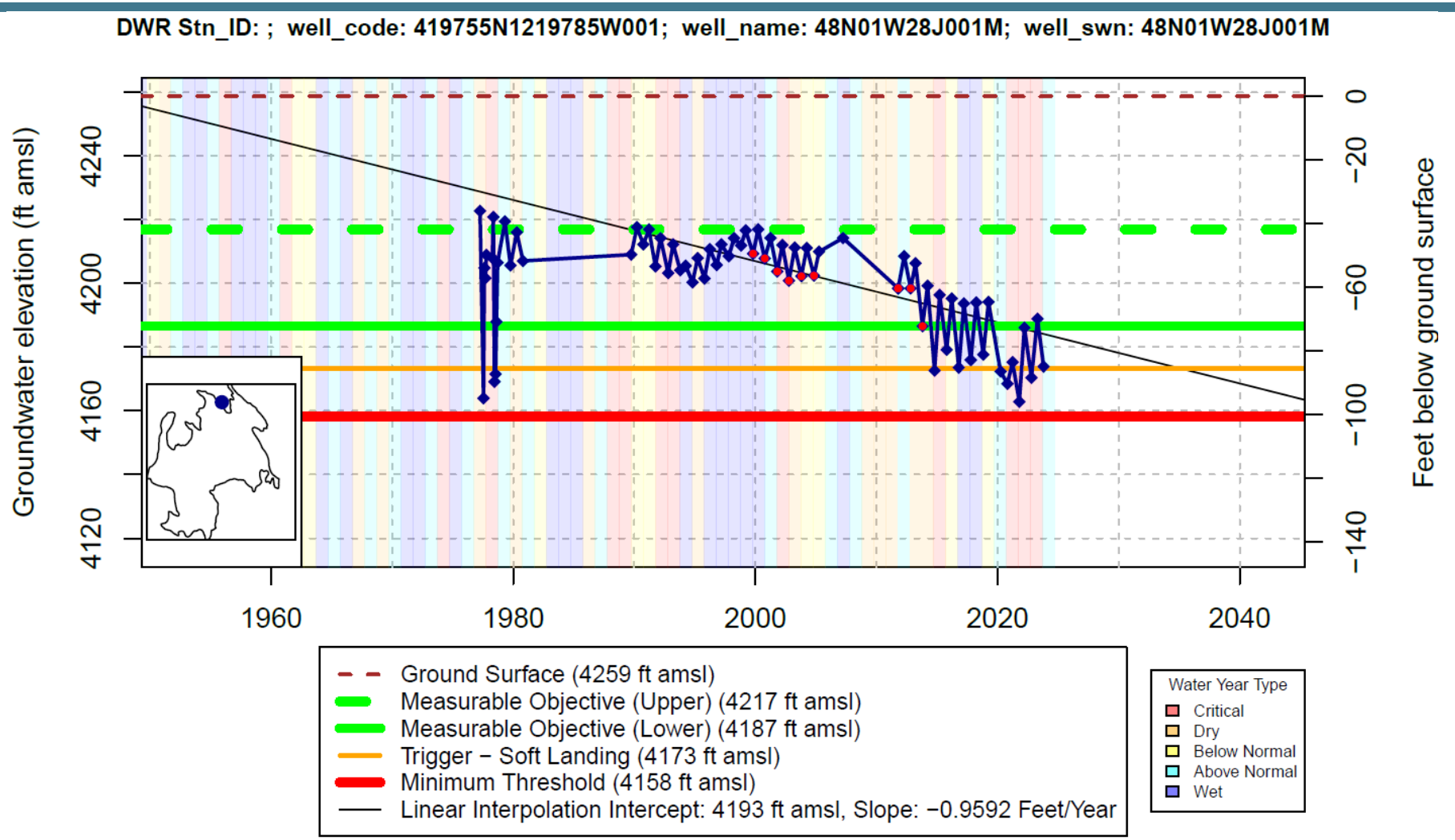

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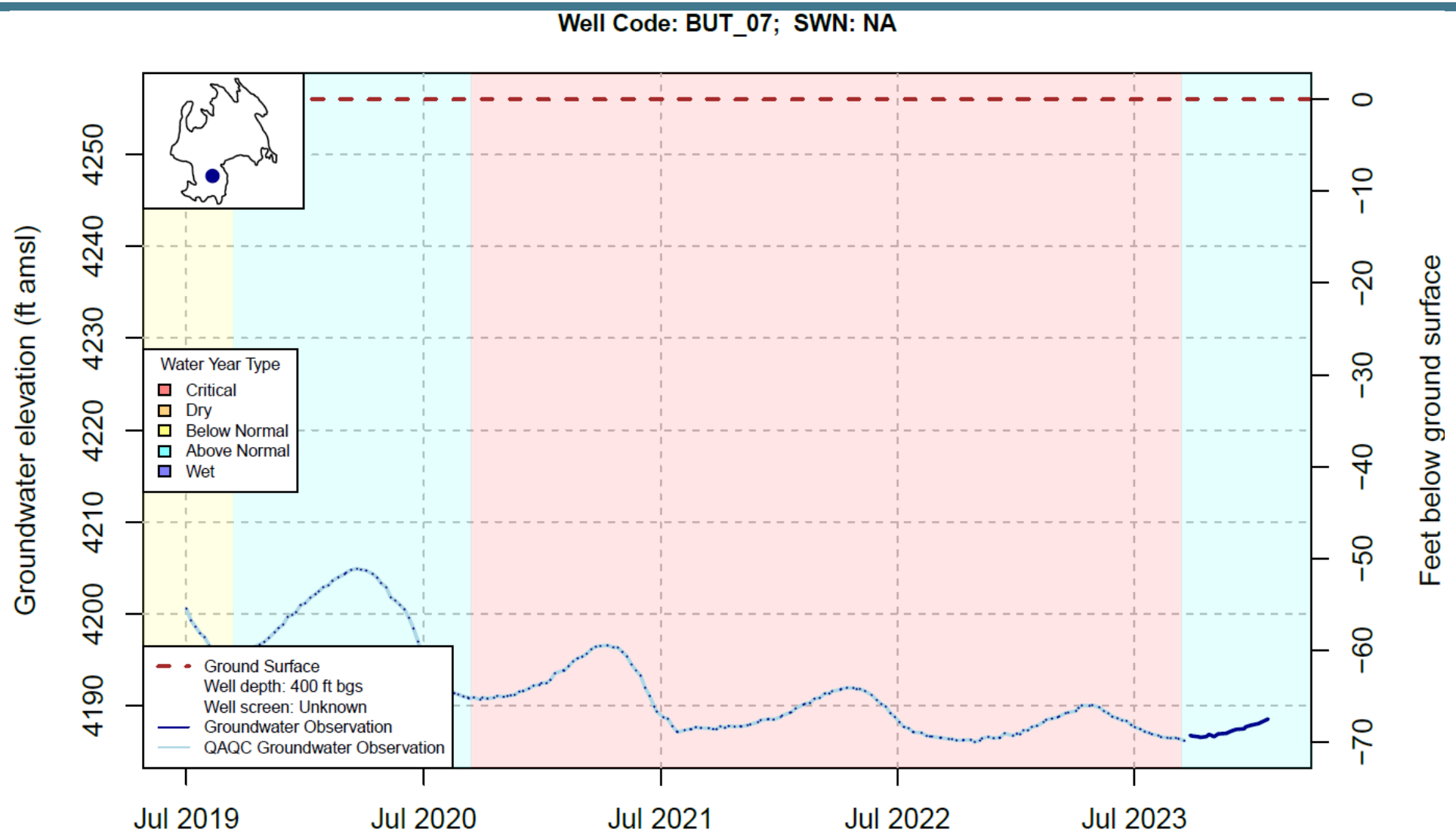
Additional Continuous Hydrographs

Annual Report Water Year 2023

Groundwater Level Updates



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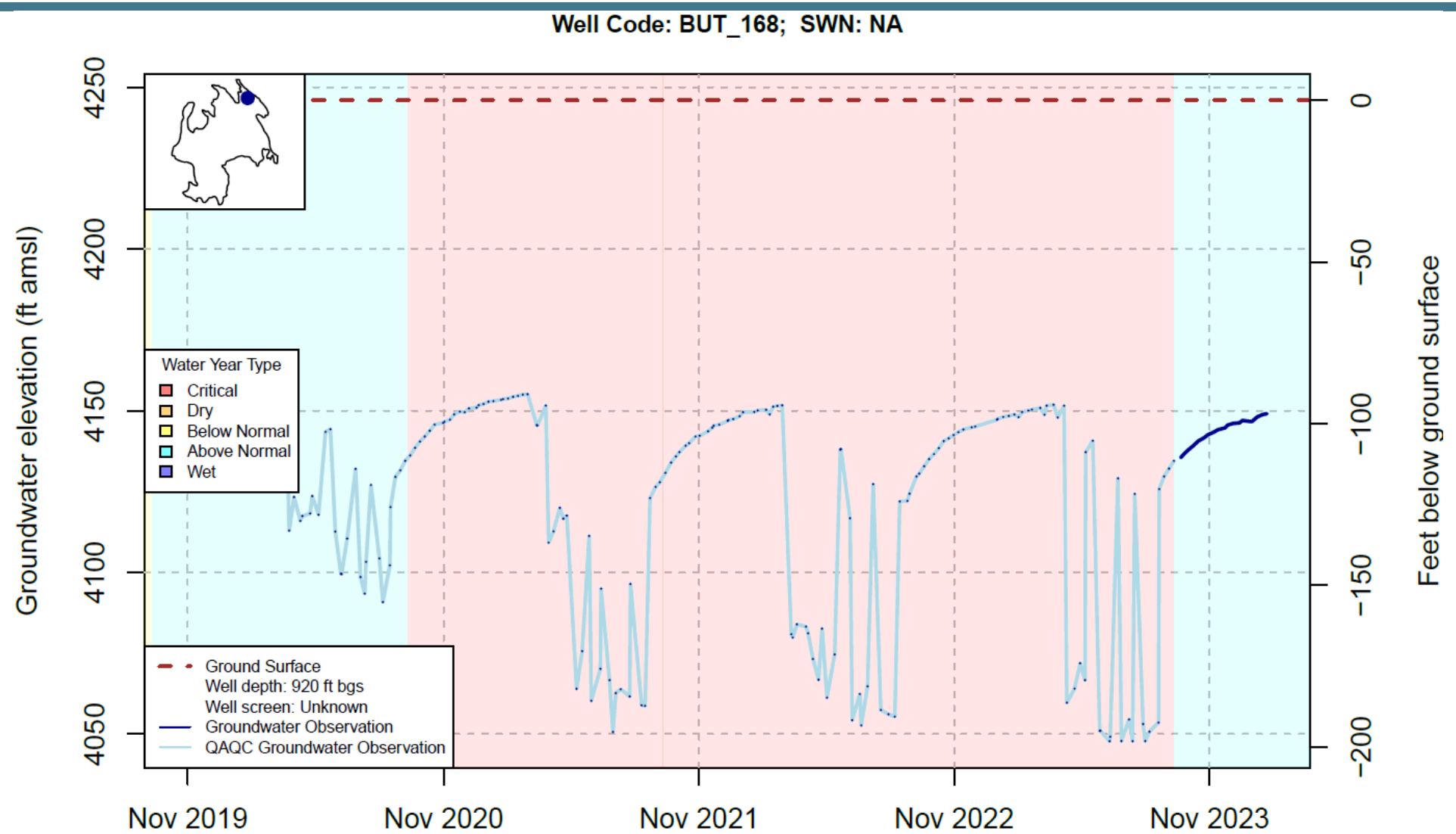
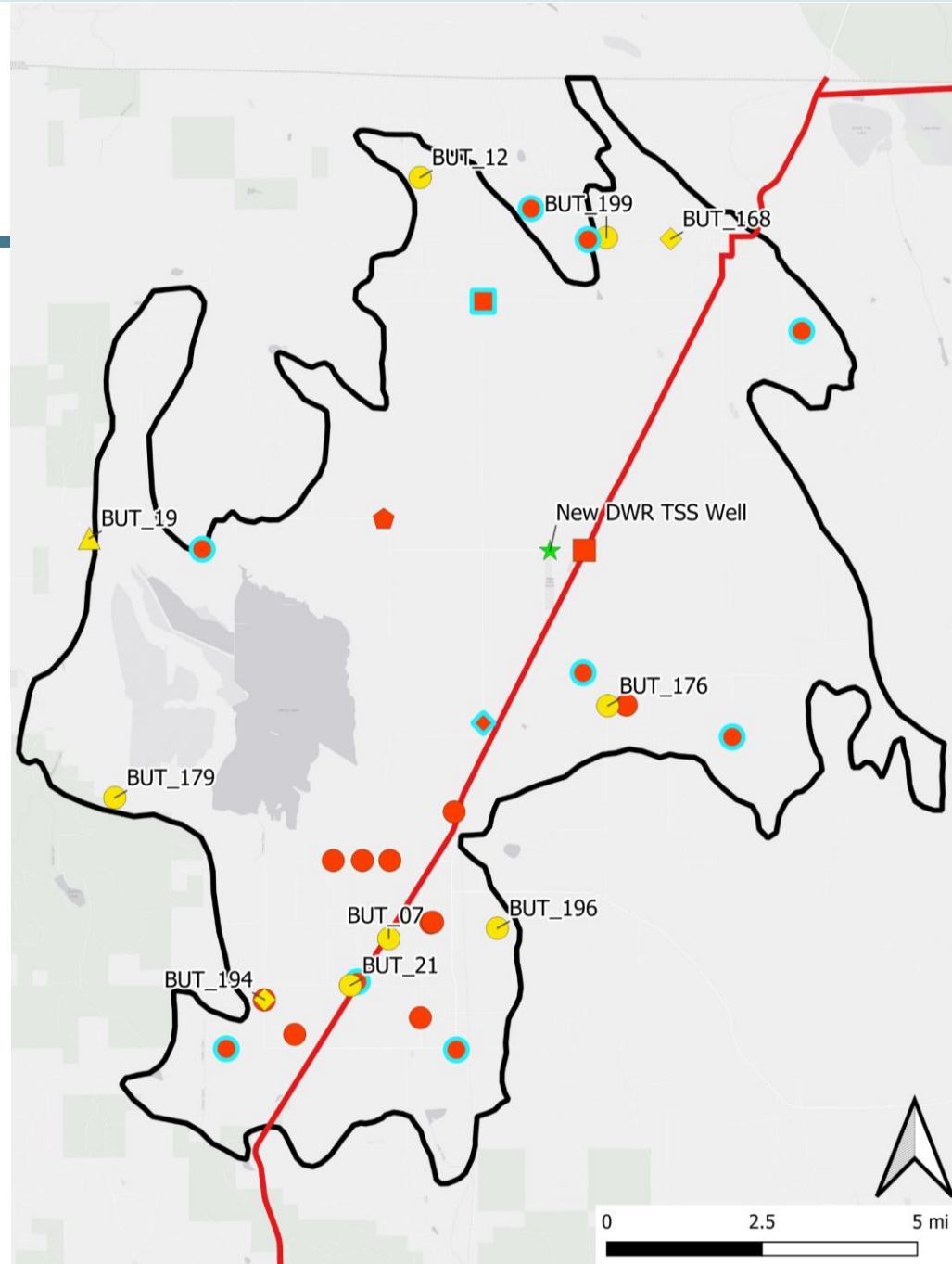


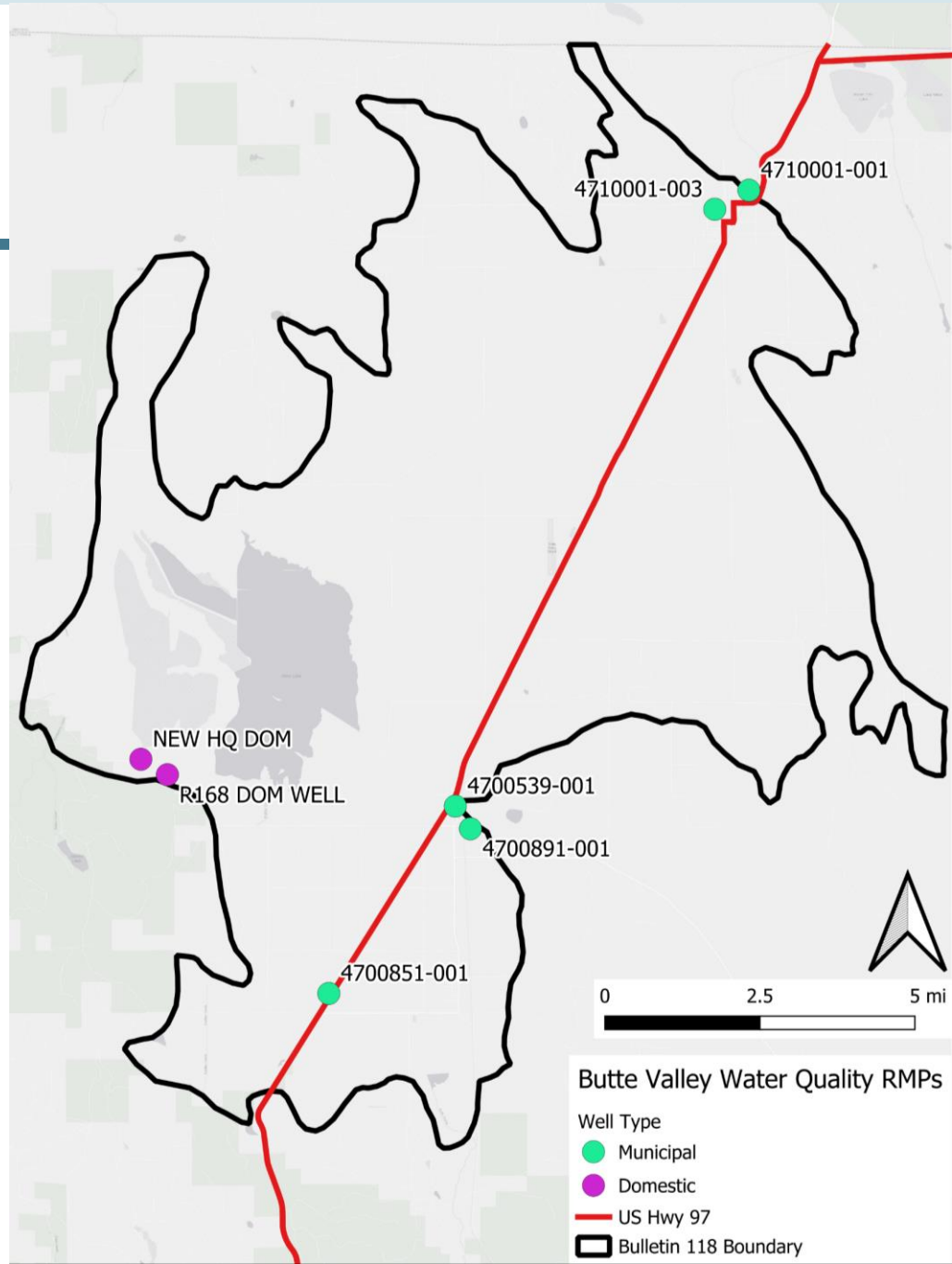
Groundwater Level Monitoring

- 10 LWA wells
  - Measured continuously
  - 7 irrigation
  - 1 residential
  - 2 other
- 24 CASGEM Wells
  - Measured twice per year
  - 19 irrigation
  - 3 observation
  - 1 stockwatering
  - 1 other
- 1 New DWR TSS Well



Groundwater Quality Monitoring

- 5 Municipal Wells
- 2 Domestic Wells
- SMCs set for:
  - Arsenic
  - Specific conductivity
  - Nitrate



Monitoring data, monitoring network expansion, data gaps

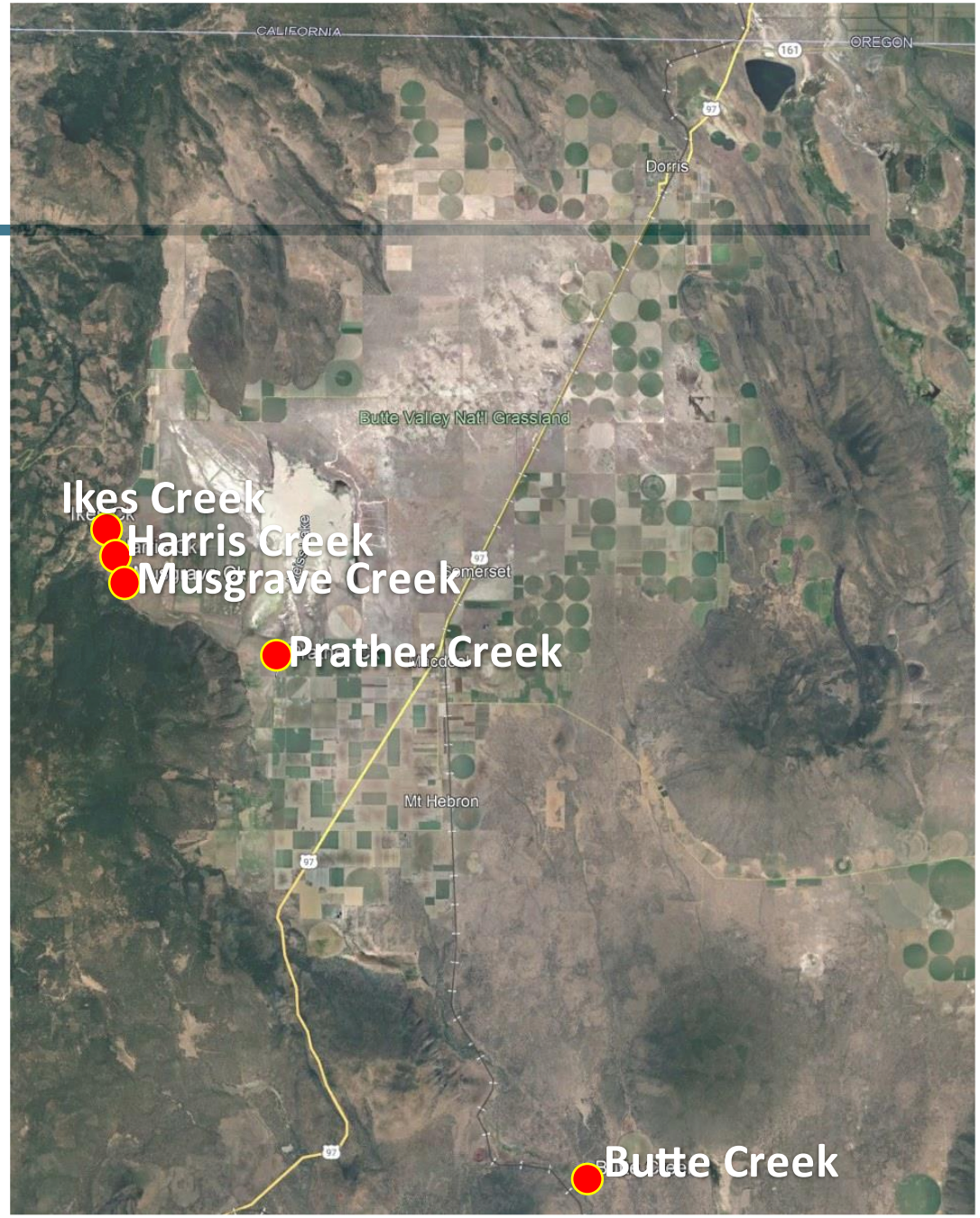
Data Gap Work Group Meeting Outcomes

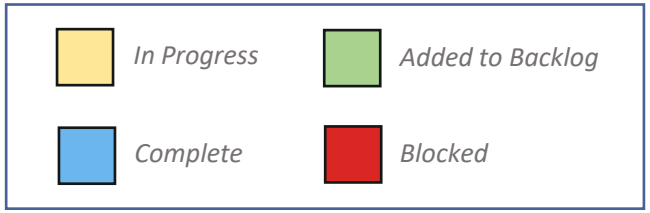
- High Priority
  - Snow station
  - Stream gage additions
- Medium
  - Expanded isotope and noble gas sampling
- Low
  - GDE identification and ground truth evaluation

- Pesticide sampling: two-time sampling of wells for pesticides
- Surface flows and interconnected surface water
- Addition of water quality RMPs

New Flow Stations

- New flow stations
  - Operating on Harris and Butte Creeks
  - Planned on Ikes, Musgrave, and Prather Creeks
- Will require more field work to develop rating curves
  - Rating curves convert stage height (feet) to stream flow (gallons per minute…)

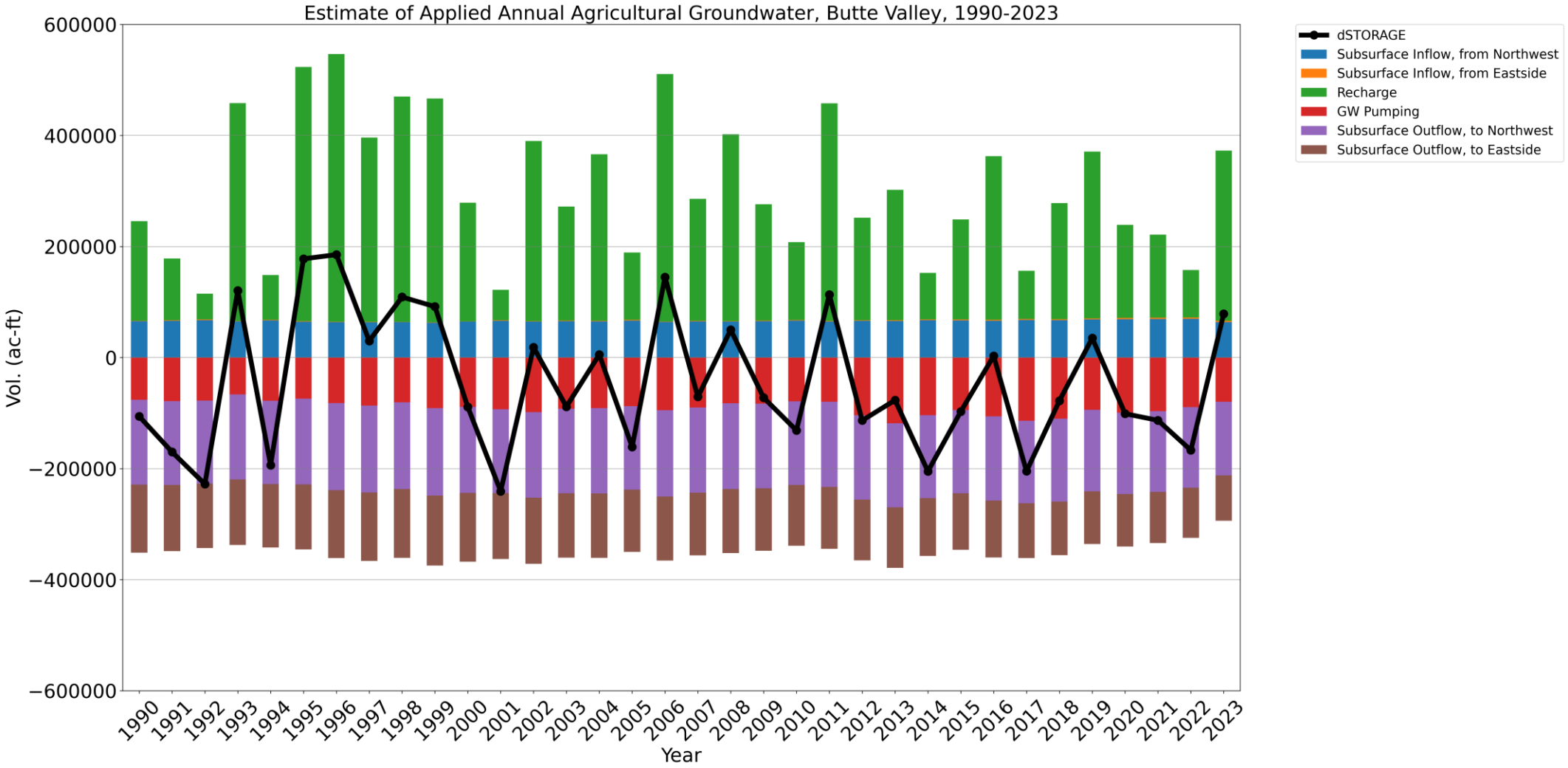




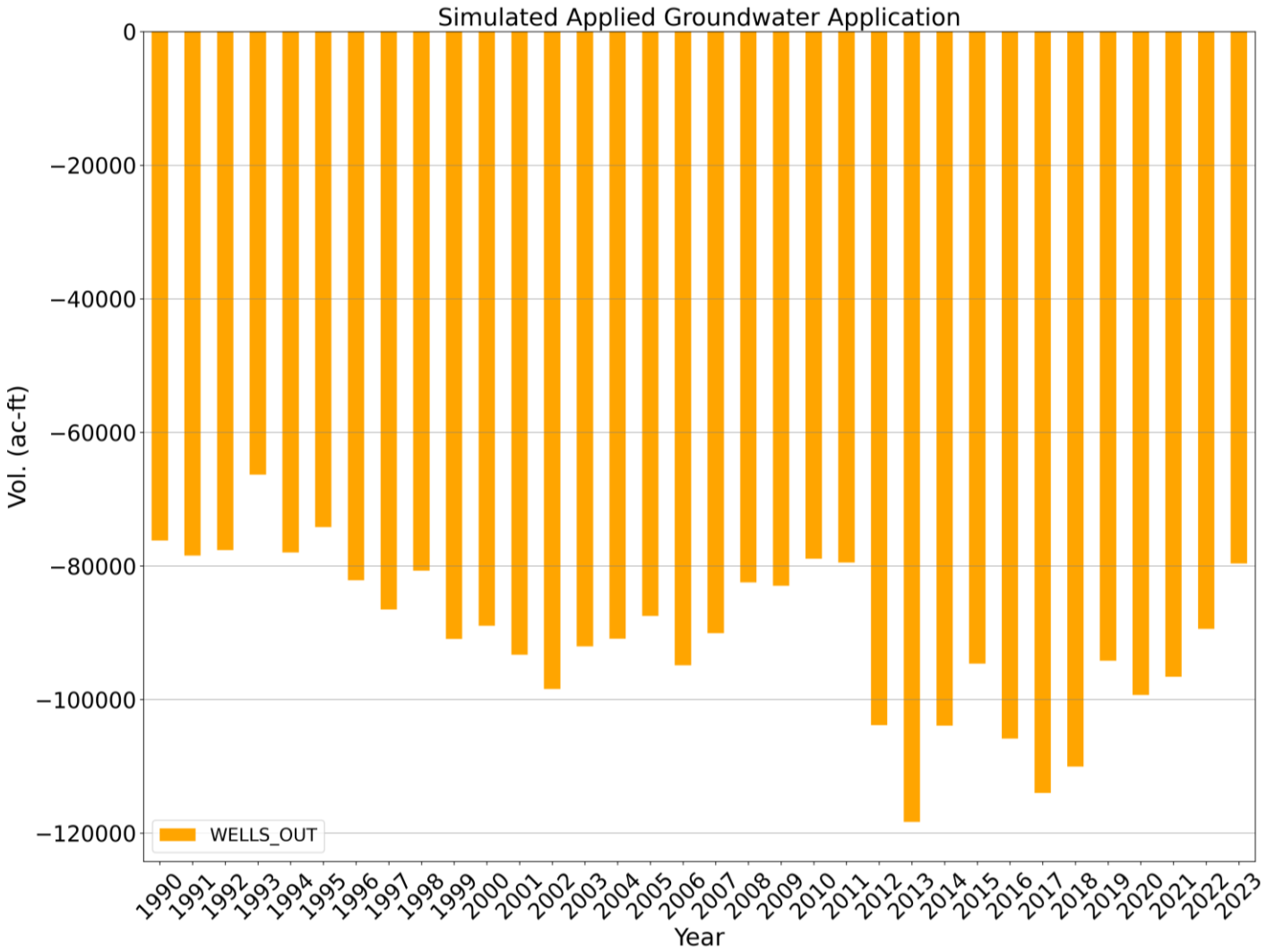
Model Priority Backlog *Through February 2024*

#	Feature	Description	Status
1	Extend model to 2023	Extend all MODFLOW packages to 2023 and run model	Complete
2	Update head observations	Update head observation data in HOB package	Complete
3	Update geology	Update geology with newly available AEM from DWR	Complete
4	Update recharge	Incorporate updated PRMS recharge into MODFLOW model	In Progress
5	Update pumping	Incorporate soil water budget to estimate MODFLOW pumping	In Progress
6	Incorporate new geology	Incorporate new geology into MODFLOW model	Not Started
7	Update boundary conditions	Convert constant head boundary conditions to general head boundaries	Not Started
8	Remove steady state	Replace first stress period from steady state to transient	Not Started
9	Calibration	Recalibrate hydraulic parameters	Not Started

Butte Model Update



Butte Model Update: applied groundwater



Butte Model Update: change in land use

Acres by Crop Type in BVHIM

Crop Type	2000	2010	2014	2020
Alfalfa	20,756	22,861	22,033	14,566
Grain and Hay	10,205	8,730	8,905	7,795
Idle	2,233	4,373	7,919	6,739
Managed Wetlands	5,230	4,665	4,785	4,785
Misc. Truck	875	312	743	698
Pasture	4,480	5,163	4,979	9,551
Strawberries	1,764	3,783	3,031	2,434
Total Acres	45,544	49,887	52,394	46,567

Note:
During modeling period (WY 1990-2023), crop type for each field is based on the county land use survey from 2000, 2010, 2014, 2020.
In years without available survey data, crop type of the nearest year in time was used.
2020 land use survey is used during the model update period (WY 2019-2023)

Implementation Grant Funded Projects

SGMA Compliance and GSP Updates

Fee Study and Economic Analysis

Well Inventory

Monitoring Network

Implementation Approach

Work group formation

Work groups will oversee project design, progress, and evaluation of results

Updates for each project will be provided to the larger group at quarterly advisory committee meetings

Timeline

2023 Q3

- Formation of work groups in August AC Meetings
- Work groups approve draft project scope and schedule
- Final grant awards expected in September

2023 Q4

- October AC Meetings- review of final funding awards
- Detailed scope and schedule for funded projects provided to Advisory Committee

2024 Q1

- February AC Meetings- updates from project work groups, updates depend on individual project schedules

In Progress
Added to Backlog
Complete
Blocked

Implementation Grant Progress *Through February 2024*

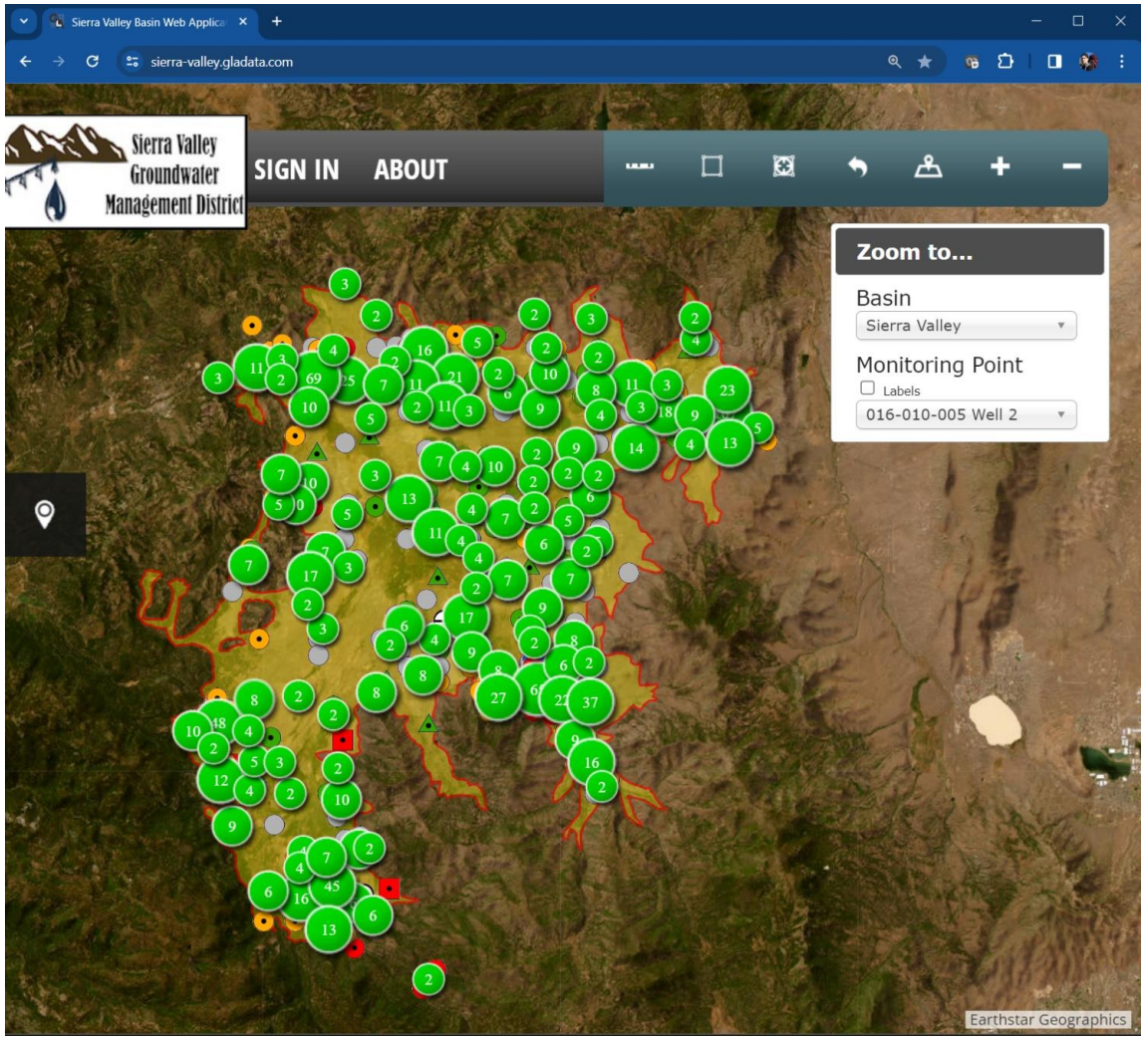
#	Component	Notes	Status
1	**SGMA Compliance and GSP Updates**		
1.1	GSP Revisions	Due January 2027	In Progress
1.2	Reporting (Data and Annual Report)	Annual Reports due April 1 of each year	In Progress
1.3	Model Updates and Scenario Evaluation		In Progress
1.4	Data Gaps and Monitoring Expansion and DMS		In Progress
2	**Fee Study and Economic Analysis**		
2.1	Evaluation of Fee/Rate Options and Schedule Development		Not Started
2.2	Parcel scale groundwater use estimate		In Progress
2.3	Economic Analysis and Water Market Analysis		Not Started
3	**Well Inventory**		
3.1	Database Development and Well Risk Assessment		In Progress
3.2	Monitoring Well Construction or Well Instrumentation		Not Started
4	**Monitoring Network**		
4.1	Upper watershed monitoring	Locate snow monitoring stations, secure permissions	In Progress
4.2	Voluntary well metering	ID wells to instrument, goal of 40 wells.	Not Started
4.3	Monitoring network expansion	Water quality wells, install two stream gauges	In Progress
4.4	Improve GDE Analysis	Review GDEs identified in GSP. Collect monitoring data	Not Started

City of Dorris Well Deepening Project

- Funded by Small Community Drought Relief Program (DWR)
- Surveys mailed, posted on City website and at Macdoel and Dorris post offices in March 2023
- Survey responses identified 10 wells needing replacement or repair.
- Site visits in June 2023 identified 5 wells needing repair
- Contract for drilling of 4 wells (based on available grant funds) finalized in February 2024
- Well replacement/installation scheduled for May/June 2024

Data Management System (DMS)

- SGMA DMS
- Automated management of reporting and monitoring data.
- Provides an effective and affordable option for storing, visualizing, and managing their basin data.
- Web accessible, map-based user interface (front end).
- SQL-server relational database (backend).



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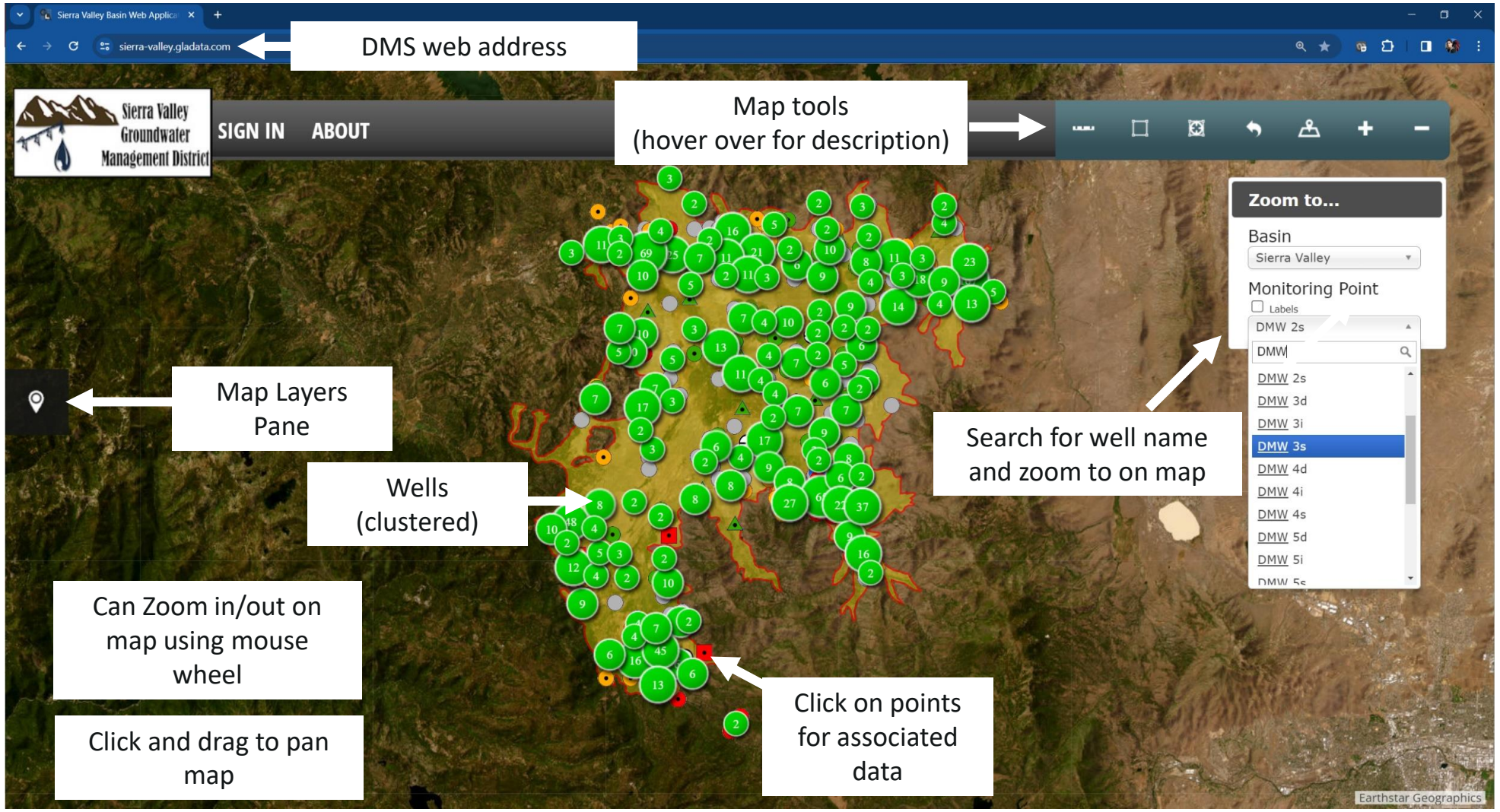

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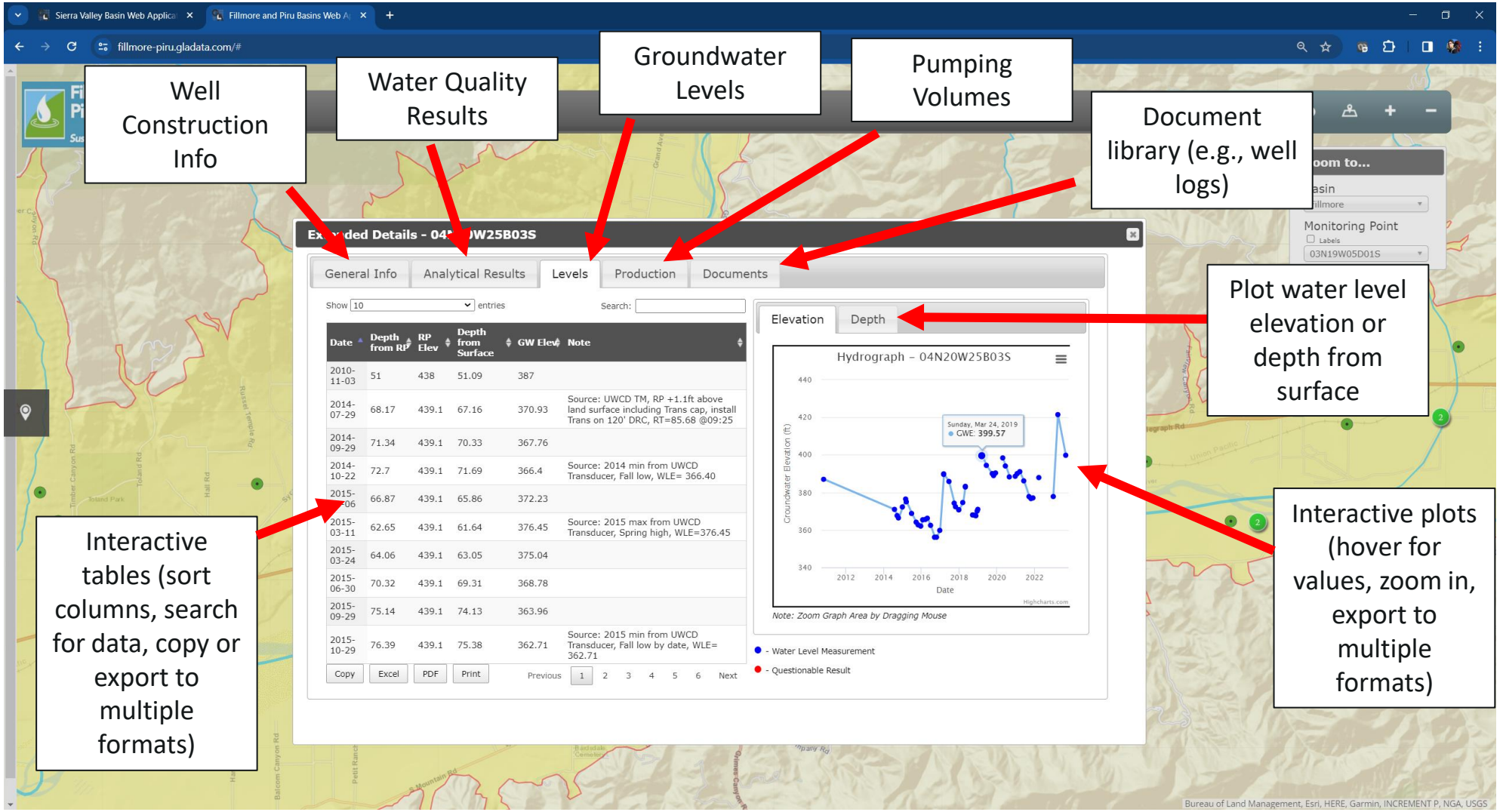


Data Management System (DMS)

Active Data SGMA DMS

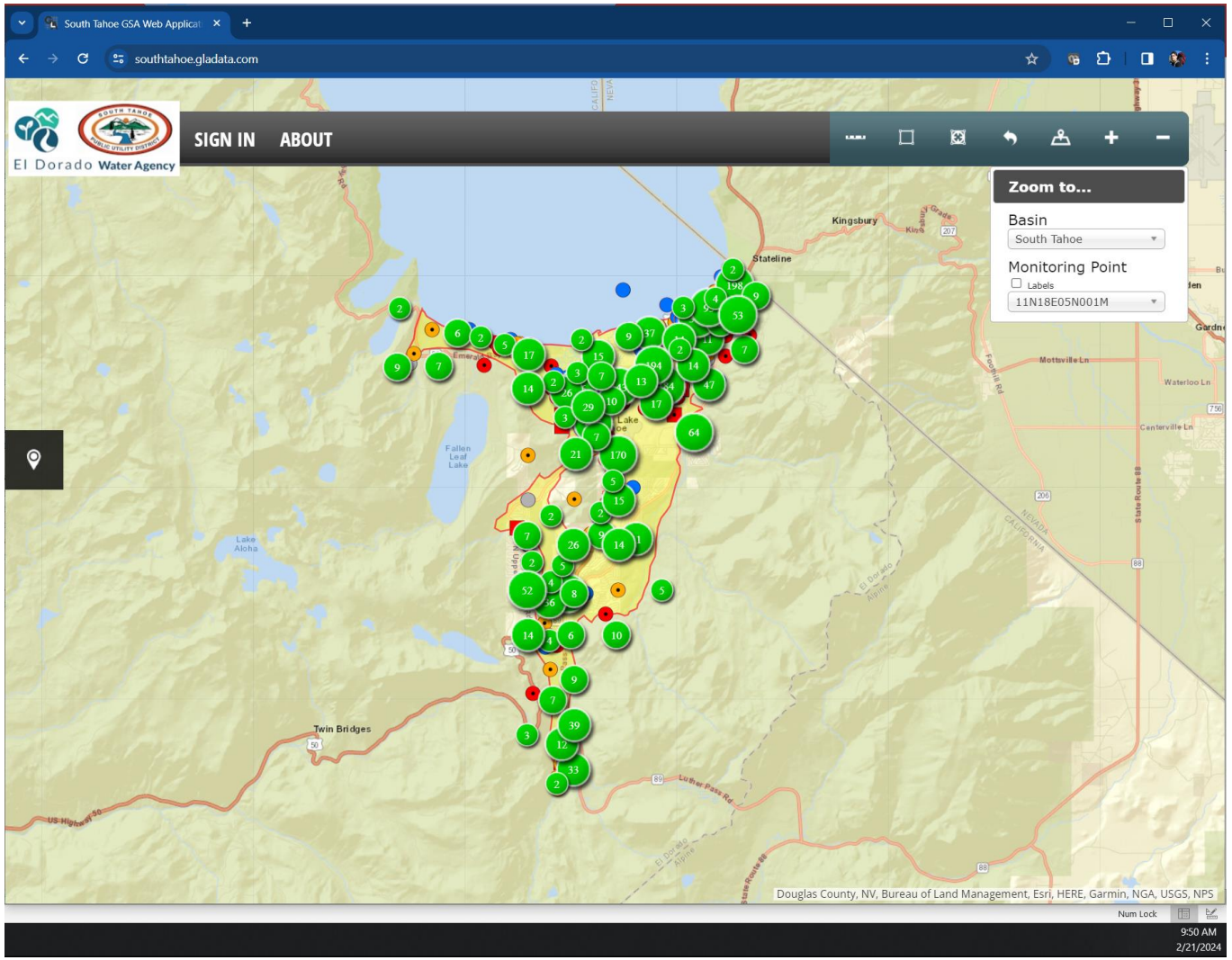
https://sierra-valley.gladata.com

https://fillmore-piru.gladata.com

https://owens.gladata.com

https://bigvalley.gladata.com

https://southtahoe.gladata.com



Upcoming Irrigation Efficiency Workshop

- “Workshop on Efficient Water Management for Forage Crops”
- Thursday March 14th , 9am-1pm, UC ANR Intermountain Research & Extension Center
  - 2816 Havlina Road, Tulelake CA
- UC Davis, UC ANR, Tehama County RCD, LWA, Siskiyou County, Tulelake Irrigation District
- Free Registration: https://mailchi.mp/2296d441d13c/march14

Thank You