EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

Board of Directors Meeting

AGENDA

Wednesday March 9, 2022
10:30 a.m. – 12:00 p.m.
Teleconference Only
Call-In Information Provided Below

I. Call to Order/Pledge of Allegiance & Safety Announcement/Roll Call (*Please remember to keep your phone line muted and unmute when announcing yourself for attendance or speaking)

II. Scheduled Items -

A. Action Items:

1. Approval of the February 9, 2022, Meeting Minutes (**Attachment 1 - Page 3**)
2. Discussion and Possible Action to Adopt Resolution R-22-XX Determining to Conduct Meetings Using Teleconferencing Pursuant to Government Code 54953 as Amended by AB 361 (**Attachment 2 - Page 17**).
3. Accept the WY 2021 Annual Report and Authorize the Secretary to Submit the Document to DWR by the April 1st Deadline (**Attachment 3 - Staff Report and Annual Report - Page 19**).
4. Proposed Resolution to Amend the FY 2021-22 Budget and Authorize Task Order No. 6 to Woodard & Curran Task Order Under A-20-1 for DWR Response (**Attachment 4 - Staff Report, Budget Resolution - Page 135**)
5. Budget Discussion, FY 22/23 Priorities and Planned Activities

III. Staff/DWR Reports

A. Staff Report
B. DWR Report (**Attachment 5 - Page 140**)

IV. Directors' Comments

V. Public Comment (non-agendized items)

VI. Future Agenda Items

VII. Adjournment

Next Regular Meeting
Wednesday, April 13, 2022
10:30 a.m. – 12:00 p.m.
Location TBD

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY
Board of Directors Meeting
AGENDA
(Continued)

Action may be taken on any item

Agendas and Minutes may also be found at http://www.ESJGroundwater.org
Note: If you need disability-related modification or accommodation in order to participate in this meeting, please contact San Joaquin County Public Works Water Resources Staff at (209) 468-3089 at least 48 hours prior to the start of the meeting.

Important Notice Regarding COVID 19 and Closure of Board Chambers to the Public During Eastern San Joaquin Groundwater Authority Board of Directors Meetings

On March 18, 2020, Governor Gavin Newson issued Executive Order N-29-20 recognizing that COVID 19 continues to spread throughout our community resulting in serious and ongoing economic harm. Governor Newson has therefore waived certain requirements of the Ralph M. Brown Act relating to public participation and attendance at public meetings.

Based on guidance from the California Department of Public Health and the California Governor's Officer, ***effective immediately*** and while social distancing measures are imposed, Board chambers will be closed to the public during the Eastern San Joaquin Groundwater Board of Directors Meetings.

In order to minimize the spread of the COVID 19 virus, the following options are available to members of the public to listen to these meetings and provide comments to the Board of Directors before and during the meeting:

1. You are strongly encouraged to listen to the Eastern San Joaquin Groundwater Authority Board of Directors meetings by attending the teleconference:

Microsoft Teams meeting

Join on your computer or mobile app

Click here to join the meeting

Or call in (audio only)

+1 209-645-4071,,929131824# United States, Stockton

Phone Conference ID: 929 131 824#

Find a local number | Reset PIN Learn More | Meeting options

2. If you wish to make a comment on a specific agenda item, please submit your comment via email by 5:00 p.m. on the Tuesday prior to the meeting. Please submit your comment to the Clerk/Secretary of the Board at kmsmith@sjgov.org. Your comment will be shared with the Board members and placed into the record at the meeting. Every effort will be made to read comments received during the meeting into the record, but some comments may not be read due to time limitations. Comments received after an agenda item will be made part of the record if received prior to the end of the meeting.

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY
Board Meeting Minutes
February 9, 2022

I. Call to Order/Pledge of Allegiance & Safety Announcement/Roll Call

The Eastern San Joaquin Groundwater Authority (GWA) Board Teleconference meeting convened, and Chairman Chuck Winn called the meeting to order, via the online Microsoft Teams Meeting platform, at 9:09 a.m. on February 9, 2022. The meeting was Teleconference only.

Chairman Winn led the agenda.

Mrs. Kristy Smith with San Joaquin County conducted the roll call.
In attendance were Chairman Chuck Winn; Vice Chairman Mel Panizza; Secretary Kris Balaji; Directors Jeremiah Mecham, Alan Nakanishi, Myron Blanton, Mike Henry, Tom Flinn, Eric Thorburn, John Herrick, Robert Holmes; Alternate Directors Dante Nomellini, Reid Roberts, Mel Lytle.

II. Workshop

The Workshop portion of the meeting was conducted and led by Mr. Matt Zidar of San Joaquin County Public Works. The Workshop was recorded and made available on the ESJGroundwater.org website. Mr. Zidar provided an overview of the workshop topics, schedule, and presenters.

A. ESJ Integrated Water Flow Model (IWFM) – Future Baseline and GSA Water Budgets

Dr. Ali Taghavi with Woodard & Curran led the workshop presentation providing the Model Update background, work completed, progress made, and next steps. Dr. Taghavi used slides and graphing to provide information on the Model Calibration Updates, Land and Water Use Budget, Projected Hydrology, Water Budget, and Water Accounting Framework.

B. Water Accounting Framework (WAF) Strategy Development

Ms. Emily Finnegan and Mr. Craig Moyle with Stantec led the WAF presentation portion of the Workshop. Ms. Finnegan provided details on the WAF Roles and Processes, Timeline, Key Documents Used, Workshops, and Next Steps. Ms. Finnegan provided an overview of the Survey results and discussed the next steps of Focus Groups and Potential Interview Questions. It was requested by the attendees, that the survey results be packaged up in a summary document for distribution to the GSAs.

C. Funding & Financing Strategy Development – Basic Tools for the GWA and GSAs

Mr. Zidar led the Workshop presentation related to Funding and Financing Strategy Development. Mr. Zidar provided information on the authorities who are eligible to apply the different funding authorities, projects being funded now and in the future, and potential funding mechanisms.

III. Business Meeting and Scheduled Items

A. Discussion/Action Items:

1. Approval of the December 8, 2021 Meeting Minutes

Chairman Winn called for the approval of minutes of the meeting on December 8, 2021. There were no comments by the GWA Board members and no comments by the public.

Motion:
Director Robert Holmes moved, and Director John Herrick second, approval of the December 8, 2021 minutes.
Roll Call Vote was conducted, the motion passed unanimously.

2. **Discussion and Possible Action to Adopt Resolution R-22-XX Determining to Conduct Meetings Using Teleconferencing Pursuant to Government Code 54953 as Amended by AB 361**

Chairman Winn asked for a motion to approve the Resolution Determining to Conduct Meetings Using Teleconferencing Pursuant to Government Code 54953 as Amended by AB 361.

Motion:
Director Robert Holmes moved, and Director Eric Thorburn second, adoption of the resolution R-22-XX.
Roll Call Vote was conducted, the motion passed unanimously.

3. **Resolution Approving Submittal of a Grant Application and Spending Plan to the Department of Water Resources for the Sustainable Groundwater Management Act Implementation Grant Under the Sustainable Groundwater Planning Grant Program**

Mr. Zidar provided a review of the grant opportunity and status, noting the application due date of 2/28/22. Mr. Zidar provided the group with an overview of the resolution and requested action by the Board. Ms. Kincaid questioned who the grant applicant would be, and Ms. Mary Elizabeth, member of the public, questioned the budget plan for the grant application and if included. Mr. Zidar noted that the GWA is the applicant and that all documents related to the application have been provided previously and could be provided again if needed.

Chairman Winn asked for a motion to approve the Resolution Approving Submittal of a Grant Application and Spending Plan to the Department of Water Resources for the Sustainable Groundwater Management Act Implementation Grant Under the Sustainable Groundwater Planning Grant Program.

Motion:
Director Mike Henry moved, Director Tom Flinn second, approval of the resolution R-22-XX.
Roll Call Vote was conducted, the motion passed unanimously.

4. **DWR GSP Comments and Response Plan**

Mr. Zidar provided a brief overview of the history and timeline of the DWR GSP Comments, noting the unofficial comments received and possible response matrix, the official comments received, and draft response matrix developed. Mr. Zidar provided an overview of the proposed DWR Comment Response Plan developed and submitted by several of the GSAs.

Mr. Zidar asked, as part of the proposed plan, the Board approve the following.

- The creation of a Legal Ad-Hoc Committee, to be composed of volunteers appointed by the Chairman.
- The expansion of the TAC Group membership.
- The creation of a DWR Coordination Team, comprised of TAC members who will discuss issues and/or questions with DWR.

- Authorize the GWA Secretary to allocate funds budgeted in the 21/22 FY Budget, to Woodard & Curran task order to support the coordination of work groups and preparation of response.

Mr. Zidar noted that the groups would meet bi-weekly and all requests, nominations, appointments to these groups should be submitted to staff for the Chairman's review.

Discussion was had on the formation of the Ad-Hoc Groups, noting that they were not legislative bodies under Brown Act and therefore do not fall under Brown Act guidelines and member count must be kept under the GWA quorum.

Ms. Mary Elizabeth, member of the public, commented that the TAC is posted on the website as having a regular meeting time. Ms. Elizabeth additionally read a written comment on the proposed DWR Comment Responses. Mr. Zidar requested that the written comment be submitted to staff for full inclusion in the meeting minutes.
Chairman Winn asked for a motion to approve and move forward with the proposed DWR Response Process as presented by staff.

Motion:
Director Robert Holmes moved, Director Jon Herrick second, approval and moving forward with the DWR Response Process as presented.
Roll Call Vote was conducted, the motion passed unanimously.

IV. Staff and DWR Reports

A. Staff Report
None Provided.

B. DWR Report
Ms. Chelsea Spier with DWR provided an items of interest update to the group, noting the following items.

- The 2022 GSPs have been posted and DWR has 20 days for completion check.
- There is currently a Department of Conservation grant opportunity for land repurposing projects, with a submittal date of 4/1/22.
- The final date to comment on the Central Valley Flood Protection Plan is 2/10/22.
- The public website for the California Water Plan 2023 has been launched.
- The DWR River Stewardship Program grant is currently open.

Mr. Zidar requested that Ms. Spier obtain and provide additional details on the Department of Conservation Grant guidelines.

V. Directors' Comments
Director Robert Holmes commented that the group is at a crossroads and needs to stay focused, get the Ad-Hoc Committees set, and address DWR's comments. Need to get this done for the Basin. There was discussion of GWA priorities, and it was a consensus that responding to DWR and gaining approval for the GSP was the primary goal, and that pushing on the Basin Accounting Framework at this time may be a distraction for the available time and resources.

Chairman Winn requested that any interest in participating in the Ad-Hoc Committees be submitted by close of business Friday, February 11, 2022.

VI. Public Comment

Ms. Mary Elizabeth provided comments regarding the ESJGroundwater.org website, noting the website should include more information and links, the Groundwater Reports are not posted up to date, Annual Reports posted to SGMA website are not included on GWA website, and that presentations and audio/video recordings should be posted. Ms. Elizabeth added comments regarding the public comment agenda item being included on all agendas and outreach status and need. Ms. Elizabeth read a written statement for many of the items commented on. Mr. Zidar requested that the written comment be submitted to staff for full inclusion in the meeting minutes.

Mr. John Lambie, member of the public, questioned who was eligible to be on an Ad-Hoc Committee. It was advised that elected officials/members of the GWA would be appropriate members, and that they can request or appoint others to join.

VII. Future Agenda Items and Meeting Dates:

None Provided.

VIII. Adjournment:

Chairman Winn adjourned the February 9, 2022 meeting at 11:53 a.m.

Next Regular Meeting:

Wednesday, March 9, 2022
10:30 am – 12:00 pm
Location TBD

Eastern San Joaquin Groundwater Authority Board of Directors
February 9, 2022

Roll Call

Agency Name	Director First	**Director** Last		Alternate First	**Alternate** Last	
Cal Water	Jeremiah	**Mecham**				
Central Delta Water Agency	George	**Biagi, Jr.**		Dante	**Nomellini**	
Central San Joaquin Water Conservation District	Grant	**Thompson**		Reid	**Roberts**	
City of Lodi	Alan	**Nakanishi**		Charlie	**Swimley**	
City of Manteca	David	**Breitenbucher**				
City of Stockton	Dan	**Wright**		Mel Paul	**Lytle Canepa**	
Eastside San Joaquin GSA	Russ	**Thomas**		Walter	**Ward**	
Linden County Water District	Myron	**Blanton**		Douglas	**Smith**	
Lockeford Community Services District	Mike	**Henry**		Joseph Eric	**Salzman Schmid**	
North San Joaquin Water Conservation District	Tom	**Flinn**		Joe	**Valente**	
Oakdale Irrigation District	Eric	**Thorburn, P.E.**				
South Delta Water Agency	John	**Herrick, Esq.**		Jerry	**Robinson**	
South San Joaquin Groundwater Sustainability Agency	Robert	**Holmes**		Brandon	**Nakagawa**	
Woodbridge Irrigation District	Andy	**Christensen**				
San Joaquin County Public Works **Secretary (1)**	Kris	**Balaji**				
Stockton East Water District **Vice Chair (2)**	Melvin	**Panizza**		Andrew	**Watkins**	
San Joaquin County **Chairman (3)**	Chuck	**Winn**		Kathy	**Miller**	

Quorum

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

Joint Exercise of Powers Board of Directors Meeting

MEMBER SIGN-IN SHEET

Location: Teleconference Call Only Date: 02/09/2022 Time: 9:00 AM

INITIAL	Member's Name	GSA	Phone	Email
Present	Jeremiah Mecham	Cal Water Member		jmecham@calwater.com
	George Biagi, Jr.	Central Delta Water Agency Member	209-481-5201	gbiagi@deltabluegrass.com
Present	Dante Nomellini	Central Delta Water Agency Alternate	209-465-5883	ngmplcs@pacbell.net
	Grant Thompson	Central San Joaquin Water Conservation District Member	209-639-1580	gtom@velociter.net
Present	Reid Roberts	Central San Joaquin Water Conservation District Alternate	209-941-8714	reidwroberts@gmail.com
Present	Alan Nakanishi	City of Lodi Member	209-333-6702	anakanishi@lodi.gov
Present	Charlie Swimley	City of Lodi Alternate	209-333-6706	cswimley@lodi.gov
	David Breitenbucher	City of Manteca Member	209-456-8017	dbreitenbucher@ci.manteca.ca.us
		City of Manteca Alternate		
	Dan Wright	City of Stockton Member	209-937-5614	Dan.Wright@stocktonca.gov
	Paul Canepa	City of Stockton Alternate	209-603-7091	Paul.Canepa@stocktonca.gov
Present	Mel Lytle	City of Stockton Alternate	209-	Mel.Lytle@stocktonca.gov
	Russ Thomas	Eastside San Joaquin GSA Member	209-480-8968	rthomasccwd@hotmail.com
		Eastside San Joaquin GSA Alternate		

INITIAL	Member's Name	GSA	Phone	Email
Present	Myron Blanton	Linden County Water District Member	209-351-0242	myronapp@gmail.com
Present	Douglas Smith	Linden County Water District Alternate		
Present	Mike Henry	Lockeford Community Services District Member	209-712-4014	midot@att.net
	Joseph Salzman	Lockeford Community Services District Alternate	209-727-5035	lcsd@softcom.net
	Eric Schmid	Lockeford Community Services District Alternate	209-727-5035	lcsd@softcom.net
Present	Tom Flinn	North San Joaquin Water Conservation District Member	209-663-8760	tomflinn2@me.com
Present	Joe Valente	North San Joaquin Water Conservation District Alternate	209-334-4786	jcvalente@softcom.net
Present	Eric Thorburn, P.E.	Oakdale Irrigation District Member	209-840-5525	ethorburn@oakdaleirrigation.com
		Oakdale Irrigation District Alternate		
Present	Chuck Winn	San Joaquin County Member	209-953-1160	cwinn@sjgov.org
	Kathy Miller	San Joaquin County Alternate	209-953-1161	kmiller@sjgov.org
Present	John Herrick, Esq.	South Delta Water Agency Member	209-224-5854	jherrlaw@aol.com
	Jerry Robinson	South Delta Water Agency Alternate	209-471-4025	N/A
Present	Robert Holmes	South San Joaquin GSA Member	209-484-7678	rholmes@ssjid.com
Present	Brandon Nakagawa	South San Joaquin GSA Alternate	209-249-4613	bnakagawa@ssjid.com
Present	Melvin Panizza	Stockton East Water District Member	209-948-0333	melpanizza@aol.com
	Andrew Watkins	Stockton East Water District Alternate	209-484-8591	watkins.andrew@verizon.net
	Anders Christensen	Woodbridge Irrigation District Member	209-625-8438	widirrigation@gmail.com
		Woodbridge Irrigation District Alternate		

Eastern San Joaquin Groundwater Authority Staff & Support

INITIAL	Member's Name	Organization	Phone	Email
Present	Kris Balaji	San Joaquin County	468-3100	kbalaji@sjgov.org
Present	Fritz Buchman	San Joaquin County	468-3034	fbuchman@sjgov.org
Present	Matt Zidar	San Joaquin County	953-7460	mzidar@sjgov.org
Present	Glenn Prasad	San Joaquin County	468-3089	grasad@sjgov.org
	Alicia Connelly	San Joaquin County	468-3531	aconnelly@sjgov.org
Present	Kristy Smith	San Joaquin County	468-0219	kmsmith@sjgov.org
Present	Rod Attebery	Neumiller & Beardslee / Legal Counsel	948-8200	rattebery@neumiller.com
	Sally Perez	San Joaquin County	953-7948	sperez@sjgov.org

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

Joint Exercise of Powers Board of Directors Meeting

OTHER INTERSTED PARTIES - SIGN-IN SHEET

Location: Teleconference Call Only Date: 02/09/2022 Time: 9:00 AM

INITIAL	Member's Name	Organization	Phone	Email
P	Brenda Kiely	SJC CAO		
P	Mary Elizabeth	Public - Sierra Club		
P	Leslie Dumas	Woodard + Curran		
P	Kirin Virk	SJC CC		
P	Ali Taghavi	Woodard + Curran		
P	Sara Miller	"		
P	Christy McKinnon	Eastside GSA		
P	Graig Moyle			
P	Valerie Kincaid	Counsel		
P	Jose Coronado	SJC PW		
P	Brad Arnold			
P	Elba	C/O Manteca		
P	Amanda Folendorf	Calaveras County		
P	Jennifer Spaletta	Counsel		

OTHER INTERESTED PARTIES – SIGN-IN SHEET

INITIAL	Member's Name	Organization	Phone	Email
P	Chelsea Spier	DWR		
P	Emily Sheldon	DID		
P	Emily Finnigen			
P	Scot Moody	SEWD		
P	Gerald Schwartz			
P	Steven Shih	SJC EHD		
P	John Lambie			
P	Juan Ochoa	SJC PW		
P	Jeanne Zolezzi			

Eastern San Joaquin Groundwater Authority Board of Directors
February 9, 2022

III.A.1

Agency Name	Director First	**Director** Last		Alternate First	**Alternate** Last	
Cal Water	Jeremiah	**Mecham**	Y			
Central Delta Water Agency	George	**Biagi, Jr.**		Dante	**Nomellini**	Y
Central San Joaquin Water Conservation District	Grant	**Thompson**		Reid	**Roberts**	
City of Lodi	Alan	**Nakanishi**	Y	Charlie	**Swimley**	
City of Manteca	David	**Breitenbucher**				
City of Stockton	Dan	**Wright**		Mel Paul	**Lytle Canepa**	
Eastside San Joaquin GSA	Russ	**Thomas**		Walter	**Ward**	
Linden County Water District	Myron	**Blanton**	Y	Douglas	**Smith**	
Lockeford Community Services District	Mike	**Henry**	Y	Joseph Eric	**Salzman Schmid**	
North San Joaquin Water Conservation District	Tom	**Flinn**	Y	Joe	**Valente**	
Oakdale Irrigation District	Eric	**Thorburn, P.E.**	Y			
South Delta Water Agency	John	**Herrick, Esq.**	Y	Jerry	**Robinson**	
South San Joaquin Groundwater Sustainability Agency	Robert	**Holmes**	Y	Brandon	**Nakagawa**	
Woodbridge Irrigation District	Andy	**Christensen**				
San Joaquin County Public Works **Secretary (1)**	Kris	**Balaji**				
Stockton East Water District **Vice Chair (2)**	Melvin	**Panizza**	Y	Andrew	**Watkins**	
San Joaquin County **Chairman (3)**	Chuck	**Winn**	Y	Kathy	**Miller**	

Motion: Holmes
2nd: Herrick
Approved

Eastern San Joaquin Groundwater Authority Board of Directors
February 9, 2022

III.A.2

Agency Name	Director First	**Director** Last		Alternate First	**Alternate** Last	
Cal Water	Jeremiah	**Mecham**	y			
Central Delta Water Agency	George	**Biagi, Jr.**		Dante	**Nomellini**	y
Central San Joaquin Water Conservation District	Grant	**Thompson**		Reid	**Roberts**	
City of Lodi	Alan	**Nakanishi**	y	Charlie	**Swimley**	
City of Manteca	David	**Breitenbucher**				
City of Stockton	Dan	**Wright**		Mel Paul	**Lytle** **Canepa**	
Eastside San Joaquin GSA	Russ	**Thomas**		Walter	**Ward**	
Linden County Water District	Myron	**Blanton**	y	Douglas	**Smith**	
Lockeford Community Services District	Mike	**Henry**	y	Joseph Eric	**Salzman** **Schmid**	
North San Joaquin Water Conservation District	Tom	**Flinn**	y	Joe	**Valente**	
Oakdale Irrigation District	Eric	**Thorburn, P.E.**	y			
South Delta Water Agency	John	**Herrick, Esq.**	y	Jerry	**Robinson**	
South San Joaquin Groundwater Sustainability Agency	Robert	**Holmes**	y	Brandon	**Nakagawa**	
Woodbridge Irrigation District	Andy	**Christensen**				
San Joaquin County Public Works **Secretary (1)**	Kris	**Balaji**				
Stockton East Water District **Vice Chair (2)**	Melvin	**Panizza**	y	Andrew	**Watkins**	
San Joaquin County **Chairman (3)**	Chuck	**Winn**	y	Kathy	**Miller**	

Motion: Holmes

2nd: Thorburn

Approved

Eastern San Joaquin Groundwater Authority Board of Directors
February 9, 2022

III.A.3

Agency Name	Director First	**Director** Last		Alternate First	**Alternate** Last	
Cal Water	Jeremiah	**Mecham**	y			
Central Delta Water Agency	George	**Biagi, Jr.**		Dante	**Nomellini**	y
Central San Joaquin Water Conservation District	Grant	**Thompson**		Reid	**Roberts**	
City of Lodi	Alan	**Nakanishi**	y	Charlie	**Swimley**	
City of Manteca	David	**Breitenbucher**				
City of Stockton	Dan	**Wright**		Mel Paul	**Lytle Canepa**	
Eastside San Joaquin GSA	Russ	**Thomas**		Walter	**Ward**	
Linden County Water District	Myron	**Blanton**	y	Douglas	**Smith**	
Lockeford Community Services District	Mike	**Henry**	y	Joseph Eric	**Salzman Schmid**	
North San Joaquin Water Conservation District	Tom	**Flinn**	y	Joe	**Valente**	
Oakdale Irrigation District	Eric	**Thorburn, P.E.**	y			
South Delta Water Agency	John	**Herrick, Esq.**	y	Jerry	**Robinson**	
South San Joaquin Groundwater Sustainability Agency	Robert	**Holmes**	y	Brandon	**Nakagawa**	
Woodbridge Irrigation District	Andy	**Christensen**				
San Joaquin County Public Works **Secretary (1)**	Kris	**Balaji**				
Stockton East Water District **Vice Chair (2)**	Melvin	**Panizza**	y	Andrew	**Watkins**	
San Joaquin County **Chairman (3)**	Chuck	**Winn**	y	Kathy	**Miller**	

Motion: Henry
2nd: Flinn
Approved

Eastern San Joaquin Groundwater Authority Board of Directors
February 9, 2022

III. A.4.

Agency Name	Director First	**Director** Last		Alternate First	**Alternate** Last	
Cal Water	Jeremiah	**Mecham**	Y			
Central Delta Water Agency	George	**Biagi, Jr.**		Dante	**Nomellini**	Y
Central San Joaquin Water Conservation District	Grant	**Thompson**		Reid	**Roberts**	
City of Lodi	Alan	**Nakanishi**	Y	Charlie	**Swimley**	
City of Manteca	David	**Breitenbucher**				
City of Stockton	Dan	**Wright**		Mel Paul	**Lytle Canepa**	
Eastside San Joaquin GSA	Russ	**Thomas**		Walter	**Ward**	
Linden County Water District	Myron	**Blanton**	Y	Douglas	**Smith**	
Lockeford Community Services District	Mike	**Henry**	Y	Joseph Eric	**Salzman Schmid**	
North San Joaquin Water Conservation District	Tom	**Flinn**	Y	Joe	**Valente**	
Oakdale Irrigation District	Eric	**Thorburn, P.E.**	Y			
South Delta Water Agency	John	**Herrick, Esq.**	Y	Jerry	**Robinson**	
South San Joaquin Groundwater Sustainability Agency	Robert	**Holmes**	Y	Brandon	**Nakagawa**	
Woodbridge Irrigation District	Andy	**Christensen**				
San Joaquin County Public Works **Secretary (1)**	Kris	**Balaji**				
Stockton East Water District **Vice Chair (2)**	Melvin	**Panizza**	Y	Andrew	**Watkins**	
San Joaquin County **Chairman (3)**	Chuck	**Winn**	Y	Kathy	**Miller**	

Motion: Holmes
2nd: Herrick
Approved

BEFORE THE BOARD OF DIRECTORS OF
EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

R E S O L U T I O N

R-22-##

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY (ESJGWA) DETERMINING TO CONDUCT MEETINGS OF THE ESJGWA BOARD OF DIRECTORS USING TELECONFERENCING PURSUANT TO GOVERNMENT CODE 54953 AS AMENDED BY AB 361 FOR THE PERIOD MARCH 9, 2022 TO APRIL 8, 2022.

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WHEREAS, the Eastern San Joaquin Groundwater Authority (the "Authority") Board of Directors (the "Board") is committed to preserving and nurturing public access and participation in meetingsof the Board of Directors; and

WHEREAS, all meetings the Authority's legislative bodies are open and public, as required by the Ralph M. Brown Act (Cal. Gov. Code 54950 – 54963) (the "Brown Act"), so thatany member of the public may attend, participate, and watch the Authority's legislative bodies conduct their business; and

WHEREAS, the Brown Act, Government Code section 54953(e), as amended by AB 361 (2021), makes provisions for remote teleconferencing participation in meetings by members of a legislative body, without compliance with the requirements of Government Code section 54953(b)(3), subject to the existence of certain conditions; and

WHEREAS, a required condition is that a state of emergency is declared by the Governor pursuant to Government Code section 8625, proclaiming the existence of conditions of disaster or of extreme peril to the safety of persons and property within the state caused by conditions as described in Government Code section 8558; and

WHEREAS, it is further required that state or local officials have imposed or recommended measures to promote social distancing, or the legislative body meeting in person would present imminent risks to the health and safety of attendees; and

WHEREAS, on March 4, 2020, the Governor proclaimed a State of Emergency to exist in California as a result of the threat of COVID-19; and

WHEREAS, Cal-OSHA adopted emergency regulations (Section 3205) imposing requirements on California employers, including measures to promote social distancing; and

WHEREAS, an Order of the San Joaquin County Public Health Officer acknowledges that close contact to other persons increases the risk of transmission of COVID-19; and

WHEREAS, currently the dominant strain of COVID-19 in the country, is more transmissible than prior variants of the virus, may cause more severe illness, and that even fully

vaccinated individuals can spread the virus to others resulting in rapid and alarming rates of COVID-19 cases and hospitalizations, therefore, meeting in person would present imminent risksto the health or safety of attendees.

NOW, THEREFORE, BE IT RESOLVED by the Board as follows:

Section 1. Recitals. The Recitals set forth above are true and correct and are incorporated into this Resolution by this reference.

Section 2. Finding of Imminent Risk to Health or Safety of Attendees. The Board hereby finds that the circumstances of the current State of Emergency proclaimed by the Governor on March 4, 2020, and finds that the current dominant strain of COVID-19 in the country, is more transmissible than prior variants of the virus, may cause more severe illness, and that even fully vaccinated individuals can spread the virus to others resulting in rapid and alarming rates of COVID-19 cases and hospitalizations has caused, and will continue to cause, conditions of peril to the safety of persons, thereby presenting an imminent risk to health and/or safety to the Authority's staff and attendees of the Authority's public meetings; and

Section 3. Teleconference Meetings. The Board does hereby determines as a result of the State of Emergency proclaimed by the Governor, and the recommended measures to promote social distancing made by State and local officials that the Board may conduct their meetings without compliance with paragraph (3) of subdivision (b) of Government Code section 54953, as authorized by subdivision (e)(1)(A) and (B) of section 54953, and shall comply with the requirements to provide the public with access tothe meetings as prescribed in paragraph (2) of subdivision (e) of section 54953; and

Section 4. Direction to Staff. The Authority staff are hereby authorized and directed to take all actions necessary to carry out the intent and purpose of this Resolution including, conducting open and public meetings in accordance with Government Code section 54953(e) and other applicable provisions of the Brown Act.

Section 5. Effective Date of Resolution. This Resolution shall take effect immediately upon its adoption.

PASSED AND ADOPTED_____, by the following vote of the Board of Directors of the Eastern San Joaquin Groundwater Authority, to wit:

AYES:

NOES:

ABSENT:

CHUCK WINN
Chairman

ATTEST: KRIS BALAJI, PMP. P.E.
Secretary

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

Staff Report

TO: GWA Board & Steering Committee

FROM: Matt Zidar

Date: March 3, 2022

Subject: Annual Report

Attachments: Attachment 3 - Staff Report and Annual Report

SGMA requires submittal of an Annual Report to the California Department of Water Resources by April 1st of each year, which documents the results of the monitoring program; analyzes groundwater levels and changes in storage; and compares the data to the Sustainable Management Criteria (SMC). The SMC includes the adopted Management Objectives (MO) and Minimum Thresholds (MT) which are then used to evaluate if there are any undesirable effects. These SMC are also used to track progress in complying with SGMA and implementation of the Adopted Eastern San Joaquin Groundwater Sustainability Plan (GSP). Some of the important points and findings include:

- Despite being the second driest year on record, the WY 2021 monitoring indicate that the subbasin was continuing to operate under sustainable conditions relative to their respective sustainability indicators;
- No wells reported groundwater levels below the minimum thresholds established in the GSP, and eleven wells reported Fall 2020 measurements and twelve wells reported Spring 2021 measurements that met or exceeded their measurable objective.
- During WY 2021, groundwater extraction and use is estimated to be 809,327 AF for the Eastern San Joaquin Subbasin. Surface water deliveries during WY 2021 are estimated to be 574,597 AF. Total water use is the sum of the groundwater use and surface water use; therefore, total water use during WY 2021 is estimated to be 1,383,924 AF.
- Storage decreased by 157,000 acre-feet (AF), meaning more groundwater was pumped than was recharged from all sources.
- San Joaquin County had 26 reported water shortages from dry wells in the 365 days prior to the preparation of this annual report[1].
- Per DWR publicly available InSAR datasets, there was no observed subsidence at two of the three monitoring stations, on which showed 0.01 feet of land subsidence (within the realm of error) over the last water year. These results show that no land subsidence occurred in the Subbasin.

In December 2021, Woodard & Curran was again retained to prepare the third annual report under Task Order No. 5 of Master Agreement A-20-1 ($40,000).

[1]Note: This figure includes some portions of the County that are not within the Eastern San Joaquin Subbasin as well as 4 months of WY 2022.

The draft report was received by the Ad Hoc Technical Advisory Committee (TAC) on March 3, 2022. The TAC did not have comments during the March 3, 2022, meeting. GSA and TAC members comments will be provided to the Board at the March 9, 2022, meeting. It is not expected that these comments would be substantive, but any comments received could be accommodated through a final edit, to produce the document to be submitted to the Department of Water Resources by the April 1st deadline. The report has been delivered to your board for review and acceptance.

Recommendation

It is staff's recommendation to accept the report and authorize the Secretary to submit the document to DWR by the April 1st deadline.

Table of Contents

List of Figures

List of Tables

Appendices

List of Abbreviations and Acronyms

AC	Advisory Committee
AF	acre-feet
AFY	acre-feet per year
bgs	below ground surface
CALSIMETAW	California Simulation of Evapotranspiration of Applied Water
CASGEM	California Statewide Groundwater Elevation Monitoring
CCWD	Calaveras County Water District
CDWA	Central Delta Water Agency
CIP	Capital Improvement Program
CSJWCD	Central San Joaquin Water Conservation District
Delta	Sacramento-San Joaquin River Delta
DMS	Data Management System
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
EC	electrical conductivity
ESJ	Eastern San Joaquin
ESJGWA	Eastern San Joaquin Groundwater Authority
ESJWRM	Eastern San Joaquin Water Resources Model
ft/mi	feet per mile
GMP	Groundwater Management Plan
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
IDW	Inverse Distance Weighting
IWFM	Integrated Water Flow Model
LCSD	Lockeford Community Services District
LCWD	Linden County Water District
MAF	Million acre-feet
MAR	Managed Aquifer Recharge
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
msl	mean sea level

MUD	Municipal Utilities Department
NAVD	North American Vertical Datum
NSJWCD	North San Joaquin Water Conservation District
OID	Oakdale Irrigation District
PRISM	Precipitation-Elevation Regressions on Independent Slopes Model
SDWA	South Delta Water Agency
SEWD	Stockton East Water District
SGMA	Sustainable Groundwater Management Act
SMCL	Secondary Maximum Contaminant Level
SSJ GSA	South San Joaquin GSA
SSJID	South San Joaquin Irrigation District
TDS	total dissolved solids
USGS	United States Geological Survey
VFD	variable frequency drive
WID	Woodbridge Irrigation District
Workgroup	Groundwater Sustainability Workgroup
WY	Water Year

EXECUTIVE SUMMARY

INTRODUCTION

The Eastern San Joaquin Groundwater Subbasin (Eastern San Joaquin Subbasin, or Subbasin) has a long history of proactively and collaboratively managing water resources, with strong participation from local water management agencies, other local agencies, stakeholders, and state and federal agencies. Collaborative efforts that have guided sustainable groundwater resources management in the Eastern San Joaquin Subbasin include the *Eastern San Joaquin Groundwater Subbasin Groundwater Sustainability Plan* (GSP) (2019) and its forerunner, the *Eastern San Joaquin Groundwater Basin Groundwater Management Plan* (GMP) (2004).

The GSP was developed jointly with the Eastern San Joaquin Groundwater Authority (ESJGWA), which is a joint powers authority formed by the 16 groundwater sustainability agencies (GSAs) within the Eastern San Joaquin Subbasin (ESJGWA, 2019). The ESJGWA includes the Central Delta Water Agency (CDWA), Central San Joaquin Water Conservation District (CSJWCD), City of Lodi, City of Manteca, City of Stockton, Eastside San Joaquin GSA (Eastside GSA) (composed of Calaveras County, Calaveras County Water District [CCWD], Stanislaus County, and Rock Creek Water District), Linden County Water District (LCWD), Lockeford Community Services District (LCSD), North San Joaquin Water Conservation District (NSJWCD), Oakdale Irrigation District (OID), County of San Joaquin GSAs (-Eastern San Joaquin 1 and -Eastern San Joaquin 2), South Delta Water Agency (SDWA), South San Joaquin GSA (composed of South San Joaquin Irrigation District [SSJID] including all conveyance works, Woodward Reservoir, City of Ripon, and City of Escalon), Stockton East Water District (SEWD), and Woodbridge Irrigation District (WID). Collectively, these 16 GSAs will be referred to as "GSAs."

Between November 2019 and January 2020, the GSAs individually adopted the Eastern San Joaquin (ESJ) GSP, which meets all relevant requirements contained within the Sustainable Groundwater Management Act (SGMA) of 2014 and the GSP Emergency Regulations. The GSP was developed in a stakeholder-driven environment with cooperation between the GSAs and their member agencies. A stakeholder engagement strategy was developed to enable the interests of beneficial users of groundwater in the Subbasin to be considered. The strategy incorporated monthly Groundwater Sustainability Workgroup meetings, monthly Advisory Committee meetings, monthly ESJGWA Board meetings, coordination with neighboring Subbasins, approximately quarterly informational open house events, outreach presentations to community groups, and information distribution to property owners and residents in the Subbasin. The GSP describes groundwater conditions in the Eastern San Joaquin Subbasin and sets up a system of management based on sustainable management criteria supported by monitoring networks, projects and management actions, adaptive management, and reporting.

This water year (WY) 2021 Annual Report for the Eastern San Joaquin Subbasin has been prepared in compliance with Article 7 *Annual Reports and Periodic Evaluations by the Agency*, § 356.2 *Annual Reports* of the GSP Emergency Regulations, as included in the California Code of Regulations. WY 2021 includes the period from October 2020 through September 2021.

GROUNDWATER MANAGEMENT ACTIVITIES AND MILESTONES

While enactment of SGMA in 2015 prohibited the development or renewal of any GMPs within medium and high priority basins (such as the Eastern San Joaquin Subbasin), the GSAs continued to implement the management activities identified in the 2004 GMP throughout the GSP development process (ending January 31, 2020). Such activities included continuing to work with DWR to improve sharing and exchange of data and development of the Eastern San Joaquin Water Resources Model (ESJWRM). This

Annual Report uses the information contained within the GSP, along with data collected during GSP implementation, to evaluate continued sustainable conditions throughout the planning and implementation horizon.

The GSP sets sustainable management criteria for applicable sustainability indicators and identifies projects and management actions to aid in maintaining sustainable conditions throughout the Eastern San Joaquin Subbasin. Under SGMA, sustainable management criteria can be defined as the following:

- **Minimum Threshold** – Quantitative threshold for each sustainability indicator used to define the point at which undesirable results may begin to occur
- **Measurable Objective** – Quantitative target that establishes a point above the minimum threshold that allows for a range of active management in order to prevent undesirable results
- **Interim Milestones** – Targets set in increments of five (5) years over the implementation period of the GSP to put the basin on a path to achieving sustainability by 2040
- **Margin of Operational Flexibility** – The range of active management between the measurable objective and the minimum threshold

During WY 2021, monitoring relative to all sustainability indicators indicated that the Eastern San Joaquin Subbasin was continuing to operate under sustainable conditions relative to their respective sustainability indicators and established sustainable management criteria. As projects are implemented, the ESJGWA will continue to assess conditions relative to established criteria and definitions of undesirable results.

GROUNDWATER MONITORING AND CONDITIONS ASSESSMENT

Hydrologic Conditions

WY 2021 was drier than average (second driest year on record based on statewide runoff data) and classified as a critical water year. During WY 2021, estimated precipitation in the Subbasin was 57 percent of long-term average (WY 1969-2018). Measured stream flows in the San Joaquin River were approximately 23 percent of long-term averages, whereas those in the Calaveras River were 49 percent of long-term averages and those in the Cosumnes River were 16 percent of long-term averages (USGS, National Water Information System, 2022).

Groundwater Levels

Groundwater elevations generally decreased throughout WY 2021 for almost all wells in the representative monitoring network with groundwater level data available. No wells reported groundwater levels below the minimum thresholds established in the GSP. Eleven wells reported Fall 2020 measurements and twelve wells reported Spring 2021 measurements that met or exceeded their measurable objective. All recent data show typical patterns of annual highs in the Spring and lows in the late Summer or Fall that match historical trends. According to DWR's Household Water Supply Shortage

Reporting System, San Joaquin County had 26 reported water shortages from dry wells in the 365 days prior to the preparation of this annual report (DWR, 2022b).[1]

Groundwater Storage:

The groundwater storage sustainability indicator for the Eastern San Joaquin Subbasin uses the groundwater level sustainable management criteria (i.e., Minimum Threshold, Measurable Objective, Interim Milestones, and Margin of Operational Flexibility) as a proxy. Therefore, the minimum thresholds for groundwater levels are designed to be protective of significant and unreasonable impacts to changes in groundwater storage. For WY 2021, groundwater storage was estimated using the ESJWRM (the Subbasin's integrated flow model). Based on these estimates, from the beginning to the end of WY 2021, storage in the Eastern San Joaquin Subbasin decreased by 157,000 acre-feet (AF). This volume represents about 0.3% of the total fresh groundwater in storage, which was estimated to be more than 50 million acre-feet (MAF) in 2015, and is less than the WY 2020 change in storage (-213,000 AF), most likely due to statewide water use restrictions put in place in response to existing dry hydrologic conditions.

Groundwater Quality

Salinity is the only water quality constituent for which minimum thresholds are established in the Eastern San Joaquin Subbasin. In WY 2021, specific conductance was measured at two wells and converted to total dissolved solids (TDS) measurements. TDS was not reported for the remaining eight representative monitoring wells due to a variety of reasons, including reductions in field work as a result of the COVID-19 pandemic. All measurements reported are above the minimum thresholds for water quality set in the GSP.

Saltwater Migration

The Eastern San Joaquin Subbasin is not in a coastal area, and seawater intrusion via the aquifer formations is unlikely. Seawater could migrate into the Sacramento-San Joaquin River Delta (Delta) via the tides or as result of sea level rise and climate change. This could create the potential for seawater to percolate into the aquifers. This condition would be observable and widely noted with current monitoring of surface water conditions in the Delta.

There is saline water underlying the Delta in deeper aquifers, and saline conditions have been observed in shallower zones. This potential impairment to beneficial uses of groundwater would be related to the migration of the saline waters from west to east into the Eastern San Joaquin Groundwater Subbasin due to hydraulic conditions and the lowering of groundwater levels. The GSP established monitoring protocols for the early detection of saltwater migration from the west, under the Delta, to the east into the Eastern San Joaquin Groundwater Subbasin. The monitoring program is intended to identify the issue associated with saltwater migrations so that the ESJGWA can take early action to address undesirable results. In WY 2021, chloride measurements were not reported for representative monitoring wells reported due to a variety of reasons, including reductions in field work as a result of the COVID-19 pandemic. The most recent measurements reported in previous water years are below the minimum threshold for chloride concentrations set in the GSP.

[1] Note: This figure includes some portions of the County that are not within the Eastern San Joaquin Subbasin as well as 4 months of WY 2022.

Land Subsidence

The land subsidence sustainability indicator in the Eastern San Joaquin Subbasin uses the groundwater level sustainable management criteria as a proxy. The minimum thresholds for groundwater levels are designed to be protective of significant and unreasonable impacts to land subsidence. There were no minimum threshold exceedances for groundwater levels; therefore, there were no land subsidence sustainability threshold exceedances. Land subsidence has not historically been an area of concern in the Subbasin and there are no records of significant land subsidence caused by groundwater pumping in the Subbasin. Section 2.1.5 of the GSP details the extent of clay deposits in the Subbasin, and Section 2.2.5 of the GSP includes a description of the minimal subsidence that has historically occurred in the Subbasin.

Groundwater-Surface Water Interaction

The depletions of interconnected surface water sustainability indicator in the Eastern San Joaquin Subbasin uses the groundwater level sustainable management criteria as a proxy. The minimum thresholds for groundwater levels are designed to be protective of significant and unreasonable impacts to depletions of interconnected surface waters. There were no minimum threshold exceedances for groundwater levels; therefore, there were no interconnected surface water sustainability threshold exceedances.

Total Water Use

The primary water use sectors in the Eastern San Joaquin Subbasin include urban and agriculture uses, with groundwater supplying the majority of the total water use. During WY 2021, groundwater extraction and use is estimated to be 809,327 AF for the Eastern San Joaquin Subbasin. Surface water deliveries during WY 2021 are estimated to be 574,597 AF. The majority of surface water is used between May and September. Total water use is the sum of the groundwater use and surface water use; therefore, total water use during WY 2021 is estimated to be 1,383,924 AF.

ANNUAL REPORT ELEMENTS:

The following table presents the sections and page numbers [EH1]where requirements for Annual Report elements are included, subject to Article 7 § 356.2 of the GSP Regulation Sections in the California Code of Regulations.

California Code of Regulations - GSP Regulation Sections	Annual Report Elements	Section(s) and page numbers(s) where requirements for Annual Report elements are included
Article 7	**Annual Reports and Periodic Evaluations by Agency**	
§ 356.2	**Annual Reports**	
	Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:	
	(a) General information, including an executive summary and a location map depicting the basin covered by the report.	Executive Summary, Figure 1
	(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:	--
	(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:	--
	(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.	Section 3.2, Figure 2, Figure 3, Figure 4,
	(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.	Section 3.2, Figure 2, Appendix B, Appendix C
	(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.	Section 3.8.1, Figure 11, Table 3-1
	(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.	Section 3.8.2, Table 3-2
	(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.	Section 0, Table 3-3
	(5) Change in groundwater in storage shall include the following:	--
	(A) Change in groundwater in storage maps for each principal aquifer in the basin.	Section 3.3, Figure 9

California Code of Regulations - GSP Regulation Sections	Annual Report Elements	Section(s) and page numbers(s) where requirements for Annual Report elements are included
	(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.	Section 3.3, Figure 6, Figure 7, Figure 8
	(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.	Section 2.3, Appendix A

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1. INTRODUCTION

The Eastern San Joaquin Groundwater Subbasin (Eastern San Joaquin Subbasin or Subbasin) (**Figure 1**) has been identified by the California Department of Water Resources (DWR) as critically overdrafted. The Eastern San Joaquin Groundwater Sustainability Plan (Eastern San Joaquin GSP, GSP, or the Plan) has been developed and submitted to meet Sustainable Groundwater Management Act (SGMA) regulatory requirements by the January 31, 2020, deadline for critically-overdrafted basins while reflecting local needs and preserving local control over water resources. While the Eastern San Joaquin GSP offers a new and significant approach to groundwater resource protection, it was developed within an existing framework of comprehensive planning efforts. Throughout the region, several separate yet related planning efforts have occurred previously or are concurrently proceeding, including integrated regional water management, urban water management, agricultural water management, watershed management, habitat conservation, and general planning and most closely, the *Eastern San Joaquin Groundwater Basin Groundwater Management Plan* (GMP) (2004). The Eastern San Joaquin GSP fits in with these prior planning efforts, building on existing local management and basin characterization.

The Eastern San Joaquin GSP provides a path to achieve and document sustainable groundwater management within 20 years following Plan adoption, promoting the long-term sustainability of locally managed groundwater resources now and into the future.

The GSP was developed jointly by the Eastern San Joaquin Groundwater Authority (ESJGWA), which is a joint powers authority formed by the following 16 groundwater sustainability agencies (GSAs) within the Eastern San Joaquin Subbasin. Collectively, these 16 GSAs will be referred to as "GSAs".

- Central Delta Water Agency (CDWA)
- Central San Joaquin Water Conservation District (CSJWCD)
- City of Lodi
- City of Manteca
- City of Stockton
- Eastside San Joaquin GSA (Eastside GSA) (composed of Calaveras County, Calaveras County Water District [CCWD], Stanislaus County, and Rock Creek Water District)
- Linden County Water District (LCWD)
- Lockeford Community Services District (LCSD)
- North San Joaquin Water Conservation District (NSJWCD)
- Oakdale Irrigation District (OID)
- County of San Joaquin GSA – Eastern San Joaquin 1
- County of San Joaquin GSA – Eastern San Joaquin 2
- South Delta Water Agency (SDWA)
- South San Joaquin GSA (composed of South San Joaquin Irrigation District [SSJID] including all conveyance works, Woodward Reservoir, City of Ripon, and City of Escalon)
- Stockton East Water District (SEWD)

- Woodbridge Irrigation District (WID)

During water year (WY) 2021 (October 1, 2020, through September 30, 2021), groundwater management within the Eastern San Joaquin Subbasin evolved through the implementation of the GSP, which was ultimately adopted by the GSAs between November 2019 and January 2020. The GSP was developed in a stakeholder-driven environment, including 69 open meetings and numerous other outreach activities. The result is a GSP that describes groundwater conditions in the Eastern San Joaquin Subbasin and sets up a system of management based on quantitative thresholds, termed sustainable management criteria, for six sustainability indicators: chronic lowering of groundwater levels, degraded water quality, saltwater migration, land subsidence, change in groundwater storage, and depletions of interconnected surface water.

This Annual Report provides information on conditions in the Eastern San Joaquin Subbasin and progress towards implementing the GSP for WY 2021. The report has been prepared in accordance with Article 7 *Annual Reports and Periodic Evaluations by the Agency*, § 356.2 *Annual Reports* of the GSP Emergency Regulations as contained within the California Code of Regulations.

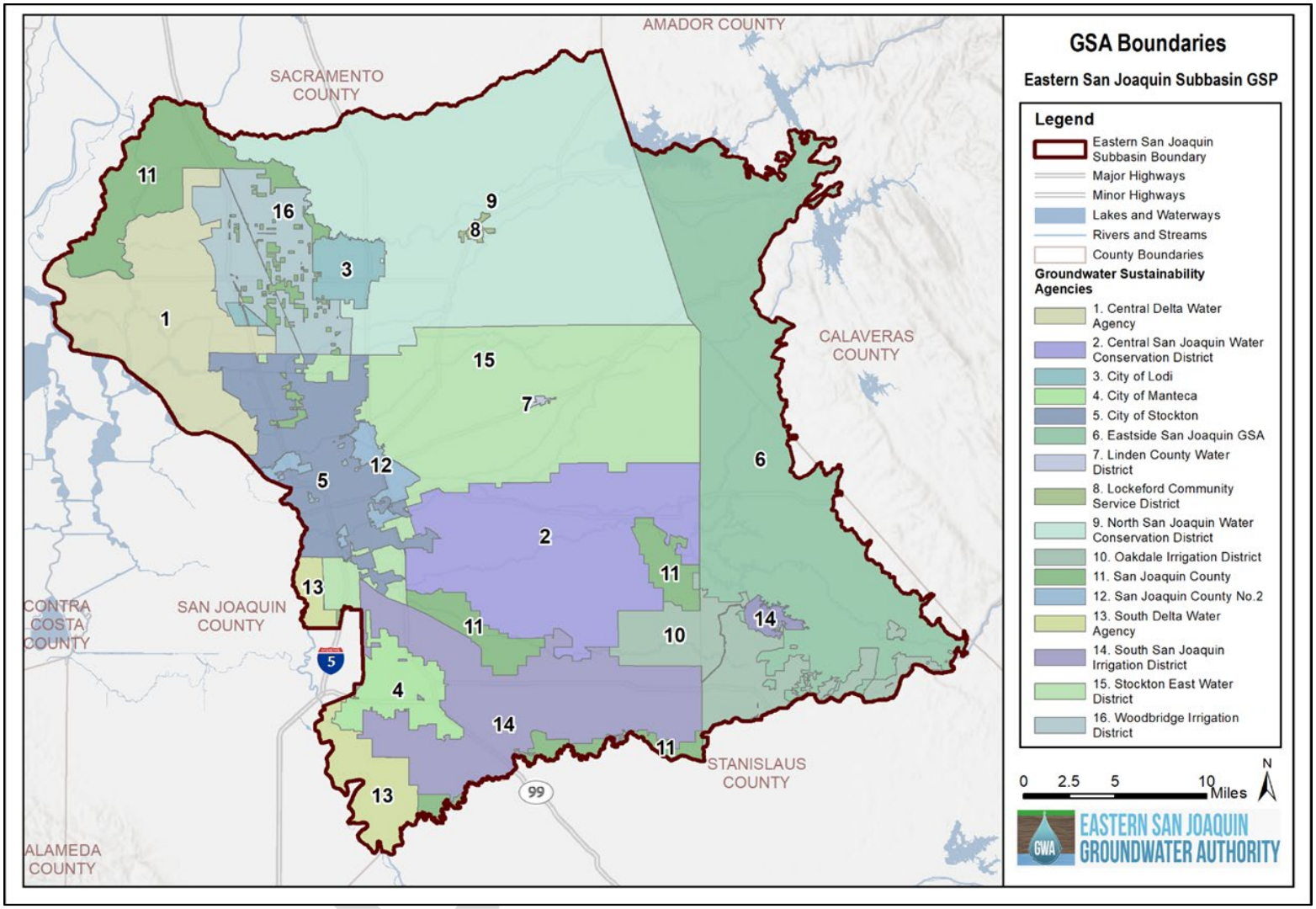

Figure 1. Eastern San Joaquin Groundwater Subbasin

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2. GROUNDWATER MANAGEMENT ACTIVITIES AND MILESTONES

This section documents the activities and milestones from the passing of SGMA throughout GSP development, summarizes the contents of the GSP for the Eastern San Joaquin Subbasin, and documents GSP implementation progress during WY 2021.

Implementation of the GSP is underway, which includes this Annual Report as well as monitoring and associated assessment of sustainable management criteria and identified projects, management actions, and adaptive management (as needed).

2.1 GROUNDWATER SUSTAINABILITY PLAN DEVELOPMENT

Preliminary development of the Eastern San Joaquin GSP began with formation of the member GSAs and agreement to form the ESJGWA for the purpose of GSP development and implementation. The ESJGWA Board of Directors (ESJGWA Board) developed an Advisory Committee (AC) that included staff members from the GSAs. The AC provides technical review and recommendations to the ESJGWA Board for ongoing sustainable groundwater management and development of the Eastern San Joaquin GSP. The ESJGWA also developed a Groundwater Sustainability Workgroup (Workgroup) to promote stakeholder input and relied upon the Workgroup when developing the GSP. The Workgroup began with an application process to ensure a diverse cross section of populations were represented to serve on the Workgroup. Workgroup members participated and provided valuable input throughout the GSP development process.

On March 3, 2018, the GSAs filed a notice of intent to prepare a GSP with DWR. A public draft of the GSP was posted for public comment in July 2019, and a notice of intent to adopt a GSP was sent by the ESJGWA to all cities and counties in the Eastern San Joaquin Subbasin on August 16, 2019. The Final GSP, published November 5, 2019, was adopted by the individual GSAs between November 2019 and January 2020. On January 8, 2020, the ESJGWA Board passed a resolution agreeing to submit the Plan to DWR on behalf of the 16 GSAs.

On November 18, 2021, DWR notified the GSAs in the Eastern San Joaquin Subbasin that the GSP will need to address deficiencies in order to be approved. DWR has requested a consultation with the GSAs to discuss actions and time necessary to improve the GSP prior to making a final determination. The Subbasin GSAs met with DWR on December 3, 2021 to discuss the comments received. The GSAs have initiated efforts to address DWR's comments and are in the process of scheduling additional consultation meetings with DWR to address any identified deficiencies.

2.2 GROUNDWATER SUSTAINABILITY PLAN CONTENTS SUMMARY

The GSP was prepared in compliance with all relevant elements of the SGMA Regulations and GSP Emergency Regulations, Article 5 *Plan Contents*. The subsections below summarize the contents of the GSP relevant to assessing changing conditions in the Eastern San Joaquin Subbasin for the purposes of evaluating GSP implementation progress in this Annual Report.

2.2.1 Plan Area

The GSP's plan area encompasses the Eastern San Joaquin Subbasin (5-22.01), as defined by DWR's Final 2018 Basin Boundary Modifications (released February 11, 2019). The Eastern Subbasin is located at the north end of the larger San Joaquin Valley Groundwater Basin, to the west of the Sacramento-San Joaquin River Delta (Delta) and is generally bounded by the Sierra Nevada foothills to the east, the San Joaquin River to the west, Dry Creek to the north, and Stanislaus River to the south. The major river

systems traversing the Subbasin include the Calaveras, Mokelumne, and Stanislaus Rivers. Multiple smaller streams flow into the San Joaquin River.

The plan area covers areas of San Joaquin County east of the San Joaquin River, including the cities of Stockton, Lodi, Manteca, Escalon, and Ripon, and portions of Calaveras and Stanislaus Counties. The Subbasin is bordered by Sacramento, Amador, and Contra Costa Counties. Land use patterns in the Eastern San Joaquin Subbasin are dominated by agricultural uses, including nut and fruit trees, vineyards, row crops, grazing, and forage. Irrigated crop acreage in the Subbasin is 42% fruit and nut trees, 24% vineyards, and 9% alfalfa and irrigated pasture, according to 2016 statewide land use data.

2.2.2 Hydrogeologic Conceptual Model

One principal aquifer exists across the Eastern San Joaquin Subbasin that is composed of three water production zones. The zones are:

- **Shallow Zone** that consists of the alluvial sands and gravels of the Modesto, Riverbank, and Upper Turlock Lake Formations
- **Intermediate Zone** that consists of the Lower Turlock Lake and Laguna Formations
- **Deep Zone** that consists of the consolidated sands and gravels of the Mehrten Formation

The Stockton Fault is the largest fault in the Eastern San Joaquin Subbasin. It is a large reverse fault with displacements of up to 3,600 feet. The Vernalis Fault is a reverse fault with a northwest-southeast trend that bounds the Tracy-Vernalis anticlinal trend that is mapped outside of the west boundary of the Eastern San Joaquin Subbasin. Additionally, the Stockton Arch is a broad transverse structure that underlies the southern half of the Eastern San Joaquin Subbasin. The base of fresh water (encountered saline) has been observed as shallow as 650 feet below ground surface (bgs) in the eastern part of the Subbasin to over 2,000 feet bgs in the northern part of the Subbasin.

2.2.3 Existing Groundwater Conditions

Groundwater levels in some portions of the Subbasin have been declining for many years, while groundwater levels in other areas of the Subbasin have remained stable or increased in recent years. The change in groundwater levels varies across the Subbasin, with the greatest declines occurring in the central portion of the Subbasin. The western and southern portions of the Subbasin have experienced less change in groundwater levels, in part due to the minimal groundwater pumping in the Delta area to the west and the import of surface water for agricultural and urban uses.

In many areas of the Subbasin, groundwater levels reached their lowest in Fall 1992. In many cases, areas that experienced undesirable results in 1992 put mitigation measures in place, often deepening wells, meaning that 1992 groundwater levels would no longer trigger undesirable effects. Groundwater levels in some areas of the Subbasin have recovered since 1992; however, groundwater levels in other portions of the Subbasin further declined below 1992 levels.

A central pumping depression exists east of the City of Stockton. Groundwater generally flows from the outer edges of the Subbasin towards the depression in the middle of the Subbasin. Along the eastern side of the Subbasin, the lateral gradient of groundwater levels ranges from approximately 21 feet per mile (ft/mi) during the seasonal high to 16 ft/mi during the seasonal low. Along the western side of the Subbasin, the lateral gradient ranges from approximately 7 ft/mi during the seasonal high to 6 ft/mi during the seasonal low. The steeper gradients on the east side of the Subbasin compared to the west side is

primarly due to the steeper aquifer units in that area, combined with a lack of head influence from the Delta.

Groundwater quality in the Subbasin varies by location. Areas along the western margin have historically had higher levels of salinity. Salinity may be naturally occurring or the result of human activity. Sources of salinity in the Subbasin include Delta sediments, deep saline groundwater, and irrigation return water. Elevated concentrations of other constituents, such as nitrate, arsenic, and point-source contaminants, are generally localized and not widespread and are generally related to natural sources or land use activities.

While the total volume of groundwater in storage in the Subbasin has declined over time, groundwater storage reduction has not historically been an area of concern in the Subbasin as there are large volumes of fresh water stored in the aquifer. As estimated in the ESJGSP, the total volume of fresh groundwater in storage was estimated at over 53 million acre-feet (MAF) in 2015 (Woodard & Curran, 2019, page 2-80). Significant impacts to groundwater beneficial uses were estimated (via modeling) to occur if there was a depletion of 23 MAF (e.g., only 30 MAF of fresh groundwater remained in the aquifer). As such, it is highly unlikely the Subbasin will experience conditions under which the volume of stored groundwater poses a concern, although the depth to access that groundwater does pose a concern.

Land subsidence has not historically been an area of concern in the Subbasin, and there are no records of land subsidence caused by groundwater pumping in the Subbasin.

Seawater intrusion is not present in the Subbasin. While the Delta ecosystem evolved with a natural salinity cycle that brought brackish tidal water in from the San Francisco Bay, current management practices endeavor to maintain freshwater flows through a combination of hydraulic and physical barriers and alterations to existing channels.

Major river systems in the Subbasin are highly managed to meet instream flow requirements for fisheries, water quality standards, and water rights of users downstream. Many smaller streams run through the Subbasin that provide contributions to both groundwater, riparian habitat, and the major river systems. The interconnection between reaches of these streams and the groundwater system will be better understood through monitoring as the GSP is implemented.

2.2.4 Water Budgets

Water budgets provide a quantitative accounting of surface water and groundwater entering and leaving the Eastern San Joaquin Subbasin under historical, current, projected, and projected with climate change conditions. The budgets were estimated using the ESJWRM. The primary components of the groundwater budget are:

- Inflows:
    - Deep percolation from precipitation, applied water (surface water and groundwater) for agricultural lands, and applied water (surface water and groundwater) for outdoor use in the urban areas or industrial purposes
    - Stream seepage (i.e., losses to the groundwater system)
    - Other recharge (including unlined canals/reservoir seepage, local tributaries seepage, and Managed Aquifer Recharge [MAR] projects)
    - Subsurface inflow
- Outflows:
    - Groundwater outflow to streams (i.e., stream gain from the groundwater system)
    - Groundwater pumping

  - Subsurface outflow
- Change in Groundwater Storage (Inflows Minus Outflows)

The average annual groundwater storage is shown as decreasing under historical, current, projected, and projected with climate change conditions, suggesting conditions of overdraft.

The sustainable conditions scenario results in groundwater outflows almost equal to groundwater inflows, bringing the long-term (50-year) average change in groundwater storage to close to zero. Based on this analysis, the sustainable yield of the Subbasin is 715,000 acre-feet per year (AFY) ± 10 percent. Groundwater pumping and sustainable yield is discussed further in Section 3.8.1.

2.2.5 Sustainable Management Criteria

SGMA allows several pathways to meet the distinct local needs of each groundwater basin, including development of sustainable management criteria, usage of other sustainability indicators as a proxy, and identification of indicators as not being applicable to the basin. Sustainable management criteria were developed based on information about the Subbasin in the hydrogeologic conceptual model, the descriptions of current and historical groundwater conditions, the water budget, and input from stakeholders during the GSP development process.

The sustainability goal for the Eastern San Joaquin Subbasins is:

> *to maintain an economically viable groundwater resource for the beneficial use of the people of the Eastern San Joaquin Subbasin by operating the Subbasin within its sustainable yield or by modification of existing management to address future conditions. This goal will be achieved through the implementation of a mix of supply and demand type projects consistent with the GSP implementation plan.*

The method prescribed by SGMA to measure undesirable results and achieve the sustainability goal involves setting minimum thresholds and measurable objectives for a series of representative monitoring sites. These representative sites are a subset of the monitoring network developed as part of the GSP. The sustainable management criteria are summarized in **Table 2-2**.

Of the six sustainability indicators addressed in the Eastern San Joaquin Subbasin, chronic lowering of groundwater levels is the driver for sustainable groundwater management, as several other indicators all correlated with groundwater levels. Measurable objectives, minimum thresholds, and interim milestones were developed for each of the identified representative wells.

Minimum thresholds for groundwater levels were developed with reference to historical drought low conditions and domestic well depths. Specifically, minimum thresholds were established based on the deeper of the historical drought low plus a buffer of the historical fluctuation or the 10th percentile domestic well depth, whichever is shallower – establishing levels that are protective of 90 percent of domestic wells. In municipalities with ordinances requiring the use of municipal water (water provided by a city's municipal wells) for domestic users, the 10th percentile municipal well depth is used in place of the 10th percentile domestic well depth criteria. Measurable objectives were established based on the historical drought low and provide a buffer above the minimum threshold. A table summarizing minimum thresholds and measurable objectives is included in the GSP. Graphs showing the minimum threshold and measurable objective for each of the representative wells are contained in an appendix to the GSP.

Minimum thresholds for water quality were defined by considering two primary beneficial uses at risk of undesirable results related to salinity: drinking water and agriculture uses. Minimum thresholds are 1,000

milligrams per liter (mg/L) for each representative monitoring well, consistent with the upper limit secondary maximum contaminant level (SMCL) for total dissolved solids (TDS). Crop tolerances in the Subbasin range by crop type from 900 mg/L TDS for almonds up to 4,000 mg/L TDS for wheat, assuming a 90 percent yield.

The Eastern San Joaquin Subbasin is not in a coastal area, and seawater intrusion is not currently present. Undesirable results related to seawater intrusion are not currently occurring and are not reasonably expected to occur. However, this GSP recognizes that saltwater currently found in some of the aquifers under the Delta could migrate and impair groundwater quality. As such, the GSP establishes monitoring protocols for the early detection of saltwater migration from under the Delta or deep aquifer zones, were it ever to occur, so that the ESJGWA can take early actions to address any associated undesirable results.

The GSP develops minimum thresholds and measurable objectives that include monitoring for chloride and an analysis of isotopic ratios to identify the source of high salinity. The minimum threshold for saltwater migration is a 2,000 mg/L chloride isocontour line established near the western edge of the Subbasin between sentinel monitoring locations. 2,000 mg/L chloride is approximately 10 percent of seawater chloride concentrations (19,500 mg/L).

For depletions of interconnected surface water, the minimum thresholds and measurable objectives for groundwater levels are used. There is significant correlation between groundwater levels and depletions, and the groundwater levels minimum thresholds are found to be protective of depletions. Similarly, the minimum thresholds and measurable objectives for groundwater levels are used for the land subsidence and groundwater storage sustainability indicators as both are also strongly linked to groundwater levels. The groundwater levels minimum thresholds are found to be protective of land subsidence and groundwater storage.

2.2.6 Monitoring Networks

Monitoring networks were developed for the sustainability indicators that apply to the Eastern San Joaquin Subbasin, leveraging existing monitoring that has been developed locally and in cooperation with DWR. The objective of these monitoring networks is to monitor conditions across the Subbasin so that the GSAs can continue to manage groundwater sustainably. Specifically, the monitoring network was developed to do the following:

- Monitor impacts to the beneficial uses or users of groundwater
- Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds
- Demonstrate progress toward achieving measurable objectives described in the GSP
- Support estimation of annual changes in water budget components

To achieve these objectives, the monitoring well networks incorporate sites and frequencies that can detect seasonal and long-term trends for each applicable sustainability indicator. This includes selection of an appropriate temporal frequency and spatial density to evaluate groundwater conditions related to the effectiveness of the GSP.

There are four monitoring well networks established within the Eastern San Joaquin Subbasin GSP: a representative network for water levels, a broad network for water levels, a representative network for water quality, and a broad network for water quality. Monitoring well data from the representative networks are used to determine compliance with the minimum thresholds, while data from the broad

networks are used for informational purposes to identify trends and fill data gaps. The two monitoring well networks for water quality are also used to develop a chloride isocontour to evaluate potential for saltwater migration. Water level data inform depletions of interconnected surface water.

Wells in the monitoring networks are measured on a semi-annual schedule (spring and fall) for both groundwater levels and water quality. Historical measurements have been entered into the Subbasin Data Management System (DMS), and future data are also be stored in the DMS.

A summary of the wells in the monitoring networks is shown in **Table 2-1**.

Table 2-1: Summary of Monitoring Network Wells

Representative Networks	Well Count
Groundwater Level	21[2]
Groundwater Quality*	10
Broad Networks	
CASGEM (Groundwater Levels)	76
Nested or Clustered Wells (Groundwater Levels & Quality)*	16
Agency Wells (Groundwater Levels & Quality)*	5

*The 10 groundwater quality wells in the Representative Networks are also part of the Broad Networks. The well count presented in this table for the Broad Network do not include the 10 wells that are included in the Representative Network for water quality.

2.2.7 Projects and Management Actions

Achieving sustainability in the Subbasin requires implementation of projects and management actions. The Subbasin will achieve sustainability by implementing water supply projects that either replace groundwater use or supplement groundwater supplies to attain the current estimated pumping offset and/or recharge targets identified in the GSP. In addition, three projects have been identified that support demand-side reduction activities through conservation measures, including water use efficiency upgrades. At present, the Subbasin has submitted a grant application for implementation grant funding under the Sustainable Groundwater Management grant program for critically-overdrafted groundwater basin. This funding will be used to further three projects in support of the Subbasin's sustainability.

Currently, no pumping restrictions have been proposed for the Subbasin; however, GSAs maintain the flexibility to implement such demand-side management actions in the future if need is determined. Additional management activities are:

- Monitoring and recording of groundwater levels and groundwater quality data
- Maintaining and updating the DMS with newly collected data
- Annual monitoring of progress toward sustainability
- Annual reporting of Subbasin conditions to DWR as required by SGMA

[2] 20 wells were included in the representative monitoring network for groundwater levels in the GSP. An additional well (01S10E04C001M) was added during WY 2020 in an effort to fill identified data gaps in the Subbasin.

Table 2-2. Summary of Sustainable Management Criteria

Sustainability Indicator	Undesirable Results	Identification of Undesirable Results	Measurable Objective	Minimum Threshold
Chronic lowering of groundwater levels	An undesirable result is experienced if sustained groundwater levels are too low to satisfy beneficial uses within the Subbasin over the planning and implementation horizon of the GSP.	Undesirable results occur when more than 25% of representative monitoring wells (5 of 20 wells in the Subbasin) fall below their minimum elevation thresholds for two consecutive years that are categorized as non-dry years (below-normal, above-normal, or wet), according to the San Joaquin Valley Water Year Hydrologic Classification.	At each of 20 representative wells, the measurable objective was defined based on the deeper of 1992 or 2015-2016 groundwater level values.	The deeper of 1992 and 2015-2016 groundwater levels with a buffer of 100 percent of historical range applied, or the 10th percentile domestic well depth within a 3-mile radius of the monitoring well,[1] whichever is shallower. In municipalities with ordinances requiring the use of municipal water, the 10th percentile municipal well depth is used in place of the 10th percentile domestic well depth criteria.
Reduction in groundwater storage	An undesirable result is experienced if sustained groundwater storage volumes are insufficient to satisfy beneficial uses within the Subbasin over the planning and implementation horizon of the GSP. Undesirable results related to groundwater storage are not present and are not likely to occur in the Subbasin.	Undesirable results would occur if groundwater storage volumes were depleted by 23 MAF (e.g., 30 MAF of freshwater remain in storage).	Management of reduction in groundwater storage is performed using groundwater levels as a proxy.	Management of reduction in groundwater storage is performed using groundwater levels as a proxy.
Degraded water quality	An undesirable result is experienced if SGMA-related groundwater management activities cause significant and unreasonable impacts to the long-term viability of domestic, agricultural, municipal, environmental, or other beneficial uses over the planning and implementation horizon of the GSP.	Undesirable results occur when more than 25% of representative monitoring wells (3 of 10 wells in the Subbasin) exceed the minimum thresholds for water quality for two consecutive years and where these concentrations are the result of groundwater management activities.	At each of 10 representative wells, 600 mg/L TDS. The measurable objective is close to the recommended SMCL of 500 mg/L and significantly below the upper limit SMCL of 1,000 mg/L.	At each of 10 representative wells, 1,000 mg/L TDS, consistent with the upper SMCL and developed based on the crop tolerances for fruit and nut trees and vineyards.

Sustainability Indicator	Undesirable Results	Identification of Undesirable Results	Measurable Objective	Minimum Threshold
Saltwater migration	An undesirable result is experienced if sustained groundwater salinity levels caused by saltwater migration and due to groundwater management practices are too high to satisfy beneficial uses within the basin over the planning and implementation horizon of the GSP. Saltwater migration is not present and is not likely to occur in the Eastern San Joaquin Subbasin.	Undesirable results are considered to occur during GSP implementation when 2,000 mg/L chloride reaches an established isocontour line and where these concentrations are caused by intrusion of a seawater source as a result of groundwater management activity.	500 mg/L chloride concentrations at an established isocontour line along the western portion of the Subbasin.	2,000 mg/L chloride concentrations at the established isocontour line along the western portion of the Subbasin. An action plan is in place to trigger additional monitoring and analysis at detections of 1,000 mg/L chloride in the monitoring network to confirm seawater source.
Land subsidence	An undesirable result is experienced if the occurrence of land subsidence substantially interferes with beneficial uses of groundwater and infrastructure within the Subbasin over the planning and implementation horizon of the GSP. There are no historical records of significant and unreasonable impacts from subsidence in the Subbasin.	An undesirable result occurs when subsidence substantially interferes with beneficial uses of groundwater and surface land uses. Undesirable results would occur when substantial interference with land use occurs, including significant damage to canals, pipes, or other water conveyance facilities.	Management of land subsidence is performed using groundwater levels as a proxy.	Management of land subsidence is performed using groundwater levels as a proxy.
Depletions of interconnected surface water	An undesirable result is experienced if the depletions of interconnected surface water causes significant and unreasonable adverse effects on beneficial uses of surface water within the Subbasin over the planning and implementation horizon of the GSP.	An undesirable result occurs when depletions result in reductions in flow or levels of major rivers and streams that are hydrologically connected to the basin such that the reduced surface water flow or levels have a significant and unreasonable adverse impact on beneficial uses and users of the surface water.	Management of depletions of interconnected surface water is performed using groundwater levels as a proxy.	Management of depletions of interconnected surface water is performed using groundwater levels as a proxy.

Notes:
[1] A radius of 2 miles was used for well 03N07E21L003 to reflect domestic well depths in close proximity to the Mokelumne River.

2.2.8 Implementation

Implementation of the GSP includes monitoring of conditions, comparing against sustainable management criteria, reporting of those conditions, evaluating the GSP, implementing adaptive management strategies, implementing projects and management actions, and funding of these activities. Data are collected through monitoring on a prescribed schedule for each monitoring network.

The data collected are used to improve the understanding of the Subbasin as well as for comparison with the sustainable management criteria. Each representative monitoring well site included in each monitoring well network has defined measurable objectives and minimum thresholds for each applicable sustainability indicator. Comparison of monitoring well data and measurable objectives allow for assessment and tracking of desired conditions. Comparisons with minimum thresholds allow for assessment and tracking of undesirable results.

While undesirable results are not anticipated, should sites begin to approach minimum thresholds, the ESJGWA will convene a working group to evaluate adaptive management strategies, such as the implementation of groundwater pumping curtailments, land fallowing, etc. Further, the total percentage of representative sites exceeding minimum thresholds will be calculated and compared against the percentage which has been identified as reflective of undesirable results.

Implementation activities are reported in annual reports due April 1st of each year and includes conditions and activities from the previous water year. This WY 2021 report is the third annual report, and the second to be prepared follow GSP submittal on January 31, 2020. Evaluation reports will also be developed every five years to document progress on implementation and to reconsider elements of the GSP.

The Eastern San Joaquin Subbasin applied for funding under the Proposition 68 Sustainable Groundwater Management Grant Program, Round 3. The ESJGWA was awarded $500,000 on January 24, 2020. These grant funds will be used to install additional monitoring wells adjacent to the Delta to assess cross-boundary flows in the area, improve the existing DMS, and design a Rate Study to develop a cost allocation framework that will help the Subbasin identify how costs for implementation activities will be distributed between GSAs. Such implementation activities include monitoring and reporting, model verification efforts, and public engagement and outreach. Additionally, as previously mentioned, the ESJGWA is currently pursuing funding under the Proposition 68 Sustainable Groundwater Management Grant Program – Critically Overdrafted Basin SGMA Implementation Round 1 to identify and implement projects that enhance direct recharge in the Subbasin. Projects in the Subbasin are being implemented at the GSA level.

2.3 GSP IMPLEMENTATION PROGRESS

Throughout the GSP development process, measurable objectives, interim milestones, and minimum thresholds for applicable sustainability indicators, as well as projects and management actions, were identified to aid in maintaining sustainable conditions throughout the Subbasin. Implementation progress of projects, management actions, and adaptive management activities are detailed in **Appendix A**. The following sections describe progress made in achieving the interim milestones identified in the GSP for groundwater levels and groundwater quality. Groundwater levels are used as a proxy for reduction in groundwater storage, land subsidence, and depletions of interconnected surface water. Monitoring for saltwater migration is done in conjunction with measuring chloride concentrations through the groundwater quality representative monitoring network wells. The ESJWRM was used to quantify recent changes in groundwater storage to reflect WY 2016 to 2021 for this Annual Report, described in

Section 3.4. During WY 2021, conditions relative to all thresholds for all applicable sustainability indicators were considered sustainable.

It should be noted that since early 2020, GSP implementation has been affected by the coronavirus pandemic (COVID-19) as GSA employees were encouraged to work from home and avoid public gatherings to prevent the spread of the virus, and more recently by the prevalent spread of the Omicron virus resulting in increased employee illness and associated leaves of absence. Monitoring activities that required traveling and in-person contact have been temporarily suspended and/or delayed in accordance with State and public health guidelines, resulting in monitoring data gaps during WY 2021. Pandemic restrictions may have also delayed implementation progress of projects, management actions, and adaptive management activities described in **Appendix A**.

2.3.1 Groundwater Levels

An analysis was performed to determine conditions relative to established thresholds (including interim milestones for 2025, measurable objectives, and minimum thresholds) during WY 2021 for the chronic lowering of groundwater levels sustainability indicator (**Table 2-3**). Three representative monitoring network wells were not monitored in WY 2021 and two were only monitored once due to a variety of factors including travel restrictions as a result of COVID-19 or well inaccessibility, as shown in **Table 2-3**. Groundwater levels at these wells will be reported in future annual reports. Hydrographs with historical data at each of the 21 representative monitoring network wells are included in **Appendix B**.

As defined in the GSP, interim milestones are established as the current condition for the first 10 years of GSP implementation, and then follow a linear trend between the current condition and the measurable objective.

Table 2-3. Chronic Lowering of Groundwater Levels Threshold Analysis

Well ID	CASGEM ID	Interim Milestone (2025) (IM)	Measurable Objective (MO)	Minimum Threshold (MT)	Fall 2020 (Seasonal Low)	Difference between Fall 2020 (ft msl)			Spring 2021 (Seasonal High)	Difference between Spring 2021 (ft msl)		
		(ft msl)	(ft msl)	(ft msl)	(ft msl)	IM	MO	MT	(ft msl)	IM	MO	MT
01S09E05H002	378824N1210000W001	-8.7	-19.6	-49.8	-17.75	-9.05	1.85	32.05	-9.3	-0.6	10.4	40.6
01N07E14J002	379316N1211665W001	-49.9	-70.4	-114.4	-59.41	-9.51	10.99	54.99	-54.4	-4.5	16.0	60.0
Lodi City Well #2	Not Part of CASGEM Program	0.6	-3.5	-38.5	4.94	4.34	8.44	43.44	2.9	2.3	6.4	41.4
Manteca 18	Not Part of CASGEM Program	9.1	5.8	-16	*	*	*	*	*	*	*	*
Swenson-3	380067N1213458W003	-19.3	-19.3	-26.6	*	*	*	*	*	*	*	*
01S10E26J001M	378163N1208321W001	81.7	81.7	43.7	81.94	0.24	0.24	38.24	83.4	1.7	1.7	39.7
02N08E15M002	380206N1210943W001	-63.2	-69.7	-124.1	-62.2	*	*	*	*	*	*	*
#3 Bear Creek	Not Part of CASGEM Program	-49.3	-50.3	-72.3	-63.3	-14	-13	9	-58.3	-9.0	-8.0	14.0
04N07E20H003M	381843N1212261W001	-35.5	-36.7	-81.7	-33.94	1.56	2.76	47.76	-33.0	2.5	3.7	48.7
03N07E21L003	380909N1212153W001	-51.5	-57.5	-100	-50	1.5	7.5	50	*	*	*	*
Hirschfeld (OID-8)	Not Part of CASGEM Program	36	36	12.5	31.54	-4.46	-4.46	19.04	33.9	-2.1	-2.1	21.4
Burnett (OID-4)	377909N1208675W001	79.7	79.7	60.7	77.89	-1.81	-1.81	17.19	81.2	1.5	1.5	20.5
02S07E31N001	377136N1212508W001	13.8	13	1.5	16.86**	3.06	3.86	15.36	15.4	1.6	2.4	13.9
02S08E08A001	377810N1211142W001	22.2	24	0.6	17.36	-4.84	-6.64	16.76	20.4	-1.8	-3.6	19.8
02N07E03D001	380578N1212017W001	-61.7	-79.7	-122.8	-54.23	7.47	25.47	68.57	-50.2	11.5	29.5	72.6
01N09E05J001	379661N1210011W001	-20.2	-51.1	-86.8	*	*	*	*	*	*	*	*
02N07E29B001	379976N1212308W001	-49.8	-80.4	-130.1	-39.13***	10.67	41.27	90.97	-35.7	14.1	44.7	94.4
04N05E36H003	381559N1213727W001	-5.1	-5.1	-31.1	0.33	5.43	5.43	31.43	0.4	5.5	5.5	31.5
03N06E05N003	381317N1213524W001	-14.1	-14.1	-35.1	****	****	****	****	-3.1	11.0	11.0	32.0
04N05E24J004	381816N1213723W001	-6.2	-6.2	-31.2	0.8	7	7	32	0.8	7.0	7.0	32.0
01S10E04C001M[1]	378846N1208816W001		70	50	64.22		-5.78	14.22	65.3		-4.7	15.3

* Groundwater level data for WY 2021 unavailable.

** Groundwater level data for WY 1991-2018 was provided by South Delta Water Agency, as reported in the GSP. Groundwater level data for WY 2019-2021 was provided by San Joaquin County.

*** Groundwater level data for WY 1991-2018 was provided by Stockton East Water District, as reported in the GSP. Groundwater level data for WY 2019-2021 was provided by San Joaquin County.

**** Well temporarily inaccessible. No measurement was taken.

[1] This is a new representative monitoring network well. Interim Milestones for 2025 have not yet been established.

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2.3.2 Groundwater Storage

The GSP uses groundwater level minimum thresholds, measurable objectives, and interim milestones as a proxy for the reduction in groundwater storage sustainability indicator. An analysis to determine conditions relative to established thresholds (including interim milestones for 2025, measurable objectives, and minimum thresholds) during WY 2021 for the chronic lowering of groundwater levels sustainability indicator is described in Section 2.3.1. The ESJWRM was updated to estimate the changes in groundwater storage during WY 2021, as described in Section 3.3.

2.3.3 Groundwater Quality

An analysis was performed to determine groundwater quality conditions relative to established sustainable management criteria (including interim milestones for 2025, measurable objectives, and minimum thresholds) during WY 2021 for the degraded water quality sustainability indicator (**Table 2-4)**. During WY 2021, specific conductance was sampled at Well 1 and Well 2 and converted to TDS. TDS was not sampled at Well 3, Stockton 10R, Well 15, Well 16, Well 17, and 119-075-01. Stockton Well SSS8 was on standby during WY 2021, but will be active for WY 2022 reporting. Stockton Well 26 was no longer active at the time this Annual Report was developed. It will be replaced in the representative monitoring network for water quality by another nearby City of Stockton well. The replacement well has yet to be determined. Results from sampling at these wells will be reported on in future annual reports.

As defined in the GSP, interim milestones are established following a linear trend between the current condition and measurable objective. In many cases, the most recent available data are what was presented in the GSP. Additional groundwater quality data will be collected and reported moving forward as part of GSP implementation.

Table 2-4. Degraded Water Quality Threshold Analysis

Well ID	Interim Milestone (2025)	Measurable Objective	Minimum Threshold	Current Conditions from GSP	WY 2021, if available **	
	(Total Dissolved Solids, mg/L)	(Total Dissolved Solids, mg/L)	(Total Dissolved Solids, mg/L)	(Total Dissolved Solids, mg/L)	Date of Measurement	(Total Dissolved Solids, mg/L)
Well 1	525	600	1,000	500	10/6/21	406[3]
Well 2	532.5	600	1,000	510	10/6/21	545[3]
Well 3	532.5	600	1,000	510	-	No Data
Stockton 10R	391.5	600	1,000	322	-	No Data[4]
Stockton 26	412.5	600	1,000	350	-	No Data[5]
Stockton SSS8	427.5	600	1,000	370	-	No Data[6]
Well 15	375	600	1,000	300	-	No Data[7]
Well 16	360	600	1,000	280*	-	No Data[8]
Well 17	375	600	1,000	300*	-	No Data[9]
119-075-01	375	600	1,000	300	-	No Data[10]

* Calculated by averaging 2012-2018 data due to limitations on data availability.
** For wells where Water Year 2021 data are unavailable, the current conditions presented in the GSP represent the most recent available information.

[3] Measurement was reported as specific conductance (micromhos per centimeter [umho/cm]) and converted to TDS.
[4] No data available for WY 2021. The most recent measurement for Stockton 10R was 390 mg/L on 2/2/2019.
[5] City of Stockton Well 26 has been decommissioned and was inactive at the time this report was developed. This well will be replaced in the representative monitoring network for water quality by a neighboring City of Stockton well.
[6] City of Stockton Well SSS8 was on standby at the time this report was written. For reporting in WY 2022, it will be active.
[7] No data available for WY 2021. The most recent measurement for Well 15 was 310 mg/L on 8/18/20.
[8] No data available for WY 2021. The most recent measurement for Well 16 was 240 mg/L on 5/18/20.
[9] No data available for WY 2021. The most recent measurement for Well 17 was 290 mg/L on 5/18/20.
[10] No data available for WY 2021. The most recent year available for 119-075-01 was 280 mg/L on 11/12/19.

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2.3.4 Saltwater Migration

No analyses were performed during WY 2021 to determine conditions relative to established sustainable management criteria (including measurable objectives and minimum thresholds) for the saltwater migration indicator (**Table 2-5**). Chloride concentrations were not sampled during WY 2021 at Well 1, Well 2, Well 3, Stockton 10R, Well 15, Well 16, Well 17, and 119-075-01. Stockton Well SSS8 was on standby during WY 2021, but will be active for WY 2022 reporting. Stockton Well 26 was no longer active at the time this Annual Report was developed. It will be replaced in the representative monitoring network for water quality by another nearby City of Stockton well. The replacement well has yet to be determined. Results from sampling at these wells will be reported on in future annual reports.

Interim milestones, which are based on the measurable objective, are not included in **Table 2-5** as these will be further developed through ongoing water quality monitoring.

Table 2-5. Saltwater Migration Threshold Analysis

Well ID	Measurable Objective	Minimum Threshold	WY 2021, if available **	
	(Chloride, mg/L)	(Chloride, mg/L)	Date of Measurement	(Chloride, mg/L)
Well 1	500	2,000	-	No Data
Well 2	500	2,000	-	No Data
Well 3	500	2,000	-	No Data
Stockton 10R	500	2,000	-	No Data[11]
Stockton 26	500	2,000	-	No Data[12]
Stockton SSS8	500	2,000	-	No Data[13]
Well 15	500	2,000	-	No Data[14]
Well 16	500	2,000	-	No Data[15]
Well 17	500	2,000	-	No Data[16]
119-075-01	500	2,000	-	No Data[17]

2.3.5 Land Subsidence

The GSP uses groundwater level minimum thresholds, measurable objectives, and interim milestones as a proxy for the land subsidence sustainability indicator. An analysis to determine conditions relative to established thresholds (including interim milestones for 2025, measurable objectives, and minimum thresholds) during WY 2021 for the chronic lowering of groundwater levels sustainability indicator is described in Section 2.3.1. Additionally, per publicly-available datasets, there are three Continuous GPS subsidence monitoring stations in the Subbasin, P273, CNDR and P309, which were measured during WY 2021 along with InSAR data released by DWR, Neither P273 nor P309 showed any land subsidence

[11] No water quality data available for WY 2021. Monitoring data will be available for reporting in WY 2022.
[12] City of Stockton Well 26 has been decommissioned and was inactive at the time this report was developed. This well will be replaced in the representative monitoring network for water quality by a neighboring City of Stockton well.
[13] City of Stockton Well SSS8 was on standby at the time this report was written. For reporting in WY 2022, it will be active.
[14] No data available for WY 2021. The most recent measurement for Well 15 was 17 mg/L on 8/18/20.
[15] No data available for WY 2021. The most recent measurement for Well 16 was 11 mg/L on 5/18/20.
[16] No data available for WY 2021. The most recent measurement for Well 17 was 14 mg/L on 5/18/20.
[17] No data available for WY 2021. The most recent measurement for Well 18 was 30 mg/L on 11/12/19.

over WY 2021, and CNDR showed 0.01 feet of land subsidence (within the realm of error) over the last water year. These results are reflected in the recently-released InSAR data which shows that no land subsidence occurred in the Eastern San Joaquin Subbasin.

2.3.6 Groundwater-Surface Water Interaction

The GSP uses groundwater level minimum thresholds, measurable objectives, and interim milestones as a proxy for the depletions of interconnected surface water sustainability indicator. An analysis to determine conditions relative to established thresholds (including interim milestones for 2025, measurable objectives, and minimum thresholds) during WY 2021 for the chronic lowering of groundwater levels sustainability indicator is described in Section 2.3.1.

3. GROUNDWATER MONITORING AND CONDITIONS ASSESSMENT

This section discusses hydrologic conditions, groundwater elevation trends, groundwater quality, and groundwater-surface water interaction in the Eastern San Joaquin Subbasin.

3.1 HYDROLOGIC CONDITIONS

Rainfall data derived from the PRISM (Precipitation-Elevation Regressions on Independent Slopes Model) dataset of the DWR's California Simulation of Evapotranspiration of Applied Water (CALSIMETAW) model indicate a Subbasin average of 8.8 inches of rainfall during WY 2021. This represents approximately 57% of the long-term (WY 1969-2018) Subbasin average precipitation of 15.4 inches. San Joaquin River flow at Vernalis for the same period had an average monthly discharge of approximately 62 thousand acre-feet, representing about 23% of the long-term (WY 1965-2020) average flow at that location (USGS, 2022). The Cosumnes River at Michigan Bar for this period had an average monthly discharge of approximately 5 thousand acre-feet, representing about 16% of the long-term (WY 1965-2020) average flow at that location; and Calaveras River flow below New Hogan Dam had an average monthly discharge of approximately 6.3 thousand acre-feet, representing about 49% of the long-term (WY 1965-2020) average flow at that location (USGS, 2022).

3.2 GROUNDWATER LEVELS

Figure 2 shows the location of the representative wells identified in the GSP monitoring network for the chronic lowering of groundwater levels. Individual hydrographs[18], charts of groundwater levels over time, for these wells are included in **Appendix B**. The hydrographs display historical trends of groundwater levels in the Subbasin through WY 2021, contingent upon data availability. All available data are shown (DWR, 2022a).

All hydrographs show yearly cycles of groundwater level declines in summer due to typical patterns in groundwater pumping and recharge during winter recovery. Of the 21 representative monitoring wells, 17 wells reported groundwater levels for Fall 2020 and 16 wells in Spring 2021 as shown in **Table 2-3**. Water levels fluctuated around the measurable objective for multiple representative wells, remaining an average of 5.2 feet above the measurable objectives in Fall 2020 and 7.6 feet above the measurable objectives in Spring 2020. Five representative wells (#3 Bear Creek, Hirschfeld (OID-8), Burnett (OID-4), 02S08E08A001, and 01S10E04C001M1) reported Spring 2021 levels that did not meet the measurable objective. Water levels remained an average of 37.4 feet above the minimum threshold for all representative wells with reported data in Spring 2021. No wells reported groundwater levels below the minimum threshold, and as a result, no undesirable results were triggered as specified by the sustainable management criteria set in the GSP.

Hydrographs showing WY 2021 for wells in the broad monitoring network are included in **Appendix C**.

[18] Except where noted, groundwater levels in hydrographs were converted to the North American Vertical Datum of 1988 (NAVD88), consistent with CASGEM groundwater data reporting.

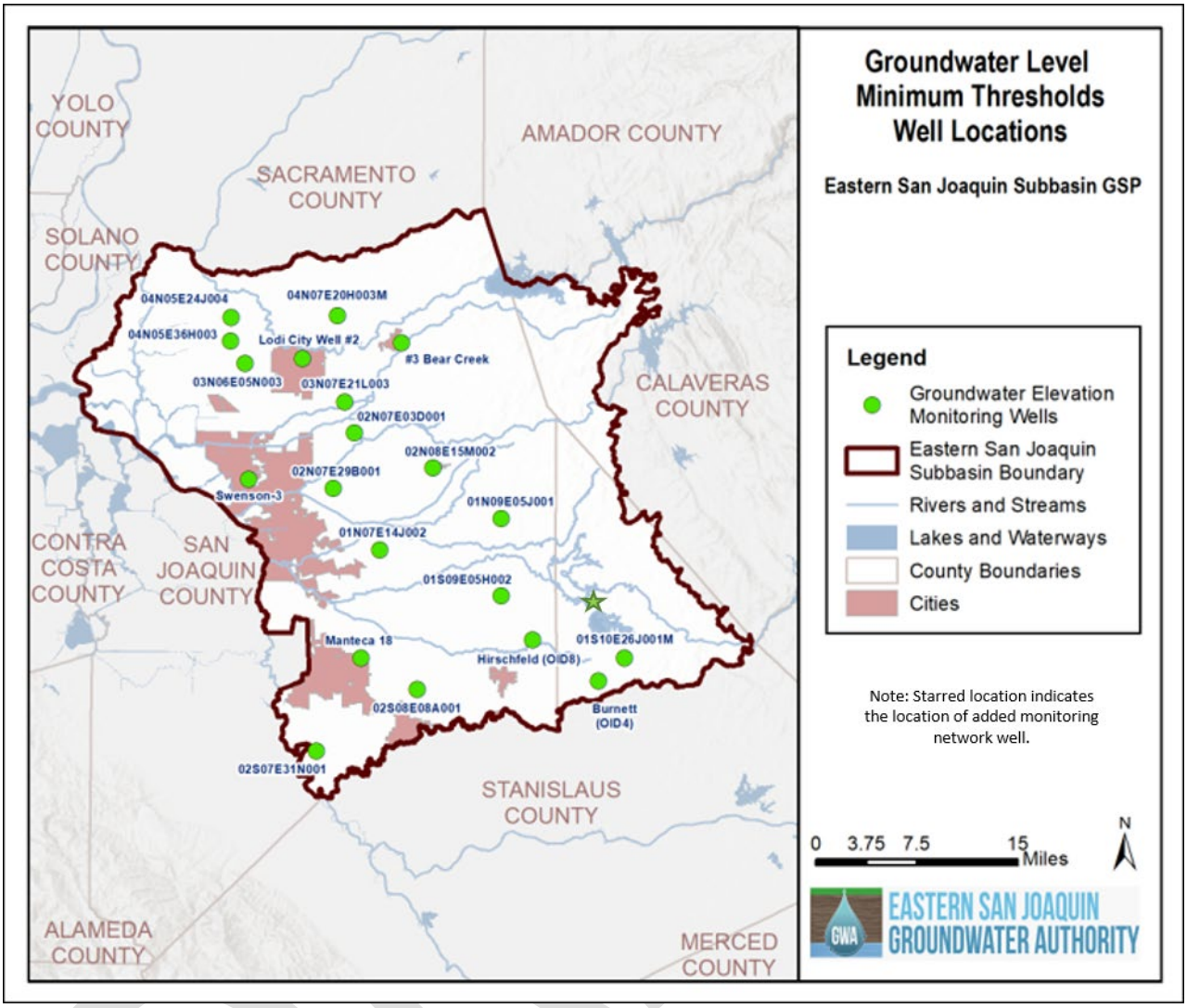


Figure 2. Groundwater Level Representative Monitoring Well Locations

3.2.1 Comparison of Current and Historical Spring Groundwater Levels

A comparison of Spring 2021 groundwater levels with the range of historical spring levels for representative wells in the Subbasin shows a general trend of decreasing groundwater levels. Groundwater levels decreased an average of 0.9 feet between Spring 2020 and Spring 2021 for representative wells with WY 2020 and WY 2021 data. This trend correlates with increased groundwater use during dry years which is not surprising given WY 2021 was a critical (C) water year under the San Joaquin Valley Water Year Index following a dry water year (WY 2020).

3.2.2 Groundwater Level Contour Maps:

Groundwater level contour maps were developed as part of this annual report to represent seasonal high and seasonal low conditions. Fall 2020 (September, October, November 2020) and Spring 2021 (March, April, May 2021) groundwater elevation maps are included in **Figure 3** and **Figure 4.** Previous work expanded the groundwater level period to include September and November 2020 and May 2021 for seasonal low and seasonal high readings, respectively. This definition was used again in this year's annual

report for consistency. This approach reduces the impact of disruptions, whether for unanticipated COVID-19 reasons or for routine well accessibility issues, to the monitoring data quality used to develop the groundwater contour map. This also allowed the analysis to capture a larger dataset and better represent current conditions.

Groundwater levels in the center of the Subbasin rose slightly between Spring of WY 2020 and the beginning of WY 2021 (Fall 2020). Between Fall WY 2021 (Fall 2020) and Spring WY 2021 (Spring 2021), groundwater level stayed relatively constant, likely reflecting the dry conditions of the wet season during WY 2021 that did not cause the typical seasonal high rise.

Groundwater elevation contours shown in **Figure 3** and **Figure 4** used the Kriging interpolation method (as opposed to the spline interpolation used in the GSP) as the Kriging method better represented the updated data set. Areas where there were limited WY 2021 data available are indicated with hash marking all three figures. There is a notable data gap on the eastern side of the Subbasin. Installation of new monitoring wells in these regions as part of GSP implementation, as well as corresponding changes to groundwater level monitoring, will be critical in filling these data gaps.

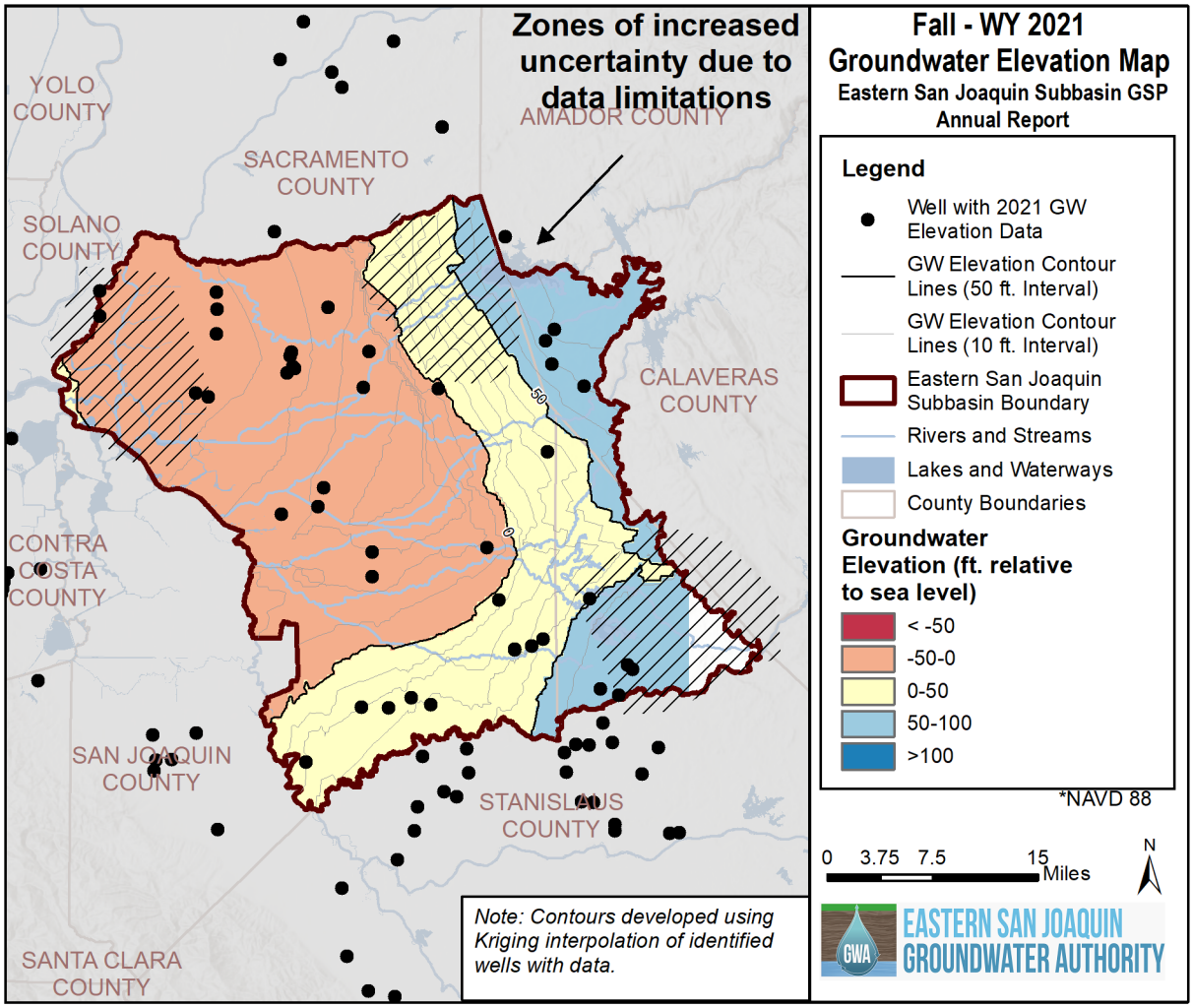


Figure 3. Seasonal Low Groundwater Levels in the Eastern San Joaquin Subbasin, based on data from September 2020 (WY 2020), October and November 2020 (WY 2021)

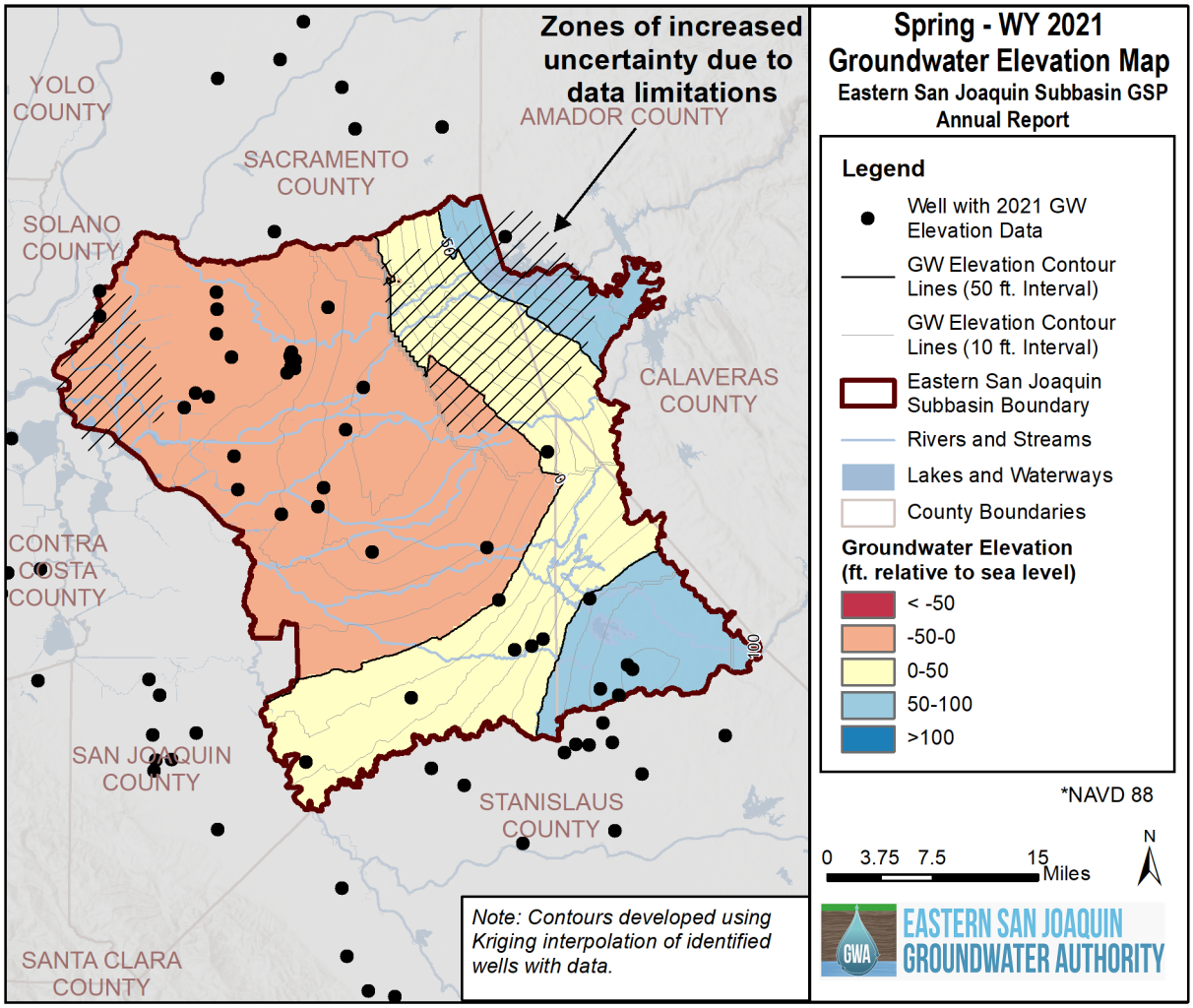


Figure 4. Seasonal High Groundwater Levels in the Eastern San Joaquin Subbasin, based on data from March, April, May 2021 (WY 2021)

3.3 GROUNDWATER STORAGE

Change in groundwater storage is estimated using the ESJWRM. **Figure 5** shows the annual and cumulative change in storage from WY 1996 to 2021 for the Eastern San Joaquin Subbasin. In WY 2021 (October 1, 2020 to September 30, 2021), the Eastern San Joaquin Subbasin saw a decrease of groundwater in storage of approximately 157,000 AF, reflecting the dry conditions of the year. **Figure 5** indicates positive "Change in Storage", meaning that inflows (consisting of deep percolation, recharge, flow from streams, and boundary inflows) were less than outflows in WY 2021. **Figure 6** adds all inflows together to highlight the annual change in storage. **Figure 7** shows this inverse "Change in Storage" plotted with "Groundwater Pumping" and "Cumulative Change in Storage".

Figure 8 shows the change in groundwater storage for the Eastern San Joaquin Subbasin by ESJWRM element between October 1, 2020 and September 30, 2021. On an ESJWRM element basis, groundwater storage was estimated to increase or decrease by 0.2 feet over much of the Subbasin, with an area of decrease of less than 1 foot at most near the center of the Subbasin. Though change in storage varied on an ESJWRM element basis, there was an overall net decrease in groundwater storage in the Eastern San Joaquin Subbasin during WY 2021, as previously stated and reflected in **Figure 5** to **Figure 8,** and mapped in **Figure 8.**

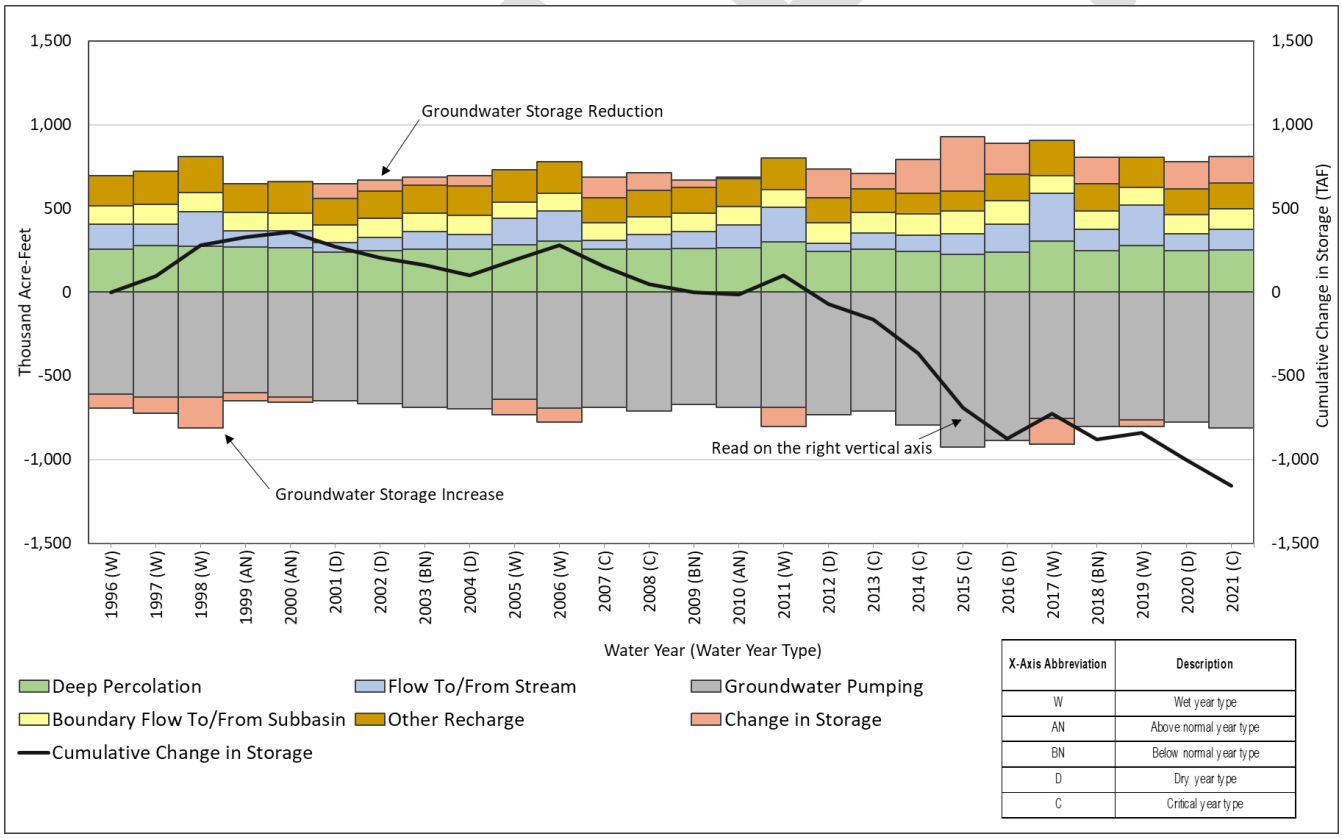


Figure 5. Modeled Change in Annual Storage with Water Use and Year Type

Notes:
1. Water Year Types based on San Joaquin Valley Water Year Index (CA DWR, 2022). Water Year 2021 classification is Critical (C) based on the hydrologic conditions for that year.

2. "Other Recharge" includes managed aquifer recharge, recharge from unlined canals and/or reservoirs, and recharge from ungauged watersheds.
3. "Change in Storage" balances the water budget. For instance, if annual outflows (-) are greater than inflows (+), there is a decrease in storage, but this would be shown as storage depletion on the positive side of the bar chart to balance out the increased outflows on the negative side of the bar chart.

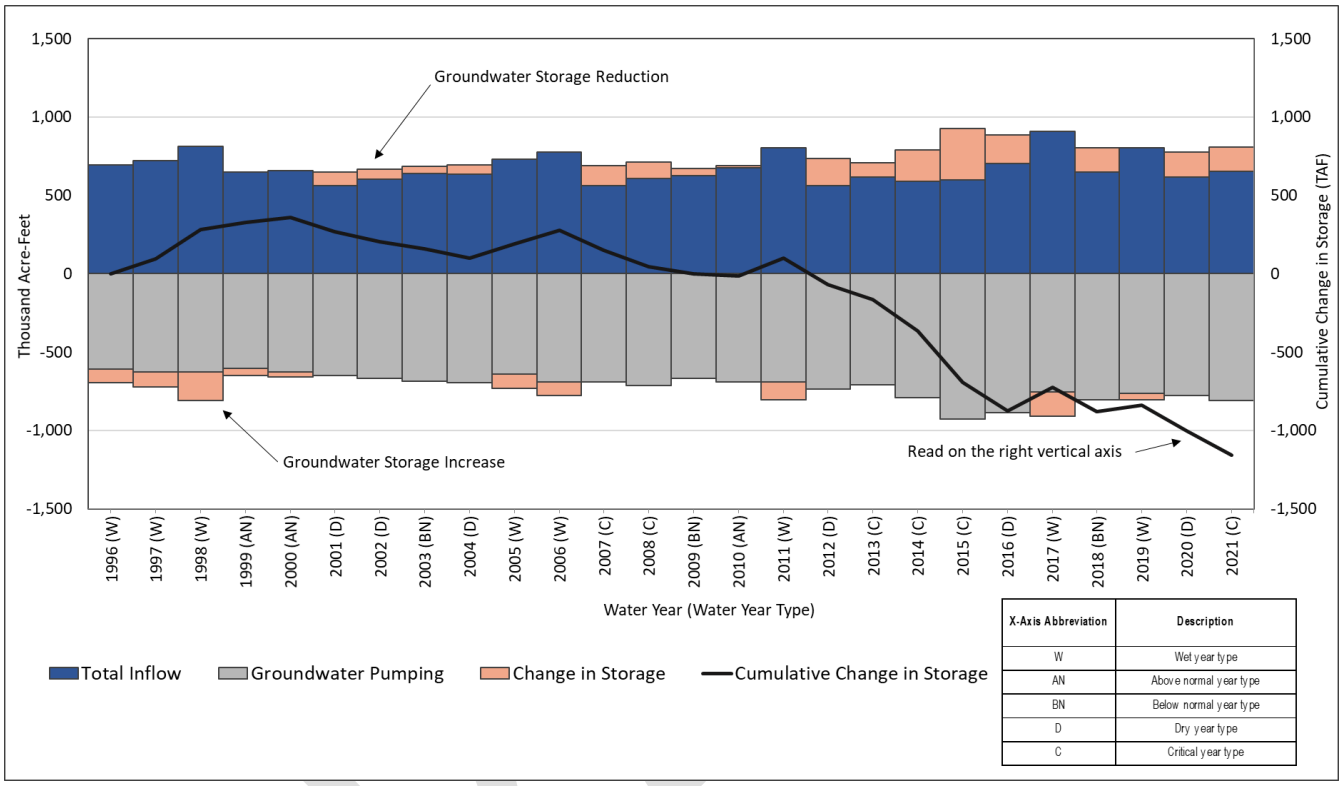


Figure 6. Modeled Change in Annual Storage with Inflows and Year Type

Notes:
1. Water Year Types based on San Joaquin Valley Water Year Index (CA DWR, 2022). Water Year 2021 classification is Critical (C) based on the hydrologic conditions that year.
2. "Total Inflow" includes "Deep Percolation", "Flow To/From Stream", "Other Recharge", and "Boundary Flow To/From Subbasin" from **Figure 5**.
3. "Change in Storage" balances the water budget. For instance, if annual outflows (-) are greater than inflows (+), there is a decrease in storage, but this would be shown as storage depletion on the positive side of the bar chart to balance out the increased outflows on the negative side of the bar chart.

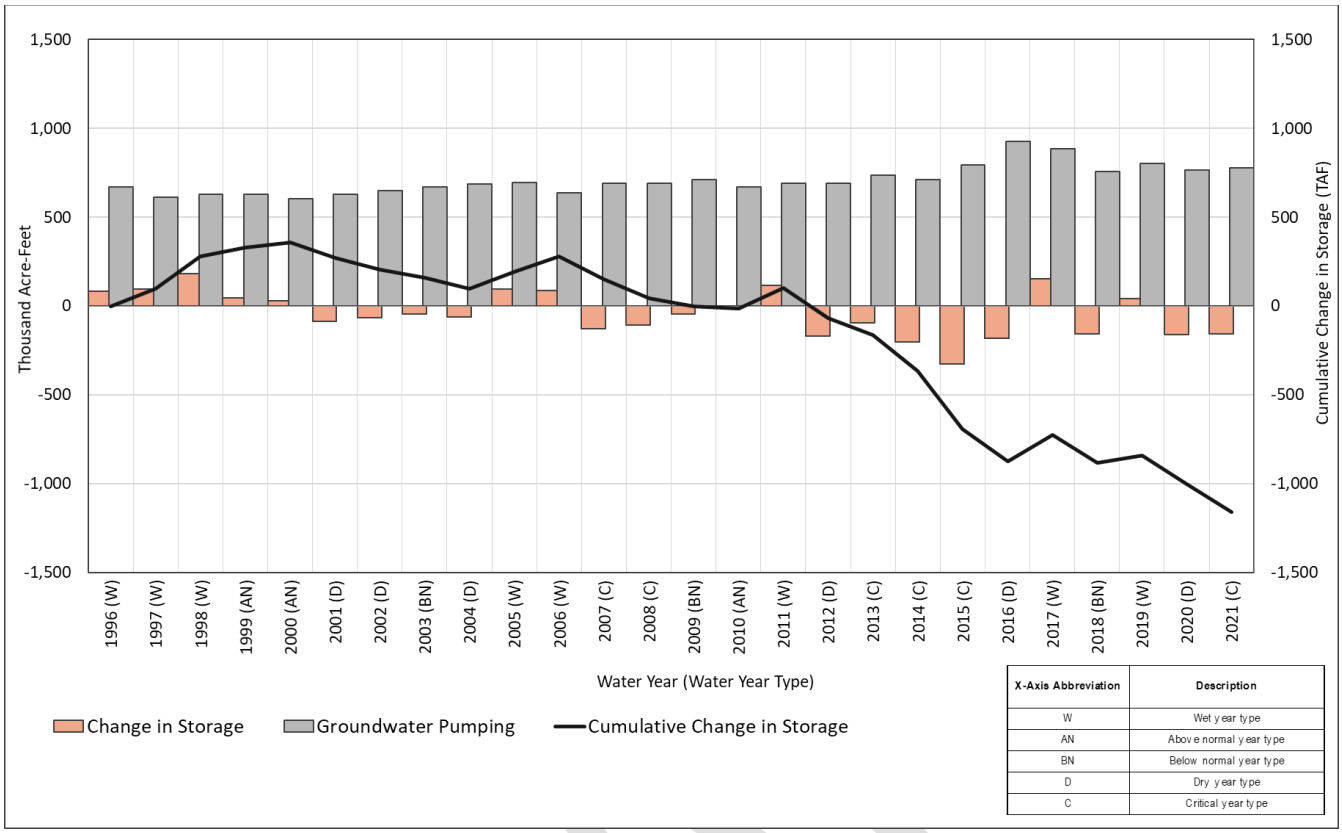


Figure 7. Modeled Change in Annual Storage with Groundwater Pumping and Year Type

Notes:

1. Water Year Types based on San Joaquin Valley Water Year Index (CA DWR, 2022). Water Year 2021 classification is Critical (C) based on the hydrologic conditions for this analysis, however, the San Joaquin Valley Water Year Index has not yet published the WY 2021 designation.
2. "Groundwater Pumping" and "Change in Storage" are the inverse of what is shown in **Figure 5** and **Figure 6**. In this figure, a positive "Change in Storage" indicates an increase in groundwater storage, while a negative "Change in Storage" indicates a decrease in groundwater storage. These changes are directly reflected in the "Cumulative Change in Storage" line. The annual "Groundwater Pumping" is shown adjacent to the "Change in Storage" for the same year.

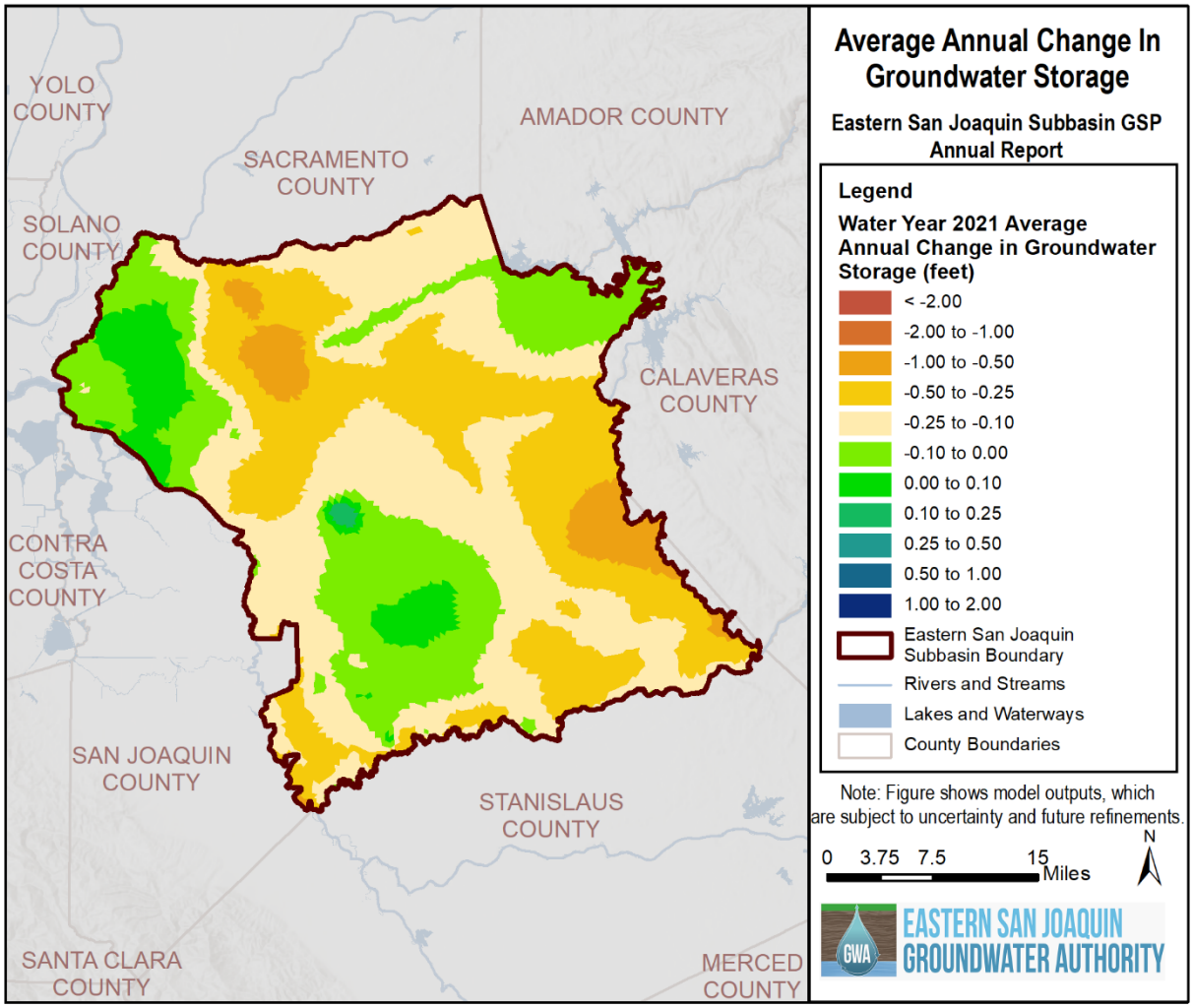


Figure 8. Eastern San Joaquin Subbasin WY 2021 Change in Storage

3.4 GROUNDWATER QUALITY

While groundwater quality in the Eastern San Joaquin Subbasin is generally sufficient to meet beneficial uses and is on track to surpass measurable objectives, there are a few constituents of concern that are either currently impacting groundwater use or could impact groundwater in the future. Each water quality parameter may be naturally occurring or anthropogenic in source as well as localized or widespread. The primary naturally occurring water quality constituents of concern in the Eastern San Joaquin Subbasin are salinity and arsenic. The primary water quality constituents related to human activity include nitrates, salinity, and various point-source contaminants such as petroleum hydrocarbons, solvents, and emerging contaminants. Historical groundwater quality conditions for these constituents are described in Section 2.2.4 in the GSP.

A primary maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) is defined for a variety of parameters. For the purposes of this GSP, comparing parameter concentrations to their MCL or SMCL is used as the basis for describing groundwater quality concerns in the Eastern San Joaquin Subbasin. Water quality has generally not significantly affected beneficial uses of groundwater in the Eastern San Joaquin Subbasin.

Through GSP implementation, monitoring networks for water quality are tested for TDS, cations and anions (including chloride and nitrate), arsenic, and field parameters including pH, electrical conductivity (EC), and temperature. Arsenic and nitrate are monitored for informational purposes only and to track trends in arsenic concentrations, especially as projects are implemented; the GSP does not include sustainability goals, measurable objectives, or minimum thresholds for arsenic or nitrate. Through new monitoring efforts, the GSP will document trends in monitored constituents and identify opportunities for coordination with existing programs. Through coordination with existing agencies and through additional monitoring, the ESJGWA will know if existing regulations are being met or if groundwater management activities in the Subbasin are contributing to significant and unreasonable undesirable effects related to degraded water quality. (It should be noted that arsenic and nitrate are currently regulated in the Subbasin through existing water resources monitoring and management programs such as the Irrigated Lands Regulatory Program. If groundwater quality conditions violate those regulations, or if monitoring efforts indicate concerning trends, the ESJGWA will take steps to coordinate with regulatory agencies implementing those programs and will evaluate establishing minimum thresholds and measurable objectives for these constituents at that time.)

Ten representative monitoring wells were selected to be monitored for water quality. These wells are currently monitored and managed by City of Manteca, Cal Water, City of Stockton, and San Joaquin County. These measurements are logged in **Table 2-4** in Section 2.5, GSP Implementation Progress of this Annual Report. Details regarding the status of wells that were not sampled during WY 2021 are also included.

The broad monitoring network for water quality includes sampling from five identified local water quality wells and 16 nested and/or clustered well sites that are also monitored for groundwater levels in the broad monitoring network for groundwater levels.

3.4.1 Total Dissolved Solids Measurements in Representative Monitoring Network Wells

During WY 2021, specific conductance was sampled and converted to TDS at two of the ten representative monitoring wells for water quality. TDS measurements were not reported from the remaining eight representative monitoring wells for a variety of reasons, including reductions in field work as a result of the COVID-19 pandemic. The most recent figures available are included in **Table 2-4**

and the location of the ten representative monitoring wells are shown in **Figure 10**. There were no minimum threshold exceedances to report for WY 2021.

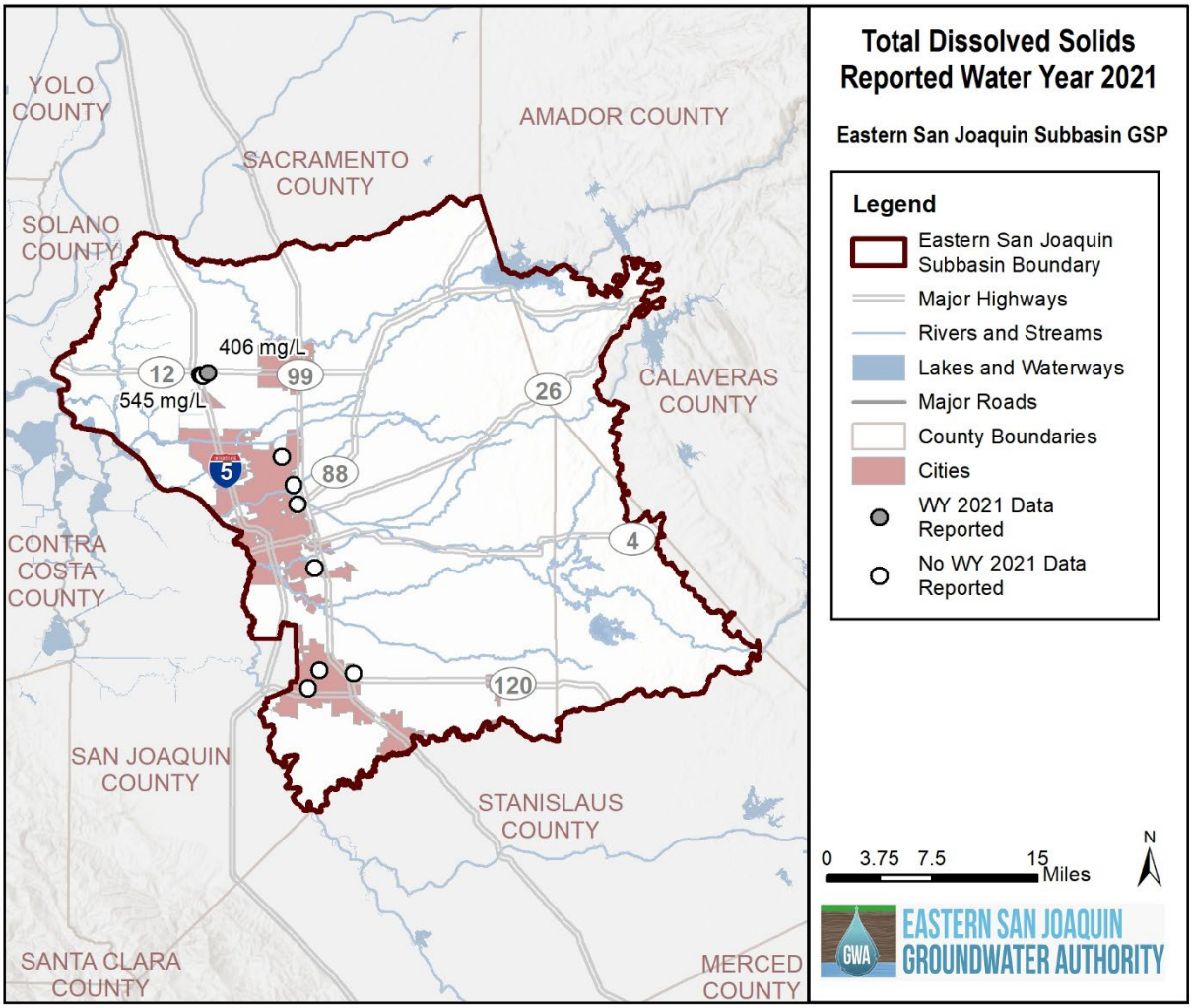


Figure 9. Water Year 2021 Total Dissolved Solids Measurements at Representative Monitoring Well Sites[19]

3.4.2 Contaminated Sites

Please refer to the GSP for the most recent information regarding contaminated sites within the Eastern San Joaquin Subbasins. As the GSP was completed November 2019, limited additional data are available on contaminated sites. Updates regarding contaminated sites within the Eastern San Joaquin Subbasins will be provided in subsequent Annual Reports.

3.4.3 Regional Groundwater Quality

[19] The two wells with WY 2021 data reported were sampled for specific conductance and converted to TDS.

Please refer to the GSP for the most recent information regarding regional water quality within the Eastern San Joaquin Subbasin. As the GSP was completed November 2019, limited additional data are available on regional groundwater quality. Updates regarding regional water quality within the Eastern San Joaquin Subbasin will be provided in subsequent Annual Reports.

3.5 SALTWATER MIGRATION

As described in the GSP, the ESJGWA monitors chloride concentrations to support information collection and early detection of saltwater intrusion and will report chloride concentrations to DWR in each annual report. While saltwater migration is not expected to occur, the GSP established monitoring protocols for the early detection of saltwater migration were it ever to occur. Chloride measurements were not reported from any of the ten representative monitoring wells for water quality. The ten representative monitoring wells were not sampled for a variety of reasons, including reductions in field work as a result of the COVID-19 pandemic. The most recent figures available are included in **Table 2-5** and the locations of the ten representative wells are shown in **Figure 11**. Based on the most recent data available from previous water years along with anecdotal information from the Subbasin GSAs, there are no minimum threshold exceedances for saltwater migration to report.

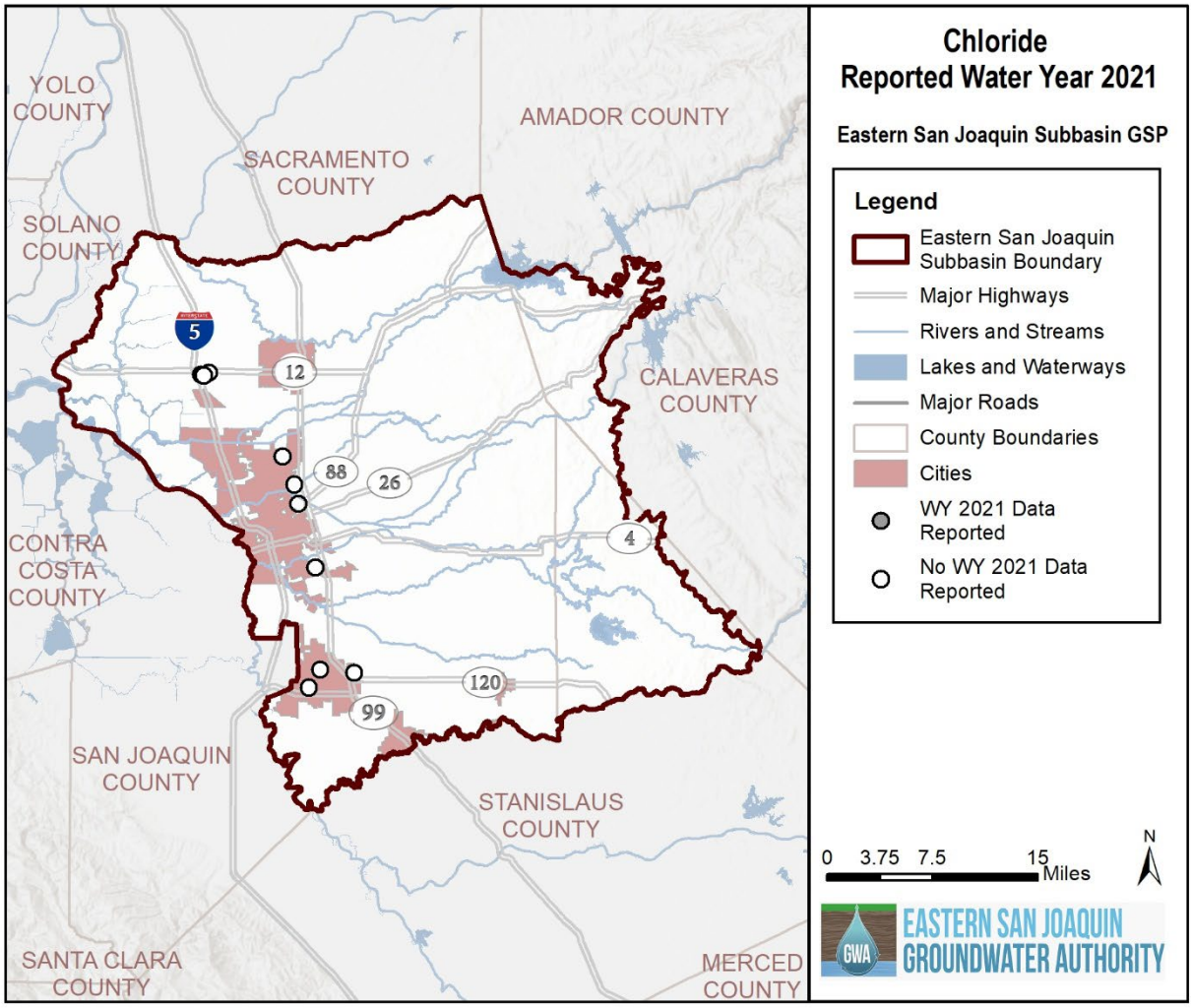


Figure 10. Water Year 2021 Chloride Measurements at Representative Monitoring Well Sites

3.6 LAND SUBSIDENCE

SGMA considers the impact of groundwater management actions on land subsidence through the land subsidence sustainability indicator. In the Eastern San Joaquin Subbasin, the land subsidence sustainability indicator uses the groundwater level sustainability indicator as a proxy. Minimum thresholds for groundwater levels are protective of significant and unreasonable impacts to land subsidence, as described in the GSP. There were no minimum threshold exceedances for groundwater levels; therefore, there are no land subsidence impacts to report for WY 2021. This conclusion is further supported by data for Continuous GPS subsidence monitoring stations P273, CNDR and P309, none of which showed any reportable land subsidence (although CNDR showed 0.01 feet of land subsidence, which is within the realm of error), and by the InSAR data released by DWR, which also did show that land subsidence did not occur in the Eastern San Joaquin Subbasin during WY 2021.

3.7 GROUNDWATER-SURFACE WATER INTERACTION

SGMA considers the impact of groundwater management actions on groundwater-surface water interactions through the depletions of interconnected surface water sustainability indicator. In the Eastern San Joaquin Subbasin, the depletions of interconnected surface water sustainability indicator use the groundwater level sustainability indicator as a proxy. Minimum thresholds for groundwater levels are protective of significant and unreasonable impacts to depletions of interconnected surface waters, as described in the GSP. There were no minimum threshold exceedances for groundwater levels; therefore, there are no groundwater-surface water interaction impacts to report for WY 2021.

3.8 TOTAL WATER USE

3.8.1 Groundwater Use

Groundwater pumping data are available only from a limited number of metered wells within the Eastern San Joaquin Subbasin, with the remainder of extraction information estimated using ESJWRM[20]. Metered data are available from municipal water purveyors (Cal Water, City of Escalon, City of Lodi, City of Manteca, City of Ripon, City of Stockton, LCWD, LCSD, and SEWD). Agricultural, private domestic, and other groundwater production in the Subbasin is largely unmetered and were estimated using the ESJWRM, which bases water use on crop type, hydrologic data (precipitation and evapotranspiration), irrigation efficiency, and population information.

Figure 11 shows the general location and volume of groundwater pumping within the Subbasin by ESJWRM element for WY 2021. Large portions of the Subbasin elements experience very little pumping between 0.0 to 0.5 AF/acre or feet, while areas with agriculture or municipal pumping wells have pumping ranging from 0.5 to 10 or more feet.

In WY 2021, total groundwater use in the Eastern San Joaquin Subbasin was estimated at 809,327 AF across water use sectors, as shown in **Table 3-1**. As the estimated sustainable yield of the Eastern San Joaquin Subbasin is 715,000 AFY ± 10 percent over the long-term, pumping may exceed the sustainable yield during certain years, balanced by other years with reduced pumping so that the long-term average remains at or below the sustainable yield. The groundwater use simulated in ESJWRM over the last 12 years (WY 2010-2021) ranged from a low of 689,000 AF in WY 2011 (wet year) to a high of 928,000 AF in WY 2015 (critical year), with 7 of the 12 simulated years staying within the range of the sustainable yield. It is important to note that the ESJWRM was recently updated and recalibrated with more recent data; however, the Subbasin sustainable yield has not been recalculated following model's updated calibration.

3.8.2 Surface Water Use

Surface water delivery data are available from purveyors in the Subbasin and include deliveries for urban and industrial use (City of Lodi; City of Manteca; and City of Stockton, including Cal Water and unincorporated portions of San Joaquin County) and deliveries for agricultural use (CCWD, CSJWCD, NSJWCD, OID, SSJID, SEWD, and WID). For WY 2021, this includes a transfer of just over 1,000 AF of surface water from SSJID and OID to SEWD. The remaining surface water use is estimated in the

[20] A pilot project was undertaken in SEWD to test use of satellite technology to measure and quantify crop evapotranspiration. These measurements, in combination with known data on surface water deliveries, could provide a more direct measure of groundwater pumping for agricultural irrigation. The approach will be further evaluated and may be used along with modeling to quantify agricultural groundwater extractions in the future.

ESJWRM and covers riparian diversions occurring in the CDWA, SDWA, and along major Subbasin rivers. Sources of surface water in the Subbasin include Calaveras River, Mokelumne River, San Joaquin River, and Stanislaus River. Surface water deliveries during WY 2021 are estimated to be 574,597 AF for the Eastern San Joaquin Subbasin (**Table 3-2).** The majority of surface water is used between May and September.

Conjunctive use is the use of surface water in coordination with groundwater to allow the Subbasin to recharge and store additional water supply, either through in-lieu use or direct recharge. In-lieu recharge occurs for both agricultural and municipal purveyors wherever surface water is being delivered to offset groundwater that would have otherwise been used. Agencies conducting in-lieu recharge include Cal Water, CCWD, City of Escalon, City of Lodi, City of Manteca, City of Ripon, City of Stockton, CSJWCD, LCWD, LCSD, NSJWCD, OID, SSJID, SEWD, and WID. While in-lieu recharge was not quantified separately in this report, estimates may be made in future annual reports.

Direct recharge projects exist in NSJWCD and SEWD and recharged almost 11,000 AF in WY 2021. These projects use water from the Calaveras River, Mokelumne River, and Stanislaus River and include NSJWCD's Tracy Lake Groundwater Recharge Project, NSJWCD's Cal-Fed/Costa Recharge project, and SEWD's Farmington Groundwater Recharge Program.

3.8.3 Total Water Use

Total water use is the sum of the groundwater use and surface water use. Total water use during WY 2021 is estimated to be 1,383,924 AF for the Eastern San Joaquin Subbasin **(Table 3-3)**, comparable to and slightly more than the 1,295,934 AF used in WY 2020 (again, consistent with the Critical water year designation for WY 2021). Groundwater pumping accounted for just over 58% of total water use in the Subbasin, while surface water deliveries were a little less than 42% of total water used.

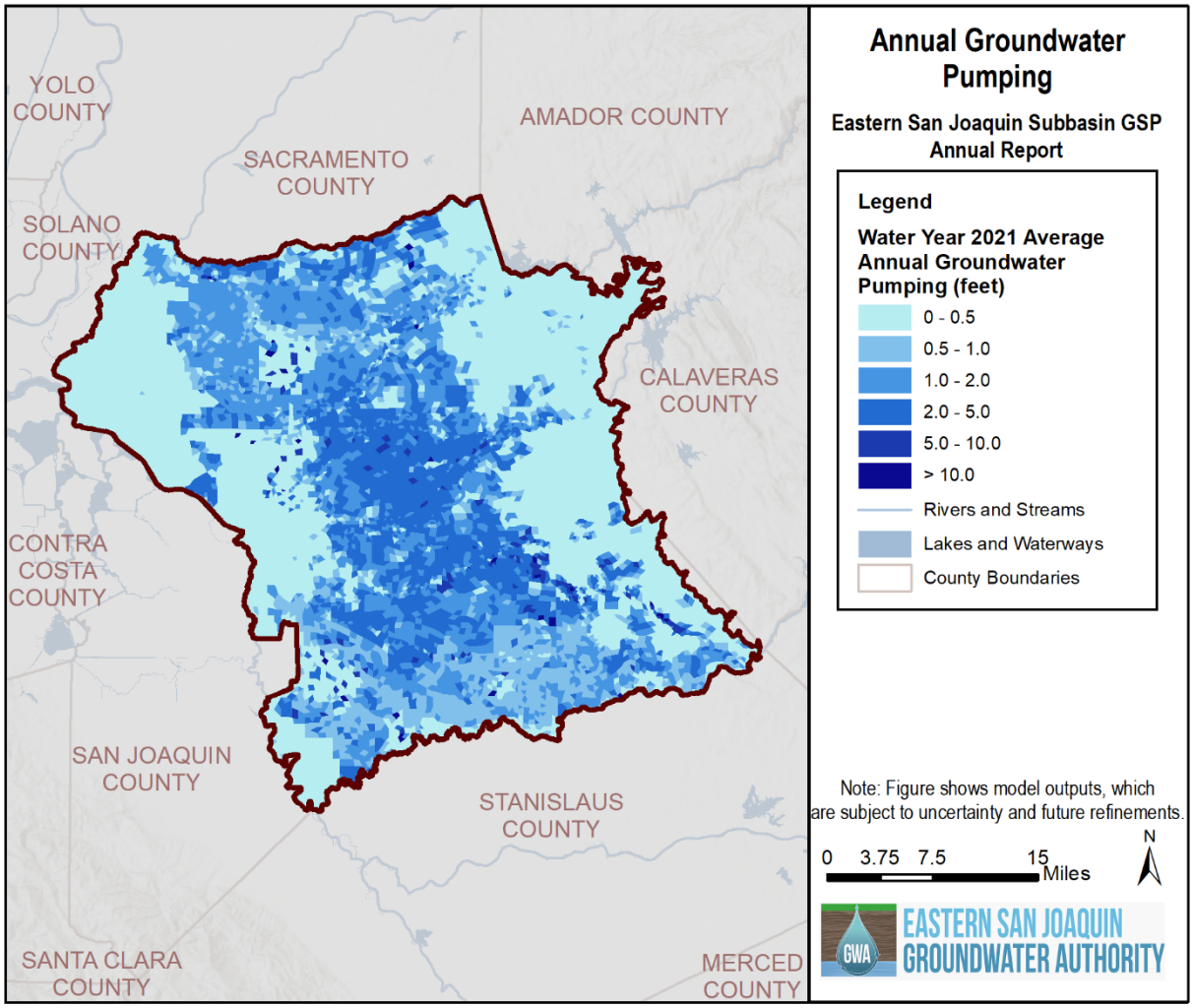


Figure 11. Eastern San Joaquin Subbasin WY 2021 Groundwater Extraction

Table 3-1. Water Year 2021 Monthly Groundwater Extraction (in acre-feet)

Month	Agricultural		Urban and Industrial		Total
	*Agency Reported Values**	*Estimated Agricultural***	*Agency Reported Values**	*Private Domestic***	
Oct-20	348	116,400	1,952	1,900	120,601
Nov-20	31	6,600	1,144	1,300	9,075
Dec-20	4	2,400	910	1,100	4,414
Jan-21	14	1,700	1,143	1,100	3,956
Feb-21	44	24,100	1,396	1,100	26,640
Mar-21	338	10,600	1,742	1,500	14,180
Apr-21	677	103,100	1,880	1,800	107,457
May-21	1,171	80,600	2,861	2,600	87,232
Jun-21	840	148,900	3,399	3,000	156,139
Jul-21	889	74,300	4,028	3,300	82,517
Aug-21	637	127,200	3,593	3,200	134,629
Sep-21	647	56,300	2,940	2,600	62,487
Total	5,640	752,200	26,987	24,500	809,327
Measurement Accuracy	***High***	***Medium***	***High***	***Medium***	**-**

* Agency reported values for agriculture were collected for some of the agencies (SSJID and OID) that report pumping for either agricultural or landscape use.
** Additional groundwater pumping is estimated by the ESJWRM based on crop type, hydrologic data (precipitation and evapotranspiration), irrigation efficiency, and population information.

Table 3-2. Water Year 2021 Monthly Surface Water Delivered for Use (in acre-feet)

Month	Agricultural		Urban and Industrial		Total
	*Agency Reported Values**	*Estimated Riparian***	*Agency Reported Values*	*Estimated in ESJWRM*	
Oct-20	25,081	7,300	5,952	0	38,333
Nov-20	1,873	0	4,372	0	6,245
Dec-20	1,034	0	3,753	0	4,787
Jan-21	1,718	0	3,748	0	5,467
Feb-21	4,136	0	2,973	0	7,110
Mar-21	8,637	9,200	3,481	0	21,319
Apr-21	24,060	15,900	4,500	0	44,460
May-21	49,544	42,300	5,667	0	97,511
Jun-21	48,950	25,600	7,395	0	81,945
Jul-21	56,876	44,200	7,729	0	108,805
Aug-21	54,649	24,700	7,318	0	86,667
Sep-21	41,227	24,300	6,421	0	71,948
Total	317,786	193,500	63,311	0	574,597
Measurement Accuracy	***High***	***Medium***	***High***	***Medium***	**-**

* Agency reported values reflect deliveries to meet demand, which was based on evapotranspiration and land use.

** Estimated agricultural surface water deliveries include deliveries to Central Delta Water Authority, South Delta Water Authority, and riparian users along major streams.

Table 3-3. Water Year 2021 Monthly Total Water Use (in acre-feet)

Month	Agricultural						Urban and Industrial						Total
	Direct Measurement			*Estimated in ESJWRM***			*Direct Measurement*			*Estimated in ESJWRM***			
	*Groundwater**	*Surface Water*	*Total*	*Ground water*	*Surface Water*	*Total*	*Groundwater*	*Surface Water*	*Total*	*Groundwater*	*Surface Water*	*Total*	
Oct-20	348	25081	25,429	116,400	7,300	123,700	1,952	5,952	7,904	1,900	0	1,900	158,933
Nov-20	31	1873	1,904	6,600	0	6,600	1,144	4,372	5,516	1,300	0	1,300	15,320
Dec-20	4	1034	1,038	2,400	0	2,400	910	3,753	4,663	1,100	0	1,100	9,201
Jan-21	14	1718	1,732	1,700	0	1,700	1,143	3,748	4,891	1,100	0	1,100	9,423
Feb-21	44	4136	4,181	24,100	0	24,100	1,396	2,973	4,369	1,100	0	1,100	33,750
Mar-21	338	8637	8,975	10,600	9,200	19,800	1,742	3,481	5,223	1,500	0	1,500	35,499
Apr-21	677	24060	24,737	103,100	15,900	119,000	1,880	4,500	6,381	1,800	0	1,800	151,917
May-21	1,171	49544	50,715	80,600	42,300	122,900	2,861	5,667	8,528	2,600	0	2,600	184,743
Jun-21	840	48950	49,790	148,900	25,600	174,500	3,399	7,395	10,795	3,000	0	3,000	238,084
Jul-21	889	56876	57,765	74,300	44,200	118,500	4,028	7,729	11,757	3,300	0	3,300	191,322
Aug-21	637	54649	55,286	127,200	24,700	151,900	3,593	7,318	10,910	3,200	0	3,200	221,296
Sep-21	647	41227	41,874	56,300	24,300	80,600	2,940	6,421	9,360	2,600	0	2,600	134,435
Total	5,640	317,786	323,426	752,200	193,500	945,700	26,987	63,311	90,299	24,500	0	24,500	1,383,924
Measurement Accuracy	***High***	***High***	***High***	***Medium***	***Medium***	***Medium***	***High***	***High***	***High***	***Medium***	***Medium***	***Medium***	**-**

* Agency reported values for agriculture was collected for some of the agencies (SSJID and OID) that report pumping for either agricultural or landscape use.

** Includes estimated agricultural groundwater use, estimated private domestic groundwater use, and estimated riparian surface water use. See previous tables for further details.

3.8.4 Eastern San Joaquin Water Resources Model Update

The ESJWRM was originally developed and calibrated to model historical groundwater storage from water years 1996-2015. The model has been updated annually to include the recent Water Year data as part of the annual report preparation to reflect more recent data. The *Eastern San Joaquin Water Resources Model Final Report* provides detailed documentation on the ESJWRM model (Woodard & Curran, 2018). In 2021, the ESJWRM was updated and calibrated for the entire period from 1996-2020. Updates to the model are described in *Eastern San Joaquin Water Resources Model Version 2.0 Update* (Woodard & Curran, 2022). Data for WY 2021 were collected from the same public and private sources that had provided the historical data through 2015 used in the GSP. As a result of the model extension, a new historical water budget was generated including updated estimates of change in groundwater storage. The full annual groundwater budget for water years 1996-2021 is shown earlier in **Figure 5**.

Data Sources

Data were requested and received from the following entities in the Subbasin to complete the ESJWRM update through WY 2021:

Agricultural Water Purveyors

- Calaveras County Water District
- Central San Joaquin Water Conservation District
- North San Joaquin Water Conservation District
- Oakdale Irrigation District
- South San Joaquin Irrigation District
- Stockton East Water District

Municipal Water Purveyors

- California Water Service Company Stockton District
- City of Escalon
- City of Lodi
- City of Ripon
- City of Stockton
- Linden County Water District
- Lockeford Community Services District
- Stockton East Water District

Additional publicly-available data were downloaded to complete the ESJWRM update:

State

- California Department of Finance population estimates

Federal

- United States Geological Survey (USGS) stream flows[21]
- United States Army Corps of Engineers reservoir releases[22]

Other

- Precipitation-Elevation Regressions on Independent Slopes Model (PRISM) Climate Group, Oregon State University

Updated Components

The above data sources provided the necessary data to allow the historical model to reflect recent conditions. The following components of the model were updated:

Surface Water Diversions and Deliveries: Monthly surface water diversions and deliveries were provided for October 2020 through September 2021 for urban and industrial use and agricultural use as described in Section 3.8.2. Remaining riparian diversion occurring in CDWA, SDWA, and along major rivers were estimated based off agricultural demands estimated in ESJWRM.

Groundwater Pumping: Groundwater extractions from October 2020 to September 2021 were provided by municipal water purveyors as described in Section 3.8.1. Pumping estimates were made in ESJWRM for private agriculture and domestic wells based on land use type and population.

Population: California Department of Finance estimates (E-4 Population Estimates for Cities, Counties, and the State, 2011-2021, with 2010 Census Benchmark) were downloaded to update annual population for 2021 (State of California, 2021). Rural populations were estimated from Department of Finance county totals and spatially assigned throughout the model by urban acreage.

Land Use: Each element within the ESJWRM is comprised of some fraction of 27 land uses, including 23 agricultural crop categories, native vegetation, water surface, riparian vegetation, and urban landscape. For WY 2021, the model continues to utilize data from DWR's 2016 Statewide Crop Mapping which provides data on urban and irrigated land throughout the model domain on a parcel scale (DWR, 2016).

Precipitation: Rainfall data for the model area are derived from the PRISM (Precipitation-Elevation Regressions on Independent Slopes Model) database used in the DWR's CALSIMETAW (California Simulation of Evapotranspiration of Applied Water) model. The database contains daily precipitation data from October 1, 1921, on a four-kilometer grid throughout the model area. ESJWRM has monthly rainfall data defined for every model element in order to preserve the spatial distribution of the monthly rainfall. Each of the model elements was mapped to the nearest of 364 available PRISM reference nodes, uniformly distributed across the model domain. The PRISM dataset is available online from Oregon State University through a partnership with the NRCS National Water and Climate Center (Oregon State University, 2019).

Streamflow: Monthly inflow to the Eastern San Joaquin Subbasin were updated for Dry Creek, Mokelumne River, Calaveras River, Stanislaus River, and San Joaquin River. Sources of data included USGS (USGS, 2022) and United States Army Corps of Engineers (US Army Corps of Engineers, 2021).

[21] New Melones Reservoir flows are monitored at a USGS gauge downstream on the Stanislaus River below Goodwin Dam near Knights Ferry, CA.

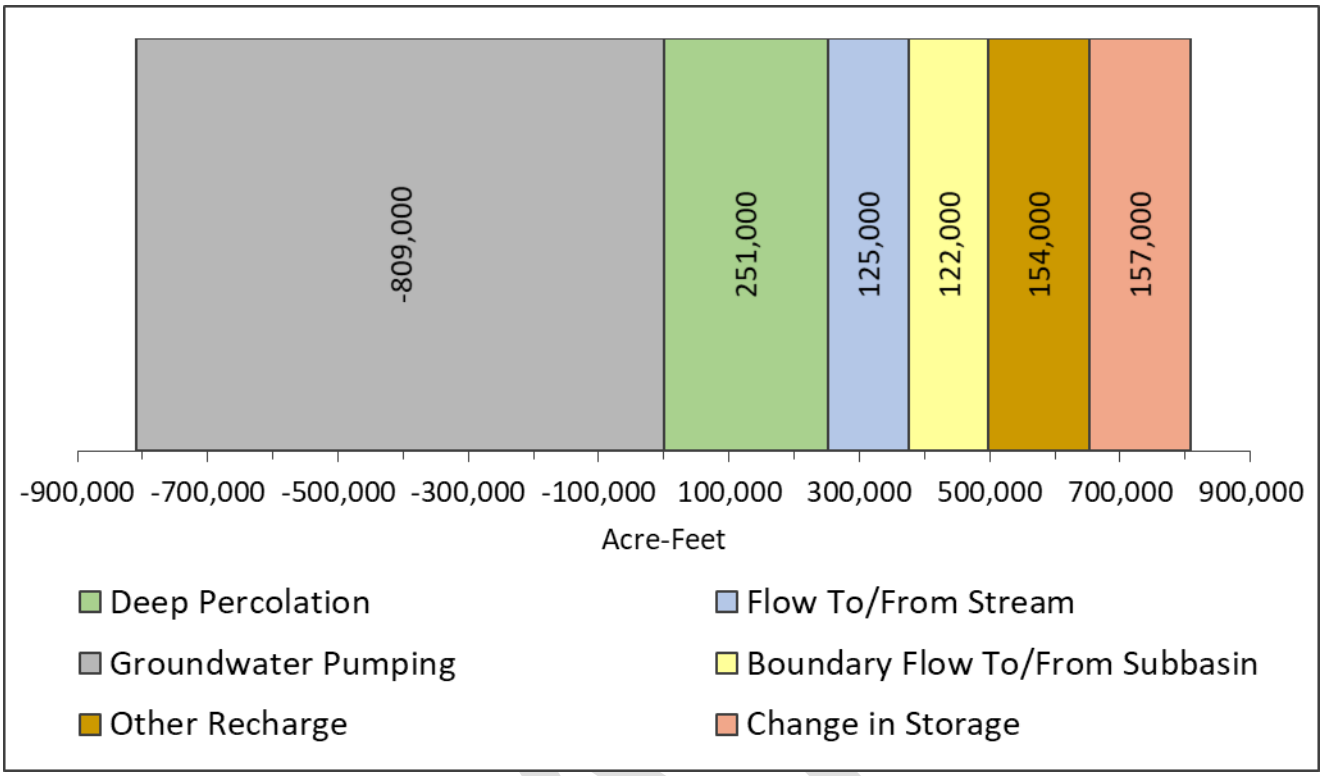
[22] Reservoir release for New Hogan Reservoir on the Calaveras River.

Non-gauged tributaries into the Subbasin were estimated internally by the model using the Integrated Water Flow Model (IWFM) small-watershed package.

Boundary Conditions: Averages of historical model data by water year type were used to update the assumed groundwater elevation boundary conditions in the model.

Results:

Evaluation of WY 2021 (**Figure 12**) shows that the Eastern San Joaquin Subbasin experienced, on an average and net basis, 652,000 AF of inflows and 809,000 AF of outflow, leading to an annual decrease of groundwater in storage of 157,000 AF. Deep percolation from the root zone is the largest contributor of groundwater inflow (251,000 AFY), followed by recharge from managed aquifer projects, unlined canals or reservoirs, and ungauged watersheds (154,000 AFY); boundary flows from surrounding groundwater subbasins (122,000 AFY); and recharge from streams (125,000 AFY). Groundwater production (809,000 AFY) accounts for the greatest outflow from the Eastern San Joaquin Subbasin. **Table 3-4** compares these values against those from WY 2020. Values for WY 2020 differ from those presented in the last annual report due to the ESJWRM update and recalibration in 2021.



Notes:
1. "Other Recharge" includes managed aquifer recharge, recharge from unlined canals and/or reservoirs, and recharge from ungauged watersheds.
2. "Change in Storage" is placed to balance the water budget. For instance, if annual outflows (-) are greater than inflows (+), there is a decrease in storage, but this would be shown on the positive side of the bar chart to balance out the increased outflows on the negative side of the bar chart.

Figure 12. WY 2021 Average Annual Estimated Groundwater Budget, Eastern San Joaquin Subbasin

Table 3-4. Comparison of WY 2020 and WY 2021 Water Budget (in acre-feet)

Water Budget Element	WY 2020	WY 2021
Water Year Type	Dry	Critical
Deep Percolation	247,000	251,000
Other Recharge	155,000	154,000
Flow to/from Stream	99,000	125,000
Boundary Flow to/from Subbasin	114,000	122,000
Groundwater Pumping	-777,000	-809,000
Change in Storage	162,000	157,000

4. REFERENCES

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Appendix A – GSP Implementation Progress

Table A-1. Summary of Implementation Progress of GSP Projects and Management Actions:

Activity	Project Type	Project Proponent	Current Status	Schedule (initiation and completion)	Status
Project 1: Lake Grupe In-lieu Recharge	In-lieu Recharge	SEWD	Currently underway	2020-2022	Project implementation is underway. Footings for the river pump have been installed. The platform and pump work are pending. Currently, no instream work has been completed. Updates regarding activity progress will be included in future Annual Reports.
Project 2: SEWD Surface Water Implementation Expansion	In-lieu Recharge	SEWD	Implementation phase	2019-2029	The Project is being implemented in stages. SEWD has completed the conversion of 153 acres to surface water, is in the construction phase to convert an additional 2,592 acres, and in the planning phase to convert an additional 1,048 acres. During WY 2022, the SEWD plans to continue constituent outreach efforts and address the necessary improvements to facilitate the conversions of an additional 3,000 acres to surface water.
Project 3: City of Manteca Advanced Metering Infrastructure	Conservation	City of Manteca	Currently underway	2019-2021	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2020 due to delays as a result of COVID-19, staff shortages, and lack of funding. Updates regarding activity progress will be included in future Annual Reports.
Project 4: City of Lodi Surface Water Facility Expansion & Delivery Pipeline	In-lieu Recharge	City of Lodi	Planning phase	2030-2033	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 since implementation is not planned until 2030. Updates regarding activity progress will be included in future Annual Reports.
Project 5: White Slough Water Pollution Control Facility Expansion	Recycling/ In-lieu Recharge	City of Lodi	Construction complete	2019-2020	The Project status information presented in the GSP is up to date. The Project is complete.

Activity	Project Type	Project Proponent	Current Status	Schedule (initiation and completion)	Status
Project 6: CSJWCD Capital Improvement Program	In-lieu Recharge	CSJWCD	Can be implemented immediately	2020-2027, on-going with 7-year completion cycles	The Project status information presented in the GSP is up to date. The Project has been implemented and is on-going each year of available water delivery. Updates regarding activity progress will be included in future Annual Reports.
Project 7: NSJWCD South System Modernization	In-lieu Recharge	NSJWCD	Environmental review is complete, funding has been sought and a landowner improvement district formed	2018-2023	This Project is progressing. The new pump station was completed in 2019. Variable frequency drive (VFD) and automation equipment were added in February through March 2020. In 2021, the South System Pump station and the main junction box at Tretheway and Brandt Road was completed, including installation of all automation and communication equipment, and is in the final testing and calibration stage. The next phase of improvements is in the design phase and is planned to start construction summer of 2022. NSJWCD is working on sub-improvement districts for lateral distribution. ID3A formed in 2021 and ID3B will be formed in 2022. In WY 2022, NSJWCD will pursue an IRWM grant for the implementation of groundwater recharge facilities on the South System. No water was available to run the system in WY 2021 for irrigation deliveries.
Project 8: Long-term Water Transfer to SEWD and CSJWCD	Transfers/ In-lieu Recharge	SSJ GSA	Infrastructure is in place. Environmental Review may need to be implemented	2019-2021	The Project status information presented in the GSP is up to date. OID and SJJID completed a one-year water transfer to SEWD in the amount of 1,002 AF during the 2021 irrigation season. The water was delivered through the existing Goodwin Tunnel and the Upper Farmington Canal for final delivery to an agricultural operation. Future transfers are currently being discussed.

Activity	Project Type	Project Proponent	Current Status	Schedule (initiation and completion)	Status
Project 9: BNSF Railway Company Intermodal Facility Recharge Pond	Direct Recharge	CSJWCD	Planning phase	2020-2023	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 due to delays as a result of the COVID-19 pandemic. CSJWCD plans to move forward with the Project during WY 2022. Updates regarding activity progress will be included in future Annual Reports.
Project 10: City of Stockton Advanced Metering Infrastructure	Conservation	City of Stockton	Initial study completed in 2011	2020/25-2025/28	The Project's concept analysis and schedule were updated and included in City of Stockton Municipal Utilities Department's (MUD's) Capital Improvement Program (CIP) 2025 schedule. The Project schedule has been accelerated, and the request for proposals for Project implementation is anticipated in 2022. The Advanced Metering Infrastructure Pilot Test is anticipated in 2023.
Project 11: South System Groundwater Banking with East Bay Municipal Utilities District (EBMUD)	In-lieu Recharge	NSJWCD	Agreement is in place; parties need to finalize design. Environmental review and permitting needed	2020-2025	NSJWCD and EBMUD are working to complete the pilot DREAM Project. Facilities to complete the final phases of the pilot Project are currently under construction and are expected to be complete by early 2022. Water that was banked in prior years will be returned in February through March 2022. Additional water will be banked and returned in future years. Planning efforts for a larger scale banking project are underway.

Activity	Project Type	Project Proponent	Current Status	Schedule (initiation and completion)	Status
Project 12: NSJWCD North System Modernization/Lakso Recharge	In-Lieu Recharge/ Direct Recharge	NSJWCD	Planning phase	2021-2026	Project planning is advancing. In December 2020, NSJWCD hired an engineering consultant to prepare 30% design plans and a cost estimate to apply for funding under the Proposition 68 Round 1 grant. The Project was not awarded Proposition 68 funding. NSJWCD will reapply for Proposition 68 Round 2 funding. If awarded, NSJWCD will proceed with construction of the first phase of this Project. NSJWCD will also continue working on a strategic plan and funding options for the implementation of this Project.
Project 13: Manaserro Recharge Project	Direct Recharge	NSJWCD	Planning phase	2019-2022	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 due to a lack of funding. NSJWCD is continuing to work on a strategic plan and funding options for the implementation of this Project.
Project 14: Tecklenburg Recharge Project	Direct Recharge	NSJWCD	Planning phase	2020-2023	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 due to a lack of funding. NSJWCD is currently working on a pending Federal Appropriation Request that could be used for the implementation of this Project.
Project 15: City of Escalon Wastewater Reuse	Recycling/ In-lieu Recharge/ Transfers	SSJ GSA	Planning phase	2020-2028	The Project status information presented in the GSP is up to date. The Project is in the early conceptual stages and requires additional feasibility analysis and long-term planning. The City of Escalon has hired a consultant to explore the feasibility of project alternatives. Updates regarding activity progress will be included in future Annual Reports.

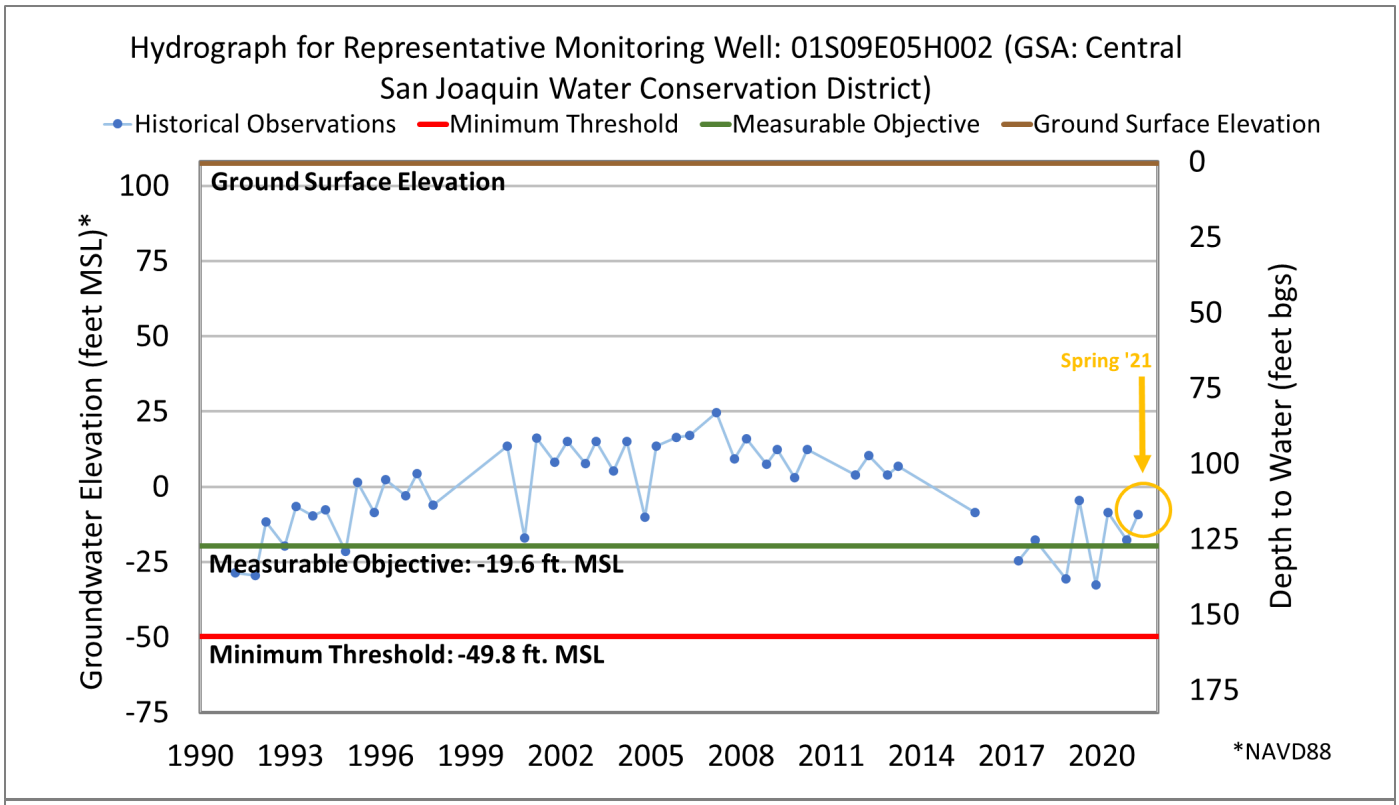
Activity	Project Type	Project Proponent	Current Status	Schedule (initiation and completion)	Status
Project 16: City of Ripon Surface Water Supply	In-lieu Recharge	SSJ GSA	Design complete; environmental permitting underway	2020-2024	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 as it requires additional feasibility analysis and long-term planning. Updates regarding activity progress will be included in future Annual Reports.
Project 17: City of Escalon Connection to Nick DeGroot Water Treatment Plant	In-lieu Recharge	SSJ GSA	Conceptual design phase; environmental review complete	2020-2023	The Project status information presented in the GSP is up to date. Project implementation requires additional feasibility analysis and long-term planning. In WY 2021, the City of Escalon hired a consultant to develop alternatives to connect to the Nick C. DeGroot WTP for further evaluation. Estimated costs for the alternatives currently range between $3.5 million - $8 million. The City Council directed staff to approach SSJID to further refine the alternatives prior to initiating the design process. SSJGSA and Escalon staff are actively seeking grant opportunities for defraying capital costs. Updates regarding activity progress will be included in future Annual Reports.
Project 18: Farmington Dam Repurpose Project	Direct Recharge	SEWD	Preplanning phase with reconnaissance study complete	2030-2050	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 as SEWD dedicated resources to bring short-term projects online first. More resources will be directed toward the implementation of this Project as Project 2 is completed. Updates regarding activity progress will be included in future Annual Reports.
Project 19: Recycled Water Transfer to Agriculture	Recycling/Transfers/ In-lieu Recharge	City of Manteca	Planning phase with evaluation completed in Draft Reclaimed Water Facilities Master Plan	Not determined	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 due to delays as a result of COVID-19, staff shortages, and lack of funding. Updates regarding activity progress will be included in future Annual Reports.

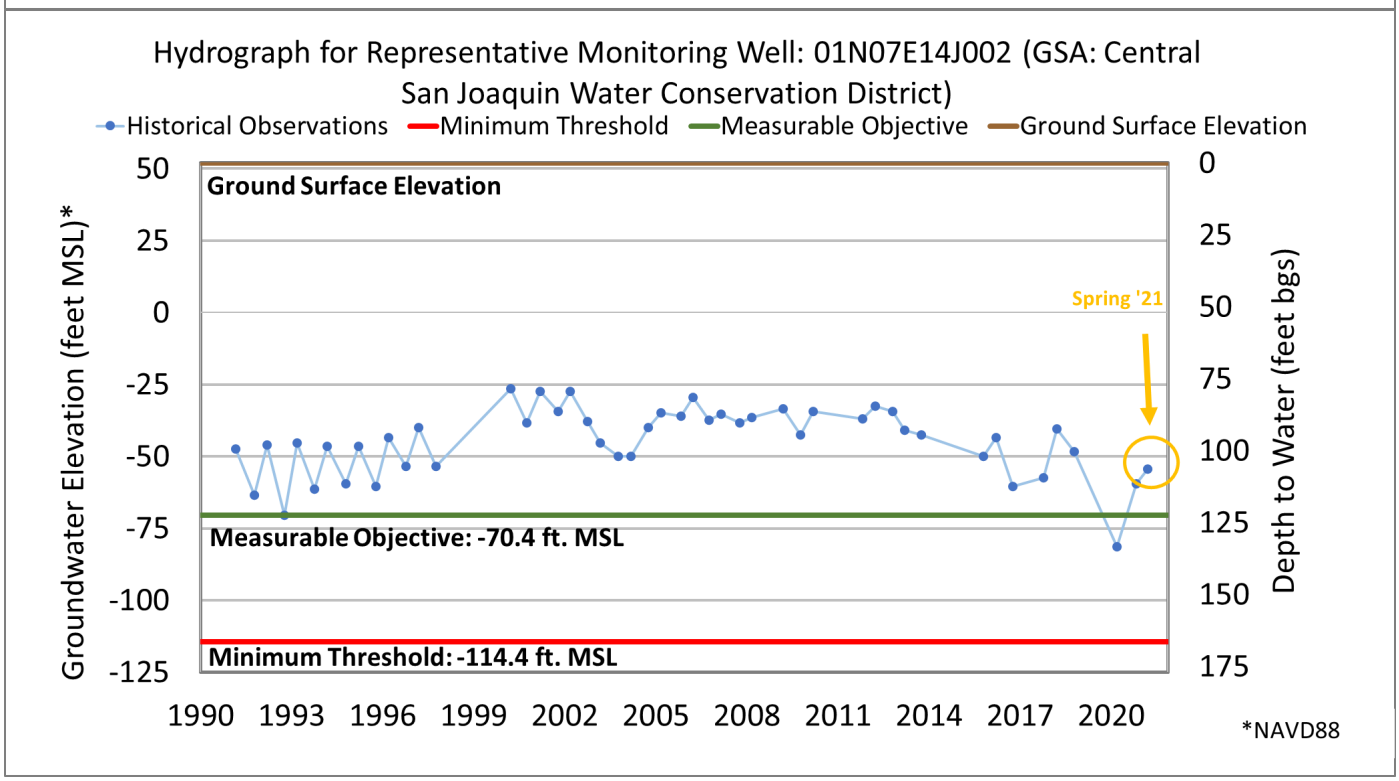
Activity	Project Type	Project Proponent	Current Status	Schedule (initiation and completion)	Status
Project 20: Mobilizing Recharge Opportunities	Direct Recharge	San Joaquin County	Early conceptual planning phase	Not determined	The Project has been expanded into a multi-benefit project, and the ESJGWA will apply for grant funds for the expanded project under the Sustainable Groundwater Management Implementation Grant Program Round 1. Regionwide surface water availability and needs are being discussed, and future acquisition of the Mokelumne River Water and Power Authority's water rights will be explored. Updates regarding activity progress will be included in future Annual Reports.
Project 21: NSJWCD Winery Recycled Water	Recycling/ In-Lieu Recharge/ Direct Recharge	NSJWCD	Conceptual planning and discussion	2025-2027	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 due to a lack of funding. NSJWCD is continuing to work on a strategic plan and funding options for the implementation of this Project.
Project 22: Pressurization of SSJID Facilities	Conservation	SSJ GSA	Feasibility study complete	2019-2030	In WY 2021, SSJID evaluated the feasibility of converting its entire irrigation system to a pressurized piped system. Although the cost is currently deemed to be infeasible, there are opportunities to make strategic improvements to modernize the irrigation system to provide partial pressurization or for growers to become more efficient and receive an improved level of service through increased lateral capacity, new reservoirs, and the increased use of SCADA controls. SSJID is compiling and ranking these opportunities into a comprehensive Water Master Plan which is scheduled to be complete in 2022.

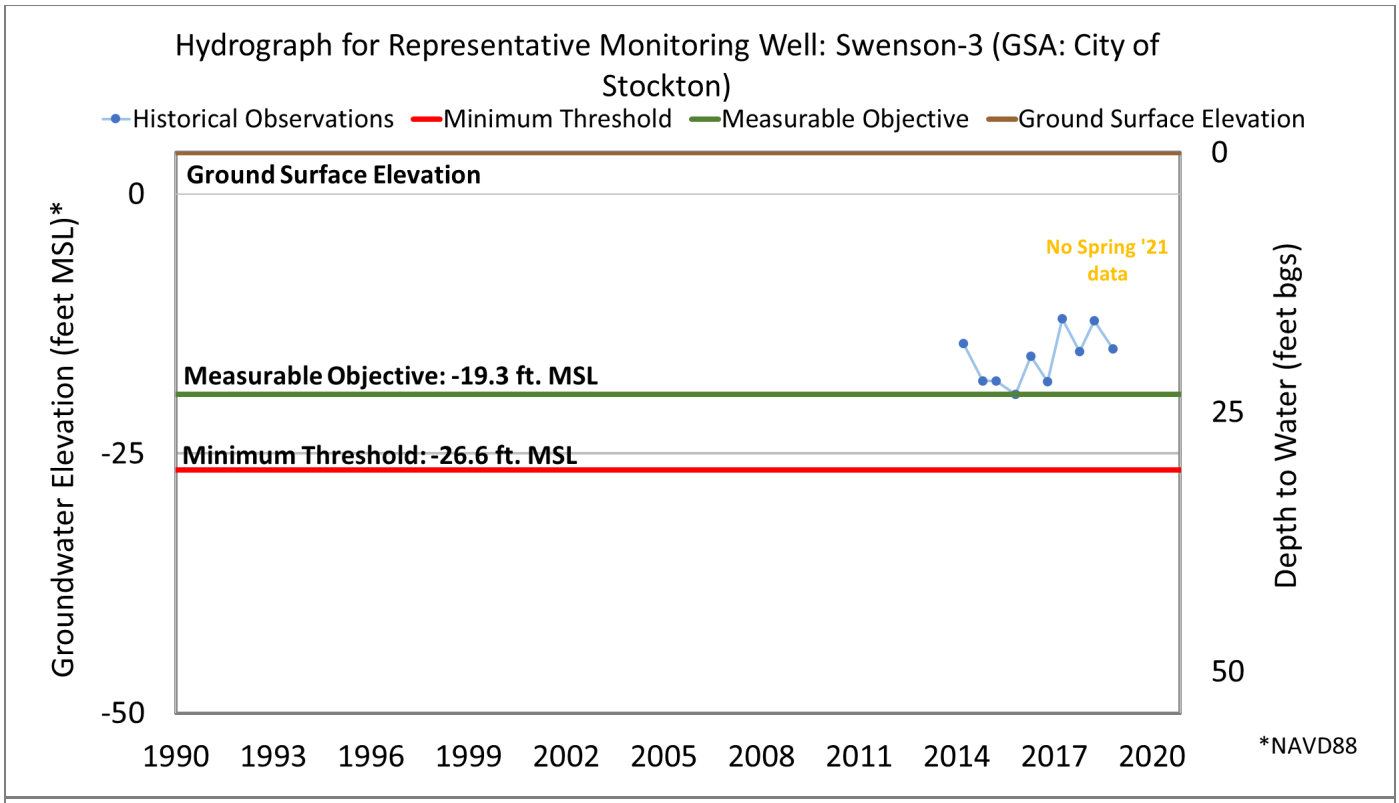
Activity	Project Type		Project Proponent	Current Status	Schedule (initiation and completion)	Status
Project 23: SSJID Storm Water Reuse	Storm Water/ In-lieu Recharge/ Direct Recharge		SSJ GSA	Planning phase	2027-2030	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 since implementation is not planned until 2030. SSJID continues to fund capital improvements to make this Project part of SSJID's annual CIP and could be expanded as a result of the Water Master Plan. Updates regarding activity progress will be included in future Annual Reports.
Project 24: South Stockton Well Rehabilitation Program (new)	City of Stockton	Design underway	2021-2023	This is a new Project added in WY 2021 to rehabilitate existing inactive wells. Design in progress to add well head treatment to existing Well SSS8 and back-up power to Well SSS3 and Well SSS9.		
Project 25: Delta Water Supply Project Phase 2: Groundwater Improvement Project	City of Stockton	Planning phase	2022 - 2026	This is a new Project added in WY 2021 to conduct a geotechnical investigation and feasibility study to determine the feasibility of constructing a recharge basin. Bids for this planning work were solicited in January 2022. Updates regarding activity progress will be included in future Annual Reports.		
Mokelumne River Loss Study	Model Refinement and Validation		NSJWCD	Conceptual planning and discussion	2020-2025	The Project status information presented in the GSP is up to date. Project implementation did not occur during WY 2021 due to a lack of funding and lack of staff resources to complete the plans and move the projects forward. NSJWCD is continuing to work on strategic plan and funding options for the implementation of this Project.
Monitoring and recording of groundwater levels and groundwater quality data	Monitoring and Reporting		Implemented at Subbasin scale	Ongoing	2020-2040	The Project status information presented in the GSP is up to date. This is the third Annual Report that reports groundwater level and groundwater quality monitoring data. Updates regarding activity progress will be included in future Annual Reports.
Maintaining and updating the Subbasin Data Management System (DMS) with newly collected data	Monitoring and Reporting		Implemented at Subbasin scale	Ongoing	2020-2040	The Project status information presented in the GSP is up to date. The DMMs was maintained and updated to include monitoring data for WY 2021. Updates regarding activity progress will be included in future Annual Reports.

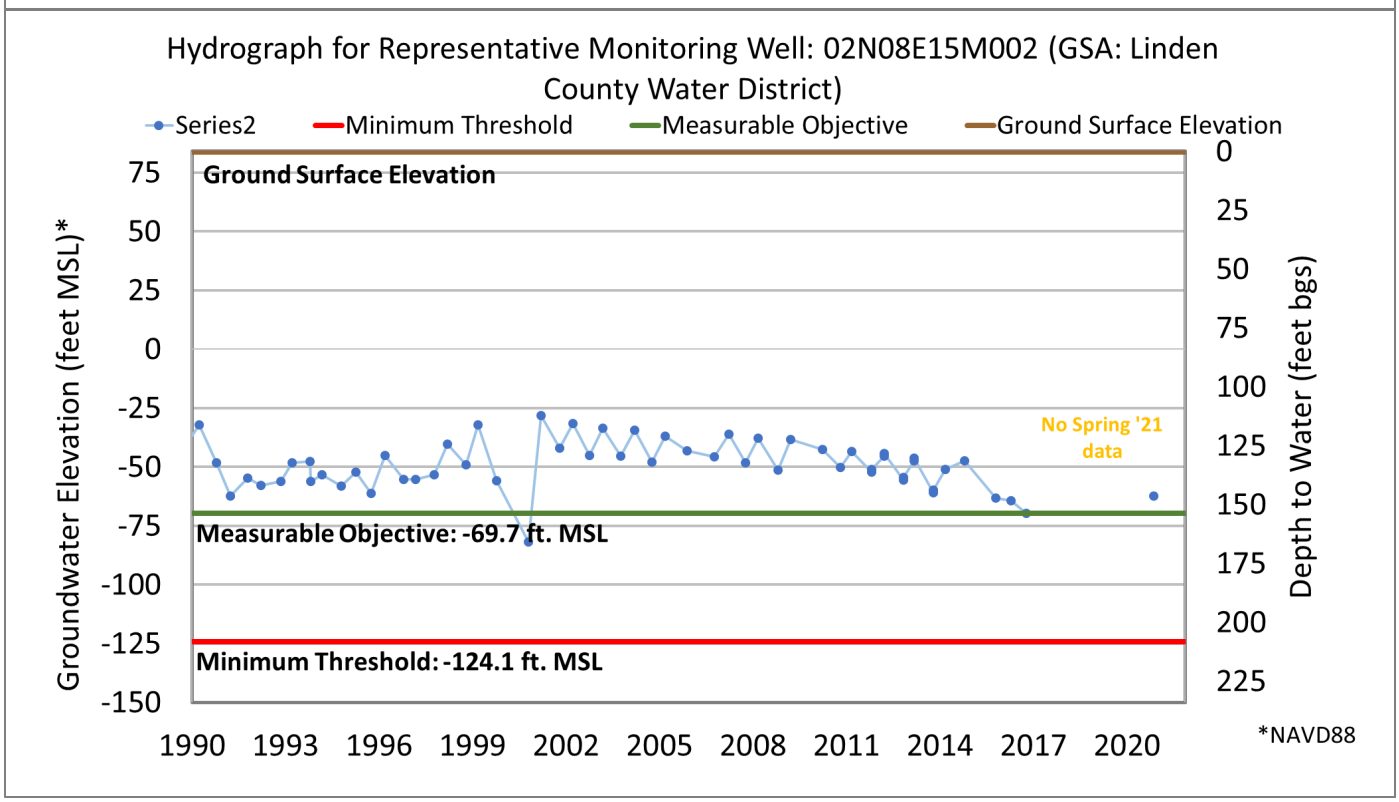
Activity	Project Type	Project Proponent	Current Status	Schedule (initiation and completion)	Status
Annual monitoring of progress toward sustainability	Monitoring and Reporting	Implemented at Subbasin scale	Ongoing	2020-2040	The Project status information presented in the GSP is up to date. This is the third Annual Report that monitors the progress toward sustainability. Updates regarding progress toward sustainability will be included in future Annual Reports.
Annual reporting of Subbasin conditions to DWR as required by SGMA	Monitoring and Reporting	Implemented at Subbasin scale	Ongoing	2020-2040	The Project status information presented in the GSP is up to date. This is the third Annual Report that describes the current conditions in the Subbasin and will be submitted to DWR as required by SGMA. Updates regarding Subbasin conditions will be included in future Annual Reports.
Addressing Data Gaps	Monitoring and Reporting	San Joaquin County	Ongoing	2020-2040	During WY 2021, NSJWCD contracted with DWR and San Joaquin County to install a TSS monitoring well with in the NSJWCD area.

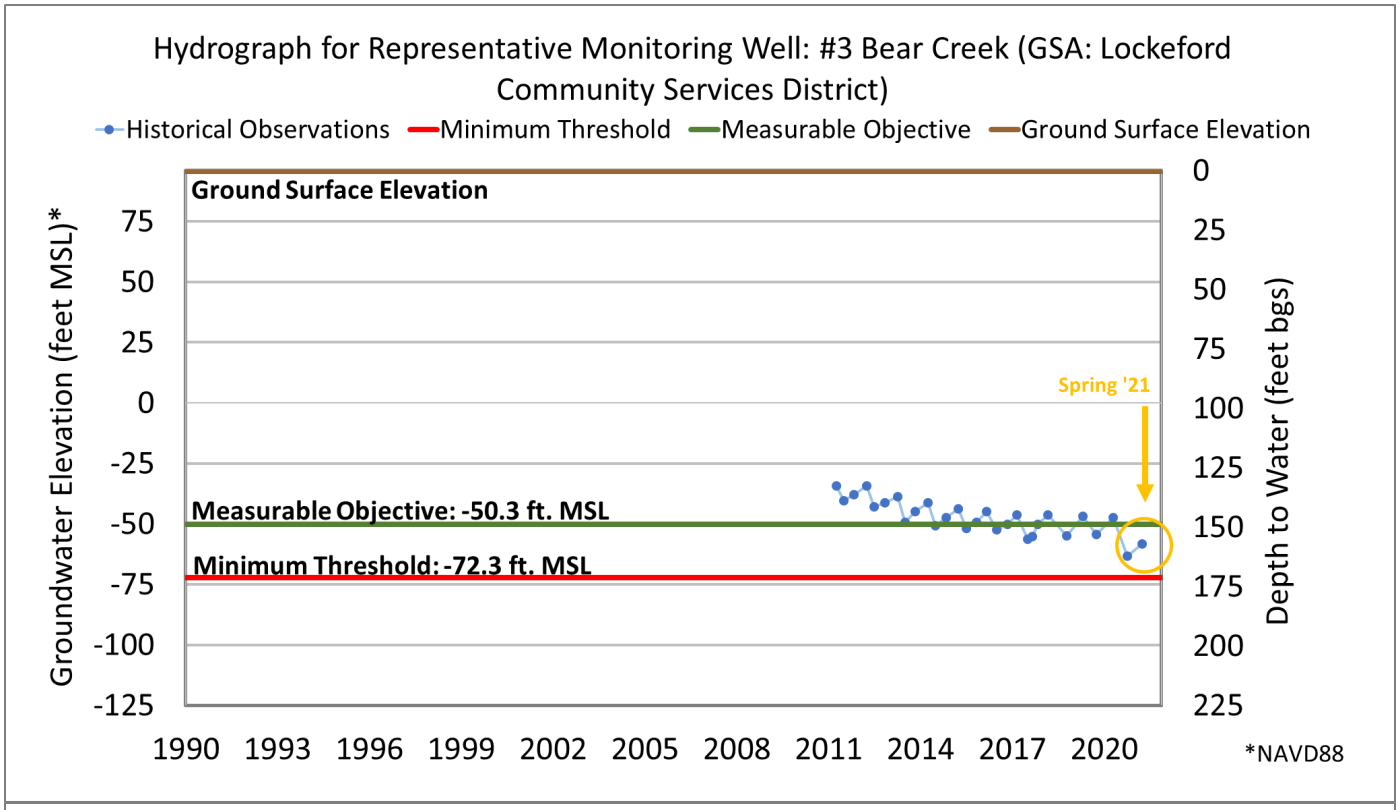
APPENDIX B – REPRESENTATIVE MONITORING NETWORK WELL HYDROGRAPHS

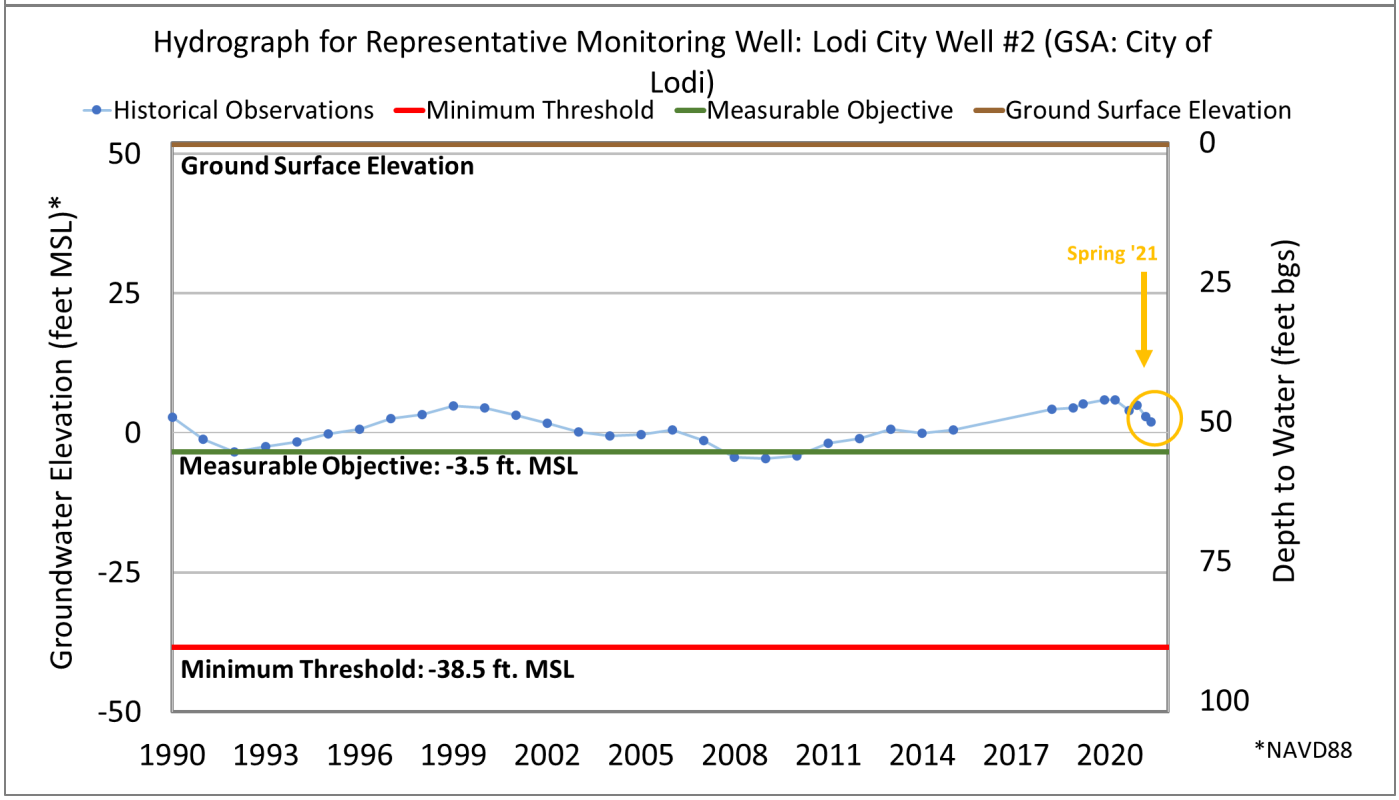

Hydrograph for Representative Monitoring Well: 01S09E05H002 (GSA: Central San Joaquin Water Conservation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -19.6 ft. MSL
Minimum Threshold: -49.8 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
100
75
50
25
0
-25
-50
-75
0
25
50
75
100
125
150
175
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

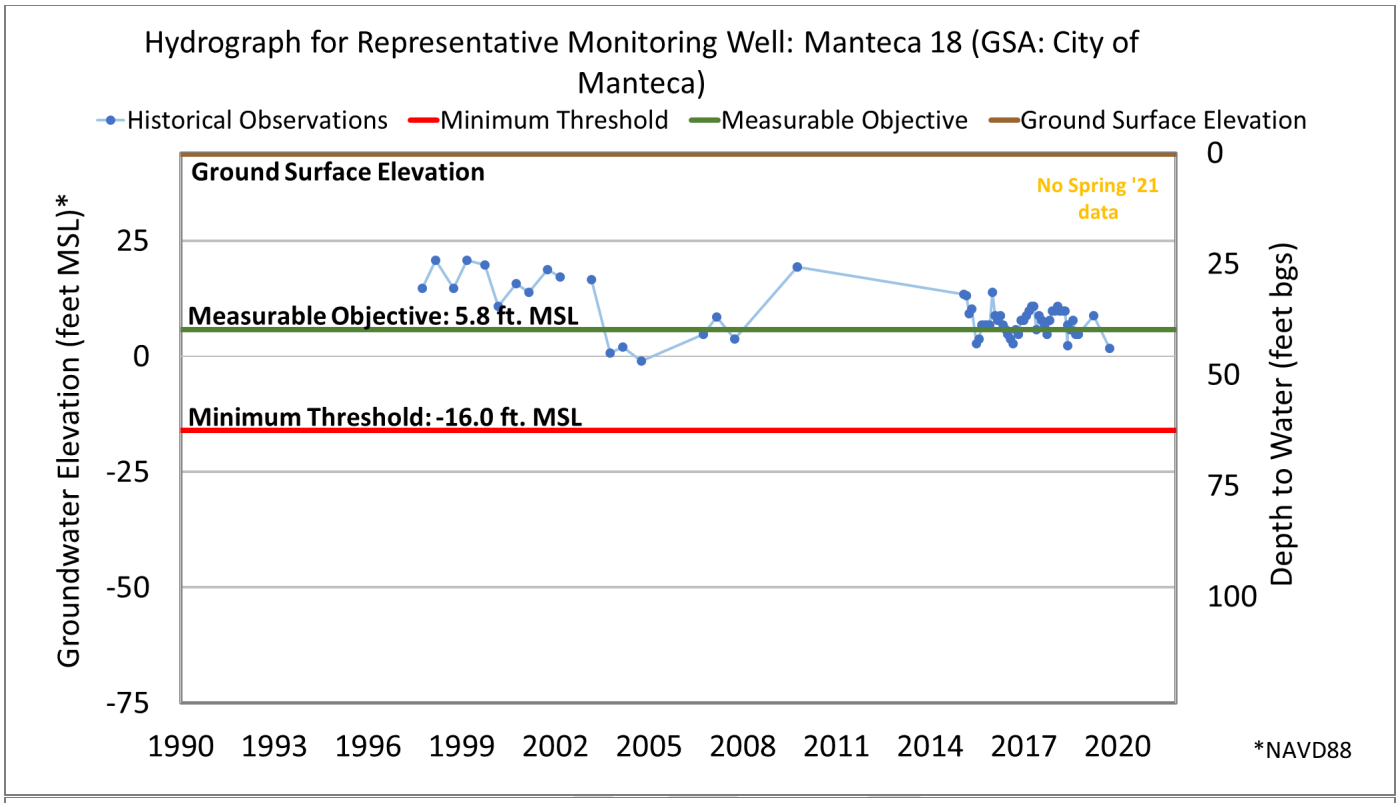

Hydrograph for Representative Monitoring Well: 01N07E14J002 (GSA: Central San Joaquin Water Conservation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -70.4 ft. MSL
Minimum Threshold: -114.4 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
50
25
0
-25
-50
-75
-100
-125
0
25
50
75
100
125
150
175
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

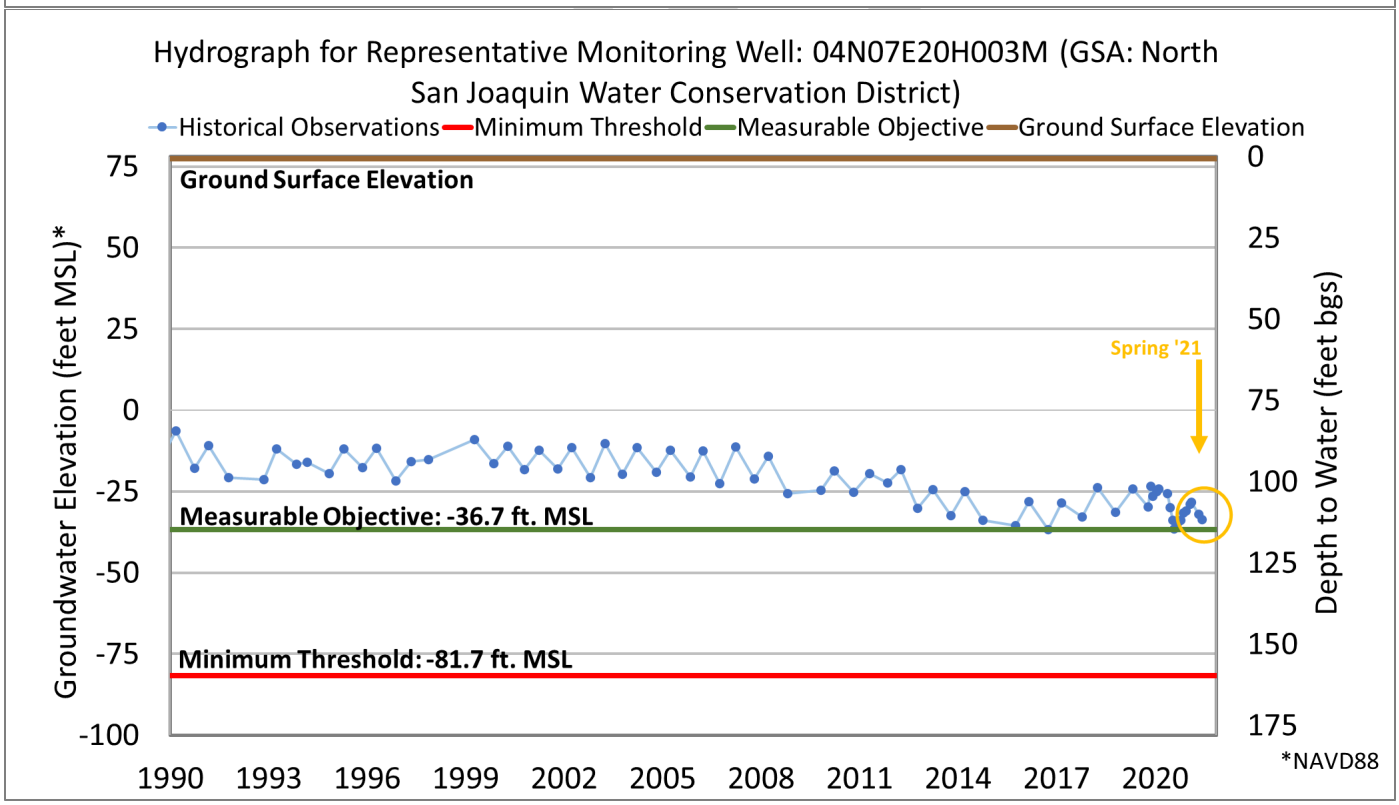

Hydrograph for Representative Monitoring Well: Swenson-3 (GSA: City of Stockton)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
No Spring '21 data
Measurable Objective: -19.3 ft. MSL
Minimum Threshold: -26.6 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
0
-25
-50
0
25
50
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

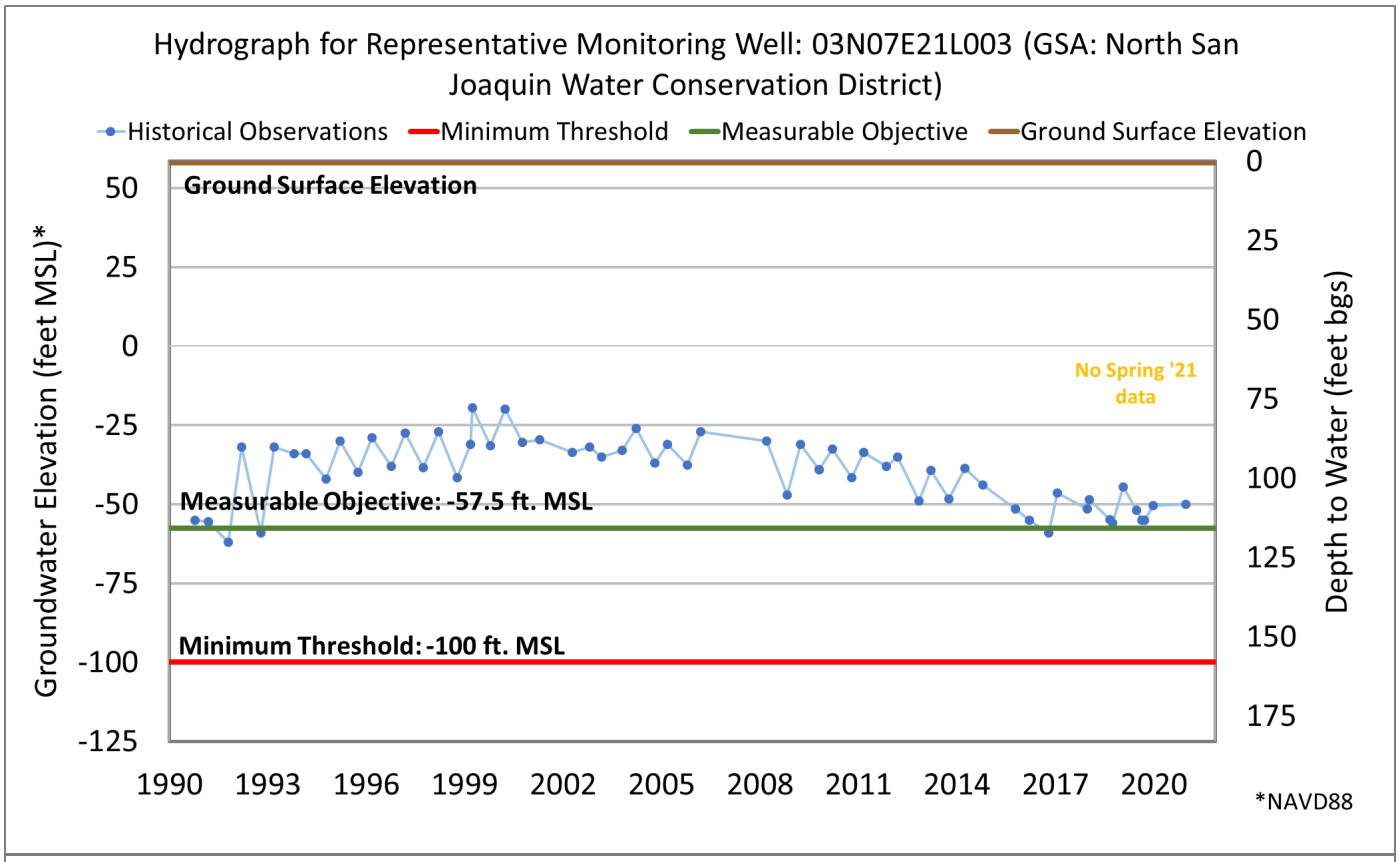

Hydrograph for Representative Monitoring Well: 02N08E15M002 (GSA: Linden County Water District)
Series2
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
No Spring '21 data
Measurable Objective: -69.7 ft. MSL
Minimum Threshold: -124.1 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
75
50
25
0
-25
-50
-75
-100
-125
-150
0
25
50
75
100
125
150
175
200
225
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

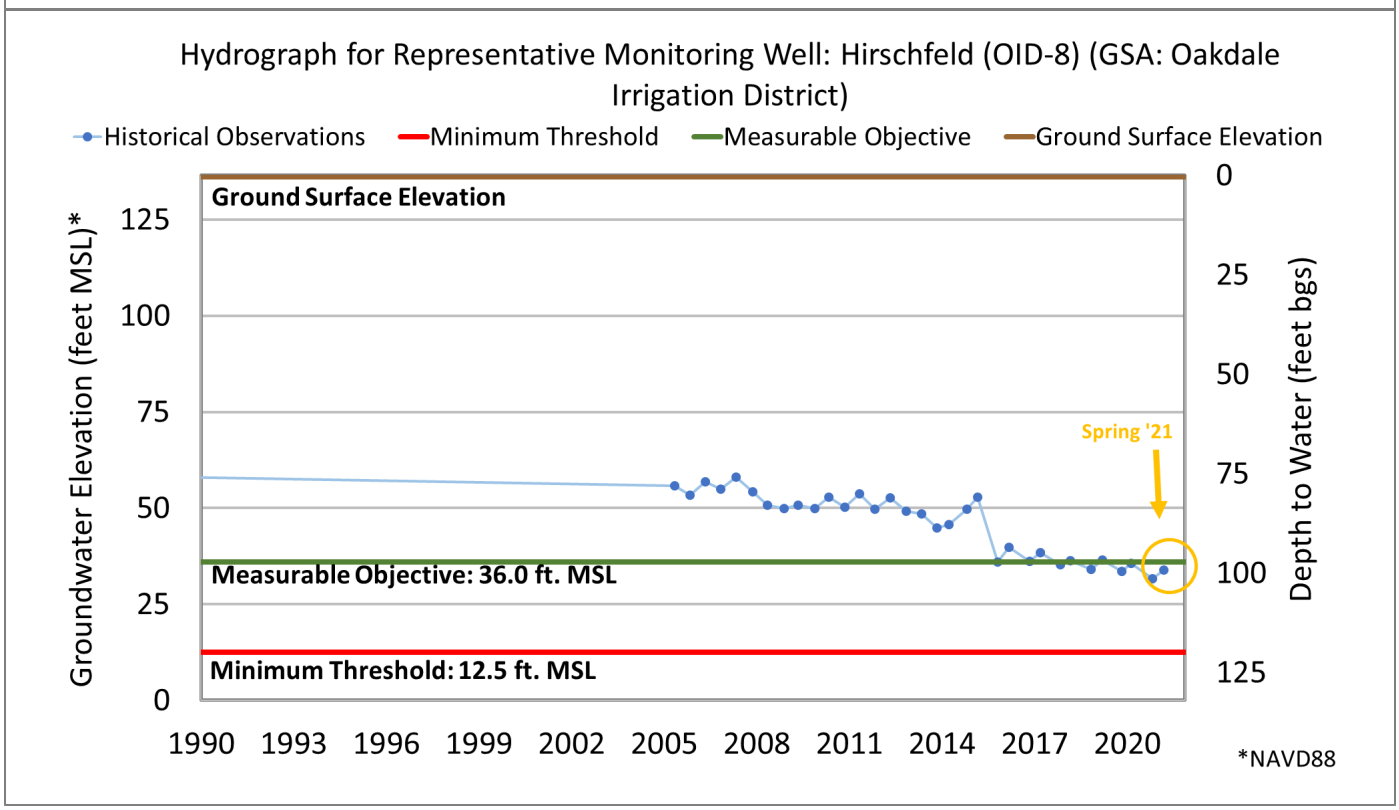

Hydrograph for Representative Monitoring Well: #3 Bear Creek (GSA: Lockeford Community Services District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -50.3 ft. MSL
Minimum Threshold: -72.3 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
75
50
25
0
-25
-50
-75
-100
-125
0
25
50
75
100
125
150
175
200
225
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

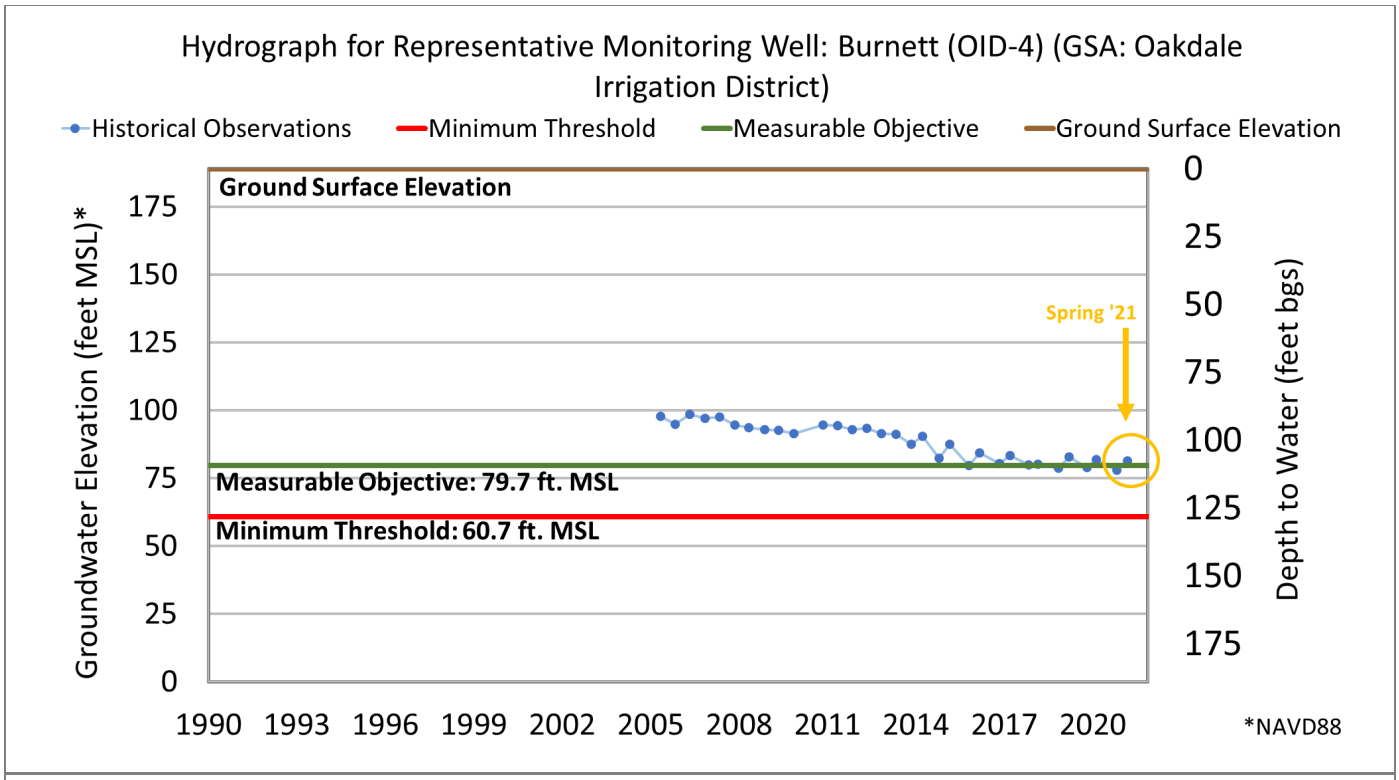

Hydrograph for Representative Monitoring Well: Lodi City Well #2 (GSA: City of Lodi)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -3.5 ft. MSL
Minimum Threshold: -38.5 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
50
25
0
-25
-50
0
25
50
75
100
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

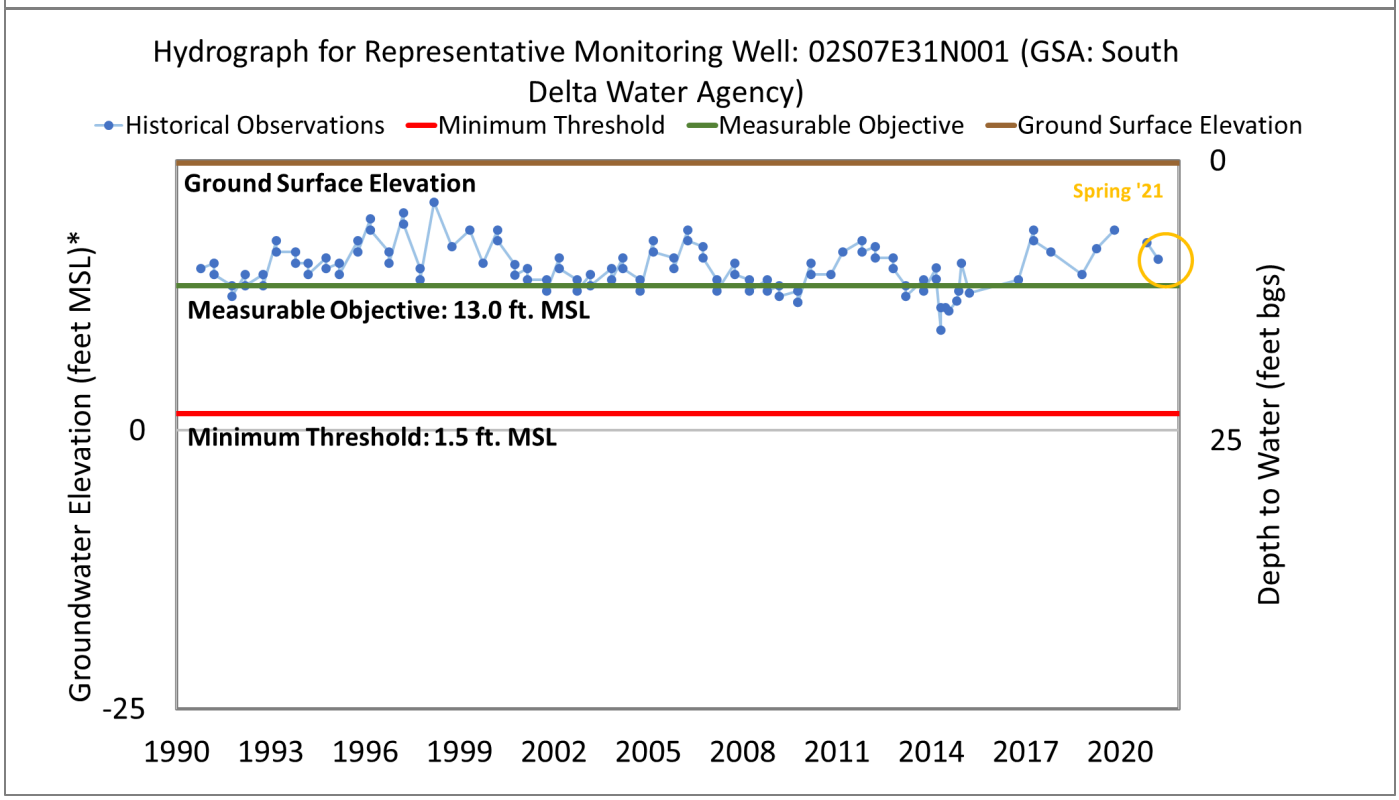

Hydrograph for Representative Monitoring Well: Manteca 18 (GSA: City of Manteca)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
No Spring '21 data
Measurable Objective: 5.8 ft. MSL
Minimum Threshold: -16.0 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
25
0
-25
-50
-75
0
25
50
75
100
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

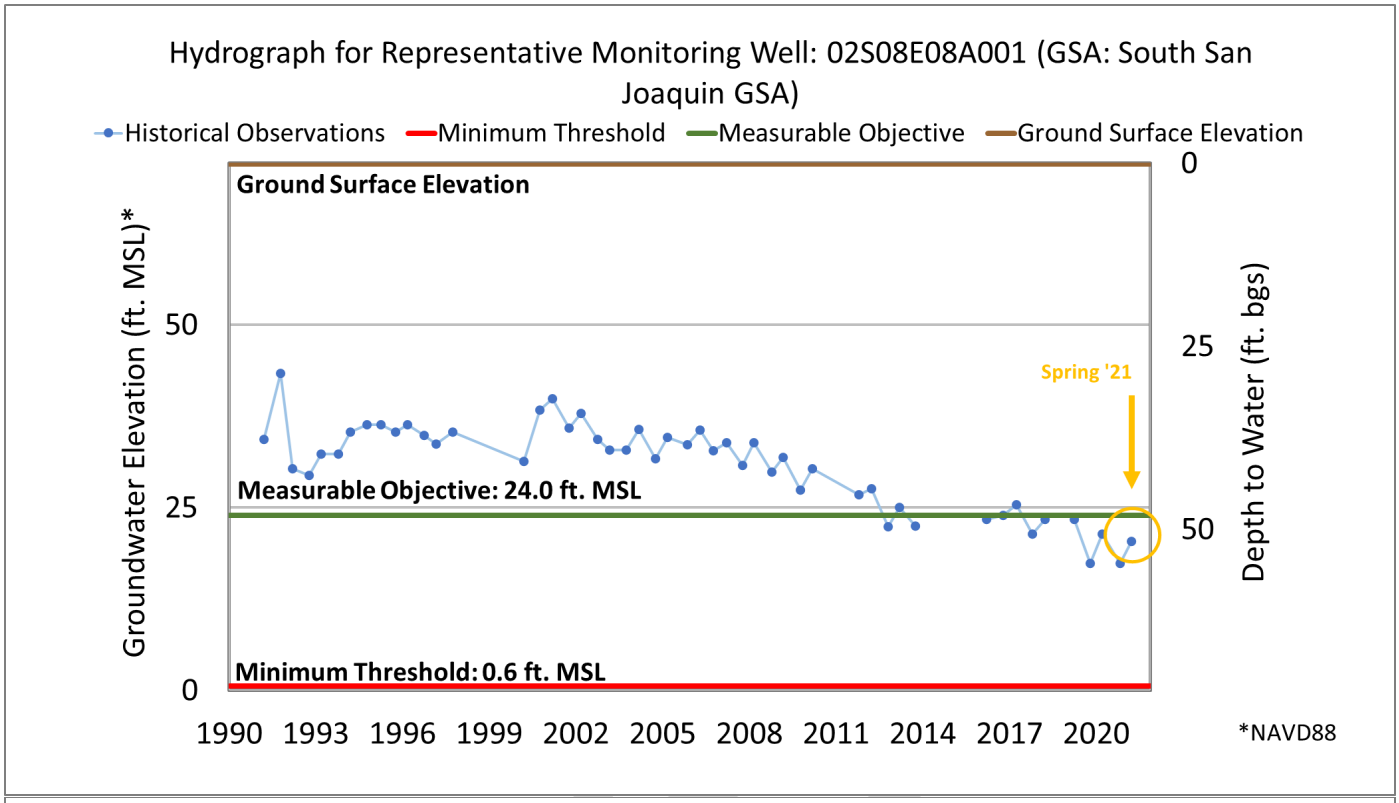

Hydrograph for Representative Monitoring Well: 04N07E20H003M (GSA: North San Joaquin Water Conservation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -36.7 ft. MSL
Minimum Threshold: -81.7 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
75
50
25
0
-25
-50
-75
-100
0
25
50
75
100
125
150
175
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

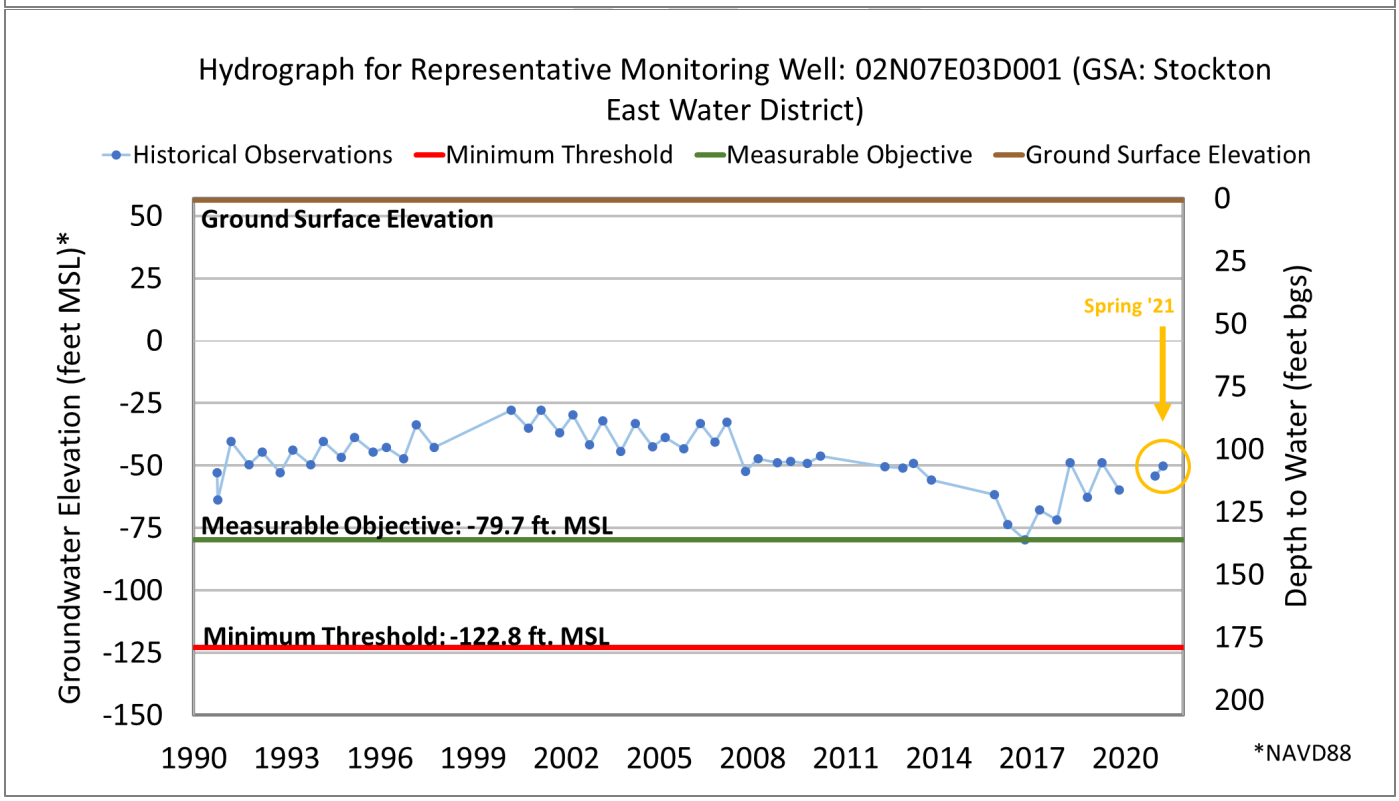

Hydrograph for Representative Monitoring Well: 03N07E21L003 (GSA: North San Joaquin Water Conservation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Measurable Objective: -57.5 ft. MSL
Minimum Threshold: -100 ft. MSL
No Spring '21 data
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
50
25
0
-25
-50
-75
-100
-125
0
25
50
75
100
125
150
175
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

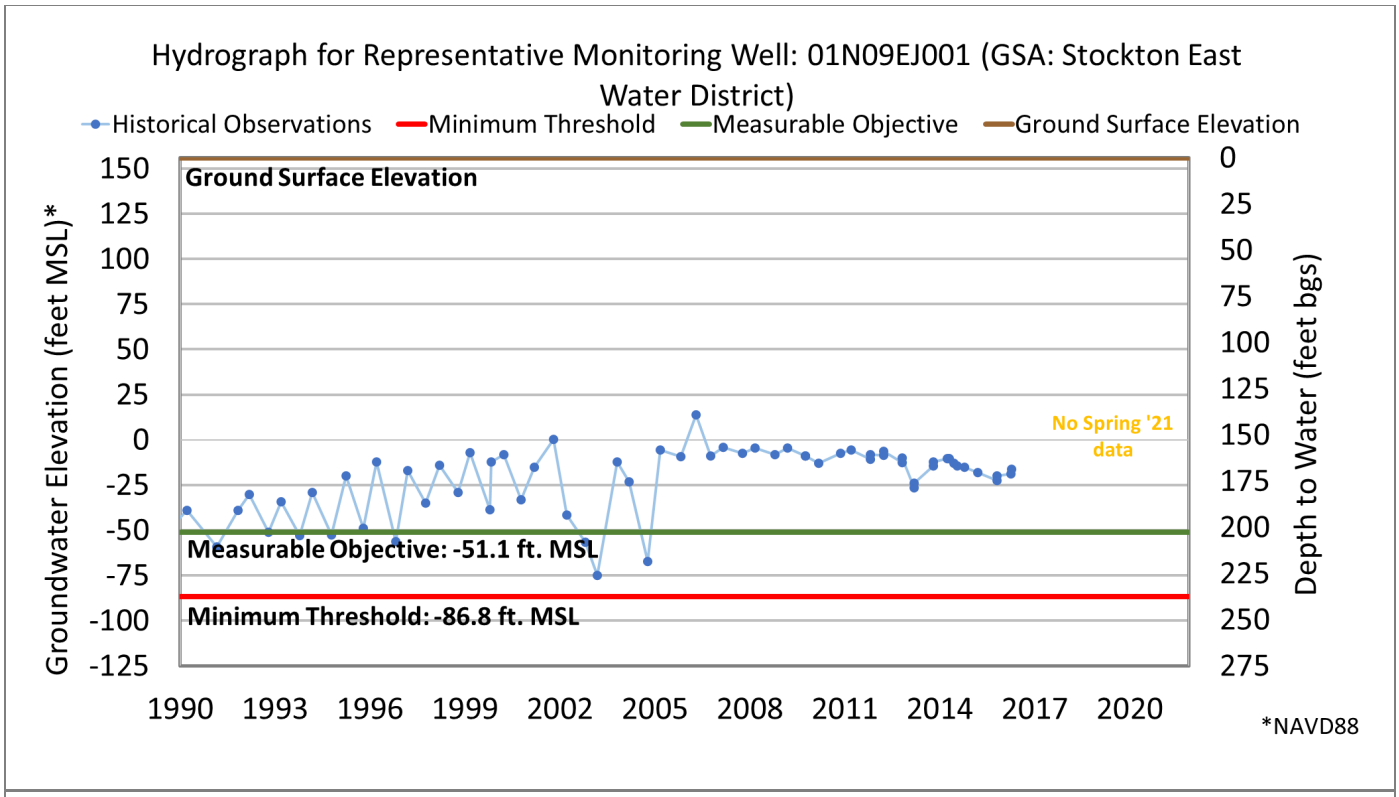

Hydrograph for Representative Monitoring Well: Hirschfeld (OID-8) (GSA: Oakdale Irrigation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Measurable Objective: 36.0 ft. MSL
Minimum Threshold: 12.5 ft. MSL
Spring '21
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
125
100
75
50
25
0
0
25
50
75
100
125
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88

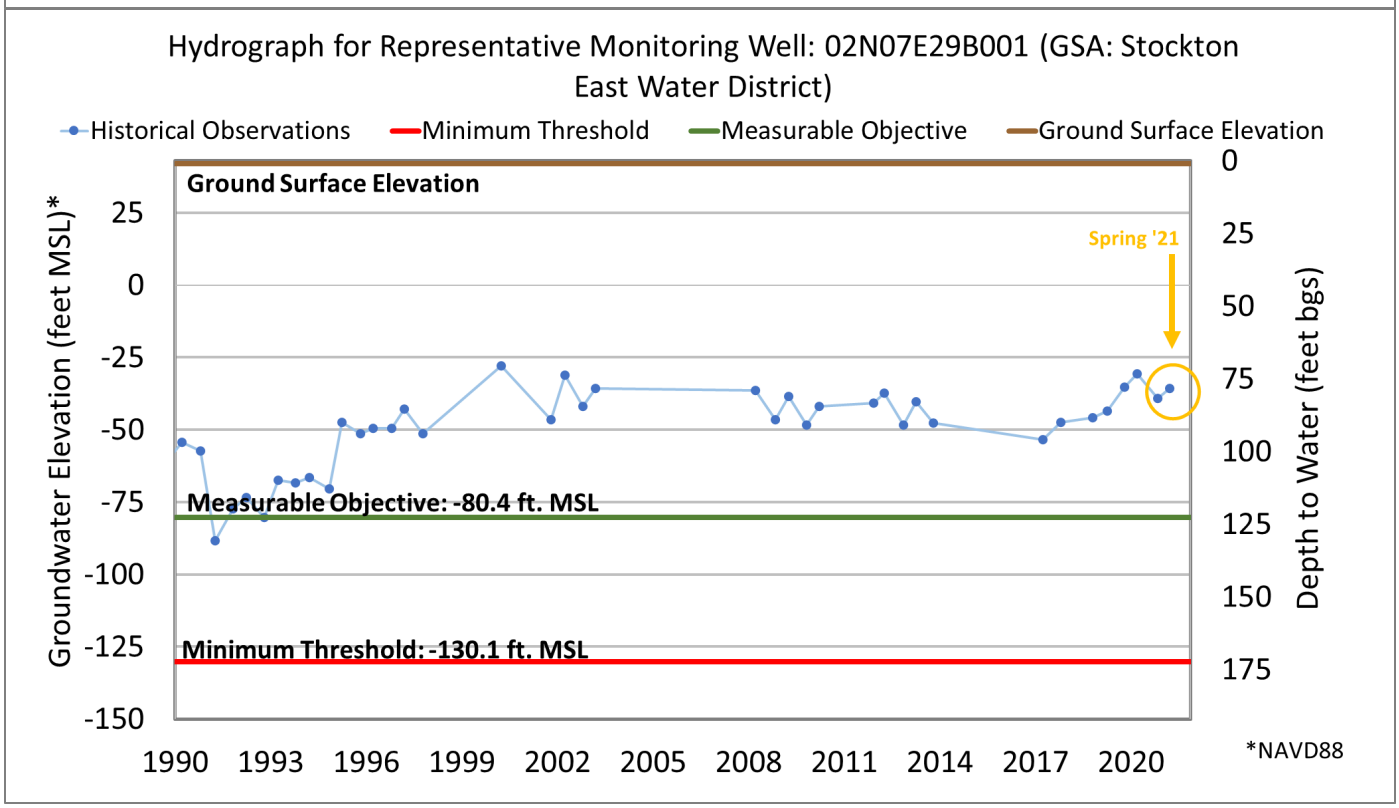

Hydrograph for Representative Monitoring Well: Burnett (OID-4) (GSA: Oakdale Irrigation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: 79.7 ft. MSL
Minimum Threshold: 60.7 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
175
150
125
100
75
50
25
0
0
25
50
75
100
125
150
175
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88


Hydrograph for Representative Monitoring Well: 02S07E31N001 (GSA: South Delta Water Agency)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: 13.0 ft. MSL
Minimum Threshold: 1.5 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
0
-25
0
25
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020


Hydrograph for Representative Monitoring Well: 02S08E08A001 (GSA: South San Joaquin GSA)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: 24.0 ft. MSL
Minimum Threshold: 0.6 ft. MSL
Groundwater Elevation (ft. MSL)*
Depth to Water (ft. bgs)
50
25
0
0
25
50
1990 1993 1996 1999 2002 2005 2008 2011 2014 2017 2020
*NAVD88


Hydrograph for Representative Monitoring Well: 02N07E03D001 (GSA: Stockton East Water District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -79.7 ft. MSL
Minimum Threshold: -122.8 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
50
25
0
-25
-50
-75
-100
-125
-150
0
25
50
75
100
125
150
175
200
1990 1993 1996 1999 2002 2005 2008 2011 2014 2017 2020
*NAVD88


Hydrograph for Representative Monitoring Well: 01N09EJ001 (GSA: Stockton East Water District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
No Spring '21 data
Measurable Objective: -51.1 ft. MSL
Minimum Threshold: -86.8 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
150
125
100
75
50
25
0
-25
-50
-75
-100
-125
0
25
50
75
100
125
150
175
200
225
250
275
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88


Hydrograph for Representative Monitoring Well: 02N07E29B001 (GSA: Stockton East Water District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -80.4 ft. MSL
Minimum Threshold: -130.1 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
25
0
-25
-50
-75
-100
-125
-150
0
25
50
75
100
125
150
175
1990
1993
1996
1999
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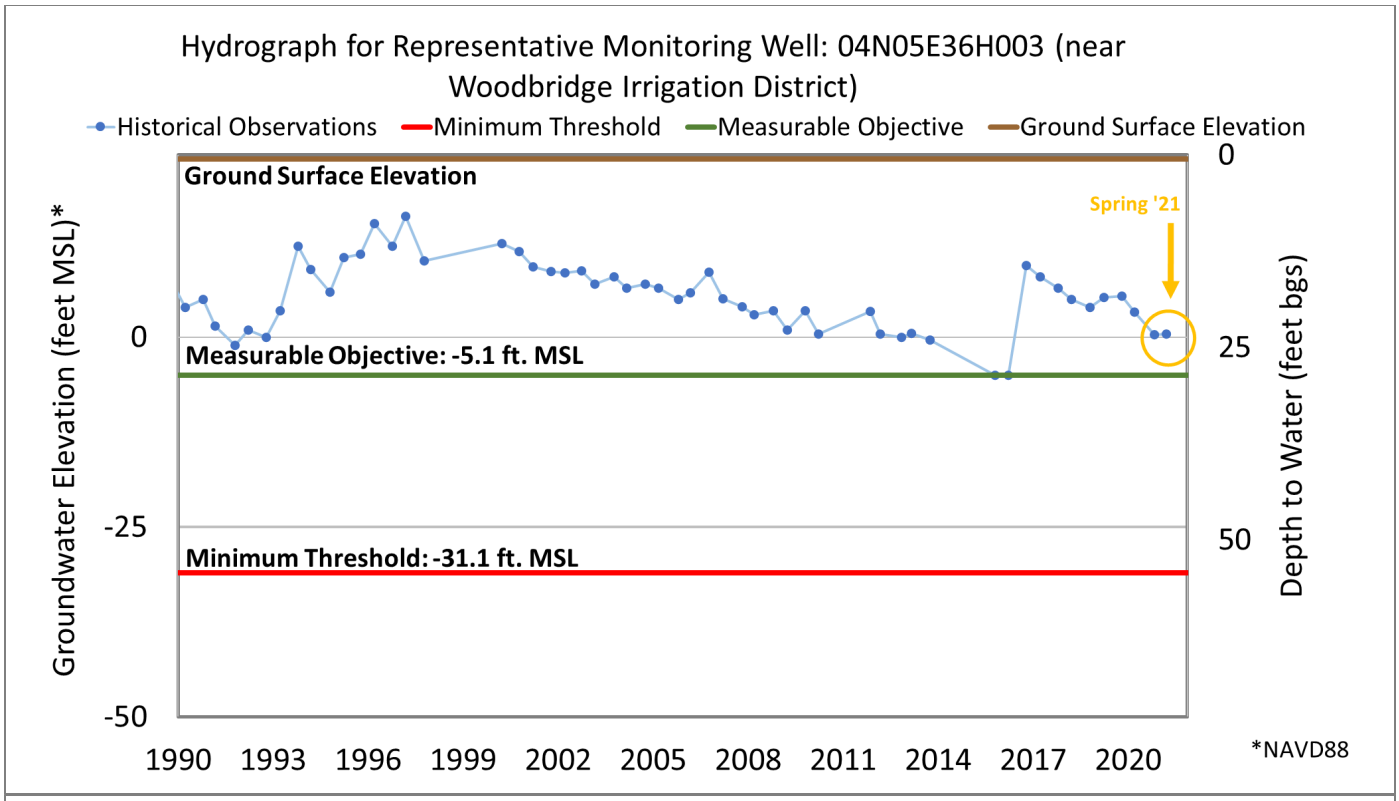
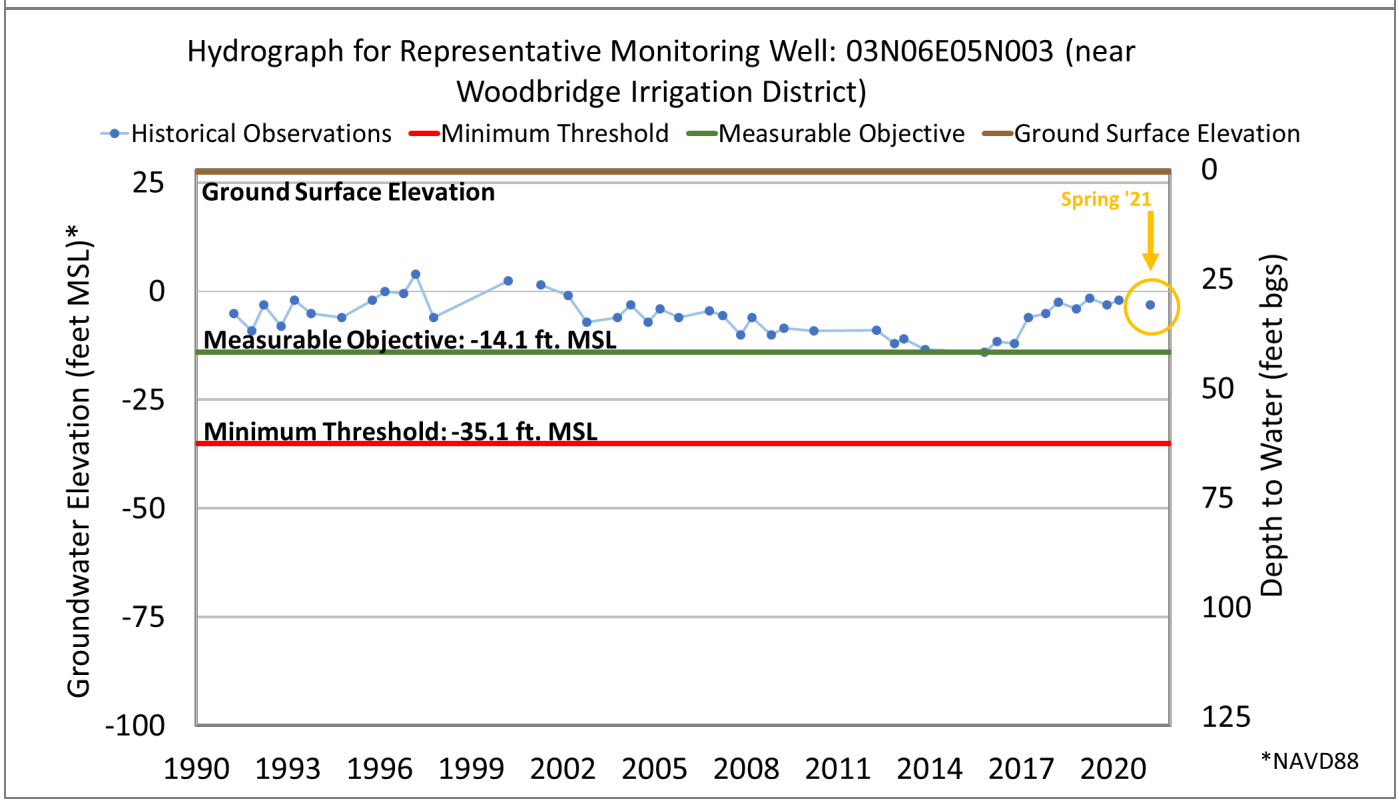
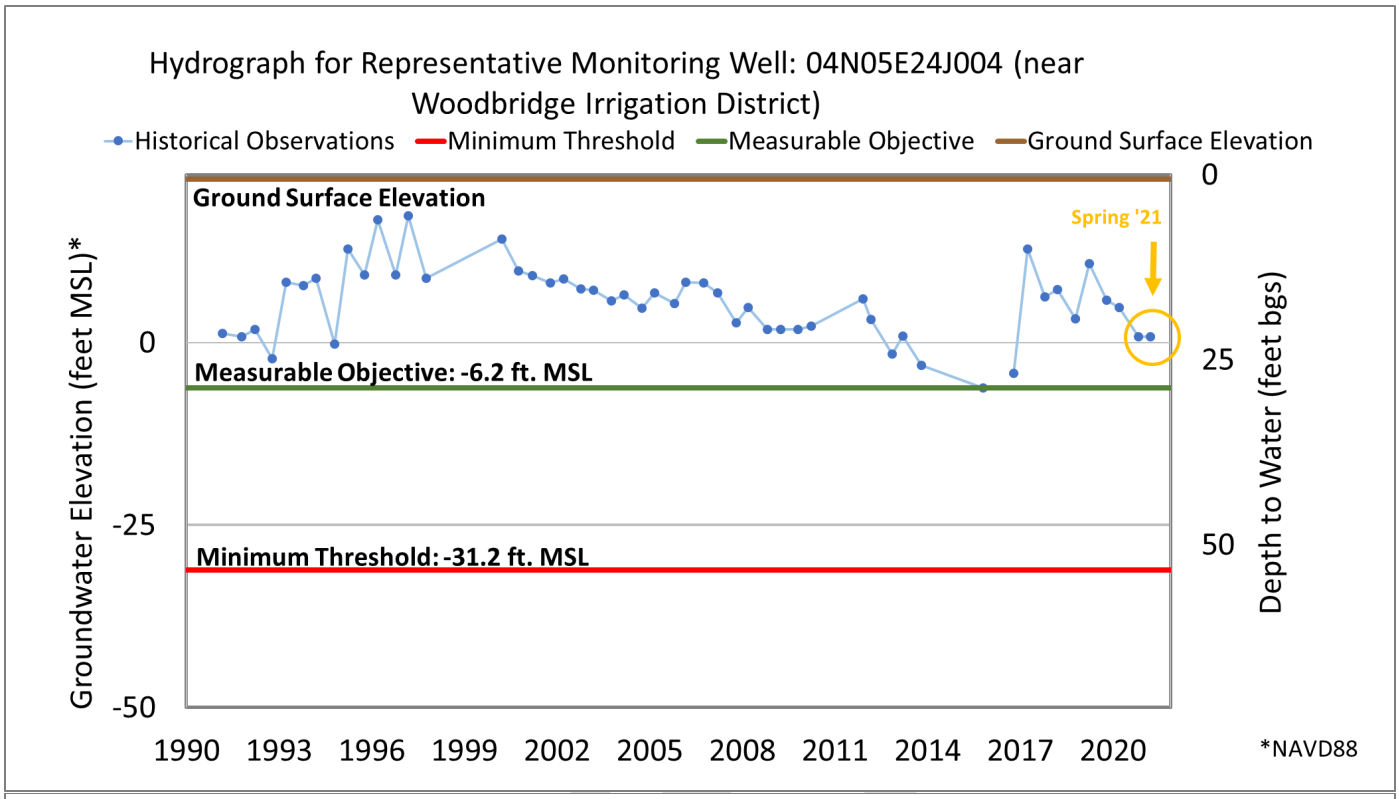
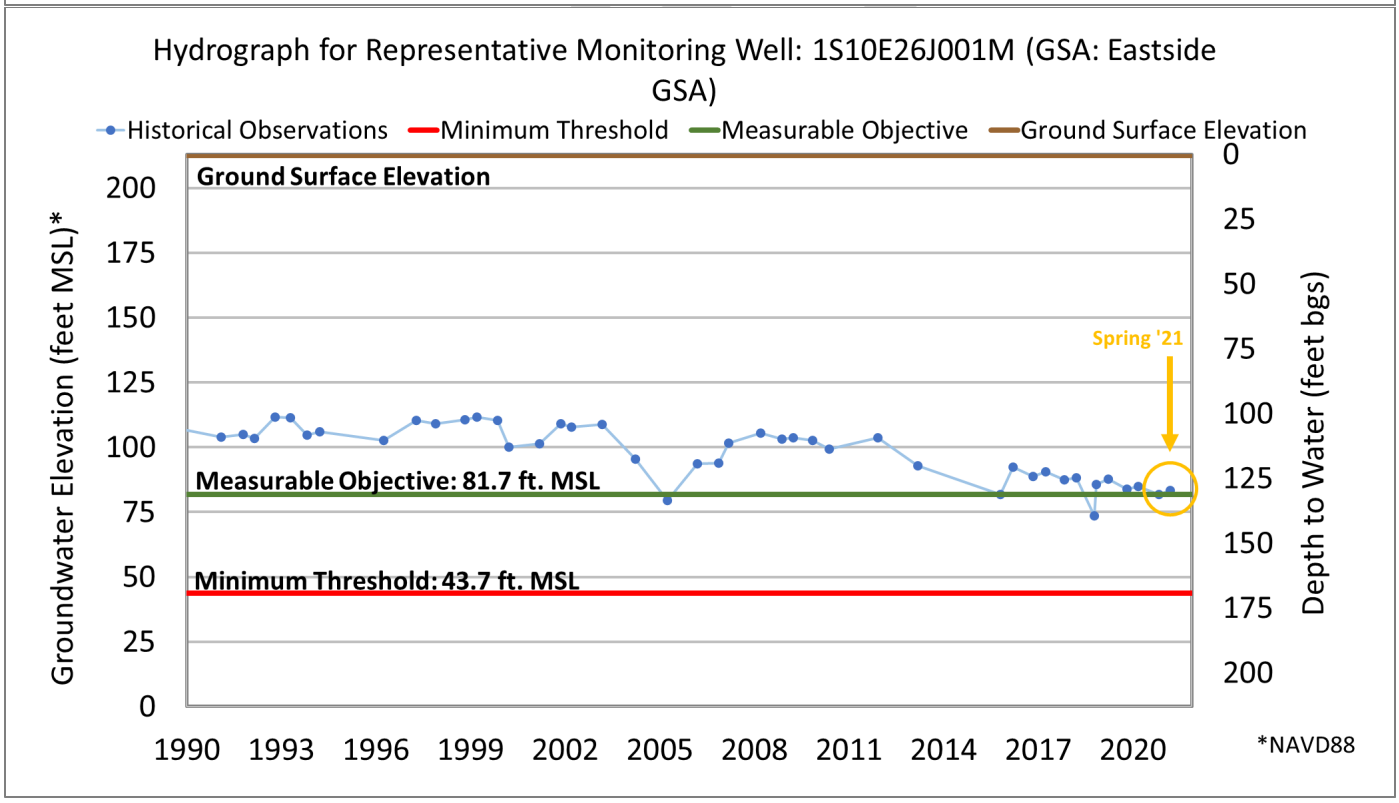
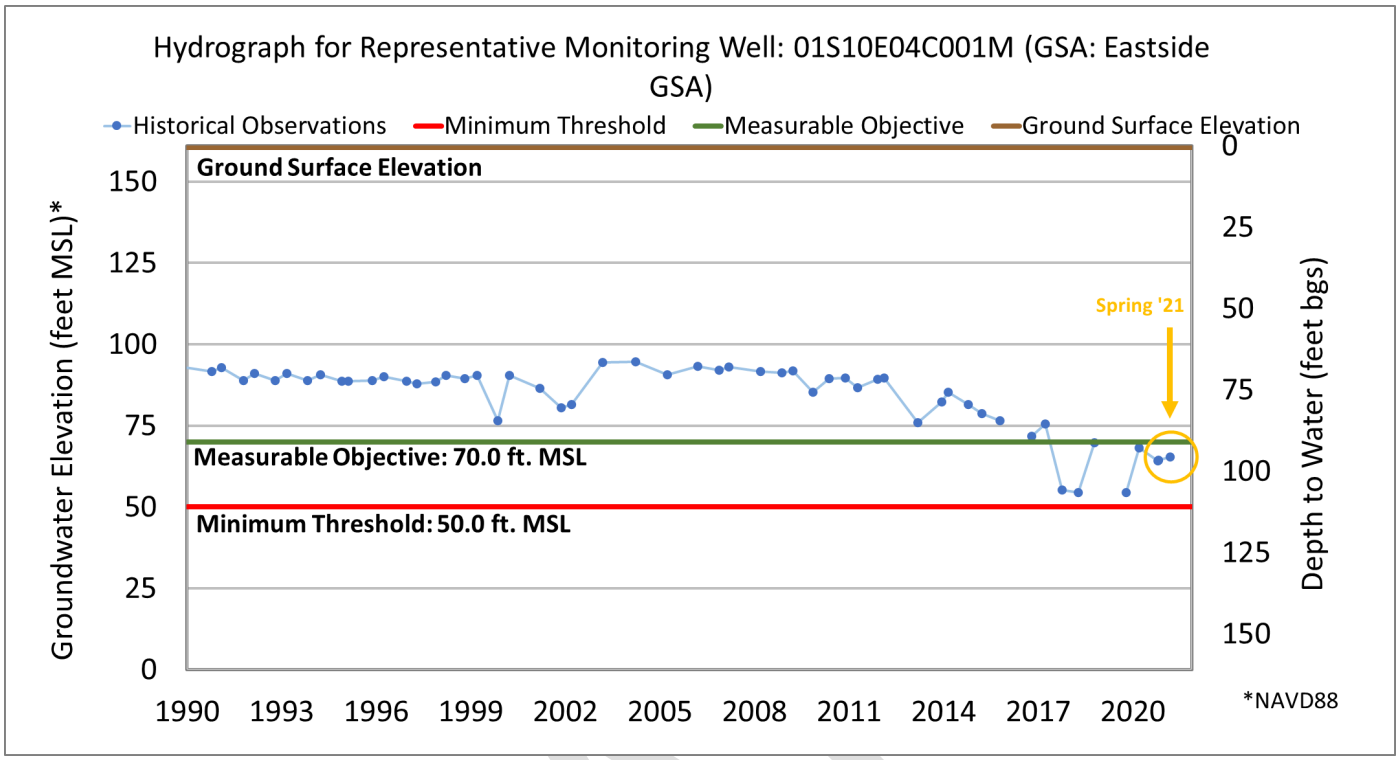
2005
2008
2011
2014
2017
2020
*NAVD88


Hydrograph for Representative Monitoring Well: 04N05E36H003 (near Woodbridge Irrigation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -5.1 ft. MSL
Minimum Threshold: -31.1 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
0
-25
-50
0
25
50
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88


Hydrograph for Representative Monitoring Well: 03N06E05N003 (near Woodbridge Irrigation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -14.1 ft. MSL
Minimum Threshold: -35.1 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
25
0
-25
-50
-75
-100
0
25
50
75
100
125
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017
2020
*NAVD88


Hydrograph for Representative Monitoring Well: 04N05E24J004 (near Woodbridge Irrigation District)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: -6.2 ft. MSL
Minimum Threshold: -31.2 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
0
-25
-50
0
25
50
1990 1993 1996 1999 2002 2005 2008 2011 2014 2017 2020
*NAVD88


Hydrograph for Representative Monitoring Well: 1S10E26J001M (GSA: Eastside GSA)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Spring '21
Measurable Objective: 81.7 ft. MSL
Minimum Threshold: 43.7 ft. MSL
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
200
175
150
125
100
75
50
25
0
0
25
50
75
100
125
150
175
200
1990 1993 1996 1999 2002 2005 2008 2011 2014 2017 2020
*NAVD88


Hydrograph for Representative Monitoring Well: 01S10E04C001M (GSA: Eastside GSA)
Historical Observations
Minimum Threshold
Measurable Objective
Ground Surface Elevation
Ground Surface Elevation
Measurable Objective: 70.0 ft. MSL
Minimum Threshold: 50.0 ft. MSL
Spring '21
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
150
125
100
75
50
25
0
0
25
50
75
100
125
150
1990
1993
1996
1999
2002
2005
2008
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2014
2017
2020
*NAVD88

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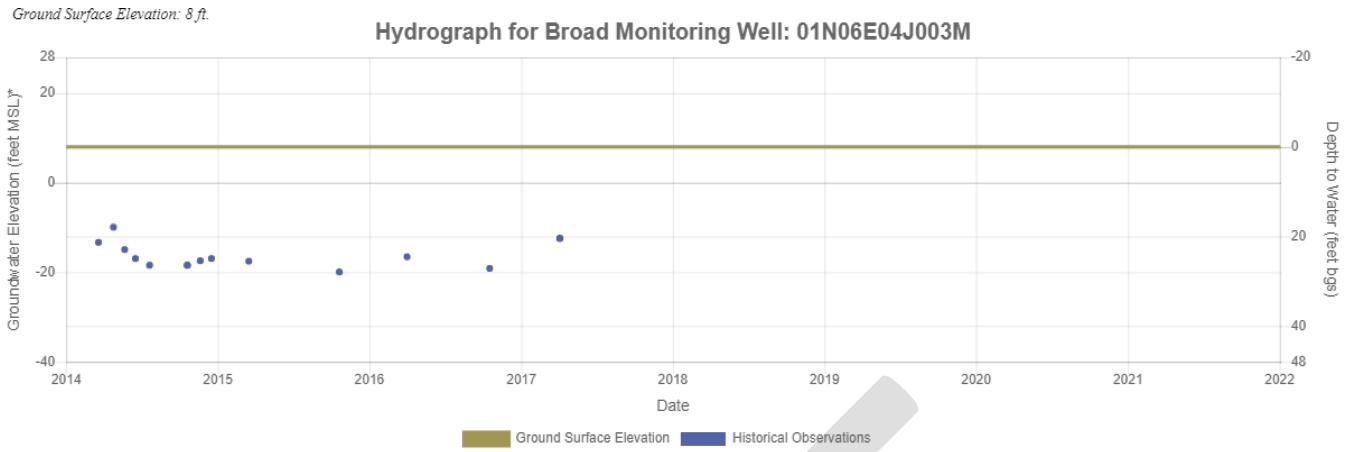
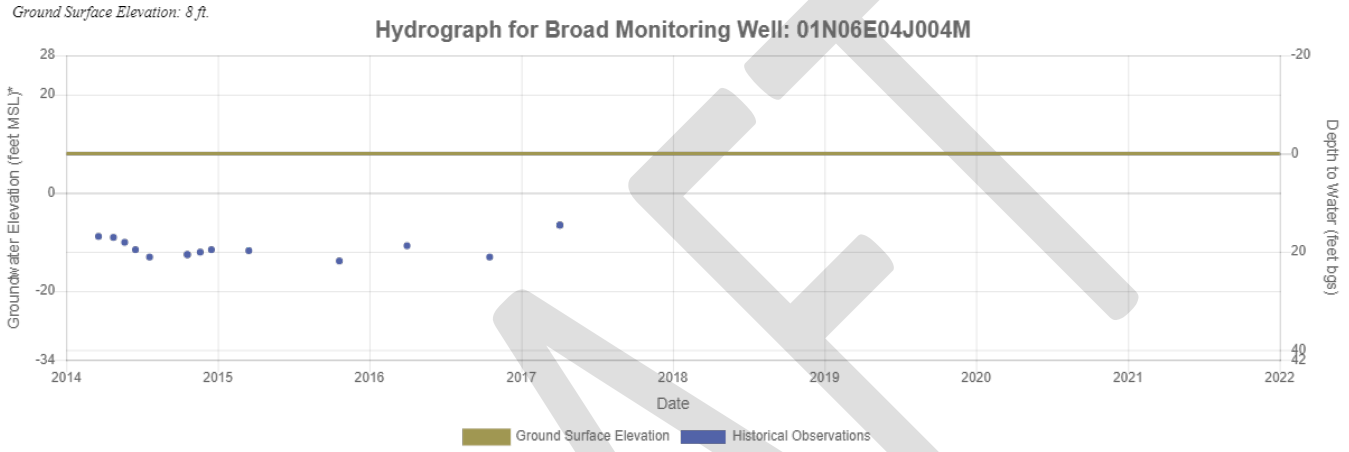
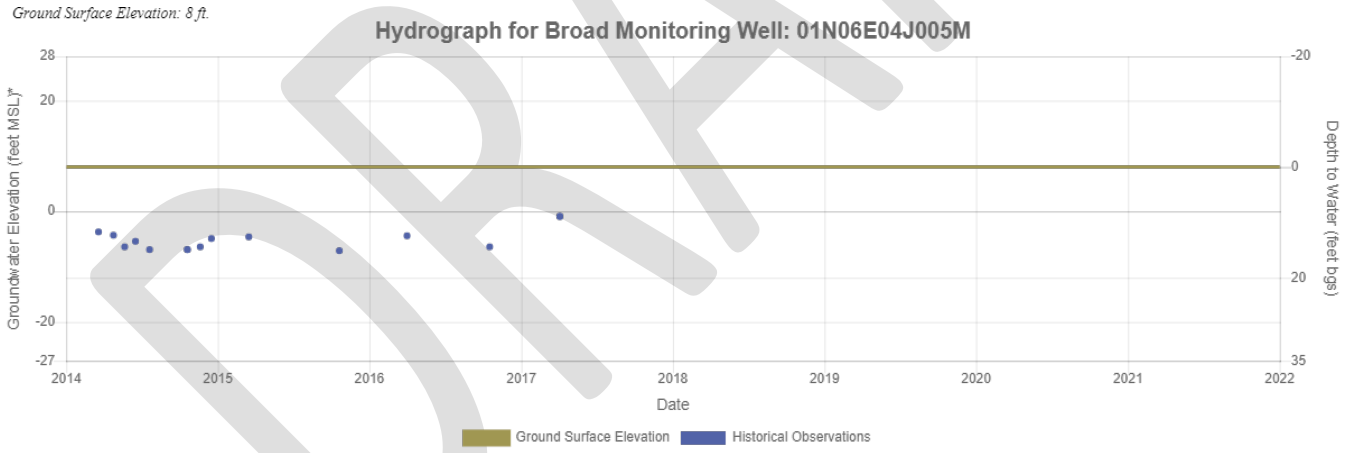
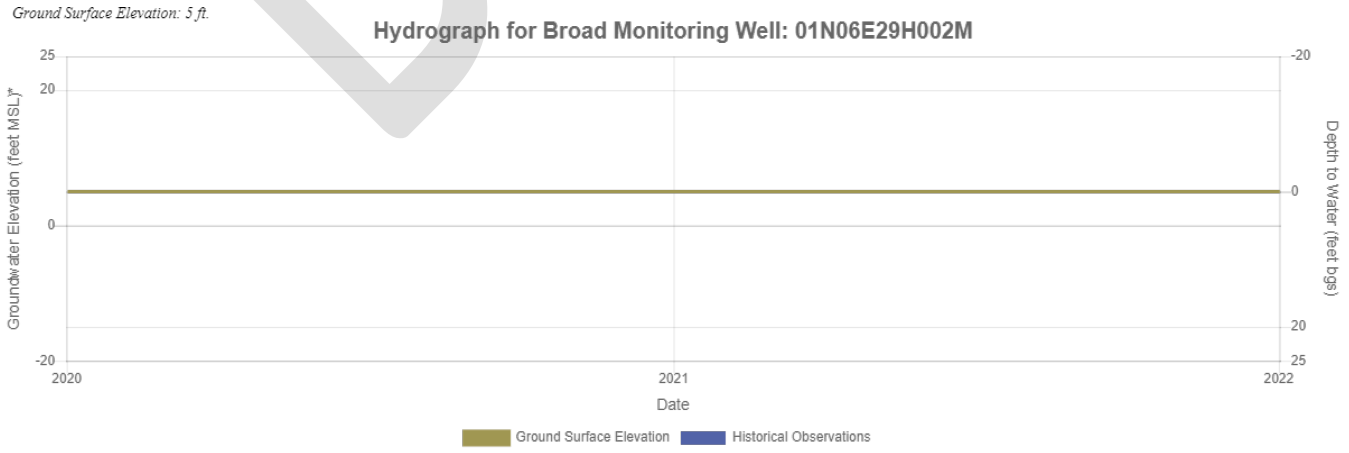
APPENDIX C – BROAD MONITORING NETWORK WELL HYDROGRAPHS[EH2]

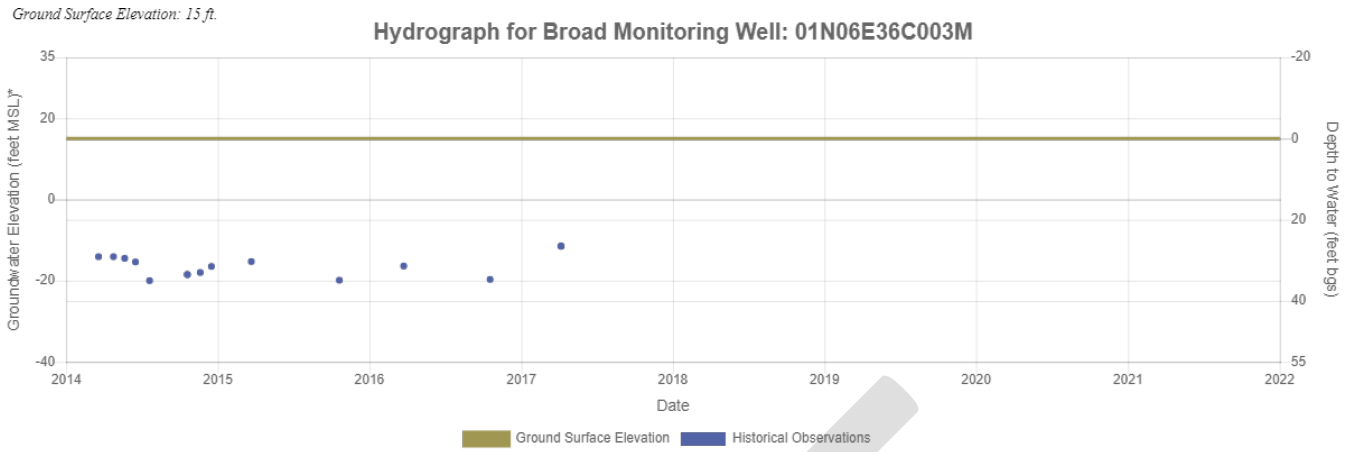
Note: Included in Appendix C are the 76 broad network CASGEM well historical hydrographs and 52 broad network nested well historical hydrographs listed in Appendix 4-A of the GSP. Wells for which historical data are not available are included as hydrographs with no data points. Future annual reports will report on the monitoring carried out at these wells, along with those in the representative monitoring network, as the GSP is implemented. Additionally, 15 local wells that have historically been monitored for water quality will also be monitored for water levels as the GSP is further implemented. These data will also be reported on in future annual reports.

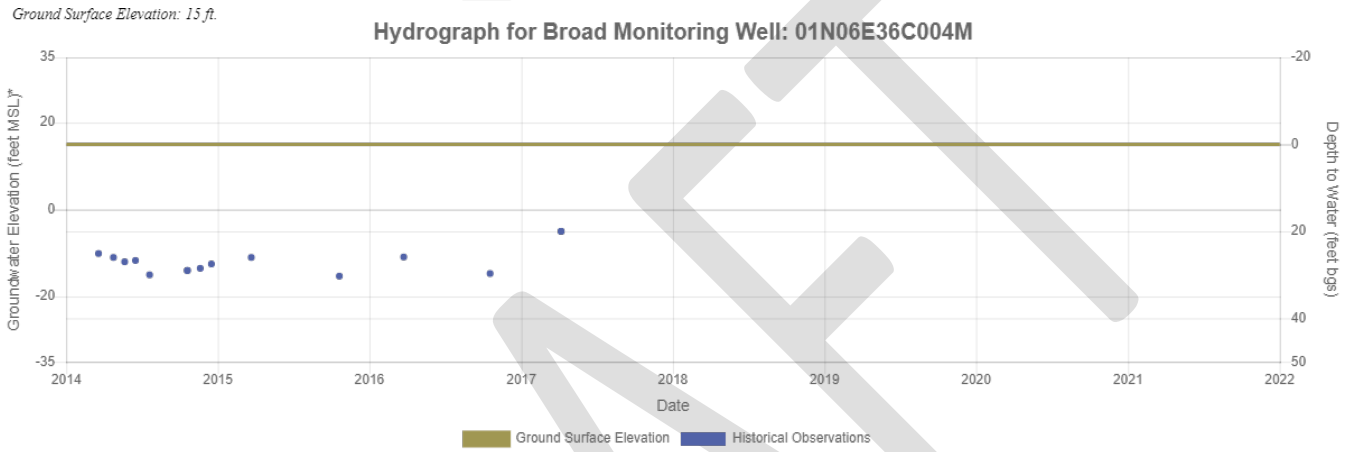

Ground Surface Elevation: 8 ft.
Hydrograph for Broad Monitoring Well: 01N06E04J003M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

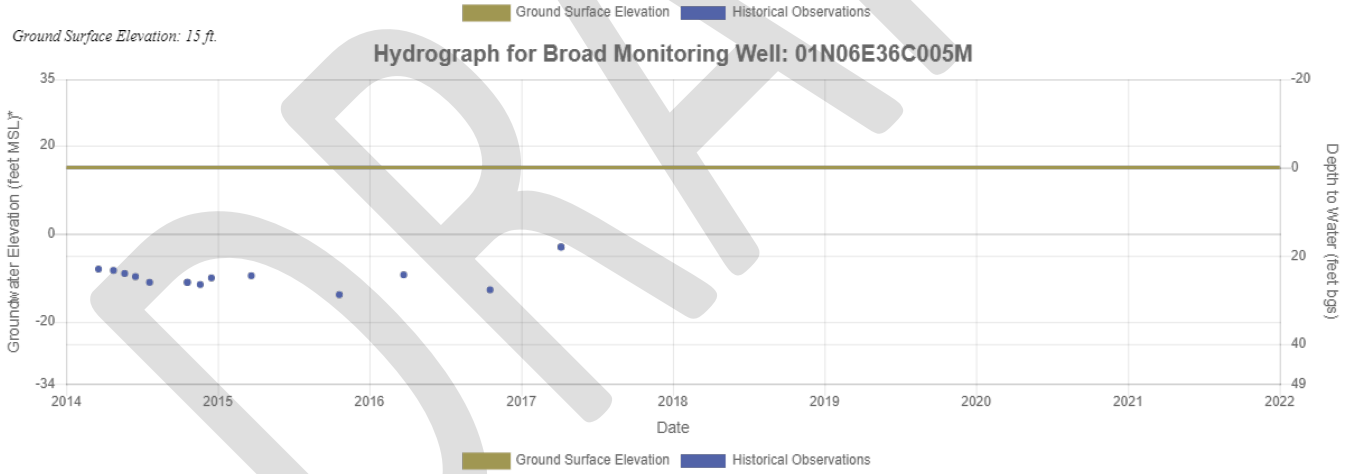

Ground Surface Elevation: 8 ft.
Hydrograph for Broad Monitoring Well: 01N06E04J004M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

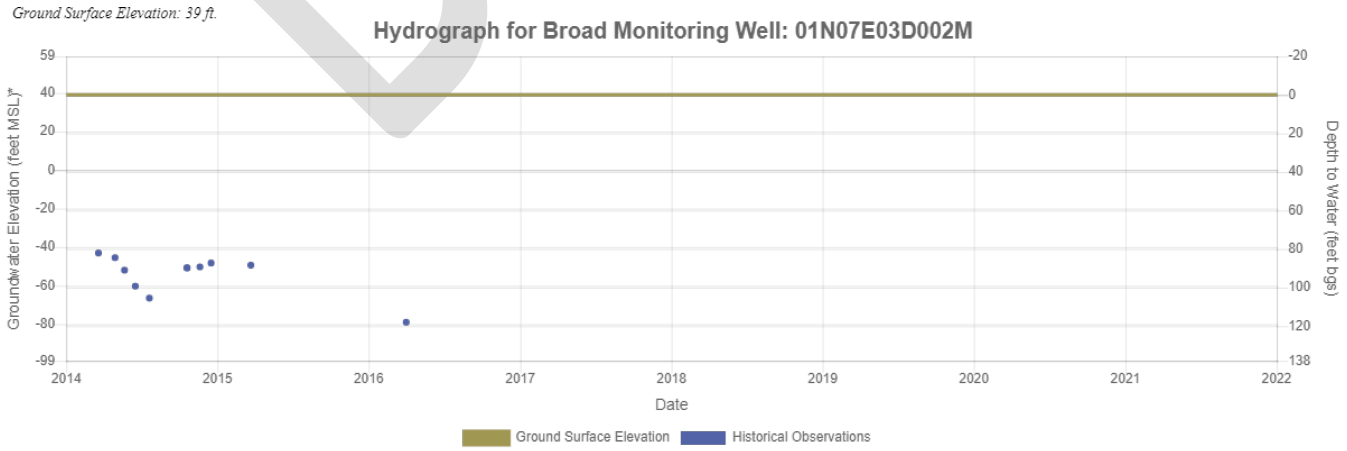

Ground Surface Elevation: 8 ft.
Hydrograph for Broad Monitoring Well: 01N06E04J005M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 5 ft.
Hydrograph for Broad Monitoring Well: 01N06E29H002M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

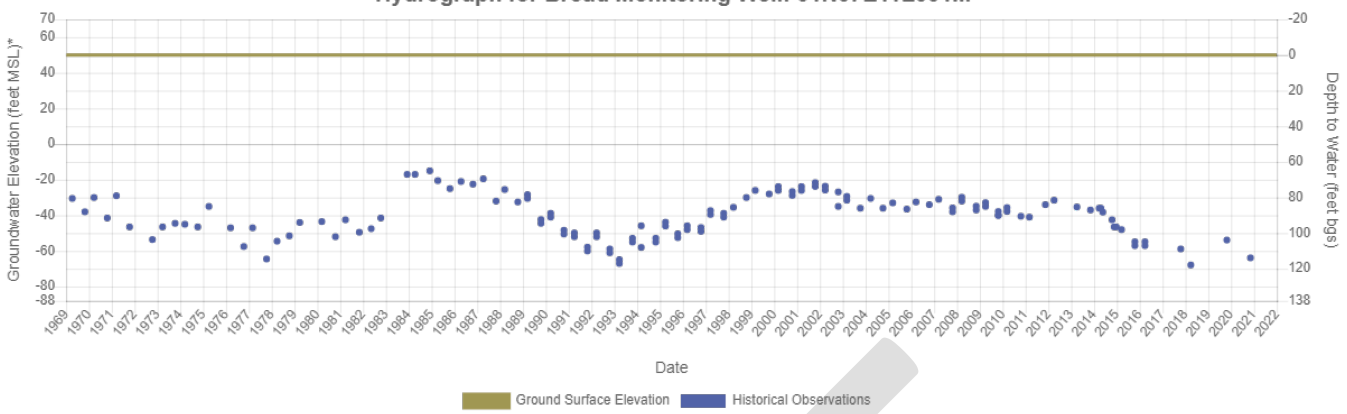

Ground Surface Elevation: 15 ft.
Hydrograph for Broad Monitoring Well: 01N06E36C003M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 15 ft.
Hydrograph for Broad Monitoring Well: 01N06E36C004M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

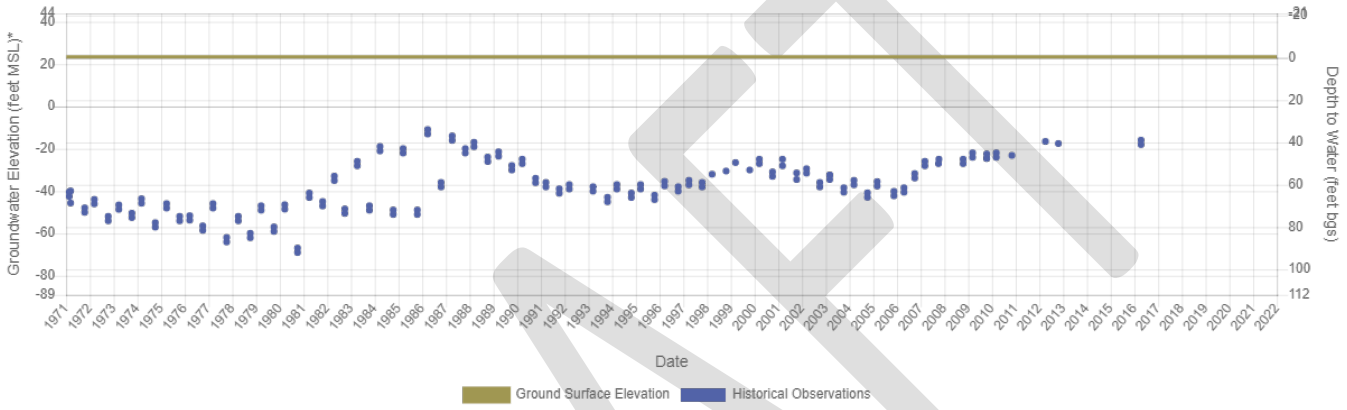

Ground Surface Elevation: 15 ft.
Hydrograph for Broad Monitoring Well: 01N06E36C005M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 39 ft.
Hydrograph for Broad Monitoring Well: 01N07E03D002M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

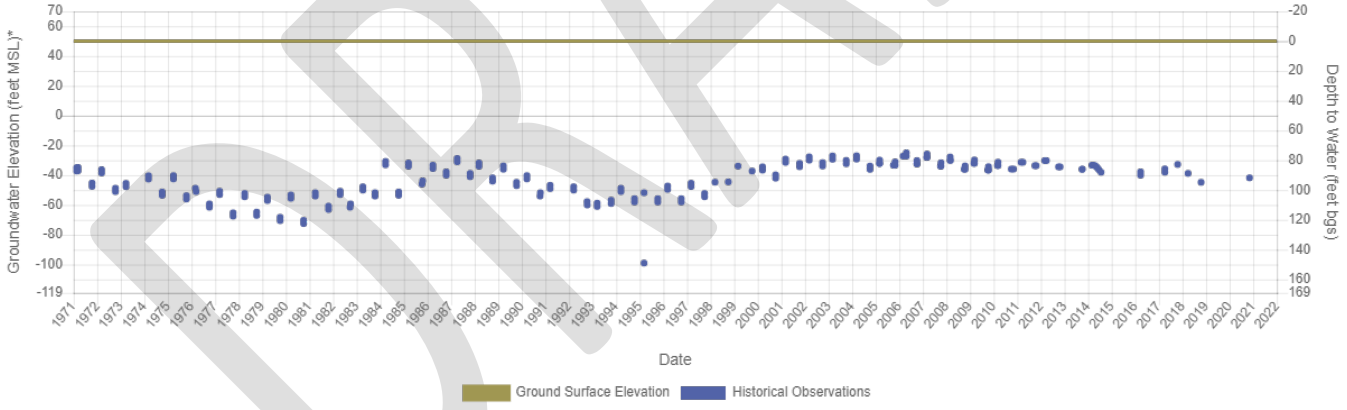
Ground Surface Elevation: 50 ft.



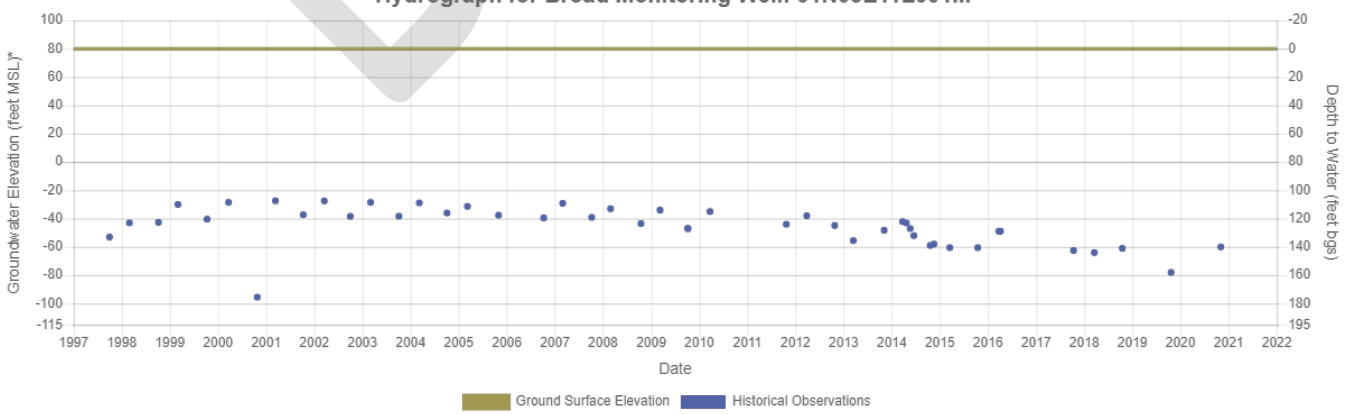
Ground Surface Elevation: 24 ft.

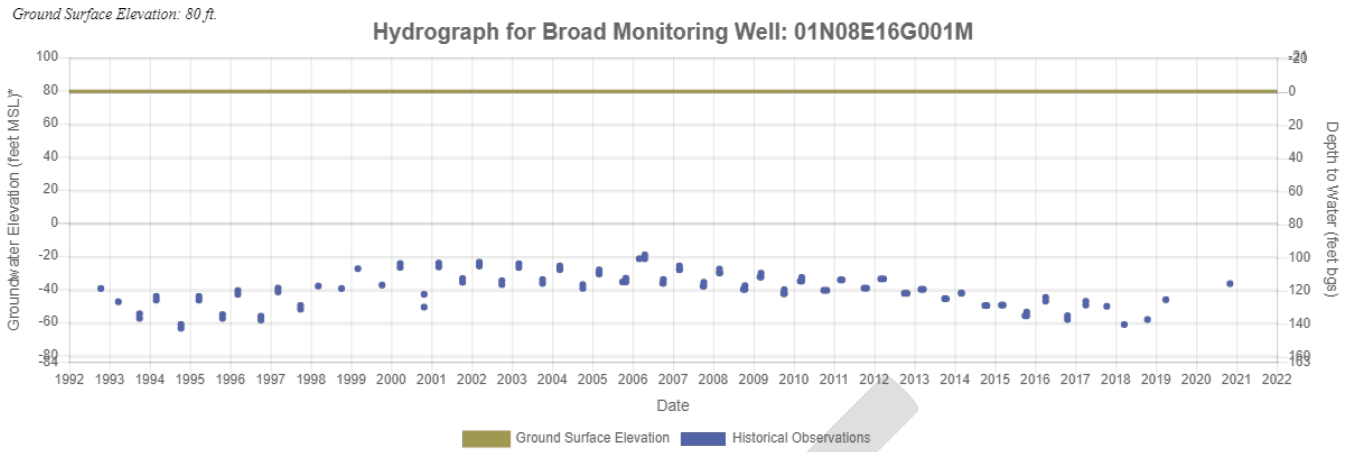


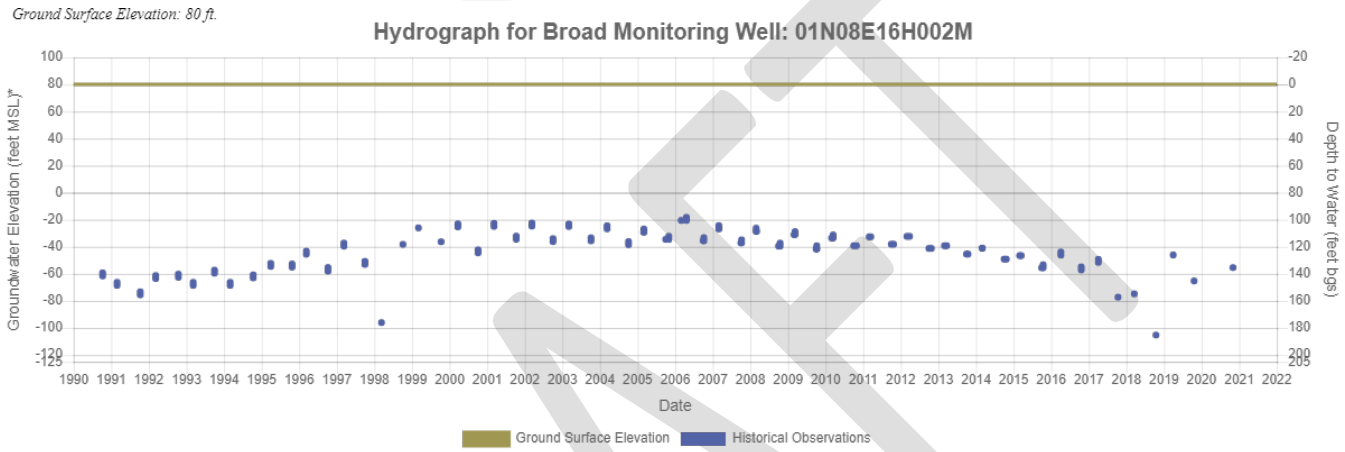
Ground Surface Elevation: 50 ft.

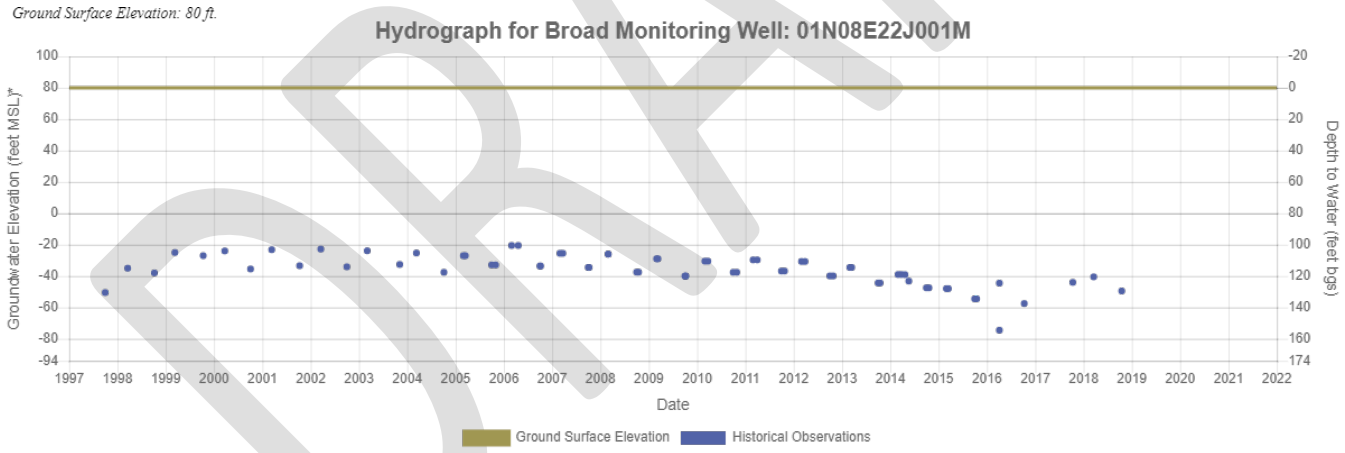


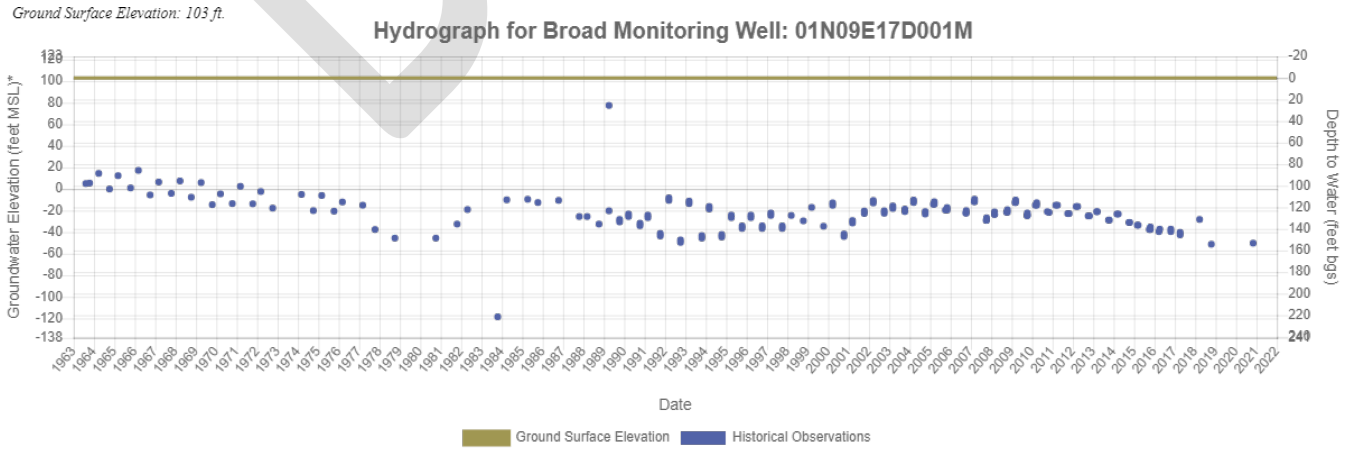
Ground Surface Elevation: 80 ft.



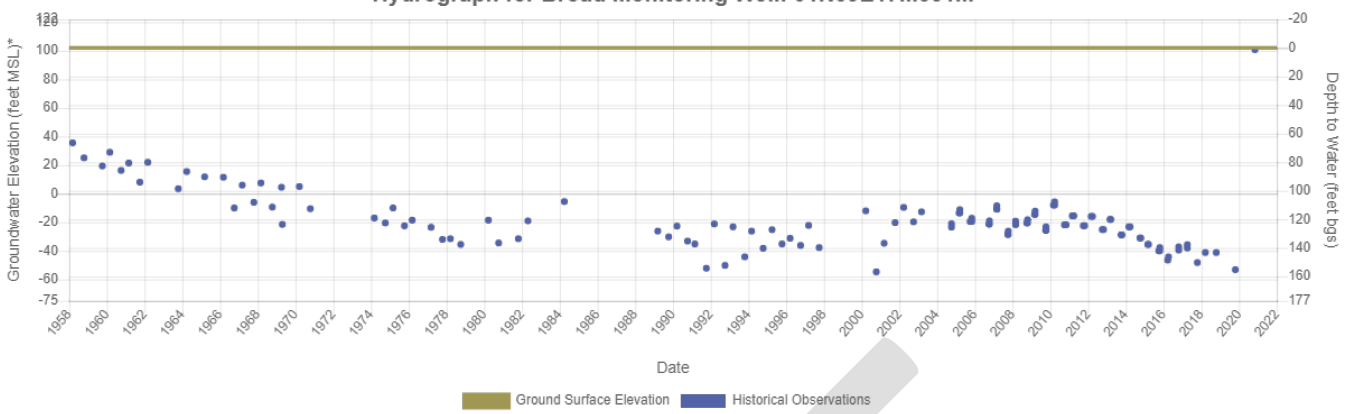

Ground Surface Elevation: 80 ft.
Hydrograph for Broad Monitoring Well: 01N08E16G001M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 80 ft.
Hydrograph for Broad Monitoring Well: 01N08E16H002M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

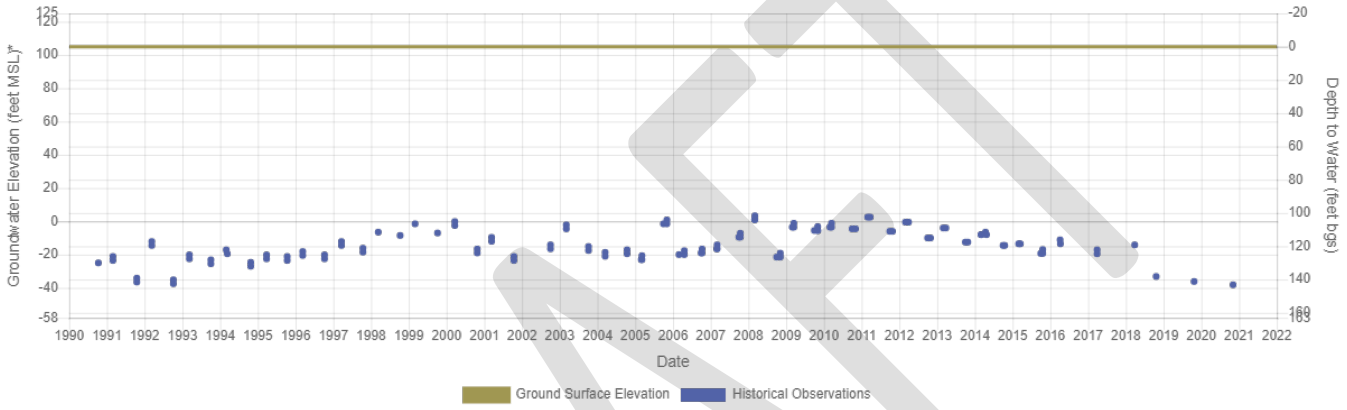

Ground Surface Elevation: 80 ft.
Hydrograph for Broad Monitoring Well: 01N08E22J001M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 103 ft.
Hydrograph for Broad Monitoring Well: 01N09E17D001M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

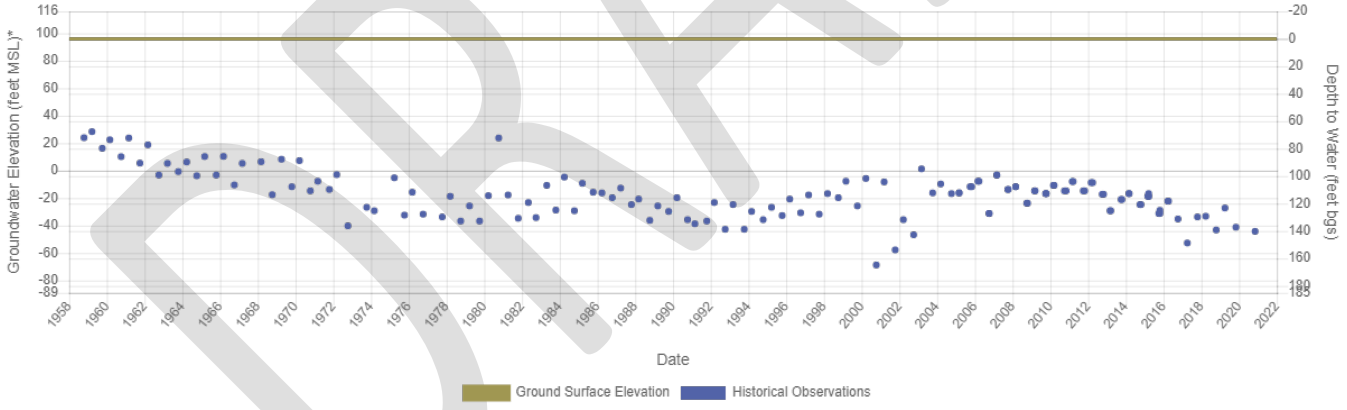
Ground Surface Elevation: 102 ft.



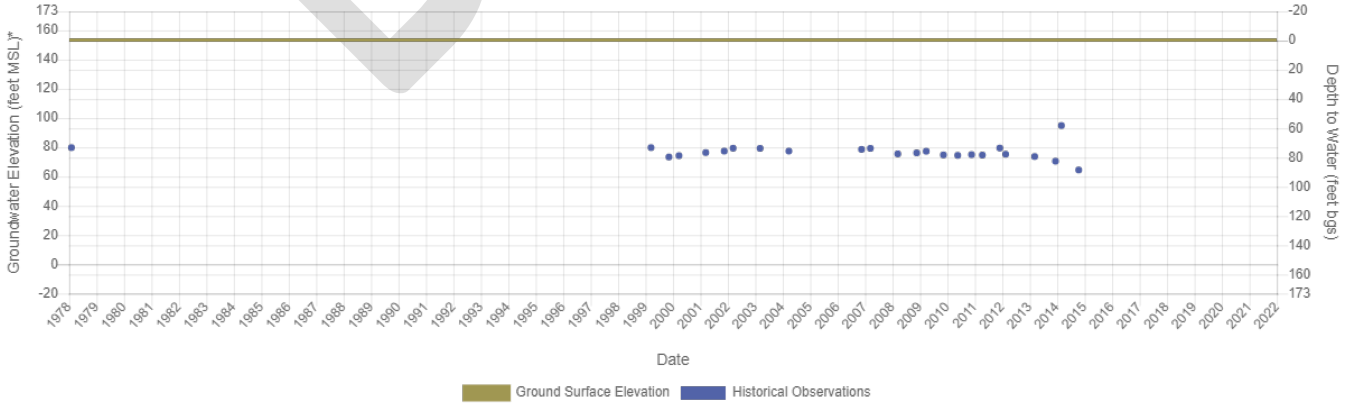
Ground Surface Elevation: 105 ft.



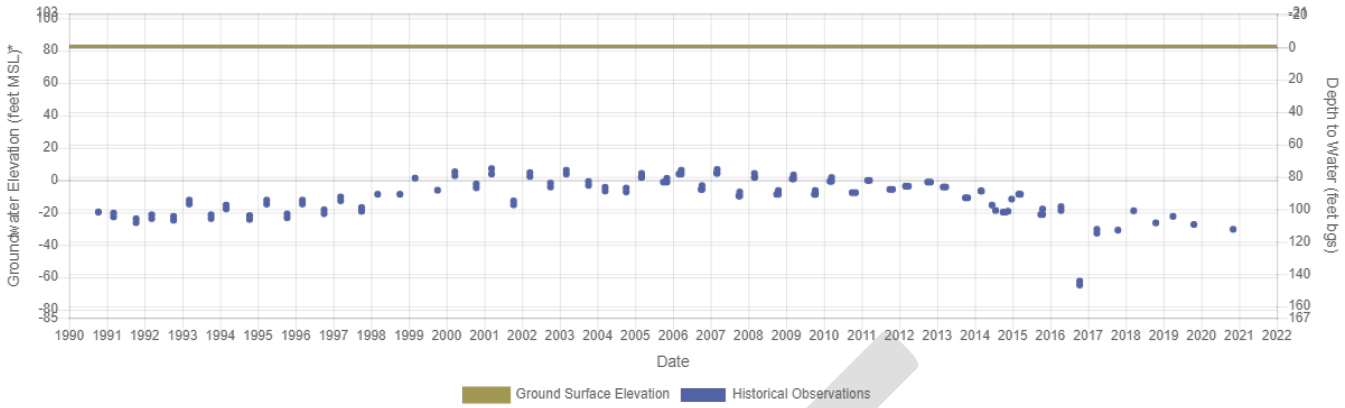
Ground Surface Elevation: 96 ft.



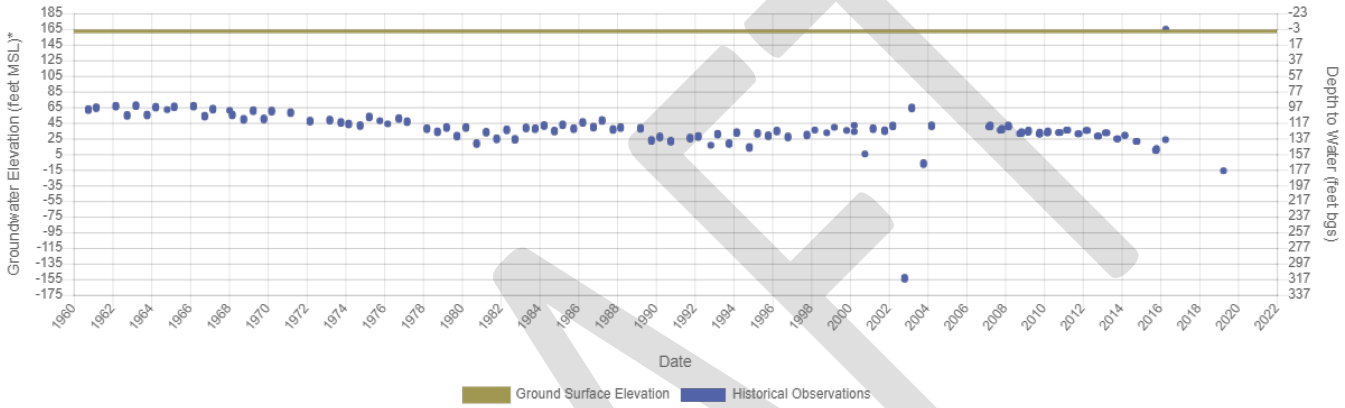
Ground Surface Elevation: 153 ft.



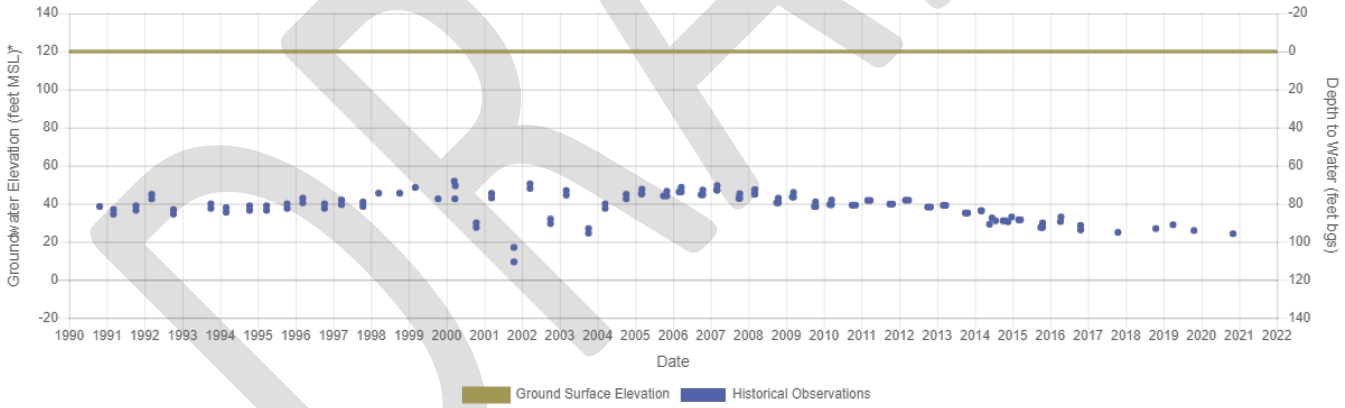
Ground Surface Elevation: 83 ft.



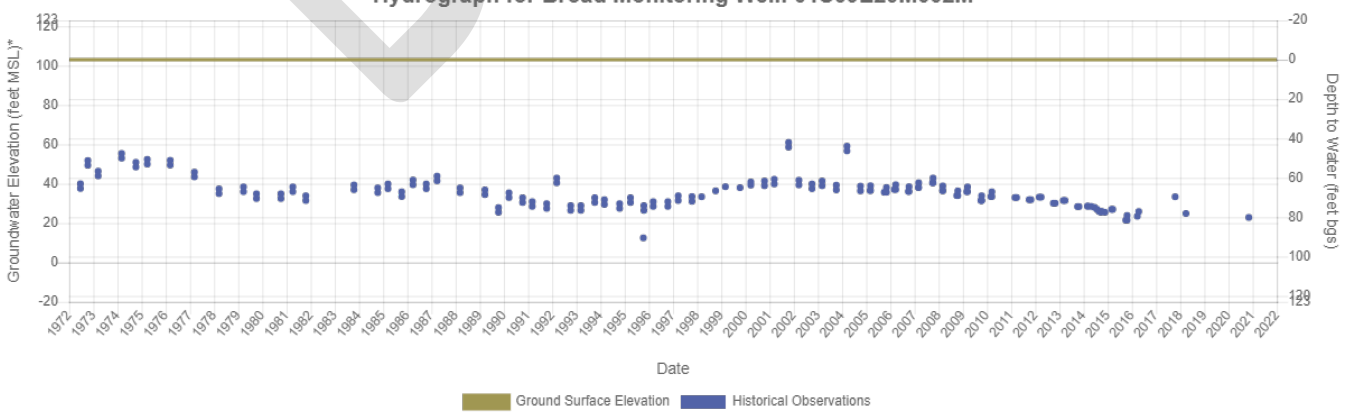
Ground Surface Elevation: 162 ft.



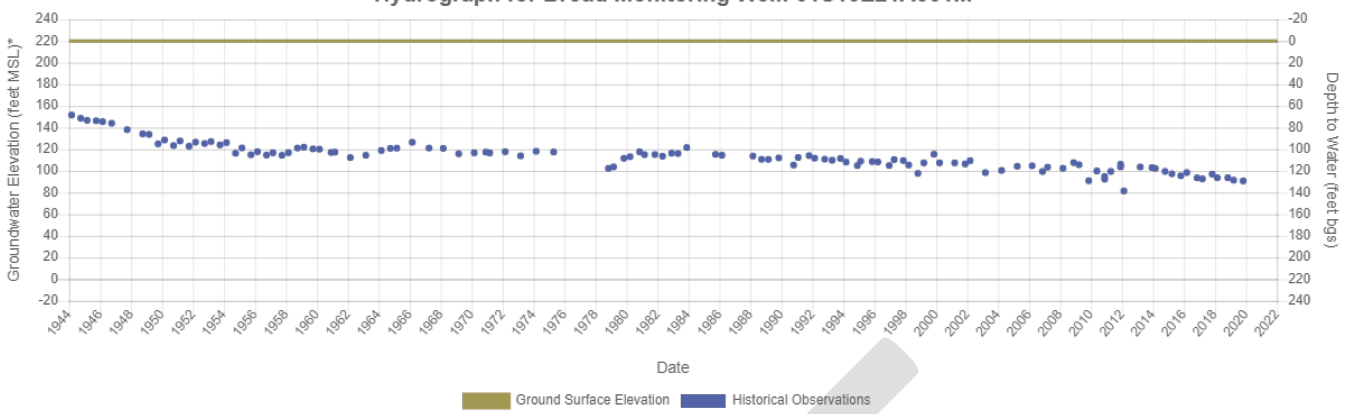
Ground Surface Elevation: 120 ft.



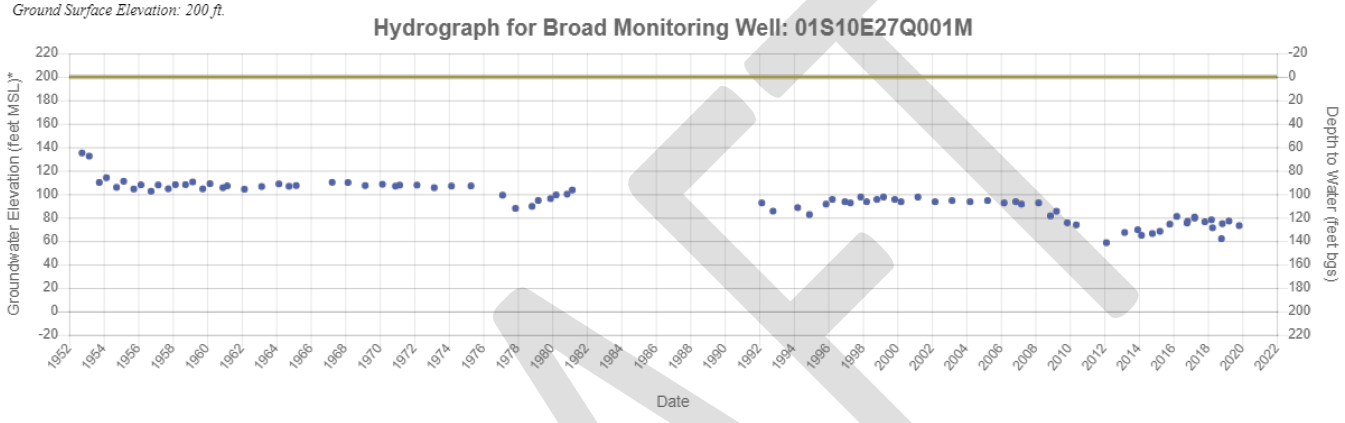
Ground Surface Elevation: 103 ft.



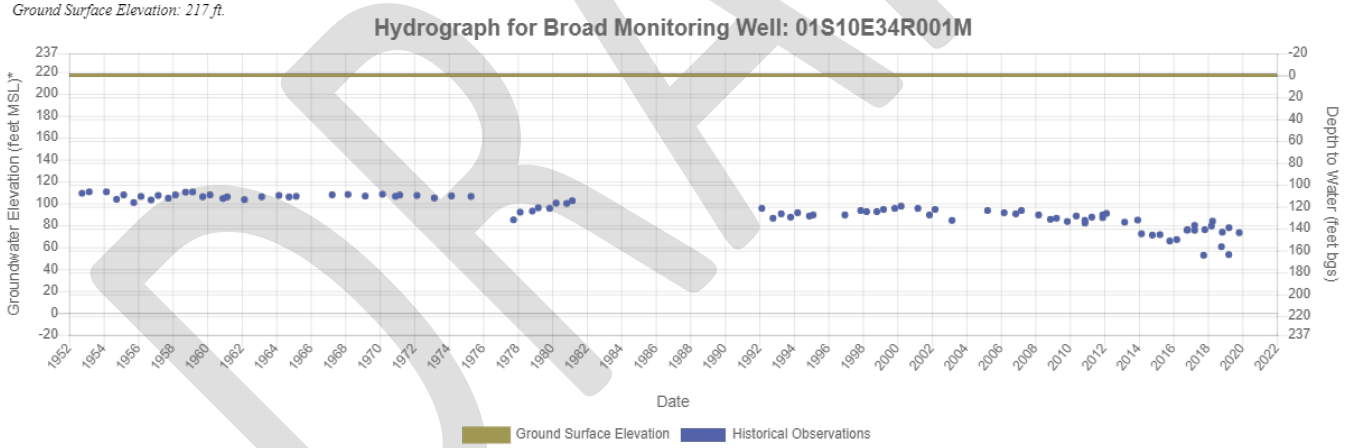
Ground Surface Elevation: 220 ft.



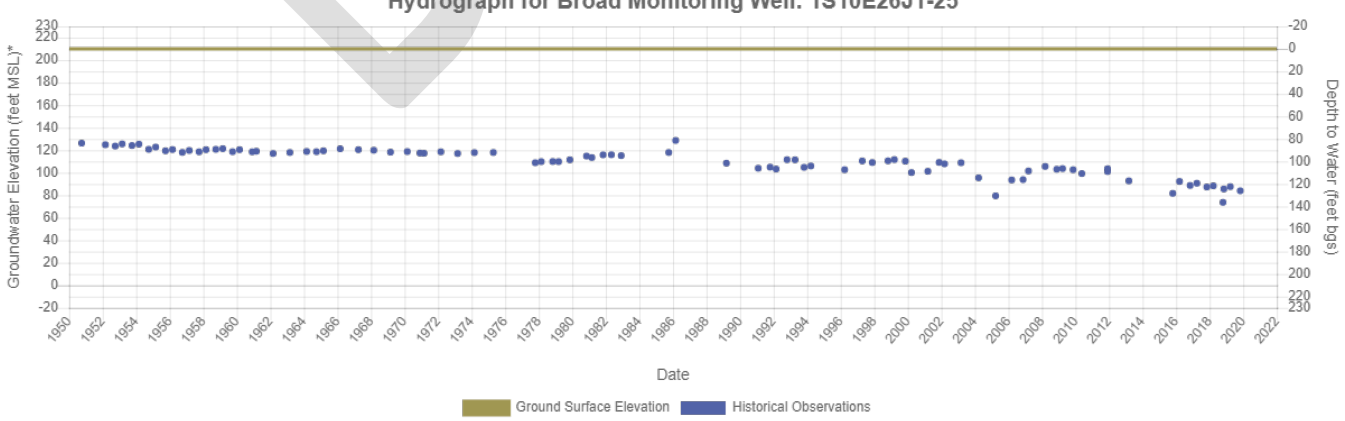
Ground Surface Elevation: 200 ft.

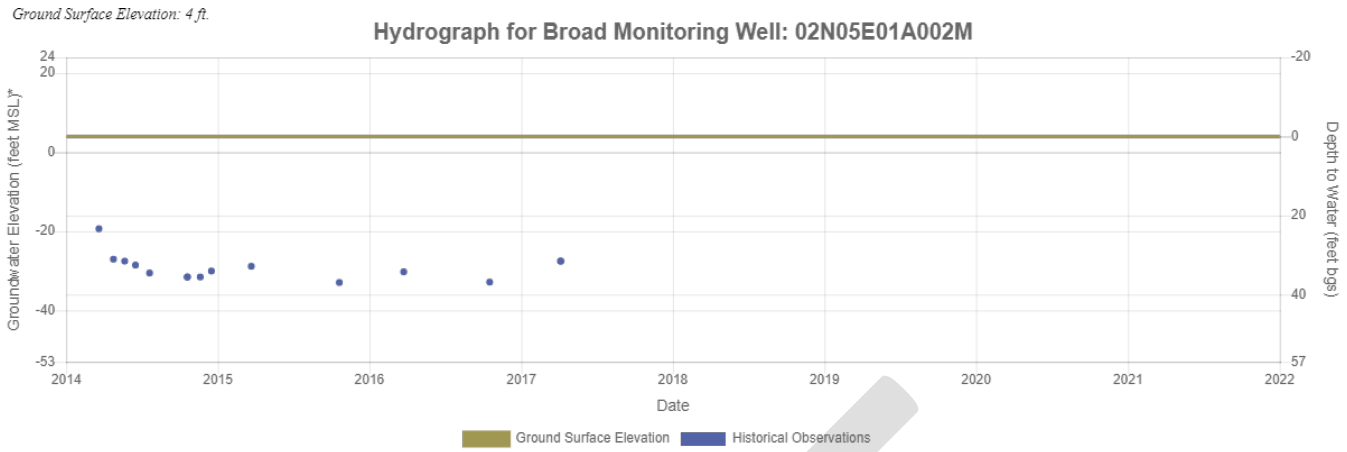


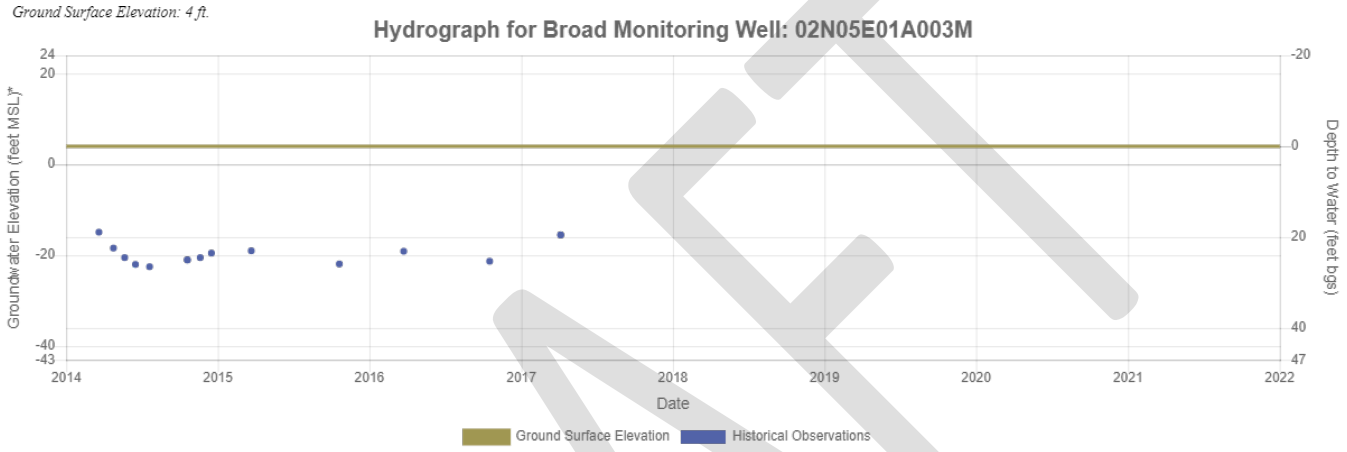
Ground Surface Elevation: 217 ft.

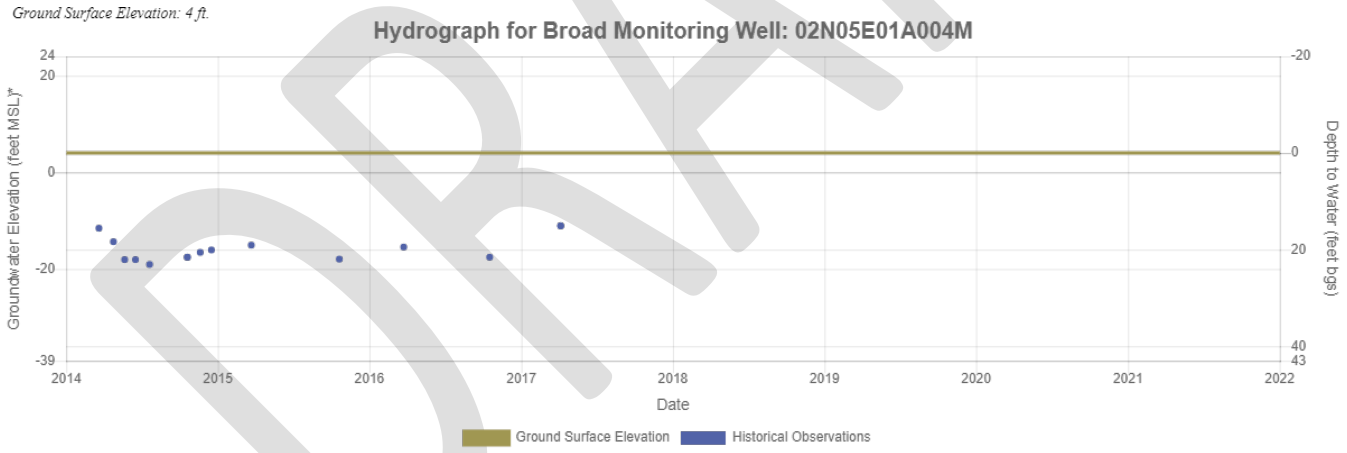


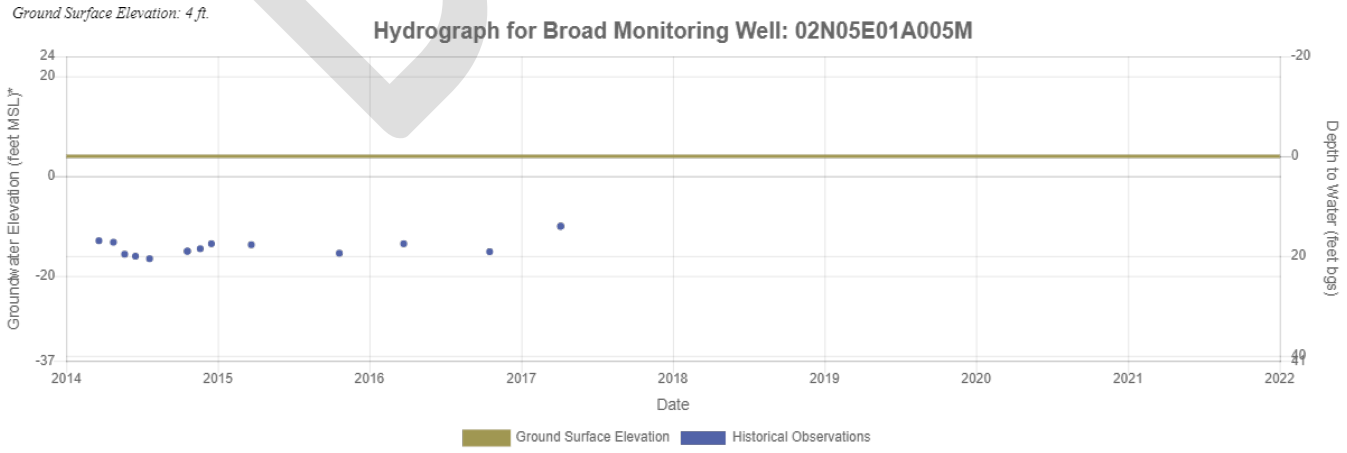
Ground Surface Elevation: 210 ft.

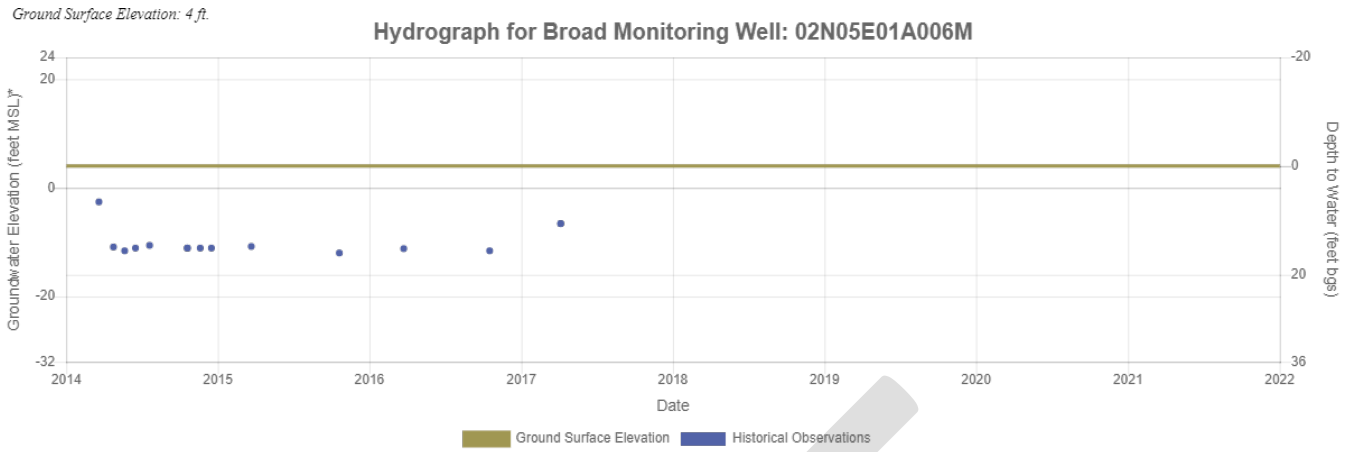


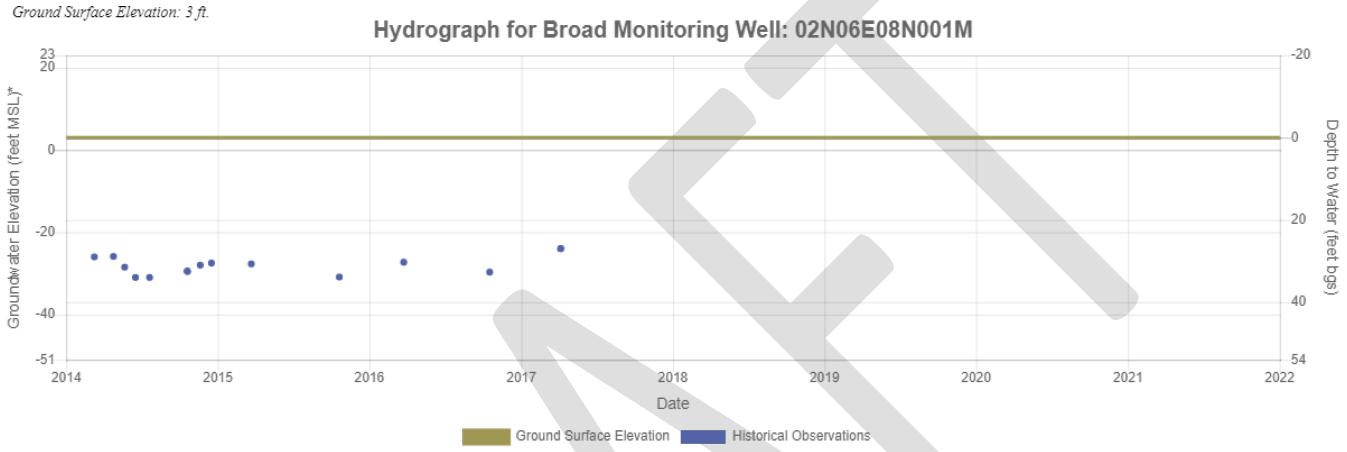

Ground Surface Elevation: 4 ft.
Hydrograph for Broad Monitoring Well: 02N05E01A002M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

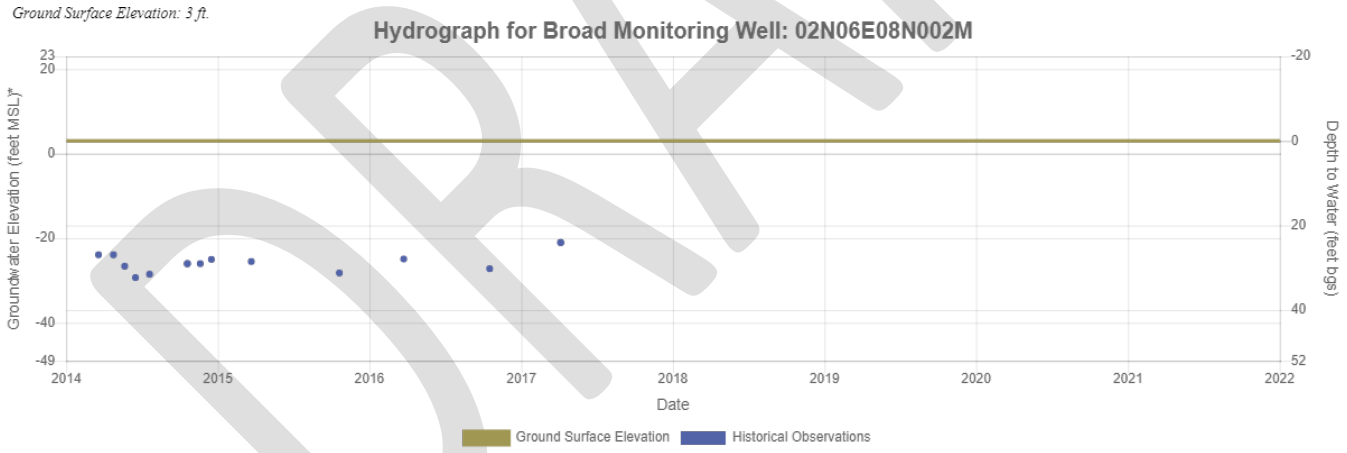

Ground Surface Elevation: 4 ft.
Hydrograph for Broad Monitoring Well: 02N05E01A003M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

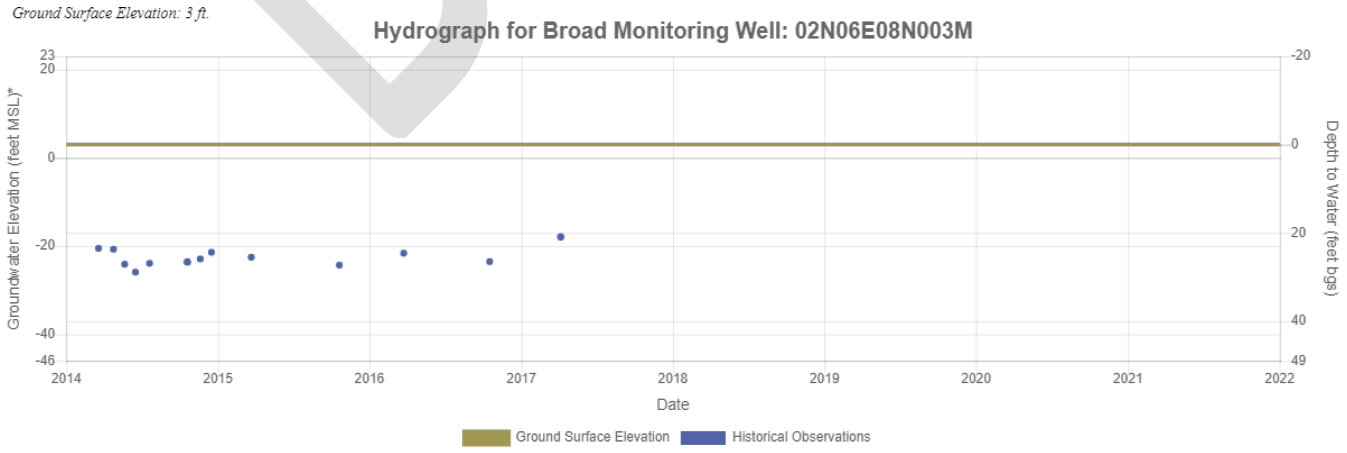

Ground Surface Elevation: 4 ft.
Hydrograph for Broad Monitoring Well: 02N05E01A004M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

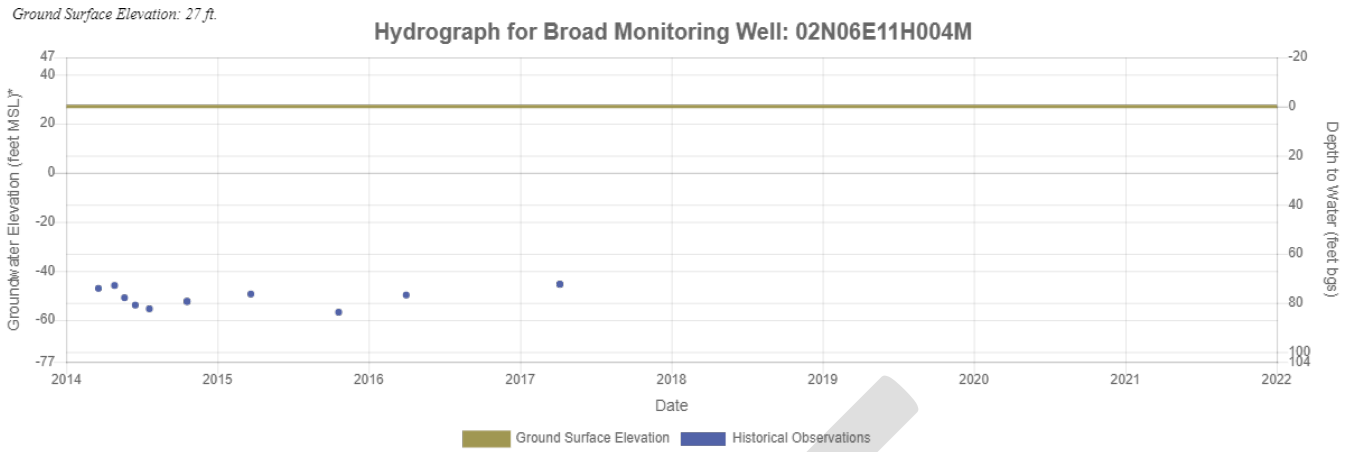

Ground Surface Elevation: 4 ft.
Hydrograph for Broad Monitoring Well: 02N05E01A005M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

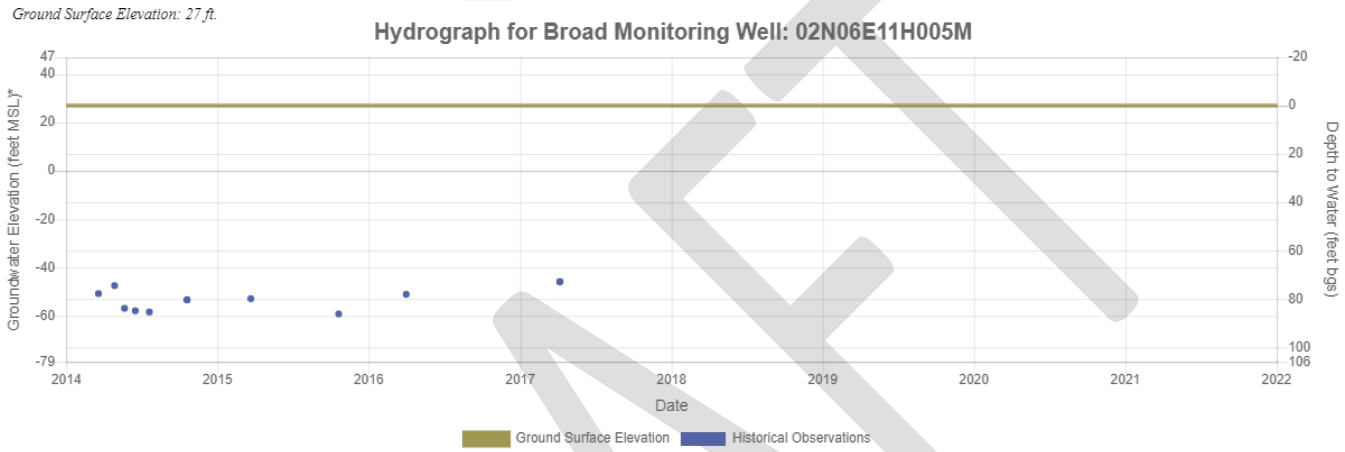

Ground Surface Elevation: 4 ft.
Hydrograph for Broad Monitoring Well: 02N05E01A006M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

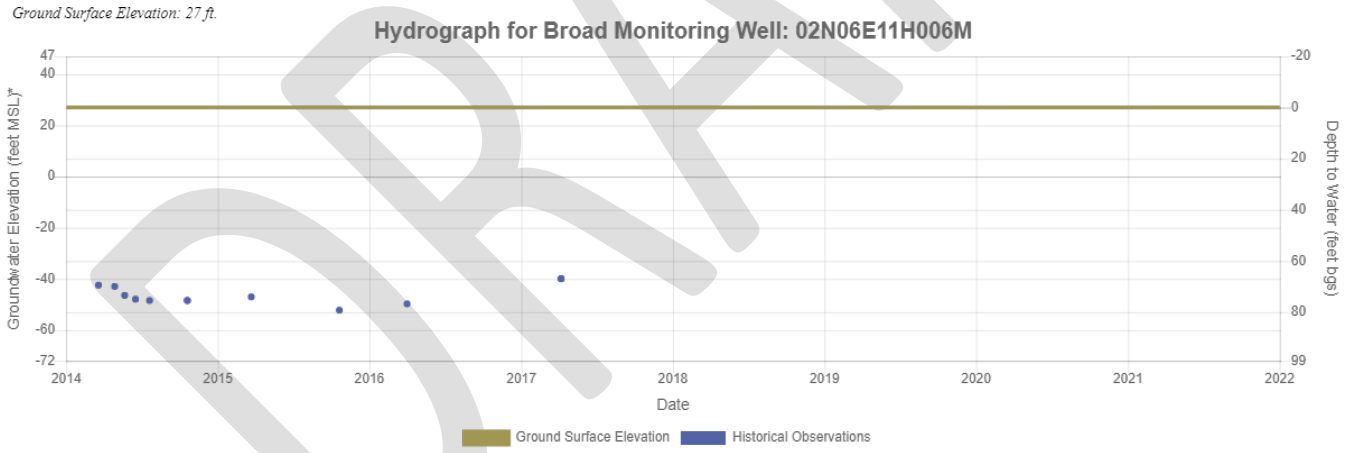

Ground Surface Elevation: 3 ft.
Hydrograph for Broad Monitoring Well: 02N06E08N001M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

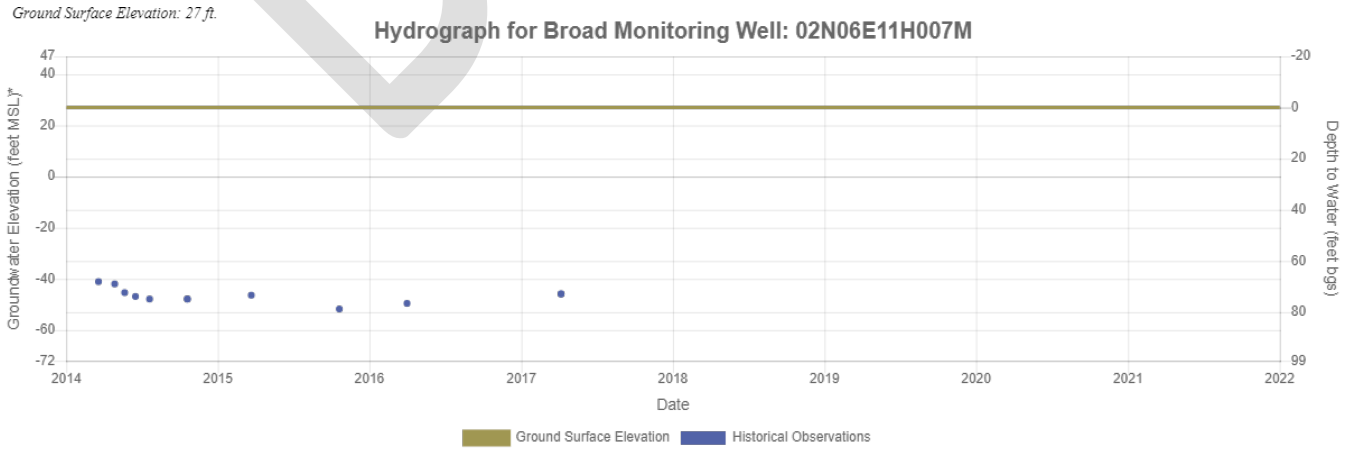

Ground Surface Elevation: 3 ft.
Hydrograph for Broad Monitoring Well: 02N06E08N002M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

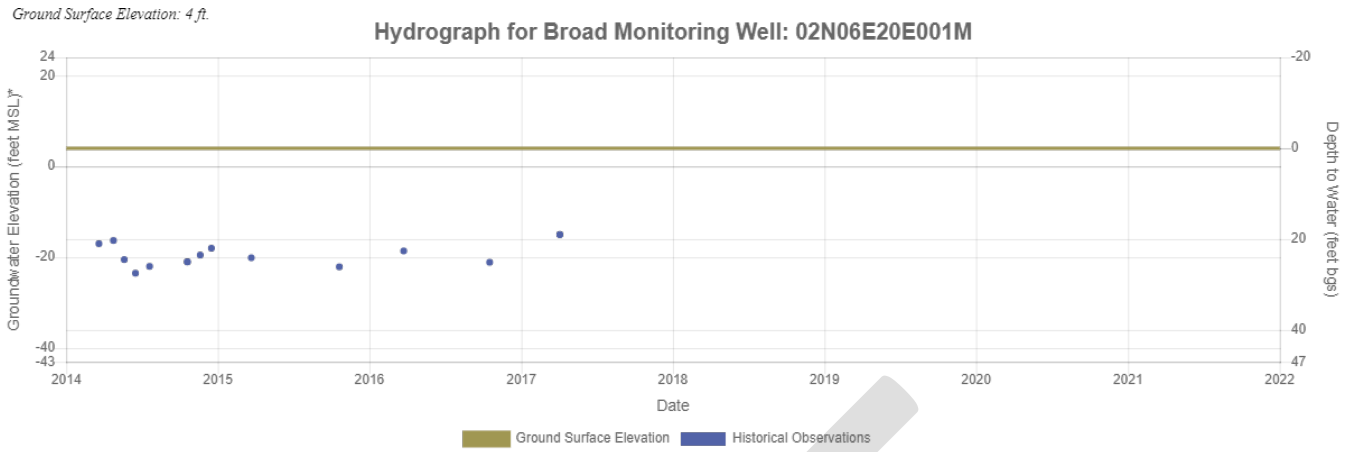

Ground Surface Elevation: 3 ft.
Hydrograph for Broad Monitoring Well: 02N06E08N003M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

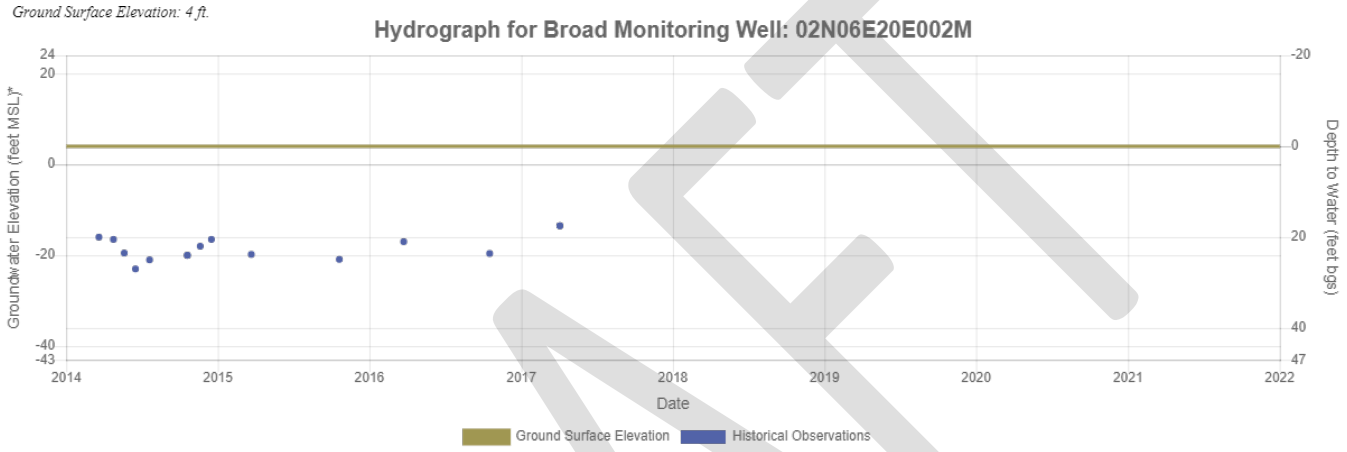

Ground Surface Elevation: 27 ft.
Hydrograph for Broad Monitoring Well: 02N06E11H004M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

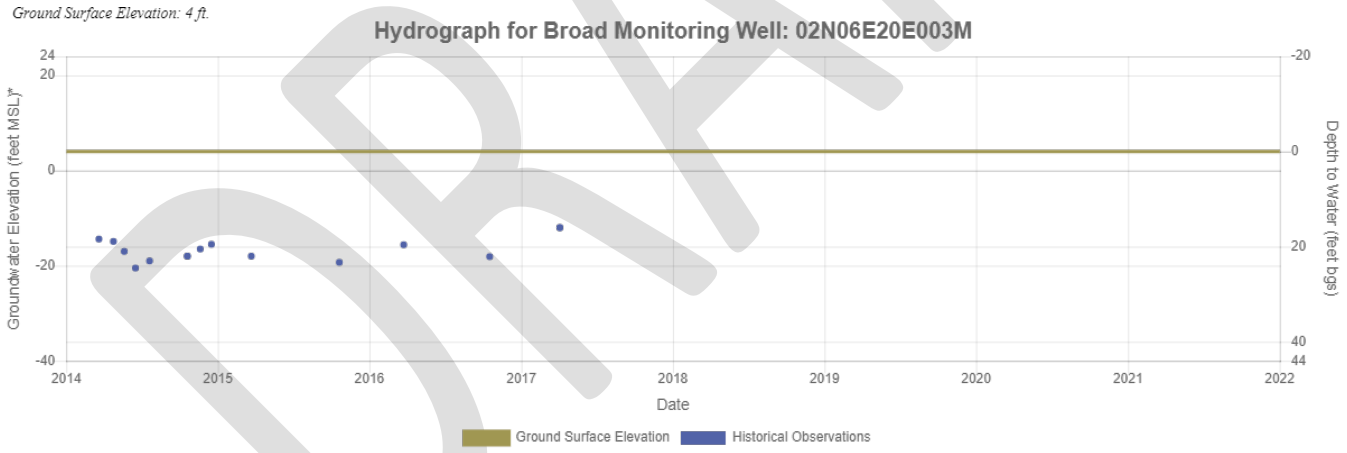

Ground Surface Elevation: 27 ft.
Hydrograph for Broad Monitoring Well: 02N06E11H005M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

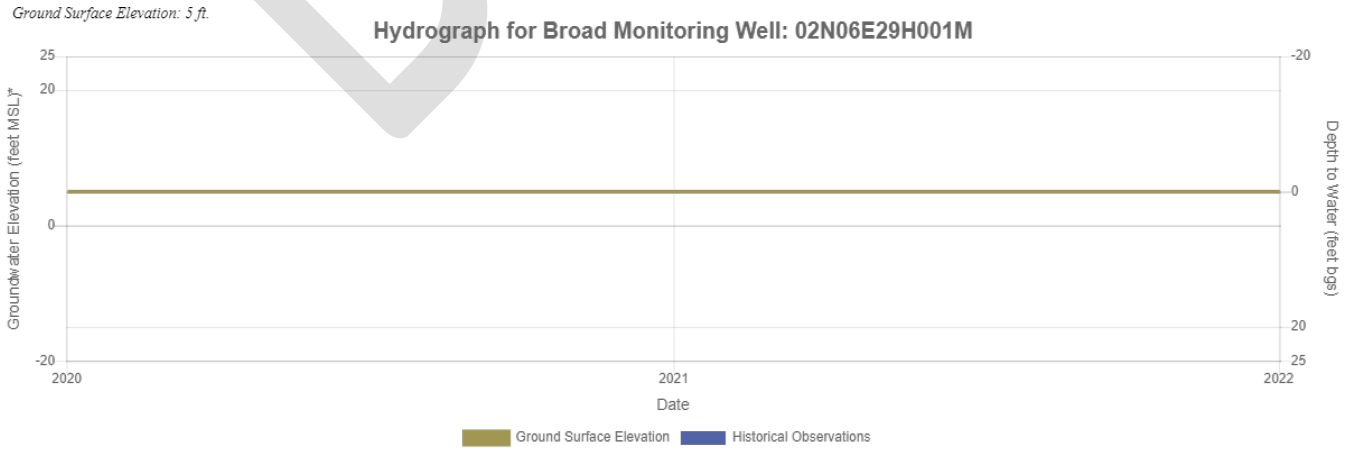

Ground Surface Elevation: 27 ft.
Hydrograph for Broad Monitoring Well: 02N06E11H006M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 27 ft.
Hydrograph for Broad Monitoring Well: 02N06E11H007M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

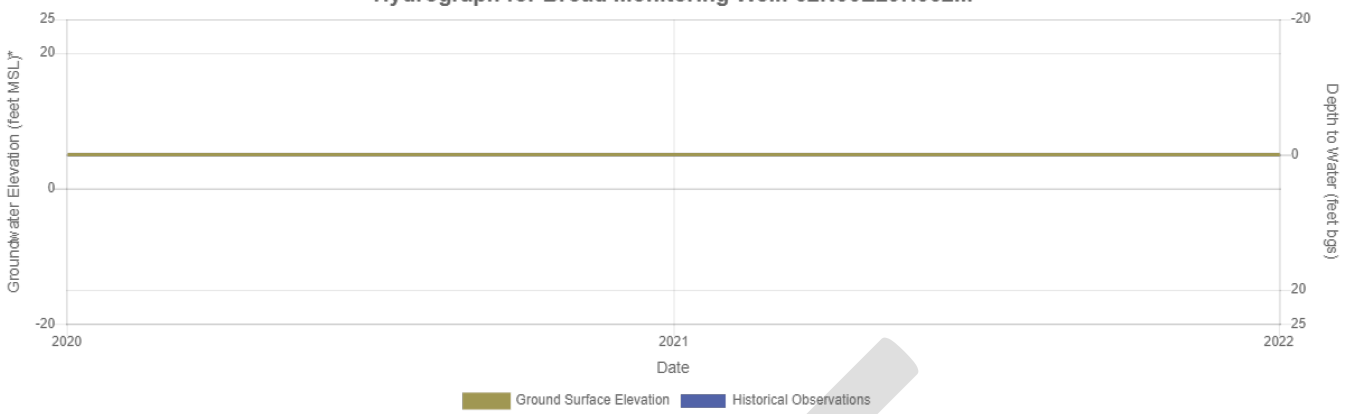

Ground Surface Elevation: 4 ft.
Hydrograph for Broad Monitoring Well: 02N06E20E001M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 4 ft.
Hydrograph for Broad Monitoring Well: 02N06E20E002M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

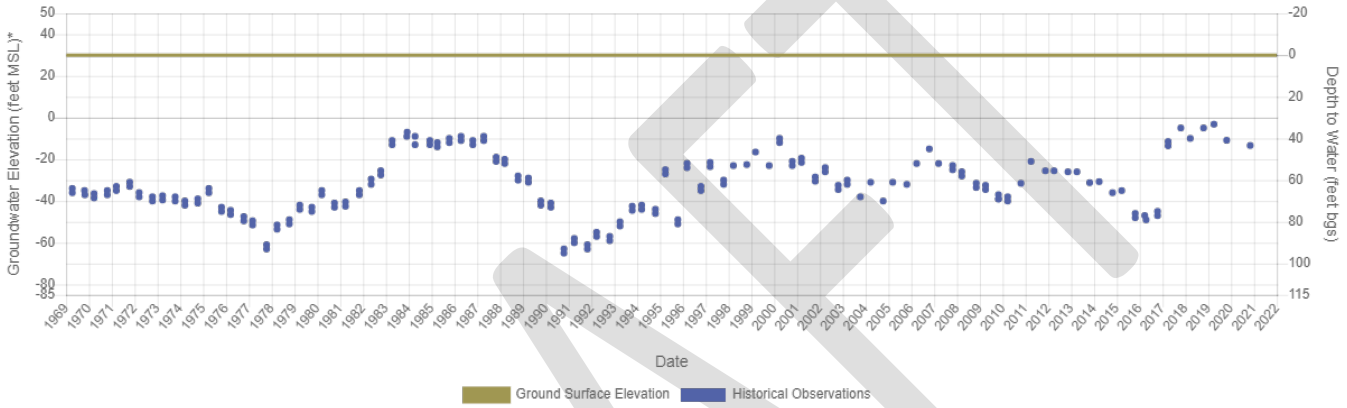

Ground Surface Elevation: 4 ft.
Hydrograph for Broad Monitoring Well: 02N06E20E003M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 5 ft.
Hydrograph for Broad Monitoring Well: 02N06E29H001M
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

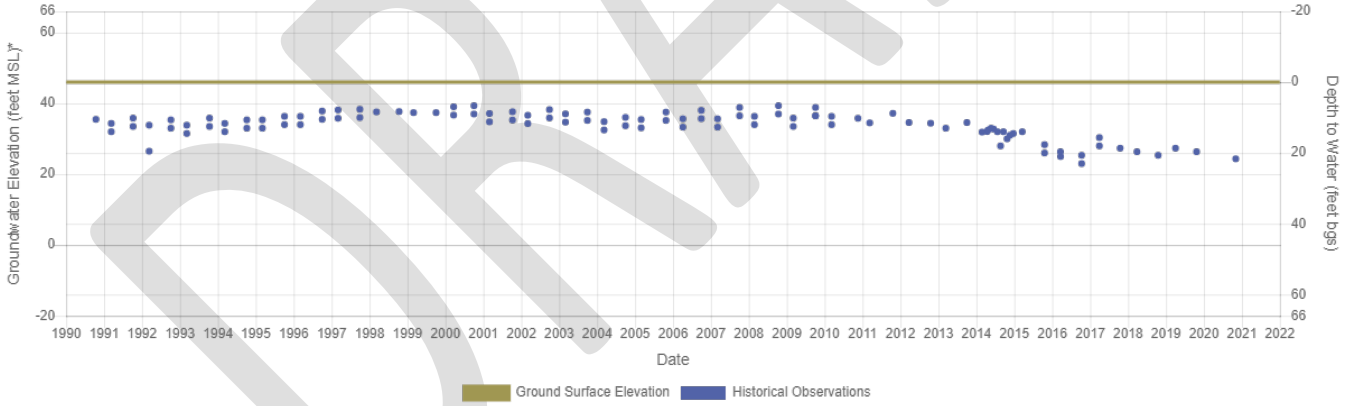
Ground Surface Elevation: 5 ft.



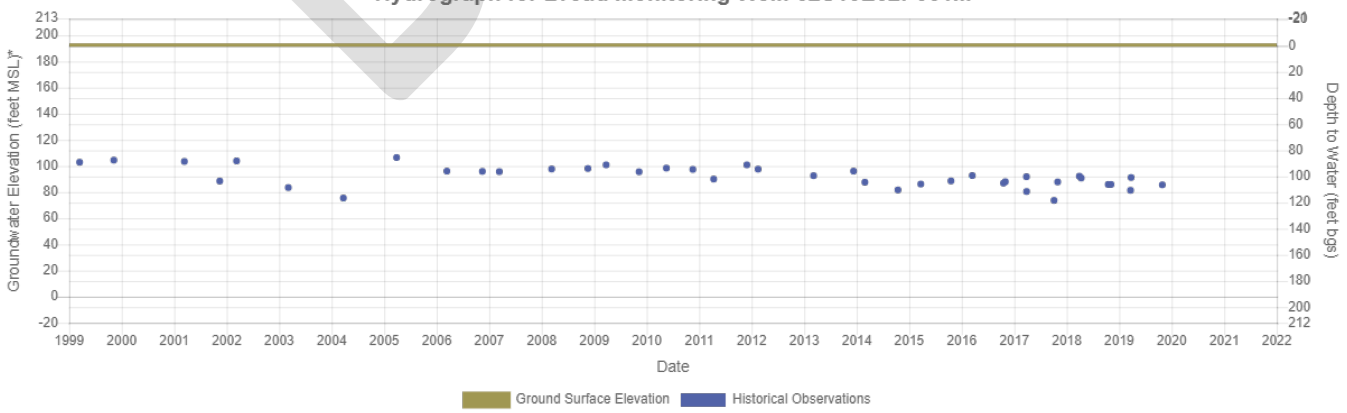
Ground Surface Elevation: 30 ft.



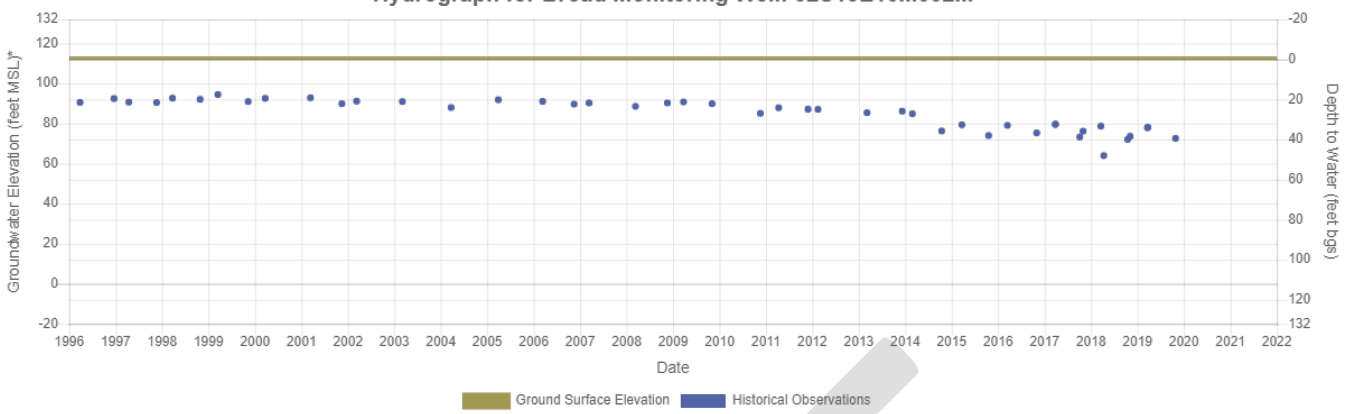
Ground Surface Elevation: 46 ft.



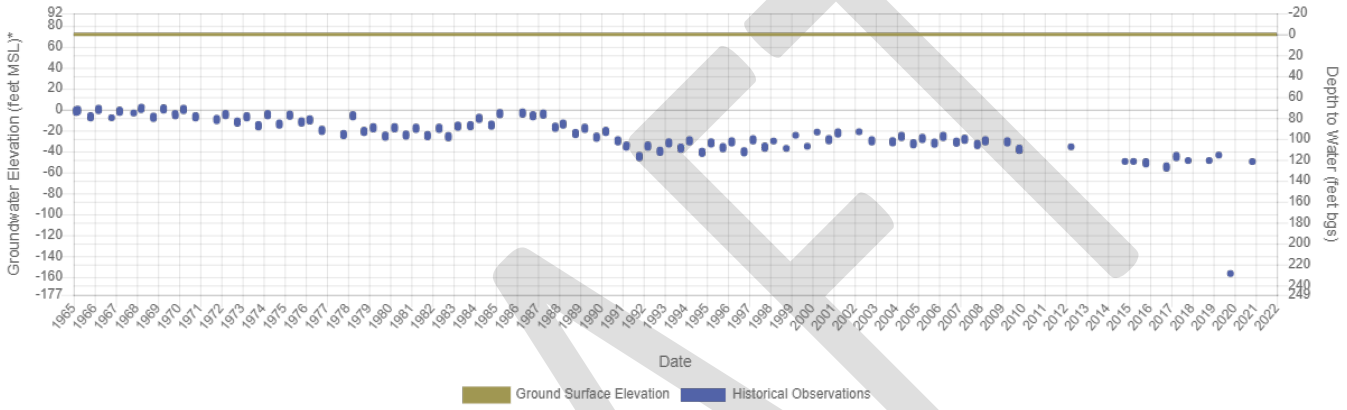
Ground Surface Elevation: 193 ft.



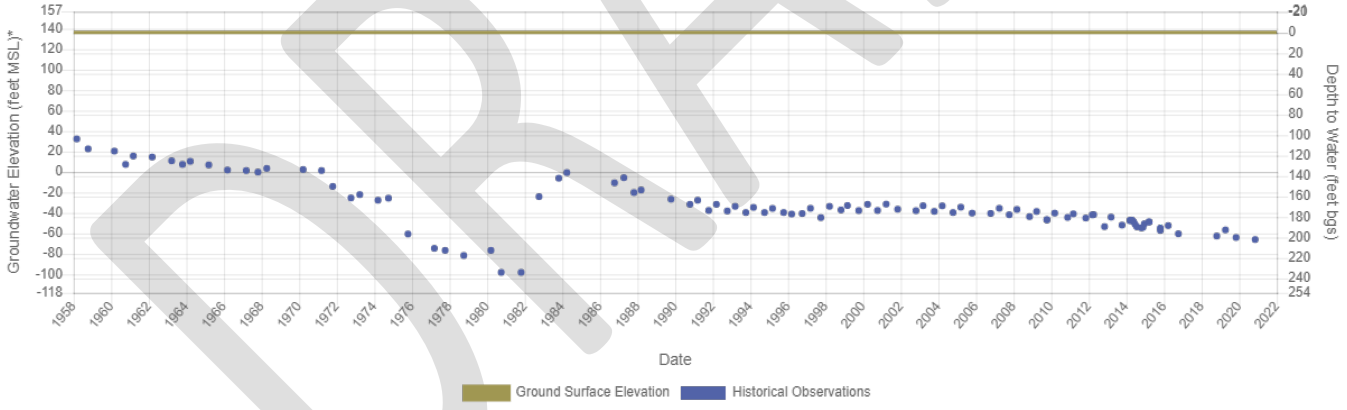
Ground Surface Elevation: 112 ft.



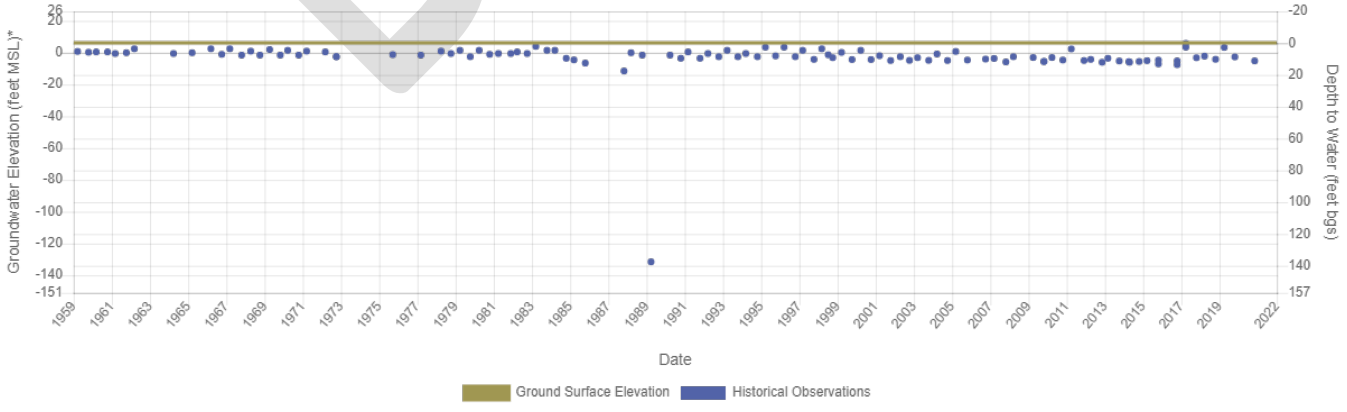
Ground Surface Elevation: 72 ft.



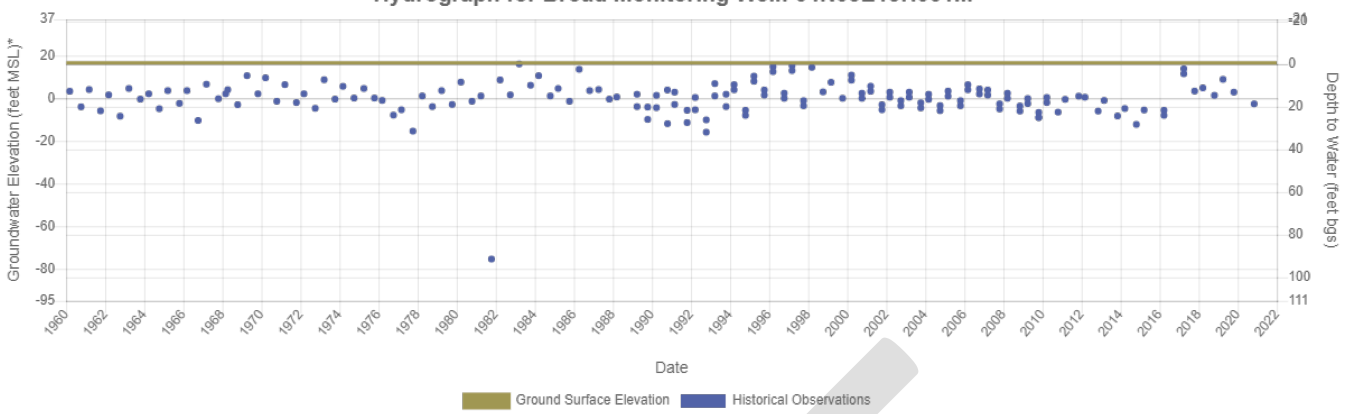
Ground Surface Elevation: 137 ft.



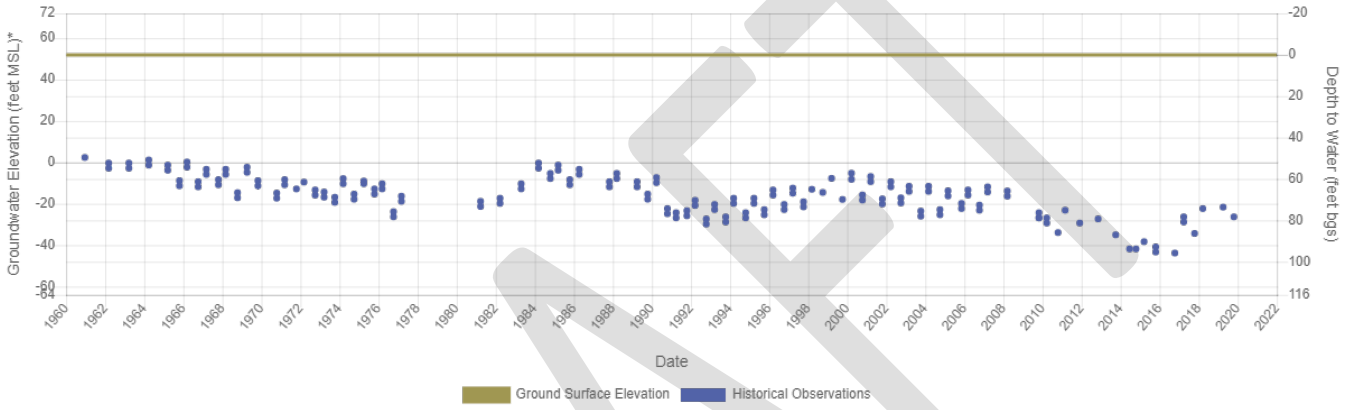
Ground Surface Elevation: 6 ft.



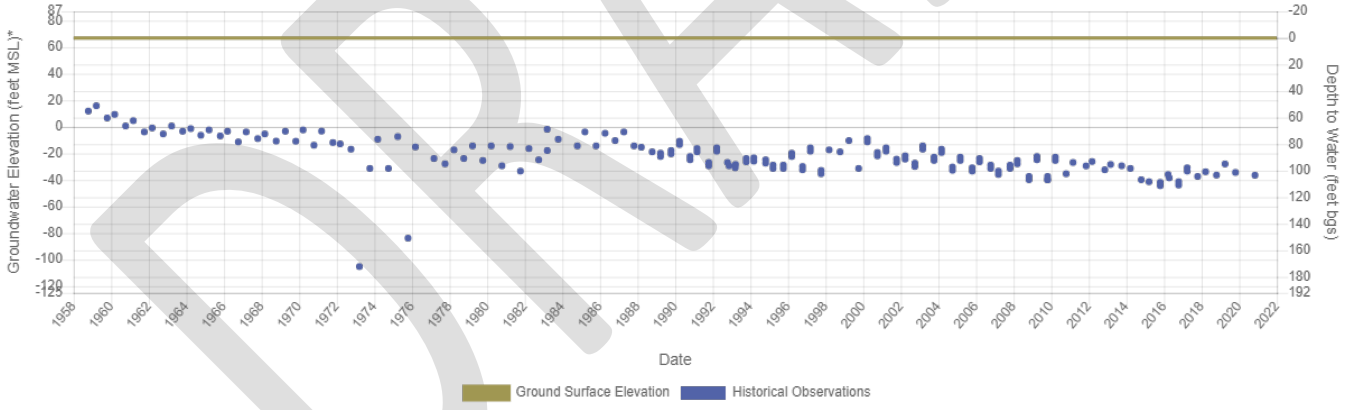
Ground Surface Elevation: 17 ft.



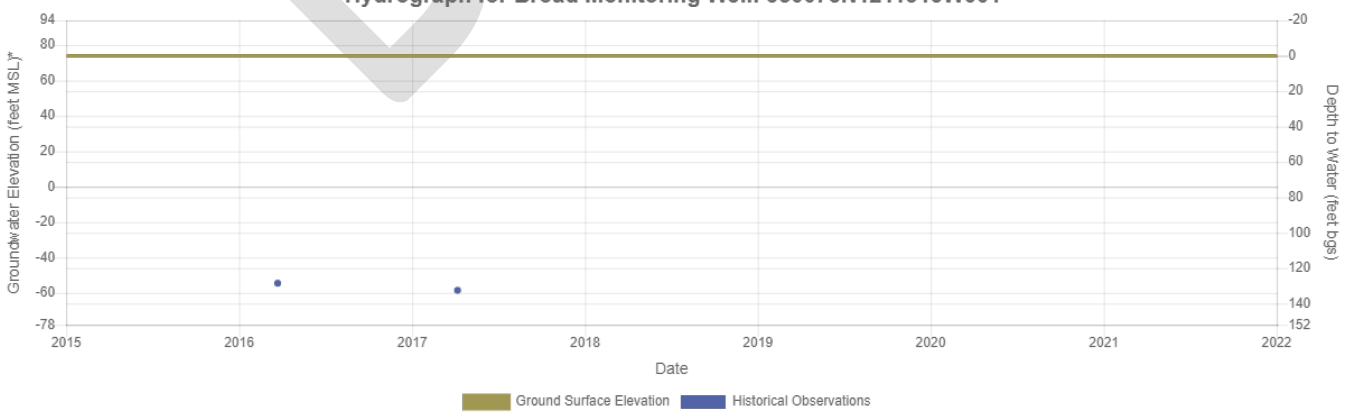
Ground Surface Elevation: 52 ft.



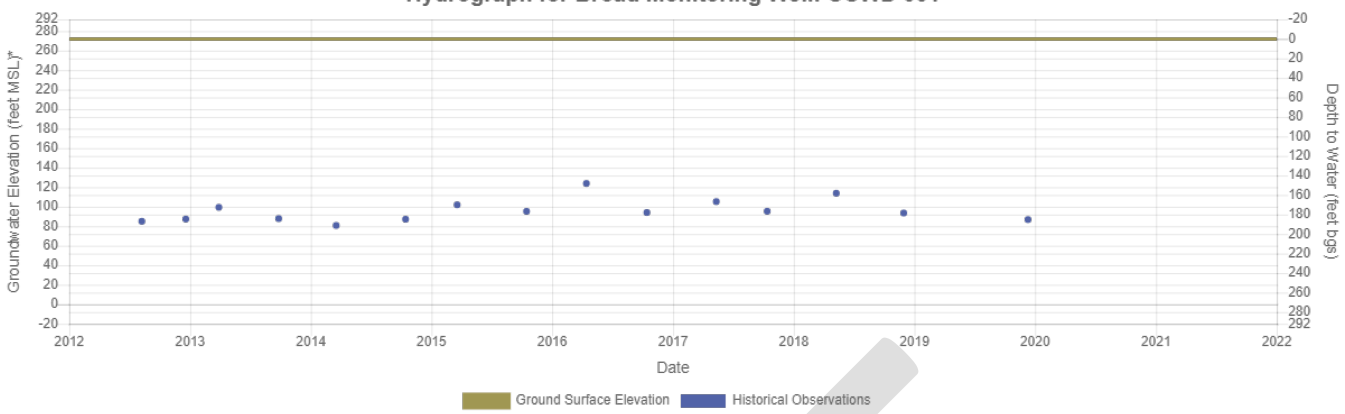
Ground Surface Elevation: 67 ft.



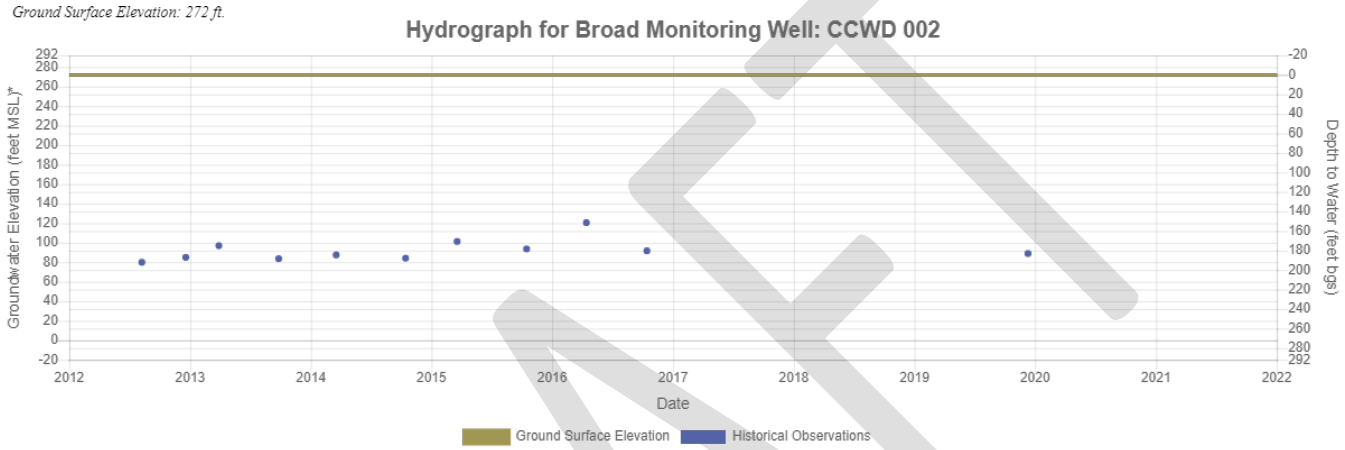
Ground Surface Elevation: 74 ft.



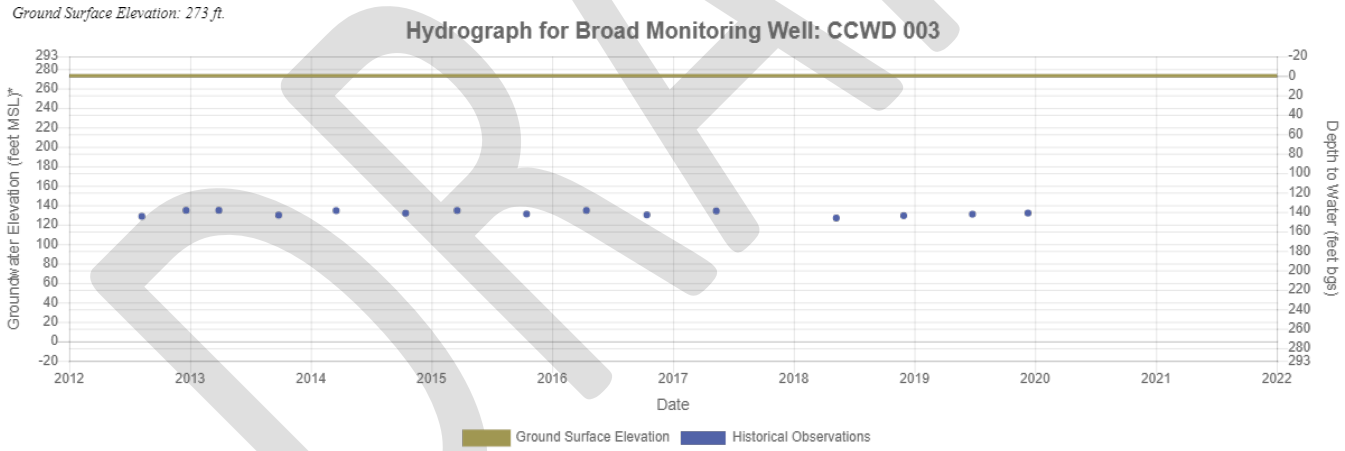
Ground Surface Elevation: 272 ft.



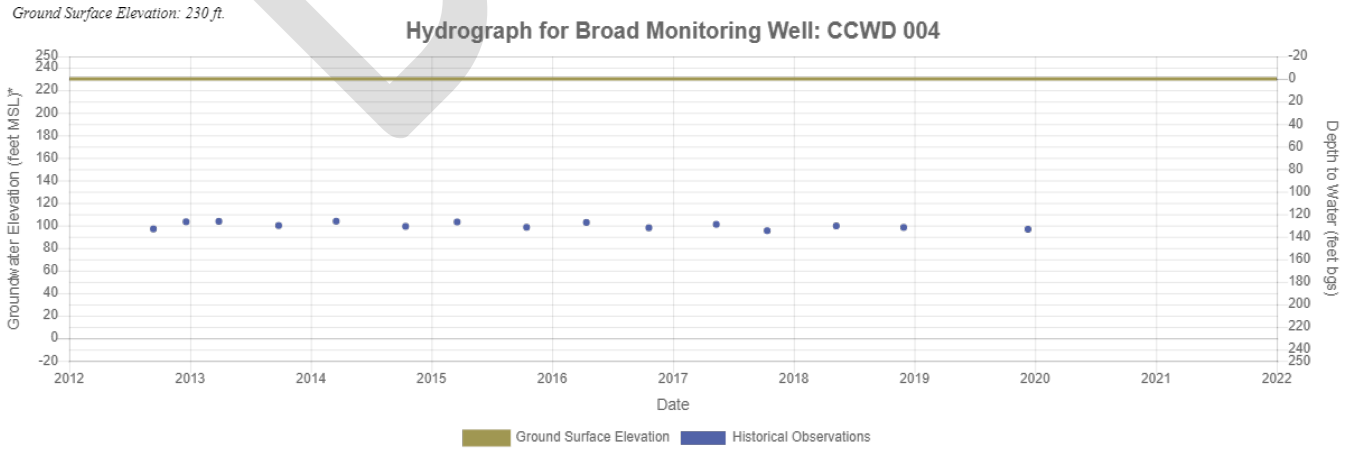
Ground Surface Elevation: 272 ft.



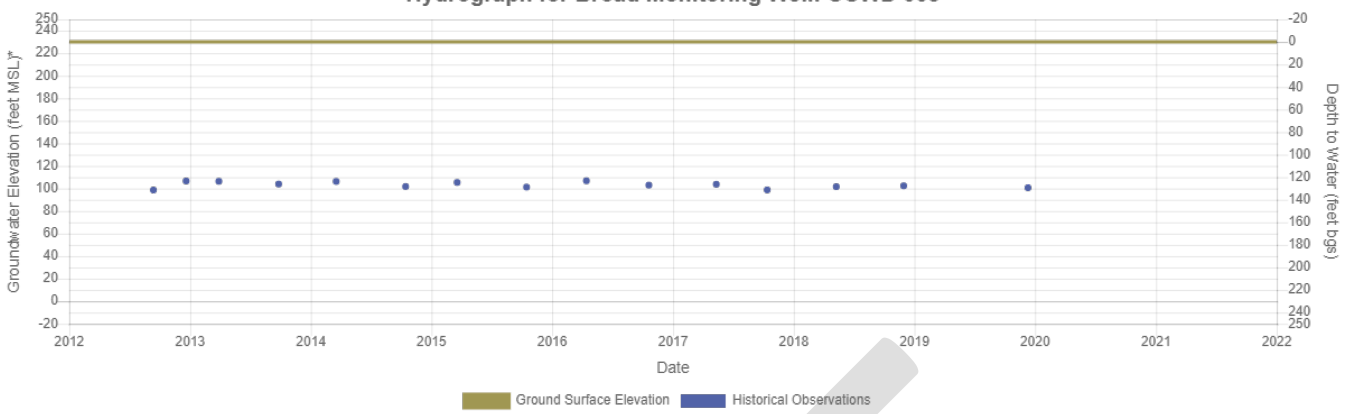
Ground Surface Elevation: 273 ft.



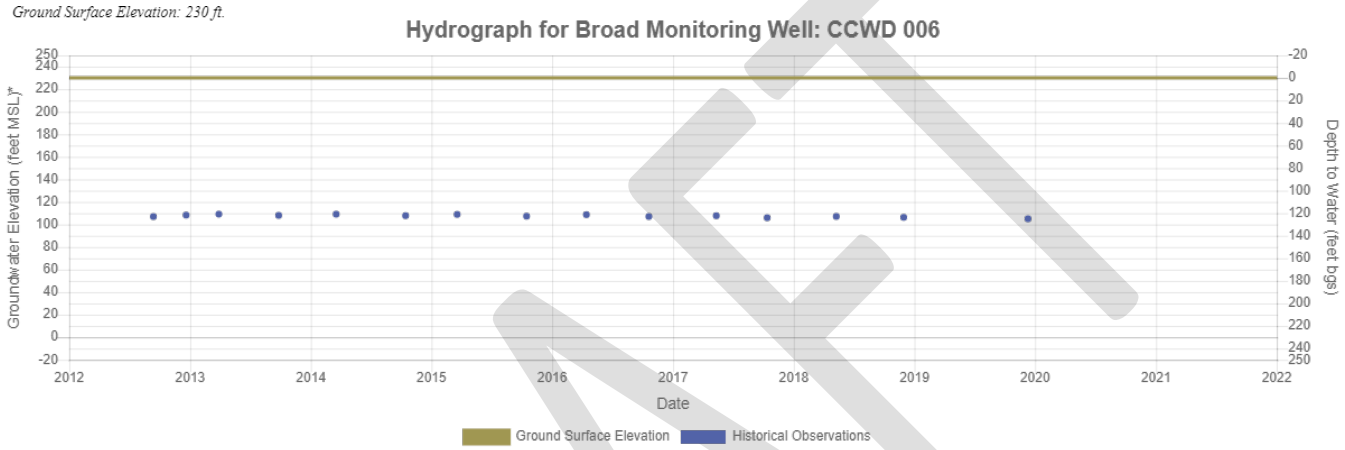
Ground Surface Elevation: 230 ft.



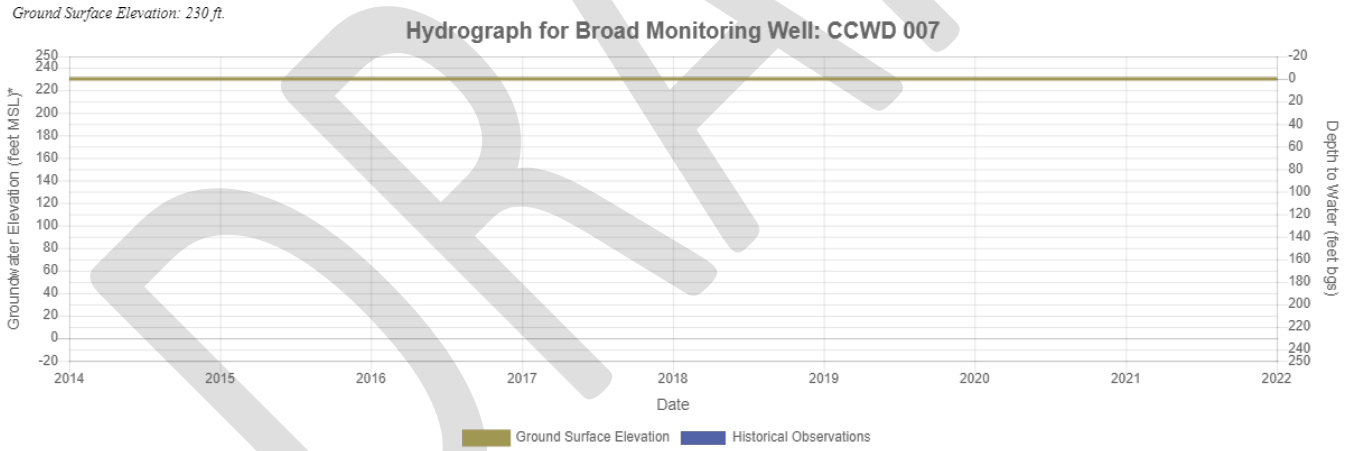
Ground Surface Elevation: 230 ft.



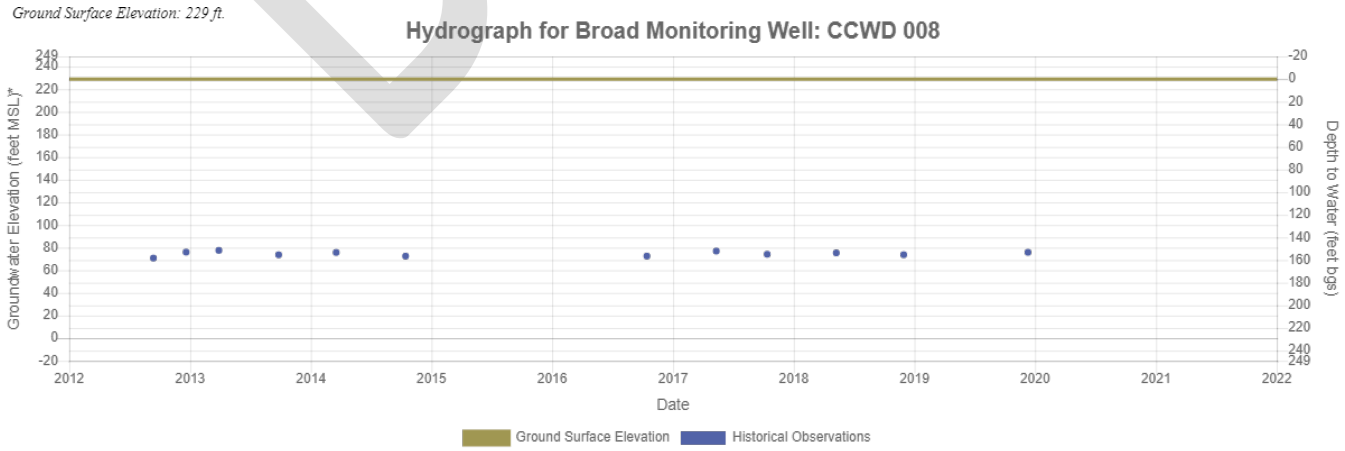
Ground Surface Elevation: 230 ft.



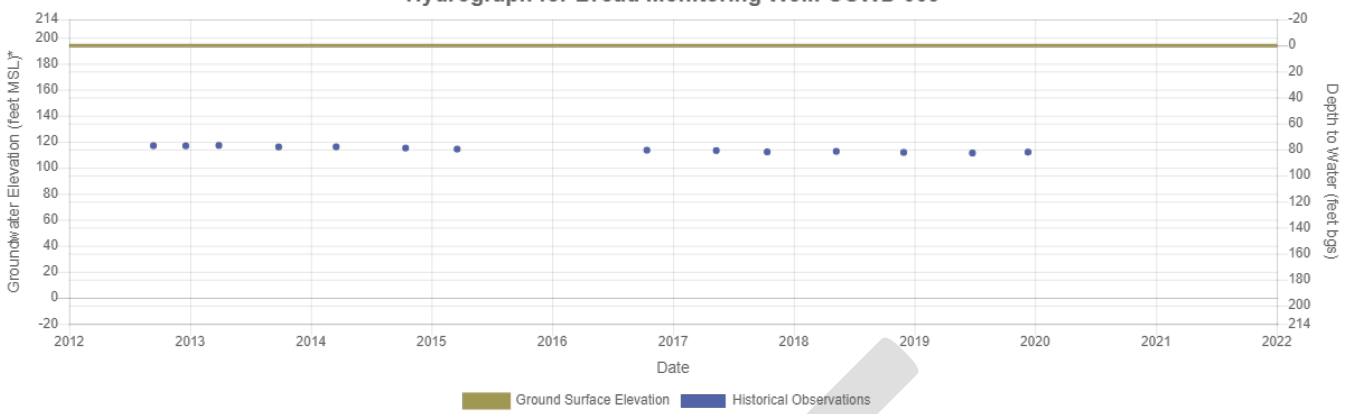
Ground Surface Elevation: 230 ft.



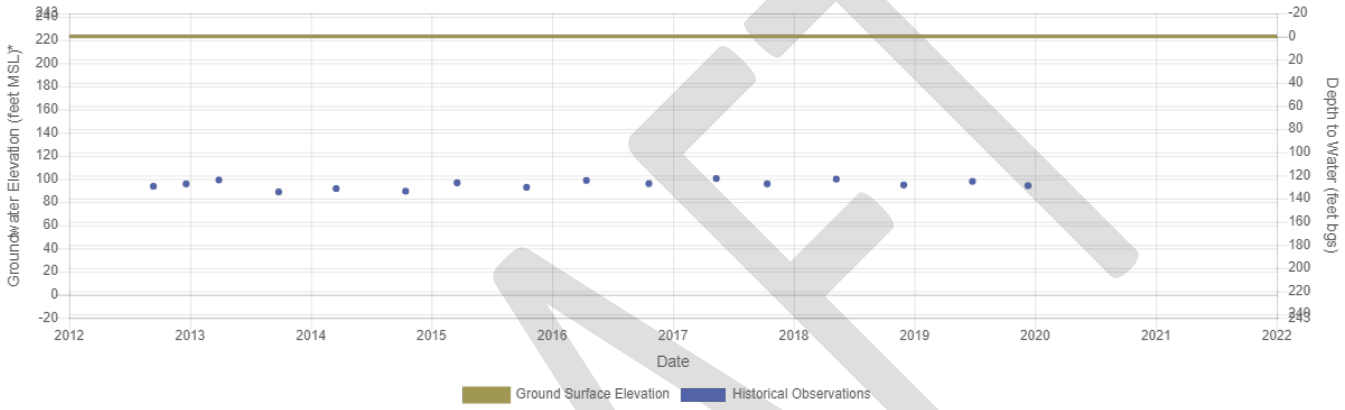
Ground Surface Elevation: 229 ft.



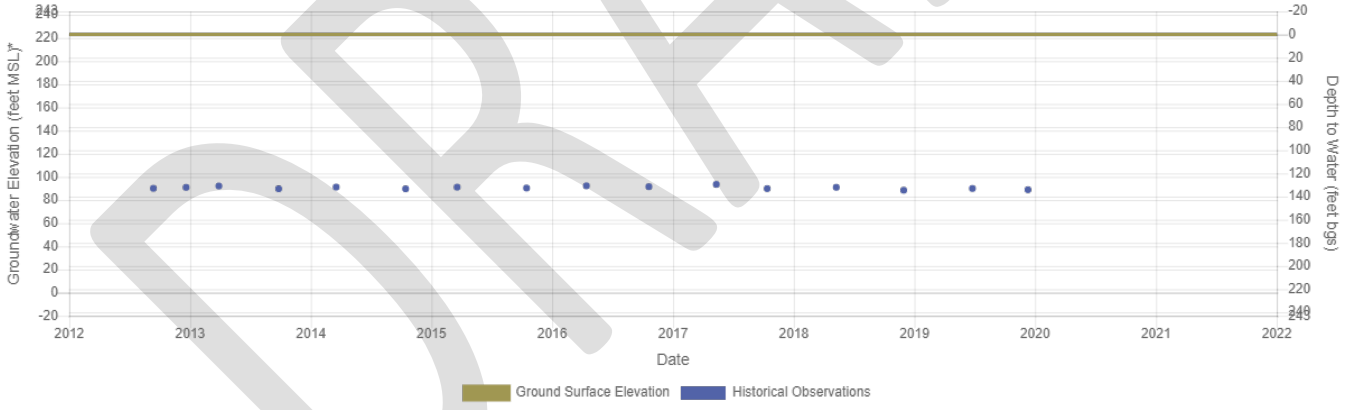
Ground Surface Elevation: 194 ft.



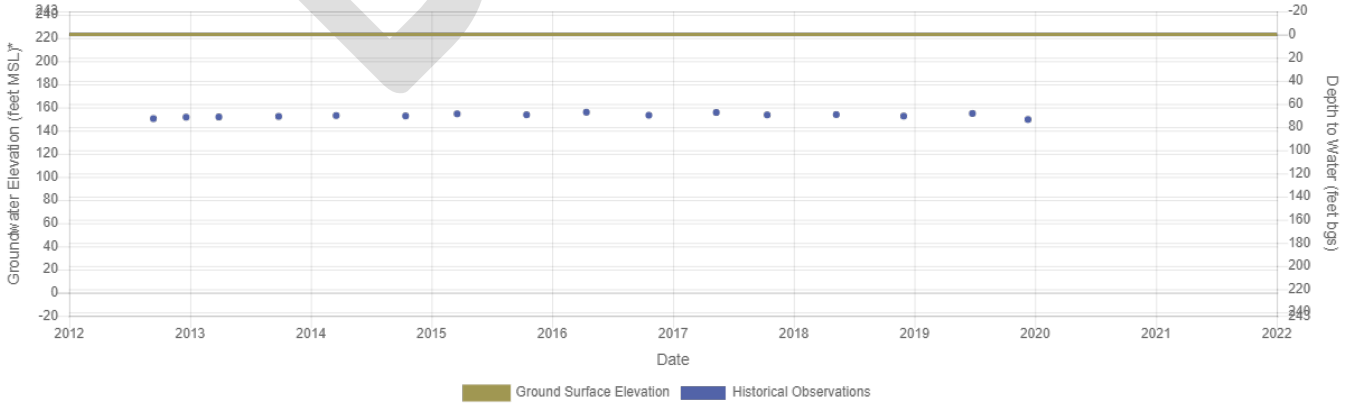
Ground Surface Elevation: 223 ft.



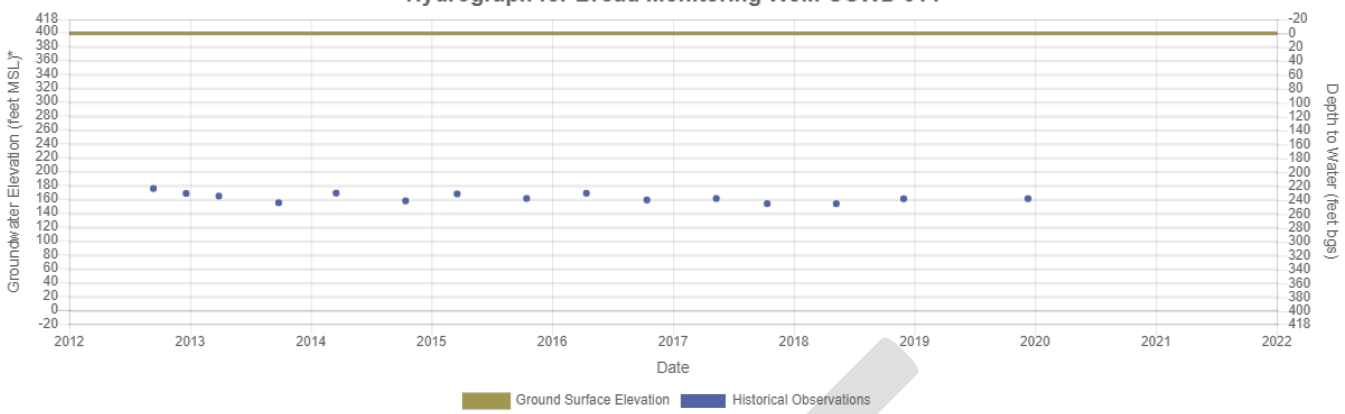
Ground Surface Elevation: 223 ft.



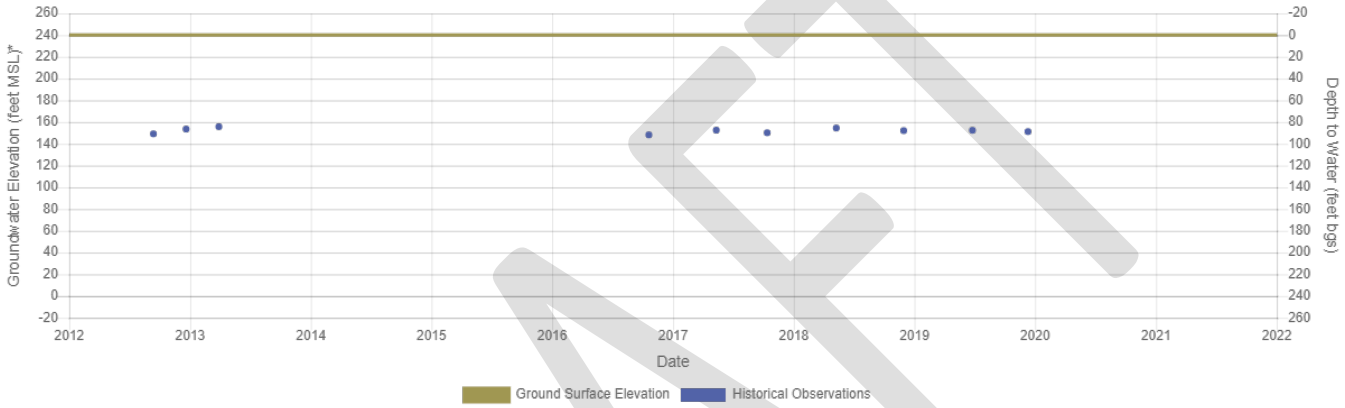
Ground Surface Elevation: 223 ft.



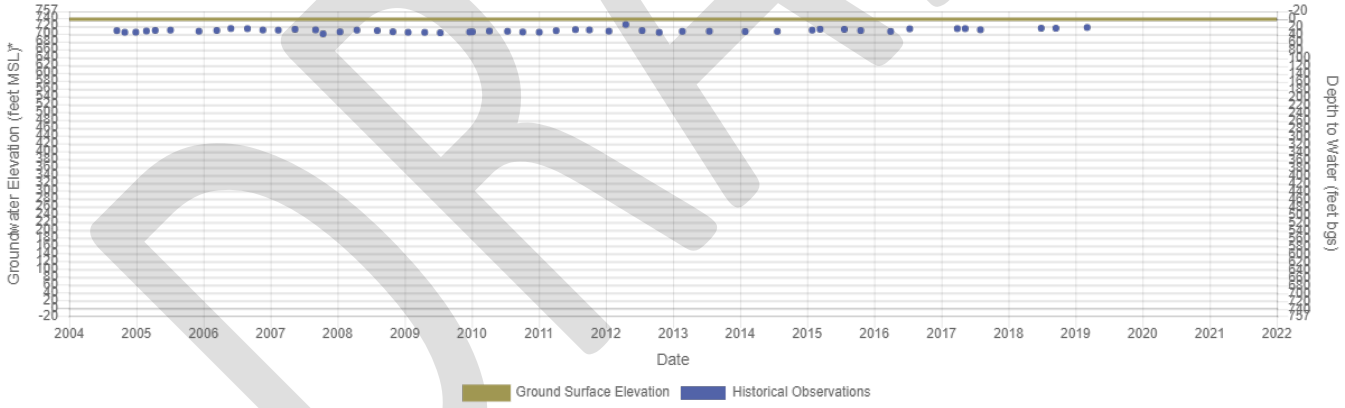
Ground Surface Elevation: 398 ft.



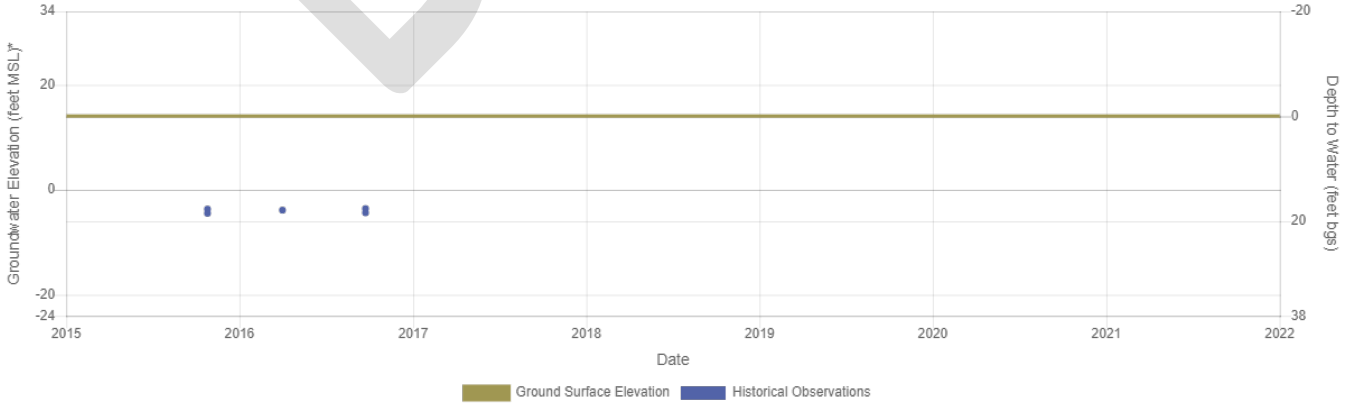
Ground Surface Elevation: 240 ft.



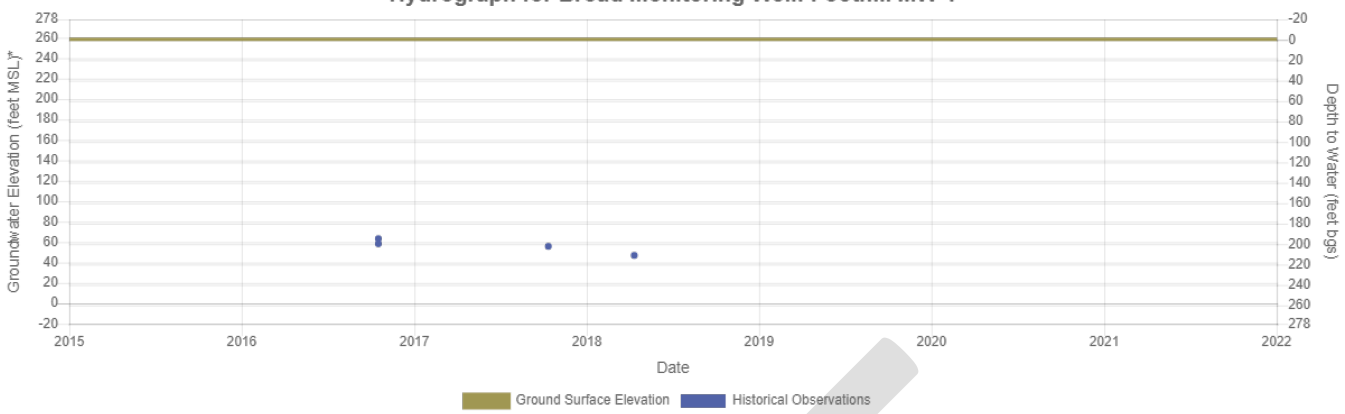
Ground Surface Elevation: 737 ft.



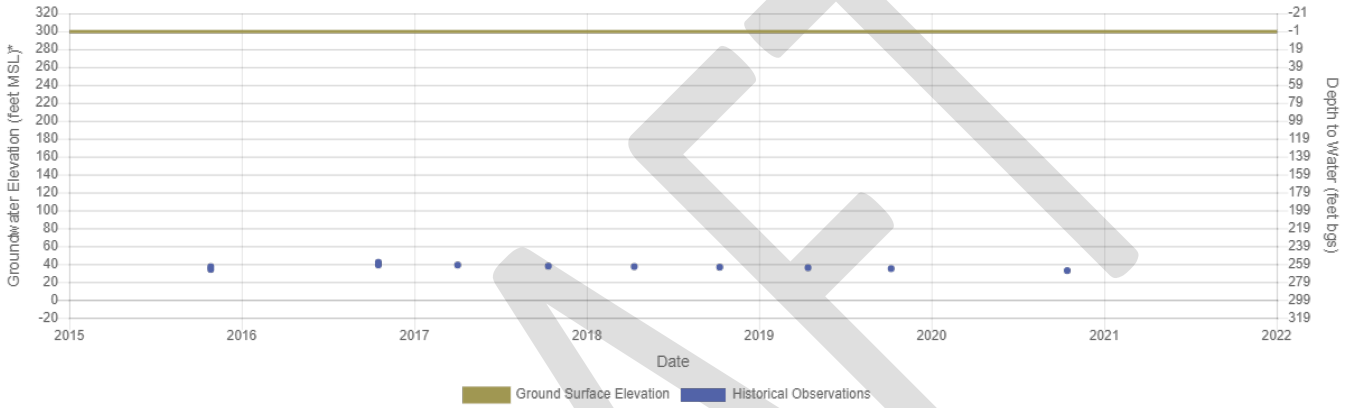
Ground Surface Elevation: 14 ft.



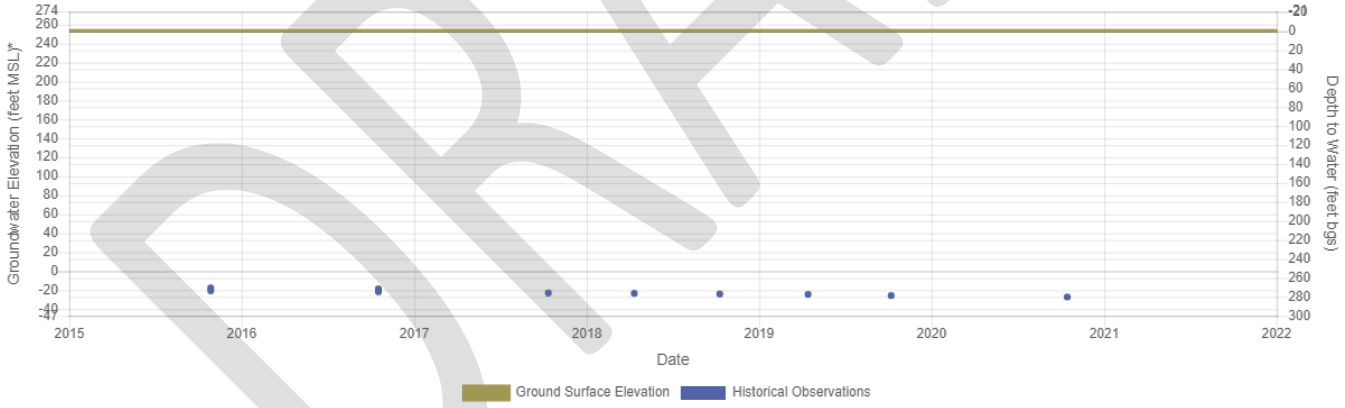
Ground Surface Elevation: 258 ft.



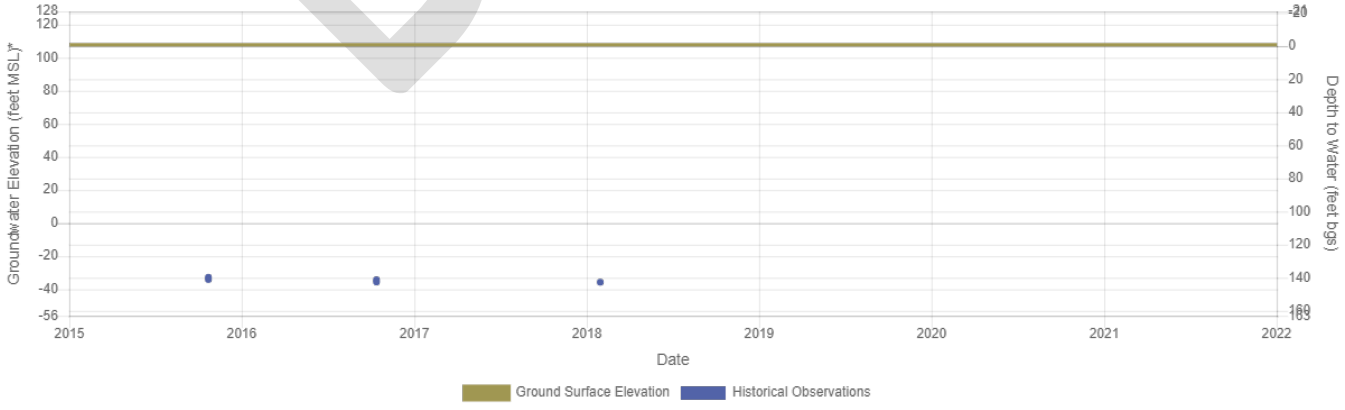
Ground Surface Elevation: 300 ft.



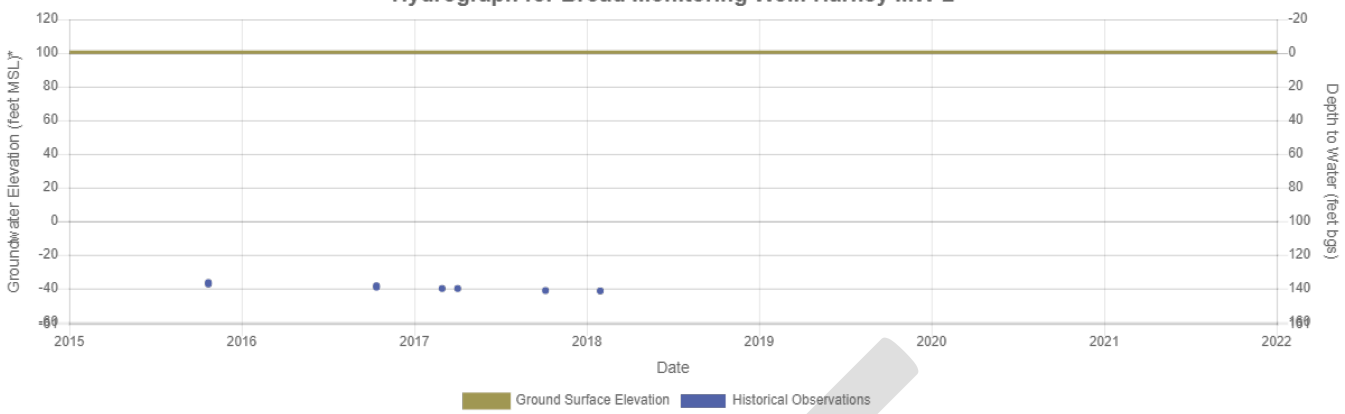
Ground Surface Elevation: 254 ft.



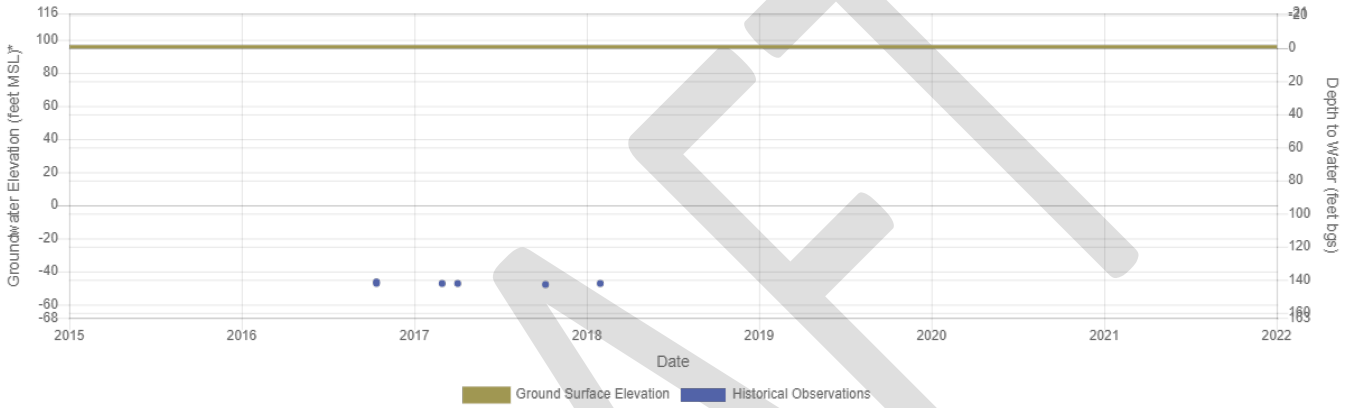
Ground Surface Elevation: 108 ft.



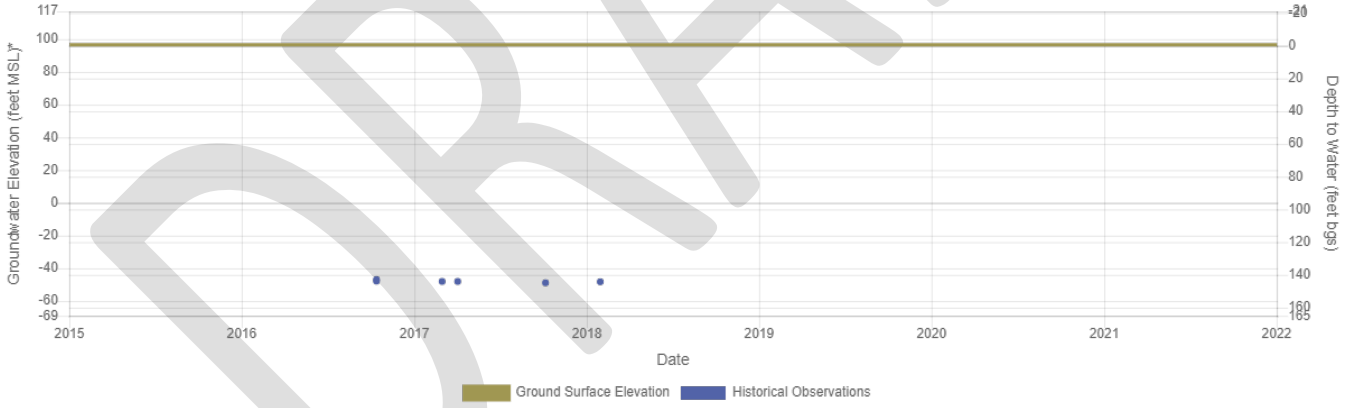
Ground Surface Elevation: 100 ft.



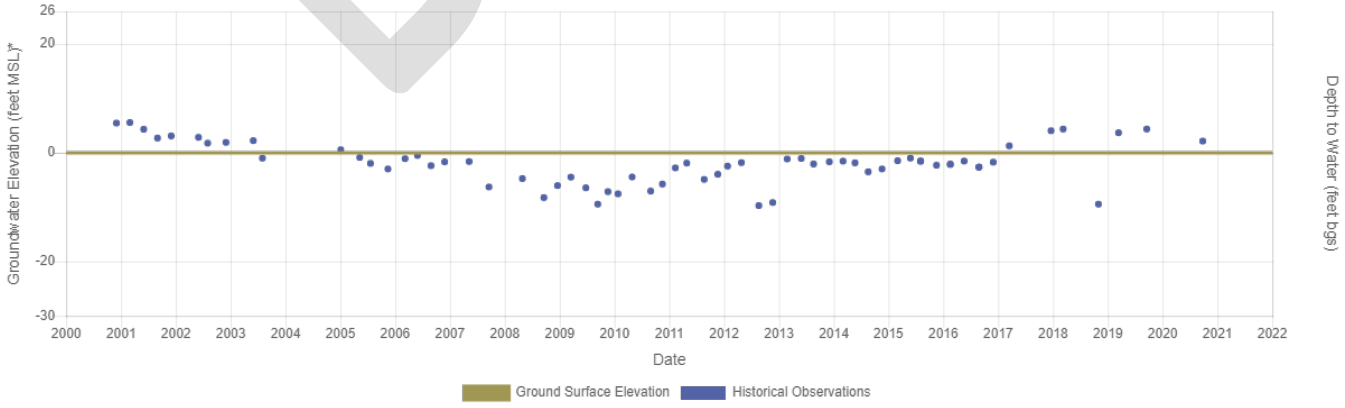
Ground Surface Elevation: 96 ft.

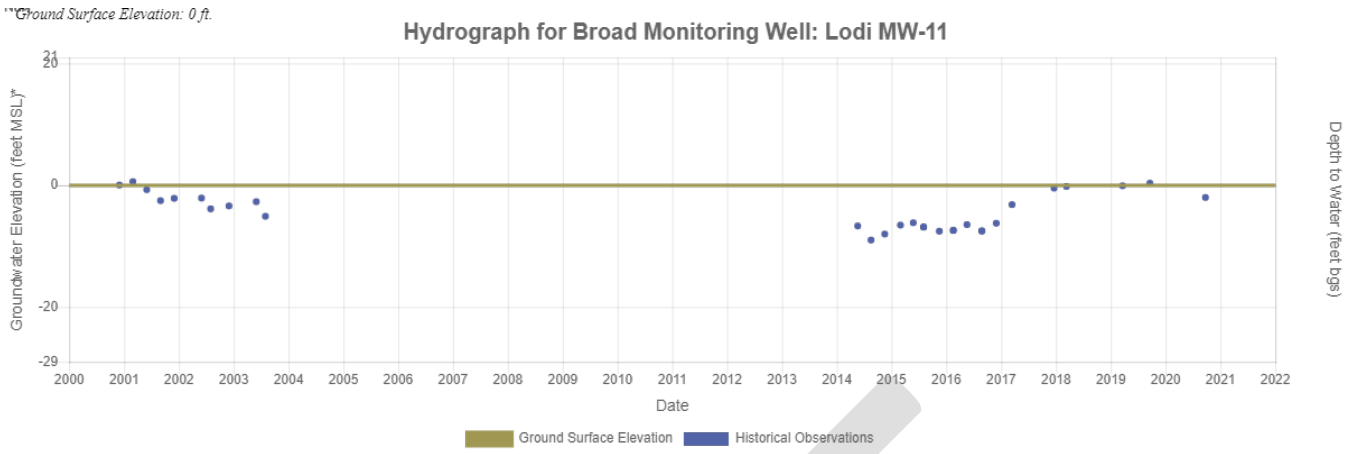


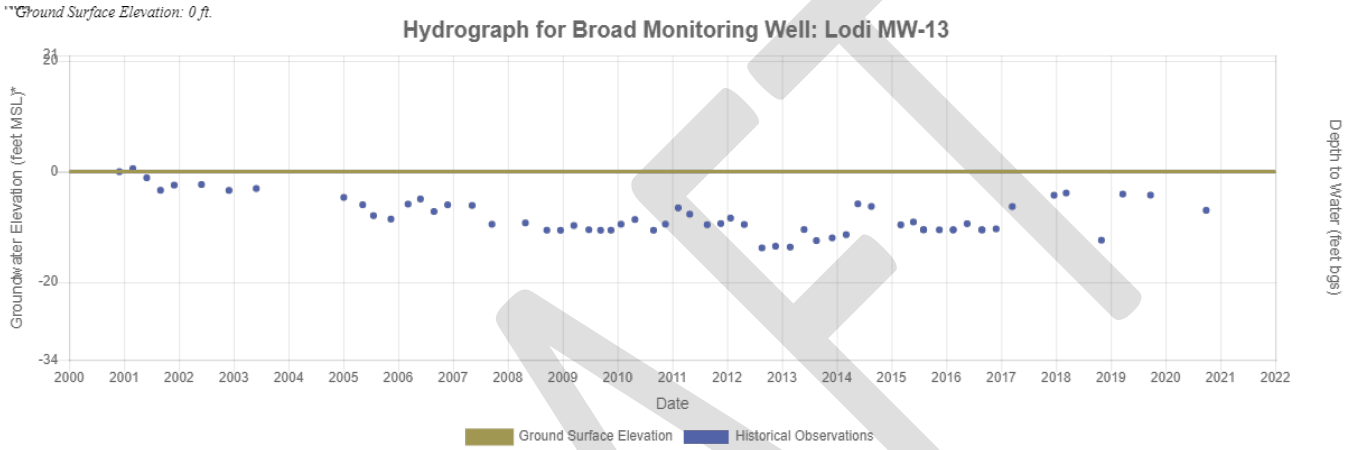
Ground Surface Elevation: 97 ft.

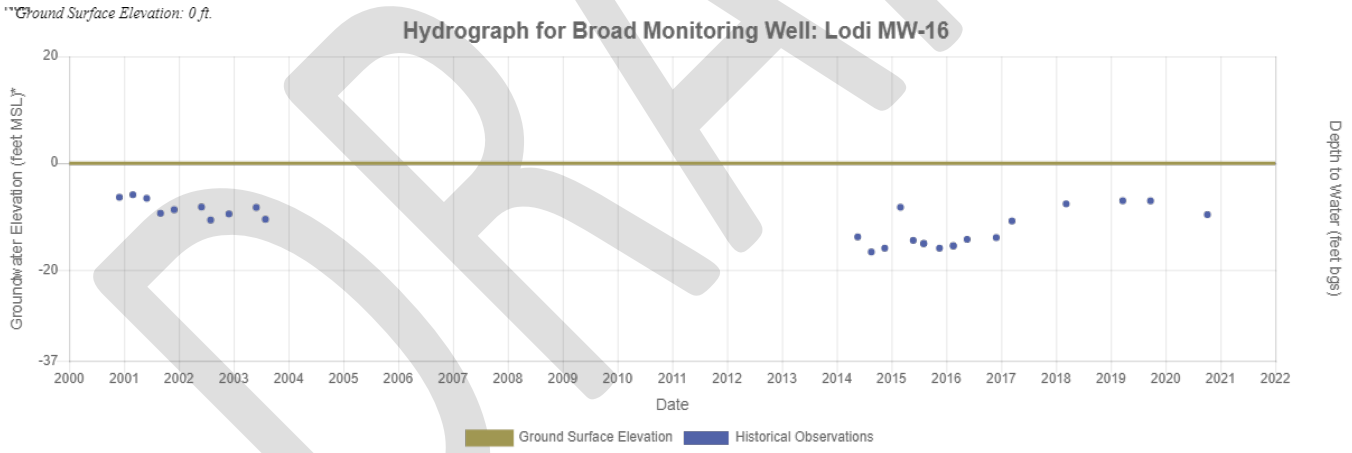


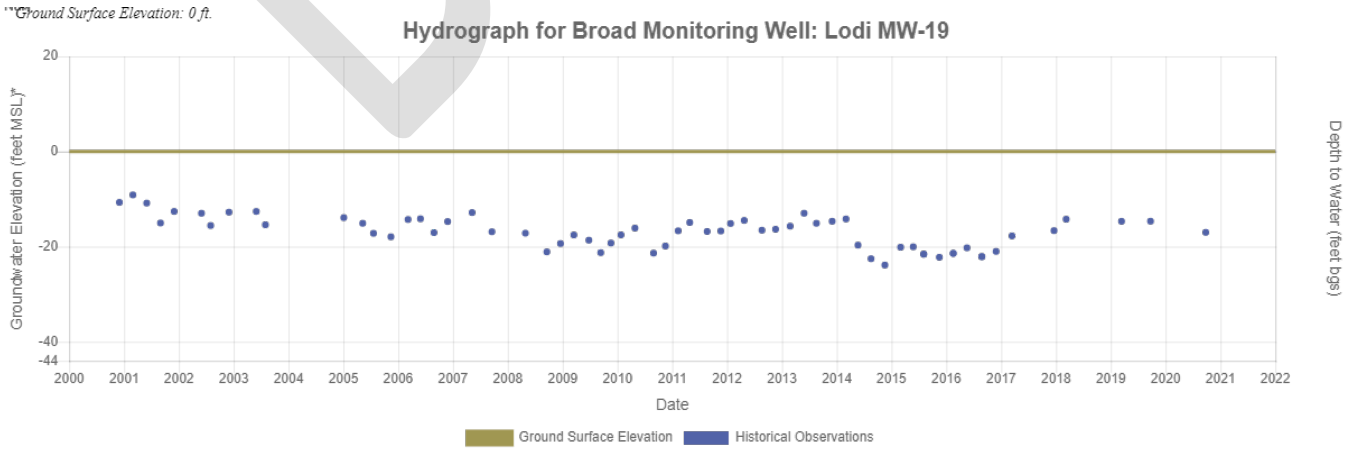
Ground Surface Elevation: 0 ft.

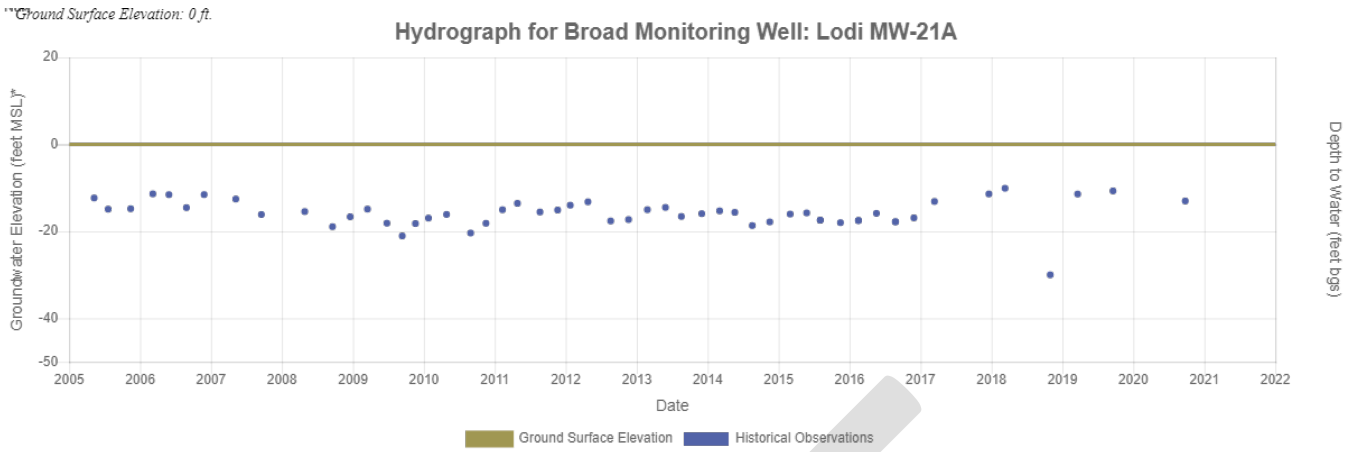


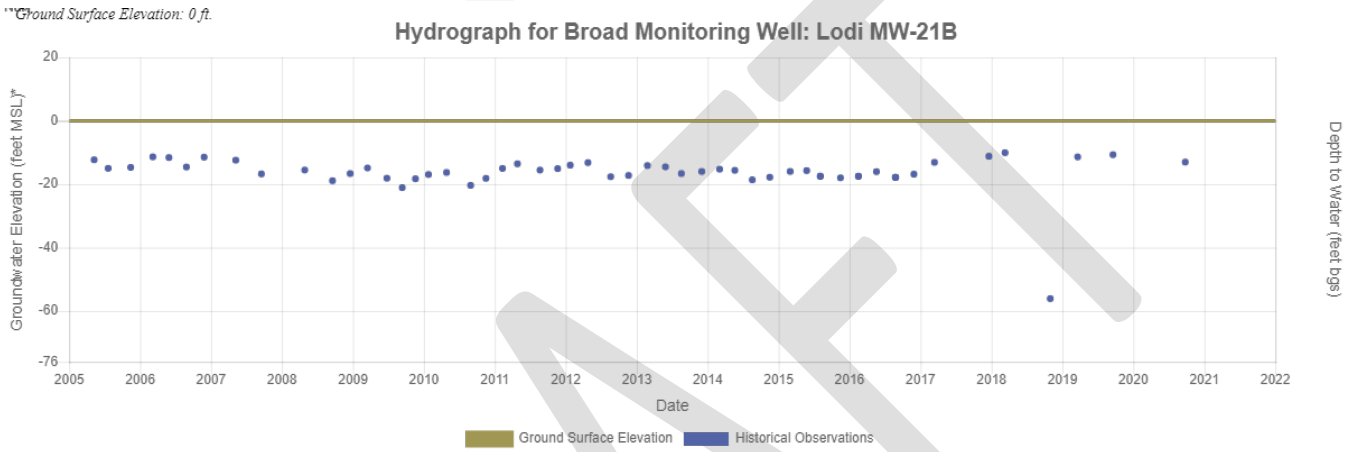

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-11
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
21
20
0
-20
-29
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
Date
Ground Surface Elevation
Historical Observations

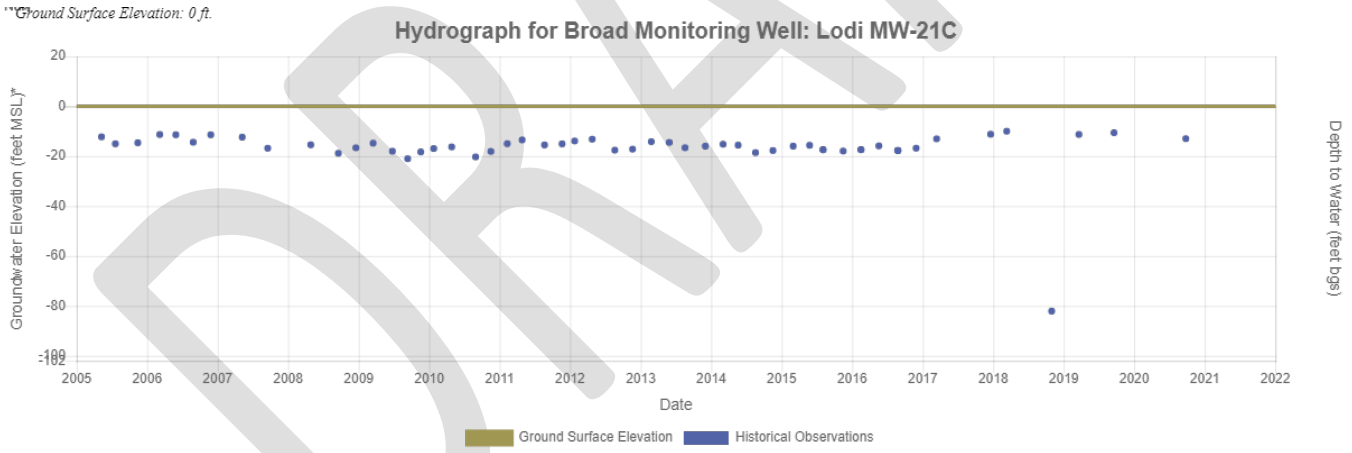

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-13
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
21
20
0
-20
-34
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
Date
Ground Surface Elevation
Historical Observations

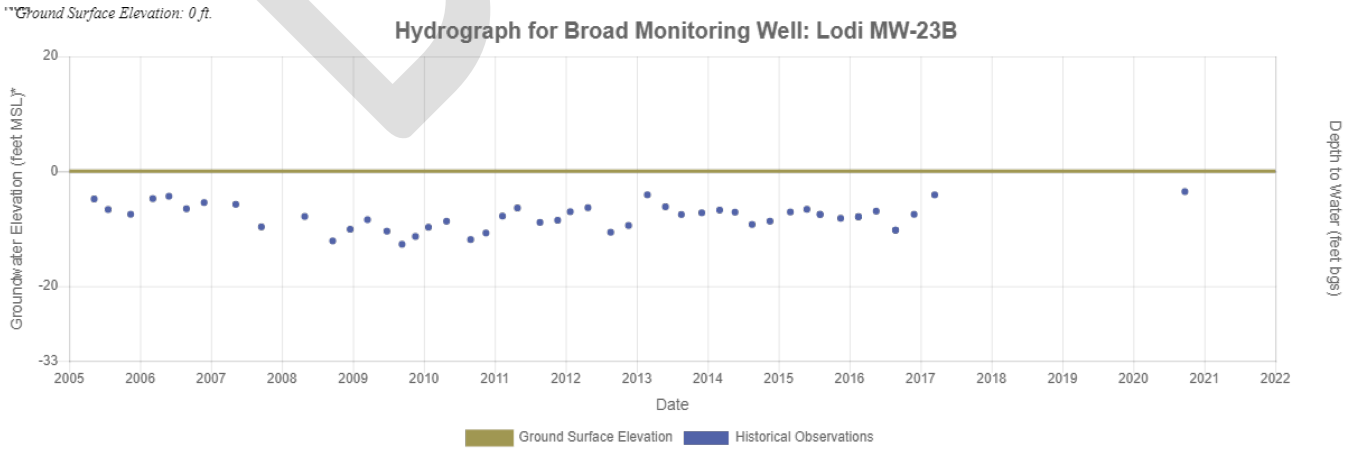

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-16
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
20
0
-20
-37
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
Date
Ground Surface Elevation
Historical Observations


*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-19
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
20
0
-20
-40
-44
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022
Date
Ground Surface Elevation
Historical Observations

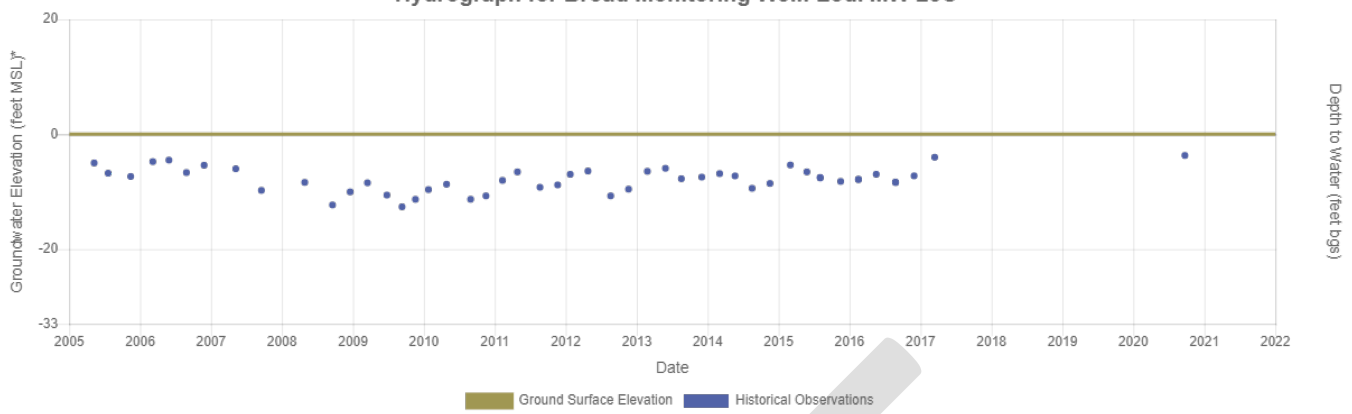

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-21A
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-21B
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

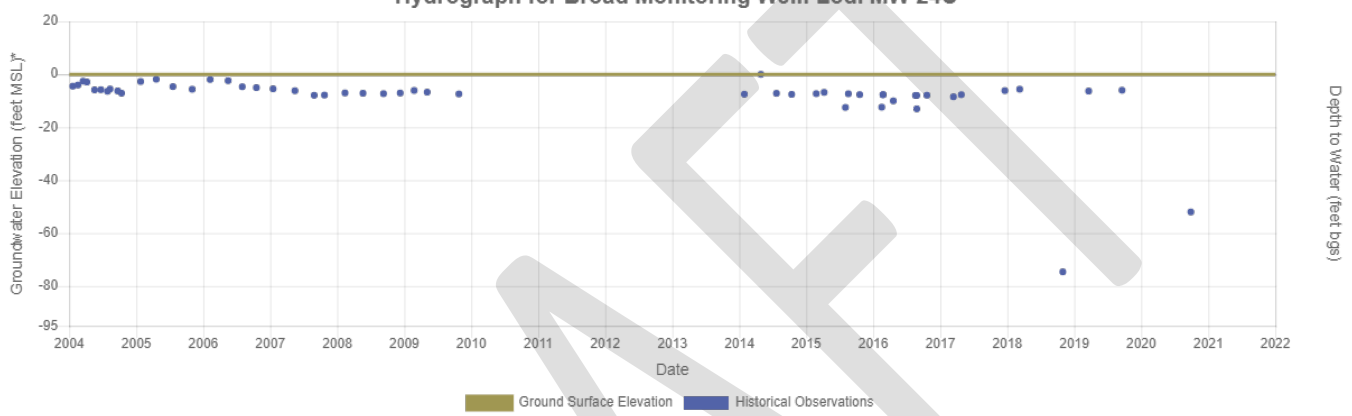

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-21C
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-23B
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

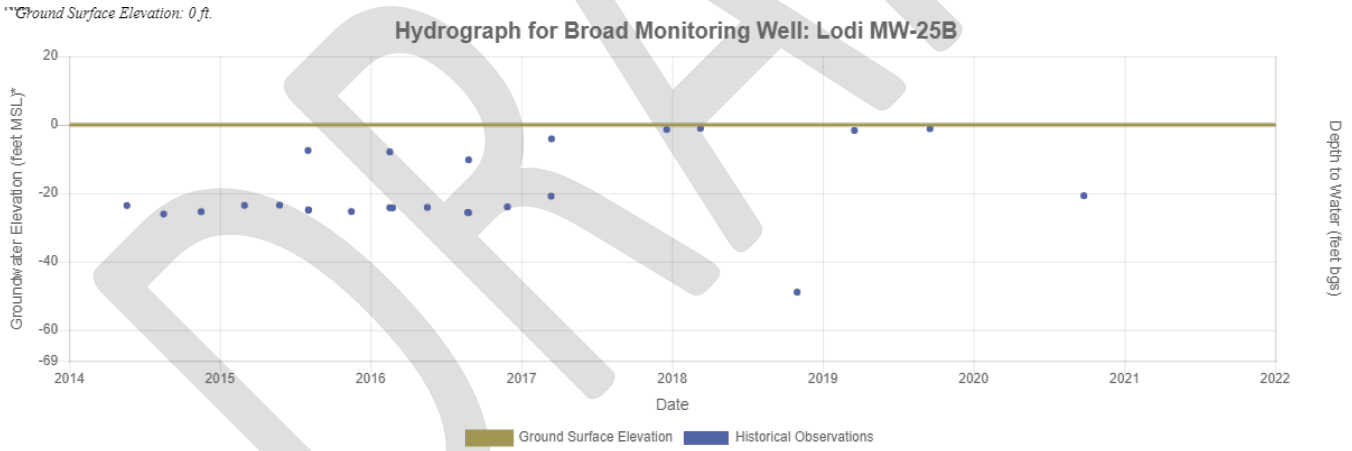
*Ground Surface Elevation: 0 ft.



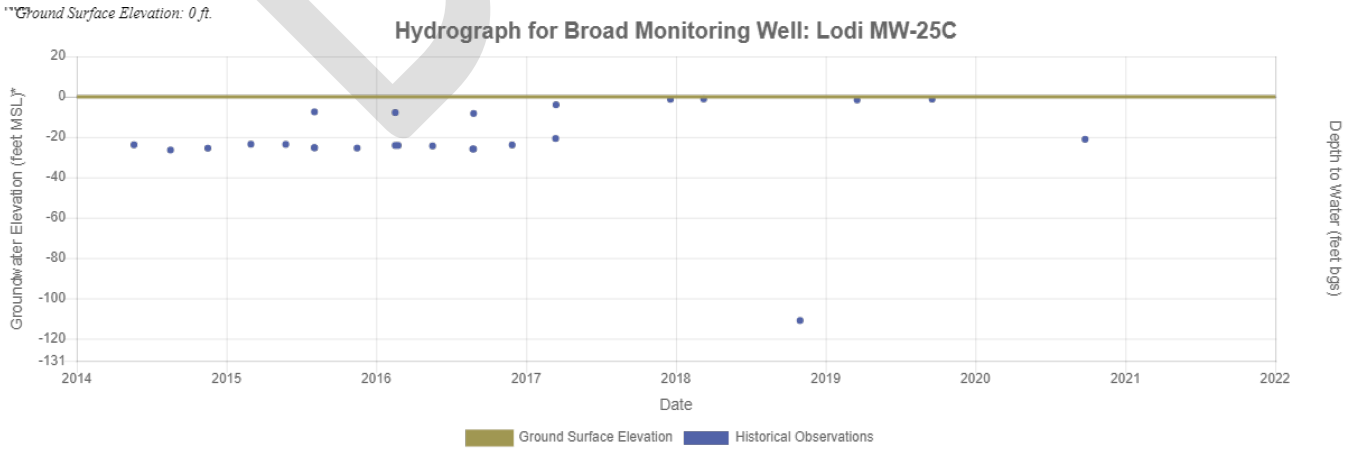
*Ground Surface Elevation: 0 ft.

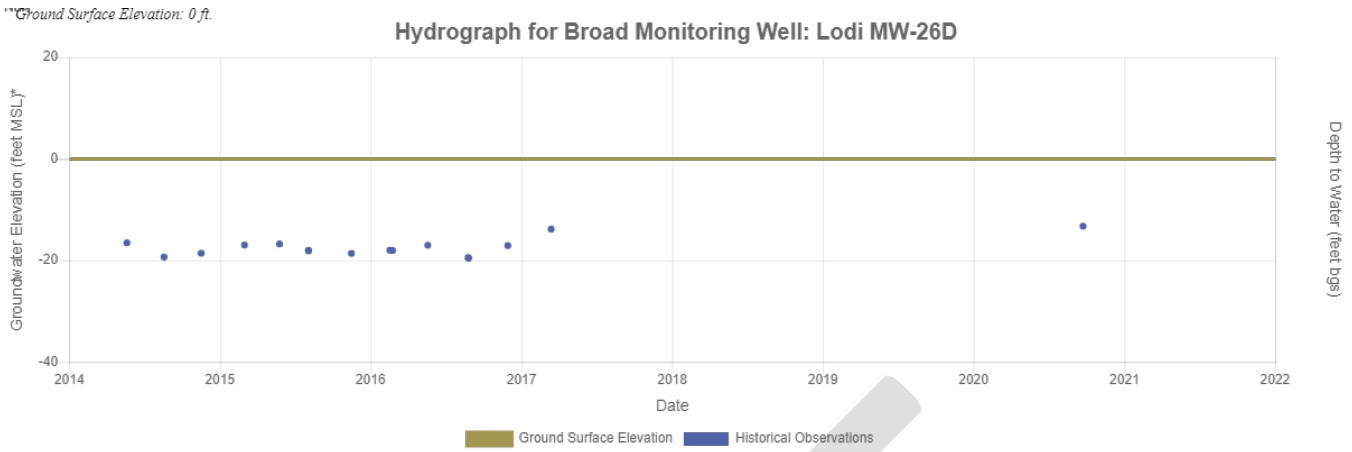


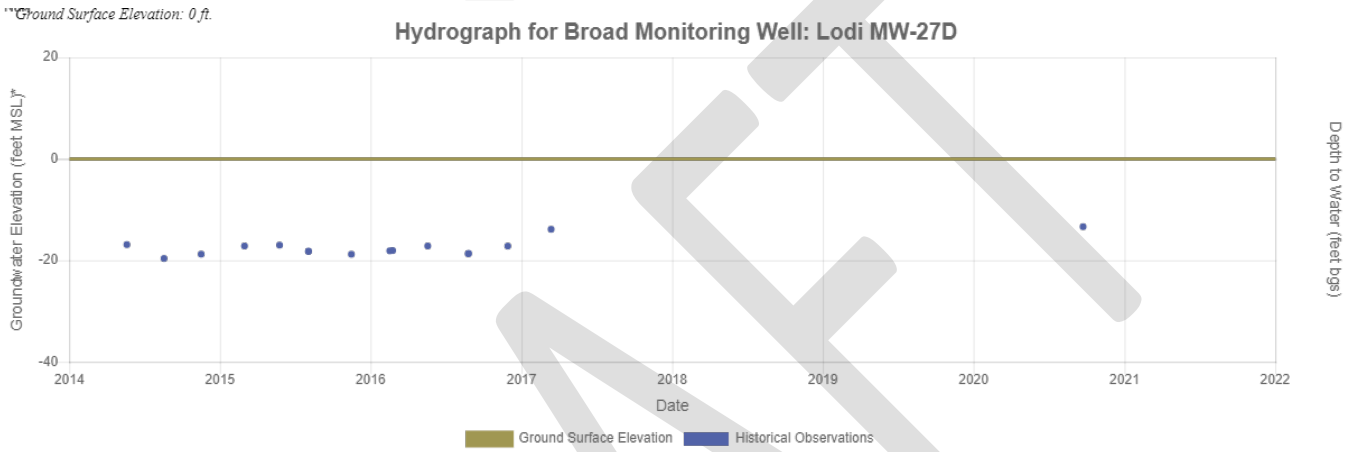
*Ground Surface Elevation: 0 ft.

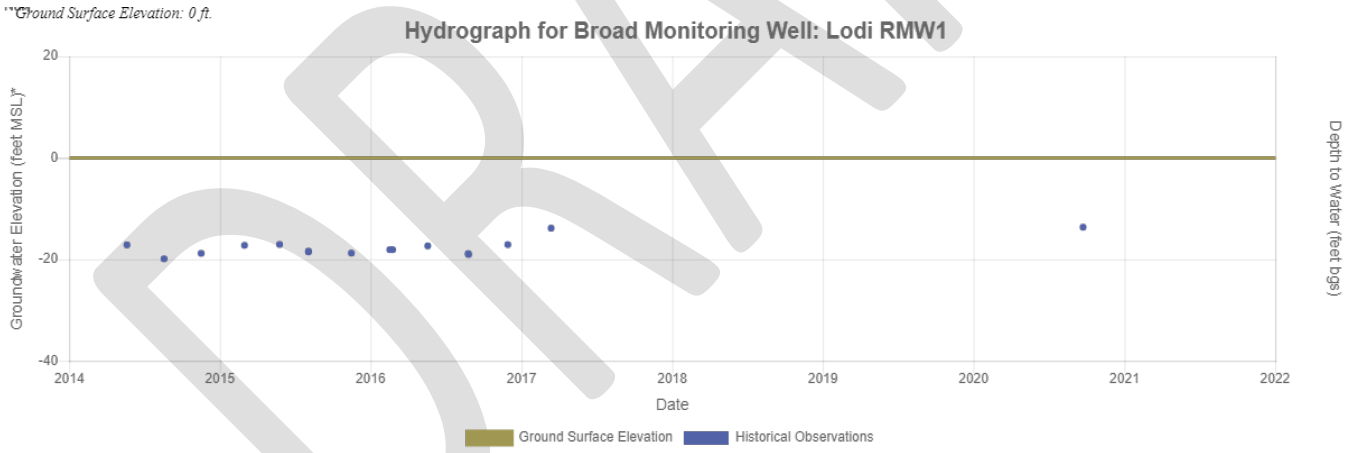


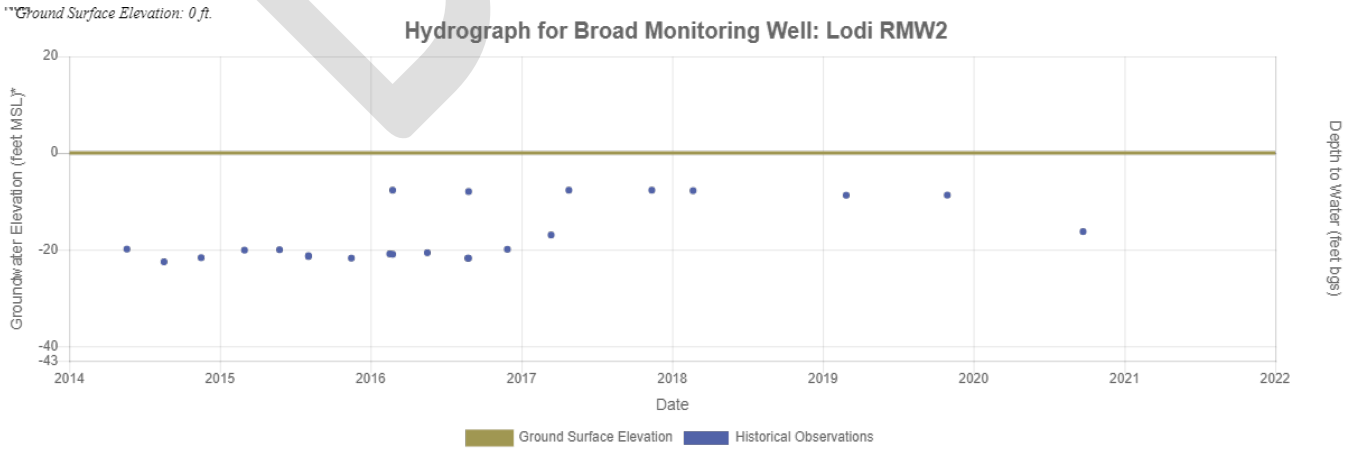
*Ground Surface Elevation: 0 ft.



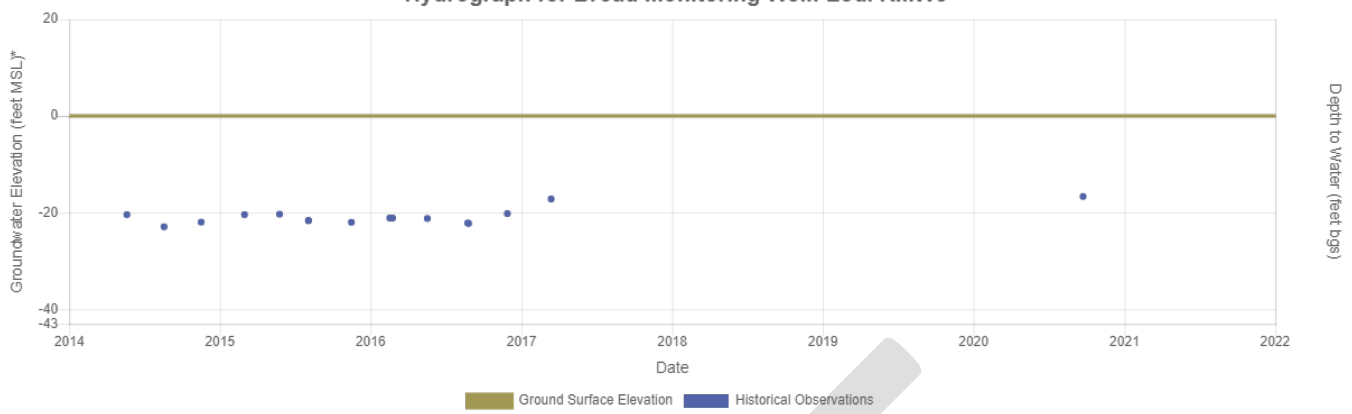

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-26D
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
20
0
-20
-40
2014
2015
2016
2017
2018
2019
2020
2021
2022
Date
Ground Surface Elevation
Historical Observations


*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi MW-27D
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
20
0
-20
-40
2014
2015
2016
2017
2018
2019
2020
2021
2022
Date
Ground Surface Elevation
Historical Observations

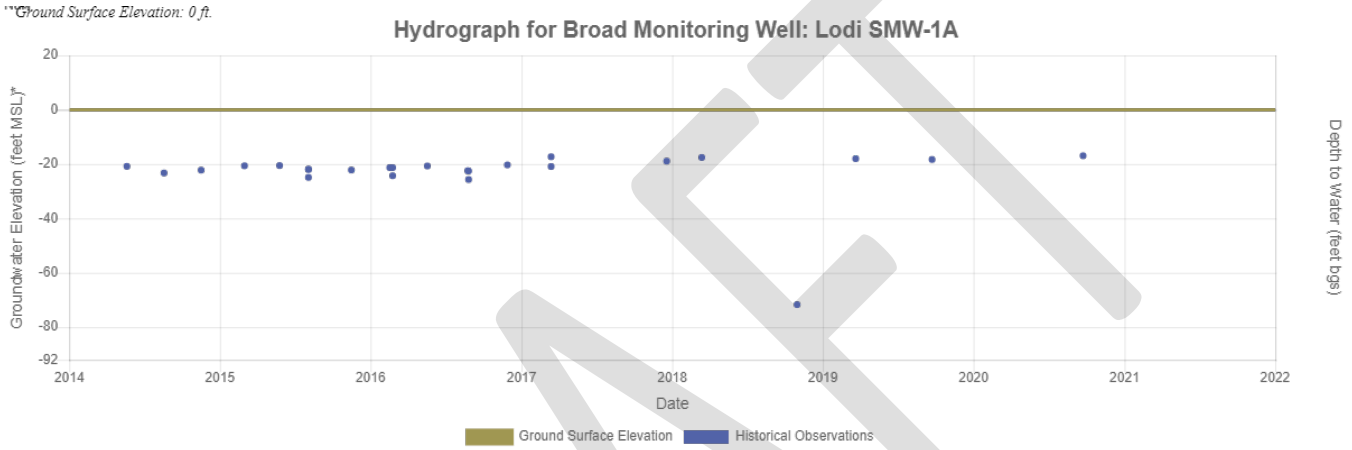

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi RMW1
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
20
0
-20
-40
2014
2015
2016
2017
2018
2019
2020
2021
2022
Date
Ground Surface Elevation
Historical Observations


*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Lodi RMW2
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
20
0
-20
-40
-43
2014
2015
2016
2017
2018
2019
2020
2021
2022
Date
Ground Surface Elevation
Historical Observations

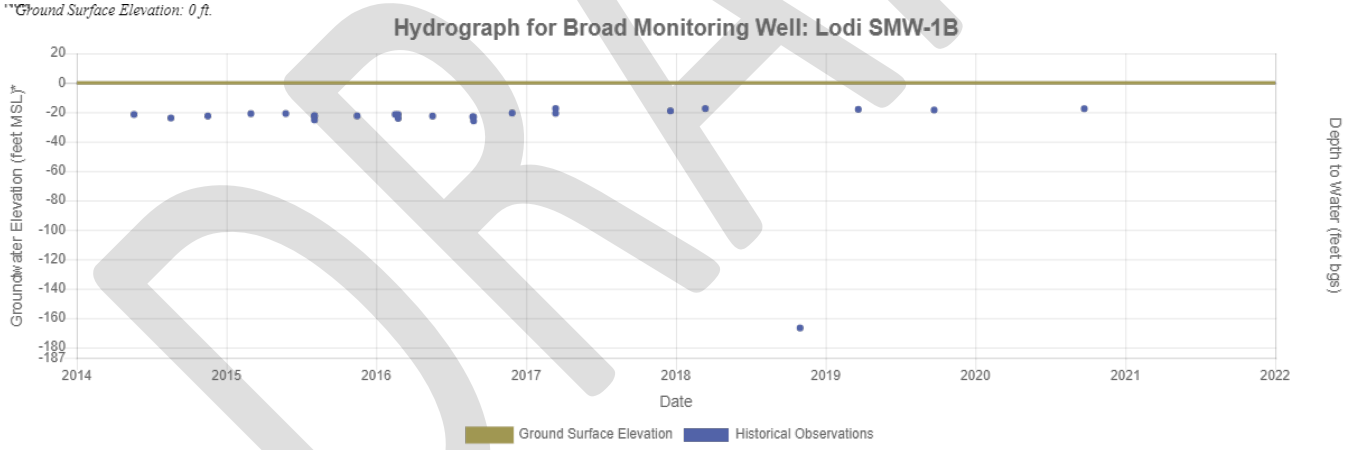
*"Ground Surface Elevation: 0 ft.



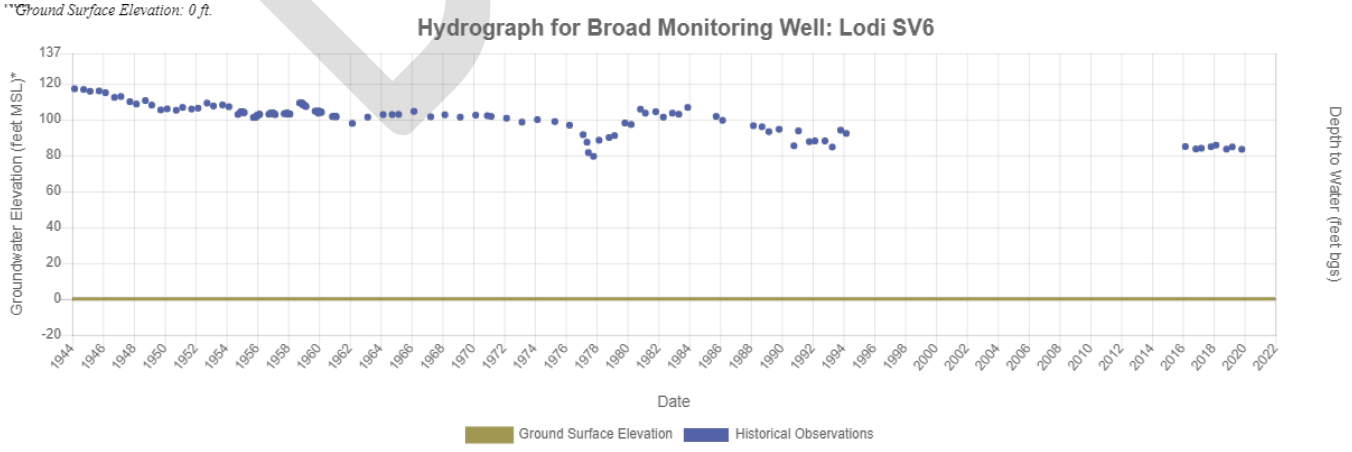
*"Ground Surface Elevation: 0 ft.



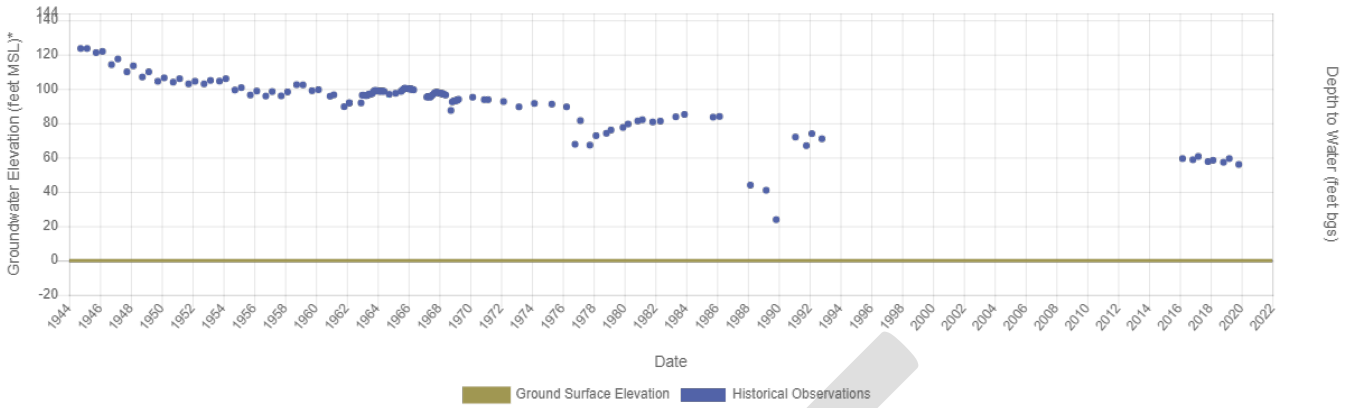
*"Ground Surface Elevation: 0 ft.



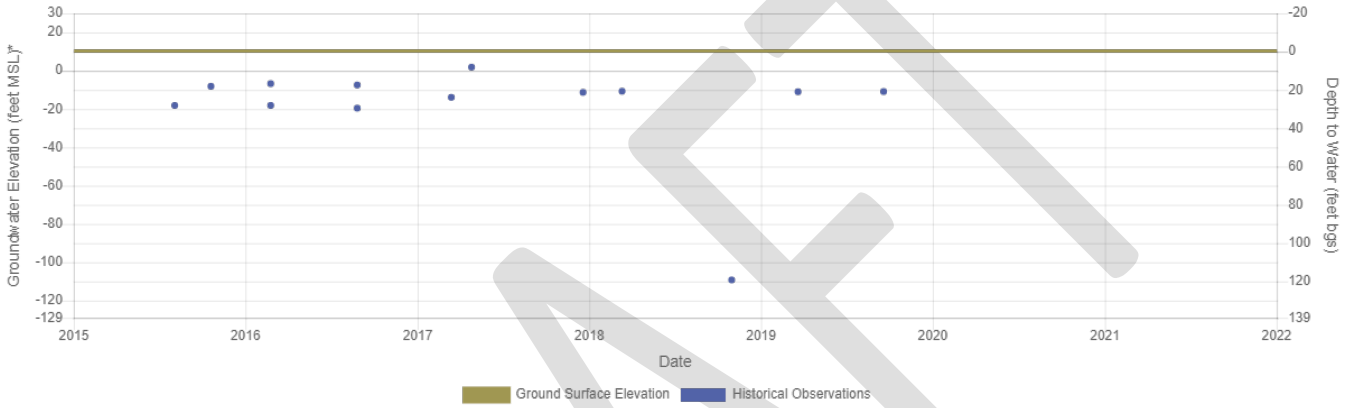
*"Ground Surface Elevation: 0 ft.



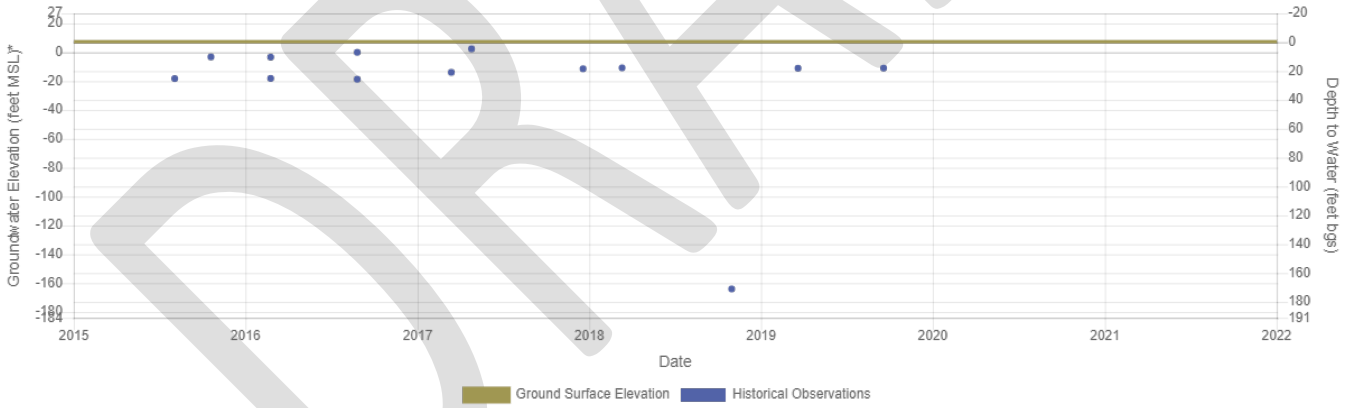
Ground Surface Elevation: 0 ft.



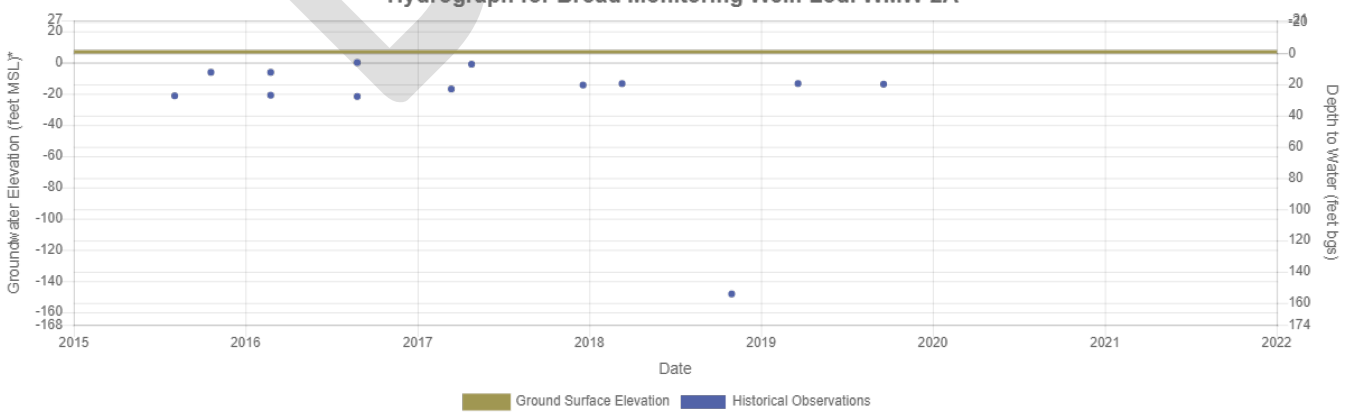
Ground Surface Elevation: 10 ft.



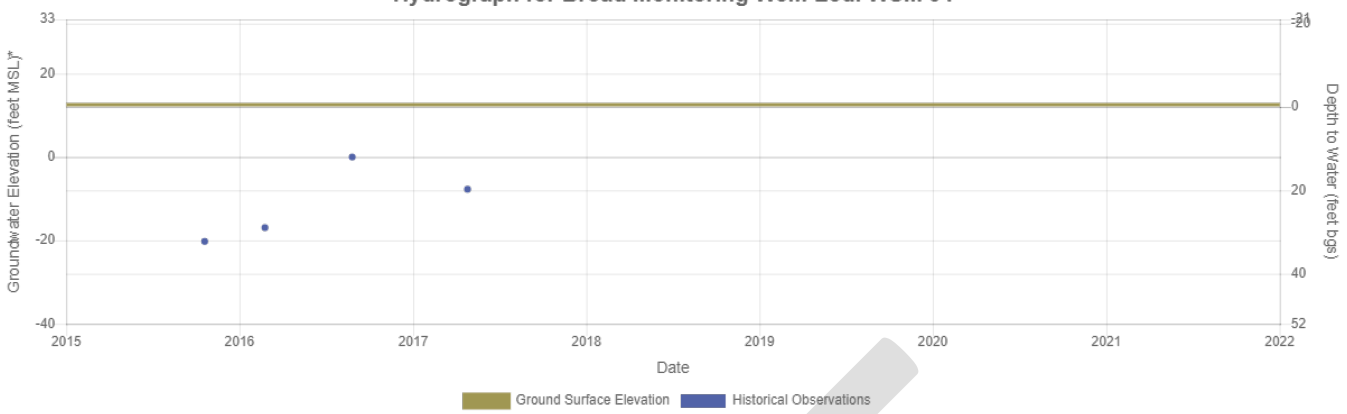
Ground Surface Elevation: 7 ft.



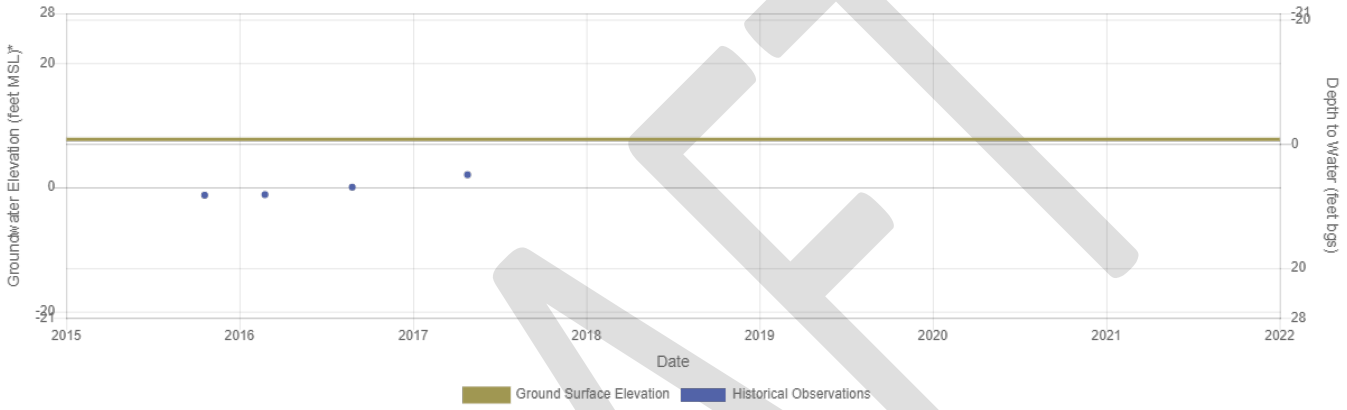
Ground Surface Elevation: 7 ft.



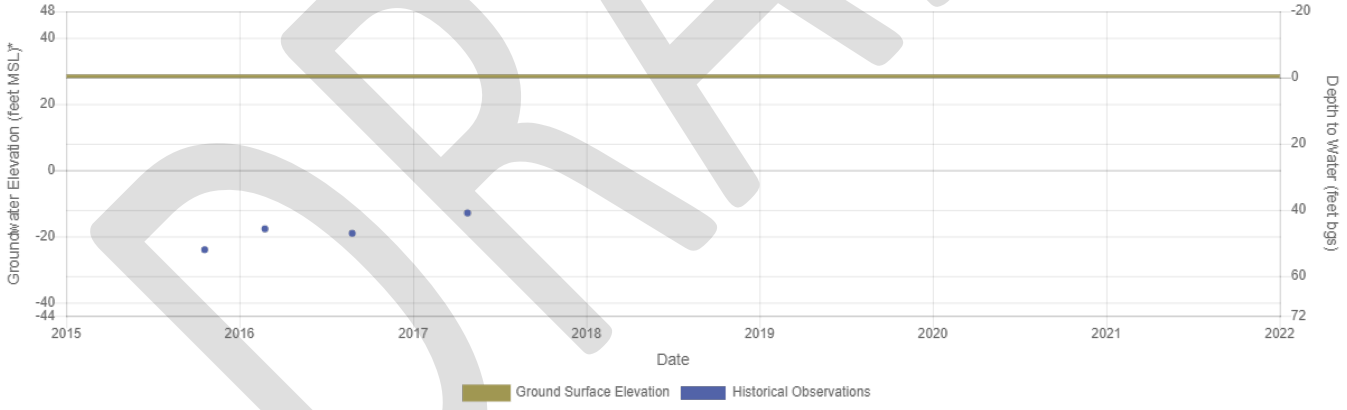
Ground Surface Elevation: 13 ft.



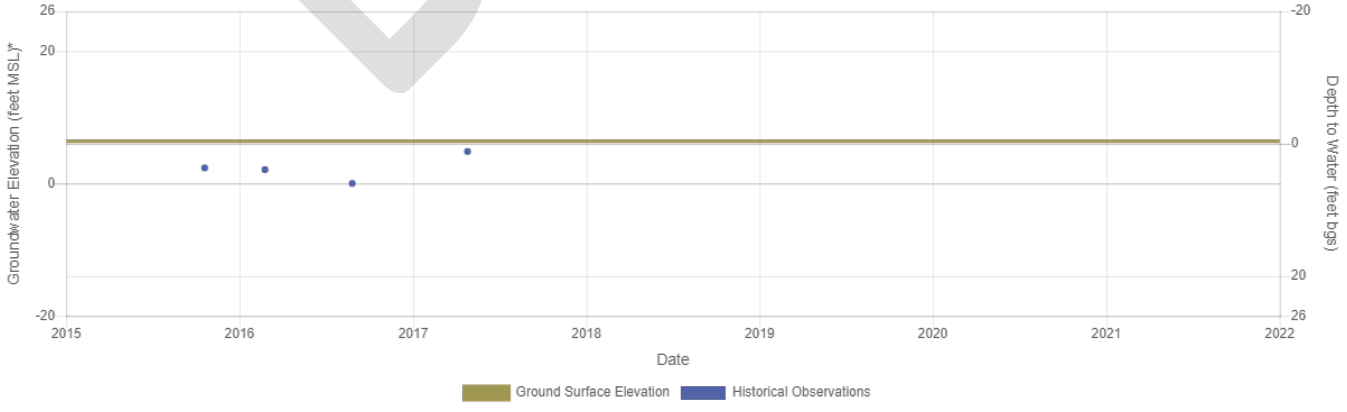
Ground Surface Elevation: 8 ft.



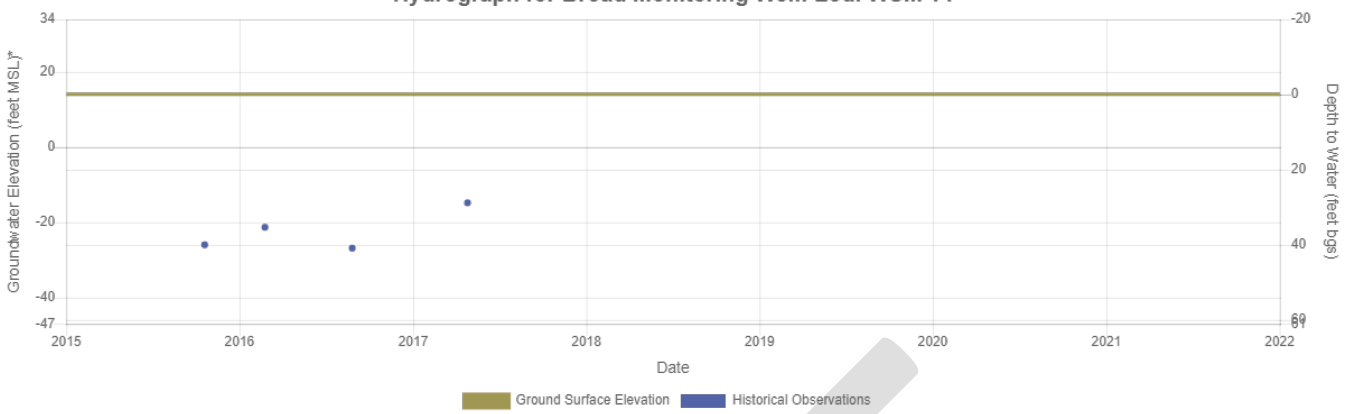
Ground Surface Elevation: 28 ft.



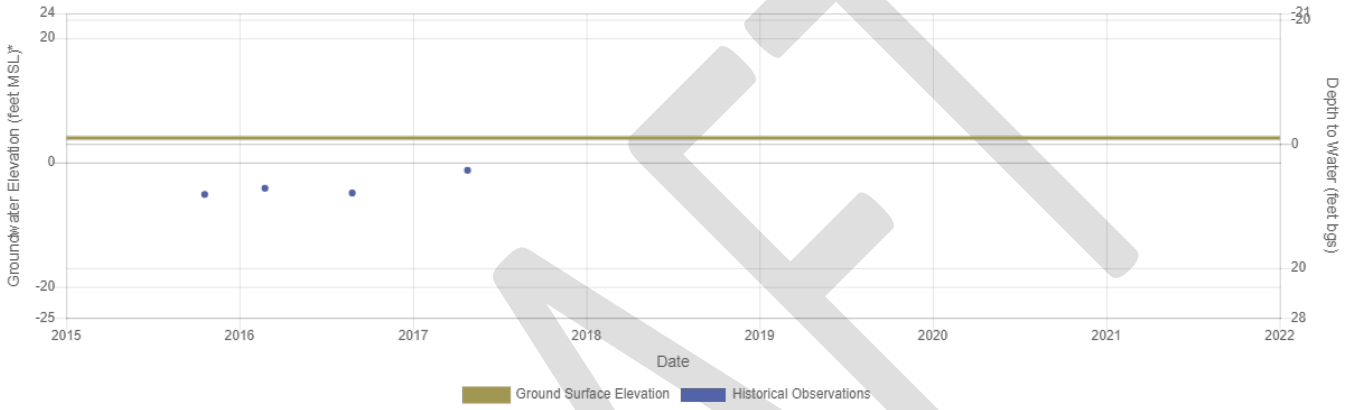
Ground Surface Elevation: 6 ft.



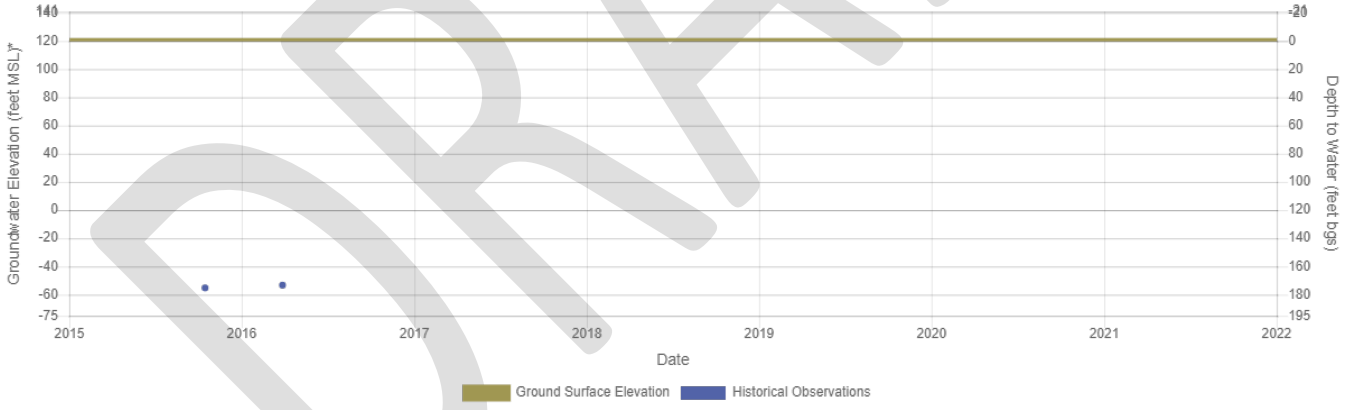
Ground Surface Elevation: 14 ft.



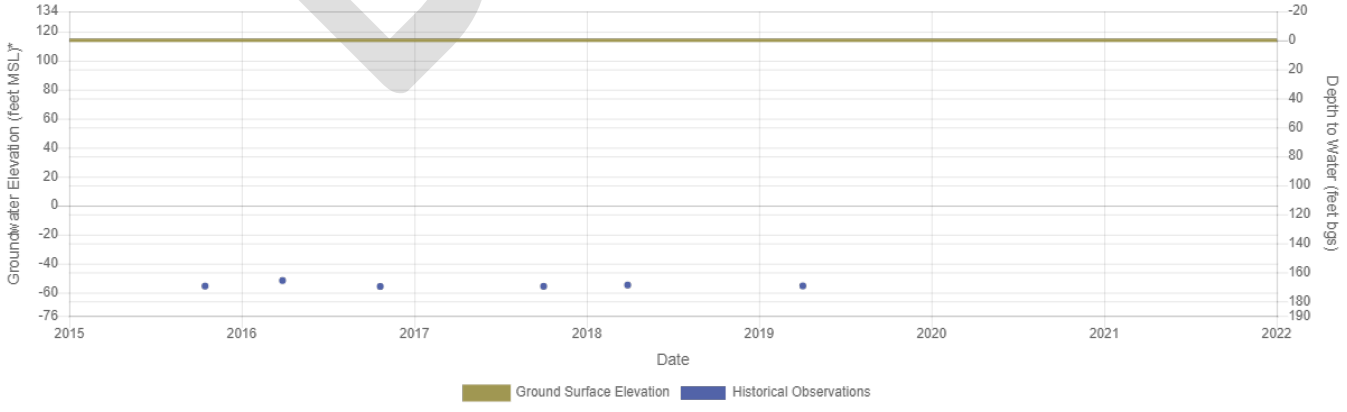
Ground Surface Elevation: 4 ft.

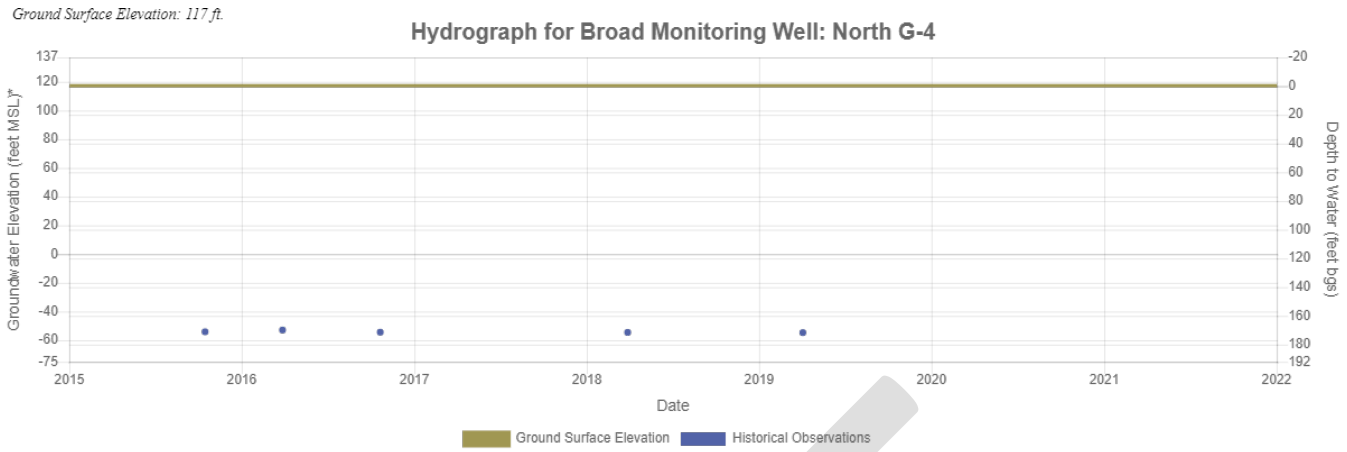


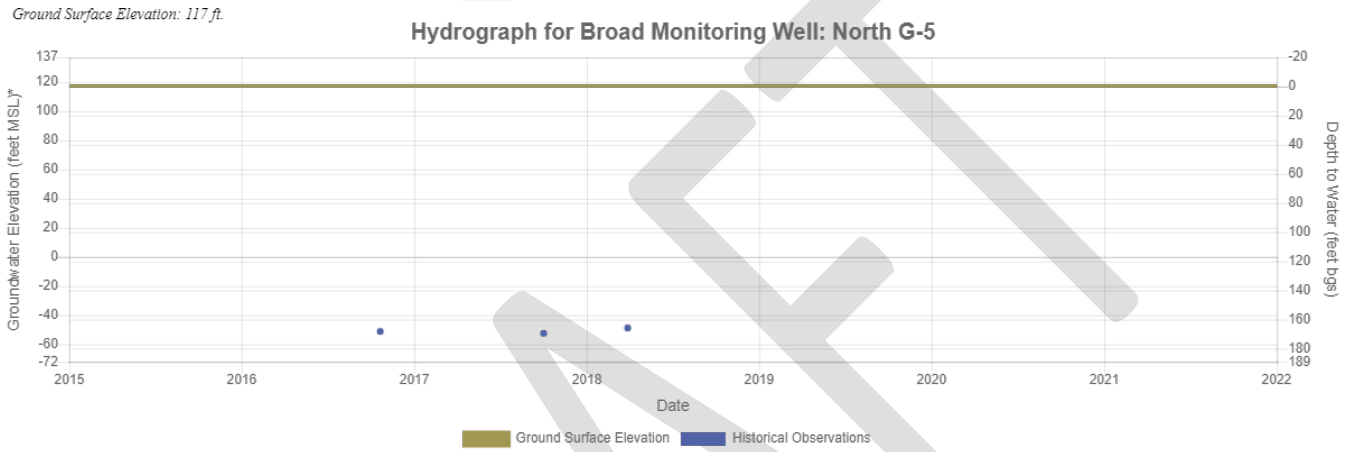
Ground Surface Elevation: 121 ft.

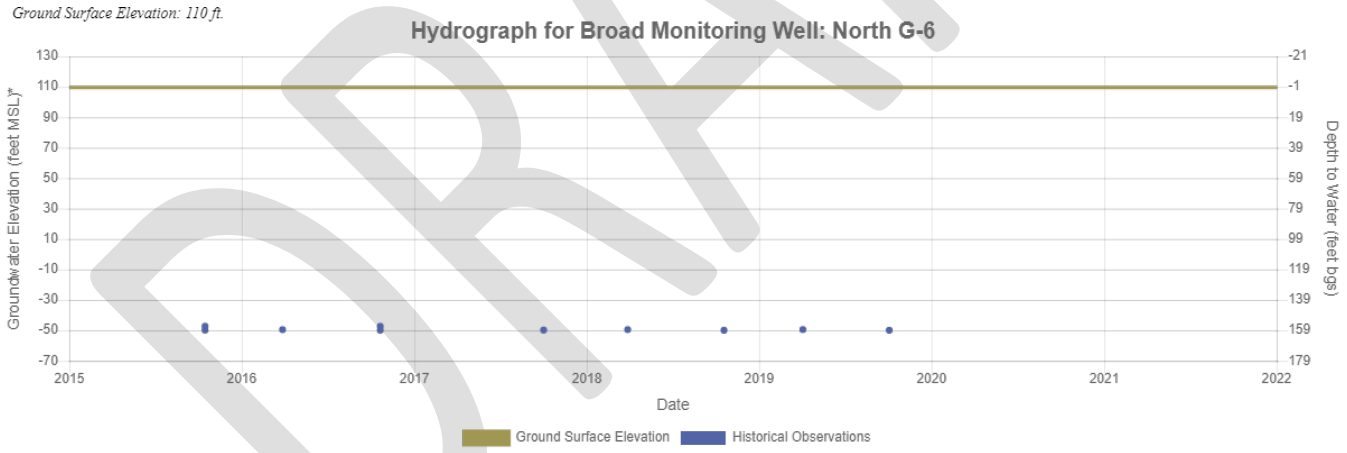


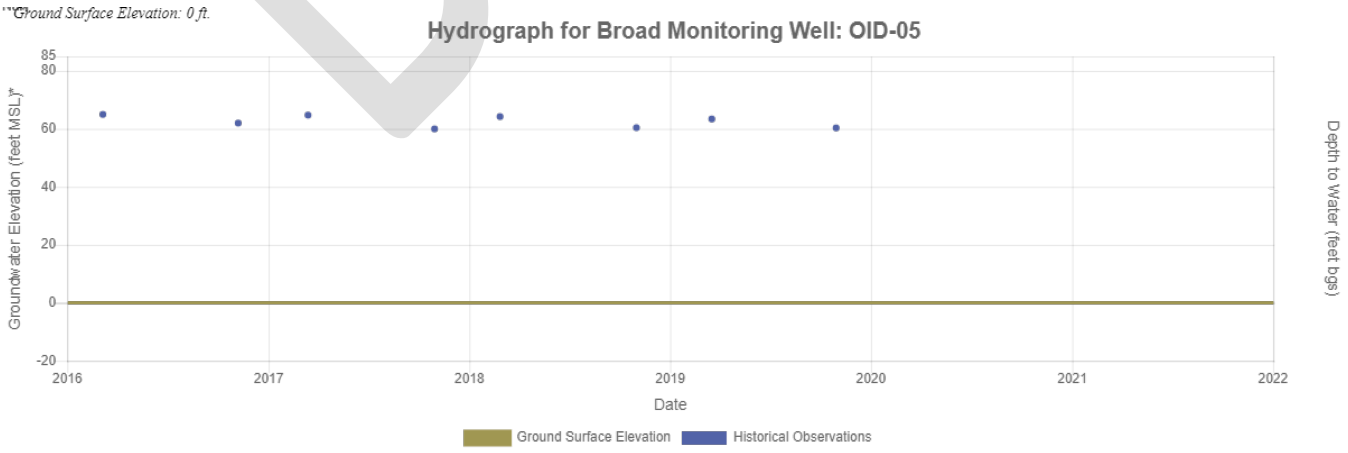
Ground Surface Elevation: 114 ft.

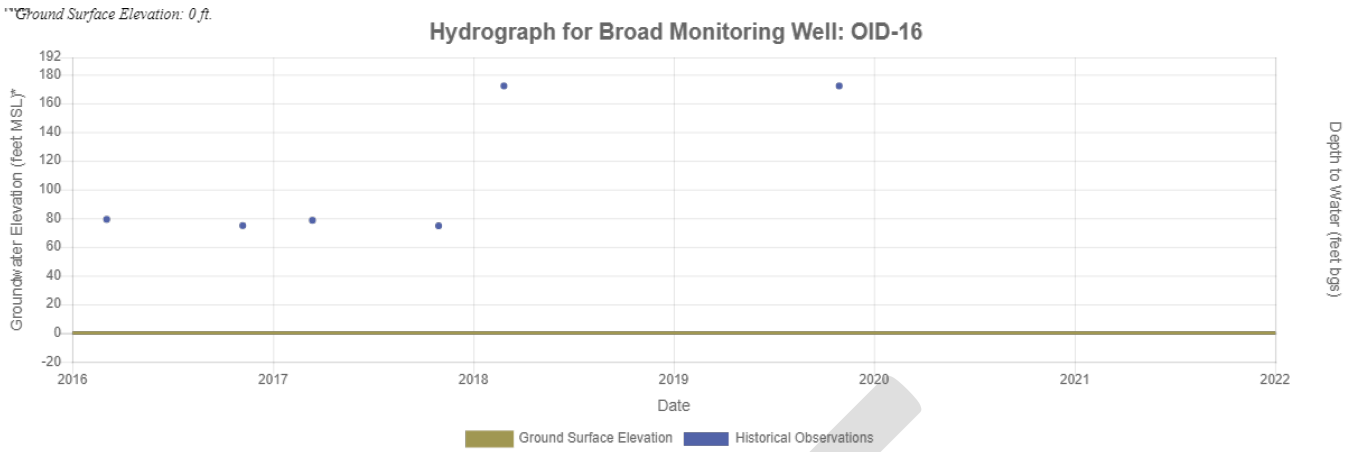


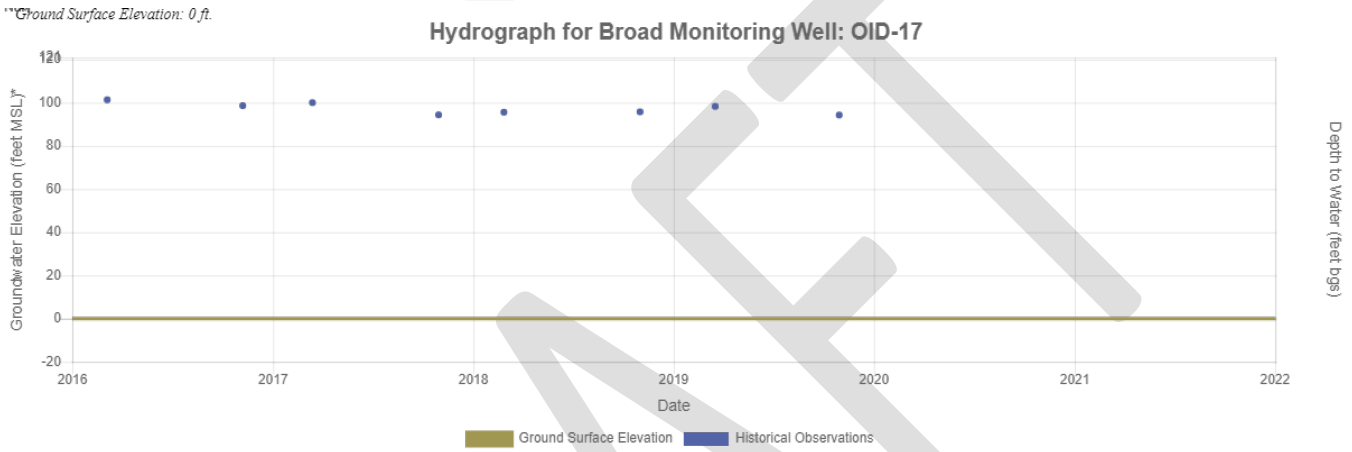

Ground Surface Elevation: 117 ft.
Hydrograph for Broad Monitoring Well: North G-4
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

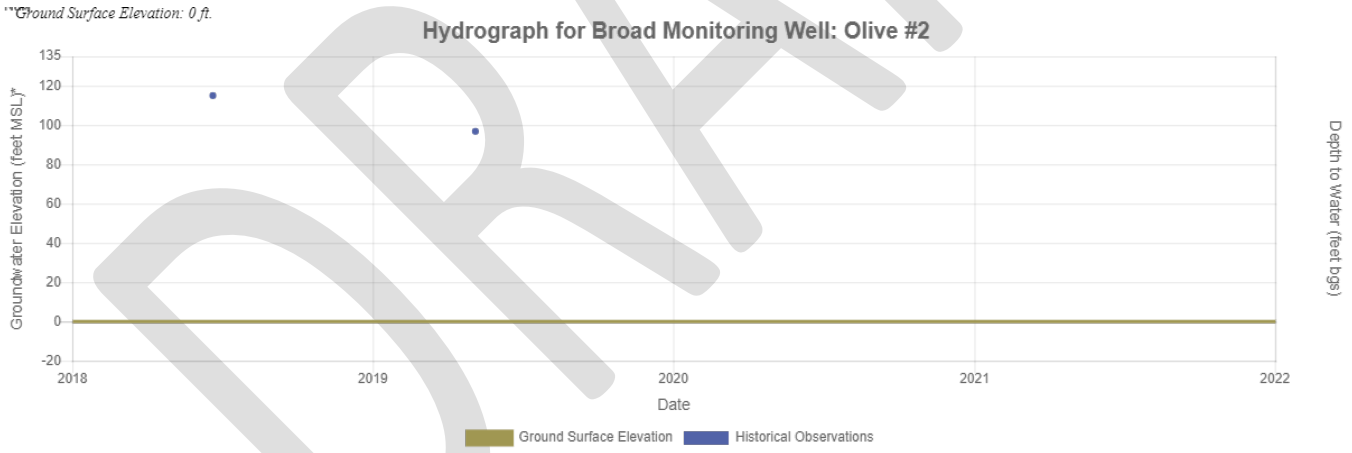

Ground Surface Elevation: 117 ft.
Hydrograph for Broad Monitoring Well: North G-5
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

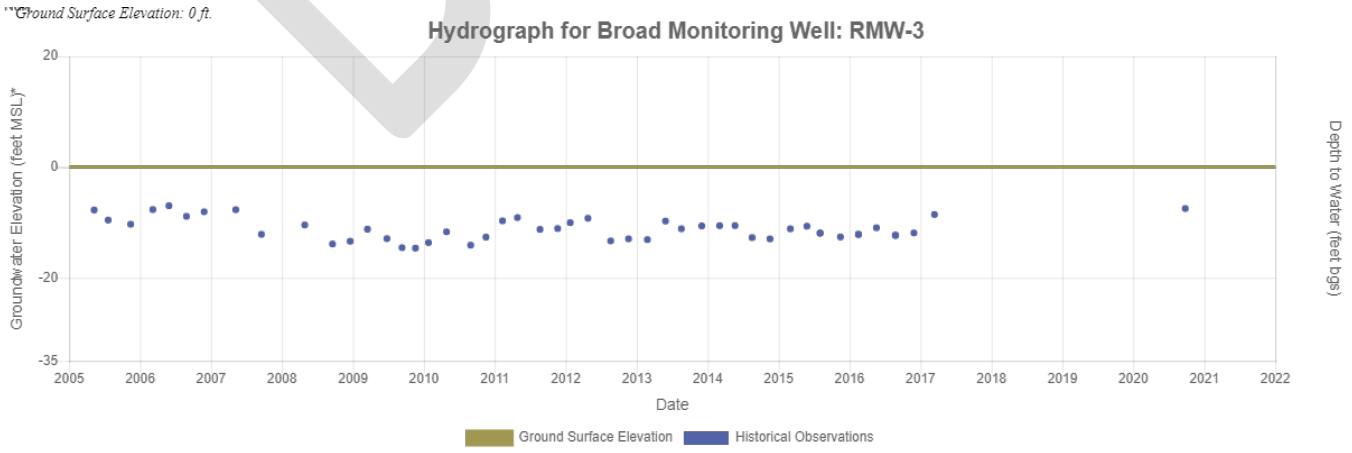

Ground Surface Elevation: 110 ft.
Hydrograph for Broad Monitoring Well: North G-6
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

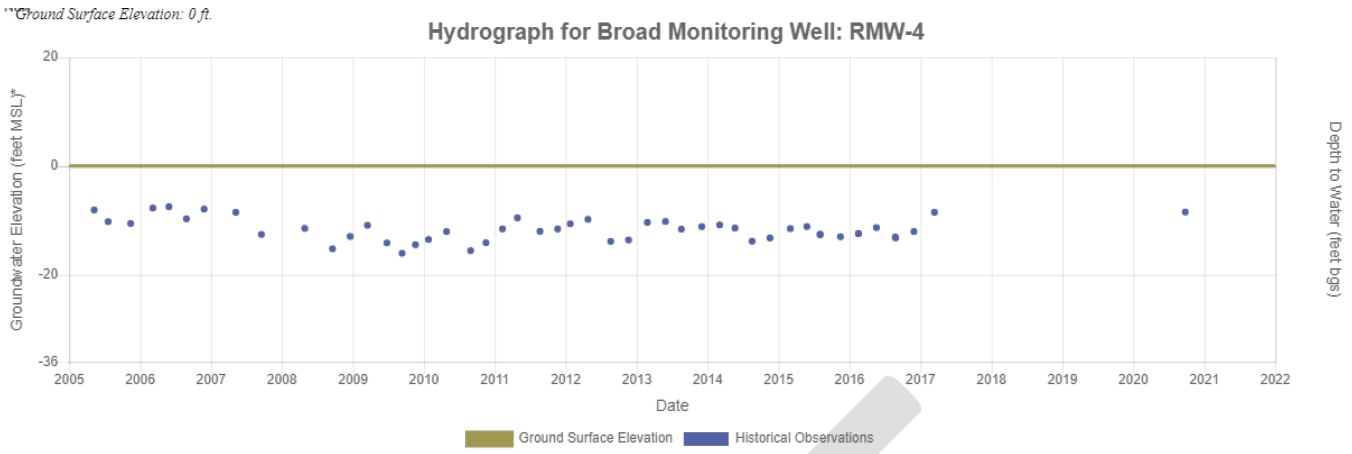

Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: OID-05
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

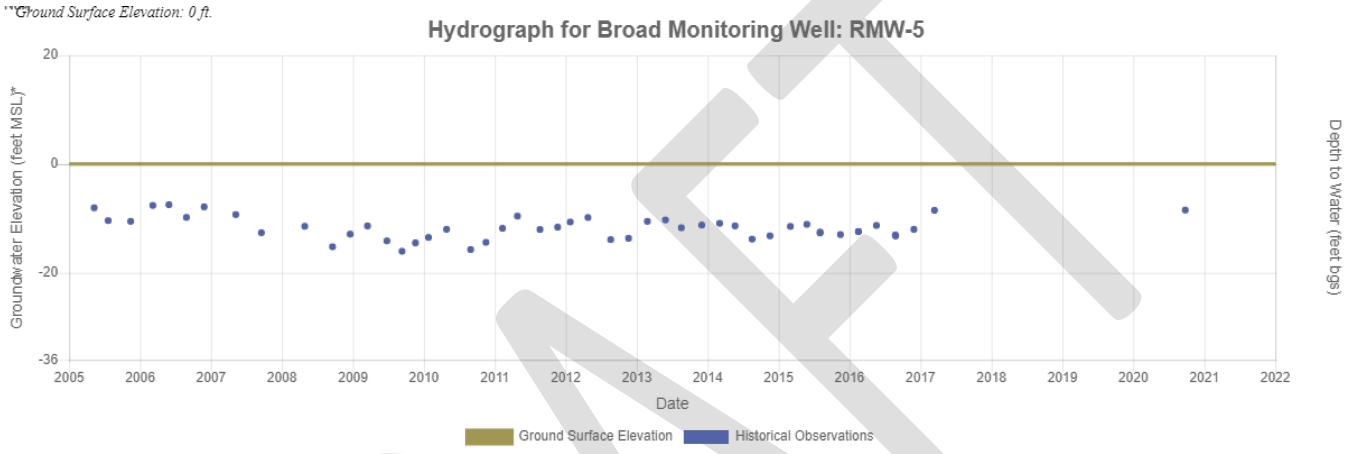

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: OID-16
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

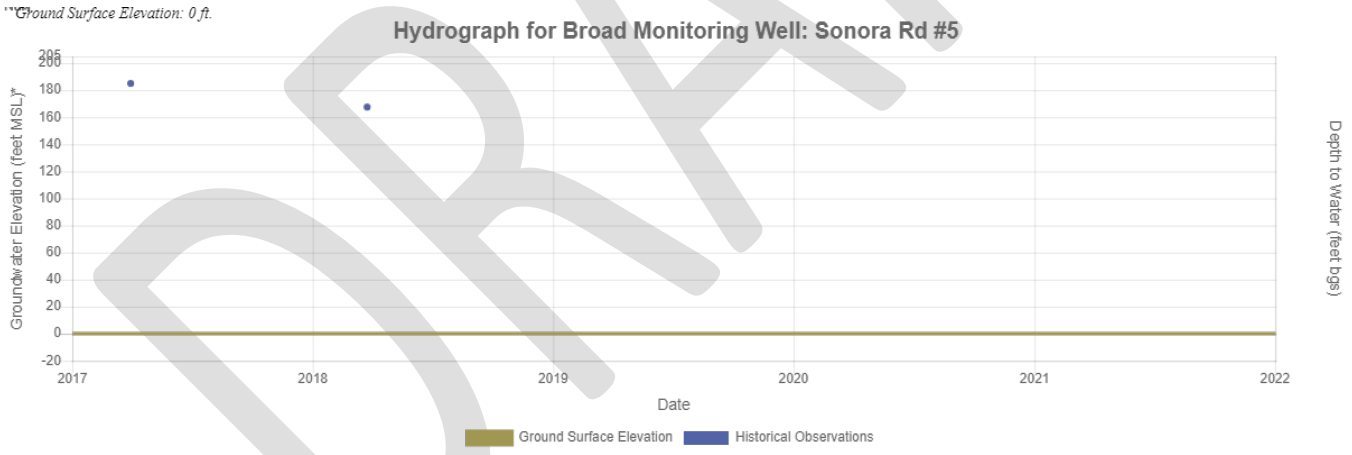

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: OID-17
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

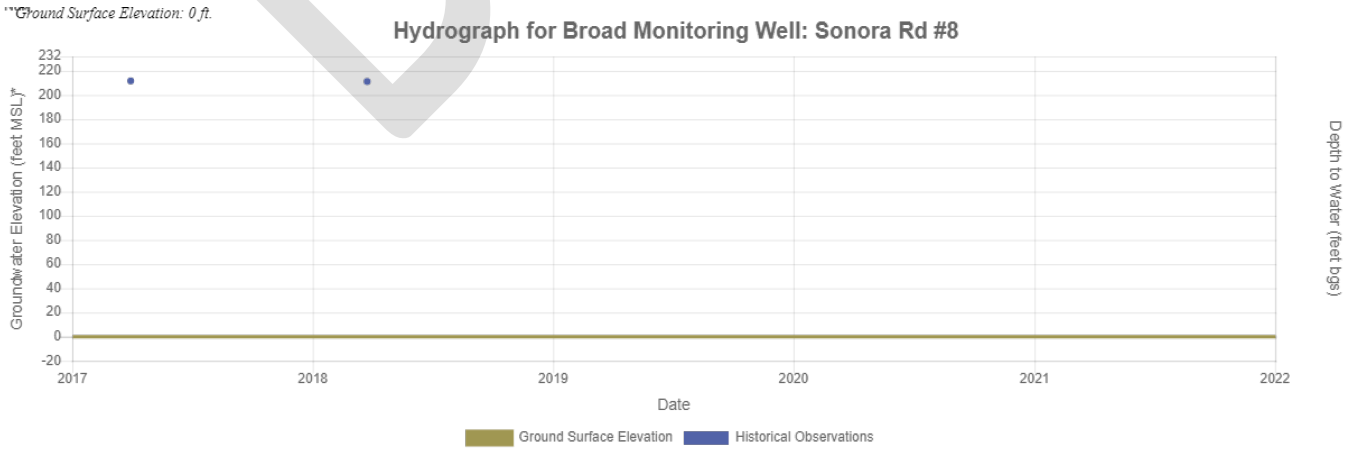

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Olive #2
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

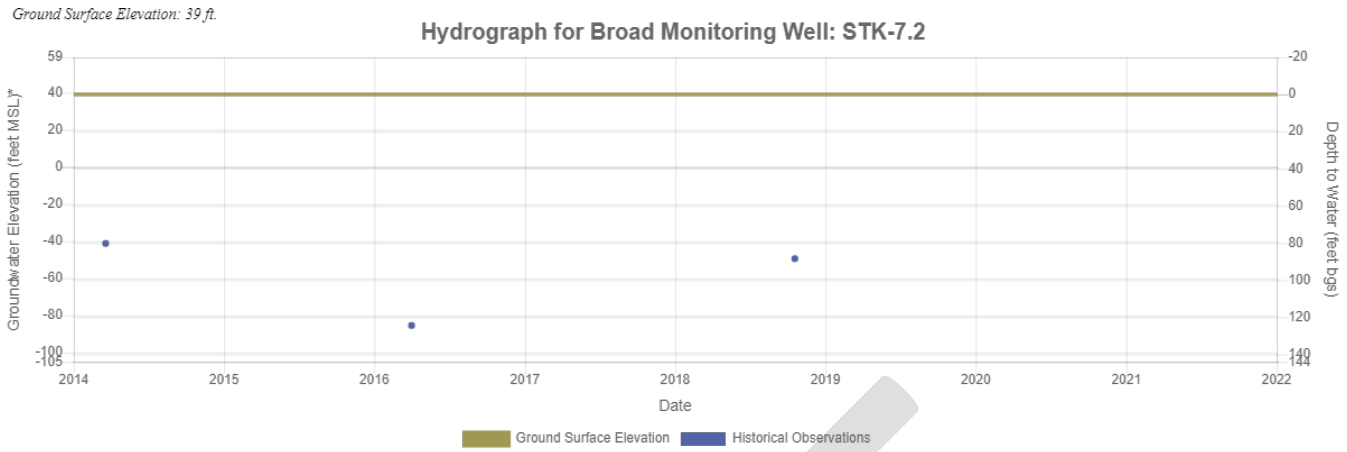

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: RMW-3
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

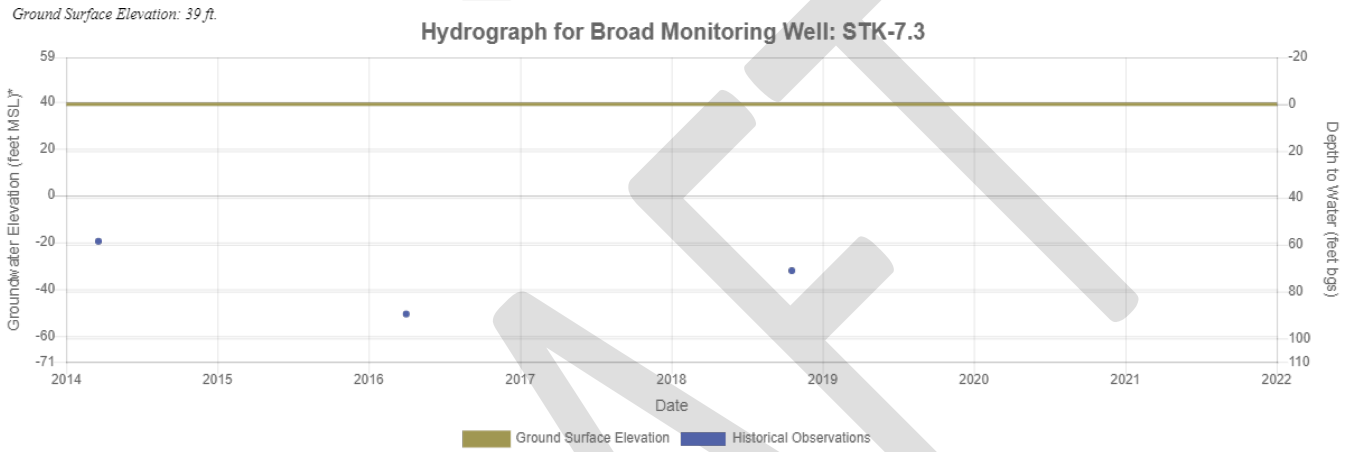

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: RMW-4
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

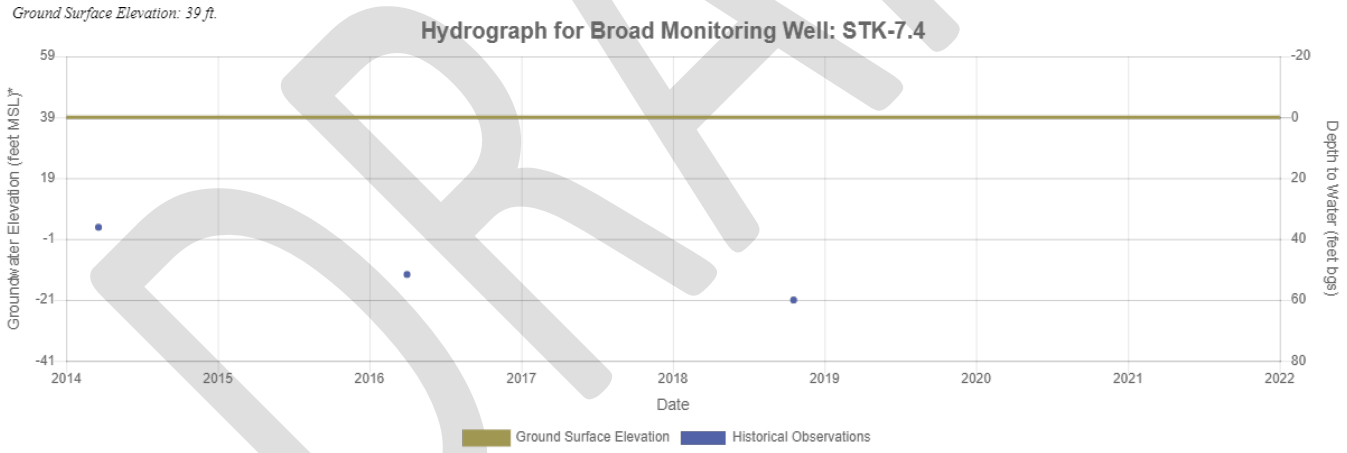

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: RMW-5
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations

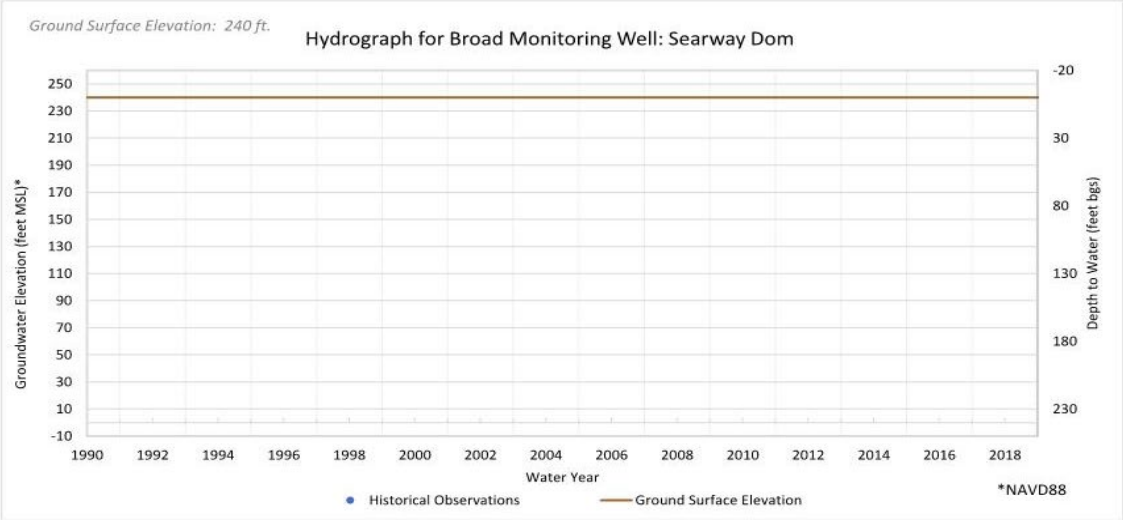

*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Sonora Rd #5
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


*Ground Surface Elevation: 0 ft.
Hydrograph for Broad Monitoring Well: Sonora Rd #8
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 39 ft.
Hydrograph for Broad Monitoring Well: STK-7.2
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 39 ft.
Hydrograph for Broad Monitoring Well: STK-7.3
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 39 ft.
Hydrograph for Broad Monitoring Well: STK-7.4
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
Date
Ground Surface Elevation
Historical Observations


Ground Surface Elevation: 240 ft.
Hydrograph for Broad Monitoring Well: Searway Dom
Groundwater Elevation (feet MSL)*
Depth to Water (feet bgs)
250
230
210
190
170
150
130
110
90
70
50
30
10
-10
-20
30
80
130
180
230
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
2018
Water Year
Historical Observations
Ground Surface Elevation
*NAVD88

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

Staff Report

TO: GWA Board Committee

FROM: Matt Zidar

Date: March 3, 2022

Subject: Proposed Budget Amendment

Attachment: Adopted FY 2021-22 Budget

Summary

The memo is intended to provide the GWA Board with details a staff's proposal to amend the FY 2021-22 budget to reallocate funding between budgeted tasks. This does not include any further charges or assessments but is intended to reflect the Board priority to respond to California Department of Water Resources (DWR) comments, obtain services needed to accomplish that end, and to obtain a DWR finding of adequacy for the Eastern San Joaquin Groundwater Sustainability Plan (GSP).

Background and Discussion

Per SGMA statute, DWR provided comments on the GSP on January 28, 2022, kicking off a 180-day GWA response period. The GWA now has until July 27, 2022, to respond to DWR comments and amend the plan so that DWR deems it adequate. In February 2022, the Board directed that the TAC be expanded and that a Legal/Policy Committee be convened to help develop the response to DWR comments. Consultant support is needed to help the GWA Board and committees in formulating responses to DWR.

Comments received at the February Board meeting indicated that the primary GWA goal is to get an GSP approved as adequate by DWR. Thus, the Board priority is to direct focus to the DWR response rather than moving forward with the Basin Accounting Framework effort at this time. The contract for Basin Accounting Framework has not been assigned and the budgeted money for this is available for reallocation to support the DWR response.

Budget Amendment

The following paragraphs and tables outline proposed 2021-2022 GWA budget adjustments to reallocate funding between line items with no increase in the overall budget. They also describe the assignment of a sixth Task Order (TO) under Agreement A-20-1 between Woodard & Currant and the GWA. The GWA budget was amended December 2021. The original adopted and the December amended budgets are shown in **Attachment A** to this staff report.

The reallocation of budget requires GWA Board approval. It recommended that the Board amend the budget to reallocate $100,000 from the 'Basin Accounting Framework' to the 'Response to DWR Comments', and that this work be assigned to Woodard & Curran under a new Task Order No. 6 to the Master Agreement A-20-1. Once the reallocation is approved, the GWA Secretary can issue the Task Order.

1. Budget Amendment to Reallocate Funds

The recommended action would amend the GWA budget as follows by reallocating funding between line items. There is no proposed increase in the total budget or fees to member GSAs. No reserves are to be apportioned.

Table A- Funds to be reallocated between budget line items

Line Item	December 2021 Amended Budget	Proposed Incr/Decr	Adjusted Total
Response to DWR Comments	$25,000	$100,000	$125,000
Water Accounting Framework and Funding & Financing	$200,000	($100,000)	$100,000

2. Addition of Task Order No. 6 to Agreement A-20-1 (Woodard and Curran)

The recommended action would assign addition work to WC through issuance of Task Order (TO) 6 for $100,000 on a time and materials basis for the following work:

- Help the GWA Board and committees to formulate responses to DWR comments
- Develop work plans based on DWR comments
- Analyze technical data and prepare technical memorandum or briefings
- Attend GWA and Committee (Steering, TAC, Legal/Policy) meetings
- Coordinate, amend and edit the GSP.

All work would need to be completed by July 27, 2022. The TO 6 is shown in grey below. The total not-to-exceed amount of the contract is as indicated in the table.

Table B- Woodard & Curran Task Orders under Master Agreement A-20-1

Table 1- Professional Services (WC A-20-01)	**Task Order Amount**	**A-20-1 Contract NTE**
A-20-1 Original (TO 1). 2020 Annual Report, GWA support	$162,000	$162,000
TO 2 DMS Implementation, Monitoring Network Expansion & Well Drilling 1 (Engineering)	$275,000	$437,000
TO 3 2021 Annual Report	$49,924	$486,924
TO 4 Model Develop & Support	$130,000	$616,924
TO 5 GSP Implementation Services	**$90,000**	$706,924
TO 6 Support to GWA for Responding to DWR Comment [1]	**$100,000**	$806,924

[1] TO 5 included $25,000 to Respond to DWR comments. The further allocation of $100,000 brings the total to $125,000 for this work.

Staff Recommendation

It is recommended that the Board amend the Budget to allocate funds between line items as indicated in Table A.

BEFORE THE BOARD OF DIRECTORS OF
THE EASTERN SAN JOAQUIN
GROUNDWATER AUTHORITY

RESOLUTION R-22-XX

RESOLUTION AMENDING THE 2021-2022 BUDGET
AND AUTHORIZING TASK ORDER NO 6 TO
AGREEMENT A- 20- 1

WHEREAS, the Eastern San Joaquin Groundwater Authority (GWA) is a Joint Powers Agency (JPA) created pursuant to California statute, and which is a public entity separate and apart from the Members; and

WHEREAS, Section 5.1 and Section 5.5 of the JPA Agreement provides that the GWA Board of Directors shall adopt a budget for the GWA for each fiscal year; and

WHEREAS, on December 8, 2021, the GWA Board of Directors amended the 2021-2022budget (R-21-02) which included appropriations totaling $1,077,800 **(Exhibit A)**; and

WHEREAS, a budget adjustment is recommended to reallocate fund between budgeted line items to allow for work not anticipated in the 2021-2022 budget because DWR comments on the Eastern San Joaquin Groundwater Sustainability Plan were not known; and

WHEREAS, DWR comments were received on January 28, 2022, initiating a 180-day response time and a response due date of July 27, 2022;

WHEREAS a budget adjustment is needed to reallocate monies and authorize a sixth task order to Agreement A-20-1 for professional services to assist with the response to DWR comments; and

WHEREAS the Secretary of the GWA, is authorized by GWA Resolution R-22-## to approve expenditures and execute contracts within the designations and limitations of the approved ESJGWA budget that are made in consultation and with concurrence of the Steering Committee and/or Board.

NOW, THEREFORE, BE IT RESOLVED: The GWA Board of Directors hereby approves reallocating funds between line items with no increase in the overall budget; moving the amount of $100,000 from the line item for Water Accounting Framework and Funding & Financing to the line item 'Response to DWR Comments';

BE IT FURTHER RESOLVED: The GWA Secretary is authorized to negotiate and secure Task Order No. 6 to Agreement A-20-1 between Woodard & Curran and the East San Joaquin Groundwater Authority in the additional amount of $100,000 for support in responding to DWR comments.

PASSED AND ADOPTED this 9th day of March 2021, by the following vote of the Board of Directors of the Eastern San Joaquin Groundwater Authority, to wit:

AYES:

NOES:

ABSENT:

_____	_____
CHUCK WINN Chairman, Board of Directors Eastern San Joaquin Groundwater Authority	ATTEST: KRIS BALAJI, PMP. P.E. Secretary, Board of Directors Eastern San Joaquin Groundwater Authority

Attachment A to Staff Report

Eastern San Joaquin Groundwater Authority
Fund 21451
2021-2022 Amended Budget

	Adopted (R-21-02)			Proposed (Amended)			
	FY 21-22	6221100802		FY 21-22	6221100802		
Revenue	**Contract /ODC**	**Staff**	**Total**	**Contract /ODC**	**Staff**	**Total**	
GWA GSAs Cost Allocation	$ 325,000		**$ 325,000**	$ 325,000		**$ 325,000**	
Other Govt Aid From Zone 2	$ 225,000		**$ 225,000**	$ 225,000		**$ 225,000**	
State (DWR) Sustainable GW Grant (Well)	$ 175,000		**$ 175,000**	$ 175,000		**$ 175,000**	
P68 Implementation Grant (WAF & FF)	$ 225,000		**$ 225,000**	$ 225,000		**$ 225,000**	
Carry Over (use of fund balance)	$ 100,000		**$ 100,000**	$ 100,000		**$ 100,000**	
Allocated from FY 20/21 Reserve	$ 130,000		**$ 130,000**	$ 130,000		**$ 130,000**	
TOTAL REVENUES	**$ 1,180,000**		**$ 1,180,000**	**$ 1,180,000**		**$ 1,180,000**	
Expense							
General Office Supplies	$ 500		**$ 500**	$ 500		**$ 500**	
Office Expense	$ 500		**$ 500**	$ 500		**$ 500**	
Website Maintenance	$ 5,000		**$ 5,000**	$ 5,000		**$ 5,000**	
Rents Structures & Grounds	$ 4,800		**$ 4,800**	$ 4,800		**$ 4,800**	
Postage	$ 1,000		**$ 1,000**	$ 1,000		**$ 1,000**	
Auditor's Payroll & A/P Charges	$ 1,000		**$ 1,000**	$ 1,000		**$ 1,000**	
Professional Services PW Admin		$ 15,000	**$ 15,000**		$ 15,000	**$ 15,000**	
Professional Services Public Outreach	$ 15,000	$ 15,000	**$ 30,000**	$ 15,000	$ 15,000	**$ 30,000**	
Professional Services GWA Support/Coordination		$ 25,000	**$ 25,000**		$ 25,000	**$ 25,000**	
Special Studies & Reports			**$ -**			**$ -**	
WaterSMART Applied Science 2021	$ 12,500	$ 7,500	**$ 20,000**	$ 12,500	$ 7,500	**$ 20,000**	
Response to DWR Review (WC TO 5)	**$ 50,000**	$ 15,000	**$ 65,000**	**$ 25,000**	$ 15,000	**$ 40,000**	**
2022 Annual Report (WC TO 5)	$ 40,000	$ 7,500	**$ 47,500**	$ 40,000	$ 7,500	**$ 47,500**	
Project Development: FIRO/FloodMAR/GRAT		$ 7,500	**$ 7,500**		$ 7,500	**$ 7,500**	
Grants and Matching Fund Support	$ -	$ 10,000	**$ 10,000**	$ -	$ 10,000	**$ 10,000**	
Professional Services (WC A-18-01) Shallow Wells	$ 175,000		**$ 175,000**	$ 175,000		**$ 175,000**	
(P 68, TO2) DMS Implementation		$ 20,000	**$ 20,000**		$ 20,000	**$ 20,000**	
(P 68, TO2) Monitoring Network Expansion Engineering		$ 7,500	**$ 7,500**		$ 7,500	**$ 7,500**	
(P68, No TO) Monitoring Network Expansion Drilling	$ 175,000	$ 10,000	**$ 185,000**	$ 175,000	$ 10,000	**$ 185,000**	
TO 4 Model Devel & Support	$ 130,000		**$ 130,000**	$ 130,000		**$ 130,000**	
Basin Accounting Framework & Funding and Financing (P68 Impl Grant) (David's 175K Agreeement& WC TO 5 - $25K)	**$ 75,000**	$ 7,500	**$ 82,500**	**$ 200,000**	$ 7,500	**$ 207,500**	**
County Counsel Legal Services	$ 5,000		**$ 5,000**	$ 5,000		**$ 5,000**	
Professional Services Counsel	$ 40,000		**$ 40,000**	$ 40,000		**$ 40,000**	
Reserve- dedication of carry over	$ 100,000			$ 100,000		**$ 100,000**	*
Reserve Costs ($50K model, $150K GSP update)	$ 200,000		**$ 200,000**	$ 100,000		**$ 100,000**	**
TOTAL EXPENSES	**$ 1,030,300**	**$ 147,500**	**$ 1,077,800**	**$ 1,030,300**	**$ 147,500**	**$ 1,177,800**	*

		Reserve Balance FY 21/22			Reserve Balance FY 21/22	
Reserve 20/21		$200,000			$200,000	
FY 20/21, Allocated to TO4 model		$130,000			$130,000	
Reserve Balance at end of 2021		$ 70,000			$ 70,000	
FY 21/22 Reserve Contribution		$200,000	$ 270,000		$100,000	$ 170,000 *
Estimated Carry over bal to Reserve		$100,000	$ 370,000		$100,000	$ 270,000 *

* = Appropriation Adjustment
** = Allocation Adjustment

February 2022 DWR Updates (from DWR's North Central Region Office)

Grants

California Grants Portal

The California State Library, in partnership with the Department of Water Resources and other state grantmaking agencies, has launched the California Grants Portal – your one destination to find all state grant and loan opportunities provided on a first-come or competitive basis. Visit grants.ca.gov to find funding opportunities for you and your community.

DWR: DRAFT 2022 IRWM Grant Program Guidelines and Proposal Solicitation Package

We are pleased to announce the release of the DRAFT 2022 IRWM Grant Program Guidelines and Proposal Solicitation Package (GL/PSP) for the Proposition 1 - Round 2 IRWM Implementation. This solicitation will make **approximately $192 million** in grant funding available for IRWM implementation projects. ***Please note that the draft identifies a March 2022 deadline for Cycle 1 as originally proposed in early 2021. DWR will update this deadline to later in 2022 in the final Proposal Solicitation Package based on the public comments collected.*** For more information on the Proposition 1 IRWM Implementation Grant Program, visit Implementation Grant Program or e-mail us at: dwr_irwm@water.ca.gov. The final solicitation documents are expected to be released in April 2022.

DWR Has updated its Underrepresented Technical Assistance Grant Program Webpage

The webpage can be accessed here and includes heat maps showing the priority of census blocks for SGMA-related technical assistance services (priorities range from low (white) to high (purple)), communication and engagement plans, needs assessment survey, technical summary of the prioritization process, and a graphic illustrating the prioritization process. Local entities will be able to request Underrepresented Communities Technical Assistance (TA) services through an application process administered and managed by DWR in the future related to implementing SGMA needs, risk, and vulnerability assessments, and other technical assistance services to Tribes and Underrepresented Communities (as defined in the 2020 Prop 68 Implementation PSP).

DWR: $200 Million Drought Funding to Support Small Communities

DWR released guidelines for how small water systems may apply for funds as part of the Small Community Drought Relief Program. Eligible projects must be designed to benefit small communities (< 3,000 connections or 3,000 AFY) located in counties under Governor Newsom's drought emergency proclamations or which the SWRCB may determines that drought conditions necessitate urgent and immediate action. Small communities impacted by the drought are encouraged to apply as soon as possible as **funds will be dispersed on a first come first serve basis** and can submit applications or questions to SmallCommunityDrought@water.ca.gov. This grant will fund projects that provide immediate or interim drinking water supplies such as hauled or bottled water deliveries, deepening of wells, new or temporary water tank storage, new pipelines and connections to more reliable nearby systems, etc. No local cost share is required. More info can be found here.

Department of Conservation: Multibenefit Land Repurposing Program DRAFT Guidelines open for comment

The Multi-Benefit Land Repurposing Program seeks to increase regional capacity to repurpose agricultural land to reduce reliance on groundwater while providing community health, economic wellbeing, water supply, habitat, renewable energy, and climate benefits. **A total of $50 million will be available**, with up to $10 million per basin. Final Grant Guidelines and links to January public workshops (1/18, 1/19, & 1/20) can be found here. Questions can be sent to shanna.atherton@conservation.ca.gov. **Grant submission due date is April 1, 2022.**

Public Comment Period Opens for Riverine Stewardship Grant Program

DWR has opened public comment period for the Riverine Stewardship Program: San Joaquin Fish Population Enhancement Program (SJFPEP) & Urban Streams Restoration Program (USRP) Grants Draft Guidelines and Proposal Solicitation Package (PSP). **The 45-day public comment period will close at 5 p.m. on March 14th, 2022.** The draft guidelines and PSP, as well as detailed information on the solicitation rules, procedures, and

process can be accessed at the Riverine Stewardship Program – Grants webpage. Transmitted comments should be sent to RSP@water.ca.gov.

White House Press release

The White House on January 31st released a guide for state, local, tribal and territorial governments to funding under the new bipartisan infrastructure law. The press release and guide can be found here.

CNRA Urban Greening Grant Program

The California Natural Resources Agency will be accepting proposals for the Urban Greening Grant Program from **February 7th, 2022 to March 28th, 2022** via the System for Online Application Review (SOAR). Final grant guidelines can be found here. This competitive grant program intends to solicit project proposals for urban greening and urban forestry projects that reduce greenhouse gas emissions and provide multiple additional benefits. This program will give priority consideration to projects located within and benefitting disadvantaged communities. Approximately $47.5 million in specified General Fund dollars are available.

Public Comment Period Now Open for Regional Climate Collaboratives Program Guidelines

The California Strategic Growth Council is pleased to invite public comment on the draft guidelines for the Regional Climate Collaboratives (RCC) Program. The RCC program is a new grant program that will support under-resourced communities in securing and implementing funding for climate change mitigation and adaptation projects. **Feedback received by the March 10, 2022** deadline will inform a final version of the guidelines, which SGC will post on its website in mid-April. You can inform the guidelines via written public comment by emailing TA@sgc.ca.gov.

Other state & federal grant websites for resources that may be helpful are:

- California Financing Coordinating Committee -- https://cfcc.ca.gov/, and
- CalOES grants -- https://www.caloes.ca.gov/cal-oes-divisions/grants-management
- US EPA -- https://www.epa.gov/grants/specific-epa-grant-programs, and
- Economic Development Administration -- https://eda.gov/funding-opportunities/

Upcoming conferences, webinars, new reports and data

State Webinars on Low Income Household Water Debt Assistance

The California Department of Community Services (CSD) is hosted two informational webinars for water purveyors to provide an overview of the California Low-Income Household Water Assistance Program (LIHWAP) and details about how agencies can receive funding to help their low-income customers pay down water bill debt accrued during any time frame. CSD has $116 million in one time funding for this program. The informational webinar recoding can be viewed here.

DWR's Climate Change Program Resources -

DWR's Climate change program has lots of initiatives including resources for water managers. Check out their webpage and factsheet here.

NEW: Webpage for CA Water Plan Update 2023 Published by DWR

DWR has unveiled the new webpage for California Water Plan Update 2023. The California Water Plan is updated every five years. It is the State's strategic plan for managing and developing California's water resources. Update 2023 will emphasize climate change adaptation, regional and watershed resilience, and water equity. **The first meeting of the Policy Advisory Committee will be March 2nd from 9-12**, registration here.

Progress Report Issued on Implementation of the Water Resilience Portfolio

February 2022 DWR Updates (from DWR's North Central Region Office)

The progress that has been made on implementing California's Water Resilience Portfolio is detailed in a new report from the State. The portfolio was released 18 months ago by Governor Newsom as a water policy blueprint to build climate resilience. The progress report summarizes work done on 142 actions outlined in the portfolio.

DWR and the State Water Resources Control Board have released new principles and strategies for groundwater management and drinking water wells. The document provides a framework for the development of drought-resistant communities. Approximately 82 percent of Californians rely on groundwater for some portion of their drinking water or other household uses. A Spanish version of the draft is available.

FIRO Workshop and Webinars in January and March

The next Forecast Informed Reservoir Operations (FIRO) Workshop will look at FIRO as a climate resiliency strategy. This is part of a webinar series hosted by the Center for Western Weather and Water Extremes. The workshop will be held Wednesday, Jan.12 and the 8th annual workshop will be held March 21-24 (tentative). More information can be found here.

DWR Released California's Groundwater Update 2020 (formerly Bulletin 118) and California's Groundwater Live Online

The Department of Water Resources (DWR) today released the final *California's Groundwater – Update 2020 (Bulletin-118)*, containing information on the condition of the State's groundwater, which is especially important with most of California facing ongoing drought conditions. DWR has also developed a companion web-based application called *California's Groundwater Live* (CalGW Live), leveraging the California Natural Resources Agency Open Data Platform (Open Data) to improve the access and timeliness of statewide groundwater information. The easy-to-use interface will make many of the data sets used in CalGW Update 2020 available in an interactive map format that will be updated regularly for viewing and downloading.
For more information, visit the updated California's Groundwater website Contact: CalGW@water.ca.gov

OpenET makes tracking water use data easier with satellite data

A space-based tool is ready to help track water in the western U.S. Using data from satellites, Open Evapotranspiration (OpenET) gives farmers and other water users information on how much of their water loss ends up as evapotranspiration. The OpenET data are available for 17 western states, including the Colorado River basin area.

Water Board: Drinking water needs assessments

For the first time, the State Water Resources Control Board has completed a comprehensive look at California water systems that are struggling to provide safe drinking water. The needs assessment identifies failing water systems and those at risk of failing. It also offers the most in-depth view of long-term drinking water safety the state has ever had.

SGMA

Newly Submitted GSP's Open for 75 Day Public Comment Period

Groundwater sustainability plans that have recently been submitted to the Department are now posted on the DWR SGMA Portal. These plans are open to public comment for 75 days after the posted date. Below in the table are links to the submitted plans, counties they cover, and the public comment period end date. Information about how to comment on the plans can be found in a fact sheet in English and Spanish. Public comments are welcomed and encouraged. A SGMA Portal account is not necessary to submit comments.

DWR Releases GSP Assessments for COD basins that submitted by January 2020

DWR has now released the assessment for all COD basins that submitted GSP's in January of 2020. This included the approval of GSPs for the Santa Cruz Mid-County Basin, the 180/400-Foot Aquifer Subbasin, North

and South Yuba Subbasins, the Oxnard Subbasin and Pleasant Valley Basin, Las Posas Valley and Indian Wells Valley. The following subbasin's GSPs were found incomplete on 1/21/22: Westside Subbasin, Delta-Mendota Subbasin, Cuyama Valley Basin, and Paso Robles Subbasin and on 1/28/22: Eastern San Joaquin Subbasin, Merced Subbasin, Chowchilla Subbasin, Kings Subbasin, Kaweah Subbasin, Tulare Lake Subbasin, Tule Subbasin, and Kern County Subbasin. The release of incomplete determination begins a 180 day timeline to correct identified deficiencies that that precluded approval. These assessments and notification letters, along with other pertinent information, can be viewed here on the DWR SGMA Portal.

Week of Webinars on Statewide Groundwater Management Efforts

DWR is hosted a week of webinars on statewide groundwater management efforts. **All presentations were recorded, and the links are below and can also be found on the program webpage**.

- 2022 Groundwater Sustainability Plan (GSP) Submittal Workshop
- 2022 Alternative 5-year Update Submittal Workshop
- Resources for Sustainable Groundwater Management Act (SGMA) Implementation (found under the Sustainable Groundwater Management Program Events tab)
- Accessing Groundwater Data and Tools

Dry Well Reporting Site

There is a website available to report private wells going dry. Information reported to this site is intended to inform state and local agencies on drought impacts on household water supplies. The data reported on this site (excluding personal identifiable information) can be viewed on the SGMA data viewer or downloaded on the CNRA Atlas. Individuals or local agencies can report water shortages and a list of resources are included on the webpage. The reporting forms are available in both English and Spanish.

DWR is developing eight Proposition 68-funded technical projects

These projects include airborne electromagnetic surveys, improving groundwater elevation and quality monitoring networks, Statewide land use data collection, improved subsidence monitoring network, installing and maintaining stream gauges, maintaining and enhancing statewide well completion reports, managing and reporting sustainable groundwater information, and enhancing and maintaining DWR's modeling tools. Fact sheets on each project can be viewed under the "Prop 68" tab here.

- AEM webpage contains information on the how the process works, safety, schedule, data submission by GSAs, TAC, pilot study data and more. Public webinar was held **June 8th 12:00 – 1:00**, a recording can be viewed here and handouts can be downloaded here. **Sonoma Valley Basins were surveyed in November, 2021 and North San Joaquin and Southern Sacramento basins planned for surveying in April 2022.**
- 2018 Statewide Crop Mapping data dataset builds on the 2014 and 2016 statewide crop mapping datasets DWR previously released and includes multi-cropping information. The 2018 dataset includes agricultural land use and urban boundaries for all 58 counties in California. Water year 2019 is planned to be released in 2022.
- InSAR subsidence data is now available through October of 2020 and can be viewed on the SGMA data viewer. The updated GIS services and data reports are also available online. The next year of data, through Oct 2021 is expected to be released in February of 2022. Future data will be released on a quarterly basis.

Outreach and Educational Materials Available

DWR's SGMA Assistance and Engagement webpage has added new communication and engagement toolkit items including:

- A new video – Groundwater: California's Vital Resource now available in English, Spanish, Punjabi, and Hmong

February 2022 DWR Updates (from DWR's North Central Region Office)

- A Story Map for a non-technical audience – Groundwater: Understanding and Managing this Vital Resource
- Guidance on Engaging and Communicating with Underrepresented Groundwater Users
- SGMA Communications: Media Relations and Social Media, including DWR's Groundwater Media Contacts
- "DWR's Assistance Role in Groundwater Management" video: English and Spanish

CASGEM to Monitoring Network Module Transition Frequently Asked Questions Available

The CASGEM to Monitoring Network Module Transition Frequently Asked Questions (FAQ) document covers questions related to the Groundwater Monitoring Law, the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, a GSP's required monitoring, the SGMA Portal's Monitoring Network Module (MNM), and a basin's or subbasin's transition from the CASGEM Online System to the SGMA Portal's Monitoring Network Module .

Facilitation Support Services (FSS): Funding still available

- GSA's developing GSPs are eligible to receive funding for identification and engagement of interested parties, meeting facilitation, interest-based negotiation/consensus building, and public outreach facilitation
- More information can be found here. Written translation services available in 8 languages for outreach materials (5,000 word maximum).