KERN GROUNDWATER AUTHORITY

Regular Meeting of Board of Directors
April 28, 2021 8:00 a.m.

NOTICE: Pursuant to the Governor's Executive Order N-29-20 this meeting will be conducted by teleconference. All parties/public may attend the meeting via teleconferencing and offer public comments by phone, using the call-in information below:

Zoom: https://zoom.us/j/98257020324?pwd=L1BCTHFYMUVFTVVhaGc4QVZHdXBxdz09

Meeting ID: 982 5702 0324

Passcode: 021316

Telephone Dial-in: (669)900-6833

Kern Groundwater Authority Board of Directors Agenda

This meeting is held in accordance with the Governor's Executive Order N-29-20 and portions of the Brown Act pursuant to Section 54956 of the California Government Code and the Kern Groundwater Authority Joint Powers Agreement.

1. Roll Call - Quorum Determination
In the absence of a quorum of the Board the meeting will be adjourned.

2. Public Input
This portion of the meeting is set aside to provide the public an opportunity to bring to the attention of the Board matters of which the Board may not be aware and which are not on the current agenda. No action can be taken on any matter raised during this portion of the meeting; however, a Board member may request that the matter be placed on any future agenda for further review and possible action. Members of the public may directly address the Board of Directors on any item of interest within the Board's subject matter jurisdiction, before or during the Board's consideration of the item. The President may limit the time allowed for comment.

3. Approval of Minutes
a. March Regular Board Meeting Minutes*

4. Treasurer's Report
a. Financial Report & Accounts Payable Approve- April*

5. Attorneys Report
a. SWB Resolution on funding SGMA efforts
b. DWR update on GSP review

6. Executive Director Report
a. Approval of disbursement of Prop 1 Grant funds*

- Denotes Action Item

b. Discussion & Approval of GEI Proposal on Data Management System*
c. Update on the 2021 Annual Report
d. Accomplishments
e. Forward Work Plan

7. New Business

This Portion of the Meeting is set aside to provide each Board member an opportunity to bring to the attention of other Board members and the public matters which have come to their attention and/or which may be appropriate for future consideration. No action can be taken on any matter raised during this portion of the meeting; however, a Board member may request that the matter be placed on any future agenda for further review and possible action.

8. Correspondence

a. City of Shafter - Notice of Preparation of the 2020 Urban Water Management Plan

9. Closed Session

a. Conference with Legal Counsel – Potential Litigation: Closed Session pursuant to Government Code Section 54956.9(d)(2), (e)(2)(two matters)

10. Adjournment

A person with a qualifying disability under the Americans with Disabilities Act of 1990 may request the Authority provide disability-related modification or accommodation in order to participate in any public meeting of the Authority. Such assistance includes appropriate alternative formats for the agendas and agenda packets. Requests should be made in person, by telephone, facsimile and/or written correspondence to the Authority office, at least 48 hours before a public Authority meeting. Written materials related to an item on this agenda to be considered in open session that are public documents and that are distributed to board members after the posting of the agenda, will be made available for public inspection when they are so distribution at the office of the Authority located at 1800 30th Street, Ste #280, Bakersfield, California during normal business hours. Documents that are public documents provided by others during a meeting will be available at the same location during business hours after the meeting.

- Denotes Action Item

JPA Board Meeting Minutes
Kern Groundwater Authority

Wednesday, March 24, 2021 at 8:00 a.m.
Participation by Teleconference/ZOOM

JPA DISTRICT REPRESENTATIVES AND ALTERNATES PRESENT

Maria Pantoja, Arvin Community Services District
Kevin Pascoe, Arvin-Edison WSD
John Gaugel, Cawelo WD
Chad Givins, City of Shafter
Royce Fast, Kern County Water Agency
Andrew Pandol, Kern-Tulare WD
Kim Brown, Kern Water Bank Authority
Kevin Andrew, North Kern Water Storage District
Gary Unruh, Rosedale-Rio Bravo WSD
Dan Waterhouse, Semitropic WSD
Brandon Morris, Southern San Joaquin MUD
Randy Bloemhof, Shafter-Wasco ID
Mark Valpredo, Tejon-Castac WD
Gary Morris, West Kern WD
Michael Blaine, Wheeler Ridge-Maricopa WSD

JPA DISTRICT REPRESENTATIVES ABSENT

Maddy Symm, Eastside Water Management Area (non-voting member)
Rob Goff, Westside District Water Authority

OTHERS PRESENT/PARTICIPATING

Valerie Kincaid, O'Laughlin Paris, LLC
Patty Poire, Kern Groundwater Authority

1. **Roll Call – Quorum Determination** – Chairman Waterhouse called meeting to order at 8:13 a.m. after technical issues were resolved and it was confirmed there was a quorum. The Board met the threshold for a quorum under the JPA and operated under it.

2. **Public Comments** – None

3. **Approval of Minutes**
    a. February Regular Board Meeting Minutes

    A motion was made by Director Brown and seconded by Director Valpredo to approve the February 24, 2021 Regular Board Meeting Minutes. The motion was unanimously carried.
4. **Treasurer's Report**
    a. **Financial Report & Accounts Payable – March** – Mrs. Duarosan asked the board

to approve the Treasurer's Report as presented and authorize disbursement of $32,479.25 for the month of February as detailed on Exhibit E. It was reported in Exhibit A from February 1, 2021 thru February 28, 2021, that the beginning cash balance was $25,464.07 with deposits received for February in the amount of $174,687.99 and ending cash balance was $153,327.42. Exhibit B reflected subsequent cash receipts and deposits totaling $119,912.47 for a total of cash balance of $273,239.89. A motion was made by Director Andrew and seconded by Director Unruh to approve and the treasurer's report for February 2021. The motion was unanimously carried.

5. **Attorney's Report** –
    a. **Update of the WARDER and Recommendations for the Effective Water Rights Response to Climate Change Reports from State Water Resources Control Board-Kern Subbasin comment letter** - Ms. Kincaid presented the final draft of the comment letter for review and approval to submit to the State Water Resources Control Board on behalf of the Kern Subbasin. Ms. Kincaid also discussed attending a workshop put on by the Water Board regarding the process and expectations for the submittal of the comment letter, it was also reported that the deadline for the comment letter submittal was extended by the Water Board, the new deadline is March 31, 2021. A motion was made by Director Andrew and seconded by Director Fast to submit the final draft of the comment letter to the State Water Resources Control Board before the March 31, 2021 due date. The motion was unanimously carried.

6. **Executive Director Report**
    a. **Discussion & approval of Barbich Hooper King 2020 KGA audit proposal** – Ms. Poire presented BHK proposal for approval for 2020 KGA financial audit. A motion was made by Director Brown and seconded by Director Valpredo to approve the BHK proposal for the 2020 financial audit. The motion was unanimously carried.
    b. **Discussion & approval of change to the Kern subbasin monitoring network**– Ms. Poire presented changes to the subbasin monitoring network that is scheduled to be reflected in the 2021 annual report for approval. It is proposed that four wells be removed from the monitoring network and two new wells, one located in the Westside Authority District and one located in the City of Bakersfield/Kern River GSA. A motion was made by Director Brandon Morris and seconded by Director Gaugel to accept the changes to the monitoring network plan. The motion was unanimously carried.
    c. **Update on the Annual Report** – Ms. Poire reported that the 2021 annual report will be emailed out to the managers today for final review and comment. Comments need to be submitted by Friday due to approaching submittal April 1st deadline.
    d. **Accomplishments** –Ms. Poire referred the Board to the memo regarding Accomplishments and Forward Work Plan in the board package.

e. **Forward Work Plan** – Ms. Poire referred the Board to the memo regarding Forward Work Plan in the board package.

7. **New Business** – None

8. **Correspondence** – Accepted and filed.

9. **Closed Session** – Entered into closed session at 8:49 a.m. Board took action to evaluate and increase employee salary and no other reportable actions on the other closed session items.

10. **Adjournment** – 9:29 a.m.

P.O. Box 81435
Bakersfield, CA 93380-1435
Administration
Telephone: 661-393-2696
Facsimile: 661-393-6884

33380 Cawelo Avenue
Bakersfield, CA 93308-9575
Water Orders and Operations
Telephone: 661-393-3361
www.northkernwsd.com

NORTH KERN WATER STORAGE DISTRICT

April 28, 2021

TO: Kern Groundwater Authority Members

FROM: A. David Hampton, General Manager

RECOMMENDED MOTION

Approve the Treasurer's Report as presented and authorize disbursement of accounts payable in the amount of $113,872.91 for the month of March 2021 as detailed on **Exhibit E**.

DISCUSSION

Exhibit A is the Treasurer's Report for the Authority's financial activities from March 1, 2021 through March 31, 2021. There were cash deposits of $160,594.25 for the month representing collections from the General Admin 2021, Prop 68 Admin costs and Todd Groundwater/ITRC cash calls. After disbursement of expenses totaling $37,479.25, the cash balance at March 31, 2021 was $276,442.42. There were subsequent cash receipts and deposits totaling $94,205.82 through April 22, 2021 as reflected on **Exhibit B**. The current cash balance, including these deposits, is $370,648.24.

The Accounts Receivable balance from Members and Participants at March 31, 2021 was $61,786.32 as detailed on **Exhibit C** which consists of outstanding cash calls previously approved. Receivable from Grants at March 31, 2021 was $199,237.13 as detailed in **Exhibit D**. The combined total of Receivables at March 31, 2021 was $261,023.45.

Exhibit E is the detail of Accounts Payable for the month of March 31, 2021 reflecting outstanding payables of $120,731.88. However, invoices totalling $113,872.91 are being requested for payment approval and disbursement at this time. An invoice in the amount of $6,858.97 continues to remain on hold pending further review by the Planning Manager.

Exhibit F is the Authority's unaudited financial statements at March 31, 2021. They include a Statement of Net Position as of March 31, 2021 and a Statement of Revenues and Expenses for the three months ended March 31, 2021. Both statements present the financial position and results of the Authority's activities for the general JPA membership and each specific Special Activity Agreements. At this time, please direct questions regarding the above to the Fiscal Agent, North Kern Water Storage District's General Manager, David Hampton (dhampton@northkernwsd.com). I can also be contacted through the District's Office at 661-393-2696.

Exhibit A
Kern Groundwater Authority
Treasurer's Report - through March 31, 2021

CURRENT ACTIVITY

Cash Balance, Prior Report (February 28, 2021)				153,327.42
Deposits	**Date**	**Purpose**	**Amount**	
City of Shafter	3/2/2021	Gen Admin 2021 costs	14,958.33	
Kern Water Bank Authority	3/5/2021	Gen Admin 2021 costs	14,958.33	
Kern Count Water Agency	3/5/2021	Gen Admin 2021 costs	14,958.33	
Westside Water District	3/11/2021	Gen Admin 2021 costs	14,958.33	
Tejon-Castac WD	3/15/2021	Gen Admin 2021 costs	14,958.33	
City of Shafter	3/2/2021	Prop 68 Admin cost	634.14	
Kern Water Bank Authority	3/5/2021	Prop 68 Admin cost	634.14	
Kern Count Water Agency	3/5/2021	Prop 68 Admin cost	634.14	
Westside Water District	3/11/2021	Prop 68 Admin cost	1,902.42	
Tejon-Castac WD	3/15/2021	Prop 68 Admin cost	634.14	
Kern River GSA	3/15/2021	Annual Rptg (Todd GW/ITRC)	15,255.69	
Rosedale-Rio Bravo WSD	3/15/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Arvin-Edison WSD	3/15/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Olcese WD	3/15/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Wheeler Ridge-Maricopa WSD	3/15/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Southern San Joaquin Municipal U.D.	3/15/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Henry Miller WD	3/18/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Shafter-Wasco Irrigation District	3/18/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Shafter-Wasco 7th Standard Annex	3/18/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Kern-Tulare WD	3/18/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Semitropic WSD	3/18/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Cawelo WD	3/18/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
North Kern WSD	3/24/2021	Annual Rptg (Todd GW/ITRC)	5,085.17	
West Kern WD	3/24/2021	Annual Rptg (Todd GW/ITRC)	5,085.23	
Total Deposits				160,594.25
Disbursements	**Date**	**Ck #**	**Amount**	
Water Blueprint	3/15/24	1821	5,000.00	
GAN Conferencing	3/24/21	1822	18.45	
North Kern WSD	3/24/21	1823	1,000.00	
O'Laughlin & Paris, LLP	3/24/21	1824	9,975.00	
Provost & Pritchard	3/24/21	1825	21,485.80	
Total Disbursements				37,479.25
Cash Balance, Current Report (March 31, 2021)				276,442.42
Accounts Receivable				
Receivables from Members/Participants (Exhibit C)			61,786.32	
Other Receivables:				
Prop 1 Distress Grant - 5% retention Req #2 (Gen Acct)		8,415.39		
Prop 1 Distress Grant - 10% retention Req #3 (Gen Acct)		6,669.22		
ITRC Grant - 10% retention Req #1		3,120.64		
ITRC Grant - 10% retention Req #2		127.75		
ITRC Grant - 10% retention Req #3		26.04		
ITRC Grant - 10% retention Req #4		18.59		
ITRC Grant - 10% retention Req #5		32.27		
ITRC Grant - 10% retention Req #6		22.97		
ITRC Grant (Amended) - 10% retention Req #1		36.76		
ITRC Grant (Amended) - 10% retention Req #2		17.91		
Prop 1 SGMA Grant - 10% retention Req #1		69,769.74		
Prop 1 SGMA Grant - 10% retention Req #2		4,179.19		
Prop 1 SGMA Grant - 10% retention Req #3		19,178.29		
Prop 1 SGMA Grant - Req #4		87,622.37		
Grant Receivable - see Exhibit D			199,237.13	
Total Receivables				261,023.45
Accounts Payable				
See Attached A/P Detail (Exhibit E)				120,731.88
Accrued Payables				10,000.00
Total Accounts Payable and Accrued Payables				130,731.88
Net Assets, March 31, 2021				**406,733.99**

Exhibit B

Kern Groundwater Authority

Treasurer's Report - Deposits through April 22, 2021

All Deposits - Apr 1 - Apr 22, 2021	Dep Date	Amount	
Deposits General Admin 2021 Costs - Cash Call #1			-
Tejon-Castac WD	4/6/2021	5,085.23	
Kern Water Bank Authority	4/15/2021	5,085.23	
Westside Water District Authority	4/15/2021	5,085.23	
Deposits Annual Reporting (Todd GW/ITRC) - Cash Call			15,255.69
Tejon-Castac WD	4/6/2021	90.00	
KRGSA - DWR grant funds	4/15/2021	78,860.13	
Deposits Miscellaneous Reimbursements			78,950.13
Total Deposits (thru 4/22/21)			**$ 94,205.82**

Exhibit C

Kern Groundwater Authority

Treasurer's Report - Accounts Receivable detail as of March 31, 2021

Customer	Description	Invoice #	Invoice Date	Invoice Amount
Eastside Water Management Area	Annual Reporting (Todd GW/ITRC)	KF202150	2/25/2021	5,085.23
Eastside Water Management Area	General Admin 2021 Costs	KF202105	1/28/2021	14,958.33
Eastside Water Management Area	Prop 68 Admin Costs	KF202125	1/28/2021	634.14
Kern County Water Agency	Annual Reporting (Todd GW/ITRC)	KF202150	2/25/2021	5,085.23
Kern Water Bank Authority	Annual Reporting (Todd GW/ITRC)	KF202156	2/25/2021	5,085.23
Semitropic WSD	General Admin 2021 Costs	KF202111	1/28/2021	14,958.33
Semitropic WSD	Prop 68 Admin Costs	KF202135	1/28/2021	634.14
Tejon-Castac WD	Annual Reporting (Todd GW/ITRC)	KF202164	2/25/2021	5,085.23
Tejon-Castac WD	GSA Boundary Review	KF202147	2/23/2021	90.00
Westside Water District Authority	Annual Reporting (Todd GW/ITRC)	KF202166	2/25/2021	5,085.23
Buena Vista WSD	Annual Reporting (Todd GW/ITRC)	KF202149	2/25/2021	5,085.23
TOTAL RECEIVABLES from MEMBERS and PARTICIPANTS @ 3/31/21				**$ 61,786.32**

Exhibit D

Kern Groundwater Authority

Treasurer's Report - Grant Detail as of March 31, 2021

Agency	Description	Date of Submittal	Invoice Amount	Amount Received	Date Received	Rem. Balance Due	Retention %
DWR	Prop1-Distress Draw#1	12/21/2017	168,307.80	159,892.41	6/11/2018	8,415.39	5%
DWR	Prop1-Distress Draw#3	3/23/2018	66,692.20	60,022.98	8/22/2018	6,669.22	10%
DWR	ITRC - Draw #1:	8/1/2018					
	General Account		120.00	108.00	1/16/2019	12.00	10%
	SAA #1		12,500.00	11,250.00	1/16/2019	1,250.00	10%
	SAA #4		18,586.38	16,727.74	1/16/2019	1,858.64	10%
			31,206.38	28,085.74		3,120.64	
DWR	ITRC - Draw #2:	10/31/2018					
	General Account		738.84	664.96	1/16/2019	73.88	10%
	SAA #1		538.66	484.79	1/16/2019	53.87	10%
			1,277.50	1,149.75		127.75	
DWR	ITRC - Draw #3:	1/29/2019					
	SAA #1		260.44	234.40	4/9/2019	26.04	10%
DWR	ITRC - Draw #4:						
	SAA #1	4/30/2019	185.94	167.35	7/19/2019	18.59	10%
DWR	ITRC - Draw #5:						
	SAA #1	7/26/2019	322.67	290.40	10/23/2019	32.27	10%
DWR	ITRC - Draw #6:						
	SAA #1	10/29/2019	229.66	206.69	4/15/2020	22.97	10%
DWR	ITRC (amended) - Draw #1:						
	General Accout	7/28/2020	367.60	330.84	9/23/2020	36.76	10%
DWR	ITRC (amended) - Draw #2:						
	General Accout	10/19/2020	179.05	161.14	1/11/2021	17.91	10%
DWR	Prop1-SGMA Draw#1:	5/31/2019					
#132	Component #2-Todd GW	as adjusted	244,878.23	220,390.41	1/27/2020	24,487.82	10%
#131,133,Gen	Component #3-W.C.+Admin		91,977.25	82,779.53	1/27/2020	9,197.72	10%
#140,Gen	Component #4		197,279.63	177,551.67	1/27/2020	19,727.96	10%
#140,Gen	Component #5		163,562.40	147,206.16	1/27/2020	16,356.24	10%
			697,697.51	627,927.77		69,769.74	
DWR	Prop1-SGMA Draw#2:	7/31/2019					
#132	Component #2-Todd GW		-				
#131,133,Gen	Component #3-W.C.+Admin		2,414.00	2,172.60	4/9/2020	241.40	10%
#140	Component #4		-			-	-
#100,140	Component #5		39,377.92	35,440.13	4/9/2020	3,937.79	10%
			41,791.92	37,612.73		4,179.19	
DWR	Prop1-SGMA Draw#3:	10/31/2019					
#132	Component #2-Todd GW	as adjusted	62,280.50	56,052.45	9/23/2020	6,228.05	10%
#133,Gen	Component #3-W.C.+Admin		51,178.75	46060.88	9/23/2020	5,117.87	10%
#140,Gen	Component #4-GSP+Outrch	as adjusted	-	-	9/23/2020	-	-
Gen	Component #5-TO #18		78,323.68	70,491.31	9/23/2020	7,832.37	10%
			191,782.93	172,604.64		19,178.29	
DWR	Prop1-SGMA Draw#4:	5/18/2020					
	Component #2-None		-	-	4/15/2021	-	
Gen	Component #3-Admin		3,638.00	-	4/15/2021	3,638.00	rec'd 4/15/21
#132	Component #4-Todd GW		83,984.37	-	4/15/2021	83,984.37	rec'd 4/15/21
	Component #5-TO #18		-	-	4/15/2021	-	
			87,622.37	-		87,622.37	
		Total Billed:	1,287,377.32				
		TOTAL GRANTS OUTSTANDING as of 3/31/21				199,237.13	

Exhibit E

Kern Groundwater Authority

Treasurer's Report - Accounts Payable detail as of March 31, 2021

Vendor	Description	Invoice #	Invoice Date	Invoice Amount	
O'Laughlin & Paris, LLP	General Legal Services-Mar-21	1411	4/1/2021	17,045.00	
GAN Conferencing	Meeting Conferencing-Mar-21	47760	4/1/2021	12.11	
Provost & Pritchard	Management Services - Mar-21	84688	4/22/2021	22,397.30	
North Kern WSD	Accounting Services-Mar-21	NK202133	4/7/2021	1,000.00	
ITRC	Evap-Annual Report - Mar-21	ITRC-METRIC	3/29/2021	12,000.00	
Provost & Pritchard	GSA boundary review-Dec20	83084	1/19/2021	90.00	
Todd Groundwater	GSP Annual Report	62315 421	4/8/2021	61,328.50	
	TOTAL PAYABLES REQUEST at this Meeting			**$ 113,872.91**	

INVOICE ON HOLD:

GEI Consultants	TO 7 Amend#4- Proj Mgmt	3083050	1/11/2011	6,858.97	Pending further review
	TOTAL PAYABLES Outstanding at 3/31/21			**$ 120,731.88**	

Exhibit F

Kern Groundwater Authority
Statement of Net Position
As of March 31, 2021

Assets

Current Assets		
Cash		276,442
Accounts Receivable-Members/Participants		61,786
Accounts Receivable-Grants		199,237
Total Current Assets		537,466
Total Assets		**537,466**

Liabilities and Net Position

Current Liabilities		
Accounts Payable		120,732
Accrued Payables		10,000
Total Current Liabilities		130,732
Net Position		
KGA JPA - #100		
Current Earnings	199,526	
Net Position - Prior Year	23,202	
Accrue 2020 Audit fee	(10,000)	212,728
Evapotranspiration Study - SAA 1 - #110		
Current Earnings	-	
Net Position - Prior Year	(13,929)	
	-	(13,929)
Kern River GSA Groundwater Model - #130-133 (combined)		
Current Earnings	-	
Net Position - Prior Year	122,772	
	-	122,772
KGA GSA - SAA 3 - #120		
Current Earnings	-	
Net Position - Prior Year	-	-
KGA GSP - SAA 4 - #140		
Current Earnings	-	
Net Position - Prior Year	85,162	
	-	85,162
Total Net Position		406,734
Total Liabilities and Net Position		**537,466**

Exhibit F

Kern Groundwater Authority
Statement of Revenues and Expenses
3 Months Ended March 31, 2021

	Current Month								Year to Date - 2021							
	KGA JPA Dept. 100	ET Study SAA #1 Dept. 110	Phase 1 - RMC Peer Review - Dept. 131	Phase 2 - RMC Peer Review - Dept. 133	TODD GW MODELING Dept. 132	KGA GSA SAA #3 Dept. 120	KGA GSP SAA #4 Dept. 140	Combined	KGA JPA Dept. 100	ET Study SAA #1 Dept. 110	Phase 1 - RMC Peer Review - Dept. 131	Phase 2 - RMC Peer Review - Dept. 133	TODD GW MODELING Dept. 132	KGA GSA SAA #3 Dept. 120	KGA GSP SAA #4 Dept. 140	Combined
Member Contributions(Refunds)	-	-	-	-	-	-	-	-	397,613	-	-	-	-	-	-	397,613
Grant Revenue (Member Refunds)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue	-	-	-	-	-	-	-	-	397,613	-	-	-	-	-	-	397,613
Accounting	1,000	-	-	-	-	-	-	1,000	3,000	-	-	-	-	-	-	3,000
Engineering	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Legal	17,045	-	-	-	-	-	-	17,045	41,055	-	-	-	-	-	-	41,055
Office Supplies / Bank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Outside Services	95,738	-	-	-	-	-	-	95,738	154,032	-	-	-	-	-	-	154,032
Total Expenses	113,783	-	-	-	-	-	-	113,783	198,087	-	-	-	-	-	-	198,087
Change in Net Position - Current Earnings	(113,783)	-	-	-	-	-	-	(113,783)	199,526	-	-	-	-	-	-	199,526

DocuSign Envelope ID: D3551D7A-848A-4F95-8876-61336BC02E58

BILL TO: DEPARTMENT OF WATER RESOURCES
INVOICE FORM

Grantee Name and Address:	Agreement Number: 4600012955	Agreement Type: Prop. 1 GSP	
Kern River Groundwater Sustainability Agency	File Name: 4600012955 Invoice 4	Retention Amount: 10%	
1600 Truxtun Avenue	Proposition:	Execution Date: 2/4/2019	
Bakersfield, CA 93301	IRWM Region: Kern County	Termination Date: 4/30/2020	

Date of Invoice: 10/5/2020

Period Covered by this Invoice: From: 10/1/2019 To: 12/31/2019

Invoice # 4 v5

Invoicing Format: Funding Match Drawdown

	Budget Information			Current Invoice Summary				Total Invoiced Summary						
	1. Funding Match	2. Grant Share	3. Sum of Funding Match & Grant Share	4. Total Billed this Invoice	5. Grant Share Billed this Invoice	6. 10% Retention Withheld from Grant Share Payment	7. Net Amount to Be Paid by DWR this Invoice	8. Total Funding Match Billed in Previous Invoices	9. Total Grant Share Billed in Previous Invoices	10. Total Billed To Date	11. Total Funding Match Billed to DWR to Date	12. Total Grant Share Billed to DWR to Date	13. Total Grant Share Paid by DWR to Date	14. Total Retention Withheld to Date
Component 1: Grant Administration														
SES# BE#														
Budget Category (a): Direct Project Administration Costs	$ -	$ 75,043.00	$ 75,043.00	$ 3,805.35	$ 3,805.35	$ 380.54	$ 3,424.82	$ -	$ 62,568.59	$ 66,373.94	$ 0.00	$ 66,373.94	$ 59,736.55	$ 6,637.39
CD#: Project Subtotal	***$ -***	***$ 75,043.00***	***$ 75,043.00***	***$ 3,805.35***	***$ 3,805.35***	***$ 380.54***	***$ 3,424.82***	***$ -***	***$ 62,568.59***	***$ 66,373.94***	***$ 0.00***	***$ 66,373.94***	***$ 59,736.55***	***$ 6,637.39***
Component 2: Groundwater Modeling														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Budget Category (b): Basin Modeling	$ -	$ 344,372.00	$ 344,372.00	$ -	$ -	$ -	$ -	$ -	$ 344,372.00	$ 344,372.00	$ -	$ 344,372.00	$ 309,934.80	$ 34,437.20
Budget Category (c): Stakeholder Engagement	$ -	$ 87,585.00	$ 87,585.00	$ -	$ -	$ -	$ -	$ -	$ 87,585.00	$ 87,585.00	$ -	$ 87,585.00	$ 78,826.50	$ 8,758.50
CD#: Project Subtotal	***$ -***	***$ 431,957.00***	***$ 431,957.00***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ 431,957.00***	***$ 431,957.00***	***$ -***	***$ 431,957.00***	***$ 388,761.30***	***$ 43,195.70***
Component 3: Groundwater Model Peer Review														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ 10,000.00	$ 10,000.00	$ 3,638.00	$ 3,638.00	$ 363.80	$ 3,274.20	$ -	$ 6,362.00	$ 10,000.00	$ -	$ 10,000.00	$ 9,000.00	$ 1,000.00
Budget Category (b): Groundwater Model Peer Review	$ -	$ 139,208.00	$ 139,208.00	$ -	$ -	$ -	$ -	$ -	$ 139,208.00	$ 139,208.00	$ -	$ 139,208.00	$ 125,287.20	$ 13,920.80
CD#: Project Subtotal	***$ -***	***$ 149,208.00***	***$ 149,208.00***	***$ 3,638.00***	***$ 3,638.00***	***$ 363.80***	***$ 3,274.20***	***$ -***	***$ 145,570.00***	***$ 149,208.00***	***$ -***	***$ 149,208.00***	***$ 134,287.20***	***$ 14,920.80***
Component 4: Hydrologic Conceptual Model and Groundwater Conditions														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Budget Category (b): Hydrogeologic Conceptual Model and Groundwater Conditions	$ -	$ 262,064.00	$ 262,064.00	$ 69,756.58	$ 69,756.58	$ 6,975.66	$ 62,780.92	$ -	$ 192,307.42	$ 262,064.00	$ -	$ 262,064.00	$ 235,857.60	$ 26,206.40
Budget Category (c): Stakeholder Coordination	$ -	$ 19,200.00	$ 19,200.00	$ 14,227.79	$ 14,227.79	$ 1,422.78	$ 12,805.01	$ -	$ 4,972.21	$ 19,200.00	$ -	$ 19,200.00	$ 17,280.00	$ 1,920.00
CD#: Project Subtotal	***$ -***	***$ 281,264.00***	***$ 281,264.00***	***$ 83,984.37***	***$ 83,984.37***	***$ 8,398.44***	***$ 75,585.93***	***$ -***	***$ 197,279.63***	***$ 281,264.00***	***$ -***	***$ 281,264.00***	***$ 253,137.60***	***$ 28,126.40***
Component 5: Groundwater Sustainability Plan Coordination														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Budget Category (b): Coordinaton Agreement Development	$ -	$ 281,264.00	$ 281,264.00	$ -	$ -	$ -	$ -	$ -	$ 281,264.00	$ 281,264.00	$ -	$ 281,264.00	$ 253,137.60	$ 28,126.40
CD#: Project Subtotal	***$ -***	***$ 281,264.00***	***$ 281,264.00***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ 281,264.00***	***$ 281,264.00***	***$ -***	***$ 281,264.00***	***$ 253,137.60***	***$ 28,126.40***
Component 6: GSP Development														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Budget Category (b): GSP Development	$ -	$ 281,264.00	$ 281,264.00	$ -	$ -	$ -	$ -	$ -	$ 281,264.00	$ 281,264.00	$ -	$ 281,264.00	$ 253,137.60	$ 28,126.40
CD#: Project Subtotal	***$ -***	***$ 281,264.00***	***$ 281,264.00***	***$ -***	***$ -***	***$ -***	***$ -***	***$ -***	***$ 281,264.00***	***$ 281,264.00***	***$ -***	***$ 281,264.00***	***$ 253,137.60***	***$ 28,126.40***
GRANT TOTALS :	**$0.00**	**$1,500,000.00**	**$1,500,000.00**	**$91,427.72**	**$91,427.72**	**$9,142.77**	**$82,284.95**	**$0.00**	**$1,399,903.22**	**$1,491,330.94**	**$0.00**	**$1,491,330.94**	**$1,342,197.85**	**$149,133.09**

Signature* of Agency's Authorized Representative: Randy Mckeegan Date: 2/5/2021

Printed Name of Agency's Authorized Representative: Randy Mckeegan Title: City of Bakersfield Finance Director

*By signing this form I certify under penalty of law, that the information provided is correct and accurate to the best of my knowledge, represents the work performed as outlined under this agreement during the period of this invoice, and that the reimbursement requested has not been nor will be submitted for payment as part of any other invoice for this project.

FOR DEPARTMENT OF WATER RESOURCES USE ONLY

Approved by DWR Project Manager (Print Name): Matthew Owens		Approved by DWR Program Manager (Print Name): Dane Mathis	
Title: Engineering Geologist		Title: Supervising Engineering Geologist	Date: 2/5/2021
Signed: Matthew Owens	Date: 2/5/2021	Signed: Dane Mathis	
I am verifying that the supporting documentation has been reviewed, is satisfactory, and is available upon request. DWR PM Initials MO	Project Manager Comments:		
	Cost Center:	AGPA Comments:	Remaining Grant Share: $8,669.06
Purchase Order:	Requisition No.:	Vendor No.:	**NET AMOUNT TO BE PAID BY DWR THIS INVOICE: $82,284.95**

DocuSign Envelope ID: 94FC5492-8FA8-423C-852E-91A011631F9A

BILL TO: DEPARTMENT OF WATER RESOURCES
INVOICE FORM

Grantee Name and Address:	Agreement Number: 4600012955	Agreement Type: Prop. 1 GSP	
Kern River Groundwater Sustainability Agency	File Name: 4600012955 Invoice 5	Retention Amount: 10%	
1600 Truxtun Avenue	Proposition: 1	Execution Date: 2/4/2019	
Bakersfield, CA 93301	IRWM Region: Kern County	Termination Date: 4/30/2020	

Date of Invoice: 10/5/2020

Period Covered by this Invoice:
From: 1/1/2020 To: 3/31/2020

Invoice # 5
v5

Invoicing Format:	Funding Match Drawdown

	Budget Information			Current Invoice Summary				Total Invoiced Summary							
	1. Funding Match	2. Grant Share	3. Sum of Funding Match & Grant Share	4. Total Billed this Invoice	5. Grant Share Billed this Invoice	6. 10% Retention Withheld from Grant Share Payment	7. Net Amount to Be Paid by DWR this Invoice	8. Total Funding Match Billed in Previous Invoices	9. Total Grant Share Billed in Previous Invoices	10. Total Billed To Date	11. Total Funding Match Billed to DWR to Date	12. Total Grant Share Billed to DWR to Date	13. Total Grant Share Paid by DWR to Date	14. Total Retention Withheld to Date
Component 1: Grant Administration														
SES# BE#														
Budget Category (a): Direct Project Administration Costs	$ -	$ 75,043.00	$ 75,043.00	$ 8,669.06	$ 8,669.06	$ 866.91	$ 7,802.15	$ -	$ 66,373.94	$ 75,043.00	$ -	$ 75,043.00	$ 67,538.70	$ 7,504.30
CDB: Project Subtotal	*$ -*	*$ 75,043.00*	*$ 75,043.00*	*$ 8,669.06*	*$ 8,669.06*	*$ 866.91*	*$ 7,802.15*	*$ -*	*$ 66,373.94*	*$ 75,043.00*	*$ -*	*$ 75,043.00*	*$ 67,538.70*	*$ 7,504.30*
Component 2: Groundwater Modeling														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Budget Category (b): Basin Modeling	$ -	$ 344,372.00	$ 344,372.00	$ -	$ -	$ -	$ -	$ -	$ 344,372.00	$ 344,372.00	$ -	$ 344,372.00	$ 309,934.80	$ 34,437.20
Budget Category (c): Stakeholder Engagement	$ -	$ 87,585.00	$ 87,585.00	$ -	$ -	$ -	$ -	$ -	$ 87,585.00	$ 87,585.00	$ -	$ 87,585.00	$ 78,826.50	$ 8,758.50
CDB: Project Subtotal	*$ -*	*$ 431,957.00*	*$ 431,957.00*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ 431,957.00*	*$ 431,957.00*	*$ -*	*$ 431,957.00*	*$ 388,761.30*	*$ 43,195.70*
Component 3: Groundwater Model Peer Review														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ 10,000.00	$ 10,000.00	$ -	$ -	$ -	$ -	$ -	$ 10,000.00	$ 10,000.00	$ -	$ 10,000.00	$ 9,000.00	$ 1,000.00
Budget Category (b): Groundwater Model Peer Review	$ -	$ 139,208.00	$ 139,208.00	$ -	$ -	$ -	$ -	$ -	$ 139,208.00	$ 139,208.00	$ -	$ 139,208.00	$ 125,287.20	$ 13,920.80
CDB: Project Subtotal	*$ -*	*$ 149,208.00*	*$ 149,208.00*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ 149,208.00*	*$ 149,208.00*	*$ -*	*$ 149,208.00*	*$ 134,287.20*	*$ 14,920.80*
Component 4: Hydrologic Conceptual Model and Groundwater Conditions														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Budget Category (b): Hydrogeologic Conceptual Model and Groundwater Conditions	$ -	$ 262,064.00	$ 262,064.00	$ -	$ -	$ -	$ -	$ -	$ 262,064.00	$ 262,064.00	$ -	$ 262,064.00	$ 235,857.60	$ 26,206.40
Budget Category (c): Stakeholder Coordination	$ -	$ 19,200.00	$ 19,200.00	$ -	$ -	$ -	$ -	$ -	$ 19,200.00	$ 19,200.00	$ -	$ 19,200.00	$ 17,280.00	$ 1,920.00
CDB: Project Subtotal	*$ -*	*$ 281,264.00*	*$ 281,264.00*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ 281,264.00*	*$ 281,264.00*	*$ -*	*$ 281,264.00*	*$ 253,137.60*	*$ 28,126.40*
Component 5: Groundwater Sustainability Plan Coordination														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Budget Category (b): Coordinaton Agreement Development	$ -	$ 281,264.00	$ 281,264.00	$ -	$ -	$ -	$ -	$ -	$ 281,264.00	$ 281,264.00	$ -	$ 281,264.00	$ 253,137.60	$ 28,126.40
CDB: Project Subtotal	*$ -*	*$ 281,264.00*	*$ 281,264.00*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ 281,264.00*	*$ 281,264.00*	*$ -*	*$ 281,264.00*	*$ 253,137.60*	*$ 28,126.40*
Component 6: GSP Development														
SES# BE#														
Budget Category (a): Component Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Budget Category (b): GSP Development	$ -	$ 281,264.00	$ 281,264.00	$ -	$ -	$ -	$ -	$ -	$ 281,264.00	$ 281,264.00	$ -	$ 281,264.00	$ 253,137.60	$ 28,126.40
CDB: Project Subtotal	*$ -*	*$ 281,264.00*	*$ 281,264.00*	*$ -*	*$ -*	*$ -*	*$ -*	*$ -*	*$ 281,264.00*	*$ 281,264.00*	*$ -*	*$ 281,264.00*	*$ 253,137.60*	*$ 28,126.40*
GRAND TOTALS :	**$0.00**	**$1,500,000.00**	**$1,500,000.00**	**$8,669.06**	**$8,669.06**	**$866.91**	**$7,802.15**	**$0.00**	**$1,491,330.94**	**$1,500,000.00**	**$0.00**	**$1,500,000.00**	**$1,350,000.00**	**$150,000.00**

Signature* of Agency's Authorized Representative: Randy Mckeegan Date: 2/5/2021

Printed Name of Agency's Authorized Representative: Randy McKeegan Title: City of Bakersfield Finance Director

* By signing this form I certify under penalty of law, that the information provided is correct and accurate to the best of my knowledge, represents the work performed as outlined under the grant agreement during the period of this invoice, and that the reimbursement requested has not been nor will be submitted for payment as part of any other invoice for this project.

FOR DEPARTMENT OF WATER RESOURCES USE ONLY

Approved by DWR Project Manager (Print Name): Matthew Owens
Title: Engineering Geologist
Signed: Matthew Owens Date: 2/9/2021

Approved by DWR Program Manager (Print Name): Dane Mathis
Title: Supervising Engineering Geologist Date: 2/9/2021
Signed: Dane Mathis

I am verifying that the supporting documentation has been reviewed, is satisfactory, and is available upon request. DWR PM Initials MO

Project Manager Comments:

Cost Center: AGPA Comments: Remaining Grant Share: $0.00

Purchase Order: Requisition No.: Vendor No.: **NET AMOUNT TO BE PAID BY DWR THIS INVOICE: $7,802.15**

DRAFT

Allocation of Prop. 1 Grant Funds

Component Sponsor	Component	DWR Invoice No. 1	DWR Invoice No. 2	DWR Invoice No. 3	DWR Invoice No. 4	DWR Invoice No. 5
KRGSA	1	18,563.93	25,531.16	12,216.65	3,424.82	7,802.15
KRGSA	2	309,934.80	-	78,826.50	-	
KGA	3	82,779.53	2,172.60	46,060.88	3,274.20	
KGA	4	177,551.67	-	-	75,585.93	
KGA	5	147,206.16	35,440.13	70,491.31	-	
KRGSA	6	244,513.22	-	8,624.39	-	
	Total	980,549.31	63,143.89	216,219.73	82,284.95	7,802.15

GSA Distribution	Reimbursement No. 1	Reimbursement No. 2	Reimbursement No. 3	Reimbursement No. 4	Reimbursement No. 5
BVWSD	13,770.57	-	3,502.30	-	-
HMWD	7,504.54	-	1,908.65	-	-
KGA	627,927.77	37,612.73	172,604.64	78,860.13	-
KRGSA	329,880.38	25,531.16	37,831.27	3,424.82	7,802.15
OWD	1,466.06	-	372.87	-	-
Total	980,549.31	63,143.89	216,219.73	82,284.95	7,802.15

Updated: March 23, 2021

REMITTANCE ADVICE

STD. 404C (REV. 4-95)

STATE OF CALIFORNIA
DOF

THE ENCLOSED WARRANT IS IN PAYMENT OF THE INVOICES SHOWN BELOW

DEPARTMENT NAME	ORG. CODE	INVOICE DATE	INVOICE NUMBER	RPI	INVOICE AMOUNT
Department of Water Resources	3860	10/01/2020	4		982,284.95

DEPARTMENT ADDRESS

1416 9th Street
Sacramento, CA 95814

CLAIM SCHED. NO.

1405732

VENDOR

KERN RIVER GROUNDWATER
SUSTAINABILITY AGENCY
1600 TRUXTUN AVE
BAKERSFIELD, CA 93301
US

FEDERAL TAX ID NO. OR SSAN	RP TYPE	TAX YR	TOTAL REPORTED TO IRS	TOTAL PAYMENT

Page 1 of 1

THE BACK OF THIS DOCUMENT CONTAINS AN ARTIFICIAL WATERMARK - VIEW AT AN ANGLE

STATE OF CALIFORNIA

WARRANT NUMBER 04-481306

THE TREASURER OF THE STATE WILL PAY OUT OF THE

FUND NO. 0691 FUND NAME WATER RESOURCES REVOLVI

IDENTIFICATION NO. 3860

MO. 02 DAY 24 YR. 2021

90-1342/1211

04481306

TO:
481306
KERN RIVER GROUNDWATER
SUSTAINABILITY AGENCY

DOLLARS	CENTS
$***82284	95

BETTY T. YEE
CALIFORNIA STATE CONTROLLER

FORM 04-09 (9-97) CONTROLLERS WARRANT

:121113423: 04481306

THE BACK OF THIS DOCUMENT CONTAINS AN ARTIFICIAL WATERMARK - VIEW AT AN ANGLE

STATE OF CALIFORNIA

WARRANT NUMBER 04-489098

THE TREASURER OF THE STATE WILL PAY OUT OF THE FUND NO. 0691 FUND NAME WATER RESOURCES REVOLVI

IDENTIFICATION NO. 3860

MO. 03 DAY 08 YR. 2021

90-1342/1211

04489098

TO:

489098

KERN RIVER GROUNDWATER
SUSTAINABILITY AGENCY

DOLLARS	CENTS
$****7802	15

BETTY T. YEE
CALIFORNIA STATE CONTROLLER

FORM 04-08 (9-97) CONTROLLER'S WARRANT

:121113423: 04489098 3"

REMITTANCE ADVICE

STD. 404C (REV. 4-95)

STATE OF CALIFORNIA
DOF

THE ENCLOSED WARRANT IS IN PAYMENT OF THE INVOICES SHOWN BELOW

DEPARTMENT NAME	ORG CODE	INVOICE DATE	INVOICE NUMBER	RPI	INVOICE AMOUNT
Department of Water Resources	3860	10/05/2020	97,802.15		

DEPARTMENT ADDRESS
1416 9th Street
Sacramento, CA 95814

CLAIM SCHED. NO. 1400199

VENDOR
KERN RIVER GROUNDWATER
SUSTAINABILITY AGENCY
1800 TRUXTUN AVE
BAKERSFIELD, CA 93301
US

FEDERAL TAX ID NO. OR SSAN	RP TYPE	TAX YR	TOTAL REPORTED TO IRS	TOTAL PAYMENT
				$****97,802.15

Page 1 of 1

Funding Contribution and Participation Percentages
for TODD Groundwater Modeling
KGA Portion Only

Total Amount:	**$218,768.00**	
Initial Cash Call:	$107,713.00	Tasks 1-4
Second Cash Call:	$111,055.00	Tasks 5-8
Refund Amount	$75,585.93	

Activity Agreement Member		Total Amount	Initial Cash Call Tasks 1-4	Second Cash Call Tasks 5-8	Refund 4-2021
Arvin Community Services District		6.25%	$6,732.06	$6,940.94	$4,724.12
Arvin-Edison Water Storage District		6.25%	$6,732.06	$6,940.94	$4,724.12
Cawelo Water District		6.25%	$6,732.06	$6,940.94	$4,724.12
Eastside Water Management Area		6.25%	$6,732.06	$6,940.94	$4,724.12
Kern County Water Agency		6.25%	$6,732.06	$6,940.94	$4,724.12
Kern-Tulare Water District		6.25%	$6,732.06	$6,940.94	$4,724.12
Kern Water Bank Authority		6.25%	$6,732.06	$6,940.94	$4,724.12
North Kern Water Storage District		6.25%	$6,732.06	$6,940.94	$4,724.12
Rosedale-Rio Bravo Water District		6.25%	$6,732.06	$6,940.94	$4,724.12
Semitropic Water Storage District		6.25%	$6,732.06	$6,940.94	$4,724.12
Shafter-Wasco Irrigation District		6.25%	$6,732.06	$6,940.94	$4,724.12
South San Joaquin Municipal Utilities District		6.25%	$6,732.06	$6,940.94	$4,724.12
Tejon-Castac Water District		6.25%	$6,732.06	$6,940.94	$4,724.12
West Kern Water District		6.25%	$6,732.06	$6,940.94	$4,724.12
Westside District Water Authority		6.25%	$6,732.06	$6,940.94	$4,724.12
Wheeler Ridge-Maricopa Water Storage District		6.25%	$6,732.06	$6,940.94	$4,724.12
Totals	Totals	100%	$107,713.00	$111,055.00	$75,585.93

Funding Contribution and Participation Percentages
Prop 1 Grant - Category A Administration

1st QTR Refund	$2,117.50	less 10% of 2,117	1,905.75
2nd QTR Refund	$2,414.00	less 10% of 2,414	2,172.60
3rd QTR Refund	$1,830.50	less 10% of 2,414	1,647.45
4th QTR Refund	$3,638.00	less 10% of 3,638	3,274.20

Activity Agreement Member	Total Amount	Prop 1 Grant Refund 1-2020	Prop 1 Grant Refund 4-2020	Prop 1 Grant Refund 9-2020	Prop 1 Grant Refund 4-2021
Arvin Community Services District	6.25%	$119.11	$135.79	$102.97	$204.64
Arvin-Edison Water Storage District	6.25%	$119.11	$135.79	$102.97	$204.64
Cawelo Water District	6.25%	$119.11	$135.79	$102.97	$204.64
Eastside Water Management Area	6.25%	$119.11	$135.79	$102.97	$204.64
Kern County Water Agency	6.25%	$119.11	$135.79	$102.97	$204.64
Kern-Tulare Water District	6.25%	$119.11	$135.79	$102.97	$204.64
Kern Water Bank Authority	6.25%	$119.11	$135.79	$102.97	$204.64
North Kern Water Storage District	6.25%	$119.11	$135.79	$102.97	$204.64
Rosedale-Rio Bravo Water District	6.25%	$119.11	$135.79	$102.97	$204.64
Semitropic Water Storage District	6.25%	$119.11	$135.79	$102.97	$204.64
Shafter-Wasco Irrigation District	6.25%	$119.11	$135.79	$102.97	$204.64
South San Joaquin Municipal Utilities District	6.25%	$119.11	$135.79	$102.97	$204.64
Tejon-Castac Water District	6.25%	$119.11	$135.79	$102.97	$204.64
West Kern Water District	6.25%	$119.11	$135.79	$102.97	$204.64
Westside District Water Authority	6.25%	$119.11	$135.79	$102.97	$204.64
Wheeler Ridge-Maricopa Water Storage District	6.25%	$119.11	$135.79	$102.97	$204.64
Totals Totals	100%	$1,905.75	$2,172.60	$1,647.45	$3,274.20

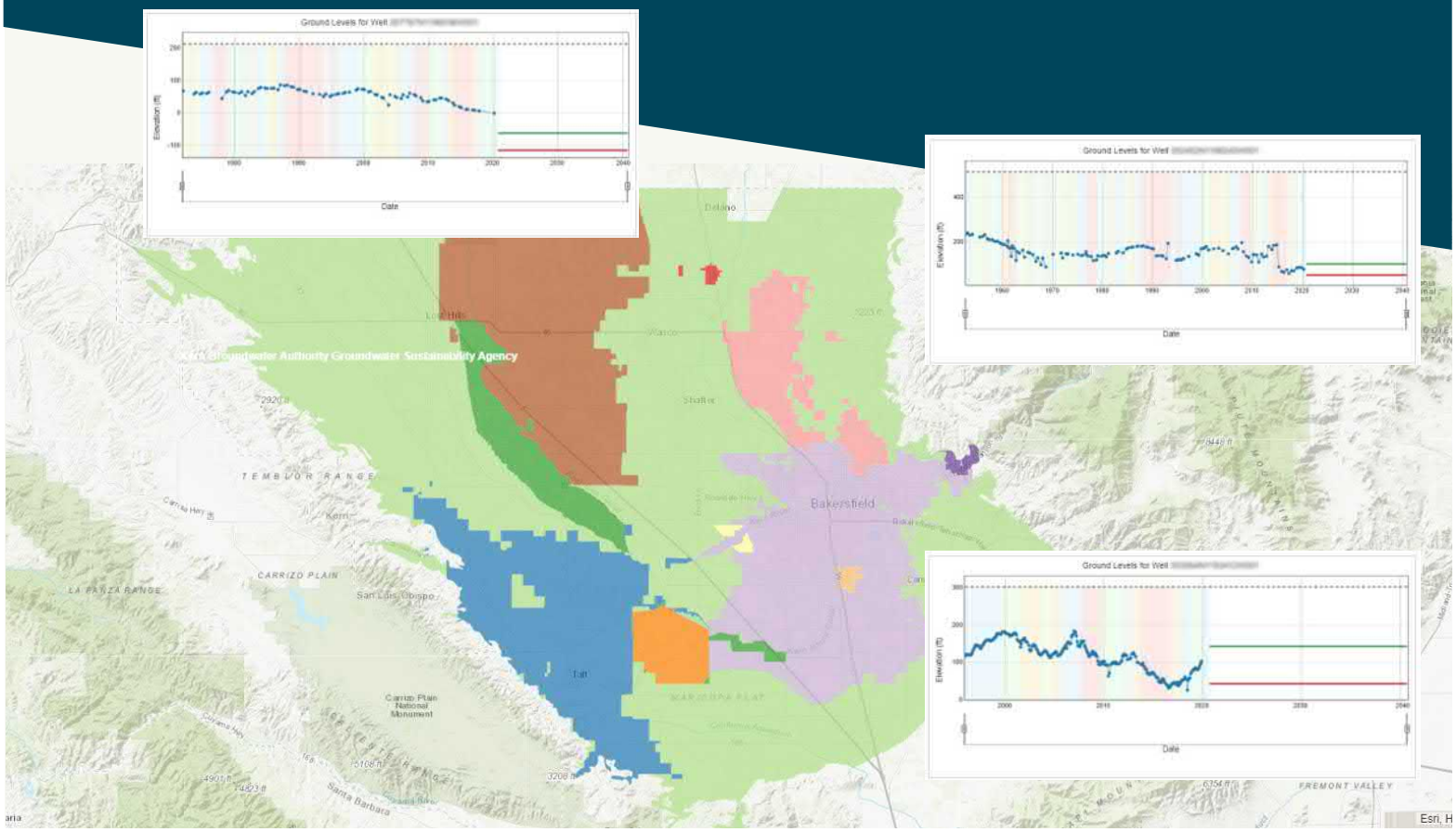
GEI Consultants

Development of a Data Management System

for the Kern County Subbasin

Proposal prepared for: Kern Groundwater Authority

December 3, 2020



December 3, 2020

Consulting Engineers and Scientists

Patty Poire
Kern Groundwater Authority
1800 30th Street, Suite 280
Bakersfield, CA 93301

Subject: Proposal for the Kern Subbasin Data Management System

Dear Ms. Poire:

GEI Consultants, Inc. (GEI) submits the attached proposal for development of a web-based Data Management System (DMS) for the Kern Subbasin (Subbasin). Our proposal recommends building upon the existing GEI SGMA DMS platform to create a custom Kern Subbasin DMS with the objectives of meeting current needs, accommodating future needs, and supporting long-term water management in the Subbasin.

GEI's experience includes in-house development of web-based water management DMSs since 2006 and design and development of Sustainable Groundwater Management Act (SGMA) web tools since 2015. GEI's SGMA experts collaborate with our internal Information Management group of over 15 programmers to deliver specialized web applications which are designed based on SGMA and GSP Regulations and compliance requirements. Our relevant experience includes developing SGMA web tools for the California Department of Water Resources (DWR) and providing SGMA support to over 20 local agencies. Many of our SGMA-specific tools built for DWR can be seen on the SGMA Portal at https://sgma.water.ca.gov/portal/.

Our existing GEI SGMA DMS has a web-based interface that is user-friendly with intuitive and easy-to-use analysis tools for technical staff and managers. It facilitates efficient data management and displays quantitative values in meaningful formats (i.e., tables, graphs, maps). The existing GEI SGMA DMS includes many functions to address the reporting and data visualization needs for each of SGMA's six sustainability indicators. Existing capabilities and recommended enhancements are summarized in the enclosed proposal and a detailed list is provided in Appendix A. The modular framework of our platform allows for expansion to address the complex coordination and management needed within the Kern Subbasin.

We understand that this is a grant-funded project with a firm limit on the funds available to develop the Kern Subbasin DMS. Because there are a significant number of options to consider, GEI will work with the Groundwater Sustainability Agency (GSA) managers to select which new elements to prioritize. This is an important step of the process to ensure managers' needs are heard and the scope and scale of all customizations are appropriate and budgeted for. Based on our initial conversations with GSA managers regarding some of desired enhancements to be included in the Kern Subbasin DMS, we have developed a list of potential additional elements (see Appendix B of the proposal) to meet those needs. The primary goals of the recommendations are as follows:

- Provide a single repository for water management data to serve numerous purposes at the various levels of water management within the Subbasin
- Maintain flexibility for expansion to support individual district and landowner decision making
- Satisfy SGMA data management and reporting requirements at the KGA, GSA, and district levels

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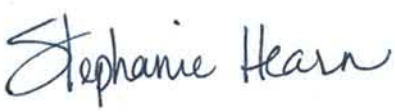
- Streamline multi-agency annual reporting for SGMA

Upon completion, the Kern Subbasin DMS will belong to the KGA and will be accessible to agencies and landowners in the Kern Subbasin. The existing GEI SGMA DMS platform empowers our clients to import and export data from the powerful database without the need for additional consultant support while remaining flexible to accommodate additional expansions. Our client-defined permissions are assigned based on roles and responsibilities of the water managers who will use the system. In addition to providing a user's manual, staff trainings are proposed to maximize the usefulness of the Kern Subbasin DMS.

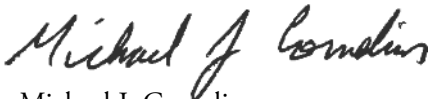
We believe the significant time invested to develop the existing GEI SGMA DMS platform puts us in an ideal position to develop a customized Kern Subbasin DMS that provides a multifunctional database useful to managers, technical staff, and landowners. GEI will begin building the Kern Subbasin DMS from a point where much of the heavy lifting is already done. This enables us to concentrate our time on invaluable management tools, such as data collection and aggregation from local agencies for SGMA annual reporting and district-level dashboards, which will provide the best value for the Subbasin.

Sincerely yours,

GEI Consultants, Inc.



Stephanie Hearn
Project Manager



Michael J. Cornelius
Vice President / Principal-in-Charge

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Introduction

GEI SGMA Expertise

GEI Consultants Inc. (GEI) has led extensive statewide water planning, groundwater management, and groundwater recharge projects in California for over 50 years. Most recently, to support compliance with the Sustainable Groundwater Management Act (SGMA), GEI is assisting with policy and technical aspects for many Groundwater Sustainability Plan (GSP) efforts, including those for critically overdrafted groundwater subbasins in Kern and Tulare counties. Our statewide experience includes providing SGMA program support services to the California Department of Water Resources (DWR). Our current efforts include leveraging our hydrogeologic, engineering, and water management expertise to support GEI's in-house Information Management group as they help state and local agencies meet the information and data management requirements of SGMA. This combined experience of our SGMA professionals with our programming and visualization specialists has formed a powerful team that understands how groundwater information and data will be used to comply with SGMA. Together, we created the GEI SGMA Data Management System (DMS) for practitioners to support improved local water resource management.

GEI's data management experience includes over 15 years of developing web-based DMS platforms and, since 2015, the design and development of DMS platforms specifically designed to meet the requirements of SGMA. Our existing GEI SGMA DMS was created as a modular framework that allows for easy expansion to address data management needs and the additional complex coordination and management needed by water managers in the Kern Subbasin (Subbasin). As shown in our demonstrations of the existing GEI SGMA DMS, our platform is easy to use and intuitive. The existing GEI SGMA DMS retrieves data from public online open sources as well as private data from local agencies and includes the ability to compare data from different wells on the same graph. Our existing GEI SGMA DMS provides a very strong and stable starting point for customizing the Kern Subbasin DMS.

Project Understanding

The Kern Groundwater Authority (KGA) has a grant agreement (Grant Agreement No. 4600012955) with DWR for development of a Kern Subbasin DMS which must meet SGMA requirements. The minimum requirements specified in the agreement are: to coordinate with GSAs in the Subbasin to identify the data types and sources required to monitor GSP implementation, evaluate groundwater conditions, and document progress towards sustainability. General guidance from the SGMA regulations[1] regarding data management include:

- ***§ 352.6. Data Management System:*** *Each Agency shall develop and maintain a data management system that is capable of storing and reporting information relevant to the development or implementation of the [Groundwater Sustainability] Plan and monitoring of the basin.*
- ***§ 352.4. Data and Reporting Standards:*** *(c)(3) well information used to develop the basin setting shall*

[1] Water Code Sections 10727.2, 10727.6, 10728, 10728.2, 10733.2, 10733.8

be maintained in the Agency's data management system.

- ***§ 354.40. Reporting Monitoring Data to the Department:*** *Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.*

Grant Agreement No. 4600012955 identifies numerous activities which must be undertaken during development of the Kern Subbasin DMS. Table 1 identifies some of those general development activities and the current status of those activities in the existing GEI SGMA DMS. As shown on Table 1, many activities are at various levels of completion or were already completed in earlier stages of development. Many of these completed activities require considerable time and effort to fully implement. Because GEI already completed many of these activities, we will not have to start from scratch to create the Kern Subbasin DMS. This enables us to use most of the available grant funds to build upon our existing system to customize a Kern Subbasin DMS with additional new functionality identified as the highest priorities by the GSA managers and decision makers.

In addition to getting more value from the available grant budget, using the existing GEI SGMA DMS platform as a starting point leverages our experience to start months and maybe years ahead of teams that do not have this as a starting point. Additionally, using the existing platform allows the project to be completed within the grant schedule that includes an end date of April 30, 2022.

Table 1 - General DMS Development Activities Identified in KGA-DWR Grant Agreement

Grant-Identified Activities	Status of Activities in existing GEI SGMA DMS platform
Develop a Data Management System (DMS).	DONE – Start with GEI SGMA DMS platform which was demonstrated for GSA managers and decision makers.
Coordinate with GSAs within the subbasin to identify goals and basin needs for ongoing data management.	In Progress – GEI developed this proposal based on feedback provided from our demonstration presentations. A kickoff or project scoping meeting is anticipated to confirm goals and basin data management needs with GSA managers and decision makers, which will be documented in the *Kern Subbasin Work Plan*. This workplan can then be shared with DWR to meet the grant agreements requirements.
Coordinate with GSAs in the subbasin to identify the data types and sources required to monitor GSP implementation, evaluate groundwater conditions, and document subbasin progress toward sustainability.	In Progress – GEI to meet with GSA Managers and decision makers to identify customized functions and priorities for this grant. These will be addressed in the kickoff meeting.
Investigate and compare available DMS packages.	DONE – Completed by GSA Managers and decision makers in October/November 2020.
Design the selected DMS and customize as needed.	DONE – Start with existing GEI SGMA DMS Platform and customize to meet the needs of the Kern Subbasin DMS.

Grant-Identified Activities	Status of Activities in existing GEI SGMA DMS platform
Hold various coordination efforts with DWR on the DMS to interact.	**To do as needed**– The initial step will be to provide DWR the *Kern Subbasin DMS Workplan*.
Develop data templates that allow each GSA or participating agency to submit the required data to meet DWR reporting requirements.	**DONE** – Data input templates and data export templates are already developed for existing data sets. New templates will be developed as needed.
Develop and implement protocols and a quality assurance/quality control (QA/QC) process for DMS security.	**DONE** – QA/QC protocols are included in the data input templates to reduce input of incorrect formats of data and flag those entries. Security is already integrated into the GSI SGMA DMS platform at the application level and system level. This includes individual login credentials for each user.
Develop a functional user's manual that describes templates, outlines DMS protocols, and provides step-by-step procedures.	**In Progress** – Portions of a user's manual have been developed for some of the functions in the existing GEI SGMA DMS. As customization is conducted for the Kern Subbasin DMS, the user's manual will be updated.
Conduct trial runs of the DMS to address functional issues. Hold various coordination efforts with DWR on the DMS.	**In Progress** – Already completed and debugged for existing modules. GEI already has regular communications with DWR staff regarding our work on DWR's data management tools and has a strong working relationship with DWR staff. Coordination for the Kern Subbasin is expected to be seamless.
Develop a Data Management System (DMS).	**In Progress** – Additional grant-funded work to fully customize the added features for the Kern Subbasin DMS to support local water management needs.

GEI SGMA DMS Functionality

While the GSP Regulations allow for the DMS to be a spreadsheet or a desktop database, we envisioned a system that is a powerful water management tool, designed specifically around the six sustainability indicators of SGMA. While the focus of the DMS is to meet the requirements of SGMA, it has additional capabilities that go beyond those listed in the previous section from the GSP Regulations and is expandable to meet additional water management needs. The existing GEI SGMA DMS platform is a web-based interface that provides GSA managers and decision makers the ability to spend more time evaluating and understanding the data, rather than moving it around between multiple sources and programs to create useful information. Our user-friendly system displays data in a meaningful format that can be used to inform decision makers, regulators, stakeholders, and the general public. Using the GEI SGMA DMS platform as the starting point for the DMS customization, the Kern Subbasin DMS will provide the following benefits:

- Empowers district staff to fully understand their data and information
- Saves time in conducting routine tasks
- Provides flexibility and responsiveness to address questions
- Allows 'What if' questions to be answered
- Allows the easy comparison of data at different wells
- Serves as a repository for 'institutional knowledge' about historic conditions in basin
- Provides a centralized and secure platform for data and information
- Includes a user's manual and training to support those using the Kern Subbasin DMS
- Enables GSAs and districts to be more self-reliant in data and information needs
- Streamlines data entry into the DMS by offering field-data collection tools and automated water quality data entry from labs
- Improves QA/QC of data prior to import to DMS
- Supports other regulatory reporting requirements
- Includes cloud-based backup for enhanced data security
- Improves data confidence
- Supports model data management and model development

Map Viewer with Sustainability Indicator Data

The existing GEI SGMA DMS platform is structured around SGMA's six sustainability indicators: groundwater levels, groundwater storage, water quality, land subsidence, interconnected surface water, and seawater intrusion. A wide variety of additional data and GIS coverages are already included in the GEI SGMA DMS to provide additional understanding and meaning to the SGMA-required information. Some of the existing elements and potential enhancements that may be added to the Kern Subbasin DMS are described below by sustainability indicator and presented in more detail in **Appendix A** – Existing SGMA DMS Elements and **Appendix B** – Potential Added Elements for Customized Kern Subbasin DMS. The final list of new elements to be added to

create the Kern Subbasin DMS will be created based on discussions with the GSA managers and decision makers and based upon their priorities.

Groundwater Levels (GWL)

Existing Features

Various sources of public data for the Kern Subbasin have been downloaded into our DMS platform to enable visualization tools such as the groundwater level monitoring network and groundwater contours mapping. On the map viewer, users simply scroll over the network of wells to get a pop-up image of each hydrograph to quickly check the number of observations at the well. When the hydrograph feature is selected, the detailed well hydrograph with color coded water years in the background and aerial images of the well location is shown and, for Representative Monitoring Sites (RMS), minimum thresholds and measurable objectives are displayed. A key feature of our DMS hydrographs is the ability to overlay data for multiple wells on one graph to compare trends and interpret impacts of localized pumping.

Recommended Enhancements

To improve the completeness of this module, it is recommended to upload non-public data for sites defined in each District's Chapter of the GSP. To enhance the ability to compare data, it is recommended to add an element to overlay water quality trends on the existing hydrographs, including the associated sustainable management criteria. Some functions should also be expanded such as the ability for permissioned users to import GIS layers; to select groundwater wells and observation periods and generate water level contours on-the-fly; to create groundwater well profile / cross-section diagrams; and the ability to search and query by well name, ID, observation date, or owner name. A detailed list of recommendations is included in **Appendix B**.

Groundwater Storage

Existing Features

The Groundwater Storage module includes similar features as water level, plus the ability to select C2VSIM layers (boundary, elements, nodes, small watersheds, stream reaches, subregions).

Recommended Enhancements

To add interactivity with the groundwater model, it is recommended to add an element to visualize selected input and output data from C2VSIM model and summarize C2VSIM estimates of subsurface flow between model subregions within Kern Subbasin and between neighboring subbasins (historic and projected model runs). Another element to consider is to present the change in storage from C2VSIM model outputs at the subregion level for historic and projected model runs. A detailed list of recommendations is included in **Appendix B**.

Water Quality

Existing Features

Like the groundwater levels module, publicly available water quality data was uploaded for the groundwater monitoring network in the Kern County Subbasin. Currently, water quality data includes a simple trendline for a single selected water quality parameter for individual wells. If the well is part of the GSP-designated monitoring network, sustainability indicators are displayed on the trend graph (minimum threshold, measurable objective, and interim milestones).

Recommended Enhancements

To enhance the ability to compare data, an additional element is recommended for comparison of trends of multiple wells or multiple parameters on a single graph. For example, within a monitoring network, a sentinel well

may be designated to indicate increasing arsenic trends for an area. Having the ability to overlay trends between multiple wells with the sustainability indicators could allow users to identify early warning signs of triggering an exceedance. In other scenarios, it may be beneficial to overlay multiple parameters that have consistent or inverse trends: this new element would allow users to easily evaluate the relationship between water levels and water quality. Looking into the future, having the ability to compare trends between wells may also provide insight on how deep salt and nitrate are sinking into the aquifer. This could be accomplished by comparing wells that have similar construction features but different screened intervals. A detailed list of recommendations is included in **Appendix B**.

Land Subsidence

Existing Features

The land subsidence module imports data from DWR and USGS extensometers as well as TRE Altamira InSAR and NASA JPL Instar datasets. The land subsidence monitoring network displays on a map where users can view details including the rate of subsidence plotted on a trend graph, measurements over time, and aerial images of station locations.

Recommended Enhancements

No recommended enhancements specific to the Kern County Subbasin.

Interconnected Surface Water

Existing Features

Users can view the interconnected surface water monitoring network in a map view as well as data from precipitation and gage stations, CDEC stations, and Natural Communities Commonly Associated with Groundwater (NCCAG) datasets.

Recommended Enhancements

To improve the utility of the existing data, it is recommended to add C2VSIM stream flow hydrographs for historic runs and projected model runs. A detailed list of recommendations is included in **Appendix B**.

Seawater Intrusion

The seawater intrusion sustainability indicator is not applicable for Kern County Subbasin.

Other Mapping Data

Existing Features

GEI's SGMA DMS includes a considerable amount of additional mapping information intended to provide important relevant information for water resources planning. Visualizing sustainability indicator data in mapping context increases understanding of how datasets affect groundwater conditions and supports decision-making. Using the DMS mapping tools, users can compare how their pumping, project, or management actions may impact their District and neighboring water districts. The map data is meant to improve understanding of the hydrogeologic setting and surface conditions which impact water management in the Subbasin.

Recommended Enhancements

To customize the mapping module for the Kern Subbasin, we recommend adding a GIS layer management tool to allow select users to customize maps by uploading, renaming, or removing GIS layers. We also recommend adding relevant, non-public data from sources such as local datasets, Land IQ, or the Irrigated Lands Program. A detailed list of recommendations is included in **Appendix B**.

Data Management Tools

The management tools included in the existing GEI SGMA DMS platform provide users the ability to do much of the work and analysis of data separate from the system developer (consultant). With the proper sign-in authorities, district staff can conduct much of the uploading and downloading of data and conduct analysis of the data to support SGMA compliance in the Subbasin. Existing data management tools and recommended enhancements are listed below.

Existing Features

The existing GEI SGMA DMS includes data templates. Users download the appropriate template based on which type of data they would like to add to the DMS (e.g., water levels), populate the template with the desired data, and use the system's automated import tool to upload their data to the secure database. Users with the appropriate permissions may also view, edit, import, or export data files. Currently, an administrative user may manage other user accounts and assign roles and agencies to individual users. At present, there are built-in security and QA/QC procedures.

Recommended Enhancements

To accommodate the vast number of agencies and organizations that may want access to the Kern Subbasin DMS, it is recommended to add a custom permissions element. We recommend identifying and programming varying levels of permissions with the ability to do more or less tasks as appropriate based on user type (e.g., GSA manager, landowner, public). Additional recommended elements include interfacing the Kern Subbasin DMS with C2VSIM model inputs and outputs, adding capability to import lab results and field data directly to the database from EDT or a field data collection tool, and adding QA/QC checks for new system elements as well as enhanced data search, query, and download. A detailed list of recommendations is included in **Appendix B**.

Annual Reports and Dashboards

With several of the recommended enhancements listed above, the Kern Subbasin DMS will be able to expand on the current ability to support the SGMA annual reporting requirements. Existing features and recommended enhancements are listed below.

Existing Features

The existing GEI SGMA DMS is able to export data relevant to annual reporting, generate individual hydrographs, and display the monitoring network on a map.

Recommended Enhancements

GEI recommends development of annual reporting templates to be distributed to local agencies in the Subbasin for population. These templates, when complete, would then be imported to the Kern Subbasin DMS directly, using an enhanced import tool, for aggregation and summation. We also recommend an annual reporting dashboard to view which districts have submitted reports and the associated data. GEI also recommends a GIS-export package for all required annual report maps as well as an export package for all required hydrographs. Water budget templates and associated tools and viewers are recommended at district, GSA, and subbasin levels, based on management interest. A detailed list of recommendations is included in **Appendix B**.

Project Team

In this section, we provide highlights and qualifications of key team members who will have primary responsibilities and direct the work of our support staff. Our team is led by the three managers listed below who have complementary skills and SGMA experience (such as working with DWR or working in the Kern Subbasin) which provides the team with the broader vision needed to customize the Kern Subbasin DMS to meet the current needs of SGMA and other water management needs. These leaders are supported by over 30 staff including engineers and hydrogeologists that have worked on GSPs and over 15 information management professionals including engineers, programmers, and GIS analysts whom have been working on SGMA since 2015. All staff included on the project team are GEI employees located in California. Resumes for our team members are available upon request.

STEPHANIE HEARN– PROJECT MANAGER

Years of Experience: 20 | Years with GEI: 5

Ms. Hearn is a Project Manager in our Bakersfield Office with more than 20 years of experience working in water resources, predominately in Kern County. She is well-versed in groundwater conditions and management practices in the Kern Subbasin and is knowledgeable of local SGMA planning and implementation. With her role as Project Manager, she offers a track record of diligent project management focused on delivering projects consistent with the scope of work, within budget, and on schedule.

MIKE CORNELIUS, PG – PRINCIPAL IN CHARGE

Years of Experience: 30 | Years with GEI: 16

Mr. Cornelius is a professional geologist in our Sacramento office with over 30 years of experience in water and groundwater management in California. Since 2015 he has served as GEI's project manager supporting DWR's Sustainable Groundwater Management Office (SGMO) implementation of their responsibilities to comply with SGMA. During this time, he has also worked on more than 10 GSPs in subbasins throughout the State including the development of local agency DMS projects.

DONGHAI WANG, PHD, PE – LEAD DMS DEVELOPER

Years of Experience: 25 | Years with GEI: 14

Dr. Wang is a professional engineer in our Sacramento office with over 25 years of experience in water resources data management and hydrologic modeling. His background includes DMS development, web application design, data collection and visualization, decision support system development, GIS mapping, spatial analysis, and programing of the Integrated Water Flow Model (IWFM) which is the basis of DWR's C2VSIM model. Since 2015 he has served as GEI's lead developer for the construction of DWR's SGMA DMS and SGMA portal (https://sgma.water.ca.gov/portal/) as well as for the development of local agency DMS projects.

Approach

GEI's approach is to customize the Kern Subbasin DMS to help GSA managers meet their SGMA requirements and leverage the single-DMS concept to meet other water management needs in the Subbasin, while staying in the limits of available grant funding. During demonstrations of the existing GEI SGMA DMS provided in October and November, there were comments by some managers about additional functions they might want to add to the Kern Subbasin DMS. The GEI SGMA DMS Functionality section of this proposal summarized some of the existing GEI SGMA DMS features (listed in detail in **Appendix A** – Existing GEI SGMA DMS Elements) and some recommended enhancements (listed in detail in **Appendix B** – Potential Added Elements for Customized Kern Subbasin DMS) to be implemented during this project.

To make the best use of the available grant funds, GEI proposes meeting with the GSA managers and decision makers to review the existing GEI SGMA DMS functionality and identify priorities for additional elements to customize the Kern Subbasin DMS. The meeting(s) will focus on assessing manager needs, system design, creation of a final task list, and a refined the scope and budget for each task. The outcome of the meeting(s) will be documented in the *Kern Subbasin DMS Work Plan* which will include refined budget allocations and task schedules (**Task 2**). Often, there are economies of scale to consider when scoping modules which share common components. There may also be certain dependencies of the customization priorities, for example, additional data sets may be needed to support a desired customized feature. The goal of the *Kern Subbasin DMS Work Plan* is to ensure that all parties have a shared understanding of which elements will be added and the scope and scale of each. The *Kern Subbasin DMS Work Plan* can then be submitted to DWR to meet one of the grant funding requirements.

During the Kern Subbasin DMS Customization (**Task 3**), GEI will provide monthly progress reports with all invoices to support the KGA billing to DWR (included as part of **Task 1**). At specific milestones in the customization of the Kern Subbasin DMS, GEI will provide demonstrations and training workshops to GSA staff members based on the user's manual (to be developed as part of this project) that will be prepared to support the Kern Subbasin DMS (included as part of **Task 5**). This will allow GSA staff to learn how to use the DMS and populate data during the DMS customization phase. GEI will coordinate with the GSA managers to identify the data that GEI will upload and the data that will be uploaded by GSA staff. Data uploads will follow the standard data upload procedures and include QA/QC of the data to ensure only high-quality data is entered into the DMS.

All of these customizations will need to undergo testing during deployment to ensure their performance with the existing modules of the DMS. **Task 4** includes the testing and debugging of the modules of the DMS. Some of the initial datasets will be uploaded to the Kern Subbasin DMS by GEI staff.

GEI will host the DMS on our servers during the customization phase. Upon completion of the work associated with the grant, the DMS can be turned over to the KGA, or it can continue to be hosted by GEI for a small hosting fee.

Estimated Budget

We understand that this is a grant-funded project with a maximum budget that is not to be exceeded. With that in mind, we prepared an estimated budget based on the proposed scope of work that includes Required Elements (which will be needed regardless of the customized features selected) and Additional Elements (which include the list of features that GSA managers will select from for customization). The project budget will be refined based on meetings with GSA managers to align project priorities with the available budget. Project Management and direction will be led by Stephanie Hearn, with implementation of the work and task management distributed amongst the team's areas of expertise.

Table 2 summarizes the proposed budget by Task. This estimate is a "not-to-exceed" budget based on the proposed Scope of Work. GEI submits invoices monthly for budget management. Labor costs will be billed by task to track project progress and enable the Project Manager to identify potential budget issues early in the process, and to take corrective action to deliver the project within the approved budget.

For this proposed scope of work, GEI recommends authorizing a budget of $439,785. As shown on Table 2, Tasks 1,2,4, and 5 are identified as Required Elements and have an estimated budget of $90,000. The remaining grant funds totaling $349,500 are available for the Additional Elements in Task 3. A cost estimate of each additional element that is recommended for Kern Subbasin is provided in **Appendix B**.

TABLE 2. BUDGET SUMMARY BY TASK

Task	Project	Hours	Cost *
1**	Project Management	150	$22,500
2**	Interview Meetings, Needs Assessment, and System Design resulting in *Kern DMS Work Plan*	100	$15,000
3	Kern Subbasin DMS Customization	2330	$349,500
4**	Testing and Deployment	220	$33,000
5**	User Manual and Training	150	$22,500
	Total	**2,950**	**$439,500**

* Cost estimates based on $150/hour average billing rate

** Required Elements necessary to support customization

Schedule

We prepared a project schedule that identifies the timeline for tasks defined in this proposal. The schedule is developed to align with the grant schedule that includes a completion date of April 30, 2022. This schedule assumes the project will be awarded in December 2020 with the project kickoff in January 2021. The project will be completed by January 31, 2022 in order to complete the grant support documents and close out reports by the April 30, 2022 grant completion date. GEI will provide monthly invoices and progress reports identifying the status of the DMS development and provide quarterly progress reports that can be used to support KGA grant reporting requirements.

Task No.	Task Name	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1
1	Project Management					
2	Interview Meetings, Needs Assessment, and System Design resulting in *Kern DMS Work Plan*					
3	Kern Subbasin DMS Customization					
4	Testing and Deployment					
5	User Manual and Training					

Appendix A: Existing GEI SGMA DMS Elements

The lists below summarize the existing GEI SGMA DMS elements by sustainability indicator.

Groundwater Levels Existing Elements

- Import data with easy-to-use import tool and templates
- Upload well site information from public databases including CASGEM
- Upload groundwater level data for representative monitoring sites from DWR's Annual Reports data
- Upload sustainable management criteria from 2019 Annual Report
- View Groundwater Level Monitoring Network on a map
- View wells outside of the monitoring network
- Select a well to see details including hydrograph and aerial image of location
- Display hydrograph(s) of selected well(s)
- View data from multiple wells on one hydrograph to compare water levels
- Print hydrographs for reporting purposes
- View groundwater contours from pre-loaded GIS layers
- View well completion reports for wells with known construction information
- View groundwater level data from external sources including DWR and USGS

Groundwater Storage Existing Elements

Includes all the Groundwater Levels elements, plus:

- Designate wells as part of your Groundwater Storage Monitoring Network
- View your Groundwater Storage Monitoring Network on a map
- View select C2VSim layers (boundary, elements, nodes, small watersheds, stream reaches, subregions)

Water Quality Existing Elements

- Upload well information for wells tracking water quality
- Upload station information for stations tracking water quality
- Upload water quality data for 301 constituents
- Upload sustainable management criteria
- View Water Quality Monitoring Network on a map
- View Water Quality sites on a map and select a site to see details including chemographs and aerial image of location. Chemograph of selected site includes time series measurements, and if part of designated monitoring network; minimum threshold, measurable objective, and interim milestones
- Print chemographs for reporting purposes

Land Subsidence Existing Elements

- Import subsidence stations and associated data
- View Land Subsidence Monitoring Network on a map

- Click on a station to view details including graph of measurements over time and aerial image of location
- View rate of subsidence on a graph (automatically calculated)
- View land subsidence data from these external sources including:
    - DWR Extensometers
    - USGS Extensometers
    - TRE Altamira InSAR dataset
    - NASA JPL InSAR dataset

Interconnected Surface Water Existing Elements

- Import precipitation and stream gage locations and associated data
- View interconnected surface water monitoring network
- View precipitation and gage stations
- View CDEC stations
- View Natural Communities Commonly Associated with Groundwater (NCCAG) datasets

Seawater Intrusion Existing Elements

The seawater intrusion sustainability indicator is not applicable for Kern County Subbasin, so seawater intrusion information is not needed in the Kern Subbasin DMS.

Other Existing Mapping Data

The following mapping data is included to supplement the sustainability indicator data listed above.

- Surface Geology
- Corcoran Clay
- County boundaries
- Canals and aqueducts
- Tribal trust boundaries
- Disadvantaged communities (based on census block groups, places, tracts)
- Water agency boundaries
- Groundwater basin prioritizations (2016, 2019)
- State parks / refuges
- CDFW owned and operated lands and conservation easements
- California Protected Areas Database (CPAD) Holdings
- California Conservation Easement Database (CCED)
- Regional Water Quality Control Board boundaries
- Federal lands
- Township and range section lines
- GSA boundaries
- Kern County Subbasin-specific GSA and Water District boundaries

Appendix B: Potential Added Elements for Customized Kern Subbasin DMS

Based on the meetings to-date, additional elements, their estimated costs, and a preliminary priority ranking are provided below for the GSA managers to identify the items most important to their ongoing SGMA efforts. Because the total of all additional elements ($526,500) exceeds the available budget of $349,500, we will work with the GSA managers to make selections for customizing the Kern Subbasin DMS.

Additional Elements		Priority	Hours	Cost
A*	Add groundwater level data to water quality plots for same well and nearby wells	High	160	$24,000
B	Initial data population of representative monitoring site (RMS) data	High	80	$12,000
C	Customize user permission controls by GSA managers, administrator, district, super users, landowners	High	350	$52,500
D	District and GSA Level Dashboards	High	160	$24,000
E*	Relevant data from other sources such as Land IQ, CV-Salts, and Irrigated Lands Program	High	80	$12,000
F	Enhance data search, query, and download functions (by well, station, GSA, district)	High	80	$12,000
G	Enhance field data collection tool to survey data in the field and upload to the DMS directly and upload seasonal water level data from the field	High	160	$24,000
H	Automate export packages to save formats of figures/ hydrographs at district/GSA level	High	100	$15,000
I	Automate export packages to save formats and individual frames for GIS figures	High	300	$45,000
J	Create groundwater well profile or cross-section diagram	High	40	$6,000
K	Allow users to select groundwater wells and observation period to automatically generate water level contours "on-the-fly"	High	200	$30,000
L	Display sustainability indicators by proxy of water level	High	40	$6,000

Yellow highlights to show recommended elements 04/20/21

* High priority elements because of potential dependencies of other features.

Additional Elements		Priority	Hours	Cost
M	Groundwater level forecasting tool to evaluate 'What If' scenarios	Medium	200	$30,000
N	Annual reporting support	Medium	200	$30,000
O	Develop import tool for lab results from EDT	Medium	80	$12,000
P	Print page of the well detail information	Medium	40	$6,000
Q	C2VSIM Integration (individual elements listed below)			$0
R	C2VSIM stream flow hydrographs for historic and projected runs	Medium	60	$9,000
S	Change in groundwater storage maps for each principal aquifer based on CVGSM subregions.	Medium	120	$18,000
T	Groundwater extraction locations and volumes (for preceding water year) by CVGSM subregions	Medium	100	$15,000
U	Add C2VSIM simulation model output at Monitoring Network Locations	Medium	160	$24,000
V	Manage C2VSIM model input and output data files	Medium	160	$24,000
W	Summarize C2VSIM estimates of subsurface flow between model subregions within Kern Subbasin and between Kern Subbasin and neighboring subbasins for historic and projected model runs	Medium	100	$15,000
X	Visual display of C2VSIM water budgets	Medium	150	$22,500
Y	Mapping GIS layer management tool for admin users to upload, change name, or remove GIS layers	Low	40	$6,000
Z	Water budget templates at district level to be rolled up to GSA and Subbasin level	Low	350	$52,500
	Total of additional elements			**$526,500**

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Table ES-1. Groundwater Extractions in the Kern County Subbasin for Water Year 2020

Groundwater Extraction	Total Groundwater Extractions	Meters Volume	Electrical Records Volume	Land Use Volume	Groundwater Model Volume	Other Methods Volume
Water Use Type	Acre-ft	Acre-ft	Acre-ft	Acre-ft	Acre-ft	Acre-ft
Urban	152,291	139,080	0	13,210	0	0
Industrial	0	0	0	0	0	0
Agricultural	1,342,590	195,352	0	1,147,238	0	0
Managed Wetlands	0	0	0	0	0	0
Managed Recharge	259,658	259,658	0	0	0	0
Native Vegetation	0	0	0	0	0	0
Other	80,515	8,233	0	72,282	0	0
Total	1,835,054	602,324	0	1,232,731	0	0

Surface Water Supply

For the Kern County Subbasin, surface water supplies are measured directly by local water agencies at the point of diversion from a river, stream or canal using measurement devices and monitoring protocols. Surface water data were collected by measurement devices with a high level of accuracy consistent with relevant standards. Measured surface water data were provided by local agricultural districts, urban water purveyors and city water departments for this Annual Report (see **Table 1**, Section 1.3.2). Additional details on surface water supplies are provided in Section 4. A map showing surface water supply infrastructure and features in the Subbasin is provided on **Figure 14.**

Table ES-2. Surface Water Supplies in the Kern County Subbasin for Water Year 2020

Surface Water Supply	Surface Water Supply Volume
Surface Water Supply Source	Acre-ft
Central Valley Project	256,447
State Water Project	605,005
Colorado River Project	0
Local Supplies	428,542
Local Imported Supplies	56,805
Recycled Water	58,710
Desalination	0
Other Water Source	67
Total Surface Water Supply	1,405,576

Table ES-1. Groundwater Extractions in the Kern County Subbasin for Water Year 2019

Groundwater Extraction	Total Groundwater Extractions	Meters Volume	Electrical Records Volume	Land Use Volume	Groundwater Model Volume	Other Methods Volume
Water Use Type	Acre-ft	Acre-ft	Acre-ft	Acre-ft	Acre-ft	Acre-ft
Urban	150,892	128,115	0	22,777	0	0
Industrial	0	0	0	0	0	0
Agricultural	1,096,779	19,945	0	1,076,834	0	0
Managed Wetlands	0	0	0	0	0	0
Managed Recharge	0	0	0	0	0	0
Native Vegetation	0	0	0	0	0	0
Other	36,512	21,531	0	14,981	0	0
Total	1,284,183	169,591	0	1,114,592	0	0

Figure 11 shows the distribution and volumes of total groundwater extractions over the Kern County Subbasin during the Reporting Period.

Surface Water Supply

For the Kern County Subbasin, surface water supplies are measured directly by local water agencies at the point of diversion from a river, stream or canal using measurement devices and monitoring protocols. Surface water data were collected by measurement devices with a high level of accuracy consistent with relevant standards. Measured surface water data were provided by local agricultural water districts, urban water purveyors and city water departments for this Annual Report (see **Table 1**, Section 1.3.2).

Table ES-2. Surface Water Supplies in the Kern County Subbasin for Water Year 2019

Surface Water Supply	Surface Water Supply Volume
Surface Water Supply Source	Acre-ft
Central Valley Project	505,061
State Water Project	1,121,965
Colorado River Project	0
Local Supplies	1,065,772
Local Imported Supplies	75,469
Recycled Water	35,609
Desalination	0
Other Water Source	1,524
Total Surface Water Supply	2,805,400

Total Water Use

Based on data and tables in preceding sections, the total water use in the Subbasin is provided by Water Source Type and Water Use Sector on **Tables ES-3** and **ES-4**.

Table ES-3. Total Water Use by Source Type, Kern County Subbasin, Water Year 2020

Total Water Use	Total Water Supply by Volume
Water Source Type	**Acre-ft**
Groundwater	1,835,054
Surface Water	1,346,799
Recycled Water	58,710
Reused Water	67
Other Water Source Type	0
Total Water Supply	3,240,630

Table ES-4. Total Water Use by Water Use Sector, Kern County Subbasin, Water Year 2020

Total Water Use	Total Water Use Volume
Water Use Sector	**Acre-ft**
Urban	176,016
Industrial	0
Agricultural	2,232,497
Managed Wetland	22,582
Managed Recharge	304,723
Native Vegetation	0
Other Water Source Type	340,174
Total Water Use	3,075,992

Additional details on the tabulation of Total Water Use are provided in Section 5.

A map showing surface water supply infrastructure and features in the Kern County Subbasin is provided on **Figure 12.**

Total Water Use

Based on data and tables in preceding sections, the total water use in the Subbasin is provided by Water Source Type and Water Use Sector, as shown on **Tables ES-3** and **ES-4** below.

Table ES-3. Total Water Use by Source Type, Kern County Subbasin, Water Year 2019

Total Water Use	Total Water Supply by Volume
Water Source Type	**Acre-ft**
Groundwater	1,284,183
Surface Water	2,768,267
Recycled Water	35,609
Reused Water	1,524
Other Water Source Type	0
Total Water Supply	4,089,583

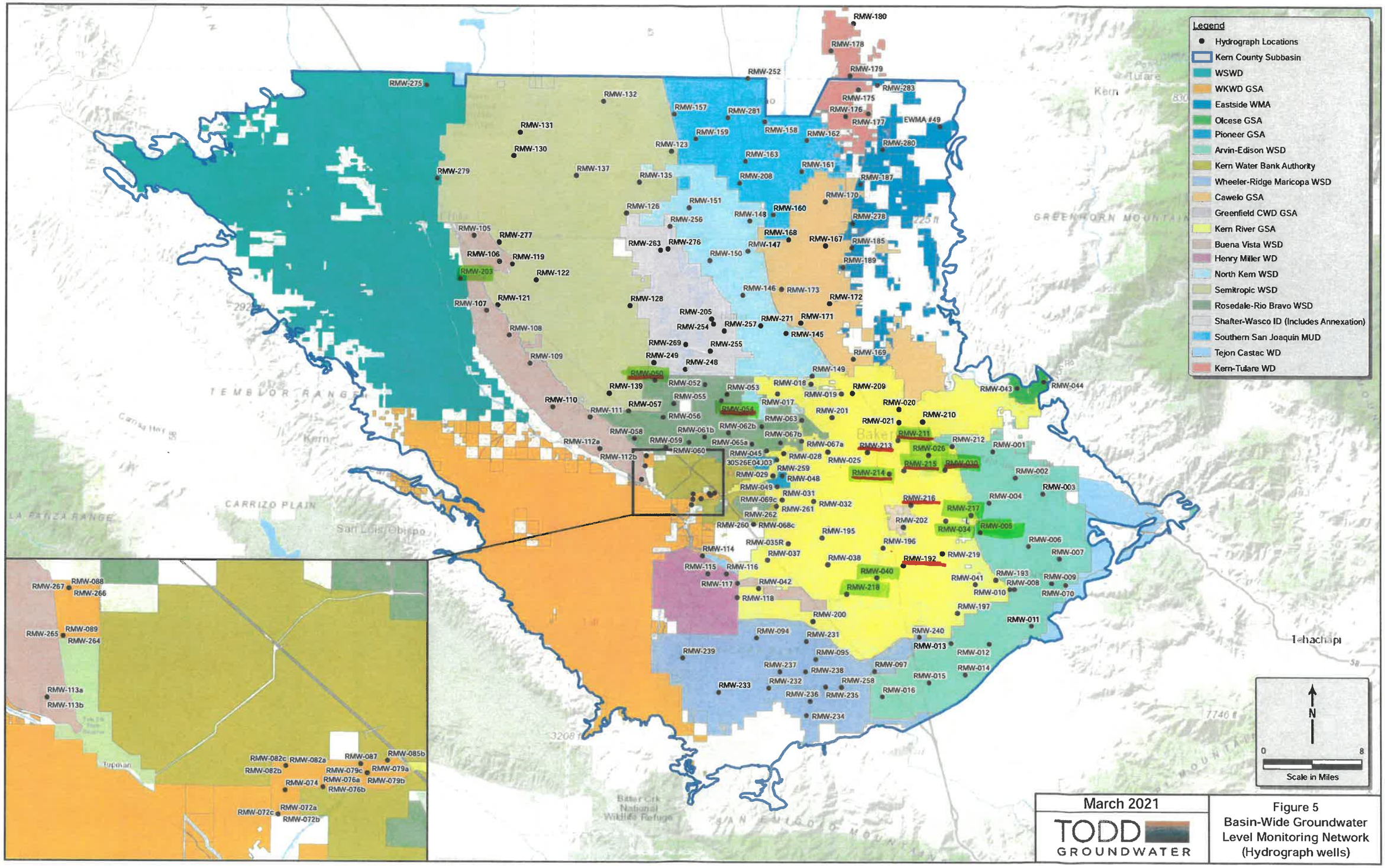
Table ES-4. Total Water Use by Water Use Sector, Kern County Subbasin, Water Year 2019

Total Water Use	Total Water Use Volume
Water Use Sector	**Acre-ft**
Urban	199,977
Industrial	0
Agricultural	2,445,679
Managed Wetland	23,074
Managed Recharge	1,173,060
Native Vegetation	0
Other Water Source Type	36,512
Total Water Use	3,878,302

Change in Groundwater in Storage

As required by the GSP regulations, the following figures included in the 2019 Annual Report illustrate the changes in groundwater in storage over the Subbasin:

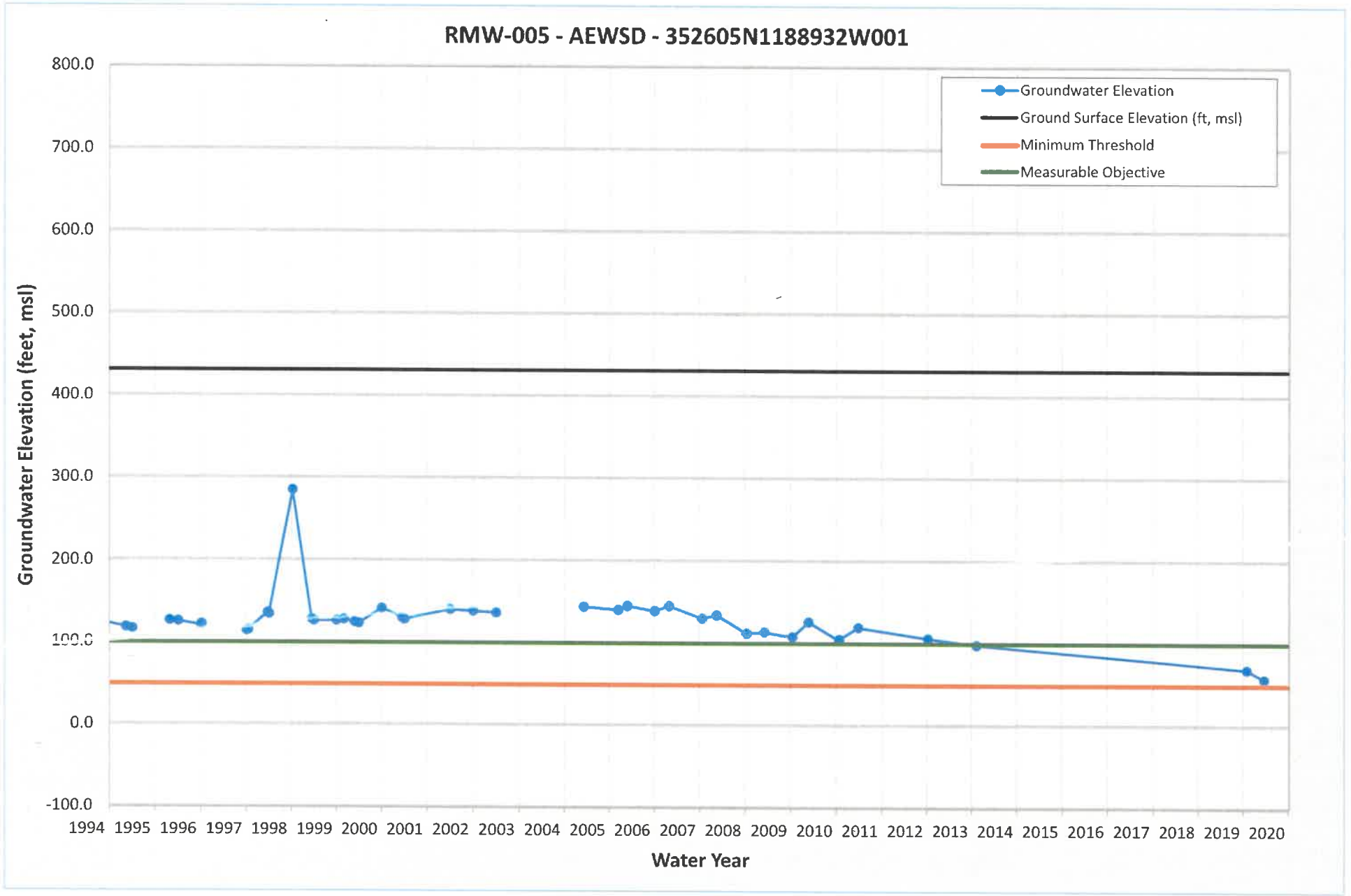
- Graph depicting water year type, groundwater use, the annual and cumulative change in groundwater in storage based on historical data to the greatest extent available, including from January 1, 2015 to the current reporting year.



March 2021

TODD GROUNDWATER

Figure 5
Basin-Wide Groundwater Level Monitoring Network (Hydrograph wells)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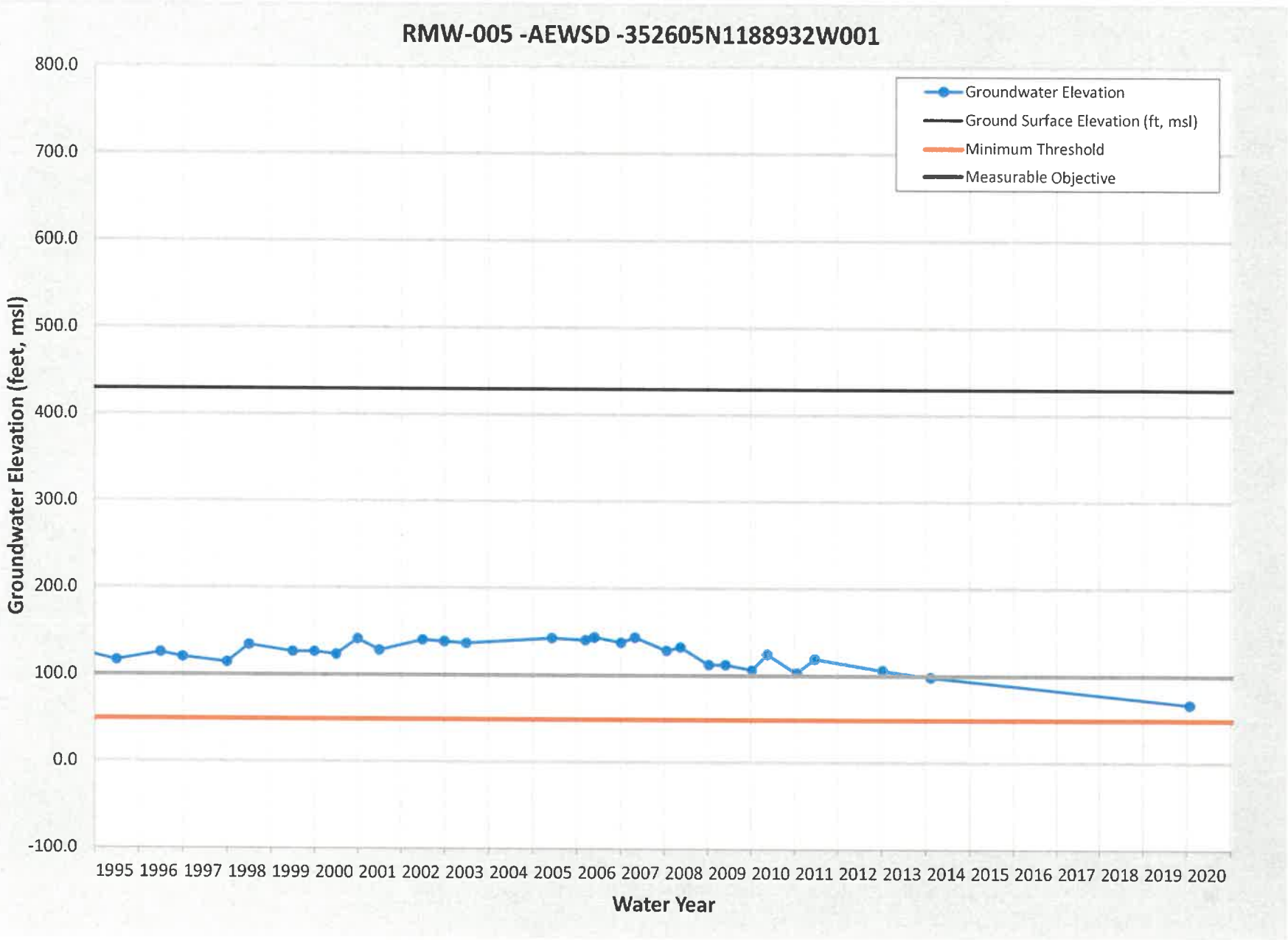
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
Groundwater Elevation (feet, msl)
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
-100.0
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021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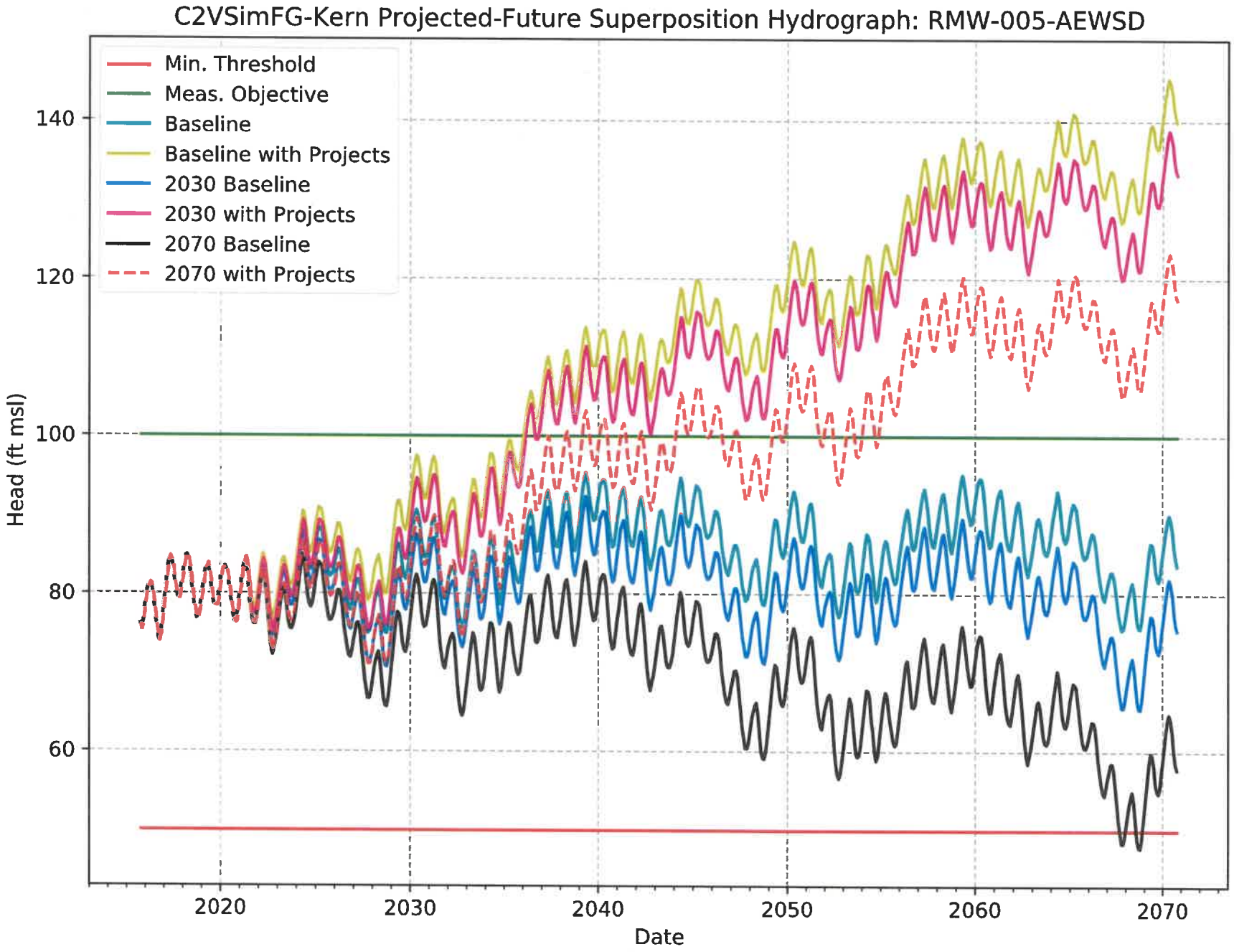
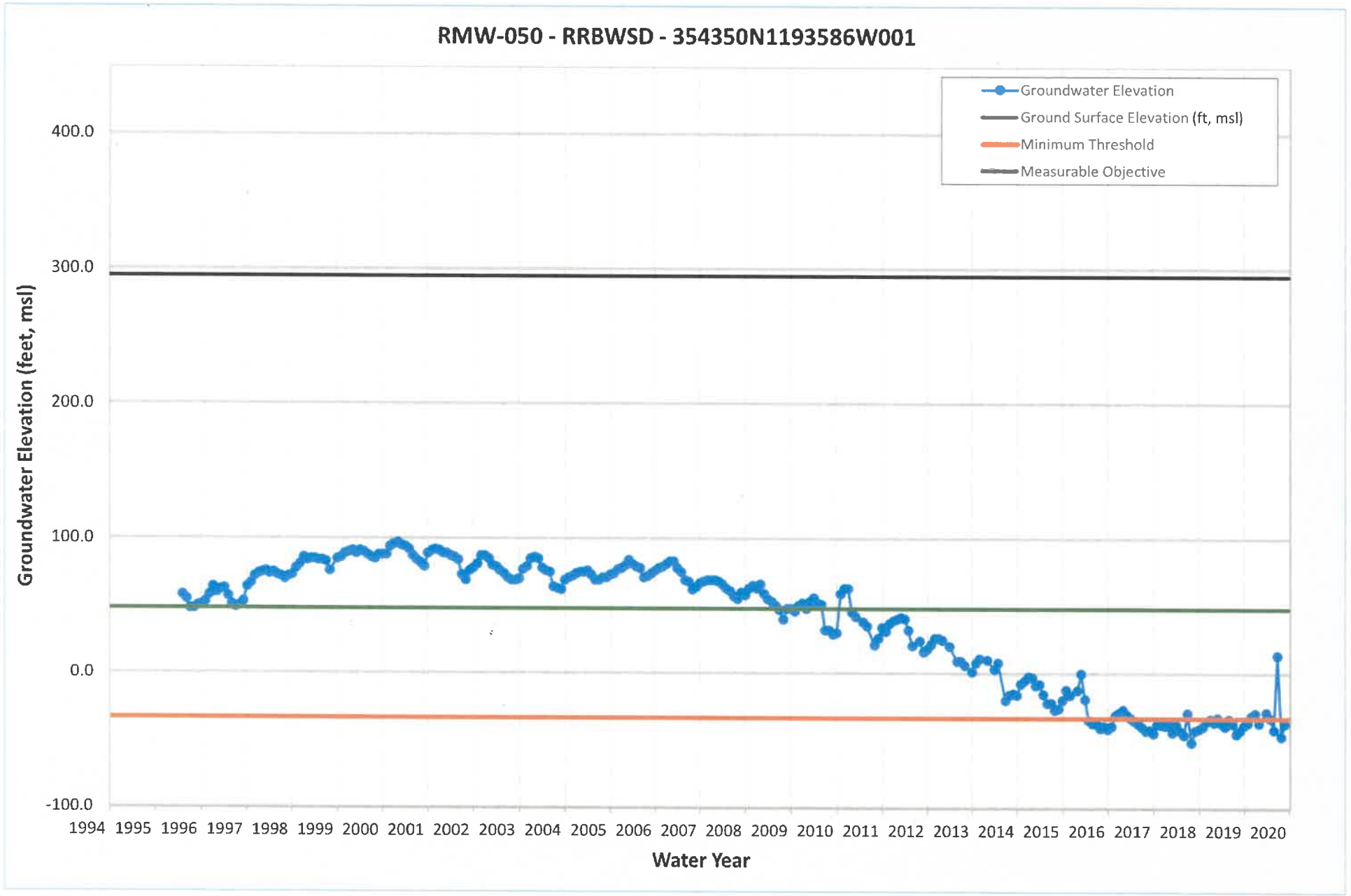
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
Groundwater Elevation (feet, msl)
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
-100.0
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020


C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-005-AEWSD
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects
Head (ft msl)
140
120
100
80
60
2020
2030
2040
2050
2060
2070
Date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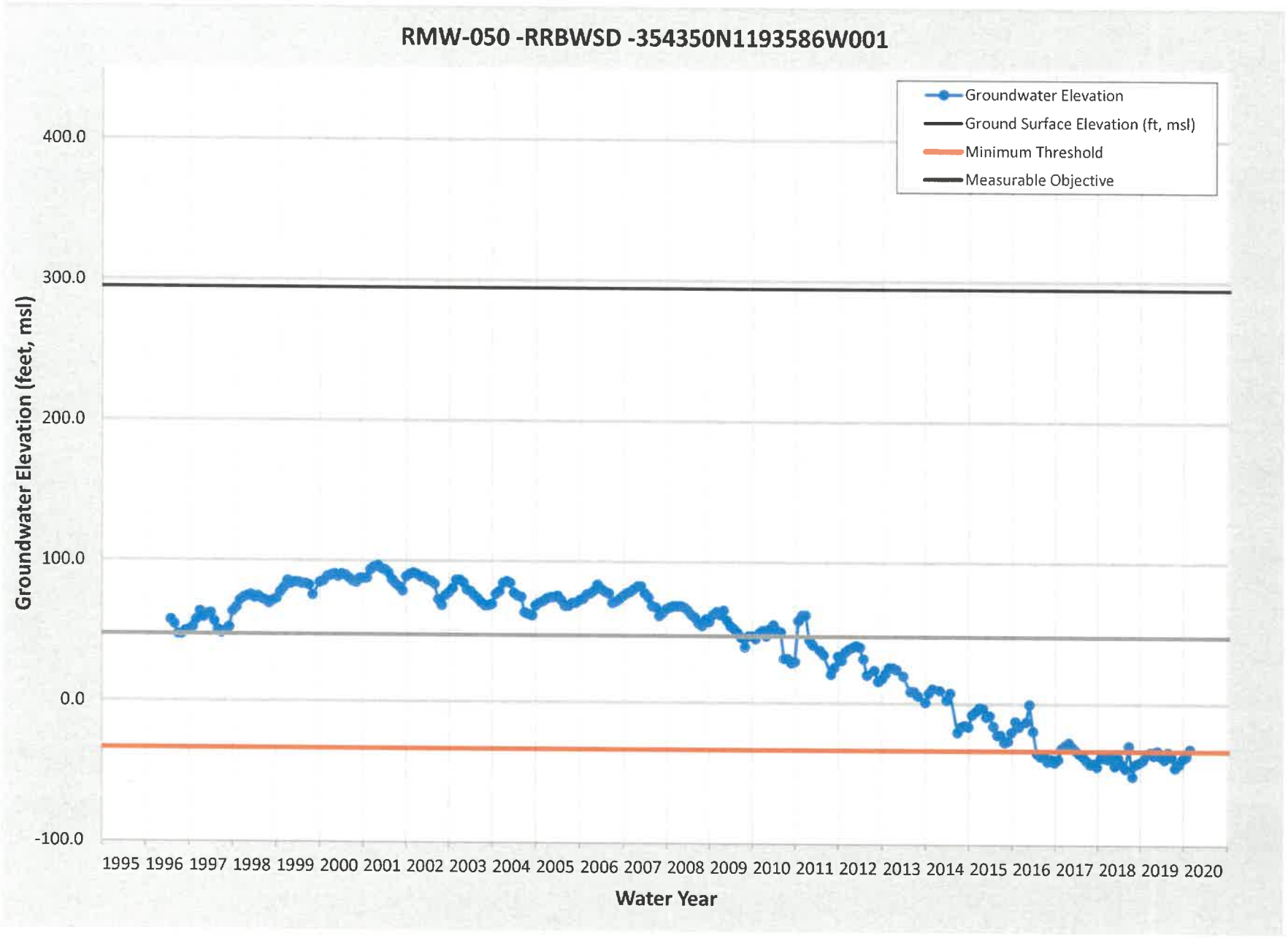
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
400.0
300.0
200.0
100.0
0.0
-100.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021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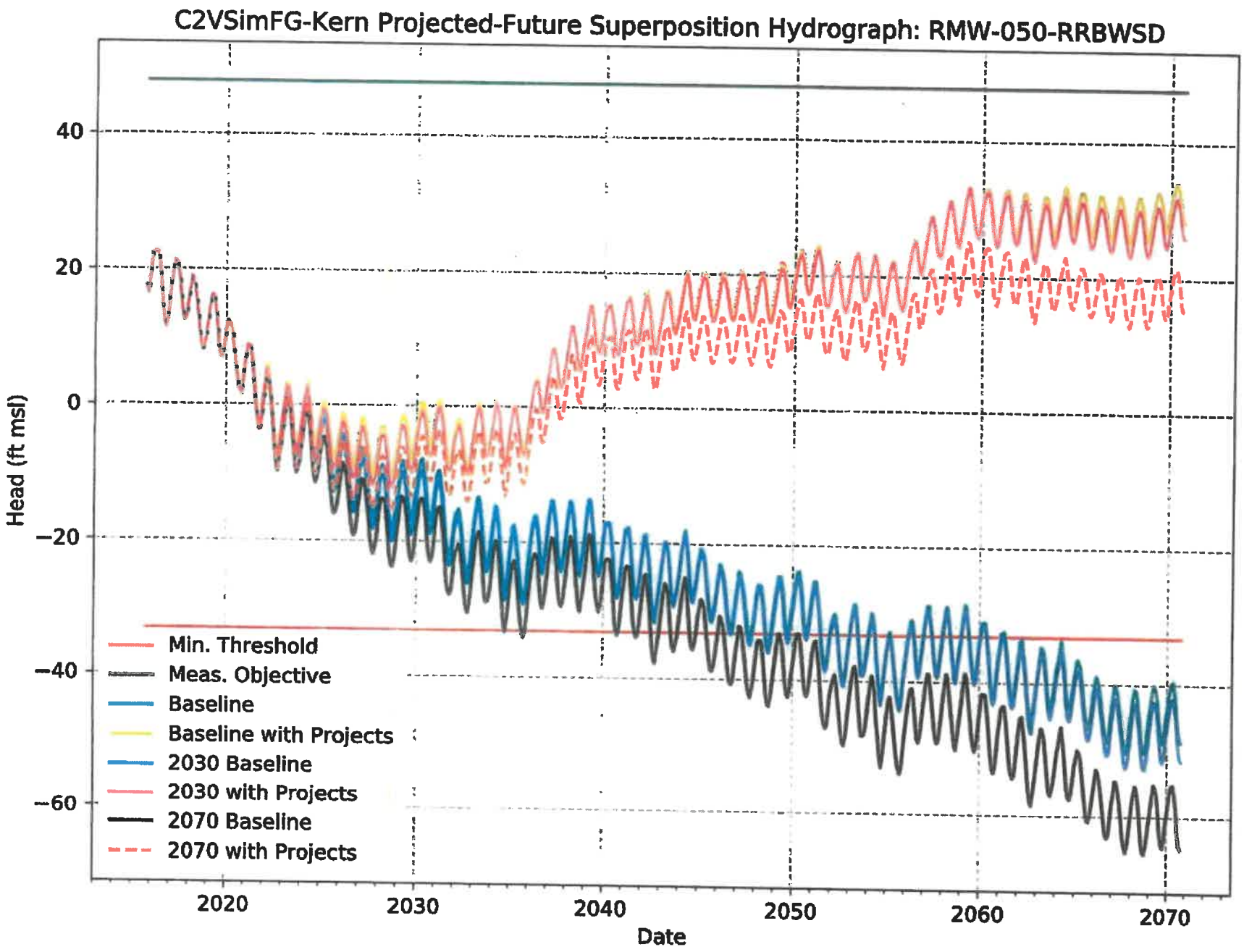
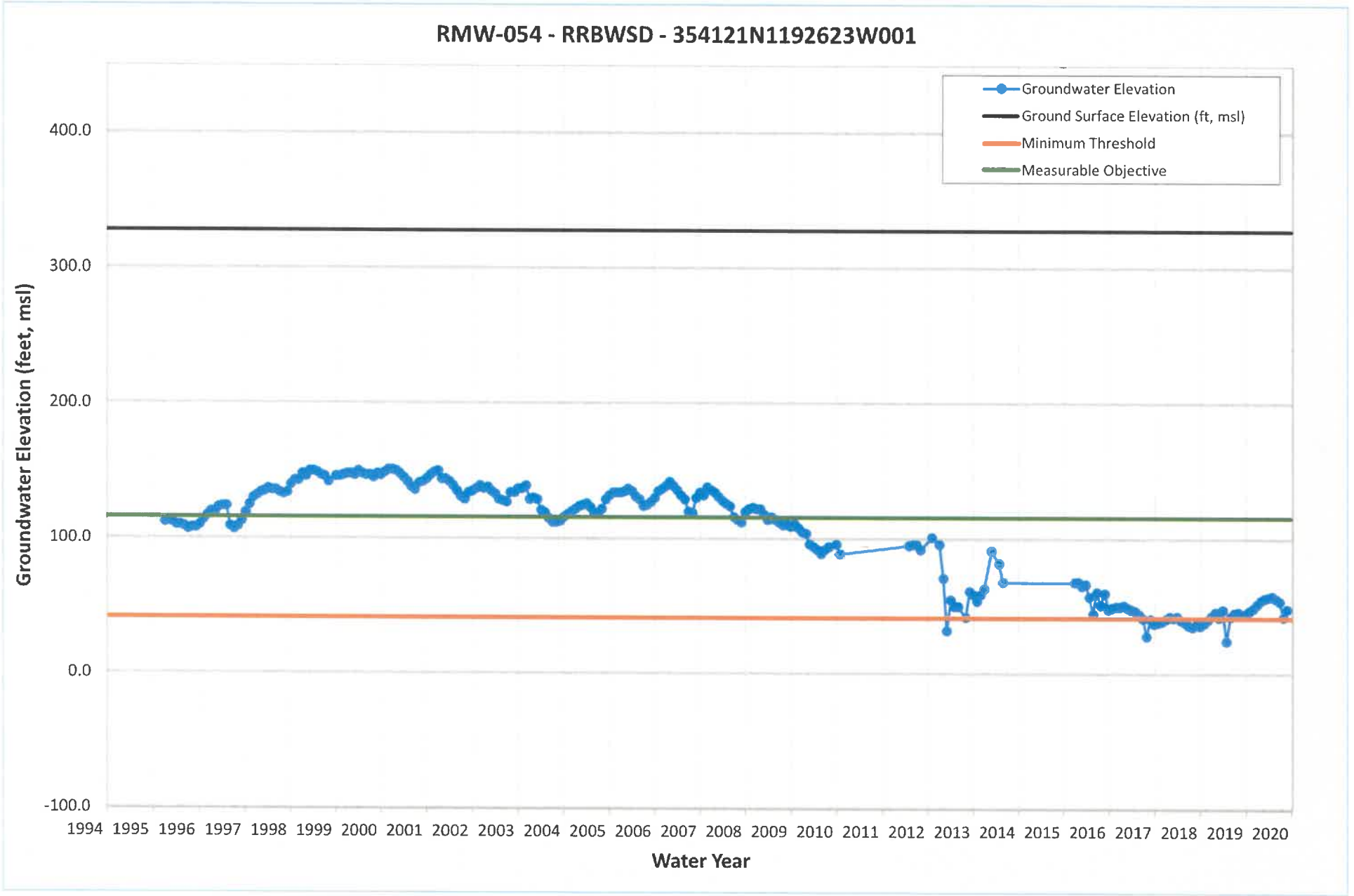
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
400.0
300.0
200.0
100.0
0.0
-100.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020


C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-050-RRBWSD
Head (ft msl)
40
20
0
−20
−40
−60
2020
2030
2040
2050
2060
2070
Date
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects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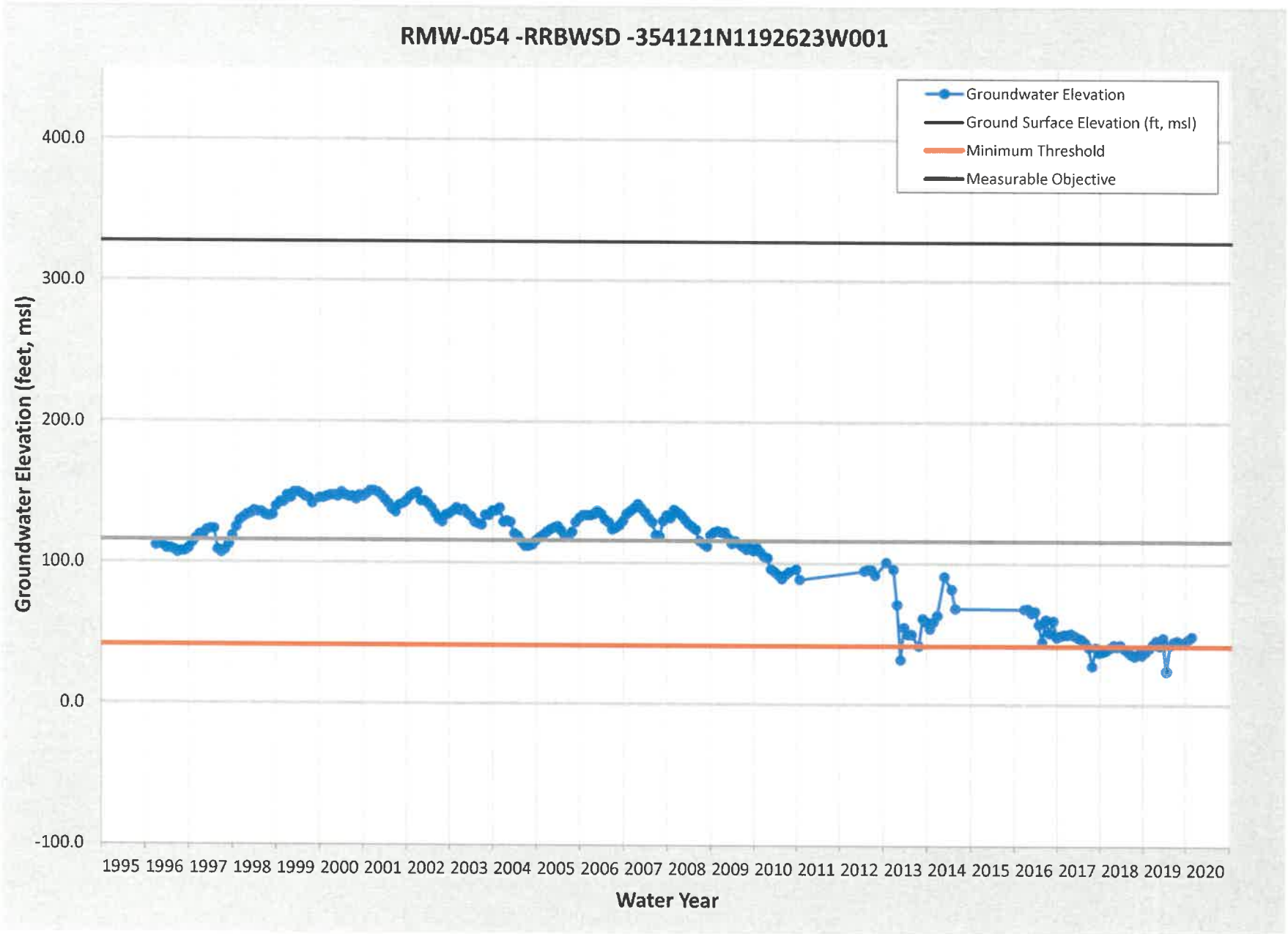
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
400.0
300.0
200.0
100.0
0.0
-100.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021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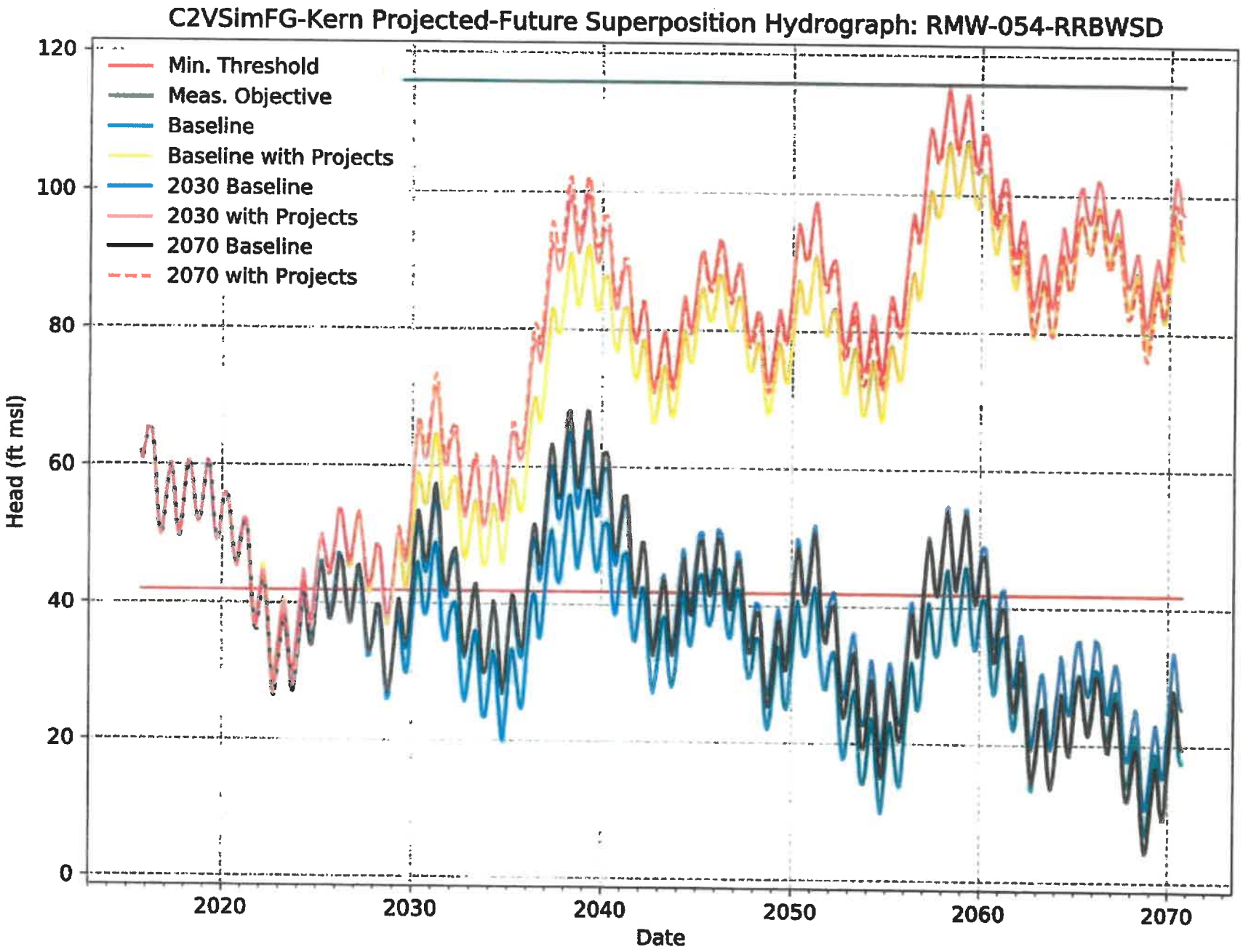
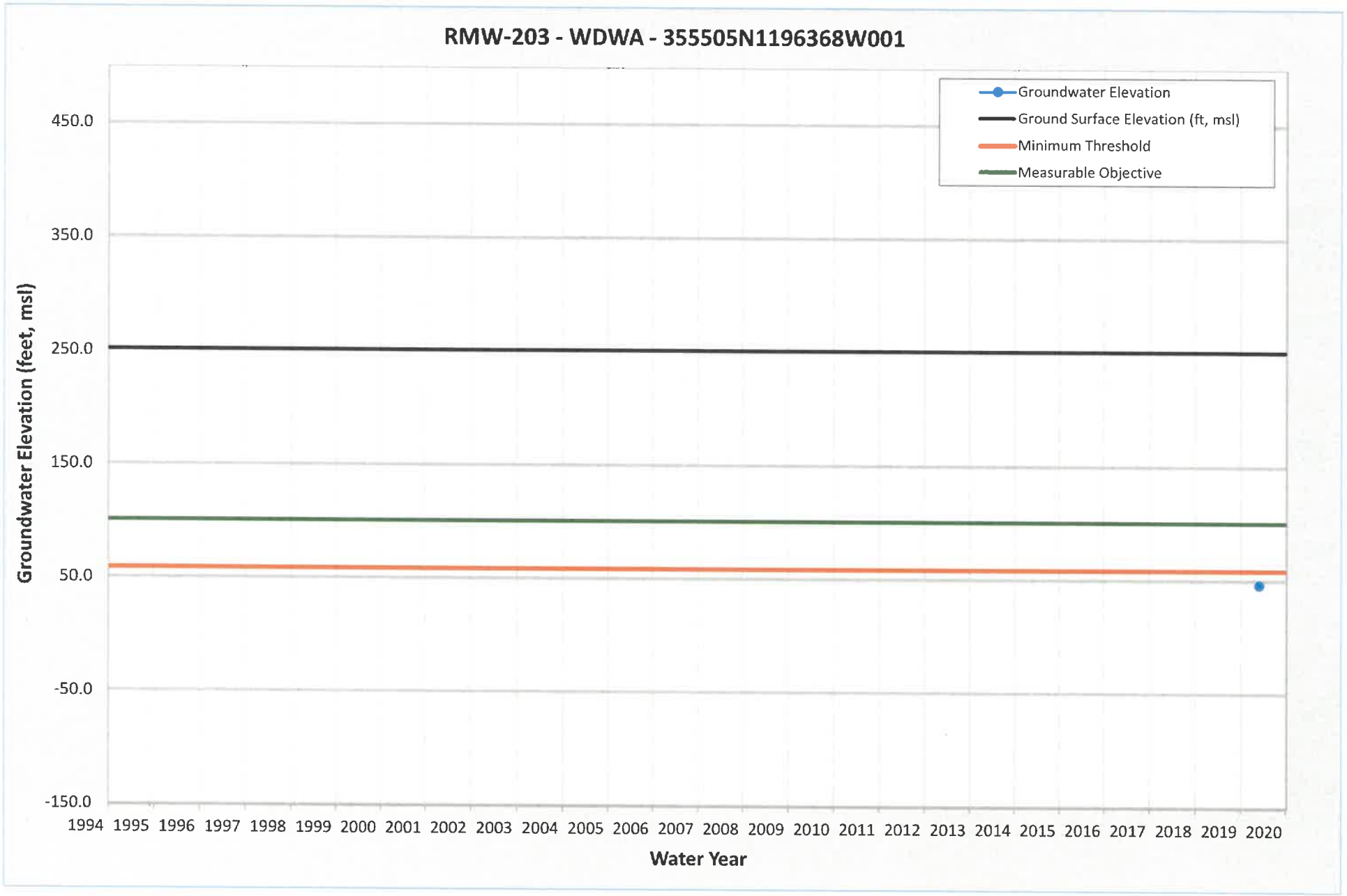
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
400.0
300.0
200.0
100.0
0.0
-100.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020


C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-054-RRBWSD
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects
Head (ft msl)
120
100
80
60
40
20
0
2020
2030
2040
2050
2060
2070
Date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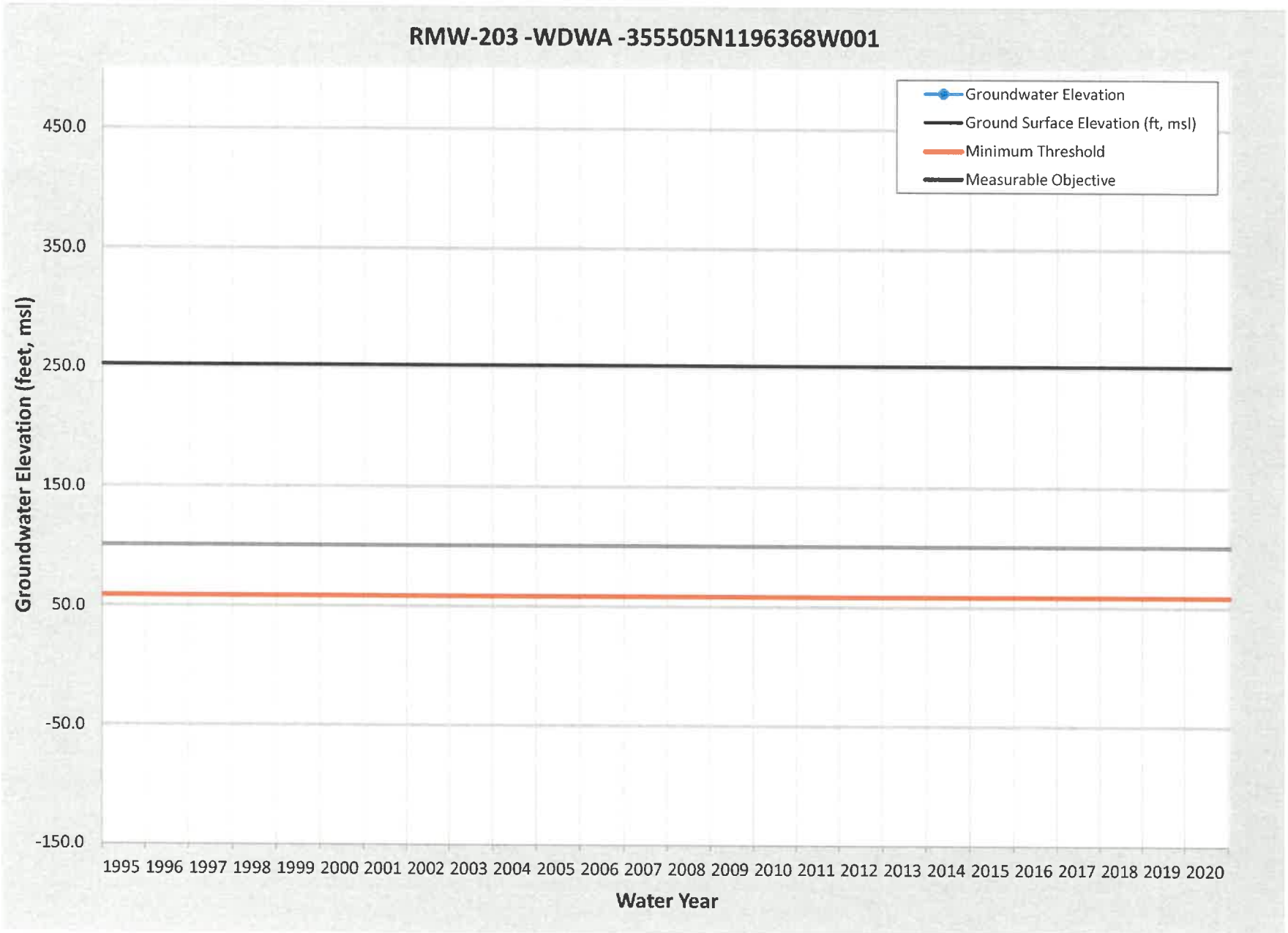
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021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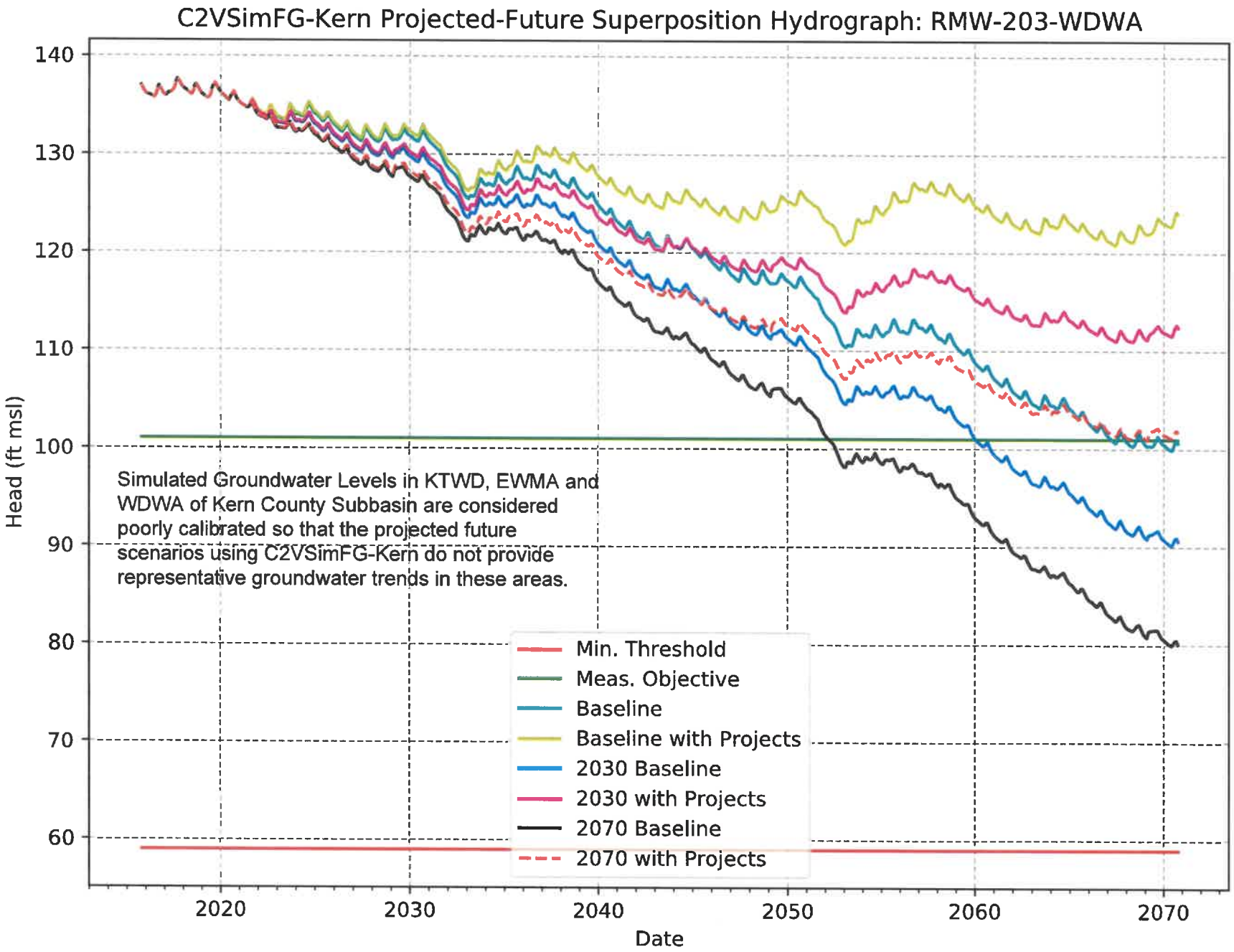
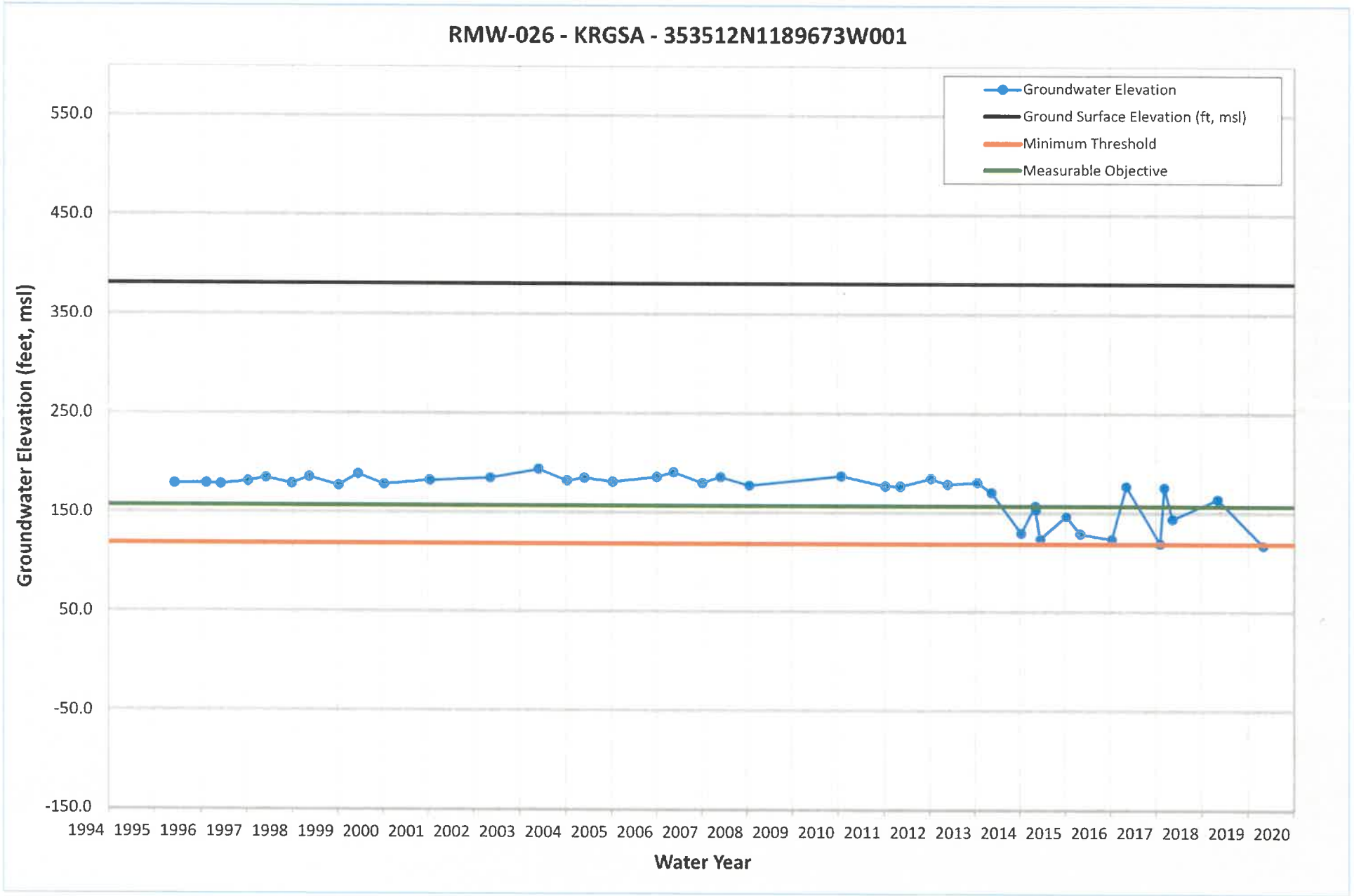
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020


C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-203-WDWA
Head (ft msl)
140
130
120
110
100
90
80
70
60
2020
2030
2040
2050
2060
2070
Date
Simulated Groundwater Levels in KTWD, EWMA and WDWA of Kern County Subbasin are considered poorly calibrated so that the projected future scenarios using C2VSimFG-Kern do not provide representative groundwater trends in these areas.
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects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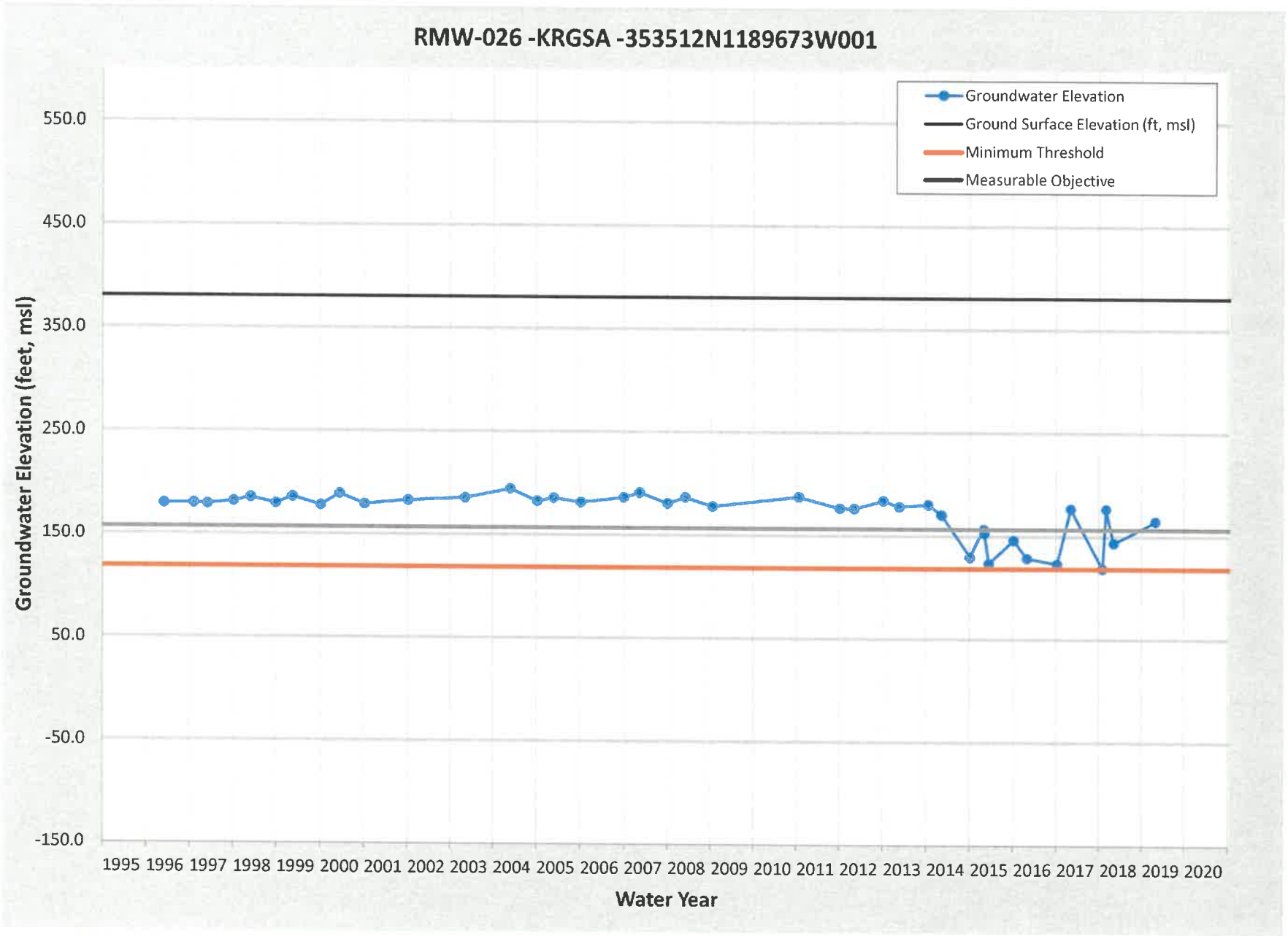
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021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Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
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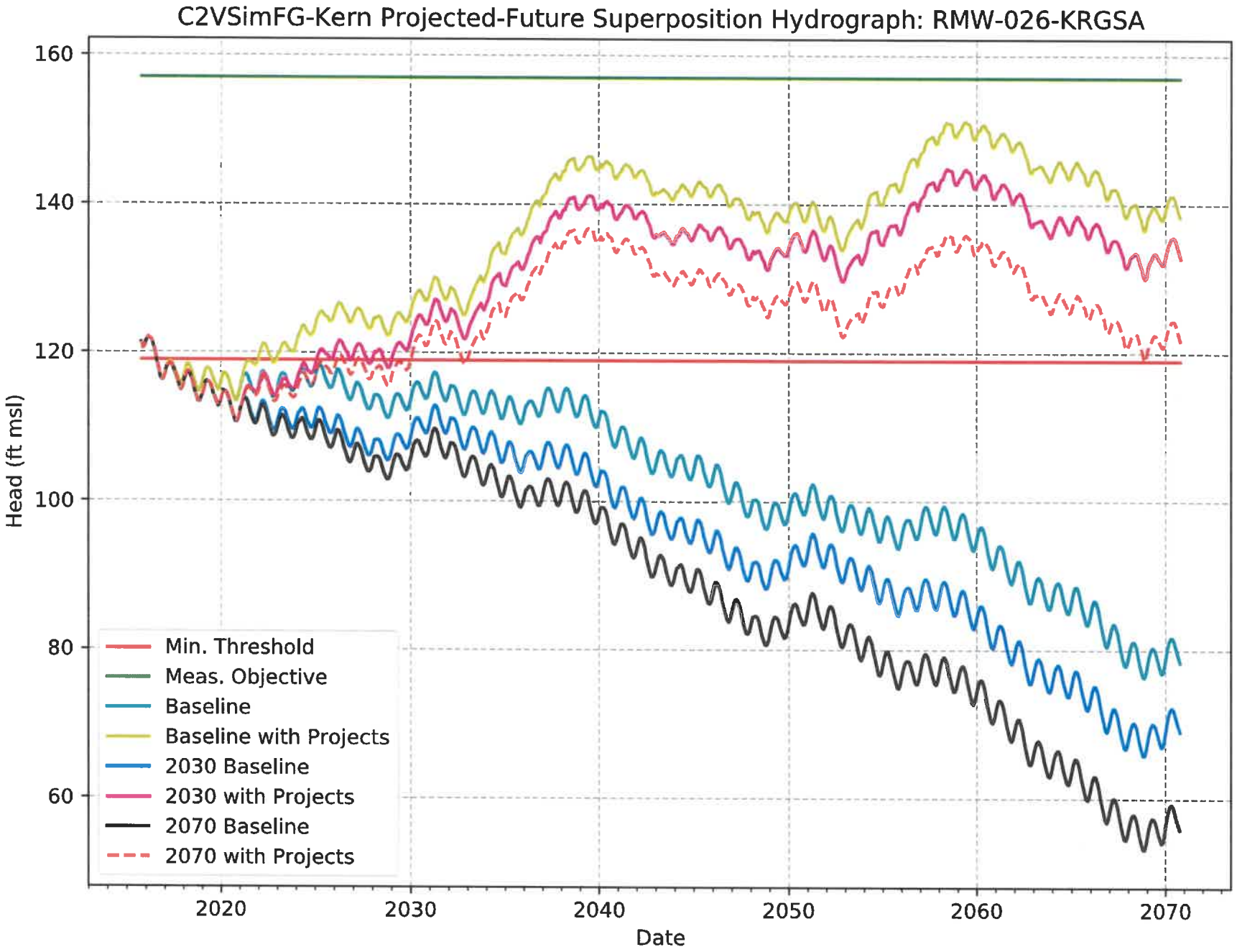
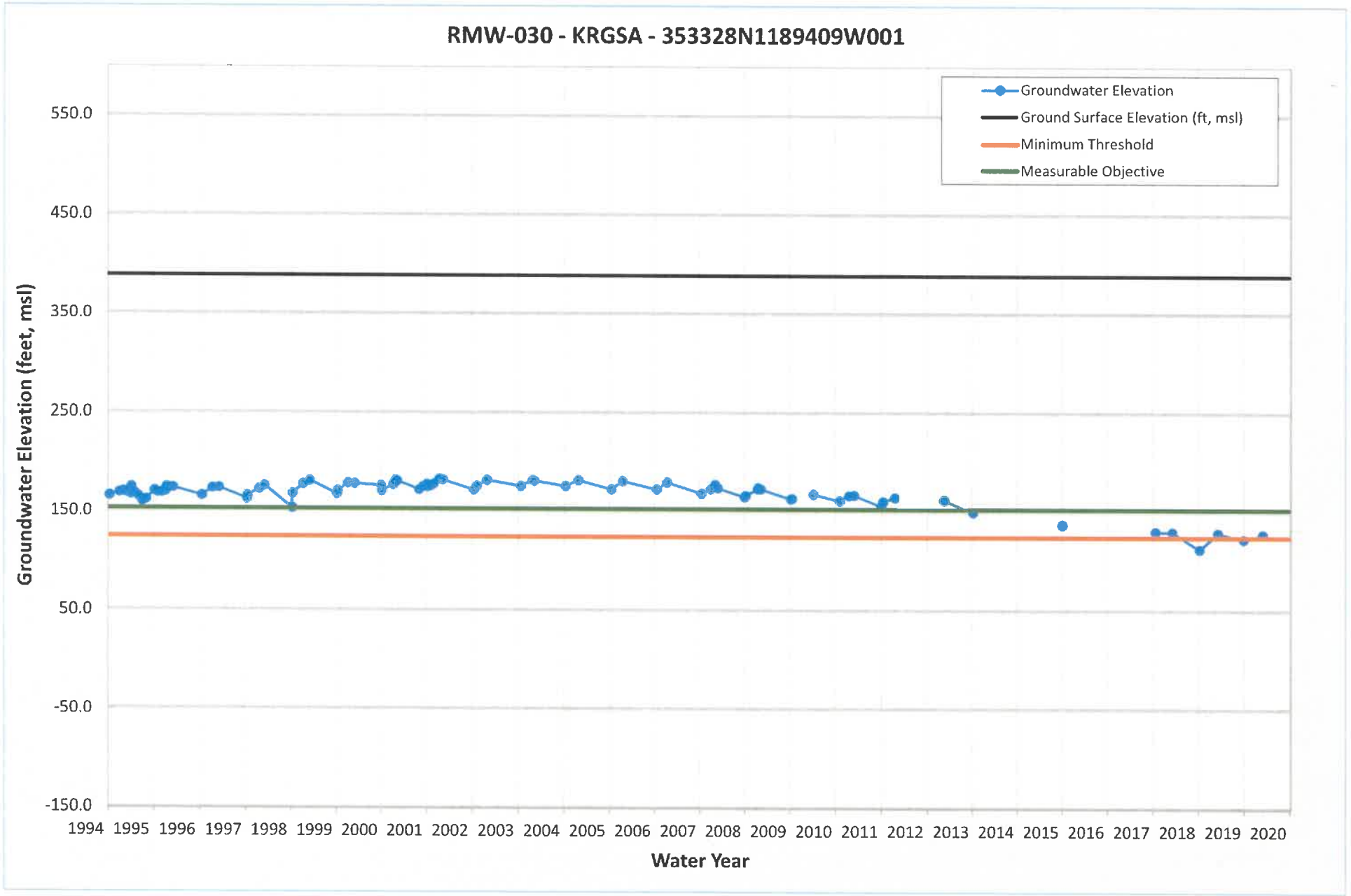
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020


C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-026-KRGSA
Head (ft msl)
160
140
120
100
80
60
2020
2030
2040
2050
2060
2070
Date
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects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Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
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450.0
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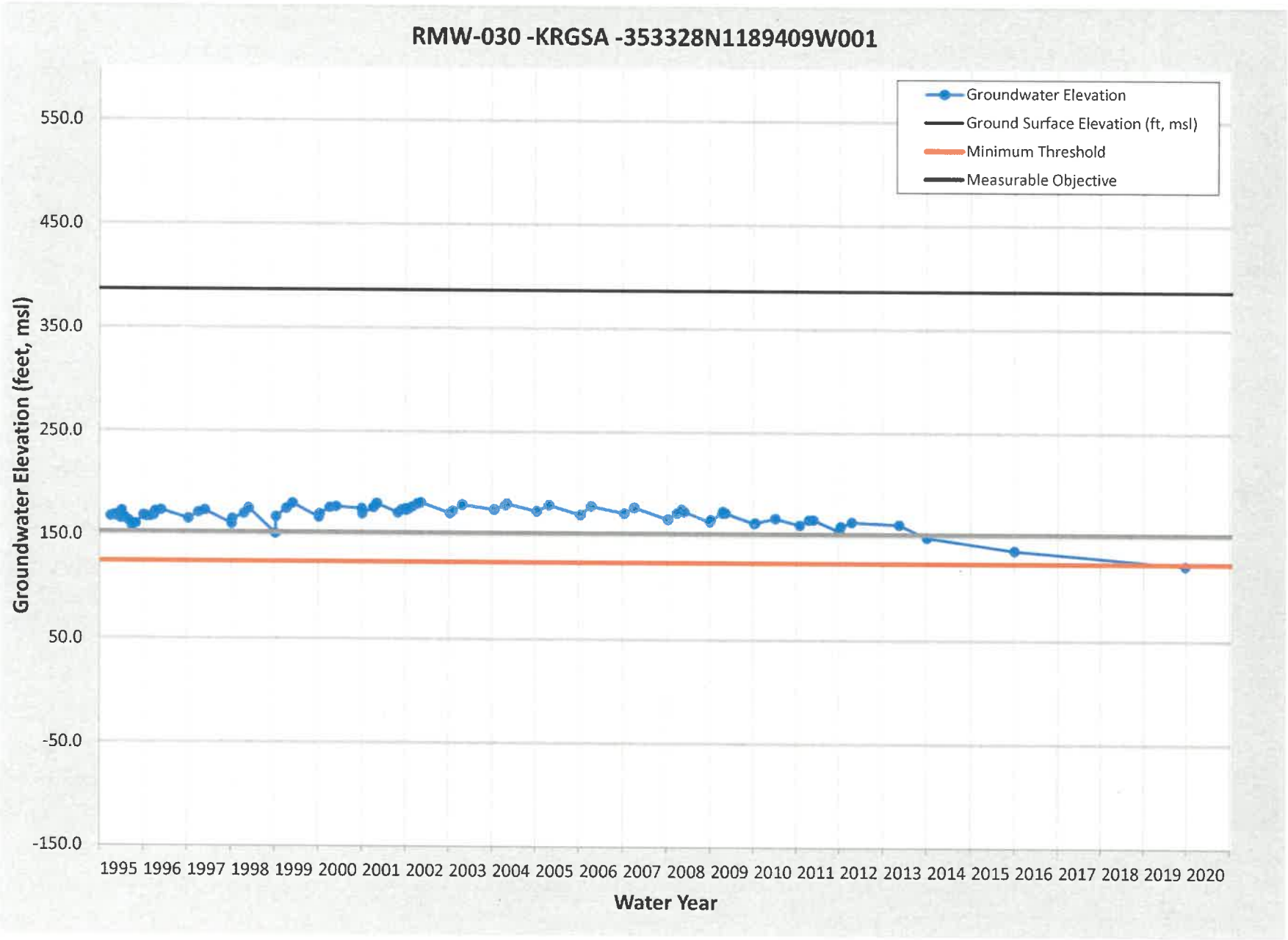
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021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Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
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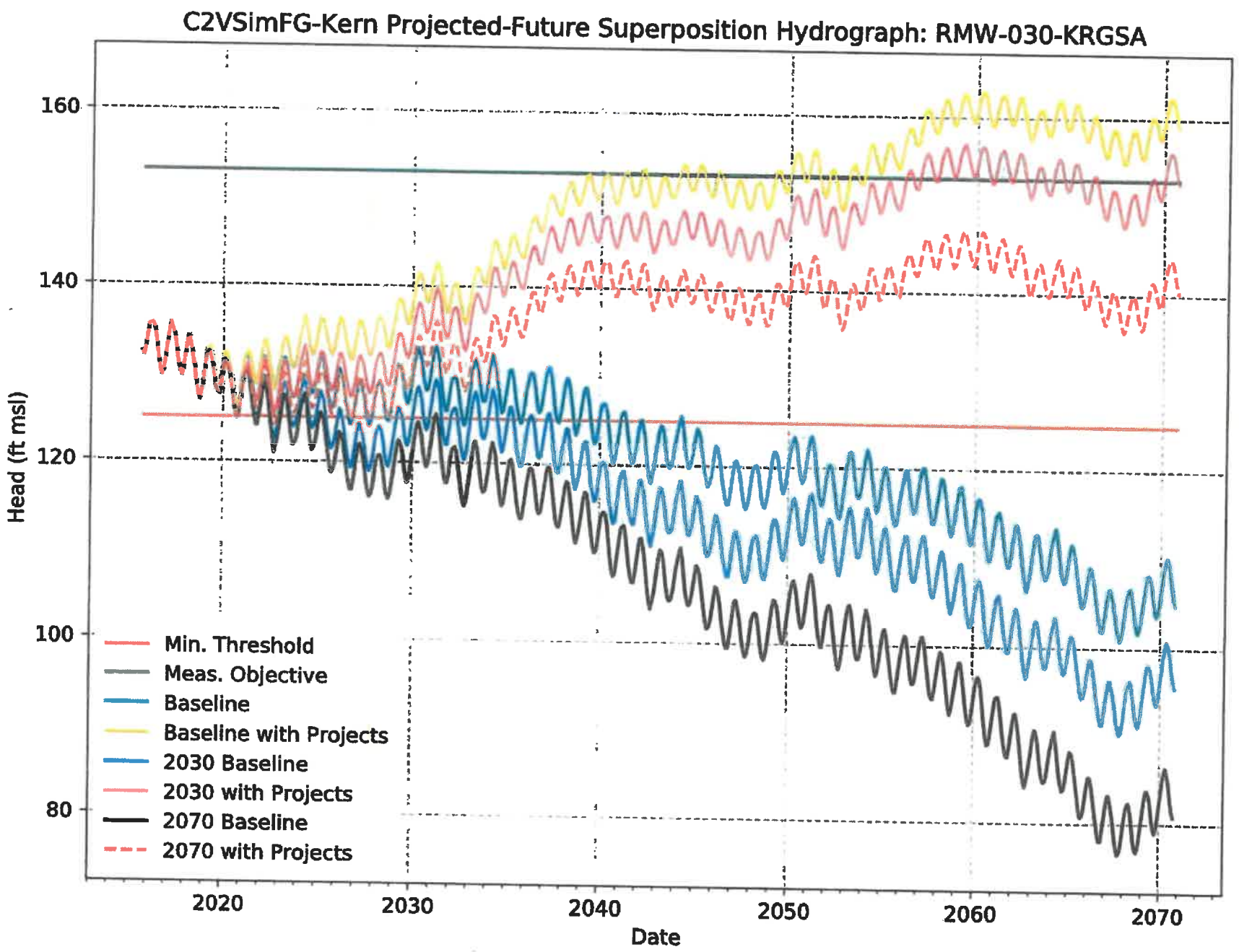
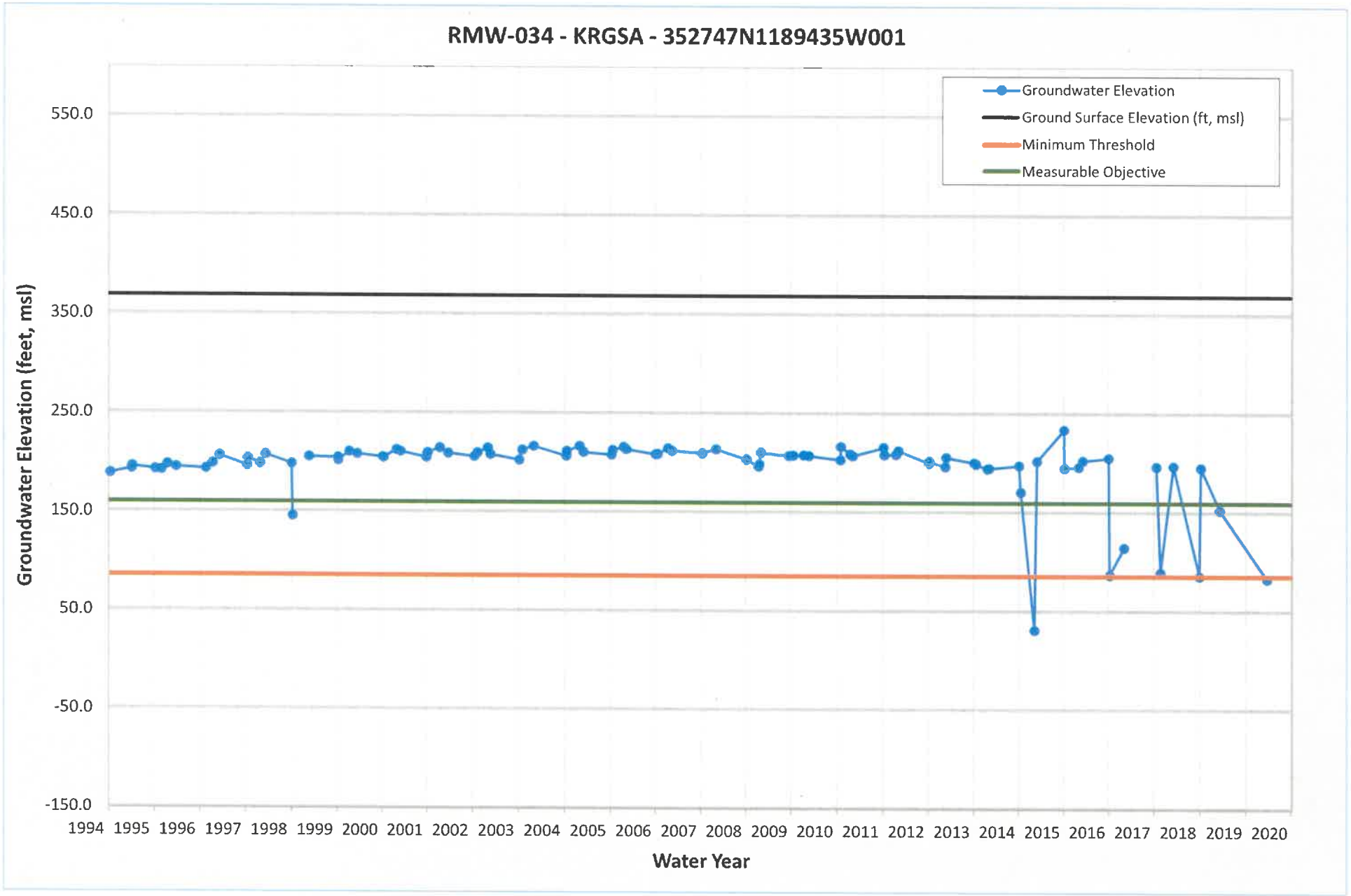
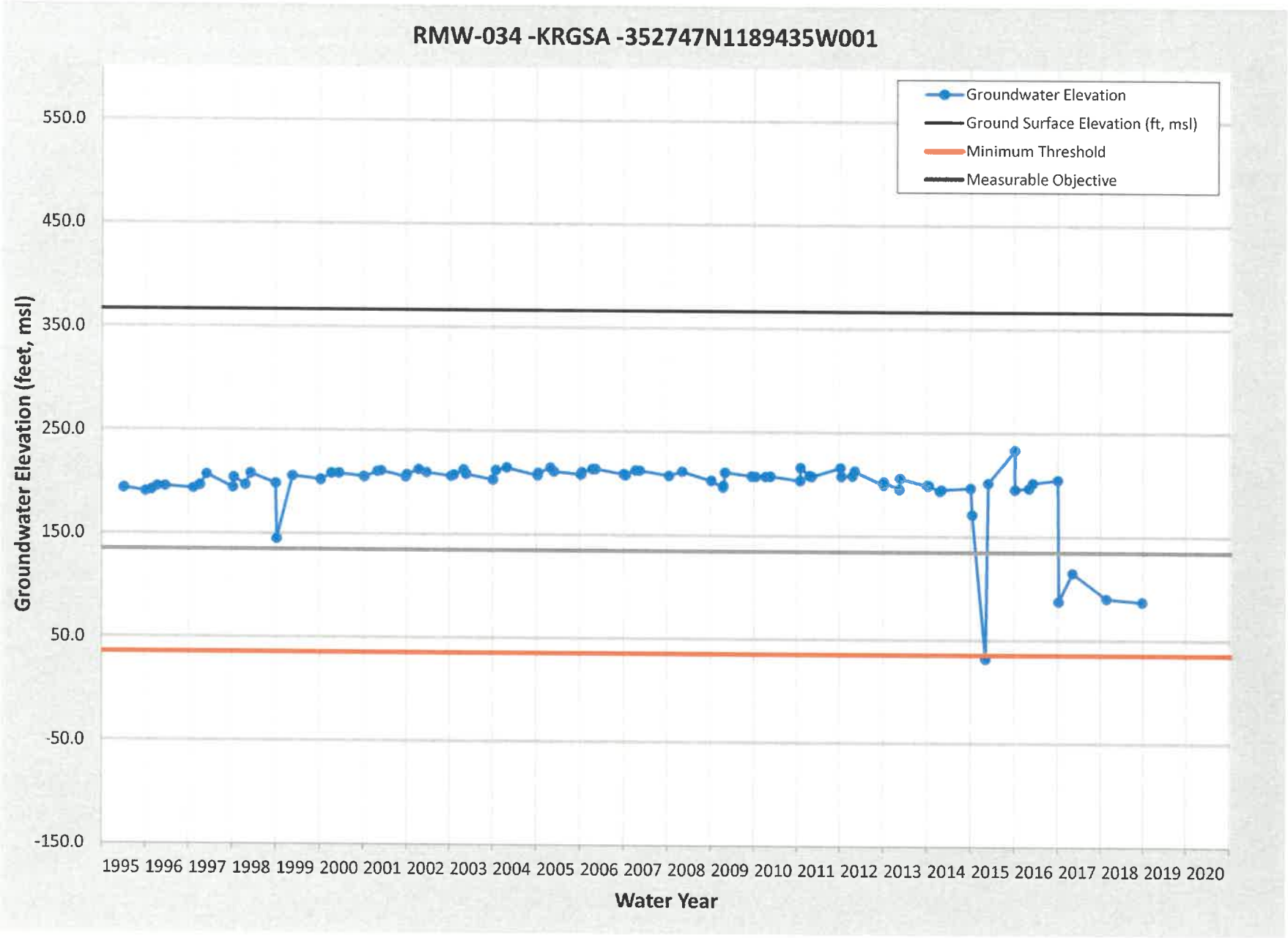
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

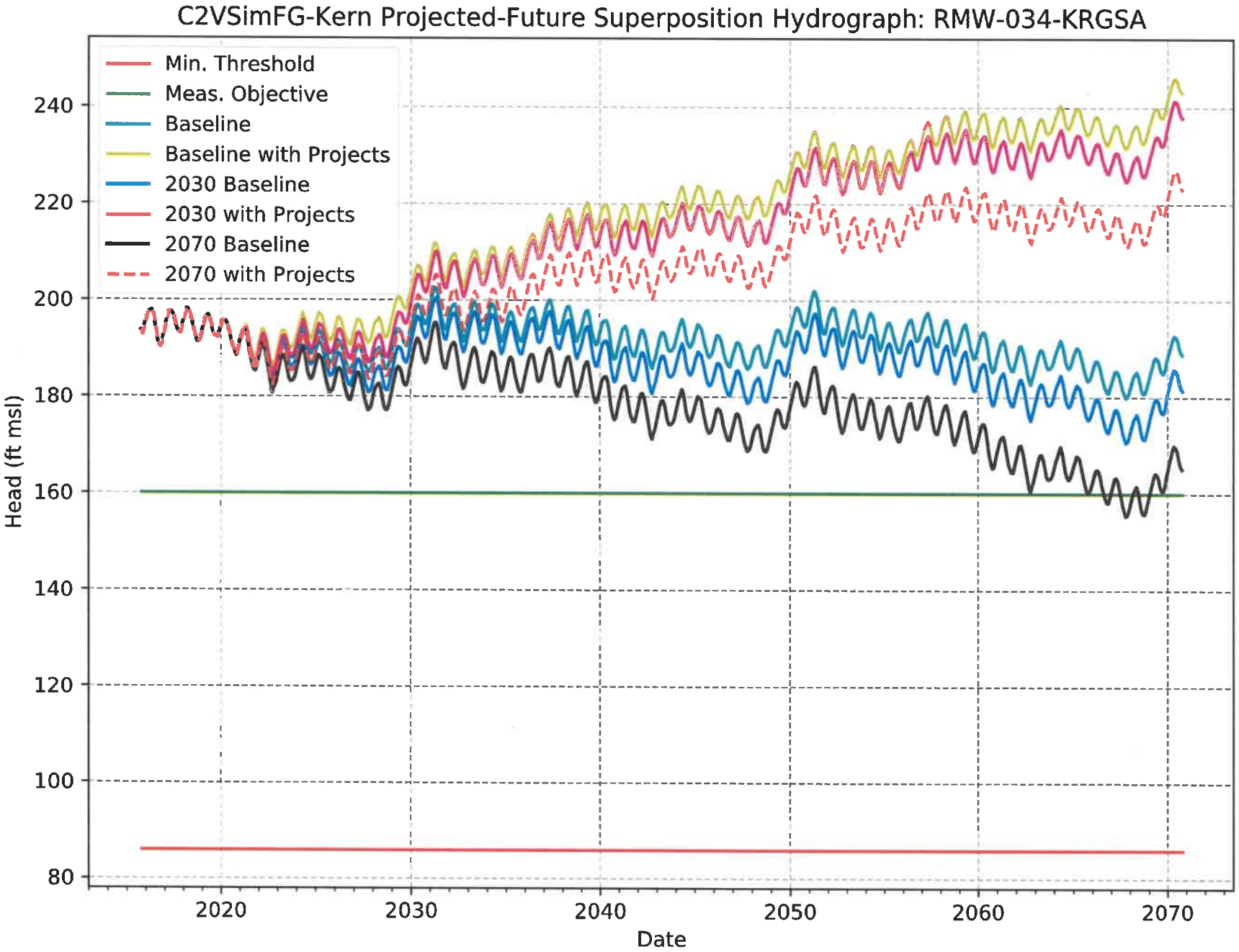

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-030-KRGSA
Head (ft msl)
160
140
120
100
80
2020
2030
2040
2050
2060
2070
Date
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects

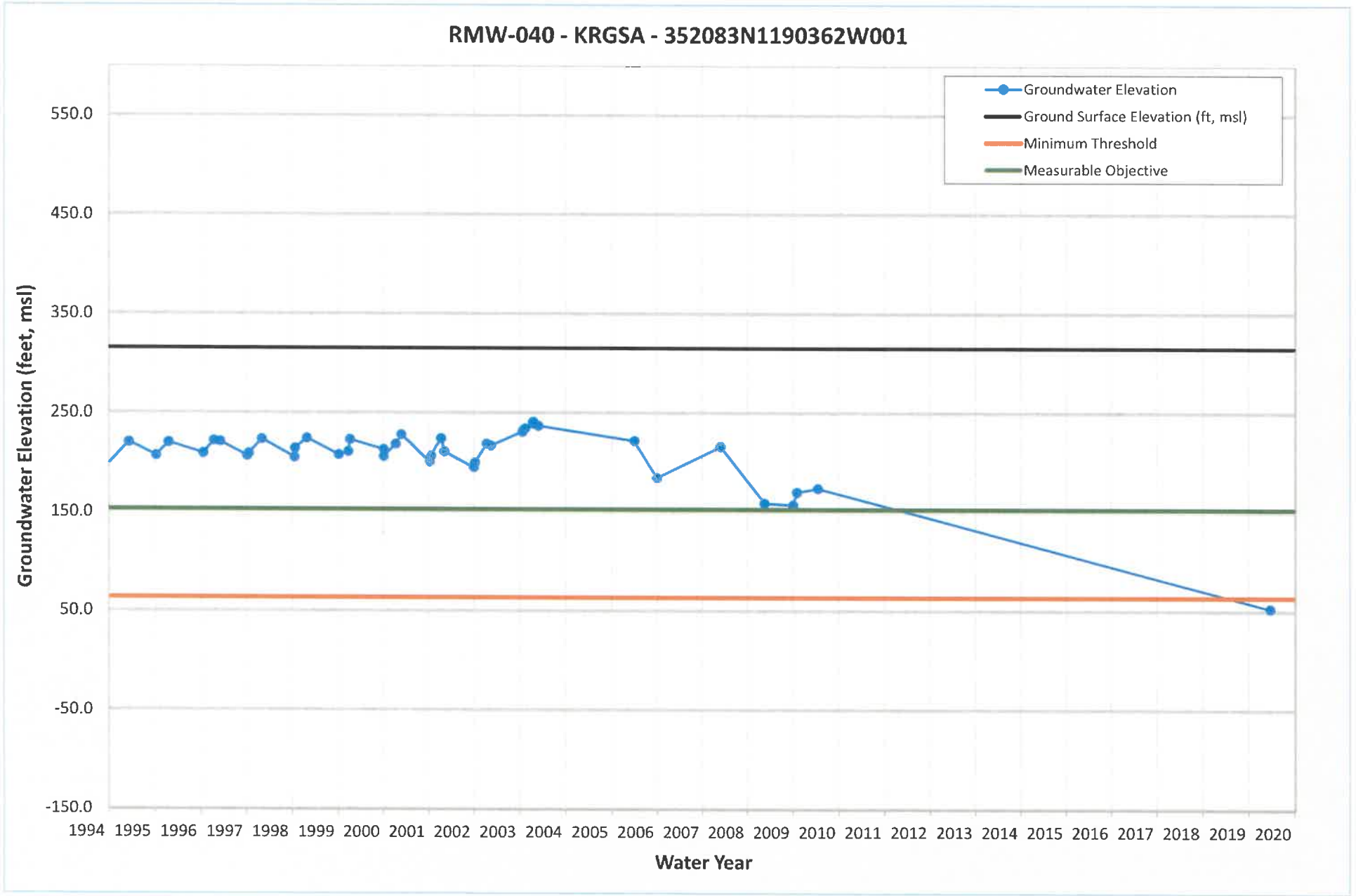

RMW-034 - KRGSA - 352747N1189435W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

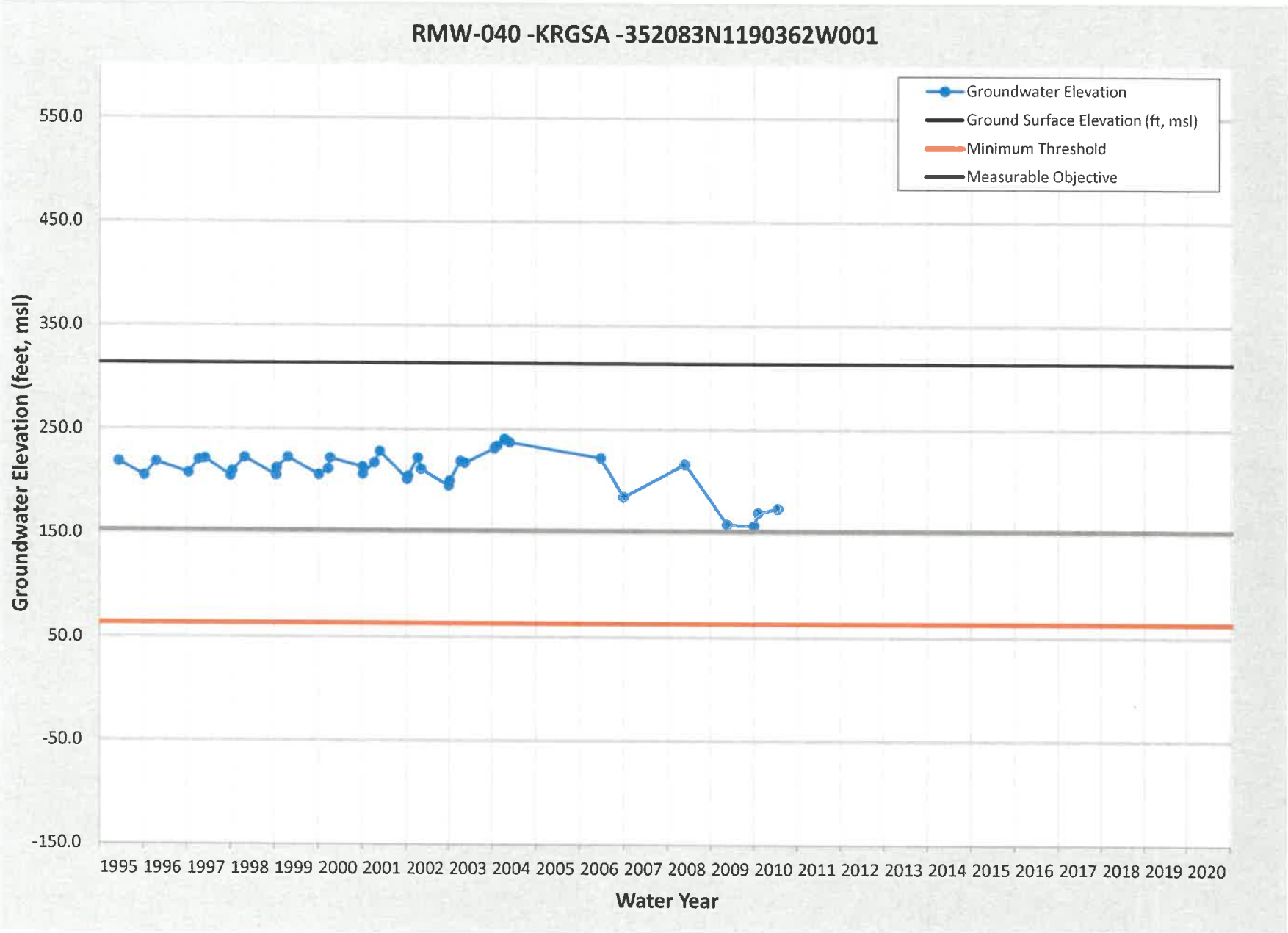

RMW-034 -KRGSA -352747N1189435W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

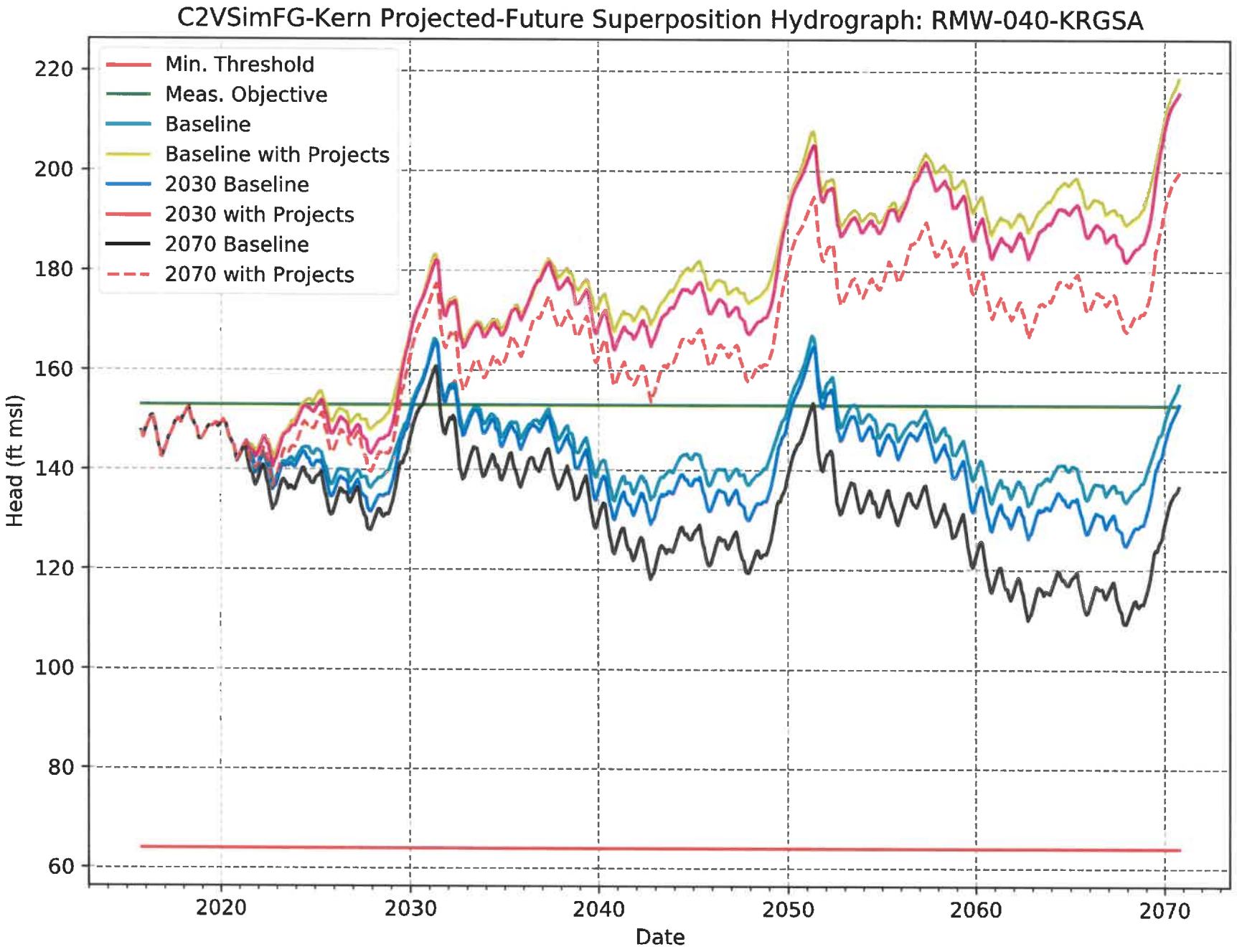

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-034-KRGSA
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects
Head (ft msl)
240
220
200
180
160
140
120
100
80
2020
2030
2040
2050
2060
2070
Date

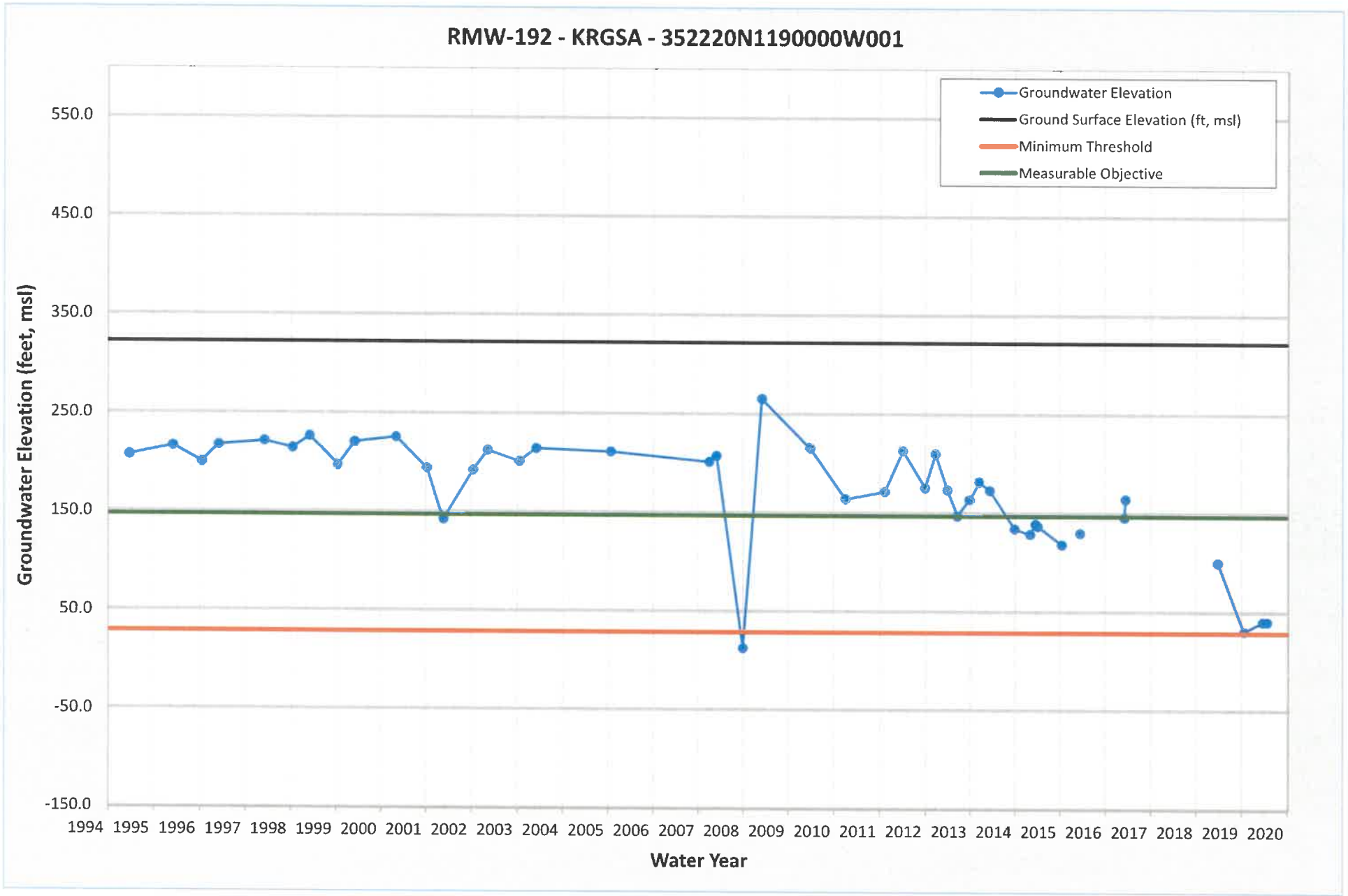

RMW-040 - KRGSA - 352083N1190362W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

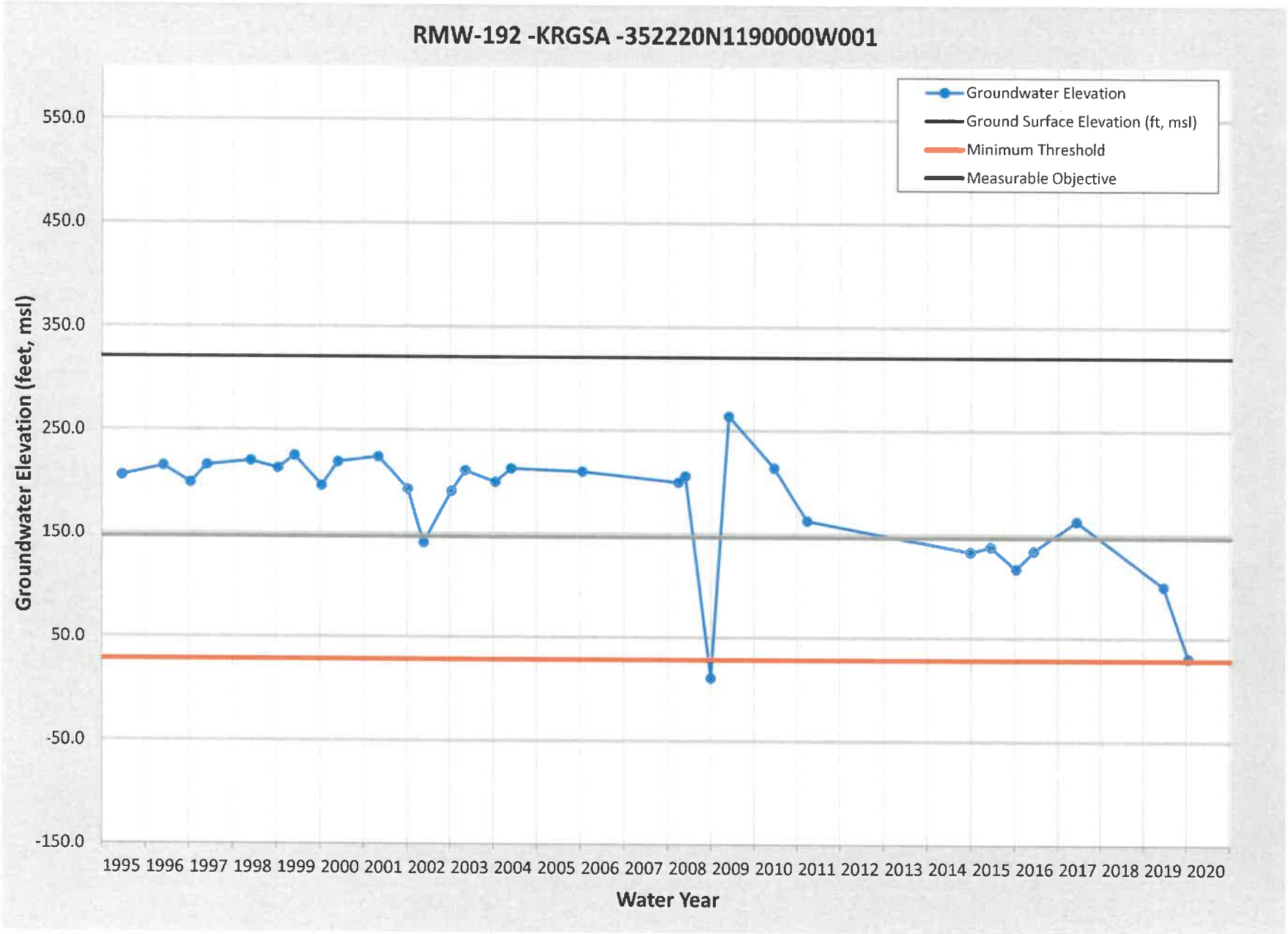

RMW-040 -KRGSA -352083N1190362W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

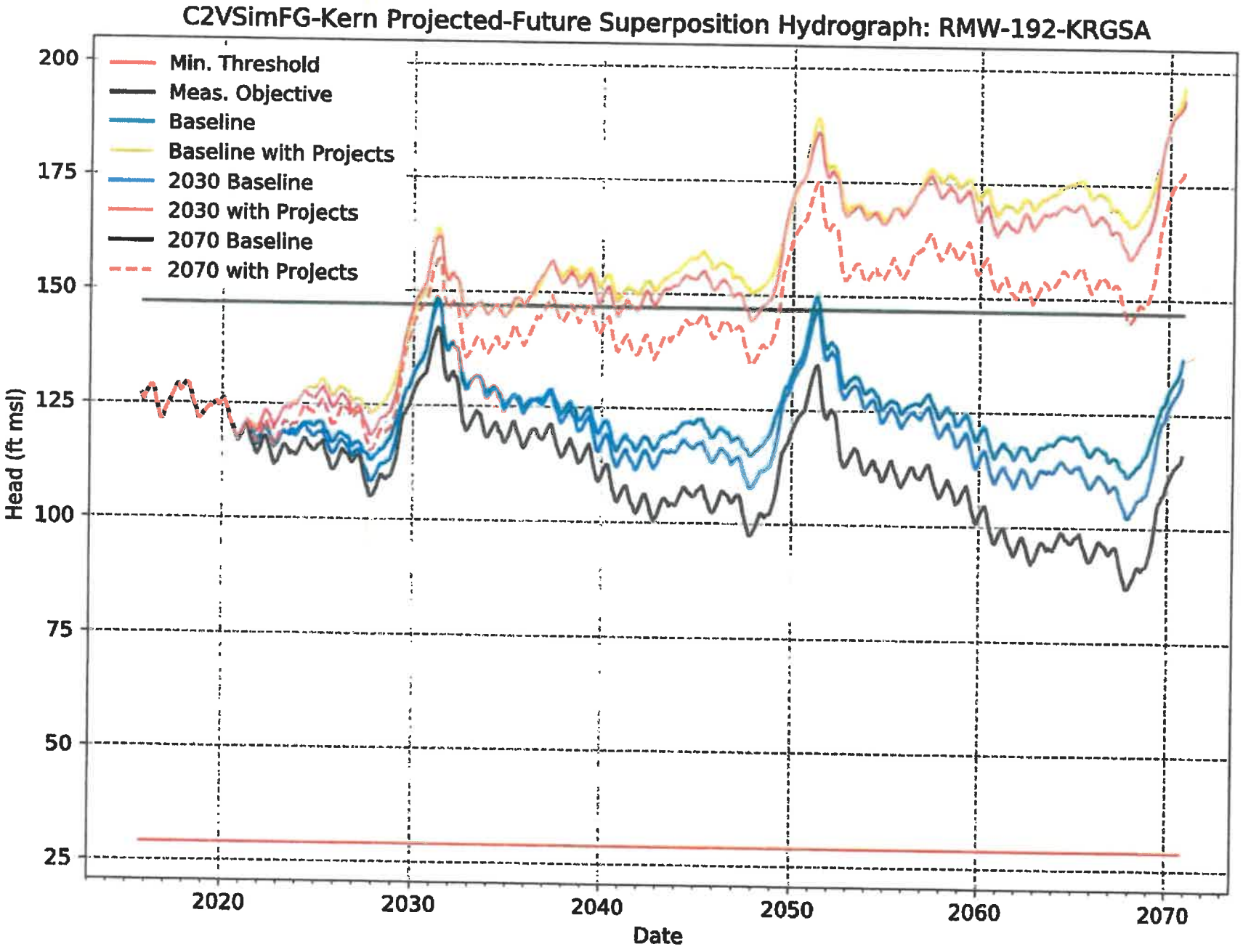

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-040-KRGSA
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects
Head (ft msl)
220
200
180
160
140
120
100
80
60
2020
2030
2040
2050
2060
2070
Date

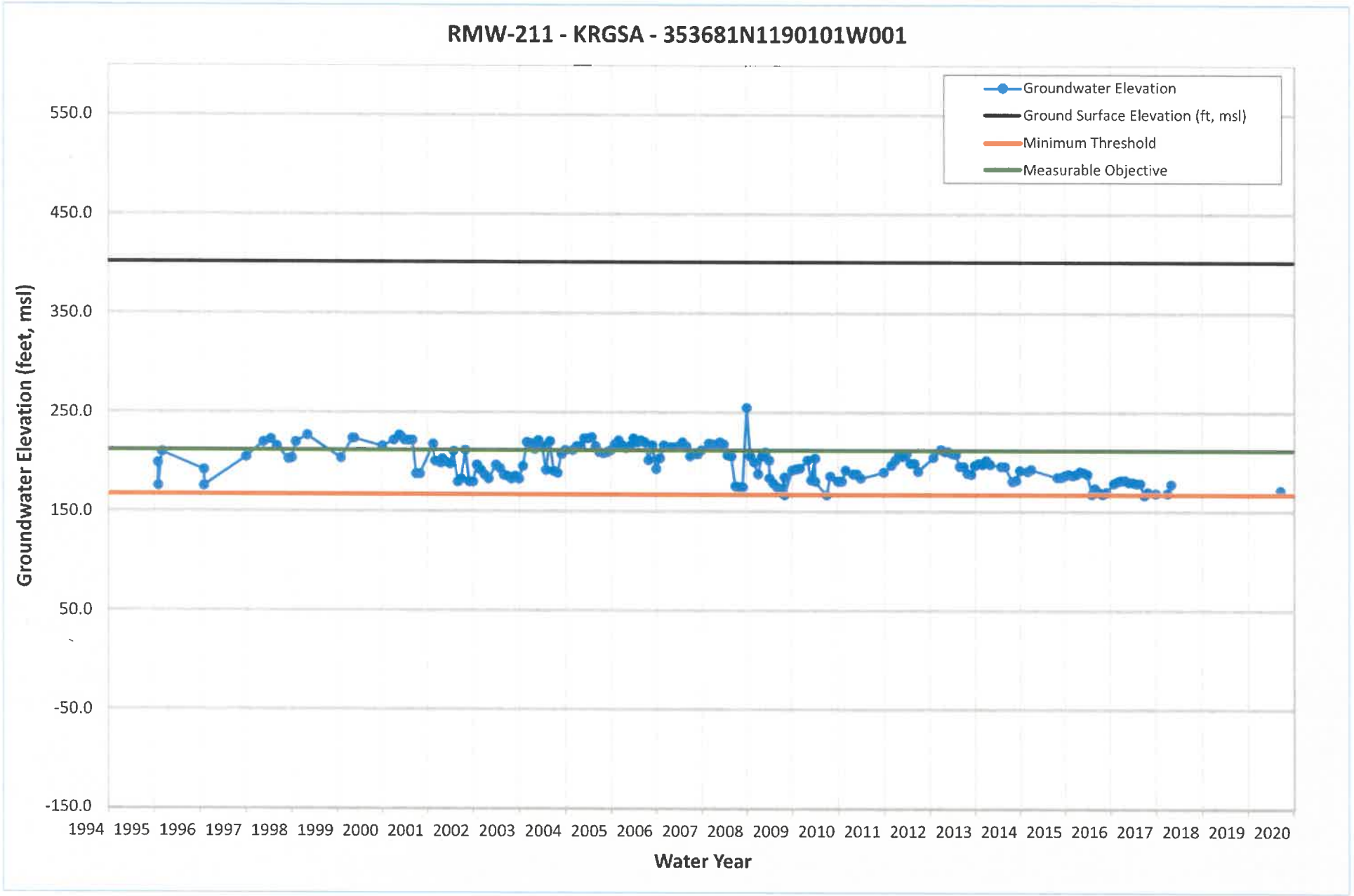

RMW-192 - KRGSA - 352220N1190000W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
Groundwater Elevation (feet, msl)
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

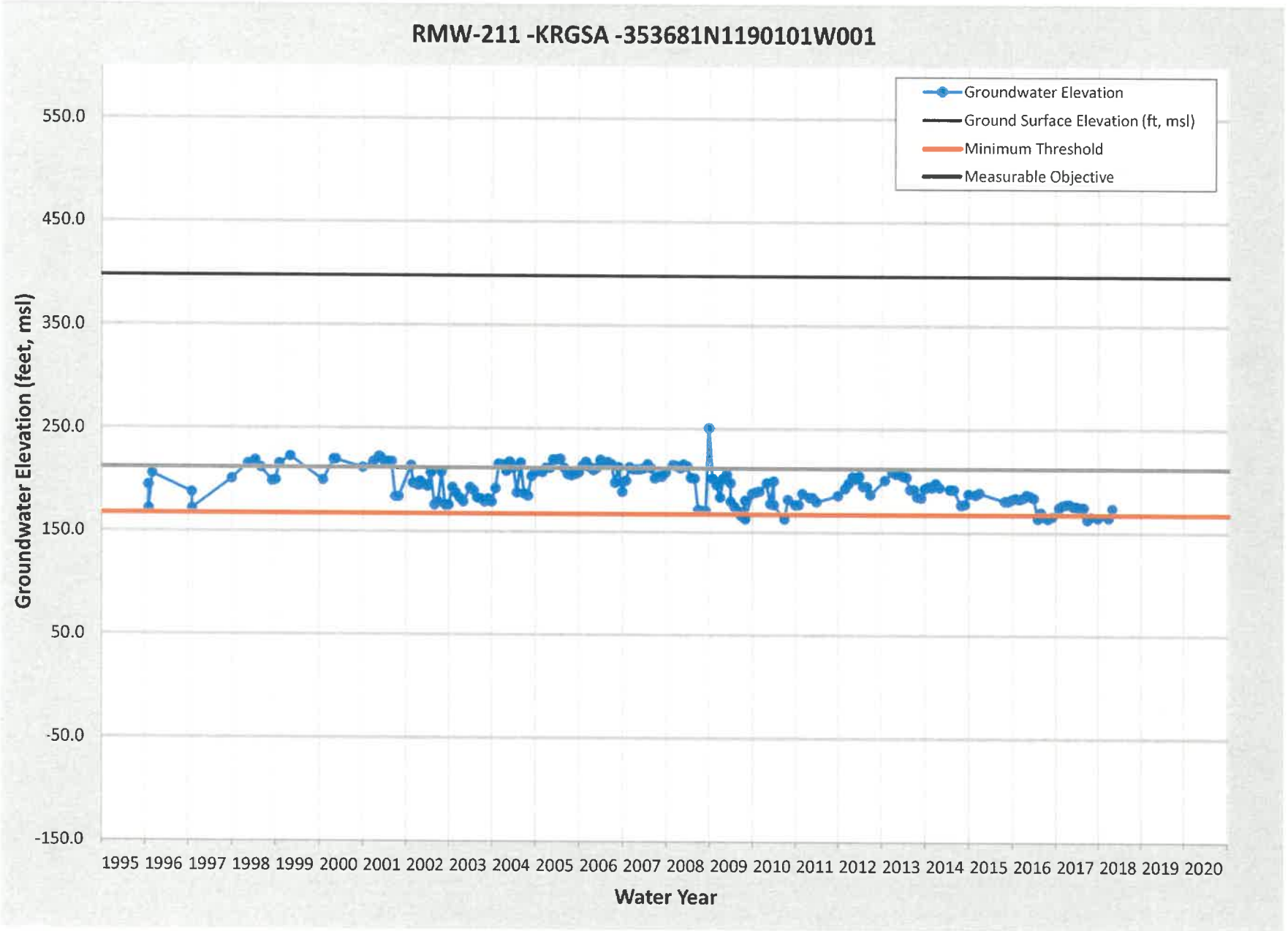

RMW-192 -KRGSA -352220N1190000W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

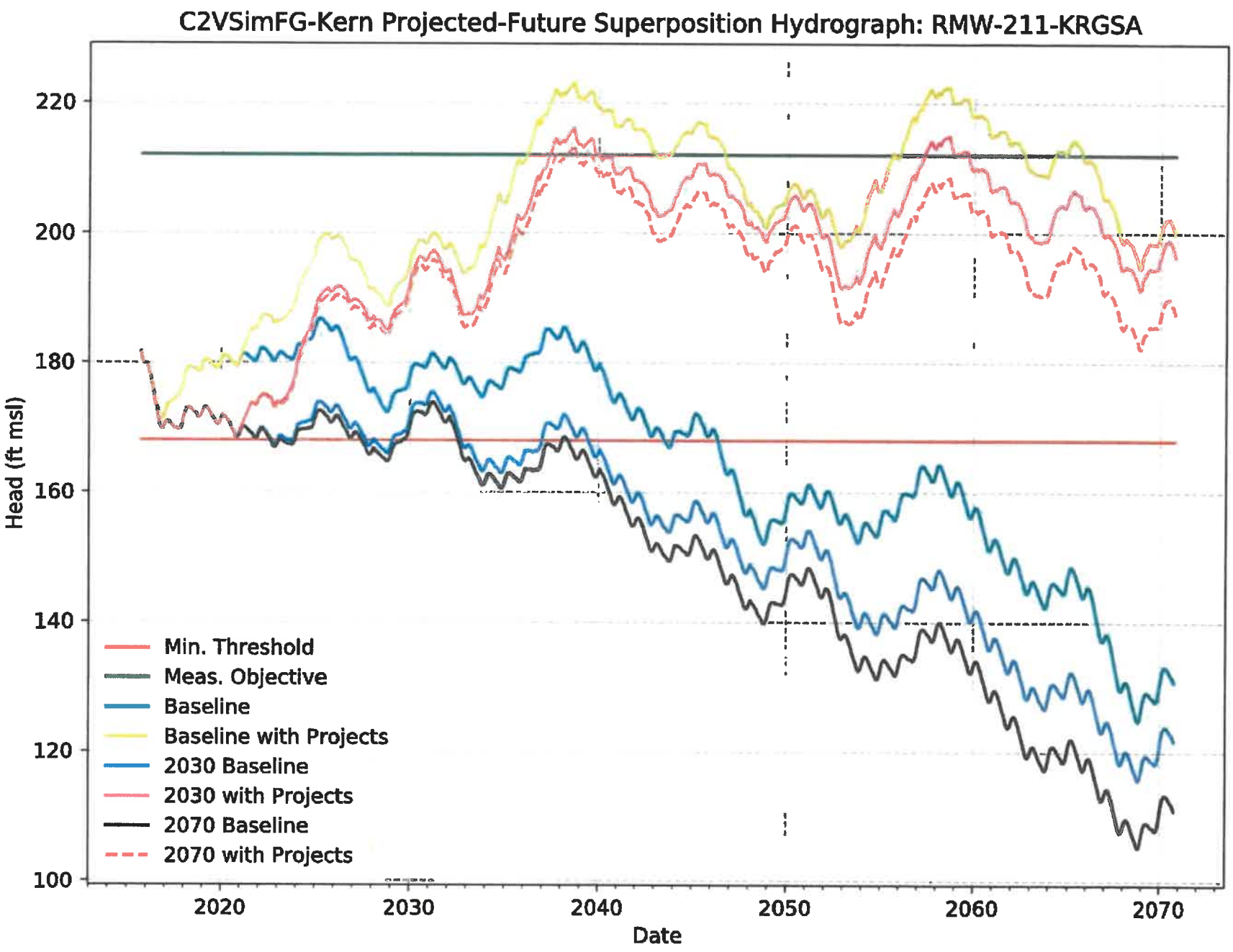

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-192-KRGSA
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects
Head (ft msl)
200
175
150
125
100
75
50
25
2020
2030
2040
2050
2060
2070
Date

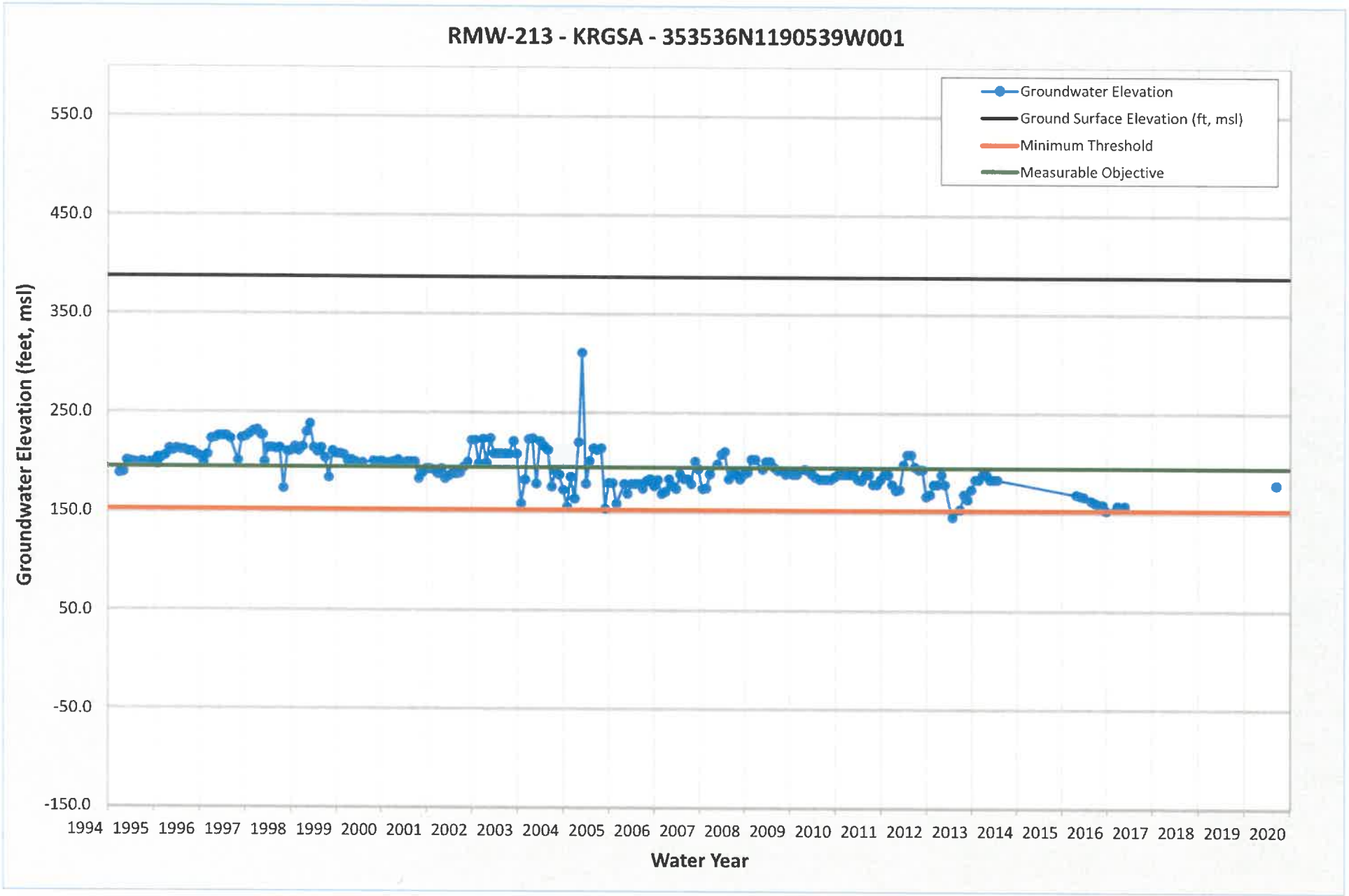

RMW-211 - KRGSA - 353681N1190101W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

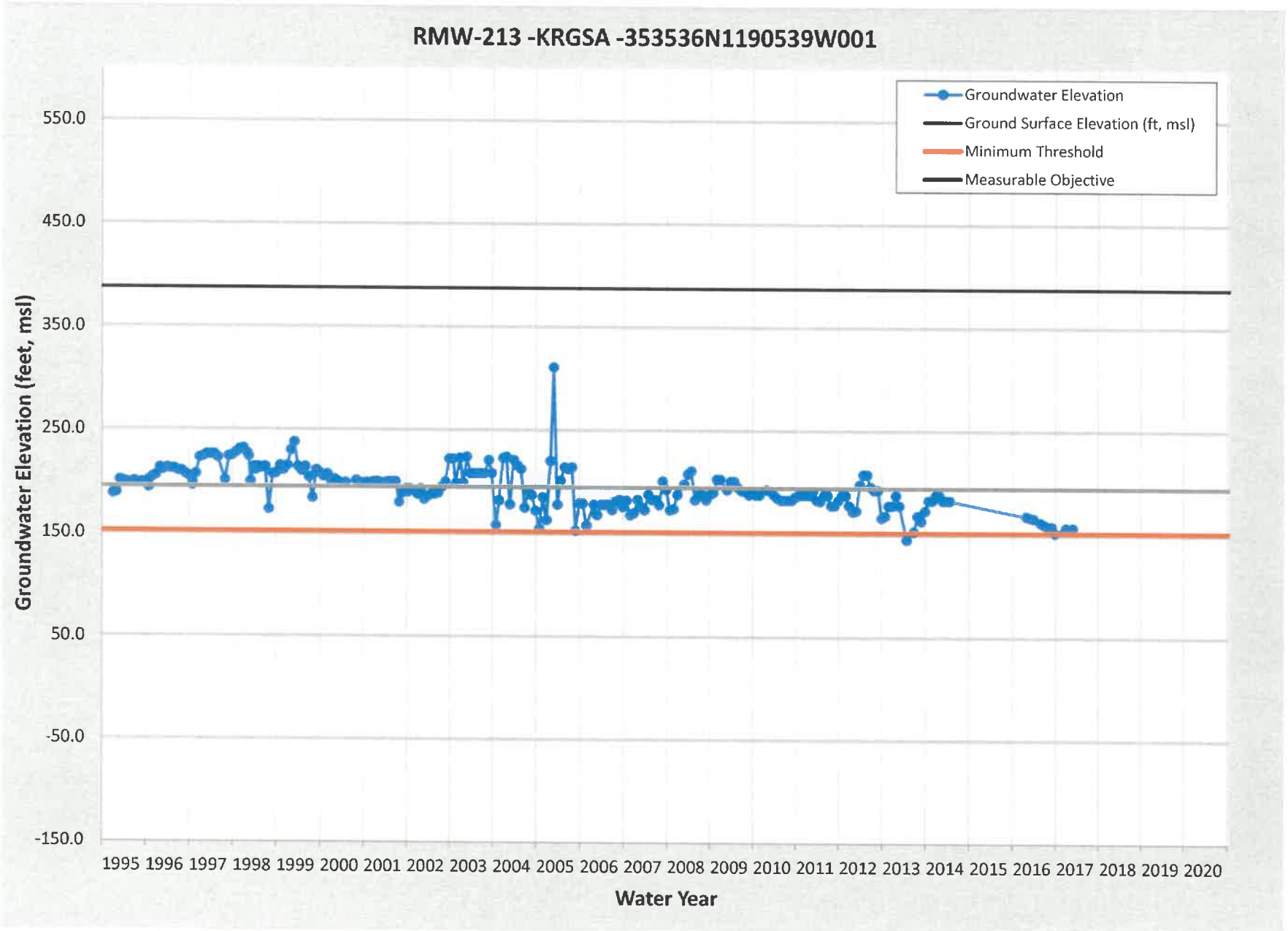

RMW-211 -KRGSA -353681N1190101W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

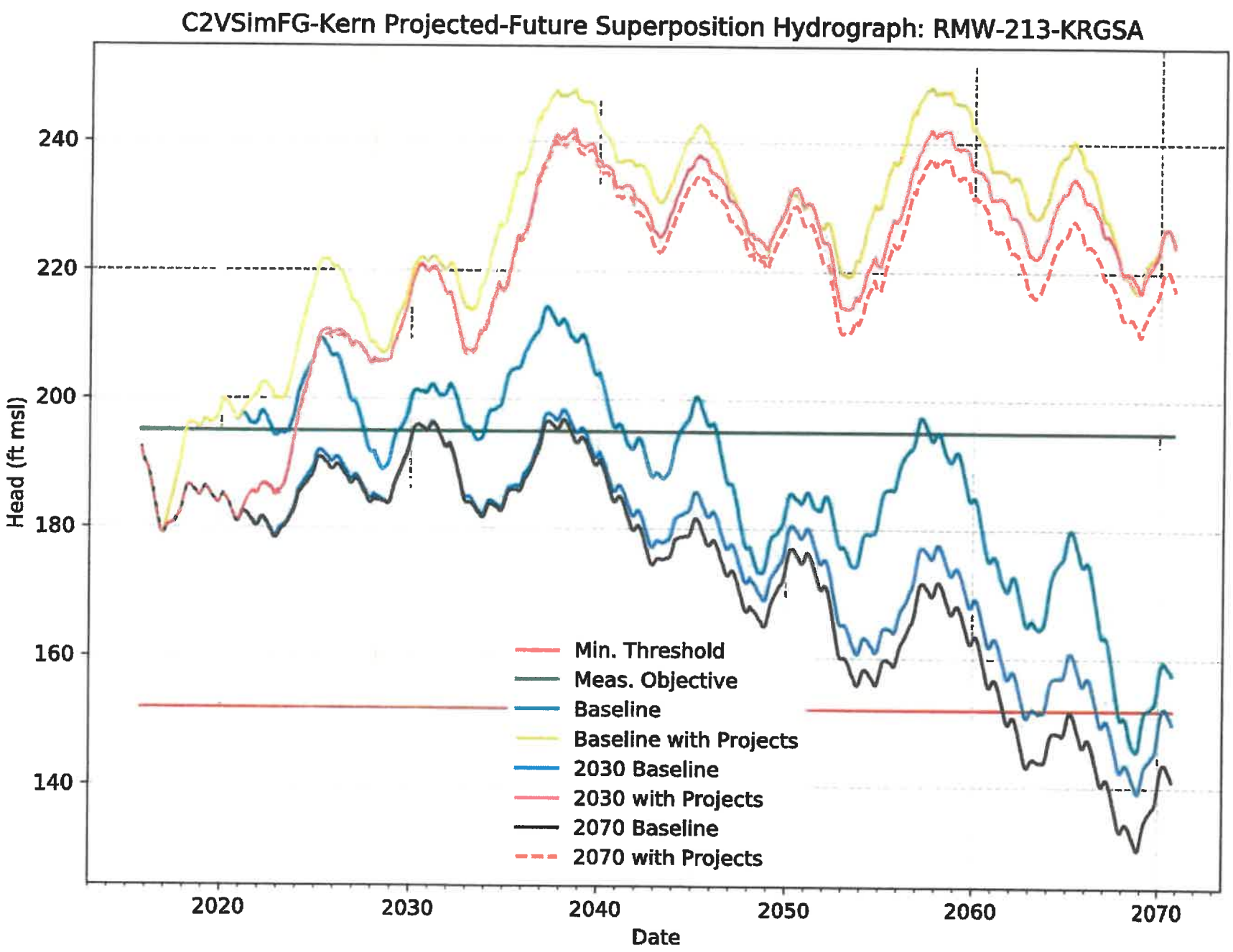

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-211-KRGSA
Head (ft msl)
220
200
180
160
140
120
100
2020
2030
2040
2050
2060
2070
Date
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects

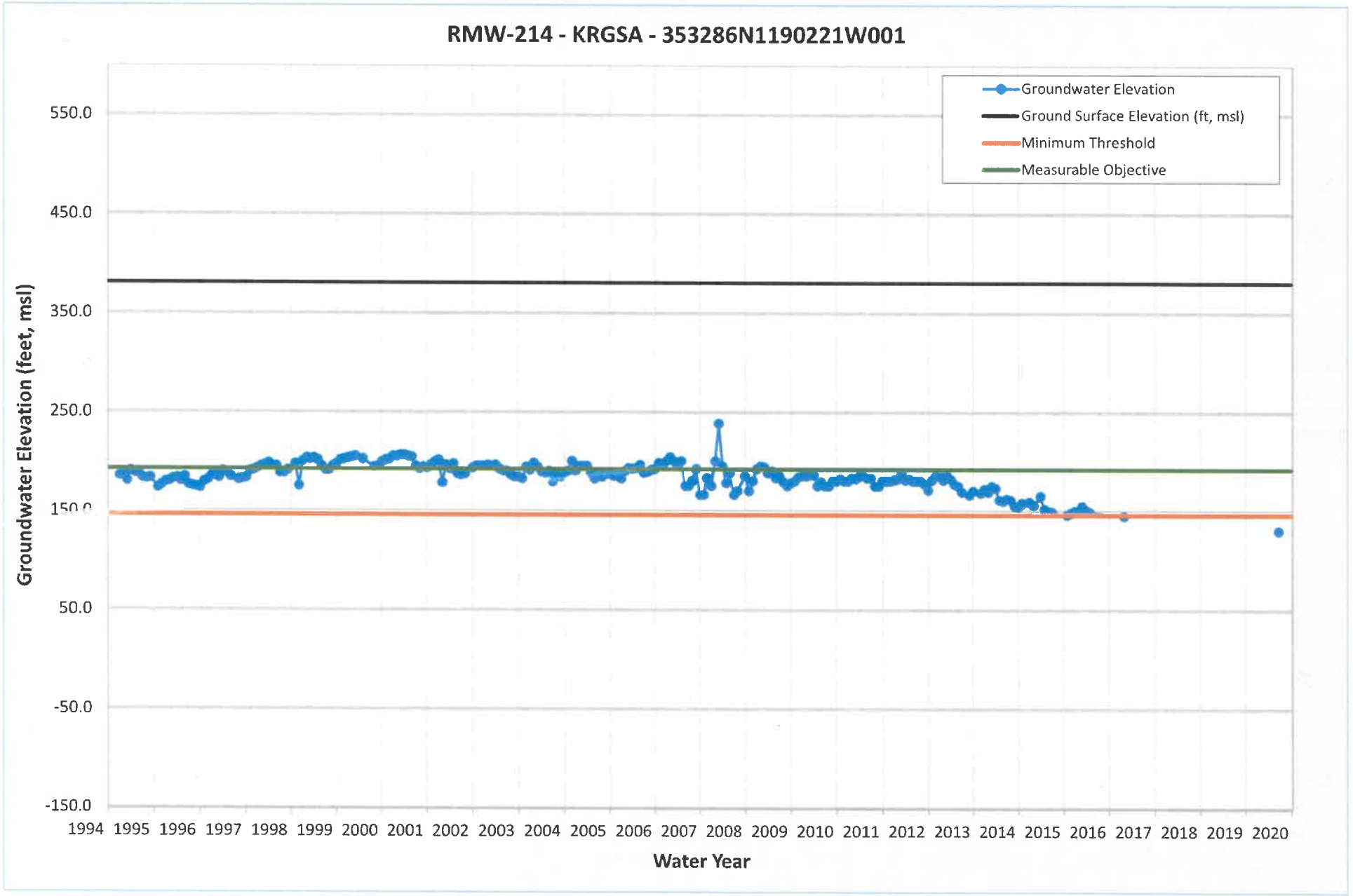

RMW-213 - KRGSA - 353536N1190539W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

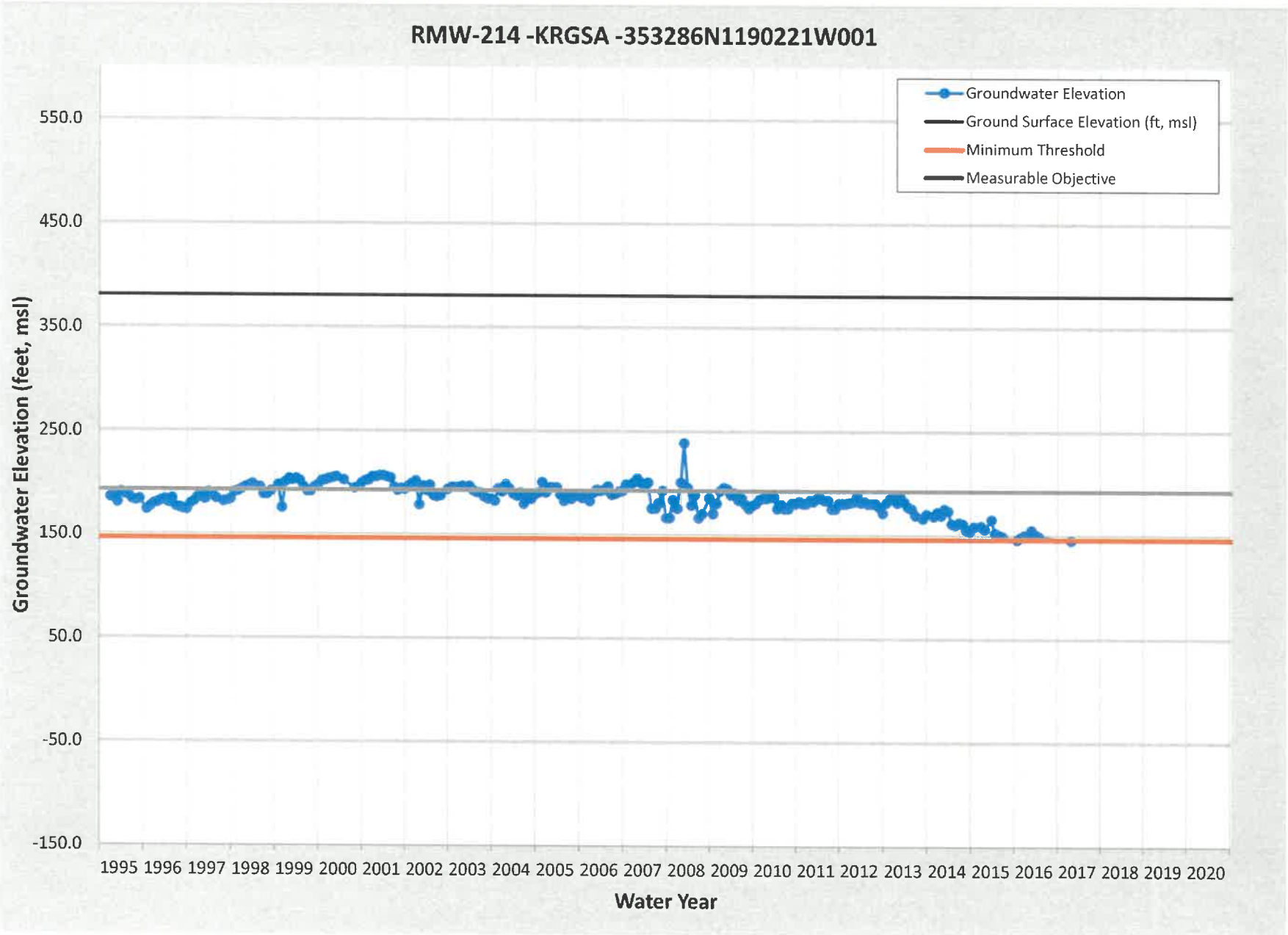

RMW-213 -KRGSA -353536N1190539W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

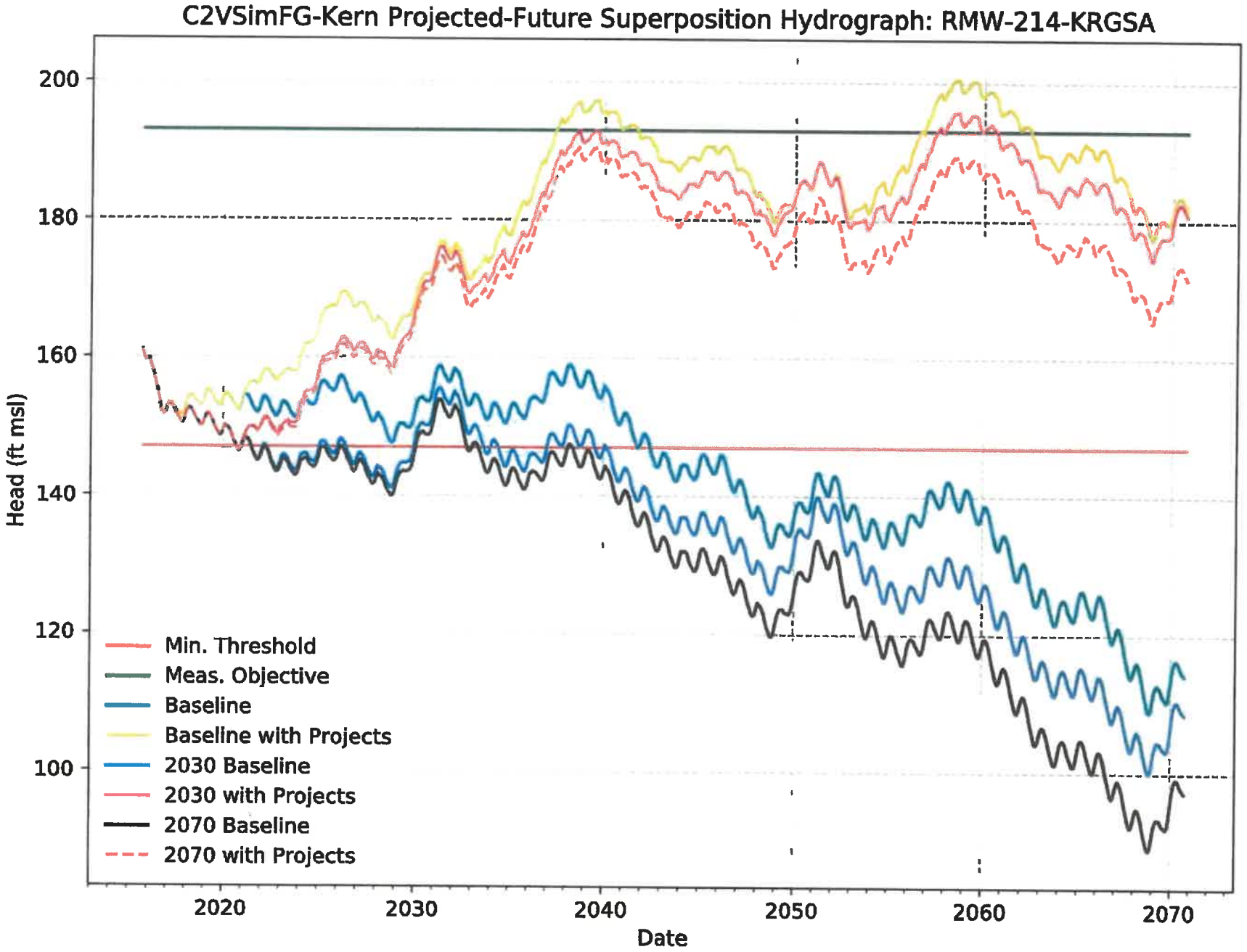

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-213-KRGSA
Head (ft msl)
240
220
200
180
160
140
2020
2030
2040
2050
2060
2070
Date
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects

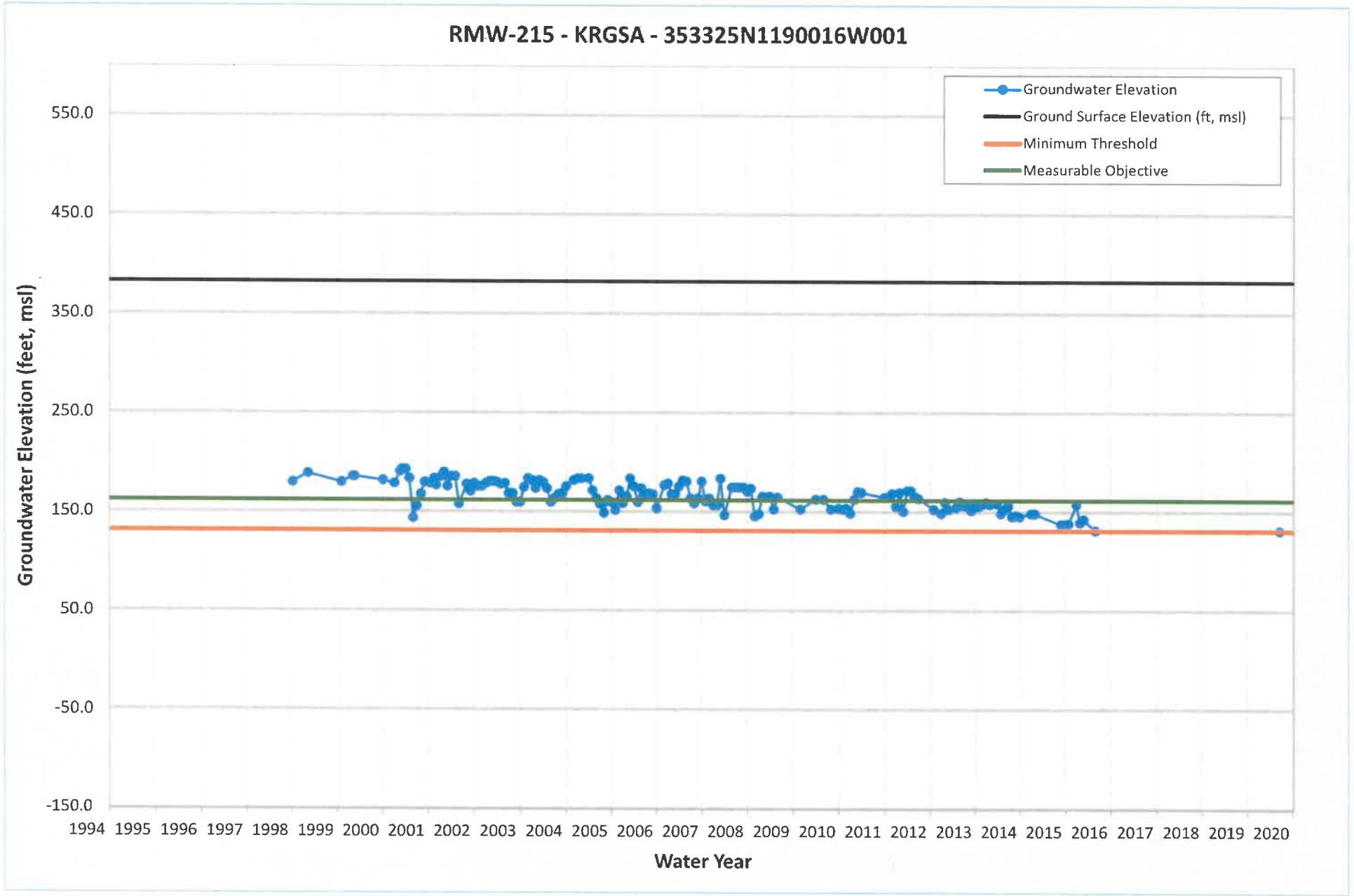

RMW-214 - KRGSA - 353286N1190221W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

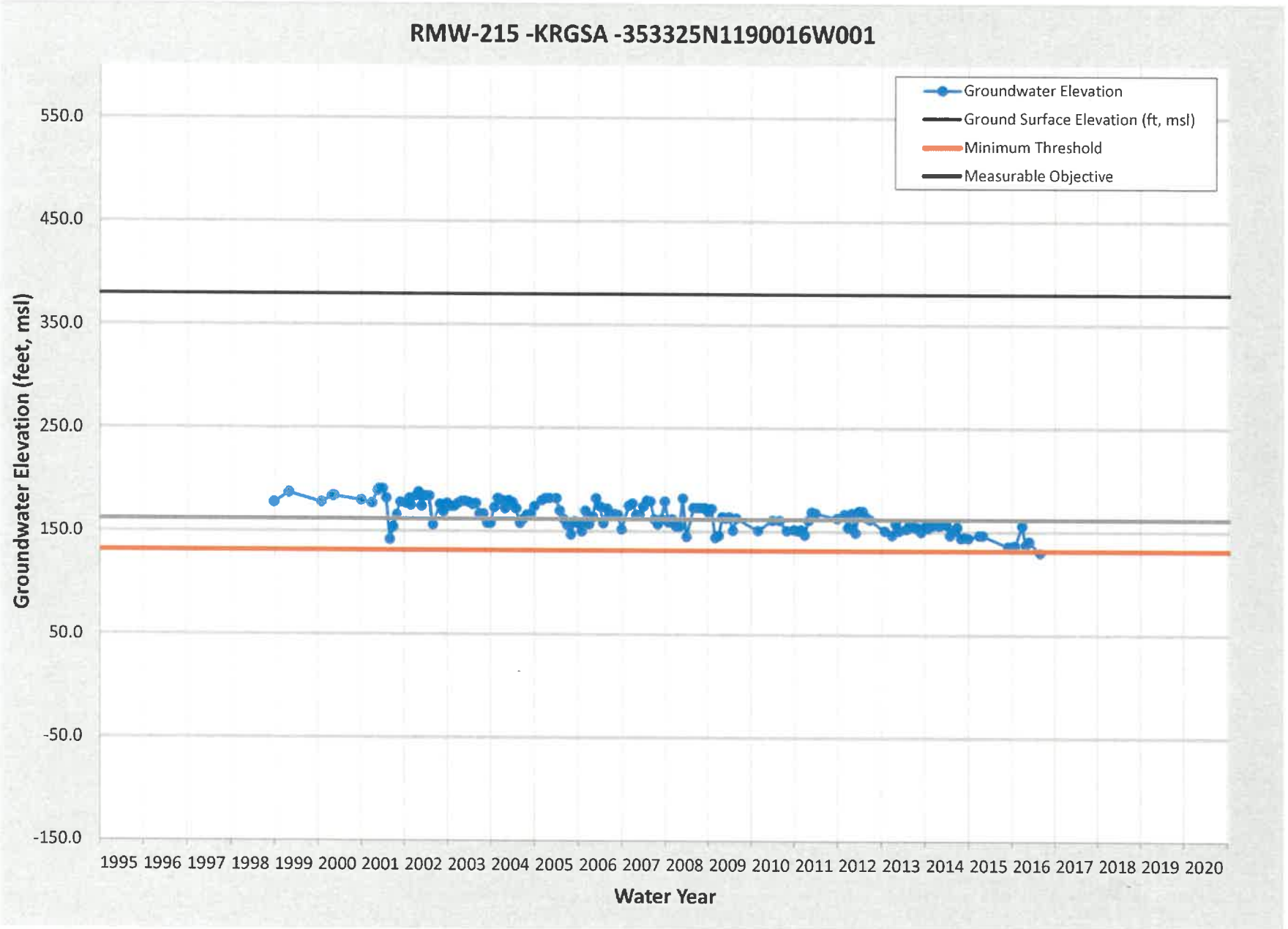

RMW-214 -KRGSA -353286N1190221W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

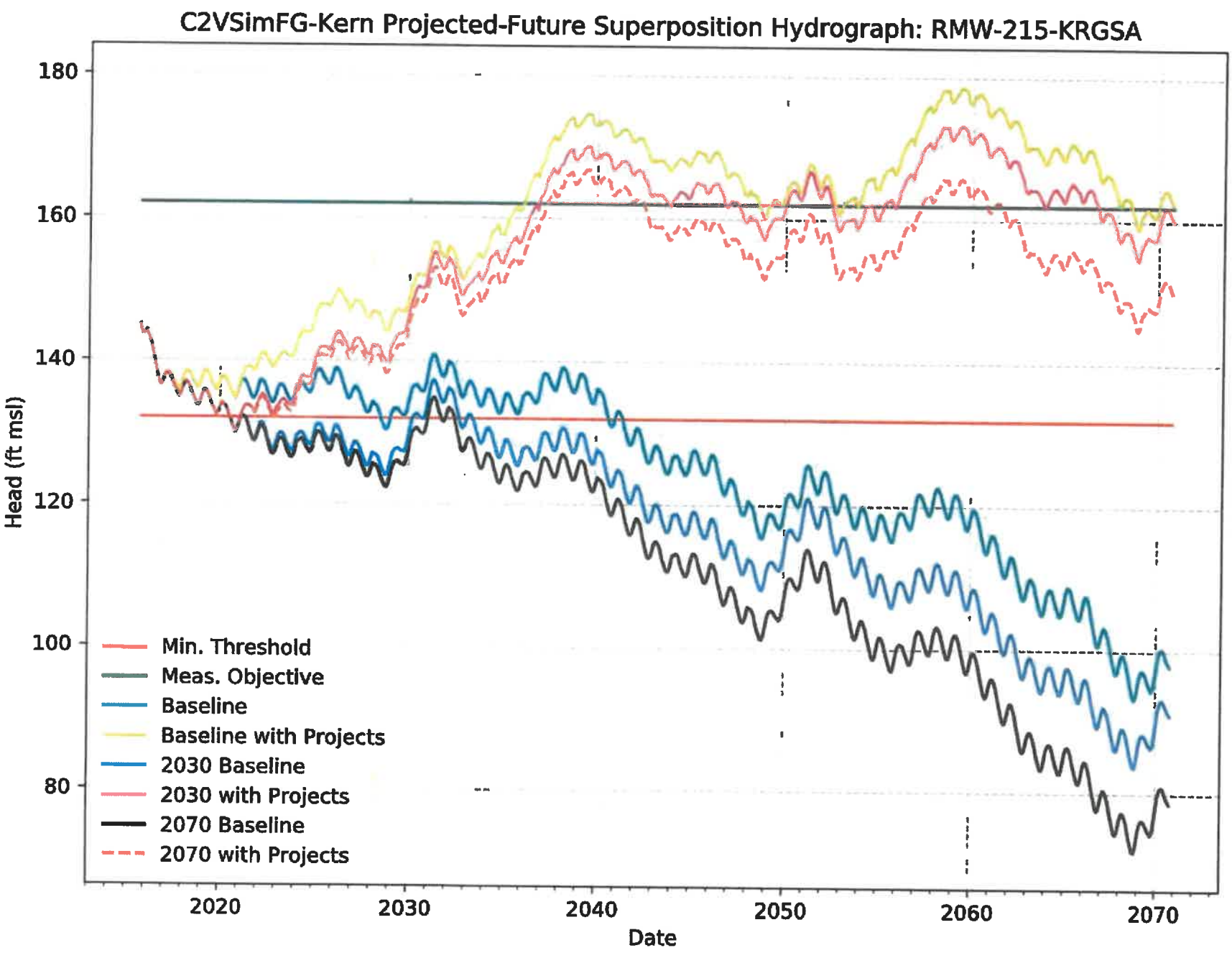

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-214-KRGSA
Head (ft msl)
200
180
160
140
120
100
2020
2030
2040
2050
2060
2070
Date
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects

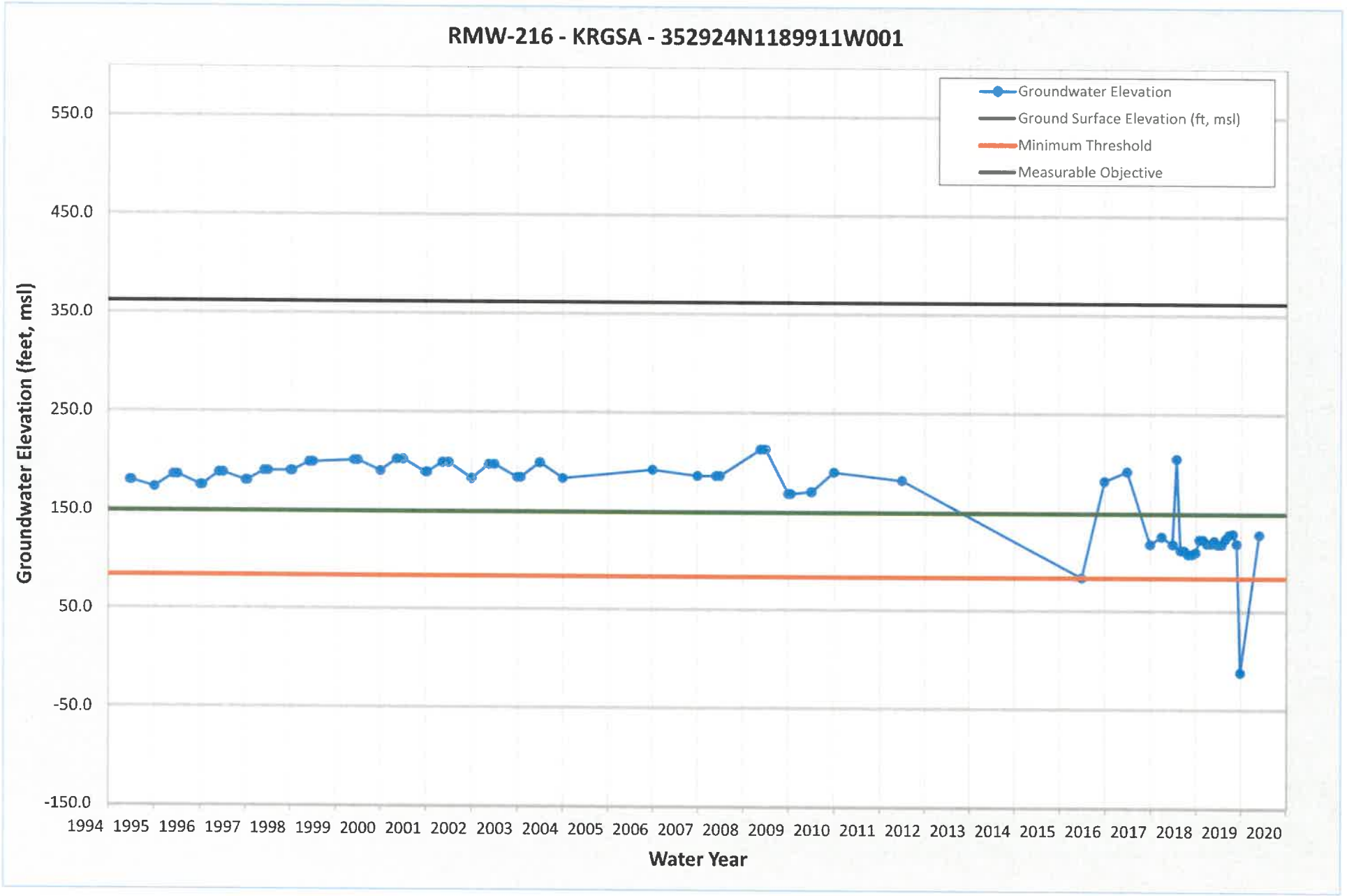

RMW-215 - KRGSA - 353325N1190016W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

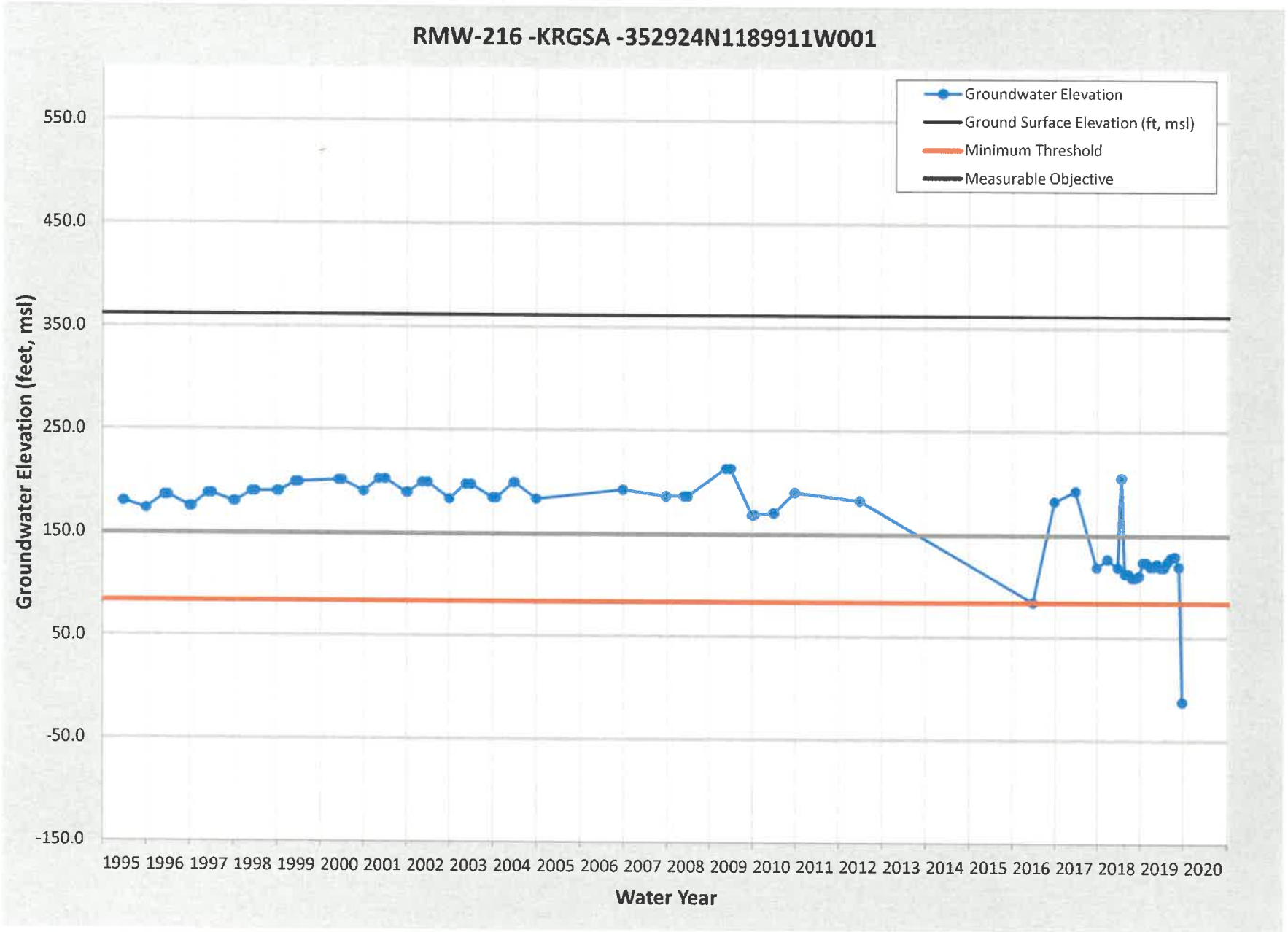

RMW-215 -KRGSA -353325N1190016W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

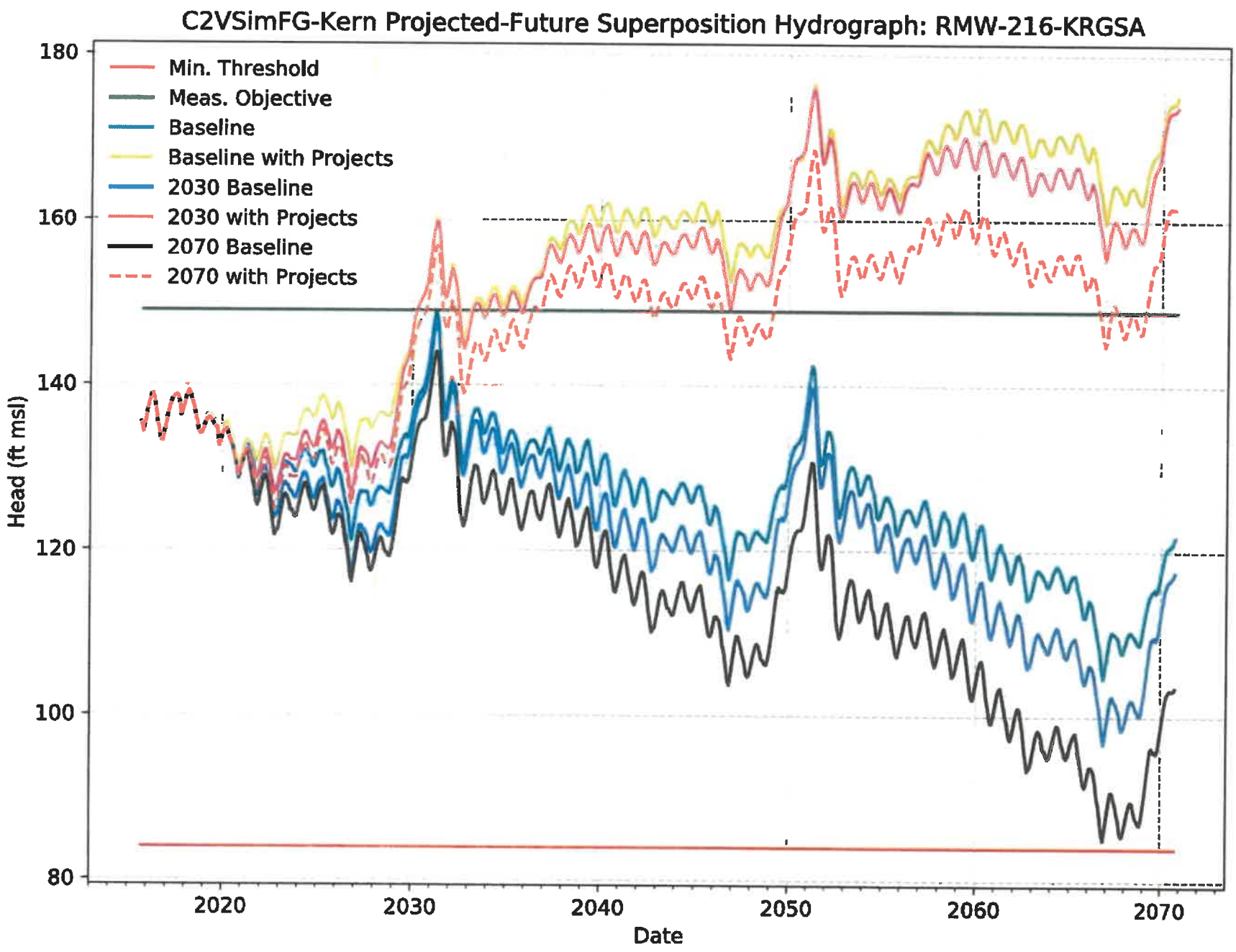

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-215-KRGSA
Head (ft msl)
180
160
140
120
100
80
2020
2030
2040
2050
2060
2070
Date
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects

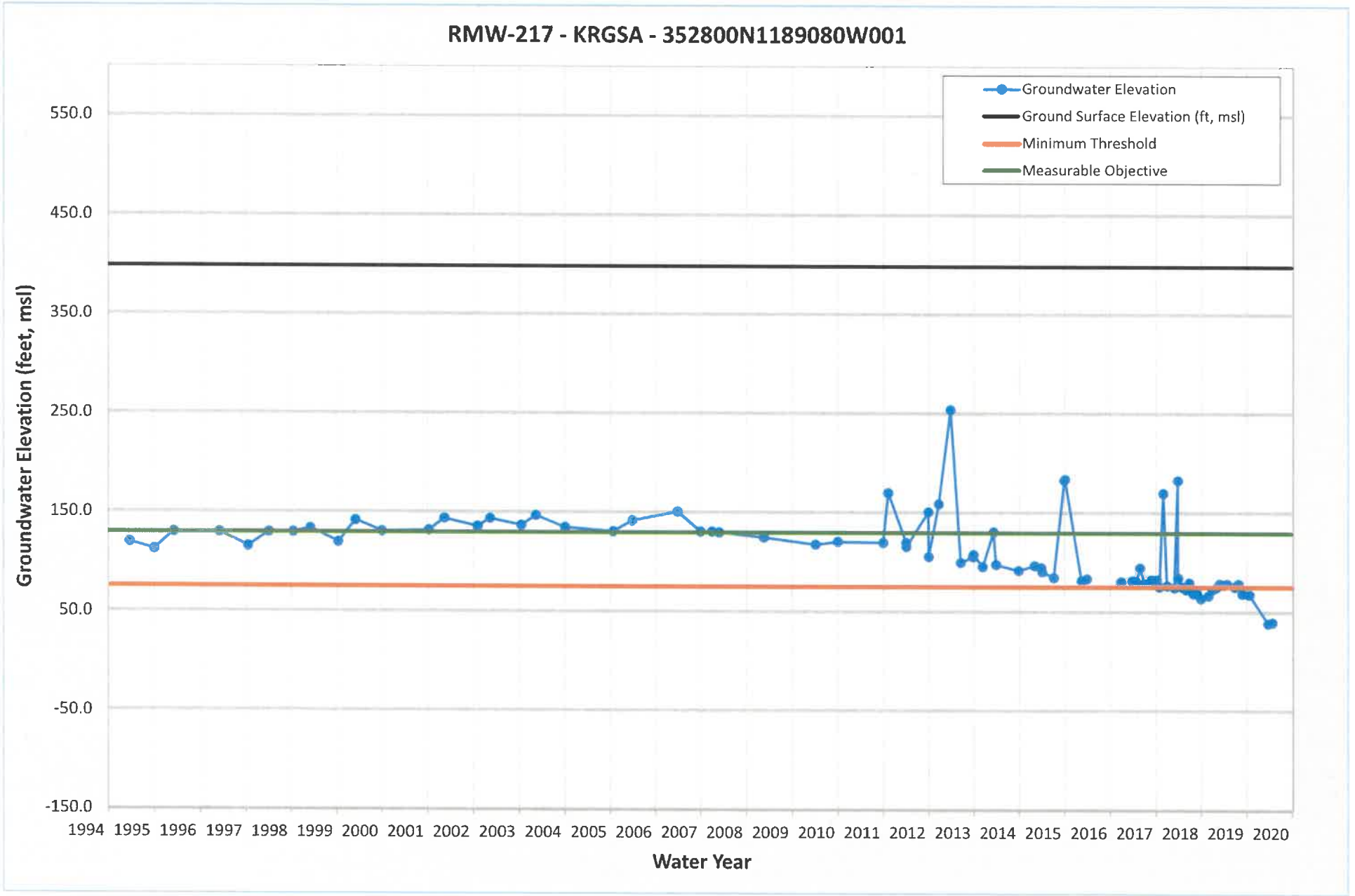

RMW-216 - KRGSA - 352924N1189911W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

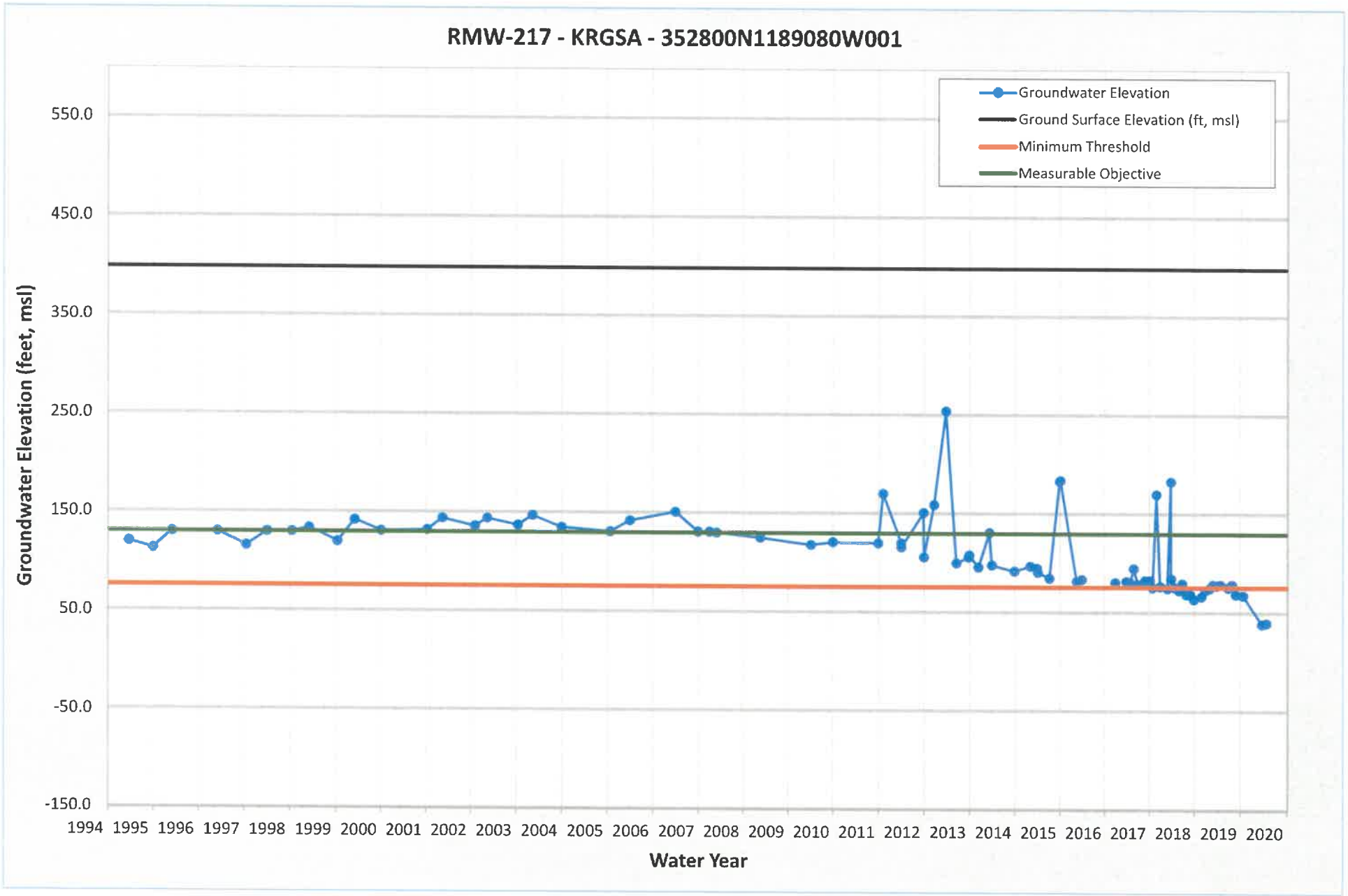

RMW-216 -KRGSA -352924N1189911W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
Groundwater Elevation (feet, msl)
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

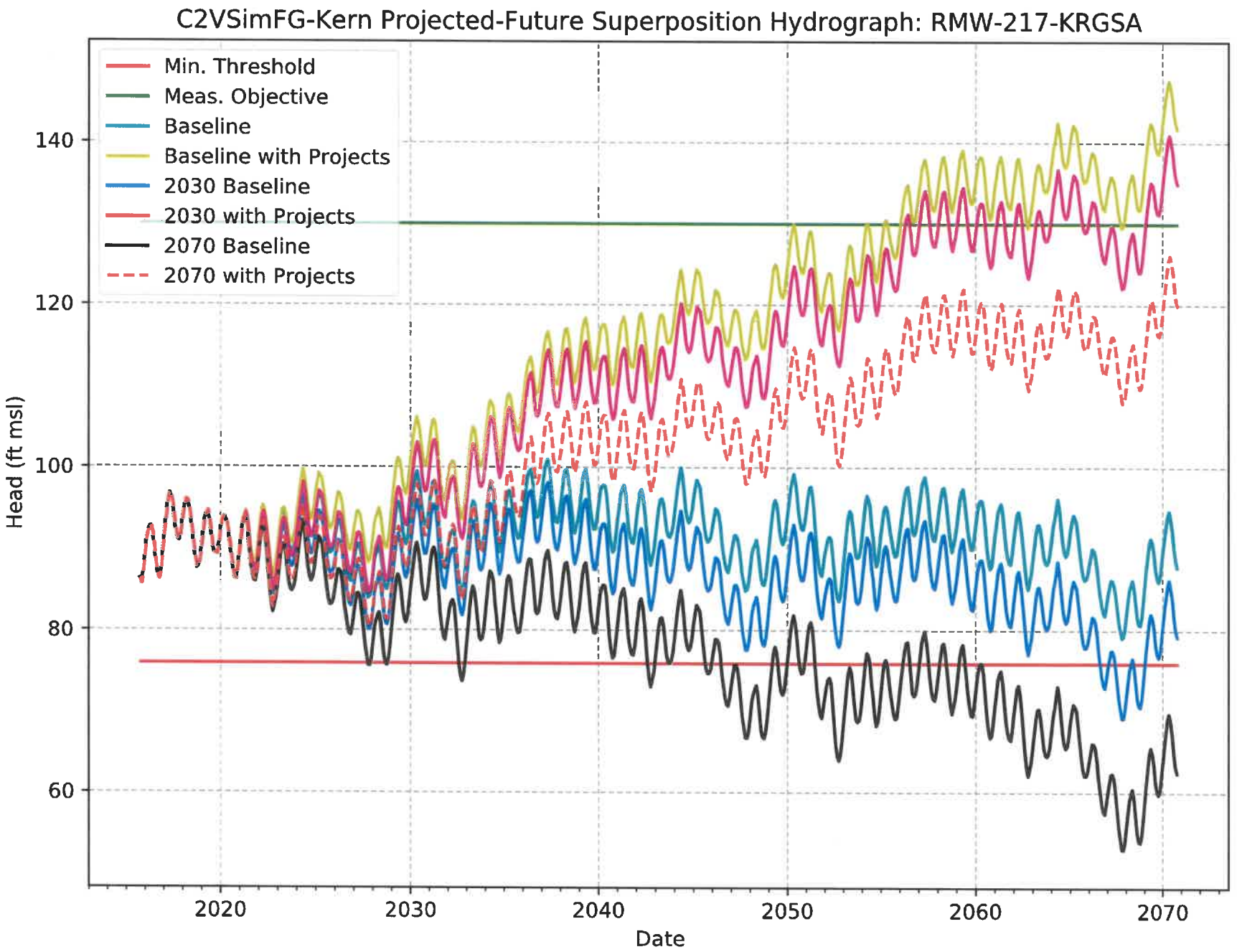

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-216-KRGSA
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects
Head (ft msl)
180
160
140
120
100
80
2020
2030
2040
2050
2060
2070
Date

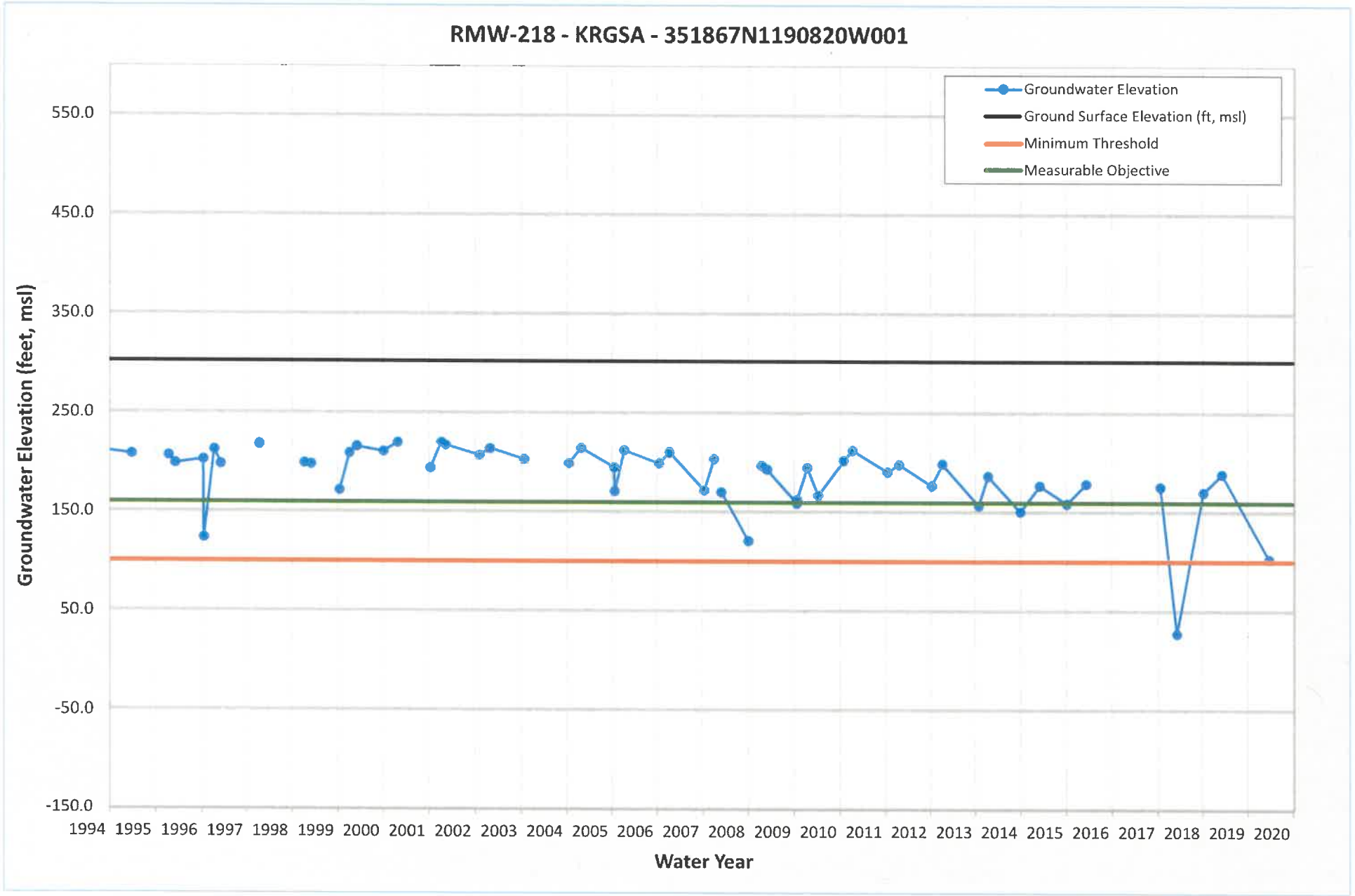

RMW-217 - KRGSA - 352800N1189080W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021

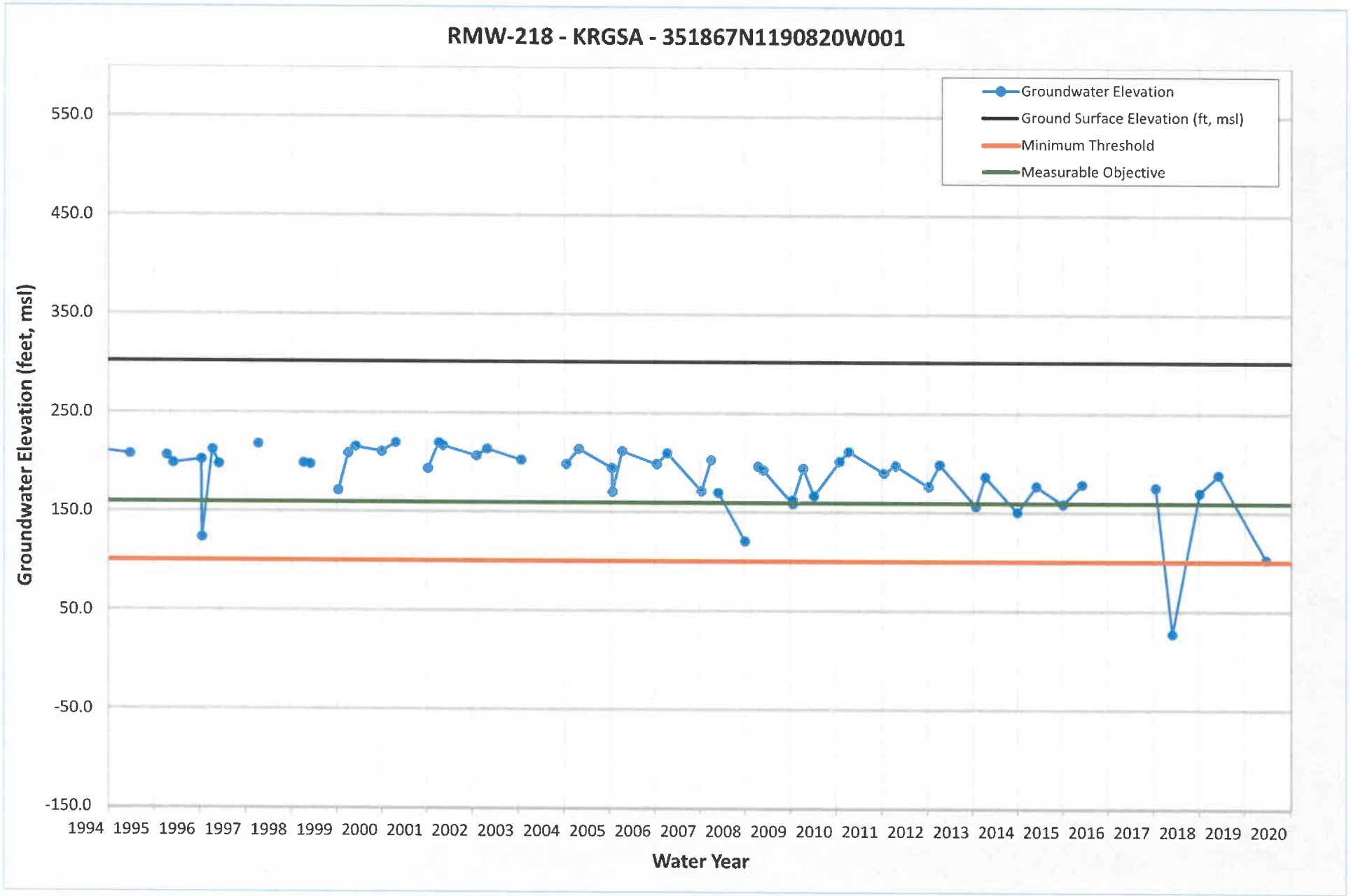

RMW-217 - KRGSA - 352800N1189080W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020

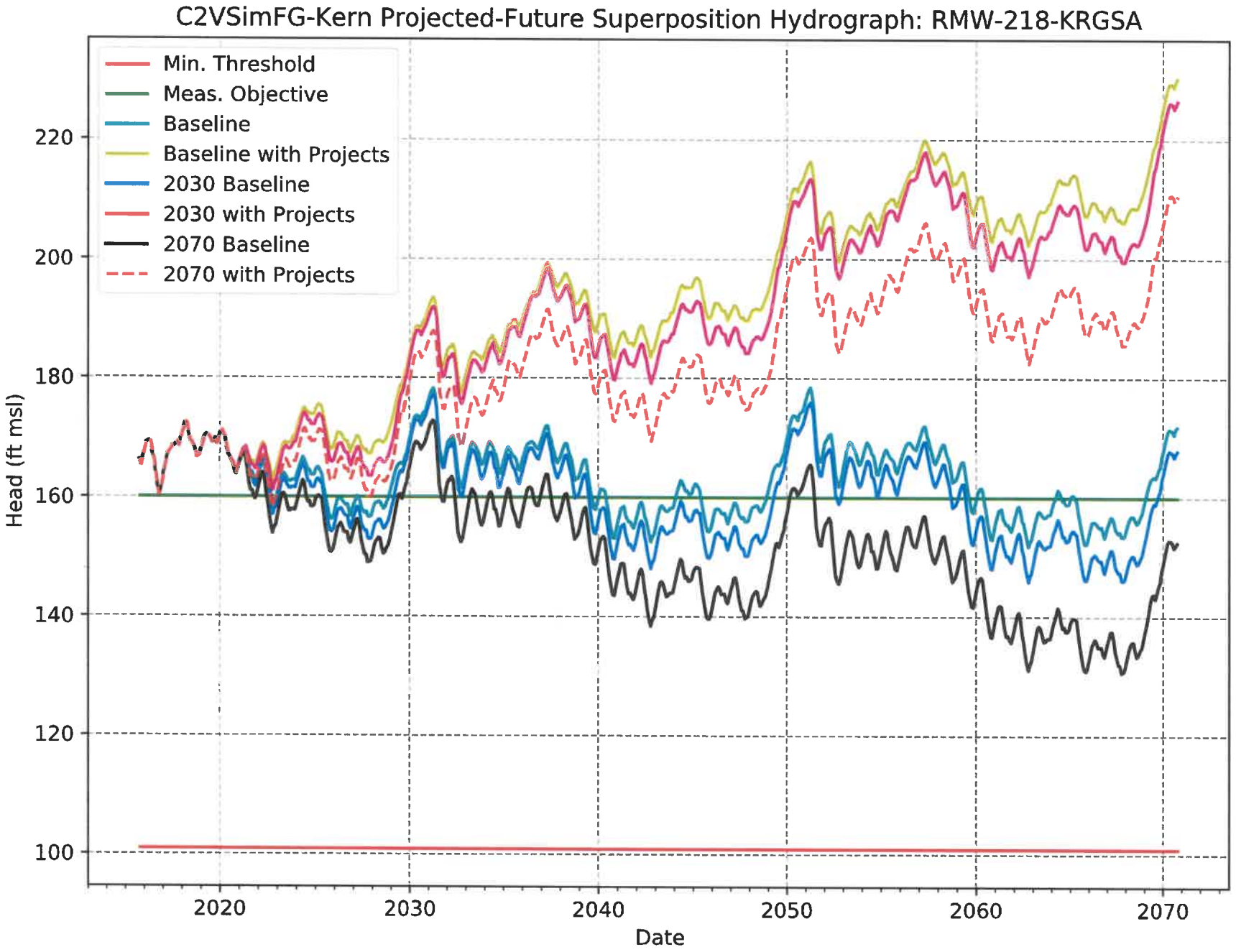

C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-217-KRGSA
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects
Head (ft msl)
140
120
100
80
60
2020
2030
2040
2050
2060
2070
Date


RMW-218 - KRGSA - 351867N1190820W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2021


RMW-218 - KRGSA - 351867N1190820W001
Groundwater Elevation
Ground Surface Elevation (ft, msl)
Minimum Threshold
Measurable Objective
550.0
450.0
350.0
250.0
150.0
50.0
-50.0
-150.0
Groundwater Elevation (feet, msl)
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Water Year

2020


C2VSimFG-Kern Projected-Future Superposition Hydrograph: RMW-218-KRGSA
Min. Threshold
Meas. Objective
Baseline
Baseline with Projects
2030 Baseline
2030 with Projects
2070 Baseline
2070 with Projects
Head (ft msl)
220
200
180
160
140
120
100
2020
2030
2040
2050
2060
2070
Date

KERN GROUNDWATER AUTHORITY

Memorandum

To: Kern Groundwater Authority Board of Directors
From: Patty Poire, Executive Director
Date: April 28, 2021
Subject: Accomplishments and Forward Work Plan

Accomplishments

- Submitted the 2021 annual report – worked with TODD GW, ITRC and all managers/GSAs
- Working with managers/GSAs on DWR requirement of uploading the Minimum thresholds and Measurable Objectives into the SGMA portal
- Held conference call & working with DWR & TODD GW on updating the Kern subbasin monitoring network
- Prepared and held the DMS Kick-off meeting with GSA/managers
- Prepared and held a KGA Executive Committee meeting
- Prepared and held the Kern GSA Coordination Committee meeting
- Participated in the DWR Groundwater Update 2020 workshop
- Participated in the CV-SALTS workshop
- Participated in the CDFA SWEEP Ad Hoc Advisory Committee meeting – advisory member
- Prepared and Presented for the ACWA Spring Conference
- Participated in the State Water Board Safe & Affordable Assessment Results workshop
- Participated in the State Water Board meeting
- Participated in the State Water Board workshop on Safe Drinking Water
- Participated in EDF's Advancing Strategic Land Repurposing & SGMA, followed up with a conference call with EDF
- Participated in the ACWA SGMA Implementation Committee - member
- Participated in the San Joaquin Valley Blueprint Process & Progress
- SGMA Presentation to the Kern County Farm Bureau – Annual Report & DMS
- Continue working with Kern County on new water wells permits and distributed to managers/GSAs
- Working with members/GSAs to prepare for the KGA GSA boundary adjustment and establishment of new GSAs

Forward Work Plan

- Appointed to the California Department of Food & Agriculture State Water Efficiency and Enhancement Program Ad Hoc Advisory Group – participate in the monthly meetings

- Begin the gathering and submittal of the fall seasonal data
- Begin the discussion on the coordination of the implementation of the management actions and projects
- Continue the discussion on the development of the Data Management System for the Kern subbasin
- Continue the work on the boundary adjustment including Arvin-Edison, Wheeler Ridge and Tejon Castac formation of GSAs
- Hold regular monthly Stakeholder meetings to encourage engagement with the implementation of the GSP – when COVID restrictions allow

336 Pacific Avenue · Shafter, California 93263

March 25, 2021

Patricia Poire
Planning Manager
Kern Groundwater Authority
1800 30th Street, Suite 280
Bakersfield, CA 93301

Subject: **City of Shafter Urban Water Management Plan – 2020 Update**

Dear Ms. Poire:

This serves as a formal 60-day notice to inform agencies that the City of Shafter is currently in the process of updating its Urban Water Management Plan (UWMP). The Urban Water Management Planning Act, Water Code Section 10610 et seq., requires every urban water supplier providing water for municipal purposes, either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, to prepare and adopt an UWMP and periodically update that plan at least every five years. The UWMP is a planning document and a source document which reports, describes and evaluates water deliveries and uses, water supply sources and conservation efforts.

This letter serves as a formal 60-day notice to inform agencies that the City of Shafter is currently reviewing and updating its Urban Water Management Plan (UWMP) pursuant to California State Water Code Section 10610-10610.04. A public hearing for the City's UWMP is tentatively scheduled to take place Tuesday, June 1st.

Notices confirming the exact date and time of the public hearing will be issued two weeks and one week prior (a total of two notices) to the actual public hearing date. Please feel free to contact Marcos Torres via email (mtorres@shafter.com) if you have any questions.

Sincerely,

Michael James
Public Works Director
336 Pacific Ave.
Shafter, CA 92363
(661) 746-5002