Notice and Agenda
Regular Meeting of the Beaumont Basin Watermaster

Wednesday, February 7, 2024 at 11:00 a.m.

Meeting Location:
Beaumont-Cherry Valley Water District
560 Magnolia Avenue • Beaumont, California 92223

This meeting is hereby noticed pursuant to California Government Code Section 54950 et. seq.

Members of the Watermaster Committee:

City of Banning
City of Beaumont
Beaumont-Cherry Valley Water District
South Mesa Water Company
Yucaipa Valley Water District

Remote attendance options are provided primarily as a matter of convenience to the public. Unless a Watermaster Committee member is attending remotely pursuant to provisions of GC 54953 et. seq., the public, in-person meeting will not stop or be otherwise suspended should a technological interruption occur with respect to the Zoom teleconference or call-in line listed on the agenda. Members of the public are encouraged to attend BBWM meetings in person at the above address, or remotely using the options listed.

Online Meeting Participation Link:
https://us02web.zoom.us/j/81638720446?pwd=UnNZcC9TbGZzTGFuMHdhVkRMblczQT09

Telephone: (669) 900-9128 / Meeting ID: 816-3872-0446 / Passcode: 636756
One-Tap Mobile: +16699009128,,81638720446#,,,,*636756#

*For Public Comment, use the **"Raise Hand"** feature if on the video call when prompted, if dialing in, please **dial *9 to "Raise Hand"** when prompted*

Meeting materials are available on the Watermaster website:
https://beaumontbasinwatermaster.org/

BEAUMONT BASIN WATERMASTER COMMITTEE – FEBRUARY 7, 2024

I. Call to Order

II. Roll Call

Committee Member Agency	Primary Representative		Alternate	
City of Banning	Arturo Vela, Chair		Nathan Smith	
City of Beaumont			Robert Vestal	
Beaumont-Cherry Valley Water District	Daniel Jaggers		Mark Swanson	
South Mesa Water Company	Dave Armstrong		Brittany Lim	
Yucaipa Valley Water District	Joseph Zoba		Jennifer Ares	

III. Pledge of Allegiance

IV. Public Comments At this time, members of the public may address the Beaumont Basin Watermaster on matters within its jurisdiction; however, no action or discussion may take place on any item not on the agenda. To provide comments on specific agenda items, please complete a Request to Speak form and provide that form to the Secretary prior to the commencement of the meeting, or, RAISE HAND electronically or Press *9 when prompted for public comment.

ACTION ITEMS

Action may be taken on any item on the agenda.

V. Consent Calendar

A. Meeting Minutes
   a. December 6, 2023 Regular Meeting [Page 6]
   b. January 10, 2024 Special Meeting [Page 13]

B. Status Report on Water Level Monitoring throughout the Beaumont Basin through January 22, 2024 [Page 21]

C. A Comparison of Production Rights vs. Production in CY 2023 [Page 32]

VI. Reports

A. Report from Engineering Consultant - Hannibal Blandon, ALDA Engineering

B. Report from Hydrogeological Consultant - Thomas Harder, Thomas Harder & Co.

C. Report from Administrative Consultant – Steve Stuart, Dudek

D. Report from Legal Counsel - Thierry Montoya/Keith McCullough, Frost, Brown, Todd

VII. Discussion Items

A. Reorganization of the Beaumont Basin Watermaster Committee - Chair, Vice Chair, Secretary and Treasurer [Memorandum No. 24-02, Page 34]

Recommendation: Either reaffirm the existing officers or conduct nominations for the appointment of new officers of the Beaumont Basin Watermaster

B. Consideration to Retain Dudek to Provide Professional Services to Review and Update the Rules and Regulations of the Beaumont Basin Watermaster [Memorandum No. 24-03, Page 35]

Recommendation: That the Watermaster Committee contract with Dudek for Services to Review and Update the Rules and Regulations of the Beaumont Basin Watermaster for a sum of $15,000 and send invoices to each Watermaster Committee member for 20% of the approved amount.

C. Potential Incorporation of a Process and Categorization of Water Production for the Annual Report [Memorandum No. 24-04, Page 36]

Recommendation: That the Watermaster Committee consider engaging Dudek to revise the Rules and Regulations to include a process and categorization of Water Production for use in the annual reports

D. Update on the Safe Yield Reset of the Beaumont Basin [Memorandum No. 24-05, Page 41]

Recommendation: No recommendation

E. Basin Management Scenarios [Memorandum No. 24-06, Page 59]

Recommendation: No recommendation

F. Update on Development of Data Management System [No staff report]

Recommendation: No recommendation

VIII. Topics for Future Meetings

	Item	Date Listed
A	Development of a Recycled Water Policy	3/27/2019
B	Development of a return flow accounting policy	3/27/2019
C	Development of a methodology and policy to account for groundwater storage losses in the basin / groundwater management	3/27/2019
D	Procurement Policy including thresholds for RFP process	8/17/2021
E	Incidental discharge	10/6/2021
F	Monitoring of future west side well sites and methodologies, and potential collaboration with USGS	10/5/2022
G	Discussion on what to do when an Appropriator goes negative	10/4/2023 and 11/1/2023

IX. Comments from the Watermaster Committee Members

X. Announcements

A. 2024 Meeting Dates:

Wednesday, March 6 at 11 a.m.	Special Meeting / Workshop
Wednesday, April 3 at 11 a.m.	Regular Meeting
Wednesday, June 5 at 11 a.m.	Regular Meeting
Wednesday, August 7 at 11 a.m.	Regular Meeting
Wednesday, October 2 at 11 a.m.	Regular Meeting
Wednesday, December 4 at 11 a.m.	Regular Meeting

XI. Adjournment

NOTICES

AVAILABILITY OF AGENDA MATERIALS - Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the Beaumont Basin Watermaster Committee in connection with a matter subject to discussion or consideration at an open meeting of the Committee are available for public inspection in the Office of the Watermaster Secretary, at 560 Magnolia Avenue, Beaumont, California ("Office") during business hours, Monday through Thursday from 7:30 a.m. to 5 p.m. If such writings are distributed to members of the Committee less than 72 hours prior to the meeting, they will be available from the Office at the same time or within 24 hours' time as they are distributed to Board Members, except that if such writings are distributed one hour prior to, or during the meeting, they can be made available in the Board Room at the District Office. Materials may also be available on the Watermaster website: https://beaumontbasinwatermaster.org/.

REVISIONS TO THE AGENDA - In accordance with §54954.2(a) of the Government Code (Brown Act), revisions to this Agenda may be made up to 72 hours before the Board Meeting, if necessary, after mailings are completed. Interested persons wishing to receive a copy of the set Agenda may pick one up at the Office, located at 560 Magnolia Avenue, Beaumont, California, or download from the website up to 72 hours prior to the Meeting.

REQUIREMENTS RE: DISABLED ACCESS - In accordance with §54954.2(a), requests for a disability related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting, should be made to the Office, at least 48 hours in advance of the meeting to ensure availability of the requested service or accommodation. The Office may be contacted by telephone at (951) 845-9581, email at info@bcvwd.org or in writing to the Beaumont Basin Watermaster Committee, c/o Beaumont-Cherry Valley Water District, 560 Magnolia Avenue, Beaumont, California 92223.

CERTIFICATION OF POSTING

A copy of the foregoing notice was posted near the regular meeting place of the Beaumont Basin Watermaster Committee and to its website at least 72 hours in advance of the meeting (Government Code §54954.2(a)).

Consent Calendar

Record of the Minutes of the
Beaumont Basin Committee Meeting of the
Beaumont Basin Watermaster
Regular Meeting
Wednesday, December 6, 2023

Meeting Location:

Beaumont-Cherry Valley Water District
560 Magnolia Ave., Beaumont, CA 92223

I. Call to Order

Vice Chair David Armstrong called the meeting to order at 11:06 a.m.

II. Roll Call

City of Banning	*Nathan Smith*	*Present*
City of Beaumont	*Robert Vestal*	*Present*
Beaumont-Cherry Valley Water District	*Dan Jaggers*	*Present*
South Mesa Water Company	*David Armstrong*	*Present*
Yucaipa Valley Water District	*Joe Zoba*	*Present*

Hanibal Blandon and Thomas Harder were present as engineers for the Beaumont Basin Watermaster (BBWM).
Thierry Montoya was present as BBWM legal counsel.
Steve Stuart of Dudek was present as BBWM administrator.

Members of the public who registered and / or attended:
Brett Granlund, Yucaipa Valley Water District
Joyce McIntire, Yucaipa Valley Water District
Ashley Gibson, Yucaipa Valley Water District
Lance Eckhart, San Gorgonio Pass Water Agency
Emmett Campbell, San Gorgonio Pass Water Agency
Kevin Walton, San Gorgonio Pass Water Agency
Robert Rasha, Beaumont-Cherry Valley Water District
Cenica Smith, Beaumont-Cherry Valley Water District
Matthew Palavido, Dudek
Brittany Lim, South Mesa Water Company
Eddie Giraldo, Rain for Rent
Ed Bender, Rain for Rent

III. Pledge of Allegiance

IV. Public Comments: None.

V. Consent Calendar

A. Meeting Minutes
   a. October 4, 2023 Regular Meeting
   b. November 1, 2023 Special Meeting

It was moved by Member Jaggers and seconded by Member Zoba to approve the October 4, 2023 meeting minutes.

AYES:	Armstrong, Jaggers, Smith, Zoba
NOES:	None
ABSTAIN:	None
ABSENT:	City of Beaumont
STATUS:	Motion Approved

It was moved by Member Jaggers and seconded by Member Zoba to approve the November 1, 2023 meeting minutes.

AYES:	Armstrong, Jaggers, Smith, Zoba
NOES:	None
ABSTAIN:	None
ABSENT:	City of Beaumont
STATUS:	Motion Approved

B. Status Report on Water Level Monitoring throughout the Beaumont Basin through November 13, 2023

C. A Comparison of Production Rights versus Production through August 2023

It was moved by Member Jaggers and seconded by Member Zoba to approve Consent Calendar items A, B and C.

AYES:	Armstrong, Jaggers, Smith, Zoba
NOES:	None
ABSTAIN:	None
ABSENT:	City of Beaumont
STATUS:	Motion Approved

VI. Reports

A. Report from Engineering Consultant – Hannibal Blandon, ALDA Engineering

Mr. Blandon reminded about failures of communication cables at the monitoring sites. Cables were ordered and received, and will be installed following the meeting.

An analysis of storage issues was prepared based on the question regarding different buckets that could exist, Blandon continued, and he asked if there were any questions. There were none.

B. Report from Hydrogeological Consultant – Thomas Harder, Thomas Harder & Co.

Mr. Harder pointed to the 2024 scope of work and noted that technical memorandums prepared have costs associated. He explained that the attachments for items VII-A and VII-B were reversed. THC is in the process of putting together a scope of work with analysis of different basin operations to stress test the basin and identify potentially significant and unreasonable conditions. The intention is to present it at the next workshop.

C. Report from Administrative Consultant – Steve Stuart, Dudek

Mr. Stuart reported that information is still being sought on well survey results from some of the parties in the basin. He is still working on the process of developing a schedule highlighting the many tasks for future discussion over the next couple of years.

D. Report from Legal Counsel – Thierry Montoya - Frost, Brown, Todd

Mr. Montoya noted there is a vacancy for the City of Beaumont that will needs to be filled. He encouraged the City to contact him so that a motion can be filed with the Court for a new member and alternate.

BBWM Secretary Jaggers said he would compose a short letter to the City to reiterate and move it forward.

VII. Discussion Items

A. Proposal by Thomas Harder & Company / Alda to Provide Engineering and Reporting Services in 2024

Recommendation: Approve Task Order No. 5 for Engineering and Reporting Services in 2024 for a sum not to exceed $95,690 and send invoices to each Watermaster Committee member for 20% of the approved amount

It was moved by Member Zoba and seconded by Member Jaggers to approve Task Order No. 5 for Engineering and Reporting Services in 2024 for a sum not to exceed $95,690 and send invoices to each Watermaster Committee member for 20% of the approved amount by the following vote:

AYES:	Armstrong, Jaggers, Smith, Zoba
NOES:	None
ABSTAIN:	None
ABSENT:	City of Beaumont
STATUS:	Motion Approved

B. Proposal by Thomas Harder & Company / Alda to Provide Groundwater Level Monitoring Services in 2024

Recommendation: Approve Task Order No. 6 for Groundwater Level Monitoring Services for a sum not to exceed $28,120 and send invoices to each Watermaster Committee member for 20% of the approved amount

Member Jaggers noted that the tables in the staff report were switched, and he clarified that the vote is on the recommendation plus the Task Order. The amounts in the discussion item are correct, Harder noted.

It was moved by Member Zoba and seconded by Member Jaggers to approve Task Order No. 6 for Groundwater Level Monitoring Services for a sum not to exceed $28,120 and send invoices to each Watermaster Committee member for 20% of the approved amount by the following vote:

AYES:	Armstrong, Jaggers, Smith, Zoba
NOES:	None
ABSTAIN:	None
ABSENT:	City of Beaumont
STATUS:	Motion Approved

C. Update on the Safe Yield Reset of the Beaumont Basin

Recommendation: No recommendation

Mr. Harder advised this is still in progress, as the consultant feels the weight of making sure that it is as accurate as possible. It is hoped to be presented at the January meeting.

D. Review of Appropriator's Production Right Calculation

Recommendation: No recommendation

Mr. Stuart referred to Mr. Blandon's earlier presentation and measurement of production of groundwater in the basin. This is the measure of determining whether or not a particular pumper or appropriator would have to apply replenishment water or funds for replenishment water should they experience overproduction in a particular year, he explained.

Mr. Stuart reviewed several sections and concepts in the judgment. He requested direction from the Committee. Discussion touched on:

1. *Possible limit in time on surplus water*
    a. *Judgment / rules do not speak to this*
    b. *Temporary surplus was to create additional capacity in the basin to help encourage or implement conjunctive use projects or increase the ability to store / capture more water in the basin*
    c. *Definition of stored water allows for only supplemental water (imported or recycled)*
    d. *If temporary surplus cannot be stored, it had to be used in the year it was provided*
    e. *Consider future action to redefine or add to the concept of stored water as part of the physical solution to include some of the other waters*
2. *Physical solution would include looking at overall production of all appropriators in the basin vs. the surplus*
    a. *Ability to transfer between appropriators*
    b. *State required conservation goals have been met and storage accounts are stable*
3. *New Yield*
    a. *not defined as supplemental water*
    b. *could be captured stormwater or diversion of streamflow*
4. *Order of operation of water usage / Appropriator's Production Right*
    a. *Add a separate table for the storage account*

b. Remove supplemental water from the equation

5. *Imported water and storage account management*
6. *Develop a process of accounting*
7. *This approach is consistent with the judgment and the concepts / legal cases that address these kinds of judgments, and is within the Committee's obligation and right to take this holistic view*

E. Update on Development of Data Management System

Recommendation: No recommendation.

Mr. Matthew Palavido shared the major updates since the last meeting including groundwater elevation readings and production information for all wells. The NOAA climate stations have been added with readings through December 1.

On Friday, Mr. Palavido said he would send out login information and instructions so agencies can provide feedback. There will be another discussion to show how to edit and add information.

Member Zoba asked if the NOAA data beyond the BBWM boundary could be added; Mr. Palavido said it could and pointed to some examples.

VIII. Topics for Future Meetings

	Item	Date Listed
A	Development of a Recycled Water Policy	3/27/2019
B	Development of a return flow accounting policy	3/27/2019
C	Development of a methodology and policy to account for groundwater storage losses in the basin / groundwater management	3/27/2019
D	Procurement Policy including thresholds for RFP process	8/17/2021
E	Incidental discharge	10/6/2021
F	Evaluation of Storage Issues in the Basin	Tabled from 12/2/2021 meeting
G	Monitoring of future west side well sites and methodologies, and potential collaboration with USGS	10/5/2022

H	Direction for use of different types of storage accounts	8/2/2023
I	Revision of Rules and Regulations: i. Mechanism for BBWM to collect funds if storage account is in deficit (Development of a rate for overproduction of right) ii. General modernization of rules and regulations iii. Clarification of overlier transfers process iv. Proposal from Dudek for this work	8/2/2023
J	Process and categorization of water production for the annual report	8/2/2023

IX. Comments from the Watermaster Committee Members: None.

X. Announcements

A. The next meeting of the Beaumont Basin Watermaster is scheduled for Wednesday, January 10, 2024, at 11:00 a.m.

B. 2024 Meeting Dates:

Wednesday, February 7 at 11 a.m.	Regular Meeting
Wednesday, March 6 at 11 a.m.	Special Meeting
Wednesday, April 3 at 11 a.m.	Regular Meeting
Wednesday, June 5 at 11 a.m.	Regular Meeting
Wednesday, August 7 at 11 a.m.	Regular Meeting
Wednesday, October 2 at 11 a.m.	Regular Meeting
Wednesday, December 4 at 11 a.m.	Regular Meeting

XI. Adjournment

Vice Chair Armstrong adjourned the meeting at 11:43 a.m.

Attest:

DRAFT UNTIL APPROVED

_____

Daniel Jaggers, Secretary
Beaumont Basin Watermaster

Record of the Minutes of the
Beaumont Basin Committee Meeting of the
Beaumont Basin Watermaster
Special Meeting
Wednesday, January 10, 2024

Meeting Location:

Beaumont-Cherry Valley Water District
560 Magnolia Ave.
Beaumont, CA 92223

I. Call to Order

Chair Art Vela called the meeting to order at 11:06 a.m.

II. Roll Call

City of Banning	*Art Vela*	*Present*
City of Beaumont	*Robert Vestal*	*Present*
Beaumont-Cherry Valley Water District	*Dan Jaggers*	*Present*
South Mesa Water Company	*David Armstrong*	*Present*
Yucaipa Valley Water District	*Jennifer Ares*	*Present*

Hannibal Blandon and Thomas Harder were present as engineers for the Beaumont Basin Watermaster (BBWM).
Steve Stuart of Dudek was present as BBWM administrator.
Thierry Montoya was present as legal counsel for the BBWM.

Members of the public who registered and / or attended:
Brittany Lim, South Mesa Water Company
Ron Duncan, San Gorgonio Pass Water Agency
Kevin Watson, San Gorgonio Pass Water Agency
Emmett Campbell, San Gorgonio Pass Water Agency
Matt Howard, San Gorgonio Pass Water Agency
Mike Kostelecky, Yucaipa Valley Water District
Joyce McIntire, Yucaipa Valley Water District
Erin Anton, Yucaipa Valley Water District
Thaxton Van Belle, City of Beaumont
Robert Rasha, Beaumont-Cherry Valley Water District
Lynda Kerney, Beaumont-Cherry Valley Water District
James Bean, Beaumont-Cherry Valley Water District
Mark Swanson, Beaumont-Cherry Valley Water District

III. Pledge of Allegiance: Chair Vela led the pledge.

IV. Public Comments: None.

V. Workshop / Discussion Items

A. Update on the Safe Yield Redetermination

Thomas Harder reported that work is proceeding on the safe yield reset. They are still in the calibration phase of the numerical model. He said he expected to present the report in February 2024.

B. Watermaster Goal for the Basin

a. Discuss Undesirable Result(s) for Basin

b. Discuss Model Scenarios to Evaluate Undesirable Result(s)

C. 40,000-AF Storage Depletion in West Side of Beaumont Basin

[The following discussion addresses Discussion Items B and C]
Mr. Harder reminded the Committee about questions raised including potential for undesirable results, what is causing the imbalance on the west side of the basin, and how can testing be done to determine what is significant and reasonable to come up with benchmarks and criteria for Basin management. He reviewed the six Sustainable Groundwater Management Act sustainability indicators, explaining that the three most applicable to the Beaumont Basin are:

- Chronic lowering of groundwater levels
- Reduction of groundwater in storage
- Degraded groundwater quality

Mr. Harder discussed the hydrology of the basin. He pointed out that recharge, both natural and artificial, flows to the southeast and does not reach the west part of the basin due to fault barriers. Other than precipitation, the west side gets little natural recharge.

Mr. Harder identified overlying party wells, most of which are located on the west side of the Beaumont Basin. The overliers pump about 1,600 af per year, with about 1,300 af pumping by appropriators in the western side of the Basin. All of the safe yield is assigned to appropriators mostly on the west side of the Basin, he noted. This might be something to consider for analysis in the future.

Over time, the change in groundwater storage shows negative on the west side of the Basin, Harder continued. On the east side, there has been a rise in groundwater storage and as a whole, the Basin increased in storage by 22,000 af since 2013. Without the imported water, this Basin is in overdraft, he stated. He provided two hydrographs for the Moreno 6 well (west side of Basin) and the Banning C-4 well (east side of Basin), to show a marked decline in water level in the west side compared to a steady level in the

east side since 2003. The Moreno 6 hydrograph shows that recharge is definitely not keeping up with the discharge.

Mr. Harder advised that the Beaumont Basin process is missing some of the SGMA required elements:

- Identification of what constitutes significant and unreasonable conditions
- Identification of metrics to avoid those conditions
- Identification of projects and management actions that would be implemented if significant and unreasonable conditions are possible

In order to test the boundaries of the Basin without causing an undesirable result, hypothetical situations with extreme conditions may be modeled, Mr. Harder continued. He presented unlikely but plausible scenarios for potential analysis to establish a basis for identifying significant and unreasonable results and provide a planning tool for future projects and management actions.

Member Jaggers pointed out there is approximately 335 million square feet of land on the west side of the Basin. One inch of rain across that area is 641 af of water, which, if 1/3 of it percolated that is about 211 af of contribution. Member Zoba has spoken about the reduction in area rainfall, he reminded, and calculated that loss at 630 af per year, which exacerbates the problem.

Member Jaggers also pointed out water loss on the west side. Irrigation water assigned to houses in Calimesa may have a return flow component, and those get conveyed down the same conduits to exit the Basin, he said. All solutions to capture the west side flow as it exits and bring it back up should be considered, he suggested.

Extraction is being considered in the area of the southeast where water is lost from the recharge locations, Jaggers continued. As well sites are developed, all the tools available should be used to strategize where to capture water and bring back into the system.

Mr. Harder added that one of the best ways to mitigate groundwater level decline is in-lieu supply (recycled water) and pointed to the golf courses on the west side. If recycled water can be brought to the overliers in lieu pumping, that would make a big difference, he said.

Chair Vela commented that it is interesting and challenging that a majority of the overlying water right is allocated to the side of the Basin on which there is not much imported or natural recharge. How sustainable is that, he asked. There is not much wiggle room in the adjudication, he noted, and even with alternatives, they will not happen overnight (i.e., a recharge facility on the west side is five to seven years out). This is a long-term issue

that should be resolved at some point, as demands on the west side will increase, he noted.

This will be able to be evaluated through the safe yield reset process, Mr. Harder noted. The process will include a forward projection for the next 10 years. It will be assumed that overlier pumping will continue at 2022 levels to give an idea of where groundwater level will be and provide a 10-year window to figure something out.

Chair Vela suggested interest in conceptually developing safe yields for each side for discussion purposes, as they are two different bowls of water. It can be estimated, Harder stated. Mr. Jaggers reminded that exchange / transmission of water / interconnect could be considered in the short term to mitigate and manage. He noted that San Gorgonio Pass Water Agency (SGPWA) General Manager Lance Eckhart has some ideas about and is working on recharge on the west side that may be achievable.

Member Armstrong said he does not see the west side as being in peril. In December 2022 he was at 285 feet to water, and in December 2023 was at 256 – a comeback of 30 feet over the last year. Mr. Harder described the separation with the Banning fault between the South Mesa Water Company (SMWC) area and the Basin area, and noted that SMWC is not pumping a significant amount from Well 4.

Member Armstrong noted the State Water Project (SWP) runs through the area and suggested the solution is the SGPWA building a recharge basin on the west side. He said he would rather spend money on purchasing State Project Water to put water in the ground and fix the problem. Mr. Harder noted that he is grouping the west area, and there may be areas to which that would not apply. There are multiple ways to solve the problem, he advised.

Harder asked, if current actions continue under extreme hydrology, at what point would results be bad.

Member Vestal asked if the model identifies the natural loss rate; Mr. Harder said it does. This has been done in the past for the Watermaster, he added. Most of the losses happen on the east side because of the amount of water flowing, he noted. Member Jaggers said he would provide a copy of that 2015 report to the City of Beaumont.

Mr. Harder further described the analysis process, based on the Safe Yield projection. He shared some example extreme hydrology scenarios and requested member input.

Member Jaggers pointed out the added benefit of high quality water from the SWP in wet years. He noted the benefits of the East Branch Extension

and Harder acknowledged that what is being done now is working, but the area is dependent on imported water to remain sustainable.

Mr. Harder shared a number of hypothetical extreme scenarios to help characterize and evaluate undesirable results in the Basin, and asked for input from the Appropriators to help devise the extreme hydrology scenarios. Mr. Harder offered to develop a scope and cost for evaluating these hypothetical scenarios. Mr. Harder requested ideas by the February meeting. Mr. Jaggers noted that BCVWD implemented stage 3 of the drought contingency plan in the last drought to reduce the use of groundwater. Mr. Jaggers requested an email from Mr. Harder with the request for further information for the extreme hydrology scenarios.

Mr. Stuart suggested ranking the different scenarios by probability and starting the simulation with the scenario most likely to occur, and adding next steps to get an understanding of what it takes to get to an undesirable condition.

D. Management of Storage Accounts
E. Identify next steps

Mr. Stuart recalled the 10-year period of controlled overdraft at the beginning of the stipulated judgment / physical solution. There was a question of whether or not, when that period ended, was the surplus water removed from storage accounts, he noted.

Mr. Stuart reviewed the four appropriators assigned a temporary surplus allocation form the 160,000 af determined to be in surplus and provided calculations of pumping from 2003 to 2013 versus the amount of temporary surplus allocated. At the end of the 10-year period, Banning, SMWC, and YVWD did not produce up to what was allocated to them, but BCVWD overproduced, he reported. About 21,000 af of surplus water was not extracted from the Basin over that 10-year period, and then the controlled overdraft period ended, he stated.

As mentioned in the Stipulated Judgment Exhibit C as a footnote to the table, "Controlled overdraft will not exceed 160,000 af during the first 10 years of operation under the physical solution," he read.

In an evaluation of all adjudicated basins in 2016, the State Water Resources Control Board indicated the Beaumont Basin appropriators should bank some of the temporary surplus water for future use after the period of controlled overdraft. Therefore, Stuart posited, any surplus water not extracted during that 10-year period is available to those appropriators that left it in the Basin, and it went into their storage accounts. It carries over because it was originally intended to provide additional capacity in the Basin for future use, conjunctive use projects, etc., and it is all based on

the 160,000 af of volume he said. There is no time assigned to that volume of water, he noted.

Stuart reviewed the graph Comparison of Appropriator Temporary Surplus to Annual Pumping 2003 to 2013 and presented calculations for each appropriator.

Mr. Stuart prepared a table that reorganized the listing of the parameters that factor into the Appropriator's Production Right calculation. The table was reorganized based on discussions at the last meeting.

Mr. Jaggers pointed out these are an aggregate of tables in the annual reports and provide a "how did it happen" scenario. He noted that the Water Shortage Contingency Plan is based on this type of math and suggested all pay attention to the more sophisticated representations to be clear on what kind of shape each agency is in over time. He acknowledged the work of the SGPWA and emphasized the value of the data in management and planning.

Mr. Stuart suggested a revision of the Rules and Regulations to avoid future questions. He advised that he could put together a scope of work to make those changes. Chair Vela agreed and said he would be interested in what changes would be proposed and what Committee members would want. Chair Vela said he appreciated the graphical representations.

Member Jaggers stated that agencies have worked to get themselves into shape, which is why the Basin is maintaining some balance. He suggested defining how the Committee operates to give future Committee members a document with an easy path to follow. He agreed that a holistic look at / overview of the Rules and Regulations would be beneficial and requested an outline of the project. Mr. Stuart said this could be an element.

Chair Vela noted that members may be hesitant to include anything that may restrict how the agencies individually manage their own storage accounts. Mr. Stuart clarified that it is more of a foundation for how to account for things defined in the judgment and the different parameters of the storage account.

Questions about the temporary surplus included when it ended, if at all, and the if overlier rights / appropriative water is not used within the year earned, is it lost – it has not been accounted for in that way, Stuart stated. These are the things the Rules and Regulations can lay out.

Chair Vela suggested the agencies first identify what banks of water they will be using, although it should be a net zero. Mr. Stuart indicated there does not seem to be a benefit to identify which bucket of water is being used for production.

Member Jaggers referred to management actions taken during the drought, and explained he did not want to constrain BCVWD from operations. He noted cooperation between agencies and said he was encouraged by the current state and the tools being developed.

The Committee concurred on a request for Dudek to revise the Rules and Regulations. Mr. Stuart will provide a list of items to revisit and consider updating in the Rules and Regulations.

Member Jaggers added that policies would include recycled water and recharge accounting systems, and stormwater capture. Return flow and losses were suggested by Chair Vela. Member Armstrong suggested that Legal Counsel Montoya participate in the revision. Mr. Montoya noted the Rules have been staid for a long time and should be updated, modernized, and made more relevant of the circumstances and challenges.

Mr. Blandon pointed out the summary information shown in the tables is very similar or identical to that presented in the annual report. He suggested inclusion of a new section in the annual report comparing the appropriators' production right to management of the storage account. He said he is beginning to compile the annual report for 2023. Chair Vela concurred.

VI. Topics for Future Meetings

	Item	Date Listed
A	Development of a Recycled Water Policy	3/27/2019
B	Development of a return flow accounting policy	3/27/2019
C	Development of a methodology and policy to account for groundwater storage losses in the basin / groundwater management	3/27/2019
D	Procurement Policy including thresholds for RFP process	8/17/2021
E	Incidental discharge	10/6/2021
F	Evaluation of Storage Issues in the Basin	Tabled from 12/2/2021 meeting
G	Monitoring of future west side well sites and methodologies, and potential collaboration with USGS	10/5/2022
H	Direction for use of different types of storage accounts	8/2/2023

I	Revision of Rules and Regulations: i. Mechanism for BBWM to collect funds if storage account is in deficit (Development of a rate for overproduction of right) ii. General modernization of rules and regulations iii. Clarification of overlier transfers process iv. Proposal from Dudek for this work	8/2/2023
J	Process and categorization of water production for the annual report	8/2/2023
K	Discussion on what to do when an Appropriator goes negative	10/4/2023 and 11/1/2023

VII. Comments from the Watermaster Committee Members

None.

VIII. Announcements

A. The next meeting of the Beaumont Basin Watermaster is scheduled for Wednesday, February 7, 2024, at 11 a.m.

B. 2024 Meeting Dates:

Wednesday, March 6 at 11 a.m.	Special Meeting / Workshop
Wednesday, April 3 at 11 a.m.	Regular Meeting
Wednesday, June 5 at 11 a.m.	Regular Meeting
Wednesday, August 7 at 11 a.m.	Regular Meeting
Wednesday, October 2 at 11 a.m.	Regular Meeting
Wednesday, December 4 at 11 a.m.	Regular Meeting

XI. Adjournment

Chair Vela adjourned the meeting at 12:26 p.m.

Attest:

DRAFT UNTIL APPROVED

_____

Daniel Jaggers, Secretary
Beaumont Basin Watermaster

BEAUMONT BASIN WATERMASTER

Date: February 7, 2024

From: Hannibal Blandon, ALDA Inc.

Subject: Status Report on Water Level Monitoring throughout the Beaumont Basin through January 22, 2024

Recommendation: Presentation - No recommendation

At the present time, there are 15 monitoring wells equipped with pressure transducers collecting water level information on an hourly basis at various locations throughout the basin. In addition, two of these monitoring wells are equipped with additional probes to collect barometric pressures at opposite ends of the Beaumont Basin. The location of active monitoring wells is depicted in the attached Figure No. 1. The location of two potential monitoring wells currently being considered are identified in red in this figure. Ground elevations at all sites were obtained from Google Earth, which has varied over time at selected sites and could continue to vary in the future. The Watermaster Committee is in the process of surveying all production and monitoring wells using a common datum.

Water levels at selected locations are depicted in Figures 2 through 7 and are described as follows:

- ✓ Figure No. 2 – Water levels at YVWD Well No. 34 and Oak Valley Well No. 5 are considered representative of basin conditions in the Northwest portion of the basin. From the summer of 2015 through the spring of 2019, water levels at these two wells were fairly steady; however, over the last four years a significant decline has been observed. A 20-foot decline has been recorded at YVWD 34 over this period to its current elevation of 2,122 ft. The decline at Oak Valley 5 has been steeper with a drop 24 feet in the first half of 2020 despite the fact that this well was pumped last in the fall of 2019. Oak Valley 5 is no longer being monitored, as of the Summer of 2020, as it has been destroyed.

- ✓ Figure No. 3 – Two of the Noble Creek observation wells are presented in this figure representing the shallow and deep aquifers. From the summer of 2016 through the spring of 2018, the water level in the shallow aquifer monitoring well increased over 80 feet to an elevation of 2,422 ft. Water level continued to increase, although at a lower rate, over the ensuing 18 months reaching a peak elevation of 2,431 ft in the fall of 2019. Since, it declined 100 feet to 2,331 ft. in the spring of 2023, a significant recovery of 71 ft has been recorded over the last eight months to its current elevation of 2,402 ft. In the deeper aquifer, the increase in water level was steady from the summer of 2016 through the spring of 2020 reaching a peak elevation of 2,302 ft.; a decline of 57 feet has been recorded since to a low elevation of 2,245 ft, recorded on August 15, 2023. On that date, this well was vandalized resulting in the disruption of the communications cable and the temporary collection of accurate water level information. With the November visit, the data was cleaned. A new communications cable was installed on December 6th 2023. Since August 2023, water level at this well has increased by 20 ft. to elevation 2,265 ft.

- ✓ Figure No. 4 – Southern Portion of the Basin. The water level at the Summit Cemetery well is highly influenced by a nearby pumping well that is used to irrigate the cemetery grounds. Since monitoring began, the water level has fluctuated over a 20-foot range. Water level information between January and October 2022 was not collected due to equipment malfunction and vandalism. New water level monitoring equipment was installed at the beginning of October 2022 and the site has been secured to minimize future vandalism. The newly installed optical communications cable worked for a few months, but failed to transmit and was replaced on January 10, 2024. The latest (Nov 10, 2023) recorded groundwater elevation at this well is 2,508 ft in the middle of the operating range.

- ✓ Also depicted in Figure No. 4 is the water level at the Sun Lakes well site. Water level at this site has fluctuated minimally between 2015 and the end of 2021, when it began to decline. Between November 2021 and May 2022, the water level dropped by eight feet to 2,405 ft. However, it has recovered to 2,415 ft in the last 18 months. Water level information could not be collected between May and early October 2022 due to equipment malfunction. A new communications cable and recording probe were installed in early October at this location, while the probe has been working properly, the new optical cable has not. A replacement cable installed during our January 2024 visit.

- ✓ Figure No. 5 illustrates water levels at three wells owned by the City of Banning in the Southeast portion of the basin. While water level at the Old Well No. 15 (Chevron Well) has been fairly flat over the last six years, a somewhat significant and steady decline, close to 33 feet, has been recorded at Banning M-8 between the summer of 2015 and the present to its current elevation of 2,045 ft. Water level at Banning M-9 has fluctuated in a 19-foot range, between 2,128 ft and 2,147 ft. Current water level elevation is at 2,145 ft. in the upper portion of the range. While the water level probe has been collecting data hourly at this well, over the last year, three communications cables have been replaced due to the failure of the water seal at the bottom of the cable. The latest replacement cable was installed during our January visit.

- ✓ Figure No. 6 illustrates recorded water level at BCVWD No. 2 and BCVWD No. 25. Water level at these two wells follow the same seasonal pattern rising in the fall through the spring months and falling during the summer as production increases. The water level at BCVWD No. 25 has been fluctuating over a 25 ft range between 2,191 ft and 2,215 ft in elevation; however, this past summer (2023) it declined more than normal to a low elevation of 2,193 ft; since, water level is recovering to the current elevation of 2,199 ft. Over the last three years, summer lows have been lower each year, 2,199 ft in the summer of 2021, 2,194 ft in 2022, and 2,193 in 2023. At BCVWD No. 2, water levels prior to 2017 were discarded due to their inconsistency as variations of 50 ft or more were recorded from one day to the next without a plausible explanation. Since 2017, water levels have ranged between 2,188 ft and 2,216 ft with a current elevation at this well of 2,192 ft. showing a significant decline since the spring of 2023. Similar to BCVWD No. 25, lower summer lows have been recorded in recent years. A new communications cable was installed at this well on December 6, 2023; however, no data was recorded due to malfunctioning of the recording probe.

- ✓ Figure No. 7 depicts the recorded water level at the two newest observation wells, BCVWD No. 29 and Tukwet Canyon Well "B". BCVWD No. 29 is a pumping well on the western

portion of the basin. This well was extensively used prior to 2022; however, minimum pumping has been recorded since the winter of 2021. A decline in water level of nine feet has been recorded between the spring of 2019 and the spring of 2021. During the May 2021 visit, the communications cable could not be pulled and information from the water level probe could not be downloaded. During our January 2022 visit, the water level meter got lodged between the pump column and the well casing and could not be removed; it has been there since. There is a chance that the water level meter probe may not be recovered until the column is pulled from the well and the equipment recovered.

- ✓ Tukwet B is a dedicated monitoring well in the southern portion of the basin with minimal fluctuations in elevation since the probe was installed in the spring of 2019. The latest water level was at 2,217 ft representing the highest recorded level since monitoring began. Water levels during our September visit could not be downloaded from the probe.

Monitoring Wells Additions

No additional monitoring wells were added during this reporting period.

Equipment Installation and Replacement

Communication cables were replaced at:

- ✓ BCVWD No. 2 (Dec 6, 2023)
- ✓ Noble Creek Deep Monitoring Well (Dec 6, 2023)
- ✓ Summit Cemetery (Jan 10, 2024)
- ✓ Icon Warehouse (Jan 10, 2024)
- ✓ Sun Lakes (Jan 23, 2024)
- ✓ Banning M-9 (Jan 23, 2024)

Troubleshooting Issues

Water level information was manually retrieved at the following wells due to malfunctioning of the communication cables at the following wells:

- ✓ YVWD No. 34
- ✓ Mountain View
- ✓ Banning M-8
- ✓ Tukwet B

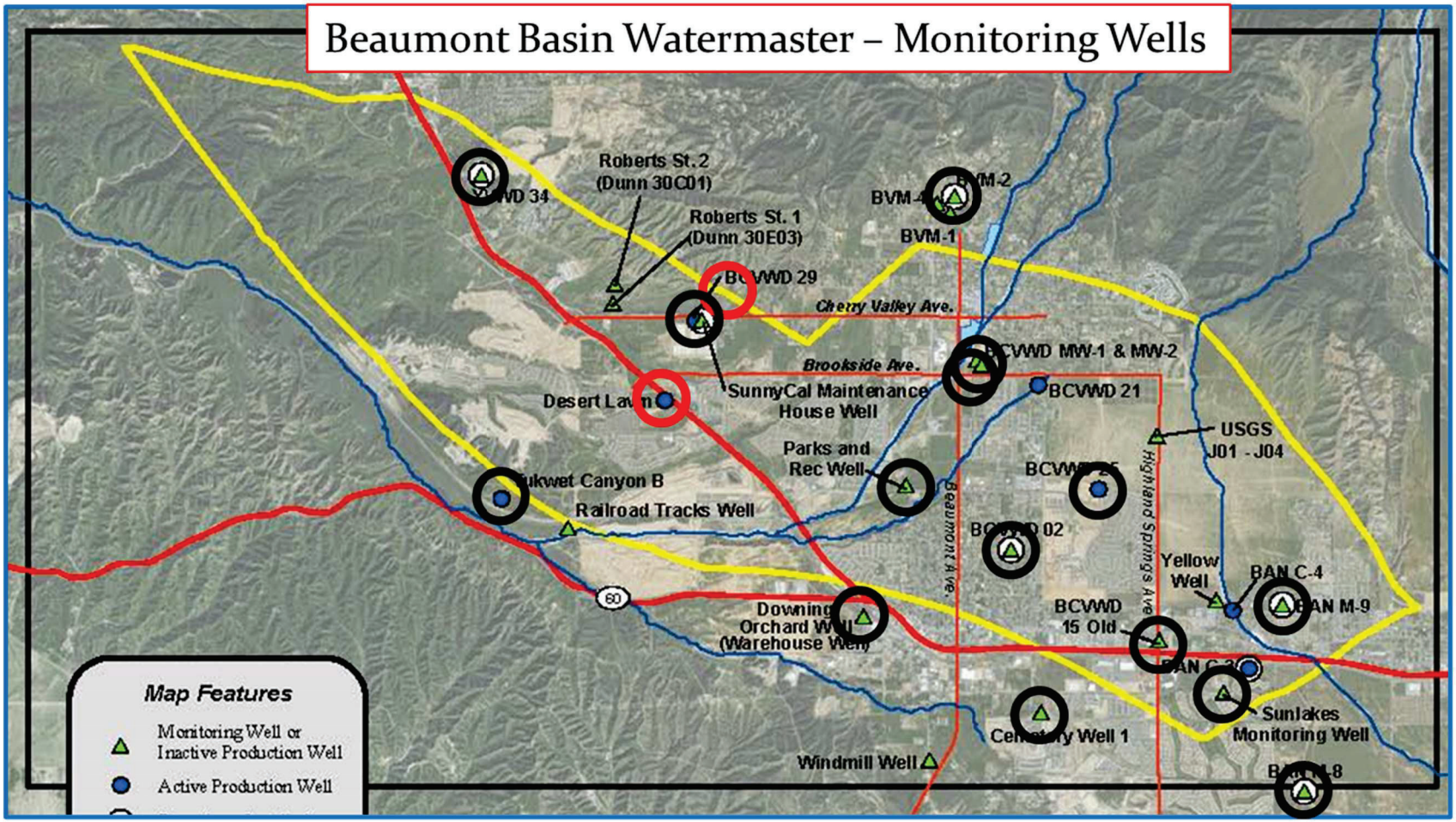
Other troubleshooting issues include:

- ✓ BCVWD No. 2 – A new communications cable was installed on Dec 6, 2023; however, no data was recorded since due to a malfunctioning of the water level probe. The probe was reset on Jan 23, 2024 and will be checked again on February 7, 2024.
- ✓ Icon Warehouse – A new communications cable was installed on Jan 10, 2024; however, no data was recorded since due to a malfunctioning of the water level probe. The probe was reset on Jan 23, 2024 and will be checked again on February 7, 2024.

Potential Monitoring Sites

Two production wells have been identified as potential monitoring wells recently. The owners have been contacted and the sites visited. The first well is owned by the Beaumont-Cherry Valley Recreation and Park District. The well is located on the north side of Cherry Valley Blvd and has been recently used to supply water during grading for construction of two warehouses nearby. Upon construction of these facilities, this well will be available to irrigate nearby lands; a monitoring probe could be installed with minor modifications at the well head.

The second well is owned by Plantation on the Lake. The site has been visited and owner is considering drilling a hole on the well head to accommodate the monitoring probe. No progress has been made by owner.



Wells with Working Monitoring Probes		
Bonita Vista No. 3	Tukwet Well B	BCVWD No. 2
Noble Creek Ponds 4 Deep	Summit Cemetery No. 1	BCVWD No. 25
Noble Creek Ponds 4 Shallow	Sun Lakes Golf Course	BCVWD No. 29
Noble Creek Park	Banning M-8	YVWD No. 34
BCVWD Old 15 (Banning)	Banning M-9	Icon Warehouse

Potential Monitoring Wells
Beaumont Parks and Rec.
Plantation on the Lake

Figure No. 2
Static Groundwater Elevations at YVWD No. 34 and Oak Valley No. 5
(July 29, 2015 through Jan 22, 2024)

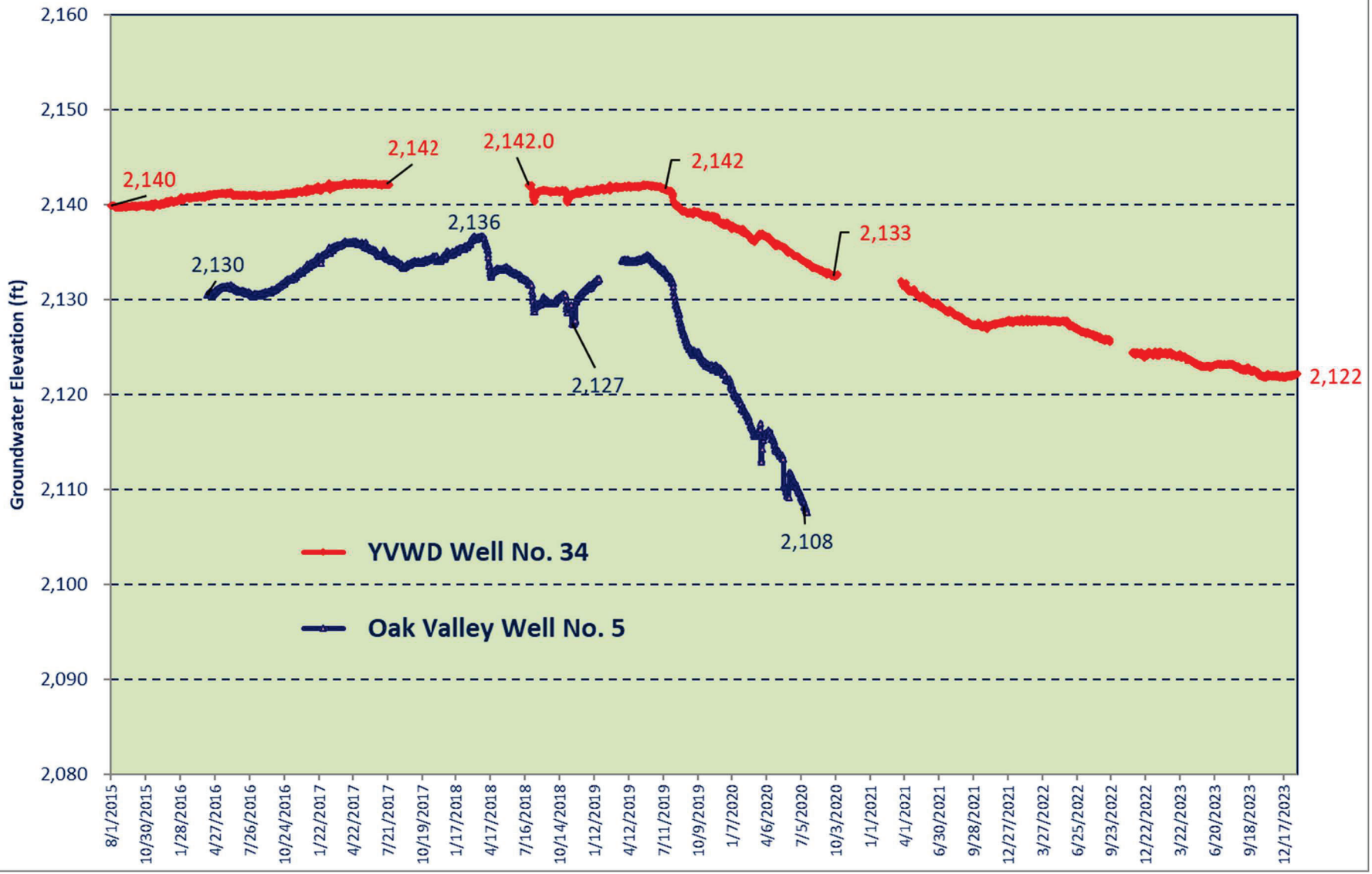


Figure No. 3
Static Groundwater Elevations at Noble Creek Obs. Well 4S and 4D
(May 28, 2015 through Jan 22, 2024)

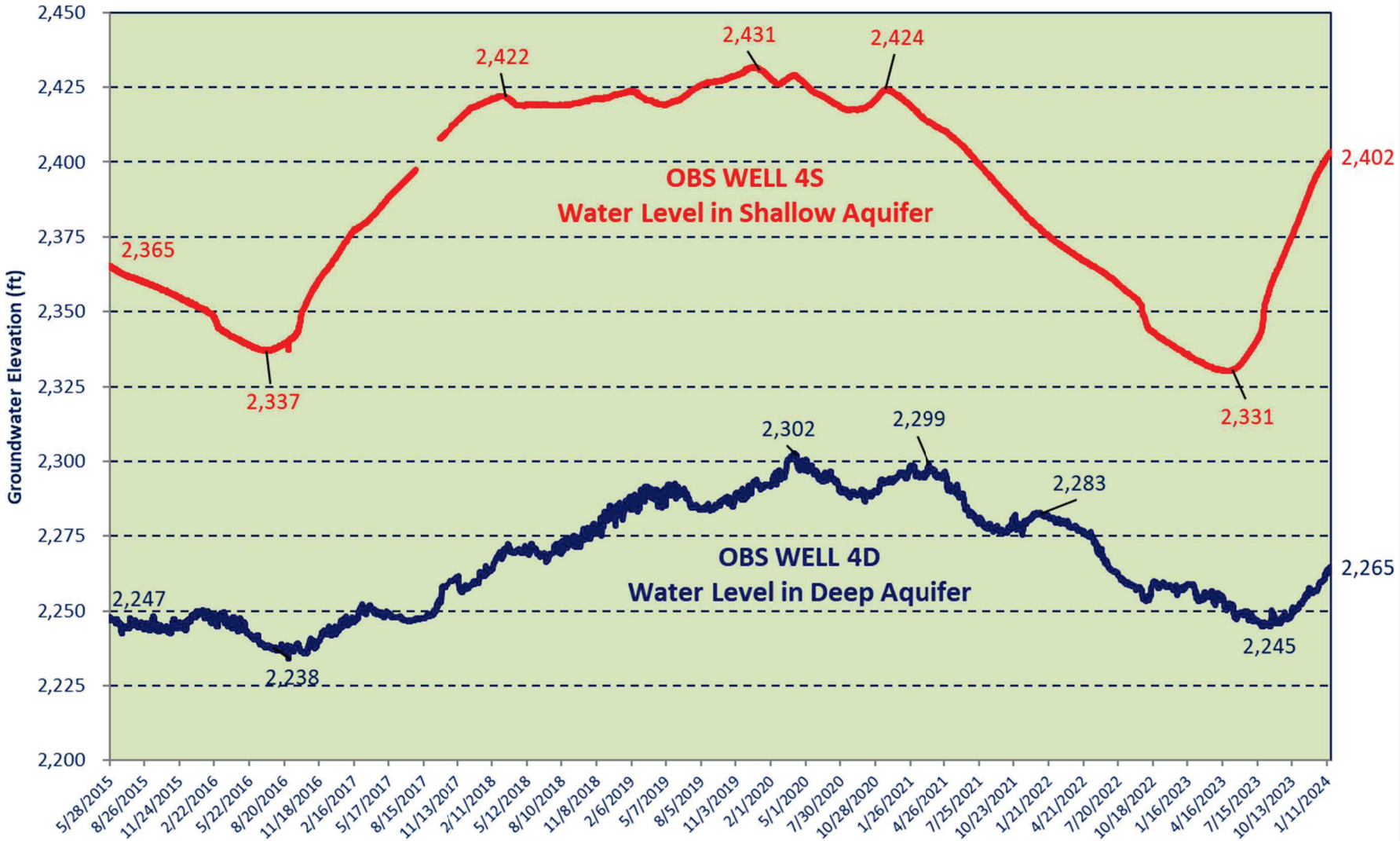
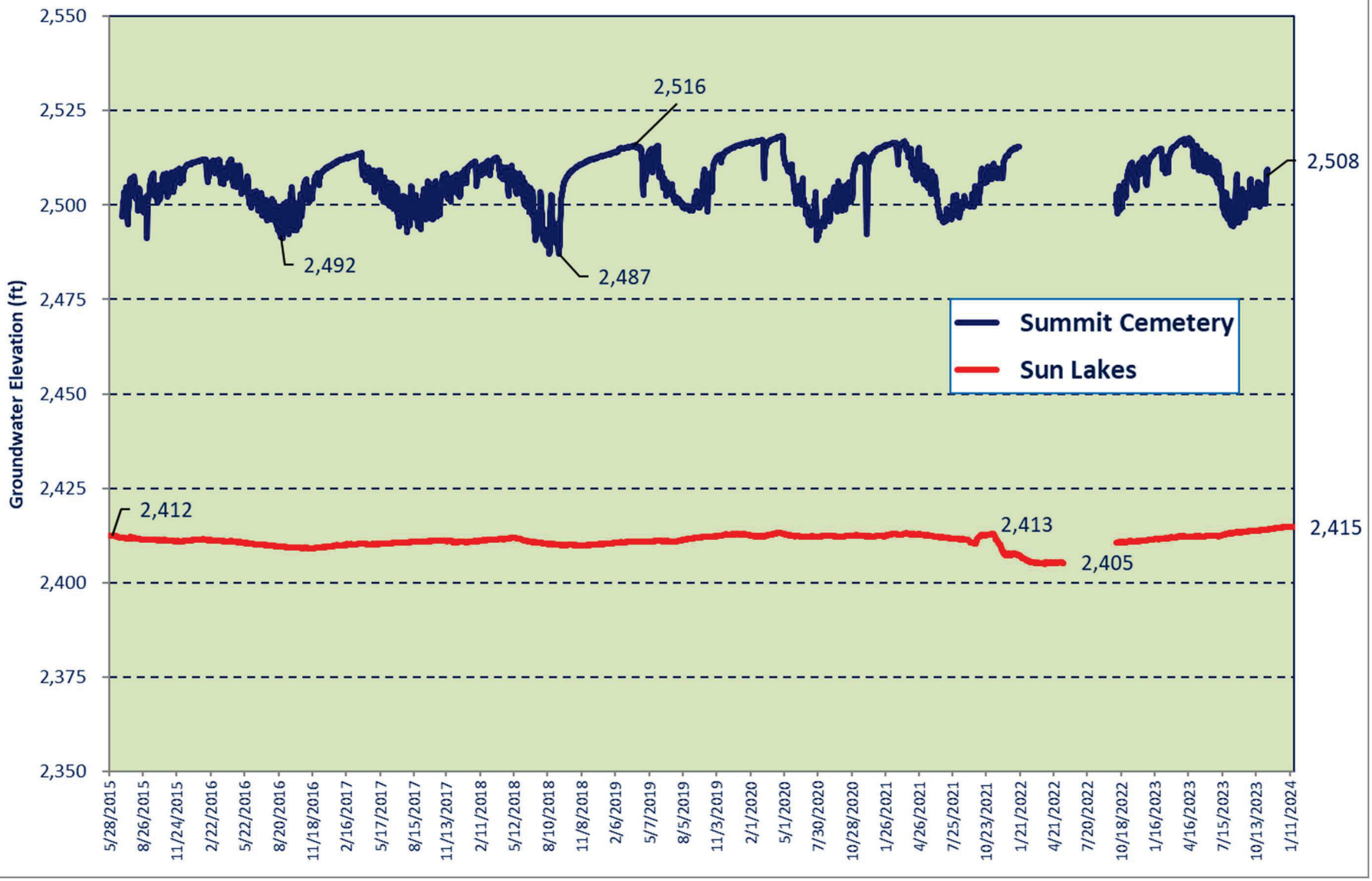


Figure No. 4
Static Groundwater Elevations at Summit Cemetery and Sun Lakes Wells
(May 28, 2015 through Jan 22, 2024)



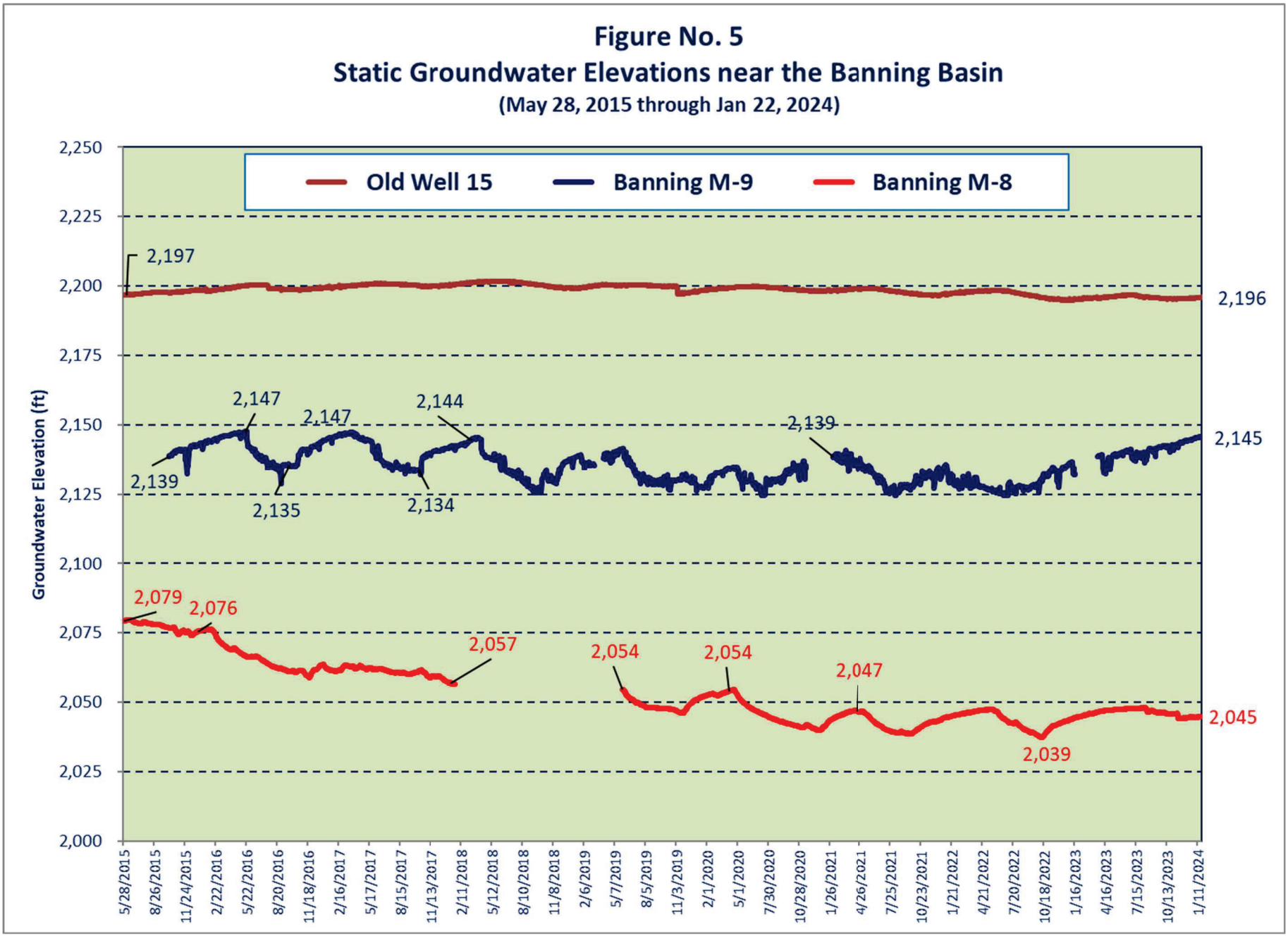


Figure No. 5
Static Groundwater Elevations near the Banning Basin
(May 28, 2015 through Jan 22, 2024)
Old Well 15
Banning M-9
Banning M-8
Groundwater Elevation (ft)
2,250
2,225
2,200
2,175
2,150
2,125
2,100
2,075
2,050
2,025
2,000
2,197
2,196
2,139
2,147
2,135
2,147
2,144
2,134
2,139
2,145
2,079
2,076
2,057
2,054
2,054
2,047
2,039
2,045
5/28/2015
8/26/2015
11/24/2015
2/22/2016
5/22/2016
8/20/2016
11/18/2016
2/16/2017
5/17/2017
8/15/2017
11/13/2017
2/11/2018
5/12/2018
8/10/2018
11/8/2018
2/6/2019
5/7/2019
8/5/2019
11/3/2019
2/1/2020
5/1/2020
7/30/2020
10/28/2020
1/26/2021
4/26/2021
7/25/2021
10/23/2021
1/21/2022
4/21/2022
7/20/2022
10/18/2022
1/16/2023
4/16/2023
7/15/2023
10/13/2023
1/11/2024

Figure No. 6
Static Groundwater Elevations at BCVWD Wells No. 2 and 25
(Jan 26, 2017 through Jan 22, 2024)

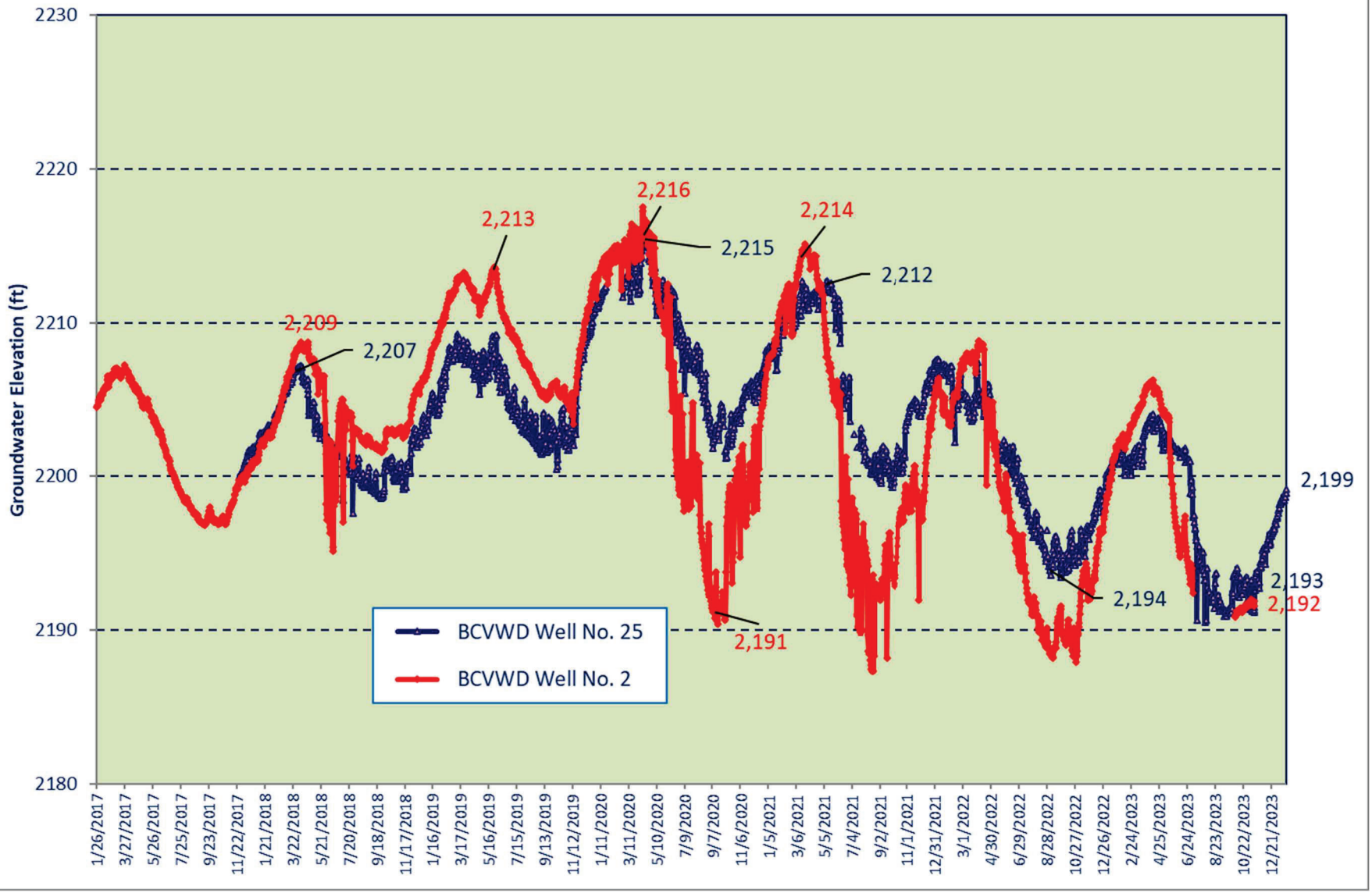
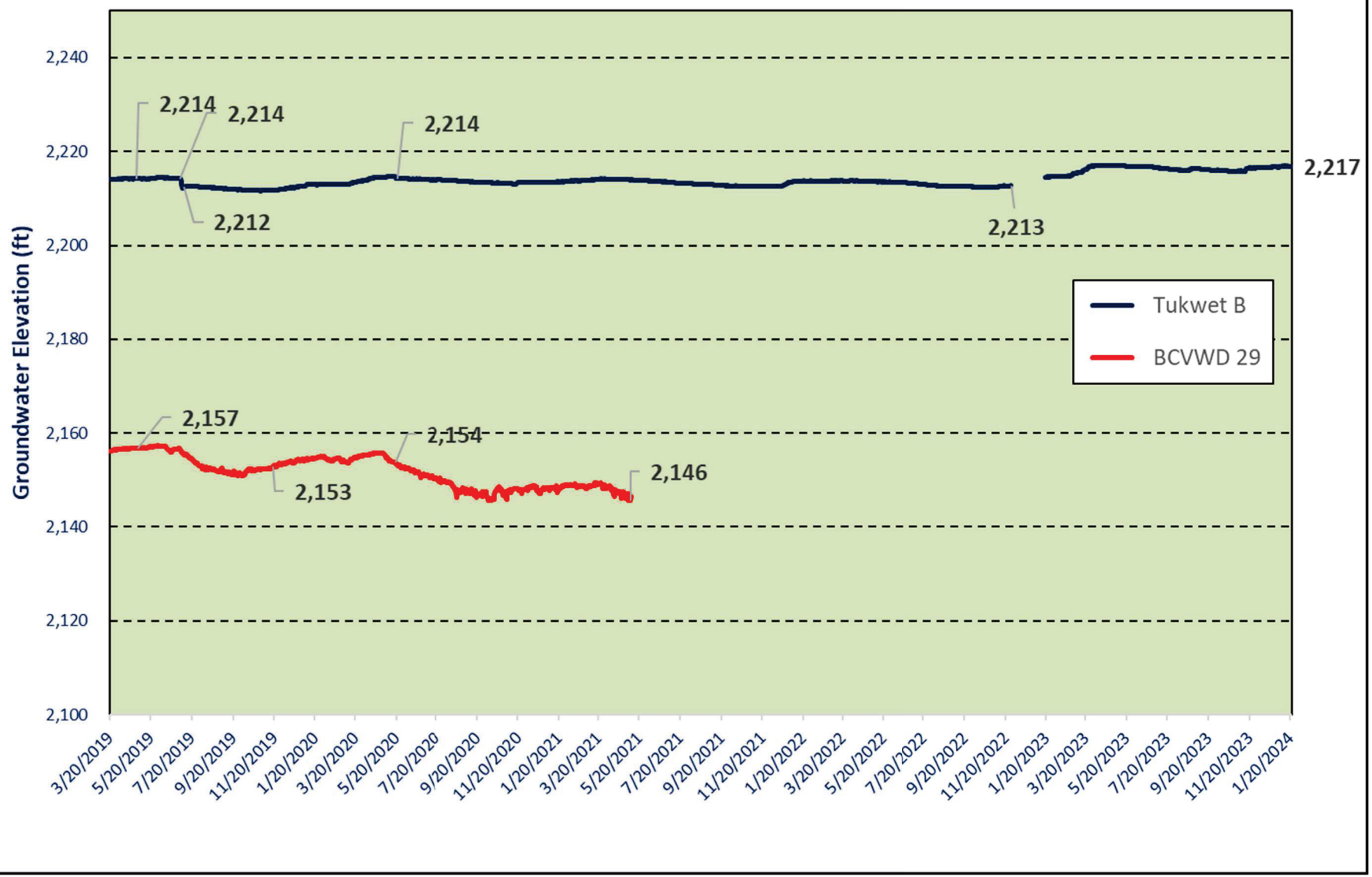


Figure No. 7
Static Water Level at BCVWD No. 29 and Tukwet Cyn Well B
(Mar 20, 2019 through Jan 22, 2024)



BEAUMONT BASIN WATERMASTER

Date: February 7, 2024

From: Hannibal Blandon, ALDA Inc.

Subject: A Comparison of Production Rights vs. Production in CY 2023

Recommendation: No recommendation - For informational purposes only

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This Technical Memorandum presents a comparison of Production Rights from the Basin against actual production by Appropriator. At the beginning of each year, Appropriators have certain Production Rights resulting from: a) unused production by overlying users from 2018 and/or b) permanent transfers of overlying water rights. Production Rights for individual Appropriators can be increased through the course of the year by spreading imported (supplemental) water.

Total production by Appropriators for calendar year 2023 was 12,709 ac-ft while Production Rights for the same period were 24,457 ac-ft resulting in a positive credit balance of 11,749 ac-ft, as presented in the table below. Spreading of imported water was significant in CY 2023 at 19,500 ac-ft; the majority of which was on behalf of BCVWD. The Production Rights for all Appropriators was higher than their respective production amounts resulting in a net addition to their individual storage accounts at the end of the year.

	City of Banning	Beaumont Cherry Valley W. D.	South Mesa Mutual W. C.	Yucaipa Valley W. D. (1)	Total
Transfer of Overlying Rights from 2018	1,408	1,904	559	608	4,479
Transfer of Overlying Rights - OVP to YVWD	0	0	0	478	478
Imported Water	1,000	18,000	0	500	19,500
Production Rights	2,408	19,904	559	1,586	24,457
Production (2)	1,304	10,236	277	892	12,709
Credit Balance	1,104	9,668	282	694	11,749
Water in Storage as of Dec 2022	46,570	23,193	10,224	17,029	97,017

1.- YVWD was initially credit with790 ac-ft of transfers from OVP for 2023. This amount was revised to 478.30 ac-ft based on new information submitted by this District.
2.- Production by the City of Banning includes 697 ac-ft of groundwater produced in 2023 by BCVWD and delivered to the city at their two connection points.

Discussion Items

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 24-02

Date: February 7, 2024

From: Dan Jaggers, Secretary

Subject: Reorganization of the Beaumont Basin Watermaster Committee - Chair, Vice-Chair, Secretary, and Treasurer

Recommendation: Either reaffirm the existing officers or conduct nominations for the appointment of new officers of the Beaumont Basin Watermaster

The purpose of this agenda item is to provide the Watermaster Committee members with the opportunity to reaffirm the existing officers or solicit nominations for the appointment of new officers for the organization.

The current officers are:

Chairperson	Art Vela	City of Banning
Vice Chair	David Armstrong	South Mesa Water Company
Secretary	Dan Jaggers	Beaumont-Cherry Valley Water District
Treasurer	Joseph Zoba	Yucaipa Valley Water District

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 24-03

Date: February 7, 2024

From: Dan Jaggers, BBWM Secretary

Subject: Consideration to Retain Dudek to Provide Professional Services to Review and Update the Rules and Regulations of the Beaumont Basin Watermaster

Recommendation: That the Watermaster Committee contract with Dudek for Services to Review and Update the Rules and Regulations of the Beaumont Basin Watermaster for a sum of $15,000 and send invoices to each Watermaster Committee member for 20% of the approved amount.

At the January 10 special meeting, the Beaumont Basin Watermaster Committee discussed the need and benefit to review and update the Rules and Regulations. The Dudek proposal presents two tasks: 1) to develop a list recommending which sections in the Rules and Regulations require review and suggested updates to be reviewed and discussed with the Watermaster Committee, and 2) drafting language to update and potentially include new sections in the Rules and Regulations for the Watermaster Committee to review and provide comments. The goal is to modernize the Rules and Regulations since they were originally adopted in 2004 (with subsequent amendments) and include recent concepts and management strategies adopted by the Watermaster Committee.

At this meeting, the Watermaster Committee will be able to discuss the content of the proposal and consider contracting the services of Dudek to review and update the Rules and Regulations of the Beaumont Basin Watermaster.

BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 24-04

Date: February 7, 2024

From: Steven Stuart, Dudek

Subject: Potential Incorporation of a Process and Categorization of Water Production for the Annual Report in the Rules and Regulations of the Beaumont Basin Watermaster

Recommendation: That the Watermaster Committee consider engaging Dudek to revise the Rules and Regulations to include a Process and Categorization of Water Production for Use in the Annual Reports.

At the December 6, 2023 and January 10, 2024 Beaumont Basin Watermaster meetings, the Watermaster Committee reviewed the parameters included in the calculation of the Appropriator's Production Right. Each parameter represents a source of water available and/or earned by an appropriator in a calendar year. The Committee discussed the possibility of developing an order of operation of water usage detailing from which sources of water (i.e., "buckets of water", "banks of water") the volume of groundwater extracted from the Basin originated.

At this meeting, the Watermaster Committee will review the parameters defining the Appropriator's Production Right and discuss whether there is benefit in developing an order of operation of water usage. The purpose of this discussion is to consider engaging Dudek to develop a process and categorization of water production, or order of operation of water usage, and to incorporate such process into the Rules and Regulations of the Beaumont Basin Watermaster.

DUDEK

Process and Categorization of Water Production

Beaumont Basin Watermaster Regular Meeting

PRESENTATION BY STEVEN STUART, PE

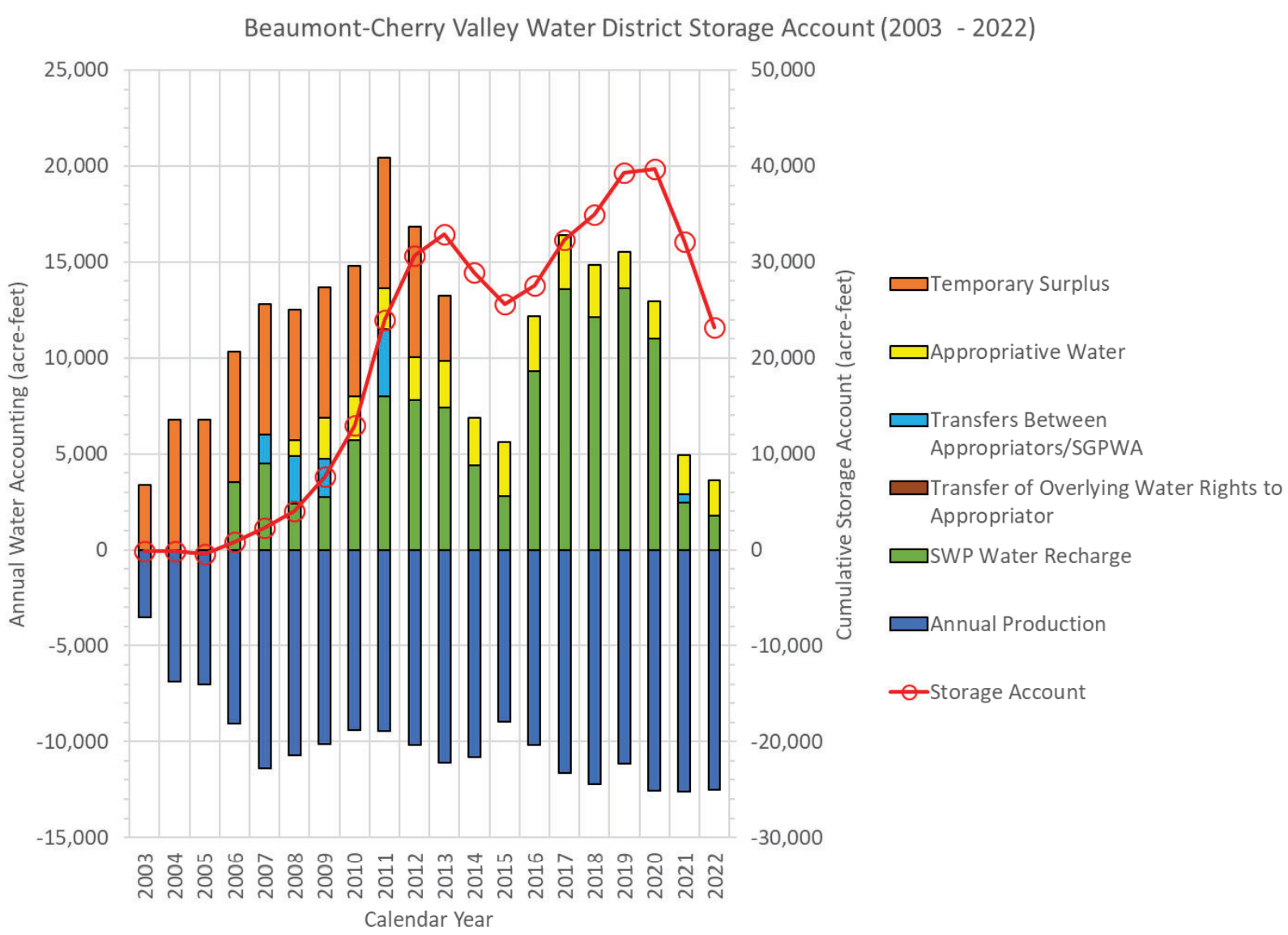
FEBRUARY 7, 2024

Beaumont-Cherry Valley Water District

Calendar Year	Appropriator's Annual Production (AF)	Parameters in Calculating Appropriator's Production Right (AF)							Appropriator's Production Right (AF)
		Operating Yield		Water Acquired		New Yield		Water Withdrawn from Storage Account	
		Temporary Surplus Water	Appropriative Water	Transfer of Overlying Water Rights to Appropriator	Transfers Between Appropriators/ SGPWA	Captured Available Stream Flow	Increased Capture of Rising Water		
2003	3,511.9	3,401.0	0.0	0.0	0.0	0.0	0.0	0.0	3,401.0
2004	6,873.9	6,802.0	0.0	0.0	0.0	0.0	0.0	71.9	6,873.9
2005	7,025.6	6,802.0	0.0	0.0	0.0	0.0	0.0	223.6	7,025.6
2006	9,054.1	6,802.0	0.0	0.0	0.0	0.0	0.0	2,252.1	9,054.1
2007	11,383.3	6,802.0	0.0	0.0	1,500.0	0.0	0.0	3,081.3	11,383.3
2008	10,710.5	6,802.0	801.0	0.0	2,500.0	0.0	0.0	607.5	10,710.5
2009	10,133.9	6,802.0	2,156.8	0.0	2,000.0	0.0	0.0	0.0	10,958.8
2010	9,421.3	6,802.0	2,277.3	0.0	0.0	0.0	0.0	342.0	9,421.3
2011	9,431.3	6,802.0	2,148.1	0.0	3,500.0	0.0	0.0	0.0	12,450.1
2012	10,162.0	6,802.0	2,271.5	0.0	0.0	0.0	0.0	1,088.5	10,162.0
2013	11,097.4	3,401.0	2,456.3	0.0	0.0	0.0	0.0	5,240.1	11,097.4

Beaumont-Cherry Valley Water District

Calendar Year	Appropriator's Annual Production (AF)	Appropriator's Production Right (AF)	Appropriator's Production Right - Production (AF)	Supplemental Water (AF)				Storage Acct. at End of CY (AF)
				SWP Water Recharge	Recycled Water Recharge	Local Imported Water Recharge	Stormwater Recharge	
2003	3,511.9	3,401.0	-110.9	0.0	0.0	0.0	0.0	-110.9
2004	6,873.9	6,873.9	0.0	0.0	0.0	0.0	0.0	-182.8
2005	7,025.6	7,025.6	0.0	0.0	0.0	0.0	0.0	-406.4
2006	9,054.1	9,054.1	0.0	3,501.0	0.0	0.0	0.0	842.5
2007	11,383.3	11,383.3	0.0	4,501.0	0.0	0.0	0.0	2,262.2
2008	10,710.5	10,710.5	0.0	2,399.0	0.0	0.0	0.0	4,053.7
2009	10,133.9	10,958.8	824.9	2,741.2	0.0	0.0	0.0	7,619.8
2010	9,421.3	9,421.3	0.0	5,727.0	0.0	0.0	0.0	13,004.8
2011	9,431.3	12,450.1	3,018.8	7,979.0	0.0	0.0	0.0	24,002.6
2012	10,162.0	10,162.0	0.0	7,783.0	0.0	0.0	0.0	30,697.1
2013	11,097.4	11,097.4	0.0	7,403.0	0.0	0.0	0.0	32,860.0



BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 24-05

Date: February 7, 2024

From: Thomas Harder, Thomas Harder & Co.

Subject: Update on the Safe Yield Reset of the Beaumont Basin

Recommendation: For Information and Discussion

As per the 2003 Beaumont Basin Judgment, "The Safe Yield of the Beaumont Basin shall be redetermined at least every 10 years beginning 10 years after the date of entry of this Judgment."[1] The first redetermination of the Beaumont Basin Safe Yield was conducted in 2013[2] and revised the Safe Yield to be 6,700 acre-ft per year. The Safe Yield is being redetermined again for 2023.

At the February Committee meeting, we will provide an update on progress toward redetermining the Safe Yield for the next ten years (2023 through 2032). The Safe Yield is being redetermined using an updated version of the groundwater flow model of the Beaumont Basin that was previously developed for the 2013 Safe Yield redetermination. The update will include:

- Calibration Results of the Updated Model
- A Description of Model Uncertainty
- Safe Yield Estimates for Various Historical and Future Time Periods
- Preliminary Recommended Safe Yield for 2023 - 2032

[1] Beaumont Basin Judgment. Section VI Administration, 5 (Y).
[2] Thomas Harder & Co., 2015. 2013 Reevaluation of the Beaumont Basin Safe Yield. Dated April 3, 2015.

Beaumont Basin Watermaster

Update on Redetermining the Safe Yield of the Beaumont Basin

February 7, 2024

Thomas Harder & Co.
Groundwater Consulting

Presentation Overview

- Safe Yield Redetermination
- Calibration Results for Updated Model
- Description of Uncertainty Analysis
- Safe Yield Estimates for Various Time Periods
- Preliminary Recommended Safe Yield for the 2023 – 2032 Period

Thomas Harder & Co.
Groundwater Consulting

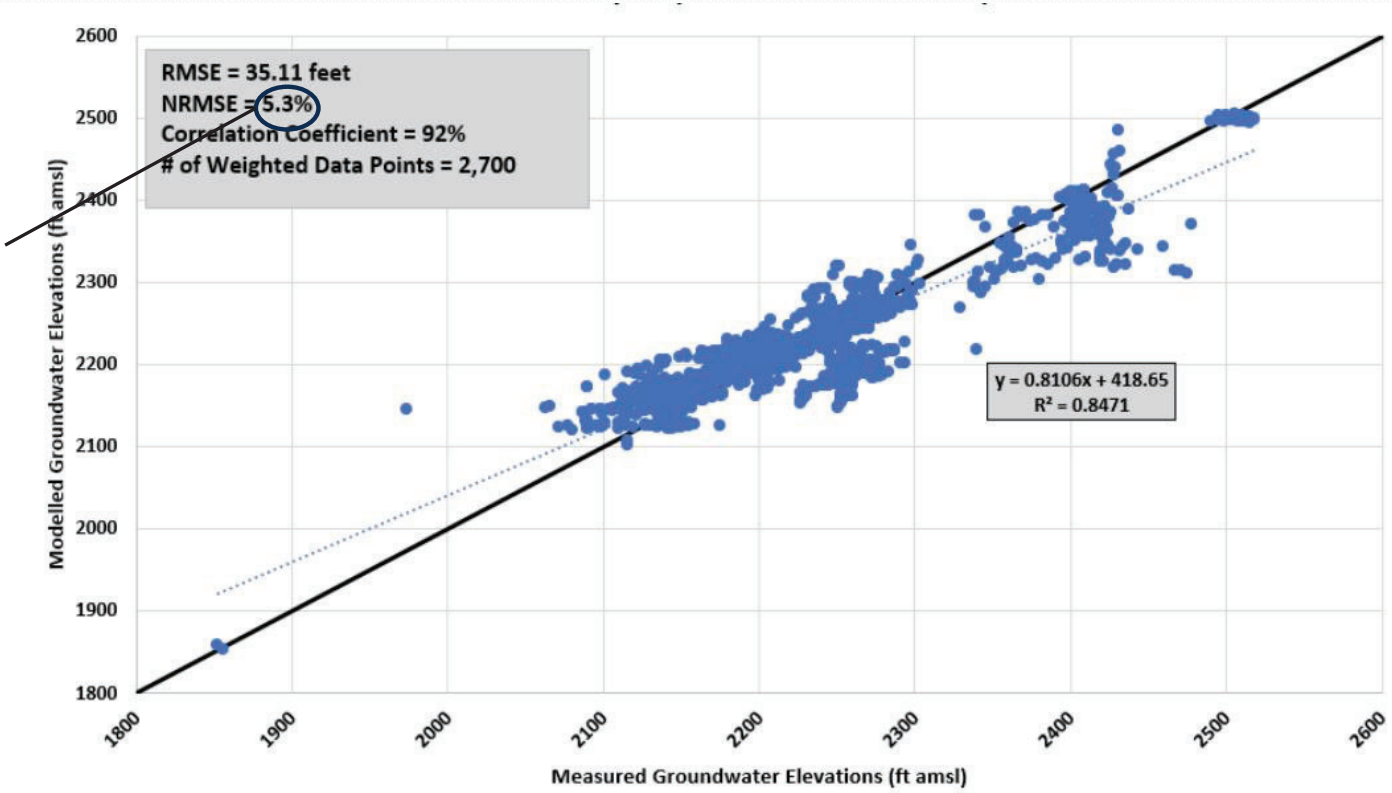
Safe Yield Redetermination

- The Safe Yield is to be Redetermined Every 10 Years in the Beaumont Basin per the Judgment (Section VI 5(Y))
- The Safe Yield at the Time of the Judgment was Originally 8,650 acre-ft/yr
- In 2013, per the Judgment, the Safe Yield was Redetermined to be 6,700 acre-ft/yr for each of the 10 Years from 2014 through 2023.
- The Safe Yield is Being Redetermined in 2023 to Update it for the Next 10-Year Period

Thomas Harder & Co.
Groundwater Consulting

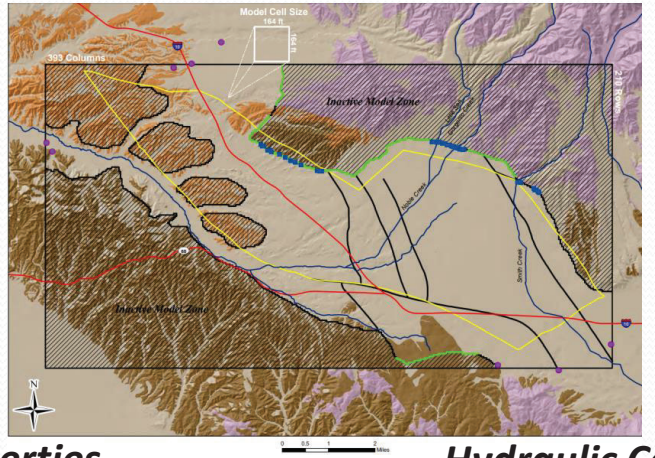
The Model Has Been Calibrated to Generally Accepted Industry Standards for the Period from 1978 through 2022

Normalized Root Mean Square Error of Less than 10% is Generally Considered Acceptable



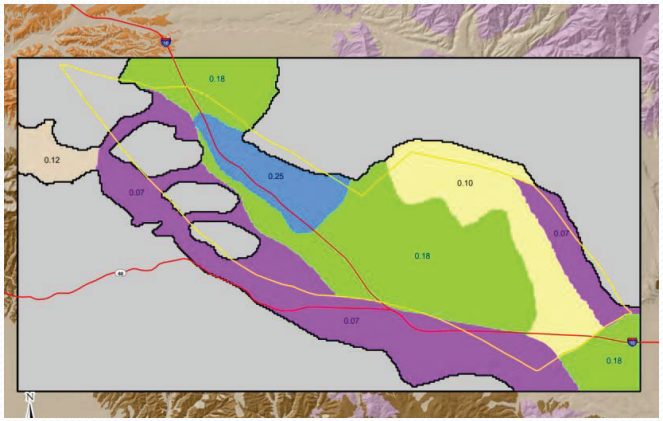
There is Uncertainty in the Input Assumptions for Many of the Parameters in the Model (All Models)

Boundary Conditions, Recharge and Permeability Across Faults

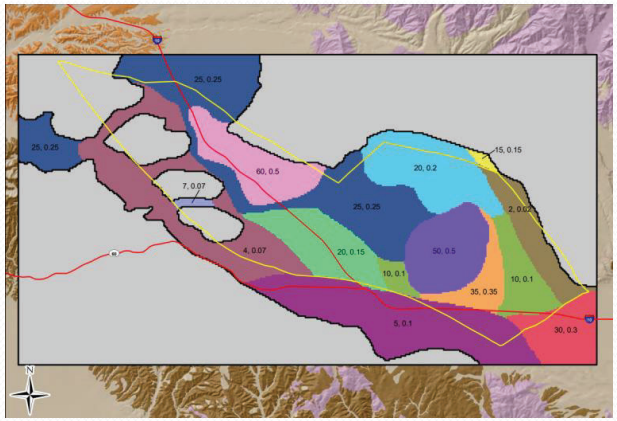


Different Combinations of these Input Parameters Can Result in Independent Model Realizations* with Similarly Acceptable Calibrations but Slightly Different Water Budgets and Safe Yield Estimates

Storage Properties



Hydraulic Conductivity



****A Model Realization Is a Model with the Same Area and Layering But Different Input Parameter Distributions***

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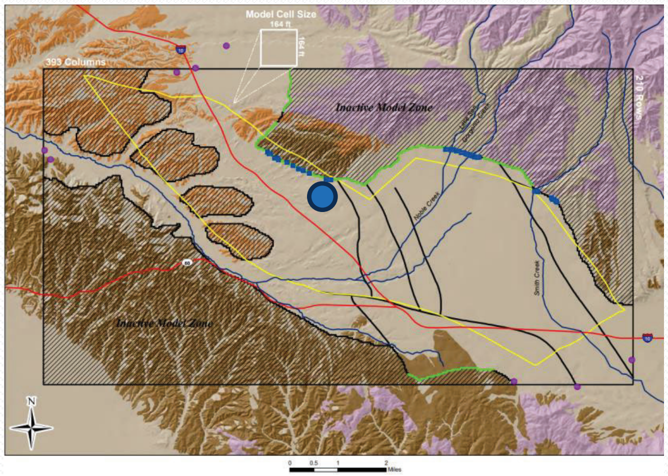
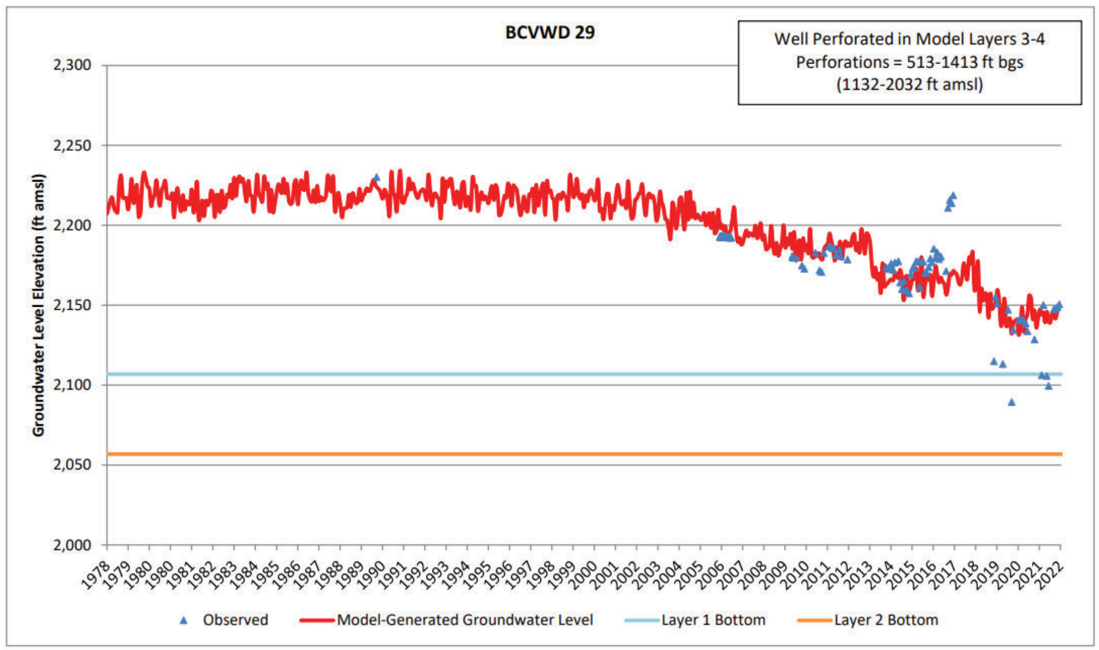
To Account for Model Uncertainty the Safe Yield Was Estimated Using Multiple Model Realizations

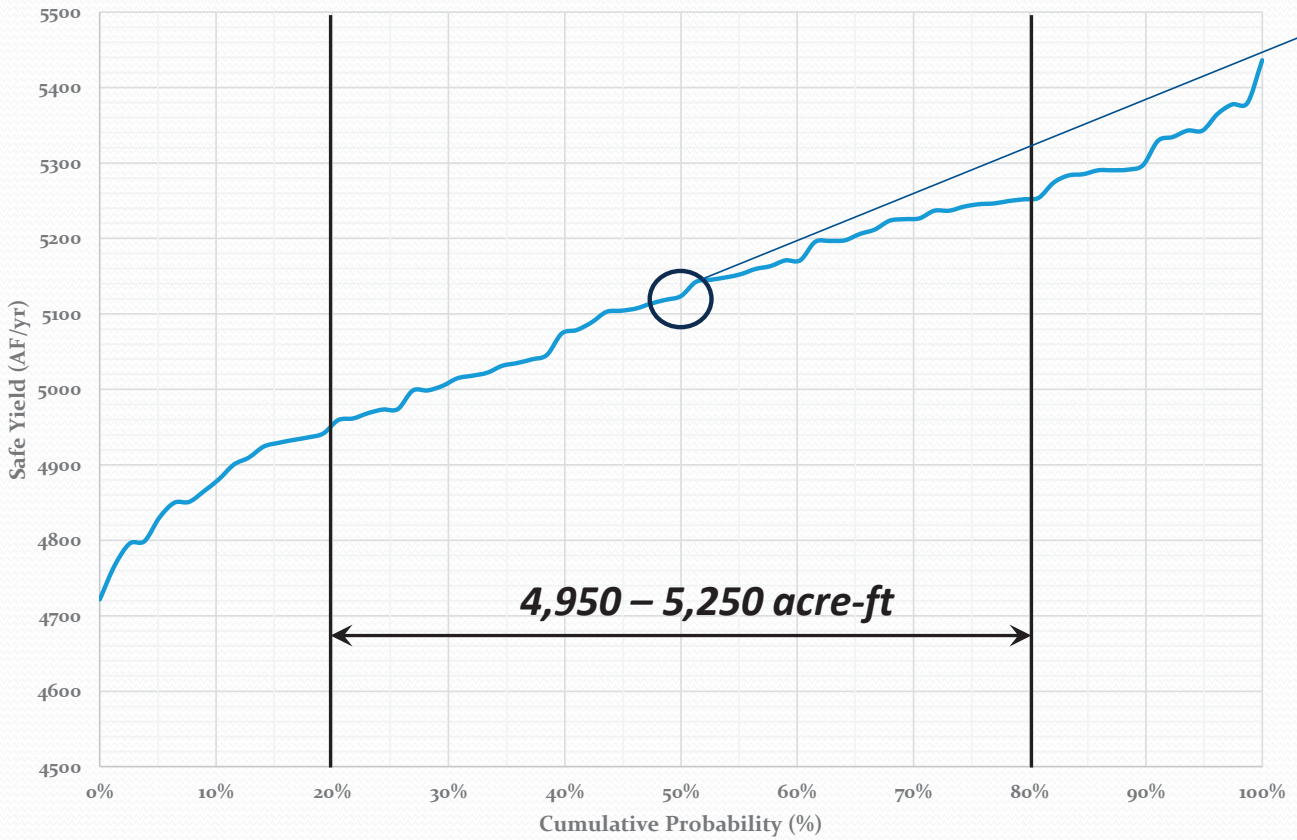


Using Specialized Computer Programs (PEST-IES), We Can Evaluate Safe Yield Using Multiple Calibrated Versions of the Model



100 Independent Model Realizations Were Analyzed. Of Those, 79 were Determined to be Acceptably Calibrated for Use in Estimating Safe Yield.

Safe Yield Estimates for 2013 - 2022



50% Safe Yield Estimate for the 2013 – 2022 Historical Period was Approximately 5,120 acre-ft

The Historical Safe Yield for 2013 – 2022 of 5,230 acre-ft Was Lower than the 2013 Predictive Estimate for that Time Period (6,700 acre-ft/yr) Due to Below Normal Precipitation. The Predictive Analysis from 2013 Assumed Average Precipitation Conditions.

Precipitation:	
1973 – 2022	15.95 in
2013 – 2022	11.97 in

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The Safe Yield Forecast for the Next 10 Years Includes Assumptions for Pumping and Recharge

- The Forecast Includes Assumptions for:
  - Hydrological Conditions
  - Groundwater Pumping
  - Managed Recharge

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Hydrological Assumptions

- The Model Forecast is From January 1, 2023 to December 31, 2072 (Monthly Stress Periods)
- Proxy years in the forecast based on precipitation and availability of imported water data (i.e., 2003 onward)
  - WY 2005 = very wet (precipitation + availability of imported water data)
  - WY 2019 = wet (precipitation)
  - WY 2015 = average (precipitation)
  - WY 2018 = dry (precipitation)
  - WY 2007 = very dry (precipitation + availability of imported water data)
- The Forecasted Hydrology is Adjusted for Climate Change Based on California DWR Climate Models

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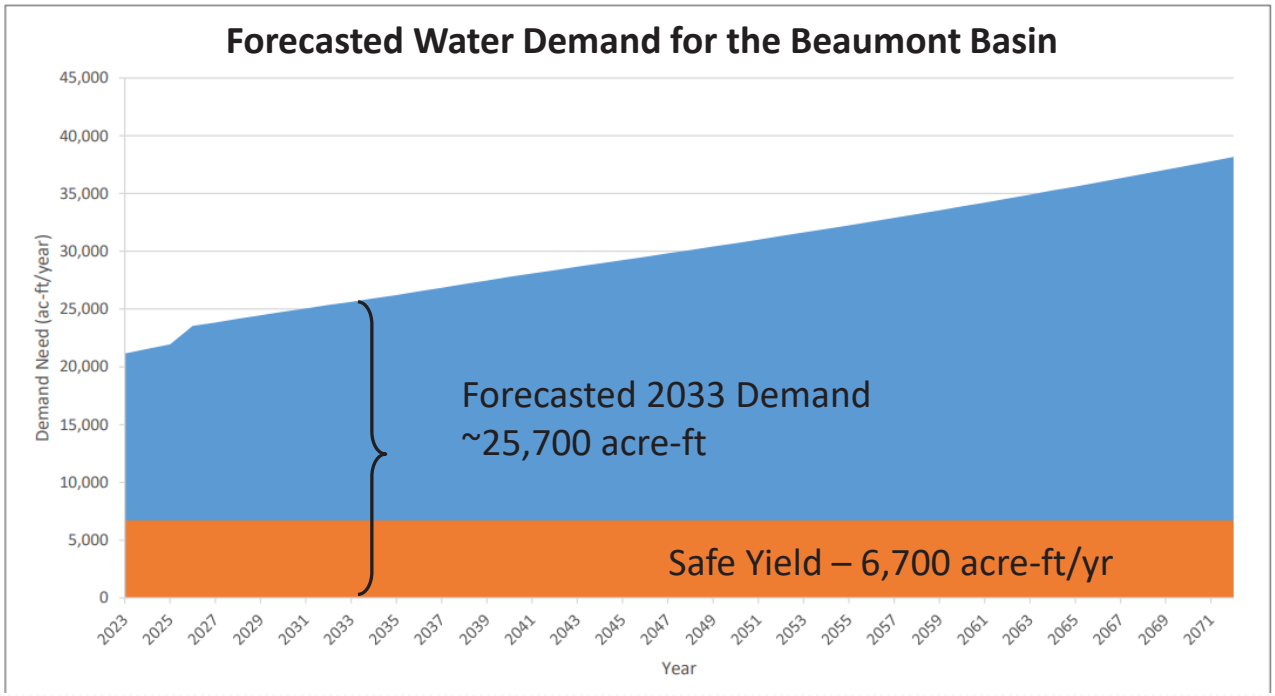
Total Forecasted Pumping is Based on Each Appropriators' Most Recent Urban Water Management Plans



Based on UWMPs, the Estimated Total Water Demand in 2033 Will Be Approximately 25,700 acre-ft/yr

Note: Overlyer Pumping was Assumed to be Constant at 2022 Levels

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Supplemental Water Assumptions

- The Availability of Imported Water Recharge was Based on the Same Proxy Years as Used for Hydrology

Water Year	Precip. (in)	Ratio	Category	Proxy WY	SWP Allocation (%)	SWP Allocation (AC-FT)
2024	26.89	2.00	Very Wet	2005	97%	16781
2025	6.59	0.49	Dry	2018	33%	5622.5
2026	10.07	0.75	Average	2015	58%	10034
2027	9.57	0.71	Average	2015	58%	10034
2028	4.40	0.33	Very Dry	2007	7%	1211
2029	19.85	1.48	Wet	2019	78%	13407.5
2030	10.68	0.80	Average	2015	58%	10034
2031	29.95	2.23	Very Wet	2005	97%	16781
2032	12.06	0.90	Average	2015	58%	10034
2033	4.72	0.35	Very Dry	2007	7%	1211

Pumping In Excess of Safe Yield Allocation and Imported Water Availability was Subtracted from Storage Accounts

The relative year-to-year hydrology from 2024 – 2033 is a Repeat of 1998 – 2008 historical hydrology with climate change factors applied

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Supplemental Water Assumptions (Cont.)

- Supplemental Water Was Always Available for YVWD's Recharge and Recovery Project
- No Other Recycled Water Recharge Was Included

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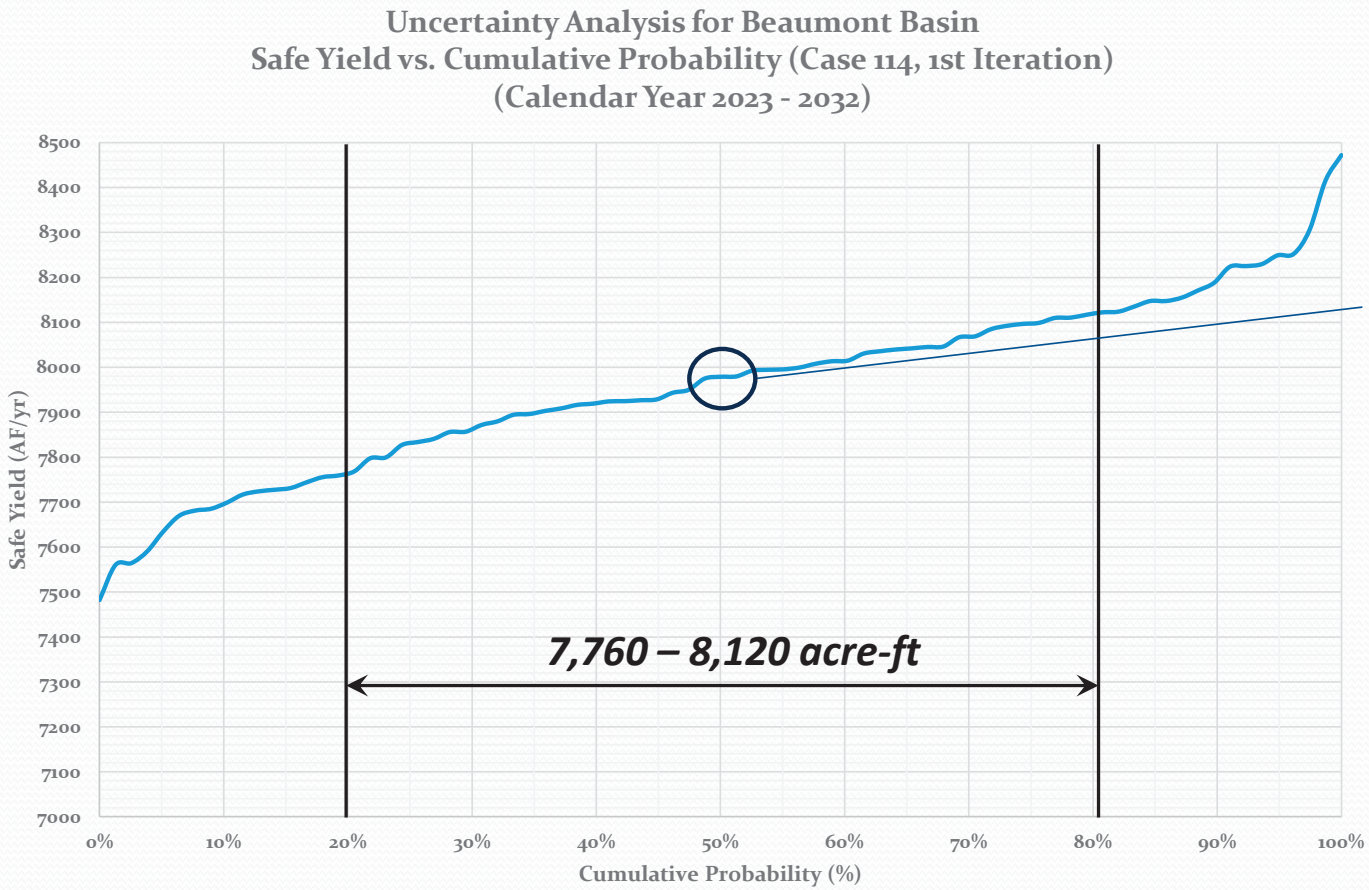
Safe Yield Forecasts for 2023 - 2032



50% Safe Yield Estimate for the 2023 – 2032 Forecast is Approximately 7,980 acre-ft

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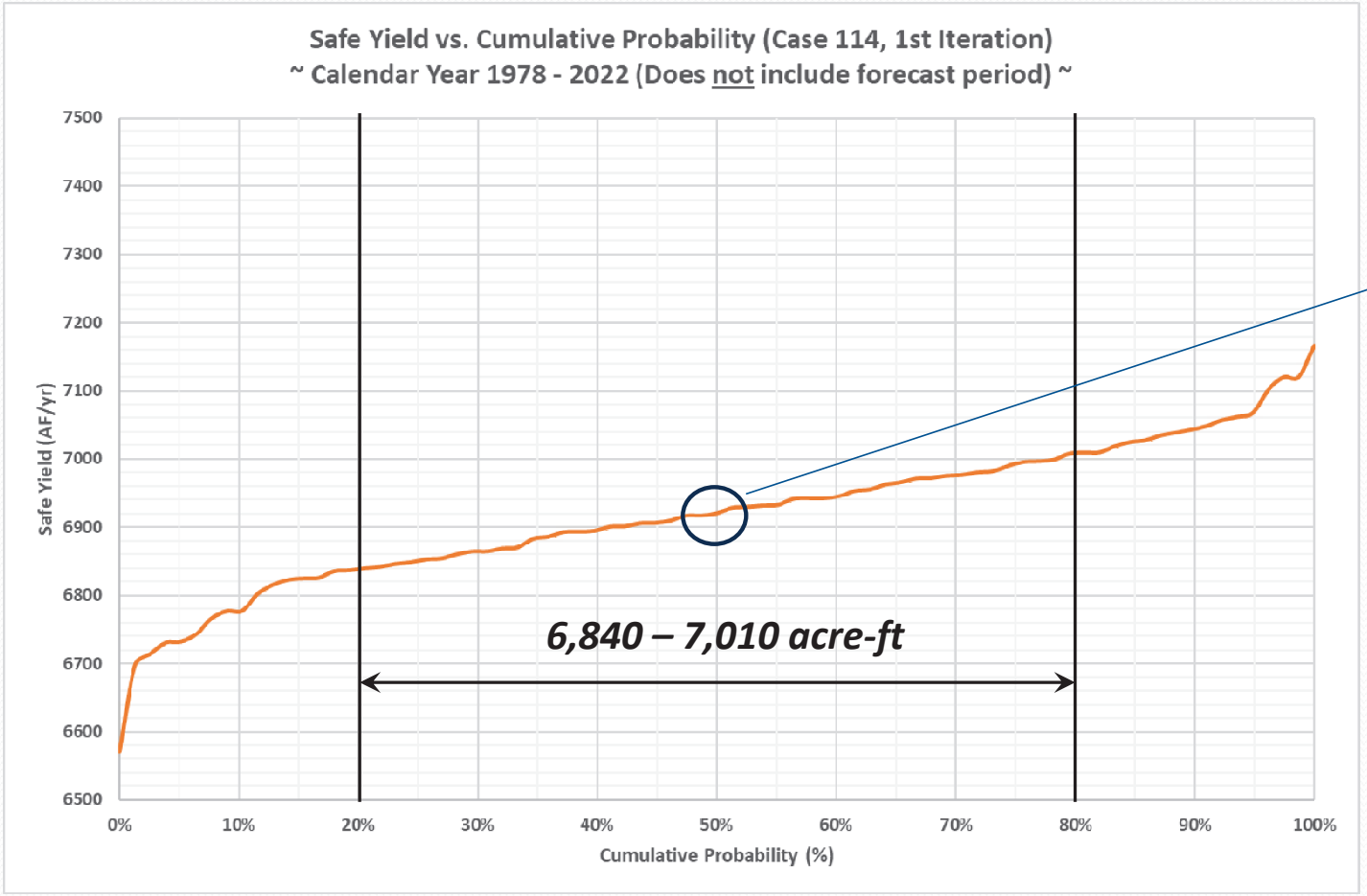
Safe Yield 1978 - 2022



50% Safe Yield Estimate for the 2078 – 2022 Historical Period is Approximately 6,920 acre-ft

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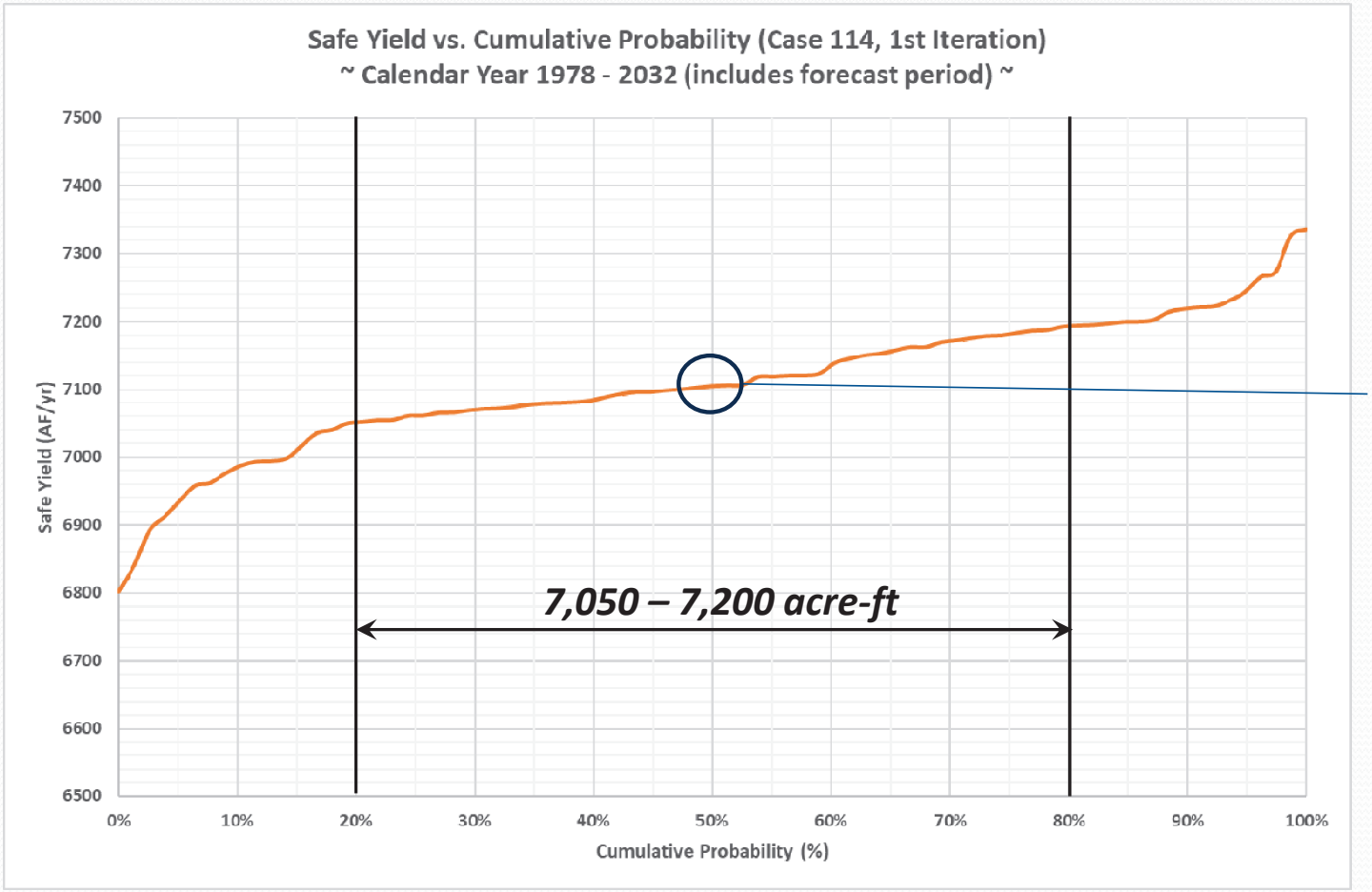
Safe Yield 1978 - 2032



50% Safe Yield Estimate for the 2078 – 2032 Historical Plus Projection Period is Approximately <u>7,100 acre-ft</u>

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Preliminary Recommendation

- We are Recommending a Safe Yield for the Next 10-Yr Period of 7,100 acre-ft/yr

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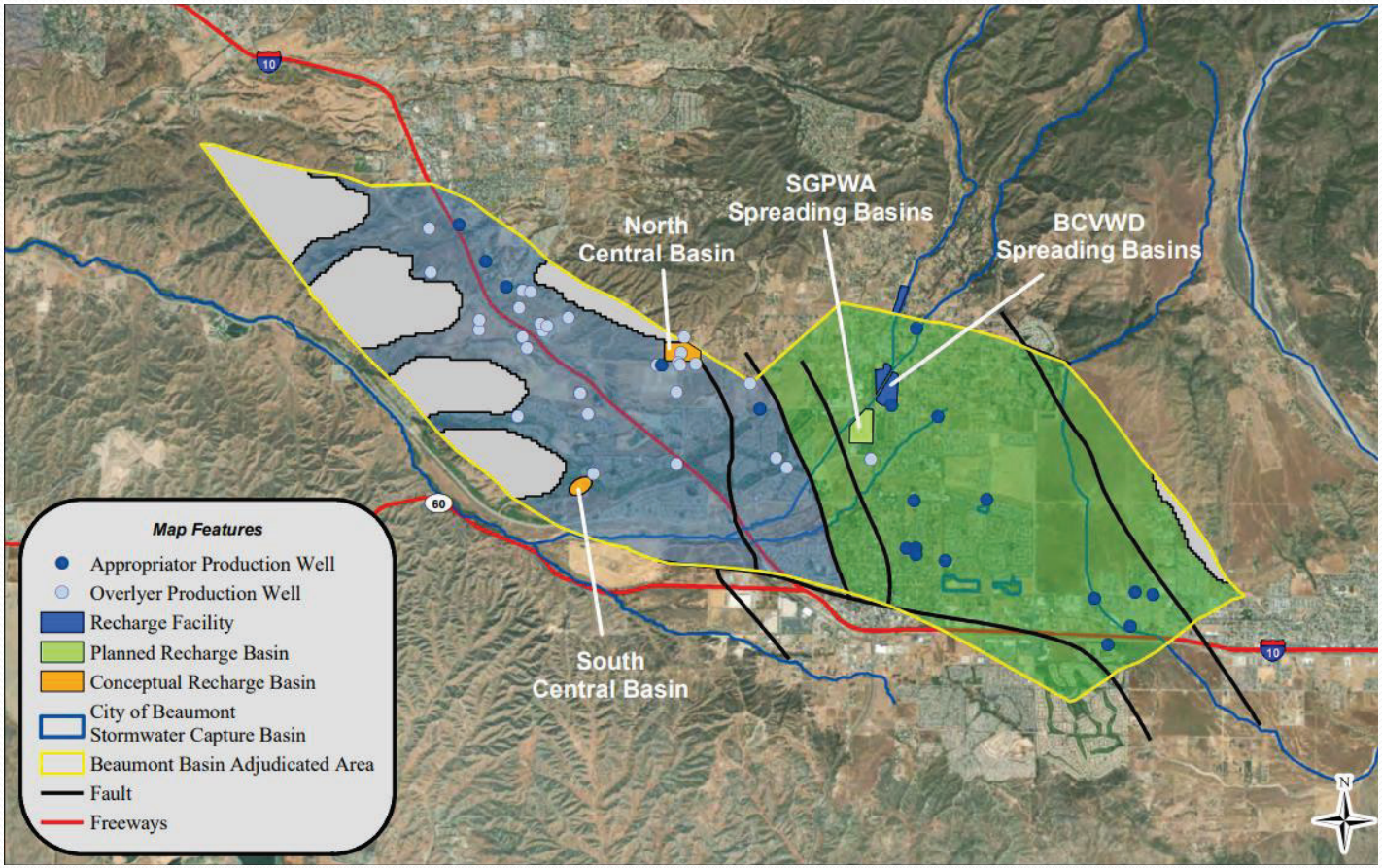
Potential Zones for Assessing Safe Yield



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BEAUMONT BASIN WATERMASTER
MEMORANDUM NO. 24-06

Date: February 7, 2024

From: Thomas Harder, Thomas Harder & Co.

Subject: Beaumont Basin Management Scenarios

Recommendation: No recommendation

As discussed at the Beaumont Basin Watermaster Committee Special Meeting on January 10, 2024, the Committee would like to develop basin management scenarios to test with the updated groundwater flow model to test conditions in the basin that could cause undesirable results.

At the February Committee meeting, we will provide further details of proposed management scenarios for testing with the model.

Beaumont Basin Watermaster

Analysis of Potential Future Undesirable Results in the Beaumont Basin

February 7, 2024

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Presentation Overview

- Further Details of Proposed Model Scenarios to Evaluate Undesirable Results Using the Groundwater Model (Agenda Item VII F)

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What Conditions Could Produce Undesirable Results in the Beaumont Basin?

1. Prolonged Drought-Related Reduction in Supplemental (Imported) Water Supplies
2. Depletion of Storage Accounts
    1. To Make Up for Unavailable Supplemental Supplies
    2. Because it is Less Expensive than Supplemental Water
    3. Because the Physical Benefits from Supplemental Water Recharge Are Not Available (e.g. Purchasing Water Physically Stored on the East Side and Physically Recovering it on the West)
3. Continued Production In Excess of Recharge (Natural or Supplemental) in the Western Part of the Basin
4. Prolonged Supplemental Recharge of Water of Lesser Quality than the Native Groundwater

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Proposed Analysis of Basin Management Scenarios to Identify Potential Undesirable Results

- **Purpose**: To Test the Impacts of Plausible Extreme Dry Hydrological Conditions on Groundwater Levels and Groundwater in Storage in the Basin
- **Method**: Analyze a Scenario(s) Using the Updated Calibrated Groundwater Flow Model of the Basin and Assess the Potential for Adverse Groundwater Level Impacts on Beneficial Uses and Users of Groundwater
- **Goal**: To Establish A Basis for Identifying Significant and Unreasonable Conditions that Would Be Considered Undesirable Results and to Provide a Planning Tool for Future Projects and Management Actions

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Proposed Analysis of Basin Management Scenarios to Identify Potential Undesirable Results

- **Baseline**
  - Based on Safe Yield Redetermination Future Projection
    - Supplemental Recharge Based on a Proxy of Historical Availability Between 2012 and 2023
    - Appropriator Pumping Based on Urban Water Management Plan Projections
    - Hydrology Based on Historical Conditions Projected Into the Future After Adjusting for Climate Change
    - Overlyer Production Based on 2022 Pumping
  - Already Being Analyzed As Part of the Safe Yield Redetermination

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Potential Basis for Establishing Initial Extreme Hydrology Scenario: Imported Water Recharge

						Baseline	
Water Year	Precip. (in)	Ratio	Category	Proxy WY	SWP Allocation (%)	SWP Allocation (AC-FT)	Dry
2024	26.89	2.00	Very Wet	2005	97%	16781	10034
2025	6.59	0.49	Dry	2018	33%	5622.5	1211
2026	10.07	0.75	Average	2015	58%	10034	3460
2027	9.57	0.71	Average	2015	58%	10034	4325
2028	4.40	0.33	Very Dry	2007	7%	1211	1211
2029	19.85	1.48	Wet	2019	78%	13407.5	8650
2030	10.68	0.80	Average	2015	58%	10034	6055
2031	29.95	2.23	Very Wet	2005	97%	16781	15224
2032	12.06	0.90	Average	2015	58%	10034	5709
2033	4.72	0.35	Very Dry	2007	7%	1211	1211
					Average:	9,515	5,700

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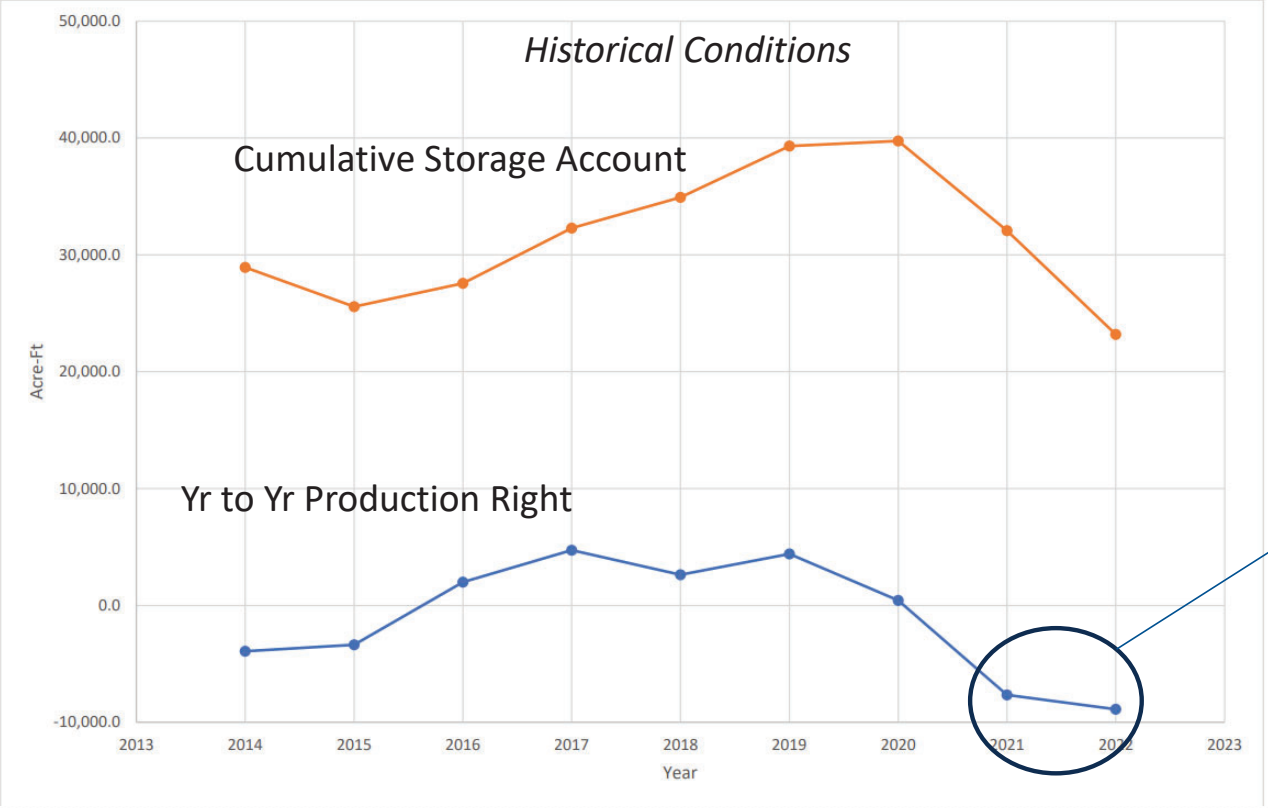
Potential Basis for Establishing Initial Extreme Hydrology Scenario: Example BCVWD



2012 – 2023 Average Supplemental Water Recharge = 7,900 Acre-ft/yr

Conditions Requiring a Draw from Storage
Generally, Less than 10,000 Acre-ft of Supplemental Water Recharge

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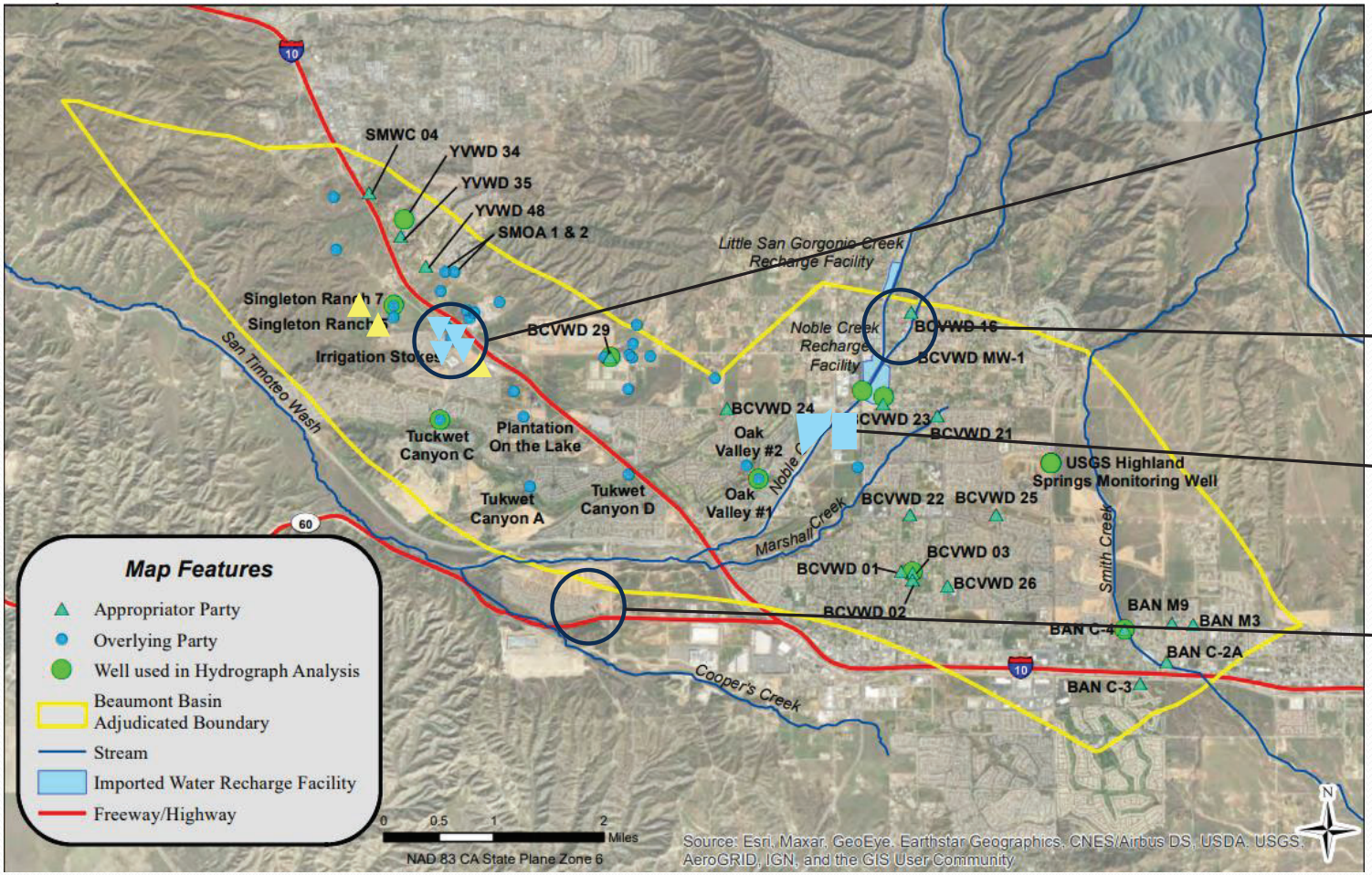
Other Assumptions for Initial Hydrology Scenario
Supplemental Water Recharge



No Future Recharge Via YVWD Injection Wells (Obligations Met Through Storage Account)

Prolonged Below Normal Precipitation/Streamflow Recharge

No Additional SGPWA Recharge

No Recycled Water Recharge

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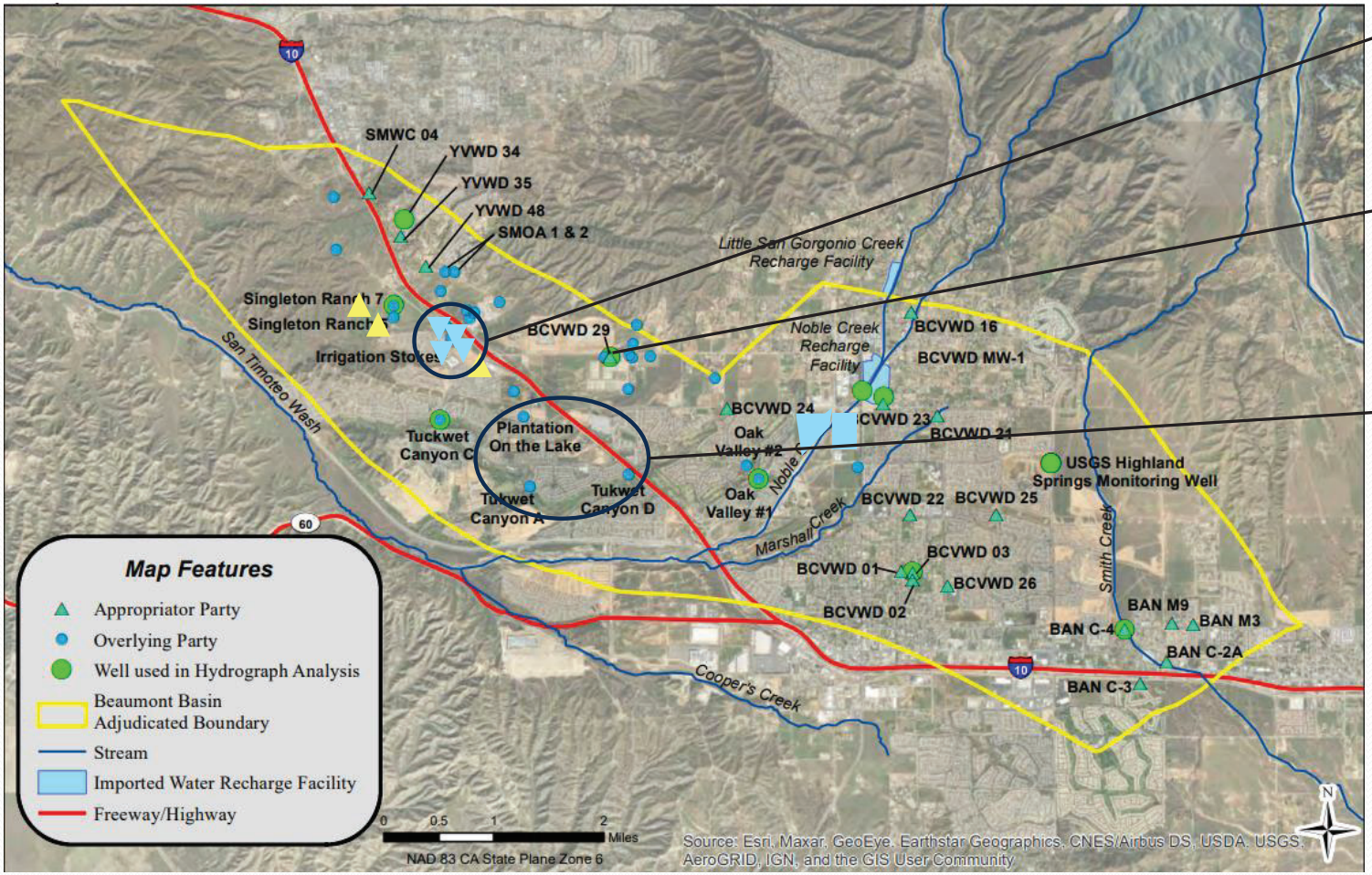
Groundwater Pumping Assumptions for Initial Hydrology Scenario



YVWD Meets New Development Demands from Groundwater Pumping Only

Increased Pumping From BCVWD Well 29 (X%?)

Overlyer Production Maintained at 2022 Levels

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Additional Basin Management Scenarios May Be Analyzed Upon Analysis of the Initial Scenario

- If the Initial Extreme Hydrology Scenario Results in Undesirable Results, As Determined by the Committee, Additional Scenarios Will Be Developed to Address the Undesirable Results
- This Process Will Continue Until All Undesirable Results Are Addressed
- The Process May Help Identify Areas for Implementing Projects and/or Management Actions to Address Undesirable Results

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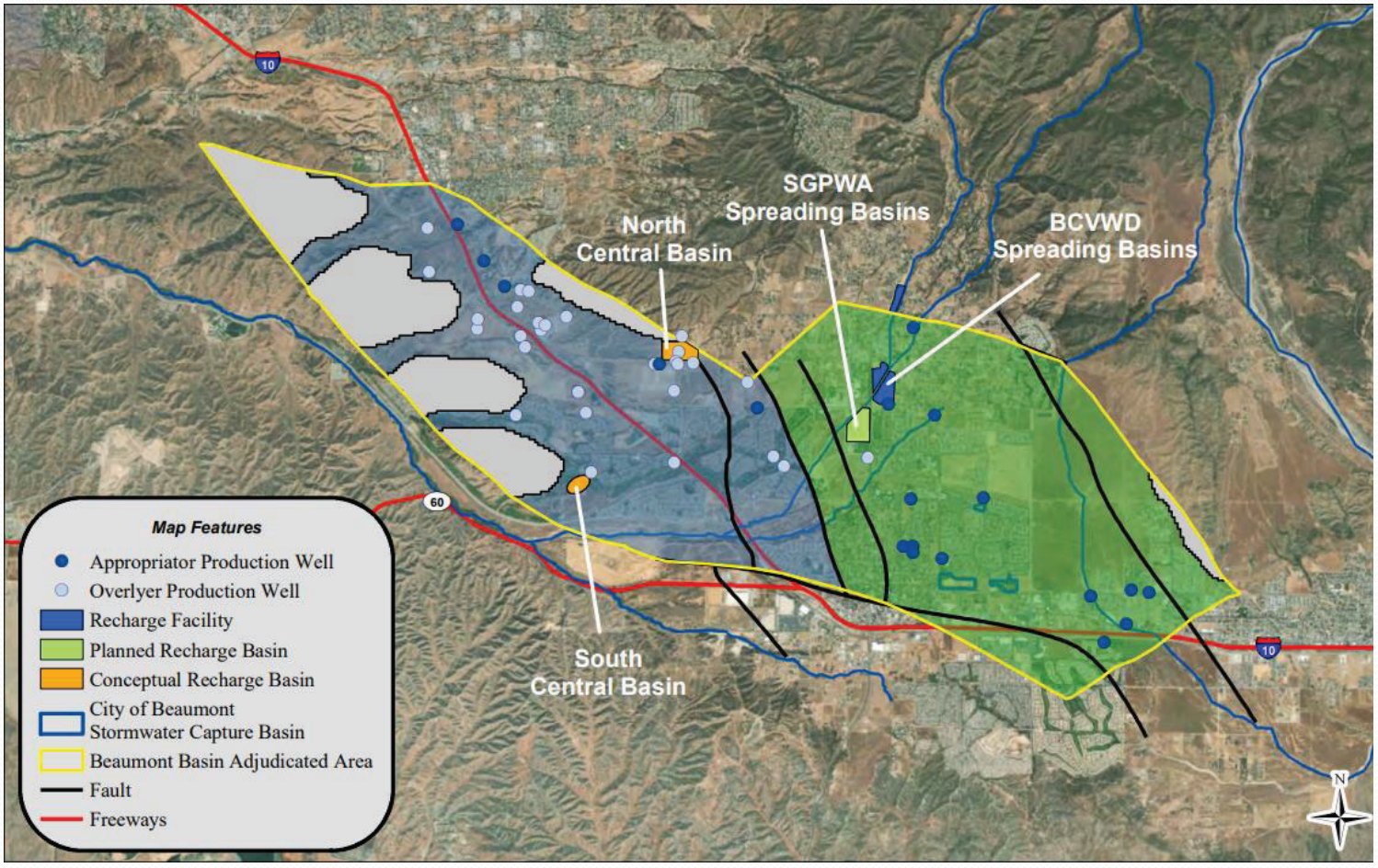
Is There Any Benefit in Establishing Management Areas?



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