



Item 8. Sustainable Yield, Groundwater Extraction, and Change in Storage

Vina SHAC
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[providing technical staff support to the Vina GSA]

Why are we discussing sustainable yield now?

Two issues make the Periodic Evaluation the right time to clarify the approach.

DWR asked for clarification

DWR approved the GSP but asked the GSAs to clarify how sustainable yield was calculated.

Methods have evolved

Recent Annual Reports use repeatable annual methods, not reliant on Butte Basin Groundwater Model.

Periodic Evaluation is the opportunity

The first five-year check-in can document the approach going forward.



Goal for SHAC: understand the issue, ask questions, and provide feedback — not select a final number or technical method today.

Sustainable yield: a guidepost, not a precise annual limit

In plain terms, sustainable yield estimates how much groundwater (AF/year) can be withdrawn over the long term while avoiding significant and unreasonable impacts.



2022 GSP example

$$243,500 \text{ AFY} + (-10,000 \text{ AFY}) = 233,500 \text{ AFY}$$

The result depends on the selected time period (not typically a single year but instead an average over a specified period of time) and assumptions used to estimate both building blocks.

The Challenge: Different methods across time lead to challenges in comparing results

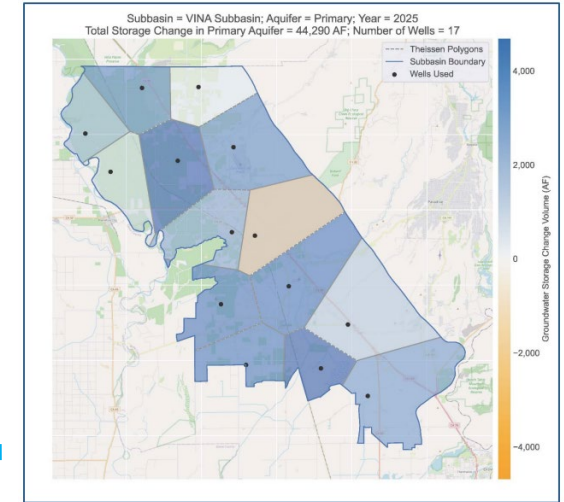
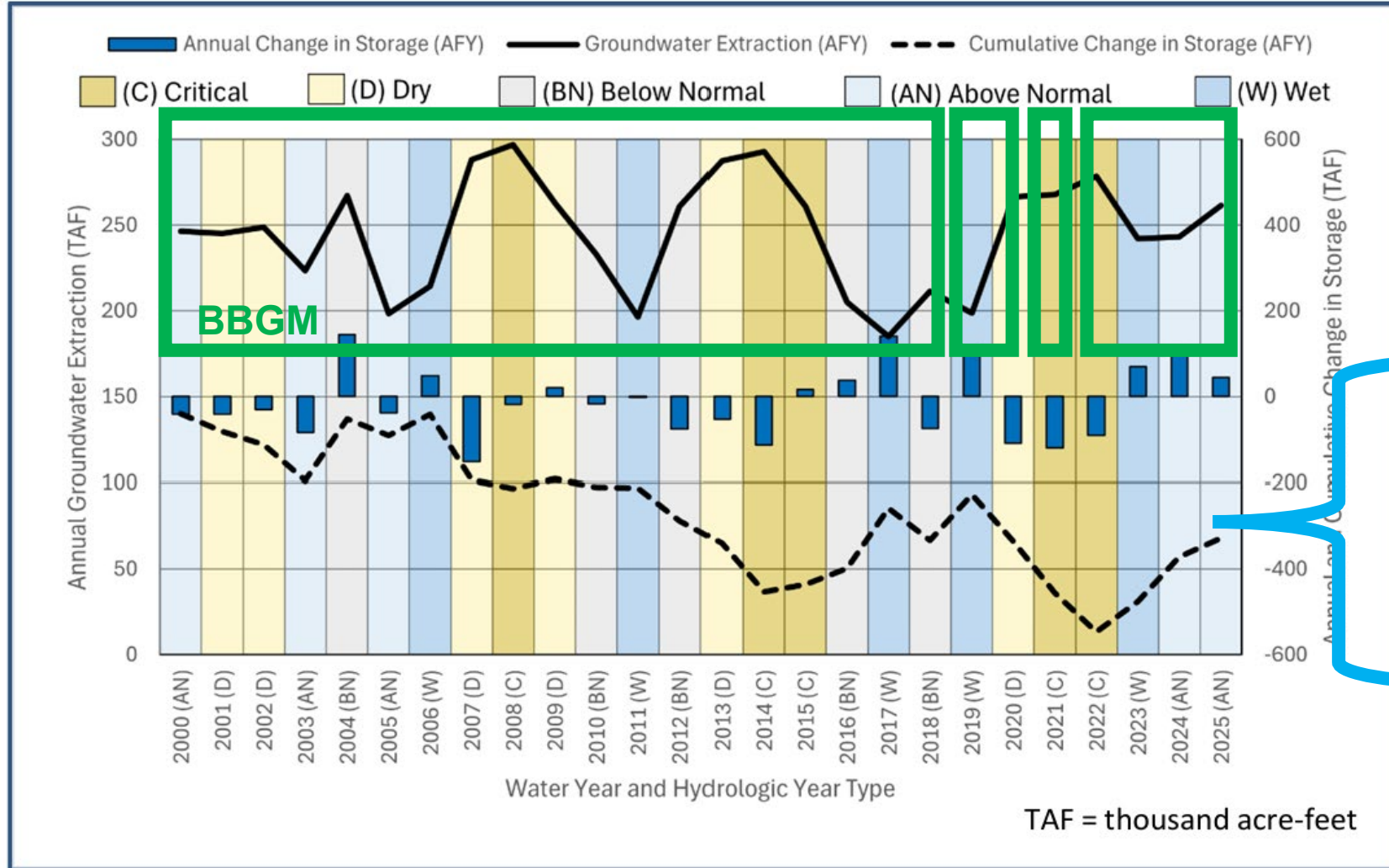


Figure 4-2. Vina Subbasin Change in Groundwater Storage from Spring 2024 to Spring 2025

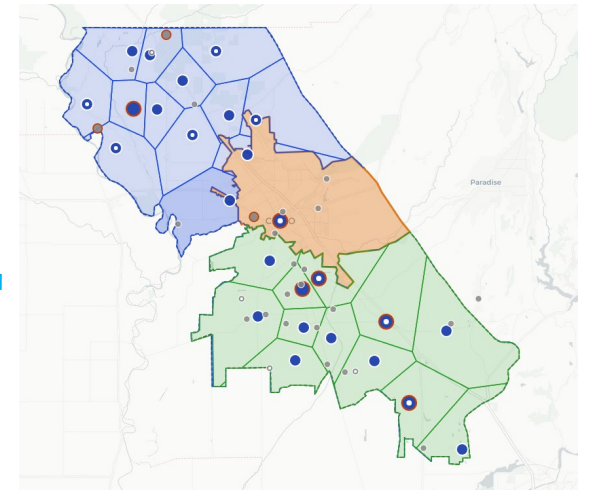


Figure ES-2. Vina Subbasin Groundwater Pumping, Annual and Cumulative Change in Storage from WY 2000 to WY 2025

The two building blocks we need to explain clearly, and ideally use a single methodology overtime (past and going forward)

Groundwater Extraction

Annual Reports use measured pumping where available and crop water demand estimates for agricultural groundwater use (where direct measurements are not available).

Change in Groundwater Storage

Annual Reports use observed spring-to-spring groundwater level changes, representative monitoring areas, and a storage coefficient derived from Butte Basin Groundwater Model (BBGM).

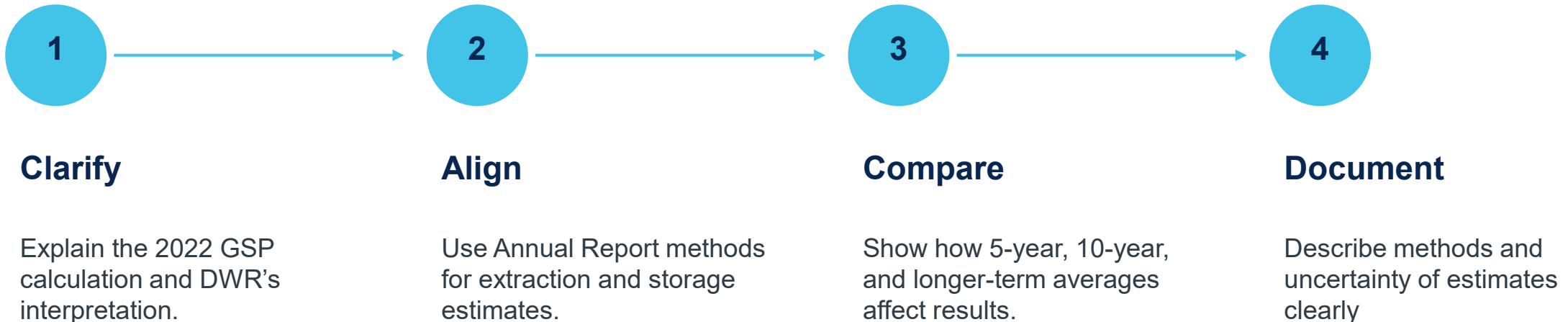
Key challenge

The 2022 GSP used BBGM for the original estimate of groundwater extraction, but BBGM is not updated annually. Annual Reports use methods that can be updated every year.

This creates an opportunity to align the long-term sustainable yield discussion with the annual reporting methods.

Proposed approach for the Periodic Evaluation

Use the Annual Report methodologies as the basis for describing the sustainable yield building blocks in the Periodic Evaluation for the past and going forward.



Why consider this path forward? It is repeatable, annually updateable, more transparent, and improves comparability between sustainable yield, groundwater extraction, and change in storage estimates going forward and historically.

Requested input from SHAC

No formal recommendation or technical decision is requested today.

Feedback will help shape how the Periodic Evaluation describes these topics

Helpful discussion questions

What assumptions or terms need additional explanation for stakeholders and the public?

Are there concerns or additional considerations the GSA Boards should understand before providing direction on the approach?



Next step

Refine the Periodic Evaluation content and estimates and bring the topic to the Vina GSA and RCRD GSA Boards for direction, as appropriate.