



September 15, 2021

TO: LOCSD Utilities Advisory Committee

FROM: Ron Munds, General Manager5

SUBJECT: Agenda Item 3 - 09/15/2021 Utilities Advisory Committee Meeting
Basin Management Committee (BMC) Update – Sustainable Yield

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STAFF RECOMMENDATION

Receive information regarding the update of the BMC Sustainable Yield Metric

DISCUSSION

Since there was no August BMC and UAC meetings, I wanted to share with the UAC one of the important efforts in the BMC work plan this year which is reviewing and consideration of an update of the estimate of the Sustainable Yield metric in the Basin Plan. Attached is the staff report from the last July BMC agenda which reviews the item. This is an information only item but I can answer any questions committee members may have. It is anticipated that the BMC staff will provide a progress update at the September BMC meeting.

Attachment

BMC staff report

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TO: Los Osos Basin Management Committee

FROM: Dan Heimel, Executive Director

DATE: July 21, 2021

SUBJECT: Item 8a – Requirements, Framework and Methodology for Preparation of SJ Required Annual Report

Recommendations

Receive information on requirements, framework, and methodology for the SJ Required Annual Report for the Los Osos Basin and provide direction to Staff.

Discussion

Background

The Stipulated Judgement (SJ) and Basin Plan for the Los Osos Basin, requires the BMC Parties (County of San Luis Obispo, Golden State Water Company, Los Osos Community Services District, and S & T Mutual Water Company) to prepare and submit an Annual Report to the Court on or before 180 days after December 31 of each year. The Annual Report and associated monitoring program are necessary to accomplish the following continuing goal set forth in Section 2.4 of the Basin Plan.

1. Provide for a continuously updated hydrologic assessment of the Basin, its water resources and sustainable yield.

A critical component of meeting this goal and part of the BMC's 2021 Workplan includes reviewing and consideration of an update of estimate of the Sustainable Yield of the Basin. In the SJ and the Basin Plan, the BMC Parties agreed on a framework and methodology for estimating and updating the Sustainable Yield for the Basin and refers to it as Sustainable Yield_x, where "X" represents the Sustainable Yield estimate for that year. Based on the agreed upon calculation methodology, described below, the SJ established an initial Sustainable Yield_x of 2,400 Acre Feet per Year (AFY) for the Los Osos Basin based on assumptions regarding the infrastructure that was in place in 2012.

Sustainable Yield_x Methodology

As specified in the Basin Plan, the Sustainable Yield_x equals the maximum amount of groundwater that may be extracted from the Basin in Year X without causing seawater to advance further inland and with no active well producing water with chloride concentrations above 250 mg/L. The amount of water that can be extracted is determined using the numeric groundwater model (Model) created for the Los Osos Basin, which is described in the next section.

Groundwater Model

The original MODFLOW model of the Basin was developed as part of a USGS study in the mid-1980s. It was updated during the 1990s by URS and since 2000 the model has primarily been maintained and operated by Cleath-Harris Geologists (CHG). The model was peer reviewed in 2010 by Stetson Engineers. The Model utilizes USGS's SEAWAT program to simulate three-dimensional, variable-density groundwater flow. Additional information regarding the model and its development and calibration is available in Basin Plan Section 5.6.5.

Sustainable Yield_x Assumptions

There are number of key assumptions that are utilized within the Model when performing the calculation of Sustainable Yield_x. These key assumptions that were included in the 2017 calculation of Sustainable Yield_x are described below:

Precipitation – Precipitation in the model is assumed to be 17.5 inches per year. This average is based on US EPA Climate Resilience Evaluation and a base period of 1981-2010 for which the Morro Bay Fire Station rain gauge average rainfall was 17.48 inches per year.

Stream Inflow – Stream Inflow in the model is limited at 800 AFY and is constrained by stream bed seepage capacity to be approximately 20% of the estimated average watershed runoff.

Recycled Water – Recycled water delivery assumptions included in the model include 448 AFY to Broderon and 33 AFY to Bayridge Estates.

Non-Purveyor Pumping – Non-Purveyor pumping assumptions in the model are listed below:

Non-Purveyor Pumping Type	Assumed Pumping Rate (AFY)	Notes
Agriculture	750	
Private Domestic	220	
Sea Pines Golf Course	50	Assumed 30 AFY recycled water from Monarch WWTP
Memorial Park	50	
Community Park	0	Assumed 5 AFY recycled water

Purveyor Pumping – The amount of purveyor pumping included in the Sustainable Yield_x calculation is iteratively determined by increasing purveyor well pumping until the 250 mg/L Chloride concentration limit at an active pumping well constraint is reached. Pumping rates for individual purveyor wells are optimized, based on available infrastructure, to shift purveyor pumping from the lower aquifer to eastern portions of the Basin and/or to the upper aquifer.

Sea Level – Sea level in the model is assumed to be 0 ft elevation in National Geodetic Vertical Datum of 1929 (NGVD 29) which is roughly equivalent to Mean Sea Level for the Port San Luis buoy of 2.72 ft in North America Vertical Datum of 1988 (NAVD 88).

Sustainable Yield Requirements

Several key requirements that the SJ specifies regarding the Sustainable Yield estimate are listed below:

- Prior to the start of each Year X following the commencement of the Stipulated Judgment, the Basin Management Committee shall establish the Sustainable Yield for that year based on the conservation implemented and Basin Plan infrastructure then developed in the Basin and the Model.
- With unanimous consent, the Basin Management Committee shall annually evaluate, confirm and set the Sustainable Yield_x. Any change to the Sustainable Yield_x shall be based upon the best available then existing data and evidence.
- Unless conditions warrant an adjustment as the Basin Management Committee may determine, for the first five years after entry of the Stipulated Judgment (i.e. 2015), the Basin Management Committee shall set the Sustainable Yield_x at 2,400 AFY.

Sustainable Yield_x Estimate Update Timeline

The following is description of the timeline regarding the initial establishment and updates to the Sustainable Yield_x for the Los Osos Basin by the BMC.

2015 – The Basin Plan and SJ established the initial Sustainable Yield_x estimate at 2,400 AFY.

2016 - The 2015 Los Osos Basin Annual Report, prepared by CHG, included a Sustainable Yield_x estimate of 2,450 AFY, based on infrastructure in place at the end of 2015 and was unanimously approved by the BMC at its June 30th, 2016 Meeting.

2017 - In 2017, CHG prepared the “Basin Yield Metric response to reduced long-term precipitation in the Los Osos Groundwater Basin” Technical Memorandum, which included an updated Sustainable Yield Estimate that accounted for completion of projects in 2016 included in Programs A and C of the Basin Plan. With the completion of these programs the updated estimate of Sustainable Yield_x was calculated to be 2,760 AFY. The BMC received and filed the TM at its March 15, 2017 Meeting. The 2016 Annual Report prepared by CHG included the updated Sustainable Yield_x estimate of 2,760 AFY and was unanimously approved by the BMC Directors at its June 21st, 2017 BMC Meeting.

2018 – The Sustainable Yield_x estimate included in the 2017 Annual Report prepared by CHG remained at 2,760 AFY and the Annual Report was unanimously approved by the BMC at its June 20, 2018 Meeting.

2019 – The Sustainable Yield_x estimate included in the 2018 Annual Report prepared by CHG remained at 2,760 AFY and the Annual Report was unanimously approved by the BMC at its June 19, 2019 Meeting.

2020 – The Sustainable Yield_x estimate included in the 2019 Annual Report prepared by CHG remained at 2,760 AFY and the Annual Report was unanimously approved by the BMC at its June 17, 2020 Meeting.

2021 – During the BMC’s June 16, 2021 consideration of the 2020 Annual Report, which included the Sustainable Yield_x estimate of 2,760 AFY, the BMC approved submitting the 2020 Annual Report to the Court. However, in its motion approving the 2020 Annual Report the BMC clarified that approval of the report should not be construed as “evaluating, setting or establishing” the Sustainable Yield_x under the terms of the SJ, directed staff to conduct a review

of the Sustainable Yield_x estimate and stated that major management decisions would be deferred until updated Sustainable Yield_x is reviewed and approved by the BMC through a more formal process in accordance with the requirements of the SJ.

Proposed Sustainable Yield Update Process

To meet the requirements of the SJ to determine the Sustainable Yield_x on an annual basis the following process is proposed.

1. Beginning in July of a given year, BMC Staff will evaluate the need to develop an updated Sustainable Yield_x for the upcoming year based on changes in Basin Plan infrastructure, groundwater inflow or outflow parameters, the understanding of hydrogeologic or geologic features in the basin or other factors.
2. BMC Staff will then provide a recommendation to the BMC on whether or not to update the Sustainable Yield_x and the reasoning for that recommendation.
 - a. If the recommendation is to update the Sustainable Yield_x, then recommendations for which parameters to modify from the previous Sustainable Yield_x will be provided.
 - i. If the BMC approves the proposed update to the Sustainable Yield_x and the recommended update parameters, BMC Staff will perform the updated Sustainable Yield_x calculation and bring the results back to the BMC for consideration and approval.
 - ii. If the updated Sustainable Yield_x results are unanimously approved by the BMC then the updated Sustainable Yield_x will be documented in the Annual Report for that Year.
 - b. If the recommendation is to not update the Sustainable Yield_x and the BMC agrees, then the Sustainable Yield_x will remain the same as the previously approved Sustainable Yield_x by the BMC.
 - c. If the BMC cannot come to unanimous agreement of whether or not to update the Sustainable Yield_x, the update parameters or the updated Sustainable Yield_x results then the Sustainable Yield_x will remain the same as the previously approved Sustainable Yield_x and the BMC will provide direction to Staff on how to proceed.

Financial Considerations

Cost associated with developing a Sustainable Yield_x was included in the BMC CY 2021 Budget as part of Task 6 2020 Annual Report. However, if significant modifications to the methodology or more than one calculation is requested then additional budget may be required to complete the Sustainable Yield_x calculation. There are currently contingency and Technical Support/Adaptive Management Services funds in the CY 2021 Budget that could be put toward additional effort associated with the Sustainable Yield_x calculations, if desired.