

Staff Report for March 13, 2019: ESJ GWA Advisory Committee Meeting

Agenda Items #3: Water Budget Planning Estimates, #4: Sustainability Indicators, #5: Monitoring, Measuring and Model Refinements, #6: Project Implementation, and #7: Management Actions.

Submitted by Woodard & Curran

Meeting Agenda

1. **Approval of February Minutes** (No accompanying staff report)
2. **Summary of Approach for Water Budget and Plan Finalization** (No accompanying staff report)
3. **Water Budget Planning Estimates**
4. **Sustainability Indicators**
5. **Monitoring, Measuring and Model Refinements**
6. **Project Implementation**
7. **Management Actions**
8. **Groundwater-Dependent Ecosystems** (No accompanying staff report)
9. **April Agenda Items** (No accompanying staff report)

AGENDA ITEM #3: Water Budget Planning Estimates

ISSUE SUMMARY

The Eastern San Joaquin Water Resources (ESJWR) model is used to evaluate the projected basin conditions at buildout level of development. Based on the GSP regulations, the projections will need to reflect a 50-year hydrologic period. There are uncertainties associated with this projection primarily due to sequence of hydrologic period, population projections, future cropping patterns, and irrigation practices and technologies, as well as uncertainties inherent in representation of the physical groundwater and surface water system by the model. Therefore, to account for these uncertainties, a range of assumptions (from use of high-end estimates to low-end estimates) are used to determine the water budget estimates and resulting long-term average groundwater storage balance under the buildout conditions and range of conditions which would result in sustainable groundwater management. The range of assumptions along with the resulting water budgets are presented in this report to support the Advisory Committee for a policy recommendation.

Long-term Average Balance Definition – The difference between long-term projected inflows to and projected outflows from the groundwater basin.

Which model input data impact estimation of projected Long-term Average Balance?

Projected agricultural acreage, cropping patterns, and irrigation practices
Urban acreage (projected at build out)
Urban population (projected at buildout)
Projected urban per-capita water use
Projected surface water deliveries

Long-term Average Groundwater Deficit Estimates (Ranges used depends on assumptions) – DRAFT

High-End Estimate: 53,900 AFY
Average: 33,700 AFY
Low-End Estimate: 10,800 AFY

Sustainable Yield Definition – The maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.

Which model input data impact estimation of Sustainable Conditions?

Urban water use
Agricultural acreage

Estimate of Pumping Offset Needed to Meet Sustainable Conditions (Estimate used depends on assumptions) – DRAFT

High-End Estimate: 93,400 AFY (Ag: 76,200, Urban: 17,200)
Average: 85,600 AFY (Ag: 69,800, Urban: 15,800)
Low-End Estimate: 77,900 AFY (Ag: 63,500, Urban: 14,400)

QUESTION FOR CONSIDERATION: Which planning assumptions should be made in determining long-term average deficit and estimated offsets in groundwater use needed to meet sustainability conditions?

CONSULTANT RECOMMENDATION

It is the consultant recommendation to use the low-end estimate of long-term average groundwater pumping reductions needed to meet sustainable yield as the basis for developing an initial implementation plan. The initial

implementation plan will include projects and management actions aimed at using non-groundwater supplies in lieu of groundwater, reductions in total water demand, and / or increasing recharge to the groundwater basin to achieve sustainable yield by 2020. Using the lower end estimate for the 2020 GSP will prevent over-planning projects in the 2020-2025 timeframe, while data is being collected and analyzed to further refine and verify sustainable yield estimates.

- **Estimate of Pumping Offset Needed to Meet Sustainable Yield – DRAFT**
Low-End Estimate: 78,000 AFY (Ag: 64,000, Urban: 14,000)

ADVISORY COMMITTEE RECOMMENDATION

Advisory Committee to consider on March 13, 2019

BOARD RECOMMENDATION

Board to consider on April 10, 2019

AGENDA ITEM #4: Sustainability Indicators

ISSUE SUMMARY

SGMA requires the GSP to address six sustainability indicators:

- Chronic Lowering of Groundwater Levels
- Reduction in Groundwater Storage
- Seawater Intrusion
- Degraded Water Quality
- Land Subsidence
- Depletion of Interconnected Surface Water

SGMA allows Basins to not fully address an indicator if the sustainability indicator is not applicable to their basin. To do this, GSAs must provide evidence that the indicator does not exist and could not occur.

QUESTION FOR CONSIDERATION: Which sustainability indicators should be fully addressed in the GSP and which are not applicable?

CONSULTANT RECOMMENDATION

The consultant recommendation is to fully address three sustainability indicators (Groundwater Elevations, Water Quality, Surface-groundwater Interactions), and to justify not establishing thresholds and objectives for the remaining three sustainability indicators (Seawater Intrusion, Groundwater Storage, Land Subsidence). Justification for not establishing thresholds and objectives for Seawater Intrusion, Groundwater Storage and Land Subsidence is as follows:

Seawater Intrusion: Seawater intrusion is not an applicable sustainability indicator for the ESJ Subbasin because the Subbasin is not in a coastal area and seawater intrusion is not present. The Subbasin experiences water quality issues related to salinity which are addressed under the water quality Sustainability Indicator. Given that Seawater Intrusion is not an applicable Sustainability Indicator for this basin, no thresholds and objectives will be developed for it in this GSP.

Groundwater Storage: Undesirable results related to groundwater storage are not present and will not occur in the Subbasin. The ESJ model indicates that the Subbasin has approximately 53 million acre feet (MAF) of fresh (non-saline) groundwater storage. Additionally, analysis of groundwater storage has shown a cumulative change in storage of -0.91 MAF over the 20-year period of 1996-2015. This cumulative change in storage, which includes both representative dry and wet years, is a reduction of approximately 1.72% of the total estimated available fresh groundwater in storage, or 0.001% per year. It is not reasonable to expect that the available groundwater in storage would be exhausted within any foreseeable time period. Instead, sustainability in the Subbasin related to groundwater storage volume is driven by the groundwater level indicator, which primarily relates to the ability of infrastructure to economically access groundwater.

Land Subsidence: The only area of the Subbasin where there is reasonable potential for land subsidence would be the small portion of the ESJ Subbasin where Corcoran Clay exists. However, because groundwater levels in these areas are high / shallow and fed by adjacent Subbasins and surface water features, land subsidence is not reasonably expected to occur in the Subbasin.

ADVISORY COMMITTEE RECOMMENDATION

Advisory Committee to consider on March 13, 2019

BOARD RECOMMENDATION

Board to consider on April 10, 2019

AGENDA ITEM #5: Monitoring, Measuring and Model Refinements

ISSUE SUMMARY

Following GSP approval, SGMA compliance will require Basin-scale monitoring and reporting, as well as model validation and verification at the Subbasin scale. The following activities are expected to be required.

- Monitoring and reporting
- Data collection and analysis
- Administrative actions
- 5-year update
- DMS updates
- Public outreach
- Website maintenance
- Legal support (potentially)
- Grant writing

QUESTION FOR CONSIDERATION: Should monitoring, measuring, and modeling be conducted at the basin scale subject to a financing plan that will be developed after the GSP is approved?

CONSULTANT RECOMMENDATION

The consultant recommendation is for monitoring, measuring, reporting, and model verification and refinement activities be completed at the basin scale, as opposed to at the local GSA scale, subject to a financing plan with appropriate cost share allocations to be developed following GSP adoption.

ADVISORY COMMITTEE RECOMMENDATION

Advisory Committee to consider on March 13, 2019

BOARD RECOMMENDATION

Board to consider on April 10, 2019

AGENDA ITEM #6: Project Implementation

ISSUE SUMMARY

SGMA projects that go into the GSP Implementation Plan can be developed and implemented at the GSA level, at a regional level, or the Subbasin level. The level at which projects are implemented could have implications for project implementation, authority, control, and cost.

QUESTION FOR CONSIDERATION: At what level should projects in the GSP Implementation Plan be developed and implemented?

CONSULTANT RECOMMENDATION

The consultant recommendation is that projects in the GSP Implementation Plan be developed and implemented at the GSA level. This allows for GSAs to lead projects in their area and have full responsibility and authority regarding those projects as they typically do as an agency. GSAs with projects in the GSP may work with additional parties in the development of their projects, or may request that the JPA considers implementing projects on their behalf, at its sole discretion.

ADVISORY COMMITTEE RECOMMENDATION

Advisory Committee to consider on March 13, 2019

BOARD RECOMMENDATION

Board to consider on April 10, 2019

AGENDA ITEM #7: Management Actions

ISSUE SUMMARY

SGMA requires GSAs to implement projects and management actions to reach sustainability.

QUESTION FOR CONSIDERATION: What kinds of projects and management actions should be included in the GSP implementation plan?

CONSULTANT RECOMMENDATION

The consultant recommendation is that a mixture of supply-side projects and demand-side management actions be used in the implementation plan to achieve sustainability consistent with the identified community values.

ADVISORY COMMITTEE RECOMMENDATION

Advisory Committee to consider on March 13, 2019

BOARD RECOMMENDATION

Board to consider on April 10, 2019