

3.4.4 Monitoring Networks Summary

The SMC monitoring networks were developed leveraging current and ongoing monitoring to assess minimum thresholds. A summary of the existing and proposed expansion of the monitoring networks is presented in [Table 3.4.4-1](#) ~~Table 3.4.4-1~~.

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Groundwater level and storage

The groundwater levels monitoring network combined with the current DWR CASGEM network serves as basis for assessing all SMCs with the exception of water quality. All 36 wells that have been selected for the immediate levels monitoring network, which cover discreet locations as well as shallow, medium and deep levels of the aquifer, are either existing SVGMD monitoring wells that are currently monitored by SVGMD or wells included in the CASGEM network and monitored by DWR twice per year. The current minimum monitoring frequency of twice each year (spring and fall) is retained for the well included in the CASGEM network. For the district wells, a minimum of 2x/year is suggested for all the wells, with a subset of wells monitored more frequently during the irrigation season (already ongoing with the current monitoring effort). Two of multi-completion DWR wells recently installed include pressure transducers for continuous monitoring. If funding is secured, level sensors and telemetry could be added to a subset of the wells to enhance the frequency of monitoring and remove the need for monitoring site visits. Groundwater storage uses the levels monitoring network as a proxy and has no additional requirements.

Groundwater quality

The 17 existing wells selected for the water quality monitoring network are part of the GAMA system. They are regularly monitored as municipal wells, but the frequency varies. The program seeks to augment the GAMA wells with six additional wells (five existing and one monitoring well currently being installed by DWR), for additional coverage in areas where septic tanks may affect groundwater quality and where boron and arsenic may create future problems. For the 6 new wells, TDS, Nitrate, Boron and Arsenic will be monitored twice per year. The results will be complemented with the ongoing monitoring undertaken by public health for the municipal wells. The monitoring plan will be augmented as needed if constituents will exceed the criteria or if specific increasing trends in the constituents concentration are observed.

Comment [LF1]: I have full cost for these, about 1200\$ for the 6 wells for all constituents

Interconnected surface water and GDEs

The interconnected surface water monitoring network is initially a subset of the existing shallow groundwater levels monitoring network and will assess impacts strictly through water levels. The near-term addition to this initial network is to instrument at least 4 shallow existing wells located near ISW and GDE with continuous pressure transducers. Cost for transducers and installation is covered through the existing planning and implementation grant. An initial PMA is then suggested to evaluate possible locations and design of up to ten stream flow gauges and up to eight stream stage gauges to be paired with the continuous groundwater measurements. As projects are developed within the basin that may benefit from and provide funding for the gauges, they will be added to the monitoring network.

Comment [KJ2]: So, the question becomes what cost is there associated with downloading/reviewing/analyzing this data?

Comment [LF3]: I will include this in the presentation

Subsidence

In general, the groundwater level monitoring network serves as a proxy for the subsidence SMC across the SV Subbasin. As part of the existing GSP development grant, allocations have been made for installation of four monuments in the area with observed subsidence. SVGMD will fund periodic surveying of these monuments to determine if they are holding for vertical position. DWR will periodically provide InSAR data that will be analyzed and assessed with the groundwater levels and surveying of the monuments.

Comment [KJ4]: If we can be more specific, great.

Comment [LF5]: I asked for the quote, will have it on Monday

Table 3.4.4-1. Summary of Existing and Proposed New Monitoring for Assessment of SMCs.

SMC	Wells		Measurement		Other, based on future funding availability
	Existing	New	Existing	New	
Groundwater Levels	19 district wells 17 CASGEM wells	0	Measured at least 2x/year Measured at least 2x/year, but with continuous measurements in the latest multi-completion wells	(a)	N/A
Storage	Groundwater Levels as Proxy				N/A
Water Quality	17	Up to 6 (b)	1x/2 years (c)	(b)	N/A
ISW	13 shallow	4 (d)	13 at least quarterly and 4 continuously	(a)	Up to Ten stream flow gauges (e) and Eight stage gauges (e)
Subsidence	Groundwater Levels as Proxy for the first 2 years				Four new monuments (f) InSAR Data (g)

- (a) Telemetry may be employed to increase data collection frequency and minimize field visits.
- (b) Five community members have volunteered their wells for inclusion in the water quality monitoring network. DWR is installing one new observation well that can be used for both groundwater level and groundwater quality monitoring. If incorporated in the network, the wells would be monitored on the same frequency as existing wells
- (c) Coordinate with existing GAMA water quality monitoring to obtain data
- (d) 4 existing shallow wells will be considered for installation of continuous pressure transducers in the area near Groundwater Dependent Ecosystem. Funding for the instrumentation is already available through the implementation grant and there are opportunities for more external funding (e.g., from USGS/DWR project). Cost of maintaining these stations will be minimal and data are expected to be downloaded twice per year.
- (e) More continuous data in existing shallow wells may be considered in the future as implementation funding become available and as the model provides more certainty about locations where these data are critical. Shallow wells will be paired with flow and/or stage gauges, pending funding availability over the first 5 years of the implementation period. Feasibility study required to assess potential locations. Gauges may benefit by using telemetry to provide continuous data.
- (f) Funding currently allocated to install monuments. Future cost will include monuments surveying at least 1x/2 years.
- (g) InSAR data analyzed as it becomes available from DWR, but no more frequently than once every two years.