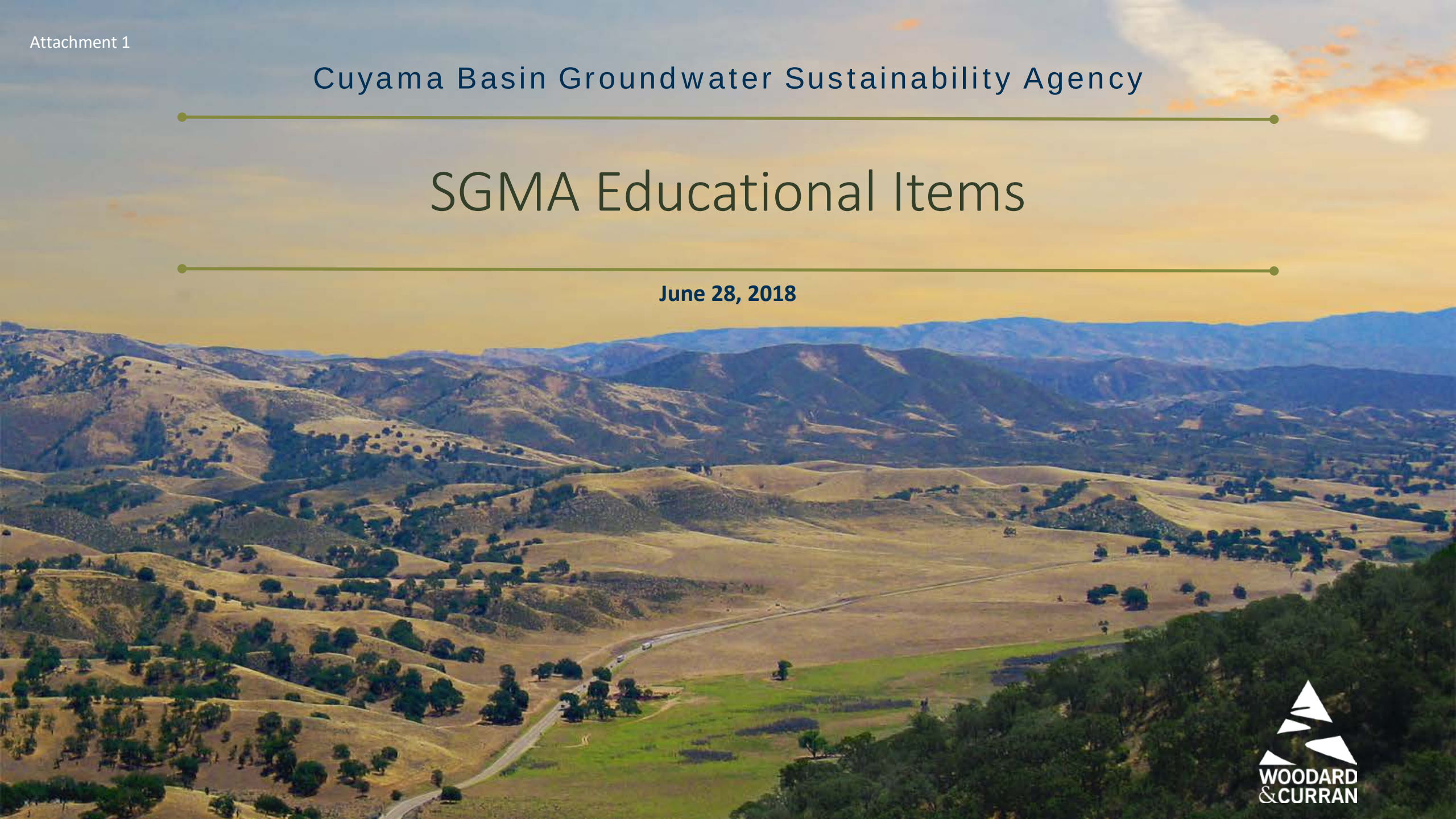
Attachment 1

Cuyama Basin Groundwater Sustainability Agency

SGMA Educational Items

June 28, 2018



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What Makes a Good Monitoring Network?

- What is a monitoring network?
  - Established for each sustainability indicator:
    - Groundwater levels and quality
    - Subsidence
    - Surface water-groundwater interaction
  - Includes monitoring wells, stream gauges, subsidence measurements
  - Will have spatial and temporal components:
    - How many wells and how spread out are they?
    - How frequently are they measured?
  - Able to provide data relative to undesirable results

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What Makes a Good Monitoring Network?

- Need to Consider Implementation cost
  - Cost for installation of equipment
  - Annual cost of data collection, analysis, and management
- Use Representative Monitoring
  - Can designate a subset of monitoring sites as representative of conditions in the basin or an area of the basin.

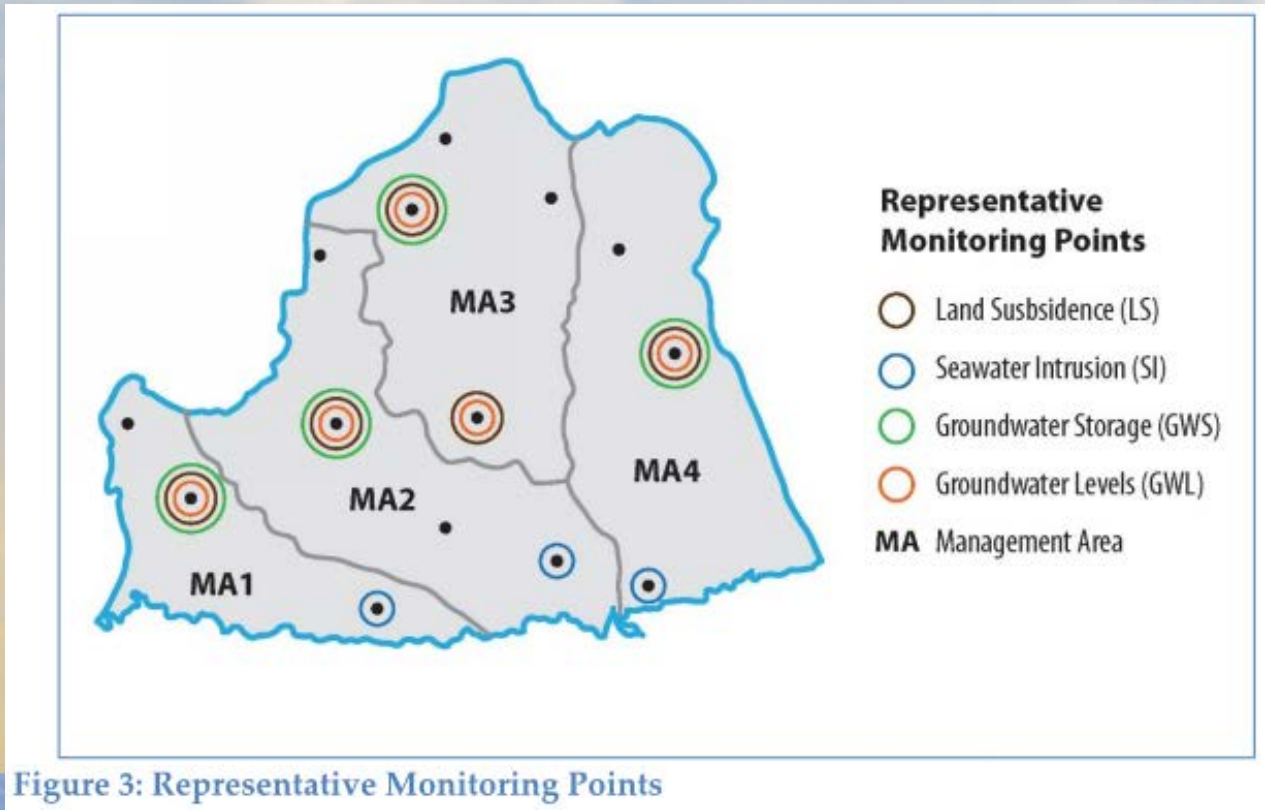

Figure 3: Representative Monitoring Points

What Makes a Good Monitoring Network?

- Characteristics of Good Monitoring Locations
  - Surface flow gauges:
    - Managed and maintained by USGS or CDEC
    - Longer and continuous periods of record
  - Groundwater wells (levels):
    - Have well construction info
    - Longer and continuous periods of record
    - More frequent measurements
    - Depths that are similar to where pumping occurs
  - Groundwater wells (quality):
    - Have well construction info
    - Longer and continuous periods of record
    - More frequent measurements
    - Measured where groundwater is used

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What Makes a Good Monitoring Network?

- Spatial Coverage
  - Can differ by management area
  - May not be needed where no groundwater use occurs
- Temporal Coverage
  - Groundwater Levels: at least twice a year, preferably more
  - Groundwater Quality: at least once a year
  - Surface Flow: daily
  - Subsidence: annually

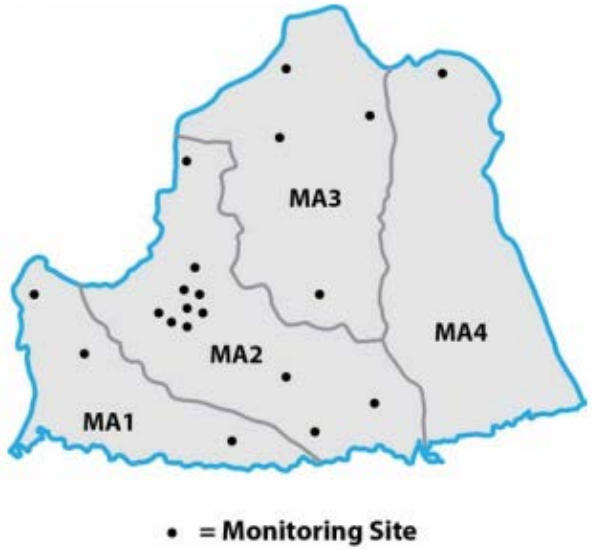

Figure 6. Example Monitoring Network with Spatial Data Gaps

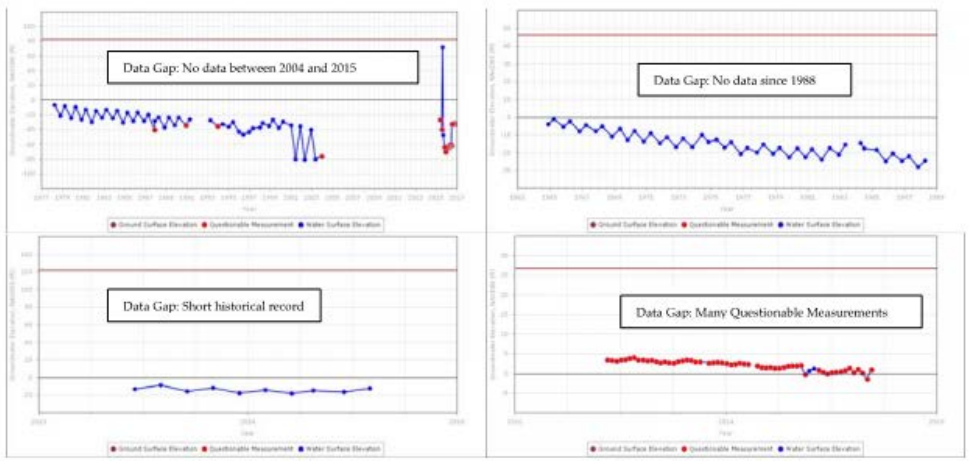

Figure 5. Examples of Hydrographs with Temporal Data Gaps

What Does SGMA Require for Groundwater Wuality?

- For Describing Current Groundwater Conditions:
  - In HCM: describe general water quality of principal aquifer
  - In Groundwater Conditions: describe GW quality issues that may affect supply and beneficial uses of groundwater (contaminated sites and plumes)
  - In Monitoring Networks: shall collect sufficient spatial and temporal data to determine water quality for water quality indicators
- How to Select which constituents to manage:
  - Determined by GSA board based on public discussion, data review
  - Consider ability of GSA management activities to influence constituent concentrations
  - Identify constituents considered to be of concern to GSA members that are near MCLs (maximum contaminant levels, set by the CalEPA)
- Establishing Minimal Thresholds for Future Sustainability:
  - Should be based on mapping of current and historical constituent concentrations

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