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SCV WATER

CITY OF SANTA CLARITA

LOS ANGELES COUNTY DEPARTMENT of REGIONAL PLANNING

LACWD

Proposed Sustainable Management Criteria

Chronic water level decline, chronic reduction of groundwater in storage, subsidence

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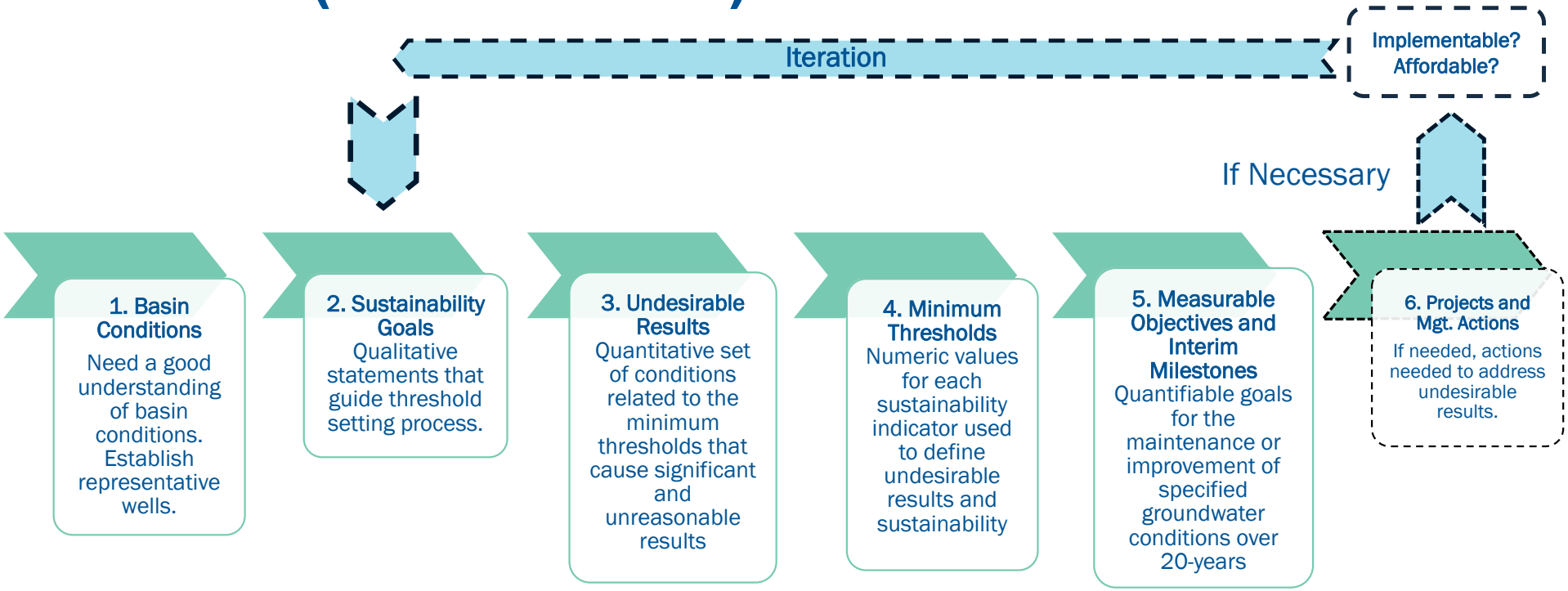
January 12, 2021

SMC Topics

- Review SMC Development Steps
- Review Proposed Sustainability Goal
- Review Example Indicators of Undesirable Results for Groundwater Levels, Groundwater in Storage, and Subsidence
- Review Proposed Minimum Thresholds and Measurable Objectives; Revisit Sustainability Goal
- Next Steps

Sustainable Management Criteria (SMC) Development Steps for each Sustainability Indicator ( )



Proposed Sustainability Goal

"The goal of this GSP is to sustainably manage the groundwater resources of the Upper Santa Clara River Basin for current and future beneficial uses of groundwater, including the river environment through an adaptive management approach that builds on robust science and monitoring and considers economic, social and other objectives of a wide variety of stakeholders."

Proposed Qualitative Objectives for Meeting Sustainability Goals

Chronic Lowering of Groundwater Levels

Maintain groundwater levels that continue to support current groundwater uses and a healthy river environment in the basin

Reduction of Groundwater Storage

Maintain groundwater volumes in storage sufficient to sustain current and planned groundwater use in prolonged drought conditions while avoiding permanent degradation of environmental values.

Land Subsidence

Reduce or prevent land subsidence that causes significant and unreasonable effects to critical infrastructure and property interests.

Discussion of Goals and Objectives

- We will revisit the goals and objectives after going through the SMCs.

How are Undesirable Results Defined?

- There must be significant and unreasonable effects caused by pumping to:
  - Long term/sustainable groundwater production
  - Other beneficial uses, including GDEs, and threatened or endangered species
- Results in exceedance of a minimum threshold in specified numbers of representative wells.
- These criteria may be refined based on monitoring data and analysis.

Example Indicators of Undesirable Results

Evaluated at representative monitoring sites:

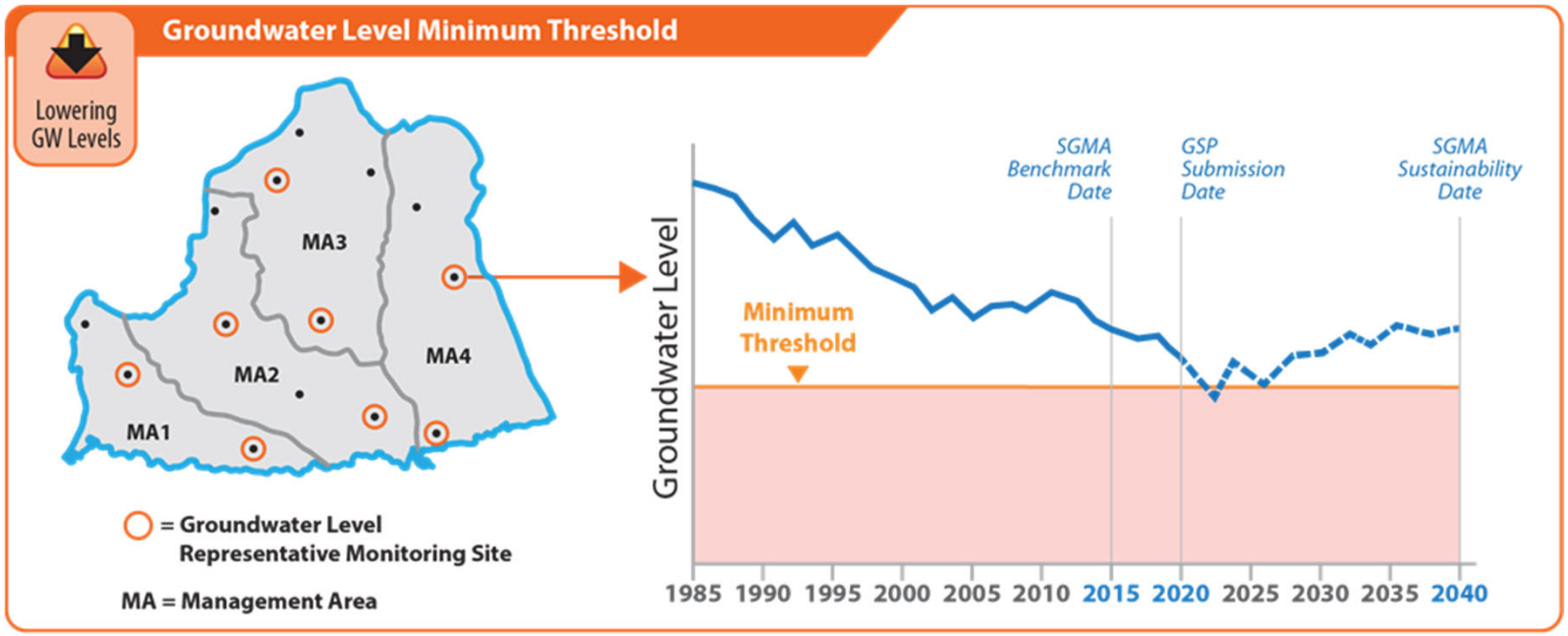
- Chronic lowering of groundwater levels
  - Groundwater elevation levels drop below minimum thresholds in 10 percent of representative wells
  - Magnitude or rate of decline is greater than simulated future drought conditions in 10 percent of representative wells

  * Potential impacts to GDEs will be considered

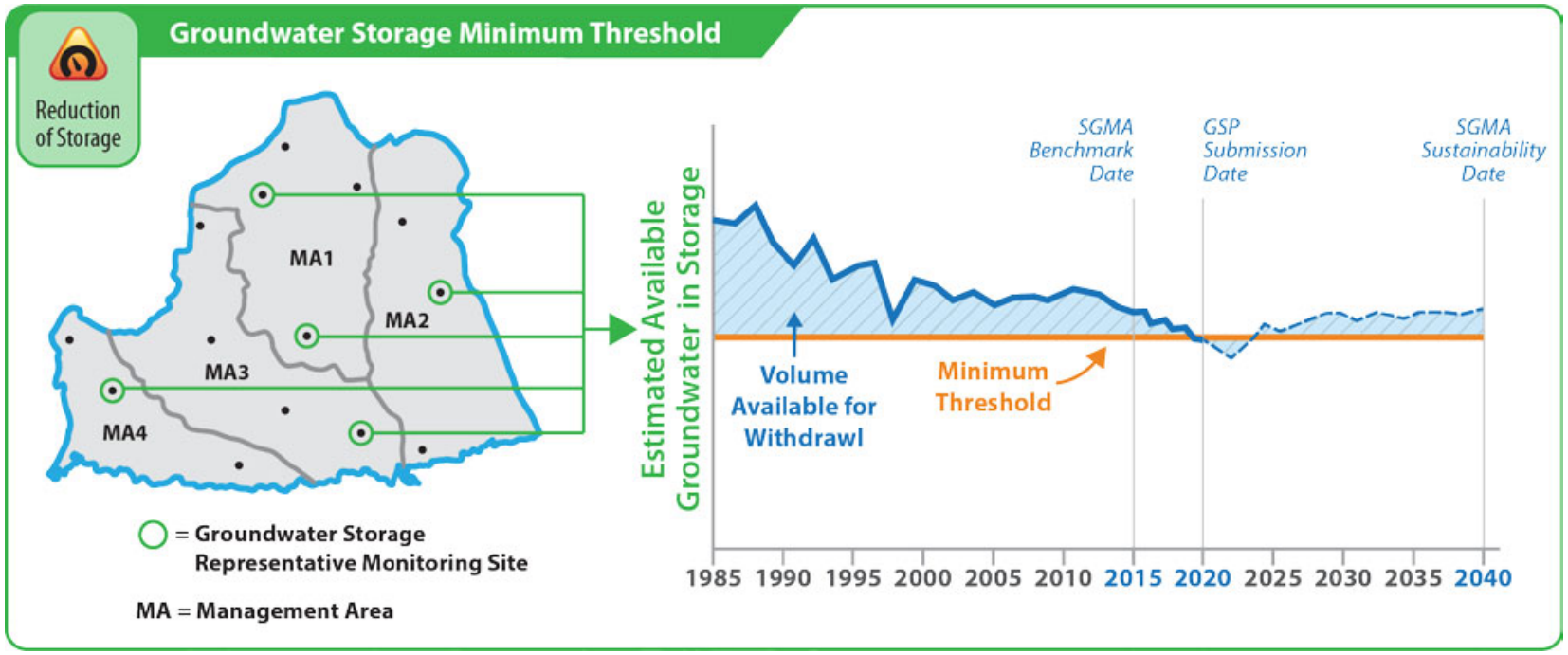
- Chronic reduction of groundwater in storage
  - Water level declines caused by pumping in 10 percent of wells, reducing the volume of groundwater in storage such that there is insufficient supply to support pumping during extended drought.

- Land subsidence that substantially interferes with surface land uses
  - Substantially interferes with surface land uses.
  - Land surface deformation causing broken pipelines and damaged roads.
  - Pumping results in land subsidence greater than thresholds at 10 percent of monitoring locations.

Chronic Reduction in Groundwater Levels



Chronic Reduction of Groundwater in Storage



Discussion of Undesirable Results

Minimum Thresholds and Measurable Objectives

- Minimum Thresholds (MTs) are quantifiable criteria that typically represent seasonal minimums (often expressed as groundwater elevations but can be other quantifiable measures) at key locations below which significant and unreasonable impacts occur or would be anticipated.

- Measurable Objectives (MOs) are the desired future basin conditions that allow for sustainable management of the groundwater resource while allowing operational flexibility to manage for anticipated variable conditions such as droughts.

- Established for Alluvial Aquifer and Saugus Aquifer

Proposed Minimum Thresholds and Measurable Objectives for Chronic Lowering of Water Levels at Representative Wells

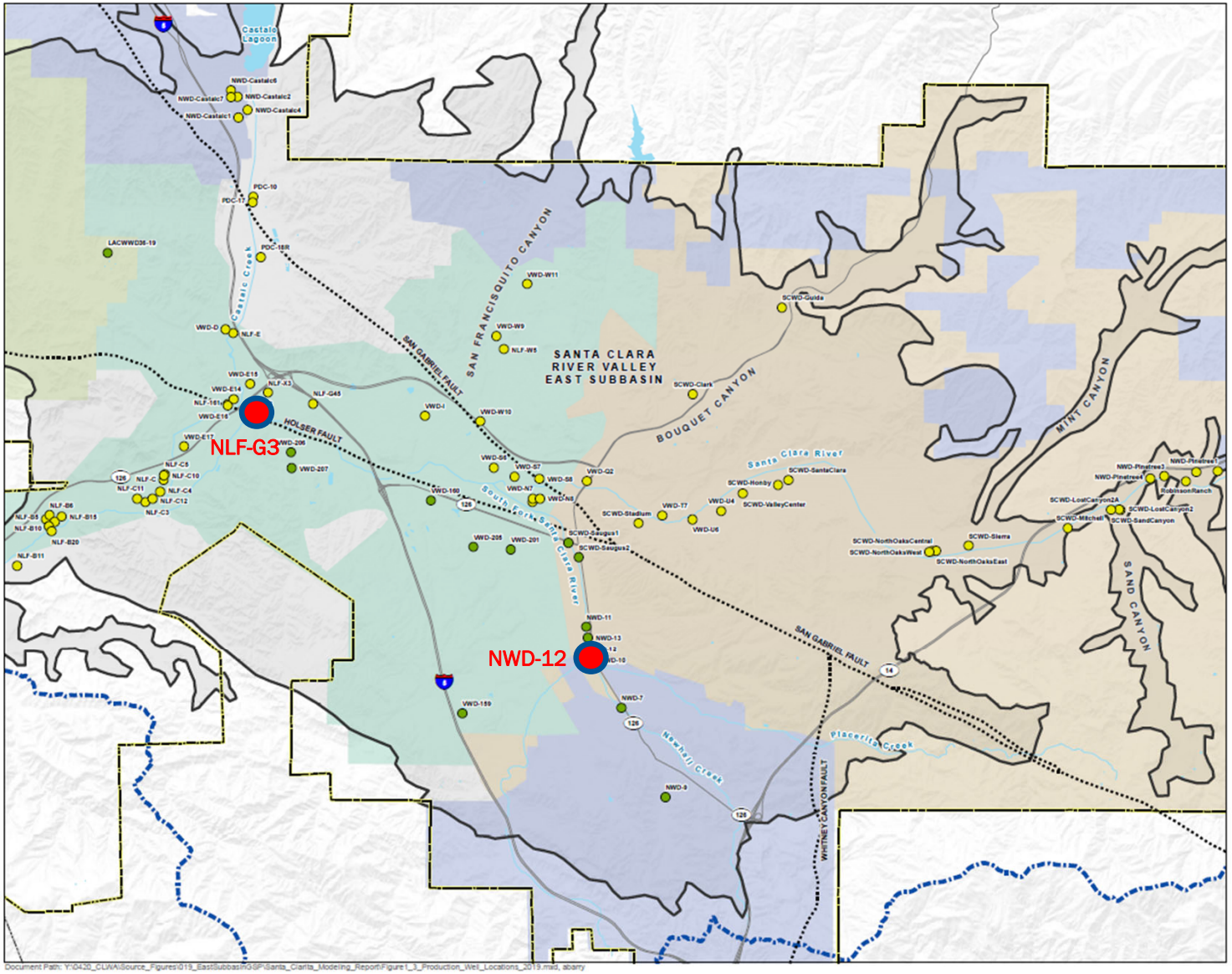
- Minimum Thresholds
  - Lowest predicted 2042 future water level at representative well sites.

  * Note: Water levels that go below historical water levels in the alluvial aquifer trigger implementation of management actions that avoid impacts to GDEs.

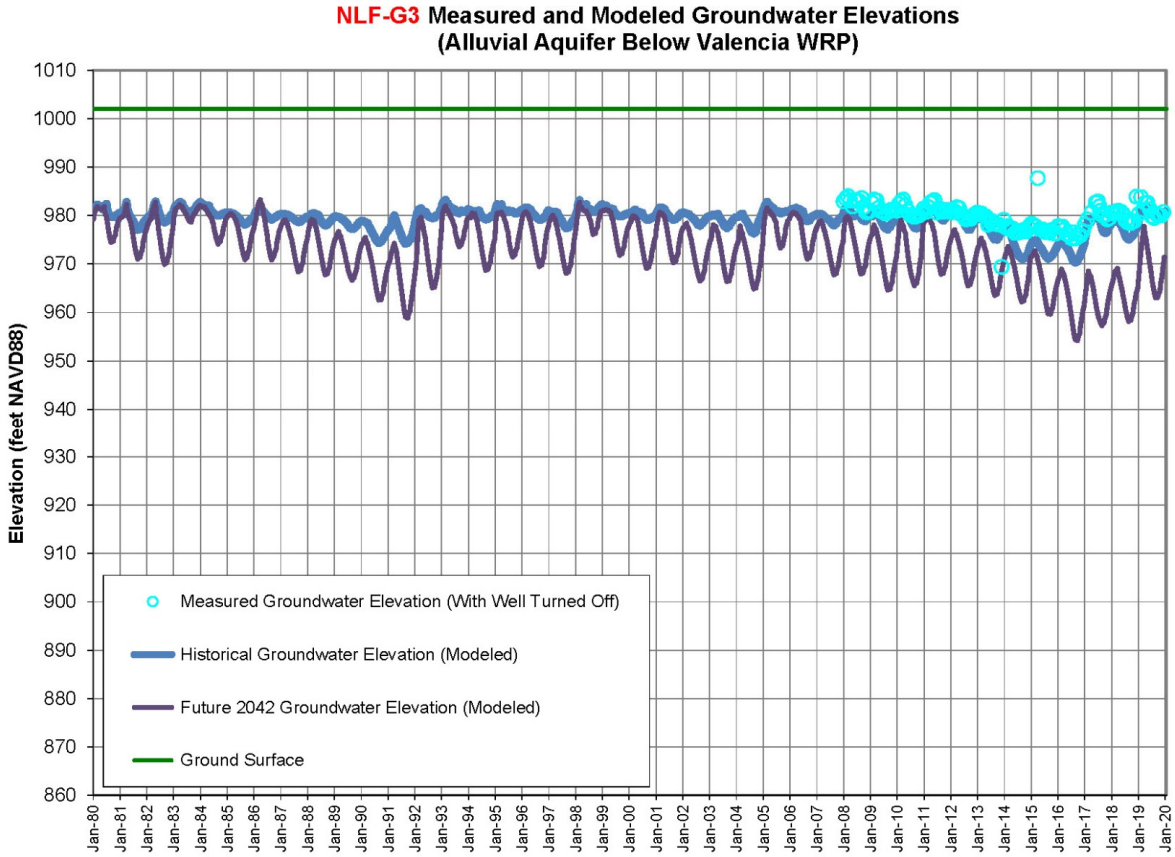
- Measurable Objectives
  - Water level that provides access to groundwater consistent with the operating plan over historic dry hydrologic periods. For example, the dry period from 2006 through 2016.

Basin-Wide View of Production Well Locations

(Showing Examples of MTs & MOs)



Alluvial Observation Well 1 Mile Below Valencia WRP



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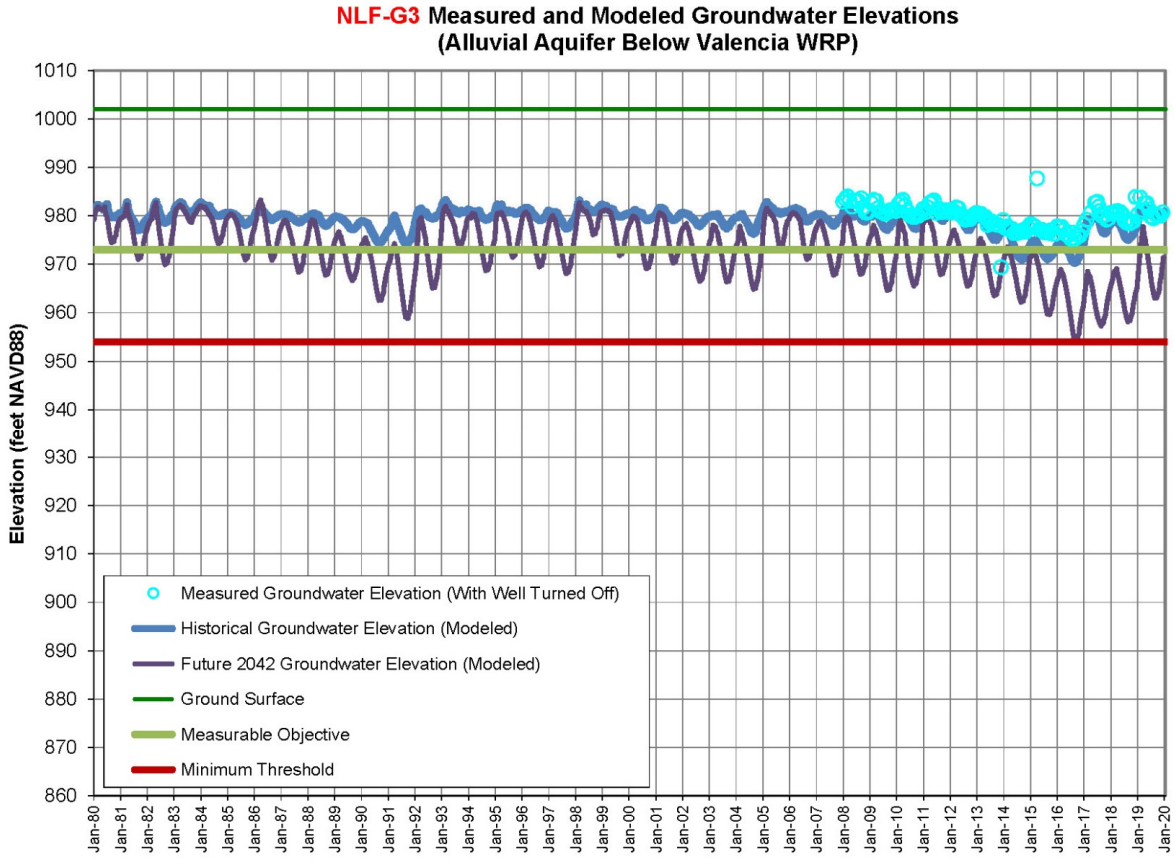


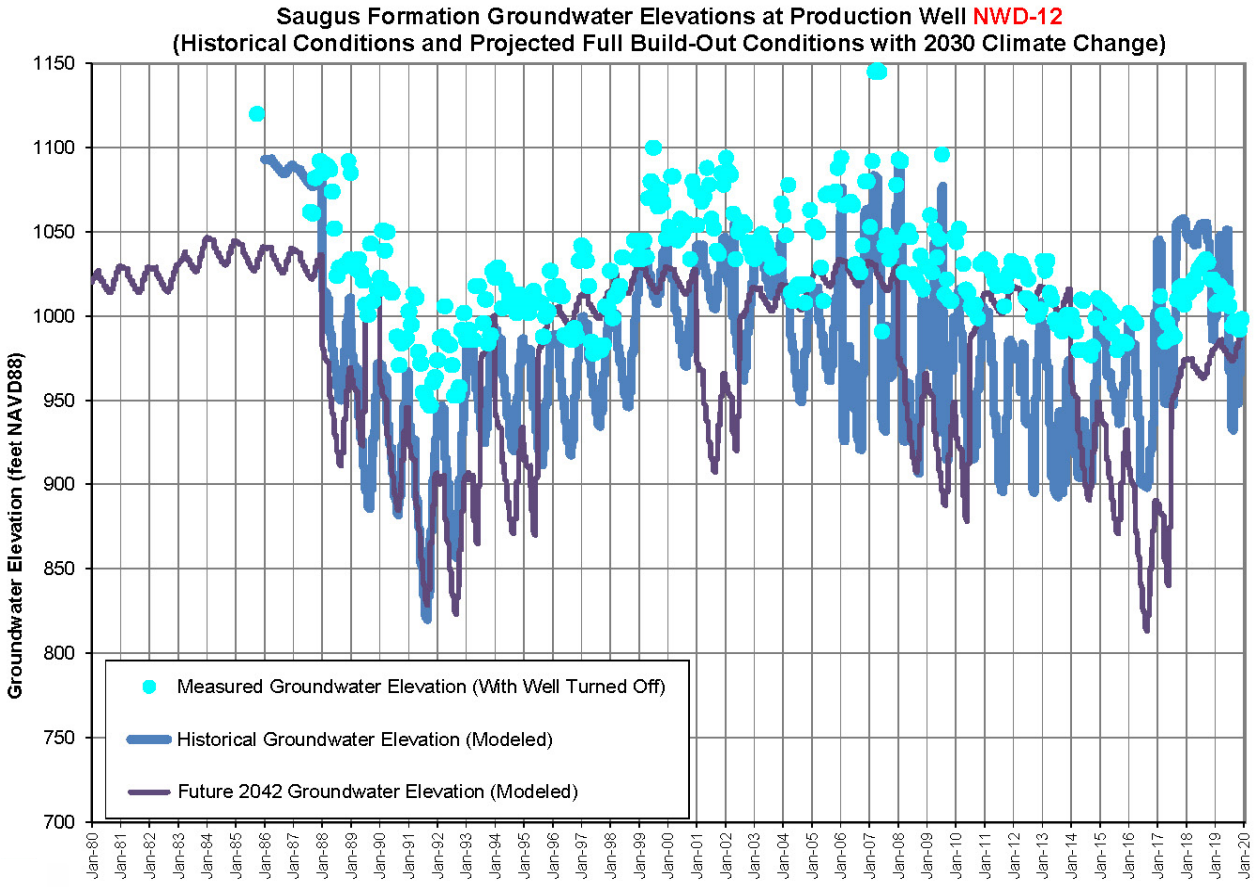
MO represents average predicted water level

MO = 973' NAVD88

MT = 954' NAVD88

MT represents lowest predicted water level

Existing Saugus Production Well



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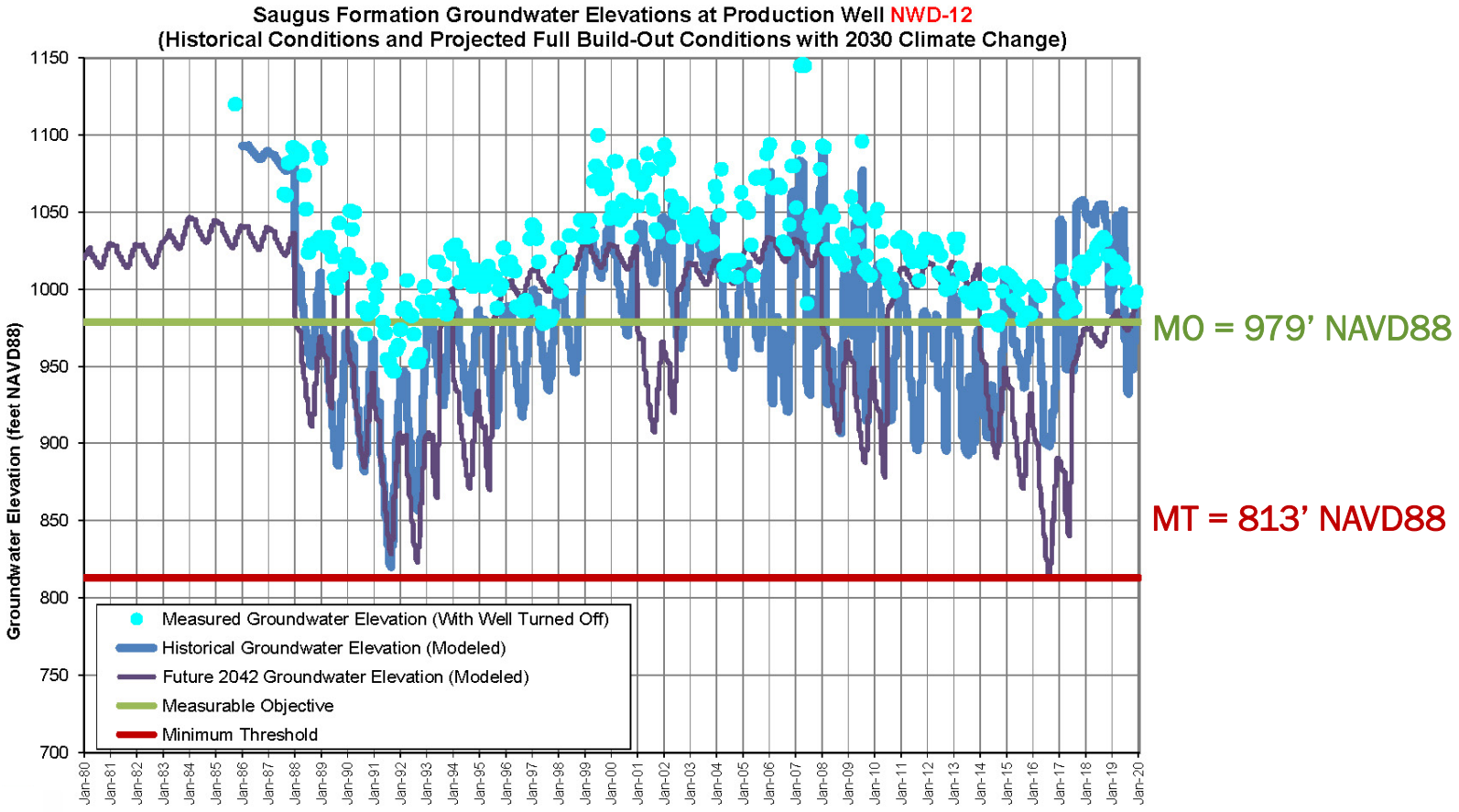

Proposed Minimum Thresholds and Measurable Objectives for Reduction of Groundwater in Storage

- Minimum Thresholds
  - Addressed by Minimum Thresholds and Measurable Objectives for water level decline indicator.
  - Provides an adequate amount of groundwater in storage to get through extended drought periods.
  - For the Saugus Aquifer, the minimum threshold is considered interim and subject to change because it may be possible to pump the Saugus substantially more to provide resiliency during drought without causing undesirable results.
- Measurable Objectives
  - Addressed by Minimum Thresholds and Measurable Objectives for water level decline indicator.

Proposed Minimum Thresholds and Measurable Objectives for Subsidence

- Minimum Thresholds
  - Established based on GeoTech evaluation of soils/geology and expected future changes in groundwater levels
  - Maximum amount of subsidence allowable at critical infrastructure without causing damage
- Measurable Objectives
  - No long term reduction in elevation at monitoring locations

Monitoring Considerations for SMCs

- Future changes in water levels and climate have been estimated using the groundwater model in order to derive the SMCs.
- Actual monitoring of groundwater levels is key to understanding whether we have undesirable results and are meeting our sustainability goal and thresholds.
- Based on future monitoring results and analysis, the GSA may consider adjusting thresholds to avoid impacts to GDEs or to allow more flexibility for changing pumping patterns if undesirable results are not likely.

Discussion of Minimum Thresholds and Measurable Objectives

- Also review Preliminary Sustainability Goal

Next Steps (January 27, 2021 SAC Meeting)

- Review SMCs for water quality degradation and depletion of interconnected surface water
  - Undesirable results
  - Minimum thresholds
  - Measurable objectives
- Discuss approach for evaluating and responding to impacts to GDEs
- Discuss any changes to other sustainability indicators

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Questions?

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