



DRAFT WORK PRODUCT



**Borrego Valley Groundwater Basin
Borrego Springs Subbasin
Sustainability Criteria Approach**

**Borrego Valley Groundwater Basin
Sustainability Plan**

January 25th, 2018

Sustainability Criteria

Recap from November 2017 AC Meeting

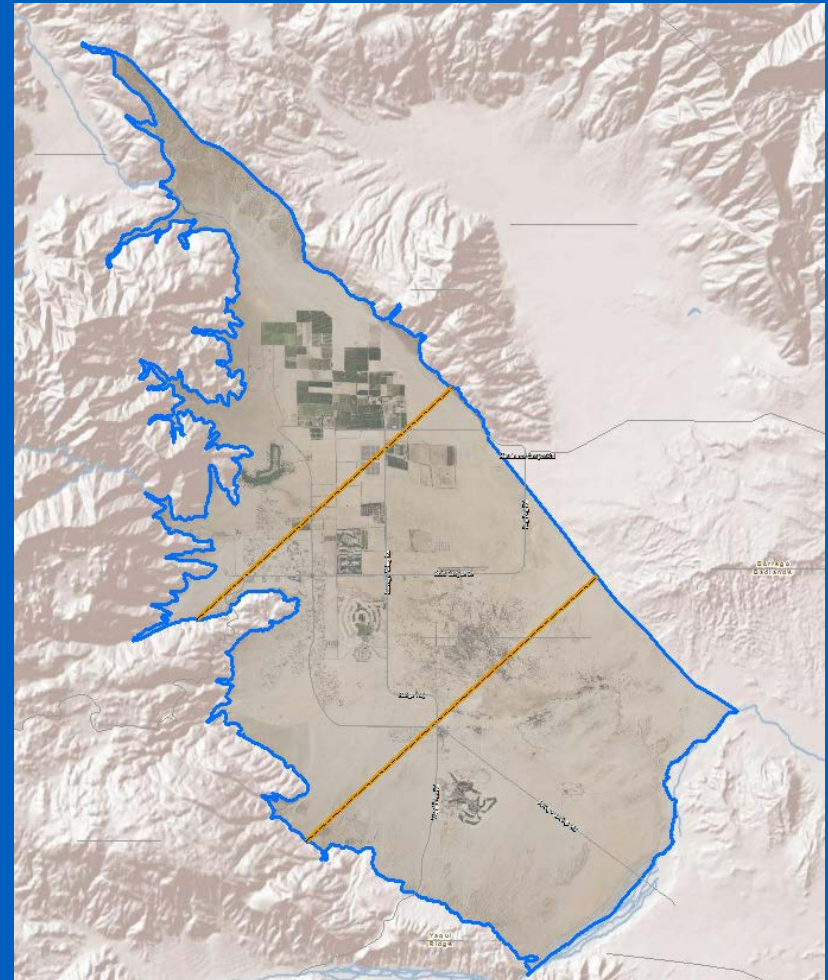
Management Areas: Three management areas have been proposed for the Subbasin

Sustainability Indicators: Three primary indicators for the Subbasin:

- Lowering groundwater levels
- Reduction in storage
- Degraded water quality

Critical Terms:

- Measurable Objectives
- Interim Milestones
- Undesirable Results
- Minimum Thresholds



Sustainability Criteria

Representative Monitoring Sites

Approach to selecting Representative Monitoring Sites:

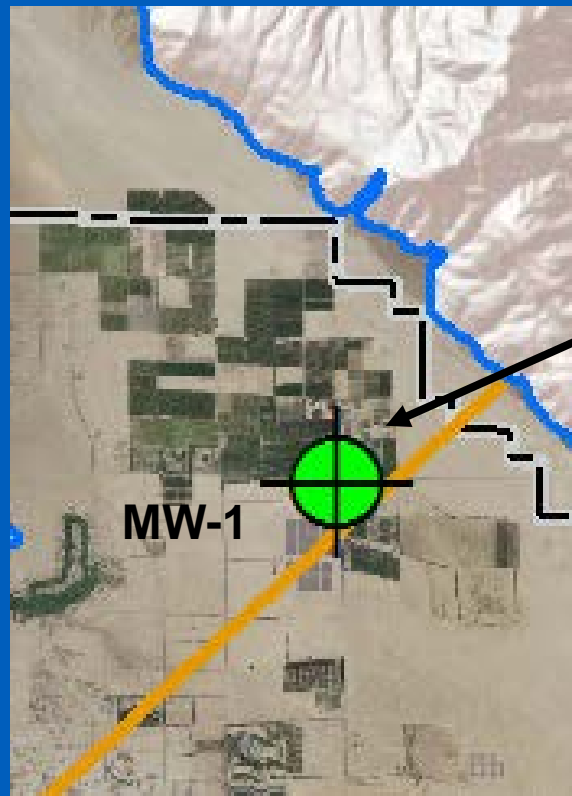
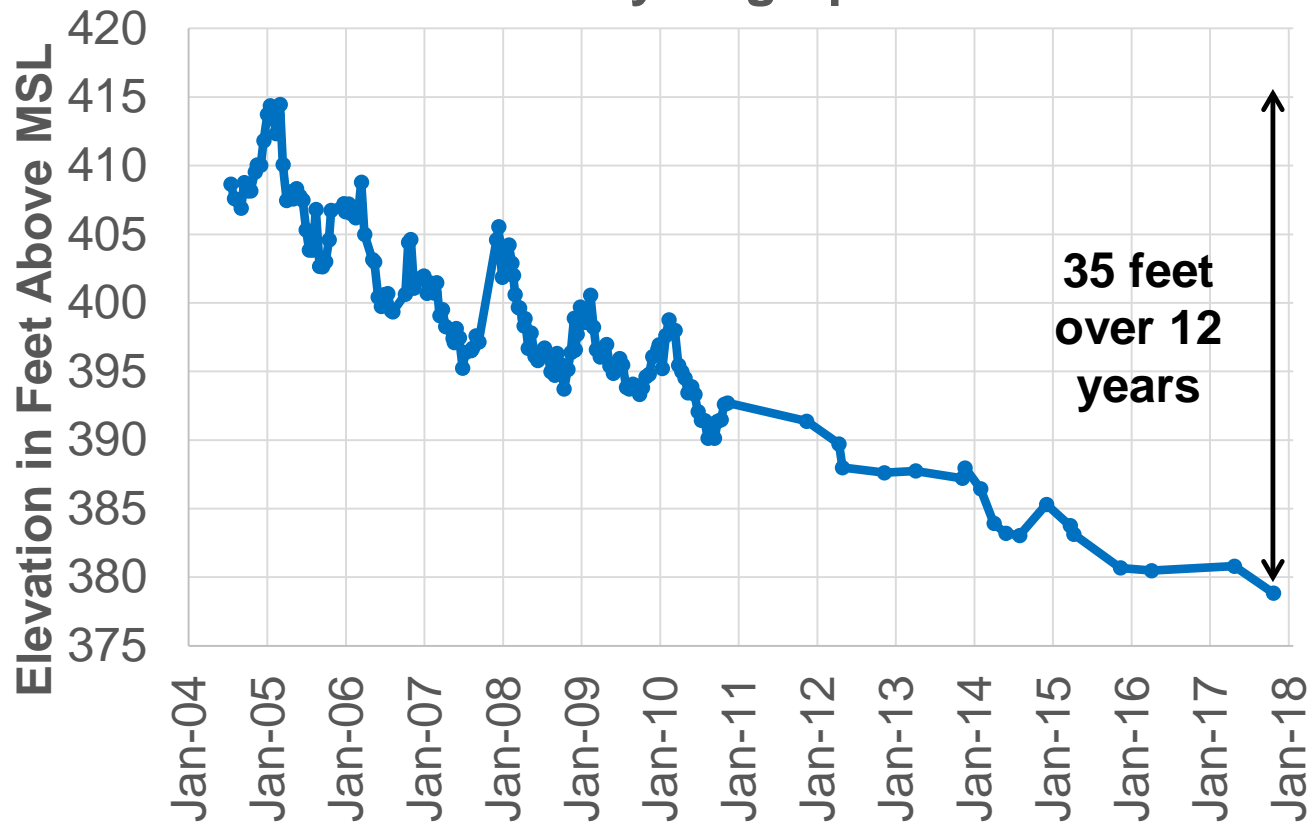
- Each Management Area will be represented by one or more monitoring sites (wells)
- Selection of prospective Representative Monitoring Sites will consider:
 - Volume of historical data
 - Condition of the well (e.g., anticipated life span)
 - Representativeness of significant units within Management Area (e.g., Upper Aquifer of NMA)
- Analyses of prospective Representative Monitoring Sites will be performed to determine preliminary Measurable Objectives and Minimum Thresholds
- Final Representative Monitoring Sites will be based on interpreted representativeness of each management area

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Example Prospective Representative Monitoring Site – MW-1

In the NMA, monitoring well (MW-1) shows average groundwater level decline at a rate of ~3 feet per year.

MW-1 Hydrograph



Sustainability Criteria

Example Prospective Representative Monitoring Site – MW-1

Sustainability Indicators to Evaluate in MW-1:

Chronic Lowering of Groundwater Levels

- Linear reduction to be applied

Reduction of Groundwater Storage

- Reduction in storage is limited to Upper Aquifer

Degraded Water Quality

- Based on screened interval into lower aquifer, water quality impacts are not observed or expected

Based on these conditions, a specific groundwater elevation (ft MSL) would be an appropriate metric for the pertinent sustainability indicators.

Water quality will be tracked and assigned independent Measurable Objectives and Minimum Thresholds.

Sustainability Criteria

Chronic Lowering of Groundwater Levels:

Approach to Determine Measurable Objective

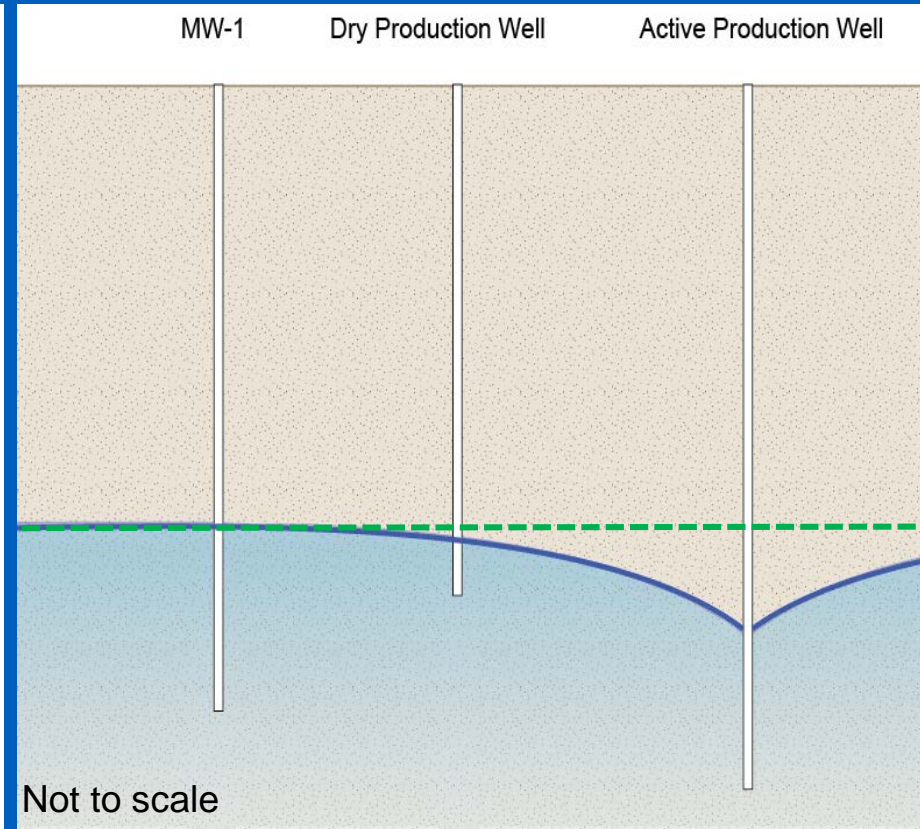
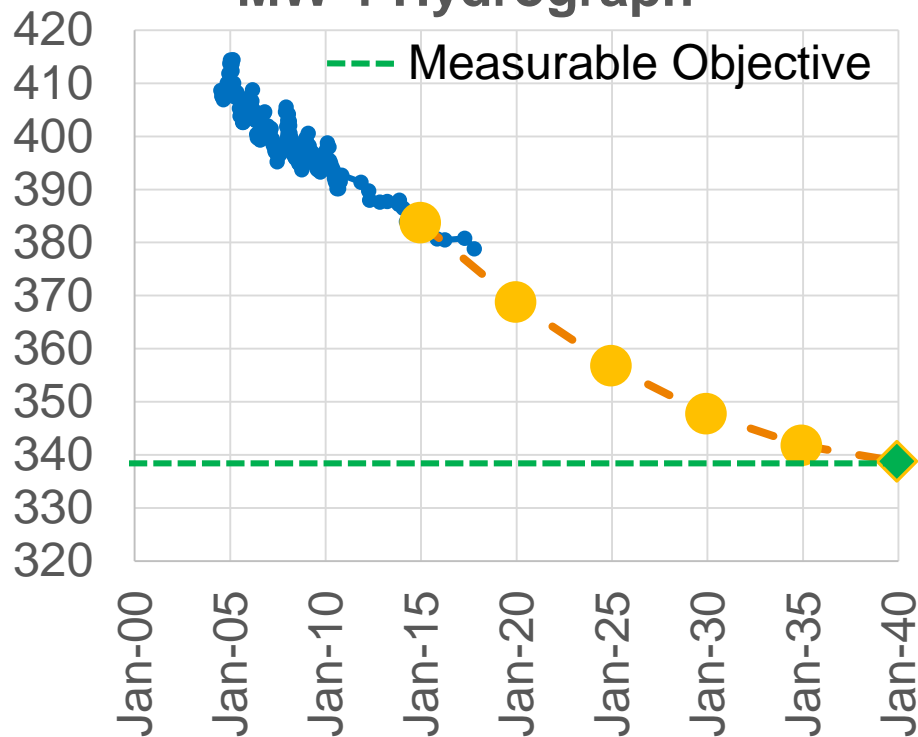
- Define Sustainability Goal: No average groundwater level decline
- Groundwater model has estimated a sustainable yield that requires a 3% per year pumping reduction over 20 years to balance overdraft conditions
- Apply linear reduction rate (3% per year) to historical trend of water level decline (3 ft per year) to attain sustainability goal in 20 years
- Apply linear reduction rate to historical trends in 5 year increments to establish Interim Milestones (5, 10, and 15 year increments)

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Example: Measurable Objective

The **Measurable Objective** is specifically assigned to MW-1, but should be protective of other wells for which it represents.

MW-1 Hydrograph



Sustainability Criteria

Chronic Lowering of Groundwater Levels:

Approach to Determine Minimum Threshold

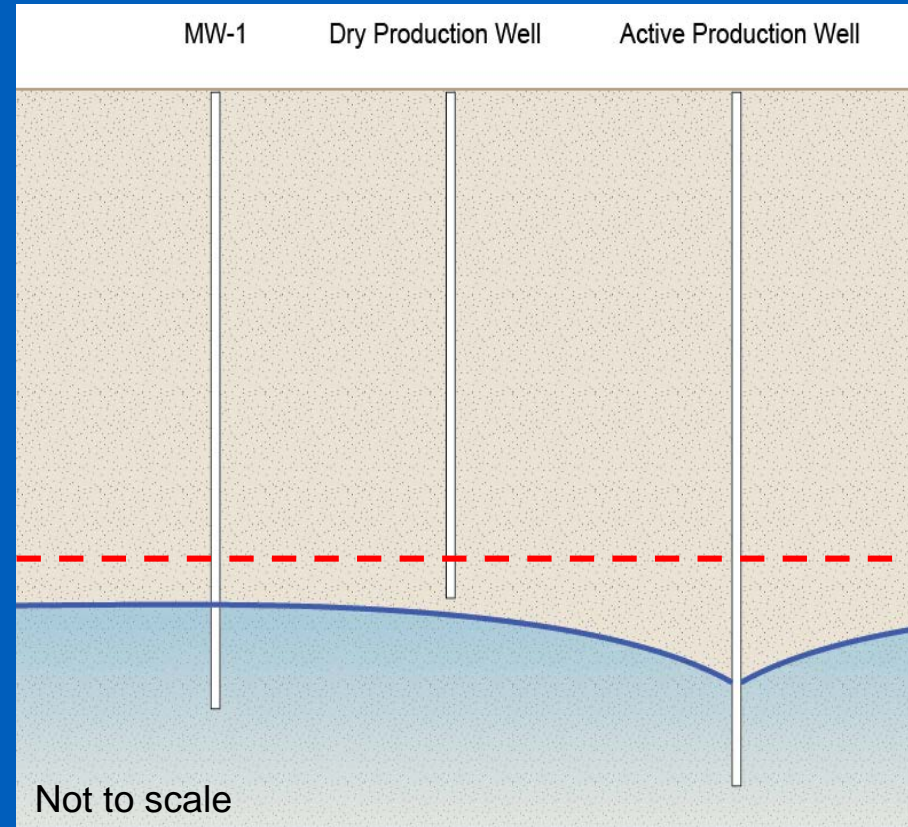
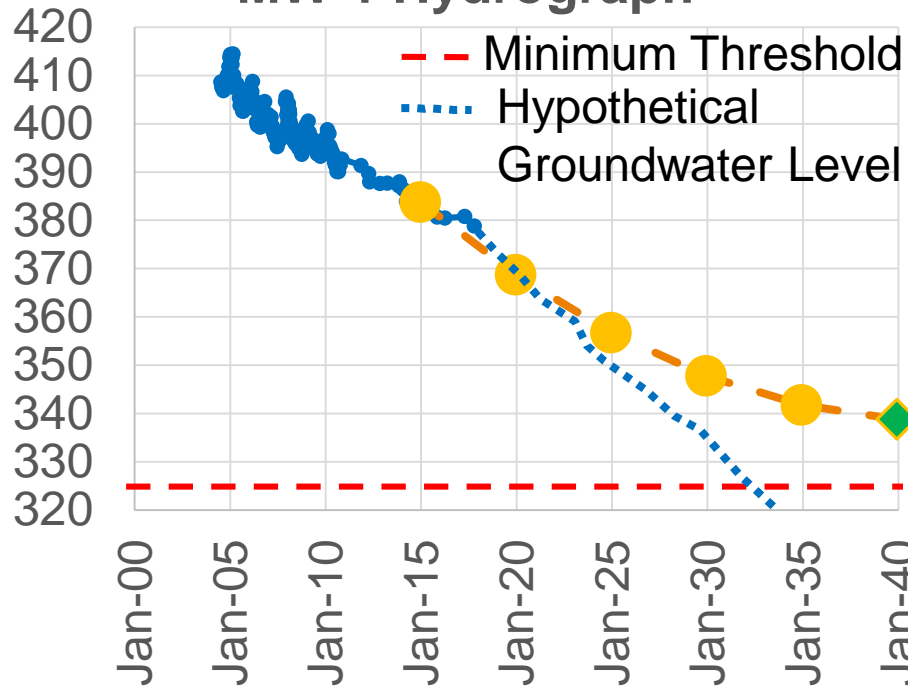
- Qualitative Undesirable Results must be correlated with quantitative minimum thresholds with clear metrics (i.e., Feet above MSL)
- Identify nearby production well screen lengths that would be represented by MW-1
- Determine elevation at which represented wells would realize undesirable results
 - Dry or significantly reduced yields
 - Dewatering of Upper Aquifer
 - Other

Sustainability Criteria

Example: Minimum Threshold

An **Undesirable Result** could occur if the groundwater level does not exceed the **Minimum Threshold**.

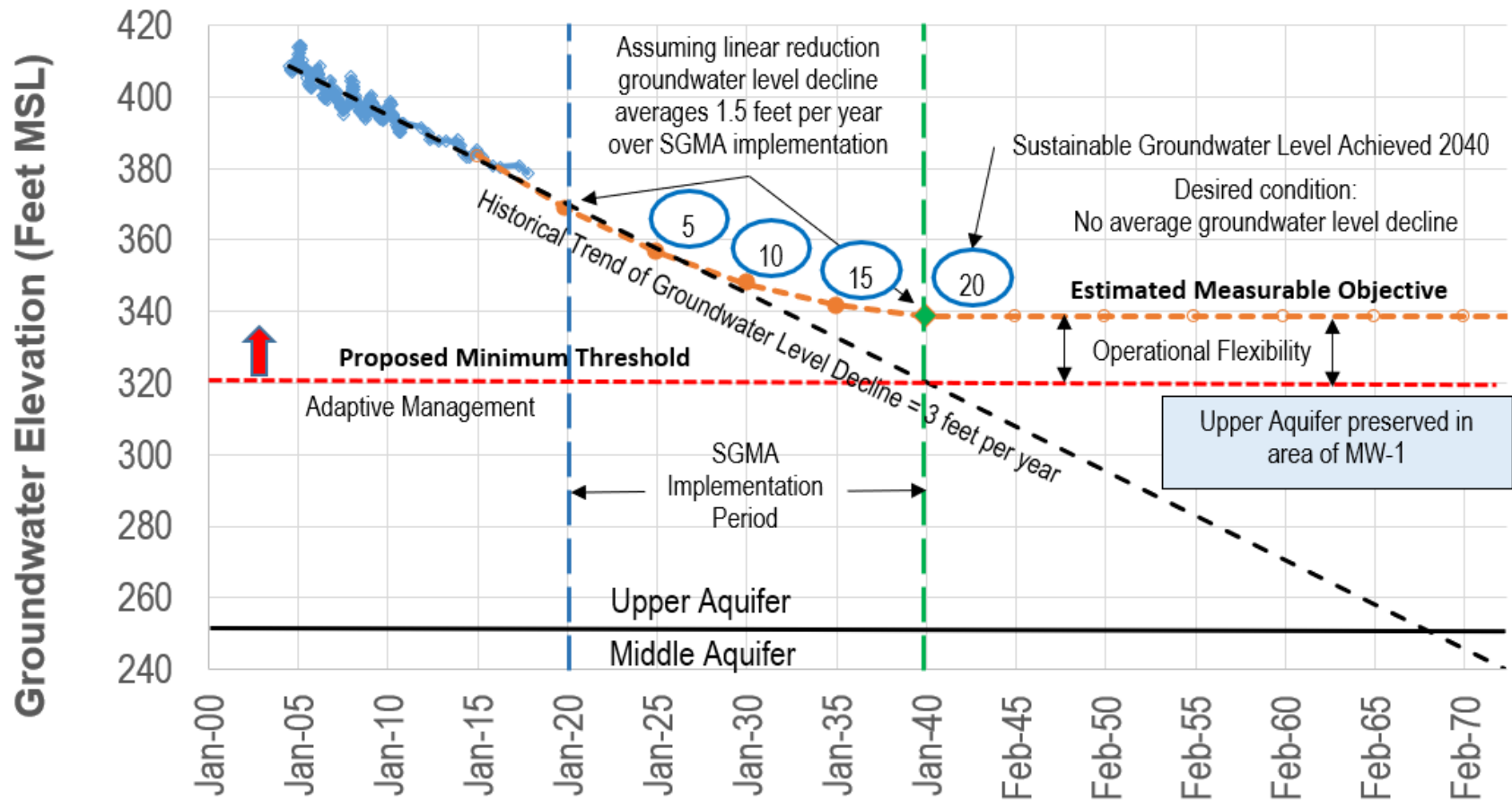
MW-1 Hydrograph



Sustainability Criteria

Evaluating Sustainability Criteria

MW-1 Conceptual Sustainability Analysis



Sustainability Criteria

Degradation of Water Quality:

Similar process will be performed for water quality metrics.

Considerations for determination of Measurable Objectives

- Drinking water standards
- Intended use of well water (i.e., ag wells vs. potable)
- Feasibility of mitigation

Considerations for determination of Minimum Thresholds

- Drinking water maximum contaminant levels
- Agricultural tolerance (e.g., TDS concentration)
- Logistical capability for treatment (e.g., blending)