

# **Sustainable Management Criteria Definitions, Examples, and Ideas**



**SVBGSA Subbasin Committee Workshop**

**July 28, 2020**

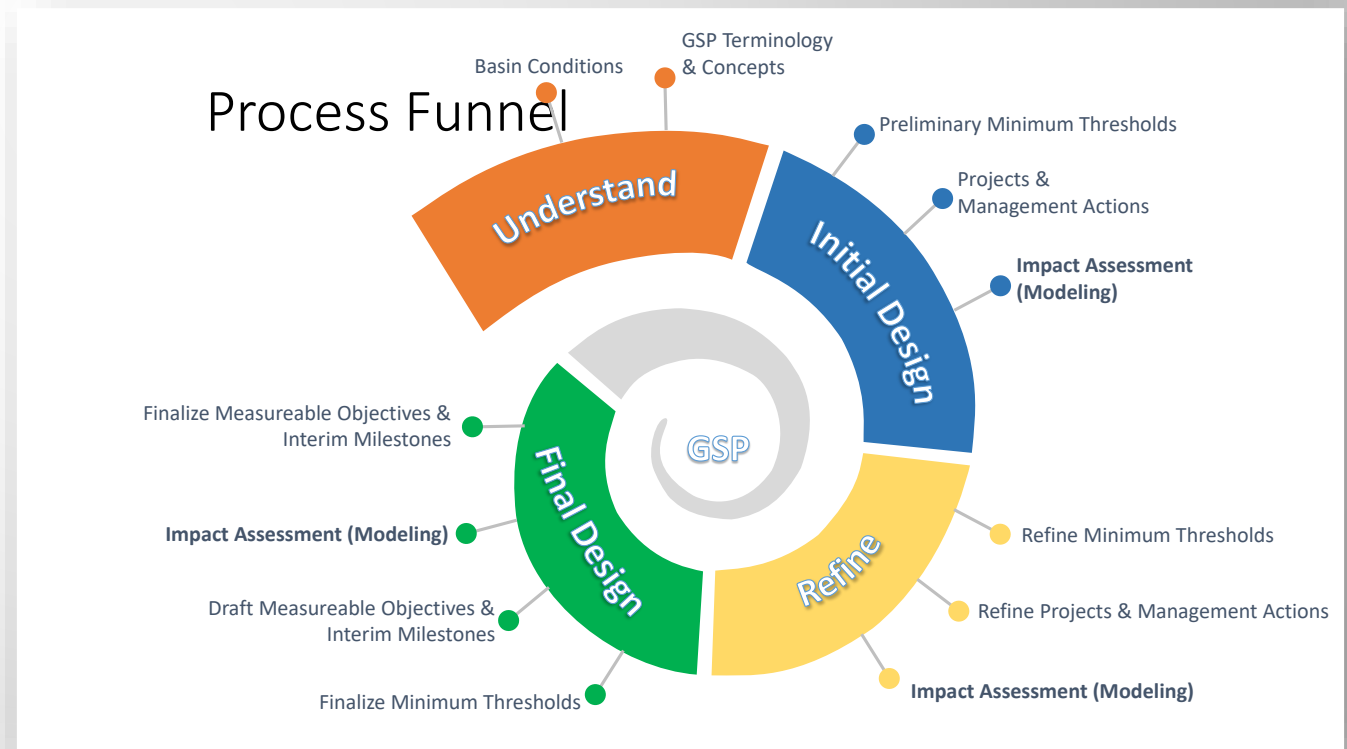


# Topics

- What are Sustainability Goal, Minimum Thresholds, Measurable Objectives and Interim Milestones?
- Examples
- How all terms link together
- Important ideas about timing of Undesirable Results

# Setting minimum thresholds, measurable objectives, and undesirable results is not a linear process

- Setting criteria will be clearer when you understand the entire process



# What are SMC Components?

► Sustainability Goal

Descriptive



Lowering  
GW Levels



Seawater  
Intrusion



Reduction  
of Storage



Degraded  
Quality



Land  
Subsidence



Surface Water  
Depletion

Six Sustainability Indicators

► Significant and Unreasonable

Descriptive

► Minimum Threshold

► Undesirable Result (descriptive and numeric)

► Measurable Objective

► Interim Milestones

Numeric





# Sustainability Goal

## ► Three parts

1. Statement of goal (mom and apple pie)
2. Measures that will be implemented to ensure that the basin will be operated within its sustainable yield (projects and actions)
3. An explanation of how the sustainability goal is likely to be achieved within 20 years (expected outcomes)

Parts two and three can only be written after you establish your projects and actions

# Each of the Six Sustainability Indicators have Five Associated Sustainability Management Criteria Terms



Lowering  
GW Levels



Reduction  
of Storage



Seawater  
Intrusion



Degraded  
Quality



Land  
Subsidence



Surface Water  
Depletion

- Significant and Unreasonable
  - Minimum Thresholds
  - Undesirable Results
  - Measurable Objectives
  - Interim Milestones



## Significant & Unreasonable

**WHAT WE WANT TO AVOID**

- ▶ Groundwater Sustainability Agencies (GSAs) must consider and document the conditions [that are] **significant and unreasonable**
- ▶ Descriptive or qualitative statement that describes what conditions should be avoided



## Significant & Unreasonable Examples

**WHAT WE WANT TO AVOID**

- ▶ Groundwater Elevations below the pump in my well is significant and unreasonable
- ▶ Groundwater elevations in 1977, 2014, 2015, and 2016 were significant and unreasonable
- ▶ Pumping more groundwater than available (exceeding the sustainable yield) is significant and unreasonable
- ▶ Any subsidence is significant and unreasonable



## Minimum Threshold

- Quantitative value that is used to define what is significant and unreasonable
- Set at each representative monitoring point (well)
- Set for each of the six sustainability indicators



Minimum Thresholds based on what is Significant and Unreasonable



# Additional Minimum Threshold Examples

## Subsidence

- ▶ The minimum threshold is zero subsidence
  - ▶ Any subsidence is significant and unreasonable

## Groundwater in Storage

- ▶ The minimum threshold is the estimated sustainable yield of XXXX acre-feet/year
  - ▶ Pumping more than our sustainable yield is significant and unreasonable



# Undesirable Results


*“The description of undesirable results ... shall be based on a quantitative description of the **combination of minimum threshold exceedances** that cause significant and unreasonable effects in the basin.”*

Avoiding Undesirable Results is how you prove sustainability

Six sentences in each GSP define sustainability



# Undesirable Results are a Combination of Minimum Thresholds

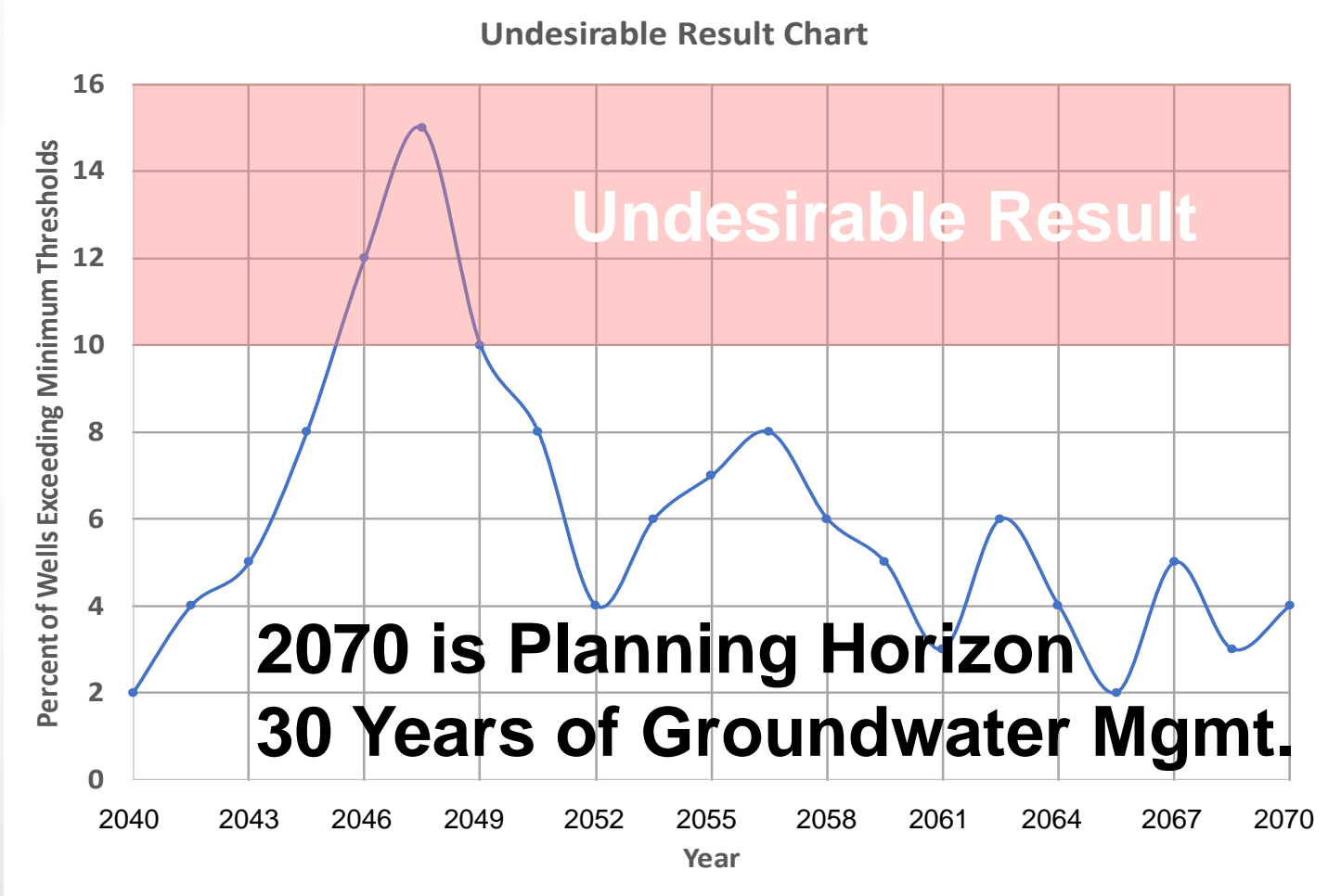
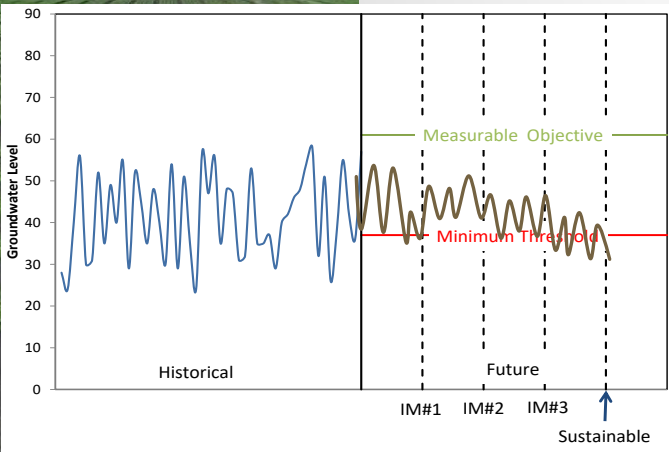
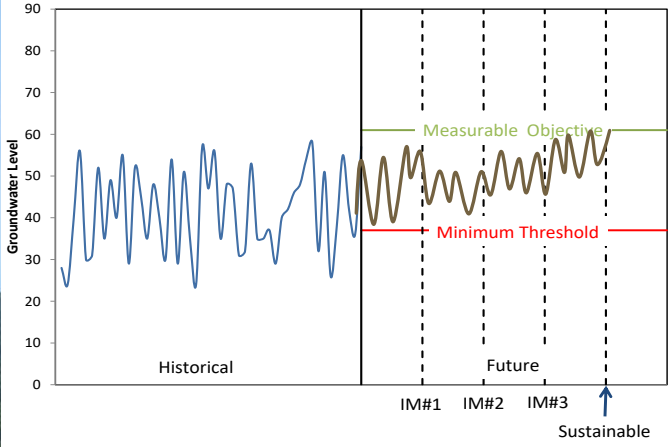


Example 1: An undesirable result occurs when 10% of your groundwater elevations, measured at Representative Monitoring Sites, drop below the associated Minimum Thresholds

**This might be an example definition of Undesirable Results for groundwater levels**


How you define Undesirable Results is how you can accommodate flexibility

# Example: GSP Adopted in 2020, Achieve Sustainability by 2040





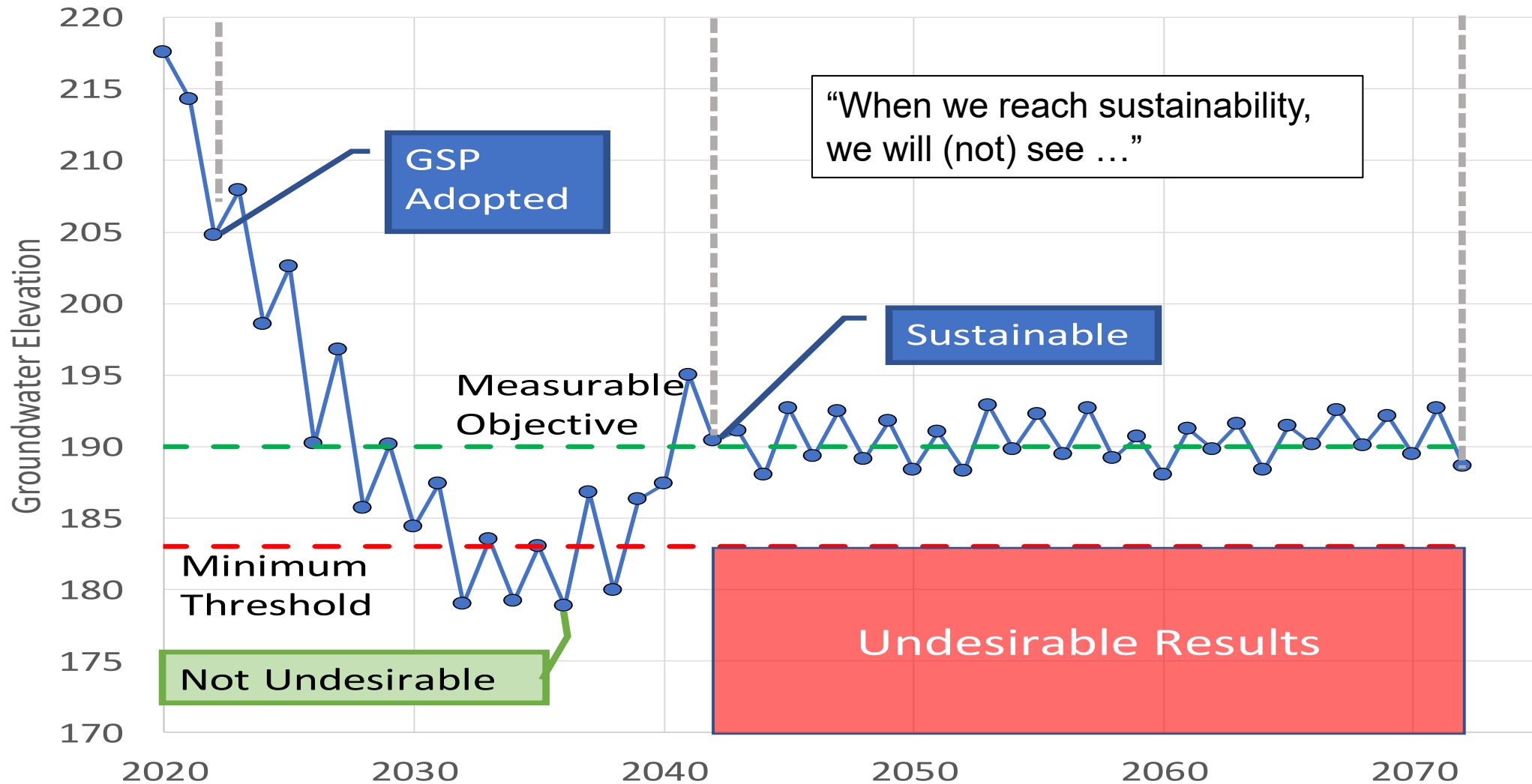
# Undesirable Results are a Combination of Minimum Thresholds



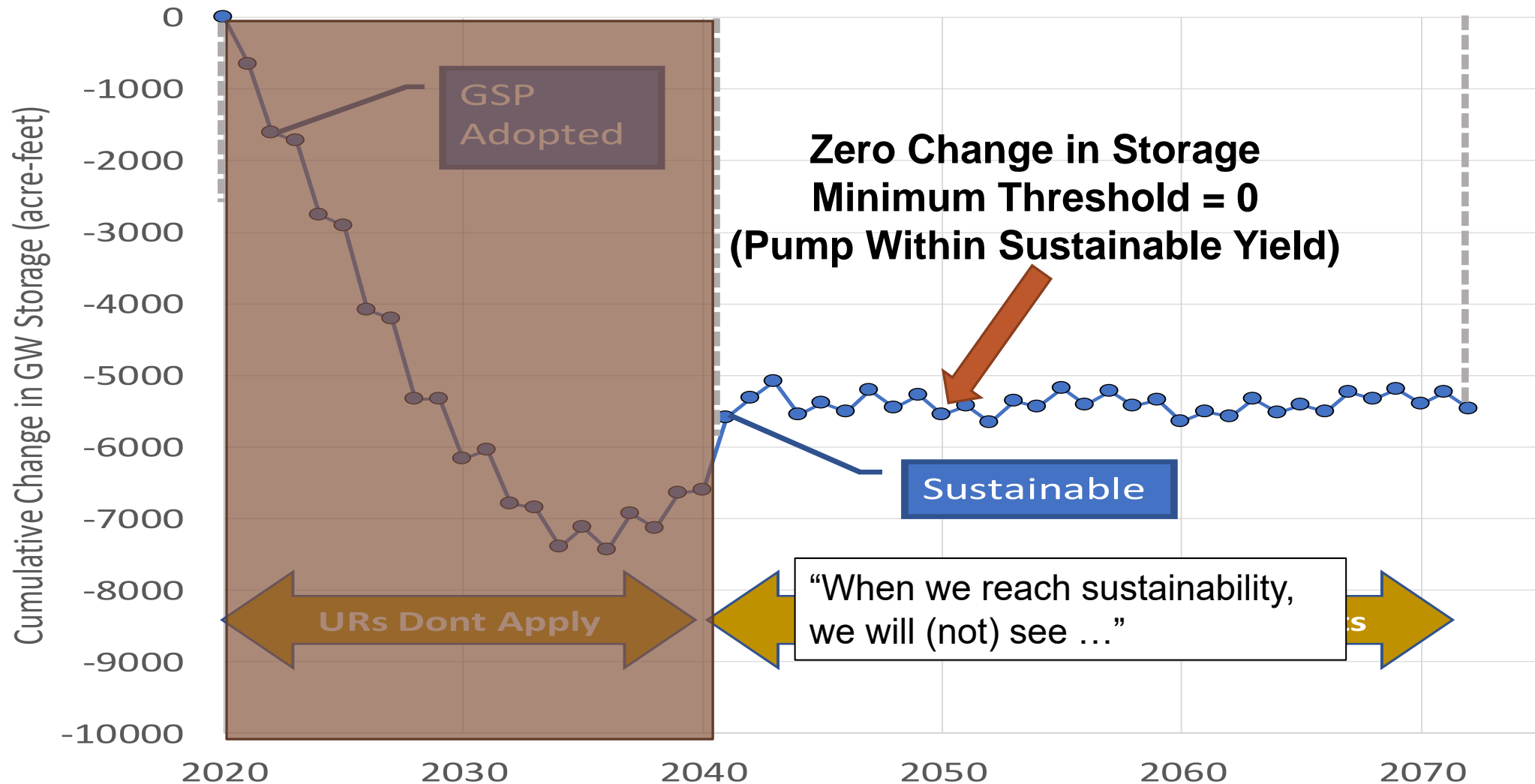
Example 2: An undesirable result occurs when groundwater elevations at any single Representative Monitoring Point drops below the associated Minimum Thresholds

**This might be an example definition of Undesirable Results for Subsidence**

# Results are Only Undesirable After 2042 Groundwater Levels

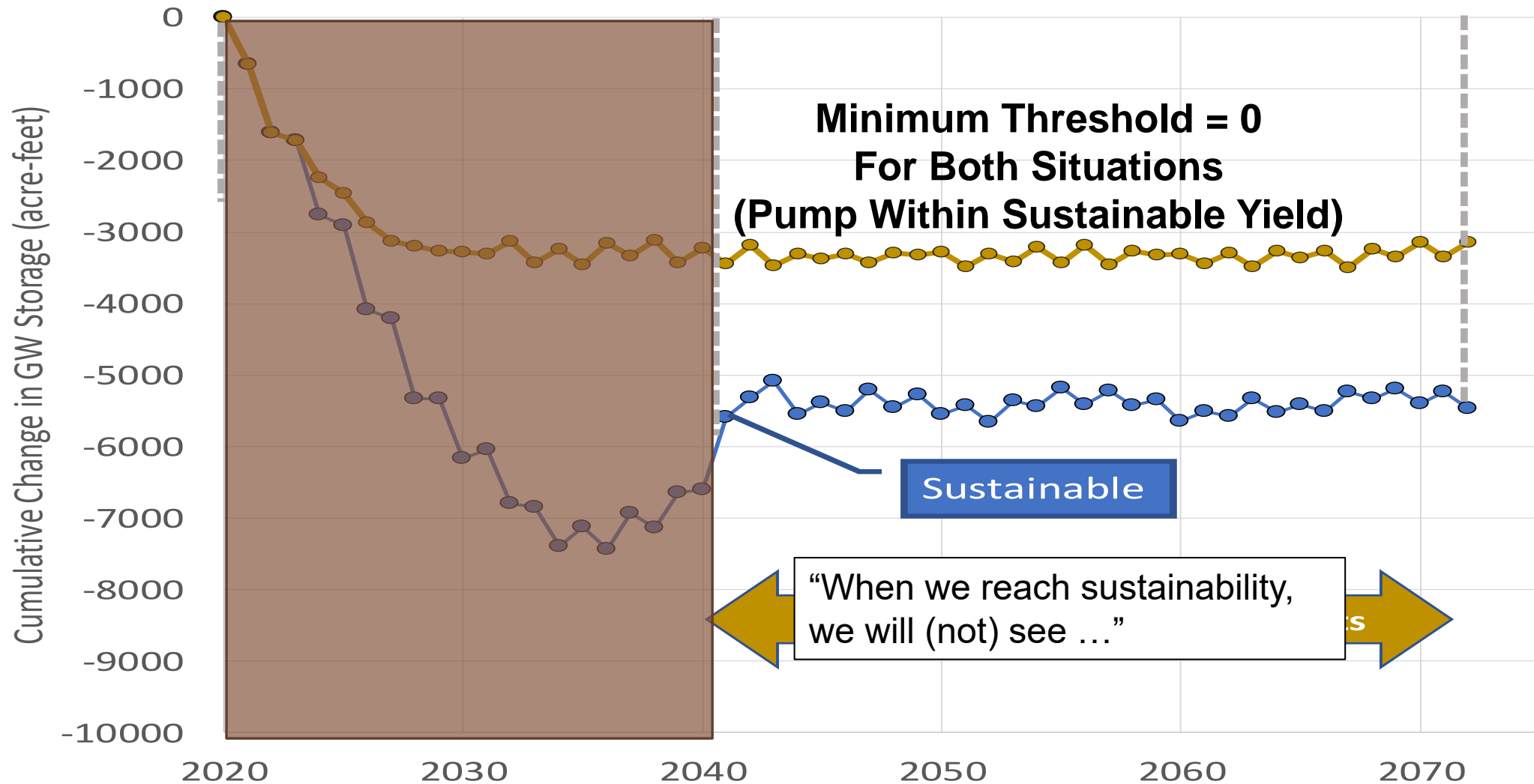


# Results are Only Undesirable After 2042 Groundwater Storage





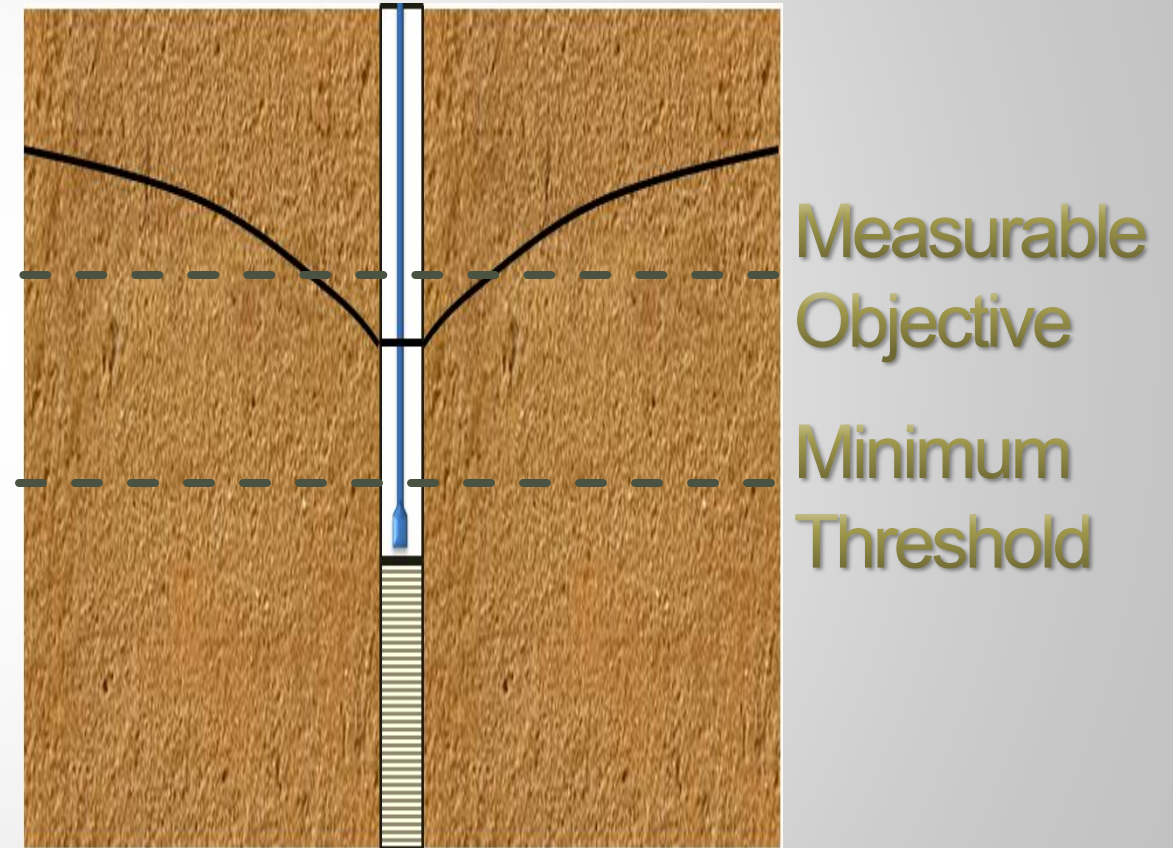
# Results are Only Undesirable After 2042 Groundwater Storage



# Measurable Objective

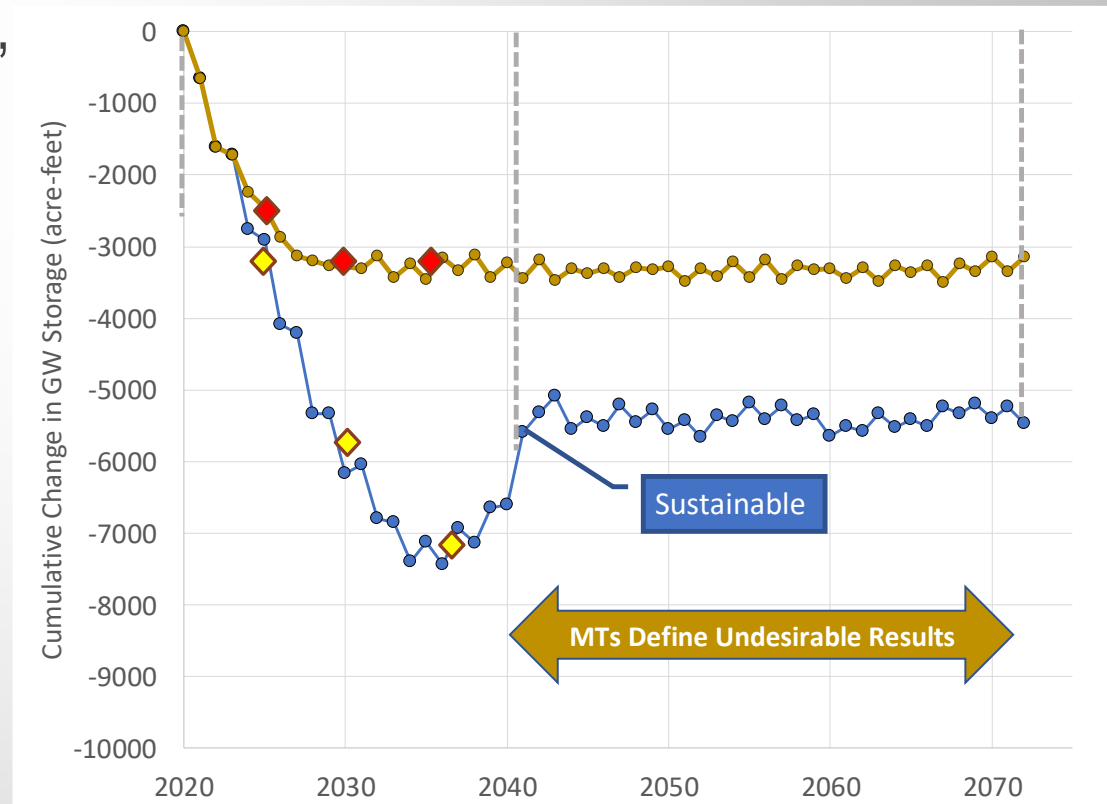
## Think of Measurable Objectives as safety factors to accommodate droughts

- Quantitative target or goal that allows operational flexibility above the Minimum Threshold
- Set at each Representative Monitoring Point (well)
- Set for each sustainability indicator
- Must be set in the plan, but are NOT enforceable as a measure of sustainability

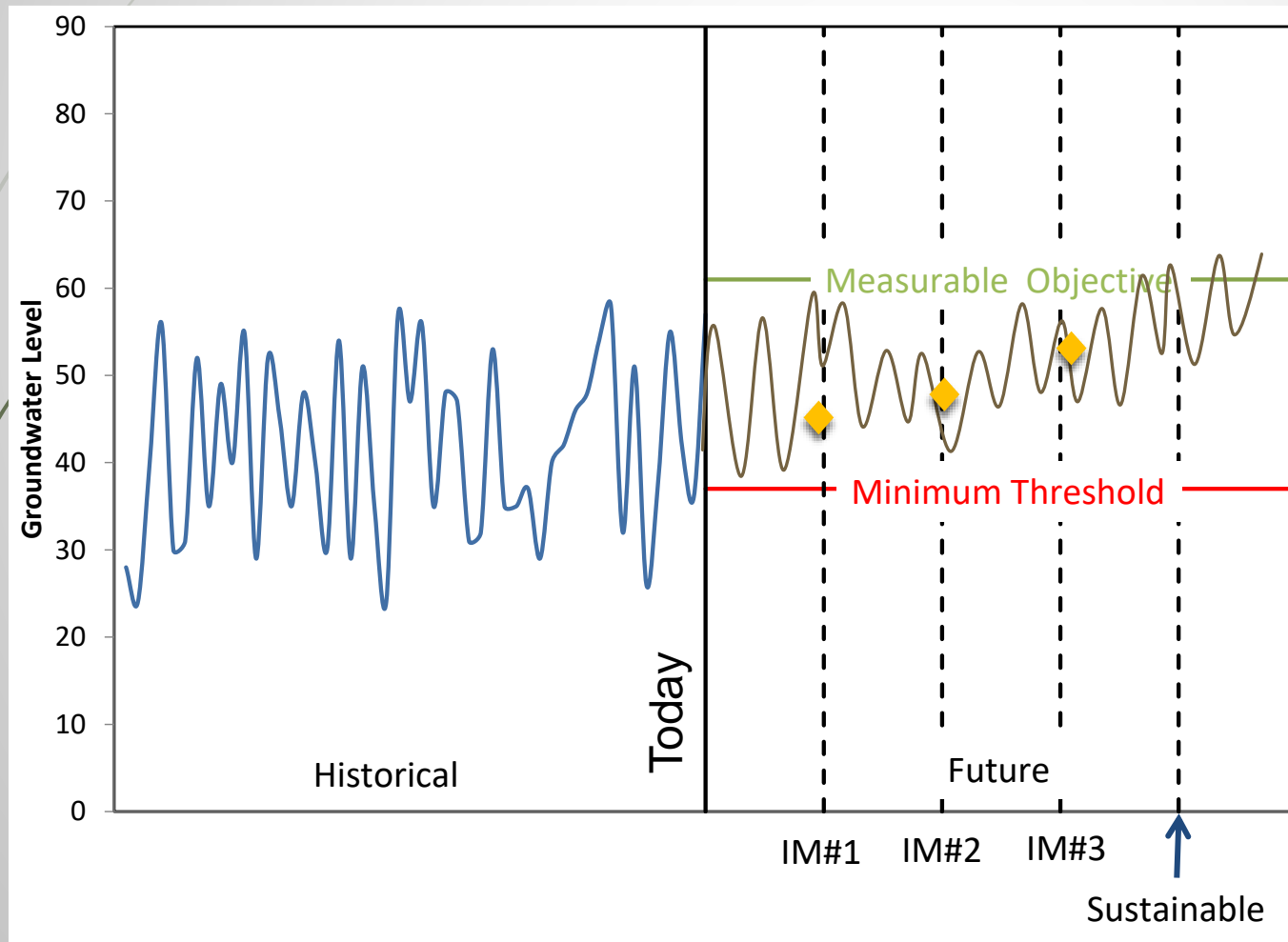


# Interim Milestones

- ▶ Five-year markers showing progress towards Measurable Objectives
- ▶ Account for planning time, CEQA, etc.
- ▶ Only set after you understand the projects and actions you will adopt



# Combining Minimum Thresholds, Interim Milestones, and Measurable Objectives at a Single Well



**Maintain Sustainability for next 30 years**

# Process Funnel

**ALL LINKED**

**Significant and Unreasonable  
Minimum Thresholds  
Undesirable Results  
Measurable Objectives  
Interim Milestones**

Finalize Measurable Objectives &  
Interim Milestones

Impact Assessment (Modeling)

Draft Measurable Objectives &  
Interim Milestones

Finalize Minimum Thresholds

Basin Conditions

GSP Terminology  
& Concepts

Preliminary Minimum Thresholds

Projects &  
Management Actions

Impact Assessment  
(Modeling)

Refine Minimum Thresholds

Refine Projects & Management Action

Impact Assessment (Modeling)

Understand

Initial Design

Final Design

Refine

GSP





# Questions

