ISSUES OF MUTUAL CONCERN BETWEEN THE ADJUDICATED SEASIDE GROUNDWATER BASIN AND THE **CORRAL DE TIERRA** SUBAREA OF THE **MONTEREY SUBBASIN**



Presented to the Monterey Subbasin GSP Committee September 4, 2020

OUTLINE

- Describe the Seaside Basin's Adjudication and Obligations
- Describe Findings from Earlier Hydrogeologic Studies of the El Toro Planning Area
- Describe Declining Groundwater Levels in the Laguna Seca Subarea
- Describe Laguna Seca Subarea groundwater modeling to date



SEASIDE BASIN IS AN ADJUDICATED BASIN

- Adjudication is a Court action taken to:
 - Establish water rights for the parties that pump groundwater from the Basin
 - Standard Producers (public or private water suppliers)
 - Alternate Producers (pumpers that use their water themselves)
 - Provide a "physical solution" for the perpetual management of the Basin – similar to a Groundwater Sustainability Plan, but dictated by the Court, not created by the Basin managers
- The Court issues a Judgement called an Adjudication Decision which:
 - Creates a Watermaster comprised of representatives of the parties to the Decision
 - Requires Watermaster to carry out the requirements of the Decision
 - Defines the term "Material Injury" to mean a substantial adverse physical impact to the Seaside Basin or any particular Producer(s), including but not limited to: seawater intrusion, land subsidence, excessive pump lifts, and water quality degradation





ADJUDICATED BASIN BOUNDARY MAP SHOWING SUBAREA BOUNDARIES AND WELL LOCATIONS

WATERMASTER'S OBLIGATIONS UNDER THE DECISION INCLUDE

- Implementing a Court-required ramp-down in pumping in order to have total Basin pumping not exceed the Basin's Natural Safe Yield (i.e. to become sustainable)
 - All Standard Producers required to reduce their initially allocated pumping allowances by 10% every three years
 - Final ramp-down will occur in Water Year 2021, which starts on October 1, 2020
 - Lowers Basinwide pumping by 2,600 AFY from an initial 5,600 AFY to 3,000 AFY
 - Alternate Producers allowed to keep their initially allocated pumping allowances without ramping-down unless Watermaster determines that Natural Safe Yield is less than the original Court-established value of 3,000 AFY



WATERMASTER'S OBLIGATIONS UNDER THE DECISION INCLUDE

- Implementing a Monitoring and Management Plan including:
 - Installing monitoring wells to better understand the Basin's hydrogeology
 - Ongoing collection of water production, water level, and water quality data from monitoring and production wells
 - Hydrogeologically model the Basin
 - Utilize reclaimed water where appropriate to reduce pumping of groundwater
 - Return the Basin to equilibrium, i.e. make it sustainable
 - Avoid the occurrence of "material injury"



EARLIER HYDROGEOLOGIC STUDIES OF THE EL TORO PLANNING AREA

- Study for the County by Staal, Gardner & Dunne in 1991
 - Declining water levels during the 1980s
 - County imposed B-8 zoning to portions of El Toro Planning Area in 1992, but not to the Corral de Tierra subarea
 - B-8 zoning limits development to SFDs on existing lots of record since 1991
- Study for the County by Fugro in 1996
 - Cautioned that demand was approaching supply in most of the subareas
 - Build-out demand would exceed estimated supply
 - Recharge estimates need better groundwater level data to be reliable
 - Recommended expanded groundwater level monitoring program
 - Recommended performing hydrogeologic investigation and analysis of water resources using expanded monitoring data



2007 GEOSYNTEC EL TORO PLANNING AREA STUDY

- Many El Toro wells screened in both the Paso Robles and Santa Margarita aquifers
- Majority of pumping concentrated near Highway 68 in the northwest portion of the El Toro planning area
- Since 1999 90% of wells had water levels declining at an average rate of -1.8 feet per year
 - This represents 1,000 AFY of overdraft
- Rate of groundwater pumping exceeds the rate of groundwater replenishment - overdraft conditions clearly exist
 - Water table will continue to fall and will go below well screens in wells completed in the Paso Robles aquifer (has already happened to some wells in the Corral de Tierra subarea)
- Similar rates of declining water levels reported in the adjacent hydrogeologically contiguous Laguna Seca Subarea

GEOSYNTEC RECOMMENDATIONS INCLUDED

- Expand B-8 zoning to cover the entire El Toro planning area in order to help prevent overdrafting and mining of stored groundwater
- Establish collaborative groundwater management program for the Laguna Seca and El Toro areas
- Install dedicated monitoring wells in the El Toro area as has already been done in the Laguna Seca area
- Evaluate feasibility of wastewater reclamation for golf course and domestic irrigation
- Evaluate feasibility of additional groundwater production and storage in the Upper Corral de Tierra Valley

DECLINING GROUNDWATER LEVELS IN THE LAGUNA SECA SUBAREA

There have been long-term declines in the Laguna Seca Subarea even with reductions in pumping in



WHAT IS BEING DONE IN LAGUNA SECA TO MITIGATE DECLINING GROUNDWATER LEVELS

- Reclaimed water used to the fullest extent possible for golf course irrigation
- Cal Am constructing intertie to serve its Laguna Seca customers from its Main System in order to discontinue pumping from its Laguna Seca wells
 - Scheduled to be completed in late 2020
 - Will reduce Laguna Seca pumping by about 28%

GEORGINA KING OF MONTGOMERY & ASSOCIATES

WHO, ALONG WITH DERRIK WILLIAMS, HAS BEEN PROVIDING HYDROGEOLOGIC SERVICES TO THE WATERMASTER FOR MANY YEARS

WILL NOW DISCUSS THE TECHNICAL ISSUES



WHAT HAS BEEN DONE TO UNDERSTAND **DECLINING GROUNDWATER LEVELS?**

- Groundwater flow model developed in 2009 and regularly updated Safe Yield (2013/2014)
 - Determine impacts from potential pumping changes within and outside of the subarea
 - Estimate the Natural Safe Yield and **Operational Safe Yield**

Groundwater Divide (2016)

- Map existing and potential future groundwater divides based on groundwater model simulations
- Show flow directions



2014 MODELING FINDINGS WITHIN THE LAGUNA SECA SUBAREA

- Even with Cal Am discontinuing pumping from the LSSA:
 - Some LSSA wells will experience groundwater levels dropping below the top of their well screens
 - Groundwater levels in the Santa Margarita aquifer continue to fall in the eastern portion of the LSSA





Projected Pumping Rates within the Laguna Seca Subarea (with all Cal Am Pumping Halted) and Outside of its Eastern Boundary



Flows Across the Laguna Seca East and Southeast Boundaries under the Baseline and No Standard or Alternative Producer Pumping Scenarios

2014 MODELING FINDINGS OUTSIDE OF THE LAGUNA SECA SUBAREA

Four Scenarios were modeled for well pumping outside the LSSA:

- **1.** Maintain existing pumping rates
- 2. Eliminate pumping from the Toro wells
- 3. Reduce Corral de Tierra pumping rates by 50%
- 4. Eliminate all Corral de Tierra pumping





2014 MODELING FINDINGS OUTSIDE OF THE LAGUNA SECA SUBAREA



2016 FLOW DIVIDE MODELING FINDINGS

Reducing LSSA pumping ⇒ flow divide moves further into the LSSA



2016 FLOW DIVIDE MODELING FINDINGS



otherwise flow into the LSSA



2016 FLOW DIVIDE MODELING FINDINGS

- Because of the control outside pumping has on the LSSA, it is not possible for the Watermaster to implement groundwater management strategies to prevent continued declines in groundwater levels in the eastern portion of the LSSA
- A better understanding of the hydrogeologic conditions in the Corral de Tierra subarea will be essential for proper management in both the Laguna Seca and Corral de Tierra subareas



APPLICABLE GSP REQUIREMENTS UNDER SGMA

- Section 354.28(b)(3) of SGMA states that one requirement of GSPs is to establish minimum thresholds to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals
- The LSSA of the Seaside Basin cannot achieve stabilized groundwater levels and sustainability without pumping reductions or mitigation in the Corral de Tierra subarea



QUESTIONS?

