



Board of Directors  
Daniel C. Naumann, President  
Michael W. Mobley, Vice President  
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General Manager  
Mauricio E. Guardado, Jr.

Legal Counsel  
David D. Boyer

**GROUNDWATER COMMITTEE MEETING**  
**Tuesday, June 25, 2019 – 1:00 p.m. to 2:30 p.m.**  
**Boardroom, UWCD G.I. “Irv” Wilde Headquarters**  
**106 North 8<sup>th</sup> Street, Santa Paula, California**

**MINUTES**

**COMMITTEE MEMBERS**

Michael Mobley, Chair  
Robert Eranio  
Ed McFadden

**STAFF ATTENDING**

Robert C. Siemak, Assistant General Manager  
Anthony Emmert, Assistant General Manager  
Joseph Jereb, Chief Financial Officer  
Dr. Maryam Bral, Chief Engineer  
Dr. Jason Sun, Senior Hydrogeologist/Modeler  
John Lindquist, Senior Hydrogeologist  
Dr. Zachary Hanson, Asst. Hydrogeologist  
Brian Collins, O&M Manager  
Kathleen Kuepper, Staff Hydrogeologist, Groundwater

**PUBLIC PRESENT**

Thien Ng, City of Oxnard  
Curtis Hopkins, HGC  
Peter Martinez, CIBCSO  
Jared Bouchard, PVCWD  
Frank Brommenschenkel  
Jennifer Tribo, Ventura Water  
Gordon Kimball, FPGSA

**OPEN SESSION:**

Chair Mobley called the Groundwater Committee meeting to order at 1pm

**1. PUBLIC COMMENT**

Chair Mobley asked if there were any public comments or question. None were offered.

**2. APPROVAL OF THE AGENDA**

Chair Mobley asked if there were any changes to the agenda. No changes were recommended.

Motion to approve the agenda. Voice vote, three ayes, none opposed. Motion to approve the agenda carries 3/0.

**3. APPROVAL OF THE MINUTES**

Motion to approve the minutes from May 21, 2019, Groundwater Committee Meeting. Voice vote: three ayes, none opposed. Motion to approve the Minutes carries 3/0.

**4. GROUNDWATER CONDITIONS**

**Informational**

Kathleen Kuepper provided an update that included a presentation to the committee on groundwater conditions throughout United's service area, including a summary of recent changes in groundwater elevations, quality, and recharge rates.

**5. SHORT-TERM CLIMATE FORECAST**

**Informational**

Kathleen Kuepper provided an update that included a presentation on the U.S. National Oceanic and Atmospheric Administration's (NOAA) three-month outlook for precipitation, temperature, and drought, including El Niño forecasts.

**6. PRESENTATION FROM JOHN RILEY OF VERO WATER**

**Informational**

Mr. Riley provided the Committee with an update and presentation on Vero Water's technology. Committee members and staff discussed the Vero RainMaker technology with Mr. Riley and asked questions such as how the RainMaker operates, its horsepower requirements, and brine disposal, as well as its efficiency, process and volume.

**7. GROUNDWATER SUSTAINABILITY AGENCIES' AGENDA REVIEW (BRAL/EMMERT/ LINDQUIST)**

**Motion**

**Fox Canyon Groundwater Management Agency (FCGMA)**: John Lindquist presented the committee with a slide presentation that reviewed recent activities, future agenda items/upcoming activities, current allocation ordinance language and the possibility of major unintended consequences with regard to PTP, with graphs showing such consequences. Discussion ensued regarding the allocation ordinance language and consequences. Director Eranio also expressed concern about the adequacy of the FCGMA's proposed extraction fee for the next fiscal year, and new FCGMA reporting requirements (particularly their request for a water-meter photo on June 30).

**Mound Basin GSA, Fillmore and Piru Basins GSA, and Santa Paula Basin Technical Advisory Committee**: John Lindquist presented brief summaries of current and upcoming activities for each of these GSAs. Recent and upcoming activities consist largely of administrative and financial requirements or changes. No comments or questions were offered.

**8. FUTURE AGENDA ITEMS**

Director Eranio suggested that the FCGMA's draft GSPs, which are expected to be released to the public in late July, may be worthy of discussion at the next Groundwater Committee Meeting. Director Mobley asked if staff could conduct a workshop on the FCGMA's draft Allocation Plan

# UWCD Groundwater Committee Meeting MINUTES

June 25, 2019

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before the next Groundwater Committee Meeting, and/or if it could be included as an agenda discussion item. The committee members would also like an update on the Forebay Basin diversion at the next committee meeting.

## **9. ADJOURNMENT**

Chair Mobley adjourned the meeting at 2:36 pm



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David D. Boyer

## ATTENDANCE LIST

**MEETING DATE: Tuesday, June 25, 2019**

**MEETING:** UWCD Groundwater Committee Meeting

**The signing or registering of your name on this sign-up form is not required but is voluntary. All persons may attend the meetings of the Board of Directors of United Water Conservation District without signing or registering their names on this form.**

| Name (Please Print)       | Representing              |
|---------------------------|---------------------------|
| Thien Ng                  | Oxnard                    |
| Curtis Hopkins            | HGC                       |
| Pete Martinez             | Channel Islands Beach CSD |
| Jared Bouchard            | PVCWD                     |
| FRANK BRONNENFELS CHENKEL |                           |
| Jennifer Tibbo            | Ventura Water             |
| Gordon Kimball            | FP GSA                    |

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# Groundwater Committee Meeting

June 25, 2019



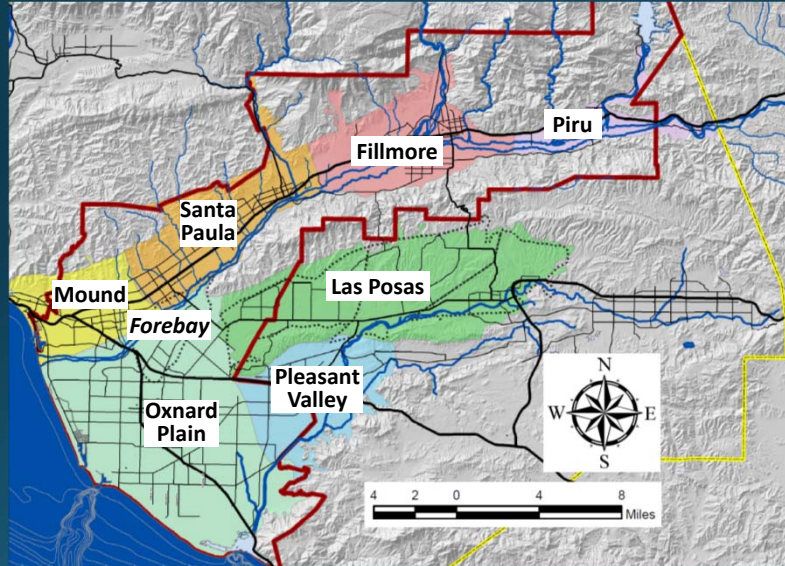
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## Agenda Items 1 through 3

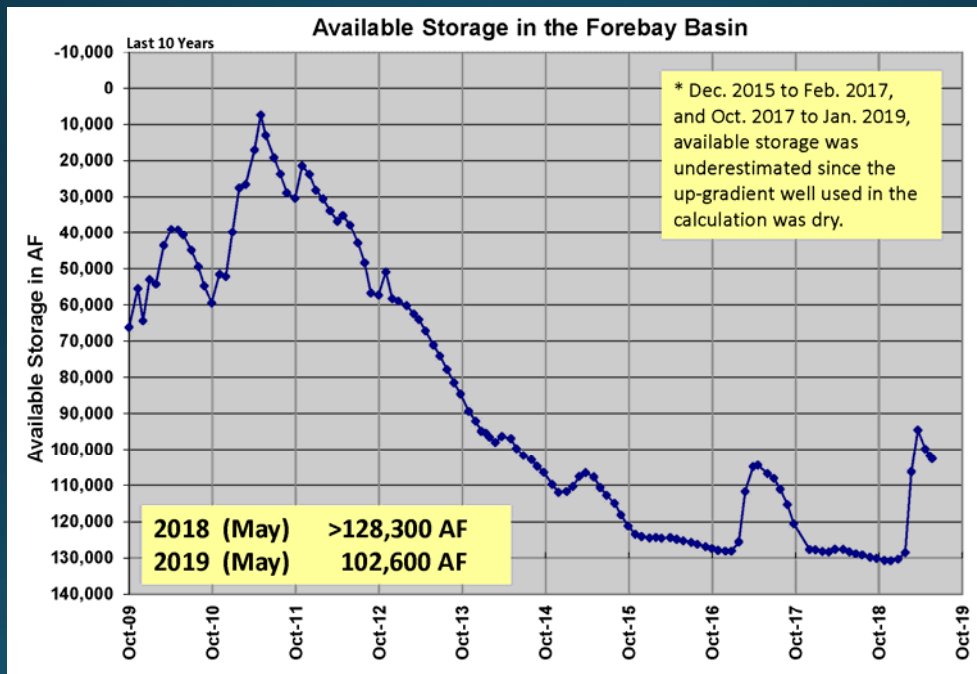
1. PUBLIC COMMENT
2. APPROVAL OF THE AGENDA
3. APPROVAL OF THE MINUTES

2

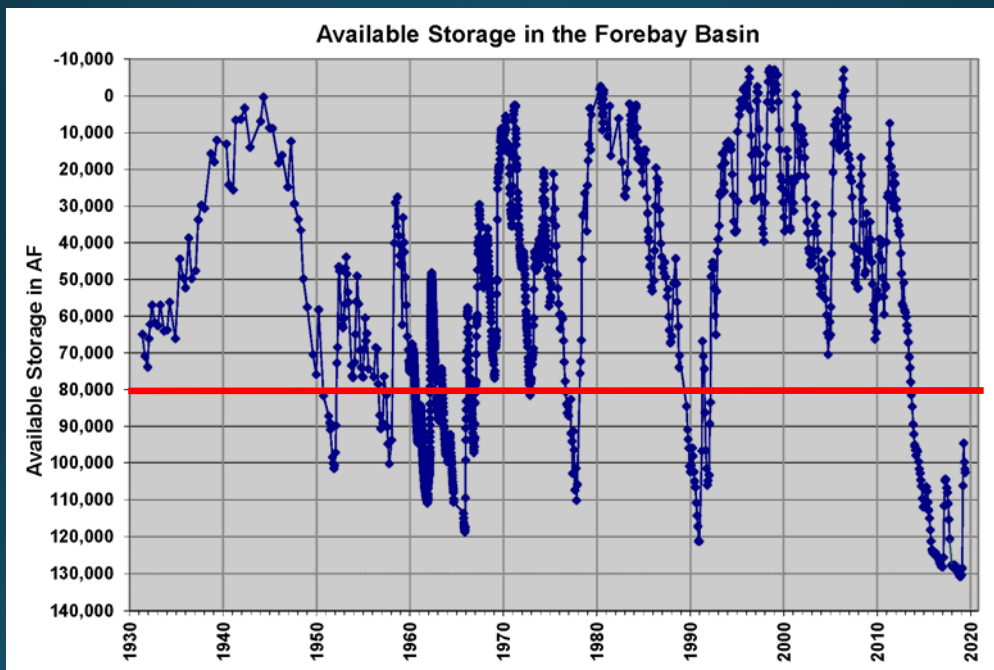
## 4. Groundwater Conditions Update



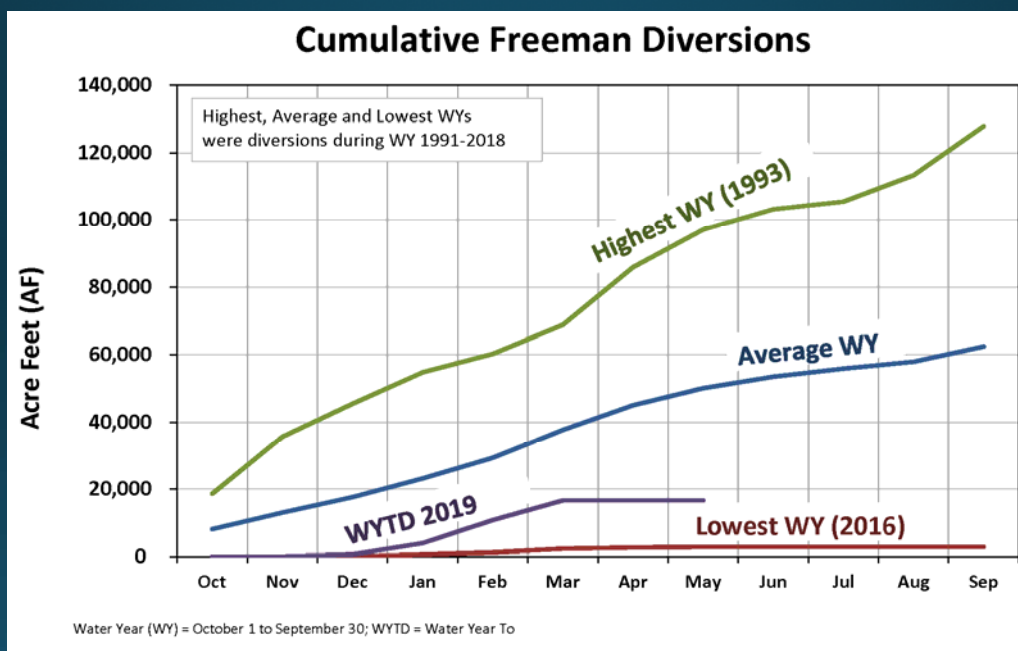
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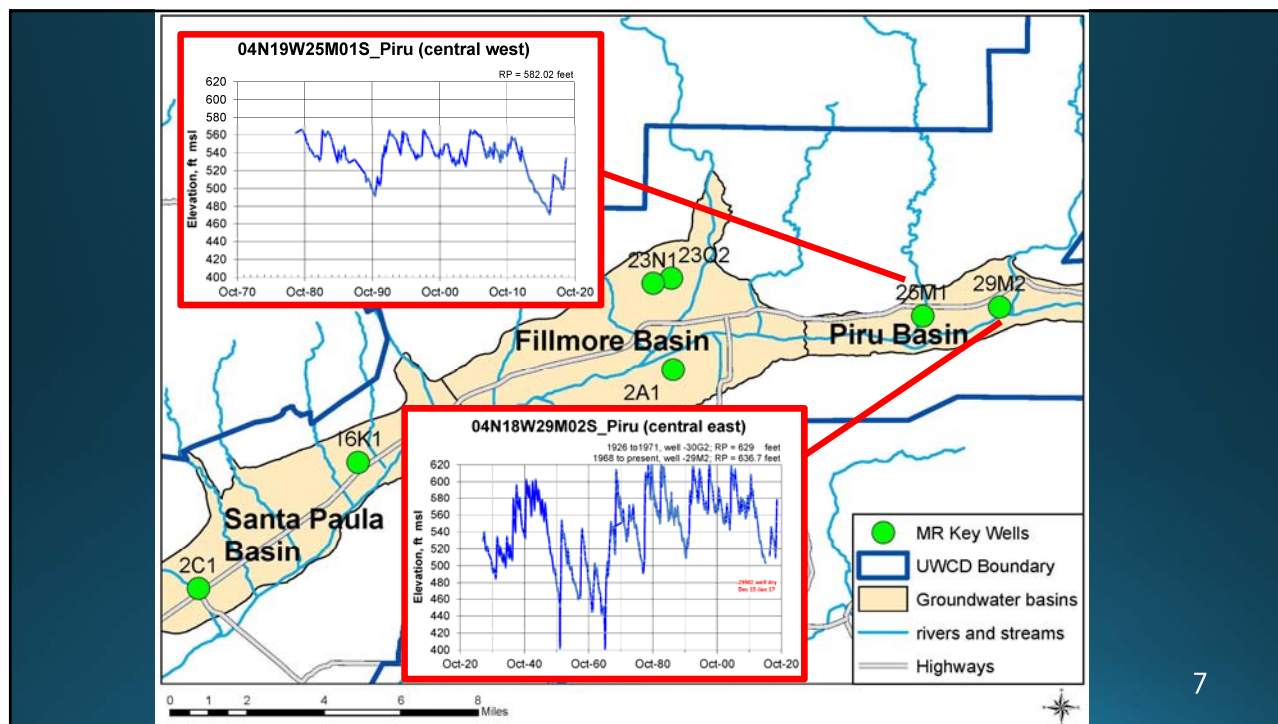


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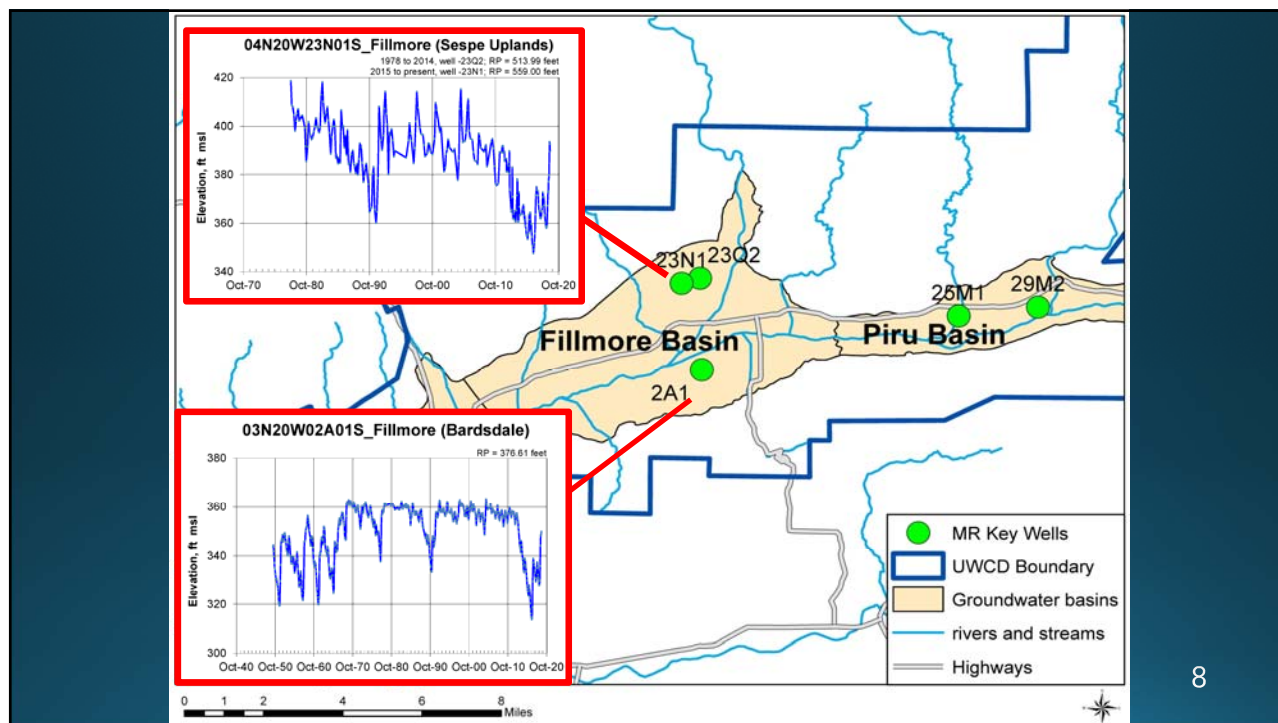


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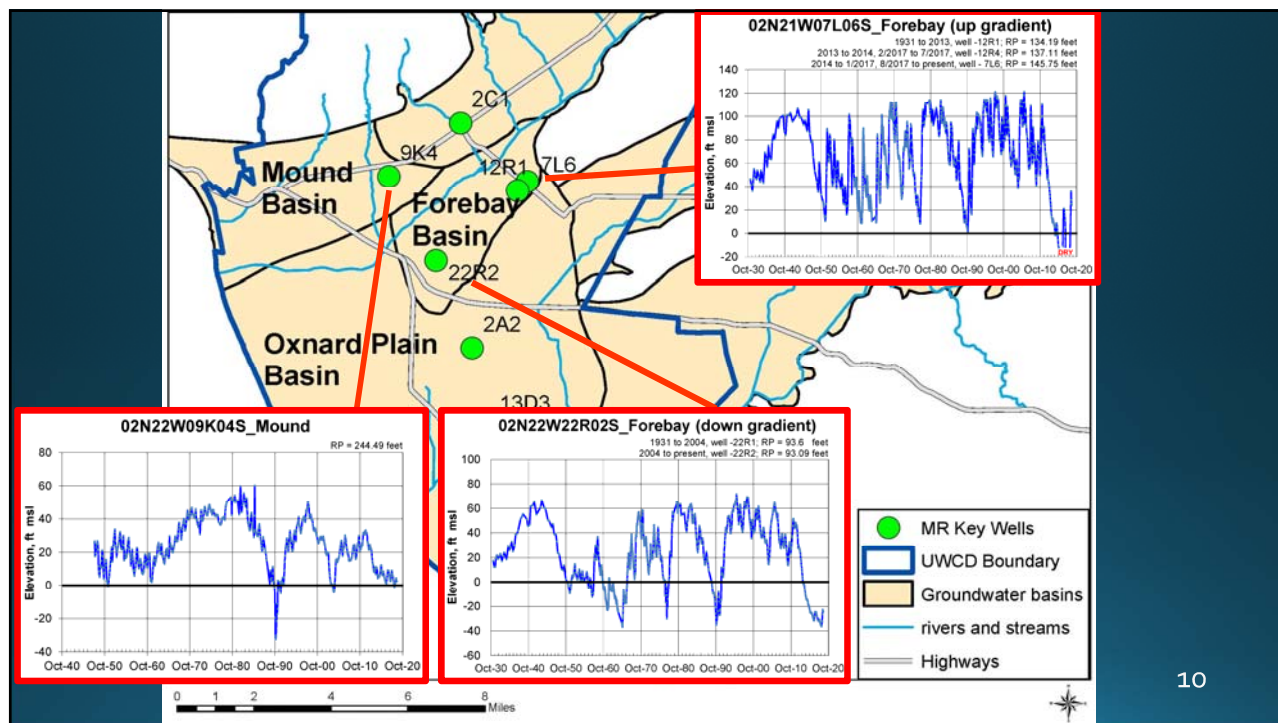
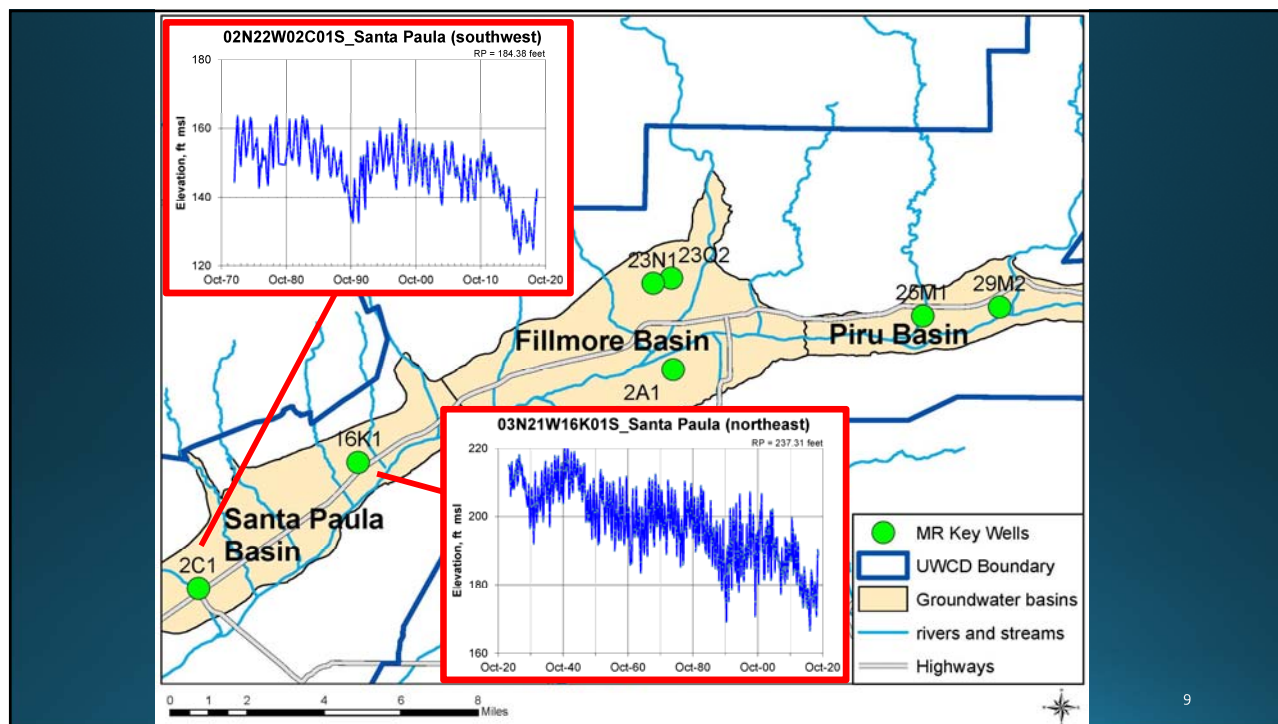


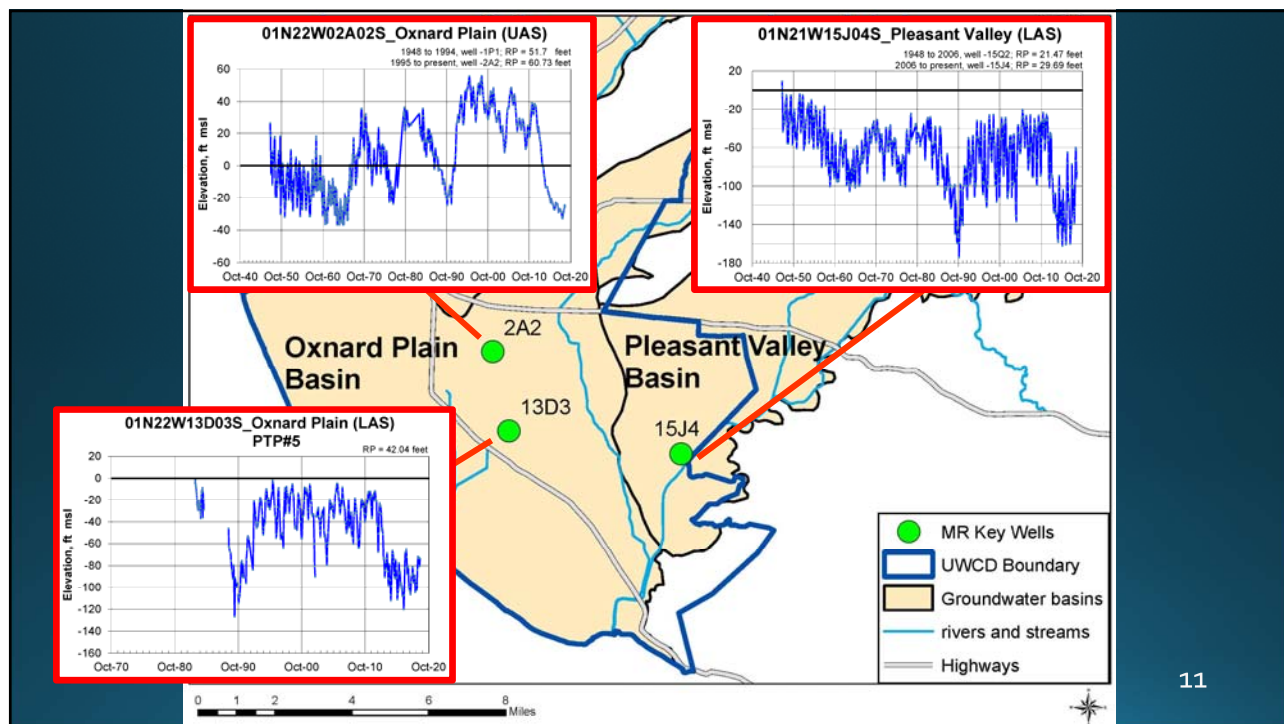


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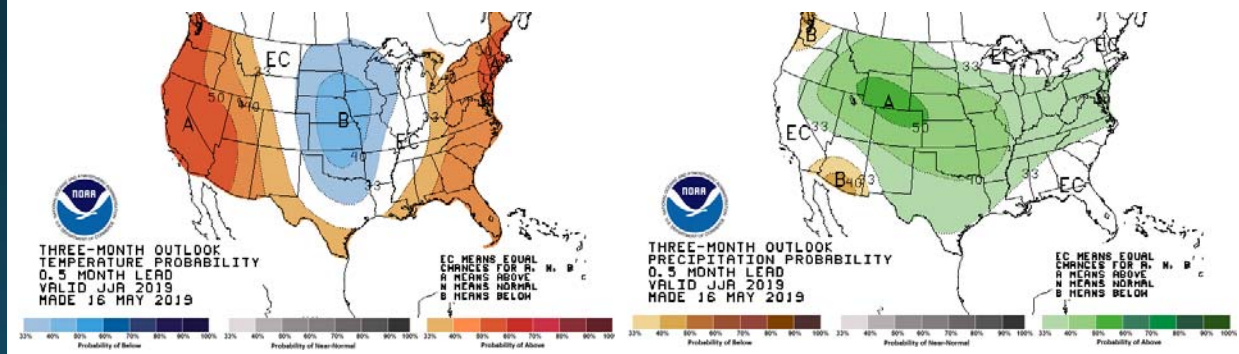
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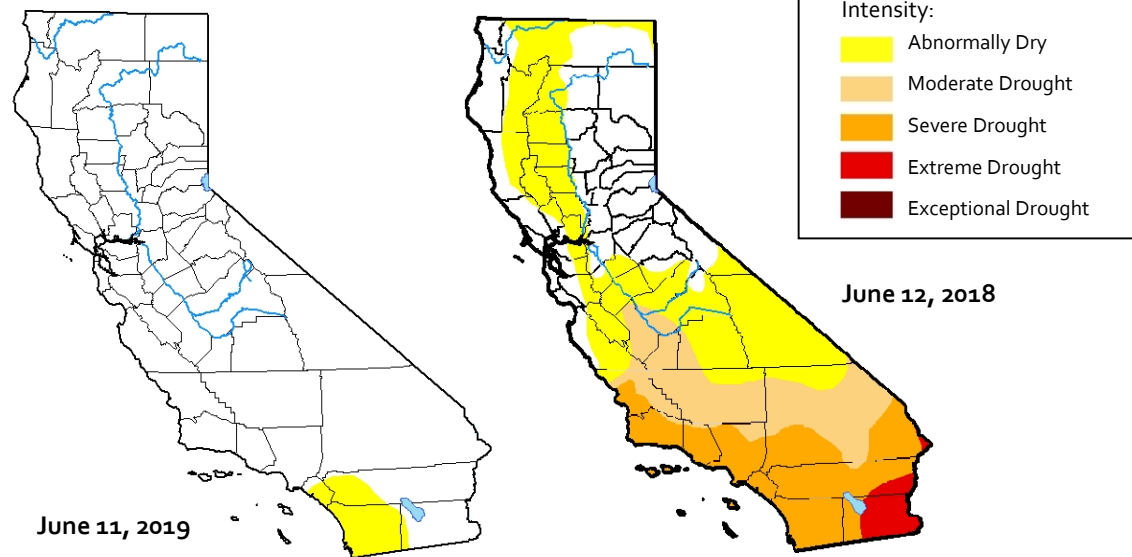
## 5. Short-Term Climate Forecast

June – August 2019

Temperature

Precipitation

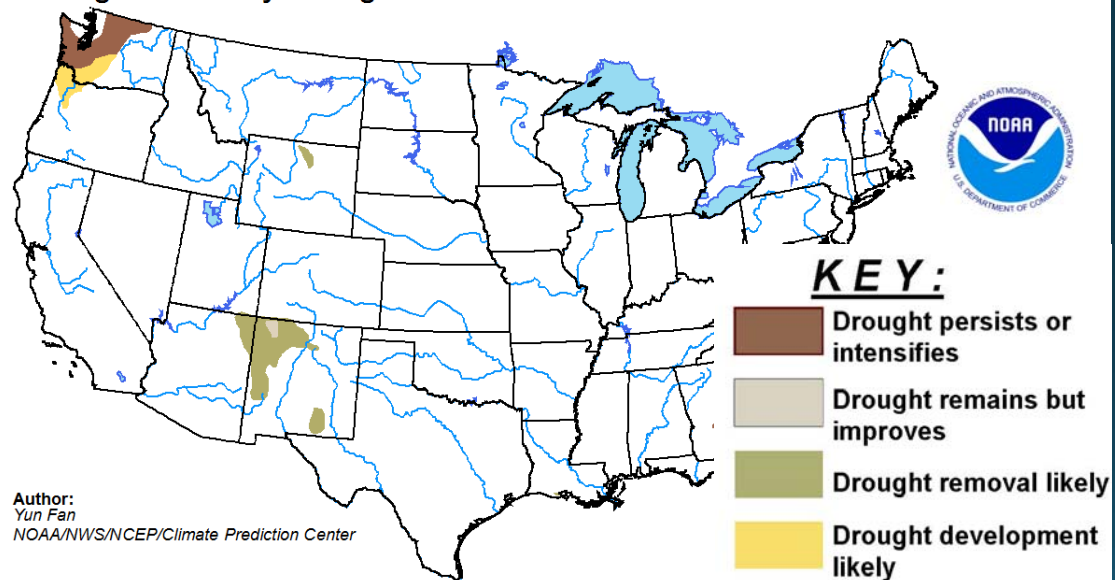




Map Source: The National Drought Mitigation Center  
 Maps are an assessment of drought conditions based on precipitation amounts and does not consider groundwater storage depletion.

## U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for May 16 - August 31, 2019  
 Released May 16





## 7. Groundwater Sustainability Agencies' Agenda Review

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### Fox Canyon Groundwater Management Agency (FCGMA)

#### Oxnard sub-basin (Oxnard Plain)

**Priority:** High – **Critically Overdrafted**

**Reason:** Seawater intrusion, overdraft

**GSA:** Fox Canyon GMA

#### Las Posas basin

**Priority:** High

**Reason:** Water quality, overdraft

**GSA:** Fox Cyn. GMA

#### Pleasant Valley basin

**Priority:** High – **Critically Overdrafted**

**Reason:** Saline intrusion, overdraft

**GSA:** Fox Canyon GMA

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## Recent activities:

- May 22—Special BoD meeting
  - Article 21 water purchase
- May 22—Regular BoD meeting
  - Staff requested direction on well 01N22W04K01S, near the Oxnard Airport
  - Dudek presented recommendations for MTs and MOs for Las Posas Valley basin GSP
  - Staff summarized planned changes to the GMAs draft allocation ordinance

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## Recent activities:

- TAG meetings: none, effectively suspended
- June 10-21—FCGMA staff discussions and meetings with United staff about impacts of draft extraction allocation ordinance on PTP operations
- June 3-24—FCGMA staff discussions and meetings with United staff about where best to recharge purchased Article 21 water

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## Future agenda items/upcoming activities:

### June 26—Regular BoD meeting agenda:

3. GMA FY 2019-20 Work Plan and budget
4. Contract modification with Special Counsel
5. Approval of costs for 2 new monitoring wells
6. Revised O-PV extraction allocation ordinance

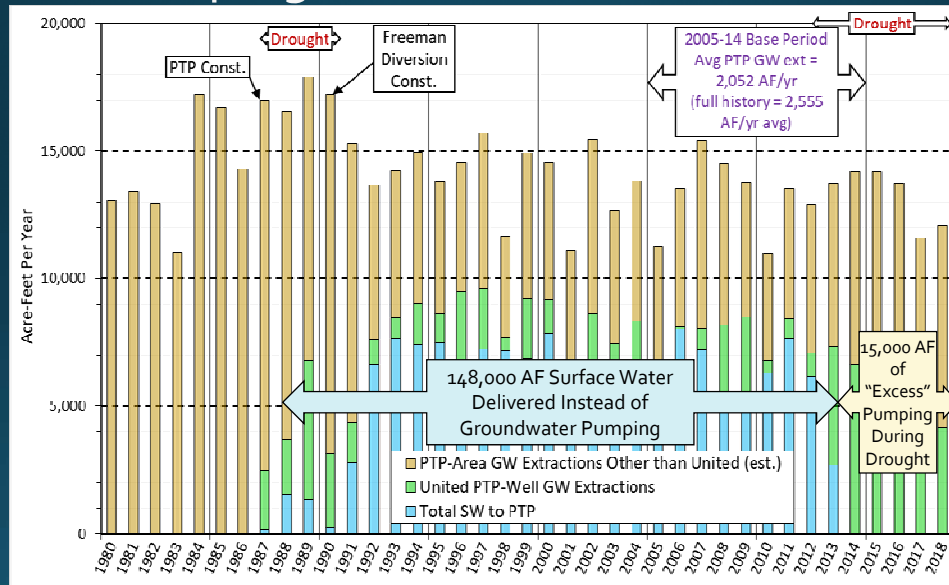
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## Current Allocation Ordinance Language Could Have Major Unintended Consequences with Regard to PTP

- Encourages increased pumping during extended droughts
  - In direct contradiction to M&I's concern on this point
- United faces very high surcharges for operating PTP in accordance with FCGMA and United policies
- Ramp-down exacerbates these problems
- FCGMA staff was uncertain about impacts and mechanics of some aspects of ordinance as of Monday
- Will discourage future conjunctive-use projects

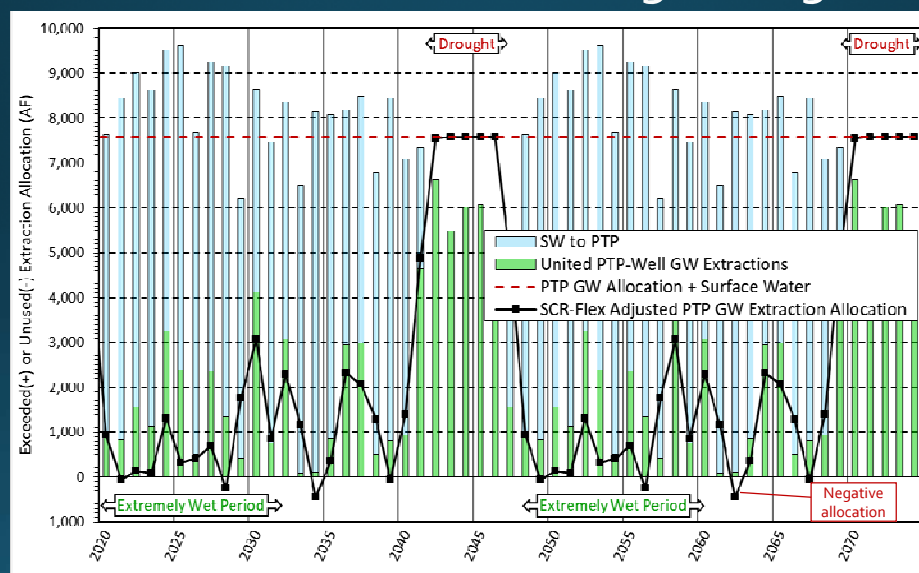
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# Historical PTP Operations Have Significantly Reduced Pumping on the Oxnard Plain



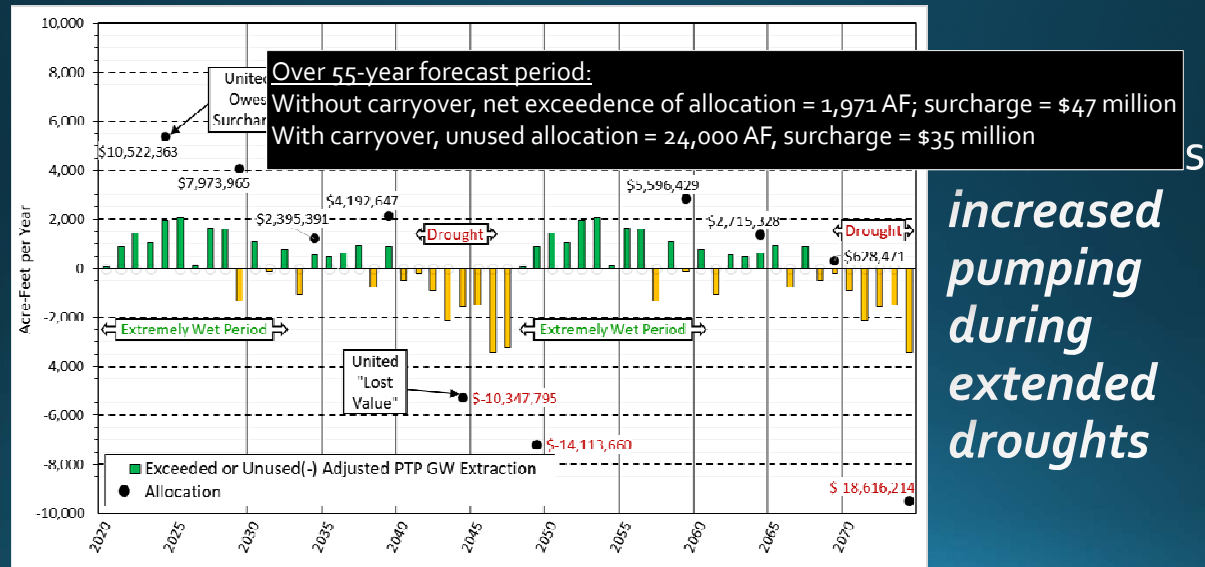
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# The Current Draft Ordinance Does Not Encourage Reduced Groundwater Use During Droughts



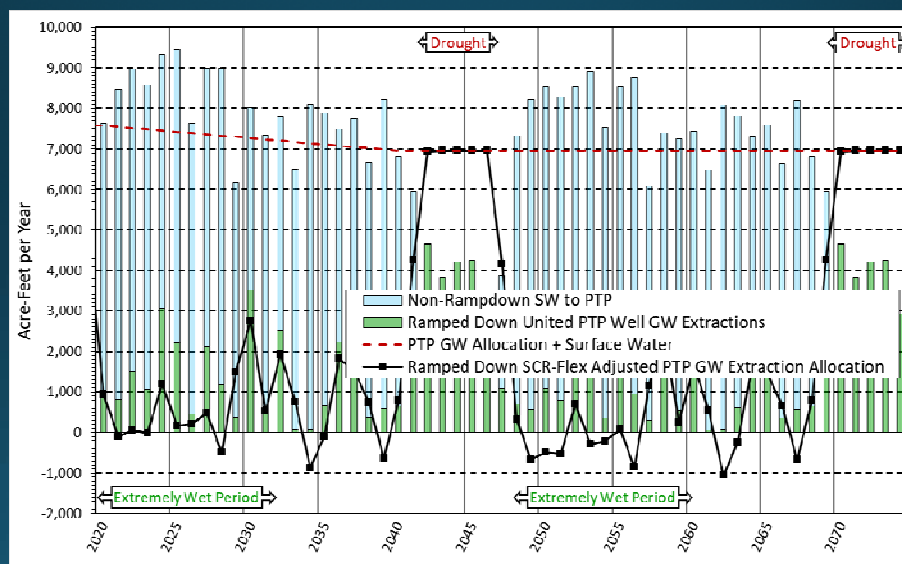
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# Current Ordinance Results in Extreme Surcharges if United Operates the PTP as Intended



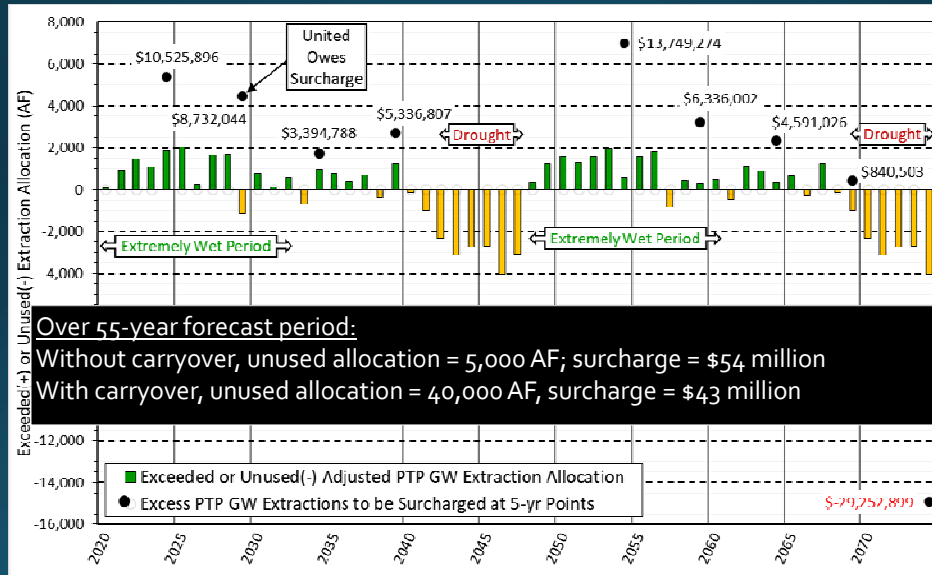
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# Implementing a 30% Rampdown Under the Ordinance Would Yield a 9% Rampdown in Water Supplied to the PTP



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# United Strongly Incentivized to Pump More During Droughts



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## Other Notable Issues

- PVWCD has similar concerns about SCR “flex allocation”
- M&I representatives raised a number of other serious concerns
  - More time needed to evaluate impacts and suggest alternatives that we know will work

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## Other upcoming activities:

- June (and July) TAG meetings
  - FCGMA consultant (Dudek) not likely to attend
  - Uncertain that TAG meetings will occur
- GSP schedule update (as of April 24):
  - Revised draft GSPs released to Board and public: July 24
  - GSPs adopted by FCGMA: December 13
  - GSPs submitted to DWR: December 16

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## 5. Mound Basin GSA Agenda Review

### **Mound basin**

**Priority:** Medium => High

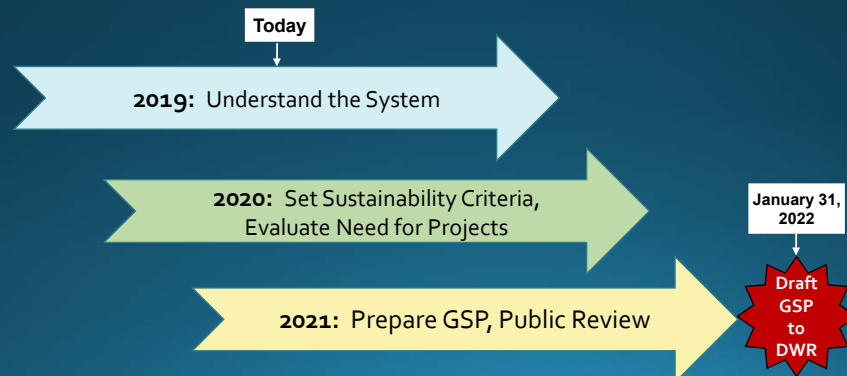
**Reason:** Water quality, dependence on groundwater, forecasted population growth

**GSA type:** JPA

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## Mound Basin GSA:

- Mostly administrative maintenance and improvements
- Isotope sampling in July



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## Mound Basin future agenda items/upcoming activities:

- July 18 20 BoD meeting agenda (probable):
  - Budget
  - Administrative issues

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## 6. Fillmore and Piru Basins GSA Agenda Review

### Fillmore basin

**Priority:** Medium => High

**Reason:** Water quality, dependence on groundwater, forecasted population growth

**GSA type:** JPA (Fillmore + Piru)

### Piru basin

**Priority:** High

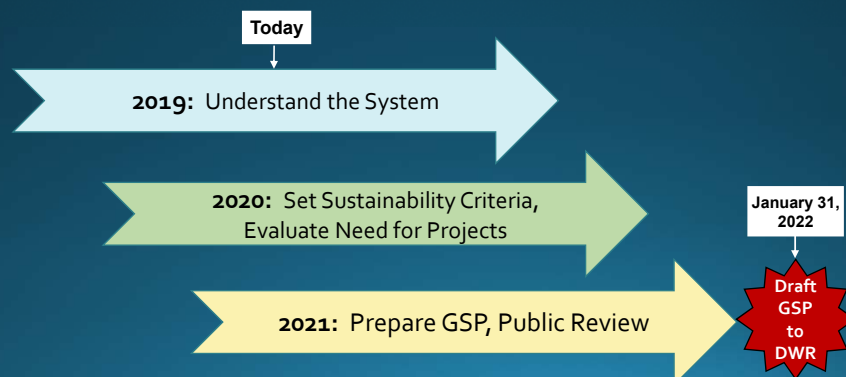
**Reason:** Water quality, dependence on groundwater

**GSA type:** JPA (Fillmore + Piru)

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## Recent activities:

- Conceptual modeling nearly done, numerical model construction beginning



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## FPBGSA future agenda items/upcoming activities:

- July 18 BoD meeting agenda (probable):
  - Budget
  - Administrative issues
- United developing preliminary water balance

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## 7. Santa Paula Basin TAC Update

### **Santa Paula basin**

**Priority:** Medium => Very Low

**Reason:** Adjudicated

**GSA type:** Technical Advisory Committee

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## Upcoming Activities

- Next TAC meeting: Sept. 5 (not a public meeting)
- Upcoming activities:
  - Consider effects of Ventura SWP-Interconnection project on potential Santa-Paula-basin “yield enhancement” projects
  - Progress regarding “triggers” document and funding for yield-enhancement projects
  - Evaluate existing index wells, need for more pressure transducers?

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## 8. FUTURE AGENDA ITEMS



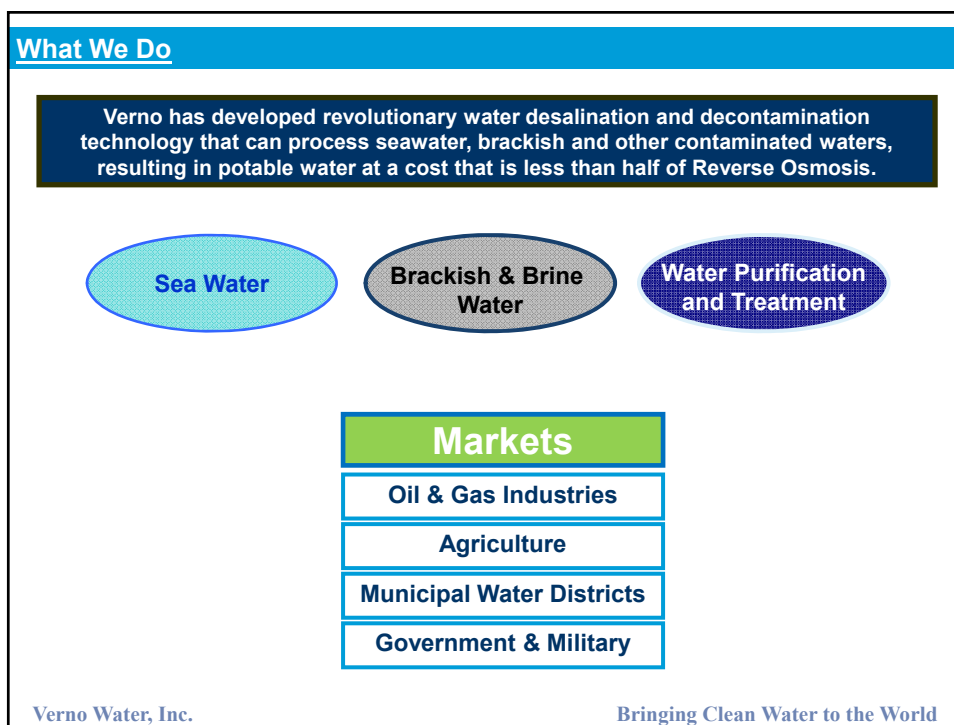
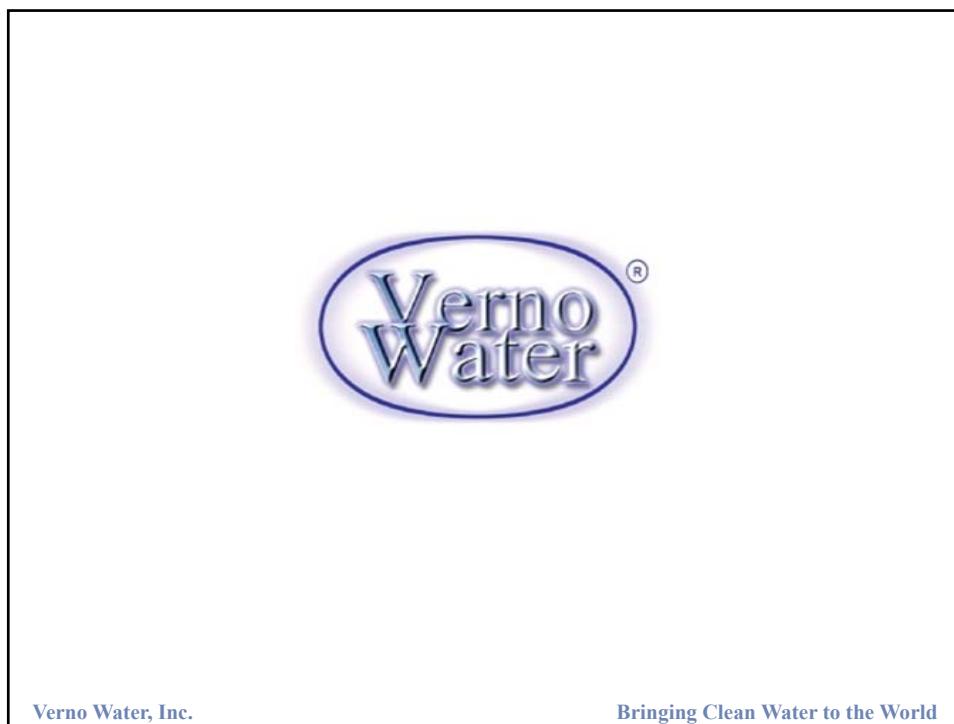
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## 9. ADJOURNMENT

*"The difficulty lies not so much in developing new ideas as in escaping from old ones."*

John Maynard Keynes

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### Our Product


Returns 70-80%  
of Input into  
Potable Water

Meets EPA TDS  
Drinking  
Water Standards

Low Capital  
and Operating  
Costs  
(Energy Etc.)

Highly Mobile  
•Small Footprint  
•Scalable

Minimal  
Volume  
of Brine



Water is  
vaporized by  
vacuum  
distillation & a  
cavitation  
process,  
centrifugal  
force  
separates the  
contaminates  
from the vapor

Verno Water, Inc.
Bringing Clean Water to the World

### Patents & Trade Marks

Verno Water, Inc. is the exclusive licensee of Verno Holdings, (VH) for the decontamination of water. VH has applied for and received four patents from the U.S. Patent and Trademark Office (USPTO). The filing permits Verno Water, Inc. to use the Patent terminology in the Company's literature and on its products. These patents will further enhance Verno Holding's intellectual property portfolio. To protect its technology worldwide, Verno Holdings has sixteen foreign patents approved, Australia, Canada, Chile, China, Colombia, Eurasian Federation, France, Germany, Great Britain, Hong Kong, India, Israel, Italy, Korea, Mexico, and Spain; additional Patents pending. The USPTO has been granted three Registered Trademarks, Verno®, Verno Water® and Verno RainMaker® and one Trademark, Verno VaporMaker™. The Patents address the following areas;

- ✓ **Operational reliability and maintainability**
- ✓ **Design and manufacturing efficiencies**
- ✓ **Significant brine reduction**
- ✓ **Controlled operational outcomes**
- ✓ **Increased potable water recovery percentages**



Verno Water, Inc.
Bringing Clean Water to the World

|   |  |                                    |
|---|--|------------------------------------|
| Company: Verno Water, Inc.<br>3040 Caselli Way<br>Santa Maria, CA 93455 | Date: 09/08/15<br><br>Field: Mamou - Produced Water Tank | Lab No: LFX-0036<br>Non-Regulatory |
|---|--|------------------------------------|

Attention: Mr. John Riley

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**Sample Data:**  
 Sample Date: 09-02-15  
 Sample Time: 1325 hrs.  
 Sampled By: Charlie Voinche

**Water Analysis**

Laboratory Data:

| Parameter - units    | Results       |
|----------------------|---------------|
| pH - s.u.            | 6.7 @ 30.0 °C |
| Chloride - mg/l      | 41,552        |
| Sulfate - mg/l       | <1            |
| Carbonate - mg/l     | 0             |
| Bicarbonate - mg/l   | 684           |
| Hydroxide - mg/l     | 0             |
| Iron - mg/l          | 16            |
| TDS - mg/l           | 72,850        |
| Conductivity - mS/cm | 90.6          |
| Sodium - mg/l        | 23,240        |
| Calcium - mg/l       | 1,220         |
| Magnesium - mg/l     | 235           |
| Oil & Grease - mg/L  | 567           |

|   |   |                                    |
|---|---|------------------------------------|
| Company: Verno Water, Inc.<br>3040 Caselli Way<br>Santa Maria, CA 93455 | Date: 09/08/15<br><br>Field: Mamou - Produced Water Processed | Lab No: LFX-0038<br>Non-Regulatory |
|---|---|------------------------------------|

Attention: Mr. John Riley

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**Sample Data:**  
 Sample Date: 09-02-15  
 Sample Time: 1340 hrs.  
 Sampled By: Charlie Voinche

**Water Analysis**

Laboratory Data:

| Parameter - units    | Results       |
|----------------------|---------------|
| pH - s.u.            | 9.6 @ 26.0 °C |
| Chloride - mg/l      | 86            |
| Sulfate - mg/l       | 4             |
| Carbonate - mg/l     | 176           |
| Bicarbonate - mg/l   | 8             |
| Hydroxide - mg/l     | 0             |
| Iron - mg/l          | 0.38          |
| TDS - mg/l           | 94            |
| Conductivity - mS/cm | 0.387         |
| Sodium - mg/l        | 28            |
| Calcium - mg/l       | 2             |
| Magnesium - mg/l     | 0.43          |
| Oil & Grease - mg/L  | 16            |

|   |   |                                    |
|---|---|------------------------------------|
| Company: Verno Water, Inc.<br>3040 Caselli Way<br>Santa Maria, CA 93455 | Date: 09/08/15<br>Field: Mamou-Prod. Water Processed #2 | Lab No: LFX-0040<br>Non-Regulatory |
|---|---|------------------------------------|

Attention: Mr. John Riley

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**Sample Data:**  
 Sample Date: 09-02-15  
 Sample Time: 1545 hrs.  
 Sampled By: Charlie Voinche

**Water Analysis**

**Laboratory Data:**

| Parameter - units    | Results       |
|----------------------|---------------|
| pH - s.u.            | 9.1 @ 35.0 °C |
| Chloride - mg/l      | 465           |
| Sulfate - mg/l       | 6             |
| Carbonate - mg/l     | 116           |
| Bicarbonate - mg/l   | 48            |
| Hydroxide - mg/l     | 0             |
| Iron - mg/l          | 0.20          |
| TDS - mg/l           | 764           |
| Conductivity - mS/cm | 1.619         |
| Sodium - mg/l        | 271           |
| Calcium - mg/l       | 14            |
| Magnesium - mg/l     | 2             |
| Oil & Grease - mg/L  | ---           |

|   |  |                                    |
|---|--|------------------------------------|
| Company: Verno Water, Inc.<br>3040 Caselli Way<br>Santa Maria, CA 93455 | Date: 09/08/15<br>Field: Mamou - Brackish Water Tank | Lab No: LFX-0037<br>Non-Regulatory |
|---|--|------------------------------------|

Attention: Mr. John Riley

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**Sample Data:**  
 Sample Date: 09-02-15  
 Sample Time: 1310 hrs.  
 Sampled By: Charlie Voinche

**Water Analysis**

**Laboratory Data:**

| Parameter - units    | Results       |
|----------------------|---------------|
| pH - s.u.            | 7.3 @ 30.0 °C |
| Chloride - mg/l      | 525           |
| Sulfate - mg/l       | 40            |
| Carbonate - mg/l     | 0             |
| Bicarbonate - mg/l   | 86            |
| Hydroxide - mg/l     | 0             |
| Iron - mg/l          | 0.43          |
| TDS - mg/l           | 1,092         |
| Conductivity - mS/cm | 1.871         |
| Sodium - mg/l        | 296           |
| Calcium - mg/l       | 47            |
| Magnesium - mg/l     | 27            |
| Oil & Grease - mg/L  | 37            |

|  |   |                                    |
|--|---|------------------------------------|
| Company: Verno Water, Inc.<br>3040 Caselli Way<br>Santa Maria, CA 93455<br><br>Attention: Mr. John Riley | Date: 09/08/15<br><br>Field: Mamou-Brackish Water Processed | Lab No: LFX-0042<br>Non-Regulatory |
|--|---|------------------------------------|

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**Sample Data:**  
 Sample Date: 09-02-15  
 Sample Time: 1620 hrs.  
 Sampled By: Charlie Voynche

**Water Analysis**

Laboratory Data:

| Parameter - units    | Results       |
|----------------------|---------------|
| pH - s.u.            | 8.9 @ 37.0 °C |
| Chloride - mg/l      | 25            |
| Sulfate - mg/l       | <1            |
| Carbonate - mg/l     | 8             |
| Bicarbonate - mg/l   | 36            |
| Hydroxide - mg/l     | 0             |
| Iron - mg/l          | 0.21          |
| TDS - mg/l           | 36            |
| Conductivity - mS/cm | 0.1491        |
| Sodium - mg/l        | 11            |
| Calcium - mg/l       | 2             |
| Magnesium - mg/l     | <1            |
| Oil & Grease - mg/L  | 13            |

## Verno Product Development Summary

### Computational Fluid Dynamics (CFD)

Stonewall Consulting has completed the Computational Fluid Dynamics (CFD) assessment of the existing Verno test unit and subsequently ran additional tests.

- As a result of the CFD, StoneWall has confirmed the technology is scalable.
- Its efficiency will increase as the size and input volumes are increased.
- The commercial redesign will result in high reliability and operating efficiency as well.

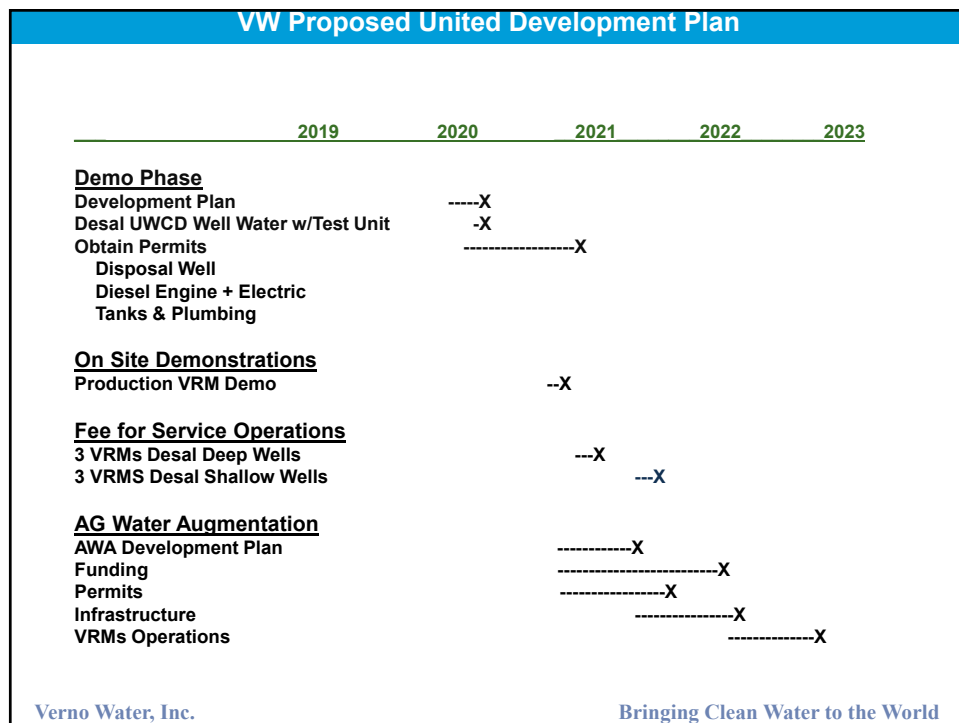
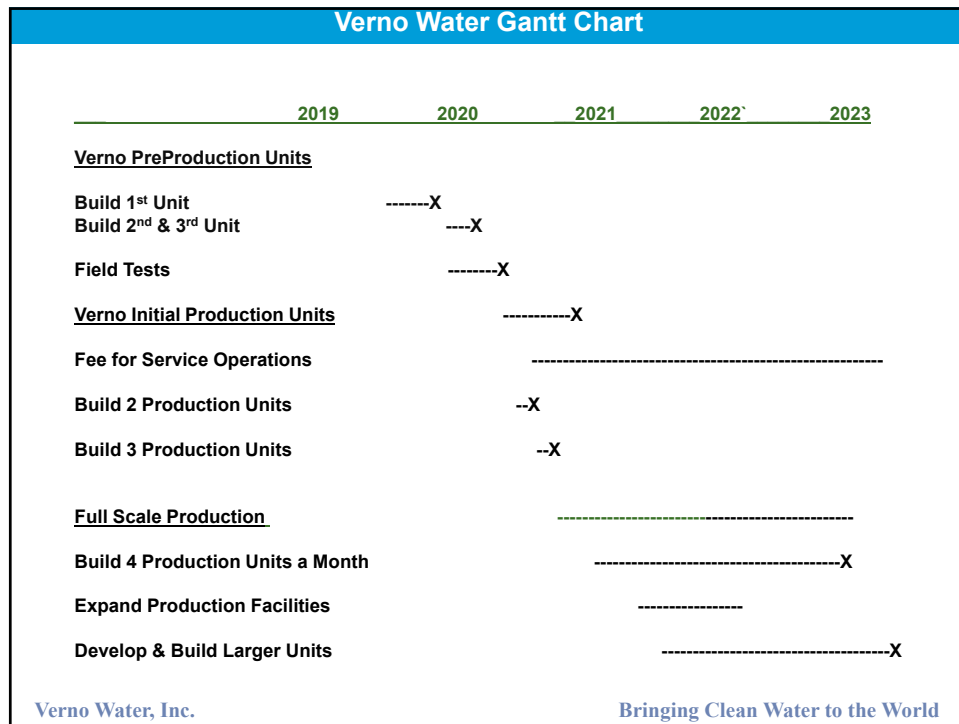
### Verno RainMaker® Commercial Design

Planned Commercial Performance:

- Recover 75% of the water content.
- Lab reports indicate the removal of over 99% of the Total Dissolved Solids.
- Therefore, blending with untreated water is feasible.
- Trailer Mounted for high mobility or skid mounted for fixed site operations.
- Powered by electric motor, diesel, or natural gas, gas powered gen set also.
- Planned output is around 1000 Gallons per Minute, 3000 GPM units planned.

Verno Water, Inc.

Bringing Clean Water to the World



## Where Verno Goes, Clean Water Flows



John D. Riley, President/CEO  
805) 570.7706

Verno Water, Inc.

Bringing Clean Water to the World