#### **AGENDA**

### Borrego Valley Groundwater Basin: Borrego Springs Subbasin Sustainable Groundwater Management Act (SGMA) Advisory Committee (AC)

November 29, 2018 @ 10:00 AM – 3:00 PM

Location: UCI Steele Burnand Research Center: 401 Tilting T, Borrego Springs CA 92004

Remote Access: https://csus.zoom.us/j/486513475 Dial In: +1 669-900-6833 Meeting ID: 486513475#

#### I. **OPENING PROCEDURES** [10:00 am – 10:45 am]

- A. Call to Order
- **B.** Pledge of Allegiance
- C. Roll Call of Attendees
- **D.** Review of Meeting Agenda
- E. Approval of October 4, 2018 AC Meeting Minutes
- **F.** Updates from the Core Team
- **G.** Updates from Advisory Committee Members

### II. GROUNDWATER SUSTAINABILITY PLAN: REVIEW OF DRAFT CHAPTERS [10:45 am – 2:40 pm with lunch approximately 12:00 – 12:30 pm]

- **A.** Review of Chapters 2 & 3: Key Concept Slides from Oct. 4<sup>th</sup> AC Meeting and Opportunity to Clarify Technical/Informational Material presented on 10-04-2018
- **B.** Chapter 4: Projects and Management Actions

### III. CLOSING PROCEDURES [2:40 pm – 3:00 pm]

- **A.** Correspondence
- **B.** General Public Comments (comments may be limited to 3 minutes)
- C. Review Action Items from Previous AC Meetings, Next AC Meeting Date(s), and Next Steps

The next regular meeting of the Advisory Committee is scheduled for **December 6, 2018**, at the UCI Steele/Burnand Anza-Borrego Desert Research Center (\*subject to change).

Please be advised that times associated with agenda are approximations only. Public comment periods will be accommodated at the end of each item listed for discussion and possible action. The duration of each comment period will be at the discretion of the meeting Facilitator. Any public record provided to the A/C less than 72 hours prior to the meeting, regarding any item on the open session portion of this agenda, is available for public inspection during normal business hours at the Office of the Borrego Water District, located at 806 Palm Canyon Drive, Borrego Springs CA 92004.

The Borrego Springs Water District complies with the Americans with Disabilities Act. Persons with special needs should call Geoff Poole at 760-767-5806 at least 48 hours in advance of the start of this meeting, in order to enable the District to make reasonable arrangements to ensure accessibility. Borrego SGMA Website: <a href="http://www.sandiegocounty.gov/content/sdc/pds/SGMA/borrego-valley.html">http://www.sandiegocounty.gov/content/sdc/pds/SGMA/borrego-valley.html</a>

#### **MINUTES**

### Borrego Valley Groundwater Basin: Borrego Springs Subbasin Sustainable Groundwater Management Act (SGMA)

### **Advisory Committee (AC)**

October 4, 2018 @ 10:00 AM - 3:00 PM

Location: UCI Steele Burnand Research Center: 401Tilting T, Borrego Springs, CA 92004

### I. OPENING PROCEDURES

**A.** Call to Order

The meeting was called to order at 10:00 a.m. by Facilitator Meagan Wylie.

**B.** Pledge of Allegiance

Those present stood for the Pledge of Allegiance.

C. Roll Call of Attendees

Committee members: Present: Jim Seley, Rebecca Falk, Gary Haldeman, Bill Berkley, Gina Moran, Diane Johnson, Ryan Hall, Jim Wilson

Absent: Jack McGrory

**Core Team members:** Leanne Crow, County of San Jim Bennett, County of San Diego

Diego Geoff Poole, BWD
Dave Duncan, BWD Lyle Brecht, BWD

**Staff/Consultants:** Meagan Wylie, Center Trey Driscoll, Dudek, GSP

Consultant for Collaborative Policy Rachel Ralston, LeSar

Development (via

Wendy Quinn, Recording teleconference, Item II.A only)

Secretary Mason Einbund, County of

San Diego

**Public:** Michael Sadler, Borrego Sun Linda Haneline

Stephen Ballas Bill Haneline

Martha Deichler Kathy Dice

Marsha Boring Judy Haldeman

Suzanne Lawrence Maureen Hurley
Dan Wright Mike Seley

Esmeralda Lopez Cathy Milkey, Rams Hill

**D.** Review of Meeting Agenda

Meagan Wylie reviewed the meeting ground rules and Agenda.

**E.** Approval of August 30, 2018 AC Meeting Minutes

Member Falk proposed amendments to Item II.A, Baseline Pumping Allocations and Reductions. After discussion, and additional changes by staff and AC, the wording was agreed upon. Upon motion by Member Berkley, seconded by Member Moran and unanimously carried by those present, the Minutes of the August 30, 2018 AC Meeting were approved as amended.

- **F.** Updates from the Core Team
- a. Transitions in Core Team Membership and AC Representation. Geoff Poole announced that BWD President Hart is retiring from the Board and Core Team, and Dave Duncan will replace her on the Board and Core Team. Gary Haldeman will replace Dave Duncan as the BWD Ratepayer Representative on the AC. Mr. Duncan pointed out that the Core Team has a significant workload in drafting the Groundwater Sustainability Plan (GSP) and preparing for AC meetings. He

previously expressed frustration at the slow progress from the perspective of an AC member, but he now understands the amount of time and preparation that is required to support meaningful AC meetings. He suggested including discussion and questions from the previous AC meeting on each AC Agenda. Member Haldeman next provided remarks on his new appointment as AC member, representing the ratepayers. He noted that he has lived in Borrego for nearly 20 years and has served on several boards of various organizations. Mr. Haldeman has assisted BWD on the current GSP severely disadvantaged community (SDAC) outreach effort as translator and interpreter for the recent Spanish speaking events. He reiterated Mr. Duncan's opinion that the workload was substantial, and he thanked the Core Team, consultants, and existing AC members on their critical efforts to-date.

- Brief Report-out on August 31st Technical Meeting with Consultants. Trey Driscoll reported that he met with the Agricultural Alliance for Water and Resource Education's (AAWARE's) and T2 Borrego's consultants for the purpose of reviewing the hydrogeologic (water budget and groundwater) model used for GSP development. Ms. Wylie noted that slides referenced at this meeting were on the County SGMA website, and explained that the slides were primarily a compilation of technical material that has been presented at AC meetings over the last six months. The content being presented at this meeting is not new to anyone who has been carefully following the AC process. Member Falk asked whether when estimating pumping volumes via the model, if estimates are usually over or under the actual amount used, and by how much. Mr. Driscoll explained that the model includes variations in estimates based on land use. Estimates may change over time and the model will be updated regularly. Member Seley pointed out that AAWARE and T2 had requested additional meetings as follow up to this meeting, and asked whether they had been scheduled. Mr. Driscoll will work with the Core Team regarding next steps. Member Johnson expressed concern that these meetings should be documented. Mr. Bennett replied that documentation occurs through Core Team updates provided at each AC meeting, and relevant materials shared either via posting to the County SGMA website, or in AC Agenda Packets.
- c. Metrics on Responses Received to Draft-Baseline Pumping Allocation Letters sent to Pumpers. Mr. Driscoll reported that the Core Team has received responses to 17 draft Baseline Pumping Allocations (BPA) in response to the 36 letters that were sent out to non-de minimis pumpers in June. These response letters are currently being reviewed by the CT and consultants, and responses will be provided as appropriate. Member Falk asked whether there was a plan to contact those pumpers who did not respond. Mr. Bennett explained that all letters were sent certified mail in order to confirm delivery, and noted that the CT is not assuming that a lack of response means pumpers are either agreeable or non-agreeable with the draft BPAs provided. He further replied that the next step is to revise the BPAs as appropriate and send out the new information to non-de minimis pumpers. In response to a request from Member Berkley, Mr. Bennett agreed to provide the names of who responded. Member Wilson requested the total acreage represented by the pumpers who responded, and Mr. Bennett agreed to compile it.
- d. Consideration for Formation of Ad Hoc Committee for Emerging Constituents of Concern. Ms. Wylie invited the Committee's attention to a memo from the Core Team to the AC in the Agenda package. Mr. Driscoll reported he had reviewed the request to form an Ad Hoc Committee to study emerging chemicals of concern (ECCs). He explained that in California there is a robust process for regulating potable water quality, but the detection of many ECCs is so recent that potential health effects are unavailable. Since Borrego has little industrial activity, their presence here is unlikely, and potential ECCs in the Subbasin are likely limited to pharmaceuticals and pesticides. He explained nitrate is a widespread contaminant found in groundwater and is a reasonable surrogate to identify areas of the Subbasin that may be impacted by ECCs. He recommended against an Ad Hoc Committee at this

time, but will continue to watch for any changes in State regulations. Member Johnson asked Mr. Driscoll to provide links to articles supporting his position, including the use of nitrates as a surrogate rather than studying ECCs.

Member Falk cited John Peterson's concern that water from the North Management Area containing nitrates might flow into other areas of the basin. Mr. Driscoll disagreed, noting that this theory of interbasin water migration in such a direction was not supported by groundwater level data. The agricultural properties capture the flows.

- e. Consideration of SB 1000 as it Relates to SGMA Process. Ms. Crow explained that Senate Bill (SB) 1000, which was adopted in 2016, added an "environmental justice" general plan element requirement for agencies with a "disadvantaged community." For SB 1000, a disadvantaged community is defined as an "area identified by the California Environmental Protection Agency (CalEPA) as an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation." Although certain areas of the County were identified as a disadvantaged community, as defined by CalEPA, Borrego Springs was not. However, the County will be including an environmental justice element in the amended General Plan and is in the preliminary stages of determining how best to incorporate it.
  - **G.** Updates from Advisory Committee Members

Member Falk expressed difficulty in seeing small print in select slides at the meeting and would prefer an opportunity to comment on the previous meeting's technical content at the subsequent meeting. Ms. Wylie noted the standing agenda item that allows for as-need opportunity to clarify technical/information materials presented at the previous AC meeting. She also invited members' attention to the Work Planning and Timeline Chart in the Agenda package, where in it is indicated that the GSP will be reviewed sequentially by chapter over the next three meetings, with opportunity to revisit any content previously presented on.

**H.** As Needed Opportunity to Clarify Technical/Informational Material presented on 08/30/2018

None

### II. INFORMATIONAL ITEMS

**A.** Socioeconomic Efforts: Community Engagement Efforts Update

Rachel Ralston reported on the September 19, 2018 community meetings An English session and a Spanish session were hosted. The purpose was to educate community members on SGMA, solicit feedback and clarify questions. A summary was provided in the Agenda package. Topics included water rates, economic impacts of SGMA, water use allocations, sustainability strategy and GSP development. Future community meetings and communication preferences were discussed. The next steps are possible meetings in November and completion of outreach in February 2019. Fourteen persons attended the English session, and twenty persons attended the Spanish session. Information on proposed pumping fees and penalties may be included in the next community meeting Agenda, if these topics have been reviewed and discussed by the AC previously.

**B.** Environmental Impact Report (EIR) and California Environmental Quality Act (CEQA) Process

Mr. Bennett explained that if a project requires a discretionary action by a hearing body, then a CEQA review is required. SGMA provides that CEQA is not applicable to the GSP document development process, but it is applicable to any projects that would implement actions pursuant to the GSP. He went on to outline the EIR process, which includes an initial study, notice of preparation and

scoping meeting, draft EIR, public comment period, response to comments, and final EIR and certification hearing. In the case of GSP implementation projects, the County would likely be the lead agency for the EIR, with the Borrego Water District acting as a responsible agency. Mr. Bennett showed a checklist of environmental issues, and described various opportunities for public input. In Borrego, the Sponsor Group would be involved in an EIR process. The process typically takes 18 months to two years.

Member Falk had submitted questions to the Department of Water Resources regarding CEQA and EIR processes, which Mr. Bennett verbally reviewed and addressed: She asked whether the GSP could be changed based on new findings after submission to DWR, and specifically, the estimated current sustainable pumping rate of 5,700 acre-feet per year and effects on the SDAC. Mr. Bennett replied that changes to the GSP would be considered during the five-year updates. Environmental reviews do not typically include economic issues. Member Falk further inquired whether all aspects of the GSP would go into effect upon BWD and Board approval, and Mr. Bennett replied that any projects requiring CEQA review cannot be implemented until the process has been completed. More information may be provided at a future AC meeting.

Member Wilson asked whether one EIR would cover all fallowing projects, or would an EIR be required for each one. Mr. Bennett indicated that fallowing would likely be evaluated as one project, but the details have not yet been worked out. Member Wilson asked about mitigation for previous fallowing, and Mr. Bennett replied that the water credit program may be considered and evaluated. Member Moran inquired about a legal review of the GSP. Ms. Crow explained that a court validation process is anticipated following adoption of the GSP.

#### III. GROUNDWATER SUSTAINABILITY PLAN: REVIEW OF DRAFT CHAPTERS

**A.** Chapter 1: Introduction to GSP

Mr. Driscoll summarized GSP Chapter 1, which explains that the purpose of the GSP is to manage and use groundwater in a manner that can be sustained without adverse effects. BWD has water supply and management authority, and the County has land use responsibility. The chapter also explains the AC and the Core Team. Member Johnson inquired about the Plan Manager and the legal authority for such Mr. Driscoll replied that Mr. Bennett is the designated Plan Manager, and the legal authority is provided by the California Water Code and Code of Regulations.

### **B.** Chapter 2: Plan Area and Basin Setting

Mr. Driscoll explained the plan area, monitoring and management program, land use and additional components. Sixty-seven percent of the land in the basin is privately owned, twenty-seven percent by the State, five percent by non-profits and one percent each by the County and special districts. Borrego Springs is surrounded by the State Park. There are 118 wells in the basin, 52 de minimis, 40 agricultural, 13 golf course, 8 municipal and five small water systems. Water resources monitoring and management programs include the water credits program, the County groundwater ordinance, the groundwater mitigation program, AB 3030, ESA, California water well standards, California State Groundwater Elevation Monitoring (CASGEM), Integrated Regional Water Management Program (IRWMP) and the Clean Water Act.

The chapter also addresses the County General Plan, the Borrego Springs Community Plan, land use and zoning. Beneficial uses and users include agriculture, municipal, industrial, recreation, water credits, domestic users (non-diminimis), diminimis and groundwater dependent ecosystems. Member Wilson requested the percentage used by each user, and Mr. Driscoll agreed to provide them.

The Committee broke for lunch at 12:10 p.m. and reconvened at 12:45 p.m.

Mr. Driscoll went on to explain the hydrogeologic computer model, history, budget and Management Areas. Rainfall, temperature and evapotranspiration were considered. Maps depicted geologic structures and topography, as well as the San Andreas, San Jacinto and Elsinore faults. Groundwater monitoring is included, and Mr. Driscoll noted that five more monitoring wells will be added. He explained that two-thirds of the basin's recharge comes from Coyote Creek.

Member Falk reported she had spoken with Tim Ross of the Department of Water Resources about water quality sampling, and he said sampling should theoretically be available at metered sites. Mr. Driscoll explained that conducting water sampling involves a policy decision. SGMA requires that the GSA adopt a non-quantitative sustainability goal setting a framework to determine what is significant and unreasonable for each sustainability indicator (critical lowering of groundwater levels, land subsidence, depletion of surface water, and beneficial use such as groundwater dependent ecosystems). The sustainability goal is to maintain a viable water supply for current and future beneficial use and users of groundwater within the plan area.

Member Seley pointed out that a prior report showed that the model indicates less water than may actually be in the basin. He asked what is being done to balance this discrepancy. Mr. Driscoll explained that SGMA requires the use of the best available information at the time, and that has been done. The model is running without complete meter data, so estimates had to be used for agriculture pumping use. More pumping data will be collected throughout the plan life, and the GSP will be updated throughout implementation. Significant and unreasonable undesirable effects must be avoided. Member Haldeman asked for the definition of "significant and unreasonable," and Mr. Driscoll replied that that is up to the stakeholders; SGMA does not define it.

Member Johnson asked whether the slides could be enlarged on the website, and Ms. Wylie agreed to work on this issue with Ms. Crow.

### **C.** Chapter 3: Sustainability Management Criteria

Mr. Driscoll explained that sustainability management criteria included avoidance of lowering groundwater levels and reduction of groundwater storage. Member Haldeman pointed out that this could define "significant and unreasonable" undesirable effects. Director Brecht asked whether "significant and unreasonable" could be framed in economic terms, and Mr. Driscoll replied that it could. Another sustainable management criterion to avoid is degraded water quality. The GSP will establish minimum thresholds, a quantitative measure of undesirable results. The limit for recoverable groundwater in storage is 152,000-acre feet.

Mr. Duncan asked whether the GSA has a responsibility to protect de minimis pumpers from their wells running dry. Mr. Driscoll explained that analysis of de minimis wells has not been completed. He will look at whether it is viable to connect them to the water system. SGMA requires that all beneficial users be considered. Moving water around the basin (intrabasin water transfer) is also being studied. Member Johnson asked for the definition of "recoverable" groundwater in storage, as referenced in one of Mr. Driscoll's slides. Mr. Driscoll explained that is the amount that could be removed in case of an extended drought. Member Haldeman suggested using the term "useable" instead of "recoverable." Member Johnson suggested some links in the slides to a glossary explaining the terms, and a graphic of what a well looks like.

Mr. Driscoll noted that monitoring sites are required to measure objectives and thresholds. The GSP will need to define initial sustainability indicators, thresholds and negative results. They can be adjusted as the GSP progresses. Member Hall asked whether, if sustainability is reached in ten years, the GSP would continue. Mr. Driscoll explained that yes, the basin would still have to be managed, and reports submitted to DWR to show groundwater use continues to be sustainable.

### IV. CLOSING PROCEDURES

**A.** Correspondence

None

**B.** General Public Comments

None

C. Review Action Items from Previous AC Meetings, Next AC Meeting Date(s), and Next Steps

Ms. Wylie announced that the Core Team will require postponement of the tentatively scheduled October 25 meeting in order to continue preparations of technical material. She will draft the action items, work on meeting dates for October and November, and work with the County to post this meeting's slides on the County website. She asked the AC to be prepared with questions on the slides presented today at the next AC meeting.

The next AC meeting was tentatively scheduled for November 29, 2018. There being no further business, the meeting was adjourned at 2:40 p.m.

November 20, 2018

TO: Advisory Committee

FROM: Core Team

SUBJECT: Item II Groundwater Sustainability Plan: Review of Draft Chapters

The Core Team has presented background information regarding the required components of the Groundwater Sustainability Plan (GSP or Plan) at previous Advisory Committee (AC) Meetings. The Core Team will present a summary of working draft GSP content to obtain stakeholder input. The GSP chapters to be discussed at the November 29, 2018 AC Meeting are as follows:

- 1. Chapter 2: Plan Area and Basin Setting Review
- 2. Chapter 3: Sustainability Management Criteria Review
- 3. Chapter 4: Projects and Management Actions (November 29, 2018 Meeting Focus)

Chapter 4 Projects and Management Actions provides information and details on six identified projects and management action categories to be evaluated as part of the Groundwater Sustainability Plan (GSP). The six projects and management action categories include:

- 1. Project 1 Water Trading Program
- 2. Project 2 Water Conservation
- 3. Project 3 Pumping Reduction Program
- 4. Project 4 Voluntary Fallowing of Agricultural Land
- 5. Project 5 Water Quality Optimization
- 6. Project 6 Intra-Subbasin Water Transfers

### Borrego SGMA Advisory Committee (AC) & Core Team (CT) Work Planning & Timeline Chart

*Draft Version 11/19/2018* 

Date	Meeting / Milestone / Action	Topics to Discuss / Notes
November 2018		
November 29, 2018	Borrego AC Meeting #15 Location UCI 10:00am – 3:00pm	<ul> <li>Comprehensive Overview of Elements of the GSP:         <ul> <li>Chapters 2 &amp; 3 (review) and 4.</li> </ul> </li> <li>GSP review meeting in November will focus on the issues highlighted by AC in the October meeting.</li> <li>Discussion of SDAC Components Incorporated into GSP</li> </ul>
December 2018		
December 6, 2018	Borrego AC Meeting #16 Location UCI 10:00am – 3:00pm	<ul> <li>Comprehensive Overview of Elements of the GSP         <ul> <li>Chapters 4 (continued) and 5.</li> </ul> </li> <li>The AC and Core Team will have additional time to work through any remaining items of concern and/or to discuss any aspects of the GSP that still need clarification.</li> <li>AC straw poll consensus recommendation to support the adoption of the GSP as a whole.</li> </ul>
December	Draft GSP made available for 60- day public review and comment	Estimated date subject to change
January through May	2019	
January through April/May 2019	GSA Development of Responses to Public Comments and Preparation of Final GSP	
Spring 2019	Borrego AC Meeting #17 Location TBD Time TBD	<ul> <li>Meeting to discuss any changes made to the GSP in response to public comments</li> <li>The AC will provide formal consensus recommendation to support the adoption of the GSP as a whole.</li> </ul>
Summer 2019		
	GSP Adoption by BWD and County Boards of Supervisors	Estimated date subject to change



### DRAFT WORKPRODUCT



# Borrego Valley Groundwater Basin Borrego Springs Subbasin Baseline Pumping Allocation

AAWARE Meeting, San Diego County Farm Bureau, Escondido, CA

November 16, 2018



### DUDEK

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# BASELINE PUMPING ALLOCATION

# Updated Maximum Annual Groundwater Use By Sector

Sector	Maximum Annual Production (Acre-Feet; Average Eto)	Maximum Annual Production (Acre Feet; 5-Year Maximum Eto, updated water use types, and acreages)	Maximum Annual Production Difference (Acre-Feet; Updated minus Original)	Updated Percent Water Use by Sector
BWD	2,461.00	2,731	269.50	11.34%
Recreation	3,788.88	4,047	258.23	16.81%
Agriculture	14,245.92	15,633	1,387.15	64.94%
Other Users	57.58	63	5.13	0.26%
Water Credits*	1,600.00	1,600		6.65%
Total Subbasin Water Use	22,153.38	24,073	1,920.01	100%

<sup>\*</sup>Water credits are based on contractually issued value and have not been updated to reflect updated water use factors.

### **Updated Annual Water Use Factors**

Type	Plant Factor (MOA)	Plant Factor Range (WUCLOS IV)	Proposed Plant Factor Used	Average Eto	5-Year Maximum Eto <sup>a</sup>	Irrigation Efficiency	Leaching Factor	Annual Water Use Estimate (5-Year Maximum Eto)
Citrus with								
Leaching	0.65	0.4 - 0.6	0.65	6.02	6.45	8.0	1.2	6.28
Palms	0.5	0.4 - 0.6	0.5	6.02	6.45	8.0	N/A	4.03
Nursery	0.6	0.4 - 0.6	0.6	6.02	6.45	8.0	N/A	4.83
Potatoes	N/A	N/A	N/A	6.02	6.45	0.8	N/A	2.50
Turf	0.63	0.6 - 0.8	0.7	6.02	6.45	0.7	N/A	6.45
Landscape								
(Decorative)	N/A	0.30 - 0.6	0.45	6.02	6.45	0.80	N/A	3.63
Landscape								
(Native)	N/A	>0.1 - 0.6	0.3	6.02	6.45	0.7	N/A	2.76
Ponds <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.75
Date Palms								
with Leaching								
(includes								
ground cover)	0.5	0.4 - 0.6	0.6	6.02	6.45	0.8	1.2	7.74

- a. Reference Evapotranspiration based on maximum annual CIMIS Station #207, Borrego Springs form 2010 to 2014.
- b. Pond evaporation is based on pan evaporation data from Imperial Valley (U.S. Dept. of Interior 2004).

# Calculations For Citrus Using ET Method

$$\left(\frac{Eto*PF*1\ Acre}{IE}*CLF\right)$$
 = Annual Water Use Factor

### Where:

Eto = Reference Evapotranspiration (6.45 feet/year, from the year 2010, which is maximum ETo during the baseline period of 2010 through 2014)

PF = Plant Factor (0.65)

IE = Irrigation Efficiency (Assumes 80% Efficient)

CLF = Citrus and Date Palms Leaching Factor (Assumes 20% for Leaching)

Eto (6.446 feet) \* PF (0.65) \* 1 Acre \* CLF (1.2) = 6.28 acre-feet/acre IE(0.8)

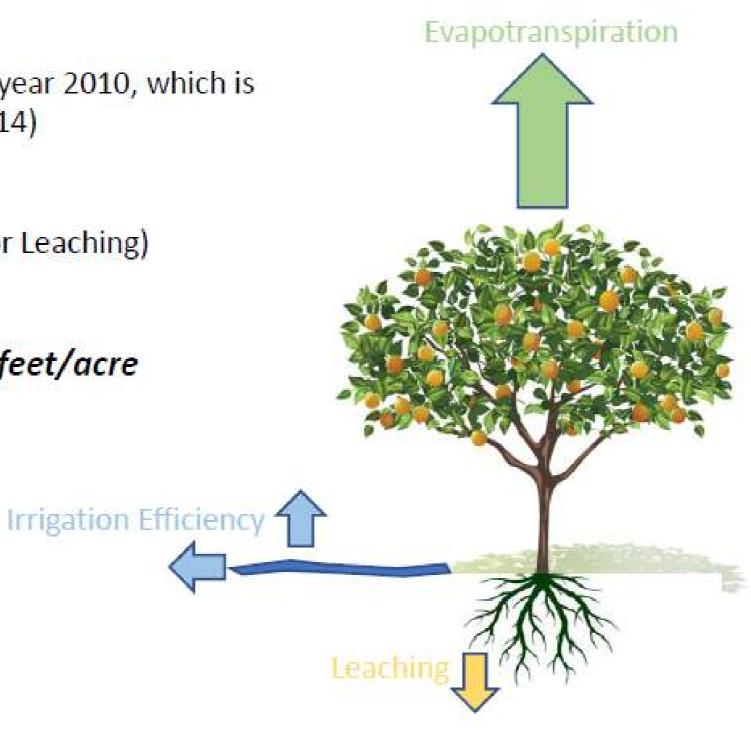
### Sources for Calculation

Source for Eto: California Irrigation Management Information System (CIMIS) Station 207, located at Road Runner Golf Course in Borrego Springs, CA

Source for PF: UC Cooperative Extension and Department of Water Resources, 2000, A Guide to Estimating Irrigation Water Needs of Landscape Plantings in California, p 6.

Source for IE: Irrigation Association, 2005, Turf and Landscape Irrigation Best Management Practices. Sources for CLF: Rhoades J.D. 1974 Drainage for salinity control. In: Drainage for Agriculture. Van Schilfgaarde J. (ed). Amer. Soc. Agron. Monograph No. 17, pp 433–462.

Rhoades J.D. and Merrill S.D. 1976 Assessing the suitability of water for irrigation: Theoretical and empirical approaches. In: Prognosis of Salinity and Alkalinity. FAO Soils Bulletin 31. FAO, Rome. po. 69 110.



# Calculations for Date Palms Using ET Method

Type Plant Fact (MOA)		Plant Factor Range (WUCLOS)	Proposed Plant Factor Used	5-Year Maximum Eto	Irrigation Efficiency	Leaching Factor	Water Use Estimate (5-Year Maximum ETo)
Date Palms <sup>a</sup>	0.5	0.4 - 0.6	0.6	6.45	0.8	1.2	5.80
30% Ground Cover (Turf)	0.63	0.6 - 0.8	0.7	6.45	0.7	N/A	1.93 <sup>b</sup>
Date Palms With Leaching							7.74

- a. Bejeweled dates are Phoenix Dactylifera which are Moderate/Medium in WUCLOS IV (0.4 0.6).
- b. Assumes 30% ground cover for Date Palms

### Monthly and Annual Reference ETo CIMIS Station 207

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total (Inches)	Annual Total (Feet)
2008 <sup>a</sup>	0.46	3.43	6.16	7.6	9.3	10.02	9.07	6.76	6.77	5.13	3.36	2.27	70.33	5.86
2009	2.68	5.16	5.69	7.07	8.76	8.28	8.87	8.71	7.21	5	3.08	1.96	72.47	6.04
2010	2.41	3.21	8.81	9.84	8.58	9.22	9.51	9.11	7.44	4.36	2.88	1.98	77.35	6.45
2011	2.68	3.35	5.55	7.12	8.77	8.23	7.98	8.47	6.43	4.92	2.72	2.11	68.33	5.69
2012	2.85	3.56	5.33	6.77	7.66	9.47	8.77	8.04	7.09	5.04	3.2	2.23	70.01	5.83
2013	2.54	3.57	5.75	7.56	8.64	9.02	8.01	7.57	6.46	5.05	3	2.27	69.44	5.79
2014	2.67	3.66	5.94	7.23	8.66	9.13	8.83	8	6.97	4.55	3.14	1.58	70.36	5.86
2015	2.17	3.54	5.82	7.22	7.96	8.51	8.76	8.74	6.54	5.15	3.37	2.4	70.18	5.85
2016	2.42	4.15	6.35	7.44	8.97	9.79	10.17	8.91	6.51	5.17	3.37	1.99	75.24	6.27
2017	2.33	3.28	6.27	8.18	9.14	10.2	9.7	9.43	6.99	5.38	3.16	2.47	76.53	6.38
9-Year Average	2.53	3.72	6.17	7.60	8.57	9.09	8.96	8.55	6.85	4.96	3.10	2.11	72.21	6.02
													5-Year Maximum	6.45

- a. 2008 excluded form the 9-year average as the record for that year was not complete data.
- b. CIMIS Station # 207 located in Borrego Springs. CIMIS Station # 207 is located on the Road Runner Golf Course, Latitude: 33.268447; Longitude: -116.36505



# Borrego Valley Groundwater Basin Borrego Springs Subbasin



# Baseline Pumping Allocation

# QUESTIONS?



DUDEK