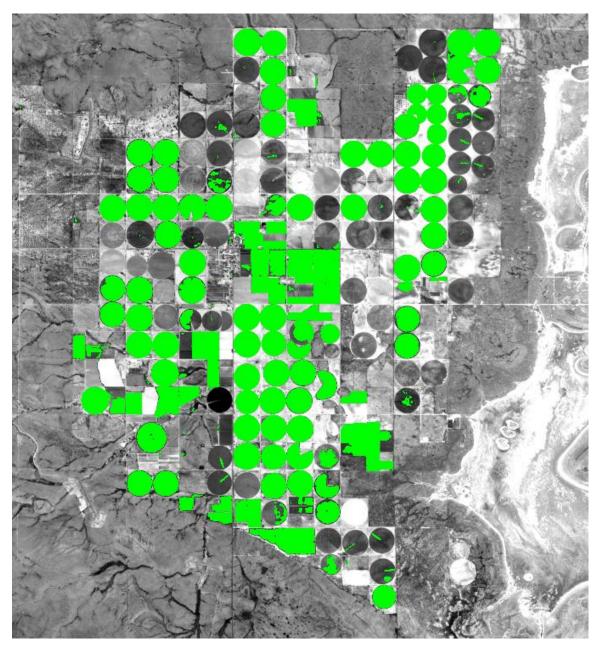
Hudspeth County Underground Water Conservation District No. 1



Groundwater Management Plan

Approved on October 23, 2018

Hudspeth County Underground Water Conservation District No. 1

This Management Plan was prepared in accordance with the requirements of Chapter 36 of the Texas Water Code and Title 31, Chapter 356, of the Texas Administrative Code and was made available for public comment prior to adoption by the Board of Directors of the Hudspeth County Underground Water Conservation District No. 1 (the District).

1. Estimate of Modeled Available Groundwater - 31 TAC § 356.52(a)(5)(A)

TWDB GAM Run 16-03 0 MAG (Appendix A) summarized the Modeled Available Groundwater based on the GMA 4 Adopted Desired Future Conditions as 101,040 acrefeet per year.

2. Amount of Groundwater Being Used through 2017 – 31 TAC §§ 356.52(a)(5)(B);356.10(2)

Irrigation water use makes up over 99% of the water use in Hudspeth County and in the District. The District requires by rule that all groundwater pumped under validation or operating permits must be metered. (Validation permits are basically those that recognize—"validate"—existing and historic use.) The District has issued approximately 55 validation permits which identify approximately 260 irrigation wells from which groundwater can be pumped. Approximately 120 of the irrigation wells identified in the validation permits are not equipped with a pump and thus are not required to have flow meters. Of the remaining 140 irrigation wells that are equipped with a pump, the District has received meter reading reports for 132 wells.

Domestic, livestock, and municipal use is estimated to be less than 500 acre-feet a year and relatively constant during from 2013 through 2017.

The table on the next page shows the estimated annual amount of groundwater pumping for the Dell City area uses a combination of estimates from crop water use estimates and crop acreage from LANDSAT 8 images and meter reading records. In 2015 the District made a sustained effort to make sure all wells were metered and the meters where working properly. The estimate of unmetered water in 2015 was only 3%.

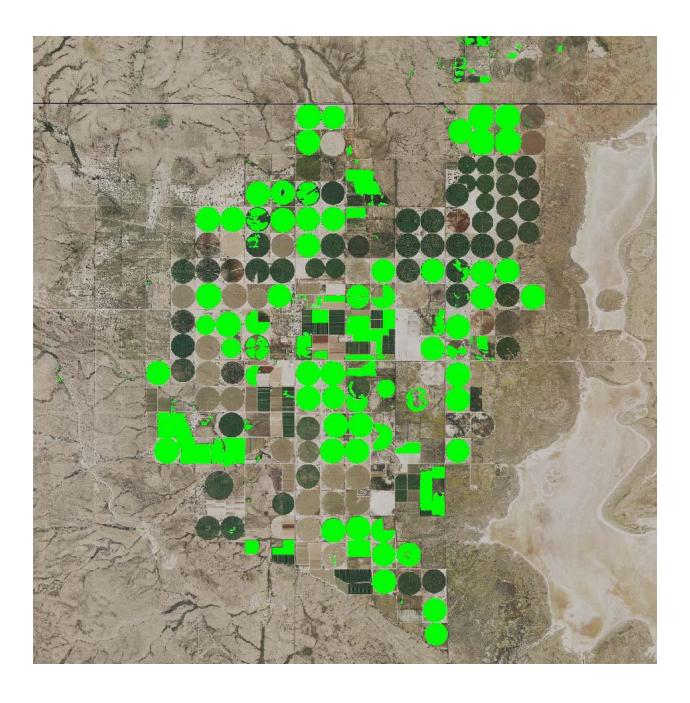


Figure 1: Cultivated Acreage in Dell City, Texas, Area in 2015 (Actively growing area shown in green)

Appendix F contains the "Estimated Historical Groundwater Use and 2017 State Water Plan Datasets" provided by the TWDB. The estimates of Historical Groundwater Use (acre-feet per year) in Appendix F significantly under-estimate the actual historical pumping in the District and other locations within Hudspeth County (see section 2).

3. Amount of Recharge from Precipitation – 31 TAC § 356.52(a)(5)(C)

TWDB GAM Run 11-020 estimated the recharge from precipitation over the District is 256 acre-feet per year. The primary recharge zone for the Bone Spring – Victorio Peak Aquifer is outside and north of the District in the Sacramento Mountains drainage area.

4. Amount of Water that Discharges to Springs – 31 TAC § 356.52(a)(5)(D)

Historically, water from the Bone Spring -Victorio Peak Aquifer discharged to the Alkali Lakes in the Crow Flat portions of the Salt Basin. The exact date that such discharge stopped is not known but was assumed to have occurred prior to 1970. Currently, there is no known spring flow from the aquifer.

5. Estimate of Annual Volumes of Flow – 31 TAC § 356.52(a)(5)(E)

There is only one aquifer in the district and it is in a closed basin. Table 1 below was prepared by the Texas Water Development Board in the document GAM Run 11-030: Hudspeth County Underground Water Conservation District Management Plan.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Bone Spring-Victorio Peak Aquifer	256
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Bone Spring-Victorio Peak Aquifer	0
Estimated annual volume of flow into the district within each aquifer in the district	Bone Spring-Victorio Peak Aquifer	110,805
Estimated annual volume of flow out of the district within each aquifer in the district	Bone Spring-Victorio Peak Aquifer	39,825
Estimated net annual volume of flow between each aquifer in the district	Bone Spring-Victorio Peak Aquifer	0

Table 1: TWDB GAM Run 11-020 Recharge, Inflows and Outflows

6. Projected Surface Water Supply - 31 TAC § 356.52(a)(5)(F)

The 2017 State Water Plan (see Appendix F) shows 160 acres-feet of surface water being available from the Rio Grande in Hudspeth County during the drought of record. No water from the Rio Grande is available to water users within the District. There are four recharge and flood control dams located within the District that do capture storm runoff, but during the drought-of-record the estimated amount of runoff is zero.

7. Projected Total Demand for Water –31 TAC § 356.52(a)(5)(G)

Appendix F contains the "Estimated Historical Groundwater Use And 2017 State Water Plan Datasets" provided by the TWDB. The project Total Demand for Hudspeth County shown in Appendix F for 2020 for Hudspeth County is 35,142 acre feet. Hudspeth County contains three primary areas of irrigated agriculture: 1) the Hudspeth County Conservation and Reclamation District No. 1 near Ft. Hancock, Texas (approximately 18,000 acres of irrigated land); 2) the Hudspeth County Underground Water Conservation District No. 1 (approximately 34,000 acres of permitted historical irrigated land); and the Salt Flat – Diablo Farms area (approximately 5,000 acres of irrigated land). The approximate total amount of irrigated land in Hudspeth County is 57,000 acres of which it is typical to apply between 3 to 4 feet or water per year to produce and agricultural crop. During drought, the amount of irrigation land near Ft. Hancock is significantly less than 18,000 acres.

Since the District does not cover all of Hudspeth County, county-wide data are not representative data for the District. The area within the District is approximately 19.62 percent of the total area of Hudspeth County.

8. Water Supply Needs - TWC § 36.1071(e)(4)

Appendix F contains the "Estimated Historical Groundwater Use And 2017 State Water Plan Datasets" provided by the TWDB. The Water Supply Needs for Hudspeth County shown in Appendix F for 2020 for Hudspeth County for irrigation is -98,847 acre feet.

9. Water Management Strategies -TWC § 36.1071(e)(4)

The water management strategies for the District include the following strategies obtained from the 2017 State Water Plan:

- Irrigation Scheduling
- Reuse of Irrigation Tailwater

The large majority of irrigated land in the District is planted with alfalfa for hay. Hay production requires repetitive field operations of irrigation, cutting or windrowing, raking, and bailing. The harvest operations are dependent on the alfalfa leaf area being relatively dry and the moisture of the cut hay must be optimal for bailing (neither too dry nor too wet). This sequence of irrigation, cutting, raking, and bailing is typically repeated 5 to 8 times per year. Because the scheduling of these harvest operations takes priority over crop water requirements, irrigation scheduling is seldom used in alfalfa hay

production, and thus is not a useful conservation strategy for the District. Similarly, because alfalfa is a multi-year crop (3 to 6 years) between replanting, conservation tillage is of limited value for alfalfa production.

The majority of the irrigated land within the District is irrigated using low pressure center pivots. Currently, only high value crops in the District, such as grapes, are irrigated using drip irrigation. Several farms in the far south west area of New Mexico and eastern area of Arizona are using subsurface drip irrigation for alfalfa production. The irrigation water quality at these locations is typically much higher (less salt) than the quality of the groundwater in the District. Nonetheless, some potential exists within the District for increasing the amount of drip irrigation.

10. Management of Groundwater Supplies - 31 TAC § 356.52(a)(4)

The District will manage the production of groundwater from the Bone Spring-Victorio Peak aquifer within the District in a sustainable manner. The District will identify and engage in such practices that, if implemented, would result in more efficient use of groundwater.

The District shall prepare an annual report summarizing District activities to be approved by the Board of Directors during the first quarter of each year. A newsletter will be mailed to all validation and operational permit holders. The newsletter will contain a summary of the annual report and information regarding water conservation.

11. Actions, procedures, performance, and avoidance that are or may be necessary to effect the plan, including specifications and proposed rules - TWC §36.1071(e)(2)

The District has specified in the District's rules, including the District's groundwater production permitting process, the actions, procedures, performance, avoidance, and specifications necessary to effect this Management Plan. Section 16 of this plan specifies management goals, objectives, and performance standards for District activities. Operations of the District, all agreements entered into by the District, and any additional planning activities in which the District participates will be consistent with this plan and with the District's rules.

12. District Rules - TWC § 36.1071(f)

A copy of the District's can be download from https://www.twdb.texas.gov/groundwater/docs/.../hcuwcd1/hcuwcd1_rules2016.pdf

13. Resolution Adopting 2018 Management Plan – 31 TAC § 356.53(a)(3)

A certified copy of the District Resolution adopting this Management Plan is attached as Appendix B.

14. Notice of Hearing on 2018 Management Plan – 31 TAC § 356.53(a)(3)

A hearing notice was published in the *Hudspeth County Herald*, a newspaper of general circulation in Hudspeth County, Texas, 20th day of July 2018, and a copy of the published notice is attached as Appendix C. Also enclosed, as Appendices D and E, respectively, are copies of the posted agenda for the hearing and the minutes of the hearing.

15. Site Specific Information – 31 TAC § 356.52(c)

Section 19 list references for technical publication describing the characteristics of the groundwater resources with the District.

16. Management Goals, Objectives, and Performance Standards – 31 TAC § 356.51

16.1. Addressing Efficient Use of Groundwater

Management Objective: Each year the District will provide information to the general public about the status of the groundwater in the District.

Performance Standard: The District's annual newsletter that will be mailed to each of the existing validation and operating permit holders will include information on the status of groundwater in the District.

16.2. Addressing Controlling and Preventing Waste of Groundwater

Management Objective: The District will inform District water users about efficient use of water and methods to prevent waste.

Performance Standard: The District's annual newsletter that will be mailed to all validation and operating permit holders will include an article on irrigation water management.

16.3. Addressing Controlling and Preventing Subsidence

There is no known subsidence (as defined in Chapter 36 of the Texas Water Code) within the District caused by groundwater withdrawals, and this management item is not applicable to the District's Management Plan (see

http://www.twdb.texas.gov/groundwater/models/research/subsidence/subsidence.asp).

16.4. Addressing Conjunctive Surface Water Management Issues

There are no known conjunctive surface water management issues within the District, and this management item is not applicable to the District's Management Plan.

16.5. Addressing Natural Resource Issues

Management Objective: The amount of groundwater withdrawals permitted by the District shall be tied to the long-term sustainable amount of recharge to the portion of the aquifer within the District and the groundwater elevation measured in the District's monitoring well(s) in accordance with the District's rules, in such a way as to protect the historical and existing uses of groundwater withdrawn from the portion of the Bone Spring-Victorio Peak aquifer located within the District.

Performance Standard: The District shall report annually to the Board on the amount of groundwater being withdrawn through non-exempt wells located within the District, measured through the District's flow metering program, for the quantification of existing and historical use of groundwater within the District's boundaries, and for the issuing of validation and operational permits for all nonexempt wells in operation.

16.6. Addressing Drought Conditions

Management Objective: The annual amount of groundwater permitted by the District for withdrawal from the portion of the Bone Spring-Victorio Peak aquifer located within the District may be curtailed during periods of extreme drought in the recharge zone of the aquifer or because of other conditions that cause significant declines in groundwater surface elevations. Such curtailment may be triggered by the District's Board based on the groundwater elevation measured in the District's monitoring well(s).

Performance Standard: The District's annual report will include a report on the District's monitoring well groundwater elevation at least one measurement per year and a report on whether the permitted withdrawals were curtailed at any time during the year because of drought conditions.

16.7. Addressing Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, and Brush Control

Management Objective: The District shall promote the efficient application of irrigation water to field crops.

Performance Standard: The District shall assist in organizing the field demonstration of irrigation water conservation technology during one day every other year.

Management Objective: The District shall coordinate each year with Hudspeth County on the maintenance of the three existing recharge and flood control facilities located in the district.

Performance Standard: The District Manager shall report to the District's board of directors annually regarding the activities of Hudspeth County regarding the maintenance of the recharge and flood control facilities, and such report shall be reflected in the minutes of such board meeting.

Management Objective: The District shall promote rainwater harvesting, precipitation enhancement, and brush control.

Performance Standard: The District shall include articles on rainwater harvesting, precipitation enhancement, and brush control in its annual newsletter mailed to all of its validation and operating permit holders.

16.8. Addressing Modeled Available Groundwater and Desired Future Conditions

Management Objective: The District shall adopt a Modeled Available Groundwater and Desired Future Conditions value in accordance with the requirements of Chapter 36 of the Texas Water Code and Title 31, Chapter 356, of the Texas Administrative Code.

Performance Standard: The District has participated in the GMA 4 meetings with a minimum of one meeting per year, and will continue to work with GMA 4 and the Texas Water Development Board in determine the amount of Modeled Available Groundwater and the Desired Future Conditions within the District.

17. Addressing Desired Future Conditions

The GMA 4 Resolution 2010-01 set a Desired Future Condition for the Bone Spring – Victorio Peak Aquifer of 0 feet of change in the average groundwater elevation at the end of 50 year planning period in 2060. The following objectives and performance standards will be used to address the District's Desired Future Conditions.

Objective: The District will continuously measure the water levels in at least one monitoring well and manually measure water levels each year in at least five monitoring wells within the District and will determine the average groundwater levels every two years. The District will compare the two-year water level averages to the corresponding two-year increment of its DFCs in order to track its progress in achieving the DFCs.

Performance Standard: The District's Annual Report will include the water level measurements taken each year for the purpose of measuring water levels to assess the District's progress towards achieving its DFCs. The District will include a discussion of its comparison of water level averages to the corresponding two-year increment of its DFCs in order to track its progress in achieving its DFCs.

Objective: The District will review and calculate its total amount of groundwater pumped within the District and assess whether the District is on target to meet the DFC estimates submitted to the TWDB.

Performance Standard: The District's Annual Report will include a discussion of the measured groundwater levels and the amount of water pumped each year within the District and will evaluate the District's progress in achieving the DFCs of the groundwater resources within the boundaries of the District and whether the District is on track to maintain the DFC estimates over the fifty-year planning period.

18. Evidence of Coordination with Surface Water Entity

There are no surface water entities identified in the 2017 State Water Plan that are located within the District's boundaries.

19. Sharing with Regional Water Planning Group

A copy of the transmittal letter in included in Appendix G of this plan showing that a copy of the draft plan was hand delivered to the Chair of the Far West Regional Water Planning Group requesting the group's comments.

20. References

Ashworth, John, (1995), Ground-water resources of the Bone Spring-Victorio Peak Aquifer in the Dell Valley Area, Texas, Texas Water Development Board Report No. 344, Austin, Texas, 43 pg.

Mace, Robert, et al (2001), Aquifers of West Texas, Texas Water Development Board Report No. 356, Austin, Texas, pg.135-152.

Blair, A.W., (2003), April 28, 2003 as revised on May 5, 2003. Report to the Far West Texas Regional Water Planning Group and the Texas Water Development Board. "Determination of Acres of Irrigated Land and Irrigation Water Use for the Year 2000 in Hudspeth County Texas.

Far West Texas Regional Water Plan, 2011, Rio Grande Council of Governments, http://www.riocog.org/EnvSvcs/FWTWPG/publishe.htm

Mayer, J.R., (1995), The role of fractures in regional groundwater flow: Field evidence and model results from the basin-and-range of Texas and New Mexico, M.S. Thesis from University of Texas, Austin.

Logan, H.H., (1984), A groundwater recharge project associated with a flood protection plan in Hudspeth County, Texas, Master Thesis – Texas Christian University, 110 pg. (as cited in Ashworth, 1995).

Appendix A – TWDB GAM Run 16-030 MAG

Appendix B – Copy of Resolution Adopting Management Plan

HUDSPETH COUNTY UNDERGROUND WATER CONSERVATION DISTRICT #1 Special Session – August 14, 2018 @ 1:00 pm District Office 105 Dodson Dell City, Texas 79837

Directors Present
Talley Davis - President
Robert Carpenter-Vice President
Grant Gardiner-Sec/Treas.
Lindsay Snodgrass
Phyllis Gentry

Directors Absent

None

Visitors

James Rascoe V
Casey Peters St
Kevin Lynch B
Jim Lynch M
Anne Lynch K

Val Call Steve Carpenter Brian Archuleta Melanie Gentry

Anne Lynch Keith Newbill Eric Brunnermann Jay Hill

Staff Present
Randy L. Barker – GM
Al Blair – District Engineer
Della Tavarez – Administrative Assistant

President Davis called the special session to order at 1:00 P.M., on August 14, 2018. Davis declared a quorum and welcomed guests.

1. Discuss and take action on revisions, if any, to District Groundwater Management Plan:

Groundwater Management Plan was discussed with no guest inputs by mail or in person. The Draft Plan will be presented to the Texas Water Development Board for approval. James Rascoe commented about the water usage and the drawdown of the Aquifer.

2. Adjourn

Phyllis Gentry made motion to adjourn at 1:04 P.M., Grant Gardiner seconded and the motion passed.

PASSED AND APPROVED THIS

DAYOF

1

Grant Gardiner, Secretary-Treasurer

Appendix C – Notice of Hearing

PUBLIC NOTICE OF GROUNDWATER

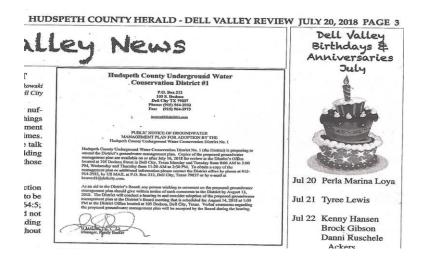
MANAGEMENT PLAN FOR ADOPTION BY THE

Hudspeth County Underground Water Conservation District No. 1

Hudspeth County Underground Water Conservation District No. 1 (the District) is proposing to amend the District's groundwater management plan. Copies of the proposed groundwater management plan are available for review at the District's Office located at 107 S. Dodson Street in Dell City, Texas Monday through Thursday from 9:00 AM to 2:00 PM. To obtain a copy of the management plan or additional information please contact the District office by phone at 915-964-2932, by US MAIL at P.O. Box 212, Dell City, Texas 79837 or by e-mail at <a href="https://docs.py.ncbi.nlm.ncbi.n

As an aid to the District's Board, any person wishing to comment on the proposed groundwater management plan should give written notice of such comments to the District by August 13, 2018. The District will conduct a hearing in and consider adoption of the proposed groundwater management plan at the District's Board meeting that is scheduled for August 14, 2018 at 1:00 PM at the District Office located at 107 S. Dodson, Dell City, Texas. Verbal comments regarding the proposed groundwater management plan will be accepted by the Board during the hearing.

Manager, Randy Barker



APPENDIX C – Agenda for August 13, 2018 Board Meeting and Hearing on Groundwater Management Plan

NOTICE OF MEETING OF THE GOVERNING BODY OF THE HUDSPETH COUNTY UNDERGROUND WATER CONSERVATION DISTRICT #1

Notice is hereby given that the Board of Directors of the Hudspeth County Underground Water Conservation District #1 will meet in a Special Session at the following location and time;

Location:

HCUWCD #1

105 S. Dodson

Dell City, Texas 79837

Time:

August 14, 2018 @ 1:00 P.M.

MEETING AGENDA

At the above time and location the District's Board of Directors will discuss and may take action on any items on this agenda it may determine would be appropriate to-wit:

Call to order and welcome all guests

- 1. Discuss and take action on revisions, if any, to District Groundwater Management Plan.
- 2. Adjourn.

I, the undersigned authority of the District, do hereby certify that the above notice is a true and correct copy of said notice and that such notice was posted on the main entrance of the District's office located at 105 S. Dodson, Dell City, Texas at least 72 hours prior to the time of said meeting, and that copy of said notice was furnished via facsimile to the Clerk of Hudspeth County, Texas at least 72 hours prior to the time of said meeting.

08-01-18 Date: 9135A	Time:
Jaelay Dans	
Talley Davis/President I, the Clerk of Hudspeth County, Texas do hereby certify t	hat the above notice of meeting is a
true and correct copy of said notice and that such notice has the Hudspeth County Court House in Sierra Blanca, Texas said meeting.	been posted on the bulletin board at at least 72 hours prior to the time of
8/10/18 Date:	2:00 PM Time:
Vand / June Sum	
Virginia Doyal, County Clerk Hudspeth County, Texas	
-	4 10

Appendix E - Minutes from October 23, 2018 Hearing

HUDSPETH COUNTY UNDERGROUND WATER CONSERVATION DISTRICT #1 Special Meeting – October 23, 2018 @ 1:00 pm District Office 105 Dodson Dell City, Texas 79837

Directors Present
Talley Davis - President
Robert Carpenter-Vice President
Grant Gardiner-Sec/Treas.
Lindsay Snodgrass
Phyllis Gentry

Directors Absent None Visitors Melanie Gentry Steve Carpenter Jonena Hearst Jay Hill Keith Newbill

Staff Present

Randy L. Barker – General Manager Della Tavarez – Administrative Assistant Renea Hicks – Attorney (District) Al Blair – District Engineer via Teleconference

President Davis called the special meeting to order at 1:00 P.M., on October 23, 2018. Davis declared a quorum and welcomed guests.

1. Discuss and take action for approval of minutes:

Lindsay Snodgrass made the motion to approve the minutes of the special meeting on August 14, 2018, and regular meeting on September 11, 2018. Grant Gardiner seconded and the motion passed.

2. Discuss and take action for approval of bills.

Robert Carpenter made the motion to approve the bills, Phyllis Gentry seconded and the motion passed.

3. Discuss and take action for approval of financial report:

Lindsay Snodgrass made the motion to approve the financial report, Grant Gardiner seconded and the motion passed.

4. Discuss and take action for approval of 2018 Management Plan.

Phyllis Gentry made the motion to approve the Management Plan with the changes recommended by TWDB, update on State Water Plan in appendices. Robert Carpenter seconded and the motion passed.

5. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-062 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-062 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

6. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-063 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-063 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

7. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-064 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-064 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

8. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-065 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-065 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

9. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-066 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-066 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

10. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-067 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-067to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

11. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-072-1 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-072-1 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

12. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-074 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-074 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

13. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-077 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-077 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

14. Discuss and take action on El Paso Water Utility's application to amend Validation Permit No., VP-078 to reflect change in ownership of estate.

Phyllis Gentry made the motion to amend El Paso Water Utility's Validation Permit No. VP-078 to reflect change in ownership of estate. Robert Carpenter seconded and the motion passed.

Talley Davis, Prysident

15. Report from District Engineer.

No action.

16. Open Forum.

No comments.

18. Adjourn.

President Talley Davis adjourned the meeting at 1:10 P.M.

Attest:

PASSED AND APPROVED THIS 1

Grant Gardiner, Secretary-Treasurer

Appendix F - Estimated Historical Groundwater Use and 2017 State Water Plan Datasets		

Appendix G – Copy for Transmittal Letter to Chair of Far West Texas Water Planning Group