

**WRITTEN TESTIMONY OF THE WESTERN KANSAS GROUNDWATER MANAGEMENT DISTRICT #1**

**To Hearing Officer Earl Lewis,**

**Division of Water Resources, Kansas Department of Agriculture,**

**For the Hearing Scheduled October 17, 2022.**

**Submitted by: Katie Durham**

This written testimony is from the Western Kansas Groundwater Management District #1 (“GMD 1”) regarding its proposal for a Local Enhanced Management Area (“LEMA”) for Greeley, Lane, Scott, and Wallace Counties, the Four County LEMA (FCL). After extensive work by the Board and work with its constituents, the proposal was approved by the Board on June 29, 2022, submitted to the Chief Engineer on July 1, 2022, and is attached as Exhibit 1 (the “Proposed LEMA”). The Proposal includes an Executive Summary of the Proposed LEMA and its elements as well as a summary of the extensive public outreach by the Board in developing the proposal.

GMD 1 wishes to express its appreciation to both the Kansas Geological Survey (KGS), along with the Kansas Department of Agriculture’s Division of Water Resources (KDA-DWR, or DWR) for their extensive support to GMD1 over the many years in support of the mission of GMD 1 generally, and over much of the last two years in developing this Proposed LEMA Plan. To provide evidence needed for this initial hearing, GMD 1 has worked with and relied upon the following work of the KGS: 1) KGS’ work products including within the LEMA Plan, 2) the written testimony of Brownie Wilson submitted to the hearing officer (KGS testimony) and

included as Exhibit 2, and 3) KGS Open File Report 2022-8, also submitted by KGS into the hearing record.

This testimony addresses the following three questions required in this initial hearing under KAN. STAT. ANN. § 82a-1041(b) and found to be supported by the record:

- a. Whether one or more of the circumstances specified in subsections (a) through (d) of KAN. STAT. ANN. § 82a-1036 exist;
- b. Whether the public interests of KAN. STAT. ANN. § 82a-1020 require one or more corrective control provisions; and
- c. Whether the geographic boundaries are reasonable.

In evidence of these three questions, and to support GMD 1's Proposed LEMA, Ms. Durham, manager of GMD 1, states as follows on the District's behalf:

**1. The circumstances specified in subsections (a) and (b) of KAN. STAT. ANN. § 82a-1036 exist.**

The hearing officer must determine that at least one of the factors listed in this statute exist. KAN. STAT. ANN. § 82a-1041(b). The circumstances listed in this statute are: (a) groundwater levels in the area in question are declining or have declined excessively; (b) the rate of withdrawal of groundwater within the area in question equals or exceeds the rate of recharge; (c) preventable waste of water is occurring or may occur within the area; or (d) unreasonable deterioration of the quality of water is occurring or may occur. KAN. STAT. ANN. § 82a-1036.

At least two of these factors exist in the area of the Proposed LEMA: that the groundwater levels in the area are declining and have declined excessively, and that the rate of withdrawal of the groundwater in the area equals or exceeds the rate of recharge.

a. *Groundwater levels in the area are declining, and have declined excessively.*

Groundwater levels of the Proposed LEMA have declined excessively in the past. This is plainly shown for townships of the Proposed LEMA for Greeley, Lane, Scott, and Wallace Counties and for all individual sections of four counties except a small number of sections where groundwater use is, for the most part, non-existent. *See Exhibit 1*, the second and third maps, Attachment E, and the more detailed versions in *Exhibit 3*. *See Also Exhibit 2* at Page 3, Aquifer Conditions. The average percentage reductions in saturated thickness within the counties of Proposed LEMA are 80%, 68%, 53% and 31% in Wallace, Greeley, Scott, and Lane counties, respectively. Reduction percentages in excess of 60% dominating the area in question. *Id.*

In addition, groundwater levels in Greeley, Lane, Scott, and Wallace Counties continue to decline in the more recent record. *See Exhibit 1*, the first map, Attachment E and the more detailed version in *Exhibit 3*. *See Also Exhibit 2* at Page 7, Groundwater Use and Water-Level Relationships, GMD1. The Kansas Geological Survey estimates required reductions in recent (2010-21) average water use to stabilize groundwater levels range from 17% in Lane County to 51% in Wallace County.

b. *The rate of withdrawal of the groundwater in the area equals or exceeds the rate of recharge.*

The rate of withdrawal of groundwater within the Proposed LEMA equals or exceeds the rate of recharge. *See Exhibits 2 and 3*. Exhibit 2, Table 1, provides estimates of reported pumping within the Proposed LEMA area for 2010-2021, totaling just short of 120,000 acre-feet per year. *Exhibit 2* at Page 11.

The KGS testimony provides a significant discussion from its groundwater modeling work on the various components of recharge and their trends over time. *See Exhibit 2*, Figures 2

and 3. With the reduction of groundwater pumping, irrigation returns flows are on the decline. The most dependable long-term source of recharge is precipitation recharge, which the KGS estimates to be less than 30,000 acre-feet per year over the entire GMD. Even considering the estimated irrigation return flows and other inflow sources, it is clear that groundwater use is significantly larger than recharge.

Groundwater levels are declining, and they are declining because, *inter alia*, the rate of withdrawal exceeds the rate of recharge. The data compiled by the Kansas Geological Survey, establishes this clearly and convincingly. Thus, the first element of KAN. STAT. ANN. § 82a-1041(b) has been met.

**2. The public interests of KAN. STAT. ANN. § 82a-1020 require one or more corrective control provisions.**

KAN. STAT. ANN. § 82a-1020 is the Legislative declaration regarding establishing groundwater management districts in Kansas. It declares that, in the public interest, it is necessary and advisable to permit the establishment of GMDs which allow local water users to determine their own destiny with respect to the use of groundwater.

It is in the public interest that this Proposed LEMA be accepted. It is in the future public interest, to contribute to the longevity and health of the aquifer. It is in the current public interest, as GMD1 has narrowly tailored the restrictions to specifically address the water issue in a way to minimize disruption to the Greeley, Lane, Scott, and Wallace Counties' irrigation water users, consistent with current and future needs. And finally, the local water users under the Proposed LEMA have been made aware of and been involved through public comment in all the details of this plan, and they have expressed their destiny: these users support this LEMA.



A. *The Proposed LEMA is in the future public interest.*

The Proposed LEMA controls for Greeley, Lane, Scott, and Wallace Counties entail, generally, an overall average reduction in historic water use of just over 10% for all irrigation Appropriation Water Rights holders for five years, 2023-2027, with the goal to limit irrigation withdrawals to 472,000 acre-feet over those five years. *See Exhibit 1, Attachment C.* This reduction goal arose from input from the KSU survey discussed below, other public input, and extensive discussion by the Board as the best way to get started in addressing water level declines without causing significant economic effects. The Proposed LEMA also provides significant flexibilities in use to allow producers to maximize the economic benefit of the reduced use and includes a robust appeal process to ensure past conservation is properly considered.

An allocation method has been developed to apply to each irrigation Appropriation Water Right Group (Water Right Groups are composed of all legally overlapped water rights by point of diversion, place of use, or both), a required reduction ranging between 0 and 25% is then applied based on a sliding scale, with larger reductions for larger water use, and lesser reductions for smaller water use. We have not required that Vested Right Holders comply with the LEMA. When less than 3 inches per authorized acres was applied in 2011-2020, no reduction is required; when more than 12 inches per authorized acres were applied, a 25% reduction is required from historic use; in between 3 and 12 inches, the required reduction is based on a sliding scale between these values. *See Exhibit 1, Section III on LEMA Allocation and Attachment C.*

b. *The Proposed LEMA is in the current public interest.*

As stated above, the Proposed LEMA restrictions are carefully tailored only to the extent required to address the aquifer's decline and the Plan includes substantial flexibilities. The

Proposed LEMA will apply to all irrigation Appropriation Water Rights. *See Exhibit 1*, LEMA Allocations. Due consideration for prior conservation efforts will be factored into the LEMA Allocation. *See Exhibit 1*, Attachment F.

The Proposed LEMA does not impact vested water right holders. *See Exhibit 1*, at Page 10. While the LEMA does not provide for allocations for municipal users, domestic users, and stock water users, it encourages all to limit and reduce their water consumption. *Id, Generally*. Again, this was done intentionally, to address the issue with aquifer depletion by the least invasive means necessary, and focuses only on the most significant use of the aquifer: irrigation. The Plan commits the District to annually review non-irrigation water use. The District has already initiated enhanced outreach to non-irrigation users to keep them informed on the LEMA and the District's conservation activities, and ways they can support these users.

c. *The Proposed LEMA had been made known to the public, and has received broad support.*

The Proposed LEMA has been impacted, developed and refined through public engagement and comment. Due to the public involvement in shaping the terms of the Proposed LEMA, the content of this plan is supported by the public. Below is a summary of the Board's outreach. *See Exhibit 1*, Attachment D.

The decline in aquifer levels is well-known in throughout Wallace, Greeley, Scott and Lane County, and has been the subject of extensive discussions and actions over the years. In 2013-2014, a GMD 1 district-wide LEMA was developed and proposed with significant public involvement. While the Board elected not to move forward with that LEMA Plan, LEMA discussions continued. Following the creation and implementation of the Wichita County Water Conservation Area, the Board was encouraged to renew LEMA discussion, esp. for Wichita

County. As a result, in 2018, the Board renewed exploring concepts for a district-wide LEMA, ultimately deciding to develop and proposed the Wichita County LEMA.

As the Wichita County LEMA hearing process was reaching its conclusion during late 2020, the GMD 1 Board renewed its focus on developing a LEMA or LEMAs for the rest of the District. The Proposed LEMA has been an on-going development since that time.

During the late months of 2020, the GMD 1 Board began working with Dr. Nathan Hendricks of KSU to design a survey focused on determining the level of support within the District for developing a LEMA. This included a request for the individual's preference on groundwater reductions and proposed methodologies for establishing allocations. During the spring of 2021, the survey was sent to 832 individuals, all of whom were water use correspondents or water right owners on record with DWR at the time of mailing. After his analysis, Dr. Hendrick's presented his findings to the Board as well as at the 2021 annual meeting. The survey indicated significant support for a LEMA where allocations implemented reductions of approximately 10-15%.

During almost all of the Board's meeting from November 2020 through June 2022, LEMA development has been a significant agenda item, in addition to several special board meetings. At both the 2021 and 2022 annual meetings, the Board's LEMA development was a principle focus. In addition, the GMD1 website has a section dedicated specifically to the Proposed LEMA, and includes documents developed, and news events regarding the Proposed LEMA. *See Exhibit 4.*

In response to public input from these meetings and notices, as well as significant informal comments received by Board members individually, the Proposed LEMA was modified several times incorporating changes and adding elements to address issues raised, such as: a)

implementation of a sliding scale reduction rather than a flat percentage rate reduction; b) allocations provided by Water Right Groups rather than points of diversion; and c) a robust and flexible appeals process to provide due consideration for contested Allocation designations. All of these items represent significant public involvement that resulted in the locally-developed and locally-requested plan that the chief engineer is hearing today.

Additionally, the GMD 1 board has incorporated Water Conservation Areas, or WCAs, as well as Multi-Year Flex Accounts, or MYFAs, into the Allocation computation in the Proposed LEMA. Past results from multi-year allocation programs such as LEMAs and WCAs have shown most participants typically use less than allocated when enrolled in flexible allocation plans. *See David Barfield, DIV. OF WATER RES., 2020 Report on Implementing Legislative Tools to Extend the Life of the Ogallala Aquifer (Jan. 2020). See Exhibit 1, Attachment C.*

In May of 2022, the Board held three Public Outreach Meetings: in Wallace, Scott and Lane Counties. These meetings were noticed in several newspapers that service the GMD1 area. Additionally, a letter was sent out to all landowners on file indicating the meeting times and locations and that the Proposed LEMA would be the primary topic of discussion. *See Exhibit 1, Attachment D.*

So, for the above reasons, the Proposed LEMA is in the public interest. The Proposed LEMA is in the future public interest, as it would preserve the aquifer for years to come. It is in the current public interest, as GMD 1 has narrowly tailored the restrictions to specifically address the water issue in a way to minimize disruption of agricultural production and protect the economic viability in Greeley, Lane, Scott, and Wallace Counties' irrigation water users consistent with current and future needs. Finally, it is in the public's expressed interest, as it has

been requested by local water users and they have been well-informed of the Proposed LEMA, and they have expressed their support for this Proposed LEMA.

**3. The geographic boundaries are reasonable.**

The Proposed LEMA has definitive boundaries. Specifically, those boundaries are those portions of Greeley, Lane, Scott, and Wallace Counties, within GMD 1, which is all of GMD 1's boundary, except Wichita County, which has an existing LEMA in place. *See Exhibit 1, Attachment B.* As is demonstrated in this testimony including the water level change maps cited above, the entire region of GMD1 is subject to excessive declines and thus in need of the enhanced management proposed by the LEMA.

**4. Conclusion**

In conclusion, GMD 1 has met all three elements necessary for the Chief Engineer to make the required findings of fact to be considered in this initial hearing. First, the area of the Proposed LEMA has declining water levels, and the rate of withdrawal exceeds the rate of recharge, establishing subsections (a) and (b) of KAN. STAT. ANN. § 82a-1036.

Second, the proposed area will benefit from the corrective controls allowed by the Proposed LEMA to protect the future use of the High Plains Aquifer in this region and GMD 1. The majority of the invested persons were made aware of the LEMA process, and invited to participate, and kept informed of the situation. Thus, the public interest as envisioned in KAN. STAT. ANN. § 82a-1020 will be served by the adoption of these corrective control provision, as these corrective controls will stabilize the aquifer and for future use.

Third and finally, the geographic boundaries of the Proposed LEMA are reasonable, due to the fact that the remaining counties within GMD 1, Greeley, Lane, Scott, and Wallace Counties, are in decline and in need of corrective control provisions, such corrective controls have been requested and supported by local water users, in the Four Counties of the Proposed LEMA is limited to.

Respectfully Submitted,

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Katie Durham  
Manager, GMD #1

## Exhibit List

Exhibit 1: Proposed Four County LEMA, Western Kansas Groundwater Management District #1; Wallace, Greeley, Scott & Lane Counties, June 29, 2022

Exhibit 2: Kansas Geological Survey (KGS) Written Testimony, Proposed GMD1 Four County LEMA Hearing, October 17, 2022

Exhibit 3: Western Kansas GMD1 Maps, KGS OPEN-FILE REPORT 2022-8; *also available at:* <https://www.kgs.ku.edu/Hydro/Publications/2022/OFR2022-8/index.html>

Exhibit 4: Western Kansas Groundwater Management District No. 1 website, LEMA; *also available at:* <https://www.gmd1.org/lema/>

# **Exhibit 1**



# Proposed Four County LEMA Western Kansas Groundwater Management District #1

Wallace, Greeley, Scott & Lane Counties

June 29<sup>th</sup>, 2022

## Executive Summary

**Background:** This executive summary provides a concise summary of the key provisions of this proposed Four County Local Enhanced Management Area (LEMA). For full details, see the rest of the plan.

LEMA Development Process / Public Involvement – GMD1 is currently the most de-watered Groundwater Management District (GMD) in the State of Kansas. As a result of significant, on-going groundwater level declines within the entire District, the GMD Board of Directors first began exploring a District-wide LEMA in 2013. The Board also discussed a District-wide LEMA in 2018-2019. In 2019, the Board decided to first move forward with the Wichita County LEMA, in order to gain some experience with the LEMA process and implementation.

The Board's current work of developing this proposed LEMA Plan for the remaining four counties of the District began in November of 2020. The LEMA development work has been discussed at most of the Board's monthly meetings since that time, as well as multiple special meetings. Details of the Board's LEMA development has been shared at the 2021 and 2022 annual meetings, three public county meetings in May 2022 and more (See Attachment D).

**Proposed LEMA purpose:** The GMD1 Board is proposing this Four County LEMA under the authority granted it under K.S.A. 82a-1041 to fulfill its legislative purpose related to the conservation of groundwater resources and the prevention of economic deterioration of the District, by limiting use in order to extend the useful life of the local aquifer.

The water resource concerns being addressed in this Proposed LEMA are that groundwater levels in the area in question are declining or have declined excessively, and that the rate of withdrawal of groundwater within the area in question equals or exceeds the rate of recharge in such area (K.S.A. 82a-1036 (a) and (b)). These concerns are substantiated by the maps prepared by the Kansas Geological Survey, attached to this Plan, which clearly demonstrate that groundwater levels have declined excessively within the District and that even at recent pumping levels, that groundwater withdrawals continue to exceed recharge.

Therefore, it is essential for the public interest to reduce water use in a way that best balances current use and future use. The GMD 1 Board believes the proposed LEMA, with its goal and proposed corrective controls, is the best means to accomplish this urgent objective.

**Proposed LEMA Goal:** The specific goal of the LEMA is to limit irrigation pumping of non-vested (Appropriated) rights within the LEMA boundaries, for the five-year period of 2023 to 2027, to 472,000 AF, which would accomplish a reduction in excess of 10% in use from the 2011-2020 average use of these water rights. Justification that the LEMA can reasonably be expected to achieve this goal can be found in **Attachment C**. While this level of reduction is not sufficient to stabilize water levels, according

to the work of the Kansas Geological Survey (KGS), this goal would represent substantial progress toward prolonging the life of the aquifer.

**Proposed LEMA Boundaries:** The Proposed LEMA would cover the remainder of the boundaries of GMD1, not covered by the Wichita County LEMA established in 2021. Said another way, the LEMA boundaries are those portions of Greeley, Lane, Scott, and Wallace Counties, within the existing GMD 1 boundary. **See Attachment B.**

**Proposed LEMA period:** The Board is proposing a LEMA period running from January 1, 2023, to December 31, 2027. If the Board takes no further action, the LEMA and its restrictions will expire at the end of 2027. The LEMA Plan will include annual reviews and a process toward the end of the LEMA period to determine whether the LEMA should be renewed on the same or different terms. To continue past 2027, the GMD Board must go through another set of LEMA hearings.

**Proposed LEMA Allocation Method:** To accomplish its purpose to best meet current and future needs as well as the specific reduction goal noted above, the Board reviewed numerous options for allocating water use under the LEMA, to accomplish its goal of reducing water use in excess of 10%. The proposed allocation method will achieve greater reductions in area of greater use.

The chosen allocation method starts with 2011-2020 average use for each Water Right Group (Water Right Groups are composed of all legally overlapped water rights by point of diversion, place of use, or both), a required reduction ranging between 0 and 25% is then applied based on a sliding scale, with larger reductions for larger water use, and lesser reductions for smaller water use. The required reductions are determined based on the average inches applied from 2011-2020 on authorized acres for the Water Right Group. Years of no Group use are excluded from averaging. When less than 3 inches per authorized acres was applied in 2011-2020, no reduction is required; when more than 12 inches per authorized acres were applied, a 25% reduction is required from historic use; in between 3 and 12 inches, the required reduction is based on a sliding scale between these values.

Draft allocation reports were made available to every stakeholder and water use correspondent (WUC) who attended the 2022 annual meeting, the May 2022 public county outreach meetings, and all who requested their allocation based on the Board's public outreach initiative. Attached to this report is a summary of the allocations by Water Right Group (before appeals) under the proposed LEMA allocation method.

**Proposed LEMA flexibilities:** Allocations are provided as an aggregate of 5-year allocations to Water Right Groups. Thus, as long as individual water right annual authorized quantities and other conditions are met, water users are free to use these 5-year allocations to their best advantage.

In addition, this LEMA Plan is designed to work with other water management and flexibility tools such as Water Conservation Areas (WCA), multi-year flex accounts (MYFAs), multi-use permits, and conditioned water rights that have existing 5-year allocations as a result of place of use expansions approved under K.A.R. 5-5-11, while preserving the flexibilities provided therein as long as the LEMA allocations are not exceeded.

**Vested Rights and Groups with Vested Rights:** A Vested Right is a water right which was put to beneficial use prior to June 28, 1945. Under Kansas law, they are afforded additional protection from regulation by the Chief Engineer. Thus, they will not be regulated by the proposed LEMA. Water users with vested rights are only required to operate according to the terms of their existing orders.

Where a Water Right Group has both vested rights and appropriation rights, the appropriation right(s) of the group will be provided an allocation based on the reduction computed for the Water Right Group and the vested rights of the group will be able to operate without additional restrictions.

**Non-irrigation use:** Like other existing LEMAs, non-irrigation uses, which make up a small percentage of the District's use, will not be regulated by the LEMA. The proposed LEMA will encourage these users to conserve water with specific suggestions for each use made of water. In addition, the Board will annually review non-irrigation use.

**Proposed LEMA appeal procedure:** State law requires that LEMAs must "give due consideration to past voluntary conservation" resulting in reduced use. After careful consideration, the Board has developed a definition of voluntary conservation to guide this required consideration, as well as to special provisions for new stakeholders and more.

The Board has drafted robust, specific and yet flexible guidance and methods in 4 broad categories in the GMD1 FCL Memorandum of Appeals Methods (**See Attachment F**). In the Base Method of the memorandum, that will be applicable to most situations, stakeholders will provide evidence of years of past conservation, which will be removed from the Historical Usage as a basis of determining allocations. For new owner/operator, there are two Methods that generally use the new owner/operator' records as the basis of allocations and that make provisions when there are insufficient years to base allocations. Finally, the Board has outlined provisions for situations where the 2011-2020 record has no water use for the water right group. The LEMA appeal process will also allow the Board the ability to consider unique situations on a case-by-case basis. There will be no deadline for filing appeals.

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## Definitions

**"Annual Authorized Quantity or AAQ"** – The maximum amount of annual water use assigned to a Water Right by DWR when the Water Right was approved or certified, and as modified by any subsequently approved changes, terms or conditions.

**"Authorized Acres"** – The maximum acres which are allowed to be irrigated by a Water Right Group as determined by DWR. In the case of approved changes in place of use for rotation of acres allowed under K.A.R. 5-5-11, the Authorized Acres will be the Base Acres determined by DWR.

**"Appropriation Water Rights"** – Pursuant to K.S.A. 82a -701(f), Water Rights that do not meet the conditions to be a Vested Water Right.

**"Board"** – The GMD1 Board of Directors.

**"Chief Engineer"** – The Chief Engineer of the Division of Water Resources, Kansas Department of Agriculture.

**"District"** – Western Kansas Groundwater Management District No. 1.

**"Domestic Water Rights"** – Shall mean the same as KSA82a-701 (c).

**"DWR"** – Division of Water Resources, Kansas Department of Agriculture.

**"FCL"** – Four County Local Enhanced Management Area.

**"FCL Allocation"** – The quantity of water in acre-feet allowed for irrigation use under Water Appropriation Rights of a Water Group over the 5-year LEMA Period.

**"FCL Order of Designation"** – The Order of Designation

**"GMD1"** – Western Kansas Groundwater Management District No. 1.

**"Historical Usage"** – The average quantity of authorized water in acre-feet used by a Water Right Group from 2011 through 2020, excluding years of zero use by the Water Right Group, used for the calculation of the FCL Allocation.

**"K.A.R."** – Kansas Administrative Regulations.

**"KGS"** – Kansas Geological Survey.

**"K.S.A."** – Kansas Statutes Annotated.

**"LEMA"** – Local Enhanced Management Area.

**"LEMA Period"** – The five-year period from January 1, 2023, through December 31, 2027

**"LEMA Management Plan"** – This written plan required pursuant to K.S.A. 82a-1041 which serves as the basis of the order establishing this LEMA to promote the conservation of water and water use efficiency.

**"MYFA or Multi-Year Flex Account"** – A type of Term Permit as defined in K.S.A.82a-736.

**"Stakeholder"** – Any Water Right owner or legal representative of an owner within the FCL boundaries.

**"Term Permit"** – A DWR permit to appropriate water that is issued for a specified period of time and is automatically dismissed at the end of the period.

**"Vested Water Right"** – Pursuant to K.S.A. 82a -701(d), a Water Right which was put to beneficial use prior to June 28, 1945.

**"Water Rights"**– As Defined in K.S.A. 82a-701(g).

**"WCA"** – Water Conservation Area.

**"Water Right Group"** – Composed of all legally overlapping water rights by point of diversion, place of use or both.

**"WUC"** – Water Use Correspondent.

# Proposed Four County LEMA Within Western Kansas Groundwater Management District No.1

## **Request for a Four County LEMA encompassing Wallace, Greeley, Scott and Lane Counties within the established boundaries of the Western Kansas Groundwater Management District No. 1, Submitted to the Chief Engineer, Kansas Department of Agriculture, Division of Water Resources.**

### I. LEMA Management Plan Purpose and Goals

**LEMA Purpose:** The GMD1 Board of Directors has identified the need to reduce groundwater use within the District in order to prolong the life of the Ogallala Aquifer that lies within the District's boundary, thus fulfilling its legislative purpose related to the conservation of groundwater resources and the prevention of economic deterioration of the District. The Board has worked to engage the public through outreach and communicative mailers, presentations at its annual meeting, and public meetings in Wallace, Scott and Lane Counties.

The Board proposes the following five-year Local Enhanced Management Area (LEMA) Plan for the portions of Greeley, Lane, Scott and Wallace counties within the District under the authority granted it under K.S.A. 82a-1041. The five-year period will begin on January 1<sup>st</sup>, 2023 and will end on December 31<sup>st</sup>, 2027.

The water resource concerns being addressed by the proposed LEMA are that groundwater levels in the area in question are declining or have declined excessively and that the rate of withdrawal of groundwater within the area in question equals or exceeds the rate of recharge in such area (K.S.A. 82a-1036 (a) and (b)).

These concerns are substantiated by the maps prepared by the Kansas Geological Survey (KGS), attached to this plan in Attachment E Including:

- The change in saturated thickness, predevelopment to current, in feet.
- The change in saturated thickness, predevelopment to current, in percent of the predevelopment saturated thickness.
- The change in saturated thickness, last 10 years.

The first two maps show that groundwater levels have declined excessively. The third map shows that these declines continue, and even at recent pumping levels, that groundwater withdrawals continue to exceed recharge.

Therefore, it is essential for public interest to reduce water use, in a way that best balances current use and future use. The Board believes a LEMA is the best means to accomplish this urgent goal.

**Proposed LEMA Goal:** The specific goal of the Four County LEMA is to limit irrigation use of non-vested rights within the LEMA boundaries for the five-year period of 2023 to 2027, to 472,000 acre-feet, which would accomplish a reduction in excess of 10% from the 2011-2020 Historical Usage of these water rights. This goal was developed after careful study of reduced water use needed to address

declining water levels, and to balance meeting today's needs while taking a serious step to extend and prolong the life of the aquifer.

The KGS estimates required reductions in water use to stabilize groundwater levels range from 16% in Lane County to 46% in Wallace County, averaging 29% for the District. Ultimately the Board decided the LEMA's goal should reduce use by approximately 10% from the 2011-2020 average Historical usage. While this level of reduction is not sufficient to fully stabilize water levels, according to the work of the KGS, this goal would represent substantial progress toward that end.

Substantiation that the LEMA's proposed corrective controls can reasonably be expected to achieve this goal is provided in **Attachment C**.

## II. LEMA Proposal

**Boundary and its Determination** - The FCL shall include all lands within the District's boundary within Lane, Scott, Greeley and Wallace counties. When joined with the Wichita County LEMA, this results in the entire District being covered by a LEMA plan. This LEMA includes all of the District's geographic boundary (**See Attachment B**).

### LEMA Attributes

- a. The Four County LEMA (FCL) shall include all irrigation Appropriation Rights whose source is the Ogallala Aquifer within the LEMA Boundary.
- b. Pursuant to K.S.A 82a-703, Vested Water Rights within the Four County LEMA shall not be regulated by the LEMA (see provisions below related to Water Right Groups composed of both Vested and Appropriation Rights).
- c. FCL allocations were established for each Water Right Group through an impartial process without deference to water right priority; however, water right priority is a consideration, if an impairment complaint is filed with the Chief Engineer.
- d. Non-irrigation uses such as stock water and municipal water users will not be assigned an allocation due to their total combined water use amounting to a minimal percentage of the total water use within the proposed LEMA boundaries. However, efficiency recommendations are provided for utilization in their management practices.
- e. All FCL allocations were developed pursuant to the method explained under the FCL Allocation section below and in Attachment C and shall be expressed in terms of total acre-feet (AF) for the LEMA Period and such quantity will be provided to each Water Right Groups, composed of all legally overlapped water rights, by point of diversion, place of use, or both.
- f. Recognizing the current Board cannot constrain the future action of the Board in recommending the LEMA be continued, it is the sense of the current Board that carryover of unused allocations from this 5-year LEMA Plan should be allowed.
- g. While allocations are provided by Water Right Group and as a 5-year group allocation, no individual water right can exceed its Annual Authorized Quantity (AAQ) in any calendar year unless already allowed under a MYFA or term permit.
- h. FCL Allocations are shown in **Attachment A** by Water Right Groups, which includes a listing of water rights and points of diversions within those Groups. Detailed allocation reports by Water Right Groups have been made available at recent public meeting and are available upon request.



- i. FCL Allocations for water rights subject to a DWR penalty order effecting permitted withdrawals from 2011 through the LEMA Period will be adjusted accordingly by DWR, and such order may not be appealed within the FCL Appeal Process.
- j. Applications to change a water right filed with DWR will be processed under existing laws, rules and regulations; and should be reviewed for consistency with the goals of the FCL during the LEMA Period.
- k. Water rights will not be permanently altered by a FCL Order of Designation but will be subject to the terms and conditions of the FCL Order of Designation for the duration of the LEMA period.

**Flexibilities** - Allocations are provided as 5-year group allocations to Water Right Groups. Thus, as long as individual water right annual authorized quantities and other conditions are met, stakeholders are free to use these 5-year allocations to their best advantage.

In addition, this FCL is designed to work with other water management and flexibility tools including Water Conservation Areas (WCA), multi-year flex accounts (MYFAs), multi-use permits, and conditioned water rights that have existing 5-year allocations as a result of place of use expansions approved under K.A.R. 5-5-11, while preserving the flexibilities provided therein as long as the LEMA allocations are not exceeded.

### III. LEMA Allocations

FCL Allocations shall be assigned to each Water Right Group and shall apply to all irrigation Appropriation Water Rights (with Vested Rights being unregulated by the LEMA; only required to comply with the terms of their water rights), subject to Section II. No Water Right shall be allowed to exceed its AAQ unless authorized by a Term Permit. FCL Allocations for each Water Right Group will be included in an official Order of Designation issued by the Chief Engineer. Upon approval of the FCL, FCL Allocations are subject to appeal pursuant to Section IX. FCL Allocations will be established based on the following:

#### a. Irrigation Appropriation Rights

FCL Allocations are provided by Water Right Groups. DWR determined these groups and provided the Board with water use by water right file number and point of diversion within such Water Right Groups.

The allocation method starts with the determination of 2011-2020 average use for each Water Right Group. To determine the 2011-2020 historical usage for a Water Right Group, years of non-use for the Water Right Group were excluded from averaging.

The allocation method then applies a required reduction to this average use, ranging between 0 and 25% based on a sliding scale, with larger reductions for larger water use and lesser reductions for smaller water use.

The required reductions from this 2011-2020 historical usage are determined based on the average inches applied during 2011-2020 on authorized acres for the Water Right Group. When less than 3 inches per authorized acres was applied in 2011-2020, no reduction in water use is required; when more than 12 inches per authorized acres were applied, a maximum 25% reduction is required from historic usage; in between 3 and 12 inches, the required reduction in water use is based on a sliding scale between these values.

Due consideration will be given for past conservation via the LEMA Plans Appeal process. If water rights are enrolled or have been enrolled in conservation programs, have implemented past conservation measures affecting their Historical Usage record, review of the FCL Allocation will follow the guidelines set forth in Section XI and as presented in the FCL Appeals Memo.

**Multi-Use Groups:** For water rights which allow for irrigation and other uses (typically stock water) under a single well under a water right, FCL allocations for only the irrigation use have been established based on irrigation Historic Usage and the allocation methods provided herein. No LEMA restrictions on non-irrigation use are provided under the FCL. Stakeholders are required to: 1) limit Water Right Group irrigation use to the 5-year FCL Allocation provided and 2) to limit their annual use for all uses made of water under the multi-use water right to its AAQ.

**Multi-year Flex Accounts (MYFAs):** Stakeholders with MYFAs may continue to use the flexibilities provided under these permits, provided: 1) they maintain their 5-year account allocation use for such water rights operating within the MYFA's period and 2) they comply with their 5-year FCL Allocation. Stakeholders may apply with the DWR for MYFAs at any time during the LEMA Period.

**Water Conservation Areas (WCAs):** Stakeholders with WCAs may continue to use the flexibilities provided under their consent agreements, provided: 1) they maintain their corrective controls under the WCAs during the WCA period, and 2) they comply with their 5-year FCL Allocation.

Water right conditions required under K.A.R. 5-5-11 (place of use rotations/expanded place of use with 5-year allocations with GMD1 monitoring) – Stakeholders with water right conditions, such as annual irrigated acre limits or existing 5-year allocations from an approved place of use expansions shall preserve the flexibilities provided therein provided the 5-year FCL Allocations are not exceeded

### **b. Vested Water Rights and Groups with Vested and Appropriation Rights**

Pursuant to K.S.A. 82a-703, Vested Water Rights shall not be subjected to the LEMA Management Plan.

For Water Right Groups with a combination of Vested Rights and Appropriation Rights, Stakeholders may operate the vested rights pursuant to the Chief Engineer's order establishing the rights including any approved water right changes, and the Appropriation Rights of the Water Right Group are granted an allocation consistent with the allocations provided.

### **c. Non-Irrigation Uses**

The FCL will not regulate water use for non-irrigation rights. However, the annual water use reports of all non-irrigation water rights will be reviewed annually by the Board. Additionally, each type of use is encouraged to implement the following recommendations:

#### **1. Stock Water Rights**

A. Increase efficiency by implementing scheduled infrastructure inspections, repairing leaks in a timely manner, upgrading old equipment, and applying water reuse technology.

B. Use less than the recommended maximum water authorized by K.A.R. 5-3-22.

#### **2. Municipal Water Rights**

- A. Reduce the gallons per capita per day.
- B. Implement scheduled infrastructure inspections, conduct system repairs in a timely manner, implement systems to account for all water usage.
- C. Consider implementing water reuse technology for precipitation runoff and effluent.
- D. Require all new and remodel construction projects to use water efficient plumbing fixtures and recommend that all consumers meet the new standard by updating their existing fixtures.
- E. Request all consumers, especially administrators of large capacity facilities and outdoor sport and recreation areas, maintain infrastructures and repair leaks in a timely manner.
- F. Request all consumers use less water intensive plants and lawns, water in the early morning and late evening, and be aware of the amount of water applied per year.

3. Industrial and Recreational Water Rights are asked to voluntarily conserve water whenever possible for the betterment of their water community.

#### 4. Domestic Water Rights

- A. Reduce their gallons per capita per day.
- B. Install water efficient plumbing fixtures in new and remodel construction and update their existing fixtures.
- C. Identify and repair leaks.

### IV. Violations

The FCL Order of Designation shall serve as initial notice to all Stakeholders within the LEMA boundary on its effective date. A copy of the Order of Designation and the LEMA Management Plan shall be available on DWR's website and GMD1's website. DWR shall mail a notification that the Order of Designation is effective to all stakeholders and WUCs, if different from the Stakeholder, with instructions on how to request a copy of the Order of Designation. Violations shall be addressed as follows: Exceeding the FCL Allocation, and all other water right violations shall be subject to applicable Kansas statutes and regulations, specifically but not limited to K.A.R. 5-14-10 and K.A.R. 5-14-12.

### V. Metering and Water use Monitoring

- a. All stakeholders shall be responsible for ensuring their water flowmeters are in compliance with state statutes and regulations prior to the diversion of water at each point of diversion.
- b. In addition to being in compliance with DWR requirements and reporting annually the quantity of water diverted from each point of diversion, all Stakeholders are encouraged to implement at least one additional water flowmeter monitoring procedure.

- c. Water flowmeter readings should be taken by the Stakeholder every two weeks during periods of active use and be kept as backup information.
- d. Should the reported water flowmeter readings be in question and determined insufficient and no other records are provided upon request of GMD1, the point of diversion shall be assumed to have diverted its full AAQ for the period in question.
- e. Whenever a water flowmeter is repaired or replaced, the stakeholder or authorized designee or WUC shall submit Water Flowmeter Repair/Replacement Report (Form DWR 1-560) to GMD1 or DWR within seven days of the completed repair.
- f. This water flowmeter protocol shall be a specific annual review issue and if discovered to be ineffective, specific adjustments shall be recommended to the Chief Engineer by GMD1.

## VI. Accounting

- a. DWR, in cooperation with GMD1, shall keep records of the annual diversion of water amounts for each Water Right Group within the FCL boundary and the FCL Allocation balances. Upon written request, this information will be available to the Stakeholder or GMD1.
- b. GMD1 and DWR shall cooperate on reconciliation and correction of any annual water use report found to be in error.

## VII. LEMA Reviews

- a. The Board, a member of DWR staff appointed by the Chief Engineer, and any other(s) appointed by the Board, shall comprise the "Review Board" and shall conduct an annual review of the items in subsection (b). The review data shall also be presented at the Annual Meeting of GMD1.

### b. Annual Review Items

- 1. Water use data.
- 2. Water table/water level change information.
- 3. Economic data as is available.
- 4. Compliance and enforcement issues.
- 5. Any new and preferable enhanced management authorities that become available.
- 6. Other items deemed pertinent by the Review Board.

### c. FCL Order of Designation Review

In addition to the annual review of the FCL, the Review Board shall conduct a more formal review of FCL Order of Designation in the fourth year of the LEMA Period. The review will encompass the annual

review items with a focus on the economic impacts, as data is available, to the FCL area and the local public interest while pursuing the LEMA goals.

The Review Board shall produce a report to the Board following this review that contains specific recommendations regarding future FCL actions. This report shall be presented at Stakeholder meetings for the purpose of considering any future LEMA plans. All recommendations shall be supported by reports, data, testimonials, affidavits or other information of record.

### VIII. Impairment Complaints

The Stakeholders request that any impairment complaint submitted to the Chief Engineer during the LEMA Period be investigated with consideration to water right priority and the LEMA Management Plan.

### IX. Water Level Monitoring

Prior to this FCL proposal there were ninety-six recognized observation wells, four with continuous water level sensors and three continuously monitored index wells, all within or near the FCL area that have been measured annually by either DWR or KGS personnel. For each of these observation wells, there is a long history of annual water level measurements. Groundwater pumping influences and recovery trends can be analyzed to evaluate results of the corrective controls implemented by this LEMA Management Plan.

### X. Coordination

The Stakeholders expect reasonable coordination between DWR and GMD1 on at least the following efforts:

- a. Development of the FCL Order of Designation resulting from the LEMA process.
- b. Compliance and enforcement of the FCL Order of Designation.
- c. Annual accounting of the FCL Allocations used and available balance to Stakeholders and WUCs if different from the owner.
- d. Continued public outreach and communication with stakeholders and interested parties

### XI. Allocation Appeal Process / Due Consideration of Past Conservation

- a. The following process will govern appeals for the possible modification of FCL Allocations.
  1. A Stakeholder will file an appeal with the Board following the guidelines outlined in the Appeal Methods Memorandum and using the form developed by the Board for this purpose (**See Attachment F**). The request shall specify the Water Right Group, water right number(s) and point(s) of diversion and provide supporting material and justification, and the basis for the chosen appeal method. Appeals may be based on any of the reasons outlined in the Appeals Memo (**See Attachment F**). The Board will serve as the appeals board and will make the final decision per their discretion. The Board may delegate the approval of certain types of appeals to its Manager upon development of specific written guidance for the conditions and terms under

which such appeals may be approved by the Manager. The Manager shall provide a report to the Board on such approvals at each Board meeting.

b. Stakeholders may submit an appeal consisting of a written request and supporting data at any time during the LEMA Period. New FCL Allocations authorized by the Board will become effective the calendar year the District Manager accepts a completed application to be brought before the Board. Ownership/operational details will also be requested as a part of this written request.

c. Appeals based on previous voluntary conservation measures must be accompanied by complete supporting documentation deemed acceptable and complete by the District Manager, before the appeal will be scheduled for consideration by the Board. Information that will be required includes:

1. For water rights enrolled in government sponsored conservation programs, documentation must include an approved enrollment contract indicating the years of participation.

2. Any other documentation supporting past voluntary conservation that may have influenced the water use record from 2011-2020.

d. The Board will review the completed information at the first available regularly scheduled Board meeting in due process or special meeting scheduled for the purpose of appeal reviews. The Board shall issue one of the following determinations:

1. Denial of appeal.

2. Grant an extension for the Stakeholder to provide additional information.

3. The approved FCL Allocation will be based on the information presented. New allocations approved will be for the current and subsequent years and not retroactive.

## Attachment A – Listing of LEMA Allocation by Water Right Group

Below a listing of Water Right Groups (Group) as determined by DWR, the water right(s) and authorized point(s) of diversions for each Water Right Group, and the total FCL Allocation for each Water Right Group.

***Notes:***

1. Allocations subject to appeal, if filed.
2. Water Right Group definition - A Water Right Group is composed of all legally overlapped water rights (by place of use, point of diversion, or both).
3. Vested Rights (a Water Right which was put to beneficial use prior to June 28, 1945) are not restricted as part of this proposed LEMA. Groups with both Vested Water Rights and Appropriation Water Rights are assigned an allocation to the Appropriation Water Right(s) of the Group based on their use and the Group's required reduction.
4. LEMA allocations pertain only to irrigation water rights.

| Group No. | File Numbers                                 | Points of Diversion   | 5-Year LEMA Allocation, AF |
|-----------|--|---|----------------------------|
| 2         | 8955   | 14-15-39W 1 NE SW NW  | 0.00                       |
| 3         | 5987; 10492; 13199; 21658                    | 17-16-34W 1 NW SW NW; 17-16-34W 2 NW SW NE;<br>17-16-34W 3 3000N 1200W; 18-16-34W 1 4079N 2587W;<br>7-16-34W 1 1400N 4501W; 7-16-34W 2 25N 2541W  | 366.16                     |
| 4         | 24841  | 34-18-34W 1 NW NW NW; 34-18-34W 2 NC W2 NW;<br>34-18-34W 3 CW NW NW; 34-18-34W 4 CN NW NW;<br>34-18-34W 5 4267N 5204W; 34-18-34W 6 4832N 5210W  | 667.40                     |
| 5         | 2652; 9126                                   | 22-16-34W 1 SW SW SW; 22-16-34W 4 2660N 3900W   | 0.00                       |
| 6         | 15339  | 34-17-28W 1 2610N 4851W; 34-17-28W 2 2573N 3837W  | 487.68                     |
| 7         | 8557   | 32-20-33W 2 500N 1147W  | 0.00                       |
| 8         | 8445; 25423                                  | 8-17-29W 1 5120N 1630W; 8-17-29W 5 1420N 1410W  | 868.74                     |
| 10        | 4293; 4294; 8029; 23541; 24242; 24629; 28023 | 29-16-34W 1 2570N 5150W; 29-16-34W 2 NW NW SE;<br>29-16-34W 3 4500N 5150W; 29-16-34W 5 3750N 3200W;<br>31-16-34W 1 1650N 5070W; 31-16-34W 2 2970N 1285W;<br>31-16-34W 4 5225N 5025W; 31-16-34W 5 2520N 3750W;<br>31-16-34W 6 1322N 2800W; 31-16-34W 7 5025N 2875W;<br>31-16-34W 8 2520N 4040W | 2566.55                    |
| 12        | 24465  | 8-16-40W 2 4000N 1440W  | 528.67                     |
| 13        | 7581; 24883                                  | 19-18-33W 2 3400N 5080W; 19-18-33W 4 875N 5090W;<br>19-18-33W 5 2590N 2640W; 19-18-33W 6 2080N 2510W  | 0.00                       |
| 15        | 10718; 13373; 15783; 23026                   | 16-14-42W 1 1730N 2640W; 16-14-42W 3 1430N 2640W;<br>21-14-42W 1 5190N 2620W; 22-14-42W 1 3283N 2773W;  | 4038.74                    |
| 16        | 325; 6225-A; 9768                            | 1-17-34W 1 1373N 5200W; 1-17-34W 2 1805N 2615W;<br>1-17-34W 5 1143N 4060W; 1-17-34W 6 1623N 5200W;<br>2-17-34W 1 NE SW SE   | 912.11                     |
| 18        | 3964; 14637; 20819; 25061                    | 10-15-41W 1 NC N2 NW; 10-15-41W 2 2821N 2548W;<br>9-15-41W 1 5196N 2550W; 9-15-41W 2 2730N 2700W;<br>9-15-41W 3 4595N 5190W   | 0.00                       |
| 19        | 9317; 17200                                  | 23-16-34W 2 160N 5200W; 27-16-34W 1 5200N 2600W;<br>27-16-34W 2 3450N 1320W   | 0.00                       |



| Group No. | File Numbers        | Points of Diversion   | 5-Year LEMA Allocation, AF |
|-----------|---------------------|---|----------------------------|
| 20        | 25371               | 6-16-39W 4 3740N 3872W  | 563.09                     |
| 21        | 34575               | 20-18-33W 1 SE SW SW; 20-18-33W 2 SE SW SW;   | 0.00                       |
| 22        | 14551; 23508        | 25-16-33W 1 3235N 5070W; 25-16-33W 2 2840N 4400W  | 1058.86                    |
| 23        | 14592; 21407; 26888 | 11-15-41W 2 5200N 4620W; 3-15-41W 1 2580N 5180W;<br>3-15-41W 2 3373N 2700W  | 853.79                     |
| 24        | 4021                | 28-14-39W 1 NE NE SW  | 247.20                     |
| 25        | 2398; 3249; 12493   | 6-15-39W 1 1412N 4750W; 6-15-39W 2 1795N 2850W;<br>6-15-39W 3 2700N 3850W   | 855.70                     |
| 26        | 20589               | 20-16-33W 2 2625N 1025W   | 0.00                       |
| 27        | 820; 821; 25090     | 10-20-33W 3 1345N 2600W; 10-20-33W 5 SW NW SE;<br>10-20-33W 6 NC S2 NW SE; 15-20-33W 1 CE NE NW   | 0.00                       |
| 29        | 8331                | 5-20-33W 1 5200N 2188W; 5-20-33W 2 5200N 3688W;<br>5-20-33W 3 5200N 2813W   | 0.00                       |
| 30        | 8881; 16715-D2      | 1-20-34W 1 NE SW SW; 11-20-34W 1 3366N 369W;<br>11-20-34W 3 4411N 806W; 12-20-34W 1 3400N 2600W;<br>12-20-34W 4 SW SE NW; 12-20-34W 5 1520N 1246W;<br>2-20-34W 1 1450N 2620W; 2-20-34W 2 175N 1450W;<br>2-20-34W 3 NC N2 S2; 2-20-34W 5 1144N 4022W | 460.70                     |
| 32        | 15370; 22351; 22746 | 20-17-32W 1 1850N 2595W; 20-17-32W 2 1355N 515W;<br>20-17-32W 3 718N 50W  | 1167.53                    |
| 33        | 394                 | 15-17-28W 1 NW NE SW; 15-17-28W 2 SW SE SW  | 1064.74                    |
| 37        | 4702; 13895         | 14-15-38W 1 SW SW SW; 14-15-38W 2 NC S2 S2 S2;<br>14-15-38W 3 SE SW SW  | 0.00                       |
| 39        | 19312               | 29-14-38W 1 SW SW NW  | 0.00                       |
| 40        | 9143                | 5-17-34W 2 NC NE  | 681.73                     |
| 41        | 22874               | 3-15-42W 1 415N 4000W   | 0.00                       |
| 43        | 13793; 17853; 27980 | 22-19-33W 1 2855N 2425W; 22-19-33W 2 2910N 4710W;<br>22-19-33W 4 106N 26W; 23-19-33W 1 2770N 3825W;<br>23-19-33W 2 477N 3358W; 23-19-33W 4 1870N 1915W;<br>23-19-33W 5 5119N 2286W  | 1860.89                    |

| Group No. | File Numbers                     | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|----------------------------------|--|----------------------------|
| 44        | 13269                            | 29-15-40W 1 NW SW SW   | 0.00                       |
| 45        | 20111; 33732                     | 17-18-39W 1 5167N 177W; 17-18-39W 2 4798N 89W;<br>17-18-39W 3 5133N 985W; 17-18-39W 4 5166N 1513W  | 0.00                       |
| 47        | 23528; 35167                     | 17-15-40W 1 2565N 2670W  | 1781.98                    |
| 48        | 28271                            | 3-19-33W 1 30N 30W; 3-19-33W 2 1155N 60W;<br>3-19-33W 3 2590N 30W; 3-19-33W 4 2610N 1520W;<br>3-19-33W 5 2610N 2610W; 3-19-33W 6 1320N 2610W       | 0.00                       |
| 52        | 10202; 24848                     | 12-20-33W 3 3200N 2500W; 12-20-33W 4 1750N 2120W;<br>12-20-33W 5 5090N 2550W   | 0.00                       |
| 54        | 28805                            | 15-17-39W 1 3795N 2645W; 15-17-39W 2 5070N 2660W   | 893.44                     |
| 55        | 6357; 13859                      | 32-17-28W 1 CN SW; 32-17-28W 2 2742N 2595W;<br>32-17-28W 3 1320N 3500W   | 861.30                     |
| 56        | 675                              | 16-14-41W 1 NW SW SE   | 0.00                       |
| 59        | 26730; 30128                     | 28-14-41W 1 1360N 1416W; 28-14-41W 2 1380N 4010W;<br>28-14-41W 3 4600N 5200W   | 2042.39                    |
| 60        | 9895; 10332; 27947               | 14-15-39W 2 970N 2460W; 14-15-39W 3 SW NW SW;<br>14-15-39W 4 NC NE; 14-15-39W 6 860N 4205W   | 0.00                       |
| 61        | 20317                            | 4-18-29W 2 2450N 2460W; 4-18-29W 4 2250N 2180W   | 398.65                     |
| 63        | 14958-D2; 21947; 30496           | 25-14-42W 1 760N 2450W; 25-14-42W 2 4025N 60W;<br>30-14-41W 1 65N 2790W; 30-14-41W 4 2705N 2440W   | 0.00                       |
| 65        | 23880; 38677; 38678              | 1-17-29W 3 150N 2600W; 10-17-29W 3 3995N 194W;<br>10-17-29W 4 4013N 3840W  | 1163.61                    |
| 68        | 10307                            | 27-15-40W 1 SE NE NE; 27-15-40W 2 SE NW NW   | 753.22                     |
| 71        | 8676; 10540; 14869               | 22-16-34W 2 NW NW SE; 22-16-34W 3 SE NE SE;<br>23-16-34W 3 2680N 3960W   | 291.05                     |
| 74        | 10021                            | 2-16-42W 3 NW SE SE  | 0.00                       |
| 76        | 4103; 18820; 23076; 31537; 31538 | 28-15-41W 1 1130N 1530W; 28-15-41W 2 160N 80W;<br>28-15-41W 4 50N 3770W; 28-15-41W 6 2378N 3526W;<br>29-15-41W 2 820N 60W; 29-15-41W 3 2700N 1200W | 0.00                       |
| 77        | 8812; 23321                      | 21-15-38W 2 W2 W2 NW NW; 21-15-38W 3 SE SW NW;<br>21-15-38W 4 W2 W2 SW SE; 21-15-38W 5 50N 1610W   | 0.00                       |
| 78        | 4625                             | 31-14-39W 1 NE NW NW   | 1003.20                    |

| Group No. | File Numbers                                  | Points of Diversion   | 5-Year LEMA Allocation, AF |
|-----------|---|---|----------------------------|
| 79        | 9222; 9483; 10973; 20542                      | 32-15-39W 1 5140N 2650W; 32-15-39W 2 100N 3970W;<br>32-15-39W 3 50N 430W; 32-15-39W 4 2685N 4028W;<br>32-15-39W 5 2820N 60W   | 1381.61                    |
| 80        | 37093; 37095; 39231                           | 7-16-41W 1 5250N 2750W; 7-16-41W 3 2620N 1430W;<br>7-16-41W 5 2560N 3408W   | 2493.67                    |
| 81        | 27113   | 10-14-42W 3 4395N 1220W   | 496.32                     |
| 82        | 15992   | 30-17-31W 1 3994N 1330W; 30-17-31W 2 4015N 3910W  | 1383.98                    |
| 84        | 16165   | 13-16-39W 1 2570N 1320W   | 0.00                       |
| 86        | 3733  | 22-17-39W 1 CN NW SW  | 0.00                       |
| 87        | 13999; 17921                                  | 1-18-30W 1 3650N 2600W; 1-18-30W 2 3650N 1350W;<br>1-18-30W 3 2550N 3800W; 1-18-30W 4 2400N 2550W;<br>1-18-30W 6 2330N 1320W; 1-18-30W 8 2590N 5080W  | 2388.51                    |
| 88        | 19203   | 18-16-33W 1 1140N 2600W; 18-16-33W 2 4950N 2600W;<br>18-16-33W 3 850N 1810W   | 0.00                       |
| 89        | 393; 5424; 12608; 24601                       | 22-17-28W 2 4600N 700W; 22-17-28W 3 2650N 650W;<br>22-17-28W 4 1300N 60W; 23-17-28W 2 5140N 2435W;<br>23-17-28W 3 3562N 2635W; 23-17-28W 4 3960N 3990W;<br>23-17-28W 5 1320N 1340W; 23-17-28W 6 2600N 3770W   | 2780.14                    |
| 91        | 11524; 17062                                  | 29-16-30W 1 50N 3335W; 29-16-30W 2 45N 5253W  | 1312.27                    |
| 92        | 11817   | 2-15-40W 1 4750N 5190W  | 583.94                     |
| 93        | 6721; 10402; 21062                            | 17-20-33W 1 5220N 3623W; 17-20-33W 2 4651N 4766W;<br>17-20-33W 6 3806N 5200W; 17-20-33W 7 2990N 1779W;<br>8-20-33W 1 SW SW SW; 8-20-33W 2 CW SW;<br>8-20-33W 3 1043N 5246W  | 767.63                     |
| 95        | 8307; 8308; 10323; 11161; 15283; 29985; 39752 | 10-16-40W 1 2600N 5150W; 10-16-40W 2 2620N 2510W;<br>10-16-40W 3 4180N 1180W; 16-16-40W 1 3887N 2350W;<br>16-16-40W 2 4720N 5240W; 3-16-40W 1 3115N 5240W;<br>8-16-40W 4 1310N 2580W; 9-16-40W 3 2410N 2500W;<br>9-16-40W 4 1450N 5100W; 9-16-40W 5 2410N 2450W | 2879.36                    |
| 96        | 7678; 13767; 20157; 22001                     | 13-15-40W 1 NE NE NW; 13-15-40W 2 2785N 1565W;<br>13-15-40W 4 5145N 1275W; 24-15-40W 1 3695N 4275W;<br>24-15-40W 2 3575N 2635W  | 2150.15                    |

| <b>Group No.</b> | <b>File Numbers</b>            | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|--------------------------------|---|-----------------------------------|
| 97               | 6877; 24919                    | 9-17-30W 1 4850N 5050W; 9-17-30W 2 2105N 4290W;<br>9-17-30W 3 860N 5245W  | 652.40                            |
| 99               | 16760                          | 7-16-40W 1 SW SW  | 716.80                            |
| 101              | 10828; 11029; 36875            | 27-15-38W 1 60N 3900W; 27-15-38W 2 2692N 5240W;<br>28-15-38W 3 2345N 2575W  | 0.00                              |
| 102              | 3719; 4928; 7512; 12043; 21958 | 6-17-33W 2 1980N 5080W; 6-17-33W 5 1640N 4020W;<br>7-17-33W 1 4950N 5100W; 7-17-33W 2 5080N 3090W;<br>7-17-33W 3 5080N 4200W; 7-17-33W 4 4980N 1440W;<br>7-17-33W 5 3670N 1510W | 303.76                            |
| 103              | 5130; 28857                    | 7-15-40W 1 5090N 4910W; 7-15-40W 2 2590N 5035W  | 1653.37                           |
| 105              | 5359; 29496                    | 7-18-33W 1 2385N 2630W; 8-18-33W 1 2300N 4600W  | 0.00                              |
| 106              | 16128                          | 6-14-42W 2 3540N 950W   | 1233.70                           |
| 108              | 9827; 24814-D1; 24814-D2       | 11-14-42W 3 2700N 2700W; 11-14-42W 4 1400N 2700W;<br>14-14-42W 2 NC NW SW   | 3140.39                           |
| 109              | 1878; 8813; 39736              | 34-14-40W 1 NC N2 SE NW; 34-14-40W 2 NW NW NW;<br>34-14-40W 4 5260N 1800W   | 1253.52                           |
| 110              | 4645; 8879                     | 23-16-34W 1 SW SE NE  | 0.00                              |
| 111              | 5717                           | 16-17-28W 1 SW NW NE; 16-17-28W 2 NW NW SE  | 715.98                            |
| 113              | 11344; 29413                   | 32-13-42W 1 100N 2600W; 32-13-42W 3 660N 4580W  | 891.32                            |
| 114              | 17484                          | 11-17-29W 1 2628N 1508W   | 485.62                            |
| 115              | 11850; 31299; 34697            | 23-16-30W 1 100N 2060W; 24-16-30W 1 600N 4110W;<br>24-16-30W 2 50N 5200W; 24-16-30W 6 2904N 4090W;<br>24-16-30W 8 2890N 4060W   | 830.00                            |
| 116              | 4393; 16012; 32886             | 29-17-33W 1 1160N 5000W; 29-17-33W 3 1630N 2700W;<br>31-17-33W 2 5130N 4160W  | 527.66                            |

| Group No. | File Numbers   | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|--|--|----------------------------|
| 118       | 1148; 4624; 10420; 10479; 10632; 14177; 20272;<br>23936; 25254; 26814-D1; 26814-D2; 27807; 30703;<br>31824; 34003; 36140 | 1-15-40W 1 4100N 2300W; 1-15-40W 2 2540N 1380W;<br>1-15-40W 3 1320N 2630W; 1-15-40W 4 NC NW;<br>1-15-40W 6 NC SW; 12-15-40W 2 SW SW NE;<br>12-15-40W 3 3886N 3962W; 12-15-40W 6 NC SW;<br>12-15-40W 8 2570N 105W; 12-15-40W 9 985N 1500W;<br>18-15-39W 1 NW SE NW; 18-15-39W 3 1330N 3960W;<br>25-14-40W 1 3775N 100W; 25-14-40W 2 3009N 5222W;<br>25-14-40W 4 678N 5230W; 25-14-40W 6 726N 3110W;<br>30-14-39W 1 1150N 4100W; 31-14-39W 2 3140N 900W;<br>31-14-39W 3 3140N 2590W; 31-14-39W 4 865N 1320W;<br>36-14-40W 1 SW SW SE; 36-14-40W 2 2620N 2600W;<br>36-14-40W 3 82N 5210W; 36-14-40W 4 3762N 5197W;<br>7-15-39W 2 SE SE SW; 7-15-39W 5 1193N 5309W | 11110.21                   |
| 120       | 17205-D1; 17205-D2; 18089; 25157; 25318  | 15-20-34W 1 5215N 3235W; 15-20-34W 10 2440N 3220W;<br>15-20-34W 2 4980N 4420W; 15-20-34W 3 115N 3960W;<br>15-20-34W 4 4785N 3730W; 15-20-34W 5 3795N 5115W;<br>15-20-34W 6 3560N 3750W; 15-20-34W 7 2690N 5200W;<br>15-20-34W 8 2030N 5200W; 15-20-34W 9 3010N 3285W   | 1117.50                    |
| 121       | 18960; 21867; 25344  | 15-16-39W 1 800N 5140W; 15-16-39W 2 4915N 4935W;<br>15-16-39W 3 1010N 2435W; 15-16-39W 4 1080N 90W;<br>15-16-39W 5 2570N 5140W; 15-16-39W 6 60N 3640W;<br>15-16-39W 7 330N 974W  | 771.94                     |
| 122       | 15858; 20521; 32248  | 30-17-27W 1 3935N 2575W; 30-17-27W 2 1515N 2600W;<br>30-17-27W 3 5215N 1585W   | 910.30                     |
| 124       | 14318  | 23-16-39W 3 NC W2 NW NW; 23-16-39W 5 NW SE NW  | 933.15                     |
| 126       | 16385; 17789   | 10-15-42W 1 5180N 5230W  | 778.88                     |
| 127       | 25327; 31486; 34784  | 3-18-30W 1 4025N 2710W; 3-18-30W 3 2658N 3871W;<br>4-18-30W 1 5215N 2435W; 4-18-30W 2 4150N 130W;<br>4-18-30W 3 5220N 3700W  | 1528.65                    |
| 128       | 4204; 5493; 6616; 16937  | 3-20-34W 1 860N 5215W; 3-20-34W 2 860N 4620W;<br>3-20-34W 3 450N 4390W; 3-20-34W 4 860N 3690W;<br>3-20-34W 6 710N 2870W; 3-20-34W 7 765N 3160W   | 571.30                     |

| <b>Group No.</b> | <b>File Numbers</b>              | <b>Points of Diversion</b>   | <b>5-Year LEMA Allocation, AF</b> |
|------------------|----------------------------------|--|-----------------------------------|
| 129              | 9584; 26991                      | 21-15-39W 1 NC NE; 21-15-39W 4 1456N 1310W   | 626.29                            |
| 130              | 7521; 25040                      | 33-16-34W 3 910N 5200W   | 0.00                              |
| 131              | 5547; 15921                      | 21-17-28W 1 2654N 2194W; 21-17-28W 2 1970N 660W  | 355.74                            |
| 132              | 8001; 8920; 18203                | 14-20-33W 2 NW NW SE; 14-20-33W 3 5000N 5180W;<br>14-20-33W 4 2200N 4850W; 14-20-33W 6 3320N 5100W   | 962.58                            |
| 133              | 5761; 17907; 18642; 31065; 34751 | 30-17-32W 2 450N 2700W; 30-17-32W 3 2050N 2700W;<br>30-17-32W 4 3850N 2700W; 30-17-32W 7 425N 2820W;<br>31-17-32W 3 4350N 1250W; 31-17-32W 5 3225N 4025W;<br>36-17-33W 3 2550N 1400W | 3715.06                           |
| 134              | 34482; 34483; 34484              | 26-17-27W 1 46N 4940W; 35-17-27W 1 3896N 2849W;<br>35-17-27W 2 3105N 2944W   | 0.00                              |
| 136              | 6679; 25345                      | 17-16-39W 1 NC E2 SW NE; 17-16-39W 2 82N 2773W;<br>17-16-39W 3 38N 1283W; 17-16-39W 4 2320N 1684W;<br>17-16-39W 5 1000N 1047W; 17-16-39W 6 3235N 1820W                               | 1758.19                           |
| 137              | 9266; 16897                      | 1-15-39W 1 2380N 2540W; 1-15-39W 2 740N 2520W;<br>12-15-39W 2 NW NW NE   | 791.81                            |
| 138              | 8241                             | 10-16-34W 1 SW SW SW   | 0.00                              |
| 142              | 11385-D1                         | 35-18-33W 4 3289N 4085W  | 421.78                            |
| 144              | 9555; 18531; 25295               | 18-20-32W 2 2650N 4950W; 7-20-32W 3 2630N 3880W;<br>7-20-32W 4 2280N 5200W; 7-20-32W 5 2480N 3946W   | 458.27                            |
| 145              | 10518                            | 22-16-41W 1 NE NE NW; 22-16-41W 2 NW NW SW   | 1828.27                           |
| 146              | 13958; 17137; 21359              | 36-17-29W 1 5250N 1385W; 36-17-29W 2 5250N 2685W;<br>36-17-29W 3 2625N 495W; 36-17-29W 4 2720N 960W  | 966.91                            |
| 147              | 29605                            | 1-17-30W 3 2600N 2590W   | 113.87                            |
| 149              | 21205; 31236                     | 22-15-41W 1 100N 3320W; 22-15-41W 2 250N 150W;<br>22-15-41W 3 2171N 764W   | 0.00                              |
| 151              | 30452                            | 21-13-42W 1 5150N 1850W; 21-13-42W 2 1250N 1250W   | 908.54                            |
| 152              | 13728                            | 35-14-41W 1 SE SE NW   | 137.67                            |
| 153              | 9937; 10974                      | 22-16-39W 1 NW SW SE; 22-16-39W 2 SE NW SE   | 0.00                              |
| 154              | 24062                            | 18-17-32W 2 1023N 3610W  | 412.99                            |

| Group No. | File Numbers                                 | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|--|--|----------------------------|
| 155       | 853; 7375; 11232; 11958; 20557; 22199; 30516 | 22-16-42W 1 2250N 2200W; 22-16-42W 10 5234N 4093W;<br>22-16-42W 16 2055N 60W; 22-16-42W 2 3450N 2550W;<br>22-16-42W 3 NW CR SW NW; 22-16-42W 4 2770N 4565W;<br>22-16-42W 5 400N 5140W; 22-16-42W 6 750N 1000W;<br>22-16-42W 7 5190N 250W | 1859.90                    |
| 156       | 4709; 21639                                  | 19-15-40W 1 3630N 2310W; 19-15-40W 2 1250N 4500W;<br>19-15-40W 3 2480N 200W  | 2315.05                    |
| 157       | 8141; 25374                                  | 2-15-39W 1 3280N 4280W; 2-15-39W 2 1290N 4280W;<br>2-15-39W 3 3320N 2550W; 2-15-39W 4 3970N 3960W;<br>2-15-39W 5 1300N 2600W   | 326.83                     |
| 158       | 2880; 8186; 39928                            | 31-16-33W 1 2277N 5148W; 31-16-33W 2 2772N 2442W;<br>31-16-33W 3 2970N 4059W; 31-16-33W 4 680N 2532W   | 178.98                     |
| 159       | 283; 11106                                   | 31-16-31W 1 3900N 5100W; 36-16-32W 1 3500N 2550W;<br>36-16-32W 2 3400N 1000W   | 1057.70                    |
| 160       | 11270; 26662                                 | 31-20-32W 2 2500N 5150W; 31-20-32W 3 2500N 1650W;<br>32-20-32W 4 2975N 5185W   | 814.39                     |
| 162       | 14744; 27160                                 | 8-14-42W 1 1055N 2595W; 9-14-42W 1 2605N 4635W   | 1412.00                    |
| 163       | 13115  | 13-20-34W 2 5163N 2716W; 13-20-34W 3 5130N 3175W   | 0.00                       |
| 165       | 10868; 15652                                 | 26-15-38W 2 NW NW SW; 26-15-38W 3 SW SW SW   | 0.00                       |
| 167       | 3267   | 29-18-33W 1 3900N 5200W; 29-18-33W 2 3950N 4000W;<br>29-18-33W 6 4600N 4050W   | 0.00                       |
| 168       | 13855; 21008; 23852                          | 33-15-39W 1 100N 4000W; 33-15-39W 2 80N 2700W;<br>33-15-39W 3 2775N 2639W; 34-15-39W 1 1590N 5190W   | 2096.60                    |
| 169       | 13760; 21376                                 | 6-18-39W 1 NC S2 NE SW; 6-18-39W 2 NW SW SE;<br>6-18-39W 3 1280N 2940W   | 482.02                     |
| 170       | 103; 15580                                   | 33-18-34W 1 2600N 1915W; 33-18-34W 3 2600N 125W  | 0.00                       |
| 171       | 5116   | 2-18-33W 2 N2 N2 NW SE   | 998.41                     |
| 172       | 10602; 15958; 25481                          | 14-14-40W 2 200N 2830W; 14-14-40W 3 200N 5020W;<br>15-14-40W 1 87N 122W  | 0.00                       |
| 173       | 4583; 7882; 21926                            | 4-17-34W 1 2630N 4690W; 4-17-34W 5 2630N 3630W;<br>4-17-34W 7 4804N 2590W  | 214.46                     |
| 174       | 9595   | 4-15-39W 2 2594N 819W; 4-15-39W 3 410N 5170W   | 539.73                     |

| <b>Group No.</b> | <b>File Numbers</b>          | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|------------------------------|---|-----------------------------------|
| 176              | 23956                        | 30-20-32W 1 2573N 4318W   | 1009.72                           |
| 178              | 16269; 23020                 | 3-18-40W 2 5207N 4037W  | 0.00                              |
| 180              | 1814; 25139; 25202           | 15-20-33W 3 2755N 3950W; 15-20-33W 5 815N 3980W;<br>15-20-33W 6 2695N 5074W; 15-20-33W 8 596N 4215W;<br>22-20-33W 3 4460N 3890W | 871.62                            |
| 181              | 2450; 25935                  | 29-18-33W 3 4830N 2500W; 29-18-33W 4 4800N 700W;<br>29-18-33W 9 4900N 1350W   | 717.11                            |
| 183              | 24113                        | 30-16-34W 3 2570N 1010W   | 325.69                            |
| 185              | 7602; 25043                  | 6-17-33W 3 5160N 4900W; 6-17-33W 6 4305N 5000W  | 0.00                              |
| 187              | 17138                        | 4-18-29W 1 SE NE SE   | 109.19                            |
| 188              | 29097                        | 10-17-39W 1 2244N 5247W; 10-17-39W 2 983N 4050W   | 562.88                            |
| 189              | 11841                        | 19-16-33W 2 SW SW NE  | 0.00                              |
| 191              | 9710-D1; 23844; 26850        | 33-14-40W 1 5153N 1324W; 33-14-40W 2 1055N 4555W;<br>33-14-40W 3 2100N 780W   | 0.00                              |
| 193              | 4514; 5697; 8699             | 5-18-40W 1 3630N 2600W; 5-18-40W 3 3250N 5150W  | 581.31                            |
| 194              | 14307; 22866                 | 31-15-41W 1 3920N 4000W; 36-15-42W 2 3410N 2540W  | 0.00                              |
| 196              | 20590                        | 32-16-33W 2 5240N 2600W; 32-16-33W 3 4405N 2600W  | 0.00                              |
| 200              | 8312; 10186; 25492           | 26-15-39W 1 2750N 2580W; 26-15-39W 2 5180N 5180W;<br>26-15-39W 4 2140N 600W; 35-15-39W 1 4040N 3415W                            | 2827.68                           |
| 201              | 51; 7972                     | 27-17-32W 1 2680N 2540W; 27-17-32W 6 1320N 1370W  | 122.09                            |
| 202              | 62                           | 19-18-33W 3 NW SW NW  | 0.00                              |
| 203              | 67                           | 21-18-33W 3 NW NW SE  | 297.28                            |
| 204              | 78; 14038                    | 32-17-33W 1 4885N 4445W; 32-17-33W 2 5250N 1280W;<br>32-17-33W 3 3775N 2450W; 5-18-33W 1 110N 5080W                             | 962.80                            |
| 205              | 84; 8925; 17206; 25051       | 10-18-33W 3 5180N 2900W; 3-18-33W 1 1080N 5150W;<br>3-18-33W 2 1060N 3910W; 3-18-33W 5 2600N 3900W                              | 1492.74                           |
| 206              | 90                           | 34-18-33W 3 3195N 3880W; 34-18-33W 8 3300N 3185W  | 0.00                              |
| 207              | 95; 7894; 9110; 21812; 26626 | 24-20-33W 1 2870N 5245W; 24-20-33W 5 3380N 2762W;<br>24-20-33W 8 5124N 3598W; 25-20-33W 2 4260N 3895W                           | 1087.68                           |
| 208              | 142; 11264                   | 4-18-33W 1 2600N 3880W; 4-18-33W 4 2580N 1510W;<br>9-18-33W 1 NW NW NW  | 0.00                              |



| Group No. | File Numbers             | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|--------------------------|--|----------------------------|
| 209       | 157; 17157               | 10-20-34W 1 1780N 5150W; 10-20-34W 2 430N 5200W;<br>10-20-34W 3 60N 5095W  | 243.28                     |
| 210       | 162; 9401                | 32-20-32W 1 3831N 2519W; 32-20-32W 2 2622N 3286W;<br>32-20-32W 3 48N 1882W   | 720.85                     |
| 211       | 173; 15977               | 30-17-31W 3 1300N 3940W; 36-17-32W 1 4630N 2600W   | 948.89                     |
| 214       | 202; 10852; 24182; 38084 | 1-19-33W 2 3940N 2540W; 1-19-33W 4 4100N 1560W;<br>31-18-32W 1 1800N 2400W; 31-18-32W 2 1320N 3960W;<br>6-19-32W 2 4142N 2500W | 1724.92                    |
| 216       | 212; 11625               | 33-20-32W 1 1045N 5240W  | 114.61                     |
| 217       | 224; 5554-D1; 5554-D2    | 12-18-33W 2 NW NW NE; 12-18-33W 3 160N 80W   | 563.08                     |
| 221       | 267; 15518               | 35-17-31W 1 1140N 5005W; 35-17-31W 2 5150N 5200W   | 1217.78                    |
| 223       | 299; 18176               | 8-16-33W 1 2428N 5220W; 8-16-33W 3 2660N 4010W   | 0.00                       |
| 224       | 306; 16375               | 23-18-34W 1 185N 4935W; 23-18-34W 2 35N 3550W  | 0.00                       |
| 225       | 311; 7849                | 12-16-34W 1 2240N 2540W; 7-16-33W 2 60N 5240W  | 720.06                     |
| 227       | 324                      | 17-16-33W 1 NE NW NW; 8-16-33W 2 SW SW SE  | 54.62                      |
| 228       | 332; 25004               | 16-17-34W 2 3680N 60W; 16-17-34W 7 3555N 2548W   | 517.61                     |
| 230       | 358; 22368               | 9-16-34W 1 650N 5150W; 9-16-34W 2 85N 2560W  | 0.00                       |
| 232       | 377; 26074               | 22-20-33W 1 1954N 3823W; 22-20-33W 5 2606N 1380W   | 0.00                       |
| 234       | 411                      | 36-20-33W 1 4250N 5250W  | 174.39                     |
| 235       | 473; 15818               | 17-17-31W 2 1320N 1300W  | 659.63                     |
| 236       | 486; 15247               | 22-17-28W 1 NW NW NW; 22-17-28W 5 SW SE NW   | 952.20                     |
| 237       | 493; 7181; 15980         | 7-15-39W 1 1990N 1045W; 7-15-39W 4 3035N 100W;<br>8-15-39W 1 2705N 2510W   | 0.00                       |
| 238       | 524; 18569; 28814        | 17-16-40W 3 1400N 5000W; 17-16-40W 5 4628N 5069W;<br>18-16-40W 1 3960N 1320W   | 0.00                       |
| 239       | 546; 7748; 25355         | 19-20-32W 1 NC SW NW; 19-20-32W 4 145N 3980W;<br>19-20-32W 6 1555N 4915W; 19-20-32W 8 3300N 4898W                              | 1102.14                    |
| 242       | 778; 2689                | 2-16-42W 1 4820N 5200W; 36-15-42W 1 110N 3524W   | 0.00                       |
| 243       | 827; 28937               | 33-17-33W 4 70N 70W; 33-17-33W 5 2240N 2340W   | 513.95                     |
| 244       | 843; 7914; 22468         | 13-20-34W 1 4895N 50W; 13-20-34W 4 4210N 50W   | 767.21                     |
| 247       | 857; 9282                | 2-18-34W 1 NC NE; 2-18-34W 2 NC S2 NE SE   | 1084.15                    |
| 249       | 877; 878                 | 23-18-33W 1 5140N 2570W; 23-18-33W 3 2330N 1050W   | 466.54                     |

| Group No. | File Numbers                           | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|--|--|----------------------------|
| 250       | 882; 4932; 25005                       | 15-16-34W 1 1320N 5214W; 15-16-34W 5 990N 5214W  | 250.66                     |
| 251       | 892                                    | 21-18-32W 2 SW NW SE   | 0.00                       |
| 255       | 1068; 17318                            | 24-16-34W 1 2648N 5278W; 24-16-34W 3 2725N 3980W   | 916.01                     |
| 260       | 1126                                   | 30-18-32W 5 5027N 3820W; 30-18-32W 6 4735N 2008W   | 871.68                     |
| 262       | 1184; 7725                             | 13-16-34W 6 5250N 2590W; 13-16-34W 8 4000N 2590W;<br>13-16-34W 9 5250N 1231W   | 837.52                     |
| 263       | 1185; 20588                            | 13-16-34W 2 35N 2195W; 13-16-34W 7 2635N 2540W   | 392.57                     |
| 271       | 1330; 6903; 13616                      | 24-18-39W 1 1620N 2240W; 24-18-39W 2 4365N 977W;<br>24-18-39W 3 2705N 1390W  | 1175.04                    |
| 278       | 1649; 9196; 32504                      | 13-14-40W 1 1N 4480W; 23-14-40W 1 SW SW NE;<br>23-14-40W 2 NE SE NE; 24-14-40W 1 SW SW NW;<br>24-14-40W 2 5130N 1480W  | 0.00                       |
| 279       | 1668; 11991; 22029                     | 10-18-34W 1 CS SE; 10-18-34W 2 170N 2060W;<br>11-18-34W 1 150N 5000W; 3-18-34W 1 1200N 2600W   | 0.00                       |
| 282       | 1979                                   | 20-15-40W 3 5230N 1380W  | 1186.72                    |
| 287       | 2059; 3735; 9652; 18719; 25076         | 15-17-32W 1 5000N 4100W; 15-17-32W 2 100N 2800W;<br>15-17-32W 3 140N 1860W   | 419.59                     |
| 293       | 2444; 28335                            | 31-17-32W 2 2600N 1300W; 5-18-32W 1 CE NE NW;<br>5-18-32W 4 4849N 2897W  | 1062.25                    |
| 298       | 2670; 10862                            | 15-16-34W 2 1500N 2710W; 15-16-34W 3 2500N 2710W   | 664.31                     |
| 300       | 2710; 8555; 10652; 15280; 16875; 25205 | 20-20-32W 1 3735N 1310W; 21-20-32W 1 3990N 5220W;<br>21-20-32W 5 4260N 3960W   | 0.00                       |
| 301       | 2717; 5027; 23471; 24816               | 23-20-33W 3 690N 5220W; 26-20-33W 1 NE NE SW;<br>26-20-33W 2 5230N 3300W; 26-20-33W 5 2553N 5250W  | 641.12                     |
| 304       | 2937; 10377; 13745                     | 27-15-41W 1 3285N 2375W; 27-15-41W 3 1810N 5105W;<br>27-15-41W 5 1585N 1260W   | 1028.37                    |
| 305       | 2974; 5764; 17400                      | 12-17-30W 1 3850N 1300W; 12-17-30W 4 3901N 1290W;<br>17-17-29W 1 4400N 3150W; 17-17-29W 2 5200N 200W;<br>6-17-29W 2 800N 4700W; 7-17-29W 1 4050N 2350W;<br>7-17-29W 2 5150N 2300W; 7-17-29W 3 3150N 50W;<br>7-17-29W 4 1750N 3450W; 7-17-29W 5 1340N 2380W;<br>7-17-29W 6 2550N 750W | 3571.93                    |

| <b>Group No.</b> | <b>File Numbers</b>             | <b>Points of Diversion</b>   | <b>5-Year LEMA Allocation, AF</b> |
|------------------|---------------------------------|--|-----------------------------------|
| 306              | 2996; 23027; 23785; 27533       | 27-14-42W 2 1410N 4050W; 27-14-42W 4 2594N 1938W;<br>27-14-42W 5 5142N 2275W; 27-14-42W 6 5195N 3755W  | 2109.41                           |
| 307              | 3016; 22653                     | 15-14-41W 3 2610N 4094W; 15-14-41W 4 2444N 2534W   | 798.76                            |
| 308              | 3024; 36402                     | 29-13-42W 1 1320N 5200W; 29-13-42W 2 3142N 3430W   | 849.67                            |
| 310              | 3037; 9867; 29282               | 12-20-33W 12 5133N 4777W; 12-20-33W 7 2889N 4885W;<br>13-20-33W 1 4903N 3041W; 13-20-33W 9 1662N 5285W;<br>14-20-33W 1 2698N 200W; 14-20-33W 5 4726N 100W                            | 420.46                            |
| 312              | 3064; 8754; 31711               | 15-17-30W 1 1825N 5035W; 16-17-30W 1 770N 2600W;<br>16-17-30W 2 SW SW NE   | 740.71                            |
| 318              | 3256; 8793; 25414               | 1-20-33W 2 2690N 2840W; 1-20-33W 3 5211N 1828W   | 502.77                            |
| 324              | 3556; 15983                     | 23-17-30W 1 SW SW SE; 25-17-30W 1 NW SW NW   | 1118.64                           |
| 327              | 3668                            | 33-15-38W 1 NW NW SW   | 704.20                            |
| 328              | 3669; 6675                      | 28-15-38W 1 SW NW NW; 28-15-38W 2 SW SW NW   | 0.00                              |
| 330              | 3689; 8295; 11985; 18232; 30655 | 15-16-42W 1 2000N 2550W; 15-16-42W 2 3440N 3710W;<br>15-16-42W 3 3161N 124W; 15-16-42W 4 5250N 4370W;<br>15-16-42W 5 5180N 100W  | 1645.60                           |
| 331              | 3694                            | 33-16-34W 1 SW SW NE   | 422.77                            |
| 336              | 3834; 16425; 21971; 24083       | 25-19-33W 1 110N 1780W; 30-19-32W 1 5200N 3450W;<br>30-19-32W 2 670N 5100W; 30-19-32W 3 2580N 2820W;<br>30-19-32W 4 1270N 3000W; 30-19-32W 5 1240N 3015W;<br>31-19-32W 2 3910N 5215W | 382.30                            |
| 337              | 3870                            | 32-15-38W 1 NW NW SE   | 0.00                              |
| 338              | 3885; 3888; 22827; 28165        | 18-18-32W 7 2660N 2415W; 7-18-32W 1 SE SE NE;<br>7-18-32W 2 230N 1017W; 7-18-32W 5 3018N 1531W   | 732.50                            |
| 339              | 3886                            | 13-18-33W 11 4290N 3220W; 13-18-33W 3 4490N 3420W  | 46.09                             |
| 340              | 3887                            | 36-17-33W 6 4316N 3765W  | 0.00                              |
| 345              | 4150; 8685; 21490               | 32-15-40W 1 3665N 2930W; 32-15-40W 2 3800N 5260W   | 1077.19                           |
| 348              | 4255; 15472; 24563              | 8-15-38W 1 5230N 5200W; 8-15-38W 2 5230N 2280W;<br>8-15-38W 3 975N 2635W; 8-15-38W 4 65N 2635W;<br>8-15-38W 5 3570N 5260W  | 0.00                              |
| 349              | 4289; 7795                      | 26-16-32W 1 4257N 5230W; 26-16-32W 6 3315N 2600W   | 0.00                              |

| Group No. | File Numbers  | Points of Diversion   | 5-Year LEMA Allocation, AF |
|-----------|---|---|----------------------------|
| 352       | 4354; 11745; 19267  | 5-18-32W 2 1672N 2737W; 6-18-32W 1 2740N 5140W;<br>7-18-32W 11 5260N 4052W; 7-18-32W 12 5195N 4068W;<br>7-18-32W 3 2568N 5194W  | 2637.32                    |
| 354       | 4412; 9777; 10366; 17100; 19064; 24565-D1; 24565-D2; 28365; 29427 | 14-17-39W 1 2679N 565W; 14-17-39W 2 3240N 2712W;<br>14-17-39W 3 73N 2425W; 22-17-39W 2 NW NW NE;<br>23-17-39W 1 2575N 3630W; 23-17-39W 2 5211N 5206W;<br>24-17-39W 1 2285N 2510W; 24-17-39W 2 4800N 435W;<br>24-17-39W 3 2815N 35W; 24-17-39W 4 1910N 5210W;<br>9-17-39W 1 NW NW SE | 5765.52                    |
| 355       | 4425; 7634  | 6-17-34W 1 3300N 5100W; 6-17-34W 2 5200N 5200W  | 607.98                     |
| 356       | 4465; 11045-D1  | 9-18-32W 3 4015N 2750W  | 410.81                     |
| 357       | 4494; 11242   | 5-18-34W 1 NW NW NW; 5-18-34W 2 NW NW SW  | 0.00                       |
| 358       | 4515; 5696  | 15-17-40W 1 NW SW SW  | 510.46                     |
| 359       | 4666; 10363   | 32-15-38W 2 4600N 3300W; 32-15-38W 3 2011N 4514W  | 1294.10                    |
| 360       | 4672; 17254; 23787  | 23-14-41W 1 4565N 5015W; 23-14-41W 2 5210N 3475W;<br>23-14-41W 3 1800N 5200W  | 1495.52                    |
| 362       | 4707; 8161; 27088   | 23-14-42W 1 2575N 2530W; 23-14-42W 2 5206N 5195W;<br>26-14-42W 1 5229N 2679W  | 2616.35                    |
| 364       | 4713; 10490; 14435  | 35-15-38W 1 CW SE; 36-15-38W 1 2600N 5230W;<br>36-15-38W 2 40N 5230W  | 0.00                       |
| 365       | 4716; 19697   | 8-17-32W 1 NE SW NW; 8-17-32W 2 100N 4620W  | 1067.29                    |
| 366       | 4721  | 24-20-33W 10 842N 2005W; 24-20-33W 2 NC N2 SW SE  | 486.05                     |
| 370       | 4794; 11796; 17905; 35166   | 5-17-34W 3 4092N 2739W; 5-17-34W 4 3138N 3765W;<br>6-17-34W 3 5200N 2600W; 6-17-34W 4 2900N 2550W   | 1642.64                    |
| 373       | 4836; 24843   | 7-17-32W 1 745N 4225W   | 587.45                     |
| 375       | 4841; 11767; 19506  | 32-14-39W 1 2750N 90W; 32-14-39W 2 2750N 3300W;<br>32-14-39W 5 3220N 1980W  | 438.67                     |
| 376       | 4842  | 24-15-39W 1 SW NW NW  | 0.00                       |
| 380       | 4868; 12504; 18651; 20617   | 10-17-29W 1 900N 2750W; 10-17-29W 2 1250N 4650W;<br>15-17-29W 1 5000N 2550W   | 1655.06                    |
| 381       | 4909  | 24-17-28W 1 NW NW SW  | 469.01                     |
| 387       | 5131; 28856   | 3-15-40W 1 5060N 3760W; 3-15-40W 2 4572N 1863W  | 1569.77                    |

| Group No. | File Numbers                     | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|----------------------------------|--|----------------------------|
| 390       | 5301                             | 27-16-30W 1 NE NE SE   | 714.75                     |
| 391       | 5304                             | 11-20-34W 2 NC W2 NW SW  | 0.00                       |
| 392       | 5318; 8693                       | 25-14-39W 1 CN SW SW; 36-14-39W 1 NC NE NW   | 0.00                       |
| 395       | 5439; 29750                      | 12-17-29W 1 NW NW SW; 12-17-29W 2 65N 5198W  | 0.00                       |
| 396       | 5479                             | 21-16-29W 1 SE SE SE   | 0.00                       |
| 397       | 5523; 15120                      | 1-17-29W 1 2650N 4600W   | 387.07                     |
| 398       | 5535; 15552                      | 6-18-29W 1 2792N 845W; 6-18-29W 2 3075N 1065W  | 669.45                     |
| 399       | 5542                             | 4-17-29W 1 1265N 4805W   | 0.00                       |
| 401       | 5548; 20104; 22106; 23566        | 5-15-41W 1 NC N2 S2 N2; 5-15-41W 3 4232N 1010W;<br>5-15-41W 5 2000N 100W; 5-15-41W 6 4685N 150W  | 0.00                       |
| 403       | 5614; 15863                      | 10-18-29W 1 NW NW SE; 10-18-29W 2 2611N 2294W  | 312.51                     |
| 404       | 5672                             | 23-18-30W 1 NE NE NE   | 0.00                       |
| 407       | 5763; 10848; 13743; 17831; 26305 | 26-17-29W 1 2680N 5200W; 26-17-29W 3 2590N 2975W;<br>26-17-29W 4 2560N 4000W; 26-17-29W 5 2180N 3920W;<br>26-17-29W 7 4000N 5200W; 26-17-29W 8 3300N 4950W;<br>26-17-29W 9 3510N 2640W; 35-17-29W 1 60N 4013W;<br>35-17-29W 2 792N 2510W | 2442.72                    |
| 408       | 5840                             | 14-14-42W 1 SE NW SE   | 1115.52                    |
| 409       | 5970; 11592                      | 6-17-33W 1 1715N 2580W; 6-17-33W 4 2480N 1935W   | 1198.02                    |
| 411       | 6078                             | 3-17-34W 1 5200N 5200W   | 0.00                       |
| 412       | 6084; 14623                      | 24-17-29W 1 5000N 2600W; 24-17-29W 2 4400N 1700W   | 1002.73                    |
| 414       | 6167; 18516                      | 11-17-34W 1 NC NE NE; 12-17-34W 2 1520N 2040W  | 0.00                       |
| 416       | 6264                             | 3-15-38W 1 1050N 2500W; 3-15-38W 2 800N 2500W;<br>3-15-38W 3 800N 2150W  | 0.00                       |
| 418       | 6384; 10997; 15841; 18445; 20889 | 20-17-27W 1 1550N 5260W; 20-17-27W 2 65N 5260W;<br>20-17-27W 3 100N 2625W; 21-17-27W 1 100N 3960W;<br>28-17-27W 3 2725N 2575W  | 1627.27                    |
| 423       | 6573; 24177                      | 10-16-42W 1 CS NW; 10-16-42W 2 1315N 5180W   | 0.00                       |
| 424       | 6621; 11367; 22310; 25401        | 21-16-34W 1 4025N 5245W; 21-16-34W 5 90N 4015W;<br>21-16-34W 7 2600N 5200W; 28-16-34W 1 3530N 5230W  | 1056.45                    |
| 425       | 6702                             | 33-17-29W 1 NE NW SE   | 228.64                     |
| 427       | 6755; 10238                      | 34-15-38W 1 1540N 5100W; 34-15-38W 3 4850N 5100W   | 806.94                     |

| Group No. | File Numbers                     | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|----------------------------------|--|----------------------------|
| 429       | 6772; 20199                      | 23-15-39W 1 1680N 5250W; 23-15-39W 2 110N 2530W  | 0.00                       |
| 430       | 6789; 16586; 20355               | 27-17-32W 2 5210N 4980W; 27-17-32W 3 3854N 3274W;<br>28-17-32W 1 4200N 100W  | 0.00                       |
| 432       | 6822; 12801; 13329; 18494; 24176 | 29-15-41W 1 1320N 3940W; 32-15-41W 1 NE SW NE;<br>32-15-41W 2 100N 4100W; 6-16-41W 1 NW NE SW;<br>6-16-41W 2 2580N 1980W                         | 2457.79                    |
| 436       | 6875; 16040                      | 25-15-39W 1 NW NW NW; 25-15-39W 3 2525N 3856W;<br>25-15-39W 4 275N 5049W   | 1763.22                    |
| 437       | 6886                             | 36-13-43W 2 5175N 2065W  | 345.65                     |
| 439       | 7036                             | 33-16-29W 1 NE NW SE; 33-16-29W 2 NC W2 SE   | 664.09                     |
| 442       | 7215                             | 27-17-34W 1 NE NW NE   | 571.60                     |
| 443       | 7217; 8939                       | 2-16-40W 1 5300N 1300W; 31-15-39W 1 SW SW SW   | 259.00                     |
| 445       | 7276; 18111; 19980               | 5-17-32W 1 5160N 2415W; 5-17-32W 3 2890N 4230W;<br>5-17-32W 5 2000N 3785W; 8-17-32W 4 1650N 660W   | 1898.02                    |
| 447       | 7306; 8309; 20548                | 16-17-40W 1 30N 5100W; 16-17-40W 2 4462N 3220W;<br>16-17-40W 3 1660N 3970W   | 932.71                     |
| 448       | 7318                             | 17-16-41W 2 NW NW NW   | 0.00                       |
| 449       | 7341; 16414                      | 25-17-28W 1 5225N 4950W; 25-17-28W 2 5225N 3200W   | 492.65                     |
| 452       | 7352; 15987                      | 7-18-34W 1 5180N 5170W; 7-18-34W 2 4300N 4547W   | 0.00                       |
| 453       | 7447                             | 27-17-31W 1 SW NW NE   | 453.64                     |
| 455       | 7531                             | 1-16-40W 1 NW NE NW  | 0.00                       |
| 456       | 7539                             | 20-20-33W 1 NW NE NE   | 0.00                       |
| 457       | 7540; 10136                      | 29-15-38W 1 4078N 2585W; 29-15-38W 2 1090N 2565W   | 0.00                       |
| 458       | 7543; 8260; 9063; 12582; 22114   | 5-15-39W 1 11N 5256W; 5-15-39W 2 2604N 5196W;<br>5-15-39W 3 1799N 3573W; 5-15-39W 4 5179N 4594W;<br>5-15-39W 6 983N 1817W; 5-15-39W 7 121N 5226W | 570.02                     |
| 460       | 7555; 24983                      | 6-17-29W 1 2705N 4785W; 6-17-29W 3 2705N 3630W   | 503.04                     |
| 462       | 7593                             | 35-16-30W 1 CW NE  | 0.00                       |
| 463       | 7595; 15331; 15332               | 11-17-28W 1 CS SW; 11-17-28W 2 SE SE SW;<br>14-17-28W 1 850N 5200W; 14-17-28W 2 3970N 3890W;<br>14-17-28W 3 610N 3840W                           | 1313.41                    |
| 464       | 7601; 12165                      | 34-16-34W 1 NW NW SW; 34-16-34W 2 910N 2540W   | 250.54                     |

| <b>Group No.</b> | <b>File Numbers</b>                            | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|--|---|-----------------------------------|
| 467              | 7648; 23848                                    | 20-15-39W 3 2238N 1176W   | 739.20                            |
| 468              | 7649   | 28-15-39W 1 SE NW NW  | 254.28                            |
| 471              | 7724   | 16-18-34W 2 SW NW SW  | 0.00                              |
| 473              | 7738; 24957                                    | 36-20-33W 2 1900N 3150W; 36-20-33W 3 1861N 2011W  | 411.41                            |
| 476              | 7776; 17683                                    | 9-15-40W 1 5240N 2620W; 9-15-40W 3 2680N 3500W  | 962.98                            |
| 477              | 7779; 25286                                    | 22-20-33W 2 NW NW NE; 22-20-33W 4 5180N 100W  | 558.59                            |
| 479              | 7804   | 33-18-34W 2 NC N2 N2 NW   | 0.00                              |
| 480              | 7840; 34501                                    | 32-19-33W 1 4680N 2580W; 32-19-33W 2 SW NW SE;<br>32-19-33W 5 3050N 1400W   | 795.09                            |
| 481              | 7845   | 29-17-32W 1 SW NW NE  | 449.67                            |
| 482              | 7851; 11593; 13126; 15468; 17806; 24645; 26739 | 26-16-34W 2 2580N 4110W; 26-16-34W 3 1440N 5200W;<br>26-16-34W 4 80N 5200W; 26-16-34W 5 140N 2850W;<br>27-16-34W 3 1210N 2550W; 34-16-34W 3 4120N 2390W;<br>34-16-34W 4 5100N 2410W; 35-16-34W 2 3860N 2440W;<br>35-16-34W 3 5140N 90W; 35-16-34W 4 2710N 110W;<br>36-16-34W 1 400N 5200W | 3300.39                           |
| 483              | 7852   | 2-17-34W 3 NW NW NW   | 0.00                              |
| 485              | 7855   | 4-17-34W 2 CW NW NW   | 0.00                              |
| 486              | 7865   | 26-18-34W 1 NW NW NE  | 0.00                              |
| 490              | 7991   | 15-20-33W 7 1635N 1945W   | 345.45                            |
| 491              | 8030-D2; 25248                                 | 30-18-32W 4 3413N 933W; 32-18-32W 1 2805N 2574W;<br>32-18-32W 5 2621N 5250W   | 981.90                            |
| 492              | 8030-D1  | 5-19-32W 1 NC N2 N2 NW  | 544.88                            |
| 494              | 8057   | 25-18-33W 1 4900N 2750W; 25-18-33W 2 5150N 4800W;<br>25-18-33W 3 5200N 809W   | 1235.68                           |
| 497              | 8134; 18792                                    | 10-17-33W 1 NC W2 W2 NW; 10-17-33W 2 2690N 5200W  | 570.45                            |
| 498              | 8140   | 12-15-39W 1 SW SE NW  | 0.00                              |
| 499              | 8159   | 15-16-40W 1 SW SW NE  | 63.08                             |
| 500              | 8271; 15282; 30059                             | 18-16-39W 1 1070N 2575W; 18-16-39W 11 3090N 5310W;<br>18-16-39W 3 3960N 2575W; 18-16-39W 9 4010N 2575W  | 0.00                              |

| <b>Group No.</b> | <b>File Numbers</b>                   | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|---------------------------------------|---|-----------------------------------|
| 501              | 8272; 8273; 8775; 12098; 31405; 39716 | 2-16-39W 1 E2 E2 W2; 2-16-39W 2 5612N 4712W;<br>3-16-39W 1 4950N 4920W; 3-16-39W 2 3280N 1000W;<br>3-16-39W 5 4900N 4890W; 3-16-39W 6 3200N 1040W;<br>3-16-39W 7 4224N 1465W; 3-16-39W 8 5383N 5062W;<br>4-16-39W 1 5200N 3780W; 4-16-39W 2 3780N 240W;<br>4-16-39W 3 3690N 270W; 4-16-39W 4 4327N 175W | 1621.93                           |
| 502              | 8304                                  | 20-16-34W 4 2013N 2620W   | 96.89                             |
| 503              | 8305; 19423                           | 16-17-33W 2 4996N 5103W; 16-17-33W 3 4535N 5233W;<br>9-17-33W 1 4005N 4290W; 9-17-33W 2 4270N 5170W   | 494.17                            |
| 507              | 8397                                  | 23-16-32W 1 SE SW NW  | 99.31                             |
| 510              | 8520; 10590; 31406                    | 1-16-39W 1 5380N 2600W; 1-16-39W 2 2991N 2920W  | 1772.03                           |
| 512              | 8575                                  | 25-16-34W 1 5200N 5200W; 26-16-34W 1 5210N 2430W  | 112.47                            |
| 513              | 8585; 9438; 25297                     | 18-18-34W 2 1750N 5100W; 18-18-34W 4 4830N 3975W;<br>18-18-34W 5 4880N 4850W  | 687.99                            |
| 514              | 8599; 18613                           | 25-17-34W 1 2500N 2500W; 25-17-34W 2 2470N 2500W;<br>36-17-34W 1 5100N 2500W; 36-17-34W 2 5100N 4000W   | 894.85                            |
| 519              | 8677                                  | 30-15-40W 1 NW NW SE  | 672.41                            |
| 521              | 8707; 14908                           | 2-16-42W 2 4510N 1850W; 31-15-41W 2 1736N 5190W   | 0.00                              |
| 522              | 8782; 17101                           | 24-17-31W 1 NW SW NW; 24-17-31W 2 3980N 2520W   | 1728.82                           |
| 523              | 8789                                  | 30-15-38W 1 NW SW SE  | 479.03                            |
| 526              | 8869; 22396                           | 18-20-32W 1 5212N 1177W   | 37.04                             |
| 532              | 8956                                  | 15-15-39W 1 NE NW SE  | 0.00                              |
| 534              | 14850; 19031                          | 18-17-32W 3 5205N 2043W; 6-17-32W 1 690N 1950W  | 1831.84                           |
| 536              | 9099                                  | 26-15-38W 1 NW NW NE  | 0.00                              |
| 538              | 9112                                  | 24-14-42W 1 2550N 5210W   | 1520.88                           |
| 539              | 9125; 10139                           | 9-16-33W 1 NW NW SW; 9-16-33W 2 SW SW SW  | 236.42                            |
| 540              | 9127; 12728; 20543                    | 17-20-33W 4 1820N 4040W; 17-20-33W 5 2520N 3960W;<br>18-20-33W 1 4100N 2220W; 18-20-33W 2 4340N 3200W   | 684.34                            |
| 541              | 9180; 24619                           | 4-15-41W 1 CN; 4-15-41W 3 5212N 121W  | 0.00                              |
| 542              | 9183; 19756                           | 18-15-40W 2 2600N 1425W; 18-15-40W 3 1625N 2600W  | 656.98                            |
| 544              | 9316                                  | 6-17-39W 1 CS SW SW; 6-17-39W 2 SE SE SW  | 0.00                              |
| 547              | 9344; 19544; 42516                    | 20-14-42W 1 2275N 1138W; 29-14-42W 1 NE NE NW   | 2562.23                           |



| Group No. | File Numbers                            | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|---|--|----------------------------|
| 548       | 9351; 10550; 39504; 39505; 42925; 42926 | 12-17-33W 1 60N 3420W; 12-17-33W 3 3280N 5200W;<br>12-17-33W 8 30N 1680W; 12-17-33W 9 4148N 1089W  | 2279.07                    |
| 550       | 9394; 11583                             | 16-14-40W 2 65N 800W; 16-14-40W 3 150N 3550W   | 0.00                       |
| 553       | 9476                                    | 11-15-39W 1 SW SW NE   | 0.00                       |
| 554       | 9485; 19369; 19540; 22695               | 11-20-33W 1 4100N 2550W; 11-20-33W 2 5200N 3900W;<br>11-20-33W 3 2600N 2600W; 11-20-33W 4 1200N 5200W;<br>11-20-33W 5 400N 150W; 11-20-33W 7 80N 4025W;<br>11-20-33W 8 80N 2810W | 674.37                     |
| 557       | 9506; 25373; 29665                      | 35-14-40W 1 5100N 5150W; 35-14-40W 2 1340N 5120W;<br>35-14-40W 3 5200N 1730W; 35-14-40W 4 1890N 1630W  | 2329.77                    |
| 558       | 9543                                    | 8-17-33W 1 NW NW NW  | 243.48                     |
| 559       | 9544; 22456                             | 24-17-33W 1 3406N 865W; 24-17-33W 2 3161N 1207W  | 816.20                     |
| 560       | 9574                                    | 31-17-40W 2 5200N 4600W; 31-17-40W 3 3850N 2900W;<br>31-17-40W 4 1360N 5500W; 31-17-40W 5 2500N 730W;<br>6-18-40W 1 5150N 3130W  | 1616.68                    |
| 564       | 9589                                    | 18-16-40W 2 4022N 4241W; 18-16-40W 3 2622N 1520W   | 184.80                     |
| 565       | 9591; 10411                             | 13-15-39W 1 1820N 3250W; 13-15-39W 2 1500N 5190W;<br>13-15-39W 3 50N 2520W   | 0.00                       |
| 566       | 9594; 16025                             | 4-15-39W 1 NW NW NW; 4-15-39W 4 4565N 3650W  | 559.16                     |
| 567       | 9604; 24903                             | 19-14-41W 1 4500N 3150W; 19-14-41W 2 2700N 3185W   | 1504.38                    |
| 570       | 9629                                    | 22-15-39W 1 NW NW SW   | 666.39                     |
| 571       | 9635; 23441                             | 36-14-39W 2 NW SW NW; 36-14-39W 3 4213N 5243W;<br>36-14-39W 4 2709N 5226W  | 533.75                     |
| 572       | 9636; 23786                             | 22-14-41W 2 4515N 2135W; 22-14-41W 3 4724N 5189W   | 700.32                     |
| 575       | 9643; 25149                             | 12-18-33W 4 682N 3761W; 12-18-33W 5 3264N 2720W  | 535.66                     |
| 576       | 9649; 11010; 29319                      | 10-16-39W 1 65N 3765W; 10-16-39W 2 3910N 3900W   | 0.00                       |
| 577       | 9712                                    | 30-14-42W 1 3600N 4100W  | 1364.73                    |
| 580       | 9743; 21997; 22416                      | 26-17-33W 1 3580N 5230W; 27-17-33W 1 440N 185W;<br>27-17-33W 3 4290N 2700W; 27-17-33W 4 2610N 1680W;<br>27-17-33W 6 2545N 3622W  | 1570.56                    |
| 581       | 9751; 20139                             | 34-17-33W 2 5214N 3795W; 34-17-33W 4 5215N 1900W   | 852.09                     |
| 583       | 9789                                    | 33-14-39W 1 NW NE NE; 34-14-39W 1 CW NE  | 0.00                       |

| <b>Group No.</b> | <b>File Numbers</b>               | <b>Points of Diversion</b>   | <b>5-Year LEMA Allocation, AF</b> |
|------------------|-----------------------------------|--|-----------------------------------|
| 588              | 9875                              | 12-15-41W 1 NW NW SE   | 1014.79                           |
| 589              | 9886; 33567                       | 13-19-33W 5 3462N 4263W; 14-19-33W 1 NW NW SW;<br>14-19-33W 3 52N 4478W  | 3215.56                           |
| 590              | 9887                              | 33-19-33W 1 N2 SW NW; 33-19-33W 2 SE SW SW;<br>33-19-33W 3 330N 2640W  | 0.00                              |
| 591              | 9894                              | 11-15-39W 2 NW NW SW   | 0.00                              |
| 593              | 9923                              | 6-19-33W 1 NW NW SE  | 0.00                              |
| 594              | 9939; 11323                       | 17-17-28W 1 CN NE NW; 17-17-28W 2 NW NW NE   | 545.12                            |
| 595              | 9946; 34552                       | 19-15-38W 1 NW; 19-15-38W 3 3988N 5220W  | 588.36                            |
| 596              | 9968                              | 12-16-40W 1 SW CR NE   | 363.88                            |
| 597              | 9971                              | 21-16-33W 1 CW NW  | 525.90                            |
| 598              | 9995                              | 1-18-39W 1 SW SW SW  | 0.00                              |
| 599              | 10036; 16690                      | 34-17-32W 5 1320N 1320W; 34-17-32W 6 2592N 2805W   | 626.56                            |
| 602              | 10073; 29412                      | 31-13-42W 1 3630N 4250W; 31-13-42W 2 1320N 1320W;<br>31-13-42W 3 150N 3630W  | 2311.86                           |
| 604              | 10096; 14778                      | 4-15-40W 1 4095N 4048W   | 558.83                            |
| 605              | 10111; 26221                      | 11-15-39W 3 5215N 4030W; 11-15-39W 5 2705N 4090W   | 440.86                            |
| 606              | 10115                             | 2-20-33W 2 NW NW SE; 36-19-33W 2 NE NE SW;<br>36-19-33W 4 4250N 1527W  | 0.00                              |
| 607              | 10116                             | 7-16-39W 1 NW NW SW; 7-16-39W 2 SW NW NE;<br>8-16-39W 1 NE NE NE   | 1285.88                           |
| 609              | 10138                             | 13-16-42W 1 SW SW NW   | 0.00                              |
| 611              | 10145; 15413                      | 24-19-33W 7 2778N 5176W; 24-19-33W 8 1023N 5168W   | 649.37                            |
| 612              | 10151; 18563; 26433               | 11-19-33W 1 1940N 900W; 15-19-33W 1 200N 3640W;<br>15-19-33W 4 3840N 1380W; 15-19-33W 5 1900N 4830W;<br>15-19-33W 6 3840N 1460W                | 718.82                            |
| 613              | 10162; 35348                      | 15-16-41W 1 NW NE NW; 15-16-41W 4 4277N 1684W  | 757.13                            |
| 616              | 10211                             | 23-18-39W 1 NC SW SW   | 684.19                            |
| 622              | 10254; 29608                      | 12-15-41W 2 SW NW NW; 12-15-41W 4 5180N 2500W  | 286.54                            |
| 626              | 10283; 13433; 25588; 28661; 39735 | 5-16-41W 1 SW SW SW; 5-16-41W 2 NE SE NW;<br>5-16-41W 3 5200N 5050W; 5-16-41W 4 1012N 3060W;<br>5-16-41W 6 2531N 4263W; 5-16-41W 7 3520N 2799W | 3266.99                           |

| Group No. | File Numbers               | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|----------------------------|--|----------------------------|
| 627       | 10289; 25168               | 23-16-41W 2 3536N 580W; 23-16-41W 3 3960N 5250W  | 789.98                     |
| 628       | 10309-D2                   | 31-15-40W 2 925N 460W  | 566.05                     |
| 629       | 10309-D1                   | 31-15-40W 1 2670N 5085W  | 456.25                     |
| 631       | 10360                      | 35-16-30W 2 NC NW  | 239.04                     |
| 635       | 10401                      | 32-19-33W 3 2611N 2984W; 32-19-33W 4 1843N 3572W   | 390.90                     |
| 636       | 10426; 21350; 25129        | 7-17-28W 1 SW SW SE; 7-17-28W 3 60N 1305W  | 1167.13                    |
| 641       | 10510                      | 25-15-39W 2 2705N 2625W; 25-15-39W 5 2823N 2425W   | 496.08                     |
| 647       | 10645; 17774               | 1-19-33W 3 2610N 4785W; 6-19-32W 1 SW NW NW;<br>6-19-32W 3 4421N 5096W   | 1374.13                    |
| 648       | 10653; 22831               | 25-16-39W 1 NE NW NE; 25-16-39W 2 NW NW SW;<br>25-16-39W 3 NW NW SW; 25-16-39W 4 2000N 2500W   | 0.00                       |
| 649       | 10660                      | 12-18-39W 1 2500N 2500W  | 0.00                       |
| 651       | 10674                      | 14-16-41W 1 SW SW NW   | 0.00                       |
| 653       | 10693                      | 12-16-42W 1 CN NE NW   | 600.65                     |
| 654       | 10698                      | 18-18-30W 1 4643N 1411W; 18-18-30W 2 5110N 1649W;<br>18-18-30W 3 3971N 2282W   | 375.35                     |
| 655       | 10699; 24564               | 17-14-41W 1 2500N 2700W; 17-14-41W 2 2640N 730W  | 2328.74                    |
| 660       | 10764; 22238; 35082        | 17-17-30W 1 2370N 2679W; 20-17-30W 1 NW NW NW;<br>20-17-30W 2 SW NW NW; 20-17-30W 3 1603N 5050W  | 2318.72                    |
| 662       | 10771; 18116               | 12-16-42W 2 NE SE NE; 12-16-42W 4 NE SE SE   | 1229.61                    |
| 663       | 10778                      | 34-19-33W 5 1007N 5191W  | 0.00                       |
| 664       | 10786; 20084               | 9-17-40W 2 3665N 4850W; 9-17-40W 3 3695N 2180W;<br>9-17-40W 5 3730N 3995W  | 0.00                       |
| 666       | 10816                      | 10-15-39W 3 5190N 4150W  | 336.31                     |
| 667       | 10820                      | 7-17-28W 2 5190N 5025W   | 318.40                     |
| 668       | 10832; 19354; 24761; 25259 | 13-16-42W 2 SW SW SW; 13-16-42W 3 985N 3175W;<br>13-16-42W 5 685N 3175W; 24-16-42W 1 3270N 1668W;<br>24-16-42W 2 2567N 2791W; 24-16-42W 4 1015N 4335W;<br>24-16-42W 7 3010N 100W | 2130.79                    |
| 669       | 10839                      | 31-17-39W 1 2617N 1319W; 31-17-39W 2 2617N 1305W   | 248.82                     |

| Group No. | File Numbers               | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|----------------------------|--|----------------------------|
| 670       | 10846; 14308; 40644        | 11-16-42W 2 4150N 1600W; 11-16-42W 3 2835N 3769W;<br>2-16-42W 4 2244N 3643W; 3-16-42W 1 3550N 1700W;<br>3-16-42W 2 5200N 2900W   | 0.00                       |
| 673       | 10896; 10921; 14260; 20664 | 21-16-34W 11 4776N 2591W; 21-16-34W 2 4900N 2500W;<br>21-16-34W 3 2780N 2480W; 21-16-34W 4 270N 2570W  | 1390.54                    |
| 674       | 10897                      | 9-15-40W 2 NW SW SE  | 698.56                     |
| 675       | 10926                      | 27-17-31W 2 SW SW SW   | 0.00                       |
| 676       | 10934; 13995; 17920; 25328 | 34-16-30W 1 2550N 2580W; 34-16-30W 3 3970N 1260W;<br>34-16-30W 4 2630N 990W; 34-16-30W 5 1550N 3950W;<br>34-16-30W 6 1400N 5150W   | 1801.29                    |
| 677       | 10943; 25285               | 7-18-39W 1 4400N 4000W; 7-18-39W 2 2950N 3980W   | 0.00                       |
| 678       | 10956                      | 4-16-41W 1 SW NW NE  | 591.72                     |
| 680       | 10966                      | 6-16-40W 1 4650N 2673W   | 698.50                     |
| 681       | 10968; 16427; 19455; 25021 | 27-16-29W 1 4290N 4620W; 27-16-29W 2 2145N 1320W;<br>27-16-29W 3 2635N 2050W; 27-16-29W 4 30N 2410W;<br>27-16-29W 5 2705N 110W; 28-16-29W 1 2635N 1095W;<br>28-16-29W 2 2065N 2540W; 28-16-29W 3 1540N 1190W | 1183.49                    |
| 688       | 11050                      | 32-14-39W 3 1785N 4935W; 32-14-39W 4 1790N 1795W   | 309.62                     |
| 690       | 11063                      | 17-18-33W 1 NC N2 N2 SE  | 370.02                     |
| 691       | 11105; 17302               | 8-18-31W 1 2490N 2400W; 8-18-31W 2 2320N 3500W   | 950.10                     |
| 694       | 11146; 21474               | 30-17-33W 1 4100N 2200W; 30-17-33W 6 2760N 2840W   | 610.33                     |
| 695       | 11189                      | 24-16-42W 3 4569N 4675W  | 0.00                       |
| 696       | 11206; 25082               | 11-16-40W 1 NC W2 SW NE; 11-16-40W 2 SW SW NW;<br>11-16-40W 3 1500N 2645W; 11-16-40W 4 4475N 1250W   | 1671.48                    |
| 697       | 11209; 20508               | 17-17-40W 2 3760N 2360W; 17-17-40W 3 2710N 260W;<br>17-17-40W 4 5190N 4027W  | 1185.83                    |
| 698       | 11219; 14566; 22428        | 22-14-40W 1 4000N 5200W; 27-14-40W 1 2690N 3920W;<br>27-14-40W 2 2700N 1440W; 27-14-40W 4 2800N 5270W  | 2374.26                    |
| 699       | 11261                      | 19-19-33W 1 NW SW SW; 19-19-33W 2 SE SW SW   | 312.67                     |
| 702       | 11389                      | 15-16-41W 2 NW NW SE; 15-16-41W 3 NE SW SW   | 1141.55                    |
| 703       | 11392; 12852               | 1-16-42W 1 4950N 2850W; 1-16-42W 2 2870N 160W  | 1183.04                    |

| Group No. | File Numbers               | Points of Diversion   | 5-Year LEMA Allocation, AF |
|-----------|----------------------------|---|----------------------------|
| 706       | 11463; 11464; 18192; 19678 | 25-16-42W 2 4850N 5115W; 25-16-42W 3 3603N 3014W;<br>25-16-42W 4 3639N 5157W; 25-16-42W 6 5129N 218W;<br>25-16-42W 7 4240N 1170W; 25-16-42W 8 5201N 2666W   | 1563.97                    |
| 707       | 11468                      | 36-15-41W 1 1320N 1320W   | 936.96                     |
| 708       | 11499                      | 24-20-33W 9 5150N 130W  | 0.00                       |
| 709       | 11510                      | 27-14-39W 1 2400N 5270W; 27-14-39W 2 1000N 5270W  | 667.29                     |
| 710       | 11513                      | 20-16-39W 1 4040N 5180W   | 0.00                       |
| 711       | 11584; 26264               | 30-15-38W 2 3956N 2555W; 30-15-38W 5 5160N 1016W  | 577.28                     |
| 712       | 11604                      | 11-17-33W 1 150N 400W   | 615.66                     |
| 715       | 11611; 25515               | 30-15-38W 3 1170N 5260W; 30-15-38W 4 3000N 4700W;<br>31-15-38W 1 5240N 2330W; 31-15-38W 3 4020N 4630W   | 2453.74                    |
| 719       | 11692                      | 34-14-39W 2 1348N 5163W; 34-14-39W 3 2610N 4320W;<br>34-14-39W 4 1905N 4858W  | 499.04                     |
| 724       | 11747; 41806               | 26-14-40W 1 3090N 4750W   | 928.40                     |
| 725       | 11752                      | 30-16-34W 1 CW NW NE  | 0.00                       |
| 727       | 11795; 16352               | 3-15-39W 1 4000N 2410W; 3-15-39W 2 2670N 3320W;<br>3-15-39W 3 950N 3490W; 3-15-39W 5 2630N 4620W;<br>3-15-39W 6 50N 5200W   | 670.34                     |
| 728       | 11808                      | 21-19-33W 5 4516N 37W   | 398.23                     |
| 729       | 11826                      | 27-20-33W 1 SW NW SE; 27-20-33W 2 NW SW NE;<br>27-20-33W 3 SE SE SE; 27-20-33W 4 SE CR SE   | 0.00                       |
| 730       | 11849                      | 21-16-39W 1 NW SW NE  | 397.58                     |
| 731       | 11860                      | 12-16-40W 2 SW SW NW  | 0.00                       |
| 732       | 11934; 15514; 19811; 26125 | 11-18-32W 1 5213N 3705W; 11-18-32W 2 2682N 4795W;<br>11-18-32W 3 1287N 5102W; 11-18-32W 4 3975N 2639W;<br>11-18-32W 5 NC S2 SE; 14-18-32W 1 5252N 5315W;<br>15-18-32W 1 3983N 126W; 2-18-32W 2 41N 637W | 1835.83                    |
| 737       | 12052                      | 26-16-29W 1 SW SW SW; 26-16-29W 2 SE SW SW  | 407.77                     |
| 738       | 12115; 25212; 30015        | 2-17-30W 1 3950N 3900W; 2-17-30W 2 5120N 5170W;<br>2-17-30W 3 4655N 2710W; 35-16-30W 3 2600N 120W;<br>35-16-30W 4 2420N 2600W   | 1791.10                    |
| 740       | 12213                      | 33-16-33W 1 NE NE NW  | 0.00                       |

| Group No. | File Numbers               | Points of Diversion   | 5-Year LEMA Allocation, AF |
|-----------|----------------------------|---|----------------------------|
| 743       | 12259                      | 30-16-34W 2 NC W2 W2 SW   | 137.17                     |
| 744       | 12271; 27579               | 10-16-41W 1 367N 3149W; 10-16-41W 3 2550N 775W  | 1204.61                    |
| 746       | 12286; 23021               | 28-16-41W 1 2535N 3500W; 28-16-41W 3 2620N 3150W  | 0.00                       |
| 747       | 12290                      | 12-16-42W 5 2425N 2772W   | 36.38                      |
| 748       | 12300                      | 31-15-38W 2 SE NE SW  | 564.71                     |
| 751       | 12357; 22422               | 16-16-39W 1 5150N 660W; 16-16-39W 2 3335N 5215W;<br>16-16-39W 3 2670N 3895W                           | 0.00                       |
| 753       | 12412                      | 16-16-40W 4 1674N 2610W   | 0.00                       |
| 754       | 12433                      | 35-16-40W 1 5100N 2250W; 35-16-40W 2 1350N 2400W;<br>36-16-40W 1 4900N 1700W; 36-16-40W 2 3300N 2050W | 0.00                       |
| 756       | 12470; 15658; 24768        | 11-18-30W 1 5115N 4160W; 2-18-30W 3 790N 3930W  | 622.70                     |
| 759       | 12550                      | 31-14-42W 2 3210N 3855W   | 978.98                     |
| 762       | 12650                      | 32-16-33W 1 NW SW NW  | 0.00                       |
| 763       | 12670                      | 2-18-32W 1 5120N 2520W; 35-17-32W 2 720N 2520W  | 625.48                     |
| 764       | 12671; 25424               | 29-17-31W 2 2515N 3080W; 29-17-31W 4 872N 2485W   | 1195.25                    |
| 765       | 12672                      | 31-17-31W 1 4885N 5200W   | 625.46                     |
| 766       | 12687                      | 4-15-41W 2 1980N 2640W  | 0.00                       |
| 773       | 12927; 24834               | 35-16-34W 1 1530N 2530W; 35-16-34W 5 1540N 1250W  | 218.84                     |
| 774       | 12933                      | 23-16-32W 2 1400N 4060W; 23-16-32W 3 900N 4250W   | 0.00                       |
| 775       | 12965                      | 28-16-34W 2 200N 5100W  | 188.47                     |
| 776       | 12973                      | 23-15-38W 2 2440N 4700W; 23-15-38W 3 2700N 2900W  | 0.00                       |
| 777       | 12974; 23402               | 18-18-33W 1 5200N 720W; 18-18-33W 2 5200N 1320W;<br>18-18-33W 3 5200N 2040W; 18-18-33W 5 4460N 500W   | 0.00                       |
| 779       | 13001                      | 26-16-42W 1 4535N 1670W   | 0.00                       |
| 780       | 13012                      | 33-17-33W 2 5150N 2585W   | 593.13                     |
| 781       | 13013                      | 30-17-33W 2 1330N 1320W   | 391.65                     |
| 783       | 13060; 17681; 23639; 24893 | 32-16-34W 3 4020N 3480W; 32-16-34W 5 3155N 1980W;<br>32-16-34W 6 2575N 60W; 32-16-34W 7 2412N 5201W   | 915.41                     |
| 784       | 13081                      | 16-18-33W 4 1970N 2110W; 16-18-33W 5 1910N 4550W  | 0.00                       |
| 785       | 13082                      | 15-18-33W 1 SW SW SW; 15-18-33W 2 140N 70W  | 0.00                       |
| 788       | 13116                      | 36-20-34W 1 1024N 5253W; 36-20-34W 2 8N 4220W   | 0.00                       |
| 789       | 13117; 24852               | 21-20-33W 3 5020N 5100W; 21-20-33W 9 4850N 3860W  | 0.00                       |

| Group No. | File Numbers               | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|----------------------------|--|----------------------------|
| 791       | 13192; 18625; 25100        | 13-16-34W 4 5180N 5200W; 13-16-34W 5 3960N 5200W;<br>14-16-34W 1 1635N 1110W                         | 653.01                     |
| 792       | 13219                      | 10-17-32W 1 NC W2 E2 NW; 10-17-32W 2 NC W2 NE NW;<br>10-17-32W 3 NC W2 SE NW                         | 0.00                       |
| 793       | 13263; 25399               | 5-17-30W 1 4524N 1232W; 5-17-30W 3 3153N 2720W;<br>5-17-30W 4 4429N 5280W                            | 0.00                       |
| 794       | 13302; 14170; 17466; 17467 | 24-16-39W 1 1625N 4310W; 24-16-39W 2 965N 5200W;<br>24-16-39W 4 695N 3170W                           | 0.00                       |
| 796       | 13374                      | 22-14-42W 2 2590N 1605W  | 1202.41                    |
| 797       | 13395-D2                   | 32-15-42W 2 2340N 2590W  | 0.00                       |
| 798       | 13395-D1                   | 32-15-42W 1 3300N 2680W  | 0.00                       |
| 799       | 13397                      | 35-15-42W 1 1200N 1320W  | 0.00                       |
| 802       | 13483                      | 18-19-32W 2 3300N 2500W  | 0.00                       |
| 803       | 13530                      | 19-17-39W 1 2550N 2400W  | 605.40                     |
| 805       | 13601; 24056               | 32-14-42W 1 CS SE; 32-14-42W 4 2114N 2345W   | 1430.25                    |
| 808       | 13715                      | 33-15-38W 2 5120N 5120W  | 404.10                     |
| 810       | 13738; 13748; 23759        | 16-18-32W 1 100N 5200W; 16-18-32W 2 3640N 3640W;<br>16-18-32W 3 4460N 4010W; 16-18-32W 4 4690N 3400W | 0.00                       |
| 811       | 13742                      | 28-17-29W 1 SE SW SE   | 562.77                     |
| 814       | 13761                      | 30-17-33W 3 NW NW SW   | 463.29                     |
| 815       | 13780                      | 22-16-29W 4 95N 3247W; 22-16-29W 5 117N 4449W  | 2.92                       |
| 817       | 13790; 13791; 13792        | 34-15-41W 1 1320N 3960W; 34-15-41W 2 2580N 5200W   | 849.96                     |
| 820       | 13823                      | 11-15-39W 4 160N 2520W   | 0.00                       |
| 822       | 13863                      | 12-17-40W 1 2660N 2590W  | 0.00                       |
| 823       | 13873; 25258               | 16-15-40W 1 1300N 2630W; 16-15-40W 3 1310N 3940W   | 1645.70                    |
| 824       | 13883                      | 20-16-34W 2 NC W2 W2 NW; 20-16-34W 3 CW SW NW SW   | 1005.28                    |
| 826       | 13935                      | 33-17-33W 3 2625N 3538W  | 0.00                       |
| 827       | 13955; 21849               | 27-16-42W 1 4040N 5000W; 27-16-42W 2 5140N 1828W   | 1033.17                    |
| 828       | 13968                      | 35-15-38W 2 SW SW SW   | 305.21                     |
| 830       | 13979; 21941               | 21-15-39W 2 3780N 2760W; 21-15-39W 3 1680N 5080W   | 773.10                     |
| 831       | 13980                      | 18-14-41W 1 748N 2660W   | 1411.25                    |
| 832       | 13996; 22139               | 26-16-30W 1 2840N 2690W; 26-16-30W 2 3040N 4620W   | 952.47                     |

| <b>Group No.</b> | <b>File Numbers</b> | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|---------------------|---|-----------------------------------|
| 833              | 13997; 17923        | 8-17-29W 2 3960N 3960W; 8-17-29W 3 2800N 2700W  | 566.62                            |
| 834              | 13998; 22140        | 14-17-31W 1 50N 4190W; 23-17-31W 1 4075N 3645W;<br>23-17-31W 2 2640N 3950W  | 752.95                            |
| 836              | 14030               | 22-17-33W 1 2910N 1971W; 22-17-33W 2 115N 1515W;<br>23-17-33W 1 1170N 5065W; 23-17-33W 3 1062N 5065W                              | 1104.16                           |
| 837              | 14078               | 36-17-32W 6 2552N 800W  | 272.06                            |
| 838              | 14152               | 10-17-28W 1 SW SW SE; 10-17-28W 2 SE SW SE  | 537.69                            |
| 839              | 14160               | 30-18-34W 2 2800N 550W  | 0.00                              |
| 840              | 14205               | 24-15-41W 1 1320N 2590W   | 519.62                            |
| 841              | 14214; 14215; 20422 | 12-14-42W 1 2705N 5225W; 12-14-42W 2 1055N 2705W;<br>12-14-42W 3 690N 840W; 12-14-42W 4 399N 840W                                 | 1142.66                           |
| 842              | 14219; 25048        | 2-14-42W 1 5096N 1228W; 2-14-42W 4 4213N 2348W  | 1780.69                           |
| 846              | 14264               | 1-14-43W 1 2540N 1175W  | 899.58                            |
| 847              | 14317               | 21-16-39W 2 NC N2 NW  | 685.15                            |
| 850              | 14483               | 18-18-32W 12 4899N 2674W; 18-18-32W 9 4286N 3640W   | 212.84                            |
| 851              | 14515; 17846        | 30-17-34W 1 NC; 30-17-34W 2 NC N2; 30-17-34W 3 NC NE  | 1432.90                           |
| 856              | 14743               | 10-14-42W 1 5200N 2740W   | 519.71                            |
| 857              | 14814; 22111; 26023 | 1-18-30W 5 3940N 3995W; 2-18-30W 1 5260N 60W;<br>2-18-30W 4 3950N 1680W; 35-17-30W 1 910N 4030W;<br>35-17-30W 2 280N 1855W        | 2174.09                           |
| 858              | 14832               | 23-15-40W 1 1197N 3843W; 23-15-40W 2 4821N 4750W;<br>26-15-40W 1 4580N 3310W; 26-15-40W 2 2613N 3938W;<br>35-15-40W 1 5205N 5127W | 2730.77                           |
| 860              | 14910               | 11-17-40W 1 30N 2650W   | 525.85                            |
| 861              | 14958-D1; 21115     | 20-14-41W 1 2605N 3715W; 21-14-41W 2 1190N 5215W;<br>21-14-41W 4 4905N 5225W  | 1995.17                           |
| 865              | 15066               | 14-15-40W 1 800N 5200W  | 599.52                            |
| 866              | 15083; 25463        | 15-14-42W 1 1000N 2570W; 15-14-42W 2 5220N 5065W  | 2638.79                           |
| 867              | 15160               | 20-15-40W 2 3900N 3960W   | 668.47                            |
| 868              | 15170               | 25-17-39W 1 5200N 100W  | 543.70                            |
| 869              | 15219               | 30-13-42W 1 SE SW NE  | 404.08                            |
| 870              | 15260; 23911        | 19-16-39W 1 5210N 3530W; 19-16-39W 2 5210N 5215W  | 0.00                              |



| Group No. | File Numbers               | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|----------------------------|--|----------------------------|
| 871       | 15298                      | 13-17-32W 1 1850N 4610W; 14-17-32W 1 850N 890W                               | 835.80                     |
| 872       | 15335                      | 36-14-43W 1 3100N 1100W; 36-14-43W 2 3760N 939W                              | 986.93                     |
| 873       | 15346                      | 28-14-40W 1 SW SW NE; 28-14-40W 4 2690N 2600W                                | 258.06                     |
| 875       | 15393; 18117               | 26-16-40W 1 3310N 3970W; 26-16-40W 2 3650N 2620W;<br>26-16-40W 3 3600N 110W  | 815.62                     |
| 878       | 15478                      | 18-16-41W 1 NW NW NE   | 0.00                       |
| 879       | 15501                      | 8-16-41W 1 SE NW NW  | 1038.17                    |
| 881       | 15542                      | 25-14-43W 2 4175N 1853W  | 1301.20                    |
| 882       | 15557                      | 1-18-39W 2 5200N 700W  | 314.13                     |
| 883       | 15576; 26812               | 13-17-33W 2 4015N 80W; 13-17-33W 3 65N 65W                                   | 1321.62                    |
| 884       | 15649                      | 34-18-33W 5 3496N 985W   | 410.07                     |
| 885       | 15676; 25320               | 20-16-33W 1 3500N 4300W; 20-16-33W 3 3960N 990W                              | 0.00                       |
| 887       | 15779; 20313               | 21-14-40W 1 2740N 3100W; 21-14-40W 3 2740N 5180W;<br>21-14-40W 5 400N 2514W  | 0.00                       |
| 888       | 15810                      | 20-17-31W 1 4500N 2540W  | 449.35                     |
| 889       | 15830                      | 24-18-33W 6 2700N 2950W  | 535.37                     |
| 890       | 15874                      | 34-17-31W 4 1300N 5200W  | 851.38                     |
| 892       | 15910; 24483               | 20-14-41W 2 2690N 5180W; 20-14-41W 3 2690N 1865W                             | 843.10                     |
| 893       | 15940; 22711; 28130        | 17-18-32W 1 5200N 1650W; 17-18-32W 4 5200N 3650W;<br>8-18-32W 2 2050N 2550W  | 162.86                     |
| 894       | 15941                      | 17-18-32W 3 2300N 3200W  | 566.30                     |
| 895       | 15942                      | 35-18-33W 1 5136N 571W   | 0.00                       |
| 896       | 15962; 25152               | 19-17-31W 1 1161N 2706W  | 582.46                     |
| 899       | 16074; 25255               | 29-15-38W 3 5150N 3800W; 29-15-38W 4 2550N 5200W;<br>29-15-38W 5 100N 5200W  | 504.39                     |
| 901       | 16127                      | 6-14-42W 1 3100N 5250W   | 716.62                     |
| 902       | 16139; 18920; 26378; 31348 | 13-14-43W 1 4050N 1450W; 18-14-42W 1 5100N 5150W;<br>18-14-42W 3 2700N 1950W | 2808.02                    |
| 903       | 16149                      | 3-17-29W 1 1305N 1060W   | 0.00                       |
| 904       | 16172; 16392; 25973        | 24-16-39W 3 5000N 2500W; 24-16-39W 6 2950N 475W                              | 0.00                       |
| 905       | 16201; 24815               | 5-15-42W 1 5162N 2700W; 5-15-42W 2 5184N 100W                                | 0.00                       |
| 906       | 16220                      | 19-14-42W 2 70N 1376W  | 765.66                     |

| <b>Group No.</b> | <b>File Numbers</b>        | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|----------------------------|---|-----------------------------------|
| 911              | 16337                      | 2-17-39W 1 NE; 2-17-39W 2 NE  | 915.87                            |
| 912              | 16340; 19316               | 2-18-31W 1 4660N 3769W; 2-18-31W 2 5210N 2690W;<br>2-18-31W 4 4590N 4720W   | 0.00                              |
| 914              | 16367                      | 21-20-33W 1 SW NW NE; 21-20-33W 10 4700N 1570W;<br>21-20-33W 6 4918N 534W   | 342.95                            |
| 915              | 16387                      | 19-16-33W 3 SW NW NW  | 0.00                              |
| 916              | 16389                      | 26-20-33W 4 3960N 2350W   | 0.00                              |
| 918              | 16402                      | 14-14-41W 1 610N 5230W  | 1018.79                           |
| 919              | 16403; 22568; 24264        | 9-14-41W 1 85N 5197W; 9-14-41W 2 2642N 5249W;<br>9-14-41W 4 1428N 5217W   | 3080.49                           |
| 921              | 16417                      | 36-19-33W 3 3460N 3670W   | 427.02                            |
| 923              | 16484                      | 2-18-30W 2 3645N 3790W  | 144.89                            |
| 925              | 16523; 22828; 28166        | 22-17-32W 2 90N 3900W; 22-17-32W 3 4765N 5070W  | 591.72                            |
| 927              | 16643                      | 31-15-40W 3 4490N 2550W   | 586.12                            |
| 928              | 16644                      | 36-15-41W 2 NW NW NW  | 583.74                            |
| 929              | 16661                      | 1-18-32W 1 SW SW SE   | 485.61                            |
| 931              | 16866                      | 32-19-32W 1 4000N 2540W   | 238.50                            |
| 932              | 16681; 16682; 18339        | 29-14-41W 1 4010N 4455W; 29-14-41W 2 60N 3795W;<br>29-14-41W 3 2605N 1980W; 30-14-41W 2 60N 990W  | 2637.39                           |
| 934              | 16800                      | 29-17-34W 1 NW SW NE; 29-17-34W 2 NW NW SE  | 1366.47                           |
| 936              | 16961; 17478; 18350; 23108 | 16-17-32W 1 130N 5120W; 16-17-32W 2 5180N 3880W;<br>16-17-32W 3 5200N 5200W; 16-17-32W 4 130N 3820W;<br>17-17-32W 1 120N 1330W; 17-17-32W 2 1280N 2850W;<br>9-17-32W 1 1320N 2590W; 9-17-32W 3 200N 2600W | 3698.81                           |
| 938              | 16971                      | 10-18-33W 1 4100N 1980W; 10-18-33W 2 5180N 1300W;<br>11-18-33W 2 SW SE SE; 11-18-33W 3 SW SW SE;<br>11-18-33W 6 5105N 2093W   | 732.05                            |
| 939              | 17027                      | 35-14-41W 2 NW SW SE  | 444.08                            |
| 940              | 17074                      | 15-17-28W 3 4040N 5200W   | 224.09                            |
| 943              | 17201; 23818; 25097        | 16-17-34W 4 1700N 4190W; 16-17-34W 8 3584N 5140W;<br>17-17-34W 1 1040N 190W; 17-17-34W 2 1025N 605W;<br>17-17-34W 4 5080N 1255W   | 567.98                            |

| <b>Group No.</b> | <b>File Numbers</b> | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|---------------------|---|-----------------------------------|
| 945              | 17292; 25081        | 17-16-40W 6 1010N 1250W; 17-16-40W 7 2225N 255W   | 195.72                            |
| 946              | 17309               | 26-17-28W 1 5210N 2420W   | 337.90                            |
| 948              | 17401               | 31-15-39W 3 5115N 2740W   | 0.00                              |
| 950              | 17539               | 9-18-33W 2 420N 2300W; 9-18-33W 3 2580N 1900W   | 0.00                              |
| 954              | 17645               | 19-17-32W 1 580N 1960W  | 458.75                            |
| 955              | 17690               | 35-17-33W 1 4940N 3030W; 35-17-33W 2 4120N 5200W  | 581.81                            |
| 956              | 17715               | 29-19-33W 1 2270N 5150W; 29-19-33W 3 1400N 4110W;<br>29-19-33W 6 980N 650W                            | 109.98                            |
| 957              | 17745               | 35-17-34W 1 5220N 1320W; 35-17-34W 2 5220N 3230W;<br>35-17-34W 3 2690N 1320W; 35-17-34W 4 4010N 2740W | 1483.96                           |
| 958              | 17776               | 5-15-40W 1 2600N 810W   | 1003.51                           |
| 961              | 18006               | 2-14-42W 3 4725N 5250W  | 0.00                              |
| 965              | 18254               | 19-17-39W 2 1589N 4448W   | 0.00                              |
| 970              | 18364               | 9-17-28W 1 1980N 5236W; 9-17-28W 2 2552N 5236W  | 416.20                            |
| 974              | 18559               | 18-18-28W 5 5100N 4610W; 18-18-28W 6 3980N 5160W;<br>18-18-28W 7 3930N 5160W                          | 1460.83                           |
| 975              | 18605               | 22-16-40W 1 4280N 800W  | 0.00                              |
| 979              | 18851               | 10-18-41W 1 5150N 1440W   | 0.00                              |
| 980              | 18909               | 19-18-32W 6 680N 3000W  | 95.65                             |
| 981              | 18918               | 14-15-40W 2 1360N 1320W   | 810.02                            |
| 982              | 19034               | 12-16-34W 2 SW NW SW  | 204.14                            |
| 984              | 19211               | 2-15-40W 2 2640N 4490W  | 426.22                            |
| 985              | 19212               | 34-14-40W 3 1320N 1350W   | 563.65                            |
| 986              | 19287               | 36-14-41W 1 1956N 2700W   | 679.13                            |
| 989              | 19507               | 22-17-30W 1 3895N 1385W; 22-17-30W 2 2110N 2175W  | 0.00                              |
| 990              | 19638               | 10-15-40W 1 1625N 4150W   | 731.12                            |
| 991              | 19661               | 26-17-28W 2 5150N 4020W   | 0.00                              |
| 992              | 19662               | 27-17-28W 1 5050N 5050W   | 315.80                            |
| 993              | 19698               | 3-17-29W 2 2630N 3500W  | 546.00                            |
| 994              | 19851               | 29-14-39W 1 642N 1630W  | 376.13                            |
| 996              | 19986               | 36-15-41W 3 83N 5188W   | 537.00                            |
| 997              | 20025               | 10-18-31W 1 NW NW SE  | 342.97                            |

| Group No. | File Numbers        | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|---------------------|--|----------------------------|
| 1000      | 20200               | 26-15-39W 3 2625N 5215W  | 613.57                     |
| 1001      | 20373               | 2-15-42W 2 5214N 2079W   | 0.00                       |
| 1003      | 20610               | 27-15-39W 1 5213N 3588W  | 431.07                     |
| 1006      | 20904               | 28-15-39W 2 4800N 1320W  | 473.54                     |
| 1008      | 21053               | 24-15-39W 2 2560N 5220W  | 0.00                       |
| 1009      | 21054               | 22-15-39W 3 4200N 5250W  | 407.14                     |
| 1010      | 21208; 25576        | 13-17-32W 2 2733N 2738W; 13-17-32W 3 3986N 4137W;<br>13-17-32W 7 4050N 3974W   | 337.53                     |
| 1011      | 21334               | 7-18-28W 2 3600N 1780W   | 315.02                     |
| 1012      | 21352; 23947        | 8-18-28W 1 4807N 4043W; 8-18-28W 2 4213N 5220W;<br>8-18-28W 3 5276N 41W; 8-18-28W 4 5271N 3663W  | 794.21                     |
| 1013      | 21358               | 34-17-29W 1 4490N 4490W  | 632.79                     |
| 1014      | 21364               | 6-15-40W 1 3960N 1360W   | 728.85                     |
| 1015      | 21382               | 31-14-40W 1 1390N 1260W; 31-14-40W 2 3960N 1320W;<br>31-14-40W 3 1370N 3900W   | 1863.44                    |
| 1016      | 21395; 36706        | 13-14-42W 2 1750N 180W; 13-14-42W 3 3990N 850W   | 1805.45                    |
| 1018      | 21515               | 11-15-41W 1 1380N 1365W  | 129.32                     |
| 1019      | 21520; 21815; 25577 | 4-17-31W 1 5200N 5180W; 4-17-31W 2 2740N 70W;<br>4-17-31W 3 90N 2640W; 4-17-31W 4 2670N 5190W;<br>4-17-31W 7 1320N 1585W; 4-17-31W 8 615N 595W;<br>4-17-31W 9 4900N 100W | 3626.56                    |
| 1020      | 21591               | 4-14-42W 1 4380N 5200W   | 523.15                     |
| 1021      | 21615               | 21-14-41W 3 3320N 2550W  | 617.88                     |
| 1022      | 21637               | 19-16-34W 1 653N 5075W   | 0.00                       |
| 1023      | 21647               | 10-15-40W 2 4437N 5210W  | 797.57                     |
| 1024      | 21668               | 10-15-41W 3 2620N 50W  | 0.00                       |
| 1025      | 21724               | 1-14-42W 1 2475N 3836W   | 1263.40                    |
| 1027      | 21813; 34880        | 22-18-33W 2 CW SW NW; 22-18-33W 3 1050N 1360W;<br>22-18-33W 4 3341N 2619W  | 520.87                     |
| 1028      | 21889               | 17-14-42W 1 4596N 5160W  | 1172.90                    |
| 1029      | 22018               | 16-15-40W 2 3956N 3360W  | 922.35                     |
| 1030      | 22056               | 25-17-28W 3 2609N 3673W; 25-17-28W 5 2605N 1136W   | 0.00                       |

| <b>Group No.</b> | <b>File Numbers</b> | <b>Points of Diversion</b>   | <b>5-Year LEMA Allocation, AF</b> |
|------------------|---------------------|--|-----------------------------------|
| 1031             | 22135               | 30-13-42W 2 SW SW SE   | 1398.47                           |
| 1032             | 22171; 23210        | 31-14-41W 1 3775N 100W; 31-14-41W 2 2590N 2730W                              | 583.67                            |
| 1033             | 22430               | 15-16-34W 4 3742N 5150W  | 130.87                            |
| 1039             | 22888               | 7-18-34W 4 2400N 2235W; 7-18-34W 5 1620N 1680W                               | 603.24                            |
| 1041             | 23075-D2            | 17-17-28W 5 2640N 2570W  | 0.00                              |
| 1042             | 23075-D1            | 17-17-28W 3 2640N 3920W; 17-17-28W 4 2640N 5215W                             | 909.51                            |
| 1044             | 23128; 26701        | 14-16-39W 1 5224N 3390W; 14-16-39W 3 1727N 2680W                             | 864.61                            |
| 1045             | 23149               | 7-15-42W 1 5162N 2767W   | 0.00                              |
| 1046             | 23159               | 24-14-41W 1 2550N 1320W; 24-14-41W 2 1298N 1320W                             | 0.00                              |
| 1047             | 23173               | 28-13-42W 1 35N 3315W  | 215.94                            |
| 1049             | 23226               | 21-14-40W 4 100N 5060W   | 0.00                              |
| 1050             | 23281               | 36-14-41W 2 4480N 2670W  | 0.00                              |
| 1052             | 23339               | 34-15-40W 1 1350N 2610W  | 473.31                            |
| 1054             | 23435               | 3-14-42W 2 5200N 3100W; 34-13-42W 1 1670N 2730W                              | 2293.64                           |
| 1056             | 23578               | 5-16-40W 1 4685N 3365W   | 776.79                            |
| 1057             | 23717               | 12-17-31W 1 5250N 80W; 12-17-31W 2 5240N 1320W                               | 589.74                            |
| 1058             | 23726               | 21-15-38W 6 100N 5170W   | 0.00                              |
| 1059             | 23781               | 19-17-32W 2 2990N 265W; 19-17-32W 6 2809N 541W;<br>19-17-32W 7 2975N 156W    | 474.42                            |
| 1060             | 23843               | 24-16-42W 5 1502N 1638W  | 676.70                            |
| 1061             | 23846               | 32-14-40W 1 1597N 2613W  | 917.70                            |
| 1066             | 24039; 24892        | 17-16-34W 5 60N 1265W; 17-16-34W 7 1037N 1255W                               | 500.69                            |
| 1068             | 24205               | 24-16-33W 1 1214N 1505W; 25-16-33W 5 5227N 1425W;<br>25-16-33W 6 2620N 555W  | 0.00                              |
| 1069             | 24263               | 14-14-41W 2 1391N 5245W  | 0.00                              |
| 1070             | 24304               | 16-20-33W 2 4615N 5200W; 16-20-33W 3 2590N 4800W;<br>16-20-33W 5 3715N 4800W | 202.84                            |
| 1072             | 24343               | 10-15-40W 3 1300N 720W   | 411.64                            |
| 1073             | 24543               | 25-17-31W 1 3220N 4660W; 25-17-31W 2 4760N 5200W                             | 348.28                            |
| 1074             | 24567               | 36-15-40W 1 184N 2500W   | 629.33                            |
| 1075             | 24581; 25209        | 28-16-30W 1 5100N 2550W; 28-16-30W 2 3960N 2550W                             | 609.11                            |

| <b>Group No.</b> | <b>File Numbers</b> | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|---------------------|---|-----------------------------------|
| 1078             | 24845               | 31-18-34W 1 NC W2; 31-18-34W 3 3350N 2390W;<br>31-18-34W 5 4000N 3000W; 31-18-34W 6 4000N 5180W;<br>31-18-34W 8 3950N 4000W | 0.00                              |
| 1079             | 24884               | 24-18-34W 1 510N 4805W; 24-18-34W 3 925N 2640W;<br>25-18-34W 1 4885N 2640W; 25-18-34W 2 4025N 4375W                         | 0.00                              |
| 1080             | 24885               | 21-18-33W 1 1120N 5175W; 28-18-33W 1 5015N 5150W  | 313.24                            |
| 1081             | 24891               | 17-20-33W 8 1340N 1325W   | 0.00                              |
| 1082             | 24956               | 9-18-33W 4 5070N 200W   | 0.00                              |
| 1084             | 25096               | 21-18-32W 4 3300N 5225W   | 283.38                            |
| 1087             | 25135               | 15-15-39W 2 640N 3985W  | 245.28                            |
| 1089             | 25199               | 5-17-29W 1 3135N 215W   | 353.86                            |
| 1090             | 25200               | 24-16-30W 3 560N 2590W; 24-16-30W 4 760N 1215W  | 0.00                              |
| 1091             | 25210               | 7-17-30W 1 4490N 3955W; 7-17-30W 2 4240N 2920W  | 362.72                            |
| 1092             | 25211               | 31-16-30W 1 2600N 3830W; 31-16-30W 2 165N 3895W   | 460.77                            |
| 1094             | 25278               | 14-18-33W 7 1800N 2750W; 14-18-33W 9 1460N 4100W  | 213.73                            |
| 1095             | 25291               | 16-14-42W 2 2850N 460W  | 1334.66                           |
| 1096             | 25319               | 12-20-34W 2 NW CR SW; 12-20-34W 6 1570N 4090W   | 321.71                            |
| 1097             | 25350               | 12-16-40W 4 1291N 4110W   | 320.19                            |
| 1098             | 25367               | 32-18-32W 2 330N 5100W  | 538.18                            |
| 1099             | 25368               | 6-16-39W 1 3843N 1423W; 6-16-39W 2 3404N 60W  | 552.53                            |
| 1100             | 25370               | 6-16-39W 3 2500N 2631W  | 431.80                            |
| 1101             | 25372               | 22-14-40W 3 2680N 1320W; 22-14-40W 4 100N 1320W   | 428.86                            |
| 1102             | 25382               | 6-17-30W 1 4355N 2440W; 6-17-30W 2 4180N 5085W;<br>6-17-30W 3 1765N 5085W; 6-17-30W 4 2755N 2440W                           | 1327.15                           |
| 1103             | 25403               | 28-17-33W 1 990N 3060W; 28-17-33W 2 365N 5150W  | 381.93                            |
| 1104             | 25422               | 7-14-42W 1 5214N 3310W  | 1298.19                           |
| 1105             | 25471               | 32-17-30W 1 4601N 1310W   | 926.92                            |
| 1106             | 25472               | 5-18-30W 1 4062N 1423W  | 335.83                            |
| 1107             | 25567               | 29-17-39W 1 3820N 1215W   | 0.00                              |
| 1108             | 25572               | 4-14-42W 2 3290N 2480W  | 421.90                            |
| 1109             | 25609               | 18-18-32W 8 3530N 3400W   | 0.00                              |
| 1110             | 25631               | 5-18-30W 4 3830N 5220W  | 449.21                            |

| Group No. | File Numbers | Points of Diversion   | 5-Year LEMA Allocation, AF |
|-----------|--------------|---|----------------------------|
| 1111      | 25633        | 32-14-41W 1 5180N 660W  | 53.91                      |
| 1112      | 25743        | 12-17-40W 2 4095N 4414W   | 0.00                       |
| 1113      | 25838        | 8-15-41W 3 5110N 2620W  | 718.24                     |
| 1115      | 26006; 29606 | 1-17-30W 4 5200N 2570W; 31-16-29W 1 50N 3335W   | 445.66                     |
| 1116      | 26063        | 8-15-40W 1 100N 4720W   | 1037.23                    |
| 1117      | 26196        | 20-17-32W 8 1340N 5210W; 29-17-32W 2 4530N 5240W  | 1168.77                    |
| 1119      | 26261        | 30-20-32W 3 3753N 2749W   | 529.04                     |
| 1120      | 26268        | 33-16-30W 1 4160N 5200W; 33-16-30W 2 2080N 3620W  | 324.89                     |
| 1121      | 26284        | 2-15-40W 3 5190N 1695W; 2-15-40W 4 1340N 1605W  | 996.14                     |
| 1123      | 26486        | 28-15-39W 3 1987N 791W  | 319.00                     |
| 1125      | 26539        | 4-15-40W 2 2125N 60W  | 514.18                     |
| 1126      | 26540        | 4-15-40W 3 2530N 1742W  | 576.02                     |
| 1127      | 26677        | 6-18-29W 3 3150N 4436W  | 117.07                     |
| 1128      | 26761        | 19-17-32W 3 3875N 2680W; 19-17-32W 4 635N 4155W;<br>19-17-32W 5 3725N 2680W   | 1103.66                    |
| 1129      | 27048        | 25-20-33W 3 4340N 125W  | 842.41                     |
| 1130      | 27054        | 36-16-31W 4 200N 5140W; 36-16-31W 5 2590N 4090W   | 345.93                     |
| 1131      | 27060-A      | 28-14-40W 2 2675N 5170W; 28-14-40W 3 65N 4255W  | 1211.17                    |
| 1134      | 27395        | 25-14-42W 3 5227N 4612W   | 745.11                     |
| 1135      | 27486        | 9-18-30W 1 3640N 1274W; 9-18-30W 2 2464N 2518W  | 0.00                       |
| 1136      | 27764        | 23-17-34W 1 8N 4655W  | 70.43                      |
| 1137      | 28100        | 32-14-40W 2 4481N 4486W   | 0.00                       |
| 1139      | 28295        | 13-16-41W 1 4113N 2284W; 14-16-41W 2 2750N 959W;<br>14-16-41W 3 2720N 2250W   | 1031.38                    |
| 1140      | 28296        | 1-16-41W 1 4470N 1030W  | 837.64                     |
| 1142      | 28492        | 11-16-41W 1 869N 5240W  | 471.05                     |
| 1143      | 28617        | 11-16-34W 2 80N 2590W   | 0.00                       |
| 1144      | 28855        | 15-15-40W 1 2150N 1500W   | 711.60                     |
| 1145      | 28870; 39612 | 11-16-39W 1 5205N 1620W; 11-16-39W 2 2655N 50W;<br>11-16-39W 3 5106N 1580W; 14-16-39W 4 3290N 1100W;<br>14-16-39W 6 2934N 1208W | 533.40                     |
| 1148      | 29604        | 1-17-30W 1 2650N 5180W; 1-17-30W 2 3990N 3990W  | 374.20                     |



| Group No. | File Numbers                                   | Points of Diversion  | 5-Year LEMA Allocation, AF |
|-----------|--|--|----------------------------|
| 1149      | 29967  | 14-17-33W 1 3740N 2230W  | 1031.51                    |
| 1152      | 30722  | 1-15-41W 2 1380N 3865W; 11-15-41W 3 3956N 1334W  | 728.26                     |
| 1156      | 32142  | 27-15-39W 2 4140N 1470W; 27-15-39W 3 1260N 1360W   | 913.08                     |
| 1157      | 32478  | 27-15-39W 4 2610N 4324W  | 486.36                     |
| 1158      | 32546  | 4-19-32W 1 4974N 5180W; 4-19-32W 2 4099N 5200W   | 220.65                     |
| 1159      | 32795  | 21-17-32W 2 2495N 1230W  | 0.00                       |
| 1160      | 33134  | 34-16-31W 2 2205N 2740W  | 894.87                     |
| 1161      | 33160; 33506                                   | 21-19-32W 1 80N 520W; 21-19-32W 2 3800N 250W   | 807.65                     |
| 1163      | 33419  | 6-15-40W 3 3955N 3945W   | 409.81                     |
| 1166      | 33908  | 36-16-30W 3 2765N 2575W  | 156.97                     |
| 1167      | 34070  | 7-17-32W 2 3830N 1320W   | 561.34                     |
| 1169      | 34497; 34498                                   | 18-16-41W 4 2620N 95W; 18-16-41W 5 1350N 2760W;<br>18-16-41W 6 2620N 145W; 18-16-41W 7 75N 2753W   | 583.98                     |
| 1170      | 34504  | 32-17-31W 1 4903N 3155W  | 394.99                     |
| 1172      | 34517  | 18-15-38W 2 350N 5200W   | 0.00                       |
| 1173      | 34537; 34538; 34539; 34540                     | 31-17-27W 1 5176N 2564W; 32-17-27W 1 3879N 3303W;<br>32-17-27W 2 5207N 2837W; 32-17-27W 3 5208N 4037W  | 0.00                       |
| 1174      | 34622  | 26-18-34W 2 4370N 4450W  | 0.00                       |
| 1175      | 34631  | 36-16-32W 3 3560N 4080W  | 0.00                       |
| 1178      | 10446-D1; 10446-D2; 34734; 34736; 34737; 34738 | 29-18-34W 3 1500N 3590W; 29-18-34W 5 1430N 2500W;<br>29-18-34W 6 750N 5100W; 29-18-34W 7 1450N 1800W;<br>30-18-34W 1 200N 1075W; 32-18-34W 2 5045N 4325W | 0.00                       |
| 1179      | 36096; 36098                                   | 23-15-41W 2 1760N 40W; 23-15-41W 4 100N 2730W  | 1021.64                    |
| 1180      | 36808  | 13-18-33W 6 3903N 80W  | 197.14                     |
| 1182      | 37759  | 7-18-30W 1 1524N 5041W   | 0.00                       |
| 1188      | 38795  | 22-15-40W 2 2680N 1480W  | 565.57                     |
| 1189      | 39211  | 9-16-41W 1 2800N 150W  | 810.67                     |
| 1190      | 39387  | 36-17-32W 5 4056N 5245W  | 0.00                       |
| 1191      | 39798  | 32-17-28W 4 2940N 5245W  | 145.29                     |
| 1192      | 39818  | 33-17-27W 1 4119N 4707W  | 0.00                       |
| 1196      | 41406  | 25-16-33W 9 600N 3350W   | 2.20                       |

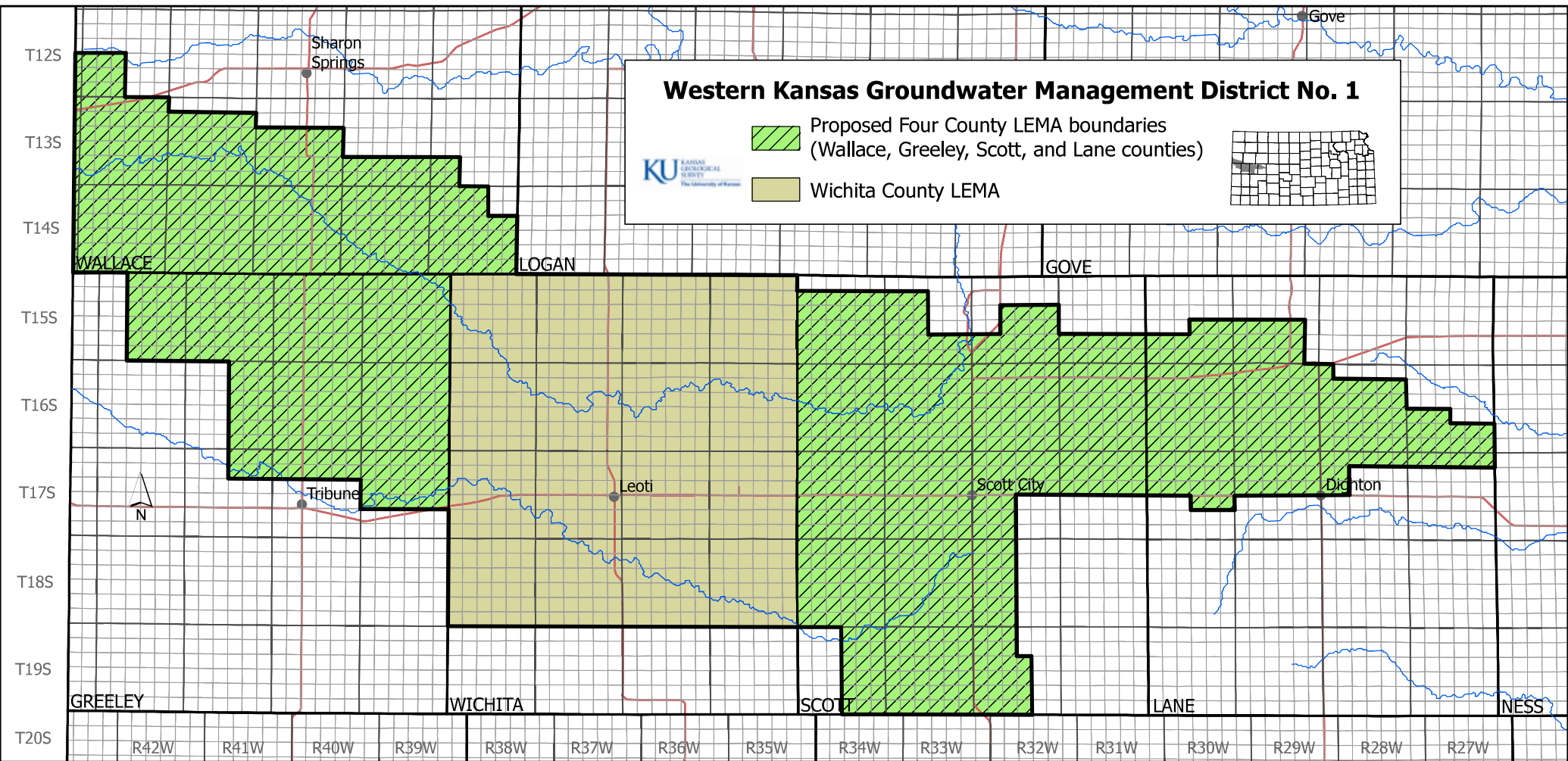
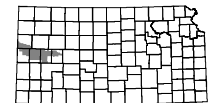


| <b>Group No.</b> | <b>File Numbers</b>                              | <b>Points of Diversion</b>  | <b>5-Year LEMA Allocation, AF</b> |
|------------------|--|---|-----------------------------------|
| 1219             | 42556; 42715                                     | 14-18-31W 2 4095N 5220W; 14-18-31W 3 3750N 5088W;<br>14-18-31W 4 3858N 5054W; 14-18-31W 5 3728N 4854W   | 1242.44                           |
| 1220             | 43197; 43198; 43199                              | 16-19-32W 2 4345N 1920W; 16-19-32W 3 2740N 4105W;<br>16-19-32W 4 4280N 1940W; 16-19-32W 5 4410N 1900W;<br>16-19-32W 6 2815N 4180W; 16-19-32W 7 2665N 4030W;<br>17-19-32W 1 4040N 1398W; 17-19-32W 2 4258N 1416W;<br>17-19-32W 3 3822N 1380W | 353.25                            |
| 1223             | 14683-D1; 14683-D2; 14683-D3; 14683-D4; 14683-D5 | 28-17-31W 1 190N 1720W; 33-17-31W 1 5150N 2550W;<br>34-17-31W 1 5000N 2540W; 34-17-31W 2 3380N 3300W;<br>34-17-31W 3 1980N 2310W  | 1936.19                           |
| 1227             | 6622-D1; 6622-D2; 17880-D1; 17880-D2             | 18-18-28W 3 2360N 2580W; 18-18-28W 4 3100N 2580W  | 892.62                            |
| 1229             | 44773  | 24-18-33W 9 3452N 2902W   | 33.92                             |
| 1231             | 11045-D2   | 3-18-32W 1 2300N 3840W  | 0.00                              |
| 1233             | 20636-D1   | 10-16-41W 2 5210N 3860W   | 776.78                            |
| 1239             | 15997-D1   | 1-15-41W 1 4650N 2650W  | 837.55                            |
| 1240             | 15997-D2   | 2-15-41W 1 5208N 592W   | 333.39                            |
| 1243             | 23956  | 30-20-32W 2 796N 1371W  | 969.68                            |
| 1244             | 10808; 31852                                     | 29-14-40W 1 NE NW NE; 29-14-40W 2 2600N 1730W   | 411.86                            |
|                  |  | <b>Total</b>  | <b>471,391.76</b>                 |

Attachment B – Map with Proposed Boundary

# Western Kansas Groundwater Management District No. 1

-  Proposed Four County LEMA boundaries (Wallace, Greeley, Scott, and Lane counties)
-  Wichita County LEMA



Attachment C – Method to Develop Allocations and Demonstration that the LEMA’s  
Corrective Controls Will Meet Stated Goal

## **Attachment C – Method to Develop Allocations and Demonstration that the LEMA’s Corrective Controls will meet Stated Goal**

The stated goal of the FCL is to limit irrigation water use under Appropriation Rights within the proposed geographic boundaries to 472,000 AF for the LEMA period. This stated goal is the sum of the allocations provided to irrigation Appropriation Rights before appeals. This document will summarize the process used by the Board to develop the allocations provided to these rights under the LEMA Plan and comment on the expected effectiveness of the LEMA’s corrective controls to reach this goal.

### **LEMA Allocation Development**

**Overview:** After exploring a host of options, the Board decided on an allocation method that makes reduction based on 2011-2020 historic average usage, with larger reductions in water use for larger water use and lesser reductions in water use for smaller water use. The required reductions in water use are determined based on the average inches applied for each Water Right Group during 2011-2020 as applied to the total authorized acres of Water Right Group. Years of no Water Right Group use are excluded from averaging. When less than 3 inches per authorized acres was applied in 2011-2020, no reduction is required; where more than 12 inches per authorized acres were applied, a 25% reduction is required from historic use; in between 3 and 12 inches, the required reduction is based on a sliding scale between these values.

**Process** - GMD 1’s staff and consultant worked closely with DWR to develop as accurate a set of allocations as possible. While DWR proofed all reported water use, upon which the allocations are based, part of the Board’s appeal process will allow stakeholders to provide the Board with additional water use information which should be considered.

The Board requested DWR provide water use data from its WRIS database for all water rights within the boundary of the District within the four counties outside of Wichita County, for the 2011-2020 period, based on its determination of Water Right Groups.

Based on DWR’s data, the Board reviewed a number of allocation methods for irrigation water rights for total water savings and the effect on water right groups and selected its allocation method summarized above.

The Board determined that years of no use within a Water Right Group will be excluded from the determination of the inches applied per authorized acre and the average water use used as a basis of allocations.

The Board requested DWR review water use data acquired via WRIS against the actual water use records at DWR and make corrections to the District’s data compilation.

The Board and DWR worked together to review and refine the base data and allocations to deal with a range of special conditions including:

- Water Right Groups with both Vested Rights and Appropriation Rights. For each Groups, stakeholders may operate the vested rights pursuant to the Chief Engineer’s order establishing the rights including any approved water right changes, and the Appropriation Rights of the Water Right Group are granted an allocation consistent with the allocations provided to others.
- Multi-use water rights - For water rights which allow for irrigation use and other uses (typically stock water use) under a single water right, Water Right Group allocations for irrigation use have been established based on Historic Usage and the allocation methods provided herein.

- Water right conditions required under K.A.R. 5-5-11 (place of use rotations/expanded place of use with 5-year allocations and GMD monitoring). For water rights with conditions including existing 5-year allocations as a result of approved place of use expansions under K.A.R. 5-5-11, preserving the flexibilities provided therein as long as the FCL Allocations are not exceeded for such water rights, the allocations were determined as other the water rights except that the authorized acres for purposes of determining the required reduction from historic water use is assumed to be the “Base Acres” determined by DWR.

### **Demonstration that the LEMA’s corrective controls will meet stated goal**

The “corrective controls” to be put in effect under the LEMA principally relate to the 5-year allocations assigned to Appropriation Rights for irrigation use by Water Right Group. The sum of the 5-year allocations these water rights is 472,000 AF for the 5-year period. This represents a reduction in excess of 10% of the 2011-2020 actual use for the non-vested, irrigation use.

While it is expected that total FCL allocations will be increased as a result of the Board’s appeal process, it is not possible to project how much allocation will be increased as a result of the appeal process, nor how much water use will increase as a result of the increase in allocations (as not all increases in allocation will result in increased use).

The number of appeals under the Wichita County LEMA was less than expected. The Board will require stakeholders to provide evidence to support its appeals and will apply corrections to the water use records to only those years in which conservation is demonstrated.

While the Board cannot at this time determine the terms of a future LEMA, it is this Board’s desire, as is the case with the WCL, GMD 4 LEMAs and other multi-year allocation tools like MYFAs, that carry-over of unused allocation from one LEMA period to another be allowed to encourage water conservation, thus reducing the effects of allocation increases.

Past results from multi-year allocation programs such as LEMAs and WCAs have shown most participants typically use less than allocated when enrolled in flexible allocation plans. See David Barfield, DIV. OF WATER RES., 2020 Report on Implementing Legislative Tools to Extend the Life of the Ogallala Aquifer (Jan. 2020) (noting the Sheridan LEMA achieved water use savings of 32%, over the planned 20%). Additionally, given the strong public support for extended the life of the Ogallala-High Plains Aquifer—and the strong support for this LEMA—it is a fair assumption that stakeholders in the District will continue efforts to reduce their irrigation water use, and thus these voluntary actions will assist in meeting the FCL goals.

Finally, the FCL Allocations are based on the Historical Usage from 2011-2020. With declining water levels, pumping rates have and are declining for most as well. This will lead to reduced water use by stakeholders of the FCL.

Ultimately, while the amount of additional water to be allocated via the appeal process is unknown, the Board asserts that it is reasonable to assume the significant counterbalances noted above will more than outweigh the additional water use that might occur under the appeal process.

Attachment D – Memorandum on Public Outreach

# **Summary of the Public Outreach Conducted by the GMD 1 for the Proposed Four County LEMA**

June 26<sup>th</sup>, 2022

**Document purpose:** K.A.R. 5-19-2 related to Local Enhanced Management Area (LEMA) plans, requires the following: “a separate memorandum containing a summary of the public outreach conducted by the GMD before recommending the LEMA plan for approval shall be submitted simultaneously with the LEMA plan and shall include a description of any changes made to the LEMA plan due to any public comments.” This memorandum is responsive to this requirement.

## **Introduction and Pre-Four County LEMA Public Engagement**

Since shortly after the first LEMA was approved during 2013, the Western Kansas GMD No. 1 (GMD1) has been involved in engaging its public about the use of this tool to address the long-term declines of the Ogallala Aquifer within its boundaries.

Important public outreach before the development of the current Four County LEMA (FCL) proposal include:

- During 2013-2014 the Board developed a district-wide LEMA Proposal after two rounds of public meetings and ultimately took the proposal to a public vote. While the vote was short of the two-thirds majority supporting the proposal, the Board continued LEMA discussions. The process and public engagement was informative and assisted with subsequent LEMA development. Specifically, it became evident that a robust appeals process was preferred which was written into the Wichita County LEMA and the Proposed FCL LEMA Plan.
- Beginning in 2018, after the development of the Wichita County Water Conservation Area (WC WCA), in part at the urging of members of the steering committee for the WC WCA, the Board renewed its effort to develop a “district-wide LEMA”. The LEMA proposal was discussed at most Board meetings of this period as well as at several annual meetings. Ultimately, the Board decided to move forward with a LEMA only in Wichita County as the need was the most urgent in this county, and there was already significant public engagement and support through the WCA process as well as the Board’s LEMA process.

## **Public Engagement During the Development of the Proposed Four County LEMA**

As the Wichita County LEMA hearing process was reaching its conclusion, the GMD 1 Board renewed its focus on developing a LEMA or LEMAs for the rest of the District. Public engagement has taken many forms during the development period of the Four County LEMA including:

- Discussion at most of its Board meetings from October 2020 to current, all open to the public participation via Zoom or in-person (except when restricted by COVID). These meetings have been noticed on GMD 1’s web site and by email for those who have



requested they be noticed of all Board Meetings. Most meetings over the last year have included valuable participation in LEMA discussion by non-Board members including both irrigation and non-irrigation interests, particularly over the final months of the Plan's development.

- Throughout the FCL LEMA development period, the Board of Directors has been diligent in engaging with respective constituents regarding the proposed LEMA and associated methodology. This has resulted in changes to the proposed LEMA, as noted later in the memorandum.
- During late 2020, the GMD 1 Board began work with Dr. Nathan Hendricks of KSU to design a survey focused on determining the level of support within the District for developing a LEMA. This included a request for the individual's preference on groundwater reductions and proposed methodologies for establishing allocations. During the spring of 2021, the survey was sent to 832 individuals, all of whom were water use correspondents or water right owners on record with KDA-DWR at the time of mailing. After his analysis, Dr. Hendrick's presented his findings to the Board as well as at the 2021 annual meeting. The survey indicated significant support for a LEMA where allocations implemented reductions of approximately 10-15%.
- The District has a newsletter, "The Water Line" that will provide correspondence with all District landowners on a quarterly basis to provide the latest District news and information. There will also be a monthly newsletter available via the District's website on a monthly basis. The last physical newsletter was sent out in April of 2022. This issue encouraged landowners and water right correspondents to reach out to the District regarding the proposed LEMA and to obtain their draft LEMA allocation.
- The District maintains a website that can be accessed at [www.GMD1.org](http://www.GMD1.org). This website also serves as a repository for informational materials including past LEMA presentations and meeting materials.
- The District sent notice of its annual meeting to its mailing list, noticing the planned LEMA discussions.
- At the 2021 Annual meeting, delayed due to COVID to August 11, 2021, the District provided a presentation on its considerations related to additional LEMAs (Appendixes) as well as handouts of the proposed attributes of a LEMA plan for the rest of the District (Appendixes).
- At the 2022 Annual meeting on Feb. 23, 2022, the District again provided a presentation on its LEMA considerations, again including handouts to summarize the proposed attributes of the LEMA. In addition, in response to comments from the 2021 annual meeting, at the meeting those attending who had an interest in a water right were provided with a draft LEMA allocation report for their water rights group(s) to understand the effect of the proposed LEMA's corrective controls (allocations) on their particular water right(s). These were also provided to those calling to request them after the meeting. The presentation was posted on GMD 1's website.
- In May of 2022, the Board held three Public Outreach Meetings: in Wallace, Scott and Lane Counties. These meetings were noticed in several newspapers that service the GMD1 area. Additionally, a letter was sent out to all landowners on file indicating the

meeting times and locations and that the proposed LEMA would be the primary topic of discussion.

- Over the past several months District staff has been contacted via email, phone, or in person visits by hundreds of constituents interested in retrieving their draft LEMA allocation or learning more about the proposed LEMA.

### **Changes to the LEMA Proposal Made in Response to Public Comments**

It is difficult to fully enumerate specific changes to the LEMA Plan made from public comment due to the significant level of ongoing outreach, coordination and Board discussion with individual constituent which has taken place over the last several years. However, several general methodologies have been included below and directly reflect what has been heard and discussed throughout the proposed LEMA's development period.

Public comment significantly informed the overall goal of the LEMA in terms of overall reductions as well as broadening the particulars of the appeal process.

Below is a listing of major differences between the Wichita County LEMA and the Four County LEMA, much of which was influenced by comments from the public.

- Rather than a flat 25% reduction from historic pumping, reductions are based on a sliding scale reduction based on the 2011-2020 inches applied per authorized acres.
- Allocations are provided by Water Right Group, rather than by point of diversion.
- Allocation to Appropriation Rights within groups with both Vested and Appropriation Rights are done differently, not requiring Vested Rights to voluntarily enroll in the LEMA but provided an allocation to the Appropriation Rights of the Group based on the same percent reduction as computed by the entire group.
- There are no deadline for appeals to take place. Appeals can be heard at any time during the term of the FCL, 2023-2027.
- A robust and flexible appeals process has been developed to provide due consideration for contested FCL Allocations.

### **Appendixes:**

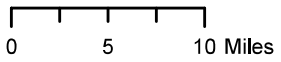
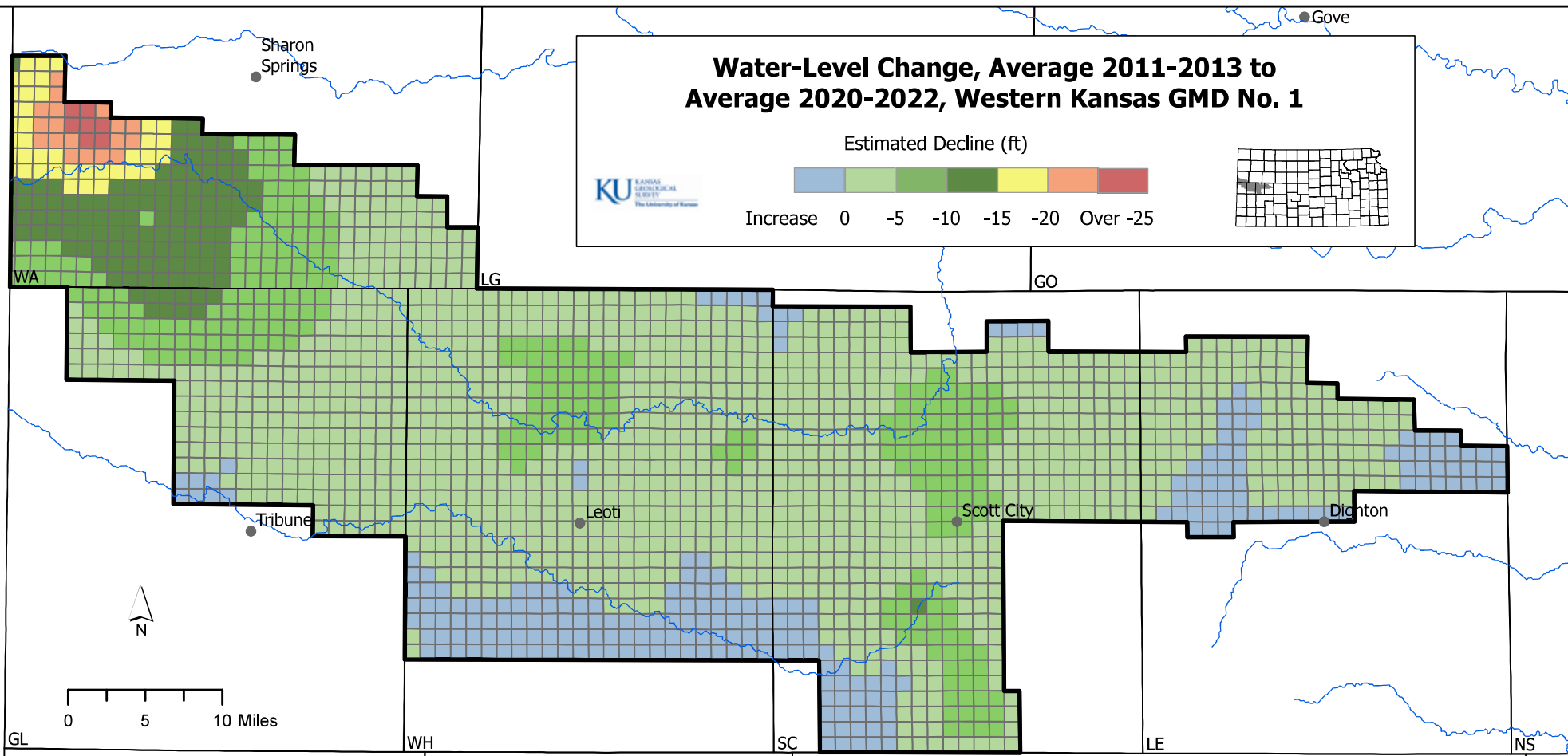
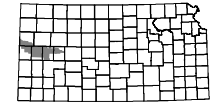
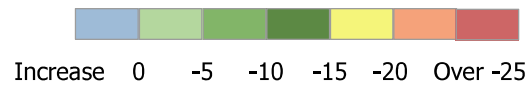
- GMD1 KSU Survey on Preferences for GMD Irrigation Water Management, 2021
- Survey Transmittal letter (second round)
- August 2021 Annual Meeting presentation on Additional LEMA Considerations
- August 2021 Annual Meeting handouts on Potential LEMA Attributes
- February 2022 Annual Meeting presentation on Additional LEMA Considerations
- February 202s Annual Meeting handouts on Potential LEMA Attributes
- April 2022 GMD1 Newsletter
- Public Outreach Letter – County Outreach Meetings
- Appeals Memo – Handout at County Outreach Meetings
- KGS Presentation from County Outreach Meetings

- Lane County Outreach Meeting Agenda
- Scott County Outreach Meeting Agenda
- Wallace County Outreach Meeting Agenda
- Map Handouts from County Outreach Meetings
- PowerPoint Presentation from County Outreach Meetings
- FAQ Sheet – Handout at County Outreach Meetings
- County Outreach Meeting Sign-in Sheets

## Attachment E – Required Maps

# Water-Level Change, Average 2011-2013 to Average 2020-2022, Western Kansas GMD No. 1

Estimated Decline (ft)



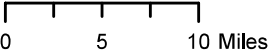
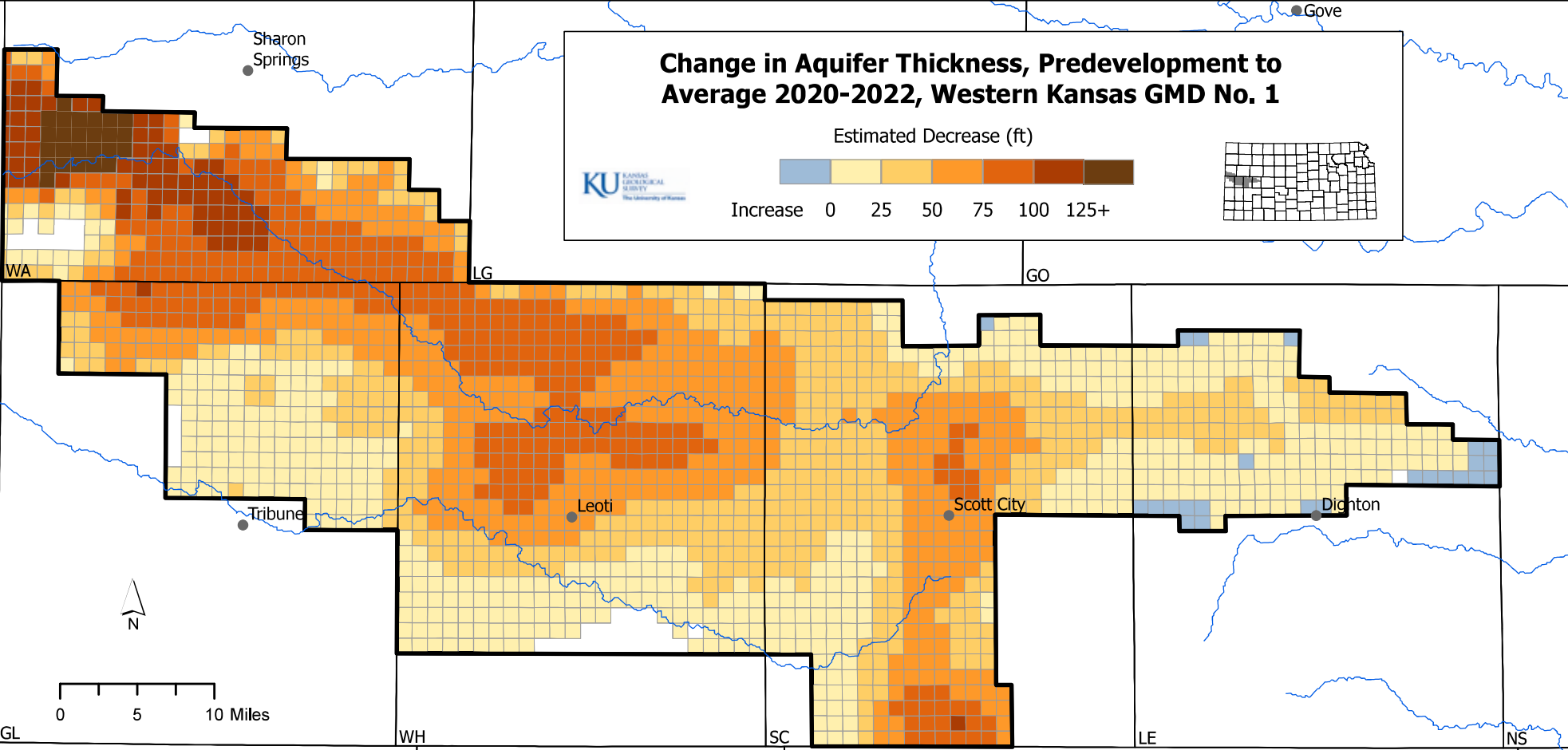
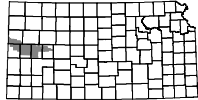
Map data modified from KGS Kansas High Plains Aquifer Atlas

# Change in Aquifer Thickness, Predevelopment to Average 2020-2022, Western Kansas GMD No. 1

Estimated Decrease (ft)



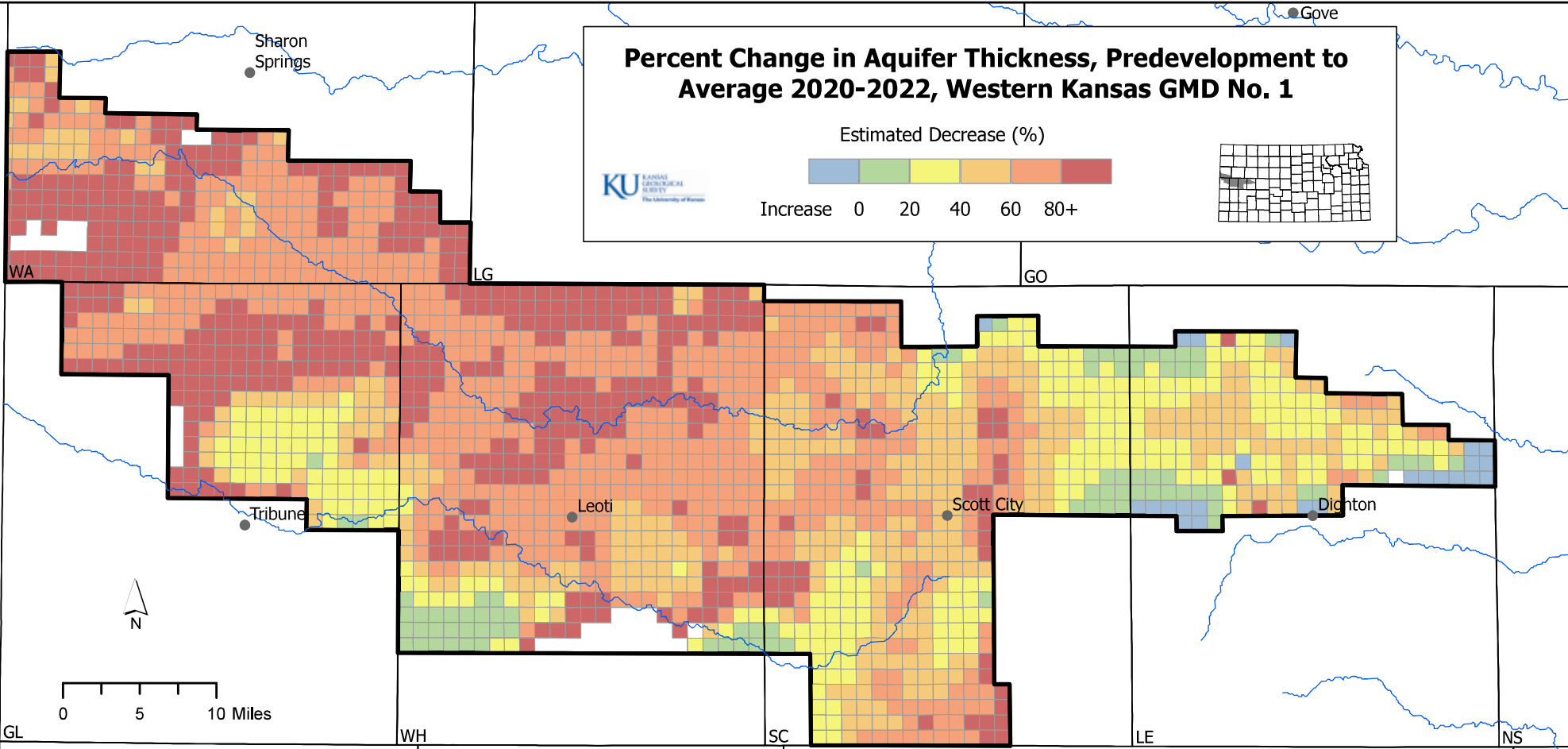
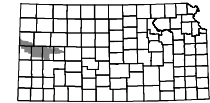
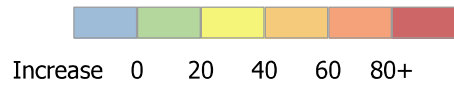
Increase 0 25 50 75 100 125+



Map data modified from KGS Open-File Report 2022-8

# Percent Change in Aquifer Thickness, Predevelopment to Average 2020-2022, Western Kansas GMD No. 1

Estimated Decrease (%)



Map data modified from KGS Open-File Report 2022-8

Attachment F – Memorandum on Appeal Methods



## GMD1 Four County LEMA Memorandum of Appeals Methods

### Section 1 – Defining Voluntary Conservation

#### Background and Consideration

Pursuant to K.S.A. 82a-1041, LEMA Plans submitted by GMDs are required to provide evidence so the Chief Engineer can conclude that the Plan “gives due consideration to water users who already have implemented reductions in water use resulting in voluntary conservation measures;”

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#### Draft Definition of “Voluntary Conservation”

In direct regards to the LEMA and implementation overseen by GMD1, voluntary conservation is defined as the following. The intentional act of utilizing less water than is available in an unconstrained supply under a set water right, not contingent on water year type. Per KSA 82a-1041, the LEMA plan must show it “gives due consideration to water users who already have implemented reductions in water use resulting in voluntary conservation measures.” Therefore, the act of conservation must be a physical and purposeful change to on farm management outside of natural changes and or causes.

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### Section 2 – Examples and Criterion of Voluntary Conservation

The following examples and criterion are hypothetical scenarios that may be deemed as actionable conservation by the GMD Board of Directors, on a case by case basis.

#### Voluntary Conservation Criteria

| Example Criteria for Approving Conservation  | Yes/No* |
|--|---------|
| Is this action of conservation voluntary?  | Yes     |
| Can the landowner reasonably prove conservation through records, data, other?  | Yes     |
| Was less water used regardless of water year?  | Yes     |
| Was more water available, but not utilized?  | Yes     |
| If a high water use crop ( <i>corn</i> ) was purposefully or permanently replaced with a low water use crop ( <i>sorghum</i> ), were the overall acres maintained? | Yes     |
| Was the irrigation year cut short due to hail damage?  | Yes     |
| Was extra-ordinary efficiency technology implemented to promote water savings? ( <i>ex. sub surface drip irrigation</i> )  | Yes     |
| Is the landowner currently enrolled in a WCA?  | Yes     |

\*These example answers indicate a potential response that would be indicative of conservation.

#### Possible Examples of Voluntary Conservation (in accordance with the known interpretation of due consideration)

- In 2015 John Smith implemented subsurface drip irrigation which resulted in less water being applied in 2015 (Normal WY) than in 2016 (Normal WY). John Smith is able to demonstrate this because he can provide reasonable data and a written explanation that proves this was a voluntary act, not reliant on supply availability.

- In 2017, John Smith switched from irrigating corn to irrigating grass for seed, a crop that uses significantly less water, without expanding his irrigated area. This resulted in a demonstrated decline in water used. Thus years 2017-2020 will be excluded from determining the basis of his allocation.
- In 2018, John Smith signed onto a Water Conservation Area, which committed him to a reduction of 10% from his historic use. Thus 2018-2020 will be excluded from determining the basis of his allocation.
- In 2016, John Smith decreased his irrigated acres to purposefully reduce water use. This action was not dependent on water availability, rather the conscious effort to conserve. Similar with moving to a crop rotation that used less water over the long haul.
- Typically John Smith uses approximately 60% of his land to grow corn and 40% of his land for sorghum. Over the last several years he has adjusted these figures and now uses almost 95% of his acreage to grow sorghum, a lower water use crop thus potentially resulting in overall decreased water use.<sup>1</sup>

### Section 3 – Examples and Criterion that are not Conservation

The following examples and criterion are hypothetical scenarios that may be deemed as not voluntary conservative action by the GMD Board of Directors, on a case by case basis.

| Example Criteria for Non-Conservation  | Yes/No** |
|--|----------|
| Is this action of conservation voluntary?  | No       |
| Can the landowner reasonably prove conservation through records, data, other?      | No       |
| Was less water used regardless of water year?                                      | No       |
| Is it considered conservation if less water was used due to an inability to pump?  | No       |
| Is it considered conservation if less water used due to a wet water year?          | No       |
| Was water saved due to management practices that go beyond standard good practice? | No       |
| Are the low water use years of a crop rotation, part of their normal operations?   | No       |

\*\*These example answers indicate a potential response that would not be indicative of conservation.

#### **Examples of Non-Voluntary Conservation** (In accordance with the known interpretation of due consideration)

- In 2014 John Smith utilized a well that had a capacity of approximately 200 gpm. In 2016 that same well is functioning at a capacity of 100 gpm. This reduced capacity and/or extended use period would not be considered an act of voluntary conservation.
- John Smith has utilized a pivot irrigation system and drop nozzles for several years. This would not be deemed voluntary conservation, as this is considered standard, good management.

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<sup>1</sup> Total acreage must stay the same in order for this example to be viable. Additionally, crop change to low water use crops due to reduced well capacity would not be considered conservation.

## Section 4 – Draft Appeals Process

The following draft appeal processes summarize various avenues that the GMD 1 Board will use to give the required due consideration to past voluntary conservation in the appeal of LEMA allocations. For all appeal options, the appropriate reductions will be applied based off of previous discussions. Lastly, there is currently no deadline for submitting an appeal.

| Base Appeal Approach  | New Owner/Operator Control With 3 or More Years of Record  | New Owner/Operator Control or Irrigation System Change With Less Than 3 Years of Record   | No Historic Use Appeal Approach  |
|---|--|---|--|
| <ul style="list-style-type: none"> <li>• Appropriate for circumstances where there has <u>not</u> been a control/ownership change.</li> <li>• New owners/operators may utilize the Base Appeal Approach should they agree with and choose to use historical data provided by previous owner.</li> <li>• A minimum of three representative years of use data is required.</li> <li>• Years of demonstrated conservation will be excluded from averaging.</li> <li>• For example, if 2015 and 2016 had demonstrated conservation, then years 2011-2014 and 2017-2020 will be summed and divided by 8 to get the average water use to determine the required reduction.</li> </ul> | <ul style="list-style-type: none"> <li>• Appropriate for circumstances where recent change of control/ownership <u>has</u> taken place with <u>3 or more</u> representative years of history This Appeal process requires written documentation proving such changes and must be deemed acceptable by the Board. (DWR/FSA Records)</li> <li>• Years of demonstrated conservation may be excluded from averaging.</li> <li>• Under new control, the new water use record may be used.</li> <li>• For example, the new ownership ownership/control was for the period 2017-2020, the water use in 2017-2020 will be summed and divided by 4 to determine the average for purposes of determining the required reduction and allocation.</li> </ul> | <ul style="list-style-type: none"> <li>• Appropriate for circumstances where recent change of control/ownership <u>has</u> taken place with <u>less than 3</u> representative years of history. This Appeal process requires written documentation proving such changes and must be deemed acceptable by the Board. If a deficit in annual data is present NIR may be used to supplement data. FCL Reductions will apply to years of historic data and will not apply to NIR.</li> <li>• A current owner who exceeds three years of data, but can provide proof that a new irrigation system change directly resulted in less than three years of reflective operational water use data shall qualify.</li> <li>• Years of demonstrated conservation may be excluded from averaging.</li> <li>• Under new control, the new water use record may be used.</li> <li>• For example, if a new owner only has 2 years of data they may supplement NIR data for the 3<sup>rd</sup> year.</li> </ul> | <ul style="list-style-type: none"> <li>• Appropriate for circumstances of non-use for 2011-2020 or for a new owner/operator Jan 1<sup>st</sup> 2021 through Feb. 22<sup>nd</sup> 2022. NIR would be used for new owner/operator only. FCL Reductions will apply to years of historic data and will not apply to NIR.</li> <li>• Where the appeal is for Jan 1<sup>st</sup> 2021 through Feb. 22<sup>nd</sup> 2022, an allocation of NIR will be given where clear boundaries of irrigation can be demonstrated such as an irrigated circle or buried drip tape or consistent flood acres. Other cases will be reviewed if the boundary is not clear or clean, then the next option would be a pump test multiplied by 150 days.</li> <li>• Where a Group that has had use, but also has an individual point of diversion with non-use and is appealed, a pump test to demonstrate the ability to pump is required to provide an allocation of the pump test times 150 days.</li> </ul> |

**Footnotes:**

**1. For all methods the Board reserves the authority to re-evaluate these methods in a future or current LEMA Appeals process within their discretion and may address a special scenario in the current LEMA on a case by case basis.**

2. Where a non-use irrigation right is to be converted to a non-irrigation use, it will be processed according to DWR applicable regulations, which are not based on historic use.

3. Change of Owner/operator control/irrigation system change must have occurred prior to Feb. 22<sup>nd</sup>, 2022, to qualify for this appeal as indicated at the 2022 Annual Meeting or per Board discretion.

4. NIR Values Per County: Scott = 14.0", Greeley = 14.7", Lane = 13.7", Wallace = 14.3".

5. Appeal applicant must have ownership/control of a water right for a full calendar year.

## **Exhibit 2**



**Written testimony from Brownie Wilson, Kansas Geological Survey.**

**Submitted to Ronda Hutton, Kansas Department of Agriculture, on October xx, 2022.**

**RE: Proposed GMD1 Four County LEMA Hearing, October, 17, 2022.**

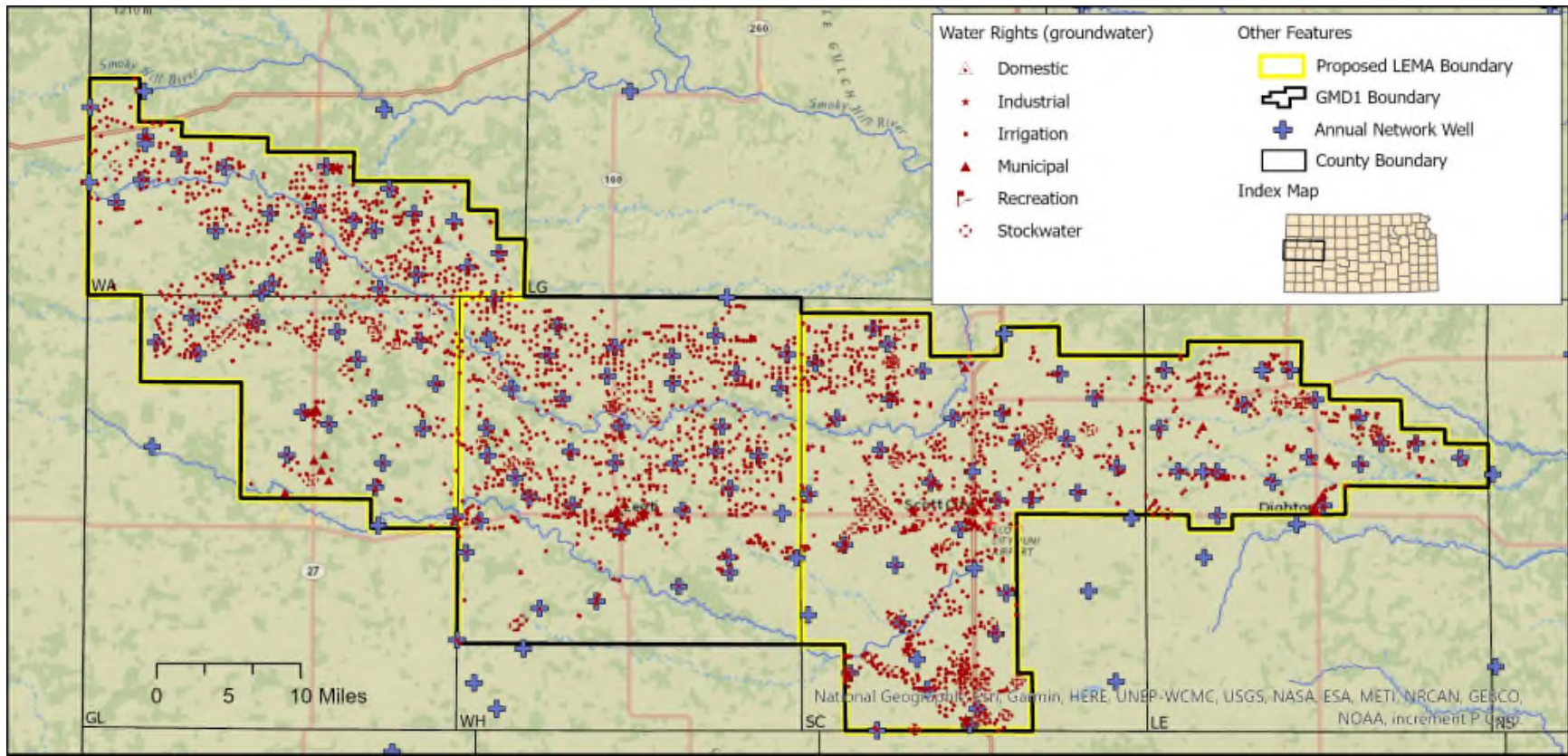
My name is Brownie Wilson. I am the Geographic Information Systems (GIS) and Support Services Manager for the Geohydrology Section at the Kansas Geological Survey (KGS). The KGS is a research and service division under the University of Kansas and has been directed by the Kansas Water Plan to provide technical assistance to the three western Groundwater Management Districts (GMDs), the Kansas Water Office (KWO), and the Kansas Department of Agriculture- Division of Water Resources (KDA-DWR) in the assessment, planning, and management of the groundwater resources of western Kansas.

The KGS is involved with Western Kansas GMD#1 (GMD1) through a variety of research projects and data collection efforts. The KGS along with the KDA-DWR actively measures water-levels across GMD1 as part of the State's annual cooperative water-level program (further described below). In addition, the KGS has maintained up to eleven continuously measured observation wells in the area, several of which (known as "Index Wells"), are equipped with telemetry systems to provide real-time water-level data. In 2015, the KGS in cooperation with GMD1 and the KWO completed a numerical groundwater model across the area (Wilson et al., 2015). The model was later recalibrated in 2020 to incorporate new modeling techniques (Liu et al., 2022). The KGS routinely presents its research findings and activities at the district's annual meetings.

At the request of GMD1 in April of 2021, the KGS compared the relationship between observed water-level change and groundwater use in the Ogallala/High Plains aquifer (HPA) for the entire district and the overlying counties of Wallace, Greeley, Wichita, Scott and Lane within the GMD1 boundaries. Results were presented at the 2021 GMD1 annual meeting and again at the 2022 annual meeting along with several county-based LEMA discussion meetings using the latest available data.

The comparison uses a water-balance approach described in Butler et al. (2016), to calculate the reduction in the average annual amount of water use needed to produce, on average, stable water levels over a given area. The approach is data-driven, utilizing only annually collected water-level measurements and annually reported water use estimates. The focus of this study is on GMD1 and its overlying counties in west-central Kansas (fig. 1).





**Figure 1.** Western Kansas GMD1, annual network wells, and groundwater-based water right wells.



In addition, in support of their spring 2022 county-based meetings to discuss the proposed LEMA plan, GMD1 requested the KGS provide updated maps showing water-level changes since predevelopment to present day. Published as KGS Open-File Report 2022-8 (Woods et al., 2022) the maps are based on interpolated winter water-level measurements taken between 2020 and 2022 combined with estimates of the predevelopment water table and bedrock elevations used by the GMD1 groundwater model. The 2022-8 report maps were submitted separately into the LEMA hearing record.

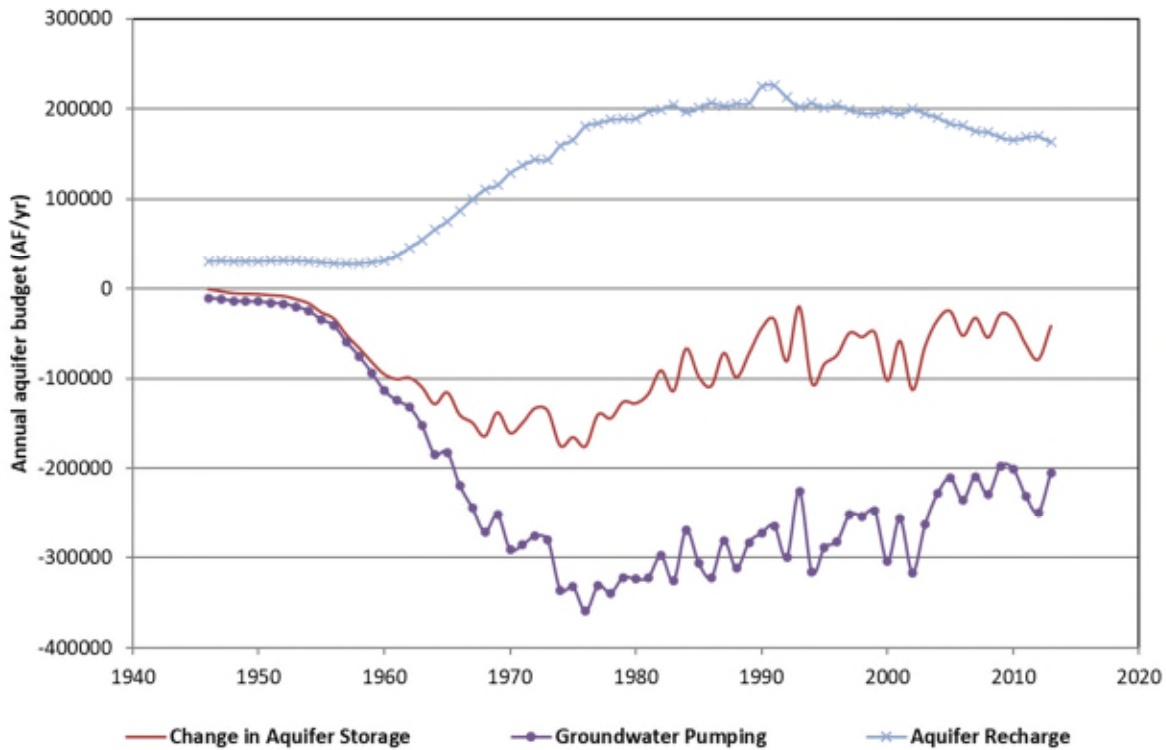
### Aquifer Conditions

The HPA is the primary source of water supply for over 98% of the wells and uses within the district. The thickest portions of the aquifer are found in Wallace County, just south of Weskan, and within a north-south trended trough in Scott County where the present-day thicknesses are near or more than 100 ft (Fross et al., 2012). The eroded bedrock surface at the base of the aquifer has a significant effect on the availability of groundwater resulting in aquifer thickness ranging from zero to over 150 ft within a few miles of each other.

Maps from the 2022-8 report (along with simplified versions used in the proposed LEMA plan) show groundwater declines in GMD1 have been significant. The aquifer thickness has declined, on average, by 63% across the entire district from predevelopment conditions to a 3-year 2020-2022 average of 29 feet. Of the four-counties under the proposed LEMA plan, aquifer thickness from predevelopment to present-day has average declines of 82, 40, 41, and 16 feet in Wallace, Greeley, Scott, and Lane counties, respectively. This represents an 80%, 68%, 53%, and 31% average reduction in the predevelopment aquifer thickness for Wallace, Greeley, Scott, and Lane counties, respectively. Groundwater declines are the result of groundwater usage exceeding the rates of natural inflows into the aquifer.

The numerical groundwater model developed by the KGS in 2015 in cooperation with GMD 1 and the KWO (Wilson et al., 2015) was later re-calibrated in 2020 (Liu et al., 2022) to incorporate specific yield values determined using the water-balance method outlined in Butler et al. (2016) combined with lithologic information. Output from this updated model illustrates the imbalance where groundwater pumping, the largest outflow from the aquifer, is greater than the estimated rates of total recharge, the aquifer's largest inflow component (fig. 2). Groundwater usage continually increased from predevelopment to its highest levels in the mid-1970s, where it was double that of total recharge (further discussed below) and has since been gradually decreasing. This decline in pumping is likely from a combination of reduced well yields from the reduction in aquifer thickness and an improvement in the accuracy of reporting water usage with the increasing adoptions of totalizing flow meters (Whittemore et al., 2018).

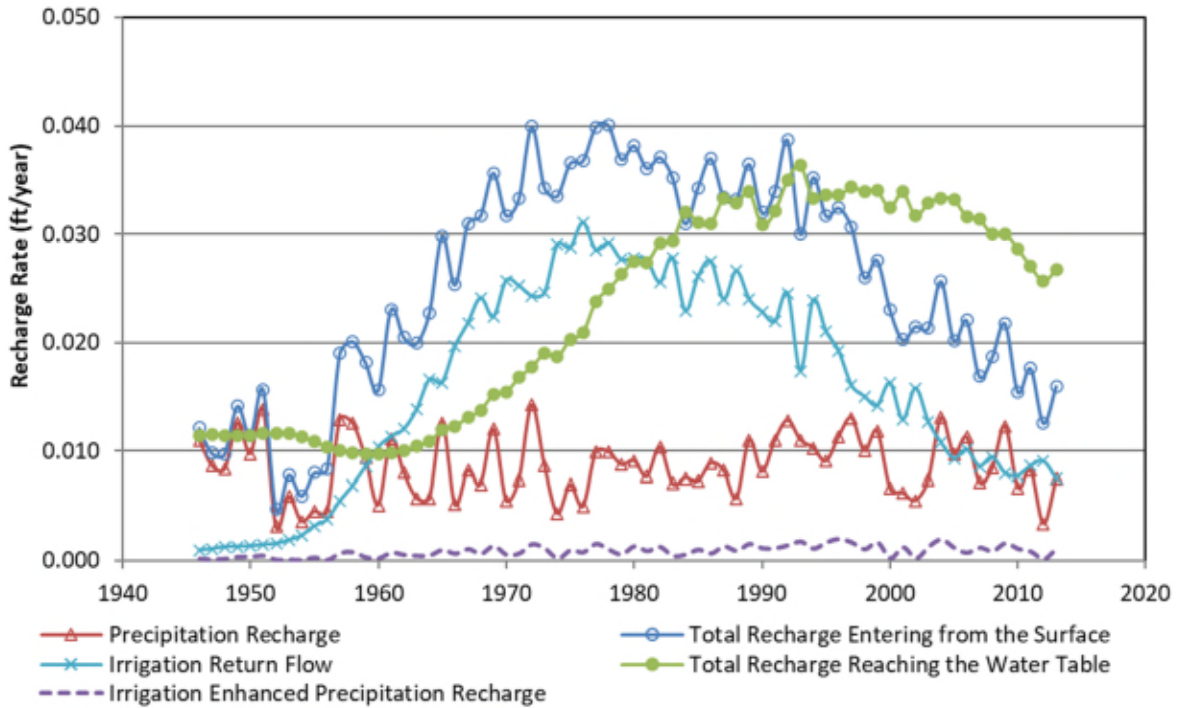
Recharge into the aquifer comes from several sources- precipitation, irrigation return flows, enhanced precipitation-based recharge over irrigated fields, and the delayed storage release from de-watered units to name a few. In a pattern similar to pumping, total modeled aquifer recharge increased from predevelopment periods in response to increased rates of irrigation return flows, which is the amount of pumped irrigation water that infiltrates past the root zone of the irrigated crops, eventually returning to the aquifer (fig. 2).



**Figure 2.** Annual aquifer budget for the active area of the 2020 re-calibrated GMD1 model.

Averages over the last two decades of the model period (1994 to 2013) show pumping to be approximately 25% higher than the annual rates of total recharge over the active area of the model area. During this period, annual pumping demands range from a low of 197,433 acre-feet to a high of 316,263 acre-feet, with an average of 248,923 acre-feet. In comparison, the estimated volume of total recharge ranged from a low of 162,997 acre-feet to a high of 206,371 acre-feet, with an average of 186,492 acre-feet. This difference between pumping and recharge results in losses from aquifer storage each year.

Recharge coming from the land surface (precipitation recharge, enhanced precipitation recharge, and irrigation return flows) is subject to a modeled delay function, typically 9 to 11 years, as it travels through the vadose zone before reaching the water table. Recharge from the surface is estimated to be less than half an inch annually (fig. 3) and will likely decrease slightly, in response to reducing rates of irrigation return flows, over the next decade or two. Of the surface-based recharge components, precipitation-based recharge represents the primary source of new water flowing into the aquifer. Over the last two decades of the modeled period (1994 to 2013), the estimated average amount of water flowing into the aquifer from precipitation and enhanced precipitation-based recharge over irrigated fields averages 27,554 acre-feet each year. In comparison, the average amount of pumping over this period (248,923 acre-feet) is approximately 89% percent higher.



**Figure 3.** Estimated annual rates of recharge coming from the land surface for the active area of the 2020 re-calibrated GMD1 model.

### Water Levels

Each year, the KGS and the KDA-DWR measure the depth-to-water in a network of approximately 1,400 water wells, across the HPA, as part of the state’s Cooperative Water Level Program. The network attempts to have a well every 16 square miles and is used to provide regional- to sub-county- scale characterizations of the aquifer.

Customized software developed by the KGS, coupled with Global Positioning System (GPS) data, is used to make sure the same wells are visited each year. The majority of water-level measurements are taken in late December and early January using steel or electric tapes with precisions down to the hundredths of a foot. Measurements are field checked on site at the time of the visit to ensure locational accuracy and that the current measurement is within the historical trend of past measurements. Additional statistical and GIS reviews are conducted later to identify abnormal or anomalous measurements. If deemed necessary, well sites will be re-measured the same day or within a month, depending on the circumstances.

Collected water levels from the Cooperative Water Level Program, along with additional measurements from other local, state, and federal sources, are stored and served online through the KGS’ Water Information Storage and Retrieval Database (WIZARD). WIZARD evolved from the U.S. Geological Survey’s Ground Water Site Inventory in the mid- 1990s, and today represents the largest repository of depth-to-water measurements in Kansas.

Well site locations in the HPA and their associated water-level measurements were downloaded from WIZARD to estimate the water-table elevations each year from calendar years 2009 to 2022. The well site locations, based on their listed geographic coordinates, were spatially mapped into the ArcGIS software platform, a GIS mapping software. Within GMD1, all of the measured well

locations used in this project have been surveyed with hand-held GPS units, which typically have horizontal accuracy ranges of 12 to 40 feet (fig. 1).

The WIZARD database contains codes indicating the status of the site at the time the water level was measured. Most water level measurements across GMD1 are taken in the first week of January and contain blank or null status codes indicating static or near static water level conditions. Past water level measurements that were coded to be “anomalous” from previous statistical and geostatistical reviews were not included in this project along with measurements taken from locations where the well was obstructed, was pumping at the time of the measurement, had recently been pumped, or had nearby sites that were being pumped at the time of the measurements.

The water-level measurements were used to calculate 1-year average winter depth to water for each well site, centered on each calendar year from 2011 to 2021. For example, a well’s 1-year average, winter depth to water for 2019 are based on measurements taken in the months of December 2018, January 2019, February 2019, and March 2019. Given most of the wells are only measured once a year (over 90% of the time in the month of January), the winter averages are typically only composed of a single measurement. However, some wells could be measured 2 or 3 times in a single winter period.

For this testimony, only wells containing computed 1-year, winter average water levels centered on the calendar years from 2010 to 2022 were considered. If a well site was missing a winter average value for one of these target years, it was removed from the data set. Under these selection criteria, 94 well sites were identified across GMD1. The annual change in the water table occurring each year from 2010 to 2021, was computed for each well site.

### Groundwater Use

Water use reports can be downloaded from the online Water Information Storage and Retrieval Database (WIMAS) database. These reports are required by law to be submitted annually by water right holders, or their designee, to the KDA-DWR and penalties exist for non-submission or knowingly falsifying them. A quality control program has been in place since 1990 to review the reports and follow up, when necessary, with the water right holders to correct missing or questionable information. A mandatory metered order has been in place in GMD1 since 2012.

Total reported groundwater water usage was summarized for each unique groundwater well within GMD1 and its associated counties from 2010 to 2021. Summaries include all groundwater-based usages and water right types (e.g., Appropriated, Vested, Term, etc...). Points of diversion for the water rights were spatially mapped into the ArcGIS software platform based on distances from the southeast corner of the public land survey system section they are in or by coordinates from hand-held GPS units with horizontal accuracies ranging from 12 to 40 feet.

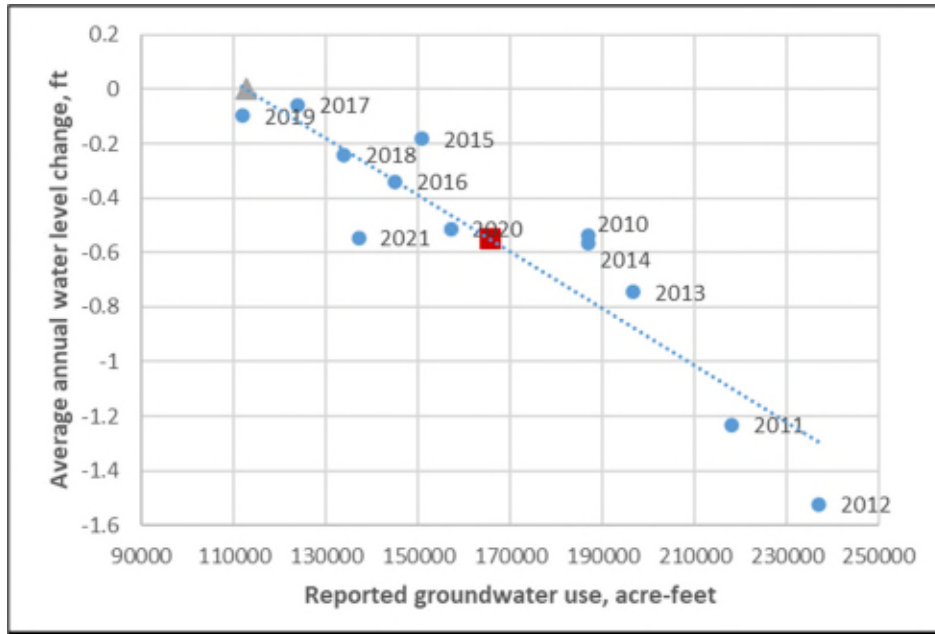
## Groundwater Use and Water-Level Relationships, GMD1

In Butler et al. (2016), the authors demonstrate how to apply the fundamental concepts of a water balance approach to seasonally pumped aquifers extending over county-scale areas in order to produce linear relationships between annual water use and annual water-level change. From these relationships, the reduction in the average annual water use needed to stabilize area averaged water levels, defined as Q stable, can be readily calculated.

Figure 4 shows this relationship based on water levels from the annual water level network and groundwater-based water right wells inside GMD1 (fig. 1). Each dot on the plot represents the total amount of groundwater reported used in relation to the average annual water-level change for each year from 2010 to 2021. Over this period, total reported water use ranges from a low of 111,843 acre-feet in 2019 to a high of 236,957 acre-feet in 2012, with an average of 165,434 acre-feet. Water-level declines range from a -0.06 ft in 2017 (change from 2017 to 2018) to -1.52 ft in 2012 (change from 2012 to 2013), with an average annual water level decline of -0.55 feet over the period.

The relationship between reported water use and water level change is statistically significant with an R-squared value of 0.85. This indicates 85 percent of the variation shown in the average water-level change can be explain statistically by variations in the total annual reported water use. Based on this correlation of conditions from 2010 to 2021, a 32% reduction in average annual reported use would allow for stabilized water levels, defined here as a zero change in water levels. Under drought conditions seen in 2012, the reduction needed to stabilize water levels would be 52%.

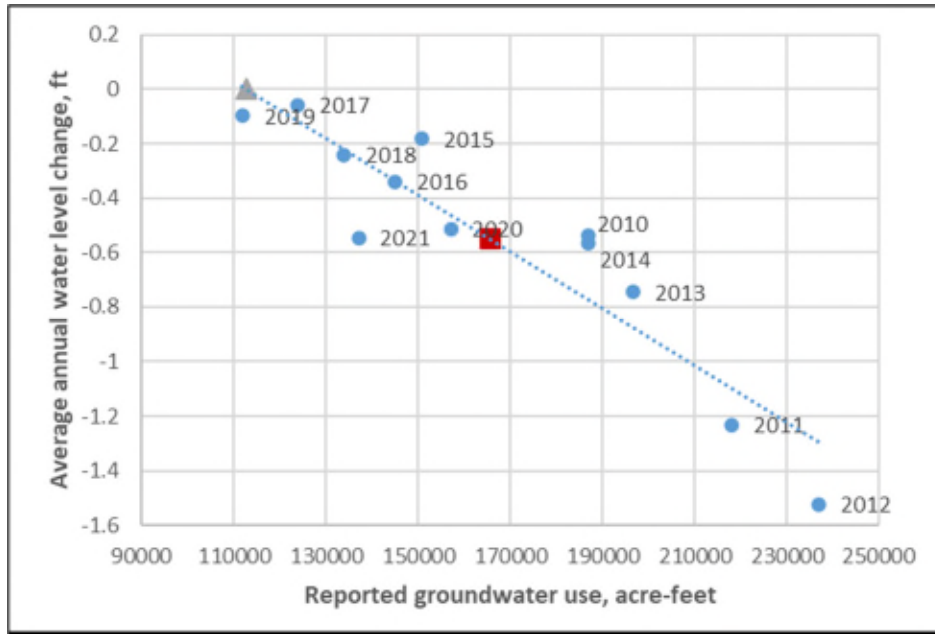
Water-level trends from continuously recording observations wells across the Kansas HPA suggest these conditions and the computed Q stable values should hold for at least the next decade or two. However, the analysis should be repeated over time as the components that make up the water balance (aquifer inflows and outflows) slowly adjust to new pumping allocations determined by proposed management plans.



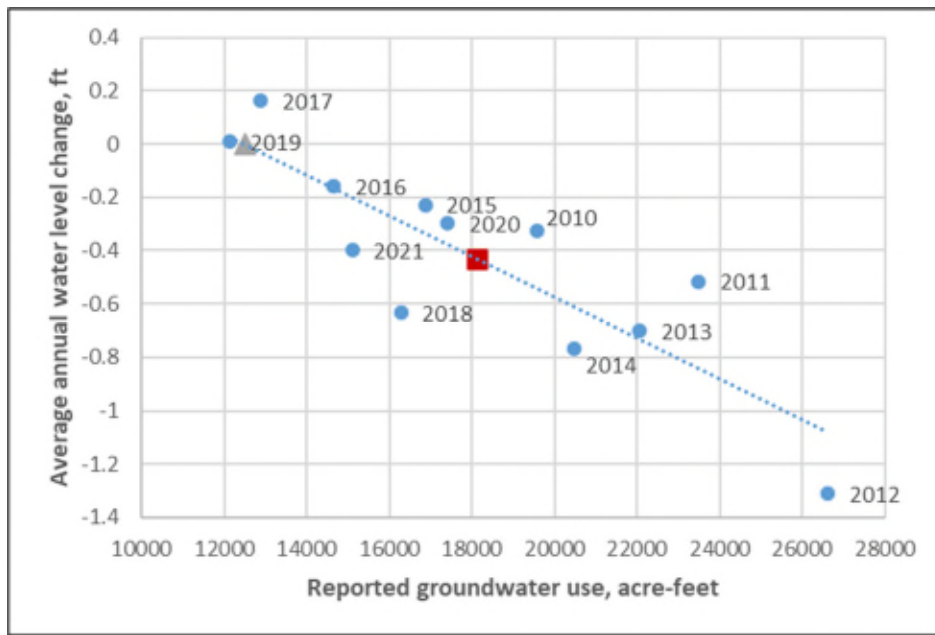
**Figure 4.** Average annual water-level change versus annual water use from 2010 to 2021 for the GMD1. Dashed line is the best-fit straight line to the plot. Overall average conditions for both water use and water-level change is represented by the maroon square. Water use, under stable water-level conditions, is shown by the olive-colored triangle.

Groundwater Use and Water-Level Relationships, Proposed Four County LEMA

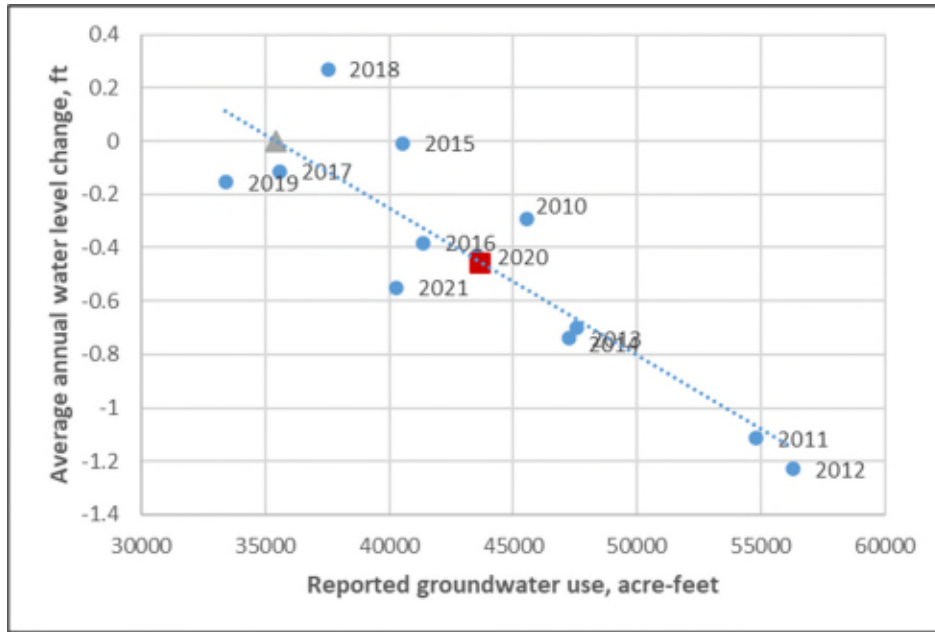
Figures 5 to 8 show the water-level change versus annual water use relationship for each of the county areas within GMD1 listed under the proposed Four County LEMA plan. Each county’s R-Square value, average water-level change, average water usage, and percent reduction needed to achieve stabilized water levels, based on conditions from 2010 to 2021, are shown in Table 1. In general, water usage and the percent reductions are the highest in Wallace County and progressively become lower moving south and east. Much of this can be attributed to aquifer conditions (greater water availability in Wallace relative to other areas) and climatic conditions (precipitation increases slightly moving west to east).



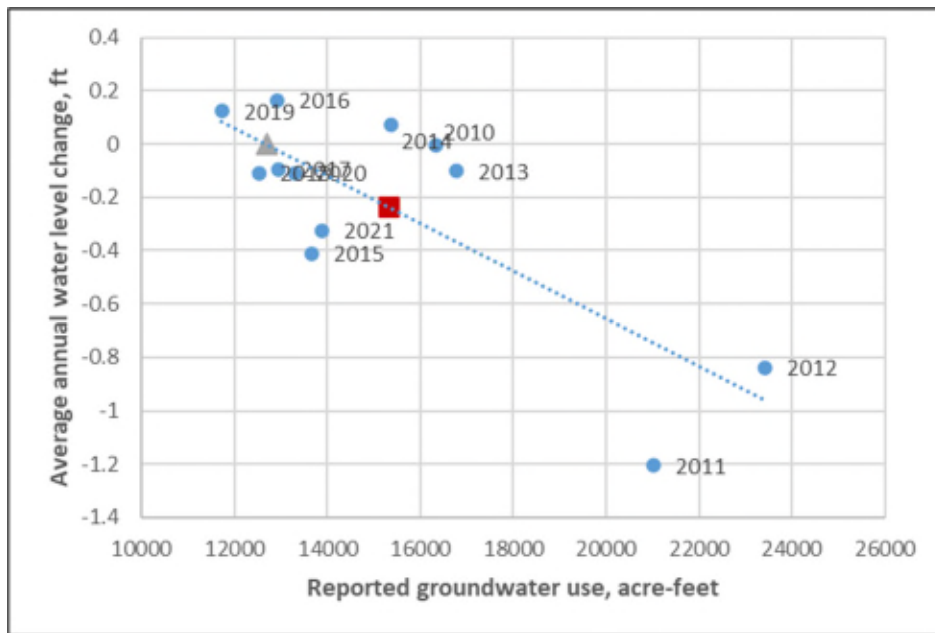
**Figure 5.** Average annual water-level change versus annual water use from 2010 to 2021 for Wallace County. Dashed line is the best-fit straight line to the plot. Overall average conditions for both water use and water-level change is represented by the maroon square. Water use, under stable water-level conditions, is shown by the olive-colored triangle.



**Figure 6.** Average annual water-level change versus annual water use from 2010 to 2021 for Greeley County. Dashed line is the best-fit straight line to the plot. Overall average conditions for both water use and water-level change is represented by the maroon square. Water use, under stable water-level conditions, is shown by the olive-colored triangle.



**Figure 7.** Average annual water-level change versus annual water use from 2010 to 2021 for Scott County. Dashed line is the best-fit straight line to the plot. Overall average conditions for both water use and water-level change is represented by the maroon square. Water use, under stable water-level conditions, is shown by the olive-colored triangle.



**Figure 8.** Average annual water-level change versus annual water use from 2010 to 2021 for Lane County. Dashed line is the best-fit straight line to the plot. Overall average conditions for both water use and water-level change is represented by the maroon square. Water use, under stable water-level conditions, is shown by the olive-colored triangle.



| <b>Table 1</b>  |                 |  |  |  |   |
|---|-----------------|--|--|--|---|
| <b>Water-level change / water use relationships from 2010 to 2021, GMD1 Proposed Four County LEMA</b> |                 |  |  |  |   |
| <b>county</b>   | <b>R Square</b> | <b>Average Water-Level Change (ft)</b> | <b>Average Reported Groundwater Use (AF)</b> | <b>Percent Reduction (average 2010 - 2021)</b> | <b>Percent Reduction (Drought 2012)</b> |
| <b>Wallace</b>  | 0.81            | -1.25                                  | 42,377.44                                    | 51%  | 68%                                     |
| <b>Greeley</b>  | 0.74            | -0.43                                  | 18,127.87                                    | 31%  | 53%                                     |
| <b>Scott</b>  | 0.78            | -0.45                                  | 43,641.70                                    | 19%  | 37%                                     |
| <b>Lane</b>   | 0.62            | -0.24                                  | 15,324.61                                    | 17%  | 46%                                     |

References:

Butler, J.J., Jr., D.O. Whittemore, B.B. Wilson, and G.C. Bohling, 2016, A new approach for assessing the future of aquifers supporting irrigated agriculture, *Geophys. Res. Lett.*, v. 43, no. 5, pp. 2004-2010.

Fross, D., Sophocleous M., Wilson B.B., and Butler J.J.Jr., 2012, *Kansas High Plains Aquifer Atlas*, Kansas Geological Survey. [Available at [http://www.kgs.ku.edu/HighPlains/HPA\\_Atlas/index.html](http://www.kgs.ku.edu/HighPlains/HPA_Atlas/index.html), accessed May, 2022].

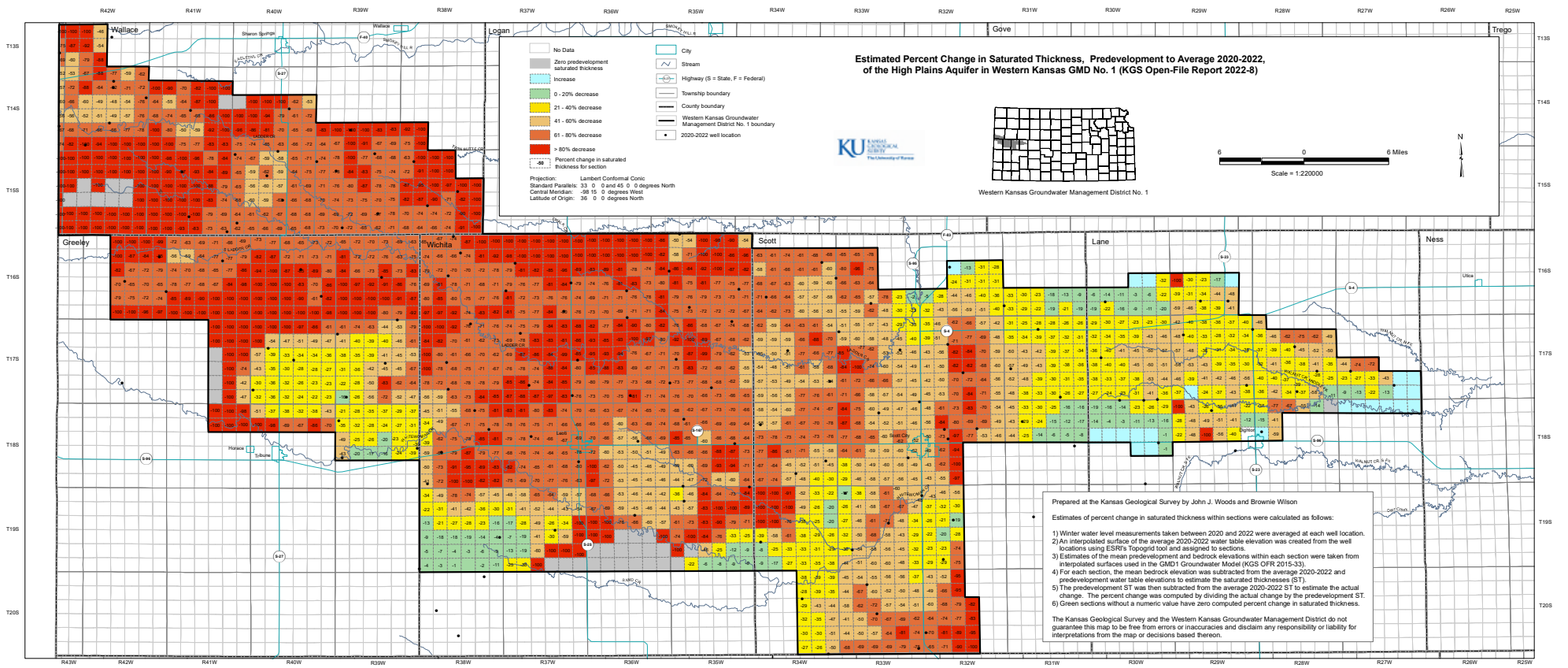
Liu, G., Wilson, B. B., Bohling, G. C., Whittemore, D. O., & Butler, J. J., 2022, Estimation of specific yield for regional groundwater models: Pitfalls, ramifications, and a promising path forward. *Water Resources Research*, 58, e2021WR030761, 14 p.

Whittemore, D. O., Butler, J.J., and Wilson, B. B., 2018, *Status of the High Plains Aquifer in Kansas*: Kansas Geological Survey, Technical Series 22, 14 p.

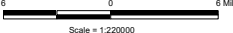
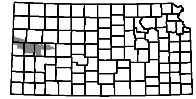
Wilson, B. B., Liu, G., Bohling, G. C., Whittemore, D. O., and Butler, J. J., Jr., 2015, *West Central Kansas GMD1 Model*: Kansas Geological Survey, Open-File Report 2015-33, 137 p.

Woods, J. J., and Wilson, B. B., 2022, *Western Kansas GMD1 Maps*: Kansas Geological Survey, Open-File Report 2022-8, 5 map set.

## **Exhibit 3**



**Estimated Percent Change in Saturated Thickness, Predevelopment to Average 2020-2022, of the High Plains Aquifer in Western Kansas GMD No. 1 (KGS Open-File Report 2022-8)**



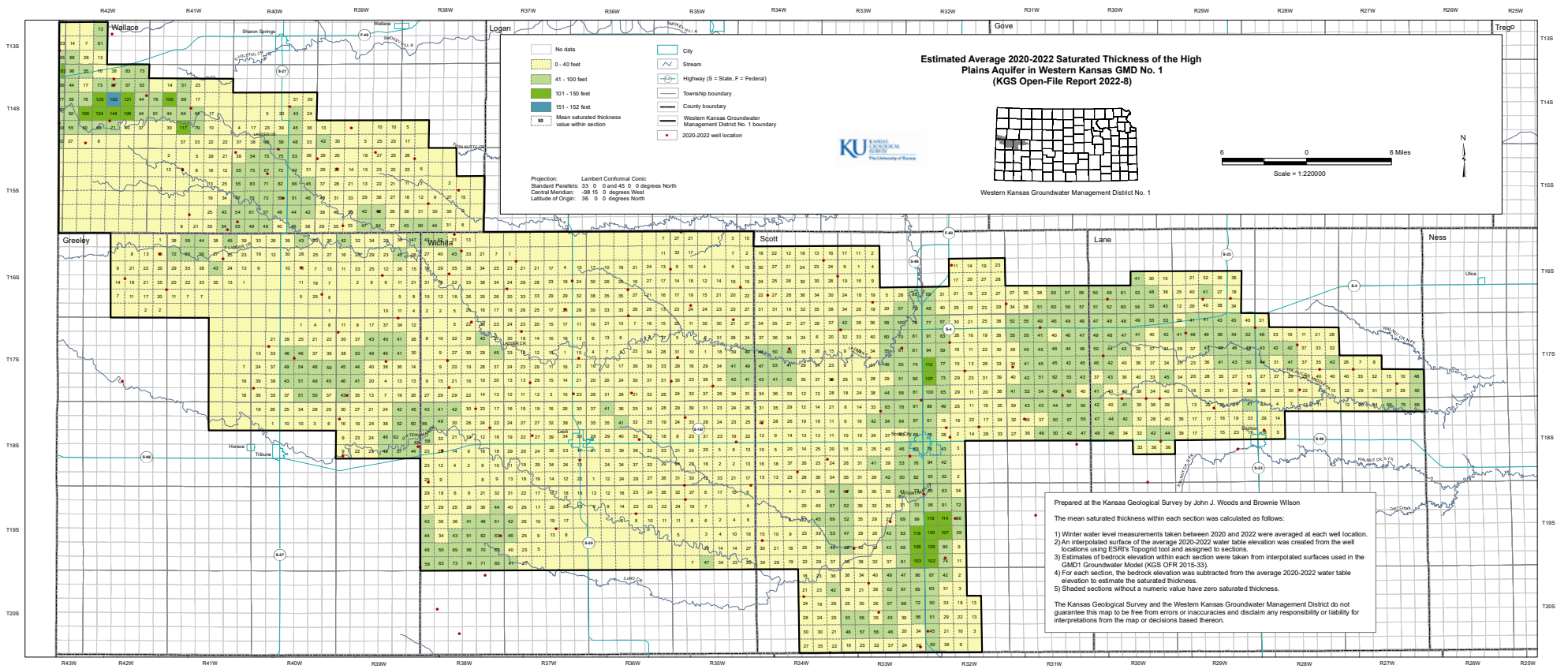
Projection: Lambert Conformal Conic  
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 Central Meridian: -98° 15' 0" degrees West  
 Latitude of Origin: 36° 0' 0" degrees North

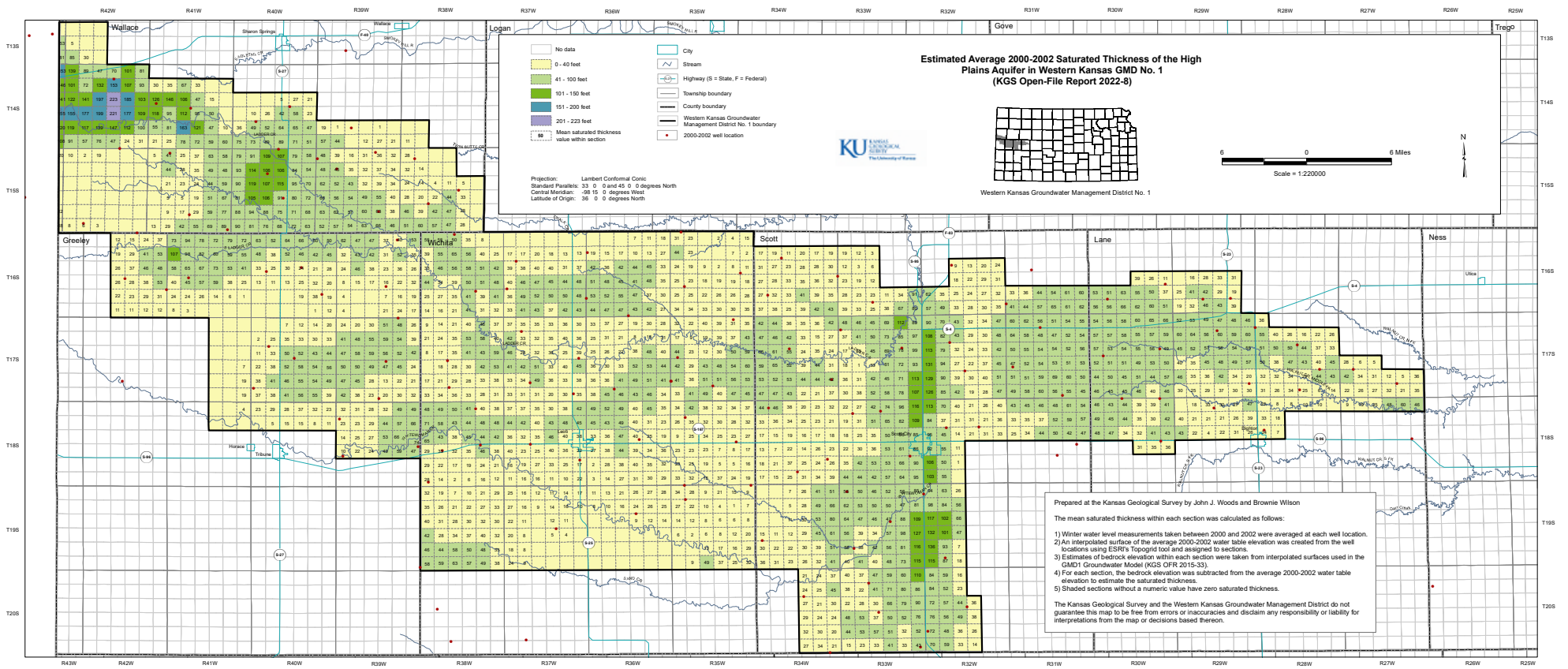
Prepared at the Kansas Geological Survey by John J. Woods and Brownie Wilson

Estimates of percent change in saturated thickness within sections were calculated as follows:

- 1) Winter water level measurements taken between 2020 and 2022 were averaged at each well location.
- 2) An interpolated surface of the average 2020-2022 water table elevation was created from the well locations using ESRI's Topogrid tool and assigned to sections.
- 3) Estimates of the mean predevelopment and bedrock elevations within each section were taken from interpolated surfaces used in the GMD1 Groundwater Model (KGS OFR 2015-33).
- 4) For each section, the mean bedrock elevation was subtracted from the average 2020-2022 and predevelopment water table elevations to estimate the saturated thicknesses (ST).
- 5) The predevelopment ST was then subtracted from the average 2020-2022 ST to estimate the actual change. The percent change was computed by dividing the actual change by the predevelopment ST.
- 6) Green sections without a numeric value have zero computed percent change in saturated thickness.

The Kansas Geological Survey and the Western Kansas Groundwater Management District do not guarantee this map to be free from errors or inaccuracies and disclaim any responsibility or liability for interpretations from the map or decisions based thereon.



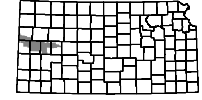


**Estimated Average 2000-2002 Saturated Thickness of the High Plains Aquifer in Western Kansas GMD No. 1 (KGS Open-File Report 2022-8)**

No data  
 0 - 40 feet  
 41 - 100 feet  
 101 - 150 feet  
 151 - 200 feet  
 201 - 223 feet  
 Mean saturated thickness value within section

City  
 Stream  
 Highway (S = State, F = Federal)  
 Township boundary  
 County boundary  
 Western Kansas Groundwater Management District No. 1 boundary  
 2000-2002 well location

Projection: Lambert Conformal Conic  
 Standard Parallels: 33° 0' 0" and 45° 0' 0" degrees North  
 Central Meridian: -98° 15' 0" degrees West  
 Latitude of Origin: 36° 0' 0" degrees North



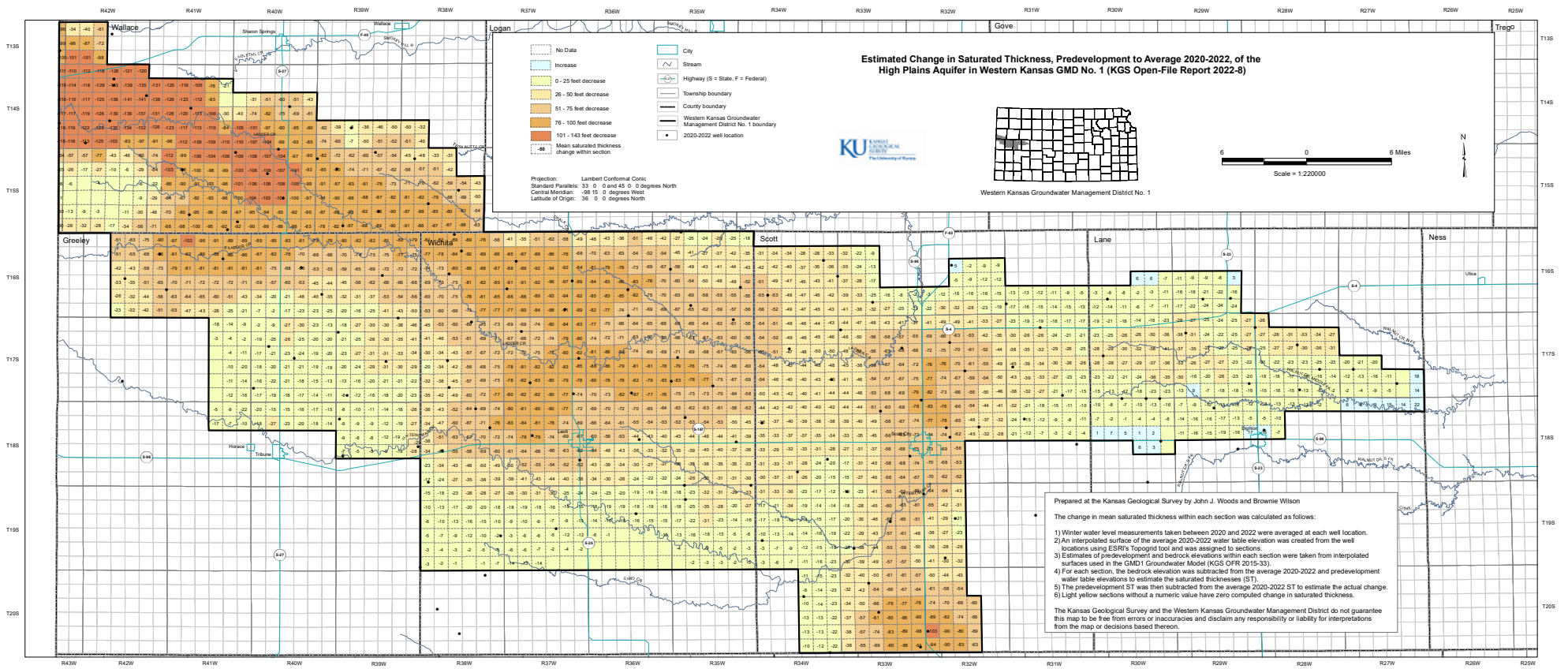
Scale = 1:220000  
 0 6 Miles

Prepared at the Kansas Geological Survey by John J. Woods and Brownie Wilson

The mean saturated thickness within each section was calculated as follows:

- 1) Winter water level measurements taken between 2000 and 2002 were averaged at each well location.
- 2) An interpolated surface of the average 2000-2002 water table elevation was created from the well locations using ESRI's Topogrid tool and assigned to sections.
- 3) Estimates of bedrock elevation within each section were taken from interpolated surfaces used in the GMD1 Groundwater Model (KGS OFR 2015-33).
- 4) For each section, the bedrock elevation was subtracted from the average 2000-2002 water table elevation to estimate the saturated thickness.
- 5) Shaded sections without a numeric value have zero saturated thickness.

The Kansas Geological Survey and the Western Kansas Groundwater Management District do not guarantee this map to be free from errors or inaccuracies and disclaim any responsibility or liability for interpretations from the map or decisions based thereon.

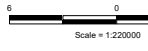
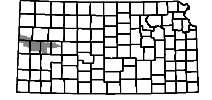


**Estimated Change in Saturated Thickness, Predevelopment to Average 2020-2022, of the High Plains Aquifer in Western Kansas GMD No. 1 (KGS Open-File Report 2022-8)**

No Data  
 Increase  
 0 - 25 feet decrease  
 26 - 50 feet decrease  
 51 - 75 feet decrease  
 76 - 100 feet decrease  
 101 - 143 feet decrease  
 Main saturated thickness change within section

City  
 Stream  
 Highway (S = State, F = Federal)  
 Township boundary  
 County boundary  
 Western Kansas Groundwater Management District No. 1 boundary  
 2020-2022 well location

Projection: Lambert Conformal Conic  
 Standard Parallels: 33° 0' 0" and 45° 0' 0" degrees North  
 Central Meridian: -98° 15' 0" degrees West  
 Latitude of Origin: 36° 0' 0" degrees North



Prepared at the Kansas Geological Survey by John J. Woods and Browne Wilson

The change in mean saturated thickness within each section was calculated as follows:

- 1) Winter water level measurements taken between 2020 and 2022 were averaged at each well location.
- 2) An interpolated surface of the average 2020-2022 water table elevation was created from the well locations using ESRI's Topogrid tool and was assigned to sections.
- 3) Estimates of predevelopment and bedrock elevations within each section were taken from interpolated surfaces used in the GMD1 Groundwater Model (KGS OFR 2015-33).
- 4) For each section, the bedrock elevation was subtracted from the average 2020-2022 and predevelopment water table elevations to estimate the saturated thicknesses (ST).
- 5) The predevelopment ST was then subtracted from the average 2020-2022 ST to estimate the change.
- 6) Light yellow sections without a numeric value have zero computed change in saturated thickness.

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