

MANAGEMENT PLAN

For the Designation of a Water Conservation Area (WCA) Townsend WCA; Sherman County, KS January 2018 through December 2022

In order to conserve and extend the productive life of the aquifer in our region and increase the value and viability of our water rights and water resources for future generations we, the undersigned water right owners propose the following management plan, pursuant to K.S.A. 82a-745 (WCA Law), to form the basis of a Consent Agreement and Order Designating a Water Conservation Area (WCA).

Expression of Conservation Goals

We, the water right owners desire to conserve and extend the productive life of the Ogallala Aquifer within Sherman County. The purpose of the Townsend WCA is to continue to manage and rotate crops types and varieties to maximize/maintain profitability while continuing to reduce water use over long term averages. We have been committed to these farm practices for an extensive time period and plan on continuing these practices while finding additional methods to reduce water use from long term averages.

We recognize the need to conserve the Ogallala Aquifer within Sherman County as water table declines continue at an unsustainable rate. We are committed to a reduction in water use from a long term average of 12.10 inches per acre to 11.80 inches per acre on our average irrigated acres of 3565. Our long-term average water use equals 3594 acre-feet per year and we are committed to reducing this to 3510 acre-feet per year on average over the period of this WCA. We propose a WCA term of 5-years commencing on January 1st, 2018 and ending on December 31st, 2022. The proposed reduction in water use equates to maximum 17550 acre-feet over the term of the WCA.

Based on the currently authorized Local Enhanced Management Area (LEMA) Plan all of the irrigation water rights are located in townships with 1-2% or greater decline and would receive 14.5 to 16.38 inches per irrigated acre. The LEMA plan would allocate a total of 25708 acre-feet over the 5-year plan. We recognize that this quantity is not sustainable long term and desire to reduce water below long term averages and below the current LEMA allocation. We also recognize the proposed WCA plan is the first step in reducing water usage and additional reductions may be necessary in future WCA plans to extend the productive life on the Ogallala Aquifer within Sherman County.

Water Rights Enrolled and Geographic Boundaries

This WCA shall include the water rights listed in the attached document. This list includes details of all points of diversion associated with those water rights; as well as legal descriptions of the locations of the points of diversion and/or identification numbers.

The current total appropriations authorized for all water rights included in this WCA are 8406 acre-feet (AF) per year, with an average annual irrigation use during the period 2003-2016 of 3594AF. With an approximate 4% reduction from the historical annual average use, the 5-year WCA allocation is 17550 AF.

The geographic boundary for this WCA is shown on the attached map(s) and attached table defined by legal locations. This table includes total acres and legal definitions by section, township, and range of the WCA boundary.

Findings Regarding Groundwater Conditions

We understand that the WCA Law requires a finding that one of the following circumstances be present within the area geographic boundaries of this WCA; specified in K.S.A. 82a-1036 (a) through (d):

- a) Groundwater levels in the area in question are declining or have declined excessively;
- b) The rate of withdrawal of groundwater in the area equals or exceeds the rate of recharge within such area;
- c) Preventable waste of water is occurring or may occur within the area in questions; or
- d) Unreasonable deterioration of the quality of water is occurring or may occur within the area in question

and amendments thereto, exist, or include a finding or findings that the area within the geographic boundaries described in paragraph (1) has been closed to new appropriations by rule, regulation or order of the Chief Engineer.

We have been informed that the following conditions exist:

- a) Groundwater levels in the area in question are declining or have declined excessively;
- b) The rate of withdrawal of groundwater in the area equals or exceeds the rate of recharge within such area; and
- c) The area has been closed to new appropriations by rule, regulation or order of the Chief Engineer.

These conditions suggest the advisability of implementing this WCA.

See the attached maps and figures supporting these findings and observations. Such attached documents may include:

- Detailed table with description of WCA geographic boundaries and legal descriptions of water rights - Attachment A
- Maps with WCA geographic boundaries defined- Attachment B
- Estimated useable life maps (if available) - Attachment C
- Changes in water levels (if available) - Attachment D & E
- Summary of water use history - Attachment F
- KGS Observation well(s) data (if applicable) - Attachment G
- KDA-DWR Theis analysis report(s) (if applicable) - Attachment H

Per the Corrective Controls Provisions and Plan for Conservation Section under this WCA management plan it has been determined that the proposed provisions listed will not significantly affect nearby points of diversion. This has been determined by a Theis analysis conducted by the Kansas Department of Agriculture. The Theis report(s) for the water rights in question are included in the attached documents.

Due Consideration for Past Conservation

We acknowledge that as described in the law, a water conservation area (WCA) management plan shall give due consideration to water users who have previously implemented reductions in water use resulting from voluntary conservation measures. We, the water right owners, we request the Chief Engineers consideration of the following conservation measures be considered and enumerated under this plan.

For three generations, starting with the onset of irrigation in Sherman county in the early 1950's our family has planted and produced a variety of crops focusing on the production of dry edible beans. The current rotation of corn, dry beans, and wheat has been judiciously mastered since the 1974 to increase production and enhance or maintain financial stability of our operation. The rotation is a significant reduction in water usage over time, and continues to be a viable alternative to standard corn production practice.

In addition to our crop production strategies, the operation was an early adopter to LEPA irrigation on all pivots to reduce evaporation and increase crop water use efficiency. We worked closely with the developers of this system and also participated in gypsum block research technology to monitor soil moisture levels. We continue to seek ways to conserve water through the use of technology with the installation and use of soil moisture probes, and Ag Sense system monitors and controls on the majority of our irrigated acres.

Recently, in addition to our past practices we have introduced spring yellow peas to the rotation as a limited irrigation alternative. After harvest the yellow peas are followed with a forage crop of turnips and radish for fall livestock grazing. This addition allows us to reduce water use, diversify and maintain the economics of our operation.

We are and will always continue to look for measures that conserve water, diversify our operation, and maintain a positive cash flow in the ever changing agricultural environment.

Corrective Control Provisions and Plan for Conservation

We acknowledge that the following corrective controls will be in effect within this WCA during the term of the WCA period listed:

1. Water rights, at the discretion of the owners, may be pumped as directed by the owner, provided that:
 - a. All points of diversion are limited to their annual authorized quantity unless explicitly authorized under this plan.
 - b. All points of diversions are limited to their current authorized pumping rates.
 - c. The combined of water use under all water rights combined shall be limited to no more than 17550 acre-feet for the 5-year duration of this plan.
2. The corrective control provisions of this WCA cannot conflict with the rules and regulations of the local GMD that result in greater overall conservation of water resources. If a Local Enhanced Management Area (LEMA) plan or an Intensive Groundwater Use Control Area (IGUCA) is formed after the initiation of this WCA, and the WCA is partially or wholly within the LEMA or IGUCA, the

corrective control provisions that result in the greater overall conservation of water resources based on inches per acre and not based on percent reduction of average historical use shall prevail. However, any LEMA or IGUCA must give due consideration to the conservation achieved by WCA participants pursuant to 82a-745(a)(6). The Chief Engineer is authorized to amend the provision of the WCA to conform to any rules, regulations, or requirements that result in greater conservation of the water resource subject to the foregoing due consideration for past and current conservation.

We, the water right owners enrolling in this WCA understand we may gain the following additional incentive(s) in consideration for our WCA participation.

3. Water Right # 11944 (PDIV# 43988) maybe over-pumped by up to an additional 20 AF/YR for a total of 193 AF/YR.
4. Water Right #11944 (PDIV# 44559) may be over-pumped by up to an additional 20 AF/YR for a total of 297 AF/YR
5. Water Right #25799 (PDIV# 45933, 10686, & 35290) may be over-pumped by up to an additional 20 AF/YR for a total of 739 AF/YR.
6. Up to the annual WCA allocation (3565 AF) may be carried over if unused during the duration of this WCA period. In order to for the carryover quantity to be included, all owners must enter into agreement to participate into a subsequent WCA by December 31st of the last year of this WCA period.
7. The addition of dry acres not currently authorized by any of the water rights maybe added through the issuance of a term permit(s). Term permits will take under consideration potential impairment to neighboring water rights.

Compliance Monitoring and Enforcement

We, the owners, understand that the following compliance monitoring and enforcement provisions are proposed. This section also includes any specific provisions regarding measuring or reporting water usage.

There are two (2) recognized observation well(s) within the WCA boundary that has for many years been measured annually by the Kansas Geological Survey (KGS). See attached maps for locations. The well(s) will continue to be measured annually and the data collected will help in evaluating the effectiveness of the WCA. An onsite observation well may be necessary to monitor the local water level more accurately.

We will submit an annual report no later than March 1st and maintain a spreadsheet detailing the following information for each well and all wells combined: beginning and ending meter readings, quantity of water diverted, acres irrigated, the inches per acre, and the quantity of water remaining for the WCA period listed. These records will be available to KDA-DWR upon request.

We will ensure backup measurements will be supported or an alternate measurement device will be available to be put into service in case the water flowmeter record for any given well is questionable or not reliable.

We acknowledge that water flowmeters within the WCA may be sealed to the measurement chamber by KDA-DWR during the duration of this management plan to ensure an accurate water use record.

We, water right owners within this WCA shall be responsible for ensuring the water flowmeters comply with state and local law(s). Any water right owner or authorized designee who finds a flow meter that is inoperable or inaccurate shall within 48 hours contact the KDA-DWR concerning the matter. Whenever an inoperable or inaccurate meter is repaired or replaced, the owner or authorized designee shall notify the KDA-DWR within seven (7) days on a form prescribed by the Chief Engineer of the water flowmeter installation and any water flowmeter repair or replacement event.

We acknowledge that failure to abide by the terms of this agreement may result in the termination of the WCA. Failure to abide by the terms, conditions, and limitations of the individual water rights will be subject to the civil penalties outlined in K.A.R. 5-14-10 and K.A.R. 5-14-12.

Review of Effectiveness

We acknowledge that a review of this WCA shall be completed prior to November 1st of the final year of the WCA period listed to ensure the above terms remain appropriate and are achieving the stated goals of this WCA. Should the Chief Engineer find that the terms are no longer appropriate or that no progress has been made towards the stated goal, the Chief Engineer may refuse to renew a WCA and may suggest new terms and goals. We understand that upon review, and a finding by the Chief Engineer that the WCA has achieved or made progress towards its goals and that the same terms may be included in a subsequent WCA for another designated period. The terms of the WCA may be continued as long as this WCA is in good standing with its most recent WCA period and upon formal approval by the Chief Engineer. The Chief Engineer shall issue findings addressing the terms and goals of the existing management plan prior to any renewal of a subsequent WCA.

We acknowledge that unless terminated under the provisions below (e.g. due to the development of a LEMA), the WCA will be in effect for the listed period with an evaluation at the end of every WCA period. We understand that KDA-DWR will conduct this evaluation to ensure compliance and conservation. The evaluation will determine total water use during the WCA period.

We acknowledge that should an order of designation for a LEMA be implemented prior to end of this WCA period, an evaluation of this WCA will be conducted the year prior to the start of a LEMA. This evaluation may be used to determine an additional allocation amount of water to be carried over into a LEMA; should this be the case.

Member addition, withdrawal, and removal

We acknowledge that the water right owners and their associated water right(s) and geographic boundaries may be added to the WCA upon written notification to the Chief Engineer by the owners of each enrolling water right with legal descriptions of the areas to be added. A member may withdrawal from the WCA through written notification to the Chief Engineer signed by the owners of the participating water right or rights to be withdrawn from the WCA.

If the addition or withdrawal of water rights requires modification to the water allocation quantities, geographic boundaries, places of use, terms, or conditions of the original WCA, the management plan shall be revised to incorporate such changes and the associated consent agreement shall be reaffirmed by all parties, after opportunity for comment on the proposed revisions by the applicable GMD.

Termination

We acknowledge this WCA agreement may be terminated by written notification, signed by all then-existing members of the WCA, to the Chief Engineer of the intent to terminate.

We also acknowledge that the Chief Engineer may terminate this WCA upon findings that it is not being upheld to its terms. Such termination shall give notice and require a full evaluation of the WCA and water rights associated to ensure follow up actions.

State Law

We acknowledge that this WCA is subject to compliance with all other applicable state laws.

Notification to Nearby Owners

We acknowledge that, by statute, the Chief Engineer is required to provide written notification to all water right owners with a point of diversion within ½ of a mile, or farther if deemed necessary, by a rule and regulation of the Chief Engineer, of the geographic boundaries of this WCA.

Assurances

We acknowledge this WCA will not alter the terms, conditions, and limitations of the base water rights.

Review of Other Applicable Requirements

We acknowledge that upon review, this WCA management plan was found to effect equal or greater overall conservation than applicable GMD regulations, LEMA, and IGUCA requirements.

Participant's Agreement

By signing below, we, the water right owners, agree that this management plan is fair and equitable. This management plan, provided to the Chief Engineer and water right owners, is the expressed written intent of the parties and the whole agreement between the parties. We, the water right owners agree to be bound by all the terms contained in this management plan and understand that the provisions of this agreement shall be construed to give effect to the provisions listed. We, the water right owners also agree that this management plan is the basis for a consent agreement among the Chief Engineer and the undersigned water right owners, and therefore any order and consent agreement issued by the Chief Engineer, designating this WCA, shall be binding upon all parties as the necessary formal implementation of this management plan.

FOR THE PARTICIPANTS: All participating water right owner(s) signing below, affirm their approval of this WCA management plan and if approved by the Chief Engineer allow consent to the Chief Engineer to formally approve the designation of this Water Conservation Area, described herein, by means of a Consent Agreement and Order.

John H. Golden Date: 8-22-18
John H Golden Trust Owner 14193, 16400, 11944
Water Right No(s). 14193

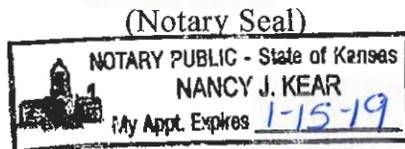
PO Box 330, Goodland, KS 67735-0330
Full Mailing Address

ggghouse@st-tel.net 785-821 2663
Email Address Phone Number

ACKNOWLEDGMENT OF NOTARY

State of Kansas)
) SS
County of Sherman)
Acknowledged before me on 8-22-18
by John H Golden
Signature: Nancy J. Kear
Notary Public

My commission expires: 1-15-19



RECEIVED
OCT 29 2018
Stockton Field Office
Division of Water Resources

FOR THE PARTICIPANTS: All participating water right owner(s) signing below, affirm their approval of this WCA management plan and if approved by the Chief Engineer allow consent to the Chief Engineer to formally approve the designation of this Water Conservation Area, described herein, by means of a Consent Agreement and Order.

Gennifer Golden House, mgr Date: 8-22-18

Ad Astra Per Aspera Owner (Signature)
Water Right No(s). 14193, 16400, 11944

PO Box 913, Goodland, KS 67735-0913
Full Mailing Address

gghouse@st-tel.net 785-821-2663
Email Address Phone Number

ACKNOWLEDGMENT OF NOTARY

State of Kansas)
) SS
County of Sherman)
Acknowledged before me on 8-22-18
by Gennifer Golden House, mgr.
Signature: Nancy J. Kear
Notary Public

My commission expires: 1-15-19



RECEIVED

OCT 29 2018

Stockton Field Office
Division of Water Resources

FOR THE PARTICIPANTS: All participating water right owner(s) signing below, affirm their approval of this WCA management plan and if approved by the Chief Engineer allow consent to the Chief Engineer to formally approve the designation of this Water Conservation Area, described herein, by means of a Consent Agreement and Order.

Leo R Townsend Trust Owner Date: 8-15-18

Leo R Townsend Trust Owner (Signature)

Water Right No(s). 3900, 26905, 8637, 10299, 24534, 18126, 23916, 29206

105 E 14th Street, Goodland, KS 67735-0913

Full Mailing Address

htownsend@st-tel.net 785-821-2997

Email Address

Phone Number

ACKNOWLEDGMENT OF NOTARY

State of Kansas)
) SS
County of Sherman)

Acknowledged before me on 8-15-18

by Debbie S. Reed

Signature: Debbie S. Reed

Notary Public

My commission expires: 3-24-21

(Notary Seal)



RECEIVED

OCT 29 2018

Stockton Field Office
Division of Water Resources

FOR THE PARTICIPANTS: All participating water right owner(s) signing below, affirm their approval of this WCA management plan and if approved by the Chief Engineer allow consent to the Chief Engineer to formally approve the designation of this Water Conservation Area, described herein, by means of a Consent Agreement and Order.

Kevin Silkman Date: Sept 4 / 2018
Silkman Inc. Owner (Signature)
Water Right No(s). 7750

7373E 29th St., N Apt W226, Wichita, KS 67226-3459

Full Mailing Address
Kevin153@cox.net 316-686-8832
Email Address Phone Number

ACKNOWLEDGMENT OF NOTARY

State of Kansas)
County of Sedgwick) SS
Acknowledged before me on 9/4/18
by Chanel McCray
Signature: Chanel McCray
Notary Public



My commission expires: 11/10/21
(Notary Seal)

RECEIVED
OCT 29 2018
Stockton Field Office
Division of Water Resources

FOR THE PARTICIPANTS: All participating water right owner(s) signing below, affirm their approval of this WCA management plan and if approved by the Chief Engineer allow consent to the Chief Engineer to formally approve the designation of this Water Conservation Area, described herein, by means of a Consent Agreement and Order.

Boyington Enterprises IV
Betsy J. Boyington

Date: 8-24-18

Boyington Etal Trust, Owner (Signature)
Water Right No(s). 9163

1514 Pecan Valley Court, Corinth, TX 76210
Full Mailing Address

bboyington@gmail.com
Email Address

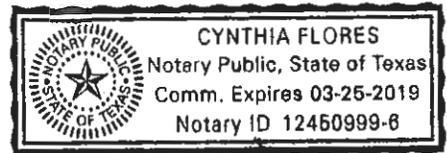
303 378 1493
Phone Number

ACKNOWLEDGMENT OF NOTARY

State of ~~Kansas~~ Texas)
) SS
County of Denton)

Acknowledged before me on August 24, 2018
by Betsy Lou Boington

Signature: Cynthia Flores
Notary Public



My commission expires: 3-25-2019
(Notary Seal)

RECEIVED

OCT 29 2018

Stockton Field Office
Division of Water Resources

FOR THE PARTICIPANTS: All participating water right owner(s) signing below, affirm their approval of this WCA management plan and if approved by the Chief Engineer allow consent to the Chief Engineer to formally approve the designation of this Water Conservation Area, described herein, by means of a Consent Agreement and Order.

Ellen Townsend Date: 8-22-18

Ray and Ellen Townsend, Owner (Signature)
Water Right No(s). 15634, 6140, 7775, 10573

407 W 9th, Goodland, KS 67735-8718
Full Mailing Address

785-890-2698
Email Address Phone Number

ACKNOWLEDGMENT OF NOTARY

State of Kansas)
) SS
County of Sherman)
Acknowledged before me on August 22, 2018
by Ellen Townsend
Signature: Cara G. Daise
Notary Public



My commission expires: June 28, 2022
(Notary Seal)

RECEIVED

OCT 29 2018

Stockton Field Office
Division of Water Resources

FOR THE PARTICIPANTS: All participating water right owner(s) signing below, affirm their approval of this WCA management plan and if approved by the Chief Engineer allow consent to the Chief Engineer to formally approve the designation of this Water Conservation Area, described herein, by means of a Consent Agreement and Order.

Winifred James Trust Et al Owner ^{Trustee} Date: 8/20/18
Winifred James Trust Et al Owner (Signature)
Water Right No(s). 25799

23807 RD 55, Burlington, CO 80807
Full Mailing Address

carlyledebbie@hotmail.com 719-342-1575
Email Address Phone Number

ACKNOWLEDGMENT OF NOTARY

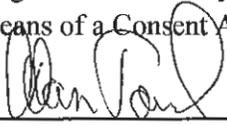
State of Nebraska ~~Kansas~~)
) SS
County of Keith)
Acknowledged before me on August 20, 2018
by Winifred James Trust by Carlyle C James
Signature: Christine Mcknight
Notary Public



My commission expires: April 9 2019
(Notary Seal)

RECEIVED
OCT 29 2018
Stockton Field Office
Division of Water Resources

FOR THE PARTICIPANTS: All participating water right owner(s) signing below, affirm their approval of this WCA management plan and if approved by the Chief Engineer allow consent to the Chief Engineer to formally approve the designation of this Water Conservation Area, described herein, by means of a Consent Agreement and Order.

 Date: 8-22-18

Alan Townsend, Owner (Signature)
Water Right No(s). 29206, 27734

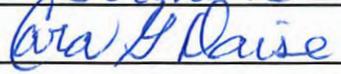
PO Box 508, Goodland, KS 67735

Full Mailing Address

alantks@me.com 785-821-2626
Email Address Phone Number

ACKNOWLEDGMENT OF NOTARY

State of Kansas)
) SS
County of Sherman)
Acknowledged before me on August 22 2018
by Alan Townsend

Signature: 
Notary Public



My commission expires: June 28, 2022
(Notary Seal)

RECEIVED
OCT 29 2018
Stockton Field Office
Division of Water Resources

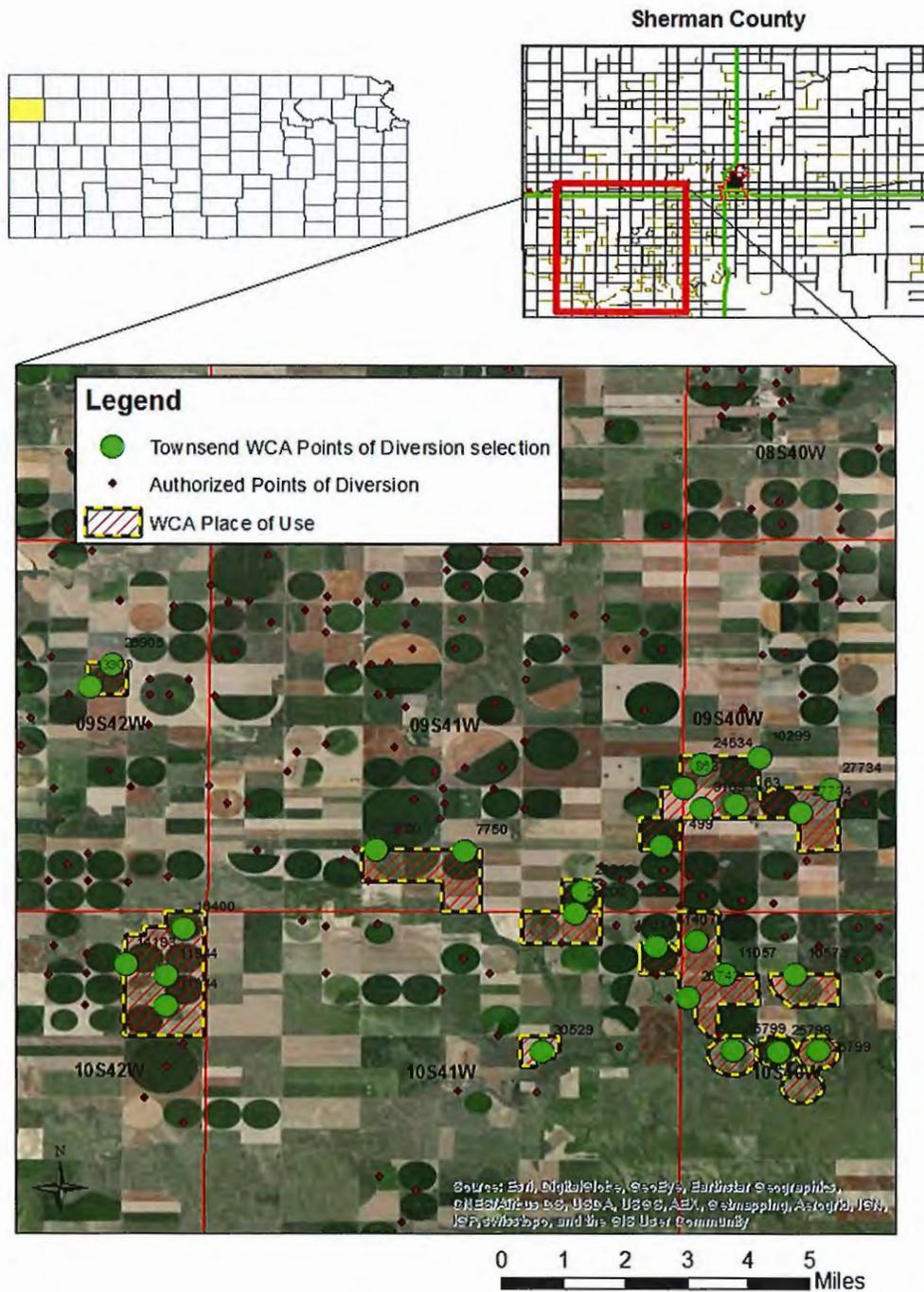
Attachment A
Water Right #'s and Points of Diversion
WCA Place of Use

WCA Authorized Place of Use																			
S	T	R	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
1	10S	42W	40	40	40	40			20	40	40	40	40	40	40	40	40	40	540
12	10S	42W	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	640
14	09S	42W	40	40	40	40													160
33	09S	41W	40	40	40	40	40	40	40	40									320
34	09S	41W					40	40	40	40	40	40	40	40					320
19	09S	40W									40	37	37	40	40	40	40	40	314
24	09S	41W													40	40	40	40	160
30	09S	40W	40	40	40	40	40	37.11	37.03	40									314.14
25	09S	41W	40			40									40	40	40	40	240
1	10S	41W													30	40	40	40	150
6	10S	40W					40	40	40	40	40	40	40	40					320
7	10S	40W	40	40	40	40	40	38.67	33	40	40	9	2	33					395.67
29	09S	40W	40	40	40	40	40	30	40	40					40	40	40	40	470
8	10S	40W	16	40	40	36	40	40	12	34									258
17	10S	40W	30	30	30	30	30	30	30	30	12			24	2	24	40	8	350
18	10S	40W	26	35	40	38	6			12					9	14			180
20	10S	40W		8			2												10
35	09S	41W													40	40	40	40	160
2	10S	41W	40.4	40.4	40	40	40.4	40.4	40	40									321.6
Total Authorized Acres																		5623	

KANSAS DEPARTMENT OF AGRICULTURE -- DIVISION OF WATER RESOURCES

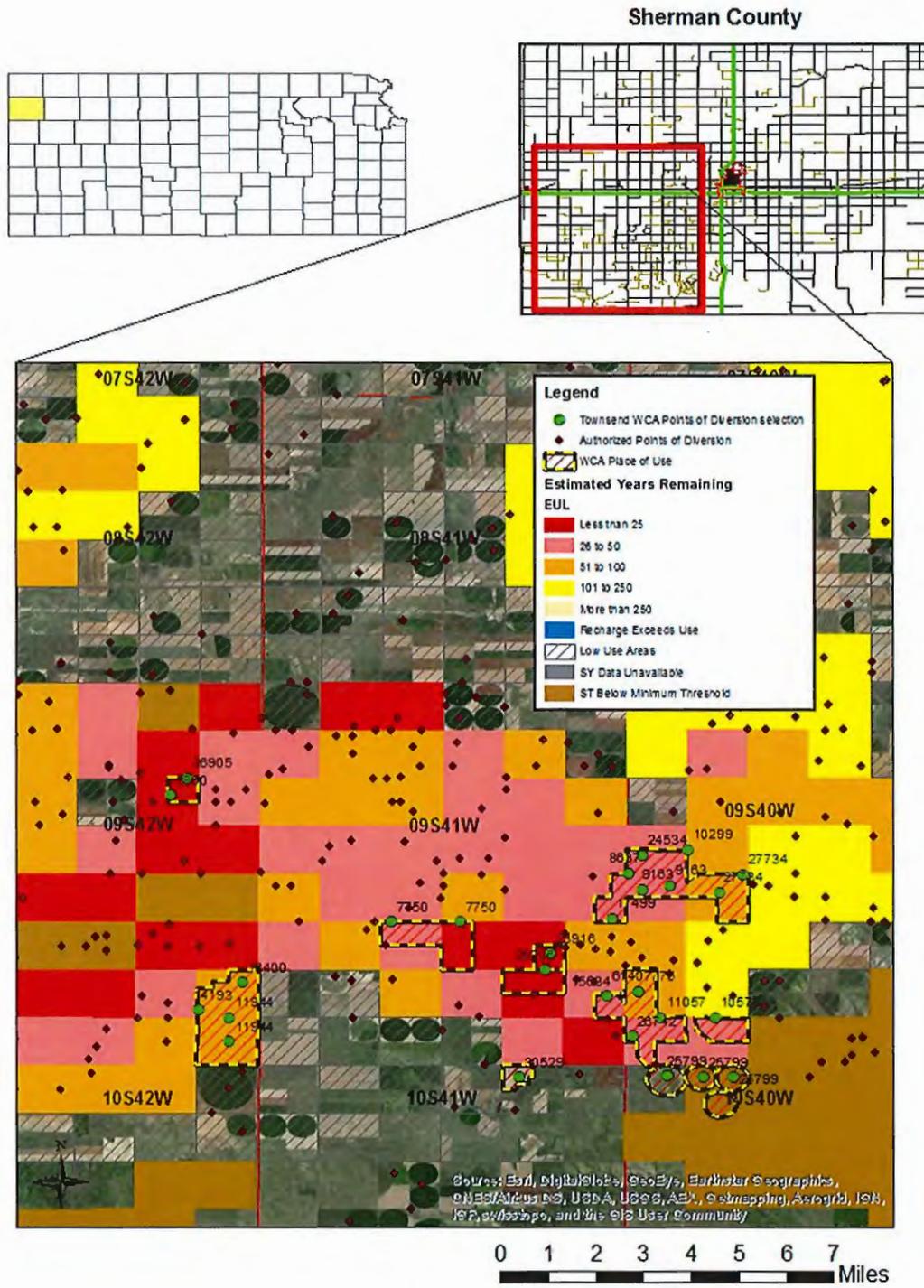
WR#	ID#	PDIV#	Location
14193	1	42962	01-10S-42W
16400	2	30922	01-10S-42W
11944	1	44559	12-10S-42W
11944	2	43988	12-10S-42W
3900	1	26584	14-09S-42W
26905	4	31585	14-09S-42W
7750	1	26947	34-09S-41W
7750	1	46539	33-09S-41W
7750	4	86270	33-09S-41W
8637	1	33486	19-09S-40W
10299	2	4849	19-09S-40W
24534	3	23106	19-09S-40W
9163	1	27380	30-09S-40W
9163	2	48121	30-09S-40W
15634	3	41428	01-10S-41W
6140	3	67211	06-10S-40W
7775	3	67211	06-10S-40W
11057	1	17737	07-10S-40W
26742	4	46474	07-10S-40W
27734	2	3452	29-09S-40W
27734	3	37082	29-09S-40W
10573	1	11888	08-10S-40W
25799	2	10686	17-10S-40W
25799	1	35290	17-10S-40W
25799	1	45933	18-10S-40W
17499	2	37240	25-09S-41W
23916	2	17731	35-09S-41W
29206	2	9302	02-10S-41W

Attachment B Water Right Area Location Map Water Rights & Authorized Place of Use

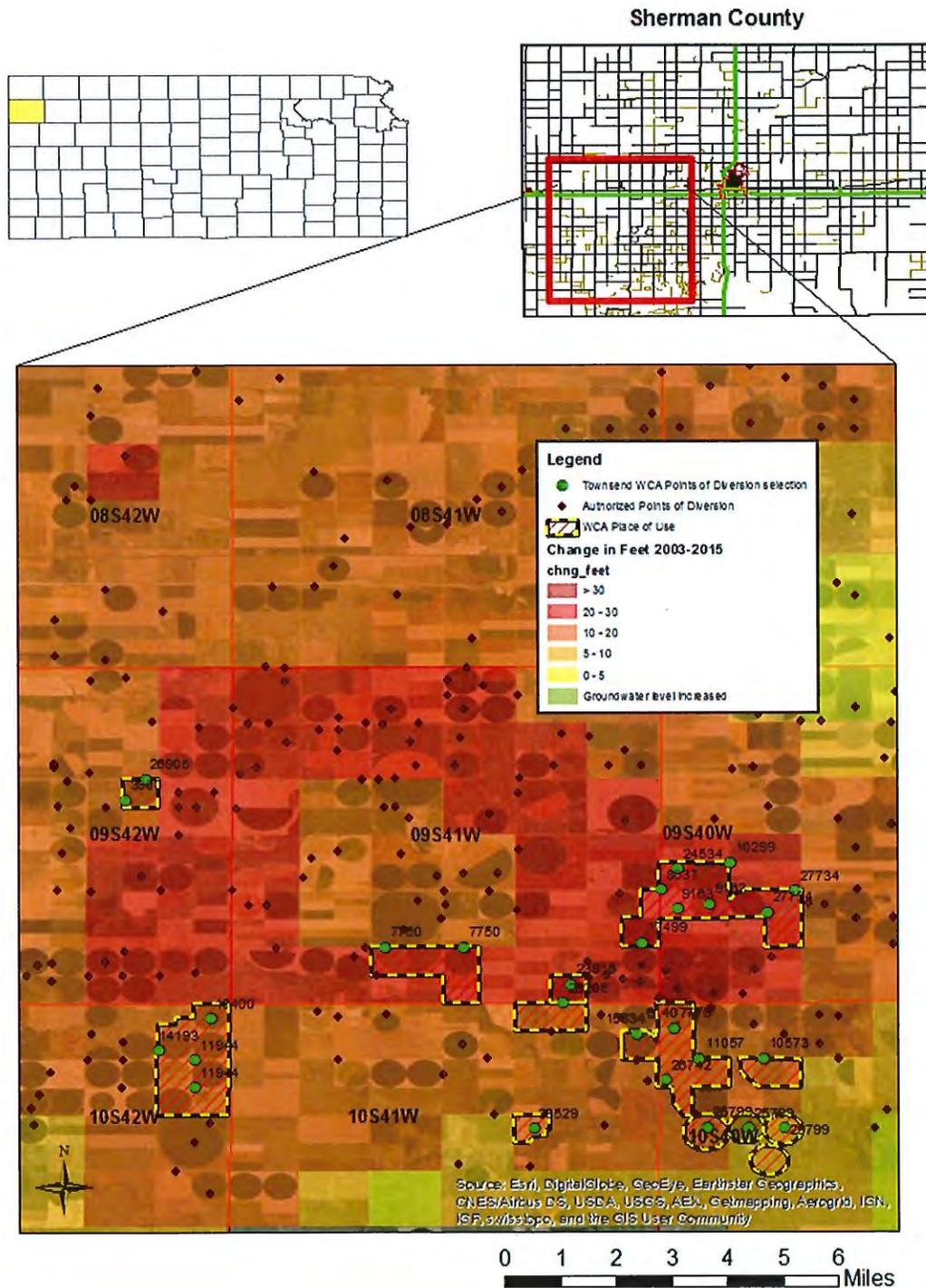


Attachment C

Estimated Usable Life to Support 400 GPM

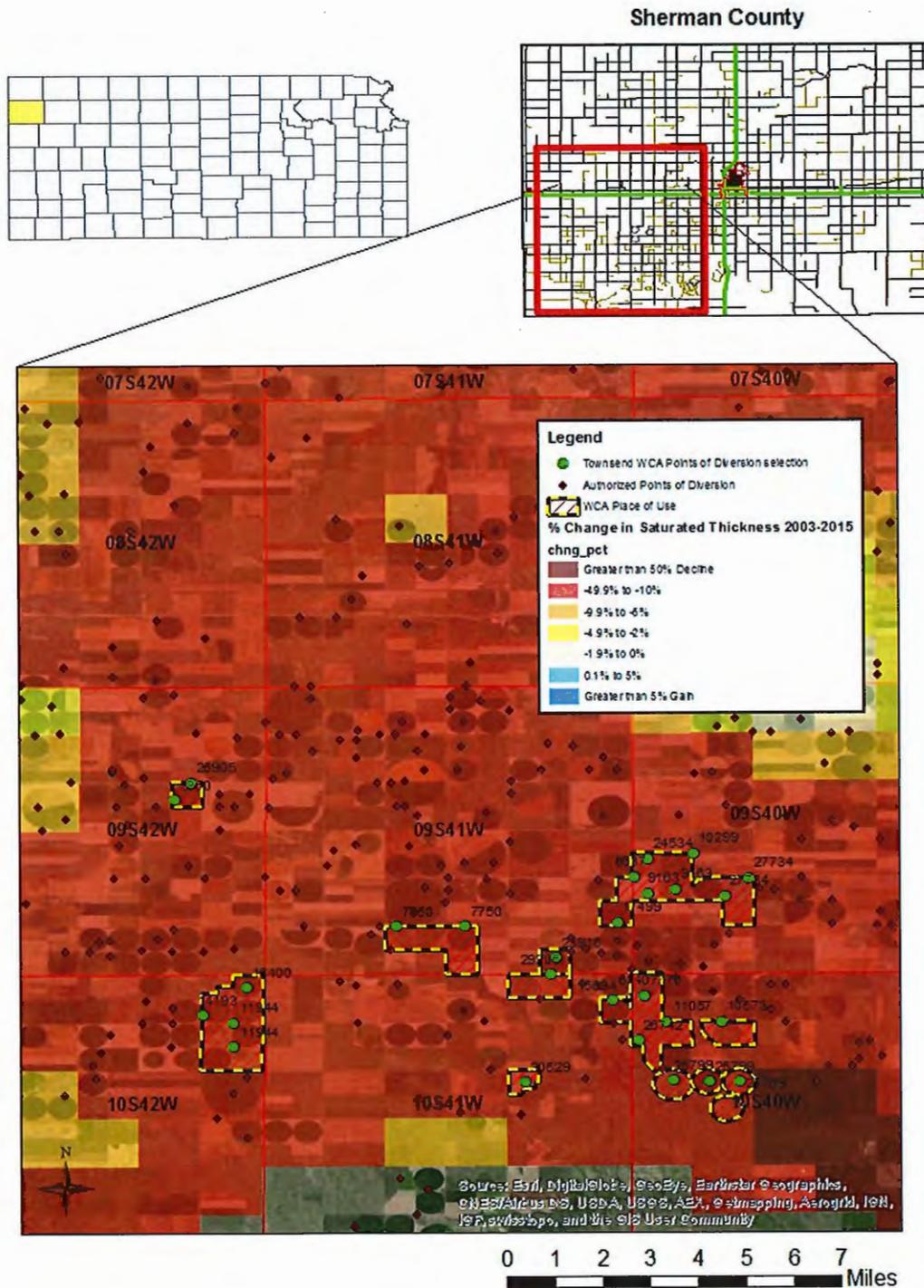


Attachment D Changes in Water Level (ft) from 2003 to 2015



Attachment E

Percent Change in Saturated Thickness from 2003 to 2015



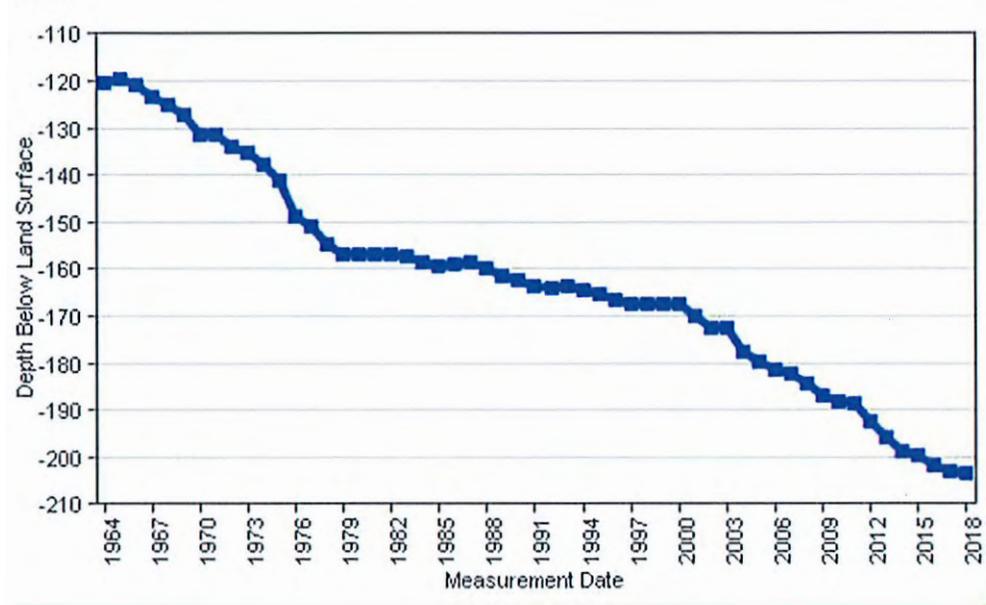
Attachment F
Summary of Water Use History

FILE #	14193		16400		11944 - ID 1		11944 - ID 2		3900		26905		7750 - ID 1		7750 - ID 2/4		7750 - ID 1		8637		10299		24534		9163 - ID 1		9163 - ID 2		15634	
YEAR	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres
2016	255	360	24	120	205	240	136	240	14	120	11		217	215	211		149	120	26	360	131		100		70	120	92		194	120
2015	346	200	130	98	142	240	47	240	51	120	39		382	231			30	120	6	360	23		261		102	120	9		25	120
2014	237	240	41	120	202	240	109	240	86	120	39		352	231			139	120	12	360	108		172		48	120	6		126	120
2013	283	240	61	120	269	240	171	240	171	120	71		495	231			193	120	20	360	136		233		128	120	9		230	120
2012	324	240	191	120	199	240	169	240	150	120	80		524	231			258	120	50	360	228		236		192	120	25		239	120
2011	285	240	149	120	221	240	136	240	47	120	29		405	231			189	120	26	360	106		102		186	120	0		81	120
2010	64	240	124	120	154	240	159	240	72	120	31		329	231			170	120	24	360	70		80		13	120	0		76	120
2009	173	240	90	120	156	240	14	240	100	120	59		457	231			204	120	36	360	149		143		60	120	0		138	120
2008	223	240	138	120	248	240	141	240	125	120	59		394	231			171	120	55	360	134		147.3		132	120	0		139	120
2007	221	240	148	120	295	240	211.8	240	12	120	11		414	215			206	120	39	360	96.67		101.3		0	120	0		110.5	120
2006	108	240	45.57	120	0	0	0	0	98	120	63		380	215			186	120	58	360	110.5		92.99		92.07	160	0		111.4	120
2005	119	240	77.34	120	66.29	120	88.38	120	103.1	120	2,946		263	215			146.2	120	66	360	109.6		112.3		26.01	160	115.1		111	120
2004	199	240	85.07	120	127.3	120	106.1	120	121.5	120	2,578		312	215			241.8	120	80	360	106.8		119.7		59.61	160	136.3		101.3	120
2003	199	240	92.8	120	26.52	120	110.5	120	110.5	120	2,762		125.1	215	118.4		226.9	120	79	360	115.1		133.5		32.22	160	105.9		110.5	120
AVERAGE:	216.85	245.71	99.77	118	177.77	212.31	122.97	212.31	90.08	129.23	35.73	0	360.65	224	23.53	0	179.28	120.00	41.23	360.00	115.97	0	145.29	0	87.76	141.54	35.59	0.00	128.05	120

FILE #	6140		7775		11057		26742		27734 - ID 2		27734 - ID 3		10573		25799 - ID 1		25799 - ID 2		25799 - ID 1		17499		23916		29206		Combined		
YEAR	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	AF	Acres	IN/AC
2016	284	240	0		41	240	167	0	286	360	55	0	121	120	166	116	101	125	209	145	112	120	48	120	200	240	3625	3841	11.33
2015	208	240	0		37	240	124	0	203	240	49	0	20	120	130	116	116	125	216	145	68	120	45	120	144	240	2953	3555	9.97
2014	206	240	0		9	240	137	0	148	240	46	0	12	120	117	116	130	125	181	145	19	120	68	120	169	240	2919	3617	9.68
2013	328	240	0		61	240	177	0	234	120	114	0	88	120	151	116	78	125	211	178	109	120	26	120	225	240	4272	3530	14.52
2012	314	240	0		60	240	230	0	287	120	136	0	149	120	179	116	132	125	357	178	204	120	121	120	312	240	5346	3530	18.17
2011	285	240	0		0	240	144	0	191	120	0	0	126	120	161	116	103	125	280	178	156	120	106	120	251	240	3765	3530	12.80
2010	183	240	0		1	240	113	0	187	120	0	0	77	120	111	116	82	125	287	178	115	120	93	120	101	240	2716	3530	9.23
2009	236	240	0		0	240	178	0	211	120	0	0	55	120	133	116	91	125	139	178	127	120	34	120	236	240	3219	3530	10.94
2008	266	240	0		0	240	217	0	180	120	0	0	107	120	126	116	101	125	433	178	112	120	92	120	253	240	3994	3530	13.58
2007	238	240	0		0	240	223	0	182	120	0	0	101	120	106	116	89	125	261	178	129	120	60.76	120	255	240	3511	3514	11.99
2006	251	240	0		0	240	258	0	167	120	0	0	175	120	122	116	118.3	125	299.6	178	136	120	72.18	120	211	240	3155	3074	12.32
2005	306	240	0		3.68	240	206.2	0	130	240	51.7	0	101.1	120	177.7	149	122	148	321.2	237	123	120	72.92	120	167.9	240	3191	3549	10.79
2004	311	240	0		1.84	240	221	0	206	240	65.4	0	96.95	120	139.6	116	141.1	125	195.5	89	197	120	83.78	120	175.1	240	3633	3345	13.03
2003	309	240	0		3.31	240	253.4	0	214	240	35.46	0	99.43	120	148.8	141	215.5	162	307	231	178	120	96.67	120	179.5	240	3628	3549	12.27
AVERAGE:	266.07	240.00	0.00	0.00	15.56	240	189.18	0	201.86	180.00	39.47	0.00	94.89	120	140.57	120	115.70	129	264.09	173	127.52	120.00	72.81	120	205.68	240	3594	3565	12.10

Attachment G KGS Observation Well Data

USGS ID:	391454101490901	KGS Local Well ID:	09S 40W 29BBB 01
County:	Sherman	PLSS Description:	9S 40W 29 NWNWNW
HUC 8 Code:	10250010	GMD:	Northwest Kansas GMD #4
Longitude:	-101.819553	Lat/Long Source:	GPS (within 50 feet)
Latitude:	39.249071	Lat/Long Accuracy:	5 seconds
Surface Elevation (ft):	3782	Depth of Well (ft):	242
Geological Unit Codes:	TO	USGS Map Name:	Horsethief Draw NE
Use of Site:	Test	Use of Water:	Unused
WWC5 Links:	None	WIMAS Link:	None



USGS ID:	391401101531801	KGS Local Well ID:	09S 41W 34BAB 01
County:	Sherman	PLSS Description:	9S 41W 34 NWNENW
HUC 8 Code:	10260002	GMD:	Northwest Kansas GMD #4
Longitude:	-101.889155	Lat/Long Source:	GPS (within 50 feet)
Latitude:	39.234631	Lat/Long Accuracy:	5 seconds
Surface Elevation (ft):	3841	Depth of Well (ft):	292
Geological Unit Codes:	TO	USGS Map Name:	Horsethief Draw NW
Use of Site:	Withdrawal of Water	Use of Water:	Irrigation
WWC5 Links:	None	WIMAS Link:	26947



**Attachment H
This Analysis**

This analysis of File 25,799

A This analysis was performed to evaluate the impact of authorizing File 25,799 to divert an additional 20 acre-feet per year at the nearby well authorized by File 15,704. The proposed authorized quantity was compared against the average legal water use from 2007-2016 (Table 1) and to the authorized quantity (Table 2). The saturated thickness and transmissivity are from the Northwest Kansas Model projected for year 2068. The storage coefficient was assumed to be the projected saturated thickness multiplied by 10^{-5} .

Table 1: This analysis of drawdown at File 15,704 compared to historic use. $T = 1,227 \text{ ft}^2/\text{d}$; $S = 0.0006$

Pumping Well	Rate (gpm)	Volume Pumped (AF)		Distance (ft)	Drawdown (ft)		Change in Drawdown	
		Baseline	Proposed		Baseline	Proposed	Feet	% of ST
18-10S-40W 1	850	241.2	334.0	1,568	58.93	65.36	6.43	10.59
17-10S-40W 1	600	138.0	208.0	4,175	24.57	29.85	5.28	8.69
17-10S-40W 2	575	102.3	217.0	6,731	14.70	23.22	8.52	14.03
							20.23	33.31

Table 2: This analysis of drawdown at File 15,704 compared to authorized. $T = 1,227 \text{ ft}^2/\text{d}$; $S = 0.0006$

Pumping Well	Rate (gpm)	Volume Pumped (AF)		Distance (ft)	Drawdown (ft)		Change in Drawdown	
		Baseline	Proposed		Baseline	Proposed	Feet	% of ST
18-10S-40W 1	850	314.0	334.0	1,568	64.05	65.36	1.31	2.16
17-10S-40W 1	600	208.0	208.0	4,175	29.85	29.85	0.00	0.00
17-10S-40W 2	575	217.0	217.0	6,731	23.22	23.22	0.00	0.00
							1.31	2.16