

WATER RESOURCES EVALUATION

Prepared for the:

TOWN OF PALMER LAKE

GMS, Inc.
Consulting Engineers

WATER RESOURCES EVALUATION
FOR
THE TOWN OF PALMER LAKE

PROJECT NO. 17071.401

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SECTION I INTRODUCTION

A. PURPOSE AND SCOPE

The Town of Palmer Lake has relatively senior surface water rights for both water diversion and water storage. The Town also has decreed water rights to the four Denver Basin aquifers underlying the corporate limits of the Town. Palmer Lake has experienced a dramatic increase in water demands over the last few decades associated with the burgeoning growth of Colorado's Front Range communities. The Town has allowed individual property owners within the Town limits to install individual water wells into the Denver Basin aquifers, utilizing the Town's groundwater rights, as a result of the Town's limited water system facilities and infrastructure. These individual private wells within the Town have essentially reduced the Town's overall groundwater rights.

The purpose of this evaluation is to provide the Town of Palmer Lake a summary of its water rights as well as available water to accommodate future growth. This evaluation summarizes the Town's existing available water rights from both a legal and physical standpoint in order to better define available water supply to accommodate future growth.

B. COLORADO WATER RIGHTS

The State of Colorado utilizes a legal framework of prior appropriation to regulate the use of surface waters in rivers and tributary groundwater connected to a river basin. This system is mandated by the Colorado Constitution and this is referred to as the Priority Doctrine.

The Colorado Water Priority Doctrine is a set of laws regarding water use and land ownership adopted by the State starting back in the 1860s. The Water Doctrine defines four essential principles of Colorado Water Law:

1. All surface water and groundwater in Colorado is a public resource for beneficial use by public agencies and private persons, and are considered State waters;

2. A water right is a right to use a portion of this public water resource;
3. Water rights owners may build facilities on lands of others to divert, extract, and move water from a stream or aquifer to its place of use; and
4. Water rights owners may use streams and aquifers for the transportation and storage of water.

The prior appropriation method is based on initial users having priority. Water users with prior water right decrees, or senior rights, have better rights in times of short supply and can fulfill their needs before those with junior rights. Thus, the phrase, “first in time, first in right.” Appropriation occurs when a water user places water into a beneficial use according to procedures prescribed by law. The prior appropriation system provides a legal procedure by which water users can obtain a court decree for their water rights, also known as adjudication. Adjudication of water rights sets the priority date of the water right, its source of supply, the amount, the point of diversion, the type of use, and place of use. The appropriation also confirms that the water right will not cause injury to senior water rights holders. Prior appropriation of water rights includes direct flow rights, transport rights and storage rights. The prior appropriation system lays out an orderly procedure to distribute water according to decreed water right priority dates, and shutting off of junior rights as needed to satisfy senior rights. The exception to this basic system is with a replacement plan to provide out-of-priority water use. Replacement can be achieved with an approved augmentation plan, exchange plan, or substitute water supply plan. The Colorado Constitution also provides, in times of shortage, that domestic water use has preference over other uses, and that agricultural use has preference over manufacturing use.

Water rights for surface and tributary groundwater are administered by the Colorado Department of Natural Resources, Division of Water Resources (DWR), often referred to as the State Engineer’s Office. The State Engineer also administers all non-tributary groundwater within the State and the Denver Groundwater Basin.

Tributary groundwater is defined as being hydrologically connected to a surface stream and has the ability to influence the amount of flow in that stream. Tributary groundwater is allocated and administered in accordance with the prior appropriation system. Non-tributary groundwater is defined as groundwater where the withdrawal will not deplete the

flow of a natural stream at a rate greater than 0.1% of the annual withdrawal rate. Non-tributary groundwater is allocated according to overlying land ownership based on an assumed 100-year aquifer life. Permitting and administration is conducted by the State Engineer. Not-non-tributary groundwater is water withdrawn from the Denver Basin aquifers that does not significantly influence stream flow. Withdrawals of not-non-tributary groundwater requires 4% of the water pumped be returned to the surface streams. Non-non-tributary groundwater requires a State Engineer issued well permit and a water court decreed augmentation plan. Designated groundwater is non-tributary groundwater in areas of the eastern plains (with little surface water) being within a defined designated groundwater management district. This groundwater is permitted and administered by the individual groundwater management districts.

The Town of Palmer Lake is located within the Denver groundwater basin. The Denver groundwater basin consists of four closed aquifers consisting of, from shallowest to deepest, the Dawson aquifer, the Denver aquifer, the Arapahoe aquifer, and the Laramie-Fox Hills aquifer. The Denver Basin underlies a 7,000 square mile area of the Front Range extending from Colorado Springs to north of Denver. Communities in the southern Denver metropolitan area and northern El Paso County have begun to depend heavily on this finite resource.

C. PALMER LAKE WATER RIGHTS MILESTONES

The following presents a brief summary of the water rights events for the Town of Palmer Lake to provide prospective for the discussions in this report. All minor water rights events may not be included in this listing:

1881 - The Town receives adjudication of its original water rights, including the Palmer Lake Reservoir (1867), Anchor Ditch (1867), the Monument Ditch (1868), and the Palmer Lake Water System Pipeline (1867).

1954 - The Town receives adjudication of water rights for the Glen Park Reservoir.

1985 - The Town passes a deemed consent ordinance, Ordinance 8-85, which claims non-tributary and not-non-tributary groundwaters underlying the corporate limits of the

Town as of January 1, 1985. The ordinance also indicates that a property owner will be permitted to drill a private well if Town facilities are not available to provide water supply.

1986 - The Town files Water Court Case 86CW108, claiming non-tributary groundwaters within the Arapahoe and Laramie-Fox Hills aquifer underlying the corporate limits of the Town.

1987 - The Town files Water Court Case 87CW068, claiming not-non-tributary groundwaters in the Dawson and Denver aquifers underlying the corporate limits of the Town.

1987 - The Town files Water Court Case 87CW069, for an exchange plan utilizing wells from the four Denver Basin aquifers to provide replacement water for out-of-priority depletions of surface water diversions and a Monument Creek alluvial well.

1987 - An Engineering Report for the Town of Palmer Lake, Water Use Study, is prepared by W.W. Wheeler & Associates. This Water Use Study evaluates the surface water rights of the Town. Groundwater rights are not evaluated as the analysis was conducted prior to the Water Court Case filings conducted this same year. Recommendations of this study included:

- Construct a non-tributary well for replacement of stream depletions.
- Obtain Court approval for a plan of augmentation to allow for out-of-priority surface water diversions.
- Construct a shallow tributary alluvial well adjacent to Monument Creek for a backup water supply.
- Rehabilitate Glen Park reservoir outlet works.
- Monitor daily stream diversions and wastewater treatment facility return flows.

2000 - A Water Use Study update was conducted by Rothberg, Tamburini & Winsor, Inc. dated October 2000. This study update was for the 1987 W.W. Wheeler Study. Recommendations of the 2000 study update included:

- Installation of a new water line (size not indicated) between the water treatment plant (presumably the surface water treatment plant) and the storage tank.
- Re-equip Well D-2 with a variable frequency drive.

- Construct Well D-3 for water supply and replacement of out-of-priority diversions.
- Construct Well QAL-4 and pipe to the surface water treatment plant.
- Construct a 10-inch water main between Greeley Boulevard and the water treatment plant.
- Construct a 10-inch water main between Vale Street and Highway 105.

2011 - The Town files Water Court Case 11CW0083 for the abandonment of a portion of the Anchor Ditch water rights.

2014 - The Pioneer Preserve development files Water Court Case 14CW056. The augmentation plan presented in this case utilizes the Town's tributary and not-non-tributary groundwater supplies for replacement of depletions realized by individual residential wells within the development. Thus, Town-owned water from the Denver and Dawson aquifers is being used for replacement.

2015 - The Pioneer Preserve development files Water Court Case 15CW3025. This case filing presents a plan of augmentation for post-termination of the Pioneer Preserve wells (if and when the Town provides water service and/or the Palmer Lake Sanitation District provides wastewater service) using a Pioneer Preserves groundwater well for lag depletions and drawing from the Laramie-Fox Hills aquifer.

2017 - Tetra Tech Engineering (acquired RTW in 2008) prepares an update to the 2000 Water Study update. This update presents an estimated number of maximum taps available to be served from the Town's water supply. It is based on surface water supplies only under the 1977-78 drought conditions. The maximum service taps were established at 1,060 customer taps.

2019 - The Town passes an ordinance to revise the water rate schedule and costs for a new tap. The tap rate was raised twice in 2019.

2020 - The Town implements a water tap moratorium in September 2020. This was partially lifted in February 2021.

SECTION II AVAILABLE WATER RIGHTS

The Town of Palmer Lake has both surface water and groundwater rights. A tabulation of the Town's water rights from the Division of Water Resources (DWR) is included in Appendix A. This tabulation, taken from the DWR database in March 2021, includes the net absolute rights and a summary of water rights transactions. A more condensed water rights summary dated June 22, 2000 is also included in Appendix A. This condensed summary does not include Water Court Case 11CW0083, which adjudicated abandonment of a portion of the Anchor Ditch No. 1 right.

A. SURFACE WATER RIGHTS

Surface water rights can include multiple types of structures including ditches, springs, pipelines, reservoirs and pumping systems. These types of structures represent the various components of surface water rights for diversions, transport, and storage. Surface water rights available to the Town's water system consist of the following:

- Anchor Ditch No. 1 - 0.89 cubic feet per second (cfs), being decreed for domestic use. This ditch right is augmented under Water Court Case 87CW069 using non-tributary groundwater sources.
- Anchor Ditch No. 1 for 0.89 cfs is decreed for railroad and industrial use. This water right is leased by the Town presumably for filling Palmer Lake and is not available for use in the Town's domestic water system.
- Monument Ditch having a 2.74 cfs right for irrigation use. This right is also not available for the Town's domestic water system.
- Palmer Lake Water System right for 2.19 cfs. This pipeline structure right is decreed for municipal use and is augmented by Water Court Case 87CW069 using non-tributary groundwater.
- Glen Park Reservoir has a storage right of 147.5 acre feet (AF). This storage right is decreed for municipal use. Any out-of-priority usage is augmented under Water Court Case 87CW069 using non-tributary groundwater.

- Palmer Lake Exchange Right. This right is decreed for all beneficial usage. All out-of-priority diversion are augmented under Water Court Decree 87CW069. Augmentation is limited to using non-tributary Denver aquifer wells up to 3.08 cfs and 426 AF per year, and using non-tributary Arapahoe aquifer and Laramie-Fox Hills aquifer wells up to 3.08 cfs and 426 AF per year.

The Anchor Ditch water right owned by the Town (0.89 cfs), the Town of Palmer Lake Water System water right (2.19 cfs), and the Glen Park Reservoir storage right (147.5 AF) can be used for municipal purposes by the Town. The Monument Ditch water right (2.74 cfs) and the Anchor Ditch railroad water right (0.89 cfs) are decreed for irrigation use. These rights have not been converted in Water Court. A filing for conversion to municipal use in Water Court would need to demonstrate ten years of historical irrigation use. The 0.89 cfs of Anchor Ditch right owned by the Town equates to 575,000 gallons per day, if available. The Palmer Lake Water System water right was 45% out-of-priority over the last year (April 2020 through March 2021); thus, indicating a limited physical availability for water from North Monument Creek. This represents, in general to be insufficient for water requirements beyond the diversion capabilities of the senior Anchor Ditch and Monument Ditch rights. The Glen Park Reservoir storage right was 67% out-of-priority over the last year (April 2020 through March 2021). Thus, it is subject to being called out frequently by downstream senior water rights holders. However, it has considerable value to the Town since it can fill during periods of higher run-off and provide carry over storage to help meet winter demands.

B. GROUNDWATER RIGHTS

Groundwater rights decreed to the Town are summarized in the following table.

TABLE 1
TOWN OF PALMER LAKE
GROUNDWATER RIGHTS

Aquifer	Classification	Well No.	Status	Annual Limit, AF/yr ¹⁾	Annual Limit, gpd	Pumping Limit, gpm	Actual Pumping Rate, gpm	Notes
Laramie-Fox Hills	Non-Tributary	LFH-1	Not Constructed	183	163,000	150	-	Limited to non-tributary Laramie-Fox Hills underlying 1,837 acres of 1,990 acres in deemed consent area. Remaining non-tributary Laramie-Fox Hills is reserved for post pumping replacement for Pioneer Reserve.
		LFH-2	Not Constructed	183	163,000	150	-	
Arapahoe	Non-Tributary	A-1	Constructed	462	412,000	350	250	Limited to non-tributary Arapahoe under 1,735 acres of 1,990 acres in deemed consent area.
		A-2	Not Constructed	462	412,000	350	-	
		A-3	Not Constructed	462	412,000	350	-	
Denver	Non-Tributary and Not Non-tributary	D-1	Not Constructed	82.8	74,000	200	-	Limited to non-tributary Denver under 1,617 acres of 1,990 acres in deemed consent area. Limited to Not non-tributary Denver under 220 acres of 1,990 acres in deemed consent area.
		D-2	Constructed	281	251,000	200	60	
		D-3	Not Constructed	72.5	65,000	200	-	D-2 well partially plugged. Currently being redrilled.
Dawson	Not Non-tributary	DA-2	Not Constructed	595	531,000	400	-	Limited to not-non-tributary Dawson under 1,836.5 acres of 1,990 acres in deemed consent area.
		DA-4	Not Constructed	595	531,000	400	-	
Monument Creek Alluvium	Tributary	QAL-4	Not Constructed	161	144,000	100		Augmentation and exchange by Non-tributary Denver and Triview WWTP
Available Total				3539.3	3,158,000	2,850		
Current Available				743	663,000	550	310	

1) Acre feet per year

From the above table, the Town has a total groundwater right of 3,529.3 AF per year. Out-of-priority diversions from the Anchor Ditch right, Town of Palmer Lake Water System right, and Glen Park Reservoir storage right are replaced with water from the non-tributary Laramie-Fox Hills, Arapahoe and Denver aquifers. The replacement is limited to 3.09 cfs.

Town Ordinance 8-85 allows for installation of private wells when Town water facilities are not available to provide potable water service. Thus, the Town has consented to withdrawals from the Town's groundwater rights for these private wells. A tabulation of private wells within the corporate limits of the Town have been compiled from the DWR database. This tabulation is found in Appendix C of this report. This tabulation may not include older wells that have not been permitted, if any. Of the 151 well records compiled, 141 are listed as constructed and 10 are listed as having the permit issued, received or extended. Of the 151 wells, 143 are in the Dawson aquifer, 5 in the Denver aquifer and 3 in the Arapahoe aquifer. Most of the wells are exempt domestic or household only wells used for a single-family residential home. Annual withdrawal limits range from 0.16 AF to 200 AF. Pumping rate limits range from 6 gpm to 250 gpm. The following table presents the reduction in Town groundwater rights consented to private wells and the net remaining Town groundwater rights.

TABLE 2
TOWN OF PALMER LAKE
NET GROUNDWATER RIGHTS

Aquifer	Town Water Rights, AF/yr ¹⁾	Consented To Private Wells, AF/yr	Net Town Water Rights, AF/yr
Laramie-Fox Hills	366.0	0.0	366.0
Arapahoe	1386.0	73.0	1313.0
Denver	436.3	213.5	222.8
Dawson	1190.0	117.5	1072.5

1) Acre feet per year

Most individual private wells require metering and reporting. Of the 151 private well records, 27 are required to be metered and readings provided to the DWR (21 of these reported only when requested); 69 are required to be metered and readings provided to the Town (one of these only upon request by the Town); and 55 have no metering requirements.

Water in the Denver Basin aquifers is finite and being mined throughout the basin by municipal, commercial, industrial and residential wells. Water levels throughout each aquifer are dropping. The DWR manages basin aquifer wells through the permitting process under the 100-year life policy. This limits withdrawal to 1% of the aquifer water underlying a defined area. The DWR publishes an annual report titled "Groundwater Levels in the Denver Bedrock Aquifers". The 2020 report indicates that the Dawson and Denver aquifers, from 2019 to 2020, in the vicinity of Palmer Lake, have dropped by greater than 16 feet, and the Arapahoe has gained greater than 12 feet of water level. No water level monitoring of the Laramie-Fox Hills aquifer is located within the vicinity of Palmer Lake.

C. SUMMARY OF WATER RIGHTS

The Town has two direct flow surface water rights available for its potable water system. The Anchor Ditch right at 0.89 cfs (575,000 gpd) has a #1 priority. The Town of Palmer Lake Water System right at 2.19 cfs (1,420,000 gpd) has a #65 right and is subject to senior priority calls. The combined 3.08 cfs can be replaced for out-of-priority diversions with non-tributary water via the adjudicated exchange plan.

The net amount of non-tributary and not-non-tributary groundwater rights available for the Town's potable water system, and for augmentation, totals 2,974.4 AF per year (2,650,000 gpd). Thus, the Town has 4,650,000 gpd in domestic supply rights. This, of course, does not represent the amount of water that can be physically provided.

SECTION III AVAILABLE WATER SUPPLY

The Town's water supply capacity is limited to the actual availability of the water supply and associated facilities. The previous section presented the overall water rights available; however, the groundwater supplies have not been fully developed. In general, surface water supply is preferred to groundwater supply because it comes at a lower operating cost.

The 2017 estimate of maximum water taps by Tetra Tech was based on minimum monthly stream flows in Monument Creek for the period of 1977 through 1985. This stream gauge station, USGS Station MONPALCO 07103747, was active from 1977 – 1989, and again from 2004 – 2010. Data from this gauging station was used to re-evaluate historical minimum stream flows available at the Glen Park Reservoir. Calculations are presented in Appendix B. Monthly stream flows in cfs were converted to AF per month. The Surface Water - Water Treatment Plant (SW-WTP) diversions were added to the stream flows to represent total flow conditions. The lower Glen Park Reservoir flows were estimated by the ratio of watershed area at the lower reservoir to the watershed at the gauging station. A recurrence frequency analysis of minimum monthly flows was conducted for the sixteen years of record using a Log-Pearson Type III distribution. The minimum monthly flows range from 0.21 cfs (2011) to 2.45 cfs (1984). The 95% probability low flow was calculated at 0.2004 cfs. This equates to 11.9 AF per month. Subtracting out the Glen Park Reservoir maximum month evaporation, (3.59 AF, July, Table C, Case 13CW3061), and the Colorado Water Conservation Board (CWCB) minimum stream flow discharge, (July, 2.56 AF per month, Paragraph 19g, Case 13CW3061), leaves 5.75 AF per month available for Town use of the Anchor Ditch right (assumes Town of Palmer Lake Water System Right is called out). This minimum calculated available surface water supply of 5.75 AF per month equates to 60,400 gallons per day (gpd); worst-case. This is significantly lower than the 22.5 AF per month minimum available supply estimated in the 2017 maximum tap estimate by Tetra Tech. However, that maximum tap limit calculation considered only the use of available surface water flow with groundwater sources used only for replacement of out-of-priority surface water use. The lower surface water yield calculated was driven primarily by dry years occurring in 1989, 2011 and 2012, which were not previously considered. Note that the stream flow data for the historic 2002 drought was not available from this stream gauge station.

Under worst-case conditions with only 60,400 gpd in direct stream flows available, the remaining water system demand would need to be made up using reservoir storage and non-tributary groundwater. The Glen Park Reservoir has a 147.5 AF storage right. Of this, 51.6 AF per year is required for CWCB minimum stream flows and evaporation losses. Approximately 50 AF should be considered unusable in the bottom of the impoundment. This leaves approximately 45 AF of storage available for use. The 2020 average day demand was 0.55 AF per day. Thus, the reservoir storage, less the minimum calculated stream flow of 0.2004 cfs (0.397 AF per day), could provide surface water supply for up to 294 days $[45/(0.55 - 0.397)]$, assuming the reservoir starts the year full.

The Town's groundwater water rights far surpass the Town's groundwater well capacity. The A-2 Well is 2,233 feet deep into the Arapahoe aquifer. The well pumps at a maximum rate of 300 gpm. The D-2 Well is 1,793 feet deep into the Denver aquifer. This well has a corroded screen which severely reduces its pumping duration. Well D-2 is currently being replaced by the Town. The new well is expected to produce at the original well rate of 200 gpm. The D-3 well was constructed in 2001, but had a low production rate of only 60 gpm. This well is currently not equipped with a pump. Both the A-2 and D-2 wells pump to the Town's Groundwater Water Treatment Plant (GW-WTP). With a combined capacity of 500 gpm, the two wells could produce 720,000 gpd, however, the GW-WTP has a limited throughput capacity of 300 gpm, or 432,000 gpd. The remaining non-tributary well capacity of 288,000 gpd can be used for replacement of out-of-priority surface water diversions.

Under worst-case surface water right conditions of 5.75 AF per month (60,400 gpd), and groundwater production limited to 432,000 gpd, the Town's maximum potable water production capacity is 492,400 gpd, assuming no supplemental storage reserve is available in the Glen Park Reservoir. This maximum water production rate under worst-case conditions, needs to be able to supply the maximum day demand condition on the water system.

SECTION IV
HISTORICAL WATER PRODUCTION AND CONSUMPTION

An assessment of the historical water demands for the Town of Palmer Lake is presented in this section. Historical well pumping, surface water diversions and total water sales were used to establish the baseline water use parameters for the Town. These parameters were then compared to worst-case available water supplies to determine the growth limits of the Town.

Total monthly water production and sales data was provided by the Town for the period from January 2018 through December 2020. The following table is a summary of surface water and groundwater well flows to the Town's two water treatment plants.

TABLE 3
TOWN OF PALMER LAKE
WATER PRODUCTION

2018 Month	Surface Water, gal.	Well A-2, gal.	Well D-2, gal.	Total Production, gal.
Jan 2018	4,971,000	0	52,000	5,023,000
Feb 2018	3,618,000	0	0	3,618,000
Mar 2018	3,691,000	0	0	3,691,000
Apr 2018	3,646,000	0	0	3,646,000
May 2018	4,827,000	824,000	0	5,651,000
Jun 2018	4,160,000	3,544,000	0	7,704,000
Jul 2018	3,573,000	2,950,000	543,000	7,066,000
Aug 2018	2,882,000	0	1,731,000	4,613,000
Sep 2018	2,835,000	1,178,000	955,000	4,968,000
Oct 2018	2,197,000	1,918,000	0	4,115,000
Nov 2018	3,014,000	1,351,000	0	4,365,000
Dec 2018	4,006,000	0	0	4,006,000
Total 2018	43,420,000	11,765,000	3,281,000	58,466,000
% of Total	74.3%	20%	6%	

2019 Month	Surface Water, gal.	Well A-2, gal.	Well D-2, gal.	Total Production, gal.
Jan 2019	4,460,000	0	0	4,460,000
Feb 2019	3,652,000	0	0	3,652,000
Mar 2019	4,353,000	0	0	4,353,000
Apr 2019	4,387,000	0	0	4,387,000
May 2019	3,784,000	0	1,459,000	5,243,000
Jun 2019	2,593,000	771,000	3,032,000	6,396,000
Jul 2019	2,815,000	4,704,000	0	7,519,000
Aug 2019	2,878,000	4,959,000	0	7,837,000
Sep 2019	2,930,000	2,822,000	0	5,752,000
Oct 2019	2,802,000	1,860,000	0	4,662,000
Nov 2019	2,444,000	2,235,000	0	4,679,000
Dec 2019	2,592,000	1,552,000	0	4,144,000
Total 2019	39,690,000	18,903,000	4,491,000	63,084,000
% of Total	62.9%	30%	7%	

2020 Month	Surface Water, gal.	Well A-2, gal.	Well D-2, gal.	Total Production, gal.
Jan 2020	2,763,000	1,313,000	0	4,076,000
Feb 2020	2,775,000	1,428,000	0	4,203,000
Mar 2020	3,323,000	952,000	0	4,275,000
Apr 2020	3,769,000	518,000	0	4,287,000
May 2020	4,302,000	1,265,000	0	5,567,000
Jun 2020	4,503,000	2,267,000	0	6,770,000
Jul 2020	3,101,000	4,545,000	0	7,646,000
Aug 2020	2,853,000	4,517,000	0	7,370,000
Sep 2020	2,822,000	3,250,000	0	6,072,000
Oct 2020	2,977,000	1,634,000	1,011,000	5,622,000
Nov 2020	3,041,000	0	1,850,000	4,891,000
Dec 2020	2,910,000	0	2,045,000	4,955,000
Total 2020	39,139,000	21,689,000	4,906,000	65,734,000
% of Total	59.5%	33%	7%	

Total water production in 2018 was 58.5 million gallons (MG), or 179.5 AF. Production rose to 65.7 MG, or 201.8 AF in 2020. The surface water supply accounted for 74.3% of total production in 2018 and dropped to 59.5% in 2020.

Total monthly water sales data was provided by the Town for the same three-year period as water production. Water sales is compared to water production in the following table. The table presents a net water treatment plant output to the distribution system by subtracting the filter backwash waste volume from the SW-WTP. The GW-WTP recycles backwash waste with the exception of small quantities of solids.

TABLE 4
TOWN OF PALMER LAKE
WATER SYSTEM PRODUCTION AND SALES

Month	2018		2019		2020	
	Production ¹⁾ , gal.	Sales ²⁾ , gal.	Production ¹⁾ , gal.	Sales ²⁾ , gal.	Production ¹⁾ , gal.	Sales ²⁾ , gal.
January	5,023,000	3,511,500	4,460,000	6,411,800	4,076,000	3,208,000
February	3,618,000	3,009,400	3,652,000	3,242,500	4,203,000	3,409,500
March	3,691,000	2,868,500	4,353,000	3,467,900	4,275,000	3,760,000
April	3,646,000	3,389,600	4,387,000	3,243,200	4,287,000	3,176,900
May	5,651,000	3,451,900	5,243,000	4,694,500	5,567,000	3,876,400
June	7,704,000	6,200,600	6,396,000	4,063,000	6,770,000	5,315,300
July	7,066,000	7,052,400	7,519,000	5,090,000	7,646,000	6,065,700
August	4,613,000	4,513,200	7,837,000	4,996,800	7,370,000	5,641,200
September	4,968,000	3,747,800	5,752,000	5,358,500	6,072,000	5,784,000
October	4,115,000	4,190,800	4,662,000	4,098,200	5,622,000	4,692,000
November	4,365,000	4,232,400	4,679,000	3,293,900	4,891,000	3,888,600
December	4,006,000	2,867,800	4,144,000	3,314,600	4,955,000	3,313,900
Total, gal.	58,466,000	49,035,900	63,084,000	51,274,900	65,734,000	52,131,500
WTP backwash waste, gal. ³⁾	2,920,000		2,920,000		2,928,000	
WTP Production, gpd ⁴⁾	152,181	133,978	164,833	140,479	171,601	142,436
Unaccounted-for-water, % ⁵⁾	11.7%		14.8%		17.0%	
Water Customer Taps	983		1,001		1,023	
Gallons per Tap per Day	154.8	136.3	164.7	140.3	167.7	139.2

- 1) Total raw water from Glen Park Reservoir, Well A-2, and Well D-2.
- 2) Total metered water sales. Note that the data straddles months so monthly loss not accurate, annual loss more accurate.
- 3) Based on daily use of 8,000 gpd at the Surface Water WTP. Backwash waste at the Groundwater WTP is recycled.
- 4) gpd = average gallons per day to distribution system.
- 5) Unaccounted-for-water is WTP production minus water sales divided by WTP production. This represents water which is not accounted for. Note that the water sales data straddles months so monthly loss not accurate. Annual loss is more accurate.

Unaccounted-for-water represents water pumped into the Town's distribution system that is not measured by the Town's customer meters. Unaccounted-for-water for the Town of Palmer Lake is primarily attributed to unmetered uses including fire hydrant usage for practice and actual firefighting, hydrant flushing, inaccurate customer meters, as well as pipeline leaks and breaks within the distribution system. These loss factors are not quantifiable. An unaccounted-for-water value of 15 to 20% is not unreasonable. Values of 30 to 40% are not uncommon. The American Water Works Association recommends an unaccounted-for-water goal of 10% with proactive efforts taken to reach this goal. For the Town of Palmer Lake, the unaccounted-for-water percentage has averaged 14.6% for the 36 months of record. This amount is relatively low considering recent water main breaks and a reported high hydrant usage.

The 2020 water sales averaged 142,436 gpd. With 1,023 service taps in 2020, the average day water consumption within the Town's service area was 139.2 gallons per customer per day. This value, which is weighted and includes residential, commercial and industrial customers, is relatively low for a small front range rural community.

For the purpose of this report, water use projections are based on average day water production in 2020. Unaccounted-for-water within the system is calculated at 17.0% for 2020. The maximum month water sales occurred in June 2018 totaling 7.70 MG. This represents a maximum month peaking factor of 158% of average. Maximum daily demand conditions occur in the summer months when conditions are dry and outdoor water usage is elevated. Daily water production data was not available. However, the Town has indicated that during maximum day demand conditions, the SW-WTP was run at 300 gpm to keep up with demand. Thus, the maximum day demand peaking factor is estimated at 252% of average day demand.

The following table is a summary of the baseline water use parameters used in this water supply evaluation for the Town of Palmer Lake's water system.

TABLE 5
TOWN OF PALMER LAKE
2020 BASELINE WATER USE PARAMETERS

Parameter	Value
Average daily WTP production, gpd	171,601
Average daily water sales, gpd	142,436
Unaccounted-for-water	17.0%
Maximum monthly water usage ¹⁾	158%
Maximum daily water usage ²⁾	252%
Gallons per tap per day	167.7

1) June 2018

2) Based on reported 300 gpm WTP production.

SECTION V WATER SYSTEM CAPACITY

As presented in the previous section, the worst-case scenario for available water supply from the Town's surface water and groundwater sources, as available from existing facilities, is 492,400 gpd. This worst-case supply condition is based on a minimum stream flow of 0.2004 cfs (95% low flow condition), no supplemental supply being provided from the storage reservoir, and groundwater produced at the GW-WTP capacity of 300 gpm. This available supply is reduced by 8,000 gpd for the SW-WTP filter backwash requirements. Thus, the treated water available to the distribution system is 484,400 gpd. The 2020 average day WTP demand was 171,600 gpd. The estimated 2020 maximum day demand is calculated at 432,400 gpd. Thus, there remains 52,000 gpd in available system capacity. Using the 2020 per tap maximum day demand of 423 gpd ($167.7 \text{ gpd} \times 2.52$), the maximum number of taps serviceable under worst-case supply conditions and with the existing facilities is 1,145 taps.

SECTION VI WATER SYSTEM RECOMMENDATIONS

The recently adopted Town Ordinance 2-2021 has amended the Town Code 13.45.010. This amended Ordinance requires a well permit to be issued by the Town, (in addition to the DWR permit), for installation of a private well. This Ordinance also allows the Town to establish fees for well installation, limit water use from an individual private well, requires installation of a meter and annual reporting of water pumpage. As indicated in Section II of this report, there are 151 records for private wells within the Town of Palmer Lake. Of this total, 55 have no metering requirements. In order to provide a complete picture of the Town water pumped from the Denver Basin aquifers, all existing and future wells need to be metered and annual water withdrawals reported.

In order to implement Ordinance 2-2021 for new private wells, the Town needs to establish administrative procedures for the following:

- Prepare a standard well permit application for a proposed new private well.
- Prepare a standard Town permit to allow the installation of a new well.
- Establish an amount of annual withdrawal allowed for a new well based on the DWR Denver Basin Groundwater Tool. An example of the groundwater withdrawal determination is presented in Appendix D.
- Require metering and reporting of annual withdrawal requirements and create an accounting database.
- Establish an equitable tap fee for the installation of a new well.
- Establish a surcharge fee for annual withdrawals which exceed the Town permitted limit.
- The DWR currently uses a 100-year aquifer life policy for determining groundwater withdrawals within the Denver Basin aquifer. El Paso County uses a 300-year aquifer life policy. The aquifer life policy needs to be established by the Town.

The following is a list of administrative procedures that are recommended to be implemented by the Town for existing individual private wells:

- Require all existing private wells to meter water withdrawals and report annually. This would include establishing a compliance schedule and charges for not reporting.
- Establish an annual charge for water pumped that exceeds the annual permitted limit. For the 55 individual wells that do not have an annual limit, an annual limit should be established based on lot size.
- Enforce the use of groundwater for wells permitted for indoor use only.

Infrastructure improvements were recommended in both the 1987 W.W. Wheeler report and the 2000 Rothberg, Tamburini & Winsor, Inc. report. These recommended improvements have not been evaluated within this water rights evaluation. A comprehensive Preliminary Engineering Report of the Town's water system will be prepared by the consultant with consideration of these previously recommended improvements. This water rights evaluation has identified the following findings and recommendations:

- The Town's existing supply sources and infrastructure can support a total of 1,145 water taps under worst-case conditions.
- Long term growth projections for the Town have not been conducted within this evaluation; however, it appears that with growth, the Town's water supply will become more dependent on groundwater supply. Projected increases in groundwater supply capacities and associated facilities will be presented in the Preliminary Engineering Report prepared by the consultant.
- Operations of the Glen Park Reservoir should be to maximize spring runoff storage in order to supplement water demands during the higher use summer months.
- It is recommended that the Town establish a policy regarding the expansion of the water system infrastructure to serve existing areas having private groundwater wells, as well as future growth areas within the Town limits. The forthcoming Preliminary Engineering Report will provide cost estimates and recommendations with regard to this policy determination.

APPENDIX A - PALMER LAKE WATER RIGHTS

Town of Palmer Lake Water Rights

6/22/00

Water Right	Amount	Source	Appropriation Date	Adjudication Date	Case No., Court	Decreed Use	Comments
Anchor Ditch a/k/a Monument Ditch	0.89 cfs.	Middle Monument Creek, including Ice Cave Creek - Priority #1	03/01/1867	02/15/1882	Civil Action No. 751	Domestic	Use changed to domestic in Case No. 13801, El Paso County District Court. Augmented under decree in Case No. 87CW069.
Anchor Ditch a/k/a Monument Ditch	0.89 cfs.	Middle Monument Creek - Priority #1	03/01/1867	02/15/1882	Civil Action No. 751	Supply locomotives and for other railway industrial uses	
Monument Ditch	2.29 cfs.	Middle Monument Creek - Priority #3	06/20/1868	02/15/1882	Civil Action No. 751	Irrigation	
Town of Palmer Lake Water System	2.19 cfs.	Middle Monument Creek, including Ice Cave Creek - Priority #65A	02/01/1887	02/08/1954	El Paso County District Court, Case No. 13801	Domestic	Augmented under decree in Case No. 87CW069.
Glen Park Reservoir	147.5 AF	Middle Monument Creek - Priority #111A	11/25/1904	02/08/1954	El Paso County District Court, Case No. 13801	Domestic, municipal, industrial	Augmented under decree in Case No. 87CW069.
Denver Basin Nontributary Groundwater	Approximately 426 AF/yr. 1386 AF/yr. 551 AF/yr.	from Denver Aquifer from Arap Aquifer from Laramie-Fox Hills Aquifer	N/A	10/26/1987	Div. 2 Water Court, Case No. 86CW108	All municipal purposes and all other beneficial purposes, including augmentation and exchange	Final determination of amounts available is required.
Denver Basin Not Tributary Groundwater	Approximately 1281 AF/yr. 82.8 AF/yr.	from Dawson Aquifer from Denver Aquifer	N/A	09/02/1988	Div. 2 Water Court, Case No. 87CW068; modified Feb. 15, 1994.	All municipal purposes and all other beneficial purposes, including augmentation and exchange	Court approved augmentation plan required before water can be used and final determination of amounts available is also required.
Plan for augmentation, including exchange	Augmented structures: - Anchor Ditch and Town of Palmer Lake Water System (3.08 cfs) - Glen Park Reservoir Exchange-to Structure: - Well QAL-4 100 gpm CONDITIONAL Monument Creek alluvium	Middle Monument Creek, including Ice Cave Creek Middle Monument Creek Monument Creek alluvium	10/23/1987	12/31/1987	Div. 2 Water Court, Case No. 87CW069	All municipal purposes and all other beneficial purposes, including exchange	Allows out-of-priority diversions at named structures to the extent replacement water is made available from Town's nontributary Denver aquifer wells. Allows out-of-priority diversions at Well QAL-4 by exchange when excess reusable water is available at Tri-Lakes WWTP. Requires daily recordkeeping and weekly balancing of depletions. Requires bypass of water to Colorado Water Conservation Board instream flow right on North Monument Creek when Town is diverting or storing water out-of-priority. Requires diligence filing for conditional exchange right for Well QAL-4 until made absolute. Diligence decree obtained Case No. 95CW137. Next diligence filing due in March, 2002.

Net Absolute Summary

WDID	Structure Name	Structure Type	Water Source	Adjudication Date	Previous Adj Date	Appropriation Date	Priority No	Associated Case Numbers	Decreed Uses	Net Absolute	Seasonal Limits	Comments
1002813	PALMER LAKE EXCHANGE	Exchange Plan	NORTH MONUMENT CREEK	12/31/1987		12/30/1987		87CW0069, 10CW0087	123456789AX	0	No	NT DEN WELLS AUGMENT OUT OF PRIORITY DIVERSION LTD 3.08 CFS AND 426 AF/YEAR, NT ARAP AND NT LFH WELLS AUGMENT OUT OF PRIORITY DIVERSION LTD 3.08 CFS AND 426 AF/YEAR
1003653	GLENN PARK RESERVOIR	Reservoir	NORTH MONUMENT CREEK	2/8/1954		11/25/1904	111A	CA13801	248	147.5002	No	OUT OF PRIORITY DIV AUG BY PALMER LAKE AUG PLAN 87CW69
1003354	PALMER LAKE	Reservoir	NORTH MONUMENT CREEK	03/06/1882		03/01/1867		13CW3061	0257A	67	No	D&RGRR USES LMT 8.4AF/MO 67 AF/YR
1000818	ANCHOR DITCH NO 1	Ditch	MONUMENT CREEK	3/6/1882		3/1/1867		11CW0083, CA13801, CA0751	1	0	Yes	ORIGINAL RIGHT AMOUNT & LOCATION FROM PYLE, TT D & RGW PALMER LAKE FOR RR INDUSTRIAL & STEAM LOCOMOTIVE USE, TT PALMER LAKE WATER SYSTEM ID 618 FOR DOMESTIC USE, ABANDONED REMAINDER OF WATER RIGHT NOT TRANSFERRED TO PALMER LAKE 11CW0083
1000503	MONUMENT DITCH	Ditch	MONUMENT CREEK	3/6/1882		6/20/1868		CA0751	1	4.58	Yes	ORIGINAL RIGHT AMOUNT AND LOC FROM PYLE (SEE CA56139 ALT PTS)
1000503	MONUMENT DITCH	Ditch	MONUMENT CREEK	3/6/1882		12/31/1875		CA0751	1	2.74	Yes	MON DITCH ENL ORIG RT AMOUNT FROM PYLE (SEE CA56139 ALT PTS)
1000504	MONUMENT DITCH NO 2	Ditch	MONUMENT CREEK	3/6/1882		6/1/1870		CA0751	1	4.8	Yes	ORIGINAL RIGHT AMOUNT AND LOCATION FROM PYLE
1000698	MONUMENT DITCH NO 2 1/2	Ditch	MONUMENT CREEK	3/6/1882		6/1/1871		CA13801, CA0751	1	0	Yes	ORIGINAL RIGHT AMOUNT & LOCATION FROM PYLE, TT MONUMENT CREEK P/L AKA PIKEVIEW
1003354	PALMER LAKE	Reservoir	NORTH MONUMENT CREEK	03/06/1882		03/01/1867		13CW3061	0257A	0.89	No	D&RGRR USES LMT 8.4AF/MO 67 AF/YR
1000618	PALMER LAKE WATER SYSTEM	Pipeline	NORTH MONUMENT CREEK	03/06/1882		03/01/1867		CA13801	8	0.89	No	TF ANCHOR DITCH PALMER LAKE OWNERSHIP SHARE LOCATION FROM 87CW69
1000720	D&RGW PALMER LAKE (ANCHOR)	Pipeline	NORTH MONUMENT CREEK	03/06/1882		03/01/1867		13CW3061, CA13801	023457A	67	No	TT CHANGE IN USES, TF D&RGRR USES LMT 8.4AF/MO 67 AF/YR
1000618	PALMER LAKE WATER SYSTEM	Pipeline	NORTH MONUMENT CREEK	2/8/1954		02/01/1887	65A	CA13801	2	2.19	No	PALMER LAKE WATER SYSTEM WATER RIGHT AUG BY 87CW069 & 10CW087
1000618	PALMER LAKE WATER SYSTEM	Pipeline	NORTH MONUMENT CREEK	12/31/1987		12/30/1987		87CW0069, 10CW0087	123456789AX	0	No	NT DEN WELLS AUGMENT OUT OF PRIORITY DIVERSION LTD 3.08 CFS AND 426 AF/YEAR, NT ARAP AND NT LFH WELLS AUGMENT OUT OF PRIORITY DIVERSION LTD 3.08 CFS AND 426 AF/YEAR
1006202	PALMER LAKE NT DENVER	Well Field	GROUNDWATER: DENVER	12/31/1986	12/31/1985	8/26/1985		86CW0108	X	42600	No	NT DENVER UNDER 1617 ACRES OF 1990 ACRES IN DEEMED CONSENT AREA
1006496	PALMER LAKE NT LFH	Well Field	GROUNDWATER: LARAMIE FOX HILLS	12/31/1986	12/31/1985	8/26/1985		86CW0108, 14CW3056	AX	55100	No	NT LARAMIE FOX HILLS UNDER 1837 ACRES OF 1990 ACRES IN DEEMED CONSENT AREA, NT LARAMIE FOX HILLS RESERVED FOR POST PUMPING REPL, NT LARAMIE FOX HILLS RESERVED FOR POST PUMPING REPL
1006502	PALMER LAKE NNT DENVER	Well Field	GROUNDWATER: DENVER	12/31/1987	12/31/1986	8/26/1985		87CW0068	X	8280	No	NNT DENVER UNDER 220 ACRES OF 1990 ACRES IN DEEMED CONSENT AREA
1006497	PALMER LAKE NNT DAWSON	Well Field	GROUNDWATER: DAWSON	12/31/1987	12/31/1986	8/26/1985		87CW0068	X	119000	No	NNT DAWSON UNDER 1836.5 ACRES OF 1990 ACRES IN DEEMED CONSENT AREA
1006468	PALMER LAKE NT ARAPAHOE	Well Field	GROUNDWATER: ARAPAHOE	12/31/1986	12/31/1985	8/26/1985		86CW0108	X	138000	No	NT ARAPAHOE UNDER 1735 ACRES OF 1990 ACRES IN DEEMED CONSENT AREA
1005611	PALMER LAKE WELL D-3	Well	GROUNDWATER: DENVER	12/31/1986	12/31/1985	12/26/1986		86CW0108	X	0.45	No	200 GPM LTD 72.5 AF/YR
1005725	PALMER LAKE WELL A-1	Well	GROUNDWATER: ARAPAHOE	12/31/1986	12/31/1985	12/26/1986		86CW0108	X	0.78	No	350 GPM LTD 462 AF/YR
1005720	PALMER LAKE WELL LFH-3	Well	GROUNDWATER: LARAMIE FOX HILLS	12/31/1986	12/31/1985	12/16/1986		86CW0108	X	0.33	No	150 GPM LTD 185 AF/YR
1005831	PALMER LAKE WELL DA-4	Well	GROUNDWATER: DAWSON	12/31/1987	12/31/1986	12/30/1987		87CW0068	X	0.89	No	400 GPM LTD 595 AF/YR
1005832	PALMER LAKE WELL D-1	Well	GROUNDWATER: DENVER	12/31/1987	12/31/1986	12/30/1987		87CW0068	X	0.45	No	200 GPM LTD 82.8 AF/YR
1005721	PALMER LAKE WELL LFH-1	Well	GROUNDWATER: LARAMIE FOX HILLS	12/31/1986	12/31/1985	12/26/1986		86CW0108	X	0.33	No	150 GPM LTD 183 AF/YR
1005722	PALMER LAKE WELL LFH-2	Well	GROUNDWATER: LARAMIE FOX HILLS	12/31/1986	12/31/1985	12/26/1987		86CW0108	X	0.33	No	150 GPM LTD 183 AF/YR

Net Absolute Summary (cont.)

WDID	Structure Name	Structure Type	Water Source	Adjudication Date	Previous Adj Date	Appropriation Date	Priority No	Associated Case Numbers	Decreed Uses	Net Absolute	Seasonal Limits	Comments
1005612	PALMER LAKE WELL D-4	Well	GROUNDWATER: DENVER	12/31/1986	12/31/1985	12/26/1986		86CW0108	X	0.45	No	200 GPM LTD 72.5 AF/YR
1005829	PALMER LAKE WELL QAL-4	Well	GROUNDWATER: FOUNTAIN CREEK	12/31/1987	12/31/1986	10/23/1987		87CW0069	2	0	No	35329-F 100 GPM 161 AF/YR AUG & EXC BY NT DEN & TRI LAKES WWTP
1005724	PALMER LAKE WELL A-2	Well	GROUNDWATER: ARAPAHOE	12/31/1986	12/31/1985	12/26/1986		86CW0108	X	0.78	No	350 GPM LTD 462 AF/YR
1005610	PALMER LAKE WELL D-2	Well	GROUNDWATER: DENVER	12/31/1986	12/31/1985	12/26/1986		86CW0108	X	0.45	No	31264-F 200 GPM NOT TO EXCEED 281 AF/YR
1005723	PALMER LAKE WELL A-3	Well	GROUNDWATER: ARAPAHOE	12/31/1986	12/31/1985	12/26/1986		86CW0108	X	0.78	No	350 GPM LTD 462 AF/YR
1005830	PALMER LAKE WELL DA-2	Well	GROUNDWATER: DAWSON	12/31/1987	12/31/1986	12/30/1987		87CW0068	X	0.89	No	400 GPM LTD 595 AF/YR

1007340	PIONEER PRESERVE LLC PALMER LAKE NNT DAWSON & DENV	Augmentation/Replacement Plan	UNDEFINED	12/31/1986	12/31/1985	8/26/1985		14CW3056	A	2250	No	NT LARAMIE FOX HILLS RESERVED FOR POST PUMPING REPL
1007340	PIONEER PRESERVE LLC PALMER LAKE NNT DAWSON & DENV	Augmentation/Replacement Plan	UNDEFINED	12/31/2014	12/31/2013	12/23/2014		14CW3056	A	20.4	No	NNT DENVER 1.5 AF/YR 15 LOTS IN COMBO WITH NNT DAWSON
1009170	PIONEER PRESERVE LLC PALMER LAKE NNT DAWSON	Well Group	GROUNDWATER: DAWSON	12/31/1987	12/31/1986	8/26/1985		14CW3056	X	20.4	No	NNT DAWSON 1.5 AF/YR 15 LOTS IN COMBO WITH NNT DENVER
1009171	PIONEER PRESERVE LLC PALMER LAKE NNT DENVER	Well Group	GROUNDWATER: DENVER	12/31/1987	12/31/1986	8/26/1985		14CW3056	X	20.4	No	NNT DENVER 1.5 AF/YR 15 LOTS IN COMBO WITH NNT DAWSON

Transactions Summary

WDID	Water Right Name	Structure type	Water Source	Adjudication Date	Previous Adj Date	Appropriation Date	Priority No	Case Number	Decreed Use(s)	Max Decreed Rate (CFS)	Total Volumetric Limit (AF)	Comments
1000818	ANCHOR DITCH NO 1	Ditch	MONUMENT CREEK	3/6/1882		3/1/1867		CA0751	1	2.14		ORIGINAL RIGHT AMOUNT & LOCATION FROM PYLE
1000818	ANCHOR DITCH NO 1	Ditch	MONUMENT CREEK	3/6/1882		3/1/1867		CA13801	1	0.89		TT D & RGW PALMER LAKE FOR RR INDUSTRIAL & STEAM LOCOMOTIVE USE
1000818	ANCHOR DITCH NO 1	Ditch	MONUMENT CREEK	3/6/1882		3/1/1867		CA13801	1	0.89		TT PALMER LAKE WATER SYSTEM ID 618 FOR DOMESTIC USE
1000818	ANCHOR DITCH NO 1	Ditch	MONUMENT CREEK	3/6/1882		3/1/1867		11CW0083	1	0.36		ABANDONED REMAINDER OF WATER RIGHT NOT TRANSFERRED TO PALMER LAKE 11CW0083
1000503	MONUMENT DITCH	Ditch	MONUMENT CREEK	3/6/1882		6/20/1868		CA0751	1	4.58		ORIGINAL RIGHT AMOUNT AND LOC FROM PYLE (SEE CA56139 ALT PTS)
1000503	MONUMENT DITCH	Ditch	MONUMENT CREEK	3/6/1882		12/31/1875		CA0751	1	2.74		MON DITCH ENL ORIG RT AMOUNT FROM PYLE (SEE CA56139 ALT PTS)
1000504	MONUMENT DITCH NO 2	Ditch	MONUMENT CREEK	3/6/1882		6/1/1870		CA0751	1	4.8		ORIGINAL RIGHT AMOUNT AND LOCATION FROM PYLE
1000698	MONUMENT DITCH NO 2 1/2	Ditch	MONUMENT CREEK	3/6/1882		6/1/1871		CA0751	1	16.43		ORIGINAL RIGHT AMOUNT & LOCATION FROM PYLE
1000698	MONUMENT DITCH NO 2 1/2	Ditch	MONUMENT CREEK	3/6/1882		6/1/1871		CA13801	1	16.43		TT MONUMENT CREEK P/L AKA PIKEVIEW

This tabulation has been compiled from the Colorado Division of Water Resources. Additional information on these tabulated water rights is available in the Divisions online database.

Decreed uses of water right: 0 - STORAGE, 1 - IRRIGATION, 2 - MUNICIPAL, 3 - COMMERCIAL, 4 - INDUSTRIAL, 5 - RECREATION, 6 - FISHERY, 7 - FIRE, 8 - DOMESTIC, 9 - STOCK, A - AUGMENTATION, B - EXPORT FROM BASIN, C - CUMULATIVE ACCRETION TO RIVER, D - CUMULATIVE DEPLETION FROM RIVER, E - EVAPORATIVE, F - FEDERAL RESERVED, G - GEOTHERMAL, H - HOUSEHOLD USE ONLY, K - SNOW MAKING, M - MINIMUM STREAMFLOW, N - NET EFFECT ON RIVER, P - POWER GENERATION, Q - OTHER, R - RECHARGE, S - EXPORT FROM STATE, T - TRANSMOUNTAIN EXPORT, W - WILDLIFE, X - ALL BENEFICIAL USES

APPENDIX B - MONUMENT CREEK FLOW ANALYSIS

Stream gage station MONPALCO.07103747.MONUMENT CREEK AT PALMER LAKE, CO (1977-1 to 2012-12)
 Station ID 7103747
 Abbrev. MONPALCO
 Station Name MONUMENT CREEK AT PALMER LAKE, CO
 Data Source Downloaded from USGS website 03/22/2021
 Data Type Streamflow in AF/mo
 Time Step Monthly
 Start 1977 End 2012
 Elevation 6953.96
 Latitude 39.10256 Longitude -104.892
 Basin Size 25.7 sqmi

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989		2004	2005	2006	2007	2008	2009	2010	2011	2012
Jan		30.83	12.6	57.93	67.75	58.15	109.52	184.71	212.09	116.26	63.88	62.08	25.73			32.06	29.46	209.11	94.44	44.58	55.31	46.49	36.94
Feb		31.92	16.65	57.38	49.4	47.26	113.29	209.71	131.94	111.5	68.05	78.96	29.16			44.52	20.89	274.59	97.02	38.09	43.63	36.19	29.84
Mar	329.42	60.61	33.49	125.98	157.81	96.82	337.48	471.6	374.38	251.37	259.71	222.41	154.16			75.07	27.34	1301.11	215.66	58.19	157.99	71.52	84.4
Apr	1143.58	166.26	975.14	1252.3	577.74	97.22	1642.75	2206.21	1649.1	647.78	1322.14	953.11	149.2			1596.13	110.91	2196.29	460.49	826.14	1841.15	191.06	160.31
May	703.92	567.23	619.21	4166.4	640.04	422.79	4511.62	4535.42	3031.55	238.28	2974.02	1268.77	110.87			970.57	82.4	3301.38	403.74	1060.05	1737.98	162.49	102.12
Jun	154.55	207.33	437.47	542.03	360.1	688.05	2718.08	866.61	717.61	630.52	670.59	610.08	66.42			166.26	21.76	611.07	73.61	891.21	330.53	50.41	
Jul	51.52	53.27	92.47	154.28	77.61	305.14	1086.64	483.7	393.63	123.48	238.08	122.27	17.99			29.07	464.28	195.23	21.03	193.52	145.23	19.11	
Aug	93.37	21.09	32.08	80.71	101.68	428.94	2070.3	490.84	275.58	50.29	133.32	70.85	13.59			11.55	126.18	381.52	44.98	50.25	134.91	27.93	
Sep	57.38	7.68	22.88	50.1	64.4	229.35	415.25	250.38	149.59	49.22	82.93	47.81	66.92			11.01	215.66	109.2	36.92	80.17	40.35	13.51	
Oct	30.08	12.4	25.4	41.9	55.23	149	285.5	762.65	179.55	81.46	88.41	70.23	25.65			12.76	21.53	346.8	82.06	28.17	135.31	28.77	8.37
Nov	37.66	22.78	34.05	73.8	85.11	164.47	254.35	661.47	144.44	80.95	104.76	56.94	29.3			24.7	38.73	478.14	124.99	38.87	282.52	41.54	16.8
Dec	35.77	22.26	59.28	86.3	60.85	107.53	216.06	282.32	107.73	69.44	93.64	34.86	19.36			37.44	32.72	238.87	105.55	45.06	101.18	49.22	29.6
Total		1203.66	2360.72	6689.11	2297.72	2794.72	13760.84	11405.62	7367.19	2450.55	6099.53	3598.37	708.35			3029.22	2162.69	8892.1	1559.99	3761.21	4606.61	673.48	
Max	13761 AF/yr 1982		1983											Max	8892.10 AF/yr 2007								
Min	708 AF/yr 1982		2011											Min	673.48 AF/yr 2011								
Average	5061 AF/yr													Average	3526.5 AF/yr								

Prorate to Lower Reservoir tributary area 15.5 sqmi 60.30%

Add Palmer Lake WTP diversions - AF/mo

	1977-1986 monthly WTP diversions from 1987 WW Wheeler study													2004-2012 monthlys estimated based on 2017-2020 usage per month													
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	2004	2005	2006	2007	2008	2009	2010	2011	2012	2017	2018	2019	2020	
Jan	18.7	20.7	17.9	19.5	14.6	26.9	29.8	39.4	24	20.4				16.8	15.0	16.8	18.6	17.1	13.8	11.8	10.2	12.7	14.0	15.3	13.7	8.5	
Feb	16.6	18.8	11.1	20.9	19.3	23.2	17.6	32	25	19.8				14.2	12.7	14.2	15.7	14.4	11.7	10.0	8.6	10.7	12.6	11.1	11.2	8.5	
Mar	20.3	21.1	21.5	22.2	25.3	25.5	18.9	27.2	28.3	21.3				16.2	14.5	16.1	17.9	16.4	13.3	11.3	9.8	12.2	14.6	11.3	13.4	10.2	
Apr	27.1	23.2	25.6	21.1	35.8	30.3	19.2	28	21.2	21				14.5	13.0	14.5	16.1	14.8	12.0	10.2	8.8	11.0	8.3	11.2	13.5	11.6	
May	30	18.7	35.4	23.4	27.4	41.8	23.4	22.5	22.4	25.7				16.9	15.2	16.9	18.8	17.2	14.0	11.9	10.3	12.8	12.2	14.8	11.6	13.2	
Jun	29.2	27.1	25	31	26.9	35.6	24.7	26	30.9	25.3				16.3	14.6	16.3	18.1	16.6	13.4	11.4	9.9	12.4	15.4	12.8	8.0	13.8	
Jul	24.9	24.3	28.7	29.1	22.9	40.2	32.9	31.3	28.9	29.9				14.9	13.3	14.9	16.5	15.1	12.3	10.4	9.0	11.3	16.4	11.0	8.6	9.5	
Aug	23.2	29.4	21.4	26.8	19.9	34.3	27.4	27.1	29.2	28.5				13.4	12.0	13.4	14.9	13.7	11.1	9.4	8.2	10.2	14.7	8.8	8.8	8.8	
Sep	25.9	22.5	19.8	25.2	19	48.4	28.3	27.4	21.1	22.1				13.2	11.8	13.2	14.6	13.4	10.9	9.3	8.0	10.0	14.1	8.7	9.0	8.7	
Oct	28.3	16.7	20.3	19.1	20.5	37.9	24.7	41.4	19.2	19.7				12.6	11.3	12.6	14.0	12.8	10.4	8.9	7.7	9.6	14.2	6.7	8.6	9.1	
Nov	22.2	15	18.5	19.8	18.9	30.8	22.3	27	18.4					13.3	11.9	13.3	14.7	13.5	10.9	9.3	8.1	10.0	14.6	9.2	7.5	9.3	
Dec	24.7	15.6	20.2	19.2	23.1	31.2	25.8	25.7	20.4					14.6	13.1	14.6	16.2	14.8	12.0	10.2	8.9	11.1	15.5	12.3	8.0	8.9	
Total	291.1	253.1	265.4	277.3	273.6	406.1	295	355	289					176.86	158.41	176.75	196.09	179.97	145.73	124.16	107.58	133.98	166.65	133.25	121.80	120.11	
Max	406.1 AF/yr 1982													Max	196.09 AF/yr 2007												
Min	253.1 AF/yr 1978													Min	133.98 AF/yr 2011												
Average	300.6 AF/yr													Average	155.5 AF/yr												

Lower Reservoir Estimated Inflow

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989		2004	2005	2006	2007	2008	2009	2010	2011	2012				
Jan	31	39.3	25.5	54.4	55.5	62.0	95.8	150.8	151.9	90.5					34.4	34.5	144.7	74.0	40.7	45.1	38.2	35.0					
Feb	34	38.0	21.1	55.5	49.1	51.7	85.9	158.5	104.6	87.0					39.5	26.8	181.3	72.9	34.7	36.3	30.4	28.7					
Mar	218.9	57.6	41.7	98.2	120.5	83.9	222.4	311.6	254.1	172.9					59.7	32.6	802.5	146.5	48.4	106.6	53.0	63.1					
Apr	716.7	123.5	613.6	776.2	384.2	88.9	1009.8	1358.3	1015.6	411.6					975.5	81.4	1340.5	292.5	510.1	1120.4	124.0	107.7					
May	454.5	360.7	408.8	2535.7	413.3	296.7	2743.9	2757.4	1850.4	169.4					600.4	66.6	2009.5	260.7	653.2	1059.9	108.3	74.4					
Jun	122.4	152.1	288.8	357.8	244.0	450.5	1663.7	548.6	463.6	405.5					114.9	29.4	386.6	61.0	550.8	210.8	40.3						
Jul	56.0	56.4	84.5	122.1	69.7	224.2	688.1	323.0	266.3	104.4					30.8	294.8	134.2	27.8	128.9	98.0	20.6						
Aug	79.5	42.1	40.7	75.5	81.2	293.0	1275.8	323.1	195.4	58.8					19.0	89.5	245.0	40.8	41.4	90.8	25.0						
Sep	60.5	27.1	33.6	55.4	57.8	186.7	278.7	178.4	111.3	51.8					18.5	143.2	80.5	35.7	59.2	33.6	16.2						
Oct	46.4	24.2	35.6	44.4	53.8	127.7	196.9	501.3	127.5	68.8					20.3	24.3	221.7	63.5	29.8	92.0	26.2	12.7					
Nov	44.9	28.7	39.0	64.3	70.2	130.0	175.7	425.9	105.5						28.2	35.2	301.6	90.1	36.9	181.3	34.4	18.2					
Dec	46.3	29.0	55.9	71.2	59.8	96.0	156.1	195.9	85.4						37.2	32.8	158.6	79.8	42.0	73.0	39.9	26.7					
Total	1911.1	978.9	1688.9	4310.8	1659.1	2091.3	8592.8	7232.6	4731.4					Total	1985.0	1480.9	5558.0	1120.6	2413.7	2901.9	513.7						
Max	8592.8 AF/yr 1983													Max	5558.0 AF/yr 1982												
Min	978.9 AF/yr 1978													Min	513.7 AF/yr 1978												
Average	3688.5 AF/yr													Average	2282.0 AF/yr												

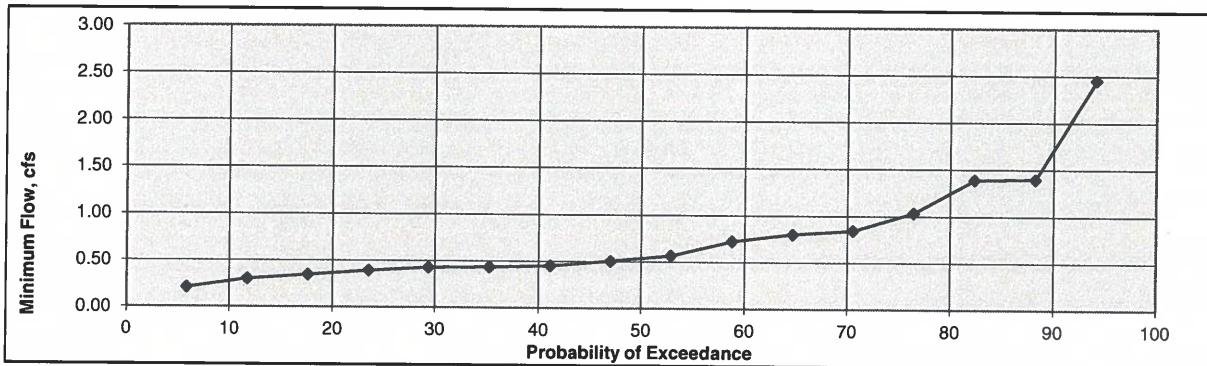
WW Wheeler Report valuse are close

Recurrence Frequency Analysis - Log-Pearson type III distribution
 USGS Gaging Station: "MONUMENT CREEK AT PALMER LAKE, CO"

Water Month Year occurred	Minimum Month Flow cfs	Monthly Low Flow					
		Rank	Flow	Position	(x-mean)	(x-mean) ²	(x-mean) ³
1977 Jan	0.50	1	0.21	5.88	-0.56	0.31	-0.17
1978 Oct	0.39	2	0.30	11.76	-0.47	0.22	-0.10
1979 Feb	0.34	3	0.34	17.65	-0.42	0.18	-0.08
1980 Oct	0.72	4	0.39	23.53	-0.37	0.14	-0.05
1981 Feb	0.80	5	0.43	29.41	-0.34	0.12	-0.04
1982 Feb	0.84	6	0.44	35.29	-0.33	0.11	-0.04
1983 Feb	1.40	7	0.45	41.18	-0.31	0.10	-0.03
1984 Jan	2.45	8	0.50	47.06	-0.26	0.07	-0.02
1985 Dec	1.39	9	0.56	52.94	-0.20	0.04	-0.01
2005 Sep	0.30	10	0.72	58.82	-0.04	0.00	0.00
2006 Feb	0.44	11	0.80	64.71	0.03	0.00	0.00
2007 Oct	1.03	12	0.84	70.59	0.07	0.01	0.00
2008 Jul	0.45	13	1.03	76.47	0.27	0.07	0.02
2009 Feb	0.56	14	1.39	82.35	0.62	0.39	0.24
2010 Oct	0.43	15	1.40	88.24	0.63	0.40	0.25
2011 Oct	0.21	16	2.45	94.12	1.69	2.84	4.79
Sum						4.99	4.77
Mean	0.77		0.77				
Count	16		16				
STD			0.58				
Skewness, Cs	G		1.8955				

P	Monthly Low Flow		
	K _{1,995,P}	Ks	Q, cfs
0.99	-1.042	-0.601	0.17
0.95	-0.981	-0.566	0.2004 <- 20 yr, low flow month
0.90	-0.904	-0.522	0.24
0.80	-0.752	-0.433	0.33
0.50	-0.293	-0.169	0.60

K value interpolated from standard Log-Pearson Type III table



APPENDIX C - PALMER LAKE PRIVATE WELLS

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
1	BERKENKOTTER MOTORS LLC	79165-F	3670085	Meadow Ln (Lots 1-4 Blk 6)	4	Well Constructed	ARAPAHOE	250	2.63	1,800	Yes	Submitted upon request	Commercial; Industrial
2	MISSIONARY INTERNSHIP INC; CALRK WELL NO. 2	23055-F	9080874			Well Constructed	ARAPAHOE	100	70	1,912	Yes	Maintain and submit records of annual extraction to the division of water resources	Municipal
3	ENNIS, MARK	62171-F	528221	835 Highway 105	1	Permit Issued	ARAPAHOE AQUIFER	15	0.33	Unknown	Yes	Readings Presented to Town Office each December 31st	Commercial
4	ALLEN, EDGAR G	131508-	235353	580 Fort Collins DR	18.88	Well Constructed	DAWSON AQUIFER	15	1	400			Domestic
5	ALLEN, TERRY	163168-	334145	560 Fort Collins Dr	2.43	Well Constructed	DAWSON AQUIFER	15	1	300	Yes	Readings Presented to Town Office each December 31st	Domestic
6	ANDERSON BLAKE & SUSAN; NEW HOMEOWNER CHRISTINE ROGERS	183486-	0376475B	732 Westward Ln (Lot 7 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	0.5	300	Yes	Readings Presented to Town Office each December 31st	Household use only
7	ANDERSON GERALD R & KATHLEEN	108037-	104972	820 Circle Dr (Lot 4 Blk 8 ERA or Lot 1 Cuddy's Corner)	0.28	Well Constructed	DAWSON AQUIFER	15	1	215			Domestic
8	ANDERSON, CHRISTINE I	183485-	0376475A	730 Westward Ln (Lot 6 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	0.5	300			Household use only
9	ANTHONY JASON R & GRETCHEN E	182932-	0374739A	839 Circle Rd (Lot 15 Blk 10 ERA)	0.17	Well Constructed	DAWSON AQUIFER	15	0.33	280	Yes	Readings Presented to Town Office each December 31st	Household use only
10	ATKINS, GARY	154219-	299393	867 Circle Rd (Lots 14-17 Blk 8 ERA)	0.875	Well Constructed	DAWSON AQUIFER	15	1	230			Household use only
11	B L KUNKLE INC; New property owner Brad C Snyder	261763-	534934	840 Circle Rd (Lot 8 Blk 8 ERA)	0.29	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Readings Presented to Town Office each December 31st	Household use only
12	BAGENSTOS, DENNIS J; New property owner James Patterson	267281-	0547309A	815 Meadow Ln (Lot 50 Blk 1 ERA)	0.27	Well Constructed	DAWSON AQUIFER	15	0.33	261			Household use only
13	BAILEY JR, DENIIS K.	282578-	3644307	819 Circle Dr (Lot 3 Filling 4 ERA)	0.16	Well Constructed	DAWSON AQUIFER	15	0.33	240	Yes	Readings Presented to Town Office each December 31st	Household use only
14	BAKER, JOSHUA L.	182933-	0374739B	837 Circle Rd (Lot 14 Blk 10 ERA)	0.13	Well Constructed	DAWSON AQUIFER	15	0.33	280	Yes	Readings Presented to Town Office each December 31st	Household use only
15	BALARAMAN, HEIDI AND RAVINDAR	124436-	224030	411 Highway 105 (Lots 1-3 Rancho Iracema)	5	Well Constructed	DAWSON AQUIFER	15	2.5	440			Domestic
16	BAMBERGER, GLENN	211715-	431528	713 Westward Ln (Lot 3 Filling 4 ERA)	0.41	Permit Issued	DAWSON AQUIFER	15	Not Specified	Unknown			Household use only
17	BLEVINS, COLLEEN & STEVE	81827-F	3684612	608 Pioneer Haven Pt (Lot 12 Filling 1)	5.03	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
18	BOLLINGER, LINDA C	187571-	0382726B	715 Westward Ln (Lot 9 blk 2 or Lot 2 Filling 2 ERA)	0.56	Well Constructed	DAWSON AQUIFER	15	1	240			Household use only

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
19	BRAGGHARDT LLP	192303-	384800	755 Highway 105 (Lot 1 Blk 4)	1.92	Well Constructed	DAWSON AQUIFER	15	0.33	405	Yes	Submitted upon request; readings presented to the Town Office each December 31st	Commercial
20	BRANCATO MATTHEW G & MICAELA R; NEW HOMEOWNER JONATHAN KAIBEL	241093-	491070	826 Circle Dr (Lot 5 Blk 8 or Lot 2 Cuddy's Corner)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Readings Presented to Town Office each December 31st	Household use only
21	BROCK, SCOTT W. & VANESSA M.; NEW HOMEOWNER KRISTIN MCFERRIN	307673-	3683337	857 Circle Rd (Lot 9 Blk 8 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	0.391	235	Yes	Readings Presented to Town Office each December 31st	Household use only
22	BROWN, MATTHEW A	288774-	3654136	803 Meadow Ln (Lot 56 Blk 1 ERA)	0.25	Well Constructed	DAWSON AQUIFER	15	1	300	Yes	Readings Presented to Town Office each December 31st	Domestic
23	BURKEY, RICKY & PATRICIA	185171-	373376	742 Westward Ln (Lot 12 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	0.5	340			Household use only
24	BURKHART, GREGORY A.	309380-	3685028	821 Meadow Ln (Lot 47 Blk 1 ERA)	0.23	Well Constructed	DAWSON AQUIFER	15	1	275	Yes	Readings Presented to Town Office each December 31st	Household use only
25	CARTER JAMES & GRAY VICKI	137190-	247043	733 Westward Ln (Lot 29 Blk 1 ERA)	0.55	Well Constructed	DAWSON AQUIFER	15	0.3	300			Household use only
26	CASEY-TURNEY, BRANDON C.; NEW HOMEOWNER JUSTIN CROWE	182110-	369597	713 Circle Rd (Lot 7 Blk 10 ERA)	0.12	Well Constructed	DAWSON AQUIFER	15	Not Specified	240	Yes	Readings Presented to Town Office each December 31st	Household use only
27	CATTERSON ROBERT & SHARIL; NEW HOMEOWNER KEVING LARSON	194966-	397623	736 Westward Ln (Lot 9 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	1	300	Yes	Readings Presented to Town Office each December 31st	Household use only
28	CHASE, GARY E; NEW OWNERS OLIVER KIM L & JENNY L; WELL PERMIT EXPIRED; REAPPLIED WITH PERMIT RECIEPT 419530; CHASE WELL #2	17092-F	38809	720 Westward Ln (Lot 2 Blk 1 ERA)		Well Constructed	DAWSON AQUIFER	35	STANDBY WELL; 15 TOTAL BETWEEN BOTH WELLS	105	Yes	Maintain and submit records of annual extraction to the division of water resources	Commercial
29	CHENOWETH, JOANNE R	187570-	0382726A	717 Westward Ln (Lot 10 Blk 2 ERA or Lot 1 Filling 2)	0.78	Well Constructed	DAWSON AQUIFER	15	1	398			Household use only
30	CLARK, DIANA & NOAH	82794-F	3689265	613 Pioneer Camp View (Lot 7 Filling No. 1 Pioneer Preserve)	5	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
31	CLOSE, HARLAND T	101269-	96980	19495 Belatrix Dr	265	Well Constructed	DAWSON AQUIFER	15	1	320			Domestic
32	COONS CLARKE P & SUZANNE M	229201-	467353	727 Meadow Ln (Lot 65 Blk 1 ERA)	0.48	Well Constructed	DAWSON AQUIFER	15	Not Specified	280	Yes	Readings Presented to Town Office each December 31st	Household use only
33	CORDELL DALE W & EVELYN M	250583-	509146	738 Westward Ln (Lot 10 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	1	295	Yes	Readings Presented to Town Office each December 31st	Household use only
34	DEAN, NORMAN W. & SARAH	216667-	0443110H	845 Circle Rd (Lot 18 Blk 10 ERA)	0.32	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
35	DECKER BJ & ERICA	283339-	3645559	823 Circle Rd (Lot 2 Filling 3 ERA)	0.31	Well Constructed	DAWSON AQUIFER	15	0.33	260	Yes	Readings Presented to Town Office each December 31st	Household use only
36	DELUCA, JOHN E	255188-	0496014B	746 Westward Ln (Lot 14 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	300			Household use only
37	DINOLFO, ERNEST A	281617-	3642061	817 Circle Rd (Lot 2 Filling 4 ERA)	0.15	Well Constructed	DAWSON AQUIFER	15	0.33	240	Yes	Readings Presented to Town Office each December 31st	Household use only
38	DOUBLE EAGLE HOMES; NEW HOMEOWNER MICHAEL J STASICA	148759-	0270017A	705 Westward Ln (Lot 1 Blk 3 ERA)	0.21	Well Constructed	DAWSON AQUIFER	15	1	260			Household use only
39	EASTON, GREGORY	190362-	388056	Meadow Ln (Blk 6)	3.72	Well Constructed	DAWSON AQUIFER	15	0.33	440	Yes	Submitted upon request	Commercial
40	EHRHARDT, KURT	301850-	3674389	Westward Ln (Lot 1 Blk 1 ERA)	0.82	Well Constructed	DAWSON AQUIFER	15	0.33	315	Yes	Submitted upon request	Commercial
41	ELTING, WM E	312-WCB	C210312	7075 Campus Drive	85	Well Constructed	DAWSON AQUIFER	10	Not Specified	100			
42	ENGET, AARON	212981-	433560	743 Westward Ln (Lot 24 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	320			Household use only
43	E-ROCK LLC	295819-	3666222	823 Meadow Ln (Lot 46 Blk 1 ERA or Lot 1 Meadow Ln Replat)	0.25	Well Constructed	DAWSON AQUIFER	15	1	295	Yes	Readings Presented to Town Office each December 31st	Household use only
44	E-ROCK LLC; NEW HOMEOWNER MICHAEL CASAREZ	301830-	3674388	751 Westward Ln (Lot 20 Blk 1 ERA)	0.32	Well Constructed	DAWSON AQUIFER	15	Not Specified	295	Yes	Readings Presented to Town Office each December 31st	Household use only
45	E-ROCK LLC; NEW HOMEOWNER MICHAEL H LEHMAN	296136-	3666103A	749 Westward Ln (Lot 21 Blk 1 ERA)	0.25	Well Constructed	DAWSON AQUIFER	15	1	315	Yes	Readings Presented to Town Office each December 31st	Household use only
46	E-ROCK LLC; NEW HOMEOWNER REBECCA WRIGLEY	309328-	3685031	811 Meadow Ln (Lot 52 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	1	255	Yes	Readings Presented to State of Colorado each December 31st	Household use only
47	E-ROCK LLC; NEW HOMEOWNER RONALD M MCFERRIN	309381-	3685029	819 Meadow Ln (Lot 3 Meadow Ln Replat)	0.25	Well Constructed	DAWSON AQUIFER	15	1	255	Yes	Readings Presented to Town Office each December 31st	Household use only
48	FESSLER, CAROLE & STEVE	207294--A	423599	593 Highway 105	7.62	Well Constructed	DAWSON AQUIFER	15	Not Specified	400			Household use only
49	FISK TAMMY J & DENIIS M	229206-	0462924A	Meadow Ln (Lot 7 Blk 2 ERA)	0.36	Well Constructed	DAWSON AQUIFER	15	Not Specified	315	Yes	Readings Presented to Town Office each December 31st	Household use only
50	FISK, DENNIS M.	255603-	521199	741 Meadow Ln (Lot 58 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Readings Presented to Town Office each December 31st	Household use only
51	FITZGERALD JAMES & LAURA	37900--A	3675284	19055 Forest View Rd (Lot 2 Cold Water Sub)	9.17	Well Constructed	DAWSON AQUIFER	15	1	400			Domestic
52	FLETCHER WELL DRILLING	233399-	476134	Lots 16-19 of block 5 in Elephant Rock Acres	0.4	Well Constructed	DAWSON AQUIFER	15	1	260	Yes	Readings Presented to Town Office each December 31st	Household use only
53	FLICKINGER, LEE KEVIN & GINA MARIE	234838-	476921	870 Circle Rd (Lot 3 Blk 7 ERA)	0.75	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Readings Presented to Town Office each December 31st	Household use only

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
54	FRAME, ANGELIA & RICK	138301-	10159	724 Westward Ln (Lot 3 Blk 1 ERA)	0.43	Well Constructed	DAWSON AQUIFER	15	1	160			Household use only
55	FRENCH, SCOTT & STEVENSON KARI & CALEB	301831-	3674392	747 Westward Ln (Lot 22 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	295	Yes	Readings Presented to Town Office each December 31st	Household use only
56	FRISCH, DAVID & REBECCA	83338-F	3690775	605 Pioneer Haven Pt	5	Well Constructed	DAWSON AQUIFER	15	1.33	340	Yes	Submitted upon request	Domestic
57	FURRER, RENE	150656-	284968	773 Highway 105 (Lots 1-7 blk 5 ERA)	0.76	Well Constructed	DAWSON AQUIFER	15	0.33	200	Yes	Submitted upon request	Commercial
58	GERAK, JOHN E	271724-	3611068	809 Meadow Ln (Lot 53 Blk 1 ERA)	0.27	Well Constructed	DAWSON AQUIFER	15	Not Specified	320	Yes	Readings Presented to Town Office each December 31st	Household use only
59	GILLISS, KEVIN A. & REBECCA J.	82946-F	3690158	606 Pioneer Haven Pt. (Lot 13)	7.04	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
60	GRUNDER, DALA; NEW HOMEOWNER ERIK JOHNSON	303383-	3676397	802 Circle Dr (Lot 1 Blk 8 ERA)	0.45	Well Constructed	DAWSON AQUIFER	15	Not Specified	280			Domestic
61	H, CONSTRUCTION	180562-	369805	735 Hillview Rd (Lot 5 Blk 3)	0.27	Well Constructed	DAWSON AQUIFER	15	1	305			Household use only
62	HANKS, ROBERT W; NEW HOMEOWNER TROY L PRICE	271725-	3611067	807 Meadow Ln (Lot 54 Blk 1)	0.3	Well Constructed	DAWSON AQUIFER	15	Not Specified	320			Household use only
63	HATFIELD, MYOWN P.		10006883	Meadow Ln (Lot 2 Blk 7 ERA)	0.38	Application Received	DAWSON AQUIFER	15	Not Specified	Unknown	Yes	Readings Presented to Town Office each December 31st	Household use only
64	HELAPLE, MARY K	194092-	396868	3250 Hamal Cir	2.71	Permit Expired	DAWSON AQUIFER	15	Not Specified	Unknown			Household use only
65	HOLLOWAY, TYLER	182935-	0374739D	833 Circle Rd (Lot 12 Blk 10 ERA)	0.13	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
66	HOMICKI, DUSTIN J.	273253-	3614865	865 Circle Rd (Lot 13 Blk 8 ERA)	0.18	Well Constructed	DAWSON AQUIFER	15	0.33	260			Household use only
67	JACK, FRANK	48552-	9082608	Palmer Lake Mobile Home Ranch	15.39	Well Constructed	DAWSON AQUIFER	15	2.4	195			Domestic
68	JACK, LYNN E; JACK WELL A	8961-F-R	3674056	Palmer Lake Mobile Home Ranch	15.39	Well Constructed	DAWSON AQUIFER	36	6.4	301	Yes		Commercial; Domestic
69	JONES, RANDALL K; NEW HOMEOWNER ANDREW BOURG	241647-	0489174A	Meadow Ln (Lot 61 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	295			Household use only
70	JONES, RANDALL K; NEW HOMEOWNER LONNIE BOLLINGER	229210-	0462924B	792 Meadow Ln (Lot 64 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	260	Yes	Readings Presented to Town Office each December 31st	Household use only
71	KING MICHAEL J & GERI RENEE	267282-	0547309B	813 Meadow Ln (Lot 51 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	0.33	295	Yes	Readings Presented to Town Office each December 31st	Household use only
72	KLOTZ, FRANK P; NEW PROPERTY OWNER MARCIA BROWN	55046-	9082921	19165 Forest View Rd	5	Well Constructed	DAWSON AQUIFER	15	Not Specified	400			Domestic
73	KOHL, JUSTIN; NEW HOMEOWNER KELLY J HELLBUSCH	196109-	399520	714 Westward Ln (Lot 25 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Readings Presented to Town Office each December 31st	Household use only

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
74	KRASOVETZ, GARY; NEW HOMEOWNER STACY L EVERS	258882-	525390	737 Westward Ln (Lot 27 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	2	275	Yes	Readings Presented to Town Office each December 31st	Domestic
75	KULOW, KEVIN	289253-	3656404	744 Westward Ln (Lot 13 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	1	360	Yes	Readings Presented to Town Office each December 31st	Household use only
76	LEWIS, STAN	231339-	471904	711 Westward Ln (Lot 1 Blk 2 ERA)	0.45	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Reading Presented to State of Colorado each December 31st	Household use only
77	LITCHFORD PAUL & SHIRLEY	272075-	3611413	801 Meadow Ln (Lot 57 Blk 1 ERA)	0.26	Well Constructed	DAWSON AQUIFER	15	0.33	295	Yes	Reading Presented to State of Colorado each December 31st	Household use only
78	LORD, DANIEL C.	233401-	475153	806 Circle Dr (Lot 2 Blk 8 ERA)	0.78	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Reading Presented to State of Colorado each December 31st	Household use only
79	LOUDER RAYMOND-GABRIEL JOSEPH	283288-	3645280	861 Circle Rd (Lot 11 Blk 8 ERA)	0.17	Well Constructed	DAWSON AQUIFER	15	0.16	240	Yes	Reading Presented to State of Colorado each December 31st	Household use only
80	MAIER RAYMOND JOSEPH	285046-	3648913	815 Circle Rd (Lot 1 Filling 4 ERA)	0.19	Well Constructed	DAWSON AQUIFER	15	0.33	240	Yes	Readings Presented to Town Office each December 31st	Household use only
81	MASTER BILT HOMES INC	81480-F	3683166	617 Pioneer Camp View (Lot 9 Filling 1 Pioneer Preserve)	5	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
82	MASTER BILT HOMES INC (CARTWRIGHT, LIZ)	81903-F	3685311	603 Pioneer Haven Pt (Lot 2 Filling 1 Pioneer Preserve)	5	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
83	MASTER BILT HOMES INC; NEW PROPERTY OWNER ERIC A UJFALUSY	81828-F	3684611	604 Pioneer Haven Pt (Lot 14 Filling 1 pioneer preserve)	5.01	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
84	MASTER BILT HOMES INC; NEW PROPERTY OWNER MATTHEW STEPHEN CHARTIER	81031-F	3680075	607 Pioneer Haven Pt (Lot 4 Filling 1 Pioneer Preserve)	5.01	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
85	MCGEE KEVIN GARRETT	179410-	369600	729 Hillview Rd (Lot 2 Blk 3 ERA)	0.23	Well Constructed	DAWSON AQUIFER	15	0.33	250			Household use only
86	MILLER, BEVERLEY B; NEW PROPERTY OWNER DAVID LEE HALL	282883--A	3668357	440 Highway 105	1.01	Well Constructed	DAWSON AQUIFER	15	1	395			Domestic
87	MILLER, BEVERLEY B; NEW PROPERTY OWNER JAMES B & MARTHA S CLIFFORD	37-	9078235	585 Highway 105	5	Well Replaced	DAWSON AQUIFER	6	Not Specified	220			Domestic
88	MINNEY, G E	127229-	228477		0.56	Permit Issued	DAWSON AQUIFER	15	1	Unknown			Commercial
89	MOORE, HENRY	129303-	232321	852 Circle Rd (Lot 3 Filling 3 ERA)	0.35	Well Constructed	DAWSON AQUIFER	15	0.72	240			Domestic
90	MT COMMUNITY MENNONITE CHUR	136213-	243861	643 Highway 105	1.28	Well Constructed	DAWSON AQUIFER	15	0.78	280			Commercial
91	NOLAN, TIMOTHY M	195445-	399122	726 Westward Ln (Lot 4 Blk 1 ERA)	0.82	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Readings Presented to Town Office each December 31st	Household use only

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
92	OLIVER KIM L & JENNY L; CHASE WELL #1	21973-F	9080717	720 Westward Ln (Lot 2 Blk 1 ERA)	3	Well Constructed	DAWSON AQUIFER	25	15 total between both wells	150	Yes	Submitted upon request	Commercial
93	ORCUTT DANIEL & TIFFANY	185468-	380561	734 Hillview Rd (Lot 3 Blk 2 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	0.5	300	Yes	Readings Presented to Town Office each December 31st	Household use only
94	PALAKE ASSOCIATES; BURLAGE, LOREN & MARILYN	158201-	309554	500 Highway 105	28.7	Well Constructed	DAWSON AQUIFER	15	1	340			Household use only
95	PARIS JEREMIAH & LAURA	292806-	3662137	859 Circle Rd	0.18	Well Constructed	DAWSON AQUIFER	15	0.33	260	Yes	Readings Presented to Town Office each December 31st	Household use only
96	PARKER THOMAS NEIL	80787-F	3678560	610 Pioneer Haven Pt (Lot 11 Filling 1 Pioneer Preserve)	5.01	Well Constructed	DAWSON AQUIFER	15	1.33	400	Yes	Readings Presented to Town Office each December 31st	Domestic
97	PINNEY, D C	139358-	0253330E	731 Hillview Rd (Lot 3 Blk 3 ERA)	0.24	Well Constructed	DAWSON AQUIFER	15	1	275			Household use only
98	PINNEY, DOUG; NEW PROPERTY OWNER TERRI L THOMPSON-JONES	137745-	249581	738 Hillview Rd (Lot 4 Blk 2 ERA)	0.34	Well Constructed	DAWSON AQUIFER	15	0.33	250			Domestic
99	PINNEY, DOUGLAS C	139357-	0253330D	705 Westward Ln (Lot 1 Blk 3 ERA)	0.21	Permit Issued	DAWSON AQUIFER	15	1	Unknown			Household use only
100	PLATT DALE JACKSON; NEW PROPERTY OWNER DEREK R COTTON	182938-	0374739G	827 Circle Rd (Lot 9 Blk 10 ERA)	0.15	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
101	PLATT DALE JACKSON; NEW PROPERTY OWNER JUAN J ESQUEDA	182936-	0374739E	831 Circle Rd (Lot 11 Blk 10 ERA)	0.13	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
102	PLATT, DALE	216669-	0443110F	Circle Rd (Lot 22 Blk 10 ERA)	0.54	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
103	PLATT, DALE	216668-	0443110G	Circle Rd (Lot 23 Blk 10 ERA)	0.64	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
104	PLATT, DALE; NEW PROPERTY OWNER RICHARD J BJARKE	216672-	0443110C	851 Circle Rd (Lot 21 Blk 10 ERA)	0.29	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
105	PLATT, DALE; NEW PROPERTY OWNER FRANK M JONES JR	216671-	0443110D	849 Circle Rd (Lot 20 Blk 10 ERA)	0.31	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
106	POLARIZED ELECTRIC	309382-	3685212	703 Circle Rd (Lot 2, 3, 4 Blk 10 ERA)	0.38	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Submitted upon request	Commercial
107	REDDIN, BENJAMIN & KARI	81479-F	3683165	611 Pioneer Camp View (Lot 6 Filling 1 Pioneer Preserve)	5	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
108	REESE, CURTIS E	124359-	9084967	521 Highway 105	34.59	Well Constructed	DAWSON AQUIFER	10	2.5	260			Domestic
109	REICHWEIN MARY ANN	216673-	0443110B	841 Circle Rd (Lot 16 Blk 10 ERA)	0.23	Well Constructed	DAWSON AQUIFER	15	0.33	240	Yes	Readings Presented to Town Office each December 31st	Household use only

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
110	ROMIN HOMES; NEW PROPERTY OWNER THOMAS P MARTINEZ	140424-	255251	735 Westward Ln (Lot 18 Blk 1 ERA)	0.69	Well Constructed	DAWSON AQUIFER	15	0.25	265			Household use only
111	ROSS, TOM	25836--A	279340		6.22	Well Constructed	DAWSON AQUIFER	15	1	140			Domestic
112	ROSS, WARREN	138007-	250067	750 Westward Ln (Lot 16 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	1	240			Household use only
113	RYAN PHILLIP KEVIN	182937-	0374739F	829 Circle Rd (Lot 10 Blk 10 ERA)	0.13	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
114	SASS, LOUIS	315968-	3691744	65 Pineview St	16.59	Permit Issued	DAWSON AQUIFER	15	Not Specified	Unknown	Yes	Readings Presented to Town Office each December 31st	Household use only
115	SAWYER SR, THOMAS E.	81734-F	3683475	609 Pioneer Camp View (Lot 5 filling 1 pioneer Preserve)	5	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	submitted upon request	Domestic
116	SCHOEN, KELSY A.	83049-	9084005	748 Westward Ln (Lot 15 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	1	205			Domestic
117	SHAVER, KEVIN	231336-	471903	731 Meadow Ln (Lot 63 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	260	Yes	Readings Presented to Town Office each December 31st	Household use only
118	SHELLENBERGER RICHARD L & RAEOLA S	239890-	489210	832 Circle Rd (Lot 6 Blk 8 ERA)	0.34	Well Constructed	DAWSON AQUIFER	15	Not Specified	300	Yes	Readings Presented to Town Office each December 31st	Household use only
119	SHIRLEY ETHAN L & EMMA J	187838-	0358954B	690 Meadow Ln (lot 5 Blk 2 ERA)	0.42	Well Constructed	DAWSON AQUIFER	15	1	300			Household use only
120	SMITH, CARA S	197071-	403042	728 Westward Ln (Lot 5 Blk 1 ERA)	0.51	Well Constructed	DAWSON AQUIFER	15	Not Specified	260	Yes	Readings Presented to Town Office each December 31st	Household use only
121	STEVENS, TOM	129-WCB	C210129			Well Constructed	DAWSON AQUIFER		Not Specified	150			
122	SUNDAHL, CLARK; NEW PROPERTY OWNER KELLI MAIRE HUBER	80786-F	3678292	602 Pioneer Haven Pt (Lot 15 Filling 1 Pioneer Preserve)	5	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	submitted upon request	Domestic
123	SWANGO KYLE & KATHERINE	229211-	0462924C	730 Meadow Ln (Lot 6 Blk 2 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	315	Yes	Readings Presented to Town Office each December 31st	Household use only
124	SYFERD, HAROLD D	32205-	9081636			Well Constructed	DAWSON AQUIFER	10	Not Specified	150			Domestic
125	TEEL, JEREMY	139359-	0253330F	733 Hillview Rd (Lot 4 Blk 3 ERA)	0.24	Well Constructed	DAWSON AQUIFER	15	1	275			Household use only
126	THOMPSON ROGER L & JOYCE L	267867-	0547985A	838 Circle Rd (Lot 7 Blk 8 ERA)	0.22	Well Constructed	DAWSON AQUIFER	15	Not Specified	360	Yes	Readings Presented to Town Office each December 31st	Household use only
127	UHRIN, SHARI M.	309327-	3685030	817 Meadow Ln (Lot 49 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	1	275	Yes	Readings Presented to Town Office each December 31st	Household use only
128	VARNER, JOANNE & JOEL	82205-F	3686676	601 Pioneer Haven Pt (Lot 1 Filling No. 1 Pioneer Preserve)	5	Well Constructed	DAWSON AQUIFER	15	1.33	300	Yes	Submitted upon request	Domestic
129	VEREECKE, LOUIS	182934-	0374739C	835 Circle Rd (Lot 13 Blk 10 ERA)	0.13	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
130	VINCENT, ALISCIA M. & ANTHONY C.	216670-	0443110E	847 Circle Rd (Lot 19 Blk 10 ERA)	0.38	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
131	WARD, CHRISTOPHER B; NEW PROPERTY OWNER JEREMY INGRAM	273479-	3616031	863 Circle Rd (Lot 12 Blk 8 ERA)	0.17	Well Constructed	DAWSON AQUIFER	15	0.33	260			Household use only
132	WARD, JEREMY	182939-	0374739H	715 Circle Rd (Lot 8 Blk 10 ERA)	0.13	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
133	WATKINS, TAYLOR C.	137192-	246965	734 Westward Ln (Lot 8 Blk 1)	0.28	Well Constructed	DAWSON AQUIFER	15	0.3	280			Household use only
134	WEBSTER, FRANCIS	74724-	9083720	740 Westward Ln (Lot 11 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	10	1	215			Domestic
135	WEBSTER, FRANCIS J	137191-	247011	739 Westward Ln (Lot 26 Blk 1)	0.28	Permit Extended	DAWSON AQUIFER	15	0.3	Unknown			Domestic
136	WILSON RONALD & DELORES	10417-R	9079130	695 Highway 105; Grand View Mobile Home Park	8.1	Well Constructed	DAWSON AQUIFER	18	Not Specified	150			Commercial
137	WILSON RONALD & DELORES; 1951 Well	795-R	9078356	In Elephant Rock Acres		Well Constructed	DAWSON AQUIFER		Not Specified	140	Yes		Municipal
138	WILSON RONALD & DELORES; PROPERTY OWNER EROCK LLC	794-R	9078355	Meadow Ln (Lot 42 Blk 1 ERA)	0.24	Well Constructed	DAWSON AQUIFER		Not Specified	120			Municipal
139	WILSON, DELORES D	11134-F-R	521999	695 Highway 105		Well Constructed	DAWSON AQUIFER	18	16.63	295			Commercial
140	WILSON, DOLORES D	260412-	531099	731 Westward Ln (Lot 30 Blk 1 ERA)	0.69	Well Constructed	DAWSON AQUIFER	15	0.33	275	Yes	Readings Presented to Town Office each December 31st	Household use only
141	WILT KEVIN BEN & MASON JO ANN	216674-	0443110A	867 Circle Rd (Lot 17 Blk 10 ERA)	0.83	Well Constructed	DAWSON AQUIFER	15	0.33	300	Yes	Readings Presented to Town Office each December 31st	Household use only
142	WONG, MELISSA & TIAN, HUIFU; NEW PROPERTY OWNER ELEPHANT ROCKS LLC	288773-	3654135	805 Meadow Ln (Lot 55 Blk 1 ERA)	0.25	Well Constructed	DAWSON AQUIFER	15	1	295	Yes	Readings Presented to Town Office each December 31st	Domestic
143	XEDIS, JON W. & MICHELLE D.	283120-	3645337	821 Circle Dr (Lot 4 Filling 4 ERA)	0.16	Well Constructed	DAWSON AQUIFER	15	0.33	200	Yes	Readings Presented to Town Office each December 31st	Household use only
144	YOUNG DIANA K & JAMES S	139355-	0253330B	732 Hillview Rd (Lot 2 Blk 2 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	1	275			Household use only
145	ZINDORF, GREG W.	307471-	3681624	733 Meadow Ln (Lot 62 Blk 1 ERA)	0.28	Well Constructed	DAWSON AQUIFER	15	Not Specified	255	Yes	Readings Presented to Town Office each December 31st	Household use only
146	FJ2 LLP	54533-F	466010	421 Highway 105 (Lot 4 Rancho Iracema)	27.12	Permit Issued	DENVER	15	7.1	Unknown			Commercial
147	MISSIONARY INTERNSHIP INC; CLARK WELL NO. 1	17587-F	9080013			Well Constructed	DENVER	150	200	1,410	Yes	Maintain and submit records of annual extraction to the division of water resources	Municipal
148	AHLERS, MATTHEW	52958-F	443453	597 Highway 105	10.19	Well Constructed	DENVER AQUIFER	15	3	1,044	Yes	Submitted upon request	Domestic

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
149	FLYING BUFFALO LLC; NEW PROPERTY OWNER 855 HIGHWAY 105LLC	27765-F	243130	855 Highway 105 (LOT 1 Daniels Acres)	2.62	Well Constructed	DENVER AQUIFER	50	1.4	710	Yes	Maintain and submit records of annual extraction to the division of water resources	Domestic
150	THE REAL PROPERTY INVESTMENTS LLC	67063-F	3625621	630, 640, 650 Illumination pt and 626 Highway 105 (Lots 1-4 Illumination pt)	6.42	Well Constructed	DENVER AQUIFER	15	2	890	Yes	Submitted upon request	Commercial
151	JACK, LYNN E; JACK WELL B	22973-F-R	9080839	Palmer Lake Mobile Home Ranch	15.39	Well Constructed	DAWSON AQUIFER	30	1	290	Yes	Submitted upon request	Commercial

This tabulation has been compiled from the Colorado Division of Water Resources and represents known private wells within the Town of Palmer Lake. . Monitoring wells and wells not completed have been removed from the tabulation. Town of Palmer Lake Municipal wells are also not included. Other private wells, not registered with the Division, may exist within the Town limits. Additional information on these tabulated wells is available in the Divisions online database.

No.	Applicant Name	Permit	Receipt	Well Location	Property Size (Acres)	Current Status	Source Aquifer	Max Pumping Rate (GPM)	Max Annual Withdraw (Acre Feet)	Total Well Depth (feet)	Required Flow Meter	Meter Reading Info	Use
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Summary as of March 4, 2021

Count	151
Current Status	
Well Constructed	141
Well Replaced	1
Permit Issued	6
Permit Expired	1
Application Received	1
Permit Extended	1
Source Aquifer	
Dawson Aquifer	143
Denver Aquifer	5
Arapahoe Aquifer	3
Max Annual Withdraw (Acre Feet)	
Wells w/ annual limit	112
Dawson Aquifer, AF	117.47
Denver Aquifer, AF	213.50
Arapahoe Aquifer, AF	72.96
Wells limits not specified	39
Dawson Aquifer, AF	12.87
Denver Aquifer, AF	0.00
Arapahoe Aquifer, AF	0.00
Required Flow Meter	
Required	96
Not Required	55
Reporting Requirements	
Submitted upon request (assumed to be Division of Water Resources)	21
Readings Presented to State of Colorado each December 31st	1
Maintain and submit records of annual extraction to the Division of Water Resources	5
Readings Presented to Town Office each December 31st	68
Submitted upon request; readings presented to the Town Office each December 31st	1
No meter requirements	55
Permitted Use	
Commercial; Industrial	1
Municipal	4
Commercial	15
Domestic	37
Household use only	91
Commercial; Domestic	1
Unspecified	2

note: Well No.28 and 92 have a combined annual limit of 15 AF

Assumed to be Domestic or Household Only use at 0.33 AF

APPENDIX D – DWR GROUNDWATER DETERMINATION TOOL

Location	Meadow lane	Star View Court	Suncrest Road
Depth Top, ft	12	146	175
Depth Bottom, ft	710	1172	1192
Thickness, ft	698	1026	1017
Net Sand, ft	349.0	513.0	508.7
Annual Appropriation per Acre, ac-ft	0.70	1.03	1.02
100-YEAR RULE			
Minimum lot size for 1/3 ac-ft/yr, acres	0.23	0.34	0.34
300-YEAR RULE			
Minimum lot size for 1/3 ac-ft/yr, acres	0.69	1.02	1.01

Per DWR mapping tool: <https://dwr.state.co.us/Tools/DenverLocation>

