

**WATER MASTER PLAN  
FOR  
PAINT BRUSH HILLS METROPOLITAN DISTRICT  
UPDATE**

SEPTEMBER 2020

RGA Job No.: 1070.0004



**TABLE OF CONTENTS**

<b>1</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
1.1	DEMANDS.....	4
1.2	WATER TREATMENT & PRODUCTION.....	4
1.3	WATER RIGHTS.....	5
1.4	STORAGE .....	5
<b>2</b>	<b>BACKGROUND &amp; OVERVIEW.....</b>	<b>6</b>
2.1	PROJECT SCOPE.....	6
2.2	PAINT BRUSH HILL METROPOLITAN DISTRICT WATER SUPPLY SYSTEM OVERVIEW.....	6
<b>3</b>	<b>PROJECT AREA.....</b>	<b>7</b>
3.1	LOCATION AND SERVICE AREA.....	7
3.2	WATER RESOURCES.....	8
3.3	PRECIPITATION AND TEMPERATURE.....	8
<b>4</b>	<b>WATER USAGE .....</b>	<b>10</b>
4.1	CURRENT WATER DEMAND .....	10
4.2	FUTURE WATER DEMAND.....	12
<b>5</b>	<b>WATER SYSTEM EVALUATION.....</b>	<b>13</b>
5.1	EVALUATION CRITERIA .....	14
5.2	EXISTING WATER FACILITIES .....	14
<b>6</b>	<b>RECOMMENDATIONS &amp; COST ESTIMATES.....</b>	<b>22</b>
6.1	SYSTEM IMPROVEMENTS .....	22
6.2	TIMING OF IMPROVEMENTS.....	26

## LIST OF FIGURES

Figure 1: General Vicinity Map.....	7
Figure 2: District Boundary Map.....	8
Figure 3: Climate Summary.....	9
Figure 3: Map of Developments in the Paint Brush Hills Metropolitan District .....	13
Figure 4: Piping inside Well House 6 .....	14
Figure 5: PBHMD Booster Pumps.....	19

## LIST OF TABLES

Table 1: Annual Climate Data (1948-2010).....	8
Table 2: Monthly Residential Water Usage.....	10
Table 3: Monthly School Water Usage .....	10
Table 4: Monthly Irrigation Water Usage .....	10
Table 5: Monthly Commercial Water Usage.....	11
Table 6: Total Water Usage/Production.....	11
Table 7: Total Water Demands.....	13
Table 8: Summary of Water Rights .....	15
Table 9: Current Physical Water Supply Inventory.....	16
Table 10: Contingent Water Supply Inventory.....	16
Table 11: Well Permits, Permitted Pumping Rates, and 2013 Instantaneous Flow-Rates .....	17
Table 12: Required Storage to Meet Current MMD, Future MMD, and Fire Flow .....	19
Table 13: Pump Station Pump Data.....	20
Table 14: Well #12 Cost Estimate .....	22
Table 15: Well #13 Determination #719-BD Cost Estimate .....	23
Table 16: Raw Water Lines for Wells 1, 2, and 5 Cost Estimate.....	23
Table 17: Centralized Treatment Cost Estimate.....	24
Table 18: 250,000 Gallon Water Storage Tank Cost Estimate.....	25
Table 19: Booster Pump House Cost Estimate .....	26
Table 20: Pressure Zone Adjustments Cost Estimate.....	27

*Appendix A: Well Permit Information*

*Appendix B: JDS-HYDRO Report*

*Appendix C: Distribution System Map*

**DEFINITIONS, ACRONYMS, AND ABBREVIATIONS (NOT ALL MAY BE FOUND IN THIS REPORT)**

BOD <sub>5</sub>	5-Day Biochemical Oxygen Demand
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
cm/sec	Centimeters per second
CY	Cubic Yards
DOLA	Department of Local Affairs
EA	Each
EDU	Equivalent Dwelling Unit
ECHO	Enforcement and Compliance History Online
EPA	Environmental Protection Agency
ft	Feet
gal	gallons
gpcd	Gallons per capita-day
gpd	Gallons per day
gpm	Gallons per minute
hp	Horsepower
HVAC	Heating, Ventilating and Air Conditioning
I&I	Inflow and Infiltration
kW	Kilowatts
lb/ac-day	Pounds per acre-day
lb/day	Pounds per day
LF	Linear Feet
LS	Lump Sum
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
N/A	Not available or applicable
O&M	Operations and Maintenance
OMB	Office of Management and Budget
PEL	Preliminary Effluent Limitations
PVC	Polyvinyl Chloride
PW	Present Worth
RAS	Return Activated Sludge
ref.	Reference
RGA	RG and Associates, LLC
RUS	Rural Utilities Services
SCADA	Supervisory Control and Data Acquisition
SFE	Single Family Equivalent
SF	Square Feet
SOG	Slab on Grade
TSS	Total Suspended Solids
USDA	United States Department of Agriculture
VFD	Variable Frequency Drives
WAS	Waste Activated Sludge
WWTP	Wastewater Treatment Plant
YR	Year



## **1 EXECUTIVE SUMMARY**

The purpose of the Paint Brush Hills Metropolitan District (PBHMD) Water Master Plan is to provide an overview of the District's water infrastructure, evaluate the District's water infrastructure based on current usage and future expansion, and to provide recommendations for future improvements and expansions to the District's water infrastructure.

This Master plan includes:

- Current and projected single family home development
- Current and future water demands
- Evaluation of Current Water System
- Water system improvements and expansions recommendations

This Document was developed for the use of the district in its planning process and evaluates both current and projected future conditions. It is intended to be a working document that is used as a guideline for planning decisions and represents a best approximation of future conditions.

### **1.1 DEMANDS**

To determine current water usage and estimate future demands, RGA obtained billing records for all taps served by PBHMD from January 2017 through December 2019 in addition to the 2013 Water Supply Report for the district By JDS-Hydro dated November 2013. RGA then calculated current Average Day Demand and a current Maximum Day Demand, which were then utilized to calculate the future demands of the district once all planned developments are constructed. These are as follows:

Number of SFEs at the end of 2019: 1,041

Observed average day demand through 2019: 0.21 MGD

Observed maximum day demand: 0.361 MGD

Observed maximum month demand: 11.17 MG

Future number of SFE (full buildout): 1,494

Future average day demand: 0.346 MGD

Future maximum day demand: 0.691 MGD

### **1.2 WATER TREATMENT & PRODUCTION**

Raw water for the system is pumped from eleven wells from the Arapahoe and the Laramie-Fox Hills Aquifers. The Arapahoe and Laramie-Fox Hills Aquifers are part of the Denver Basin Aquifer, which is a non-renewable water source. In addition to these aquifer sources the district also utilizes contractual water from Meridian Service Metropolitan District through a metered interconnect with the Meridian Metropolitan District.

Groundwater pumped from the Arapahoe and the Laramie-Fox Hills Aquifers is disinfected at the wells using chlorination. Some of the wells do not have adequate contact time for disinfection. Also, some of the wells do not have sufficient land around them to allow for the installation of chlorine contact chambers to ensure that full disinfection is achieved before the water enters the distribution system.

### **1.3 WATER RIGHTS**

Through the analysis performed in this master plan, and utilizing information from the JDS-Hydro Report, it was determined that the district's existing water rights are sufficient to provide water to meet the current and future demands of the district.

### **1.4 STORAGE**

The district should provide enough storage to satisfy the Maximum day Demand plus the required fire flow. In this analysis required fire flow is 4,000 gallons per minute for three hours and the Maximum Day Demand per SFE is 462 gallons per day. There are currently two existing tanks in the district's water supply system: a 1 million gallon tank and 0.5 million gallon tank.

## **2 BACKGROUND & OVERVIEW**

### **2.1 PROJECT SCOPE**

The purpose of the Paint Brush Hills Metropolitan District (PBHMD) Water Master Plan is to provide an overview of the District's water infrastructure, evaluate the District's water infrastructure based on current usage and future expansion, and to provide recommendations for future improvements and expansions to the district's water infrastructure.

Specifically, this Master Plan evaluates the District's wells, treatment systems, booster pumps, and water storage based on current and projected water demands. Additionally, this Master Plan provides recommendations for future timing of upgrades and enhancements that will be necessary to meet future growth.

### **2.2 PAINT BRUSH HILL METROPOLITAN DISTRICT WATER SUPPLY SYSTEM OVERVIEW**

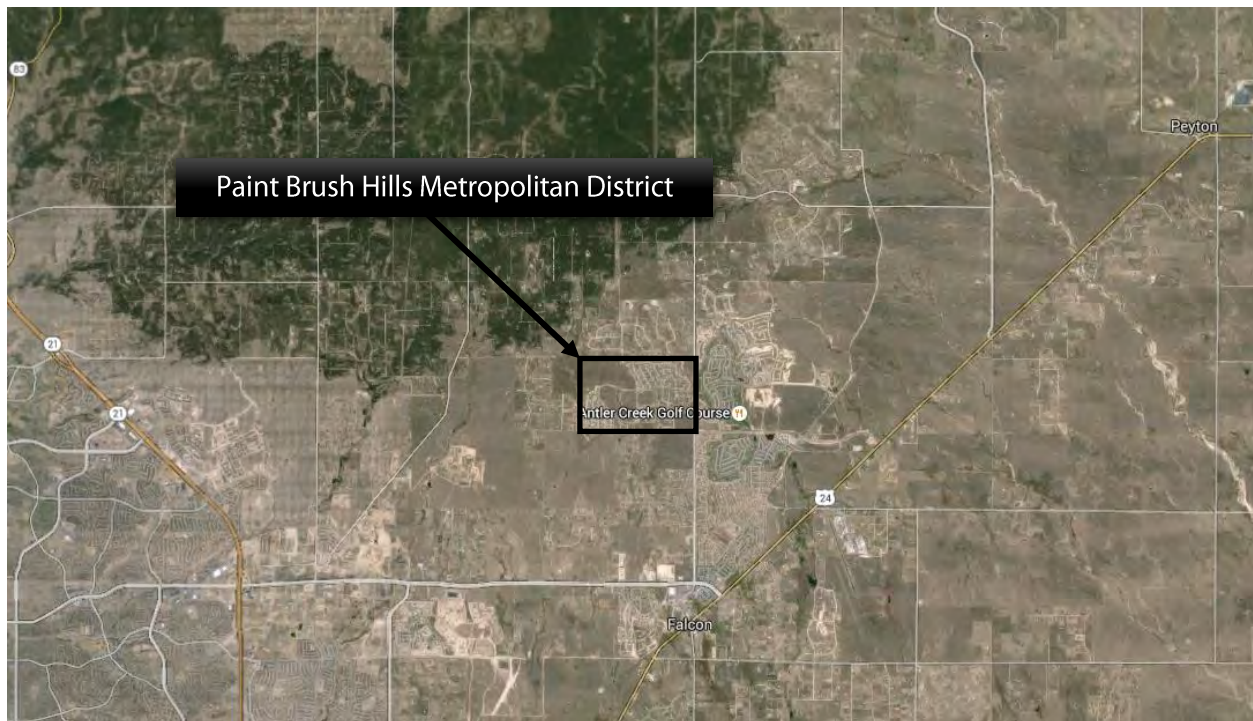
The PBHMD water distribution system is a constant pressure system containing two storage tanks to supply fire flow and peak flow demands. Water supply for the district is provided primarily by the Denver Basin Aquifer, however, the district also utilizes purchased water from Meridian Service Metropolitan District during times of peak demand. The raw water wells are located throughout the district and are equipped with sodium hypochlorite disinfection equipment at each well house.

### 3 PROJECT AREA

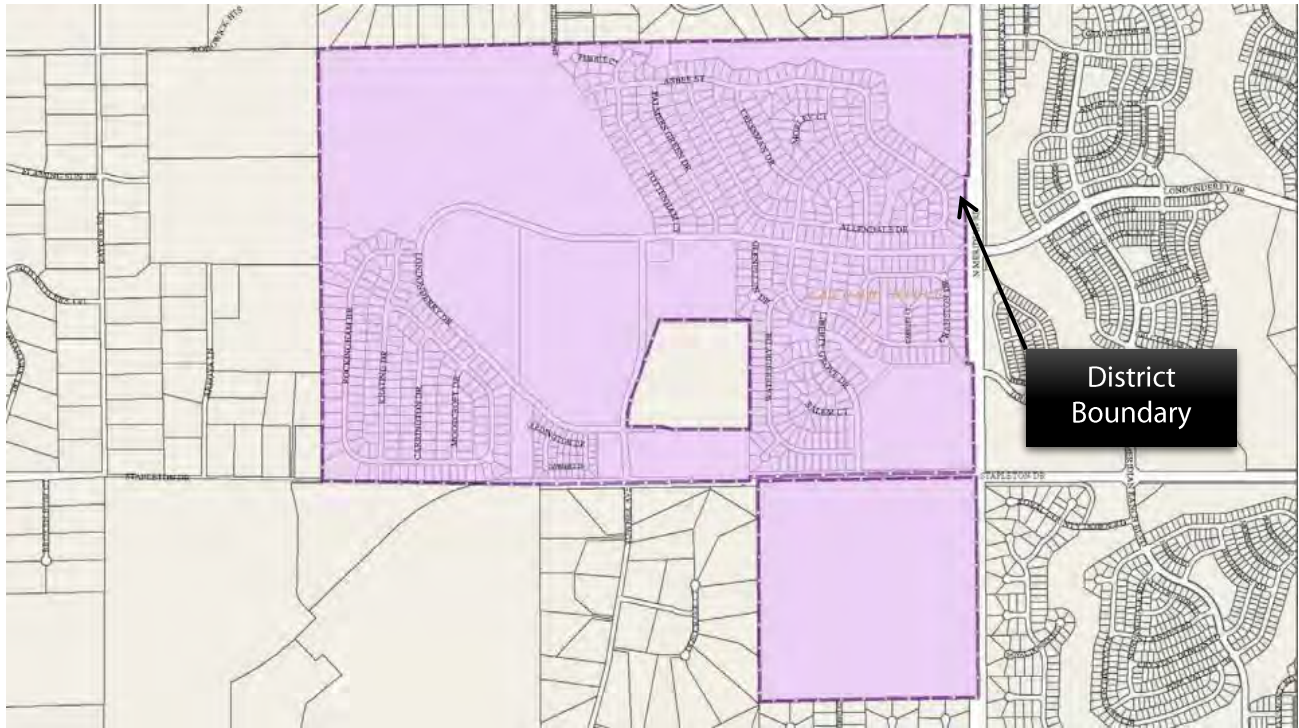
#### 3.1 LOCATION AND SERVICE AREA

Paint Brush Hills Metropolitan District is located north-east of Colorado Springs in unincorporated El Paso County. The District encompasses a total area of approximately 1.5 square miles and has a population of approximately 3,000 residents.

In total PBHMD's water distribution system consists of approximately 63,650 linear feet (LF) of 8-inch finished water pipe, 21,750 LF of 12-inch finished water pipe, 12,900 LF of raw water transmission pipe, eleven wells, and two water storage tanks. Figure 1 and Figure 2 show a general vicinity map of the area and a district boundary map, respectively.



**Figure 1: General Vicinity Map**



**Figure 2: District Boundary Map**

A detailed map showing the existing drinking water distribution system is attached as Appendix A.

### 3.2 WATER RESOURCES

The primary water source in the area is the Denver Basin aquifer. Specifically, PBHMD holds water rights in the Dawson, Denver, Laramie Fox-Hills, and Arapahoe aquifers. Currently the District only has wells drilled into the Arapahoe and Laramie-Fox Hills Aquifers.

### 3.3 PRECIPITATION AND TEMPERATURE

Data pertaining to the local environment has been obtained from the Western Regional Climate Center. Station 051778 – Colorado Springs Muni AP is the closest weather station to PBHMD and information from this station is used for this report and shown in Table 1.

**Table 1: Annual Climate Data (1948-2010)**

Average Monthly Temperature and Precipitation												
Station 051778 - Colorado Springs Muni AP, CO												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. High Temp. (°F)	42.6	45.2	51.0	59.7	69.0	79.6	85.0	82.3	74.8	63.9	51.0	43.5
Avg. Low Temp. (°F)	16.6	19.3	24.8	32.9	42.5	51.5	57.1	55.5	47.3	36.3	24.9	17.9
Average Temp. (°F)	29.5	32.3	37.7	46.2	55.7	65.3	71.0	68.8	61.0	50.1	37.9	30.7
Avg. Precip. (in.)	0.3	0.3	0.9	1.3	2.1	2.2	2.9	2.9	1.3	0.8	0.5	0.3
Avg. Snowfall (in.)	5.0	4.6	8.3	5.9	1.2	0.0	0.0	0.0	0.8	3.0	4.8	5.4

Source: Western Regional Climate Center



Winters are relatively cold with an average temperature of 31 °F, December through January, while summers are warm with an average temperature of 68 °F, June through August. These averages are based on data from the Western Regional Climate Center data and is based on data collected from 1948-2010. Average total yearly precipitation over this time period is 16 inches, and the average total yearly snowfall is 44 inches. Weather data obtained for 2018, the year with the largest maximum monthly flows, indicates that precipitation for that year was about 7% less than the average.

...THE COLORADO SPRINGS CO CLIMATE SUMMARY FOR THE YEAR OF 2018...				
CLIMATE NORMAL PERIOD 1981 TO 2010				
CLIMATE RECORD PERIOD 1872 TO 2019				
WEATHER	OBSERVED VALUE	DATE(S)	NORMAL VALUE	DEPART FROM NORMAL
.....				
TEMPERATURE (F)				
RECORD				
HIGH	101	06/21/2016 06/26/2012 06/26/2012		
LOW	-27	02/01/1951 12/09/1919		
HIGHEST	100	06/28		
LOWEST	-1	01/16		
AVG. MAXIMUM	65.3		62.2	3.1
AVG. MINIMUM	37.1		35.8	1.3
MEAN	51.2		49.0	2.2
DAYS MAX >= 90	34			
DAYS MAX <= 32	13			
DAYS MIN <= 32	168			
DAYS MIN <= 0	1			
PRECIPITATION (INCHES)				
RECORD				
MAXIMUM	27.58	1999		
MINIMUM	6.07	1939		
TOTALS	15.41		16.54	-1.13
DAILY AVG.	0.04		0.05	-0.01
DAYS >= .01	92			
DAYS >= .10	36			
DAYS >= .50	8			
DAYS >= 1.00	3			
GREATEST				
24 HR. TOTAL	1.27	08/14 TO 08/14		
SNOWFALL (INCHES)				
RECORDS				
MAXIMUM	96.4	1957		
MINIMUM	11.4	2012		
24 HR TOTAL	22.0	01/15/1987 TO 01/15/1987		
SNOW DEPTH	20	10/26/1997		
TOTALS	28.5		37.7	-9.2
SINCE 7/1	9.4		13.5	-4.1
SNOWDEPTH AVG.	0			
DAYS >= TRACE	62		29.2	32.8
DAYS >= 1.0	9		11.6	-2.6
GREATEST				
SNOW DEPTH	4	04/21		
24 HR TOTAL	4.2	04/20 TO 04/20		
DEGREE DAYS				
HEATING TOTAL	5648		6292	-644
SINCE 7/1	2456		2572	-116
COOLING TOTAL	730		455	275
SINCE 1/1	730		455	275
FREEZE DATES				
RECORD				
EARLIEST	09/01/1911			
LATEST	06/18/1912			

Figure 3: Climate Summary

## 4 WATER USAGE

### 4.1 CURRENT WATER DEMAND

The current water demand in the PBHMD was determined using billing data provided to RGA by the district spanning from January 2017 through December 2019. The data was separated into four categories: residential, school, irrigation, and commercial as shown in Table 2, Table 3, Table 4, and Table 5 respectively. Residential usage in the District accounts for the majority of the water usage across the three categories. Water usage for all categories is totaled in Table 6.

**Table 2: Monthly Residential Water Usage**

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
2017	Water Usage (MG)	3.05	3.19	3.06	4.34	3.78	4.80	10.04	8.23	5.33	8.76	3.72	4.12	
	SFE	773	775	783	795	796	804	804	810	808	813	812	813	
	Average Usage/SFE (GAL)	3,951	4,122	3,912	5,459	4,749	5,965	12,491	10,162	6,594	10,781	4,578	5,070	
2018	Water Usage (MG)	3.53	3.42	3.87	3.78	3.50	6.86	11.17	8.62	7.58	9.44	4.85	3.90	
	SFE	816	812	812	812	812	815	824	852	859	869	885	892	
	Average Usage/SFE (GAL)	4,326	4,214	4,770	4,658	4,314	8,423	13,562	10,120	8,826	10,860	5,481	4,375	
2019	Water Usage (MG)	4.16	3.48	3.65	3.40	4.12	6.45	7.13	8.84	9.41	10.16	6.20	3.76	
	SFE	902	911	923	920	923	942	947	956	964	982	995	1,013	
	Average Usage/SFE (GAL)	4,615	3,821	3,950	3,694	4,466	6,846	7,526	9,251	9,762	10,348	6,229	3,709	
Three Year Avg. (GAL)		4,297	4,053	4,210	4,603	4,509	7,078	11,193	9,844	8,394	10,663	5,430	4,384	6,555

**Table 3: Monthly School Water Usage**

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
2017	Water Usage (MG)	0.04	0.05	0.06	0.06	0.18	0.52	1.11	1.56	0.55	1.12	0.32	0.26	
	SFE	32	32	32	32	32	32	32	32	32	32	32	32	
	Average Usage/SFE (GAL)	1,381	1,563	1,906	1,888	5,666	16,113	34,831	48,791	17,128	34,900	10,113	8,084	
2018	Water Usage (MG)	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.12	0.10	0.11	0.07	
	SFE	32	32	32	32	32	32	32	32	32	32	32	32	
	Average Usage/SFE (GAL)	1,281	143	165	120	0	0	0	31	3,662	3,188	3,475	2,244	
2019	Water Usage (MG)	0.08	0.08	0.00	0.11	0.11	0.07	0.02	0.00	0.10	0.11	0.05	0.18	
	SFE	32	32	32	32	32	32	32	32	32	32	32	32	
	Average Usage/SFE (GAL)	2,476	2,479	0	3,457	3,398	2,167	470	100	3,257	3,489	1,685	5,741	
Three Year Avg. (GAL)		1,713	1,395	691	1,822	3,021	6,093	11,767	16,307	8,016	13,859	5,091	5,357	6,261

**Table 4: Monthly Irrigation Water Usage**

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
2018	Water Usage (MG)	0.000	0.000	0.000	0.000	0.000	0.000	0.170	0.242	0.184	5.193	0.680	0.014	6.48
2019	Water Usage (MG)	0.000	0.000	0.000	0.000	0.004	0.234	0.625	1.027	1.272	0.145	0.460	0.000	3.768
Average (MG)		0.000	0.000	0.000	0.000	0.002	0.117	0.398	0.635	0.728	2.669	0.570	0.007	0.427

**Table 5: Monthly Commercial Water Usage**

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
<b>2017</b>	Water Usage (MG)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	437
	SFE	1	1	1	1	1	1	1	1	1	1	1	1	
	Average Usage/SFE (GAL)	133	52	63	76	75	106	0	870	780	1,020	960	1,110	
<b>2018</b>	Water Usage (MG)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1,013
	SFE	1	1	1	1	1	1	1	1	1	1	1	1	
	Average Usage/SFE (GAL)	890	940	1,180	800	1,150	850	1,240	710	850	1,060	1,100	1,390	
<b>2019</b>	Water Usage (MG)	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.001	0.001	0.000	0.000	0.001	1,019
	SFE	1	1	1	1	1	1	1	1	1	1	1	1	
	Average Usage/SFE (GAL)	1,420	780	1,030	820	1,200	1,150	2,530	760	1,330	370	0	836	
<b>Three Year Avg. (GAL)</b>		<b>814</b>	<b>591</b>	<b>758</b>	<b>565</b>	<b>808</b>	<b>702</b>	<b>1,257</b>	<b>780</b>	<b>987</b>	<b>817</b>	<b>687</b>	<b>1,112</b>	<b>823</b>

**Table 6: Total Water Usage/Production**

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yearly Average
<b>2017</b>	Water Production	3.94	3.24	4.50	4.19	6.58	11.98	10.45	7.63	9.55	4.35	2.95	3.24	0.36
	Water Usage (MG)	3.10	3.24	3.12	4.40	3.96	5.31	11.16	9.79	5.88	9.88	4.04	4.38	
	Delta	0.84	-0.01	1.38	-0.21	2.61	6.67	-0.70	-2.16	3.68	-5.53	-1.09	-1.14	
<b>2018</b>	Water Production	3.44	3.37	3.97	4.50	9.74	12.97	11.79	9.92	12.17	5.77	3.80	3.75	1.18
	Water Usage (MG)	3.57	3.43	3.88	3.79	3.50	6.87	11.18	8.62	7.70	9.54	4.96	3.98	
	Delta	-0.13	-0.06	0.09	0.71	6.24	6.11	0.61	1.30	4.47	-3.77	-1.16	-0.23	
<b>2019</b>	Water Production	4.31	3.73	4.05	5.07	6.53	8.56	10.56	11.29	11.08	5.75	4.42	4.22	0.66
	Water Usage (MG)	4.24	3.56	3.65	3.51	4.23	6.52	7.15	8.85	9.52	10.27	6.25	3.94	
	Delta	0.07	0.17	0.41	1.56	2.30	2.04	3.41	2.44	1.56	-4.52	-1.84	0.28	
<b>3 Year Avg. Delta (MG)</b>		<b>0.257</b>	<b>0.037</b>	<b>0.624</b>	<b>0.687</b>	<b>3.716</b>	<b>4.937</b>	<b>1.108</b>	<b>0.525</b>	<b>3.237</b>	<b>-4.606</b>	<b>-1.362</b>	<b>-0.365</b>	<b>0.733</b>

The number of taps throughout the district was determined from the number of residential customers on the monthly billing information provided by the district. It is assumed that each residential customer billed equates to one single family equivalent (SFE).

An SFE is a unit of measure which standardizes all land use categories (residential, commercial, etc.) to the level of water demand created by one single family household. Typically, all single-family taps within a district are assigned a total of one (1) SFE. As Table 2 shows, from January 2017 through December 2019 the average monthly residential water demand for this time period was 6555 gallons. This equates to an average yearly demand of 0.24 ac-ft/year/SFE, which corresponds to an average day demand (ADD) of 216 gallons per day/SFE. The average day demand is important, as the water rights needed for the district are based on the average annual water usage. At the inception of the district, the average annual water usage was planned to be 0.56 acre-feet/year/SFE, but over the years of district existence, water usage has been shown to have dropped significantly, primarily due to public consciousness in exercising water conservation, especially with a finite water source like the Denver Basin aquifer. The State Engineer's Office has lowered the 0.56 value for determination of the number of SFEs that the district has sufficient rights for to 0.40 and then to 0.36, which has been used since the development of Scenic View. In a water usage analysis done in 2018 based on water usage in years before, water usage equated to 0.25 ac-

ft per year, and the district board considered lowering the value for water supply planning and adequacy purposes down to be more consistent with those actual water usage figures. After much discussion, it was decided to leave the average annual water usage requirement at 0.36 ac-ft/year. This value will be used for future planning in this Master Plan.

While the annual average water value per SFE is important, what is more important is the average amount of source water pumped from the wells and used from the Meridian water connection. Normally, in a system like this, there will be losses in the system, so the water supply sources must be able to pump the usage plus the losses. Normally accepted losses in water systems like the district's, is 10 to 15 percent. More than 15% losses usually warrants some kind of modifications to the district system, like line replacements to reduce the losses. As Table 6 shows, water production from the wells and the Meridian interconnect is greater than the water delivered to the users by an average of 12.5%, so not of concern enough alter the planning number of 0.36 ac-ft/SFE or warrant any district system repairs.

The Maximum Day Demand (MDD) is an important factor in the analysis of treatment and pumping facilities as the water supply facilities should be designed to supply the MDD to ensure that the district can adequately supply enough water for its customers. The MDD is the average daily water demand during the peak month of usage and can be calculated by dividing the month with the maximum demand by the number of days in that month. The maximum monthly demand of 11.17 MG occurred in July of 2018. Dividing this by 31 days equates to a MDD of 0.36 mgd or 250 gpm. For the 824 SFEs that month, this equates to 432 gallons per day per SFE, or 0.3 gpm per SFE. The ratio of MDD to ADD (432/216) calculates to 2.0 and is consistent with accepted industry standards that say that MDD is generally 2.0-2.5 times the ADD.

## **4.2 FUTURE WATER DEMAND**

As the district is nearly built out, future plans for development in the PBHMD service area include only Filing 13E, and Filing 14 as shown in

Figure 4. These two developments will add approximately 453 single family equivalents (SFE) of water demand to the district plus additional water for any public owned land that would need irrigation. There are two large parcels of land in the district, one known as the Falcon Reserve Development, and the 160 acres south of Stapleton Dr., that are not included in this Master Plan as neither parcel has sufficient water rights to support any development, and there is no apparent activity afoot to rectify that fact.



**Figure 4: Map of Developments in the Paint Brush Hills Metropolitan District**

The total water demands at buildout are shown in Table 7.

**Table 7: Total Water Demands**

Use Type	SFE	ADD/SFE	ADD (MGD)	MDD/SFE	MDD (MGD)	Required Water Right (ac ft/yr)
Development thru Filing 13D	1079	216	0.233	432	0.466	388
Filing 13E	158	216	0.034	432	0.068	57
Filing 14	224	216	0.048	432	0.096	81
Commercial	1	216	0.0002	432	0.0004	0.36
School	32	216	0.006	432	0.012	12
Irrigation	0		0.020		0.04	14*
<b>Total</b>	<b>1494</b>		<b>0.342</b>		<b>0.682</b>	<b>552</b>

\* SEO allocation

The district's current MDD, ADD, and average yearly demand for the district along with the demands for future developments are shown in Table 7. The total MDD at buildout is expected to be approximately 0.682 MGD, the ADD is approximately 0.342 MGD, and the yearly water rights requirement corresponds to 552 ac-ft/yr.

## **5 WATER SYSTEM EVALUATION**

### **5.1 EVALUATION CRITERIA**

The water system in PBHMD will be evaluated based on the ability of the system to meet current demands along with the future demands of the proposed developments listed in Section 4.2. These evaluations will then be used to make recommendations for further expansions of the system to meet the future water demands of the district.

### **5.2 EXISTING WATER FACILITIES**

The PBHMD water distribution system is pump pressurized system containing two storage tanks (a 1 million gallon (MG) tank and a 0.5 MG tank) to meet fire flow and peak flow demands. Water supply for the district comes primarily from the Denver Basin Aquifer, however, the district also utilizes contractual water from Meridian Service Metropolitan District (MSMD) as a peaking supply.

The raw water wells are located throughout the district and treatment consists of chlorination, which is done at the well site. In total, PBHMD's water distribution system consists of approximately 63,650 linear feet (LF) of 8-inch finished water pipe, 21,750 LF of 12-inch finished water pipe, 12,900 LF of raw water transmission pipe, eleven wells, and two water storage tanks.



**Figure 5: Piping inside Well House 6**

#### **5.2.1 Raw Water Supply**

Raw water for the system is pumped from eleven wells located throughout the district from the Arapahoe and the Laramie-Fox Hills aquifers. Some of the wells are in need of maintenance and rehabilitation. The Arapahoe and Laramie-Fox Hills aquifers are part of the Denver Basin Aquifer, which is a non-renewable water source. A summary of the district's non-contingent Denver Basin water rights, that is, those rights that have permits or determination numbers with replacement plans, shows the current total annual legal supply for the District to be 1,222.50 ac-ft/year. With the 85 ac-ft/yr of renewable water from Meridian Ranch, the total water rights available is then 1307.5 ac-ft/yr, as shown in Table 8.

The calculations of current and future water demands done in Section 4.1 and Section 4.2 show that the district's ultimate yearly demand will be approximately 552 AF/year. These demands are well below the district's permitted annual allocation of 1,307.5 AF/year. However, due to the 300-year rule on Denver Basin water, and the State Engineer's Office allocation 0.56 and 0.40 ac-ft/yr on the District's developments prior to Scenic View, the actual amount of 100 year equivalent water rights needed at build-out will be 1,284 ac-ft/year, as shown on Table 8. In addition to the 1,307.5 ac-ft/year of non-contingent rights, the district has an additional 79 ac-ft of 300 year rule water with a Determination number of 719-BD, along with 45.5 ac-ft/year of unappropriated 100 year water, all of which can be used for back-up well supplies, but with proper appropriation and replacement plans. Tables 8 show the district's portfolio of water rights clearly.

**Table 8: Summary of Water Rights**

PAINT BRUSH HILLS-WATER RIGHTS SUMMARY			Current SEO water rights, with Meridian water rights , convert water usage /SFE to 0.36 and use 100 year rule on Filing 14								
Supply	Well Decree Number	SFE	Accumulated SFEs	Ac-Ft/Yr per SFE	Required Water Rights (Acre-Feet/Year) 100yr	Required Water Rights (Acre-Feet/Year) 300yr	Accum Water Rights req'd. 100 year Equiv.	Available Water Rights (Acre-Feet/Year) 100yr Equiv.	Accum Req'd Volume(100 yr) (Acre-Feet)	Total Water Allocation Ac-ft	Remaining Available Water Ac-ft.
	719-BD						237	0		0	
	214-BD						298	298		29,750	
	30593-F							113		11,300	
	46553-F							182		18,200	
	47813-F							388		38,800	
	17048-F							240		24,000	
										0	
	Meridian Ranch						85	85		8,500	
<b>Total water Rights/Flow Available</b>								<b>1306</b>		<b>130,550</b>	
Filing 4		164	164	0.56	92		92		9,184		121,366
Filing 5		31	195	0.56	17		109		10,920		119,630
Filing 6		48	243	0.56	27		136		13,608		116,942
Filing 7		57	300	0.56	32		168		16,800		113,750
Filing 8		109	409	0.56	61		229		22,904		107,646
Filing 9		88	497	0.56	49		278		27,832		102,718
Greenbelt					14		292		29,232		101,318
Falcon M. School		16	513		22		314		31,432		99,118
Filing 10		90	603	0.40	36	108	422		42,232		88,318
Filing 11		81	684	0.40	32	97	520		51,952		78,598
Filing 12		51	735	0.40	20	61	581		58,072		72,478
Church		0.5	736	0.40	0	1	581		58,132		72,418
Scenic View		90	826	0.40	36	108	689		68,932		61,618
Filing 13A		17	843	0.40	7	20	710		70,972		59,578
			843	0.36	0	0	710		70,972		59,578
			843	0.36	0	0	710		70,972		59,578
			843	0.36	0	0	710		70,972		59,578
School(16)		16	859	0.36	6	17	727		72,700		57,850
Filing 13B		5	864	0.36	2	5	732		73,240		57,310
		5	869	0.36	2	5	738		73,780		56,770
		5	874	0.36	2	5	743		74,320		56,230
		6	880	0.36	2	6	750		74,968		55,582
Filing 13C		33	913	0.36	12	36	785		78,532		52,018
		33	946	0.36	12	36	821		82,096		48,454
		33	979	0.36	12	36	857		85,660		44,890
		36	1015	0.36	13	39	895		89,548		41,002
Filing 13D		24	1039	0.36	9	26	921		92,140		38,410
		24	1063	0.36	9	26	947		94,732		35,818
		24	1087	0.36	9	26	973		97,324		33,226
		25	1112	0.36	9	27	1000		100,024		30,526
Filing 13E		39	1151	0.36	14	42	1042		104,236		26,314
		39	1190	0.36	14	42	1084		108,448		22,102
		39	1229	0.36	14	42	1127		112,660		17,890
		41	1270	0.36	15	44	1171		117,088		13,462
Filing 14		46	1316	0.36	17	17	1187		118,744		11,806
		66	1382	0.36	24	24	1211		121,120		9,430
		56	1438	0.36	20	20	1231		123,136		7,414
		56	1494	0.36	20	20	1252		125,152		5,398

Table 9 shows the current physical water supply inventory for the district, detailing the volume of water allocated from the Laramie-Fox Hills, Arapahoe, and Denver aquifers along with the district's contractual rights from MSMD. The district currently has an annual allocation of 1,307.5 AF-year. Additionally, PBHMD has contingent water supply sources, detailed in

**Table 9: Current Physical Water Supply Inventory**

Land Formation or Aquifer	Finding, Dermination, or Decree	Tributary Status	Total Volume (AF)	Annual Allocation (AF/yr)	Well Permits
Larimie-Fox Hills	47813-F	NT	38,800	388.0	LFH-1 (47813-F)
					LFH-2 (50877-F)
					LFH-3 (55192-F)
					LFH-4 (63429-F)
					LFH-5 (64084-F)
Arapahoe	17048-F	NT	13,070	130.7	A-1 (17048-F)
	30593-F	NT	11,300	113.0	A-2 (30593-F)
	46553-F	NT	18,200	182.0	A-3 (46553-F)
					A-4 (55193-F)
					A-5 (60862-F)
					A-6 (64086-F)
Denver	17048-F	NT	11,130	111.3	17048-F
	214-BD	NNT	29,750	297.5	
	MSMD			85.0	Alluvial Water
<b>Current Total Legal Supply</b>				1,307.5	
<i>Source: JDS-HYDRO 2013 Water Supply Report</i>					

**Table 10: Contingent Water Supply Inventory**

Land Formation or Aquifer	Finding, Determination, or Decree	Tributary Status	Total Volume (AF)	Annual Allocation (100 yr supply) (AF/yr)	Annual Allocation (300 yr supply) (AF/yr)	Well Permits
Dawson	719-BD	NNT	23,700	237.0	79.0	
	Unappropriated	NNT	2,000	20.0	-	
Denver	Unappropriated	NT	2550	25.5	-	
Surface Water Diversion	Finding, Determination, or Decree	Tributary Status	Comments			
Return Flows 02CW016	05CW043	2 cfs	Allocation is 25%, Unavailable for potable supply			
Source: JDS-HYDRO 2013 Water Supply Report						

The wells in the district need to be able to produce enough water to meet the MMD plus system losses, which at build out will be 541 gpm. With the current instantaneous well capacity equal to 602 gpm, the district has sufficient capacity to be able to meet the MMD at build-out, however under water rights considerations, a new well will be necessary. This will be a new well #12, which will be drilled into the Denver aquifer.

Table 11 shows the permit number and permitted pumping rate for each individual well and activity of the well along with the instantaneous flow rate from the JDS-HYDRO report

for each well and the contracted water from MSMD. The total instantaneous flow for all the currently active wells combined, as reported by JDS-Hydro, is 610 gallons per minute (gpm).

**Table 11: Well Permits, Permitted Pumping Rates, and 2013 Instantaneous Flow-Rates**

Land Formation or Aquifer	Well Number	Well ID	Well Permit	Permitted Pump Rate gpm	2013 Instantaneous Flow-Rate (Active Rate) gpm	Activity
Larimer-Fox Hills	4	LFH-1	47813-F	100	100	Active*
	5	LFH-2	50877-F	70	-	Inactive
	7	LFH-3	55192-F	100	51	Active
	9	LFH-4	63429-F	-	126	Active
	11	LFH-5	64084-F	-	101	Active
Arapahoe	1	A-1	17048-F	150	36	Active
	2	A-2	30593-F	70	29	Active
	3	A-3	46553-F	53	50	Active*
	6	A-4	55193-F	76	54	Active
	8	A-5	60862-F	85	56	Active
	10	A-6	64086-F	-	49	Active
Transfer Station	N/A	N/A	N/A	N/A	90-200	Active
Total Instantaneous Flow of Active Wells (gpm)					602	
Max instantaneous flow with transfer station					802	

\* These wells are in the final stages of completion and will be active by the end of 2020.

### 5.2.2 Treatment Systems

Currently the only treatment done on the raw water is disinfection. Sodium hypochlorite is injected at each of the well facilities in the district before the water passes directly into the distribution lines or into raw water lines used for chlorine contact before entering the water storage tanks. The chlorinated water from Pump House 1 (which houses Well 1) and Pump House 2 (which houses Wells 2 & 5) is fed directly into the distribution system after chlorination. There is no contact time provided for wells at these pump houses. Chlorinated water from Pump House 3, (which houses Wells 3 & 4), Pump House 4 (which houses Wells 6 & 7), Pump House 5 (which houses Wells 8 & 9), and Pump House 6 (which houses Wells 10 & 11) is piped to the two storage tanks before it is pumped into the distribution system. This piping and the storage tanks provide the required contact time for disinfection.

Well 6 and Well 7 have elevated levels of hydrogen sulfide, which has raised aesthetic concerns about the water quality in PBHMD. Hydrogen sulfide in water does not typically pose a health risk although it does create aesthetic problems such as bad taste and rotten egg odor at levels as low as 0.5 milligrams per liter (mg/L). Hydrogen sulfide is not regulated by the EPA. RGA recommends using an activated carbon filtration system to mitigate the aesthetic concerns from the hydrogen sulfide in the water.

A pilot test was performed in May 2015 that tested the efficacy of removing hydrogen sulfide using a granular activated carbon (GAC) filter. The two-phase pilot test was conducted at Wells 6 and Well 7. The filters were used to treat the water through adsorption, a process in which the hydrogen sulfide in the water will attach to the surface of the carbon particles in the filter. Phase 1 of the pilot test was a bench-scale test aimed at determining if the carbon removes sufficient hydrogen sulfide from the water and if different types of carbon are more effective at removing hydrogen sulfide than others. However, due to the small scale of the filters at this phase, no reduction in odor and taste from the hydrogen sulfide was detected. This was likely because the proper contact time could not be targeted at this small of a scale. Phase 2 of the pilot test employed a 10" diameter filter vessel filled with activated carbon. Initial results indicated that the activated carbon filter could remove the odor and taste due to hydrogen sulfide in the water. The test was run at 5 gpm to allow for sufficient contact time in the filter. This small-scale pilot test showed promising enough results that the ultimate plan will be to eventually treat all the water.

Additionally, RGA evaluated the option of centralizing treatment or leaving treatment decentralized in each of the well houses. This evaluation along with a cost estimate and a recommendation is discussed in Section 6.1.2.

### **5.2.3 Water Storage**

The PBHMD water distribution system contains two welded steel water storage tanks, a 1 MG tank and a 0.5 MG tank, which are also located on District owned land on the corner of Londonderry Drive and Towner Avenue. Both storage tanks are in relatively good condition and are not in need of any repairs. Chlorinated raw water from Pump House 3, (which houses Wells 3 & 4), Pump House 4 (which houses Wells 6 & 7), Pump House 5 (which houses Wells 8 & 9), and Pump House 6 (which houses Wells 10 & 11) is piped and stored in the tanks. The storage is used to meet fire flow demand and peak demand during summer months.



**Figure 4: PBHMD 1 MG Water Storage Tank (left) and 0.5 MG Water Storage Tank (Right)**

The district must have enough water storage to hold the maximum month demand (MMD) for the district plus three hours of fire flow at 4,000 gpm. The required storage for the fire flow demand is a volume of 720,000 gallons. The storage required to meet the current

MMD and the storage required to meet MMD of each planned development are listed in Table 12.

**Table 12: Required Storage to Meet MDD Plus Fireflow**

	Required Storage (gallons)
Development thru Filing 13D	466,000
Filing 13E	68,000
Filing 14	105,000
Commmercial	400
School & Irrigation	52,000
Fire Flow	720,000
Total	1,411,400

The total volume of storage required to meet all MMDs once all developments are constructed and fire flow in the district is approximately 1.41 MG, which is less than the district's current capacity of 1.5 MG. The district, then, does not technically need to construct additional storage to meet the storage requirements for the future developments. We recommend, however, to account for dry years in the future, for future variability in water usage, and to provide for those two unplanned areas in the future not currently being considered in the build-out area, that the district construct an a nominal amount of additional storage, in the amount 0.200 million gallons of storage to meet future storage requirements and adding mixing systems to the storage tanks. This amount of additional storage would provide an additional 12.5% of excess storage to allow for a reasonable factor of safety. This recommendation will be further discussed in Section 6.1.3.

#### **5.2.4 Booster Pump Station**

The booster pump station is located on District owned land on the corner of Londonderry Drive and Towner Avenue adjacent to the storage tanks. The pump station is below grade and houses four pumps used to pressurize the distribution system with water from the storage tanks. A photo of the pump station is shown in Figure 6.



**Figure 6: PBHMD Booster Pumps**

Pump and motor information is shown in Table 13. Additionally, the booster pump station contains a sump pump to allow for the removal of any water in the dry pit to be removed.

**Table 13: Pump Station Pump Data**

Pump	Type	Manufacturer	Model NO.	Capacity	Motor	Motor Manufacturer
No. 1 Jockey Pump	Horizontal, Close Coupled, End Suction, Centrifugal	Goulds	SST A45#1L5AO EOO	-	10 HP 3490 RPM	Baldor
No. 2 Service Pump		-	Type 344 8F No-71-91450-2	540 gpm	30 HP 3540 RPM	WEG
No. 3 Service Pump		-	Type 344 8F No-71-91450-2	540 gpm	30 HP 3540 RPM	WEG
No. 4 High Service Pump		Cornell	5RB 60-4	2200 gpm	60 HP 1775 RPM	Marathon Electric

To evaluate the pumps and ensure that the district has enough pumping capacity, the peak hour flow (PHF) for the district is calculated. The PHF is calculated from the ADD using a peaking factor (PF), which can be calculated using the following population-based equation from the State of Colorado Design Criteria for Domestic Wastewater Treatment Works (2012):

$$PF = \frac{18 + \sqrt{P}}{4 + \sqrt{P}}$$

where P is population in thousands.

Assuming an average of 2.5 persons per single family household, the total population for the district can be estimated by multiplying the SFE of the district by 2.5. This was done for the total SFE of the district currently and the total SFE of the district once all future developments are constructed.

The peaking factor calculated to be 3.4 for ultimate development. The peak hour flow (PHF) was then calculated by multiplying the ADD for the district by the peaking factor. The PHF for the district calculates to be 817 gpm for the current and future developments respectively.

While the district has had adequate pumping capacity to meet the current demand with the existing pump station, it is not adequate to supply the 4000 gpm fireflow needed for the schools, nor will it be sufficient to supply enough pressure and 1500 gpm fireflow to the highest parts of the district in Filing 14, or supply normal adequate pressure in the higher areas of Tottenham St.; And, as a booster pump station has always been contemplated to boost pressure to the higher parts of the district, our recommendation is to construct a single new booster pump station near the existing one to cover the needs of the inadequate existing one for the higher parts of the district and to supply sufficient fireflow to the schools. This recommendation is discussed further in Section 6.1.4.

Given that the existing water system was not originally designed to accommodate more than 65 psi at the existing pump station, otherwise the pipes begin bursting, and that this is not enough pressure to service the upper parts of the district, the district should be

divided into three pressure zones, whereby the new booster pump station will supply adequate pressure for the High Pressure Zone, and adequate flow to the Middle Pressure Zone through a Pressure Reducing Vault (PRV), then further pressure reduction through another set of PRVs, at the boundary of the Falcon Reserve property at the southeast part of the district.

The boundary of the High-Pressure Zone is defined by the west and north boundaries of the district, the back-lot lines of the east side of Tottenham, and Beckham street and Londonderry along the south.

## 6 RECOMMENDATIONS & COST ESTIMATES

### 6.1 SYSTEM IMPROVEMENTS

#### 6.1.1 Raw Water Supply

The analysis performed in Section 5.2.1 indicates that the district has sufficient annually allocated raw water supply to meet future demands from an instantaneous standpoint, however the district will need an additional well from a water rights perspective to meet the demands of the proposed future developments once they are constructed.

RGA recommends that the district construct a new well, Well #12 to supply the additional required flow. This well would be drilled into the Denver aquifer and is currently designated by Determination Number 214-BD in the district's portfolio of water rights. This well should be drilled, equipped and the equipment contained in a new well house located at the site of Pumphouse #6, at the far western part of the district. This new wellhouse should be sized sufficiently to house the disinfection and controls for Wells 10 and 11, which are located at this site, as those wells do not have a decent well house to house their equipment. Table 18 shows the estimated cost for this new well and wellhouse.

The district should also drill a back-up well to ensure it has enough pumping capacity in the event that a well goes down. This backup well would logically be Determination Number 719-BD, would be drilled into the Dawson aquifer, and should yield 79 ac-ft/yr under the 300-year rule. Table 14 shows a construction cost estimate for a single well.

**Table 14: Well #12 Cost Estimate**

Item	Description	Qty	Unit	Unit Price	Subtotal
1	Drill Well, Well Pump, Well Pump Installation	1	LS	\$975,000	\$975,000
2	Well Building, Process Piping, and Yard Piping	1	LS	\$1,062,000	\$1,062,000
3	Site Development Plan	1	LS	\$25,000	\$25,000
<b>Subtotal</b>					<b>\$2,062,000</b>
Engineering (15%)					\$309,300
Contingency (20%)					\$412,400
<b>SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS</b>					<b>\$721,700</b>
<b>TOTAL PROJECT COST</b>					<b>\$2,783,700</b>

**Table 15: Well #13 Determination #719-BD Cost Estimate**

Item	Description	Qty	Unit	Unit Price	Subtotal
1	Drill Well, Well Pump, Well Pump Installation	1	LS	\$975,000	\$975,000
2	Well Building, Process Piping, and Yard Piping	1	LS	\$900,000	\$900,000
3	Raw Water Line	2,500	LF	\$100	\$250,000
4	Site Development Plan	1	LS	\$25,000	\$25,000
<b>Subtotal</b>					<b>\$2,150,000</b>
Augmentation Plan					\$100,000
Engineering (15%)					\$322,500
Contingency (20%)					\$430,000
<b>SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS</b>					<b>\$852,500</b>
<b>TOTAL PROJECT COST</b>					<b>\$3,002,500</b>

**Table 16: Raw Water Lines for Wells 1, 2, and 5 Cost Estimate**

Item	Description	Qty	Unit	Unit Price	Subtotal
1	Well #2 & #5 - 6" Pipe	1,660	LF	\$100	\$166,000
2	Well #1 - 6" Pipe	4,040	LF	\$100	\$404,000
3	Joint FM 8" Pipe	1,060	LF	\$110	\$116,600
<b>Subtotal</b>					<b>\$686,600</b>
Engineering (15%)					\$102,990
Contingency (20%)					\$137,320
<b>SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS</b>					<b>\$240,310</b>
<b>TOTAL PROJECT COST</b>					<b>\$926,910</b>

### 6.1.2 Treatment Systems

There are two treatment parameters that need to be considered, one required by law and the other only optional. The one required by law is disinfection which is currently being accomplished by chlorination. The second is taste and odor control, which is an aesthetic issue, rather than a legal requirement and is not, as such, required. Two basic methodologies of treatment are at option: centralized treatment and The district is currently operating under the concept of de-centralized legal treatment, whereby chlorination is effected at each of the well sites, then chlorine contact is effected in the raw water lines that transmit the chlorinated water to the storage tanks, for all the wells but well numbers 1, 2 and 5. For those wells, the water is chlorinated on-site and pumped directly into the system without any contact time. That practice needs to be ended as soon as possible, as not having adequate chlorine contact is not allowed by CDPHE. Putting chlorine contact at these sites is not practical or cost effective, as there is not enough room at these sites for chlorine contact tanks. To provide adequate contact time then, raw water lines should be installed to pump the water to the storage tanks, using the lines for chlorine contact, rather than pumping directly into the system. This methodology would work well with the centralization of the taste and odor treatment as well. Until centralized taste and odor treatment is accomplished, operating the wells with the de-centralized treatment concept

is our recommendation. Table 16 shows the cost of installing the raw water lines on wells 1,2 and 5 to have them comply with the CDPHE requirements.

When it becomes necessary to implement taste and odor treatment, centralizing treatment at the storage tank site will be the most cost effective and most easily operated way of accomplishing that. Since, when that time occurs all of the wells will have been equipped with raw water lines to pump their water to a central location at the storage tank site, that site can be used for the centralized taste and odor treatment as well. The location for the treatment facilities will be in a building just to the east of the Booster Pump Station building. The unit process to be used for taste and odor treatment will be GAC, as discussed in previous chapters.

When GAC treatment is implemented, it will be necessary deactivate the chlorination facilities at the individual well sites, because any chlorine present in the water entering the GAC units will be removed by them. It will be necessary, then to treat the well water first with the GAC, then chlorinate the water afterward. New chlorination facilities and an underground chlorine contact tank will then have to be constructed in the new building GAC building, as well as a set of pumps to re-pump the treated water to the storage tanks. The costs of this centralized treatment are detailed in Table 17.

**Table 17: Centralized Treatment Cost Estimate**

Item	Description	Qty	Unit	Unit Price	Subtotal
1	Treatment Building (Site Work, Building, HVAC, Etc.)	1,500	SF	\$200	\$300,000
2	Treatment Equipment and Piping (Granular Activated Carbon Pressure Vessels)	1	LS	\$1,462,500	\$1,462,500
3	Process Piping and Valves	1	LS	\$112,500	\$112,500
4	Chlorine Contact Basin (Concrete, Baffle Walls, Etc.)	130	CY	\$1,575	\$204,750
5	Chlorine Feed Equipment	1	LS	\$45,000	\$45,000
6	Clearwell Booster Pump Station (To Tank)	2	EA	\$146,300	\$292,600
7	Miscellaneous	1	LS	\$336,600	\$336,600
<b>Subtotal</b>					<b>\$2,753,950</b>
Engineering (15%)					\$413,093
Contingency (20%)					\$550,790
<b>SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS</b>					<b>\$963,883</b>
<b>TOTAL PROJECT COST</b>					<b>\$3,717,833</b>

### 6.1.3 Water Storage

The calculations performed in Section 5.2.3 indicate that the districts storage capacity is sufficient to meet the current storage requirements, however, as the future developments are constructed, the district will need to construct additional storage to meet the storage requirements for the future developments. RGA recommends constructing an additional 0.5 MG storage tank to meet future storage requirements and adding mixing systems to the storage tanks.

The construction of an additional 0.5 MG storage tank would allow for the district to meet its storage requirements once all proposed developments are constructed. It would increase its total storage capacity to 2 MG, providing approximately 0.3 MG more storage than the district needs to meet peak day demand plus fire flow. This additional storage will, most likely, be available for the yet-to-be-determined development at the Falcon Reserve and 160 acres south of Stapleton.

Additionally, RGA recommends the addition of mixing systems to all three storage tanks to prevent excessive water age and ice formation. Without a water mixing system in a storage tank, the first water in the tank is the last water to be taken from the tank. The excess water age is conducive to microbial growth and chemical changes and can reduce water quality parameters. Additionally, in winter months ice can form on the top of the water inside the storage tank. As the water level inside the tank rises and falls with residential water use, the ice moves up and down the tank walls and can cause damage to the tank. By installing a mixing system into all of the districts tanks, excess water age and ice formation can be reduced significantly. Table 18 details a cost estimate for a 200,000 gallon water storage tank.

**Table 18: 200,000 Gallon Water Storage Tank Cost Estimate**

Item	Description	Qty	Unit	Unit Price	Subtotal
1	200,000 Gallon Water Storage Tank and Installation	1	LS	\$260,000	\$260,000
2	Foundation, Tank Mixing System Site Work	1	LS	\$30,000	\$30,000
<b>Subtotal</b>					<b>\$290,000</b>
Engineering (10%)					\$29,000
Contingency (10%)					\$29,000
<b>SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS</b>					<b>\$58,000</b>
<b>TOTAL PROJECT COST</b>					<b>\$348,000</b>

### 6.1.4 Booster Pump

As discussed previously, the district needs a new pump station to be able to supply required fire flows to the schools and to provide sufficient pressure to the upper areas of the district. The recommended place for the new pump station is on the storage tank site, east of the administration building. The costs of this pump station are shown in Table 19.

**Table 19: Booster Pump House Cost Estimate**

Item	Description	Qty	Unit	Unit Price	Subtotal
1	Building	2,500	SF	\$200	\$500,000
2	Pumps - 2000 GPM	3	EA	\$100,000	\$300,000
	Pump - 300 GPM	1	EA	\$50,000	\$50,000
3	Valves and Interior Piping	1	LS	\$150,000	\$150,000
4	Yard Piping, Tank Modifications	1	LS	\$150,000	\$150,000
5	Miscellaneous	1	LS	\$45,000	\$45,000
<b>Subtotal</b>					<b>\$1,195,000</b>
Engineering (20%)					\$239,000
Construction Management (20%)					\$239,000
<b>SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS</b>					<b>\$478,000</b>
<b>TOTAL PROJECT COST</b>					<b>\$1,673,000</b>

#### 6.1.5 Pressure Zone Adjustments

As discussed earlier, to increase the pressure and supply adequate fireflow to the upper areas of the district, while at the same time providing more fire flow to the lower parts of the district will require the district to be partitioned into three pressure zones- the High Pressure Zone, the Middle Pressure Zone and the Low Pressure Zone. To provide the correct flows at the correct pressures and in separating the two upper zones, it will be necessary to add pressure reducing vaults and separate feed lines.

A PRV vault will need to be added to the upper end of Tottenham and one at the far west end of Filing 14 to connect the High and Middle Zones, and a PRV vault will be constructed just outside the Booster Pump station to reduce pressure to the Middle Zone. A new feed line to serve the High Zone will need to run from the Booster Pump Station then along Londonderry to feed High Zone pressure to Tottenham, and the connector streets of Filings 13E and 14. A parallel feed line will have be run in Towner from the Booster Pump Station down to the schools, which are the singular draw for the 4000 gpm fire flow requirement. The costs of these enhancements are shown on Table 20.

**Table 20: Pressure Zone Adjustments Cost Estimate**

Item	Description	Qty	Unit	Unit Price	Subtotal
1	Pressure Relief Valves (small)	2	EA	\$75,000	\$150,000
2	Pressure Relief Valves (large)	1	EA	\$125,000	\$125,000
3	12" Parallel Water Line in Londonderry Drive	2,500	LF	\$125	\$312,500
4	12" Parallel Water Line in Towner Avenue	1,750	LF	\$125	\$218,750
5	Miscellaneous	1	LS	\$75,000	\$75,000
<b>Subtotal</b>					<b>\$881,250</b>
Engineering (15%)					\$132,188
Contingency (20%)					\$176,250
<b>SUBTOTAL NON-EQUIPMENT/MATERIAL COSTS</b>					<b>\$308,438</b>
<b>TOTAL PROJECT COST</b>					<b>\$1,189,688</b>

## **APPENDIX A**

### **Well Permit Information**

# Colorado Division of Water Resources

## Colorado's Well Permit Search

### Well Constructed

Receipt: 0468250A

Permit #: 55192-F-

Well Name / #:

Designated Basin: UPPER BLACK SQUIRREL CREEK

Case Number:

WDID:

Division: 2

Water District: 10

County: EL PASO

Management District: UPPER BLACK SQUIRREL

Help Last Refresh: 2/25/2015 12:01:56 AM

### [~] Applicant/Owners History

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METROPOLITAN DIST	9830 LIBERTY GROVE DR	FALCON, CO 80831-

### [~] Location Information

#### Approved Well Location:

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
NW	NW	25	12.05	65.0W	Sixth	200 N 200 W

Northing (UTM y): 4315025.9 Easting (UTM x): 532434.9

Location Accuracy: Spotted from section lines

Physical Address

Subdivision Name

City/State/Zip

Filing Block Lot

Parcel ID:

Acres in Tract: 1440

### [~] Permit Details

Date Issued: 01/18/2001

Date Expires: 01/18/2002

Use(s): MUNICIPAL

Aquifer(s): LARAMIE FOX HILLS

Special Use:

Area which may be irrigated:

Maximum annual volume of appropriation:

Statute:

Permit Requirements:

Totalizing Flow Meter  
YesGeophysical Log  
YesAbandonment Report  
No

Cross Reference Permit Number Receipt Description

Permit(s): 47813-F- 0403866

Comments: ADDITIONAL WELL FOR 47813-F, ALSO 50877-F

### [~] Construction/Usage Details

Well Construction Date: 05/15/2001

Pump Installation Date: 08/22/2001

Well Plugged:

1st Beneficial Use:

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
2560		2355	2550	1473	100

Driller	Lic #	Name	Address	Phone Number
Pump Installer	1200	TORMOEHLN, DAVID A.	4975 SW WINNEMUCCA BLVD WINNEMUCCA, NY 89445	775-623-5259

### [~] Application/Permit History

Ownership Change	05/14/2013
Pump Installation Report Received	10/23/2001
Pump Installed	08/22/2001
Well Construction Report Received	06/13/2001
Well Constructed	05/15/2001
Permit Issued	01/18/2001
Application Received	10/18/2000

### [~] Imaged Documents

Document Name	Date Imaged	Annotated
Change in Owner Name/Address/Location	05/30/2013	No
Well Construction & Test	12/01/2007	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 0468250A

<a href="#">General Purpose Application</a>	12/01/2007	No
<a href="#">Permit to Construct a Well</a>	12/01/2007	No
<a href="#">Pump Installation &amp; Test</a>	12/01/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	12/01/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	12/01/2007	No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [DWR](#) | [Privacy Policy](#) | [Transparency & Open Records](#) | [FOIA](#)

---



Colorado Department of Natural Resources

# Colorado Division of Water Resources

## Colorado's Well Permit Search

**Well Constructed**

Help Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 0426555  
**Permit #:** 50877-F -  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

**[-] Applicant/Owners History**

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METRO DIST	9830 LIBERTY GROVE DR	FALCON, CO 80831-

**[-] Location Information****Approved Well Location:**

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SW	NE	25	12.0S	65.0W	Sixth	1420 N 1950 E
<b>Northing (UTM y):</b>		4314659.9		<b>Easting (UTM x):</b>		533390.5
<b>Location Accuracy:</b> Spotted from section lines						

**Physical Address****Subdivision Name****City/State/Zip****Filing Block Lot****Parcel ID:****Acres in Tract:** 1440**[-] Permit Details**

**Date Issued:** 11/05/1998  
**Date Expires:** 11/05/1999  
**Use(s):** ALL BENEFICIAL USES  
**Aquifer(s):** LARAMIE FOX HILLS  
**Special Use:**

**Area which may be irrigated:****Maximum annual volume of appropriation:****Statute:**

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
	Yes	No	No

Cross Reference	Permit Number	Receipt	Description
<b>Permit(s):</b>	47813-F -	0403866	

**Comments:**ADDITIONAL WELL FOR 47813-F**[-] Construction/Usage Details**

**Well Construction Date:** 06/29/1999  
**Pump Installation Date:** 06/01/2000  
**Well Plugged:**  
**1st Beneficial Use:** 08/01/2001

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
7180	2500	2280	2470	1447	70
<b>Lic # Name</b>		<b>Address</b>		<b>Phone Number</b>	
863 HENKLE, RICHARD L.		BOX 639 GARDEN CITY, KS 67846		620-277-2389	

**[-] Application/Permit History**

Ownership Change	05/14/2013
First Beneficial Use	08/01/2001
Pump Installation Report Received	11/08/2000
Pump Installed	06/01/2000
Well Construction Report Received	07/14/1999
Well Constructed	06/29/1999
Permit Issued	11/05/1998
Application Received	02/11/1998

**[-] Imaged Documents**

Document Name	Date Imaged	Annotated
<u>Change in Owner Name/Address/Location</u>	05/30/2013	No
<u>Pump Installation &amp; Test</u>	12/09/2007	No
<u>Well Construction &amp; Test</u>	12/01/2007	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 0426555

Permit to Construct a Well  
Notice of Commencement of Use  
Original File

12/01/2007 No  
12/01/2007 No  
12/01/2007 No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [DWR](#) | [Privacy Policy](#) | [Transparency Online Project](#) | [TOR](#)

---



Colorado Department of Natural Resources

# Colorado Division of Water Resources

Colorado's Well Permit Search

**Well Constructed**
[Help](#) Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 0403866  
**Permit #:** 47813-F-  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

**[ - ] Applicant/Owners History**

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METRO DISTRICT	9830 LIBERTY GROVE DR	FALCON, CO 80831-

**[ - ] Location Information****Approved Well Location:**

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SW	NW	25	12.0S	65.0W	Sixth	2600 N 50 W

**Northing (UTM y):** 4314293.9    **Easting (UTM x):** 532389.2  
**Location Accuracy:** Spotted from section lines

**Physical Address****Subdivision Name****City/State/Zip****Filing Block Lot****Parcel ID:****Acres in Tract: 1****[ - ] Permit Details**

**Date Issued:** 01/24/1997    **Date Expires:** 01/24/1998  
**Use(s):** COMMERCIAL    **Aquifer(s):** LARAMIE FOX HILLS  
**Special Use:**

**Area which may be irrigated:****Maximum annual volume of appropriation:****Statute:**

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
No	No	No	No

Cross Reference	Permit Number	Receipt	Description
Permit(s):	28885-MH-	0028885	

**Comments:****[ - ] Construction/Usage Details**

**Well Construction Date:** 11/20/1996    **Pump Installation Date:**  
**Well Plugged:**    **1st Beneficial Use:** 05/01/1997

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
7170	2500	2265	2470	1336	100

Driller	Lic #	Name	Address	Phone Number
	403	SCHOCKE, ROGER	9875 BRIGHTON ROAD HENDERSON, CO 80640	303-288-5474

**[ - ] Application/Permit History**

Ownership Change	05/14/2013
Notice of Commencement of Beneficial Use	01/16/1998
First Beneficial Use	05/01/1997
Well Construction Report Received	02/06/1997
Permit Issued	01/24/1997
Well Constructed	11/20/1996
Application Received	07/22/1996

**[ - ] Imaged Documents**

Document Name	Date Imaged	Annotated
<a href="#">Change in Owner Name/Address/Location</a>	05/30/2013	No
<a href="#">Well Construction &amp; Test</a>	12/01/2007	No
<a href="#">Original File</a>	12/01/2007	No







Colorado Department of Natural Resources

# Colorado Division of Water Resources

## Colorado's Well Permit Search

### Well Constructed

Help Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 0355875B  
**Permit #:** 46553-F-  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

### [-] Applicant/Owners History

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METROPOLITAN DIST	9830 LIBERTY GROVE DR	FALCON, CO 80831-

### [-] Location Information

#### Approved Well Location:

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SE	NE	26	12.0S	65.0W	Sixth	2600 N 100 E

**Northing (UTM y):** 4314293.4    **Easting (UTM x):** 532343.5  
**Location Accuracy:** Spotted from section lines

#### Physical Address

#### Subdivision Name

#### City/State/Zip

#### Filing Block Lot

#### Parcel ID:

#### Acres in Tract:

### [-] Permit Details

**Date Issued:** 05/14/1996    **Date Expires:** 05/14/1997

**Use(s):** MUNICIPAL

**Aquifer(s):** ARAPAHOE

#### Special Use:

#### Area which may be irrigated:

#### Maximum annual volume of appropriation:

#### Statute:

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
	Yes	No	No

#### Cross Reference Permit Number

#### Receipt

#### Description

#### Permit(s):

**Comments:**SEE HEARING: 96-GW-09

### [-] Construction/Usage Details

**Well Construction Date:** 09/19/1996

**Pump Installation Date:**

**Well Plugged:**

**1st Beneficial Use:** 05/01/1997

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
7170	1900	1392	1880	924	53

Driller	Lic #	Name	Address	Phone Number
	1200	TORMOEHLN, DAVID A.	4975 SW WINNEMUCCA BLVD WINNEMUCCA, NY 89445	775-623-5259

### [-] Application/Permit History

Ownership Change	05/14/2013
Notice of Commencement of Beneficial Use	01/16/1998
First Beneficial Use	05/01/1997
Well Construction Report Received	10/22/1996
Well Constructed	09/19/1996
Permit Issued	05/14/1996
Application Received	06/25/1993

### [-] Imaged Documents

Document Name	Date Imaged	Annotated
Change in Owner Name/Address/Location	05/30/2013	No
Original File	12/01/2007	No







Colorado Division of

## Water Resources

Colorado's Well Permit Search

**Well Constructed**[Help](#)

Last Refresh: 2/25/2015 12:01:56 AM

Receipt: 0260356A

Permit #: 30593-F -

Well Name / #:

Designated Basin: UPPER BLACK SQUIRREL CREEK

Case Number:

WDID:

Division: 2

Water District: 10

County: EL PASO

Management District: UPPER BLACK SQUIRREL

**[ - ] Applicant/Owners History**

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METROPOLITAN DIST	9830 LIBERTY GROVE DR	FALCON, CO 80831-

**[ - ] Location Information**

Approved Well Location:

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SW	NE	25	12.05	65.0W	Sixth	1420 N 2000 E

Northing (UTM y): 4314659.9 Easting (UTM x): 533375.3

Location Accuracy: Spotted from section lines

Physical Address

Subdivision Name

City/State/Zip

Filing Block Lot

Parcel ID:

Acres in Tract: 1440

**[ - ] Permit Details**

Date Issued: 10/28/1986

Date Expires: 10/27/1987

Use(s): MUNICIPAL

Aquifer(s): ARAPAHOE

Special Use:

Area which may be irrigated: 0 ACRES

Maximum annual volume of appropriation:

Statute:

Permit Requirements:

Totalizing Flow Meter  
YesGeophysical Log  
NoAbandonment Report  
No

Cross Reference Permit Number

Receipt

Description

Permit(s):

Comments:

**[ - ] Construction/Usage Details**

Well Construction Date: 03/10/1988

Pump Installation Date: 06/28/1989

Well Plugged:

1st Beneficial Use: 06/28/1989

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
	1906			826	70

Driller	Lic #	Name	Address	Phone Number
	308	CRANDALL, HARLEY	BOX 471 STRASBURG, CO 80136	303-622-4462

**[ - ] Application/Permit History**

Ownership Change	10/18/2013
Statement of Beneficial Use Received	11/21/1990
Pump Installation Report Received	07/13/1989
First Beneficial Use	06/28/1989
Pump Installed	06/28/1989
Well Construction Report Received	04/01/1988
Well Constructed	03/10/1988
Permit Issued	10/28/1986
Application Received	11/12/1985

**[ - ] Imaged Documents**

Document Name	Date Imaged	Annotated
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/26/2013	No
<a href="#">Change in Owner Name/Address/Location</a>	05/30/2013	No
<a href="#">Permit to Construct a Well</a>	12/01/2007	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 0260356A

<a href="#">Pump Installation &amp; Test</a>	12/01/2007	No
<a href="#">Well Construction &amp; Test</a>	12/01/2007	No
<a href="#">Original File</a>	12/01/2007	No
<a href="#">Field Inspection</a>	11/28/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/28/2007	No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [DWR](#) | [Privacy Policy](#) | [Transparency Online](#) | [About](#) | [Full](#)

---



# Colorado Division of Water Resources

## Colorado's Well Permit Search

### Well Constructed

[Help](#) Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 0542358  
**Permit #:** 63429-F -  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

### [-] Applicant/Owners History

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METROPOLITAN DISTRICT	9830 LIBERTY GROVE DR.	FALCON, CO 80831-

### [-] Location Information

#### Approved Well Location:

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SW	SE	26	12.05	65.0W	Sixth	320 S 1580 E

**Northing (UTM y):** 4313553.5    **Easting (UTM x):** 531892.5  
**Location Accuracy:** Spotted from section lines

#### Physical Address

#### Subdivision Name

#### City/State/Zip

#### Filing Block Lot

#### Parcel ID:

Acres in Tract: 1440

### [-] Permit Details

**Date Issued:** 10/28/2005    **Date Expires:** 10/28/2006  
**Use(s):** ALL BENEFICIAL USES    **Aquifer(s):** LARAMIE FOX HILLS  
**Special Use:** AUGMENTED  
**Area which may be irrigated:** 1440 ACRES  
**Maximum annual volume of appropriation:**  
**Statute:**

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
	No	No	No

Cross Reference	Permit Number	Receipt	Description
<b>Permit(s):</b>	47813-F -	Unknown	

**Comments:**

### [-] Construction/Usage Details

**Well Construction Date:** 07/10/2006    **Pump Installation Date:**  
**Well Plugged:**    **1st Beneficial Use:** 10/18/2007

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
6740	2450	2225	2420	1605	

Driller	Lic #	Name	Address	Phone Number
	1200	TORMOEHLN, DAVID A.	4975 SW WINNEMUCCA BLVD WINNEMUCCA, NY 89445	775-623-5259

### [-] Application/Permit History

Ownership Change	05/14/2013
Notice of Commencement of Beneficial Use	11/16/2007
Statement of Beneficial Use Received	11/16/2007
First Beneficial Use	10/18/2007
Well Construction Report Received	07/28/2006
Well Constructed	07/10/2006
Permit Issued	10/28/2005
Application Received	08/15/2005

### [-] Imaged Documents

Document Name	Date Imaged	Annotated
<a href="#">Change in Owner Name/Address/Location</a>	05/30/2013	No
<a href="#">Statement of Beneficial Use</a>	03/27/2008	No
<a href="#">Notice of Commencement of Use</a>	03/27/2008	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 0542358

<a href="#">Permit to Construct a Well</a>	11/28/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/28/2007	No
<a href="#">General Purpose Application</a>	11/28/2007	No
<a href="#">Well Construction &amp; Test</a>	11/27/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/27/2007	No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [DWR](#) | [Privacy Policy](#) | [Transparency Online Project \(2015\)](#)

---



Colorado Division of Water Resources

Colorado Division of Water Resources

# Colorado Division of Water Resources

## Colorado's Well Permit Search

### Well Constructed

Help Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 9079954  
**Permit #:** 17048-F-  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

### [ - ] Applicant/Owners History

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METROPOLITAN DIST	9830 LIBERTY GROVE DR	FALCON, CO 80831-

### [ - ] Location Information

#### Approved Well Location:

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SW	SE	25	12.0S	65.0W	Sixth	650 S 1750 E

**Northing (UTM y):** 4313667.5 **Easting (UTM x):** 533454.2

**Location Accuracy:** Spotted from section lines

#### Physical Address

#### Subdivision Name

#### City/State/Zip

#### Filing Block Lot

#### Parcel ID:

#### Acres in Tract:

### [ - ] Permit Details

**Date Issued:** 03/21/1973 **Date Expires:** 03/21/1975

**Use(s):** OTHER

**Aquifer(s):** ARAPAHOE  
DENVER

**Special Use:**

**Area which may be irrigated:** 9000 acres  
**Maximum annual volume of appropriation:**

#### Statute:

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
	No	No	No

#### Cross Reference Permit Number

#### Receipt

#### Description

**Permit(s):**

**Comments:**

### [ - ] Construction/Usage Details

**Well Construction Date:** 07/03/1974

**Pump Installation Date:**

**Well Plugged:** **1st Beneficial Use:** 05/25/1972

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
2770		930	2450	730	150

### [ - ] Application/Permit History

Ownership Change	10/18/2013
Well Construction Report Received	04/07/1975
Well Constructed	07/03/1974
Permit Issued	03/21/1973
First Beneficial Use	05/25/1972
Application Received	01/10/1972

### [ - ] Imaged Documents

Document Name	Date Imaged	Annotated
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/26/2013	No
<a href="#">Change in Owner Name/Address/Location</a>	05/30/2013	No
<a href="#">Maps, Deeds &amp; Legal Descriptions</a>	08/21/2009	No
<a href="#">Denver Basin Exempt Well Data Sheet</a>	08/21/2009	No
<a href="#">Well Construction &amp; Test</a>	12/01/2007	No
<a href="#">Permit to Construct a Well</a>	12/01/2007	No
<a href="#">Original File</a>	12/01/2007	No
<a href="#">Maps, Deeds &amp; Legal Descriptions</a>	11/28/2007	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 9079954

[Field Inspection](#)

11/28/2007 No

[Correspondence, Memos, Findings & Hearings](#)

11/28/2007 No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [DNR](#) | [Privacy Policy](#) | [Transparency Online Project \(TOP\)](#)

---



# Colorado Division of Water Resources

Colorado's Well Permit Search

**Well Constructed**[Help](#)

Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 0546546  
**Permit #:** 64084-F -  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

**[ - ] Applicant/Owners History**

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METROPOLITAN DISTRICT	9630 LIBERTY GROVE DR	FALCON, CO 80831-

**[ - ] Location Information****Approved Well Location:**

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SW	NE	26	12.0S	65.0W	Sixth	2420 N 2270 E
Northing (UTM y):		4314341.0		Easting (UTM x):		531682.1
Location Accuracy: Spotted from section lines						

**Physical Address****Subdivision Name****City/State/Zip****Filing Block Lot****Parcel ID:****Acres in Tract:** 1440**[ - ] Permit Details**

**Date Issued:** 04/06/2006  
**Date Expires:** 04/06/2007  
**Use(s):** MUNICIPAL  
**Aquifer(s):** LARAMIE FOX HILLS  
**Special Use:**

**Area which may be irrigated:** 960 ACRES  
**Maximum annual volume of appropriation:**

**Statute:**

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
No	No	No	No

Cross Reference	Permit Number	Receipt	Description
Permit(s):	47813-F -	Unknown	

**Comments:****[ - ] Construction/Usage Details**

**Well Construction Date:** 08/15/2006  
**Pump Installation Date:**  
**Well Plugged:**  
**1st Beneficial Use:** 10/18/2007

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
2500		2295	2480	1653	

**Lic # Name**      **Address**      **Phone Number**  
 1200 TORMOEHLN, DAVID A.      4975 SW WINNEMUCCA BLVD WINNEMUCCA, NY 89445      775-623-5259

**[ - ] Application/Permit History**

Ownership Change	05/14/2013
Notice of Commencement of Beneficial Use	11/16/2007
Statement of Beneficial Use Received	11/16/2007
First Beneficial Use	10/18/2007
Well Construction Report Received	09/05/2006
Well Constructed	08/15/2006
Permit Issued	04/06/2006
Application Received	12/08/2005

**[ - ] Imaged Documents**

Document Name	Date Imaged	Annotated
Change in Owner Name/Address/Location	05/30/2013	No
Statement of Beneficial Use	03/27/2008	No
Notice of Commencement of Use	03/27/2008	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 0546546

<a href="#">General Purpose Application</a>	11/27/2007	No
<a href="#">Permit to Construct a Well</a>	11/27/2007	No
<a href="#">Well Construction &amp; Test</a>	11/27/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/27/2007	No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [GDPR](#) | [Privacy Policy](#) | [Temporary Online Project \(TOP\)](#)

---



Colorado Department of Natural Resources

# Colorado Division of Water Resources

## Colorado's Well Permit Search

**Well Constructed**

Help Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 0542358  
**Permit #:** 63429-F -  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

**[ - ] Applicant/Owners History**

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METROPOLITAN DISTRICT	9830 LIBERTY GROVE DR	FALCON, CO 80831

**[ - ] Location Information****Approved Well Location:**

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SW	SE	26	12.05	65.0W	Sixth	320 S 1580 E

**Northing (UTM y):** 4313553.5    **Easting (UTM x):** 531892.5  
**Location Accuracy:** Spotted from section lines

**Physical Address****Subdivision Name****City/State/Zip****Filing Block Lot****Parcel ID:****Acres in Tract:** 1440**[ - ] Permit Details**

**Date Issued:** 10/28/2005    **Date Expires:** 10/28/2006  
**Use(s):** ALL BENEFICIAL USES    **Aquifer(s):** LARAMIE FOX HILLS  
**Special Use:** AUGMENTED

**Area which may be irrigated:** 1440 ACRES  
**Maximum annual volume of appropriation:**

**Statute:**

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
	No	No	No

Cross Reference	Permit Number	Receipt	Description
Permit(s):	47813-F -	Unknown	

**Comments:****[ - ] Construction/Usage Details**

**Well Construction Date:** 07/10/2006    **Pump Installation Date:**  
**Well Plugged:**    **1st Beneficial Use:** 10/18/2007

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
6740	2450	2225	2420	1605	

Driller	Lic #	Name	Address	Phone Number
	1200	TORMOEHLER, DAVID A.	4975 SW WINNEMUCCA BLVD WINNEMUCCA, NY 89445	775-623-5259

**[ - ] Application/Permit History**

Ownership Change	05/14/2013
Notice of Commencement of Beneficial Use	11/16/2007
Statement of Beneficial Use Received	11/16/2007
First Beneficial Use	10/18/2007
Well Construction Report Received	07/28/2006
Well Constructed	07/10/2006
Permit Issued	10/28/2005
Application Received	08/15/2005

**[ - ] Imaged Documents**

Document Name	Date Imaged	Annotated
Change in Owner Name/Address/Location	05/30/2013	No
Statement of Beneficial Use	03/27/2008	No
Notice of Commencement of Use	03/27/2008	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 0542358

<a href="#">Permit to Construct a Well</a>	11/28/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/28/2007	No
<a href="#">General Purpose Application</a>	11/28/2007	No
<a href="#">Well Construction &amp; Test</a>	11/27/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/27/2007	No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [DWR](#) | [Privacy Policy](#) | [Transparency Online Project \(TOR\)](#)

---



# Colorado Division of Water Resources

## Colorado's Well Permit Search

### Well Constructed

[Help](#) Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 0519203  
**Permit #:** 60862-F -  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

### [-] Applicant/Owners History

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METRO DISTRICT	9830 LIBERTY GROVE DR	FALCON, CO 80831

### [-] Location Information

#### Approved Well Location:

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
SW	SE	26	12.05	65.0W	Sixth	300 S 1600 E
Northing (UTM y):		4313546.9		Easting (UTM x):		531886.3
Location Accuracy:		User supplied				

#### Physical Address

#### Subdivision Name

#### City/State/Zip

#### Filing Block Lot

#### Parcel ID:

Acres in Tract: 1440

### [-] Permit Details

**Date Issued:** 03/18/2004 **Date Expires:** 03/18/2005

**Use(s):** MUNICIPAL **Aquifer(s):** ARAPAHOE

#### Special Use:

#### Area which may be irrigated:

#### Maximum annual volume of appropriation:

#### Statute:

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
	Yes	Yes	No

Cross Reference	Permit Number	Receipt	Description
Permit(s):	46553-F -	0355875B	

**Comments:**ADDITIONAL WELL FOR 46553-F

### [-] Construction/Usage Details

**Well Construction Date:** 06/24/2004

**Pump Installation Date:**

**Well Plugged:**

**1st Beneficial Use:** 10/18/2007

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
1870		1420	1855	1112	85
<b>Driller</b>		<b>Lic #</b>	<b>Name</b>	<b>Address</b>	<b>Phone Number</b>
		1200	TORMOEHLN, DAVID A.	4975 SW WINNEMUCCA BLVD WINNEMUCCA, NY 89445	775-623-5259

### [-] Application/Permit History

Ownership Change	05/14/2013
Notice of Commencement of Beneficial Use	11/16/2007
Statement of Beneficial Use Received	11/16/2007
First Beneficial Use	10/18/2007
Well Construction Report Received	07/07/2004
Well Constructed	06/24/2004
Permit Issued	03/18/2004
Application Received	01/12/2004

### [-] Imaged Documents

Document Name	Date Imaged	Annotated
<a href="#">Change in Owner Name/Address/Location</a>	05/30/2013	No
<a href="#">Statement of Beneficial Use</a>	03/27/2008	No
<a href="#">Notice of Commencement of Use</a>	03/27/2008	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 0519203

<a href="#">Permit to Construct a Well</a>	11/29/2007	No
<a href="#">Well Construction &amp; Test</a>	11/29/2007	No
<a href="#">Denver Basin Exempt Well Data Sheet</a>	11/29/2007	No
<a href="#">General Purpose Application</a>	11/29/2007	No
<a href="#">Maps, Deeds &amp; Legal Descriptions</a>	11/29/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	11/29/2007	No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [DNR](#) | [Privacy Policy](#) | [Transparency](#) | [Online Records \(OLR\)](#)

---



Colorado Department of Natural Resources

# Colorado Division of Water Resources

## Colorado's Well Permit Search

### Well Constructed

Help Last Refresh: 2/25/2015 12:01:56 AM

**Receipt:** 0468250B  
**Permit #:** 55193-F-  
**Well Name / #:**  
**Designated Basin:** UPPER BLACK SQUIRREL CREEK  
**Case Number:**  
**WDID:**

**Division:** 2  
**Water District:** 10  
**County:** EL PASO  
**Management District:** UPPER BLACK SQUIRREL

### [-] Applicant/Owners History

Date Range	Applicant/Owner Name	Address	City/State/Zip
Unknown - Present	PAINT BRUSH HILLS METROPOLITAN DIST	9830 LIBERTY GROVE DR	FALCON, CO 80831-

### [-] Location Information

#### Approved Well Location:

Q40	Q160	Section	Township	Range	PM	Footage from Section Lines
NW	NW	25	12.0S	65.0W	Sixth	250 N 200 W

**Northing (UTM y):** 4315010.4 **Easting (UTM x):** 532434.9

**Location Accuracy:** Spotted from section lines

#### Physical Address

#### Subdivision Name

#### City/State/Zip

#### Filing Block Lot

#### Parcel ID:

**Acres in Tract:** 1440

### [-] Permit Details

**Date Issued:** 01/18/2001 **Date Expires:** 01/18/2002

**Use(s):** MUNICIPAL  
COMMERCIAL **Aquifer(s):** ARAPAHOE

#### Special Use:

#### Area which may be irrigated:

#### Maximum annual volume of appropriation:

#### Statute:

Permit Requirements:	Totalizing Flow Meter	Geophysical Log	Abandonment Report
	Yes	Yes	No

Cross Reference	Permit Number	Receipt	Description
Permit(s):	46553-F-	Unknown	

**Comments:** ADDITIONAL WELL FOR 46553-F

### [-] Construction/Usage Details

**Well Construction Date:** 05/18/2001 **Pump Installation Date:** 08/25/2001

**Well Plugged:** **1st Beneficial Use:**

Elevation	Depth	Perforated Casing (Top)	Perforated Casing (Bottom)	Static Water Level	Pump Rate
2000		1585	1990	1137	76

	Lic #	Name	Address	Phone Number
<b>Driller</b>	1200	TORMOEHLN, DAVID A.	4975 SW WINNEMUCCA BLVD WINNEMUCCA, NY 89445	775-623-5259
<b>Pump Installer</b>	1200	TORMOEHLN, DAVID A.	4975 SW WINNEMUCCA BLVD WINNEMUCCA, NY 89445	775-623-5259

### [-] Application/Permit History

Ownership Change	05/14/2013
Pump Installation Report Received	10/23/2001
Pump Installed	08/25/2001
Well Construction Report Received	06/13/2001
Well Constructed	05/18/2001
Permit Issued	01/18/2001
Application Received	10/18/2000

### [-] Imaged Documents

Document Name	Date Imaged	Annotated
Change in Owner Name/Address/Location	05/30/2013	No



2/25/2015

State of Colorado Water Resources - View Well Details: Receipt 0468250B

<a href="#">Pump Installation &amp; Test</a>	12/01/2007	No
<a href="#">Well Construction &amp; Test</a>	12/01/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	12/01/2007	No
<a href="#">General Purpose Application</a>	12/01/2007	No
<a href="#">Permit to Construct a Well</a>	12/01/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	12/01/2007	No
<a href="#">Correspondence, Memos, Findings &amp; Hearings</a>	12/01/2007	No

Copyright © 2009 Colorado Division of Water Resources. All rights reserved.

[Home](#) | [Contact Us](#) | [Help](#) | [Water Links](#) | [Colorado.gov](#) | [DNR](#) | [Privacy Policy](#) | [Transparency Online: Freedom of Information Act](#)

---



## **APPENDIX B JDS-HYDRO Report**

# **2013 Water Supply Report**

**For**

**PAINT BRUSH HILLS METROPOLITAN DISTRICT**



**NOVEMBER 2013**



**CONSULTANTS, INC.**

2013 Water Supply Report

For  
Paint Brush Hills Metropolitan District

November 2013

Prepared for:

Paint Brush Hills Metropolitan District

Prepared by:

JDS-Hydro Consultants, Inc.  
545 East Pikes Peak, Suite 300  
Colorado Springs, CO 80903

# TABLE OF CONTENTS

## 1.0 INTRODUCTION AND CONCLUSION

## 2.0 WATER DEMAND ANALYSIS

Figure 1: *Paint Brush Hills Historical User Characteristic*

Table 1: *Paint Brush Hills Metro District Water User Characteristics*

## 3.0 LEGAL WATER SUPPLY

3.1 *Denver Basin Sources*

3.2 *Contractual Rights*

3.3 *Decreed Surface Rights*

3.4 *Adequacy of Legal Water Supply*

Table 2: *Legal Water Supply Inventory and Commitment Summary*

## 4.0 PHYSICAL WATER SUPPLY

4.1 *Denver Basin Sources*

4.2 *Transfer Station*

4.3 *Adequacy of Physical Supply*

Table 3: *Physical Water Supply Inventory*

## APPENDICES

- *Appendix A; Denver Basin Water Source*
  - A-1: Finding 47813-F (Laramie Fox Hills)*
  - A-2: Permit 17048-F with recent letter*
  - A-3 Finding 46553-F (Arapahoe)*
  - A-4: Determination 214-BD*
- *Appendix B; Contractual Right*
  - B-1: Contract with Meridian Service Metro District*
  - B-2: Assignment of Contractual Water Right*
- *Appendix C; Water Commitment Summary (Update 12/01/08)*

## 1.0 INTRODUCTION AND CONCLUSION

**Introduction:** The Paint Brush Hills Metropolitan District currently includes a service area of approximately 9 square miles. The District has 720 actual taps which equate to about 805 Single Family Equivalent taps. An SFE is defined as the water generally used by a single family detached residence.

PBHMD supply is primarily dependent on the Denver Basin Aquifer which is a non-renewable water source. However, a portion of the District's portfolio is based on a contractual renewable Upper Black Squirrel supply.

An interesting element of this effort is that a significant portion of this district was platted prior to the implementation of the "El Paso County 300 Year Rule" and therefore is not subject to that ruling. Consequently in order to mix 100 year rule subdivisions with 300 year subdivisions, our analysis is performed on a total volumetric basis.

**Conclusion:** This report is in general concurrence with previous reports relative to legal supply except for the very minor deviations and the characterization of the contractual rights.

The findings of this report conclude that PBHMD has adequate legal and physical water supply for existing customers, existing commitments and commitments under consideration which include Filing 13B and the Scenic View at Paint Brush Hills Subdivision of 91 lots.

Excess legal supply beyond that level will support roughly an additional 590 single family units and physical supply would provide for roughly an additional 307 single family units.

Additionally, PBHMD has certain "contingent supplies" which can be developed to further legal and physical supply.

} 805 +  
91

## 2.0 WATER DEMAND ANALYSIS

District Water User Characteristics: For the purpose of projecting current and future water needs as well as planning infrastructure, we have performed a brief study of the historical patterns of water use for PBHMD.

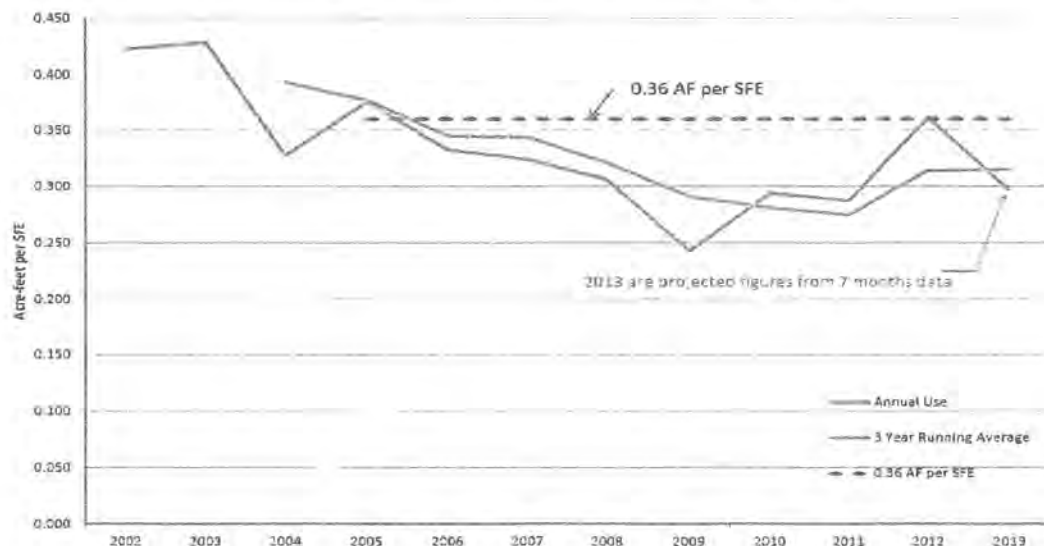
Over the recent decade, water consumption per tap or has decreased dramatically along the Front Range. This is due in part to several reasons which are likely to continue into the future:

- Price Elasticity - as entities (including PBHMD) have converted to the inverted block rate, users have responded to the increased cost of water by reducing usage
- Increased water conservation awareness
- Increased use of flow restriction devices, low flow toilets, etc.
- Dramatically decreased lot size/irrigated landscape area; This is especially true in PBHMD where earlier filing covenants required lawn maintenance of a certain minimum size to the current condition where plat restrictions that limit lawn irrigation size.

Currently, the historic figures indicate that PBHMD actually uses dramatically lower annual water user characteristics than committed in the past. Figure 1 below is a presentation of the trend for annual water user characteristics for PBHMD. A factor of 0.36 AF per SFE will be adopted for the purpose of future planning for actual physical source of supply and computation legal supply going forward. We elected to leave the old legal demand allocations for previous subdivisions in place, since formal commitments are attached to those figures.

*Could be low? Doesn't include losses?*

Figure 1. Paint Brush Hills Historical User Characteristic



It is expected that newer lots will continue the trend to smaller lot sizes as Filings 11 and 12 present and to smaller turf and lawn irrigation. Table 1 below is a listing of system user characteristics that will be used for making various projections including adequacy of physical supply.

**Table 1**  
**Paint Brush Hills Metro District Water User Characteristics**

<b>Land Use</b>	<b>Annual <sup>1</sup> Demand (Acre-Feet)</b>	<b>Average Daily Demand (GPD)</b>	<b>Maximum <sup>2</sup> Daily Demand (GPD)</b>	<b>Peak <sup>2</sup> Hour Flow (GPM)</b>
Single Family Unit (SFE)	0.360	321 GPD	642 GPD	0.66 GPM
Indoor Use	0.193			
Irrigation	0.167			
Middle School	22.0	19640 GPD	22,586 GPD	23.2 GPM
Greenbelts	14.0	12,500 GPD	28,125 GPD	58,120 GPD

*Note 1. Annual Demand based on 0.36 AF/SFE per Figure 1*

*Note 2. Residential Peaking Factors*

<i>2.0 MDF/ADF</i>	<i>1.48 PHF/MDF</i>
<i>Middle School</i>	<i>1.15 MDF/ADF 1.48 PHF/MDF</i>
<i>Greenbelts</i>	<i>2.25 MDF/ADF 2.75 PHF/MDF</i>

### 3.0 *LEGAL WATER SUPPLY*

#### 3.1 *Denver Basin Sources:*

PBHMD has adjudicated several Denver Basin rights underlying lands of the District for the purpose of beneficial uses within the District. Some of these rights have been fully developed and are available as physical supply, while some remain as contingent sources, requiring additional efforts to classify as legal source.

The rights currently include Laramie Fox-Hills, Arapahoe, and Denver sources. Additional Dawson water may be made available for legal supply upon completion of the Replacement Plan which is in process.

There are a few miscellaneous contingent rights that are likely to be implemented in the future as well. Appendices A-1, A-2, A-3, and A-4 document the current Denver Basin legal supplies.

A well named A-1 (permit 17048-F) has been withheld from calculation in previous water resource reports because of a potential issue with the Statement of Beneficial Use. A recently adopted State Statute SB 13-72 amends elements of the SBU requirement and directs the State Engineer to issue final permits on various wells within the Denver Basin. This has been something of a "clean-up" of outstanding well permits. The attached letter acknowledges the completion of well A-1 (17048-F) into both Denver and Arapahoe aquifers and acknowledges the water right as per conditional as valid. This resolves the issues related to A-1 and clears up the validity of 130.7 AF Arapahoe and 111.3 AF Denver (100 year basis).

#### 3.2 *Contractual Rights*

PBHMD has a contract with Meridian Service Metropolitan District for the perpetual lease of up to 85 annual acre-feet of water. A copy of the contract is attached in Appendix B-1. The contractual right was originally assigned to Six Ninety Nine L. A., LLC on September 8, 2003, but was subsequently assigned over to the PBH District via instrument entitled "Lift Station and Water Assignment" dated April, 2, 2004. This document is also noted in Appendix B-2.

Our review of the documents referenced does not constitute a legal review of the contractual rights, however, in our opinion there are several significant elements;

- The right is clearly enumerated as perpetual and therefor would meet the 300 year standard
- In the recitals, it is implied that the water right is based on alluvial water from the Upper Black Squirrel Creek Designated

Groundwater Basin which is "renewable". As renewable the name plate (85 annual acre-feet) also meets the 300 year rule as renewable

- The only limiting conditions referenced are specified in paragraph 7 which reference the Supreme Court Decision in Cherokee Water District vs City of Colorado Springs
- It is known that the PBHMD service area is entirely within the Upper Black Squirrel Creek Designated Groundwater Basin

It is our opinion that the 85 acre-feet is perpetual and renewable and therefor may be considered as a renewable supply for the purpose of legal and physical supply for PBHMD.

### 3.3 Decreed Surface Rights

PBHMD is a party to an absolute water rights decree which allows for surface water diversions from an un-named tributary in the Upper Black Squirrel system. A copy of that decree is attached as Appendix C. While PBHMD is a party to the decree the water is currently unavailable for use in the potable system and cannot be classified as a physical supply for the purpose of providing beneficial supply at this time.

why not?  
How much  
supply?

### 3.4 Adequacy of Legal Water Supply

Table 2 on the following page is a summary of the Legal Water Supply Inventory for Paint Brush Hills Metropolitan District. This summary presents current legal supply and also delineates certain contingent supplies that are potentially convertible to actual supply. Our findings are somewhat consistent with the findings of Curt Wells (Appendix C) with the exception of the nature of the contractual water supply and the addition of the 17048-F water which has been recently clarified per SEO letter.

Our analysis of the legal demand is slightly different as we have analyzed actual historical use to develop projected needs. We have left the legal demands in place as they were initially projected but we do note that the initial projections indicate that water demands were over-estimated which causes the projected legal supply to be rather conservative.

Filings 4 through 9 within PBHMD were approved prior to the 300 year rule being implemented. Therefore we are presenting our breakdown in a volumetric fashion to account for those differences.

It is our opinion that Paint Brush Hills Metropolitan District has adequate legal supply for its existing customers as well as 21 units in Filing 13B and the proposed Subdivision having 91 single family lot equivalents. In addition to that, we believe that the legal supply has an additional 590 potential single family equivalent capabilities.

**Table 2.**  
**Paint Brush Hills Metropolitan District**  
**Legal Water Supply Inventory and Commitment Summary**

Lead Formation/Aquifer	Finding/ Determination/ Decree	Tributary Status	Volume <small>(Acres-Foot)</small>	Annual Allocation 100 Year <small>A-F/Year</small>	Annual Supply 300 Year <small>A-F/Year</small>	Well Permits
<b>Current Legal Sources</b>						
Laramie Fox Hills	47813-F Appendix A-1	NT	38,800	388.00	129.33	LFH-1 (47813-F) LFH-2 (50877-F) LFH-3 (55192-F) LFH-4 (63429-F) LFH-5 (64084-F)
Arzapaloe	17048-F Appendix A-2	NT	13070	130.70	13.57	A-1 (17048-F)
	16533-F Appendix A-3	NT	18200	182.00	60.67	A-3 (46554-F) A-4 (55193-F) A-5 (60862-F) A-6 (64086-F)
Deeover	17048-F Appendix A-2	NT	11130	111.3	37.1	A-1 (17048-F)
	214-BD Appendix A-4	NNT 4%	29750	297.50	99.17	
85 AF Contractual Right	Contract MISMD Appendix B-1 Appendix B-2	UBSC Alluvium	25500	85.00	85.00	UBSC non-specific source Alluvial Water
<b>Total Current Legal Supply</b>			<b>136,450.00</b>	<b>1,194.50</b>	<b>454.83</b>	
<b>Contingent Sources</b>						
Dawson	719-BD	NNT	23700	237.00	79.00 *	Requires Completion of Replacement Plan
Dawson (50 acres)	unappropriated	NNT	2000	20.00		Requires Determination and Replace
Deeover (50 acres)	unappropriated	NT	2550	25.50		Requires Determination
Arzapaloe	30593-F	NT	11300	113.00	37.67	A-2 (30593-F)
Surface Water Diversion Return Flows 02CW 016	05CW013	2 cfs				Allocation is 25% Unavailable for potable supply

**Paint Brush Hills Metropolitan District**  
**Commitment Summary**

Subdivisions/ User	Commercial		Residential			Basis of Supply (Years)	Volumetric Need (AF)
	SFE	AF	Units (SFE)	Unit User-Charge (AF)	AF		
Middle School	44	22				100	4400
Greenbelts	28	14				100	2800
Filing 4			164	0.5	82.00	100	8200
Filing 5			31	0.5	15.50	100	1550
Filing 6			48	0.5	24.00	100	2400
Filing 7			57	0.5	28.50	100	2850
Filing 8			106	0.5	53.00	100	5300
Filing 9			88	0.5	44.00	100	4400
Filing 10			90	0.4	36.00	300	10800
Filing 11			81	0.4	32.40	300	9720
Filing 12			51	0.4	20.40	300	6120
Church	1.5	0.20				300	60
Filing 13A			17	0.4	6.80	300	2040
<b>Current Commitments</b>			<b>865.5</b>				<b>60640</b>
Filing 13B			21	0.36	7.56	300	2268
Scenic View of Paint Brush Hills			91	0.36	32.76	300	9828
			<b>917.5</b>				<b>71736</b>
<b>Net Current Excess</b>			<b>580</b>			<b>0.36</b>	<b>212.40</b>
			<b>Total</b>				<b>136456</b>

only 90 hours.  
Falcon Reserve = 23 ac-ft/yr.

look @ Decree  
Dawson Replacement?  
Goal is to clean.

## 4.0 PHYSICAL WATER SUPPLY

### 4.1 Denver Basin Sources:

PBHMD has wells in the Arapahoe and Laramie-Fox Hills formations of the Denver Basin Aquifer. We performed a site visit to each supply, analyzed its condition, and capacity, to develop a current assessment of the PBHMD current physical supply capabilities. Table 3 presents a summary of the findings of that review.

### 4.2 Transfer Station:

PBHMD has a pumping transfer station which provides the physical supply of the water that is contracted for from Meridian Ranch. The contract has no limit as to instantaneous or monthly limits only the total annual limitation. The supply is only used as a peaking supply because of the costs and therefore is operated only during a few of the summer months to aid in meeting maximum daily needs.

The station is capable of instantaneous flows of 150 gallons per minute but provides a safe daily supply of 125 GPM.

### 4.3 Adequacy of Physical Supply

The adequacy of physical supply is analyzed on what is termed the Maximum Daily Demands of the system. Peak hour demands are met by using equalizing storage within the given supply system.

Using the demand factors presented in Table 1, the actual physical needs of the system are compared to the actual physical supply in Table 2. Currently the MDD is projected as 0.521 MGD for the existing system including existing commitments. The projected need at MDD when considering Filing 13B and a proposed 91 lot subdivision is 0.593 MGD.

At 90 % capacity the Maximum Daily Capability is 0.706 MGD leaving excess capacity for about 307 additional units above the commitments under consideration.

*This would indicate that not all of the water supply has been developed.*

**Table 3**  
**Paint Brush Hills Metropolitan District**  
**Physical Water Supply Inventory Summary**

Land Formation/Aquifer	Well Number	Status	Current Instantaneous Flow-rate (Gal/Minute)		Well Permit(s)
<u>Current Sources</u>					
Laramie Fox Hills	Well 4/LFH-1	Unused	0		LFH-1 (47813-F)
Laramie Fox Hills	Well 5/LFH-2	Unused	0		LFH-2 (50877-F)
Laramie Fox Hills	Well 7/LFH-3	Unused	0		LFH-3 (55192-F)
Laramie Fox Hills	Well 9/LFH-4	Good	100		LFH-4 (63429-F)
Laramie Fox Hills	Well 11/LFH-5	Good	125		LFH-5 (64084-F)
Arapahoe	Well 1/A-1	Unused	65		A-1 (17048-F)
Arapahoe	Well 2/A-2	Fair	65		A-2 (46553-F)
Arapahoe	Well 3/A-3	Unused	0		A-3 (46553-F)
Arapahoe	Well 6/A-4	Unused	0		A-4 (55193-F)
Arapahoe	Well 8/A-5	Good	75		A-5 (60862-F)
Arapahoe	Well 10/A-6	Good	55		A-6 (64086-F)
Transfer Station	N/A	Good	125		N/A
<b>Total</b>			<b>610</b>	<b>GPM</b>	
<b>Net at 90 % Instantaneous</b>			<b>549</b>	<b>GPM</b>	
<b>Max Day Capability</b>			<b>790560</b>	<b>GPD</b>	

*Which ones are existing?  
all-*

**Physical Demand**

	Units	User Char GPD/Unit	Average Daily Demand GPD	Maximum Daily Demand GPD	
Greenbelts			12500	28125	
Middle School			19640	22586	
Church	0.5	321	160.5	321	
Residential (Existing Commitments)					
Filing 4	164	321	52644	105288	
Filing 5	31	321	9951	19902	
Filing 6	48	321	15408	30816	
Filing 7	57	321	18297	36594	
Filing 8	106	321	34026	68052	
Filing 9	88	321	28248	56496	
Filing 10	90	321	28890	57780	
Filing 11	81	321	26001	52002	
Filing 12	51	321	16371	32742	
Filing 13 A	17	321	5457	10914	
<b>Existing Total Commitments</b>			<b>267594</b>	<b>521618</b>	
Filing 13B	21	321.00	6741.00	13482	
91 Lots scenic view	91	321.00	29211.00	58422	
<b>Proposed Commitment Physical Demand</b>				<b>593522</b>	<b>GPD</b>
<b>Remaining Excess Supply (GPD)</b>				<b>197038</b>	<b>GPD</b>
<b>Remaining Excess Projected (SFE)</b>				<b>307</b>	<b>SFE</b>

*why  
10  
now*

# *Appendix A-1*

## FINDINGS OF THE COLORADO GROUND WATER COMMISSION

IN THE MATTER OF AN APPLICATION FOR A PERMIT TO CONSTRUCT A WELL AND APPROPRIATE GROUND WATER IN THE UPPER BLACK SQUIRREL CREEK DESIGNATED GROUND WATER BASIN.

APPLICANT: PAINT BRUSH HILLS METROPOLITAN DISTRICT

AQUIFER: LARAMIE-FOX HILLS

PERMIT NO.: 47813-F

In compliance with Sections 37-90-107(1) and 37-90-111(5), C.R.S., Paint Brush Hills Metropolitan District, (hereinafter "applicant") submitted an application for a permit to construct a well and appropriate ground water from the Laramie-Fox Hills Aquifer. Based on information provided by the applicant and records of the Division of Water Resources, and in accordance with the Designated Basin Rules (2 CCR 410-1), the Ground Water Commission finds as follows:

1. The application was received complete by the Ground Water Commission on September 13, 1996.
2. a. The applicant proposes to appropriate ground water from the Laramie-Fox Hills Aquifer underlying 1440 acres of land generally described as the SE1/4 of Section 23, the S1/2 of Section 24, all of Section 25 and the E1/2 of Section 26, all in Township 12 South, Range 65 West of the 6th Principal Meridian. According to a signed statement dated September 12, 1996, the applicant claims the ownership or control of the ground water in the Laramie-Fox Hills Aquifer underlying this land area, as further described in said affidavit which is attached hereto as Exhibit A. The proposed annual appropriation is 389 acre-feet.  
  
b. The applicant proposes to construct a well in the SW1/4 of the NW1/4 of Section 25, Township 12 South, Range 65 West of the 6th Principal Meridian at a location 2600 feet from the North section line and 50 feet from the West section line of said Section 25. The well would be constructed to divert ground water from the Laramie-Fox Hill Aquifer (hereinafter "aquifer") with a maximum pumping rate of 242 g.p.m.
3. The land area overlying the ground water claimed by the applicant is located within the boundaries of the Upper Black Squirrel Creek Designated Ground Water Basin and Ground Water Management District. The Ground Water Commission has jurisdiction.
4. The applicant proposes to apply the appropriated ground water to the following beneficial uses: municipal use within the service area of the Paint Brush Hills Metropolitan District.
5. The location of the proposed well is more than 800 feet from any existing large-capacity well completed in the aquifer.
6. The applicant will own or control the land on which the well will be constructed.

7. The quantity of water in the aquifer underlying the 1440 acres of land claimed by the applicant is 38,880 acre-feet. This determination was based on the following as specified in the Designated Basin Rules:
  - a. The average specific yield of the saturated permeable material of the aquifer underlying the land under consideration that could yield a sufficient quantity of water that may be extracted and applied to beneficial use is 15 percent.
  - b. The average thickness of the saturated permeable material of the aquifer underlying the land under consideration that could yield a sufficient quantity of water that may be extracted and applied to beneficial use is 180 feet.
8. At this time, there is no substantial artificial recharge which would affect the aquifer within a 100-year period.
9. Pursuant to Section 37-90-111(5), C.R.S., the Ground Water Commission is required to allocate designated ground water in the aquifer on the basis of landownership and a 100-year aquifer life. Therefore, the maximum annual appropriation which could be allowed pursuant to the data in the paragraphs above for the 1440 acre described land area is 388 acre-feet.
10. The ability of the well, with any additional wells, to withdraw the authorized amount of water from this non-renewable aquifer may be less than the 100 years upon which the amount of water in the aquifer is allocated, due to anticipated water level declines.
11. Withdrawal of ground water from the aquifer underlying the land claimed by the applicant will not, within one hundred years, deplete the flow of a natural stream or its alluvial aquifer at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal and therefore the ground water is nontributary ground water as defined in Rule 4.2.19 of the Designated Basin Rules.
12. A review of the records of the Ground Water Commission has disclosed that none of the water in the aquifer underlying the land claimed by the applicant has been previously appropriated.
13. In accordance with Rules 5.3.8 and 5.3.9 of the Designated Basin Rules, additional wells may be permitted to withdraw the total allowed appropriation together with the proposed well.
14. On August 5, 1996, a letter was sent to the Upper Black Squirrel Creek Ground Water Management District requesting recommendations concerning this application. On September 9, 1996, a letter was received from the board of directors of the district stating that the application met with the board's approval.
15. The Commission Staff has evaluated the application relying on the claims to control of the water in the aquifer made by the applicant.

16. In accordance with Sections 37-90-107(2) and 37-90-112, C.R.S., the application was published in the Gazette Telegraph newspaper on October 31 and November 7, 1996.
17. No objections to the proposed appropriation were received within the time limit set by statute.
18. The Ground Water Commission finds that unreasonable impairment of existing water rights will not occur from approval of the appropriation and issuance of the well permit if the following conditions are complied with:
  - a. The well, and any additional wells approved by the Commission to withdraw this appropriation (hereinafter "additional wells"), must be constructed to withdraw water from only the Laramie-Fox Hills Aquifer. At the proposed well location, the top of the aquifer is located approximately 2235 feet below ground surface and the bottom of the aquifer is located approximately 2520 feet below ground surface. Plain, non-perforated casing must be installed and sealed to prevent diversion of ground water from other aquifers and the movement of ground water between aquifers.
  - b. Well permits for additional wells to withdraw the appropriation shall be available upon application, subject to approval by the Commission.
  - c. The entire depth of the well and any additional wells must be geophysically logged prior to installing the casing as set forth in Rule 9 of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7.
  - d. The maximum annual amount of water to be diverted from the aquifer by the well, together with any additional wells, shall not exceed 388 acre-feet. The Commission may adjust the annual appropriation based on analysis of the geophysical logs if such analysis indicates that the initial estimate of the volume of water in storage was incorrect.
  - e. The use of ground water from the appropriation shall be limited to the following uses: municipal use within the service area of the Paint Brush Hills Metropolitan District.
  - f. No more than 98% of the ground water withdrawn annually from this well and any additional wells shall be consumed. The Commission may require the well owner to demonstrate periodically that no more than 98% of the water withdrawn from the well is being consumed.
  - g. The maximum pumping rate of the well and any additional well shall not exceed 242 g.p.m.
  - h. The well and any additional wells shall be constructed within 200 feet of the location specified on the individual permit application, but must be more than 600 feet from any existing large-capacity well completed in the aquifer. Any additional wells shall be located on the 1440 acre claimed area on land owned or controlled by the well owner.

Applicant: Paint Brush Hills Metropolitan District  
Aquifer: Laramie-Fox Hills  
Permit No.: 47813-F

Page 4

I. A totalizing flow meter shall be installed on the well and any additional wells and maintained by the well owner. Annual diversion records shall be collected and maintained by the well owner and submitted to the Commission upon their request.

J. The well owner shall mark the well and any additional wells in a conspicuous place with the permit number and the name of the aquifer. He shall take necessary means and precautions to preserve these markings.

Dated this 15<sup>th</sup> day of January, 19 97.

Hal D. Simpson

Hal D. Simpson  
Executive Director  
Colorado Ground Water Commission

By: Craig M. Lls  
Craig M. Lls, P.E.  
Supervisor, Designated Basins Branch

Prepared by: RAC

Statement of Land and Water Ownership

RECEIVED

SEP 13 1996

WATER RESOURCES  
STATE ENGINEER  
COLORADO

State of Colorado    )  
                          ) ss.  
County of El Paso    )

The Affiant, Jerry A. Smith, is the President of Eagle Ranch Development Corp., a Colorado Corporation; Manager of the B.L.P.S. Company, L.L.C., a Colorado Limited Liability Company; and President of Paint Brush Hills Metropolitan District, a quasi-municipal corporation and political subdivision of the State of Colorado.

After first being duly sworn upon oath, deposes and states as follows:

HISTORY

(1) On January 31, 1980, Paint Brush I, a Colorado Limited Partnership received title to the Southeast 1/4 of Section 23; the South 1/2 of Section 24; all of Section 25; and the East 1/2 of Section 26 all in Township 12 S Range 65 W, in El Paso County, State of Colorado, including all the groundwater under said land and the water rights in and to the well permits No.173048-F, 17654-F and 17658-F. (Approximately 1,440 acres.)

(2) Commencing on December 31, 1980, by various warranty deeds, Paint Brush I conveyed 2-1/2 acre parcels to Purchasers in Paint Brush Hills Filing No.1, reserving to itself all groundwater and water rights in and to the Lower Dawson Arkose, Arapahoe and Laramie-Fox Hills Aquifers. (Approximately 163 acres.)

(3) Commencing on October 29, 1982, by various warranty deeds, Paint Brush I conveyed 2-1/2 acre parcels to Purchasers in Paint Brush Hills Filing No. 2, reserving to itself all groundwater and water rights in and to the Lower Dawson Arkose, Arapahoe and Laramie-Fox Hills Aquifers. (Approximately 163 acres.)

(4) Commencing on February 23, 1984, by various warranty deeds, Paint Brush I conveyed 2-1/2 acre parcels to Purchasers in Paint Brush Hills Filing No. 3, reserving to itself all groundwater and water rights in and to the Denver, Arapahoe and Laramie-Fox Hills Aquifers. (Approximately 163 acres.)

(5) On June 26, 1986, Paint Brush I conveyed by warranty deed to P.B.H.P. Joint Venture, all of Section 25 and the East 1/2 of Section 26 in Township 12 S Range 65 W in El Paso County, State of Colorado, including all of the groundwater and water rights under said land. (This land was approximately 950 Acres or the balance of the land not platted in the Filings 1, 2 and 3 of Paint Brush Hills.)

(6) On November 10, 1987, P.B.H.P. Joint Venture conveyed to Paint Brush Hills Metropolitan District all groundwater and water rights in the Dawson, Denver, Arapahoe and Laramie Fox Hills formations under land owned by it; well permits #17654-F, #17658-F and #17048-4; and the water and water rights in the (Lower Dawson), Denver, Arapahoe and Laramie-Fox Hills formations under all lots in Paint Brush Hills Filings No. 1, 2 and 3 in El Paso County, State of Colorado. (Land = 950 acres; Water underneath = 1,440 acres.)

(7) Commencing on June 20, 1988, P.B.H.P. Joint Venture conveyed to individuals six lots in Paint Brush Hills Filing No.4, reserving to itself all of the groundwater in and to the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations.

(8) On June 4, 1992, P.B.H.P. Joint Venture conveyed to Paint Brush Hills Metropolitan District approximately 100 Acres in a part of Section 25, Township 12 S, Range 65 W (being directly north of Paint Brush Hills Filing No.4) and 158 lots in Paint Brush Hills Filing No. 4 (being the balance of the lots not conveyed in Deed No. 7), including all groundwater and water rights in the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations.

(9) On June 13, 1992, by warranty deed, P.B.H.P. Joint Venture conveyed to Eagle Ranch Development Corp., a Colorado Corporation, all of Section 25 in Township 12 S, Range 65 W, except the 100 acres deeded to Paint Brush Hills Metropolitan District (Deed No. 8) and Paint Brush Hills Filing No. 4, and the East 1/2 of Section 26, Township 12 S, Range 65 W, El Paso County, State of Colorado including all the groundwater and water rights under said land. (Approximately 750 acres.)

(10) Commencing on June 20, 1992 Paint Brush Metropolitan District started conveying lots in Paint Brush Hills Filing No. 4 to Eagle Ranch Development Corp. (and then to Lot Purchases), according to the ruling of the United States Federal District Court for Colorado, as a procedure to pay off the Bond Holders of the Paint Brush Hills Metropolitan District. In such individual deeds, Eagle Ranch Development Corp. reserved all of the groundwater and water rights in and to the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations.

(11) On August 25, 1995 Paint Brush Hills Metropolitan District conveyed to Eagle Ranch Development Corp., 40 Acres of the 100 Acres contained in the Deed of June 4, 1992. (Deed No. 8 herein.)

(12) Also on August 25, 1995 Eagle Ranch Development Corp. conveyed to B.L.P.S. Company, LLC (a sister company of Eagle Ranch Development Corp.) 40 acres (included in Deed No. 11 herein), which then was platted as Paint Brush Hills Filing No. 5, in El Paso County, State of Colorado.

(13) Commencing on December 29, 1995, the B.L.P.S. Company, LLC started conveying to Lot Purchasers, lots in Paint Brush Hills Filing No. 5 reserving to itself all the groundwater and water rights in and to the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations.

### OWNERSHIP

At the present time, the ownership of rights contained in the History above is as follows:

(1) Eagle Ranch Development Corp. owns (land only) the East 1/2 of Section 26 and all of Section 25, in Township 12 S Range 65 W, El Paso County, Colorado except Paint Brush Hills Filing No.'s 4 and 5, and the 100 acres referred to herein, or a total of 750 acres.

(2) Paint Brush Hills Metropolitan District owns (land and water and water rights) 60 acres in Section 25 in Township 12 S Range 65 W, El Paso County, Colorado; and all the water and water rights in the Denver (Lower Dawson), Arapahoe and Laramie-Fox hills formations under Paint Brush Hills Filing No.'s 1, 2 and 3; the water wells under permits #17048-F, #30593-F, #17654 and #17658-F; all of the water and water rights in the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations under the East 1/2 of Section 26 and all of Section 25 (including Paint Brush Hills Filing No.'s 4 and 5), all in El Paso County, State of Colorado.

(3) The B.L.P.S. Company, L.L.C. owns (land only) the unsold lots in Paint Brush Hills Filing No. 5, (40 acres).

Affiant further deposes and says that Eagle Ranch Development Corp., the B.L.P.S. Company, L.L.C. and Paint Brush Hills Metropolitan District have not given up their right to appropriate the unappropriated non-tributary ground water from the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations underlying the SE 1/4 of Section 23, S 1/2 of Section 24, Section 25, and the E 1/2 of Section 26, in Township 12 S, R 65 West of the 6th Principal Meridian, El Paso County, State of Colorado, except as stated in the above Ownership Statement.

And Eagle Ranch Development Corp. and the B.L.P.S. Company, L.L.C., consent to, and state that Paint Brush Hills Metropolitan District owns all of the unappropriated underground non-tributary water in the Dawson, Denver, Arapahoe and Laramie-Fox hills formations under the above described land, which equates to 1,440 acres.

Further, I claim and say that I have read the statements made herein, know the contents hereof, and the same are true to my own knowledge.

Eagle Ranch Development Corp.

By

  
Jerry A. Smith, President

Paint Brush Hills Metropolitan District

By

  
Jerry A. Smith


The B.L.P.S. Company, L.L.C.

By

  
Jerry A. Smith, Manager

Subscribed and sworn to before me on this 12th day of September, 1996 by Jerry A. Smith, to me personally known.

Witness my hand and official seal.

  
Notary Public

My Commission Expires: 8-11-99

RECEIVED

JUL 22 1996

WATER RESOURCES  
STATE ENGINEER  
COLO.

WRJ-5-Rev. 76

COLORADO DIVISION OF WATER RESOURCES  
818 Centennial Bldg., 1313 Sherman St., Denver, Colorado 80203

## PERMIT APPLICATION FORM

Application must  
be complete where  
applicable. Type or  
print in **BLACK**  
**INK**. No overstrikes  
or erasures unless  
initialed.FOR: ☒ A PERMIT TO USE GROUND WATER  
☒ A PERMIT TO CONSTRUCT A WELL  
☒ A PERMIT TO INSTALL A PUMP☐ REPLACEMENT FOR NO. \_\_\_\_\_☐ OTHER \_\_\_\_\_

WATER COURT CASE NO. \_\_\_\_\_

(1) APPLICANT - mailing addressNAME Paint Brush Hills Metro DistrictSTREET 3730 Sinton Rd. Suite 250CITY Colorado Springs CO 80907

(State)

(Zip)

TELEPHONE NO. 719-473-8600(2) LOCATION OF PROPOSED WELLCounty El PasoSW      X of the NW      1/4, Section 25Twp. 12 S, Rng. 65 W, 6th P.M.  
(N.S) (E.W)(3) WATER USE AND WELL DATAProposed maximum pumping rate (gpm) 242Average annual amount of ground water  
to be appropriated (acre-feet): 389Number of acres to be irrigated: N/AProposed total depth (feet): 2500

Aquifer ground water is to be obtained from:

Laramie Fox HillsOwner's well designation LFH-1GROUND WATER TO BE USED FOR:☐ HOUSEHOLD USE ONLY - no irrigation (0)  
☒ DOMESTIC (1) ☒ INDUSTRIAL (5)  
☐ LIVESTOCK (2) ☒ IRRIGATION (6)  
☒ COMMERCIAL (4) ☒ MUNICIPAL (8)☐ OTHER (9) All other purposes

DETAIL THE USE ON BACK IN (11)

(4) DRILLERName Unknown (licensed)

Street \_\_\_\_\_

City \_\_\_\_\_  
(State) (Zip)

Telephone No. \_\_\_\_\_ Lic. No. \_\_\_\_\_

FOR OFFICE USE ONLY: DO NOT WRITE IN THIS COLUMN

Receipt No. \_\_\_\_\_ / \_\_\_\_\_

Basin 4 Dist. 12CONDITIONS OF APPROVALThis well shall be used in such a way as to cause  
no material injury to existing water rights. The  
issuance of the permit does not assure the applicant  
that no injury will occur to another vested water  
right or preclude another owner of a vested water  
right from seeking relief in a civil court action.APPLICATION APPROVED

PERMIT NUMBER \_\_\_\_\_

DATE ISSUED \_\_\_\_\_

EXPIRATION DATE CHECKS TR#403866 072296 60.00  
DIV OF WATER RESOURCES

(STATE ENGINEER)

BY \_\_\_\_\_

I.D. 8-2 COUNTY 21-10

*Appendix A-2*

## Appendix A-2 Paint Brush Hills Well A-1 (17048-F)

This well was originally drilled to a depth of 2770 feet and tested. The LFH formation was subsequently bridge plugged at 1900 feet. The original permit was issued March 21, 1973 for 400 acre-feet and 300 gallons per minute. In 1973 the term Dawson included the Arapahoe, Denver, and Dawson formations.

Subsequent documents 46553-F (also attached) excluded certain portions of the Arapahoe reducing the Arapahoe volume to 130.7 AF (100 year basis). This left 111.3 AF (100 year basis) remaining in the Denver formation.

The rights remained somewhat in limbo due to a potential deficiency in the filing of Statement of Beneficial Use (SBU) until a letter was issued October 18, 2013 by the State Engineers Office. The letter attached, is a response to Senate Bill 13 -072 which amended certain rules regarding the issuance of permits in the Denver Basin. In the letter the SEO acknowledges the completion of the well into both the Denver and Arapahoe formations and specifies that the terms of the conditional document apply as final.

Supporting this documentation are supporting documents of SB 13-072 and an email from legal describing the documentation.



DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

John W. Hickenlooper  
Governor

Mike King  
Executive Director

Dick Wolfe, P.E.  
Director/State Engineer

October 18, 2013

Paint Brush Hills Metropolitan District  
9830 Liberty Grove Drive  
Falcon, CO 80831

RE: Well Permit no. 17048-F

Dear Well Owner:

You may have previously received correspondence from our office informing you that we were reviewing permit files in preparation for the issuance of final permits in the Designated Ground Water Basins in Colorado, and asking for information, such as a statement of beneficial use, to assist with such review. Thank you for any responses and information you may have provided.

The Colorado Legislature recently passed Senate Bill 13-072 that changed the laws regarding the need to issue final permits for Denver Basin bedrock aquifer wells. Pursuant to C.R.S. § 37-90-108(3)(a)(II) a final permit is not required to be issued for a well described in a conditional permit to withdraw designated ground water from a Denver Basin bedrock aquifer. For such a well, the statute states a conditional permit, subject to the conditions of issuance of such a permit, shall be considered a final determination of a well's water right if the well is in compliance with all other applicable requirement of Article 90 of Title 37.

The above referenced well permit was issued for construction of a well into the Denver and Arapahoe aquifers and is subject to the above referenced statutes. Be advised that we will not be issuing a final permit to the above referenced conditional permit, and that the conditional permit determines the well's water right.

If you have any questions feel free to contact me.

Sincerely,

Keith Vander Horst, P.E.

Designated Basins Team Leader

cc: Upper Black Squirrel Creek GWMD

Office of the State Engineer

1313 Sherman Street, Suite 818 • Denver, CO 80203 • Phone: 303-866-3581 • Fax: 303-866-3589

[www.water.state.co.us](http://www.water.state.co.us)

Colorado Revised Statutes

☐ Colorado Revised Statutes  
☐ TITLE 37 WATER AND IRRIGATION  
☐ WATER RIGHTS AND IRRIGATION  
☐ Underground Water  
☐ ARTICLE 90 Underground Water

37-90-108. Final permit - evidence of well construction and beneficial use - limitations.

\*\*Update Notice: This section has been amended by

CHAPTER 30, COLO. SESS. LAWS OF 2013.

CHAPTER 35, COLO. SESS. LAWS OF 2013.

(1)(a) After having received a conditional permit to appropriate designated ground water, the applicant, within one year from the date of the issuance of said permit, shall construct the well or other works necessary to apply the water to a beneficial use.

(b) The applicant, upon completion of the well, shall furnish information to the commission, in the form prescribed by the commission, as to the depth of the well, the water-bearing formations intercepted by the well, and the maximum sustained pumping rate in gallons per minute.

(c) If the well described in the conditional permit is not constructed within one year from the date of the issuance of the conditional permit as provided in this subsection (1), the conditional permit shall expire and be of no force or effect; except that, upon a showing of good cause, the commission may grant one extension of time only for a period not to exceed one year. If the well has been constructed timely but the completion information required by this subsection (1) has not been furnished to the commission, the procedures specified in subsection (5) of this section shall apply.

(2)(a) If the well or wells described in a conditional permit have been constructed in compliance with subsection (1) of this section, the applicant, within three years after the date of the issuance of said permit, shall furnish by sworn affidavit, in the form prescribed by the commission, evidence that water from such well or wells has been put to beneficial use; except that the requirements of this paragraph (a) shall not apply to a well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(b) Such affidavit shall be prima facie evidence of the matters contained therein but shall be subject to objection by others, including ground water management districts, claiming to be injured thereby and to such verification and inquiry as the commission shall consider appropriate in each particular case.

(c) If such required affidavit is not furnished to the commission within the time and as provided in this subsection (2), the conditional permit shall expire and be of no force or effect except as provided in subsection (4) of this section.

(d) If the well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers has been constructed in compliance with subsection (1) of this section, the applicant shall file a notice with the commission of commencement of beneficial use on a form prescribed by the commission within thirty days after the first beneficial use of any water withdrawn from such well.

(3)(a) (1) To the extent that the commission finds that water has been put to a beneficial use and that the other terms of the conditional permit have been complied with and after publication of the information required in the final permit, as provided in section 37-90-112, the commission shall order the state-engineer to issue a final permit to use designated

ground water, containing such limitations and conditions as the commission deems necessary to prevent waste and to protect the rights of other appropriators. In determining the extent of beneficial use for the purpose of issuing final permits, the commission may use the same criteria for determining the amount of water used on each acre that has been irrigated that is used in evaluating the amount of water available for appropriation under section 37-90-107. The provisions of this subparagraph (I) shall not apply to a well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(II) A final permit is not required to be issued for a well described in a conditional permit issued on or after July 1, 1991, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers. For such a well, a conditional permit, subject to the conditions of issuance of such a permit, shall be considered a final determination of a well's water right if the well is in compliance with all other applicable requirements of this article.

(b) In determining the extent of beneficial use prior to the issuance of a final permit, the commission may either increase or decrease the quantity of water and the amount of irrigated acreage, if any, according to the evidence presented to the commission, but no increase shall be permitted which will increase the quantity of water beyond that authorized by the original decree, conditional permit, registration statement, or other well permit issued prior to basin designation or which otherwise will unreasonably affect the rights of other appropriators.

(c) Any owner of an existing valid conditional permit issued before July 1, 1978, may file with the commission an amended statement of beneficial use, in the form prescribed by the commission, on or before December 31, 1979, and not thereafter, if any such change occurred and was approved on or before August 5, 1977.

(4) The procedural requirement that a statement of beneficial use shall be filed shall apply to all permits wherein the water was put to beneficial use since May 17, 1965. If information pertaining to completion of the well as required in subsection (1) of this section has been received but evidence that water has been placed to beneficial use has not been received as of three years after the date of issuance of the conditional permit, the commission shall so notify the applicant by certified mail. The notice shall give the applicant the opportunity to submit proof that the water was put to beneficial use prior to three years after the date of issuance of the conditional permit. The proof must be received by the commission within twenty days after receipt of the notice by the applicant, and, if the conditional permit was issued on or after July 14, 1975, the proof must be accompanied by a filing fee of thirty dollars. If the commission finds the proof to be satisfactory, the conditional permit shall remain in force and effect. The commission shall consider any records of the commission and any evidence provided to the commission and all other matters set forth in this section in determining whether the conditional permit should remain in force and effect.

(5) All final permits shall set forth the following information as a minimum:

- (a) The priority date;
  - (b) The name of the claimant;
  - (c) The quarter-quarter in which the well is located;
  - (d) The maximum annual volume of the appropriation in acre-feet per year;
  - (e) The maximum pumping rate in gallons per minute; and
  - (f) The maximum number of acres which have been irrigated, if used for irrigation.
- (6) The procedural requirement that the well completion information

Home Mail News Sports Finance Weather Games Groups Answers Screen Flickr Mobile More

Paul Anderson (pandilo@comcast.net)

John

Inbox CONTACTS CALENDAR MESSAGES TO VIEW... EMC | U... Rec: Saps... SEARCH... RES: CDPHE...

Compose

Delete

Move

Open

Actions

Inbox (78)

Drafts (12)

Sent

Spam (1)

Trash (19)

FOLDERS

4 Way

Brush (1)

CDOC

CSU Proposal

DWG

Groundwater (2)

Hart Water (1)

Meridian (2)

Notes

PBHMD Issues (1)

Personal

Wilderfield (3)

Woodland Park (5)

Woodmen Hills (4)

MESSAGEBOX

Me Offline

Sign in to Messenger to see who's online

APPLICATIONS

Photos

Attachments

Re: CDPHE Final Permit non-issuance for Wells 1 (from pandilo@comcast.net to you • 6 min)

Fri 25

3 Attachments: 349 KB Save all to

PDF (1 KB) PDF (2 KB) PDF (11 KB)

27-23 118  
Final  
2013-10-24 15:22:21  
6 KB  
3 KB  
3 KB37-SD-100-  
Form Per  
mit -  
1 KB

John, after reviewing the statute cited in Keith's letter I think there is no need for a new SBU to be submitted for permit # 17048-F. The statute is attached, but I've pasted the pertinent section here.

(3)(a) If the well or wells described in a conditional permit have been constructed in compliance with subsection (1) of this section, the applicant, within three years after the date of the issuance of said permit, shall furnish by sworn affidavit, in the form prescribed by the commission, evidence that water from such well or wells has been put to beneficial use, except that this paragraph (a) does not apply to a well described in a conditional permit to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie Fox Hills aquifers. (emphasis added)

I think the bolded language above seems pretty definitive in eliminating any requirement for a SBU, especially since this particular section was amended by SB 13-72 (copy attached): see the first "editor's note" after the statute "source" section. I checked a prior version of this statute subsection, under that version the SBU would not have been required for wells permitted after 1991 - I've attached a copy of the prior version of the statute here.

So, presuming compliance with all other sections of the statute the conditional permit is the final permit per Keith's letter and the filing of a SBU is no longer required

Please do not hesitate to contact me with any other questions. Thanks again

Paul G. Anderson, LLC  
P.O. Box 50631  
Colorado Springs, CO 80949-0631  
(719) 510-9431  
[pandilo@comcast.net](mailto:pandilo@comcast.net)

Please consider the environment before printing this e-mail

CONFIDENTIALITY NOTICE - This email transmission, and any documents, files or previous email messages attached to it, may contain information that is legally privileged or otherwise confidential to include customer and business information. If you are not the intended recipient, or an authorized person for the intended recipient, you are hereby notified that any disclosure, copying or distribution of this information, or any action taken in reliance on the information contained within this email, is strictly prohibited. If you have received this email message in error, please notify the sender and then delete the message (and any attachments) from your computer and/or network. Thank you.

From: "John McGinn" <[jmcginn@jdshydro.com](mailto:jmcginn@jdshydro.com)>

To: [pandilo@comcast.net](mailto:pandilo@comcast.net)

Cc: "Tammy Bailey" <[tbailey@jdshydro.com](mailto:tbailey@jdshydro.com)>, "Steve Knepper PBHMD" <[sknepper@pbhmd.com](mailto:sknepper@pbhmd.com)>, "Leon Gomes (lgomes@sdmsi.com)" <[lgomes@sdmsi.com](mailto:lgomes@sdmsi.com)>, "Teigan Gulliver" <[tgulliver@jdshydro.com](mailto:tgulliver@jdshydro.com)>

Sent: Thursday, October 24, 2013 11:20:57 AM

Subject: Re: CDPHE Final Permit non-issuance for Wells 1(A-1), 2(A-2) and DA-2

Yes, it is probably a pass, I would have drawn attention to our "Statement of Beneficial Use" issue. Let's talk after you've had a chance to mull it over.

John P. McGinn  
JDS-Hydro Consultants, Inc  
545 East Pikes Peak Ave. Suite 300  
Colorado Springs, CO 80903  
phone 719 327-0072  
fax 719 471-3401

From: "pandilo@comcast.net" <[pandilo@comcast.net](mailto:pandilo@comcast.net)>

To: John McGinn <[jmcginn@jdshydro.com](mailto:jmcginn@jdshydro.com)>

Cc: Tammy Bailey <[tbailey@jdshydro.com](mailto:tbailey@jdshydro.com)>, Steve Knepper PBHMD <[sknepper@pbhmd.com](mailto:sknepper@pbhmd.com)>, Leon Gomes (lgomes@sdmsi.com) <[lgomes@sdmsi.com](mailto:lgomes@sdmsi.com)>, Teigan Gulliver <[tgulliver@jdshydro.com](mailto:tgulliver@jdshydro.com)>, Paul Anderson <[pandilo@comcast.net](mailto:pandilo@comcast.net)>

Sent: Thursday, October 24, 2013 11:18 AM

Subject: Re: CDPHE Final Permit non-issuance for Wells 1(A-1), 2(A-2) and DA-2

John, I've responded within the text of your message below. Thanks.

Paul G. Anderson, LLC  
P.O. Box 50631  
Colorado Springs, CO 80949-0631  
(719) 510-9431  
[pandilo@comcast.net](mailto:pandilo@comcast.net)

Please consider the environment before printing this e-mail

CONFIDENTIALITY NOTICE - This email transmission, and any documents, files or previous email messages attached to it, may contain information that is legally privileged or otherwise confidential to include customer and business information. If you are not the intended recipient, or an authorized person for the intended recipient, you are hereby notified that any disclosure, copying or distribution of this information, or any action taken in reliance on the information contained within this email, is strictly prohibited. If you have received this email message in error, please notify the sender and then delete the message (and any attachments) from your computer and/or network. Thank you.

required by subsection (1) of this section be furnished to the commission shall apply to all permits issued after May 17, 1965. If the well has been constructed within twenty-four months after the date of issuance of the permit where the permit was issued before June 7, 1979, or within twelve months after the date of issuance of the permit where the permit was issued on or after June 7, 1979, or by the expiration date of the permit, including any extension, but the completion information has not been furnished to the commission within six months after said allowable time for the well completion, the commission shall so notify the applicant by certified mail. The notice shall give the applicant the opportunity to submit proof that the well was completed within the time specified above or by the expiration date of the permit and to submit the information required by subsection (1) of this section and a showing that, due to excusable neglect, inadvertence, or mistake, the applicant failed to submit the evidence and information on time. The proof and information must be received by the commission within twenty days after receipt of the notice by the applicant and must be accompanied by a filing fee of thirty dollars. If the commission finds the proof to be satisfactory, the permit shall remain in force and effect. The commission shall consider any records of the commission and any evidence provided to the commission and all other matters set forth in this section in determining whether the permit should remain in force and effect.

(7) Notwithstanding the amount specified for any fee in this section, the commission by rule or as otherwise provided by law may reduce the amount of one or more of the fees if necessary pursuant to section 24-75-402(3), C.R.S., to reduce the uncommitted reserves of the fund to which all or any portion of one or more of the fees is credited. After the uncommitted reserves of the fund are sufficiently reduced, the commission by rule or as otherwise provided by law may increase the amount of one or more of the fees as provided in section 24-75-402(4), C.R.S.

Source: L. 65: R&RE, p. 1251, § 1. C.R.S. 1963: § 148-18-7. L. 71: p. 1314, § 6. L. 75: (3) amended and (4) added, p. 1394, § 1, effective July 14. L. 79: (1) to (3) R&RE, p. 1371, § 2, effective June 7. L. 85: (1)(c), (3)(a), (3)(b), and (4) amended and (5) and (6) added, p. 1172, § 2, effective May 31. L. 86: (6) amended, p. 1221, § 34, effective May 30. L. 92: (4), (5)(c), and (6) amended, p. 2298, § 3, effective March 19. L. 94: (1)(c) and (2)(a) amended and (2)(d) added, p. 1746, § 1, effective July 1. L. 98: (7) added, p. 1344, § 72, effective June 1; (2)(a), (2)(d), (3)(a), (4), and (6) amended, p. 1218, § 7, effective August 5.

#### ANNOTATION

**Law reviews.** For article, "Oil Shale and Water Quality: The Colorado Prospectus Under Federal, State, and International Law", see 58 Den. L.J. 715 (1981).

**Annotator's note.** The following annotations include cases decided under former provision similar to this section.

The general assembly intended that the extent of beneficial use would limit the ground water appropriator by providing for the issuance of final permits based upon proof of beneficial use. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

Regardless of the quantity specified in a decree, the amount of water actually applied to beneficial use defines the full extent of the water right. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

The general assembly intended that the commission engage in a confirmatory investigation and that the issuance of final permits be a meaningful action. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

Where the commission fails to undertake an independent investigation to determine if the amount of water claimed is put to beneficial use prior to issuing a final permit, the commission procedure is not in compliance

with statutory scheme. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

**Commission must implement legislative scheme.** The commission cannot rely upon conditional permits as though they are enforceable "existing claims" without implementing the legislative scheme which includes the issuance of final permits. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

**The final permit is essential to the legislative scheme** for the administration of ground water rights. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

**Vested right in water not acquired after conditional permit expires.** This article does not contemplate that appropriators may acquire a vested right in water put to beneficial use after their conditional permits have expired. *Berens v. Ground Water Comm'n*, 200 Colo. 170, 614 P.2d 352 (1980).

**Conditional permits do not permit their holders to sleep on water rights** and later expand their use to the full extent of their permits. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978); *Peterson v. Ground Water Comm'n*, 195 Colo. 508, 579 P.2d 629 (1978).

**Conditional permit to last one year.** Conditional permits expire and are of no effect one year after their issuance unless the statutory requirements necessary for the issuance of a final permit have been satisfied, or the commission has extended a conditional permit for a time certain for good cause shown, or the appropriator has submitted well completion data, but has failed to submit proof of beneficial use, where upon the appropriator is entitled to notice and 20 days to provide the missing information. *Peterson v. Ground Water Comm'n*, 195 Colo. 508, 579 P.2d 629 (1978).

Subsection (3) reflects a legislative determination that most designated ground water appropriations can be completed within one year, but also permits the commission to grant extensions upon good cause shown to avoid unjust results. *Kuiper v. Warren*, 195 Colo. 541, 580 P.2d 32, cert. denied, 439 U.S. 984, 99 S.Ct. 575, 58 L.Ed.2d 56 (1978).

**Extension procedure and due diligence doctrine protect conditional ground water appropriators.** The statutory extension procedure of this section and the doctrine of due diligence afford ground water appropriators, who are reasonably proceeding to complete appropriations under conditional rights, protection against loss of their rights. *Kuiper v. Warren*, 195 Colo. 541, 580 P.2d 32, cert. denied, 439 U.S. 984, 99 S.Ct. 575, 58 L.Ed.2d 56 (1978).

**Beneficial uses.** Land reclamation and dust control are proper beneficial uses for appropriations of tributary and nontributary water. *State Dept. of Natural Res. v. Southwestern Colo. Water Conservation Dist.*, 671 P.2d 1294 (Colo. 1983), cert. denied, 466 U.S. 944, 104 S.Ct. 1929, 80 L.Ed.2d 474 (1984).

**Intent to put water to beneficial use must not be speculative.** Anti-speculative doctrine of *Colo. River Water Conservation Dist. v. Vidler Tunnel Water Co.* (197 Colo. 413, 594 P.2d 566 (1979)) requiring more than mere future plans to beneficially use water, applies to appropriations of groundwater in designated ground water basins. *Jaeger v. Colo. Ground Water Comm'n*, 746 P.2d 515 (Colo. 1987).

**When extent of beneficial use is fixed.** Normally, the extent of beneficial use and the measure of the water right is fixed at the time a final decree is entered. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

**The procedure set out in this section places the burden on the appropriator** to prove that he has made a valid appropriation consistent with Colorado law. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

Applied in Danielson v. Kerbs AG., Inc., 646 P.2d 363 (Colo. 1982).

Copyright © 2013 CCH Incorporated or its affiliates

NOTE: The governor signed this measure on 3/15/2013.

# An Act

SENATE BILL 13-072

BY SENATOR(S) Hodge, Baumgardner, Brophy, Giron, Roberts, Schwartz, Carroll;  
also REPRESENTATIVE(S) Sonnenberg, Fischer, Coram, Ginal, Humphrey, Lebsock, McLachlan, Pettersen, Vigil, Young.

CONCERNING THE DELETION OF THE REQUIREMENT FOR A FINAL PERMIT FOR  
ALL WELLS WITHDRAWING DESIGNATED GROUND WATER FROM THE  
DENVER BASIN AQUIFERS.

*Be it enacted by the General Assembly of the State of Colorado:*

**SECTION 1.** In Colorado Revised Statutes, 37-90-108, amend (2) (a), (2) (d), and (3) (a) as follows:

**37-90-108. Final permit - evidence of well construction and beneficial use - limitations.** (2) (a) If the well or wells described in a conditional permit have been constructed in compliance with subsection (1) of this section, the applicant, within three years after the date of the issuance of said permit, shall furnish by sworn affidavit, in the form prescribed by the commission, evidence that water from such well or wells has been put to beneficial use; except that ~~the requirements of this paragraph (a) shall~~ DOES not apply to a well described in a conditional permit ~~issued on or after July 1, 1991,~~ to withdraw designated ground water from the Dawson,

*Capital letters indicate new material added to existing statutes; dashes through words indicate deletions from existing statutes and such material not part of act.*

Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(d) If the well described in a conditional permit issued ~~on or after July 1, 1991~~, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers has been constructed in compliance with subsection (1) of this section, the applicant shall file a notice with the commission of commencement of beneficial use on a form prescribed by the commission within thirty days after the first beneficial use of any water withdrawn from ~~such~~ THE well.

(3) (a) (I) To the extent that the commission finds that water has been put to a beneficial use and that the other terms of the conditional permit have been complied with and after publication of the information required in the final permit, as provided in section 37-90-112, the commission shall order the state engineer to issue a final permit to use designated ground water, containing such limitations and conditions as the commission deems necessary to prevent waste and to protect the rights of other appropriators. In determining the extent of beneficial use for the purpose of issuing final permits, the commission may use the same criteria for determining the amount of water used on each acre that has been irrigated that is used in evaluating the amount of water available for appropriation under section 37-90-107. ~~The provisions of This subparagraph (I) shall~~ DOES not apply to a well described in a conditional permit issued ~~on or after July 1, 1991~~, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(II) A final permit is not required to be issued for a well described in a conditional permit ~~issued on or after July 1, 1991~~, to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers. For such a well, a conditional permit, subject to the conditions of issuance of such a permit, shall be considered a final determination of a well's water right if the well is in compliance with all other applicable requirements of this article.

**SECTION 2. Act subject to petition - effective date - applicability.** (1) This act takes effect at 12:01 a.m. on the day following the expiration of the ninety-day period after final adjournment of the general assembly (August 7, 2013, if adjournment sine die is on May 8, 2013); except that, if a referendum petition is filed pursuant to section 1 (3) of article V of the state constitution against this act or an item, section, or

part of this act within such period, then the act, item, section, or part will not take effect unless approved by the people at the general election to be held in November 2014 and, in such case, will take effect on the date of the official declaration of the vote thereon by the governor.

(2) This act applies to permits issued for designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers before, on, or after the applicable effective date of this act.

---

John P. Morse  
PRESIDENT OF  
THE SENATE

---

Mark Ferrandino  
SPEAKER OF THE HOUSE  
OF REPRESENTATIVES

---

Cindi L. Markwell  
SECRETARY OF  
THE SENATE

---

Marilyn Eddins  
CHIEF CLERK OF THE HOUSE  
OF REPRESENTATIVES

APPROVED \_\_\_\_\_

---

John W. Hickenlooper  
GOVERNOR OF THE STATE OF COLORADO

Colorado Revised Statutes

- ☐ Colorado Revised Statutes
- ☐ TITLE 37 WATER AND IRRIGATION
- ☐ WATER RIGHTS AND IRRIGATION
- ☐ Underground Water
- ☐ ARTICLE 90 Underground Water

37-90-108. Final permit - evidence of well construction and beneficial use - limitations.

(1) (a) After having received a conditional permit to appropriate designated ground water, the applicant, within one year from the date of the issuance of said permit, shall construct the well or other works necessary to apply the water to a beneficial use.

(b) The applicant, upon completion of the well, shall furnish information to the commission, in the form prescribed by the commission, as to the depth of the well, the water-bearing formations intercepted by the well, and the maximum sustained pumping rate in gallons per minute.

(c) If the well described in the conditional permit is not constructed within one year from the date of the issuance of the conditional permit as provided in this subsection (1), the conditional permit shall expire and be of no force or effect; except that, upon a showing of good cause, the commission may grant one extension of time only for a period not to exceed one year. If the well has been constructed timely but the completion information required by this subsection (1) has not been furnished to the commission, the procedures specified in subsection (6) of this section shall apply.

(2) (a) If the well or wells described in a conditional permit have been constructed in compliance with subsection (1) of this section, the applicant, within three years after the date of the issuance of said permit, shall furnish by sworn affidavit, in the form prescribed by the commission, evidence that water from such well or wells has been put to beneficial use; except that this paragraph (a) does not apply to a well described in a conditional permit to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(b) Such affidavit shall be prima facie evidence of the matters contained therein but shall be subject to objection by others, including ground water management districts, claiming to be injured thereby and to such verification and inquiry as the commission shall consider appropriate in each particular case.

(c) If such required affidavit is not furnished to the commission within the time and as provided in this subsection (2), the conditional permit shall expire and be of no force or effect except as provided in subsection (4) of this section.

(d) If the well described in a conditional permit issued to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers has been constructed in compliance with subsection (1) of this section, the applicant shall file a notice with the commission of commencement of beneficial use on a form prescribed by the commission within thirty days after the first beneficial use of any water withdrawn from the well.

(3) (a) (I) To the extent that the commission finds that water has been put to a beneficial use and that the other terms of the conditional permit have been complied with and after publication of the information required in the final permit, as provided in section 37-90-112, the commission shall order the state engineer to issue a final permit to use designated ground water, containing such limitations and conditions as the commission deems necessary to prevent waste and to protect the rights of other appropriators. In determining the extent of beneficial use for the purpose of issuing final permits, the commission may use the same criteria

*1700-112  
200-112*

for determining the amount of water used on each acre that has been irrigated that is used in evaluating the amount of water available for appropriation under section ~~37-90-107~~. This subparagraph (I) does not apply to a well described in a conditional permit issued to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers.

(II) A final permit is not required to be issued for a well described in a conditional permit to withdraw designated ground water from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers. For such a well, a conditional permit, subject to the conditions of issuance of such a permit, shall be considered a final determination of a well's water right if the well is in compliance with all other applicable requirements of this article.

(b) In determining the extent of beneficial use prior to the issuance of a final permit, the commission may either increase or decrease the quantity of water and the amount of irrigated acreage, if any, according to the evidence presented to the commission, but no increase shall be permitted which will increase the quantity of water beyond that authorized by the original decree, conditional permit, registration statement, or other well permit issued prior to basin designation or which otherwise will unreasonably affect the rights of other appropriators.

(c) Any owner of an existing valid conditional permit issued before July 1, 1978, may file with the commission an amended statement of beneficial use, in the form prescribed by the commission, on or before December 31, 1979, and not thereafter, if any such change occurred and was approved on or before August 5, 1977.

(4) The procedural requirement that a statement of beneficial use shall be filed shall apply to all permits wherein the water was put to beneficial use since May 17, 1965. If information pertaining to completion of the well as required in subsection (1) of this section has been received but evidence that water has been placed to beneficial use has not been received as of three years after the date of issuance of the conditional permit, the commission shall so notify the applicant by certified mail. The notice shall give the applicant the opportunity to submit proof that the water was put to beneficial use prior to three years after the date of issuance of the conditional permit. The proof must be received by the commission within twenty days after receipt of the notice by the applicant, and, if the conditional permit was issued on or after July 14, 1975, the proof must be accompanied by a filing fee of thirty dollars. If the commission finds the proof to be satisfactory, the conditional permit shall remain in force and effect. The commission shall consider any records of the commission and any evidence provided to the commission and all other matters set forth in this section in determining whether the conditional permit should remain in force and effect.

(5) (a) All final permits must set forth the following information as a minimum:

(I) The priority date;

(II) The name of the claimant;

(III) The quarter-quarter in which the well is located;

(IV) The maximum annual volume of the appropriation in acre-feet per year;

(V) The maximum pumping rate in gallons per minute; and

(VI) The maximum number of acres that have been irrigated, if used for irrigation.

(b) Notwithstanding any rule of law to the contrary other than a change of use case under section ~~37-90-111~~(1)(g), once the state engineer issues a final permit for the withdrawal of designated groundwater pursuant to this section, a reduction in the amount of water used pursuant to the

permit due to the conservation of water is not grounds to reduce:

- (I) The maximum annual volume of the appropriation in acre-feet per year;
- (II) The maximum pumping rate in gallons per minute; or
- (III) The maximum number of acres that have been irrigated, if used for irrigation.

(6) The procedural requirement that the well completion information required by subsection (1) of this section be furnished to the commission shall apply to all permits issued after May 17, 1965. If the well has been constructed within twenty-four months after the date of issuance of the permit where the permit was issued before June 7, 1979, or within twelve months after the date of issuance of the permit where the permit was issued on or after June 7, 1979, or by the expiration date of the permit, including any extension, but the completion information has not been furnished to the commission within six months after said allowable time for the well completion, the commission shall so notify the applicant by certified mail. The notice shall give the applicant the opportunity to submit proof that the well was completed within the time specified above or by the expiration date of the permit and to submit the information required by subsection (1) of this section and a showing that, due to excusable neglect, inadvertence, or mistake, the applicant failed to submit the evidence and information on time. The proof and information must be received by the commission within twenty days after receipt of the notice by the applicant and must be accompanied by a filing fee of thirty dollars. If the commission finds the proof to be satisfactory, the permit shall remain in force and effect. The commission shall consider any records of the commission and any evidence provided to the commission and all other matters set forth in this section in determining whether the permit should remain in force and effect.

(7) Notwithstanding the amount specified for any fee in this section, the commission by rule or as otherwise provided by law may reduce the amount of one or more of the fees if necessary pursuant to section 24-75-402(3), C.R.S., to reduce the uncommitted reserves of the fund to which all or any portion of one or more of the fees is credited. After the uncommitted reserves of the fund are sufficiently reduced, the commission by rule or as otherwise provided by law may increase the amount of one or more of the fees as provided in section 24-75-402(4), C.R.S.

Source: L. 65: R&RE, p. 1251, § 1. C.R.S. 1963: § 148-18-7. L. 71: p. 1314, § 6. L. 75: (3) amended and (4) added, p. 1394, § 1, effective July 14. L. 79: (1) to (3) R&RE, p. 1371, § 2, effective June 7. L. 85: (1)(c), (3)(a), (3)(b), and (4) amended and (5) and (6) added, p. 1172, § 2, effective May 31. L. 86: (6) amended, p. 1221, § 34, effective May 30. L. 92: (4), (5)(c), and (6) amended, p. 2298, § 3, effective March 19. L. 94: (1)(c) and (2)(a) amended and (2)(d) added, p. 1746, § 1, effective July 1. L. 98: (7) added, p. 1344, § 72, effective June 1; (2)(a), (2)(d), (3)(a), (4), and (6) amended, p. 1218, § 7, effective August 5. L. 2013: (2)(a), (2)(d), and (3)(a) amended, (SB 13-072), ch. 30, p. 73, § 1, effective August 7; (5) amended, (SB 13-075), ch. 35, p. 101, § 1, effective August 7.

Editor's note: (1) Section 2 of chapter 30, Session Laws of Colorado 2013, provides that the act amending subsections (2)(a), (2)(d), and (3)(a) applies to permits issued for designated groundwater from the Dawson, Denver, Arapahoe, or Laramie-Fox Hills aquifers before, on, or after August 7, 2013.

(2) Section 2 of chapter 35, Session Laws of Colorado 2013, provides that the act amending subsection (5) applies to determinations of water volume, water rate, and acreage occurring on or after August 7, 2013.

#### ANNOTATION

Law reviews. For article, "Oil Shale and Water Quality: The Colorado Prospectus Under Federal, State, and International Law", see 58 Den. L.J. 715 (1981).

Annotator's note. The following annotations include cases decided under former provision similar to this section.

The general assembly intended that the extent of beneficial use would limit the ground water appropriator by providing for the issuance of final permits based upon proof of beneficial use. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

Regardless of the quantity specified in a decree, the amount of water actually applied to beneficial use defines the full extent of the water right. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

The general assembly intended that the commission engage in a confirmatory investigation and that the issuance of final permits be a meaningful action. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

Where the commission fails to undertake an independent investigation to determine if the amount of water claimed is put to beneficial use prior to issuing a final permit, the commission procedure is not in compliance with statutory scheme. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

Commission must implement legislative scheme. The commission cannot rely upon conditional permits as though they are enforceable "existing claims" without implementing the legislative scheme which includes the issuance of final permits. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

The final permit is essential to the legislative scheme for the administration of ground water rights. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978).

Vested right in water not acquired after conditional permit expires. This article does not contemplate that appropriators may acquire a vested right in water put to beneficial use after their conditional permits have expired. *Berens v. Ground Water Comm'n*, 200 Colo. 170, 514 P.2d 352 (1980).

Conditional permits do not permit their holders to sleep on water rights and later expand their use to the full extent of their permits. *Thompson v. Colo. Ground Water Comm'n*, 194 Colo. 489, 575 P.2d 372 (1978); *Peterson v. Ground Water Comm'n*, 195 Colo. 508, 579 P.2d 629 (1978).

Conditional permit to last one year. Conditional permits expire and are of no effect one year after their issuance unless the statutory requirements necessary for the issuance of a final permit have been satisfied, or the commission has extended a conditional permit for a time certain for good cause shown, or the appropriator has submitted well completion data, but has failed to submit proof of beneficial use, where upon the appropriator is entitled to notice and 20 days to provide the missing information. *Peterson v. Ground Water Comm'n*, 195 Colo. 508, 579 P.2d 629 (1978).

Subsection (3) reflects a legislative determination that most designated ground water appropriations can be completed within one year, but also permits the commission to grant extensions upon good cause shown to avoid unjust results. *Kuiper v. Warren*, 195 Colo. 541, 580 P.2d 32, cert. denied, 439 U.S. 984, 99 S.Ct. 575, 58 L.Ed.2d 56 (1978).

Extension procedure and due diligence doctrine protect conditional ground water appropriators. The statutory extension procedure of this section and the doctrine of due diligence afford ground water appropriators, who are reasonably proceeding to complete appropriations under conditional rights, protection against loss of their rights. *Kuiper v. Warren*, 195 Colo. 541, 580 P.2d 32, cert. denied, 439 U.S. 984, 99 S.Ct. 575, 58 L.Ed.2d 56 (1978).

Beneficial uses. Land reclamation and dust control are proper

beneficial uses for appropriations of tributary and nontributary water. State Dept. of Natural Res. v. Southwestern Colo. Water Conservation Dist., 671 P.2d 1194 (Colo. 1983), cert. denied, 466 U.S. 944, 104 S.Ct. 1929, 80 L.Ed.2d 474 (1984).

**Intent to put water to beneficial use must not be speculative.** Anti-speculative doctrine of Colo. River Water Conservation Dist. v. Vidler Tunnel Water Co. (197 Colo. 413, 594 P.2d 566 (1979)) requiring more than mere future plans to beneficially use water, applies to appropriations of groundwater in designated ground water basins. Jaeger v. Colo. Ground Water Comm'n, 746 P.2d 515 (Colo. 1987).

**When extent of beneficial use is fixed.** Normally, the extent of beneficial use and the measure of the water right is fixed at the time a final decree is entered. Thompson v. Colo. Ground Water Comm'n, 194 Colo. 489, 575 P.2d 372 (1978).

**The procedure set out in this section places the burden on the appropriator** to prove that he has made a valid appropriation consistent with Colorado law. Thompson v. Colo. Ground Water Comm'n, 194 Colo. 489, 575 P.2d 372 (1978).

Applied in Danielson v. Kerbs AG., Inc., 546 P.2d 363 (Colo. 1982).

## *Appendix A-3*

## FINDINGS OF THE COLORADO GROUND WATER COMMISSION

IN THE MATTER OF AN APPLICATION FOR A PERMIT TO CONSTRUCT A WELL AND APPROPRIATE GROUND WATER IN THE UPPER BLACK SQUIRREL CREEK DESIGNATED GROUND WATER BASIN.

APPLICANT: PAINT BRUSH HILLS METROPOLITAN DISTRICT

AQUIFER: ARAPAHOE

PERMIT NO.: 46553-F

In compliance with Sections 37-90-107(1) and 37-90-111(5), C.R.S., Paint Brush Hills Metropolitan District, (hereinafter "applicant") submitted an application for a permit to construct a well and appropriate ground water from the Arapahoe Aquifer. Based on information provided by the applicant and records of the Division of Water Resources, and in accordance with the Designated Basin Rules (2 CCR 410-1), the Ground Water Commission finds as follows:

1. The application was received complete by the Ground Water Commission on March 12, 1996.
2. a. The applicant proposes to appropriate ground water from the Arapahoe Aquifer underlying 1440 acres of land generally described as the SE1/4 of Section 23, the S1/2 of Section 24, all of Section 25 and the E1/2 of Section 26, all in Township 12 South, Range 65 West of the 6th Principal Meridian. According to a signed statement dated February 28, 1996, the applicant claims the ownership or control of the ground water in the Arapahoe Aquifer underlying this land area, as further described in said affidavit which is attached hereto as Exhibit A. The proposed annual appropriation is 302 acre-feet.  
  
b. The applicant proposes to construct a well in the SE1/4 of the NE1/4 of Section 26, Township 12 South, Range 65 West of the 6th Principal Meridian at a location 2800 feet from the North section line and 100 feet from the East section line of said Section 26. The well would be constructed to divert ground water from the Arapahoe Aquifer (hereinafter "aquifer") with a maximum pumping rate of 200 g.p.m.
3. The land area overlying the ground water claimed by the applicant is located within the boundaries of the Upper Black Squirrel Creek Designated Ground Water Basin and Ground Water Management District. The Ground Water Commission has jurisdiction.
4. The applicant proposes to apply the appropriated ground water to the following beneficial uses: municipal use within the service area of the Paint Brush Hills Metropolitan District.
5. The location of the proposed well is more than 600 feet from any existing large-capacity well completed in the aquifer.
6. The applicant will own or control the land on which the well will be constructed.

Applicant: Paint Brush Hills Metropolitan District  
Aquifer: Arapahoe  
Permit No.: 46553-F

Page 2

7. The quantity of water in the aquifer underlying the 1440 acres of land claimed by the applicant is 35,740 acre-feet. This determination was based on the following as specified in the Designated Basin Rules:
  - a. The average specific yield of the saturated permeable material of the aquifer underlying the land under consideration that could yield a sufficient quantity of water that may be extracted and applied to beneficial use is 17 percent.
  - b. The average thickness of the saturated permeable material of the aquifer underlying the land under consideration that could yield a sufficient quantity of water that may be extracted and applied to beneficial use is 146 feet, based on the geophysical log for the well with permit number 30593-F.
8. At this time, there is no substantial artificial recharge which would affect the aquifer within a 100-year period.
9. Pursuant to Section 37-90-111(5), C.R.S., the Ground Water Commission is required to allocate designated ground water in the aquifer on the basis of landownership and a 100-year aquifer life. Therefore, the maximum annual appropriation which could be allowed pursuant to the data in the paragraphs above for the 1440 acre described land area is 367 acre-feet.
10. The ability of the well, with any additional wells, to withdraw the authorized amount of water from this non-renewable aquifer may be less than the 100 years upon which the amount of water in the aquifer is allocated, due to anticipated water level declines.
11. Withdrawal of ground water from the aquifer underlying the land claimed by the applicant will not, within one hundred years, deplete the flow of a natural stream or its alluvial aquifer at an annual rate greater than one-tenth of one percent of the annual rate of withdrawal and therefore the ground water is nontributary ground water as defined in Rule 4.2.19 of the Designated Basin Rules.
12. A review of the records of the Ground Water Commission has disclosed that the issuance of the requested permit would result in unreasonable impairment of existing water rights unless terms and conditions are included to prevent such injurious effect. The well permit numbers, rate of diversion, and other relevant data concerning such rights are set forth in the attached Exhibit B. To prevent material injury to such existing water rights, the quantity of water claimed by the applicant underlying the land area described in Exhibit A, which is considered unappropriated, has been reduced to a maximum annual amount of 182 acre-feet. This reduction is partially based on a calculation of the area necessary to provide a quantity of water underlying such lands as would be sufficient for the persons entitled to divert water under existing claimed rights to divert the maximum (average) annual amount of water from the aquifer for the minimum useful life of the aquifer (100 years). The effect of this calculation is to effectively reduce the land available for calculating the quantity of water underlying the land owned and claimed by the applicant to be served to 1192 acres. Additional reduction is based on the claimed prior appropriation of 113 acre-feet per year of the available ground water in the aquifer underlying the 1440 acre tract.

357  
1192 / 1440

✓

295  
- 113  
182

13. In accordance with Rules 5.3.8 and 5.3.9 of the Designated Basin Rules, additional wells may be permitted to withdraw the total allowed appropriation together with the proposed well.
14. On July 23, 1993, a letter was sent to the Upper Black Squirrel Creek Ground Water Management District requesting recommendations concerning this application. A letter from the district dated August 11, 1993, requested more complete information and more time to review the application. A letter from the district dated November 17, 1993, indicated that processing of the application should not proceed until questions regarding the ownership of lands claimed by the applicants were resolved. The application as originally submitted to the Commission claimed the control of ground water in the Arapahoe Aquifer partially based on the consent of landowners and also on the control of ground water in the aquifer underlying described land areas which had been separated from landownership. The resubmitted application, received complete by the Commission on March 12, 1996, clarified the basis of the claim for the proposed appropriation.
15. The Commission Staff has evaluated the application relying on the claims to control of the water in the aquifer made by the applicant.
16. In accordance with Sections 37-90-107(2) and 37-90-112, C.R.S., the application was published in the Gazette Telegraph newspaper on March 21 and 28, 1996.
17. No objections to the proposed appropriation were received within the time limit set by statute.
18. The Ground Water Commission finds that unreasonable impairment of existing water rights will not occur from approval of the appropriation and issuance of the well permit if the following conditions are complied with:
  - a. The well, and any additional wells approved by the Commission to withdraw this appropriation (hereinafter "additional wells"), must be constructed to withdraw water from only the Arapahoe Aquifer. At the proposed well location, the top of the aquifer is located approximately 1435 feet below ground surface and the bottom of the aquifer is located approximately 1915 feet below ground surface. Plain, non-perforated casing must be installed and sealed to prevent diversion of ground water from other aquifers and the movement of ground water between aquifers.
  - b. Well permits for additional wells to withdraw the appropriation shall be available upon application, subject to approval by the Commission.
  - c. The entire depth of the well and any additional wells must be geophysically logged prior to installing the casing as set forth in Rule 9 of the Statewide Nontributary Ground Water Rules, 2 CCR 402-7.
  - d. The maximum annual amount of water to be diverted from the aquifer by the well, together with any additional wells, shall not exceed 182 acre-feet. The Commission may adjust the annual appropriation based on analysis of the geophysical logs if such analysis indicates that the initial estimate of the volume of water in storage was incorrect.

Applicant: Paint Brush Hills Metropolitan District  
Aquifer: Arapahoe  
Permit No.: 46553-F

Page 4

- e. The use of ground water from the appropriation shall be limited to the following uses: municipal use within the service area of the Paint Brush Hills Metropolitan District.
- f. No more than 98% of the ground water withdrawn annually from this well and any additional wells shall be consumed. The Commission may require the well owner to demonstrate periodically that no more than 98% of the water withdrawn from the well is being consumed.
- g. The maximum pumping rate of the well and any additional well shall not exceed 200 g.p.m.
- h. The well and any additional wells shall be constructed within 200 feet of the location specified on the individual permit application, but must be more than 600 feet from any existing large-capacity well completed in the aquifer. Any additional wells shall be located on the 1440 acre claimed area on land owned or controlled by the well owner.
- i. A totalizing flow meter shall be installed on the well and any additional wells and maintained by the well owner. Annual diversion records shall be collected and maintained by the well owner and submitted to the Commission upon their request.
- j. The well owner shall mark the well and any additional wells in a conspicuous place with the permit number and the name of the aquifer. He shall take necessary means and precautions to preserve these markings.

Dated this 14th day of May, 19 96.

*Hal D. Simpson*

Hal D. Simpson  
Executive Director  
Colorado Ground Water Commission

By: *Craig M. Lis*  
Craig M. Lis, P.E.  
Supervisor, Designated Basins Branch

Prepared by: RAC

Statement of Land and Water Ownership

RECEIVED

MAR 13 '88

WATER RESOURCES  
STATE ENGINEER  
COLORADO

State of Colorado    )  
                              ) ss.  
County of El Paso    )

The Affiant, Jerry A. Smith, is the President of Eagle Ranch Development Corp., a Colorado Corporation; Manager of the B.L.P.S. Company, L.L.C., a Colorado Limited Liability Company; and President of Paint Brush Hills Metropolitan District, a quasi-municipal corporation and political subdivision of the State of Colorado.

After first being duly sworn upon oath, deposes and states as follows:

HISTORY

(1) On January 31, 1980, Paint Brush I, a Colorado Limited Partnership received title to the Southeast 1/4 of Section 23; the South 1/2 of Section 24; all of Section 25; and the East 1/2 of Section 26 all in Township 12 S Range 65 W, in El Paso County, State of Colorado, including all the groundwater under said land and the water rights in and to the well permits No.17348-F, 17654-F and 17658-F. (Approximately 1,440 acres.)

(2) Commencing on December 31, 1980, by various warranty deeds, Paint Brush I conveyed 2-1/2 acre parcels to Purchasers in Paint Brush Hills Filing No.1, reserving to itself all groundwater and water rights in and to the Lower Dawson Arkose, Arapahoe and Laramie-Fox Hills Aquifers. (Approximately 163 acres.)

(3) Commencing on October 29, 1982, by various warranty deeds, Paint Brush I conveyed 2-1/2 acre parcels to Purchasers in Paint Brush Hills Filing No. 2, reserving to itself all groundwater and water rights in and to the Lower Dawson Arkose, Arapahoe and Laramie-Fox Hills Aquifers. (Approximately 163 acres.)

(4) Commencing on February 23, 1984, by various warranty deeds, Paint Brush I conveyed 2-1/2 acre parcels to Purchasers in Paint Brush Hills Filing No. 3, reserving to itself all groundwater and water rights in and to the Denver, Arapahoe and Laramie-Fox Hills Aquifers. (Approximately 163 acres.)

(5) On June 26, 1986, Paint Brush I conveyed by warranty deed to P.B.H.P. Joint Venture, all of Section 25 and the East 1/2 of Section 26 in Township 12 S Range 65 W in El Paso County, State of Colorado, including all of the groundwater and water rights under said land. Also conveyed was all of the groundwater and water rights reserved by Paint Brush I in deeds in Paint Brush Hills Filings 1, 2, and 3. (This land was approximately 950 Acres or the balance of the land not platted in the Filings 1, 2 and 3 of Paint Brush Hills.)

(6) On November 10, 1987, P.B.H.P. Joint Venture conveyed to Paint Brush Hills Metropolitan District all groundwater and water rights in the Dawson, Denver, Arapahoe and Laramie Fox Hills formations under land owned by it; well permits #17654-F, #17658-F and #17048-F; and the water and water rights in the (Lower Dawson), Denver, Arapahoe and Laramie-Fox Hills formations under all lots in Paint Brush Hills Filings No. 1, 2 and 3 in El Paso County, State of Colorado. (Land = 950 acres; Water underneath = 1,440 acres.) This deed also included and conveyed to the District 190.2 acre feet of water from the Arapahoe Aquifer which covered the water in Permit No. 30593-F.

(7) Commencing on June 20, 1988, P.B.H.P. Joint Venture conveyed to individuals six lots in Paint Brush Hills Filing No.4, reserving to itself all of the groundwater in and to the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations.

(8) On June 4, 1992, P.B.H.P. Joint Venture conveyed to Paint Brush Hills Metropolitan District approximately 100 Acres in a part of Section 25, Township 12 S, Range 65 W (being directly north of Paint Brush Hills Filing No.4) and 158 lots in Paint Brush Hills Filing No. 4 (being the balance of the lots not conveyed in Deed No. 7), including all groundwater and water rights in the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations.

(9) On June 13, 1992, by warranty deed, P.B.H.P. Joint Venture conveyed to Eagle Ranch Development Corp., a Colorado Corporation, all of Section 25 in Township 12 S, Range 65 W, except the 100 acres deeded to Paint Brush Hills Metropolitan District (Deed No. 8) and Paint Brush Hills Filing No. 4, and the East 1/2 of Section 26, Township 12 S, Range 65 W, El Paso County, State of Colorado including all the groundwater and water rights under said land. (Approximately 750 acres.)

(10) Commencing on June 20, 1992 Paint Brush Metropolitan District started conveying lots in Paint Brush Hills Filing No. 4 to Eagle Ranch Development Corp. (and then to Lot Purchases), according to the ruling of the United States Federal District Court for Colorado, as a procedure to pay off the Bond Holders of the Paint Brush Hills Metropolitan District. In such individual deeds, Eagle Ranch Development Corp. reserved all of the groundwater and water rights in and to the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations.

(11) On August 25, 1995 Paint Brush Hills Metropolitan District conveyed to Eagle Ranch Development Corp., 40 Acres of the 100 Acres contained in the Deed of June 4, 1992. (Deed No. 8 herein.)

(12) Also on August 25, 1995 Eagle Ranch Development Corp. conveyed to B.L.P.S. Company, LLC (a sister company of Eagle Ranch Development Corp.) 40 acres (included in Deed No. 11 herein), which then was platted as Paint Brush Hills Filing No. 5, in El Paso County, State of Colorado.

(13) Commencing on December 29, 1995, the B.L.P.S. Company, LLC started conveying to Lot Purchasers, lots in Paint Brush Hills Filing No. 5 reserving to itself all the groundwater and water rights in and to the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations.

### OWNERSHIP

At the present time, the ownership of rights contained in the History above is as follows:

(1) Eagle Ranch Development Corp. owns (land only) the East 1/2 of Section 26 and all of Section 25, in Township 12 S Range 65 W, El Paso County, Colorado except Paint Brush Hills Filing No.'s 4 and 5, and the 100 acres referred to herein, or a total of 750 acres.

(2) Paint Brush Hills Metropolitan District owns (land and water and water rights) 60 acres in Section 25 in Township 12 S Range 65 W, El Paso County, Colorado; and all the water and water rights in the Denver (Lower Dawson), Arapahoe and Laramie-Fox hills formations under Paint Brush Hills Filing No.'s 1, 2 and 3; the water wells under permits #17048-F, #30593-F, #17654-F and 17658-F; all of the water and water rights in the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations under the East 1/2 of Section 26 and all of Section 25 (including Paint Brush Hills Filing No.'s 4 and 5), all in El Paso County, State of Colorado.

(3) The B.L.P.S. Company, L.L.C. owns (land only) the unsold lots in Paint Brush Hills Filing No. 5, (40 acres).

Affiant further deposes and says that Eagle Ranch Development Corp., the B.L.P.S. Company, L.L.C. and Paint Brush Hills Metropolitan District have not given up their right to appropriate the unappropriated non-tributary ground water from the Dawson, Denver, Arapahoe and Laramie-Fox Hills formations underlying the SE 1/4 of Section 23, S 1/2 of Section 24, Section 25, and the E 1/2 of Section 26, in Township 12 S, R 65 West of the 6th Principal Meridian, El Paso County, State of Colorado, except as stated in the above

# EXHIBIT B

APPLICANT: Paint Brush Hills Metropolitan District

AQUIFER: Arapahoe

## WELL #1

PERMIT NUMBER	1/4	1/4	SEC	TWP	RNG	AF	ST	SY	RADIUS	AREA
17048-F	SW	SE	25	12S	65W	130.7	215	17	2235	248

AF = THE AMOUNT OF ANNUAL APPROPRIATION OF THE WELL, FROM THE ARAPAHOE AQUIFER, IN ACRE-FEET \*

ST = THICKNESS OF THE SATURATED AQUIFER MATERIAL AT THE WELL LOCATION IN FEET, SB-6 DATA

SY = SPECIFIC YIELD OF THE SATURATED AQUIFER MATERIAL AT THE WELL LOCATION AS A PERCENT

RADIUS = IS THE RADIUS OF THE CYLINDER OF APPROPRIATION IN FEET

AREA = THE AREA OF THE APPLICANTS' LAND THAT IS OVERLAPPED BY THE CYLINDER OF APPROPRIATION IN ACRES.

\* The well with Permit No. 17048-F is completed 46 percent in the Denver Aquifer and 54 percent in the Arapahoe Aquifer. Based on a claimed annual appropriation of 242 acre-feet, the annual amount of appropriation for the Arapahoe Aquifer was calculated to be 130.7 acre-feet. The cylinder is centered at the permit location for the well: a point 800 feet from the south section line and 1900 feet from the east section line of Section 25. The permit was issued on March 21, 1973, and is subject to Rule 5.3.3 of the Designated Basin Rules. The cylinder protects the claimed appropriation for this well. The amount of appropriation is based on the well owner's statements and is subject to verification by the Ground Water Commission and publication before issuance of a final permit.

## WELL #2

PERMIT NUMBER	1/4	1/4	SEC	TWP	RNG	AF
30593-F	SW	NE	25	12S	65W	113

The well with Permit No. 30593-F has previously appropriated 113 acre-feet per year of the available ground water in the Arapahoe Aquifer underlying the 1440 acre land area described in Exhibit A. The amount of appropriation is based on the well owner's statements and is subject to verification by the Ground Water Commission and publication before issuance of a final permit.

And Eagle Ranch Development Corp. and the B.L.P.S. Company, L.L.C., consent to, and state that Paint Brush Hills Metropolitan District owns all of the unappropriated underground non-tributary water in the Dawson, Denver, Arapahoe and Laramie-Fox hills formations under the above described land, which equates to 1,440 acres.

Further, I claim and say that I have read the statements made herein, know the contents hereof, and the same are true to my own knowledge.

Eagle Ranch Development Corp.

By

Jerry A. Smith  
Jerry A. Smith, President

Paint Brush Hills Metropolitan District

By

Jerry A. Smith  
Jerry A. Smith

The B.L.P.S. Company, L.L.C.

By

Jerry A. Smith  
Jerry A. Smith, Manager

Subscribed and sworn to before me on this 28th day of February, 1996 by Jerry A. Smith, to me personally known.

Witness my hand and official seal.

Katheryn Lang  
Notary Public



My Commission Expires: December 26, 1996

# *Appendix B-1*

## WATER SERVICE CONTRACT

This Contract is made and entered into effective the 8<sup>TH</sup> day of September, 2003, by and between Meridian Service Metropolitan District (the "District") and Six Ninety Nine L.A., LLC, a Colorado limited liability company ("Purchaser").

### RECITALS

- A. District is a quasi-municipal corporation and political subdivision of the state of Colorado with its principal office in El Paso County, Colorado.
- B. Purchaser is the owner of certain real property known as Falcon Hills which is serviced by the Paint Brush Hills Metropolitan District ("PBHMD").
- C. Portions of Purchaser's property are subject to the El Paso County 300 year water policy.
- D. The District receives some of its water from Cherokee Metropolitan District ("Cherokee") which takes water from the alluvium of the Upper Black Squirrel Creek Designated Ground Water Basin which water is considered to be "renewable water" pursuant to the El Paso County 300 year water policy and thus is exempt from the policy. Cherokee obtains its water from a series of municipal wells located in the boundaries of the Black Squirrel.
- E. Purchaser desires to purchase water from the District and the District desires to sell the same all on the terms and conditions as contained herein.

NOW, THEREFORE, based on the mutual promises and considerations contained herein, the parties agree as follows:

1. **CONTRACT FOR DELIVERY OF WATER.** The District hereby sells to Purchaser the right to receive up to 85 Acre Feet ("AF") of water delivered on an annual basis.
2. **PURCHASE PRICE.** Purchaser shall pay to the District the sum of \$5,000 per AF which price shall increase annually commencing on January 1, 2004 in relationship to the increase, if any, in the Denver-Boulder CPI, and, if not available, the nearest equivalent CPI. The price shall be paid at the time Purchaser requests delivery. Following purchase, Purchaser shall pay the District the actual costs of pumping the water conveyed pursuant to this agreement, which costs shall include electricity and reasonable wear and tear on equipment.
3. **DELIVERY.** Delivery shall be made available at a point on the District's municipal system mutually agreeable to the District and Purchaser. All costs of connection, including pumps, pipes, one-way check valves, and related equipment shall be done at the sole cost and expense of the Purchaser and shall be designed and constructed pursuant to the standards set by the District.
4. **PUMPING COSTS.** In addition to the Purchase Price, the Purchaser shall pay all reasonable and necessary pumping costs on a monthly basis in an amount to be mutually agreed

to by the parties at the time of delivery and taking into account the District's historic pumping costs.

5. LEASE. At any time that Purchaser takes delivery of all or part of the 85 AF of water, at the option of Purchaser, Purchaser may either (1) purchase said water as set forth in Section 2, or (2) lease the same. If leased, the lease price shall be at the same rate as the sale of bulk water by the District to the golf course located in and adjacent to the District's boundaries. On December 31, 2006, should the Purchaser have been leasing all or a portion of the water prior to that date, at the option of the District, the District can require Purchaser to purchase the amount of water which is being leased and the purchase price shall be as set forth in Section 2 above. Unless otherwise agreed by the parties hereto, should the District not exercise this purchase requirement, Purchaser may continue to lease up to 85 acre feet of water perpetually, subject to the terms and conditions of this Agreement.

6. TERM. This Agreement shall terminate at such time as Purchaser determines that it no longer needs this commitment for water.

7. PERPETUAL AGREEMENT. Insofar as this Contract affects water and water rights, it is the intention of the parties hereto that this Contract and obligation to deliver water be perpetual in nature according to the Colorado Supreme Court's decision in Cherokee Water District v. City of Colorado Springs.

8. MISCELLANEOUS.

a. This Contract shall be interpreted by and governed by the laws of the State of Colorado.

b. In the eventuality of any dispute over this Contract, the same shall be settled by binding and mandatory arbitration before one, mutually-agreed-to arbitrator in El Paso County, Colorado. The arbitrator shall make all decisions with regard to procedure and discovery and shall have the authority to issue injunctive relief. Should the parties be unable to agree on the arbitrator, the same shall be appointed by a District Court Judge, El Paso County, Colorado.

c. In the eventuality of any dispute over this Contract, the prevailing party shall be entitled to an award of all attorney fees and costs.

Entered the year and day first above written.

MERIDIAN SERVICE METROPOLITAN DISTRICT

BY: Jim H. Haines, VICE PRESIDENT

SIX NINETY NINE L.A., LLC

BY: Shelly Fong

*Appendix B-2*

## LIFT STATION AND WATER AGREEMENT

1. **Parties.** Paint Brush Hills Metropolitan District (the "District") is a quasi-municipal corporation and political subdivision of the state of Colorado which provides the water, sewer, and related services to the Falcon Hills development, and Six Ninety Nine Properties, LLC (the "Developer") is in the business of developing lots for sale to builders in Falcon Hills. As of December \_\_, 2003, the District and Developer agree as follows:

2. **Lift Station.** The District recently completed the construction of a lift station and related force main (collectively referred to below as the "lift station"). However, as the area served by the lift station builds out, it might be necessary to add additional storage to the lift station. Developer had previously promised to pay a portion of the cost of the lift station although the amount and timing of its payments had not been finalized. Developer hereby agrees to pay the District \$100,000 on or before February 1, 2004, an additional \$100,000 on or before February 1, 2005, and an additional \$200,000 on or before December 31, 2006, for a total payment of \$400,000, for the lift station.

3. **Water Service Contract.** Six Ninety Nine LA, LLC has assigned Developer its rights under the Water Service Contract dated September 8, 2003 between Six Ninety Nine LA, LLC and Meridian Service Metropolitan District, as a result of which Developer has the right to acquire and use up to 85 acre feet of water per year from Meridian Service Metropolitan District. A copy of the Water Service Contract is attached hereto as Exhibit A. Developer hereby assigns its rights under the Water Service Contract to the District in return for the payment of \$180,000 by the District to Developer on or before December 31, 2006; provided, however, that unless Developer gives its prior written consent to the contrary, the above-referenced 85 acre feet of water shall only be used to service customers within the present physical boundaries of the District and for plat approval purposes only for plats submitted by Developer or a related company.

4. **Assignability.** The water rights which Developer agrees to assign to the District pursuant to Section 3, above, may not be reassigned by the District except to a similar quasi-municipal corporation providing water and sewer services to Falcon Hills. In all other respects, this Agreement shall inure to the benefit of and be binding upon the successors and assigns of the parties.

5. **Modification; Entire agreement.** This Agreement may not be modified without the agreement of both parties and constitutes the entire agreement between the parties relating to payments for the lift station and the Water Service Contract. Any prior agreements pertaining thereto, whether oral or written, have been merged and integrated into this Agreement, but any and all other agreements between or relating to the District and Developer are hereby ratified and confirmed.

**District:**

Paint Brush Hills Metropolitan District  
9548 Waterbury Dr.  
Peyton, CO 80831

by

*Ellen Robley* 4/2/04  
Ellen Robley, District Administrator

**Developer:**

Six Ninety Nine Properties, LLC  
545 E. Pikes Peak, Ste. 207  
Colorado Springs, CO 80903

by

*Harold Fong* 4/2/04  
Harold Fong, Manager

# *Appendix C*



Wm. CURTIS WELLS & CO. / consulting geologists  
4361 east sandia street / ahwalukee, az 85044  
telephone (480) 339-8475 / curt@curtwells.com

February 26, 2013

Ms. Ellen Robley  
Paint Brush Hills Metropolitan District  
9830 Liberty Grove Drive  
Falcon, CO 80831

All via E-mail

Re: Continued Ground Water Consultation, Paint Brush Hills Metropolitan District, Water Supply,  
Proposed Filing 13a, El Paso County, Colorado.  
Job No. 6770

Dear Ellen:

I understand the District Board of Directors are soon to consider water service to the proposed 17-lot, Filing 13a. I am advised that the 17 proposed homes may be a part of a larger 550± homesite development, but for the purpose of this letter report, I am just considering the proposed filing. The objective of this report is to update the County on the District's water supply obligations and water rights portfolio. The water use estimates described herein match a 2003 agreement with the Colorado Division of Water Resources concerning which of the District's filing would be allocated water use at rates of 0.4 and 0.5 acre feet per year per residential unit. Currently, District's Filings 4 through 12 contain 719 dwellings and the water demands of these homeowners are listed on the attached Table I.

The general framework of Table I is essentially the same as the last water supply report that I prepared in 2004. The table has been updated to include additional wells tapping the Arapahoe and Laramie Fox Hills formations. Also water supply record keeping has vastly improved such that District records now illustrate the middle school (formerly Falcon High School) requires significantly more water than was previously estimated. For completeness, the water use table now lists park and greenbelt irrigation water supplied by the District.

Table I lists the District's water rights and the amount of ground water that currently can be used without further review by the Colorado Ground Water Commission. As shown on the table with or without the legally available Denver aquifer ground water, the District has water rights to service the proposed Filing 13a. Beyond this commitment and without the Denver aquifer there should be an excess

24,000 acre feet. This amount of water, if appropriated over 300 years at a rate of 0.4 acre feet per year per home, equals 200 future SFE's.

At build out of the proposed Filing 13a, the District's water supply planning number would be about 330 acre feet per year. This includes 736 homeowners using water at a rate of 0.4<sup>1</sup> acre feet per year plus 22 acre feet for the middle school, 14 acre feet for park irrigation and 0.2 acre feet to the church. Based on the current water supply records the District proves 15 percent of its supply in the warmest month of the year. This means 360 gallons per minute would have to be generated during this summer month to supply the existing filings along with Filing 13a. During August of 2012, the District provided 300± gallons per minute while operating only 7 of the 11 District wells, along with water delivered through the District's connection with Meridian Service Metropolitan District and this information is shown on the attached Table 2. By equipping some combination of Wells A-3, A-4, LFH-1 and LFH-2 the District should easily be able to supply water to the proposed filing.

I trust this information satisfies your immediate needs. If you have questions, please call.

Very truly yours,

Wm. Curtis Wells & Co.

*Wm. Curtis Wells*

Wm. Curtis Wells CPG  
Consulting Ground Water Geologist

---

<sup>1</sup> Current water supply rate

Table 1  
 Paint Brush Hills Metropolitan District  
 Water Supply Summary  
 As of February 2013

Aquifer or Water Source	Determination or Permit No.	Ground Water or Water Availability			Wells Currently Appropriating Supply			
		Ground Water Appropriation	Ground Water Storage	Ground Water Currently Available For Appropriation				
		(af/yr)	(af)	(af)				
Dawson	719-BD	237(1)	23700	0				
Dawson, 50-Ac. (2)	unappropriated	20	2000	0				
Denver	214-BD	298	29800	29800				
Denver, 50-Ac. (2)	unappropriated	25.5	2550	0				
Arapahoe	46553-F	182	18200	18200	A-2(30593-F)	A-3(46553-F)	A-4(55193-F)	A-5(60862-F)
					A-6(64086-F)			
Arapahoe	unappropriated	90.6(3)	9060	0				
Laramie Foot Hills	47813-F	388	38800	38800	LPH-1(47813-F)	LPH-2(50877-F)	LPH-3(53192-F)	LPH-4(63429-F)
					LPH-5(64084-F)			
Guthrie Alluvial via Meridian M&D	Finding(4)	65	25300(5)	25500	612-RFP-R	27354-FY-R		
Total		1327	149610	112300				

Water Demand At Build-out	Use/House (af/yr/unit)	Houses/SFRs	Years	Amount (af)
Middle School	23		100	2300
District Greenbelt/Park Irr.	14		100	1400
Filing 4	0.5	164	100	8200
Filing 5	0.5	51	100	3550
Filing 6	0.5	48	100	2400
Filing 7	0.5	57	100	2850
Filing 8	0.5	109	100	5450
Filing 9	0.5	88	100	4400
Filing 10	0.4	90	300	10800
Filing 11	0.4	81	300	9720
Filing 12	0.4	51	300	6120
Filing 13a	0.4	17	300	2040
Church	0.2		300	60
Total		796		57190
Excess Ground Water Supply				
With Denver Aquifer				55110
Without Denver Aquifer				25310

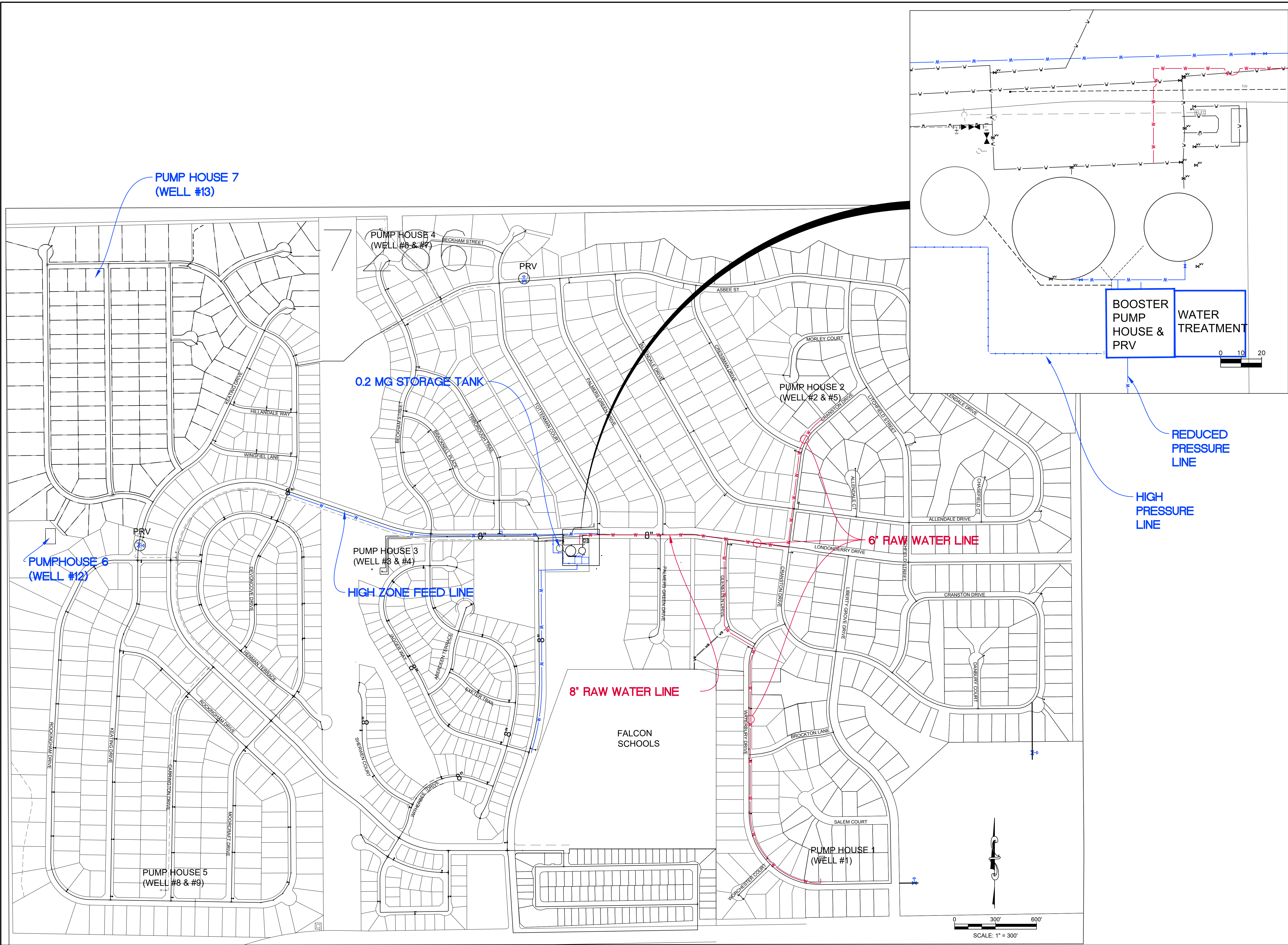
Notes:

- (1) - Cannot be used until Dawson Aquifer Replacement Plan approved
- (2) - Area represents parks and greenbelts in District.
- (3) - Will be available once Well A-1 permit is canceled and Well A-1 is re-permitted and re-drilled as an Arapahoe structure
- (4) - Finding of the Commission date May 5, 1983; later governmental agreement between Paint Brush and Meridian Ranch Metro. Districts
- (5) - Delivery pipeline interconnect; value represents 85 af/yr times 300 years

## **APPENDIX C**

### **Distribution System Map**

S:\1070 - Paint Brush Hills Metropolitan District\1070.0004 - Master Plan 2020 Update\02-overall\Tract A plan.dwg, 10/6/2020 2:05:29 PM, DWG To PDF.pc3



PBHMD ADMINISTRATION BUILDING PROJECT		DESCRIPTION	
PBH WATER PLAN		1 ADDED FIRE HYDRANT, REDUCED GRAVEL & FENCING & REVISED GRADING	
DRAWN BY:		DATE:	
DESIGNED BY:		BY:	
JOB NUMBER:		DATE:	
1070000006		06/17/16 DRB	
DATE:		BY:	
AUGUST 2008		06/17/16 DRB	
SCALE:		DATE:	
1" = 300'		06/17/16 DRB	
DRAWING NAME:		DATE:	
WATER PLAN		06/17/16 DRB	
SHEET NO:		DATE:	
1		06/17/16 DRB	
of		DATE:	
14		06/17/16 DRB	

48 hours before you dig, CALL UTILITY NOTIFICATION CENTER OF COLORADO (UNCC)

811

Gas, Electric, Telephone, CATV, and Potable Water Lines are shown. Please call 811 before you dig.

SCALE VERIFICATION

BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET SCALE ACCORDINGLY

**RG AND ASSOCIATES, LLC**

4885 Ward Road, Suite 100 • Wheat Ridge, CO • 80033

Gypsum • Loveland • Monte Vista • Wheat Ridge

303-293-8107 • 303-293-8106 (fax) • www.rgengineers.com

**PBHMD ADMINISTRATION BUILDING PROJECT**

**PBH WATER PLAN**

prepared for

**PAINT BRUSH HILLS METROPOLITAN DISTRICT**

**EL PASO COUNTY, COLORADO**