

SUBJECT:

Appendix E Municipal Water Use

PREPARED BY: HKM Engineering Inc.

DATE: February 2002

INTRODUCTION

This Technical Memorandum provides water use information for the following 33 municipal, district or private water systems that furnish water for municipal and domestic use to their residents.

No municipalities obtain their water supply from a surface source in the Northeast Wyoming River Basins Planning Area. Municipal entities that obtain their primary water supply from groundwater are:

- City of Gillette
- Town of Hulett
- City of Lusk
- Town of Manville
- Town of Moorcroft
- City of Newcastle
- Town of Pine Haven
- City of Sundance
- Town of Upton

Districts that obtain their primary water supply from groundwater are:

- American Road Water and Sewer District
- Antelope Valley
- Cambria Improvement and Service District
- Central Campbell County Improvement and Service District (Sleepy Hollow)
- Collins Heights Improvement and Service District
- Crestview Water District
- Fox Park Improvement and Service District
- Lance Creek Water and Sewer District
- Newton Industrial Park Improvement and Service District
- Osage Water District
- Peoples Improvement and Service District
- Salt Creek Water District
- Southfork Estates Improvement and Service District
- Sunburst Water and Sewer District
- Vista West Improvement and Service District
- Wessex Improvement and Service District
- West End Water District
- Wright Water and Sewer District

Joint Powers Boards that obtain their water supply from groundwater are:

• Force Road Joint Powers Board

Privately owned water systems (including Water Users Associations) that obtain their water supply from groundwater are:

- Cedar Hills
- Freedom Hills Subdivision
- Lost Springs
- Van Tassel

Westridge Water Users

Included with this Technical Memorandum, Appendix 1 provides a summary of each of the 33 municipal, district or private water suppliers. Each summary provides an estimate of the water service population, a brief description of the water supply and water treatment facilities, water rates, an estimate of per capita average and peak day water use, and information on water rights.

The divide between the Northeast Wyoming River Basins Planning Area and the Powder/Tongue River Basin Planning Area passes through the City of Gillette. Gillette is included in this Basin Plan because their Madison well field is in this planning area, and most of their in-city wells are also in this planning area. The district and private water systems around Gillette were broken into the two planning areas based on their location.

METHODOLOGY

Primarily, information was obtained for the various entities from WWDC's 2000 Water System Survey Report and direct communications with the entity. A draft form outlining water use for each system was prepared from information contained in the Water Supply Survey Report, and was submitted to the entity for their review and comments. Accompanying the draft form, was a brief questionnaire asking for additional information on their water supply system and wastewater discharge (potential return of a portion of their water supply to a surface water). Follow-up calls were made to systems that did not respond to the mailing. The Wyoming DEQ office in Sheridan was also contacted for additional information on some of the districts and private water systems.

All information obtained is compiled on the summary sheets in Appendix 1. In a few cases, no information could be obtained on the water system or the data in the WWDC 2000 Water System Survey Report could not be verified.

As the above tabulation indicates, all of the public water supplies in the planning area utilize groundwater. With surface water sources, impacts (depletions) to surface waters can be reduced by returning some of their diversion to that surface water through their wastewater treatment facility. This impact can be shown by the simple relationship of:

depletions = diversions - return flow.

If municipalities using groundwater release wastewater to a neighboring stream, those streams will have an increased flow since there will be no associated surface water diversion. While several of the entities utilizing groundwater sources do discharge from their wastewater facility, many of the smaller groundwater systems do not discharge treated wastewater to a stream. All systems are tabulated with associated quantity estimates in Table 1.

Average and peak day usage, and wastewater discharge information was obtained from the municipality. Only actual wastewater point source discharges were considered in this analysis. Return flows resulting from municipal irrigation use or seepage were not considered, as they are highly variable and difficult to estimate. Therefore, the return flows used in this analysis are likely understated.

Due to the depth and geology of the typical wells used as groundwater sources in the planning area, it is believed these wells have little if any impact on surface water flows.

The consumers of water for many of the municipal systems are totally located within the corporate boundaries. Therefore, the populations of the service areas are the same as that for the town. The City of Gillette in particular, provides water to outlying users and is more of a regional water system. Therefore its population served is more than only that included within the city limits.

CONCLUSIONS

Table 1 summarizes water used by municipalities within the Northeastern Wyoming River Basins. This table also tabulates data on the water systems.

Table 1

	Munic	ipal Wa	ater System	s with (Groundwat	er Sources		
Municipality	Population	Wells	Well Depth	GPCPD	Ave. Day	Peak Day	Storage	Wastewater returns
American Road	210	3	425 - 790	104	23,000	42,000	110,000	None
Antelope Valley	800	3	1300 - 2100				300,000	None
Cambria I&SD	110	None		140	15,360	20,000	64,300	None
Cedar Hills	250	2	1200, 1500	40	10,750	57,900	88,000	None
Central Campbell Co I&SD	1500	4	800 - 2200	60	84,000	367,000	540,000	Into Gillette
Collins Heights I&SD	250	1						None
Crestview	490	1	1550	150	76,000	230,000	570,000	1
Force Road JPB	250	2	1200, 1500	360	90,000	250,000	40,000	None
Fox Park I&SD	843	1	1560				570,000	2
Freedom Hills Subdivision	400	2	1254, 1560				80,000	None
Gillette	22,000	25	1000 - 4500	200	4,000,000	11,940,000	21,000,000	2,300,000 gpd
Hulett	450	3	700 - 1860	100	45,000	200,000	550,000	38,000 gpd
Lance Creek W&SD	40	2	300	525	21,000	84,000	210,000	None
Lost Springs	No informati	on ava	ilable.					
Luck	1600	2	80 - 180	160	240 200	1 086 000	1 000 000	Nono

waterplan.state.wy.us/plan/newy/techmemos/muniuse.html

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LUSK	1000	ے		100	243,200	1,000,000	1,000,000	NULLE
Manville	100	3	97 - 200	700	67,700	148,300	50,000	
Moorcroft	770	4	500 - 900	130	100,000	500,000	500,000	75,000 gpd
Newcastle	3300	4	2638 - 3245	300	1,000,000	2,000,000	5,373,000	None
Newton Industrial Park I&SD	25	1	1100	160	4,000	4500	None	None
Osage WD	216	1	3000	230	50,000		250,000	None
Peoples I&SD	80	1	1200	260	21,000	32,500	12,000	None
Pine Haven	222	1	3400	220	49,000	130,000	280,000	None
Salt Creek WD	500	1	4480	150	75,000	200,000		None
Southfork Estates	115	1	1600	80	9200	25,000	64,000	None
Sunburst W&SD	Now served	by the	City of Gillet	te.				
Sundance	1250	4	506 - 1228	150	180,000	650,000	584,000	None
Upton	950	3	3200 - 3700	225	216,000	500,000	650,000	1
Van Tassell	No informati	on ava	ilable.					
Vista West I&SD	250	2	400, 1124	100	25,000	60,000	210,000	None
Wessex I&SD	21	1	520	150	3150	6300	16,000	None
West End WD	300	1	2275	50	15,000	60,000	None	None
Westridge WUA	260	2	1100, 1200	270	70,000	140,000	100,000	None
Wright	1500	4	2700 - 3018	219	328,800	783,000	1,500,000	72,000 gpd

1 Periodic discharge from lagoon. Amount not available.

2 Package wastewater treatment plant discharges to Donkey Creek. Quantity not available.

Table 2 compares existing usage with system capacity and water rights. This table shows whether the systems have sufficient capacity to meet their existing needs, as well as some future growth. The priority dates of water rights and water availability in dryer years can impact the amount of water that can be diverted despite the quantity stated in their water rights.

The City of Gillette is currently being significantly impacted by the coal bed methane boom. The population calculated from Census 2000 data was approximately 22,000. The city believes they serve a larger population, which could be the case. Growth from the boom could also be above estimates, and well above the rates for other systems in the basin. Therefore, while Table 2 may show Gillette has adequate supply capacity for many years to come, this might not be true. Gillette will monitor this situation and begin planning for expansion of their supply capacity, including additional water source, well ahead of the time frame that may be indicated in Table 2.

	Comparison of Existing L		1	-
Sytems	Peak Day Demand (gal (gpm))	System Capacity (gpm)	Water Right Capacity (Direct Flow*)	Storage Rights (acre-feet)
American Road	42,000 (29)	165		None
Antelope Valley	No information available			None
Cambria I&SD	20,000 (14)	50	N/A	None
Cedar Hills	57,900 (40)	180		None
Central Campbell Co I&SD	367,000 (254)	610		None
Collins Heights I&SD	No information available. Have or	e well. City of Gillette	e also supplies.	
Crestview	230,000 (160)	120		None
Force Road JPB	250,000 (174)	120		None
Fox Park I&SD		180		None
Freedom Hills Subdivision		200		None
Gillette	11,940,000 (8290)	12,865	15,725 gpm	None
Hulett	200,000 (140)	300	300 gpm	None
Lance Creek W&SD	84,000 (58)	60	250 gpm	None
Lost Springs	No information available			None
Lusk	1,086,000 (754)	1600		None
Manville	148,300 (103)	430		None
Moorcroft	500,000 (350)	350		None
Newcastle	2,000,000 (1390)	1800		None
NELLER TERMENTER DE LA TOOP	4500 (3)		1	NI

waterplan.state.wy.us/plan/newy/techmemos/muniuse.html

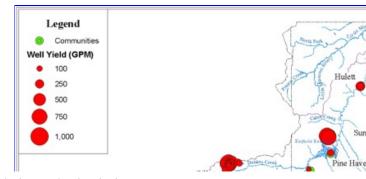
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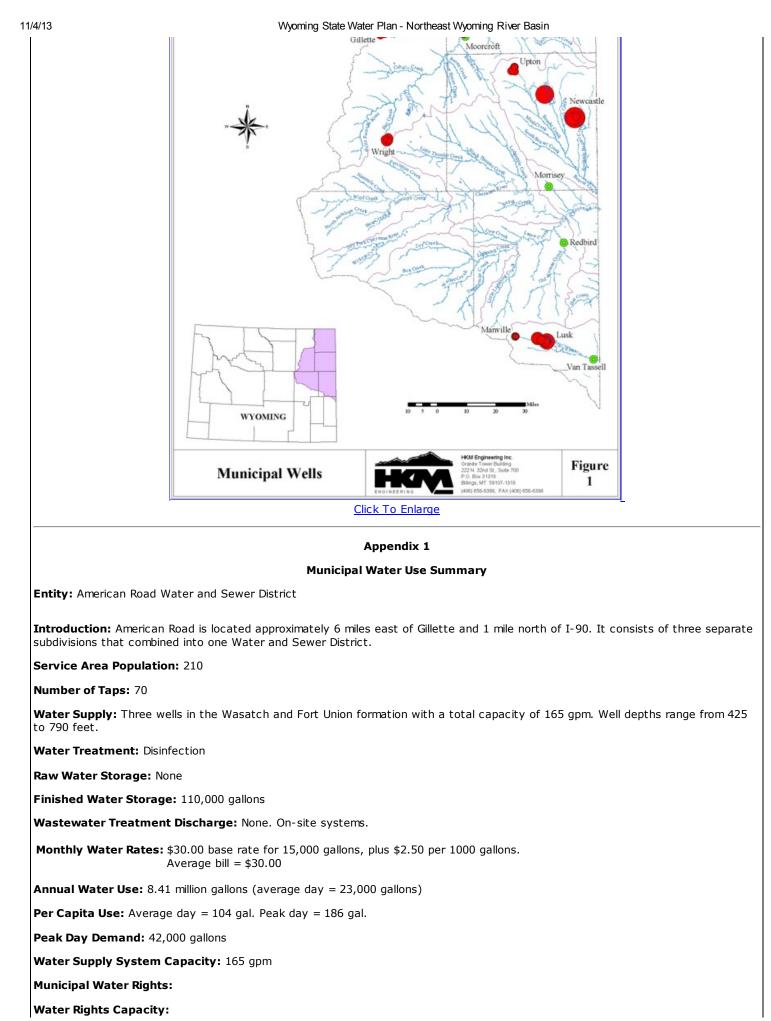
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4500 (3)	25		None
	200		None
	55		None
130,000 (90)	120	120 gpm	None
200,000 (139)	1000	500 gpm	None
25,000 (17)	80	None	None
Now served by the City of Gillette			None
650,000 (450)	1000		None
500,000 (350)	840		None
No information available			None
60,000 (42)	130		None
6300 (5) 20	50 gpm	None	
60,000 (42)	1150		None
140,000 (97)	105	125 gpm	None
783,000 (544)	1350	1560 gpm	None
	4500 (3) 4500 (3) 130,000 (90) 200,000 (139) 25,000 (17) Now served by the City of Gillette 650,000 (450) 500,000 (350) No information available 60,000 (42) 6300 (5) 20 60,000 (42) 140,000 (97)	4500 (3) 25 200 200 55 55 130,000 (90) 120 200,000 (139) 1000 25,000 (17) 80 Now served by the City of Gillette 650,000 (450) 650,000 (450) 1000 500,000 (350) 840 No information available 60,000 (42) 6300 (5) 20 50 gpm 60,000 (42) 1150 140,000 (97) 105	200 200 55 130,000 (90) 120 200,000 (139) 1000 500 gpm 25,000 (17) 80 None 80 1000 500,000 (450) 1000 500,000 (450) 1000 500,000 (350) 840 No information available 60,000 (42) 130 6300 (5) 20 50 gpm None 60,000 (42) 1150 140,000 (97)

*Direct Flow refers to the in-stream diversion right for surface sources, and permited yeild for groundwater sources.

Municipal water suppliers are faced with the ongoing tasks of rehabilitating their water systems as they age, responding to needs for improvements to comply with regulations and additional capacity, and plan for the future to meet growths in demand. Addressing these issues, supplying water of the quantity and quality to meet their users requirements, and providing the needed revenue to meet their financial plan is an ongoing challenge.

Figure 1 shows the location of wells within the Northeast Wyoming River Basins Planning Area that were filed in the State Engineer's Office as "municipal" wells. These wells are on a data layer within the GIS for these basins. Information on the well as provided by the applicant, may be accessed by "clicking" on each well in the GIS.





Near Future Improvements:

References:

- 1. Wyoming Water Development Commission, 2000 Water System Survey Report.
- 2. Don McKenzie, Wyoming DEQ, 2-26-01.

Municipal Water Use Summary

Entity: Antelope Valley

Introduction: Antelope Valley is located about 3 miles south of Gillette on the west side of Highway 59.

Service Area Population: 800

Number of Taps: 315

Water Supply: Three Fort Union wells with depths of 1300 to 2100 feet and yields of 30 to 240 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 300,000 gallons

Wastewater Treatment Discharge: None. On-site systems.

Monthly Water Rates:

Annual Water Use:

Per Capita Use:

Peak Day Demand:

Water Supply System Capacity:

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

1. Wyoming Water Development Commission, *2000 Water System Survey Report*. 2. Don McKenzie, Wyoming DEQ, 2-26-01.

Municipal Water Use Summary

Entity: Cambria Improvement and Service District

Introduction: Cambria I&SD is located near Newcastle, and obtains its water supply from the City of Newcastle.

Service Area Population: 110

Number of Taps: 44

Water Supply: The city of Newcastle. Flow available about 50 gpm.

Water Treatment: None by Cambria.

Raw Water Storage: N/A

Finished Water Storage: 64,300 gallons

Wastewater Treatment Discharge: None. On-site systems.

Monthly Water Rates: Base rate of \$33.75, plus \$2.25 per 1000 gallons for more then 15,000 gallons. Average water bill is \$33.75.

Annual Water Use: About 5.6 million gallons (average day = 15,360 gallons)

Per Capita Use: 140 gpd

Peak Day Demand: 20,000 gallons

Water Supply System Capacity: 50 gpm

Municipal Water Rights: N/A

Water Rights Capacity:

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water Suppry System Capacity: Oto gpm

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements: No capacity for expansion of service area unless additional wells and storage added.

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Robert Zabel, 2-27-01.

3. Bret Wolz, Falcon Engineering, 3-1-01.

Municipal Water Use Summary

Entity: Collins Heights Improvement and Service District

Introduction: Collins Heights is located about $1\frac{1}{2}$ miles east of Gillette between I-90 and the BNSF Railroad. The water system for Collins Heights is operated by the city of Gillette.

Service Area Population: 250

Number of Taps: 100

Water Supply: One Fort Union well and the city of Gillette.

Water Treatment: Disinfection

Raw Water Storage:

Finished Water Storage:

Wastewater Treatment Discharge: None. On-site systems.

Monthly Water Rates:

Annual Water Use:

Per Capita Use:

Peak Day Demand::

Water Supply System Capacity:

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

Municipal Water Use Summary

Entity: Crestview Water District

Introduction: Crestview is located about 21/2 miles south of Gillette, along the west side of Highway 59.

Service Area Population: 490

Number of Taps: 150

Water Supply: One Fort Union well with a depth of 1550 feet, and a yield of 125 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 570,000 gallons

Wastewater Treatment Discharge: 2-cell Lagoon system. Periodic discharge.

Monthly Water Rates: Base rate of \$33.00, plus \$3.00 per 1000 gallons for usage above the base amount of 12,000 gallons. Average monthly bill is \$33.00.

Annual Water Use: About 27.7 million gallons (average day = 76,000 gallons)

Per Capita Use: Average day = 150 gallons, Peak day = 430 gallons.

Peak Day Demand: 230,000 gallons

Water Supply System Capacity: 120 gpm

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

Wyoming Water Development Commission, 2000 Water System Survey Report.
Don McKenzie, Wyoming DEQ, 2-26-01.

Municipal Water Use Summary

Entity: Force Road Joint Powers Board

Introduction: Force Road JPB serves Rocky Point Home Owners Association and Sundog Improvement and Service District. These two subdivisions are located just off the southwest corner of the city of Gillette.

Service Area Population: 250

Number of Taps: 63

Water Supply: The Force Road water supply consist of two 1200 to 1500 foot deep Fort Union well, that produces 120 gpm (60 gpm each).

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 40,000 gallons

Wastewater Treatment Discharge: None. Individual on-site systems.

Monthly Water Rates: Flat rate of \$30.00.

Annual Water Use: About 32.85 million gallons (average day = 90,000 gallons)

Per Capita Use: Average day = 360 gallons, Peak day = 1000 gallons.

Peak Day Demand: 250,000 gallons

Water Supply System Capacity: 120 gpm

Municipal Water Rights:

Water Rights Capacity: 120 gpm

Near Future Improvements: A 16 house subdivision may hook in, but they will add a well.

References:

1. Wyoming Water Development Commission, *2000 Water System Survey Report*. 2. Clyde Owen, 3-1-01.

Municipal Water Use Summary

Entity: Fox Park Improvement and Service District

Introduction: Fox Park is a large mobile home court located about 2 miles east of Gillette, next the Cam-Plex.

Service Area Population: 843

Number of Taps:

Water Supply: One 1560-foot deep Fort Union well, with a production of about 180 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 570,000 gallons

Wastewater Treatment Discharge: Package Plant. Discharge to Donkey Creek.

Monthly Water Rates:

Annual Water Use:

Per Capita Use:

Peak Day Demand::

Water Supply System Capacity:

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

Wyoming Water Development Commission, 2000 Water System Survey Report.
Don McKenzie, Wyoming DEQ, 2-26-01.

Municipal Water Use Summary

Entity: Freedom Hills Subdivision

Introduction: Freedom Hills is located approximately 5 miles east of Gillette on the north side of I-90. No information was available on water usage or rates.

Service Area Population: 400

Number of Taps:

Water Supply: The water supply for Freedom Hills consists of 2 Fort Union wells with depths of 1254 and 1560 feet. The wells produce 110 and 90 gpm.

Water Treatment:

Raw Water Storage: None

Finished Water Storage: 80,000 gallons

Wastewater Treatment Discharge: None. On-site systems.

Monthly Water Rates:

Annual Water Use:

Per Capita Use:

Peak Day Demand:

Water Supply System Capacity:

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

Municipal Water Use Summary

Entity: City of Gillette

Introduction: The city of Gillette operates the largest water system in the study area. Their water supply is all groundwater, with source wells in the Fort Union, Fox Hills, and Madison formations. In addition to serving the city, this system also serves several subdivisions or water districts around the city. The number of other entities served will grow over the years, as it becomes more difficult for smaller entities to maintain their systems. The WWDC approved Master Plan for the Gillette area also calls for regionalization of water supply (with the expansion of the Gillette water system), over time. Discussions have taken place with coal bed methane producers to obtain high quality Fort Union formation water produced during methane extraction in the vicinity of Gillette, for the Gillette water system.

The following subdivisions outside of City limits are served by the Gillette Water System.

Collins Heights

Collins Heights Industrial Park LosCaballos Camplex High Plains Campground Rozet School Moorcroft (back-up source) Wind Crest Estates Rozet area (not the town, but several rural properties and fire station) Southern Drive Industrial Park Centennial Drive Yates Petroleum Future: Winland and Powder River Mobile Home Park

Service Area Population: 22,000

Number of Taps: 6566

Water Supply: Gillette's water supply comes from 25 wells. The primary source is the Madison well field (10 wells) located 42 miles northeast of Gillette. A 30-inch pipeline delivers this water to the city. The remaining 15 wells are Fort Union and Fox Hills wells located around the city. These wells pump directly to the treatment facility.

Water Treatment: Degasification, disinfection.

Raw Water Storage: None

Finished Water Storage: 21,000,000

Wastewater Treatment Discharge: Activated sludge plant. Average discharge to Stonepile Creek about 2.3 MGD. An additional 0.2 MGD from wastewater plant sold to PP&L for Wyodak Power Plant.

Monthly Water Rates: Base rate of \$5.85, plus \$1.60 per 1000 gallons fur usage above the base rate of 3000 gallons. Average monthly bill is \$20.25.

Annual Water Use: About 1,460 million gallons (average day use = 4 million gallons)

Per Capita Use: Average day = 200 gallons, Peak day = 264 gallons

Peak Day Demand: 11,940,000 gallons

Water Supply System Capacity: 12,865 gpm

Municipal Water Rights: 15,725 gpm (see attached list)

Water Rights Capacity:

Near Future Improvements: Possible project utilizing coal bed methane water into water system, or for aquifer storage.

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Questionnaire completed by the City of Gillette.

Well	Address	Permit	Permit	GP	М
Number		Number	Date	Permit	Actual
FH-3 Fox Hills-3	710 Burma Ave	U.W.5-85458 ENL. U.W.5-66145 ENL. U.W.5-66144 ENL. U.W.5-42028 ENL. U.W.5-30005	6-17-91 3-27-80 3-27-80 2-23-78 9-26-74	950 0 210 0 450	
		Total FH-3		1,500	800
FH-4 Fox Hills-4	915 N. Gurley Ave	U.W.5-69310 ENL. U.W.5-60723	7-29-83 1-28-82	0 550	600
FH-5 Fox Hills-5	1901 N Garner Lake Rd	U.W.5-108708	1-22-98	600	500
	Total Fox Hills Wat	er (Lance-Fox Hills Fo	ormation)	1,665	1,100
M-1 Madison-1	16950 Hwy 14	U.W.5-69300 ENL. U.W.5-56867	4-20-82 1-18-75	0 1,000	700
M-2 Madison-2	16950 Hwy 14	U.W.5-69301 ENL. U.W.5-56868	4-20-82 1-18-75	0 1,000	1,000
M-3 Madison-3	16950 Hwy 14	U.W.5-69302 ENL. U.W.5-56869	4-20-82 1-18-75	0 1,000	1,000
M-4 Madison-4	16950 Hwy 14	U.W.5-69303 ENL. U.W.5-56870	4-20-82 1-18-75	0 1,000	1,000
M-5 Madison-5	16950 Hwy 14	U.W.5-69304 ENL. U.W.5-56871	4-20-82 1-18-75	0 1,000	600
M-6	16950 Hwy 14	U.W.5-69305 ENL.	4-20-82	0	

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Total Madison Water (Madison Formation) 10,000					
M-10 Madison-10	16950 Hwy 14	U.W.5-69309 ENL. U.W.5-56876	4-20-82 1-18-75	0 1,000	1,500
M-9 Madison-9	16950 Hwy 14	U.W.5-69308 ENL. U.W.5-56875	4-20-82 1-18-75	0 1,000	1,500
M-8 Madison-8	16950 Hwy 14	U.W.5-69307 ENL. U.W.5-56874	4-20-82 1-18-75	0 1,000	600
M-7 Madison-7	16950 Hwy 14	U.W.5-69306 ENL. U.W.5-56873	4-20-82 1-18-75	0 1,000	800
Madison-6		U.W.5-56872	1-18-75	1,000	600

Formation		Permit	Actual		
	GPM	GPD	GPM	GPD	
TOTAL SOFT	3,075	4,428,000	1,665	2,397,600	
TOTAL FOX HILLS	2,650	3,816,000	1,900	2,736,000	
TOTAL MADISON	10,000	14,400,000	9,300	13,392,000	
TOTAL PRODUCTION	15,725	22,644,000	12,865	18,525,600	

Municipal Water Use Summary

Entity: Town of Hulett

Introduction: The town of Hulett is located in northern Crook County. It is served by a ground water source.

Service Area Population: 450

Number of Taps: 180

Water Supply: The water supply for Hulett is 3 wells with depths of 700 to 1860 feet. The combined yield of these wells is approximately 300 gpm, only the 1860-foot deep Madison formation well is normally used.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 550,000 gallons

Wastewater Treatment Discharge: 3-cell Lagoon system, 25 - 28 gpm continuously.

Monthly Water Rates: Flat rate of \$9.00. Sawmill \$1.25 per 1000 gallons.

Annual Water Use: 16.4 million gallons (average day = 45,000 gallons)

Per Capita Use: Average day = 100 gallons, Peak day = 225 gallons

Peak Day Demand: 200,000 gallons

Water Supply System Capacity: 300 gpm

Municipal Water Rights: Yes

Water Rights Capacity: UW56489, 150 gpm, 90.87 ac-ft/year

Near Future Improvements: A new transmission main between the tank and town.

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Mary Lou McRann, Town Clerk, Conversation 2-27-01.

Municipal Water Use Summary

Entity: Lance Creek Water and Sewer District

Introduction: Lance Creek is located in central Niobrara County.

Service Area Population: 40

Number of Taps: 39

Water Supply: The water supply for Lance Creek consists of two 300-foot deep wells. They have a combined yield of 60 gpm.

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Water Treatment: Disinfection (chlorine)

Raw Water Storage: None

Finished Water Storage: 210,000 gallons

Wastewater Treatment Discharge: None. On-site systems.

Monthly Water Rates: Base rate of \$10.00, plus \$0.50 per 1000 gallons above the base rate. Average water bill is \$32.00.

Annual Water Use: 7.66 million gallons (average day = 21,000 gallons)

Per Capita Use: Average day = 525 gallons, Peak day = 2000 gallons

Peak Day Demand: 84,000 gallons

Water Supply System Capacity: 60 gpm

Municipal Water Rights: Well 1 - #0005 - Permit #111113, November 7, 1988, 150 gpm. Well 2 - #0006 - Permit #111114, November 7, 1988, 100 gpm.

Water Rights Capacity: 250 gpm

Near Future Improvements:

References:

Wyoming Water Development Commission, 2000 Water System Survey Report.
Jack Hammond, 3-1-01.

Municipal Water Use Summary

Entity: Lost Springs

Introduction: Lost Springs is located in southeastern Converse County. No information was available on this water system.

Service Area Population:

Number of Taps:

Water Supply:

Water Treatment:

Raw Water Storage:

Finished Water Storage:

Wastewater Treatment Discharge:

Monthly Water Rates:

Annual Water Use:

Per Capita Use:

Peak Day Demand:

Water Supply System Capacity:

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

Municipal Water Use Summary

Entity: City of Lusk

Introduction: Lusk is located in southern Niobrara County. It has a well water supply system.

Service Area Population: 1600

Number of Taps: 830

Water Supply: The water supply for Lusk consists of 3 wells with depths from 80 to 480 feet. The wells produce a total of 1600 waterplan.state.wy.us/plan/new/techmemos/muniuse.html

gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 1,000,000 gallons

Wastewater Treatment Discharge: Lagoons. Land application of effluent, no discharge to a surface water.

Monthly Water Rates: Base rate of \$17.45, plus \$0.42 per 1000 gallons above the base amount of 1000 gallons. Average monthly water bill = \$20.00.

Annual Water Use: 91 million gallons (average day = 249,200 gallons)

Per Capita Use: Average day = 160 gallons, Peak day = 724 gallons

Peak Day Demand: 1,086,000 gallons

Water Supply System Capacity: 1600 gpm

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements: Replace lines under state highway.

References:

Wyoming Water Development Commission, 2000 Water System Survey Report.
Terry Albright, Water Superintendent, Town of Lusk, telephone conversation 2-27-01.

Municipal Water Use Summary

Entity: Town of Manville

Introduction: The town of Manville is located in southwestern Niobrara County. It has a ground water source.

Service Area Population: 100

Number of Taps: 60

Water Supply: The water supply for Manville consists of 3 wells that vary in depth from 97 to 200 feet. The combined system capacity is 430 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 50,000 gallons

Wastewater Treatment Discharge:

Monthly Water Rates: Flat rate of \$8.00

Annual Water Use: 24.7 million gallons (average day = 67,700 gallons)

Per Capita Use: Average day = 700 gallons, Peak day = 1530 gallons

Peak Day Demand: 148,300 gallons

Water Supply System Capacity: 430 gpm

Municipal Water Rights: Water Rights Capacity:

Near Future Improvements:

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

Municipal Water Use Summary

Entity: Town of Moorcroft

Introduction: Moorcroft is located in southwestern Crook County. While Moorcroft is on its own water source, it also has a connection to the city of Gillette Madison pipeline.

Service Area Population: 770

Wyoming State Water Plan - Northeast Wyoming River Basin

Number of Taps: 340

Water Supply: Moorcroft is supplied by four Fox Hills-Lance wells, with depths ranging from 500 to 900 feet. The combined capacity of the wells is 150 gpm. This water system also has a connection to Gillette's pipeline from their Madison wellfield. Moorcroft has an agreement with Gillette to receive water off this pipeline, if they need additional supply. The "normal" peak usage rate off the Madison pipeline is 200 gpm, while the allowable "emergency" peak usage rate is 350 gpm. Before they upgraded their own wellfield, this pipeline was used almost exclusively. It is still heavily used in the summer, but Moorcroft can meet its needs with its wells in the winter. Moorcoft is currently drilling a Madison well 8 miles east of town, which they hope will greatly expand their supply capacity.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 500,000 gallons

Wastewater Treatment Discharge: Lagoons. Discharge continuously to Rush Creek at about 75,000 gal/day.

Monthly Water Rates: Base rate of \$5.00, plus \$2.50 per 1000 gallons for usage above the base amount of 1500 gallons. Average monthly bill = \$15.00.

Annual Water Use: 37 million gallons (average day = 100,000 gallons)

Per Capita Use: Average day = 130 gallons

Peak Day Demand: 500,000 gallons.

Water Supply System Capacity: 150 gpm, plus 200 gpm off Madison pipeline (normal maximum amount), 350 gpm total. A higher supply off the pipeline is possible with permission from Gillette.

Municipal Water Rights: Yes.

Water Rights Capacity:

Near Future Improvements: Replacement of water lines. Currently drilling a Madison well 8 miles east of town. If the well produces, Moorcroft will construct a line from the well to town. This will take about 2 years.

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Ron Feehan, Director of Public Works, Town of Moorcroft, 2-28-01.

Municipal Water Use Summary

Entity: City of Newcastle

Introduction: The city of Newcastle is located in eastern Weston County. The city's water system also serves water to Cambria I&SD.

Service Area Population: 3300

Number of Taps: 1390

Water Supply: The water supply for Newcastle consists of 4 Madison wells, with depths ranging from 2638 to 3245 feet. The combined well yield is 4600 gpm.

Water Treatment: None

Raw Water Storage: None

Finished Water Storage: 5,373,000 gallons

Wastewater Treatment Discharge: Lagoon system. Land application of effluent. No discharge.

Monthly Water Rates: Base rate of \$5.19, plus \$1.65 per 1000 gallons for usage above the base amount of 1000 gallons. The average water bill is \$17.00.

Annual Water Use: 365 million gallons (average day = 1,000,000 gallons)

Per Capita Use: Average day = 300 gallons, Peak day = 560 gallons

Peak Day Demand: 2,000,000 gallons

Water Supply System Capacity: 1800 gpm

Municipal Water Rights: Yes.

Water Rights Capacity:

Near Future Improvements: New transmission main and storage tank.

References:

waterplan.state.wy.us/plan/newy/techmemos/muniuse.html

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Questionnaire completed by the City of Newcastle.

Municipal Water Use Summary

Entity: Newton Industrial Park Improvement and Service District

Introduction: Newton I&SD is a water system that serves an industrial park immediately south of the city of Gillette. It is located on Metz Road, south of I-90.

Service Area Population: 25

Number of Taps: 14

Water Supply: The water supply for Newton I&SD is one 1100-foot deep Fort Union well, with a yield of 25 gpm.

Water Treatment: None

Raw Water Storage: None

Finished Water Storage: None

Wastewater Treatment Discharge: None. On-site systems.

Monthly Water Rates: N/A

Annual Water Use: 1.46 million gallons (average day = 4000 gallons)

Per Capita Use: Average day = 160 gallons, Peak day = 180 gallons

Peak Day Demand: 4500 gallons

Water Supply System Capacity: 25 gpm

Municipal Water Rights: Fort Union Well, #100840, November 13, 1995.

Water Rights Capacity: 7 ac-ft.

Near Future Improvements: None

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Questionnaire completed by Newton Industrial Park.

Municipal Water Use Summary

Entity: Osage Water District

Introduction: The town of Osage is located about 12 miles northwest of Newcastle. It is on its own water system. In addition, it supplies water to the nearby Black Hills Power and Light Plant.

Service Area Population: 216

Number of Taps: 120

Water Supply: The water supply for Osage consists of one 3000-foot deep well, with a yield of 100 gpm. With booster pump well yield can increase to 200 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 250,000 gallons

Wastewater Treatment Discharge: Lagoons, non-discharging.

Monthly Water Rates: \$2.20 per 1000 gallons. Average monthly bill = \$45.00.

Annual Water Use: 16.8 million gallons (average day = 50,000 gallons)

Per Capita Use: Average day = 230 gallons

Peak Day Demand:

Water Supply System Capacity: 200 gpm

Municipal Water Rights:

/4/13	Wyoming State Water Plan - Northeast Wyoming River Basin
Water Rights Capacity:	
Near Future Improvements:	
References: 1. Wyoming Water Development	Commission, 2000 Water System Survey Report.
2. Questionnaire completed by th	ne Osage Water District.
Entity: Peoples Improvement and	Municipal Water Use Summary
2	ocated at the southwestern corner of the city of Gillette. It serves the Concho Valley subdivision
Service Area Population: 80	eated at the southwestern conter of the city of Gillette. It serves the concilo valley subarvision
Number of Taps: 34	
-	y for Peoples I&SD is one 1200-foot deep Fort Union well, with a yield of 55 gpm.
Water Treatment: Disinfection	
Raw Water Storage: None	
Finished Water Storage: 12,00	0 gallons
Wastewater Treatment Discha	
	e of \$20.00, plus \$1.10 per 1000 gallons for usage above the base amount of 15,000 gallons.
Annual Water Use: 7.66 million	gallons (average day = 21,000 gallons)
Per Capita Use: Average day =	260 gallons, Peak day = 400 gallons
Peak Day Demand: 32,500 gallo	ons
Water Supply System Capacit	y: 55gpm
Municipal Water Rights:	
Water Rights Capacity:	
Near Future Improvements:	
References: 1. Wyoming Water Development	Commission, 2000 Water System Survey Report.
	Municipal Water Use Summary
Entity: Salt Creek Water District	
Introduction: Salt Creek is a Wa	ater District located adjacent to Newcastle. The Salt Creek system also serves Black Tail.
Service Area Population: 500	
Number of Taps: 168 - 170	
Water Supply: The water supply	y for Salt Creek consists on one 4480-foot deep Madison well. This well flows about 1500 gpm.
Water Treatment: None	
Raw Water Storage: None	
Finished Water Storage: None	
Wastewater Treatment Discha	arge: Lagoon, rarely discharges.
Monthly Water Rates: Flat rate	e of \$25.00
Annual Water Use: 27 million ga	allons (average day = 75,000 gallons)
Per Capita Use: Average day =	150 gallons, Peak day = 400 gallons
Peak Day Demand: 200,000 ga	llons
Water Supply System Capacit	y: 1000 gpm
ternlan state wy us /nlan/newy/techmemos	

Municipal Water Rights: 500 GPM

Water Rights Capacity:

Near Future Improvements: Put in 6" main this summer. New backup well coming on line in July.

References:

- 1. Wyoming Water Development Commission, 2000 Water System Survey Report.
- 2. Don McKenzie, Wyoming DEQ, 2-26-01.
- 3. Charles Clark, 2-27-01.

Municipal Water Use Summary

Entity: Town of Pine Haven

Introduction: Pine Haven is located in southwestern Crook county, on the south side of Keyhole Reservoir.

Service Area Population: 222

Number of Taps: 150

Water Supply: The water supply for Pine Haven consists of one 3400-foot deep Madison well. It produces 120 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 280,000 gallons

Wastewater Treatment Discharge: Package treatment plant. Does not discharge to surface water.

Monthly Water Rates: Base rate of \$15.00, plus \$0.70 per 1000 gallons for usage above base amount of 5000 gallons

Annual Water Use: 18.0 million gallons (average day = 49,000 gallons)

Per Capita Use: Average day = 220 gallons, Peak day = 585 gallons

Peak Day Demand: 130,000 gallons

Water Supply System Capacity: 120 gpm

Municipal Water Rights: One Madison well, #29613, November 10, 1977.

Water Rights Capacity: 120 gpm

Near Future Improvements:

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Questionnaire completed by Pine Haven.

Municipal Water Use Summary

Entity: Southfork Estates Improvement and Service District

Introduction: South Fork is located approximately 1 mile southwest of the southwest corner of Gillette.

Service Area Population: 115

Number of Taps: 42

Water Supply: The water supply for South Fork is one 1600-foot Fort Union well. The well produces 80 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 64,000 gallons

Wastewater Treatment Discharge: None. On-site systems.

Monthly Water Rates: N/A

Annual Water Use: 3.36 million gallons (average day = 9200 gallons)

Per Capita Use: Average day = 80 gallons, Peak day = 220 gallons.

Peak Day Demand: 25,000 gallons

Wyoming State Water Plan - Northeast Wyoming River Basin

Water Supply System Capacity: 80 gpm

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

Municipal Water Use Summary

Entity: Sunburst Water and Sewer District

Introduction: The Sunburst Water and Sewer District is inactive. Water is now supplied by the city of Gillette. Sunburst formerly had their own water system, but the distribution system is now operated by Gillette. The subdivision is within the Gillette city limits, south of I-90.

Service Area Population:

Number of Taps: About 170 in the subdivision

Water Supply: By city of Gillette

Water Treatment:

Raw Water Storage:

Finished Water Storage: Wastewater Treatment Discharge:

Monthly Water Rates:

Annual Water Use:

Per Capita Use:

Peak Day Demand:

Water Supply System Capacity:

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

Municipal Water Use Summary

Entity: City of Sundance

Introduction: The city of Sundance is the county seat of Crook County. The water system for Sundance also serves Green Mountain Water District

Service Area Population: 1250

Number of Taps: 636

Water Supply: The water supply for Sundance consists of 4 wells with depths of 506 (Minnelusa) to 1228 feet. The 3 deeper wells are in the Madison formation. The wells have a combined capacity of 1000 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 584,000

Wastewater Treatment Discharge: Lagoons, non-discharging.

Monthly Water Rates: Base rate of \$5.50, plus \$2.75 per 1000 gallons for usage above the base amount of 2000 gallons. Average monthly water bill is \$22.00.

Annual Water Use: 65.7 million gallons (average day = 180,000 gallons)

Der Canita lice Average day = 150 gallons. Peak day = 350 gallons waterplan.state.wy.us/plan/new/techmemos/muniuse.html

-

zapita use. Average day – 130 ganons, i eak day – 330 ganons

Peak Day Demand: 650,000 gallons

Water Supply System Capacity: 1000 gallons

Municipal Water Rights: Yes

Water Rights Capacity:

Near Future Improvements: Add a 280,000 gallon storage tank.

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. John Kiplinger, Director of Public Works, telephone conversation 2-27-01.

Municipal Water Use Summary

Entity: Town of Upton

Introduction: The town of Upton is located in northern Weston County, about 26 miles northwest of Newcastle.

Service Area Population: 950

Number of Taps: 426

Water Supply: The town of Upton is served by 3 wells with depths of 3200 to 3700 feet (Madison formation). They have a combined yield of 840 gpm (280, 360 and 200 gpm).

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 650,000 gallons

Wastewater Treatment Discharge: Lagoon. Periodically discharge (once or twice per year).

Monthly Water Rates: Base rate of \$8.00, plus \$1.50 per 1000 gallons for usage above the base amount of 1000 gallons. Average water bill = \$20.00.

Annual Water Use: 78.8 million gallons (average day = 216,000 gallons)

Per Capita Use: Average day = 225 gallons, Peak day = 530 gallons.

Peak Day Demand: 500,000 gallons

Water Supply System Capacity: 840 gpm

Municipal Water Rights: Yes

Water Rights Capacity:

Near Future Improvements: New water storage tank. Line replacement.

References:

1. Wyoming Water Development Commission, *2000 Water System Survey Report.* 2. Mark Lindstrom, Town of Upton, telephone conversation 3-2-01, (468-2727).

Municipal Water Use Summary

Entity: Van Tassell

Introduction: Van Tassell is a small community located in extreme southeastern Niobrara County, near the Nebraska state line. It has its own water supply. No further information was available in the WWDC 2000 System Survey Report.

Service Area Population: 18

Number of Taps:

Water Supply:

Water Treatment:

Raw Water Storage:

Finished Water Storage:

Wastewater Treatment Discharge:

Inonuny water nates

Annual Water Use:

Per Capita Use:

Peak Day Demand:

Water Supply System Capacity:

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

Municipal Water Use Summary

Entity: Vista West Improvement and Service District

Introduction: Vista West is a subdivision located near Sundance. The water system for Vista West also serves a Forest Service campground.

Service Area Population: 250

Number of Taps: 53

Water Supply: The water supply for Vista West consists of two wells with depths of 400 and 1124 feet. They have a combined yield of 130 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 210,000 gallons

Wastewater Treatment Discharge: None

Monthly Water Rates: Base rate of \$15.00, plus \$1.75 per 1000 gallons for usage above the base amount of 4000 gallons. The average monthly water bill is \$20.00.

Annual Water Use: 9 million gallons (average day = 25,000 gallons)

Per Capita Use: Average day = 100 gallons, Peak day = 130 gallons

Peak Day Demand: 60,000 gallons

Water Supply System Capacity: 130 gpm

Municipal Water Rights: Special use permit from U.S. Forest Service.

Water Rights Capacity: Not limited. Near Future Improvements: None

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Questionnaire completed by Vista West.

Municipal Water Use Summary

Entity: Wessex Improvement and Service District

Introduction: Wessex is located 17 miles east of Gillette, 4 miles east of Rozet. While Wessex is located immediately adjacent to the city of Gillette Madison pipeline, they remain on their own well.

Service Area Population: 21

Number of Taps: 7

Water Supply: The water supply for Wessex consists of one 520-foot deep Wasatch well, with a yield of 20 gpm.

Water Treatment: None

Raw Water Storage: None

Finished Water Storage: 16,000 gallons

Wastewater Treatment Discharge: None. On-site systems.

Monthly Water Rates: Flat rate of \$50.00

Annual Water Use: 1.15 million gallons (average day = 3150 gallons)

Per Capita Use: Average day = 150 gallons, Peak day = 300 gallons

Peak Day Demand: 6300 gallons

Water Supply System Capacity: 20 gpm

Municipal Water Rights: Yes. Permit #37170, June 23, 1970.

Water Rights Capacity: 50 gpm

Near Future Improvements: Would like a back-up connection to Gillette's Madison pipeline.

References:

1. Wyoming Water Development Commission, 2000 Water System Survey Report.

2. Questionnaire completed by Corky Stetson.

Municipal Water Use Summary

Entity: West End Water District

Introduction: West End Water District is located next to Newcastle. Its water system also serves Oil Creek Water District.

Service Area Population: 300

Number of Taps: 77

Water Supply: The water supply for West End consists of one 2775-foot deep Madision well, with a yield of 1150 gpm.

Water Treatment: None

Raw Water Storage: None

Finished Water Storage: None

Wastewater Treatment Discharge: West End discharges into Newcastle Sewer System. Oil Creek is on on-site systems.

Monthly Water Rates: Base rate of \$55.00, plus \$1.00 per 1000 gallons for usage above the base amount of 27,000 gallons. Average water bill = \$55.00.

Annual Water Use: 5.475 million gallons (average day = 15,000 gallons)

Per Capita Use: Average day = 50 gallons, Peak day = 200 gallons

Peak Day Demand: 60,000 gallons

Water Supply System Capacity: 1150 gpm

Municipal Water Rights:

Water Rights Capacity:

Near Future Improvements:

References:

Wyoming Water Development Commission, 2000 Water System Survey Report.
Don McKenzie, Wyoming DEQ, 2-26-01.

Municipal Water Use Summary

Entity: Westridge Water Users

Introduction: Westridge is located within the city limits of Gillette, in the southeastern part of the city. It remains on its own water system however.

Service Area Population: 260

Number of Taps: 66

Water Supply: The water supply for Westridge consists of two Fort Union wells with depths of 1100 and 1200 feet. The wells have a combined yield of 105 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 100,000 gallons

Wastewater Treatment Discharge:

Monthly Water Rates: Base rate of \$15.00, plus \$0.90 per 1000 gallons for usage above the base amount.

Annual Water Use: 25.5 million gallons (average day = 70,000 gallons)

Per Capita Use: Average day = 270 gallons, Peak day = 650 gallons

Peak Day Demand: 140,000 gallons

Water Supply System Capacity: 105 gpm

Municipal Water Rights: Yes

Water Rights Capacity: 125 gpm

Near Future Improvements: None

References:

Wyoming Water Development Commission, 2000 Water System Survey Report.
Dan Price, telephone conversation, 3-2-01.

Municipal Water Use Summary

Entity: Wright Water and Sewer District

Introduction: The Wright Water and Sewer District provides water to the town of Wright. Wright is located in southern Campbell County.

Service Area Population: 1500

Number of Taps: 715

Water Supply: The water supply for Wright comes from 4 Fort Union wells with depths from 2700 to 3018 feet. The wells have a combined yield of 1350 gpm.

Water Treatment: Disinfection

Raw Water Storage: None

Finished Water Storage: 1,500,000 gallons

Wastewater Treatment Discharge: Lagoon system discharges about 72,000 gallons per day.

Monthly Water Rates: Base rate of \$12.00, plus \$1.35 per 1000 gallons for usage above the base amount of 9000 gallons. Average monthly water bill = \$12.00.

Annual Water Use: 120 million gallons (average day = 328,800 gallons)

Per Capita Use: Average day = 219 gallons, Peak day = 540 gallons.

Peak Day Demand: 783,000 gallons

Water Supply System Capacity: 1350 gpm

Municipal Water Rights: RJ2 – New Permit #101356 – 360 gpm RJ3 – New Permit #101357 – 360 gpm RJ4 – New Permit #101358 – 360 gpm RJ5 – New Permit #101359 – 480 gpm

Water Rights Capacity: 1560 gpm

Near Future Improvements: Expansion of system may be needed if construction of Two Elk Power Plant proceeds, and if CBM development continues to grow.

References:

1. Wyoming Water Development Commission, *2000 Water System Survey Report*. 2. Information provided by Water District Manager, November 2000.

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