



State of Utah

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Department of
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DIVISION OF DRINKING WATER
Kenneth H. Bousfield, P.E.
Director

January 25, 2016

Val Surrage
Taylor-West Weber WID
2815 W 3300 S
West Haven, UT 84401-9791

Dear Mr. Surrage:

Subject: **Feasibility**, Drinking Water Service for the Russel Place Phase 2 Subdivision, Taylor-West Weber Water Improvement District, System #29019, File#10285

The Division of Drinking Water (the Division) received your request concerning the capacity of the Taylor-West Weber Water Improvement District (the District) to provide drinking water service to the Russel Place Phase 2 Subdivision. Per the Division's database, the District presently has 1860 residential connections, 7 commercial connections, and 12 agricultural connections. The Russel Place Phase 2 Subdivision will add 4 new residential connections, in addition to the 9 new residential connections with the Blue Acres Subdivision Phase 4; 74 new connections with the Winslow Farr Jr. Farm Subdivision; and 19 new connections with the Jaquelin Estates Subdivision.

Generally, the number of service connections that may be served is evaluated based on (1) source capacity, (2) storage capacity, and (3) available water rights. The Drinking Water Rule, *R-109-510* Minimum Sizing Requirements, requires a water system to be able to provide 800 gallons per day per equivalent residential connection (ERC) from its sources to meet peak day indoor demand ("source capacity"), to be able to provide 400 gallons per ERC of storage for indoor use ("storage capacity"), and to be able to provide average yearly indoor demand which is 0.45 acre-feet per ERC based on water rights. Additional source capacity, storage, and water rights are required if the system provides water for outdoor use. The water system component with the least capacity determines the allowable number of connections.

Source Capacity

The District has the following approved drinking water sources and approved safe yields:

| Source Number | Source Name | Safe Yield (gallons per minute) |
|---------------|---|------------------------------------|
| WS001 | Big Well | 900 |
| WS002 | Small Well | 500 |
| WS003 | Weber Basin WCD Consecutive Connection | 2,000 |
| | Total | 3,400 |

The District provides outside irrigation water for some of their connections. The attached capacity calculation worksheet estimates the required source capacity is 1,111.1 gpm for indoor use and 1419.7 gpm for outdoor use. Based on the source capacity of 3,400 gpm listed above, the District has 867 gpm excess source capacity. It appears that the District has adequate source capacity to serve the 4 new service connections in the Russel Place Phase 2 Subdivision.

Storage Capacity

The District has the following approved storage tanks in service:

| Tank Number | Tank Name | Volume (gallons) |
|-------------|-----------------------|------------------|
| ST001 | Million Gallon Tank | 1,000,000 |
| ST002 | 2 Million Gallon Tank | 2,000,000 |
| ST003 | 250 K Gallon Tank | 250,000 |
| | Total | 3,250,000 |

The attached capacity calculation worksheet estimates the required storage capacity is 1,942,608 gallons. This is based on a reserve of 120,000 gallons of water storage for fire suppression, and the balance of the storage being available for indoor and outdoor use storage. It appears the District has over 1.3 million gallons of excess storage capacity, and has adequate storage capacity to serve the 4-lot Russel Place Phase 2 Subdivision.

Water Rights

The District has the following water rights for their sources:

| Water Right Number | Amount (acre-feet) |
|--------------------|-----------------------|
| 35-1613 | 788.45 |
| 35-11723 | 930.77 |
| Weber Basin WCD | 465.3 |
| Total | 2184.52 |

Our rough estimate of the water rights needed for this water system's indoor and outdoor uses is 1,572.20 acre-feet. It appears that the District has adequate water rights to serve the Russel Place

Val Surrage
Page 3
January 25, 2016

Phase 2 Subdivision. However, please consult with Division of Water Rights for detailed interpretation and verification concerning water rights issues.

Summary

It appears that the District has adequate capacities in source, storage and water rights to provide drinking water service to the 4-lot Russel Place Phase 2 Subdivision.

The District submitted a Project Notification Form on December 29, 2015, and obtained a Plan Review Waiver on January 6, 2016. The Division has concurred that the construction of this subdivision may proceed once approval is granted by Weber County.

If you have any questions regarding this letter, you can contact me either by phone at (801) 536-0087 or e-mail caharry@utah.gov

Sincerely,

A handwritten signature in blue ink that reads "Camron Harry". The signature is written in a cursive, flowing style.

Camron Harry, P.E.
Environmental Engineer III
Division of Drinking Water

Enclosure — Taylor-West Weber WID Capacity Calculation Dated January 19, 2016

cc: Louis Cooper, Env. Director, Weber-Morgan Health Department, lcooper@co.weber.ut.us
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Val Surrage, Taylor-West Weber Water, taylorwestweberwater@msn.com

Division of Drinking Water Water System Capacity Calculation Sheet (revised June 23, 2011)

Enter the green cells only.

System Name: **Taylor-West Weber WID January 19, 2016**

System Number: **29019**

1. Indoor Water Use

Convert "Number of other connections" (Cell E9) to ERCs here. (ERCs of other connection = peak day demand of other connections / 800 gal per day)

Number of residential connections ----- 1,985

Number of other connections --- **19** ----- ERCs of other connections **19.0** (Example: water use of 2 factory is equivalent to 30 homes.)

Enter number of non-residential connections (e.g., 2 factory connections) -----

Total Equivalent Residential Connections (ERCs) **2,004**

| MINIMUM REQUIREMENTS FOR INDOOR WATER USE | | | | | |
|---|-------------|-----------------------|-----------------|--------------------|------------------|
| Source | | Storage | | Water Rights | |
| Per ERC (gpd/ERC) | Total (gpm) | Per ERC (gallons/ERC) | Total (gallons) | Per ERC (ac-ft/yr) | Total (ac-ft/yr) |
| 800 | 1,113.3 | 400 | 801,600 | 0.45 | 901.80 |

2. Outdoor Water Use

Is the drinking water used for outdoor irrigation? Yes No

Residential ERCs using drinking water for irrigation ----- >>> **470**

Percentage of Residential ERCs using DW for irrigation ----- >>> **24%**

Average irrigated acreage per residential connection ----- >>> **0.75**

Total irrigated acreage of other connections. ----- >>> **6.00**

Enter estimated irrigated acre

Enter total irrigated acres of other connections here.

Select Irrigated Zone # from the list (see "Irrigation Demands & Map" tab on the bottom of the screen).

| MINIMUM REQUIREMENTS FOR OUTDOOR WATER USE | | | | | |
|--|-------------|-----------------------|-----------------|--------------------|------------------|
| Source | | Storage | | Water Rights | |
| Per ERC (gpd/ERC) | Total (gpm) | Per ERC (gallons/ERC) | Total (gallons) | Per ERC (ac-ft/yr) | Total (ac-ft/yr) |
| 4,277 | 1,419.7 | 2,136 | 1,021,008 | 1.40 | 670.40 |

3. Fire Flow Requirement

Does the water system provide fire protection? Yes No

Maximum fire suppression demand for water system or pressure zone (gpm) ----- **1,000**

Maximum fire suppression duration for water system or pressure zone (hours) ----- **2**

Required Fire Suppression Storage (gallons) ----- >>> **120,000**

Enter fire flow in gpm.

Enter duration in hours.

Weber Fire District has adopted Appendix B of the Fire Code which requires a minimum of 1000 gpm for two hours for fire flow.

Total Water System Requirements (= indoor use + outdoor use + fire flow demand)

| MINIMUM REQUIREMENTS FOR WATER SYSTEM | | | | | |
|---------------------------------------|-------------|-----------------------|-----------------|--------------------|------------------|
| Source | | Storage | | Water Rights | |
| Per ERC (gpd/ERC) | Total (gpm) | Per ERC (gallons/ERC) | Total (gallons) | Per ERC (ac-ft/yr) | Total (ac-ft/yr) |
| 5,077 | 2,533.0 | 2,536 | 1,942,608 | 1.85 | 1,572.20 |

Does this system have adequate source capacity per R309-510-7?

IPS points may be assessed for lacking adequate source capacity to meet peak day and/or average yearly flow requirements.

Existing Sources: **3,400.0** gpm Linked to Cell I99 below.

Required Source Capacity: **2,533.0** gpm Linked to Cell C51 above.

% of Req'd Capacity: **134.2%**

Difference: **867** gpm Negative number means (1) additional source capacity is needed, and (2) IPS points should be assessed.

Does this system have adequate storage capacity per R309-510-8?

IPS points may be assessed for lacking adequate storage capacity.

| | | | |
|----------------------------|-----------|-----|---|
| Existing Storage: | 3,250,000 | gal | Linked to Cell I118 below. |
| Required Storage Capacity: | 1,942,608 | gal | Linked to Cell E51 above. |
| % of Req'd Capacity: | 167.3% | | Negative number means (1) additional storage volume is needed, and (2) IPS points should be assessed. |
| Difference: | 1,307,392 | gal | |

| Non-Community Water Systems, ERCs for Indoor Water Use (*See R309-510, Tables 510-1, 2, and 4, for other facility type calc.) | | | | | | | |
|---|-------------------------------------|---|--------------------------|----------------------|-----------------|--------------------|------|
| Facility Type | MINIMUM REQUIREMENTS FOR INDOOR USE | | | | ERC/site or pad | # of Sites or pads | ERCs |
| | Source | | Storage | | | | |
| | GPD/person* | Calculated GPD/site or pad | GPD/person | Gallon/site or pad | | | |
| Modern Recreation Camp | 60 | 240 | 30 | 120 | 0.30 | 8 | 2.4 |
| Semi-Developed Camp w/ flush toilets | 20 | 80 | 10 | 40 | 0.10 | 25 | 2.5 |
| Semi-Developed Camp w/o flush toilets | 5 | 20 | 2.5 | 10 | 0.03 | 20 | 0.5 |
| RV Park | N/A | 100 | N/A | 50 | 0.13 | 15 | 1.9 |
| *Number of people per camp site | 4 | If applicable, enter number of people per camp site here. | | | | | |
| | Source (GPD/vehicle) | Storage (Gal./vehicle) | ERC/1000 vehicles served | # of Vehicles served | ERCs | | |
| Roadway Rest Stop w/ flushometer valves | 7 | 3.5 | 8.75 | 800 | 7.00 | | |

Taylor-West Weber WID January 19, 2016

| Equivalent Residential Connection Calc. | |
|---|--------------|
| Existing Residential Connections | 1,985 |
| Number of Obligated Future ERCs | 106 |
| Blue Acres Subdivision | 9 |
| Winslow Farr Jr Farm Subdivision | 74 |
| Jacquelyn Estates | 19 |
| Russel Place Phase 2 | 4 |
| Total Projected Number of ERCs | 2,091 |

Linked to Cell I8 above.

| Source (in gallons per minute) | | |
|--|--------------------|-------------|
| WS001 | Big Well | 900 |
| WS002 | Small Well | 500 |
| WS003 | Weber Basin WCD CC | 2000 |
| Total Source Capacity | | 3400 |
| Max. ERC allowed (for indoor use only) | | 6120 |

| Storage (in gallons) | | |
|-------------------------------|-----------------------|------------------|
| ST001 | Million Gallon Tank | 1,000,000 |
| ST002 | 2 Million Gallon Tank | 2,000,000 |
| ST003 | 250 K Gallon Tank | 250,000 |
| Total Storage Capacity | | 3,250,000 |

If you need to calculate projected future demand (including existing & future connections), insert this number to Cell I8 "Number of residential connection."

Per the Division of Drinking Water's database, Taylor-West Weber WID has 1860 existing residential connections, 7 commercial connections, and 12 agricultural connections. There are 102 new connections in three new subdivisions.

Diaphragm or air pressure tanks shall not be considered effective storage volume for community systems or NTNC with significant demand.