

MEMORANDUM

TO: Water Right File 37-21465

FROM: Daniel Nelson – Analyst 3

DATE: May 16, 2019

SUBJECT: Licensing Review of Water Right 37-21465

The field exam for this right was performed by Certified Field Examiner Kevin Boggs of Jacobs Engineering.

History and Overlap:

This permit is a municipal water right for a new well to be connected into the municipal system for Sun Valley Water & Sewer District (SVWSD). The main delivery system connects into a common mainline served mainly by water rights 37-2722, 37-7102, 37-21151, 37-22444, 37-22445, 37-22447, and this permit. It should be noted that Mr. Boggs listed water right 37-2709, which was split into water rights 37-22444, 37-22445, and 37-22447 in the Snake River Basin Adjudication.

There are three other water rights, 37-7147, 37-8834, and 37-8835 that were not included in Mr. Boggs' original overlap analysis. These three rights did not appear to be connected into the main system as of May 9, 2012, when the field exams were performed on water rights 37-8834 and 37-8835. However, the field examiner states that the well described in water rights 37-8834 and 37-7147 is also a well described on water right 37-2722, which is connected into the main system. Water right 37-8835 is a geothermal water right that serves for heating purposes at Elk Horn Lodge. Mr. Boggs added these rights into their supplemental flow analysis.

Even though rights 37-7147, 37-8834, and 37-8835 appear to be on independent systems, they are listed as having the same service area, and must be included in any analysis done for SVWSD. At any time, these rights can be connected into the municipal system without filing a water right transfer, so it is imperative that they are included in any overlap analysis.

According to the information that Mr. Boggs supplied, it appears as though SVWSD has 11 reservoirs within their municipal system to maintain water flows throughout their system. Two of the reservoirs were not in place during the July 20, 2003 analysis of the system. Mr. Boggs provided a group of tables that show the drawdown of the reservoirs and showed a peak drawdown of the reservoirs at 3,078 gpm on July 20, 2003. During this peak drawdown period, 5 of the 9 reservoirs original reservoirs were not diverting water, so there is room in the storage component for some growth through the municipal system if needed, but the reservoirs are mainly used to maintain the pressure throughout the system. There are no water rights in the SVWSD portfolio that authorize any storage, but we often use the 24 hour rule when dealing with storage for municipal purposes. The field examination for water right 37-7102 states that there are 5 storage reservoirs, so that number has almost doubled since the field examination was performed on 37-7102 in 1981.

The reservoirs are all set up on a gravity flow system, so they are only used when the pressure in the overall system falls below a point where the wells can't supply all of the water needed to maintain pressure in the system. There are no pumps on the reservoirs, so there is no way to determine the actual diversion rate without shutting down all of the pumps and measuring the reservoirs simultaneously. This would cause too much disruption to the system, and some areas could lose water altogether. I have attached an analysis of the system that describes the contribution from the reservoirs.

Place of Use:

The place of use hasn't changed and will still be the SVWSD service area.

Diversion Rate:

As discussed in the attached analysis spreadsheet, the diversion rate authorized by the permit is needed to meet the needed beneficial use for this permit. The field examiner measured 1,095 gpm or 2.44 cfs. The permit authorized 2.23 cfs, so this permit will be limited to 2.23 cfs.

Diversion Volume:

This permit was filed by a municipal provide who services the municipality of Sun Valley Idaho. Therefore, no volume is included in the calculations of this system.

Beneficial Use:

Mr. Boggs supplied an analysis of the water needs for the SVWSD. The initial analysis didn't include the separate systems that supply water under the SVWSD water rights. Mr. Boggs, then supplied a second analysis that described all of the rights under the SVWSD water right umbrella. In Mr. Boggs' second analysis, he acknowledge the two separate systems, and separated out the water used for the main water delivery system. Mr. Boggs determined that without the main system required a peak water demand of 9,235 gpm and the separate systems needed a diversion rate of 377 gpm for a total of 9,612 gpm. The water rights authorized a diversion rate of 7,392.27 gpm for the main system and 377.02 gpm for the separate systems. Mr. Boggs removed the diversion rate for the separate systems from both the demand and the supply for these systems. I ran a second analysis that confirmed some of the information Mr. Boggs provided.

Mr. Boggs provided information that shows the peak instantaneous demand for the main water system for July 20, 2003, was 9,235 gpm. A considerable amount of this water was supplied by their reservoirs within the system. In order for the water system to meet the 9,235 gpm flow of the main system, the storage reservoirs would have had to provide a minimum of 1,843 gpm to the system above the 7,392.27 gpm supplied by the pumps to meet the 9,235 gpm peak demand measured in July 20, 2003. Data in the field report state that the reservoirs can supply approximately 3,078 gpm or 33% of the peak demand. This would allow approximately 12,313 gpm that is available until the reservoirs are depleted.

Since 2005, SVWSD has added an additional 479 domestic connections to the system. Some of these connections are stubbed into the system and haven't been developed yet, but based on the stub-in rule, these units can be applied to domestic or mutual subdivision type uses, as long as they are limited to domestic use only. Mr. Boggs determined that the instantaneous demand for each unit was 3.32 gpm per unit based on the July 20, 2003 data, so the additional domestic units would require approximately 1,590 gpm. I have discussed this rate per unit with the Department's allocation engineer to determine if it is reasonable, and he agreed that it seems reasonable for a municipal use, and more accurate than the estimates generally used in water management plans.

Mr. Boggs measured the well at 1,095 gpm or 2.44 cfs. The permit limits the diversion rate to 2.23 cfs or 1,001 gpm. Therefore, the diversion rate added by this well is well below the additional domestic units added from 2005 to the date that proof of beneficial use was filed. It is safe to assume that the reservoir storage covers the remaining 590 gpm needed to supply the 492 homes. According to the data supplied, the reservoirs generally supply 33% of the peak demand. Of the 1590 gpm of the peak demand for the additional new domestic uses, it is safe to assume that the storage reservoirs could supply 31% of that use or approximately 495 gpm ($1590 - 1,095 = 524$ gpm), which would supply enough water to cover the additional beneficial use of water. When looking at information supplied, it seems reasonable that the diversion rate of 2.23 cfs is needed to supply the 490 new domestic uses developed and stubbed into the system.

The field report doesn't address any other uses that may have been developed under the existing water rights, but it does appear as though the water developed under this right is only supplying domestic uses and is well under the peak demand for those rights. I am assuming that any other commercial or industrial uses that were developed were covered by the existing storage capacity.

Conditions:

All conditions on the permit except for conditions 26A, 046, and 051 will be carried forward to licensing. Condition 051 will be replaced with condition 933. Conditions 934 and 935 were not added to the permit or the license, because the permit and the license will limit all uses under this right to 2,500 gallons per day for non-domestic uses and 13,000 gallons per day for domestic use associated to a single family home. Water district conditions R43 and R04 will also need to be included.

Notes	Basin	Sequence	Process	Basin	Status	Priority Date	Diversion Rate	Source List	Water Use List	Current Owner	Volume
See Notes Below	37	2722	Water Right	Decreed	Active	1/3/1966	3.630	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	2,628.0
	37	7102	Water Right	Decreed	Active	5/25/1971	9.000	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	
	37	7147	Water Right	Decreed	Active	5/23/1972	0.150	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	108.0
	37	8834	Water Right	License	Active	9/8/1994	0.100	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	
	37	8835	Water Right	License	Active	9/8/1994	0.590	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	
Split in Adjudication from 37-2709	37	21151	Water Right	License	Active	9/10/2003	2.060	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	
	37	22444	Water Right	Decreed	Active	8/21/1936	0.310	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	
	37	22445	Water Right	Decreed	Active	9/25/1936	0.520	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	
	37	22447	Water Right	Decreed	Active	7/26/1948	0.950	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	
	37	21465	Water Permit	Decreed	Active	5/20/2005	2.230	GROUND WATER	MUNICIPAL	SUN VALLEY WATER & SEWER DISTRICT	

	CFS	GPM
Total Before Permit 37-21465 =	17.31	7,769
Total After Permit 37-21465 =	19.54	8,770

Peak Hour Demand in 7/20/2003 =	9,612	GPM
Maximum Diversion Rate Available 7/20/2003	7,769	
Amount That Needs to Be Covered by Storage on 7/20/2003 =	1,843	GPM
Percent of Shortfall Attributed to Storage on 7/20/2003 =	19	%

GPM for Permit 37-21465 =	1,001	GPM
Additional Demand for 479 New Domestic Residences =	1,590	GPM
Amount of New Demand That Needs to Be Covered by Storage	589	GPM
Percentage of New Demand Attributed to Storage =	37	%

Well Capacity Comparison		
Well Capacity in 2003 =	7,769	GPM
Current Well Capacity =	8,770	GPM
Percent Increase =	13	%

Storage Comparison		
Storage Available on 7/20/2003 =	2,884,700	Gallons
Current Storage Capacity =	3,684,700	Gallons
Percent increase in Storage =	28	%

Percent Demand Increase		
Demand in 7/20/2003 =	9,612	GPM
Additional Demand Added =	1,590	GPM
Percent Difference =	17	%

Notes:

Mr. Boggs determined that the total demand for the municipal system on 7/20/2003 was 9612 gpm, and the water rights authorized a total of 7769 gpm from ground water. This is actual measurements, so I feel these numbers are reasonable. This would require a minimum of 1,843 gpm (19%) of the demand must be supplied by the storage units on the main system. Mr. Boggs supplied information that shows that a maximum of 3,078 gpm (32%) was diverted from storage. The storage reservoirs are distributed throughout the water system to maintain the water pressure in the mainline. The storage is all gravity flow, so no pumps are installed on any of the storage units. Therefore, the storage units are really not controlled by anything except for the pressure on the system.

Mr. Boggs used the 7/20/2003 information to attain an average diversion rate required for each Equivalent Connection Units (ECUs). This is better than using the standard demand estimates, because it gives actual measured flows divided by total connections. Mr. Boggs used this information to calculate the demand for domestic connections that have been stubbed into the system since 2005. This is another good practice, since it gives a reasonable estimation of the lots stubbed into the system. Based on these estimates for the stubbed in lots, the total additional diversion rate required is 1,590 gpm. This permit authorized an additional diversion rate of 1001 gpm, which was the amount measured for the well. Using this information, the storage system would be required to provide a minimum of 37% of the diversion rate required to meet actual demand of the system.

In conjunction with the additional diversion rate by drilling a new well, additional storage capacity has also been developed since 2003. Approximately 800,000 gallons of storage (28% increase) has been added to the system. The increase in well capacity has increased slightly less than the demand increase, but the storage increase appears to have covered that shortfall. The entire system seems to have grown at about the same pace for this municipal system.

According to my calculations, this permit has authorized a needed beneficial use of water for the system.

Please Note:

Water right 37-8835 is a heating and cooling right for Elkhorn Lodge, and was only used to heat the lodge on May 9, 2012. However, it is owned and operated by Sun Valley Water and Sewer District. Water right 37-7147 has its own well, and was not connected to the main water system as of May 9, 2012, but is listed as having the same municipal service area as the remainder of the rights in the Sun Valley Water and Sewer District portfolio, so it must be included in this analysis. This water right can be connected into the system without a water right transfer, since it has a place of use shown as the service area of the Sun Valley Water and Sewer District.

ALSO

As of May 9, 2012, water rights 37-7147 and 37-8834 are diverted from a single well that services the Sun Valley ski area, and was not connected into the municipal system for Sun Valley Water and Sewer District. Once again these two water rights share the same municipal service area as the remaining rights, so at some point it could be connected into the entire system without a water right transfer, so it will need to be included in this analysis. This may have already been done, because the field exam for 37-8834 states that rights 37-7147 and 37-2722 were diverted out of this well, and water right 37-2722 was included in Mr. Boggs' analysis.

Nelson, Dan

From: Boggs, Kevin/BOI <Kevin.Boggs@jacobs.com>
Sent: Wednesday, June 19, 2019 7:35 PM
To: Nelson, Dan
Cc: Wiskus, John/BOI
Subject: Sun Valley Water and Sewer District Right 37-211465 Beneficial Use Field Report dated 4-30-19 - Additional Information Email Transmittal
Attachments: SVWSD_37_211465 BenUseFieldRpt_AddtInfoRequest_byIDWR.pdf

Hello Dan,

I attached the additional information you requested in association with your review of our Sun Valley Water and Sewer District Right 37-211465 Beneficial Use Field Report dated 4-30-19.

The following are included in the attachment:

1. Revised "Water Rights Review and Peak Use Narrative."
2. New figure entitled "Well and Reservoir Locations."
3. New table entitled "Sun Valley Water and Sewer District Reservoir Summary."
4. Revised table entitled "Sun Valley/Elkhorn System Beneficial Use Water Rights Review."
5. Revised table entitled "Sun Valley/Elkhorn System Peak Hour Demand and Peak Hour Demand/Equivalent Connection Review."
6. Revised table entitled "SVWSD Single Residential Equivalent Connections and Multi-Family Equivalent Connections Added 2005 through 2018."

Please call or email if you have any questions or if you need additional information.

Thank you,

Kevin

208-340-1753

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Water Rights Review and Peak Use Narrative

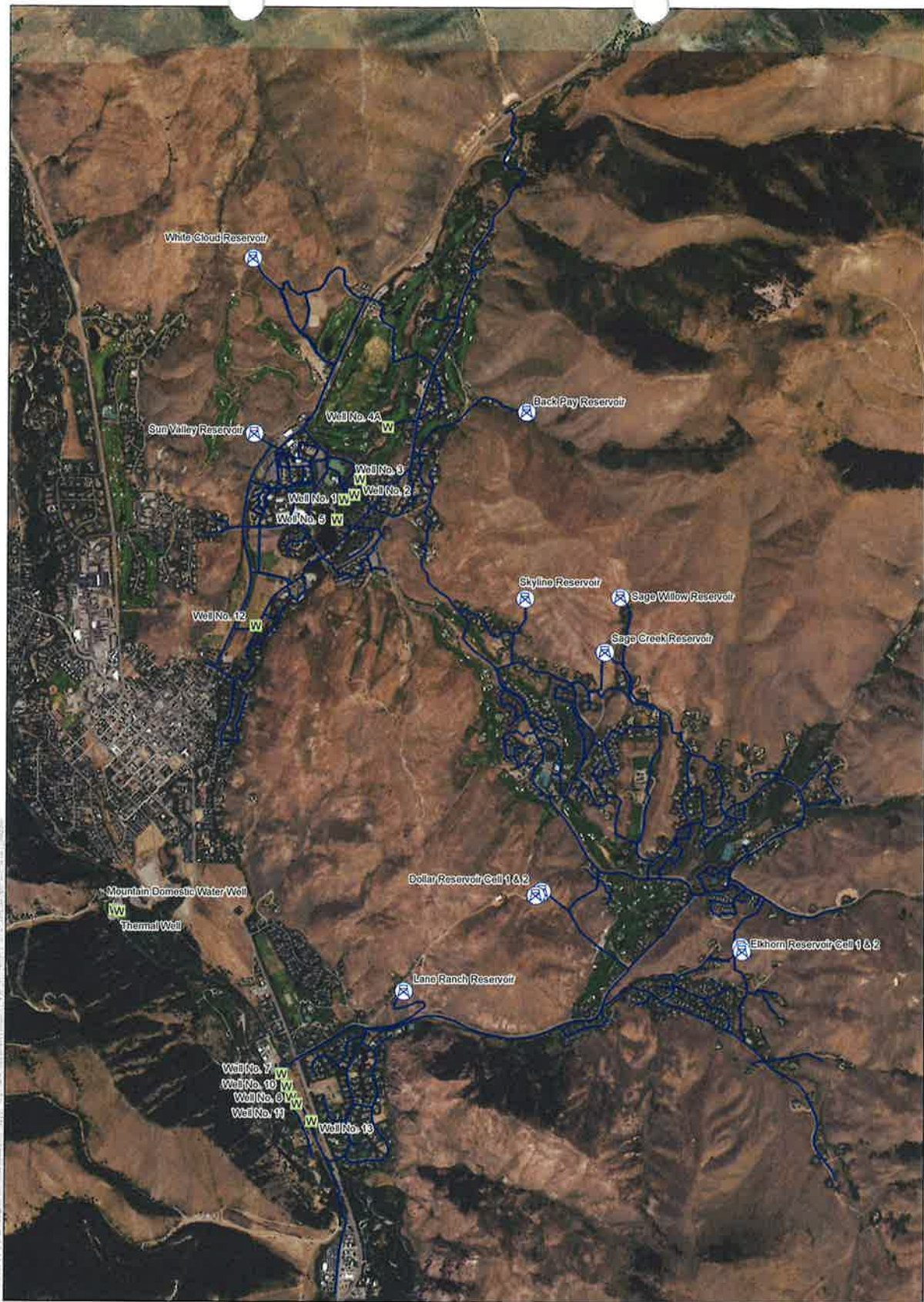
The Sun Valley Water and Sewer District (District) water system is supplied by 13 groundwater wells that pump into the distribution system and into a series of reservoirs located throughout the District. The reservoirs fill based on water system pressure, and feed back into the system by gravity. Refer to the following figure entitled "Well and Reservoir Locations" for relative locations of the District's wells and reservoirs. Reservoir volumes can be found in the following table entitled "Sun Valley Water and Sewer District Reservoir Summary." Details of the District wells and their associated water rights are summarized in the following table entitled "Sun Valley/Elkhorn System Beneficial Use Water Rights Review." Two of the District's wells supply a small, dedicated River Run System located on the west edge of the District. The River Run System is not connected to the remainder of the District's system (Main System) and is not anticipated to be connected in the future. The two River Run System wells include three water rights. The Mountain Domestic Water Well includes water rights 37-7147 [0.15 cfs (67.33 gpm)] and 37-8834 [0.1 cfs (44.88 gpm)], and the Thermal Well, used to supply a heat exchanger, includes water right 37-8835 [0.59 cfs (264.81 gpm)]. The total approved beneficial use water right for these two wells is 0.84 cfs (377.02 gpm). The remaining eleven wells and their associated water rights supply the majority of the District's customers (Main System) with a total beneficial use water right of 18.7 cfs (7,392.27 gpm). The total approved beneficial use water right for the Total System is approximately 19.54 cfs (7,769.29 gpm).

On July 20, 2003 the District experienced a Peak Hour Demand of approximately 9,235 gpm in the portion of the system (Main System) served by the eleven wells. The basis for this Main System demand is explained below. It is assumed that the River Run System also experienced a peak hour demand event on July 20, 2003 equivalent to the approved beneficial water right of 0.84 cfs (377.02 gpm). The River Run System peak hour demand is assumed to be equal to the flow rates established in their respective Beneficial Use Field Reports. These two small wells in the River Run System are expected to deliver their respective beneficial use water right rate when the pumps are called to run. Therefore, the Total System Peak Hour Demand on July 20, 2003 was 9,612 gpm.

The District's water right portfolio held approximately 6,845 gpm in water rights in July 2003, including the River Run System, with approved beneficial use designation that could be used to meet this Peak Hour Demand. The Peak Hour Demand Shortfall of 2,767 gpm represents the beneficial use water supply shortfall the District experienced on July 20, 2003. This Peak Hour Demand event is based on the sum of the District's well flows for the day and the highest draft rate (via gravity) on the water system reservoirs during that day. The total well pumping recorded on July 20, 2003 for the Main System of 8,865,900 gallons (6,157 gpm), plus the peak reservoir drafting rate totaling approximately 3,078 gpm, plus the peak hour demand of 377.02 gpm for the River Run System yielded a peak hour event of 9,612 gpm. Refer to the District's Main System well water production log for the July 20, 2003 well flows; and the District's July 20, 2003 reservoir level graphs, and the table entitled "Sun Valley Water and Sewer District Reservoir Summary" for the peak reservoir drafting rates. It should be noted that the Lane Ranch Reservoir and the White Cloud Reservoir were not constructed in July 2003. During this Peak Hour Demand event the District was marginally able to respond to the water demand by drafting and drawdown of the District's reservoirs. As a result, the District applied for a Permit on 9-08-2003 to drill Well No. 12 as a first step to meet the water supply shortfall. The Permit for Well No. 12 was authorized by IDWR on 12-18-2003. Ultimately the Proof of Beneficial Use for Well No. 12 was limited to 2.06 cfs. The District next applied for a Permit on May 20, 2005 to drill Well No. 13. The Permit for Well No. 13 was authorized by IDWR on 7-15-2005. The District also had plans to apply for a Permit to drill Well No. 14.

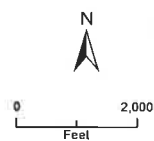
Based on a Total System 2003 equivalent connection unit (ECU) count of 2,788 and the 2003 Peak Hour Demand of 9,612 gpm for the Total System served by the thirteen wells this translates into a Peak Hour Demand/ECU of 3.45 gpm/ECU.

The equivalent connection units detailed in the following table entitled "SVWSD Single Residential Equivalent Connections and Multi Family Equivalent Connection Added 2005 through 2018" represent ECUs served by the District that have come online since 2005, the time of the water right permit application (37-21465). Several other businesses have also come online since 2005. The additional ECUs that have been added since 2005 total 479 ECUs. Using the Peak Hour Demand/ECU of 3.45 gpm/ECU, the additional Beneficial Use Demand since 2005 totals 1,653 gpm.



Legend

-  Reservoir
-  Well
-  Existing Piping



Well and Reservoir Locations
Sun Valley Water and
Sewer District

JACOBS

Sun Valley Water and Sewer District Reservoir Summary

Reservoir, (1)	Volume (gallons)	Peak Hour Diversion Rate
		(via gravity, not pumping), July 20, 2003 (gallons/minute)
Lane Ranch	400,000	NA, (2)
Elkhorn Cell 1 & 2	586,000	0
Sun Valley	633,300	0
Dollar Cell 1 & 2	394,000	1,658
Backpay	492,500	265
Sage Creek	401,800	1,057
Skyline	201,000	98
Sage Willow	176,100	0
White Cloud	400,000	NA, (2)
Total	3,684,700	3,078

(1) Refer to the attached Figure entitled "Well and Reservoir Locations."

(2) Reservoir was not constructed at the time of the Peak Hour Event on July 20, 2003.

Sun Valley/Elkhorn System Beneficial Use Water Rights Review

Water Right	Point of Diversion	Water Right Application Rate (cfs)	Water Right Application Rate (gpm)	Approved Beneficial Use Rate (cfs)	Approved Beneficial Use Rate (gpm)
37-22444	Well 1	0.31	139.14	0.31	139.14
37-22445	Well 2	0.52	233.39	0.52	233.39
37-22447	Well 3	0.95	426.39	0.95	426.39
37-2722	Wells 4A and 5	3.63	1629.26	3.63	1629.26
37-7102	Wells 7, 8, 10, and 11	9.00	4039.49	9.00	4039.49
37-21151	Well 12	3.35	1503.59	2.06	924.60
37-21465	Well 13	2.23	1000.90	2.23	0.00
37-7147	Mountain Domestic Water Well	0.15	67.33	0.15	67.33
37-8834	Mountain Domestic Water Well	0.10	44.88	0.10	44.88
37-8835	Thermal Well	0.59	264.81	0.59	264.81
Total System		20.83	9349.18	19.54	7769.29
River Run System		0.84	377.02	0.84	377.02
Main System		19.99	8972.16	18.70	7392.27

Sun Valley/Elkhorn System Peak Hour Demand and Peak Hour Demand/Equivalent Connection Review

Total System Peak Hour Demand, (gpm) 7-20-2003	9612
Main System Peak Hour Demand, (gpm) 7-20-2003	9235
River Run System Peak Hour Demand, (gpm) 7-20-2003	377
Total System Peak Hour Demand Shortfall\Excess, (gpm)	2767
Total System Equivalent Connection Units (ECU), 7-20-2003	2788
Main System Equivalent Connection Units (ECU), 7-20-2003	2778
River Run System Equivalent Connection Units (ECU), 7-20-2003	10
Peak Hour Demand/ECU for the Total System, (gpm/ECU) 7-20-2003	3.45

	A	B	C	D	E
1	SVWSD Single Residential Equivalent Connections and Multi-Family Equivalent Connections Added 2005 through 2018				
2					
3	CUSTOMER#	SERVICE ADDRESS	CONNECTION DATE	SINGLE RESIDENTIAL ECU's	MULTI FAMILY ECU's
4		2005			
5	1 0029 01	100 FAIRWAY RD	7/1/2005	1	
6	2 1173 01	DOLLAR MT LODGE WEST	8/31/2005		
7	3 8197 01	105 SILVER QUEEN	8/1/2005	1	
8	3 8201 01	51 LANE RANCH RD	7/1/2005	1	
9	3 8202 01	89 ELKHORN RD	7/1/2005	1	
10	3 8203 01	67 LANE RANCH RD	10/1/2005	1	
11	3 8204 01	85 ELKHORN RD	8/31/2005	1	
12	3 8209 01	202 CAMAS LOOP	10/1/2005	1	
13		2008			
14	3 8206 01	7 MEADOW RD	2/28/2006	1	
15	3 8207 01	3 LANE RANCH RD	6/1/2006	1	
16	4 9195 01	115 ANGANI WAY	5/31/2006	1	
17	4 9196 01	100/102 ANGANI WAY	8/31/2006		2
18	4 9197 0	95 BADEYANA DRIVE	8/31/2006	1	
19	4 9198 01	104/106 ANGANI WAY	8/31/2006		2
20	4 9199 01	109 ANGANI WAY	11/30/2006	1	
21		2007			
22	1 0018 01	110 SKYLINE RD	8/31/2007	1	
23	2 1124 01	GOLF COURSE 17TH TEE	11/30/2007	1	
24	3 8112 01	59 LANE RANCH RD	8/31/2007	1	
25	3 8213 01	46 LANE RANCH ROAD	8/31/2007	1	
26	3 8214 01	227 BLUEBELL	8/31/2007	1	
27	3 8215 01	120 HIGHLAND DR	8/31/2007	1	
28	4 9200 01	108 & 110 ANGANI WAY	2/28/2007		2
29	4 9201 01	101103 SENABI LANE	8/31/2007		2
30	4 9202 01	105 107 SENABI LANE	8/31/2007		2
31	4 9203 01	109 111 SENABI LANE	8/31/2007		2
32	4 9204 01	97 BADEYANA DRIVE	11/30/2007	1	
33		2008			
34	1 0030 01	708 FAIRWAY ROAD	2/28/2008	1	
35	1 0031 01	103 SADDLE LANE	5/30/2008	1	
36	1 0479 01	226 BITTERROOT ROAD	11/30/2008	1	
37	2 1174 01	300 DOLLAR ROAD	8/29/2008	1	
38	2 1175 01	3000 TRAIL CREEK ROAD	8/29/2008	1	
39	2 1176 01	302 TRAIL CREEK ROAD	11/30/2008	1	
40	3 8082 01	214 MEADOW CIRCLE	5/30/2008	1	
41	3 8216 01	210 ELKHORN ROAD	5/30/2008	1	
42	3 8917 01	108 DEFIANCE	5/30/2008	1	
43	3 8218 01	25 LANE RANCH ROAD	5/30/2008	1	
44	3 8219 01	12616 HIGHWAY 75	11/30/2008	1	
45	4 9205 01	106 VILLAGE WAY/ BLDG B2	5/30/2008	1	
46	4 9206 01	TENNIS COURTS LANDSCAPE	7/29/2008		
47	4 9207 01	102 / 104 SENABI WAY	8/25/2008		2
48	4 9208 01	104 VILLAGE WAY	8/29/2008	1	
49	4 9209 01	12612 12614 HIGHWAY 75	11/30/2008		2
50	4 9210 01	1261812820 HIGHWAY 75	11/30/2008		2
51	4 9211 01	101-117 BLUE HAVEN DRIVE	11/30/2008		16
52	4 9212 01	12598 HIGHWAY 75	11/30/2008		2
53	4 9213 01	12608 HIGHWAY 75	11/30/2008		2
54		2009			
55	2 1177 01	300 TRAIL CREEK ROAD	2/28/2009		
56		2010			
57					
58	2 1125 01	WHITE CLOUDS RESERVOIR	8/31/2010		
59	3 8220 01	17 LANE RANCH ROAD	5/31/2010	1	
60	3 8221 01	209 MEADOWRIDGE	8/31/2010	1	
61	4 9214 01	SAGEWILLOW EQUESTRIAN	8/16/2010		
62	4 9215 01	SAGEWILLOWARROWLEAF	8/16/2010		
63	4 9216 01	UPPER POND FENCE	11/1/2010		
64	4 9217 01	12568 HIGHWAY 75	11/29/2010	1	
65	4 9218 01	12590 HIGHWAY 75	11/30/2010	1	
66		2011			
67		2012			
68					
69	1 0036 01	108 WEDELN LANE	11/30/2012	1	
70	2 1178 01	WHITE CLOUD TOWNHOMES	5/31/2012		
71	2 1179 01	15 CLOUD NINE DRIVE	5/31/2012	1	
72	2 1180 01	11 CLOUD NINE DRIVE	5/31/2012	1	
73	2 1181 01	10 & 12 CLOUD NINE DRIVE	5/31/2012		2
74	3 8173 01	717 MORNINGSTAR	10/1/2012	1	
75	4 9219 01	102 SENABI LANE	8/29/2012	1	
76		2013			
77	1 0037 01	701 FAIRWAY ROAD	11/29/2013	1	
78	1 0032 01	2 BACK PAY WAY	8/30/2013	1	
79	2 1182 01	17 CLOUD NINE DRIVE	5/31/2013	1	
80	2 1183 01	19 CLOUD NINE DRIVE	5/31/2013	1	
81	2 1184 01	14 & 16 CLOUD NINE DRIVE	5/24/2013		
82	2 1185 01	100 SUN PEAK DRIVE	8/30/2013	1	
83	2 1186 01	26 CLOUD NINE DRIVE	11/29/2013	1	

	A	B	C	D	E
	CUSTOMER#	SERVICE ADDRESS	CONNECTION DATE	SINGLE RESIDENTIAL ECU's	MULTI FAMILY ECU's
1					
84	2.1187.01	21 & 23 CLOUD NINE DRIVE	11/29/2013		
85	3.8075.01	115 SAGEWILLOW RD	5/24/2013	1	
86	4.9220.01	105 HOSPITAL DRIVE	5/24/2013	1	
87	4.9221.01	127 HOSPITAL DRIVE	5/24/2013	1	
88		2014			
89	1.0038.01	210 SUN PEAK DRIVE	8/26/2014	1	
90	1.0039.01	205 FAIRWAY ROAD	8/26/2014	1	
91	1.0040.01	8 BACK PAV WAY	11/30/2014	1	
92	3.8083.01	1 LANE CREEK ROAD	5/27/2014	1	
93		2015			
94	1.0041.01	107 FAIRWAY ROAD	5/31/2015	1	
95	1.0042.01	403 FAIRWAY LOOP	11/17/2015	1	
96	2.1188.01	101-107 ELLE ROAD	2/28/2015		2
97					
98	2.1189.01	142 & 144 CLOS DU VAL	5/31/2015		2
99	2.1190.01	146 & 148 CLOS DU VAL	5/31/2015		2
100	2.1191.01	110 & 112 ELLE ROAD	5/31/2015		2
101	2.1192.01	112 ELLE ROAD	8/25/2015	1	
102	2.1193.01	138 & 140 CLOS DU VAL	11/30/2015		2
103	2.1194.01	136 CLOS DU VAL	11/30/2015	1	
104	3.8084.01	712 MORNINGSTAR	5/31/2015	1	
105	3.8222.01	170 LANE'S WAY	11/30/2015	1	
106	3.8223.01	180 LANE'S WAY	11/30/2015	1	
107		2016			
108	1.0043.01	316 DIAMOND BACK ROAD	2/26/2016	1	
109	2.1195.01	102-108 ELLE ROAD	5/25/2016		2
110	4.9222.01	113 115 SENABI LANE	2/26/2016		2
111		2017			
112	1.0044.01	305 DIAMONDBACK ROAD	5/31/2017	1	
113	2.1196.01	132 & 134 CLOS DU VAL	5/31/2017		2
114	2.1197.01	122 CLOS DU VAL	5/31/2017	1	
115	2.1198.01	120 CLOS DU VAL	5/31/2017	1	
116	2.1199.01	201 DIAMOND BACK-JOB	5/31/2017	1	
117	3.8224.01	160 LANE'S WAY	5/31/2017	1	
118	3.8225.01	120 LANE'S WAY	5/31/2017	1	
119	3.8226.01	110 LANE'S WAY	5/31/2017	1	
120	3.8228.01	130 LANE'S WAY	9/13/2017	1	
121	3.8227.01	324 JUNIPER RD	10/1/2017	1	
122		2018			
123	2.1200.01	149 & 151 DIAMOND BACK RD	7/17/2018		2
124	4.9084.00	FAIRWAY ONE CONDOS	8/9/2018		
125	4.9223.01	117 119 SENABI LANE	7/23/2018		2
126					
127	SUBTOTAL NEW CUSTOMER ACCOUNTS (ECU'S) ADDED SINCE 2005			71	60
128					
129					
130	Remaining Customers based on pipe in the ground.	Sun Valley West Multi Family	Built 2012		189
131	Remaining Customers based on pipe in the ground.	Sun Valley West Single Family	Built 2012	16	
132	Remaining Customers based on pipe in the ground.	SV Symphony	Built 2008		
133	Remaining Customers based on pipe in the ground.	Lane Ranch North	Built 2013	4	
134	Remaining Customers based on pipe in the ground.	Lane Meadows	Built 2014	2	
135	Remaining Customers based on pipe in the ground.	Highlands	Built 20xx	2	
136	Remaining Customers based on pipe in the ground.	Crown Ranch	Built 20xx	11	
137	Remaining Customers based on pipe in the ground.	Elkhorn Springs	Built 2004		8
138	Remaining Customers based on pipe in the ground.	CKTK LLC	Built 2012		6
139	Remaining Customers based on pipe in the ground.	Cold Springs Prop.	Built 2012		28
140	Remaining Customers based on pipe in the ground.	Rock Rolling	Built 2012		48
141	Remaining Customers based on pipe in the ground.	Rock Rolling #2	Built 2012		32
142	Remaining Customers based on pipe in the ground.	Jessen	Built 2012		1
143	Remaining Customers based on pipe in the ground.	Schwartz	Built 2012		1
144					
145	SUBTOTAL REMAINING CUSTOMER ACCOUNTS (ECU'S BASED ON NEW PIPE IN THE GROUND) SINCE			35	313
146					
147					
148	NEW CUSTOMER ACCOUNTS (ECU'S) ADDED SINCE 2005 AND FUTURE CUSTOMERS ACCOUNTS (ECU'S BASED ON NEW PIPE IN THE GROUND) SINCE 2005			106	373
149					
150	TOTAL NEW CUSTOMER ACCOUNTS (ECU'S) ADDED SINCE 2005			479	
151					
152	PEAK HOUR DEMAND/ECU (gpm/ECU)			3.45	
153					
154	ADDITIONAL BENFICIAL USE DEMAND SINCE 2005 (gpm)			1653	
155					
156					
157	Note: Equivalent Connection Units (ECU's) 2005 = 2,778				

Nelson, Dan

From: Boggs, Kevin/BOI <Kevin.Boggs@jacobs.com>
Sent: Tuesday, May 21, 2019 9:15 AM
To: Nelson, Dan
Subject: RE: Permit 37-21465

Thanks Dan. I will be back in touch with you asap. I appreciate you following up your phone call yesterday with this email.

Thanks,
Kevin

208-340-1753

From: Nelson, Dan <Dan.Nelson@idwr.idaho.gov>
Sent: Tuesday, May 21, 2019 9:00 AM
To: Boggs, Kevin/BOI <Kevin.Boggs@jacobs.com>
Subject: [EXTERNAL] Permit 37-21465

Hello Kevin,

I have pretty much completed my review of the your field exam. You did a very nice job of completing the exam, but there is still a couple of things that need clarification before we can move forward to licensing.

As we talked about on the telephone yesterday, we need to include water rights 37-7147, 37-8834, and 37-8835 into your analysis, since they are part of the rights included in the Sun Valley Water and Sewer District (SVWSD) portfolio of water rights. It appears as though these rights were on a separate water system in 2012 when they were licensed, but all of these rights share a common place of use described as the SVWSD service area. Therefore, we cannot separate them out of the combined water rights, since they serve the same place of use. It doesn't look as though these rights will make that much of a difference, since the only supply a combined total diversion rate of 0.84 cfs or 376 gpm.

The other thing I discovered this morning that we didn't talk about yesterday is that I cannot tell what the capacity is of the 9 storage reservoirs. The graphs you supplied do not give the total reservoir capacity. I need the capacity of each reservoir and the additional diversion rate each reservoir can provide to the system. Theoretical or pump curve analysis will work for the reservoir diversion rate calculations, but actual measurement records are always better if they are available. If you could send me that information, I would really appreciate it. The Idaho Beneficial Use Examination Rules IDAPA 37.03.02.035.01.c requires that the field examiner properly described capacity and location of all of the points of diversion and storage systems within the system. The Department has the records of all of the points of diversion, but we don't have adequate records of the locations and capacity (diversion rate from the reservoir and volume of reservoir) of the reservoirs. If you could send me a map showing the location of each reservoir and listing showing the volume and diversion rate capacity from each reservoir I would appreciate it.

I wanted to send this email to confirm our conversation yesterday, and to request the information from the reservoirs. I consider this information a clarification of the field examination as discussed in the Idaho Beneficial Use Examination Rules IDAPA 37.03.02.035.02.c, so I can give you until July 1, 2019 when the proof of beneficial use is due to supply the information. If you need additional time, please let me know prior to July 1, 2019, to ensure that there are no issues with advancement of the priority date.

Once again, you did a very good job on this field examination. These are just a couple of the things that come up when reviewing a field exam that need to be clarified to allow us to make a reasonable and informed decision on licensing the permit.

Thank you very much for your time and patience.

Respectfully,

Daniel Nelson
Water Right Analyst 3
Idaho Department of Water Resources
Telephone (208) 287-4856
Fax (208) 287-6700 (attn: Dan Nelson)

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Jacobs' Energy, Chemicals and Resources business is now part of Worley



TRANSMITTAL

RECEIVED

MAY 01 2019

DEPARTMENT OF
WATER RESOURCES

To: Idaho Department of Water Resources
322 East Front Street
Suite 600
Boise, ID 83702

From: Kevin Boggs
Jacobs
999 W. Main St. Suite 1200
Boise, ID 83702
208-340-1753

Attn: Dan Nelson

Date: April 30, 2019

Re: Sun Valley Water and Sewer District Water Right 37-21465 Beneficial Use Field Report

We Are Sending You:

Method of shipment:

X Attached

Under separate cover via

Shop Drawings

Documents

Tracings

Prints

Specifications

Catalogs

Copy of letter

Other:

Quantity	Description
1	Sun Valley Water and Sewer District Water Right 37-21465 Beneficial Use Field Report

If the material received is not as listed, please notify me at 208-340-1753.

Copy To: Pat McMahon/General Manager, Sun Valley Water and Sewer District

Evan Robertson\Robertson & Slette, p.l.l.c.

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 37-214651. Owner Sun Valley Water and Sewer DistrictPhone No. 208-622-9507Current address P. O. Box 24102. Examiner's name Kevin BoggsEXAM DATE 11-1-183. Accompanied by Patrick McMahonEmail pat@svwsd.comAddress P. O. Box 2410, Sun Valley, ID 83353Relationship to permit holder SVWSD General ManagerPhone No. 208-622-95074. Source Groundwater (well)tributary to NA**B. OVERLAP REVIEW**1. Other water rights with the same place of use 37-2709, 37-2722, 37-7102, 37-7147, 37-08834, 37-08835, 37-211512. Other water rights with the same source and point of diversion None**C. DIVERSION AND DELIVERY SYSTEM**

1. Point(s) of Diversion:

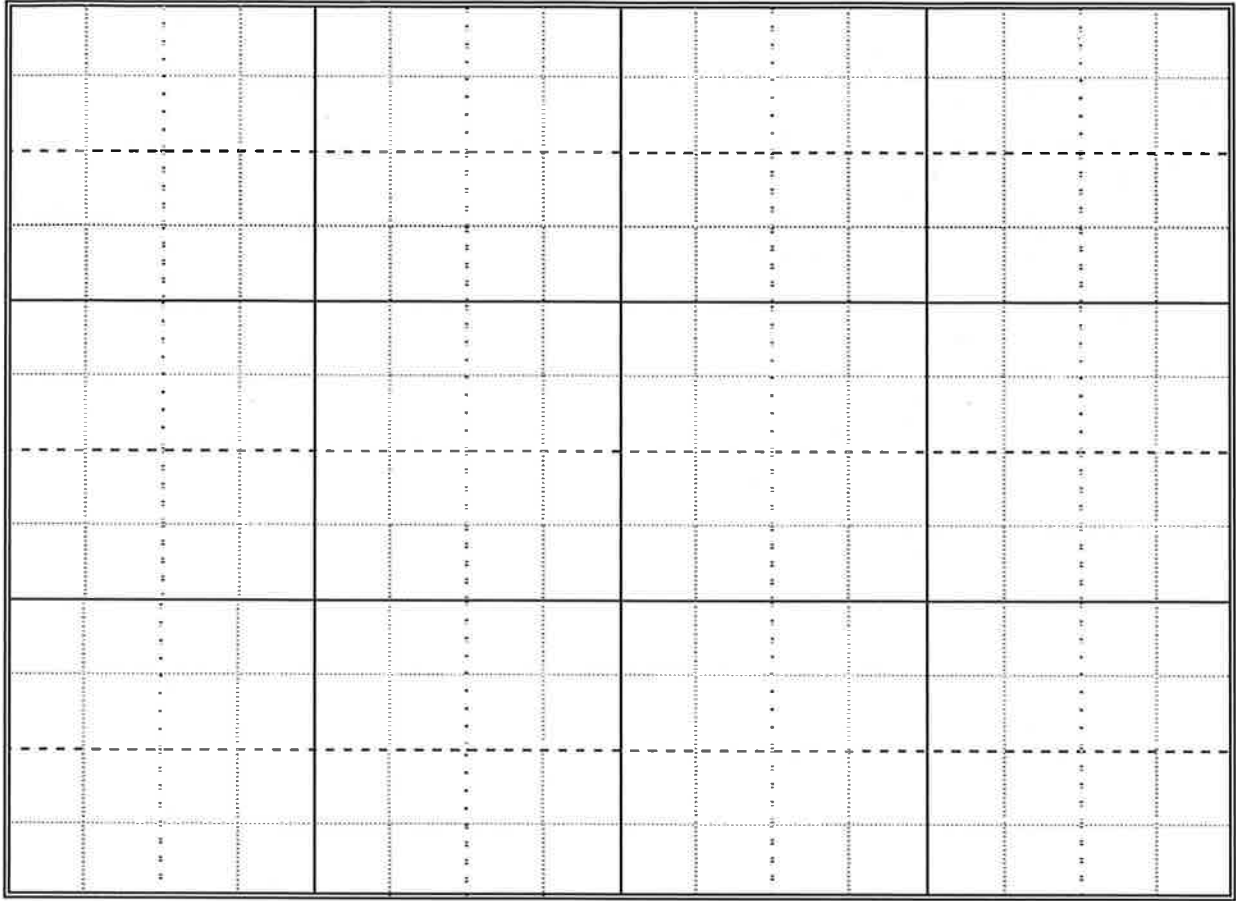
Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
Well 13	Unknow	NE	NW	NE	30	04N	18E	Blaine	Records Review and Site Visit

2. Place(s) of Use:

Method of determination Records review and site visit - See attached service area map

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.



Scale: 1" = _____

- ☐ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☐ Aerial photo attached (required for irrigation of 10+ acres)
☒ Photo of diversion and system attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Well 13	U.S. Motors	100	Y08-789072-0001-	Goulds	4430337, 8-inch
			GT-01		

*Code to correspond with no. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Totalizer/Flow Meter	Electro-	Sparling	FM-656	M207631617	8-inch	4-25-2017
	magnetic					

2. **Measurements:** _____

Pumped for 21 minutes at 1,095 gpm, based on totalizer measurements: at 11:47 (87,599,000 gallons); 12:08 (87,622,000 gallons); Pumped 23,000 gallons over 21 minutes = 1,095 gpm (see attached field notes)

E. NARRATIVE/REMARKS/COMMENTS

See attached "Sun Valley/Elkhorn System Beneficial Use Water Rights Review" and attached "SVWSD Single Residential Equivalent Connections and Multi-Family Equivalent Connections Added 2005 through 2018" for future District Water Rights.

Note: the District installed a lockable device to control the diversion. The District also installed an electro-magnetic flow meter.

Note: the multi-family equivalent connections (ECUs) listed in the attached doc ("SVWSD Single Residential Equivalent Connections and Multi-Family Equivalent Connections Added 2005 through 2018") are stubbed-in connections to serve future mobile homes and multi-plexes.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

F. FLOW CALCULATIONS☐ Additional computation sheets attached

Measured Method:

Totalizer/Flow Meter; Pumped for 21 minutes at 1,095 gpm, based on totalizer measurements: at 11:47 (87,599,000 gallons); 12:08 (87,622,000 gallons); Pumped 23,000 gallons over 21 minutes = 1,095 gpm (see attached field notes)

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I,R} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = \underline{NA}$$

$$V_{D,R} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = \underline{NA}$$

$$V = \text{Smaller of } V_{I,R} \text{ and } V_{D,R} = \underline{NA}$$

2. Volume Calculations for Other Uses:

NA

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Municipal	01/01	12/31	2.23	NA
Totals:			2.23 cfs	

2. Recommended Amendments

☐ Change P.D. as reflected on page 1☐ Add P.D. as reflected on page 1☒ None☐ Change P.U. as reflected on page 1☐ Add P.U. as reflected on page 1☐ Other**I. AUTHENTICATION**

Field Examiner's Signature

Kevin G. Doggs

Date

4/30/2019

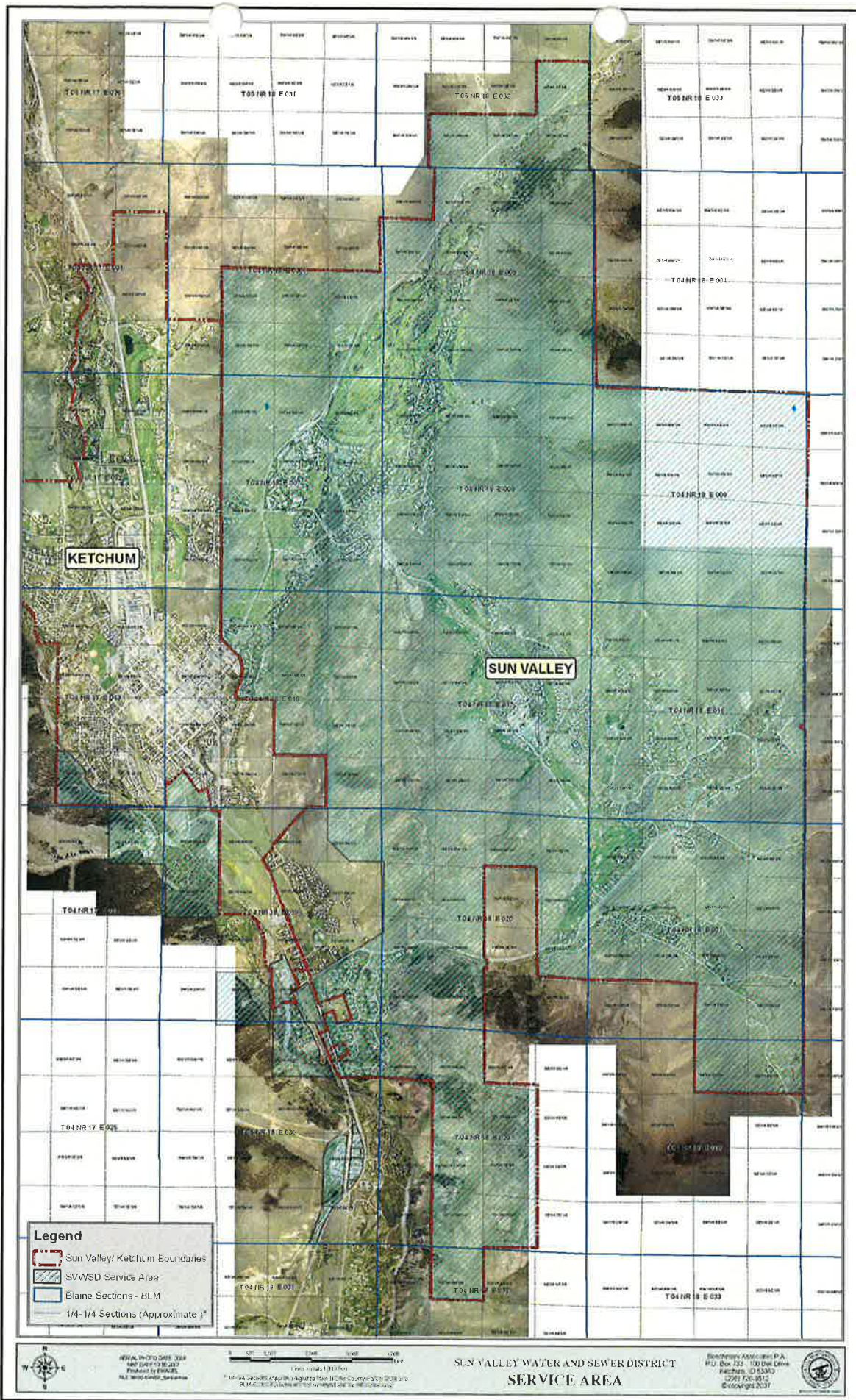
Reviewer

Date



SUN VALLEY WATER AND SEWER DISTRICT WELL 13 BENEFICIAL USE FIELD EXAM ATTACHMENTS:

- FIELD NOTES
- WATER RIGHTS REVIEW AND PEAK USE NARRATIVE
- EQUIVALENT CONNECTION DETAILS
- MAG METER CALIBRATION SHEET
- FIELD PHOTOS
- PUMP AND MOTOR DETAILS
- WELL LOG
- PLACE OF USE MAP
- CITY OF SUN VALLEY WATER CONSERVATION ORDINANCE



Jacobs

Sun Valley Wtr & Sewer District
K. Boggs.

109

11-1-18

Well 113 - Beneficial use exam

11:15 static (system) pressure = 860 psi

11:15 Pump is off; equipped with VFD;

Model = PowerFlex 753; off at 0 Hz

↳ 480V 125A; MAKE = Allen-Bradley

VFD catalog No. = 20F1A N D 125 AN0NNNNN

11:20 Tiger Mag flow meter reading = 87,587,000 gal

↳ prior to pumping for this field exam

Note: John Wiskus & Kevin Boggs / Jacobs on site

with Pat MacMahon / SVWSD

MOTOR

US Motor 100 HP

Serial NO. H0100V2SLG-C (catalog #)

ID# = Y68-789072-001-GT-01

PUMP

Goulds

Model No. DWT-FFTM

1000 gpm capacity

Head = 260 TDH

Size = 10 D HHC

8 stages

impeller is 6.13"

Serial No. = 4430337

METER

8" diameter

Sparling

Tiger Mag EP

Model = FM656

Serial No. =

↳ M207631617

Totalizer = Sparling - electro-magnetic; 8-inch

Model No. FM-656

Serial No. M207631617

110

sun valley wtr & sewer District

11-01-2019

well-13

K. Loggs

- 11:31 Pump on - pump to waste initially
VFD = 57.199 Hz during pump to waste
- 11:34 Pump to waste valve closed; pump
to distribution system; discharge
slowly ramped up to approx 1000 gpm
over the course of approx. 90 sec
- 11:36 instan. reading 997 to 1007 gpm
↳ fluctuating; 57.199 Hz
- 11:38 Totalizer = 87,590,000 gallons; 57.199 Hz
- 11:45 Totalizer = 87,597,000 gallons; 57.199 Hz
- 11:46 ramp up to 59.999 Hz; instan.
flow meter = 1,145 gpm → fluctuating
by about 10 to 20 gpm.
- 11:47 totalizer = 87,599,000 gallons; 59.999 Hz
pressure = 98 (almost 99) psi
- 11:52 Totalizer = 87,605,000 gallons; 59.999 Hz
pressure = 98 (almost 99) psi
- 11:59 Totalizer = 87,613,000 gallons; 59.999 Hz
pressure = 98 (almost 99) psi
- 12:08 Totalizer = 87,622,000 gallons; 59.999 Hz
pressure = 98 (almost 99) psi

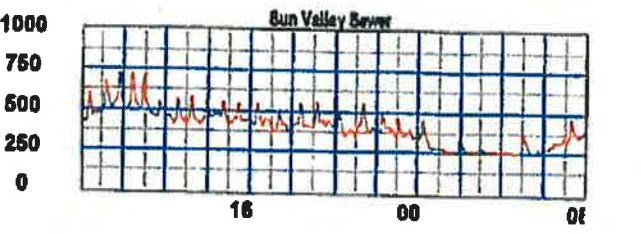
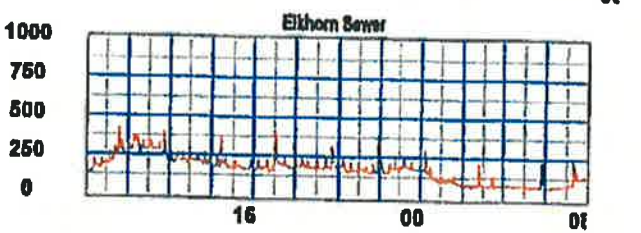
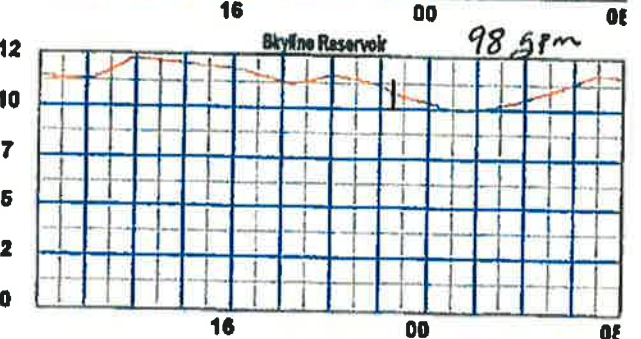
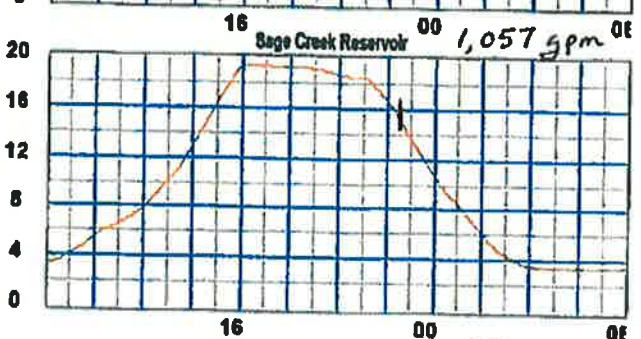
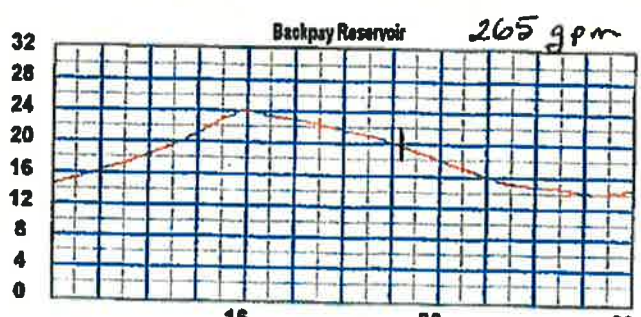
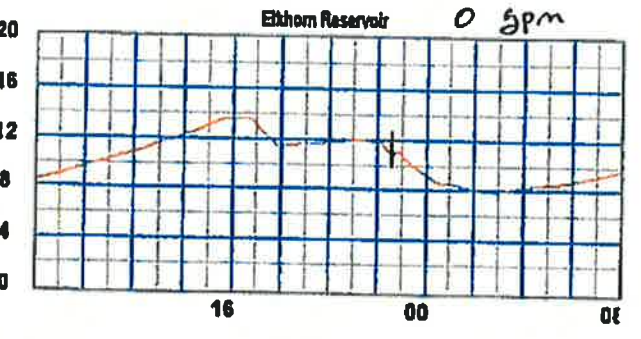
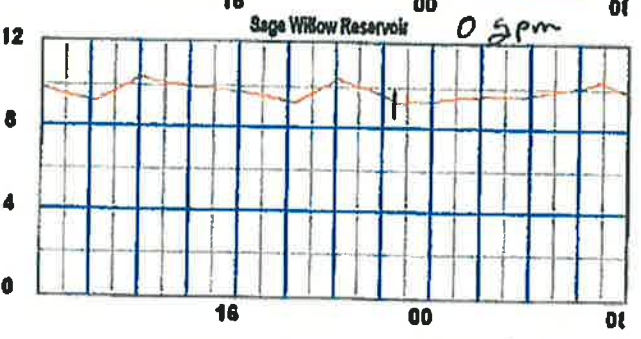
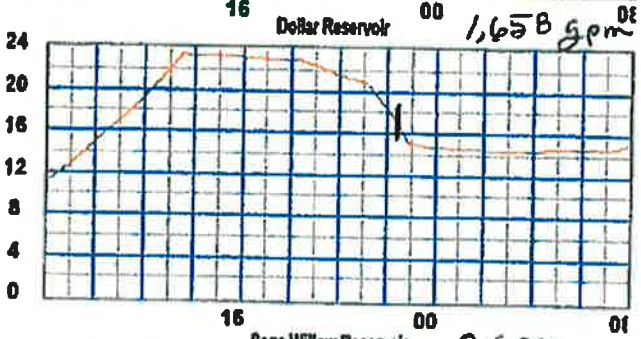
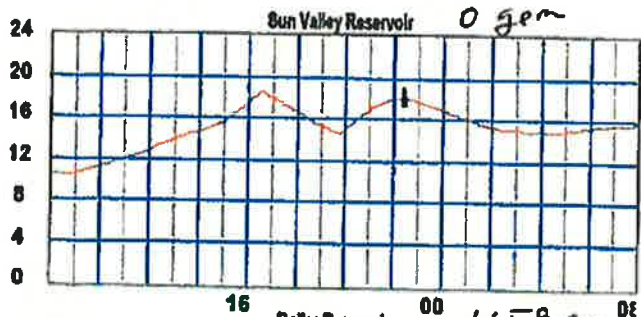
Totalizer: avg. flow b/t 11:47 to 12:08 (21 min)
= 87,622,000 - 87,599,000 = 23,000 gallons
 $\frac{23,000 \text{ gal}}{21 \text{ min}} = 1,095 \text{ gallons/min}$

Sun Valley/Elkhorn System Beneficial Use Water Rights Review					
Water Right	POD	Water Right Application Rate (cfs)	Water Right Application Rate (gpm)	Approved Beneficial Use Rate (cfs)	Approved Beneficial Use Rate (gpm)
37-2709	Wells 1, 2, and 3	1.78	798.92	1.78	798.92
37-2722	Wells 4A and 5	3.63	1629.26	3.63	1629.26
37-7102	Wells 7, 8, 10, and 11	9.00	4039.49	9.00	4039.49
37-21151	Well 12	3.35	1503.59	2.06	924.60
37-21465	Well 13	2.23	1000.90	2.23	0.00
Totals		19.99	8972.16	18.7	7392.27
Peak Hour Demand, (gpm) 7-20-2003					9235.4 gpm
Peak Hour Demand/ECU, (gpm/ECU) 7-20-2003					3.32 gpm/ECU
ECU 2003 Estimated at 2778					2778 ECU
Peak Hour Demand Shortfall\Excess					-1843.13

The Sun Valley Water and Sewer District water system is supplied by a series of ground water wells that pump into the distribution system and a series of reservoirs located throughout the District. On July 20, 2003 the District experienced a Peak Hour Demand of approximately 9,235 gpm. Based on an equivalent connection unit count of 2,778 this translates into a Peak Hour Demand/ECU of 3.32 gm. At that time the District held approximately 7,392 gpm in water rights with approved beneficial use designation that could be used to meet this Peak Hour Demand. The Peak Hour Demand Shortfall of 1,843 gpm represents the beneficial use water supply shortfall the District experienced on July 20, 2003. This Peak Hour Demand event is based on the sum of the District's well flows for the day and the highest draft rate on the water system reservoirs during that day. The total well pumping recorded on July 20, 2003 was 8,865,900 gallons (6,157 gpm), and the peak reservoir drafting rate totaled approximately 3,078 gpm yielding a peak hour event of 9,235 gpm. Refer to the District's well water production log for the July 20th well flows, and the District's reservoir level graphs for the peak reservoir drafting rates. During this Peak Hour Demand event the District was marginally able to respond to the water demand by drafting and drawdown of the District's reservoirs. As a result, the District applied for a Permit on 9-08-2003 to drill Well No. 12 as a first step to meet the water supply shortfall. The Permit for Well No. 12 was authorized by IDWR on 12-18-2003. Ultimately the Proof of Beneficial Use for Well No. 12 was limited to 2.06 cfs. The District next applied for a Permit on May 20, 2005 to drill Well No. 13. The Permit for Well No. 13 was authorized by IDWR on 7-15-2005. The District also had plans to apply for a Permit to drill Well No. 14. The equivalent connection units (ECUs) detailed on the following two pages represent ECUs served by the District that have come online since 2005, the time of the water right permit application (37-21465). Several other businesses have also come online since 2005.

	A	B	C	D	E
1	SVWSD Single Residential Equivalent Connections and Multi-Family Equivalent Connections Added 2005 through 2018				
2	CUSTOMER#	SERVICE ADDRESS	CONNECTION DATE	SINGLE RESIDENTIAL ECU's	MULTI FAMILY ECU's
3					
4		2005			
5	1.0029.01	100 FAIRWAY RD	7/1/2005	1	
6	2.1173.01	DOLLAR MT LODGE-WEST	8/31/2005		
7	3.8197.01	105 SILVER QUEEN	8/1/2005	1	
8	3.8201.01	51 LANE RANCH RD	7/1/2005	1	
9	3.8202.01	89 ELKHORN RD	7/1/2005	1	
10	3.8203.01	67 LANE RANCH RD	10/1/2005	1	
11	3.8204.01	85 ELKHORN RD	8/31/2005	1	
12	3.8209.01	202 CAMAS LOOP	10/1/2005	1	
13		2006			
14	3.8206.01	7 MEADOW RD	2/28/2006	1	
15	3.8207.01	3 LANE RANCH RD	6/1/2006	1	
16	4.9195.01	115 ANGANI WAY	5/31/2006	1	
17	4.9196.01	100/102 ANGANI WAY	8/31/2006		2
18	4.9197.01	95 BADEYANA DRIVE	8/31/2006	1	
19	4.9198.01	104/106 ANGANI WAY	8/31/2006		2
20	4.9199.01	109 ANGANI WAY	11/30/2006	1	
21		2007			
22	1.0018.01	110 SKYLINE RD	8/31/2007	1	
23	2.1124.01	GOLF COURSE 17TH TEE	11/30/2007	1	
24	3.8112.01	59 LANE RANCH RD	8/31/2007	1	
25	3.8213.01	46 LANE RANCH ROAD	8/31/2007	1	
26	3.8214.01	227 BLUEBELL	8/31/2007	1	
27	3.8215.01	126 HIGHLAND DR	8/31/2007	1	
28	4.9200.01	108 & 110 ANGANI WAY	2/28/2007		2
29	4.9201.01	101103 SENABI LANE	8/31/2007		2
30	4.9202.01	105 107 SENABI LANE	8/31/2007		2
31	4.9203.01	109 111 SENABI LANE	8/31/2007		2
32	4.9204.01	97 BADEYANA DRIVE	11/30/2007	1	
33		2008			
34	1.0030.01	708 FAIRWAY ROAD	2/29/2008	1	
35	1.0031.01	103 SADDLE LANE	5/30/2008	1	
36	1.0479.01	226 BITTERROOT ROAD	11/30/2008	1	
37	2.1174.01	300 DOLLAR ROAD	8/29/2008	1	
38	2.1175.01	3000 TRAIL CREEK ROAD	8/29/2008	1	
39	2.1176.01	302 TRAIL CREEK ROAD	11/30/2008	1	
40	3.8082.01	214 MEADOW CIRCLE	5/30/2008	1	
41	3.8216.01	210 ELKHORN ROAD	5/30/2008	1	
42	3.8917.01	108 DEFIANCE	5/30/2008	1	
43	3.8218.01	25 LANE RANCH ROAD	5/30/2008	1	
44	3.8219.01	12616 HIGHWAY 75	11/30/2008	1	
45	4.9205.01	106 VILLAGE WAY/ BLDG B2	5/30/2008	1	
46	4.9206.01	TENNIS COURTS LANDSCAPE	7/29/2008		
47	4.9207.01	102 / 104 SENABI WAY	8/25/2008		2
48	4.9208.01	104 VILLAGE WAY	8/29/2008	1	
49	4.9209.01	12612 12614 HIGHWAY 75	11/30/2008		2
50	4.9210.01	12618 12820 HIGHWAY 75	11/30/2008		2
51	4.9211.01	101-117 BLUE HAVEN DRIVE	11/30/2008		16
52	4.9212.01	12598 HIGHWAY 75	11/30/2008		2
53	4.9213.01	12808 HIGHWAY 75	11/30/2008		2
54		2009			
55	2.1177.01	300 TRAIL CREEK ROAD	2/28/2009		
56		2010			
57					
58	2.1125.01	WHITE CLOUDS RESERVOIR	8/31/2010		
59	3.8220.01	17 LANE RANCH ROAD	5/31/2010	1	
60	3.8221.01	209 MEADOWRIDGE	8/31/2010	1	
61	4.9214.01	SAGEWILLOW EQUESTRIAN PATH	8/16/2010		
62	4.9215.01	SAGEWILLOWARROWLEAF	8/16/2010		
63	4.9216.01	UPPER POND FENCE	11/1/2010		
64	4.9217.01	12568 HIGHWAY 75	11/29/2010	1	
65	4.9218.01	12590 HIGHWAY 75	11/30/2010	1	
66		2011			
67		2012			
68					
69	1.0036.01	108 WEDELN LANE	11/30/2012	1	
70	2.1178.01	WHITE CLOUD TOWNHOMES	5/31/2012		
71	2.1179.01	15 CLOUD NINE DRIVE	5/31/2012	1	
72	2.1180.01	11 CLOUD NINE DRIVE	5/31/2012	1	
73	2.1181.01	10 & 12 CLOUD NINE DRIVE	5/31/2012		2
74	3.8173.01	717 MORNINGSTAR	10/1/2012	1	
75	4.9219.01	102 SENABI LANE	8/29/2012	1	
76		2013			
77	1.0037.01	701 FAIRWAY ROAD	11/29/2013	1	
78	1.0032.01	2 BACK PAY WAY	8/30/2013	1	
79	2.1182.01	17 CLOUD NINE DRIVE	5/31/2013	1	
80	2.1183.01	19 CLOUD NINE DRIVE	5/31/2013	1	
81	2.1184.01	14 & 16 CLOUD NINE DRIVE	5/24/2013		
82	2.1185.01	100 SUN PEAK DRIVE	8/30/2013	1	
83	2.1186.01	26 CLOUD NINE DRIVE	11/29/2013	1	
84	2.1187.01	21 & 23 CLOUD NINE DRIVE	11/29/2013		
85	3.8075.01	115 SAGEWILLOW RD	5/24/2013	1	
86	4.9220.01	105 HOSPITAL DRIVE	5/24/2013	1	
87	4.9221.01	127 HOSPITAL DRIVE	5/24/2013	1	
88		2014			
89	1.0038.01	210 SUN PEAK DRIVE	8/26/2014	1	

	A	B	C	D	E
	CUSTOMER#	SERVICE ADDRESS	CONNECTION DATE	SINGLE RESIDENTIAL ECU's	MULTI FAMILY ECU's
3					
90	1.0039.01	205 FAIRWAY ROAD	8/26/2014	1	
91	1.0040.01	8 BACK PAV WAY	11/30/2014	1	
92	3.6083.01	1 LANE CREEK ROAD	5/27/2014	1	
93		2015			
94	1.0041.01	107 FAIRWAY ROAD	5/31/2015	1	
95	1.0042.01	403 FAIRWAY LOOP	11/17/2015	1	
96	2.1189.01	101-107 ELLE ROAD	2/28/2015		2
97					
98	2.1189.01	142 & 144 CLOS DU VAL	5/31/2015		2
99	2.1190.01	146 & 148 CLOS DU VAL	5/31/2015		2
100	2.1191.01	110 & 112 ELLE ROAD	5/31/2015		2
101	2.1192.01	112 ELLE ROAD	8/25/2015	1	
102	2.1193.01	138 & 140 CLOS DU VAL	11/30/2015		2
103	2.1194.01	136 CLOS DU VAL	11/30/2015	1	
104	3.8084.01	712 MORNINGSTAR	5/31/2015	1	
105	3.8222.01	170 LANE'S WAY	11/30/2015	1	
106	3.8223.01	180 LANE'S WAY	11/30/2015	1	
107		2016			
108	1.0043.01	316 DIAMOND BACK ROAD	2/26/2016	1	
109	2.1195.01	102-108 ELLE ROAD	5/25/2016		2
110	4.9222.01	113 115 SENABI LANE	2/26/2016		2
111		2017			
112	1.0044.01	305 DIAMONDBACK ROAD	5/31/2017	1	
113	2.1196.01	132 & 134 CLOS DU VAL	5/31/2017		2
114	2.1197.01	122 CLOS DU VAL	5/31/2017	1	
115	2.1198.01	120 CLOS DU VAL	5/31/2017	1	
116	2.1199.01	201 DIAMOND BACK-JOB TRAILER	5/31/2017	1	
117	3.8224.01	160 LANE'S WAY	5/31/2017	1	
118	3.8225.01	120 LANE'S WAY	5/31/2017	1	
119	3.8226.01	110 LANE'S WAY	5/31/2017	1	
120	3.8228.01	130 LANE'S WAY	9/13/2017	1	
121	3.8227.01	324 JUNIPER RD	10/1/2017	1	
122		2018			
123	2.1200.01	149 & 151 DIAMOND BACK RD	7/17/2018		2
124	4.9084.00	FAIRWAY ONE CONDOS - UPPER	8/9/2018		
125	4.9223.01	117 119 SENABI LANE	7/23/2018		2
126					
127	SUBTOTAL NEW CUSTOMER ACCOUNTS (ECU'S) ADDED SINCE 2005			71	60
128					
129					
130	Remaining Customers based on pipe in the ground	Sun Valley West Multi Family	Built 2012		189
131	Remaining Customers based on pipe in the ground	Sun Valley West Single Family	Built 2012	16	
132	Remaining Customers based on pipe in the ground	SV Symphony	Built 2006		
133	Remaining Customers based on pipe in the ground	Lane Ranch North	Built 2013	4	
134	Remaining Customers based on pipe in the ground	Lane Meadows	Built 2014	2	
135	Remaining Customers based on pipe in the ground	Highlands	Built 20xx	2	
136	Remaining Customers based on pipe in the ground	Crown Ranch	Built 20xx	11	
137	Remaining Customers based on pipe in the ground	Elkhorn Springs	Built 2004		8
138	Remaining Customers based on pipe in the ground	CKTK LLC	Built 2012		6
139	Remaining Customers based on pipe in the ground	Cold Springs Prop.	Built 2012		28
140	Remaining Customers based on pipe in the ground	Rock Rolling	Built 2012		48
141	Remaining Customers based on pipe in the ground	Rock Rolling #2	Built 2012		32
142	Remaining Customers based on pipe in the ground	Jessen	Built 2012		1
143	Remaining Customers based on pipe in the ground	Schwartz	Built 2012		1
144					
145	SUBTOTAL REMAINING CUSTOMER ACCOUNTS (ECU'S BASED ON NEW PIPE IN THE GROUND) SINCE			35	313
146					
147					
148	NEW CUSTOMER ACCOUNTS (ECU'S) ADDED SINCE 2005 AND FUTURE CUSTOMERS ACCOUNTS (ECU'S BASED ON NEW PIPE IN THE GROUND) SINCE 2005			106	373
149					
150	TOTAL NEW CUSTOMER ACCOUNTS (ECU'S) ADDED SINCE 2005			479	
151					
152	PEAK HOUR DEMAND/ECU (gpm/ECU)			3.32	
153					
154	ADDITIONAL BENEFICIAL USE DEMAND SINCE 2005 (gpm)			1590	
155					
156					
157	Note: Equivalent Connection Units (ECU's) 2005 = 2.778				



$$\begin{aligned} \text{PEAK HOUR RESERVOIR DRAWDOWN} &= 265 + 1,658 + 1,057 + 98 \\ &= 3,078 \text{ gpm} \end{aligned}$$

Sun Valley Water & Sewer District

Well Water Production for the month of JULY 20 03 FIELD

	WELL #1		WELL #2		WELL #3		WELL #5		WELL #4A	
Date										
JUN		00		00		000		000		00
30	854135	151600	426093	179500	45651	167000	875938	1232000	902427	272700
1	855962	142700	427702	162900	46170	519000	877064	1126000	905415	298800
2	857048	148600	429411	171900	46820	650000	878248	1184000	908268	285300
3	858536	148800	431134	169300	47462	642000	879412	1164000	911131	286300
4	859991	145500	432776	164200	47665	203000	880544	1132000	913935	280400
5	861511	152000	434533	175700	47683	18000	881767	1223000	916999	306400
6	862975	146400	436307	177400	48179	496000	882976	1209000	919796	279700
7	864470	149500	437989	168200	48815	636000	884136	1160000	922938	314200
8	865967	149700	439709	172000	49466	651000	885323	1187000	925942	303400
9	867439	147200	441424	171500	50114	648000	886507	1184000	929150	317800
10	868822	138900	443255	193100	50844	730000	887836	1329000	932069	291900
11	870335	151300	445067	171200	51491	647000	889017	1181000	935428	335900
12	871783	144800	446901	183400	52183	692000	890283	1266000	938988	356000
13	873290	150700	448776	187500	52894	711000	891575	1292000	942396	340800
14	874727	143700	450551	177500	53565	671000	892946	1221000	945612	321600
15	876178	145100	452378	178900	54239	674000	894016	1220000	949284	367200
16	877681	150300	454223	188500	54952	713000	895283	1267000	952518	323400
17	879062	138100	456120	189700	55670	710000	896588	1305000	955722	320400
18	880529	146700	457776	165600	56295	625000	897727	1139000	958864	314200
19	881811	128200	459488	171200	56943	640000	898905	1178000	961862	299800
20	883439	162800	461906	201800	57708	765000	900298	1393000	967291	542900
21	884851	141200	463400	189400	58419	711000	901606	1308000	970936	364500
22	886330	147900	465050	165200	59112	693000	902733	1127000	975766	483000
23	887811	148100	466887	183700	59805	693000	903991	1258000	980638	487200
24	889179	136800	468757	189000	60514	709000	905270	1279000	983870	323200
25	890647	146800	470483	173100	61266	652000	906452	1182000	987511	364100
26	892033	138600	472452	196400	61911	745000	907802	1350000	990835	332400
27	893513	148000	474161	170900	62557	646000	908977	1175000	994210	337500
28	895002	148900	476071	191000	63280	723000	910279	1302000	997022	281200
29	896431	142900	477740	166900	63911	631000	911427	1148000	211	318900
30	897902	147100	479443	170300	64557	646000	912591	1164000	3256	304900
31	899295	139300	481307	186400	65263	706000	913878	1287000	6144	288800
	4516		5521		1961		37940		10372	

Sun Valley Water & Sewer District

Well Water Production for the month of JULY 20 03 FIELD

		WELL # 7		WELL # 8		WELL # 11		WELL # 10		ELKHORN TOTALS	
Date											
JUN		00		00		000		00		000	
30	618250	691600	595135	409900	887209	2957000	478820	936700		4995200	
1	629184	693400	598108	297300	890010	2801000	488051	923100		4714800	
2	632113	692900	601934	382600	892879	2869000	497483	943200		4887700	
3	639393	728000	604860	292600	895762	2883000	507094	961100		4864700	
4	646442	704900	609250	439000	898386	2624000	518622	1152800		4920700	
5	654910	846800	613734	448400	901102	2716000	529960	1133800		5145000	
6	661910	700000	617971	423700	903915	2813000	539490	953000		4889700	
7	669969	805900	622743	474200	906813	2898000	550328	1083800		5264900	
8	676568	660300	630608	786500	909709	2896000	559343	901500		5244300	
9	684268	770000	634223	361500	912532	2823000	569669	1032600		4987100	
10	691074	680600	638393	417000	915318	2786000	578918	924900		4808500	
11	699608	853400	641030	263700	918246	2898000	590390	1147200		5162300	
12	708507	889900	645360	433000	920870	2864000	604507	1411700		5328600	
13	716940	843300	650907	554700	923756	2886000	615870	1136300		4921300	
14	725916	857600	656606	569900	926615	2859000	627708	1183800		5470300	
15	734475	899900	662254	564000	929397	2782000	639625	1191700		5434400	
16	743031	855600	667370	511600	932330	2933000	652044	1241900		5542100	
17	751119	808800	672644	527400	935119	2789000	662820	1077600		5202800	
18	759107	798800	677186	454200	937955	2836000	673641	1082100		5171100	
19	766927	722000	681642	445600	940438	2483000	683320	967900		4618500	
20	775850	952300	688127	648500	943350	2912000	696196	1287600		5800400	
21	784751	890100	694233	610600	946254	2904000	708457	1226100		5630800	
22	792829	807800	699197	496400	948997	2743000	719445	1098800		5146000	
23	801868	903900	704894	569700	951898	2901000	731920	1247500		5622100	
24	809410	754200	709287	439300	954590	2692000	742105	1018500		4904000	
25	818084	867400	714886	559900	957455	2865000	753909	1180400		5472700	
26	825940	785600	719675	478900	959965	2510000	764670	1076100		4850600	
27	834032	809200	724516	484100	962488	2523000	775800	1113000		4929300	
28	840190	619800	728212	369600	965242	2754000	784087	828700		4968100	
29	847574	738400	732882	467000	968137	2895000	793955	988800		5087200	
30	855306	773200	737217	433500	970951	2814000	804398	1044300		5065200	
31	863773	846700	742691	547400	973644	2693800	815732	1133400		5220500	
24552		14756		86435		33691					



SPARLING
INSTRUMENTS, LLC.
4097 N. TEMPLE CITY BLVD.
EL MONTE, CALIFORNIA 91731-1988 USA
PH (800) 800-FLOW

SERIAL NO.
M207631617

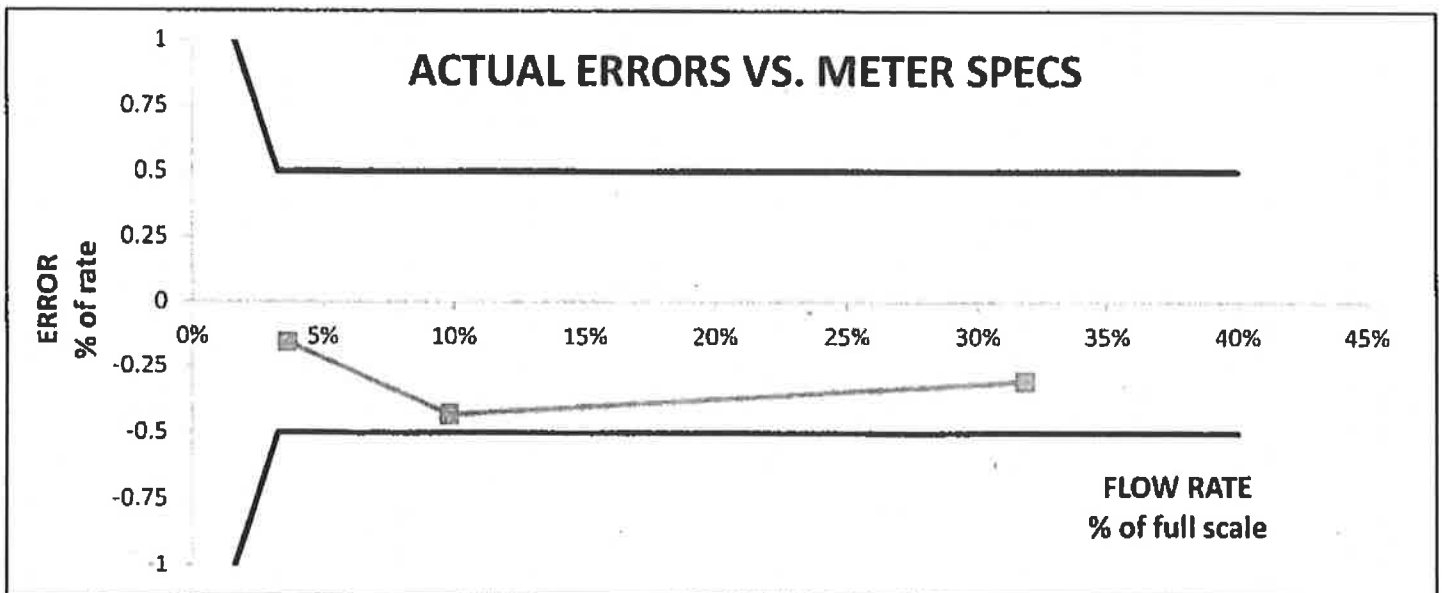
SALES ORDER NO.
58421

FLOW CALIBRATION TEST DATA SHEET FOR SERIES 600 FLOW METERS

CUSTOMER : SUN VALLEY WATER/SEWER DISTRICT	OTHER PROGRAMMING PARAMETERS:	LOCKOUT: OFF
ADDRESS : SUN VALLEY, ID	FIRMWARE 2.40	
	LINER: FEP	
MODEL NO.: FM656-088-115-0	ELECTRODES: SS	
TAG:	COIL FREQ= 3	
SIZE= 8 INCH	DISPLAY: GPM	AL1=99%
INSIDE DIA. 'D'= 7.989 INCH	COUNT: FWD ONLY	AL2=99%
F. S. VELOCITY= 30.72 FPS	REGISTR. 'R'= 100 GAL	EPD: 0
F. S. RATE 'Q'= ~~4800~~ 2500 GPM		PROTOCOL: SPAR
	OUTPUT: 4-20MA	DISP DAMPING= 5
MTR CONST 'K': 62.156 PULSES/GAL		CURRENT DAMP=15
OFFSET = 0.453	ON-TIME: 25 MS	% ZERO CUTOFF=2
SIGN: MINUS	FLOW DIR: FWD	PASSWORD: 0001

REMARKS: WATER ; TEMP: AMB PRESSURE: MAX 150 PSI; AWWA CLASS D (150 PSI) FLANGES
REMOTE 30' CABLE W/NEMA 4X ENCLOSURE; 316 STAINLESS STEEL GND RINGS.
77-265VAC REV: P; ;

TEST NO.	FLOW LAB DATA		FLOW METER DATA			AVERAGE FLOW IN GPM	AVERAGE VELOCITY FT/SEC	% ERROR OF RATE
	TIME	WATER	TOTAL	MTR CONSTANT	FREQ			
	SECS	GALLONS	PULSES	PULSES/GAL	PULSES/SEC			
1	27.48	698.85	43438	62.156	1580.7	1525.87	9.77	
2	253.65	698.85	43553	62.321	171.7	165.31	1.06	
FLOW METER ACCURACY FOR THE FULL SCALE METER CONSTANT C= 12.5								
3	240.44	698.85	8722	12.481	36.3	174.39	1.12	-0.16%
4	88.87	698.85	8698	12.446	97.9	471.82	3.02	-0.43%
5	27.43	698.85	8709	12.462	317.5	1528.65	9.78	-0.30%
6								
7								
CALIBRATED BY:		CERTIFIED BY:		FINALIZED BY:				
DATE: 04/25/17		DATE: 4/25/2017		DATE: 4/25/2017				



OPERATING CONDITIONS

Temp / SG	70° F / SP.GR 1.00
Fluid Type	Water
Lubrication Method	Water (Open Lineshaft)
Vapor Pressure	0.3633 psi
Viscosity	0.9695 cP
Specified Flow	1000.00 USGPM
Total Dynamic Head	261.00 ft
Pumping Level	15.000 ft
TPL	41.000 ft
Sump/Pit Depth	0.000 ft
Documentation	Standard pump installation and operation manual and order data

PERFORMANCE AT 1770 RPM

Bowl Efficiency	78.30 @design, 80.00 Best Efficiency
Run Out Capacity	1176.00 USGPM
Power	84.30 @design, 89.70 NOL (Hp)
Npshr	15.90 ft @design
Design Thrust	3395.80 @design (lb)
Shut off Pressure	165.35 psi

MATERIALS AND DIMENSIONS

Bowl	Cast iron with glass enamel	
Suction Bowl	Cast Iron CL30	
Bowl Wear Ring	Bronze, AL C95400	
Impeller	Silicon Bronze C87610	
Impeller Diameter	6.1875 inch	
Impeller Wear Ring	Not Included	
Impeller Balance	Dynamic Two-Plane Balance	
Impeller Lock Method	Taper lock	Key Material None
Bowl Shaft	416SS, 1.6875 inch diam.	
Suction Bearing	Bronze C90300 "G" Modified	
Bowl Bearings	Bronze C90300 "G" Modified	
Rifled Drill Shaft	No	
Collets	Carbon steel	
Strainer Type	Galvanized Steel Cone Strainer	
Tube Bearing Adapter Material	Not Included	
Column	Carbon Steel, 8" [203mm] (in) diam., 23.01 ft, Threaded	
Column Shaft Diameter	416SS, 1.1875 (in) diam.	
Column Bearing Retainer	304SS	
Lineshaft Bearings	Rubber EPDM	
Column Bearing Options	Not Included	
Max Bearing Space	10 ft (3 m) Spacing	
Lineshaft Coupling	416SS	

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

Certified by	
Date of certification	
Pump serial number	
Project Name	Sun Valley Well 13
Tag:	

Column Shaft Sleeve	304SS
Tube Material	Carbon Steel
Discharge Head	Carbon Steel Fab
Discharge Head Style	FF
Discharge Flange	8" [203mm] (in), 150#
Head Shaft Coupling	416SS Threaded
Steel Sub Base	Carbon Steel
150# Disch Companion Flange	Not Included
300# Disch Convenience Flange	Not Included
Head Bolting	316SS
Head Sleeve	416SS Hard Faced
Thrust Pot	Not Required
Sealing Method	Packing
Packing	Chesterton SuperSet SpiralTrack
Mechanical Seal	Not Included
Sealing Features	

DRIVER INFORMATION

Motor Type	Standard
Motor Manufacturer	US Motors
Rating	100 Hp [75 kW]
Efficiency Level	PREM
Motor Part Number	H100S2A1GD-WVNU-000A0C000
Enclosure	WPI
Phase / Frequency / Volts	3 / 60 Hz / 460PWS
Speed	1800 RPM

TESTING

Hydrostatic:	Hydrostatic Testing (Non-Witness): Bowl
Performance:	Full Speed Performance Testing (Non-Witness): Lab Motor, Bowl Assembly
Vibration:	Vibration Testing (Non-Witness)
NPSH:	None
Post Inspection:	None
Final Inspection:	None
Other:	3 hour run

COATING

Coating Information:	Tnemec 141; 8 mils; Bowl Assembly - OD; Column Assembly - OD and ID; Head Assembly - OD and ID
----------------------	--

ADDITIONAL FEATURES

Additional Bowl Features	3 hour performance test
Additional Column Features	304SS Shaft Sleeves
Additional Head Features:	416SS Hard-faced Headshaft Sleeve (1) 1.25" Tapped Hole in Baseplate

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

Certified by	
Date of certification	
Pump serial number	
Project Name	Sun Valley Well 13
Tag:	

Additional Driver Features: (1) 1" Tapped Hole in Baseplate with plug
(1) 0.5" Tap for Pressure Gauge
Stock Conversion Adder - Thermistors
Stock Conversion Adder - Therma Sentry (control for Thermistors)
Stock Conversion Adder - Complete Initial Test
Stock Conversion Adder - Torsional Analysis

Additional Can features: Critical Speed Analysis ($\pm 20\%$)
Reed Critical Frequency Analysis

Additional Misc features: NSF 61 Certified
Certificate of Compliance
Spare packing set

WEIGHTS

Total bowl weight	603 lb
Total column weight	825 lb
Discharge head weight	573 lb
Driver weight	1110 lb
Approximate net weight	3111 lb

Our offer does not include specific review and incorporation of any Statutory or Regulatory Requirements and the offer is limited to the requirements of the design specifications. Should any Statutory or Regulatory requirements need to be reviewed and incorporated then the Customer is responsible to identify those and provide copies for review and revision of our offer.

Our quotation is offered in accordance with our comments and exceptions identified in our proposal and governed by our standard terms and conditions of sale – Xylem Americas attached hereafter.

For units requiring performance test, all performance tests will be conducted per ANSI/HI 14.6 standards unless otherwise noted in the selection software submittal documents. Test results meeting with grade 2B tolerances for pumps with a rated shaft power of 134HP or less and grade 1B for greater than 134HP will be considered passing.

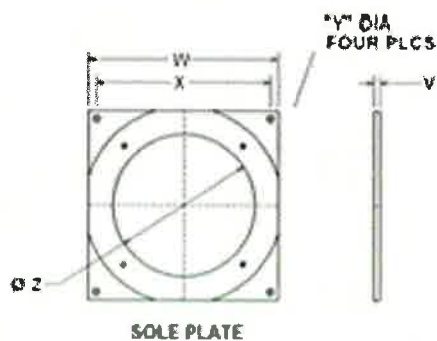
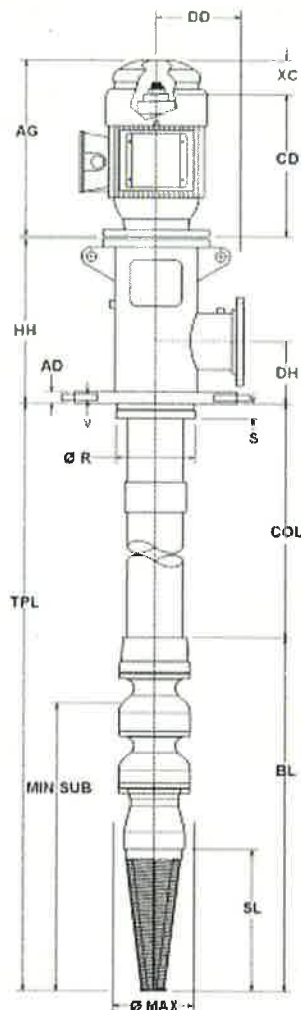
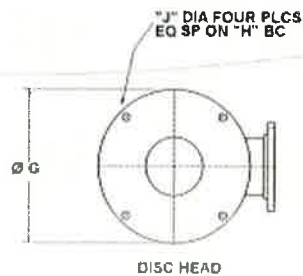
Customer is responsible for verifying that the recommendations made and the materials selected are satisfactory for the Customer's intended environment and Customer's use of the selected pump. Customer is responsible for determining the suitability of Xylem recommendations for all operating conditions within Customer's and/or End User's control. Xylem disclaims all warranties, express or implied warranties, including, but not limited to, warranties of merchantability and fitness for a particular purpose and all express warranties other than the limited express warranty set forth in the attached standard terms and conditions of sale – Xylem Americas attached hereafter.

Xylem does not guarantee any pump intake configuration. The hydraulic and structural adequacies of these structures are the sole responsibility of the Customer or his representatives. Further, Xylem accepts no liability arising out of unsatisfactory pump intake field operating conditions.

The Customer or his representatives are referred to the Hydraulic Institute Standards for recommendations on pump intake design. To optimize the hydraulic design of a field pump intake configuration, the Customer should strongly consider performing a detailed scale model pump intake study. However, the adequacies of these recommendations are the sole responsibility of the Customer.

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

Certified by	
Date of certification	
Pump serial number	
Project Name	Sun Valley Well 13
Tag:	



DIMENSIONS

AD	1.63	inch
AG	42.69	inch
BD	16.5	inch
BL	104.31	inch
CD	36.94	inch
COL	387.69	inch
DD	15.50	inch
MIN SUB	38.50	inch
DH	9.50	inch
G	23.50	inch
H	21.25	inch
HH	30.00	inch
J	1.13	inch
R	12.25	inch
S	2.06	inch
SL	11.94	inch
TPL	492.00	inch
V	1.00	inch
W	23.50	inch
X	20.50	inch
XC	5.50	inch
Y	1.00	inch
Z	16.25	inch
Max Dia	9.50	inch
Discharge	(150 #) 8	inch

Weights

Total bowl	603	lb
Total column	825	lb
Discharge head	573	lb
Driver	1110	lb
Approx weight	3111	lb

PUMP DATA

No. of Units	1.00
Model:	DWT-FFTM 10DHHC
Stages:	8
Col Size:	8" [203mm]
Shaft:	1.1875 in dia
Flow:	1000.00 USGPM
Head:	261.00 ft
Driver Mfr:	US Motors
Driver Type:	VHS
Rating:	100 Hp [75 kW]
Speed:	1800 RPM
Phase:	3
Frequency:	60 Hz
Voltage:	460PWS

No.	NOTES
1	Total Pump Length ± 1.0 inch.
2	Tolerance on all dimensions is .12 or $\pm .12$ inch per 5 ft, whichever is greater.
3	All dimensions shown are in inches unless otherwise specified.
4	Drawing not to scale.
5	1/2" NPT - Gauge Conn (plugged)
6	Driver may be rotated at 90° intervals about vertical centerline for details refer to driver dimension drawing.
7	Refer to product IOM for impeller setting requirements.
8	This assembly has been designed so that its natural frequency responses avoid the specific operating speeds by an adequate safety margin. The design has assumed the foundation to be rigid.

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

Certified by	
Date of certification	
Pump serial number	
Project Name	Sun Valley Well 13
Tag	

BILL OF MATERIAL

ITEM	Part Name	CODE	MATERIAL	ASTM#
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Discharge Head Assembly

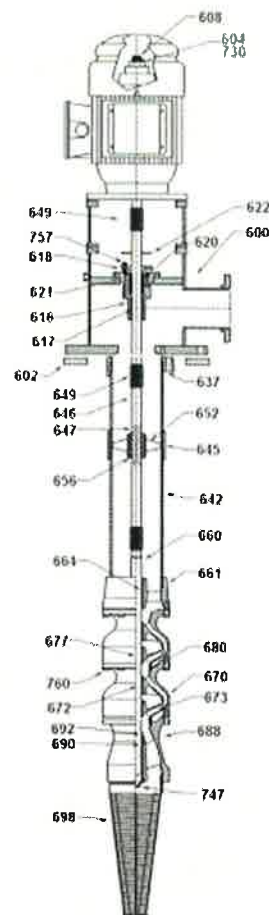
600	Head – Discharge	9645	Carbon Steel Fab	A53
602	Head – Base Plate	3201	Carbon Steel	A36M-00a
604	Nut – Adjusting	2242	Carbon Steel 1018	A108-99
608	Headshaft	2227	416SS	A582M-95b
616	Housing	1003	Cast Iron CL30	A48-94-ae1
617	Bearing-Housing	1109	Bronze C90300 "G" Modified	B584-00
618	Gland-Split	1203	316SS	A744M-00
620	Packing	5026	Acrylic yarn and graphite	ML402-99
621	O-Ring	5302	Nitrile Buna N	D4322-96
622	Slinger	5121	Rubber EPDM	D3568-98
648	Head Sleeve	6711	416SS Hard Faced	A582M-95b
730	Key-Motor Gib	2242	Carbon Steel 1018	A108-99
757	Screw-Gland Adj	2229	SST 316	A276-00a

Column and Lineshaft Assembly

637	Hanger Flange	1003	Cast Iron CL30	A48-94ae1
642	Column Pipe	9645	Carbon Steel	A53
645	Column-Coupling	9645	Carbon Steel	A53
646	Lineshaft	2227	416SS	A582M-95b
649	Lineshaft Coupling	2265	416SS	A582M-95b
652	Retainer-Bearing	1205	304SS	A744M-00
656	Lineshaft Bearing	5121	Rubber EPDM	D3568-98

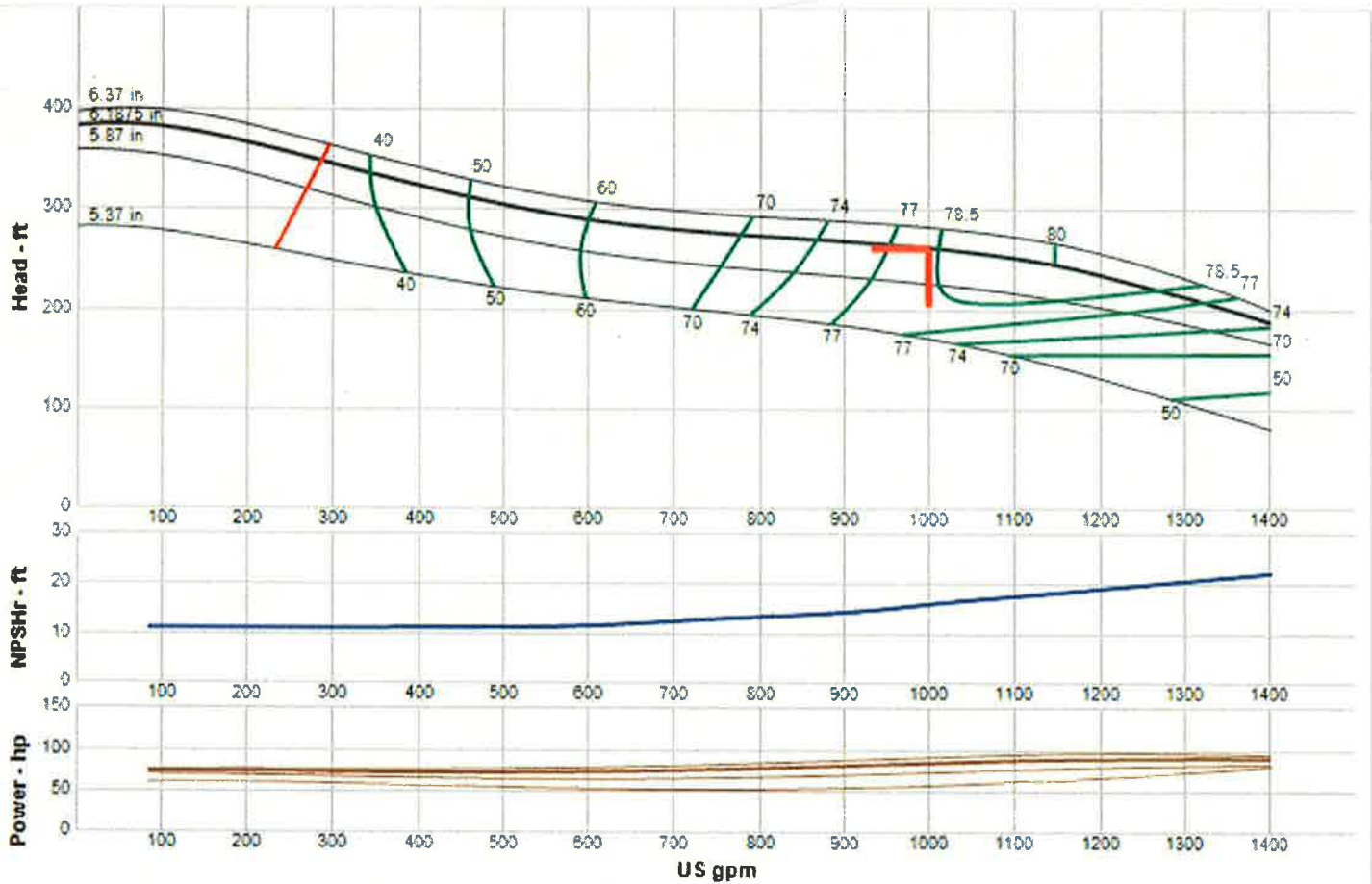
Bowl Assembly

660	Bowl-Shaft	2227	416SS	A582M-95b
664	Bearing – Disc Bowl	1109	Bronze C90300 "G" Modified	B584-00
670	Bowl-Inter	6911	Cast Iron CL30 Enamel	A48-94e1
672	Bearing-Int Bowl	1109	Bronze C90300 "G" Modified	B584-00
673	Impeller	1398	Silicon Bronze C87610	B584-00
677	Collet-Impeller	2242	Carbon steel	A108-99
674	Key-Impeller	N/A	None	N/A
680	Wear Ring-Bowl	1128	Bronze, AL C95400	B148-97e1
681	Wear Ring-Impeller	N/A	Not Included	N/A
688	Bowl-Suction	690	Cast Iron CL30	1003
690	Bearing-Suction	1109	Bronze C90300 "G" Modified	B584-00
692	Sandcollar	1205	304SS	A744M-00
698	Cone Strainer	6952	Galvanized Steel	A123
747	Plug-Pipe	1046	Malleable Iron	A197
760	Capscrew-Hex	2229	316SS	A276-00a



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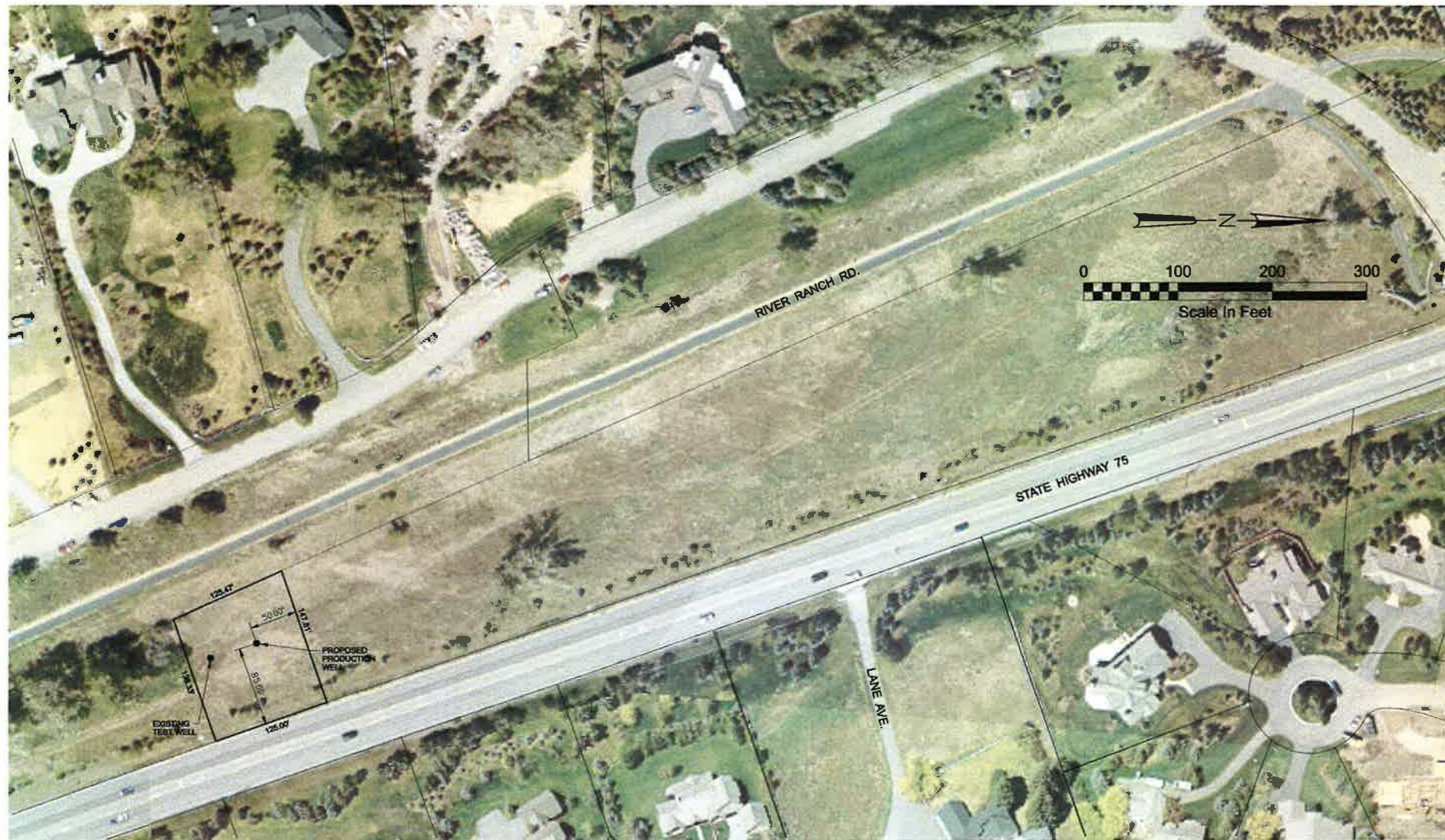
Certified by	
Date of certification	
Pump serial number	
Project Name	Sun Valley Well 13
Tag	



Driver Size Criteria:	Max power on design curve (NOL)	Best Efficiency:	80.00 %
Speed:	1770	Flow at BEP:	1145.00 USGPM
Impeller Trim:	6.1875 inch	Min Flow:	286.00 USGPM
Frequency:	60 Hz	Derate Factor:	0.0000
Additional Impeller Trim:	6.188 inch	NPSH Required:	15.90 ft
Impeller Maximum Trim:	6.3700 inch	NPSH Actual:	47.80 ft
Specified Flow:	1000.00 USGPM	Shut-Off Head:	382.00 ft
Specified Head:	260.00 ft	Fluid Type:	Water
Head at Design:	261.00 ft	Temperature / Specific Gravity:	70°F / 1.00
Efficiency at Design:	78.30 %	Viscosity:	0.9695 cP
Power at Design:	84.30 Hp	Allowable Sphere Size:	0.47 inch
Flow on Design Trim at Max Power:	1321 USGPM	Thrust K Factor:	12.4000 lbs/ft
Max Power on Design Curve:	89.70 Hp	Additional Thrust K Factor:	12.4000 lbs/ft
Run-Out Flow:	0.00 USGPM	Max Lateral:	0.75 inch
Run-Out Head:	0 ft		

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Certified by	
Date of certification	
Pump serial number	
Project Name	Sun Valley Well 13
Tag	



DESGN J. WISKUL
 DR J. BROOK
 CHN K. BOGGS
 APVD J. WISKUL

NO DATE
 NO DATE

DESCRIPTION
 REVISION

APVR N
 BY APVD

VERIFY SCALE
 BAR IS ONE INCH ON
 ORIGINAL DRAWING
 IF NOT ONE INCH ON
 THIS SHEET, ADJUST
 SCALES ACCORDINGLY

CH2MHILL

SUN VALLEY WATER AND
 SEWER DISTRICT PUMP STATION
 FOR WELL NO. 13

WELL NO. 13 SITE PLAN

FILENAME:

PLOT DATE:

SHEET 2 OF 2
 DWG
 DATE JULY 2008
 PROJ 154047

PLOT TIME:

REUSE OF DOCUMENTS: CH2M HILL
 AND THE INFORMATION HEREIN IS AN INSTRUMENT OF PROFESSIONAL SERVICE.
 IT IS NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CH2M HILL.

DEC-15-2006 01:54P FROM:

2087360795

TO: 12083455315

P.1



SINCE 1947

WALKER WATER SYSTEMS, INC.

624 Pierce Street • Twin Falls, Idaho 83301
(208) 733-4744 • (208) 726-5145 • Fax 736-0795

DATE: 12/15/06

FAX MESSAGE

FROM: Cyndie Koppa, Walker Water Systems, Twin Falls, Idaho

TO: John Wiskus

Number of Pages, Including Cover Page: 3

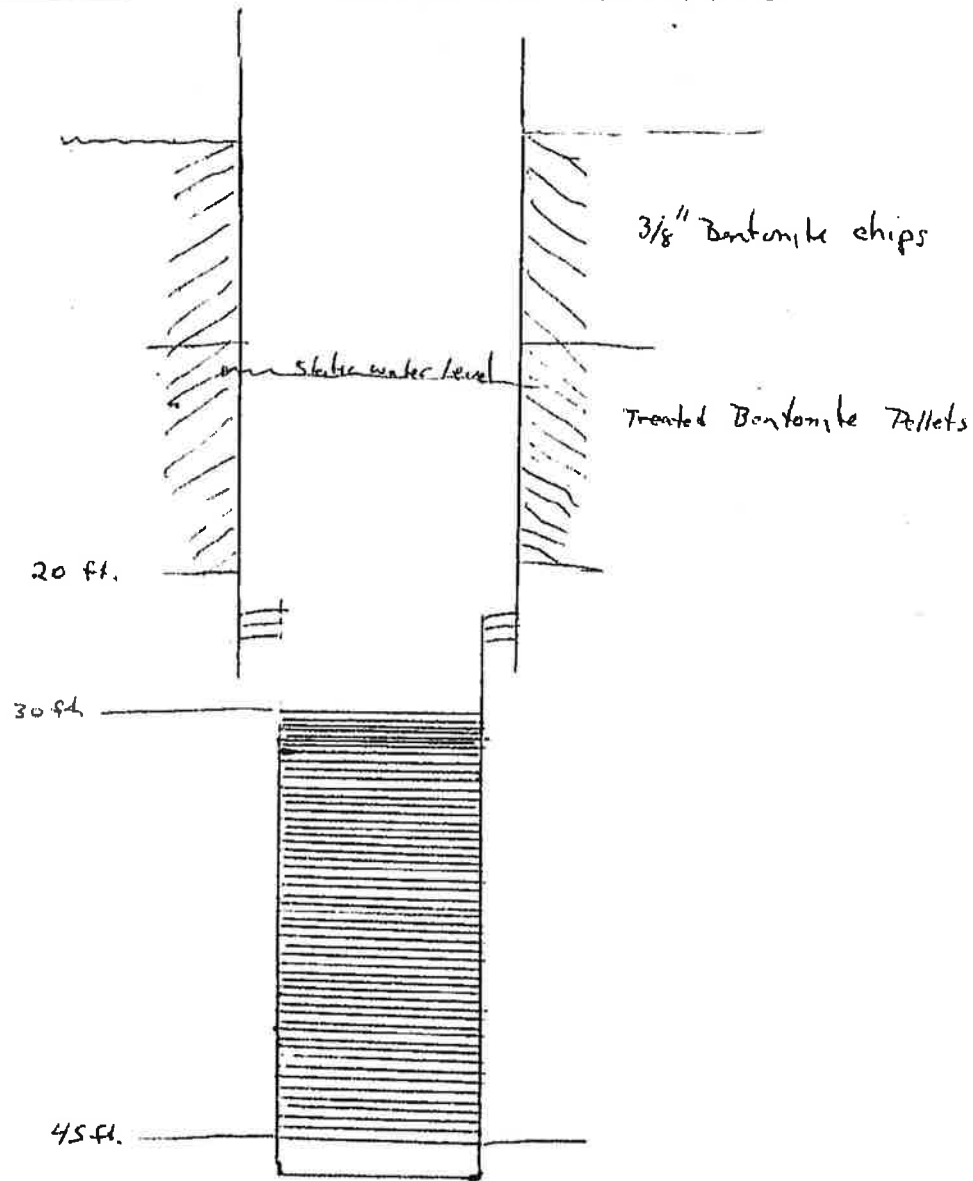
Comments: 345-5315

Thank You



SINCE 1947
WALKER WATER SYSTEMS, INC.

624 Pierce Street • Twin Falls, Idaho 83301
208-733-4744 • 208-726-5145



(Sign once if Firm Official & Operator)

ORDINANCE NO. 421

WATER CONSERVATION REGULATIONS

AN ORDINANCE OF THE CITY OF SUN VALLEY, BLAINE COUNTY, IDAHO, AMENDING THE SUN VALLEY DEVELOPMENT CODE BY REVISING TITLE 9, CHAPTER 3, ARTICLE A, SECTION 3 (CODE SECTION 9-3A-3), EVALUATION STANDARDS, BY REQUIRING SITE AREA IRRIGATION LIMITATIONS FOR NEW DEVELOPMENT ON A LOT OR PARCEL SERVED BY THE SUN VALLEY WATER AND SEWER DISTRICT AND WITHIN THE RESIDENTIAL ZONING DISTRICTS OF THE CITY OF SUN VALLEY; BY PROVIDING FOR A SEVERABILITY CLAUSE; BY PROVIDING FOR A REPEALER CLAUSE; AND BY PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Sun Valley has adopted the 2005 Comprehensive Plan Update (*Comprehensive Plan*) by Resolution 2005-12, on September 8, 2005, and subsequent amendments; and

WHEREAS, the *Comprehensive Plan* serves as a guiding document and contains the goals, objectives, guidelines and policies for the immediate and long range protection of the City's natural and scenic resources, the environment, open spaces, aesthetic quality, privacy, and quality of life. The *Comprehensive Plan* more specifically includes identified Action Items that broadly seek to promote partnership with the Sun Valley Water and Sewer District and promote water conservation goals; and

WHEREAS, the domestic water and irrigation needs of the City of Sun Valley are met primarily by the Sun Valley Water and Sewer District which is not an agency or department of the City. The City and the District share largely the same jurisdictional area but more importantly maintain close ties with similar goals and purposes; and

WHEREAS, the *Comprehensive Plan* states that forecast models of the Sun Valley Sewer and Water District indicate that adequate domestic water is available for additional growth in the City of Sun Valley but may require a concerted water conservation program for irrigation of existing and/or new landscaping with domestic water supplies. At the time of writing and adoption of the *Comprehensive Plan* in 2005, the District was updating water availability studies to help guide District investments and to systematically prepare for future growth. The District's Master Plan has now been completed and accepted by the Idaho Department of Environmental Quality; and

WHEREAS, the *Comprehensive Plan* states in Action Item 1.3.2 that the City will "Develop water conservation measures for landscaping and recreational purposes, including golf course development and operations, that reduce the quantity of water used through irrigation and evaporation technologies and, where appropriate, develop incentives to use gray and/or untreated water."; and

WHEREAS, the *Comprehensive Plan* states in Action Item 4.2.8 that the City will "Conduct a specific study, in partnership with the Sun Valley Sewer & Water District, to evaluate measures to conserve water resources for existing and new developments including, but not limited to, metering, low-water landscape consumption, low-use watering technologies, gray water use, and a public education program."; and

WHEREAS, the *Comprehensive Plan* states in Action Item 5.2.1 that the City will "Work with Sun Valley Water & Sewer District to ensure that sufficient wastewater treatment capacity, a sufficient, high quality domestic water supply, and necessary levels of firefighting water supply are available for existing and future use."; and

WHEREAS, the *Comprehensive Plan* states in Action Item 8.2.4 that the City will "Cooperate with the Sun Valley Water & Sewer District Board to 1) ensure that adequate supplies of high-quality domestic water and waste treatment capacities are sufficient for current and future build-out of the densities zoned for the City, the proposed Areas of City Impact, and the region and 2) initiate supplemental studies, as necessary, on water quality surveys, sewer upgrades, and water conservation."; and

WHEREAS, the waters of the State of Idaho are of limited supply and subject to ever increasing demands; and

WHEREAS, the continuation of Sun Valley's economic prosperity and safety is dependent on adequate supplies of water being available for future development use and fire protection purposes; and

WHEREAS, the use of all waters within the State of Idaho are under increased scrutiny with threats of curtailment; and

WHEREAS, the *Comprehensive Plan* states that the Sun Valley Water and Sewer District has informally asked the City to consider water conservation methods in planning activities to better manage water resources. In the years ensuing the adoption of the *Comprehensive Plan*, the District has been discussing and formulating policy and action on potential water conservation programs that could be implemented by the District directly or with assistance from the City; and

WHEREAS, the Sun Valley Water and Sewer District and the City of Sun Valley were presented with the background research completed by Clemens Associates Inc working on behalf of the District to examine existing water use patterns and existing development. The existing water use analysis and lot by lot subdivision data for single and multi family development within the City of Sun Valley and the District formed the justification for the site area irrigation limitation and was developed through three publicly noticed workshops by the District Board on March 9, March 26 and April 21, 2009; and

WHEREAS, in May, 2009 the Sun Valley Water and Sewer District formally requested that the City of Sun Valley go forward with an amendment to the Development Code to limit site area irrigation for new development on lots and parcels served by the District and within a residential zoning district of the City; and

WHEREAS, Development Code Section 9-3A establishes Design Review Regulations to ensure that development is designed and built in a manner that is context sensitive, complimentary to adjacent property, protects the natural landscape, is of high design quality, and is compatible with the character and scale of the neighborhood. Code Section 9-3A-3, Evaluation Standards, establishes criteria which shall be used in evaluating proposed developments seeking design review approval, including design and siting, grading, architectural quality, pedestrian and vehicle circulation design, landscape quality, etc.; and

WHEREAS, the Planning and Zoning Commission of the City of Sun Valley met the provisions of the City of Sun Valley Development Code and Idaho Code 67-6509 with a properly noticed public hearing for the purpose of reviewing the proposed amendments to Development Code Section 9-3A-3 for site area irrigation limitations for new development on a lot or parcel served by the Sun Valley Water and Sewer District and within the residential zoning districts of the City of Sun Valley at their June 11, June 25 and August 13, 2009 regular meetings and passed a motion recommending approval of draft Ordinance 421 to the City Council; and

WHEREAS, the City Council of the City of Sun Valley held a properly noticed public hearing in accordance with Idaho and City Codes on November 12 and December 17, 2009 and January 21, 2010 to consider the Planning and Zoning Commission's recommendation on Ordinance No. 421, take public and applicant testimony, and consider the findings for taking action on the Development Code Amendment.

NOW, THEREFORE; THE MAYOR AND THE CITY COUNCIL OF THE CITY OF SUN VALLEY, IDAHO, DO ORDAIN AS FOLLOWS:

SECTION 1. FINDINGS- Based on the statements above the City Council for the City of Sun Valley adopts the following findings regarding amendments to the Development Code:

1. The text amendment complies with all applicable provisions of the *Comprehensive Plan* by implementing the stated goals and specific action items regarding water conservation.
2. The text amendment is not materially detrimental to the public health, safety and welfare because water conservation would act to benefit water availability for future development needs and fire protection activities.
3. The text amendment does not result in an adverse impact on the delivery of services by any political subdivision providing public services within the City including, but not limited to, school districts. The text amendment will assist the Sun Valley Water and Sewer District to provide adequate water supplies to the properties it serves within the City of Sun Valley.

SECTION 2. DEVELOPMENT CODE AMENDMENT- The City of Sun Valley adds the following amendment to the text of Municipal Code Section 9-3A-3 by inserting it as new Subsection F and re-lettering the ensuing existing Subsections F, G, H and I to read G, H, I and J, for the reasons and purposes contained above:

9-3A-3F IRRIGATION LIMITS

- A. *In order to fairly distribute available domestic irrigation water to all residential lots and parcels served by the Sun Valley Water & Sewer District, the total area of any lot or parcel irrigated with Sun Valley Water and Sewer District water shall not exceed the following:*
 1. *For RA & RS-1 Single-family lots, the total area of all irrigated portions of the lot or parcel shall not exceed 22,000 square feet (approximately ½ acre).*

2. *For RS-2 Cluster Single Family Development parcels, and for RM-1 and RM-2 Multiple Family Development parcels, the total area of all irrigated portions of the development parcel shall not exceed 50% of the total development parcel size or ½ acre of irrigated area per acre of development parcel.*
3. *Temporary irrigation for re-vegetation of areas that were disturbed during construction and that when included exceed the maximum allowable irrigated area set forth herein, may be allowed up to two (2) growing seasons after landscape completion to irrigate and revegetate the disturbed areas.*
4. *When trees are approved in "natural grass areas" where there is little or no irrigation planned or installed, a sub-surface drip system that does not irrigate beyond the "drip line" of the tree or trees may be installed to water just the trees and as such, will not count as part of the irrigation limits set forth above.*

SECTION 3. SAVINGS AND SEVERABILITY- If any section, subsection, paragraph, subparagraph, item, provision, regulation, sentence, clause, or phrase is declared by a Court of competent jurisdiction to be invalid, such actions shall not affect the validity of this ordinance as a whole or any part thereof other than the part declared invalid.

SECTION 4. REPEALER CLAUSE- All City of Sun Valley Ordinances or parts thereof which are in conflict herewith are hereby repealed.

SECTION 5. EFFECTIVE DATE- This Ordinance shall be in full force and effect from and after its approval, passage, and publication as provided by law.

PASSED BY THE CITY COUNCIL OF THE CITY OF SUN VALLEY, IDAHO, AND APPROVED BY THE MAYOR OF THE CITY OF SUN VALLEY on this 21st day of January, 2010.

EFFECTIVE DATE OF PUBLICATION: February 3, 2010.

APPROVED:


Wayne Willich, Mayor
City of Sun Valley

ATTEST:


Kelly Ek, City Clerk
City of Sun Valley







Well 13 Motor



Meter and meter readout



Example of stubbed in service main



Example of stubbed in service line



Example of stubbed in service line



Example of stubbed in service main