

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATION

Permit No: 95-9531
Exam Date: 08/26/2021

1. Current Owner:
GREENFERRY WATER & SEWER DIST PO BOX 1105 POST FALLS ID 83877-1105
2. Accompanied by: Ian Kuchenski
Phone No: 208-659-4197 or 208-659-8173
Address: Same as above
Relationship to permit Holder: Water System Operator – Integrity Water Management

3. **SOURCE:**
GROUND WATER

Method of Determination: Arcmap and DRG.

B. OVERLAP REVIEW

1. Other water rights with the same place of use: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
95-8613	GROUNDWATER	MUNICIPAL	DECREED
95-9082	GROUNDWATER	MUNICIPAL	DECREED

Comments: Decreed Rights 95-8613 & 95-9082 use groundwater for municipal use servicing Greenferry Water & Sewer District and have the same POU as this Permit for the same applicant. Condition X35 was added to mitigate overlap concern pertaining to combined use diversion rates & diversion volumes between rights.

2. Other water rights with the same point-of-diversion: YES Overlap

Water Right No.	Source	Purpose of Use	Basis
95-8613	GROUNDWATER	MUNICIPAL	DECREED
95-9082	GROUNDWATER	MUNICIPAL	DECREED

Comments: Decreed Rights 95-8613 & 95-9082 share the same two groundwater well PODs as this Permit. Condition F06 was added to Permit to describe the same POD(s) shared by the three water rights.

C. DIVERSION AND DELIVERY SYSTEM

1. **LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER L6 (SE¼ NW¼), Sec. 12, Twp 50N, Rge 05W, B.M. KOOTENAI County
GROUND WATER L6 (SE¼ NW¼), Sec. 12, Twp 50N, Rge 05W, B.M. KOOTENAI County

Method of Determination: GPS; 2ea groundwater wells are located at -116°54.613, 47°41.742 (Well #2, D0017929) & -116°54.624, 47°41.735 (Well #1, 95-89-N-52)

Method of Determination: Large area POU designated; determined by field exam, existing municipal right 95-9082 POU shape, and Arcmap aerial imagery.

- 3.
- ☒ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☒ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System Attached

4.

Well or Diversion ID No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
WELL #1 95-89-N-52	UNKOWN	75			
WELL #2 D0017929	UNKOWN	65			

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
FLOWMETER(S)						

2. Measurements: Each well's diverting works have a flowmeter installed, which provides by minute instantaneous flow rate capture to an automated monitoring system. During the exam, flow measurements were taken as each well operated separate from one another; well 95-89-N-52 had a flow rate = 485 GPM and well D0017929 had a flow rate = 545 GPM.

E. FLOW CALCULATIONS☒ Additional Computation Sheets Attached

Measured Method: Flowmeter(s) on each well

- F.E. 8/26/2021 – well #1 95-89-N-52 = 485 GPM.
- F.E. 8/26/2021 – well #2 D0017929 = 545 GPM.
- Flowmeter monitoring system Data provided by water operator for 6/30/2021 @ 21:05 dual pump operation =
 - well #1 95-89-N-52 = 451.2 GPM.
 - well #2 D0017929 = 493.8 GPM.
 - Combined instantaneous flow rate = 451.2 GPM + 493.8 GPM = 945.0 GPM = 2.10 CFS considering department rounding standards.

F. VOLUME CALCULATIONS

- Volume Calculations for irrigation: N/A
- Volume Calculations for Other Uses: Municipal annual volume & maximum diversion volume =
 - 2018 report year data = 82,465,000 GAL / 325,850 GAL per AF = 253.1 AF
 - 16ea stub-in lots in service area = 16 x 1.2 af = 19.2 AF
 - Annual total volume (maximum diversion volume) = 253.1 AF + 19.2 AF = **272.3 AF**

G. NARRATIVE/REMARKS/COMMENTS

Field exam performed on 8/26/2021 with the applicant's water operator representative, Ian Kuchenski – Integrity Water Management, verified 2ea groundwater wells diverting water for municipal uses by Greenferry Water & Sewer District (Applicant). At the PODs, well #1 95-89-N-52 has a 75 HP pump installed & well #2 D0017929 has a 65 HP pump installed. Flowmeters are installed in the main water line from each well, and at time of field exam well #1 flow rate equaled 485 GPM & well #2 flow rate equaled 545 GPM. These flow measurements were captured with each well operating separate from the other. This Permit was applied for by the Applicant to increase diversion rate to reflect dual well pump operation diversion rate, which was not able to be captured at time of exam due to damaged circuit breakers restricting dual pump ops.

When the water system was developed to operate both well pumps simultaneously, there was a short period of time where both wells were functioning in dual pump operation on 6/30/2021. Mr. Kuchenski provided SCADA Excel Doc data sets and graphs as proof for the dual pump operation that occurred on 6/30. The SCADA system captures instantaneous flow each minute using software that reports data collection. The data capture on 6/30 was within the development period of the Permit and is recommended for use in licensing. On 6/30 @ 21:05, both pumps operating resulted in a combined flow rate equal to 451.2 GPM (well #1 + 493.8 GPM (well #2) = 945.0 GPM = 2.10 CFS considering department rounding standards. This Permit authorized development with maximum diversion rate = **0.80 CFS**, which is recommended for licensing purposes. The over diversion value of 1.3 CFS is covered by the Applicant's existing water rights 95-8613 & 95-9082 which are limited to a total combined diversion rate of 1.25 CFS. The 0.05 CFS difference is not being considered a concern for over diversion, considering the variance in dual pump operation and that in a 3hr period of dual pump operation 20:30-23:30 on 6/30 most minutely captured flow rates were lower than 945 GPM.

During the exam, the pump house and SCADA system were observed, and the Applicant's storage reservoirs discussed. The municipal water system incorporates 4ea Reservoirs. The SCADA screen provides images showing the Snowshoe reservoir (consists of a 100k tank & 120k tank), the Highland reservoir (150K tank), and the Bella Ridge reservoir (200k tank). The municipal POU was entered into ADHOC as a large area POU, and during the exam the POU was validated by the water operator as being current. In addition to the active service connections, there are 16 lots not developed to date, which have dedicated stub-ins. The annual volume was derived using volume reports provided by Mr. Kuchenski years 2017-2020. Year 2018 had the highest recorded volume and shall be used to determine the maximum diversion volume =

- 2018 report year data = 82,465,000 GAL / 325,850 GAL per AF = 253.1 AF
- 16ea stub-in lots in service area = 16 x 1.2 af = 19.2 AF
- Annual total volume (maximum diversion volume) = 253.1 AF + 19.2 AF = **272.3 AF**, which is recommended for licensing purposes.

Conditions 046 and 26A were removed from the permit during licensing review. Conditions F06 and X35 were added as described below. All other condition on the permit shall be carried to the license. Overlap concerns: decreed Rights 95-8613 & 95-9082 use groundwater for municipal use servicing Greenferry Water & Sewer District and have the same POU as this Permit for the same applicant. Condition X35 was added to mitigate overlap concern pertaining to combined use diversion rates and diversion volume. Due to WRs 95-8613 & 95-9082 having an overlap condition limiting combined diversion rate to 1.25 cfs, but both WRs not having a maximum diversion volume on the face of both rights, identifying an overlap combined use volume for three each WRs was derived using the 1.25 cfs diversion rate x 24/7 365 day pumping volume = 905.0 af. As a result, condition X35 was added stating combined diversion rate between 95-8613, 95-9082, & 95-9531 shall not exceed 2.05 cfs, nor the annual volume of 905.0 af at the field headgate. Decreed Rights 95-8613 & 95-9082 share the same two groundwater well PODs as this Permit. Condition F06 was added to Permit to describe the same POD(s) shared by the three water rights. There are several surface source rights that overlap this permit, but are not a concern for this municipal service provider water right. There are no addition concerns for overlap.

Have conditions of permit approval been met? ☒ Yes ☐ No

H. RECOMMENDATIONS

1. Recommended Amounts

<u>Beneficial Use</u>	<u>Period of Use</u>	<u>Rate of Diversion</u>	<u>Annual Volume</u>
MUNICIPAL	01/01 to 12/31	0.80 CFS	272.3 AF

Totals: 0.80 CFS 272.3 AF

2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☒ None

I. AUTHENTICATION Luke Bates - Water Resource Agent

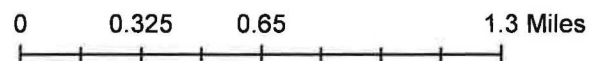
Field Examiner's Name  Date 10/27/2021

Reviewer  Date 10/29/2021

95-9531

This figure is an aerial map of a watershed, divided into 23 numbered sub-watersheds. The map is oriented with North at the top. The sub-watersheds are labeled with numbers 1 through 23. The map is surrounded by a grid with coordinates: 05W, 04W, 50N, and 50S. The map includes several inset photos: a photo of a green building and a large green tank (top center), a photo of a green building (top right), a photo of a computer monitor displaying a water control panel (bottom left), and a photo of a large blue pump and piping (bottom right). The map also includes various labels for sub-watersheds, such as NESE, NESW, SWNE, SENE, NWSE, NESW, SESW, SWSE, SESE, NENW, NWNE, NENE, SENW, SWNE, SENE, NWSW, NESW, NWSE, NESE, SWSW, SESW, and SWSW. The map is titled 'Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community'.

-  Point of Diversion
-  Water Service Area Boundary
-  Townships
-  PLS Sections
-  Quarter Quarters



Bates, Luke

From: Ian Kuchenski <ian@integritywater.net>
Sent: Thursday, September 16, 2021 4:43 PM
To: Bates, Luke
Subject: Greenferry Water & Sewer District Permit 95-9531

Hi Luke,

Here is the info you requested from our field exam at Greenferry last month.

Annual volume production:

2017 77,428,000

2018- 82,465,000

2019- 77,396,000

2020- 73,307,000

2021 1/1/21 thru 9/3/21 - 72,318,000

Stub-in connections awaiting devolvement:

16

GPM flow rate from the 8/26/21 field exam:

Well 2- 545GPM

Well 1-485GPM

Max flow during the 8hr period where both wells ran simultaneously:

Well 2 flow during the event- 470GPM

Well 1 flow during the event- 450GPM

Both wells were slightly throttled down at the time.

Let me know if you have any questions.

Ian Kuchenski
Integrity Water Management
Phone: (208) 659-8173

Bates, Luke

From: Bates, Luke
Sent: Friday, August 27, 2021 10:30 AM
To: 'Ian Kuchenski'
Cc: 'Bob Kuchenski'
Subject: IDWR - Greenferry Water & Sewer District Permit 95-9531

Good morning Ian,

Following our field exam yesterday, listed below are the documentation I need to finalize the permit for licensing purposes:

1. Annual volume reports for at least the 2015-2020 years.
2. Development breakdown i.e. how many homes service connected, and how many parcels with dedicated STUB-IN water connections awaiting development in the Place of Use service area.
3. Instantaneous flow rate from each well – gallons per minute derived from our field exam on 8/26/21.
4. Documents showing instantaneous flow for that 8 hr period in time when both wells were running simultaneously (before the fuse failed). This will enable me to define the maximum diversion rate for both wells operating together.
5. Water Conservation Plan – I sent an example of this in a separate email.

Once I have all the above documentation, I can finalize the beneficial use report for this permit and license.

Thank you,



Luke Bates | Water Resource Agent
Idaho Department of Water Resources
Northern Regional Office
7600 N Mineral Drive, Suite 100
Coeur d'Alene, ID 83815-7763
Phone: (208) 762-2800

density predicted for the district in 2045 is 1920 residents per square mile. Data from the IWRRRI future demand report shows that in 2014 the city of Post Falls had a population density of 1960 residents per square mile. Post Falls reported unaccounted for water rate of 5.91 percent.

GREENFERRY WATER DISTRICT INFRASTRUCTURE

As previously mentioned, the district has two eight inch wells, each powered by a 75 HP and producing about 560 gpm. The well logs for both wells indicate the wells are capable of producing greater quantities of water. The report for well no. 1 indicated that it could produce 1100 gpm with a drawdown of less than three feet. Based on this report, it is likely that the district can increase its production water production capacity by simply increasing the horsepower of their pumps. It is also likely that to meet pumping requirements of 2045 at least one more well will be required. Copies of well drillers report for the existing wells can be found in Appendix B.

The district is continually making improvements to its system, i.e. replacement old distribution lines. Adding new service areas to the district will require additional upgrades to the district infrastructure. Upon approval of this application by IDWR the district will task its engineer to update the district's facility plan to provide information on the infrastructure necessary to provide water to the existing and future service areas. A review by the district's engineer is attached as Appendix C.

GREENFERRY WATER CONSERVATION PLAN

The district recognizes it has an obligation to make efficient of the water it pumps. To aid in that endeavor the district recently modified its' rate structure to assess a \$15 monthly fee be dedicated to a Capital Reserve Fund. The district board intends to also conduct a Revenue Bond election to leverage the Capital Reserve Fund to allow for the system-wide improvements.

Conservation action items the district will implement include the following to promote the efficient use of water:

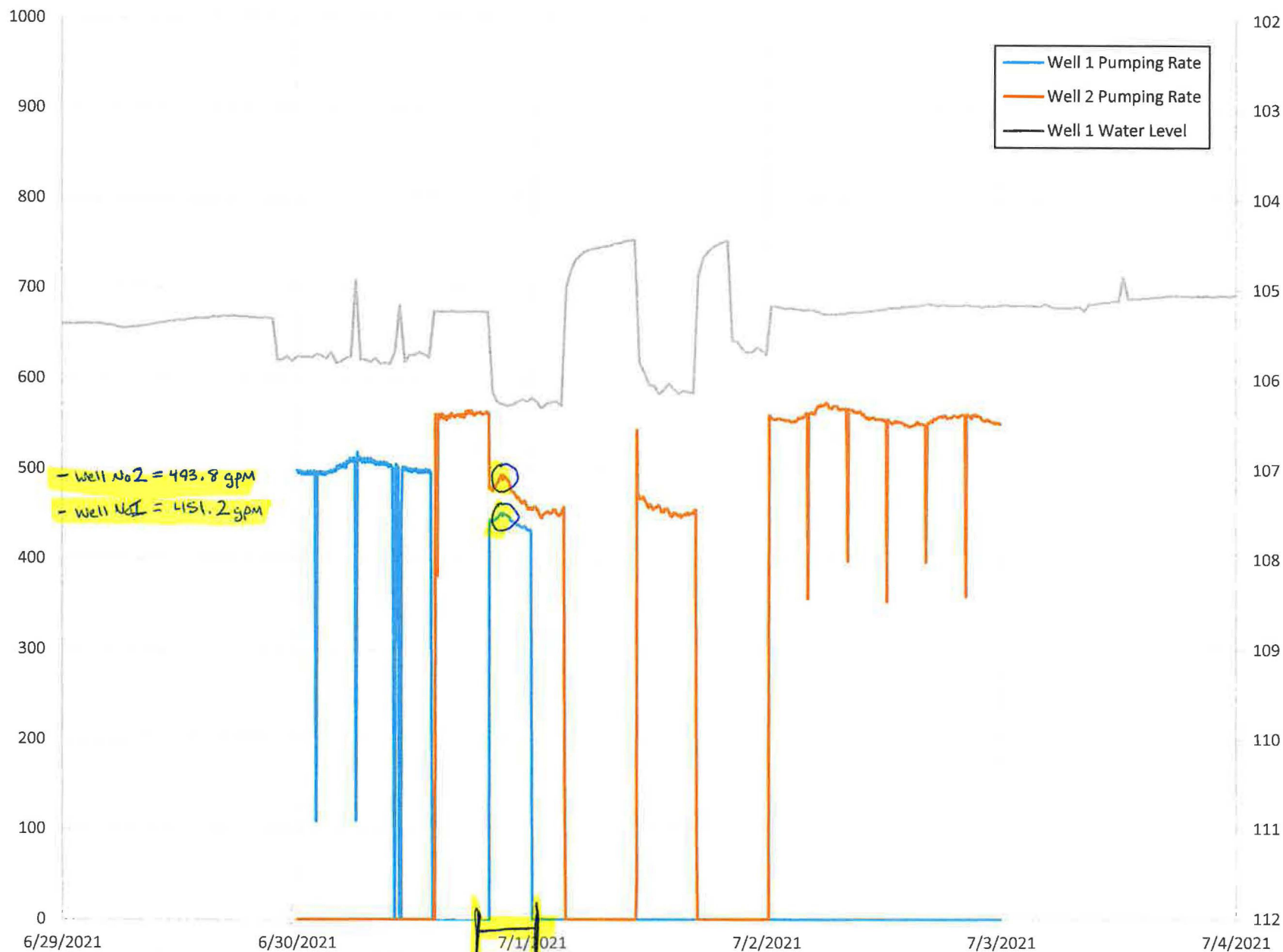
1. Install Variable Frequency Drive pumps. These units enable a "soft start" of the pumps which eliminates the need to waste water as part of the system start-up and shut-down to prevent water hammer.
2. Implement a Supervisory Control and Data Acquisition (SCADA) system. This will provide real time information on water system performance.
3. Promote alternate day watering of lawns and garden by users.
4. Promote watering of lawns and gardens between the hours of 6:00 PM and 10:00AM.
5. Provide water conservation information and tips as part of the billing statements.

This Application for Permit and Narrative were prepared for the Greenferry Water & Sewer District by Robert G Haynes, P.E.



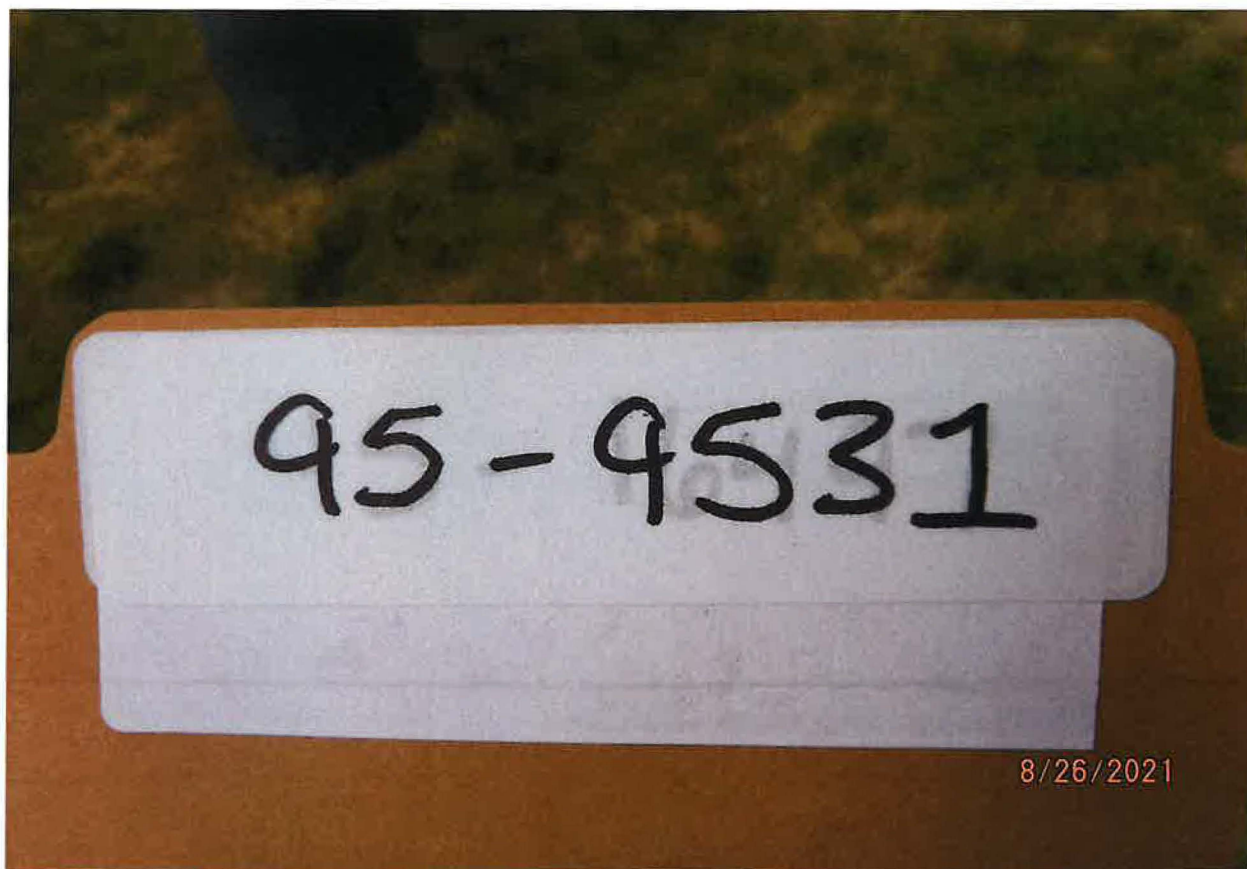
95-9531 Greenferry Water & Sewer District Well Data Report

WELL 1 DATA			WELL 2 DATA			WELL #1 & WELL #2 COMBINED USE
Date	Consumption	Flow Rate (gpm)	Date	Consumption	flow rate (gpm)	SIMULTANEOUS WELL OPERATION (GPM)
6/30/2021 20:30	2230.9959	446.1991851	6/30/2021 20:30	2422.8438	484.5687561	930.7679412
6/30/2021 20:35	2238.503	447.7006031	6/30/2021 20:35	2435.9117	487.1823356	934.8829387
6/30/2021 20:40	2246.0101	449.2020211	6/30/2021 20:40	2450.3698	490.0739554	939.2759765
6/30/2021 20:45	2249.3466	449.869318	6/30/2021 20:45	2454.5404	490.9080765	940.7773945
6/30/2021 20:50	2256.0196	451.2039117	6/30/2021 20:50	2467.8863	493.5772641	944.7811758
6/30/2021 20:55	2247.4003	449.4800614	6/30/2021 20:55	2451.76	490.3519958	939.8320572
6/30/2021 21:00	2241.5615	448.3122919	6/30/2021 21:00	2439.5262	487.9052405	936.2175324
6/30/2021 21:05	2256.0196	451.20391	6/30/2021 21:05	2468.9985	493.7997	945.0036081
6/30/2021 21:10	2252.127	450.4253987	6/30/2021 21:10	2460.6573	492.1314541	942.5568528
6/30/2021 21:15	2249.6246	449.924926	6/30/2021 21:15	2456.4867	491.297333	941.222259
6/30/2021 21:20	2248.2344	449.6468857	6/30/2021 21:20	2452.038	490.4076038	940.0544895
6/30/2021 21:25	2243.2297	448.6459403	6/30/2021 21:25	2443.9748	488.7949697	937.44091
6/30/2021 21:30	2244.0638	448.8127646	6/30/2021 21:30	2442.3066	488.4613213	937.2740859
6/30/2021 21:35	2240.1713	448.0342515	6/30/2021 21:35	2435.6336	487.1267275	935.160979
6/30/2021 21:40	2233.7763	446.7552658	6/30/2021 21:40	2425.6242	485.1248368	931.8801026
6/30/2021 21:45	2227.6594	445.5318882	6/30/2021 21:45	2412.2782	482.4556493	927.9875375
6/30/2021 21:50	2215.4257	443.0851329	6/30/2021 21:50	2388.3668	477.6733549	920.7584878
6/30/2021 21:55	2209.8649	441.9729715	6/30/2021 21:55	2378.3573	475.6714643	917.6444358
6/30/2021 22:00	2207.6405	441.5281069	6/30/2021 22:00	2372.7965	474.5593028	916.0874097
6/30/2021 22:05	2208.1966	441.639323	6/30/2021 22:05	2375.855	475.1709916	916.8103146
6/30/2021 22:10	2207.0845	441.4168907	6/30/2021 22:10	2371.9624	474.3924786	915.8093693
6/30/2021 22:15	2199.0213	439.8042566	6/30/2021 22:15	2358.3384	471.6676829	911.4719395
6/30/2021 22:20	2199.2993	439.8598647	6/30/2021 22:20	2358.6165	471.723291	911.5831557
6/30/2021 22:25	2192.0703	438.4140547	6/30/2021 22:25	2343.6023	468.720455	907.1345097
6/30/2021 22:30	2187.8997	437.5799336	6/30/2021 22:30	2335.8171	467.163429	904.7433626
6/30/2021 22:35	2194.0166	438.8033113	6/30/2021 22:35	2346.1046	469.2209277	908.024239
6/30/2021 22:40	2190.9581	438.1916224	6/30/2021 22:40	2338.8756	467.7751178	905.9667402
6/30/2021 22:45	2184.8412	436.9682448	6/30/2021 22:45	2326.6418	465.3283625	902.2966073
6/30/2021 22:50	2182.0608	436.4121641	6/30/2021 22:50	2324.9736	464.9947141	901.4068782
6/30/2021 22:55	2178.1683	435.633651	6/30/2021 22:55	2315.5202	463.1040396	898.7376906
6/30/2021 23:00	2175.6659	435.1331784	6/30/2021 23:00	2311.6276	462.3255265	897.4587049
6/30/2021 23:05	2178.1683	435.633651	6/30/2021 23:05	2316.6324	463.3264719	898.9601229
6/30/2021 23:10	2178.4463	435.6892591	6/30/2021 23:10	2318.0226	463.6045122	899.2937713
6/30/2021 23:15	2183.173	436.6345964	6/30/2021 23:15	2326.0857	465.2171464	901.8517428
6/30/2021 23:20	2179.5585	435.9116914	6/30/2021 23:20	2318.8567	463.7713364	899.6830278
6/30/2021 23:25	2171.2172	434.2434492	6/30/2021 23:25	2303.0084	460.6016762	894.8451254
6/30/2021 23:30	2167.0466	433.4093281	6/30/2021 23:30	2293.833	458.7666098	892.1759379



- Well No 2 = 493.8 gpm
- Well No 1 = 451.2 gpm

Reference Excel Doc Pg 1 of 2



FIELD EXAM DATE 8/26/2021



POD – WELL D0017929 (WELL #2) – 65 HP PUMP MOTOR INSTALLED ON PUMP



PUMP STATION, WELL #1 LOCATED INSIDE



POD – WELL 95-89-N-52, (WELL #1)



WELL #1 – 75 HP PUMP MOTOR INSTALLED



SYSTEM DIVERTING WORKS – COMMON SERVICE LINE TO SYSTEM FED BY 2 WELLS (R/H SIDE OF FRAME)



INFLOW MAIN FROM WELL #2, AND SMALLER OVERFLOW DISCHARGE PIPE



INFLOW MAIN FROM WELL #1 AND SMALLER OVERFLOW DISCHARGE PIPE

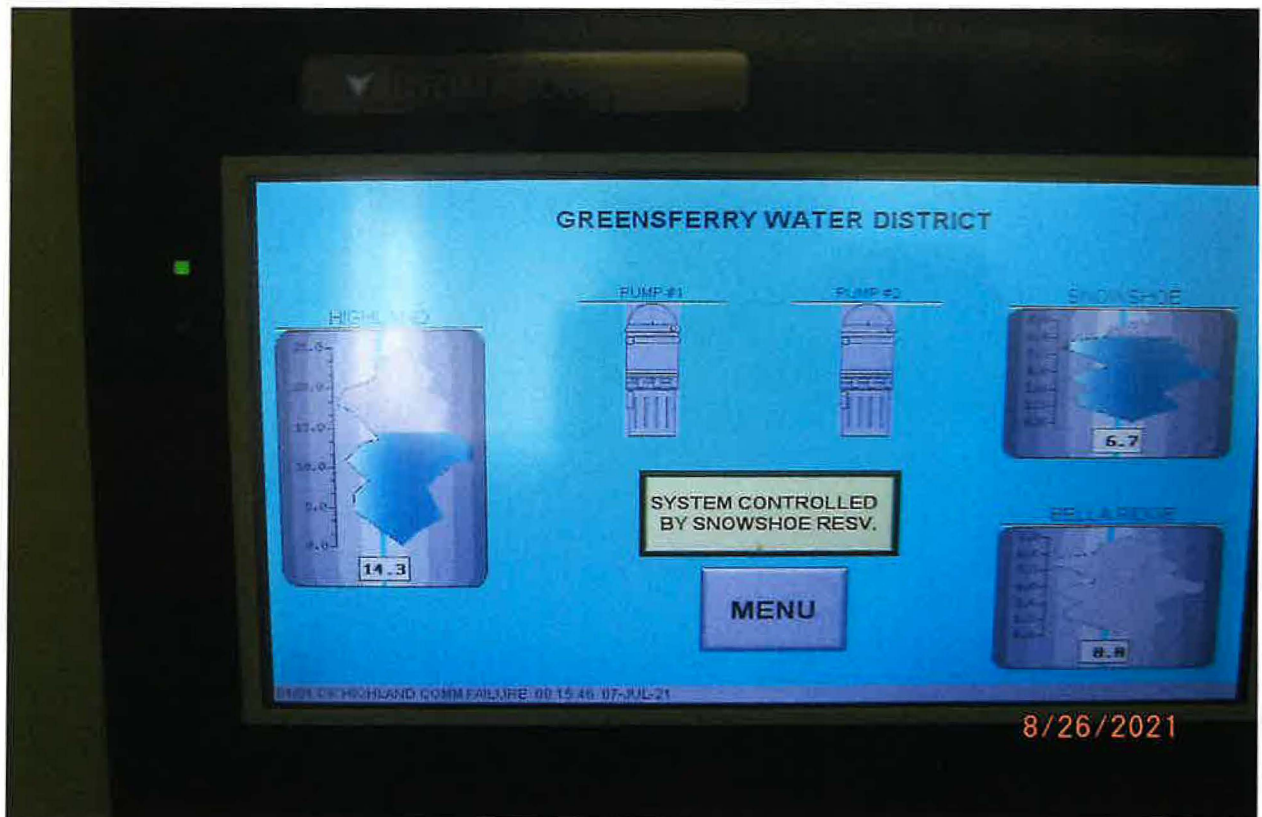


INSTANT REPORTING FLOWMETERS INSTALLED ON EACH MAIN INTAKE PIPE FROM WELL(S)





WATER SYSTEM CONTROL PANEL(S)



4EA STORAGE RESERVOIRS IN SYSTEM – 2 TANKS (100K & 120K GAL) REPRESENTED BY “SNOWSHOE” STORAGE, 1 TANK (150K GAL) HIGHLAND, 1 TANK (200K GAL) BELLA RIDGE.