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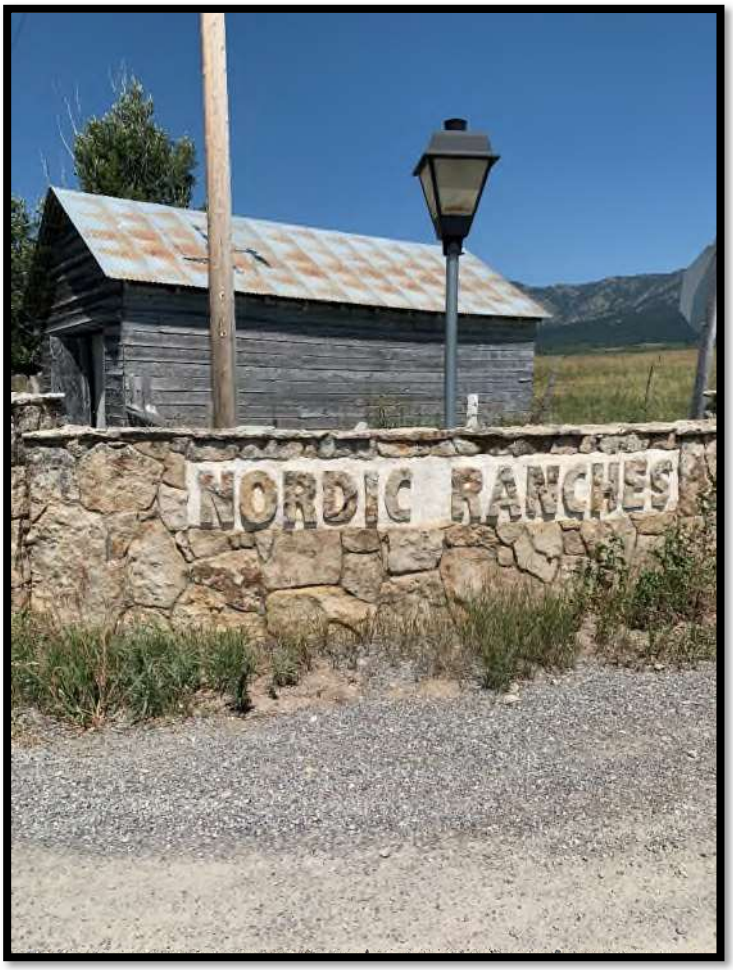
NORDIC RANCHES WATER MASTER PLAN, LEVEL I

August 2022



Prepared for:

Wyoming Water Development Commission
6920 Yellowtail Road
Cheyenne, WY 82002
Phone: 307.777.7626
Website: http://wwdc.state.wy.us/

And

Nordic Ranches Community Water and Sewer District
P.O. Box 5128
Etna, WY 83118

Authored by:

FORSGREN Associates Inc.
849 Front Street Suite 201,
Evanston, Wyoming 82930
Phone: 307.789.6735
Website: www.forsgren.com

In association with:

WESTON GROUNDWATER ENGINEERING
1050 North 3rd Street, Suite E
Laramie, Wyoming 82072
Phone: 307.745.6118
Website: www.westonengineering.com

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1.0 EXECUTIVE SUMMARY

Executive Summary is provided under separate cover.

2.0 INTRODUCTION

2.1 Project History and Overview

The Nordic Ranches Community Water and Sewer District (NRCWSD) was formed in 2020 for the purpose of some legal authority and to acquire this study through the Wyoming Water Development Commission (WWDC). The intention of NRCWSD was to gather information about the water system that currently operates in the community. Nordic Ranches Water LLC (NRW), is the owner and operator of the private water system that is the subject of this study. NRW began the development of the water system in the 1980's and has updated/extended its system as growth and development occurred. It was decided, in early 2021, with the NRCWSD and WWDC that a level I study of the system would provide the NRCWSD and NRW with a current understanding of the water system and a guide for the future.

In general, the overall status of the water system is in a relatively good condition. This is primarily due to the age of the infrastructure (5-40 years) and the regulations associated with the construction time frame such as those from the Wyoming Department of Environmental Quality. The water system is governed/regulated as well by the Wyoming Public Service Commission as it is a private utility company. As with many municipalities and water systems in Wyoming, limited resources have put a constraint on the development or action of a replacement plan for water systems. Recently the NRW raised its user rates to accommodate the increased costs of operation as well as to begin building a reserve for system upgrades, repair and replacement. This master plan can help by providing a guide for the NRCWSD and NRW in maintaining and updating the water infrastructure for current conditions and for the future.

The system serves approximately 173 service tap connections serving a present population of approximately 628.

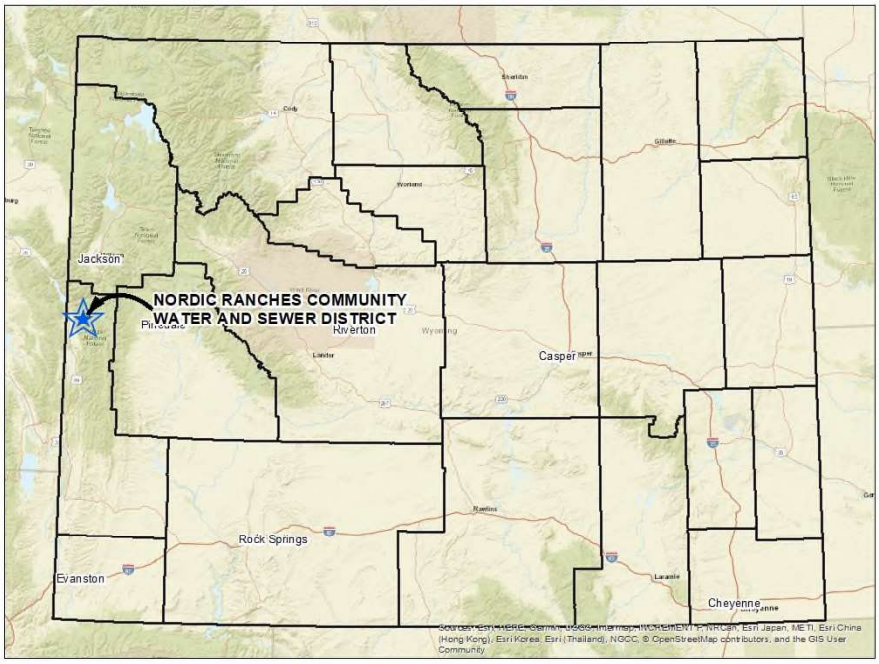

Figure 2.1 – Vicinity Map of Nordic Ranches

2.2 Study Area

The NRCWSD is located in northwestern Wyoming in Lincoln County. The District is approximately 11 miles North of Thayne, WY and 6 miles South of Alpine, WY along the East side of Wyoming Highway 89.

2.3 Project Sponsor

The Nordic Ranches Water Master Plan Level I Study is provided under separate contract with the Wyoming Water Development Commission. The water system that is evaluated under this study is owned and operated by the Nordic Ranches Water, LLC. The sponsor of this study is the Nordic Ranches Community Water and Sewer District. All parties have agreed to this study and have cooperated in the development of this study.

2.4 Master Plan Study Objectives

This Master Plan's objectives included first analyzing current and forecasted water system supply and demands, storage, assessing (through onsite investigation) the condition of existing system components, and hydraulic modeling. Based on these objectives the analysis, priorities, lifecycles, and cost estimates were established and contained herein.

2.5 Previous WWDC Studies

The Nordic Ranches water system has not been the sole focus of any prior WWDC study. In the 2009 WWDC Study, Star Valley Regional Master Plan, Nordic Ranches was included in the financial planning of a regional system but not studied in detail due to a lack of cooperation from NRW with the study. No items of recommendation were provided in the study pertaining to the Nordic Ranches water system.

2.5.1 Other Studies

In 2016, NRW conducted a water system analysis evaluating system components and capacities for the purpose of presentation to the Public Service Commission. This analysis and corresponding testimony can be found in the project notebook of this study. This analysis evaluated current conditions of the system and didn't provide any recommendation for system repair or improvements.

3.0 EXISTING SYSTEM DESCRIPTION

3.1 General

The Nordic Ranches water system is supplied water by three (3) ground water supply wells that are situated and integrated within the distribution system (as shown on Figure 3.1). A fourth well was drilled but has been abandoned due to water quality concerns (Well #3). The wells pump water directly into the system, through 4" & 6" water lines, which in turn supplies water to the system's storage tanks. The water system's distribution piping consists of pipe diameters ranging from 2" to 10" and consists primarily of PVC pipe. The age of the distribution system piping ranges from early 1980s to 2010s. At the furthest East portion of the system there are seven (7) 10,000 gallon buried storage tanks. The tanks are interconnected but can be isolated if needed. The system is operated off of one (1) pressure zone that is controlled by the water level in the tanks. The water system is controlled by a SCADA (Supervisory Control and Data Acquisition) system that monitors tank levels and controls well pumping. The water system does not provide fire flows though does have "fire hydrants" present in the system. These hydrants are painted yellow and classified as "Flushing Only Hydrants". The existing system will be discussed in further detail in Section 3.5.

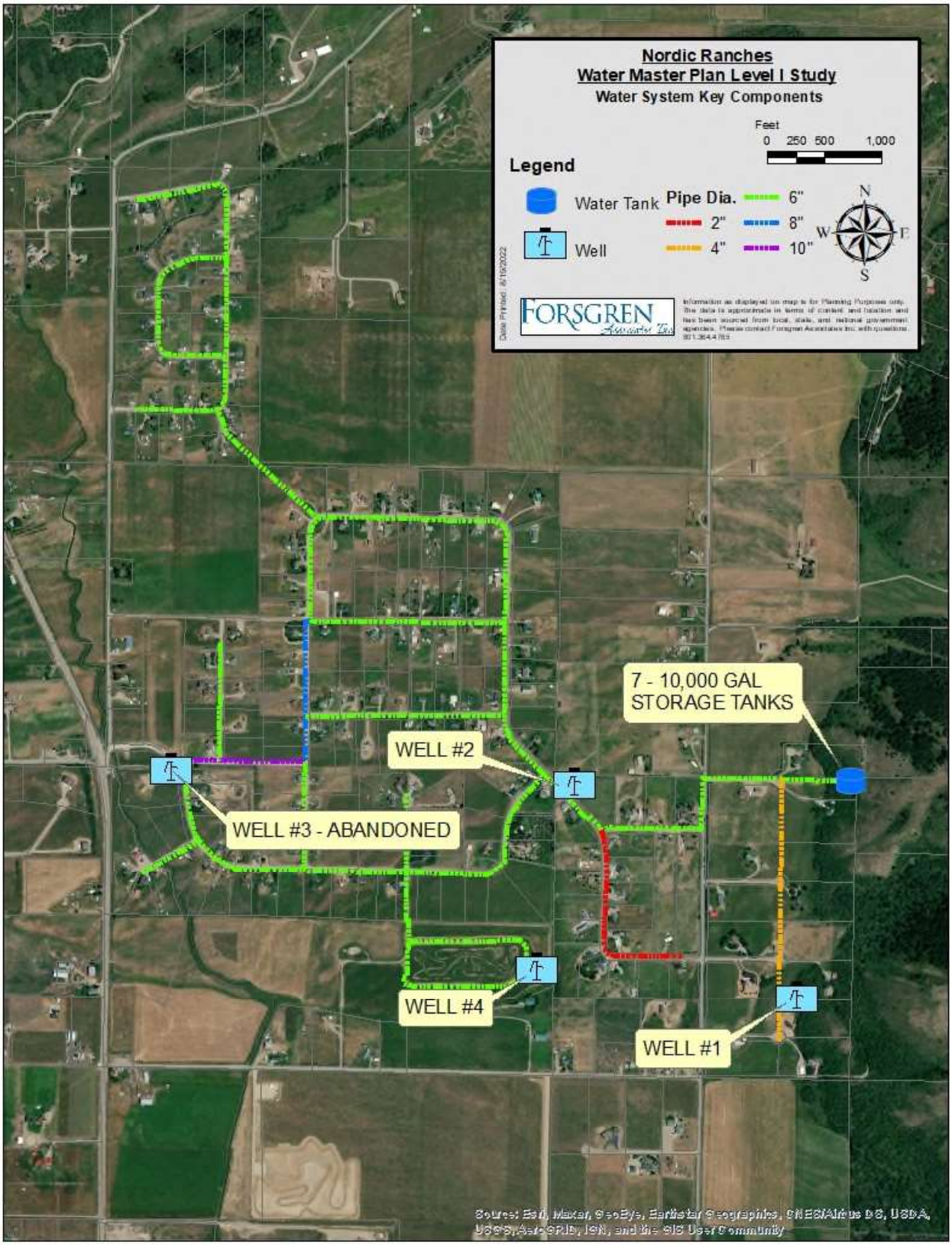

Figure 3.1 – Nordic Ranches System Map

3.2 Present Population Served

From the 2020 Wyoming Census Data, the Population and Housing Units By Census Block spreadsheet was used to determine the estimated population for Nordic Ranches. This spreadsheet estimated that the population was 628. A link to this spread sheet can be found in Appendix L.

3.3 Population Forecast

Population forecasts as developed by the State of Wyoming do not specifically identify Nordic Ranches in data reporting. For this report, the 2010-2040 Wyoming EAD Population Forecasts for Lincoln County will be used to demonstrate projected population growth for Nordic Ranches for the years of 2021 through 2040. The population forecast for Lincoln County shows a moderate growth rate through 2040.

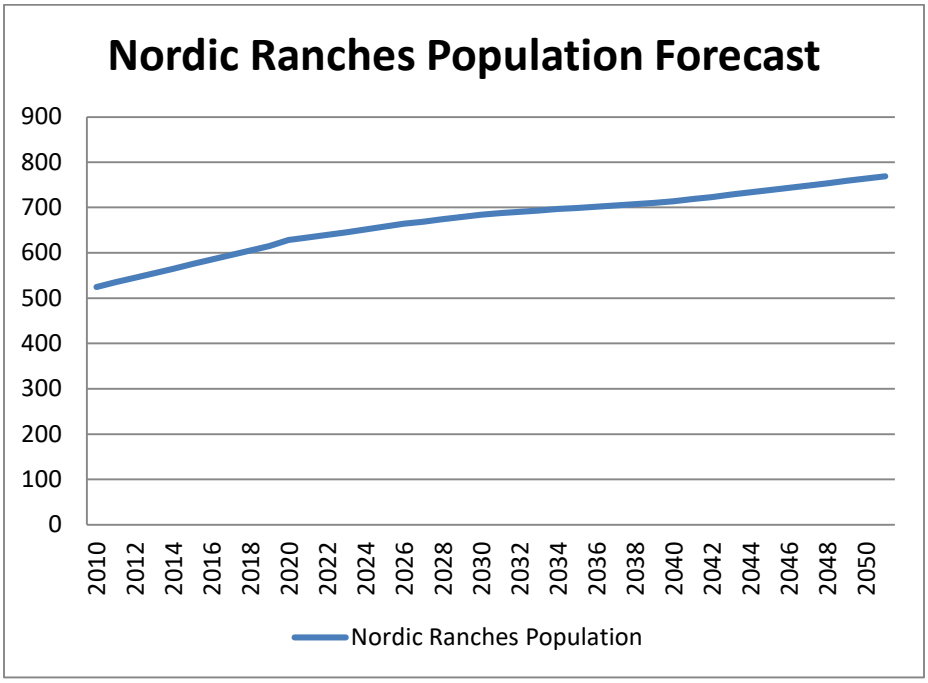

Figure 3.2 –Nordic Ranches Population Forecast – Wyoming Department of Administration and Information

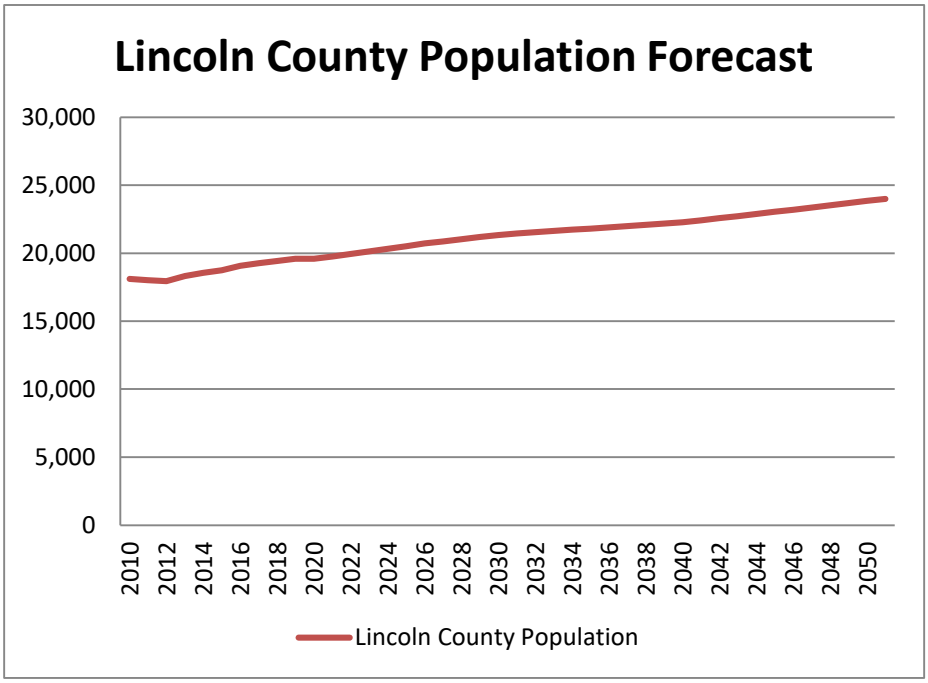

Figure 3.3 – Lincoln County Population Forecast – Wyoming Department of Administration and Information

The average year over year forecasted growth for Lincoln County for the years 2021 through 2040 is 0.69%. Using this growth rate, the Nordic Ranches population forecasted through year 2051 is 769 as shown in Figure 3.2.

Currently the existing population of 628 reflects as 173 water system users. Using the growth rate numbers as a ratio of population to water users the projected 2051 system user count is 212. Nordic Ranches is comprised of 13 divisions with a 14th in the planning stages, see Figure 3.4. Based off of current zoning mapping, the potential user count of the system or in other words system "Build-Out" is 241.

For the purposes of this report the population projections estimated by the Wyoming Department of Administration and Information (2010-2040) and the year over year growth rate of 0.69% will be utilized for planning and development of recommendations. The "Build-Out" projection will be used as a comparison tool in the hydraulic modeling efforts, and system capacities but will not be used in the recommendations of this report.

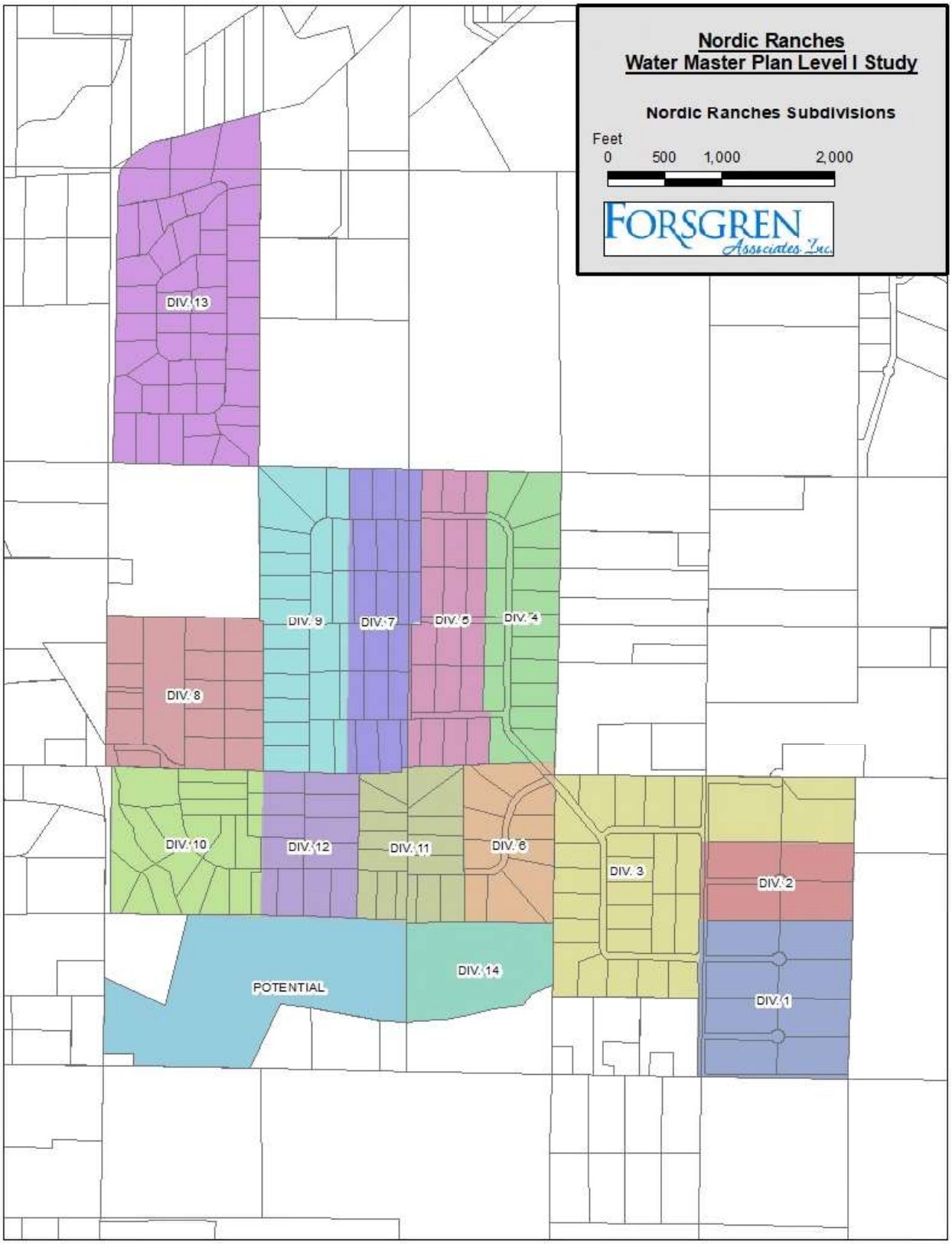

Figure 3.4 – Nordic Ranches - Subdivisions

3.4 Water User Rates

The Nordic Ranches Water, LLC water system charges a flat rate monthly service charge for each connection to the system. As the connections to the system are all currently ¾" connections there has not been a need for a tiered system for base service rates. The NRW however does apply a tiered rate structure in terms of water usage over base rate allowances. Table 3.1 below illustrates the water system's user base rates and usage charges. All data presented for system rates comes from the Nordic Ranches Water, LLC Water Utility Rules and Regulations issued July of 2019, see Appendix A.

Table 3.1 Nordic Ranches Water Usage Fees

2019 – Current Residential Water User Fees					
Gallons Used Minimum	Gallons Used Maximum	Base Rate	Cost per 1,000 Gallons Over Minimum	Minimum Cost	Maximum Cost
0	10000	$ 78.39	$ -	$ 78.39	$ 78.39
10001	20000	$ 78.39	$ 1.60	$ 78.39	$ 99.19
20001	40000	$ 78.39	$ 2.20	$ 99.19	$ 143.19
60000	+	$ 78.39	$ 2.20	$ 143.19	+

The system also charges additional rates such as a connection fee, a "Rate Rider" fee, disconnect/reconnect fees, transfer fee and facility charge fee. The connection fee is a one-time fee that the system charges to establish a new connection to the system. This fee allows the system owner to facilitate the costs of installing a new connection to the system and metering devices. The "Rate Rider" Fee is a monthly flat rate assessed by NRW to users to recover the costs of a 2018 rate study program designed to assess the rates of the NRW system. This fee is a temporary fee and will be terminated once the $50,000.00 rate study cost has been recovered. This fee is anticipated to occur for approximately 5 years from the implementation of the rate, dependent upon user account numbers. Disconnect/reconnect and transfer fees are one-time fees per each occurrence that cover the costs of the water system to disconnect the user from the system, to reconnect a user to the system (granted that the user has an existing meter pit) and a transfer fee that occurs in a user name change or sale of property. The facility charge fee is a monthly flat rate assessed to all lot owners within the system service area that are not connected to the system. Table 3.2 illustrates these rates and the costs for each.

Table 3.2 Nordic Ranches Water Additional Rates

Nordic Ranches, LLC Additional Rates			
Fee Type	Direct Cost	Occurrence	Notes
Connection Fee	$ 4,000.00	One Time	3/4" Connection
Facilities Charge	$ 12.00	Monthly	Lots in the system service limits not connected to the system
Disconnect Fee	$ 100.00	One Time	Per Each
Reconnect Fee	$ 75.00	One Time	Per Each
Transfer Fee	$ 250.00	One Time	Per Each

3.4.1 Star Valley Area User Rate Comparisons

Table 3.3 below illustrates a comparison of water user rates in the Star Valley Area.

Table 3.3 Star Valley Area User Rates

Community	3/4" Base Rate	Base Rate Gallons	Cost per 1,000 gallons over Base Rate	Connection Fee
Nordic Ranches	$ 78.39	10,000	$ 1.60	$ 4,000.00
Etna	$ 35.00	14,000	$ 0.50	$ 5,200.00
Alpine	$ 24.00	-	$ 1.75	$ 3,000.00
Star Valley Ranch	$ 60.00	-	$ 2.20	$ 5,000.00
Thayne	$ 34.75	30,000	$ 1.50	$ 3,000.00
Afton	$ 21.00	60,000	$ 0.35	$ 4,970.00

Comparison of water rates between communities is difficult to analyze because each system has differences in operation, ownership, population, production costs, etc. As discussed in Section 7.3, the American Water Works Association (AWWA) has developed a standard for average monthly residential water bills which is a factor of the Annual Median Household Income (AMHI) multiplied by 2.5% and divided by 12 months. The Town of Alpine has an approximate AMHI of $77,000.00 so their theoretical monthly water bill, according to AWWA, should be approximately $160.00. Most municipal water rates in Wyoming and particularly the Star Valley Area have not been increasing with the rate of inflation. This is partially due to the State of Wyoming providing excellent funding grants and loans to municipal systems to keep rates down, of which the Nordic Ranches water system is not eligible to participate in.

3.5 Existing System Components

The Nordic Ranches water system primarily consists of three (3) groundwater supply wells, seven (7) 10,000 gallon storage tanks and approximately 36,400 feet (approx. 6.9 miles) of 2" to 10" transmission and distribution lines.

3.5.1 Water Supply Sources

The Nordic Ranches development, which consists of 13 subdivision filings, obtains water from three water supply wells. A fourth well (Well #3) was drilled for the water system but was plugged and abandoned, presumably because of water quality issues. The locations of the three active Nordic Ranches wells are shown on Figure 3.1 and labeled Well #1, Well #2 and Well #4. Sections 4.4 thru 4.8 of the report summarizes the water rights, well testing and construction, water quality, an evaluation of the wellfield performed in 2021, and recommendations regarding the wells and water supply.

Figure 3.5 – Well #1

3.5.2 System Storage

- **Storage Tank Field**
  The water system's storage consists of seven (7) 10,000 gallon buried steel cylindrical storage tanks located at the furthest East portion of the system, see Figure 3.1. The installation of the storage tanks began in the early 1990s and continued through the 2000s. In practice, storage has been added to the system on an as needed basis as development occurred. The Tanks are interconnected and operate on the same hydraulic grade however each tank can be isolated from the system if needed. A layout of the existing storage system can be seen in Figure 3.7.

Figure 3.6 – 7/10,000 Gallon Tank Field

Tank inspection reports from a 2018 inspection were provided by the owner of the system, see Appendix N. The available reports and interviews with the system operator indicate that the tanks are in good condition with relatively minimal cosmetic recommendation for repair or maintenance. As a general standard, tank inspections are recommended every 3-5 years. The system owner has noted that the next round of tank inspections will occur within the next year.

The water level of each tank is maintained by the three (3) operational wells that supply the system with water. Each tank has a single inlet/outlet design, which means that the tanks are filled by the same line that also serves as the outlet. Additionally, looking at the tanks as a single unit the single inlet/out design continues. The same feed line that supplies water to the tanks is also the line that serves as the outlet. These tanks are the controlling system components for pressures in the system.

The tanks typically have a single operating range with each well operating at set elevation points to fill the tanks as needed. One potential issue that has been identified and is discussed further in Section 5.1.2 is the water age of the system. This issue is essentially created due to the dead-end location of the tanks within the system and operational features.

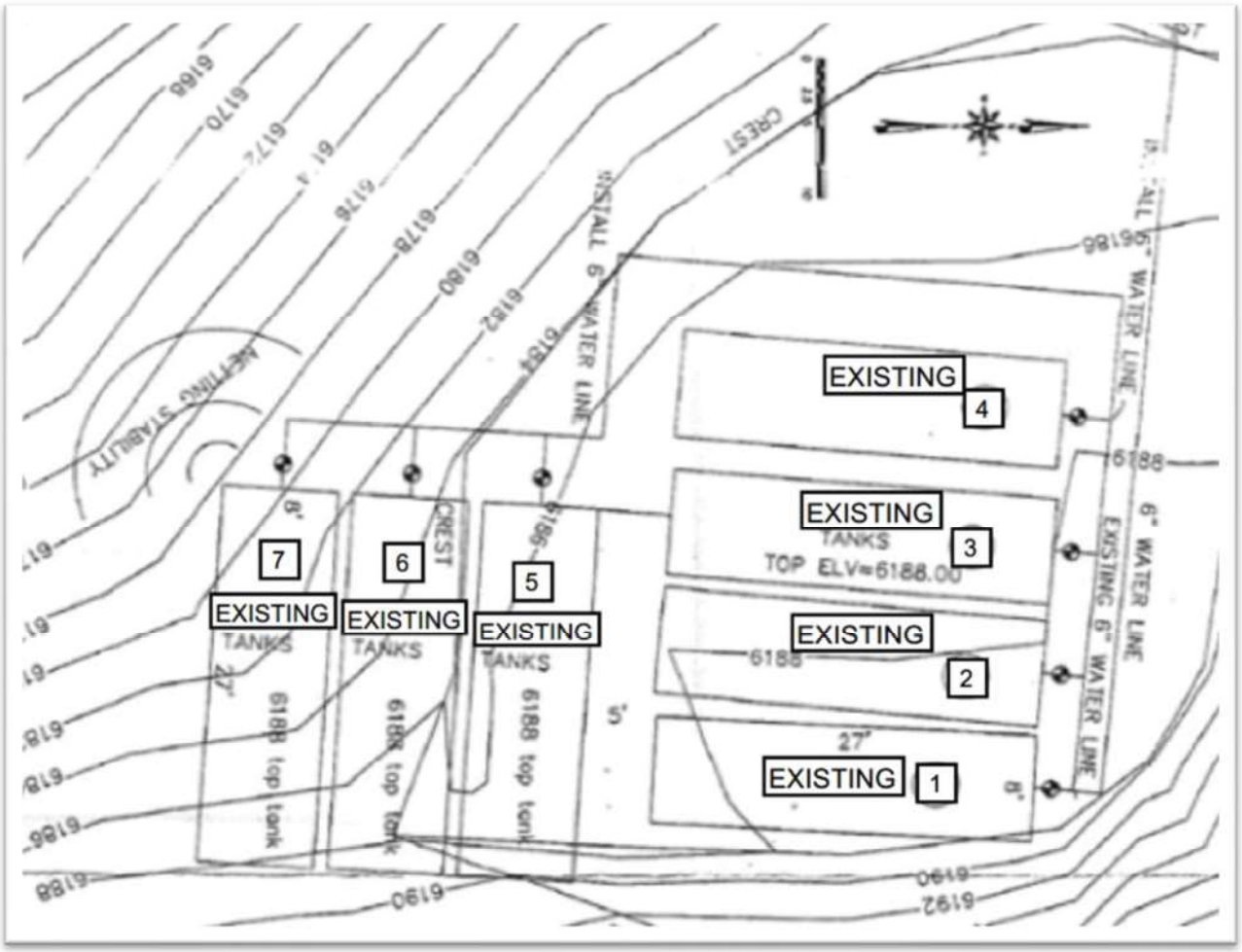

Figure 3.7 – Storage Field

3.5.3 Transmission Lines

As illustrated in Figure 3.8 of this report identifies three transmission lines that convey water from the wells to the storage tanks. These transmission lines are not purely dedicated to transmission but are interconnected with the distribution piping of the system.

3.5.4 Distribution System / Pressure Zones

The Nordic Ranches water system consists of approximately 36,400 feet (approx. 6.9 miles) of 2" to 10" PVC water lines. From the distribution and transmission lines, water services are metered by ¾" meters for each service connection. Nordic Ranches Water, LLC is in the process of replacing existing water meters with Sensus radio read meters in order to streamline and allow for monthly meter readings. Currently meter readings are taken monthly for the months of May thru October as weather allows and read once at the end of April for the months of November thru April.

Currently there is only one (1) pressure zone in the system which is controlled by tank water levels. Apart from well production, the system operates as a gravity feed system. As a result, no PRVs (pressure relief/control valves) are used within the system to control pressures. Based off of the hydraulic modeling the operation of the system in this fashion best fits the geographic nature of the system.

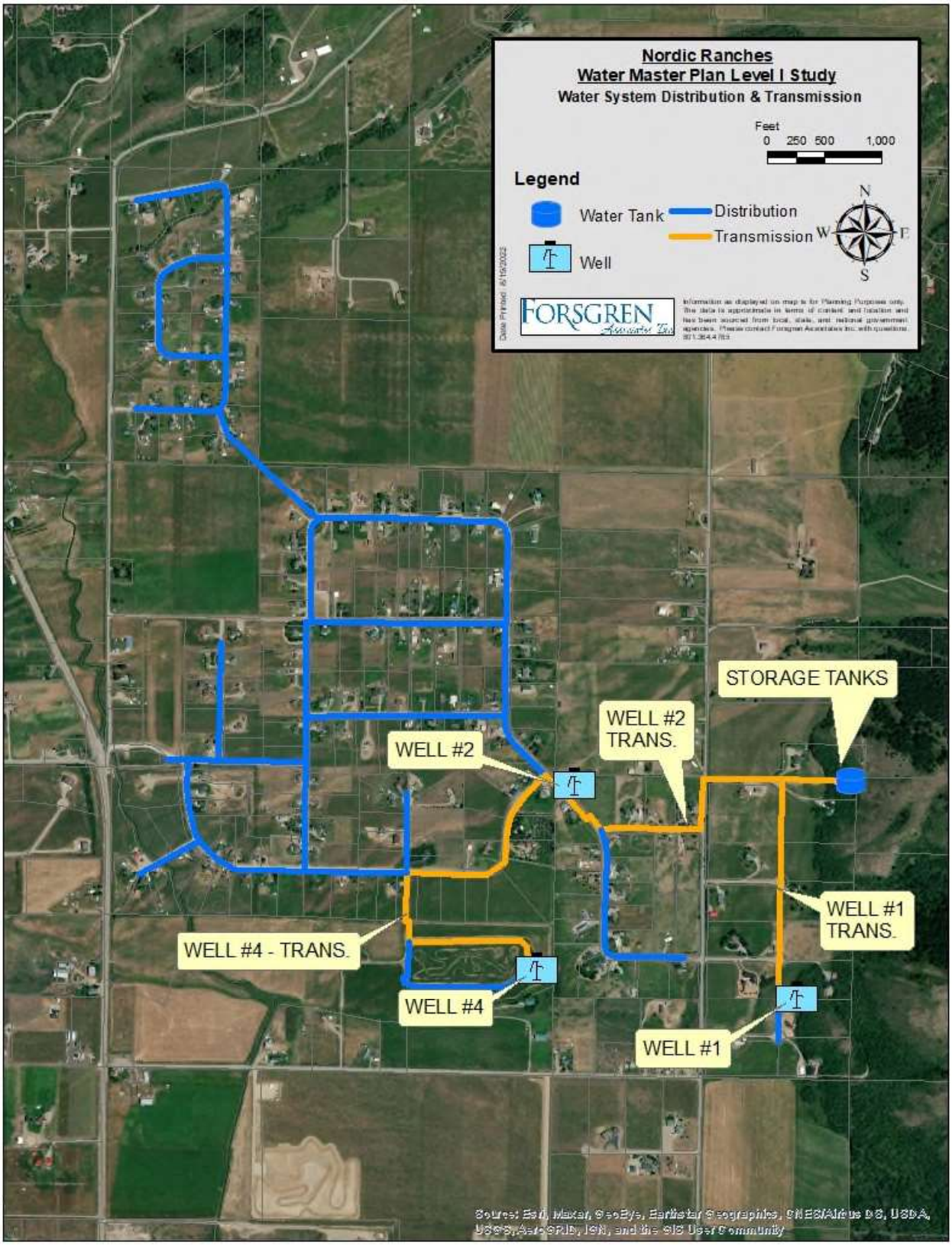

Figure 3.8 – Nordic Ranches Transmission & Distribution

3.5.5 System Age & Present Worth

Figure 3.9 below identifies the installation dates of the Nordic Ranches water system components as identified from a review of Wyoming DEQ and State Engineer's Office records. To evaluate a present worth of the system this utilizes a Life Cycle Cost Analysis that utilizes the current replacement value of system components, the number of years in service and the Federal Discount Factor as published by the Bureau of Reclamation. The published Federal Discount Factor for the year 2022 is 2.25%. Utilizing the equation below, Table 3.4 was formulated showing a present worth of the system. It should be noted that this present worth evaluation is not an appraisal of the system.

$$PRESENT\ WORTH\ = \frac{Replacement\ Value}{(1+Discount\ Factor)^{\wedge Years\ in\ Service}}$$

Table 3.4 Nordic Ranches Water System Present Worth

Present System Worth							
Line Size/System Component	**Installation Year**	**Age/Years in Service**	**Pipe Length/Number of Units**	**Estimated Unit Replacement Value**	**Total Replacement Value**	**Federal Discount Factor (%)**	**Present Worth**
2"	1993	29	1771	$65.00	$115,115.00	2.25	$60,380.37
4"	1993	29	2463	$75.00	$184,725.00	2.25	$96,892.35
6"	1993	29	7986	$100.00	$798,600.00	2.25	$418,883.37
8"	1993	29	132	$115.00	$15,180.00	2.25	$7,962.25
6"	1995	27	3118	$100.00	$311,800.00	2.25	$170,988.37
6"	2001	21	4888	$100.00	$488,800.00	2.25	$306,338.48
8"	2001	21	1277	$115.00	$146,855.00	2.25	$92,036.29
10"	2001	21	1213	$135.00	$163,755.00	2.25	$102,627.78
6"	2002	20	3858	$100.00	$385,800.00	2.25	$247,226.99
6"	2003	19	6653	$100.00	$665,300.00	2.25	$435,927.74
6"	2009	13	3102	$100.00	$310,200.00	2.25	$232,283.67
Well #1	1984	38	1	$300,000.00	$300,000.00	2.25	$128,799.81
Well #2 (with Backup Power Generator)	1994	28	1	$410,000.00	$410,000.00	2.25	$219,892.79
Well #4	2007	15	1	$450,000.00	$450,000.00	2.25	$322,301.82
10,000 Gallon Storage Tanks	1994	28	3	$40,000.00	$120,000.00	2.25	$64,358.87
10,0000 Gallon Storage Tanks	1999	23	1	$40,000.00	$40,000.00	2.25	$23,977.49
10,000 Gallon Storage Tanks	2008	14	3	$40,000.00	$120,000.00	2.25	$87,880.96
					Total Present Worth		$3,018,759.39

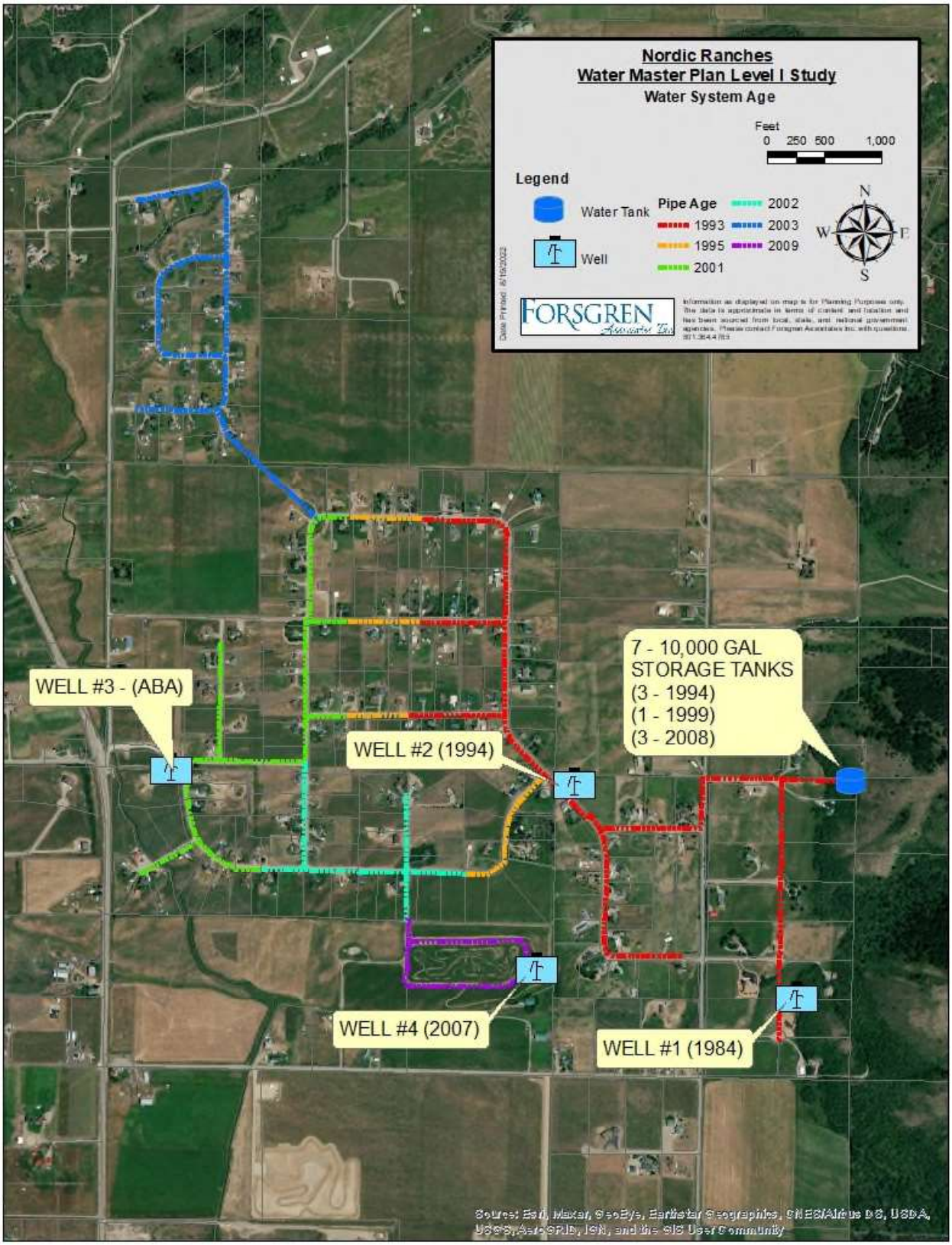

Figure 3.9 – Nordic Ranches System Age

4.0 WATER DEMAND AND SUPPLY

The Nordic Ranches water system is monitored and controlled by the Nordic Ranches Water, LLC operators. Automatic controls of the system are in place that communicate between the system's wells and storage tanks. This system is a SCADA system which automatically records and stores operational data including well production, well meter readings, water levels and system pressures. The NRW replaced its SCADA system in 2021 as the prior system was not meeting the needs of NRW with regards to data collection and operations management. Due to the lack of data provided from the prior SCADA system no quantifiable record of well production was provided for this report. The user meter readings however were provided in EXCEL file format and are measured in monthly readings. Monthly readings are currently recorded manually during the months of May thru October and a single meter read is taken at the end of April for the months of November thru April. The NRW is currently in the process of updating user meters with radio read systems that will allow for more accurate data during the "winter" months. The six (6) months that are gathered at the end of April are averaged for terms of billing procedures. For this report the same method of applying system usage by month is applied. Metered usage was provided for this report for the years of 2016-2021. These usage records are included in this report in Appendix B.

4.1 Identification of Domestic Water Use

4.1.1 Existing Per-Capita Consumption:

The system is solely a domestic water use system, meaning that no agricultural, commercial or industrial water is demanded from the system. To determine the domestic water usage of the system the NRW provided monthly meter readings for the years of 2016-2021. These production records show that the water system experienced an Average Day Demand (ADD) of 61,238 gallons per day (gpd) or 43 gallons per minute (gpm) over the six (6) year period. Typically, when assessing the demands on a water system it is best to evaluate water production data to determine the demands on the system. As no well production data is provided the best available source for this analysis is the user meter readings.

As no well production data was provided or available for the years of 2016-2021 to compare metered production versus metered usage an evaluation on the water system's water loss is purely speculative. The water system operator has estimated/indicated in Annual Utility Reports to the Wyoming Public Service Commission for the years 2018-2020 that the system experienced a loss of water at 0.02-0.04% (see reports in Appendix C). While this study can neither confirm nor deny these estimates, the low percentage of water loss is likely inaccurate. With the implementation of the new SCADA system and the ability of the water system operators to collect and store well metering data will allow for a more accurate representation of water loss and real demands in the system going forward. For comparison purposes, the

American Water Works Association (AWWA) recommends for domestic systems a production water loss of 10% or less and reports that the average water loss for domestic water system is 16%. Operational recommendations in this report regarding further analysis of water system loss follow in Section 7.1.3.

As stated above, data received from NRW regarding metered usage on the system were presented as a monthly reading. To determine the Maximum Day Demand (MDD) on the system some evaluations and assumptions were made. For the purposes of this study it is assumed that the MDD on the system is two (2) times the Summer Average Day Demand (Summer ADD). As the current Summer ADD is 69,720 gpd this report assumes a MDD of 139,440 gpd or approximately 97 gpm. In determining a Peak Hour Demand (PHD) on the system a peaking factor is applied to the MDD utilizing the typical diurnal curve from the AWWA M32 Manual with a peak hour factor of 1.93. A diurnal curve, further explained in Section 5.1 is a representation of daily demand disbursement on a system such that demands on the system are higher or lower depending on the time of day. Applying the 1.93 peaking factor to the MDD results in a PHD of approximately 187 gpm. Additionally, to evaluate system performance in low demand periods a Winter Average Day Demand (Winter ADD) was composed from metered usage reports for November thru April readings. This resulted in a current Winter ADD of 23,068 gpd or approximately 16 gpm. Table 4.1 below shows the current system's ADD, Winter ADD, Summer ADD, MDD and PHD.

Table 4.1 Current Demands – Usage

	Average Day Demand (ADD)	ADD Winter	ADD Summer	MDD (2 * ADD Summer)	PHD (1.93* MDD)
GPD	**61,237.54**	**23,068.26**	**69,719.60**	**139,439.19**	
GPM	**42.53**	**16.02**	**48.42**	**96.83**	**186.89**
GPDPC 2020	**353.97**	**133.34**	**403.00**	**806.01**	

It should be noted that under the current demand scenarios the Summer ADD is only approximately 280 gallons less than the entire storage capacity of the system (70,000 gallons). However, this is not to say that the existing storage capacity is insufficient. Wyoming DEQ regulations take into consideration annual average day demands with regards to storage capacity as well as groundwater source supply, see Sections 6.3 and 6.4.

4.1.2 Future Projected Demands

Based on the year over year growth rates as presented in Section 3.3 the Nordic Ranches water system is estimated to serve 212 users in the year 2051. With a current user count of 173 the 2051 user count is an increase of approximately 22.54%. When the current ADD is increased by

22.54% it results in a future 2051 ADD of 75,043 gpd or approximately 52 gpm. Table 4.2 below summarizes the estimated future system demands for 2051.

Table 4.2 2051 - Future Demands

	Average Day Demand (ADD)	ADD Winter	ADD Summer	MDD (2 * ADD Summer)	PHD (1.93* MDD)
GPDPC 2020	**353.97**	**133.34**	**403.00**	**806.01**	
Capita 2051	**212**	**212**	**212**	**212**	
GPD	**75,042.53**	**28,268.62**	**85,436.73**	**170,873.46**	
GPM	**52.11**	**19.63**	**59.33**	**118.66**	**229.02**

For comparison purposes, the potential build-out of the system of the current 13 divisions and planned 14th division could result in a system user count of 241. This would be an increase of 39.31% from the current users of the system. Utilizing this percentage, as done for the 2051 projections, the future build-out of the system is estimated to result in an ADD of 85,308 gpd or approximately 59 gpm. Table 4.3 below summarizes the estimated future demand for the current build-out scenario.

Table 4.3 'Build-Out' Demands

	Average Day Demand (ADD)	ADD Winter	ADD Summer	MDD (2 * ADD Summer)	PHD (1.93* MDD)
GPDPC 2020	**353.97**	**133.34**	**403.00**	**806.01**	
Capita 2051	**241**	**241**	**241**	**241**	
GPD	**85,307.78**	**32,135.55**	**97,123.83**	**194,247.66**	
GPM	**59.24**	**22.32**	**67.45**	**134.89**	**260.35**

4.1.3 Water Production/Usage Costs

Utilizing the NRW financial statements (see Appendix C), and the water usage monthly records Table 4.4 was formed.

Table 4.4 FY 2018 thru 2020 Production Costs

NRW Water Usage Costs				
Fiscal Year (January - December)	Water System Costs	Water Usage (gal)	Cost of Production per Gallon	Cost of Production per 1000 Gallons
2018	$195,195.00	15,753,696	$0.0124	$12.39
2019	$167,303.00	12,515,691	$0.0134	$13.37
2020	$202,295.00	14,556,690	$0.0139	$13.90
Average	$188,264.33	14,275,359	$0.0132	$13.22

As shown in Table 4.4, the cost of water "production" averages approximately $0.0132 per gallon of water ($13.22 per 1,000 gallons) delivered to end users. For smaller rural systems, such as NRW this is not an unreasonable cost. To compare the production costs of NRW to most systems in the Star Valley area is not a direct comparison as most of these systems rely on spring sourced water as their primary source with well sources as secondary. The communities of Grover, Fairview and Freedom in Star Valley are solely sourced drinking water by wells but data on production costs have not been provided. Additionally, comparing the NRW system to a municipal system has its issues as the NRW system is a private system. For comparisons sake, the Town of Opal is a solely well sourced system, similar to NRW, and produced water costs were approximately $0.0097 per gallon. As stated above, source production records are the most reliable source of comparison for this analysis but for this report those data records were not available and as such the metered user data was utilized.

4.2 Lincoln County & Nordic Ranches

The Lincoln County, WY Comprehensive Plan and Land Use Regulations (Amended November 2006) was reviewed as part of this study. The plan discusses general goals and objectives of land use for the county. The Nordic Ranches area is not specifically mentioned in the plan but is included in the Etna Community Plan Area (See Appendix D for Lincoln County Community Plan Map).

The Nordic Ranches area is currently designated as a rural zone (see Appendix E for Lower Valley Lincoln County Zoning Map). From the plan, a rural zone is intended to maintain the essential rural character of private lands in the county. This zone typically allows for agricultural uses as well as low density residential uses (typically five or more acres per lot) including residential subdivisions where three or more lots are created. Currently the Nordic Ranches area is primarily a low density residential housing community and does include a church.

4.3 Regionalization Considerations

As part of this master plan study, regionalization was considered. As mentioned above, the Star Valley area has been the subject of a regionalization master plan. To this date, no major movements in a direction towards regionalization have occurred. Some smaller and close proximity water systems have been entertaining the possibility of combining systems however. Nordic Ranches was not studied as part of the regional master plan due to lack of cooperation apart from financial impacts. Further evaluations of the larger regionalization study to include Nordic Ranches are not part of the scope of this study, however a more localized approach in analyzing regionalization has been conducted.

The Nordic Ranches water system, like many systems in the Star Valley area, is relatively isolated and not in close proximity to another domestic water system. The closest domestic water

system to Nordic Ranches is the system owned and operated by the Etna Water and Sewer District approximately three (3) miles to the south of Nordic Ranches, see Figure 4.1.

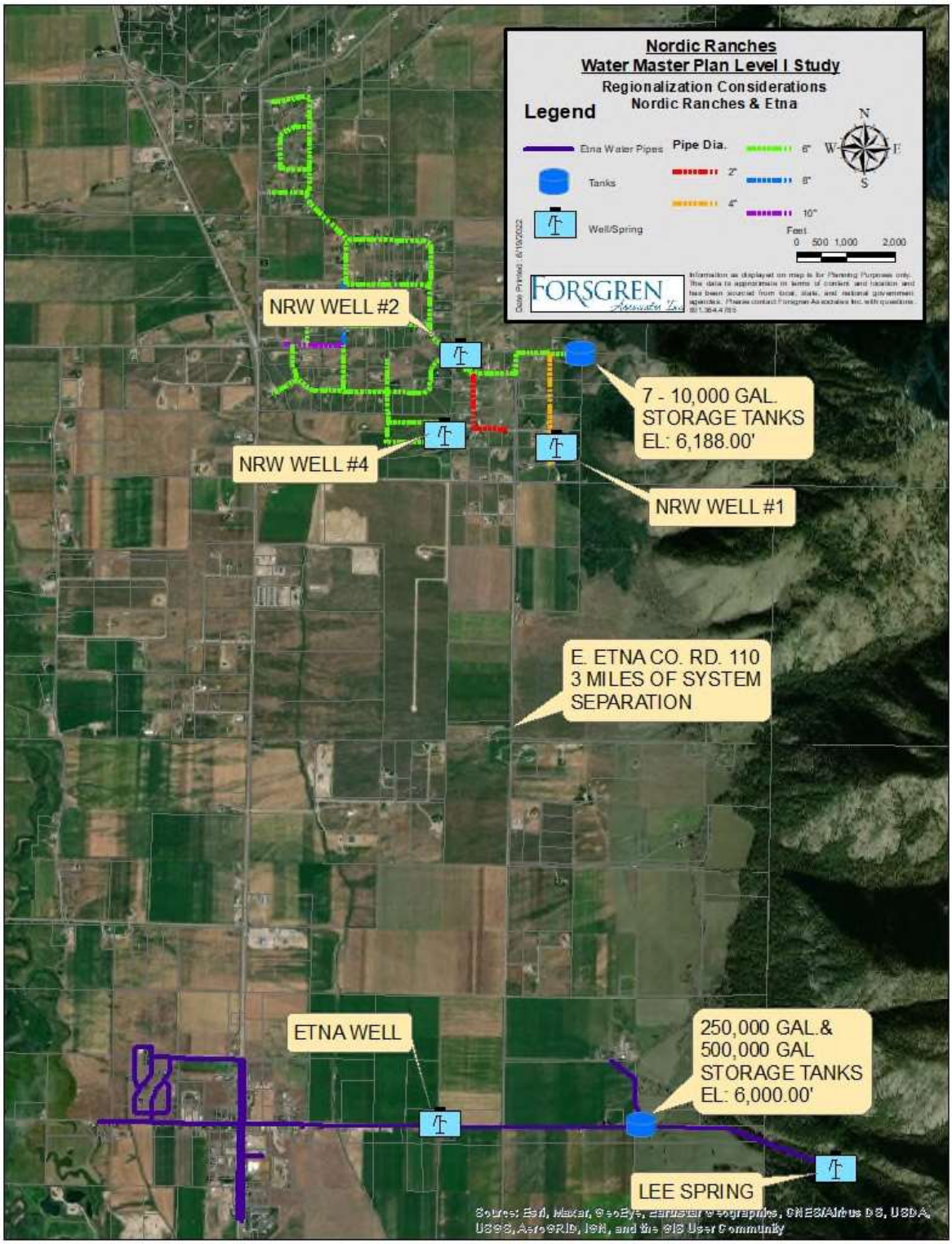

Figure 4.1 – NRW & Etna WSD

The main purpose of implementing a regional water system is to create a robust and reliable system that benefits all users. If there is a detriment to the system or even just a minimal impact the likely hood that cooperation in a regional system development is unlikely especially for the Nordic Ranches water system as it is privately owned. In short, if the costs outweigh the benefits then the answer is typically no.

In evaluating the potential for a regional system between Nordic Ranches and Etna, even from a bird's eye view, some glaring issues arise that negatively impact one or both systems:

Transmission: First and foremost, connecting the two systems with a single transmission line of approximately three (3) miles is an enormous expense for such small systems, see Table 4.5. A larger water system, than Nordic Ranches and Etna, can spread the costs of such improvements over a larger group of users minimizing rate impacts.

Hydraulic Pressure Differences: A major issue in connecting these two systems lies in the pressure differences in the two systems. The Nordic Ranches water storage tanks have an operating hydraulic head of 6,188 feet while the storage tanks in Etna have an operating head of 6,100 feet. This 88 feet of head difference (not to mention the head friction losses in the potential transmission line) in the two systems is a major factor in evaluating the connection of the systems. Currently Etna has a spring supply source (Lee Spring) that gravity feeds the storage tanks. They do have a well that supplies supplemental water to the system but it does not have the capacity of pumping water to the Nordic Ranches storage tanks. If the two systems were connected just by piping, essentially the Etna water system would act as a drain on the Nordic Ranches system as the Etna system would overflow the excess head from the pressure difference with no benefit to Nordic Ranches.

Installing a new pump in the well that does have the pumping capacity to reach the Nordic Ranches tank does not solve the problem either and further complicates the possibility. In order to prevent the new pump from overflowing the Etna water tanks the well would have to be disconnected from the Etna water system with additional piping and pressure control valving from the well to the transmission line from the Nordic Ranches system. This scenario however would not allow the Nordic Ranches system to benefit directly from the Etna water system's storage capacity. An alternative solution would be to install a booster station near Etna's water storage tanks that bypasses a pressure reducing valve (PRV) from the Nordic Ranches system that is capable of providing the Nordic Ranches system additional storage capacity, particularly with relation to fire flows.

As mentioned above the hydraulic pressure differences would cause an overflow of water in the Etna system, a pressure reducing valve (PRV) would be required to reduce the pressure from the Nordic Ranches system to meet the hydraulic pressures of the Etna system.

Existing System Conditions: The 2018 Etna Level II Storage Study, discussions with the Etna Water and Sewer District and the results of this study show that these two water systems are in good condition and aren't necessarily lacking particularly with regards to system supply. Upon initial contact, the Etna Water and Sewer District appeared to be open to the idea of regionalizing systems but understands that such an event may be many years into the future and dependent upon the Nordic Ranches water system ownership. Discussions with NRW indicate that regionalizing systems with Etna is not a priority or a desire of the system owners.

Conceptual Cost: Table 4.5 identifies a conceptual cost estimate for implementing a regional system between NRW and the Etna Water and Sewer District. As NRW is not a public entity it would be unlikely that these project costs would be eligible for funding with the WWDC.

Table 4.5 NRW /Etna WSD Transmission Line Estimated Cost

Nordic Ranches Water Master Plan Level I Study					
Conceptual Cost Estimate					
Nordic Ranches LLC/Etna WSD Regionalization					
Estimate Date August 2022					
Item #	**Description**	**Units**	**Estimated Quantity**	**Unit Cost**	**Estimated Cost**
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
NA					
Cost of Project Components Total (subtotal #1)					$ -
Construction Engineering Cost (subtotal #1 x 10%)					$ -
Components + Construction Engineering Costs (subtotal #2)					$ -
Contingency (subtotal #2 x 15%)					$ -
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ -
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ -
Permitting and Mitigation					$ -
Legal Fees (Title of Opinion Only)					$ -
Acquisition of Access and Rights of Way					$ -
Pre-construction Costs Total (subtotal #4)					$ -
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ -
WWDC INELIGIBLE PROJECT COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$ 170,000.00	$ 170,000.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$ 50,000.00	$ 50,000.00
3	6 - Inch Waterline w/Bedding	LF	1,350	$ 60.00	$ 81,000.00
4	10 - Inch Waterline w/Bedding	LF	15,750	$ 100.00	$ 1,575,000.00
5	Road Repair	LF	17,100	$ 45.00	$ 769,500.00
6	Valves	EACH	20	$ 4,500.00	$ 90,000.00
7	Fittings	EACH	15	$ 750.00	$ 11,250.00
8	Fire Hydrants w/Tee & Valve	EACH	5	$ 7,500.00	$ 37,500.00
9	10" Pressure Reducing Valve Vault	LS	1	$ 75,000.00	$ 75,000.00
10	Etna to Nordic Ranches Booster Station	LS	1	$ 150,000.00	$ 150,000.00
11	Import Trench Backfill	LF	17,100	$ 25.00	$ 427,500.00
Additional Cost for Construction Engineering					$ 343,675.00
Additional Cost for Preparation of Final Designs and Specifications					$ 343,675.00
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ 4,124,100.00
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 4,124,100.00
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ -

Table 4.6 below identifies the conceptual cost estimate for a regional system between NRCWSD and the Etna Water and Sewer District, should NRCWSD acquire the system. As a public entity NRCWSD would be eligible to apply for funding, in conjunction with Etna, with the WWDC. Though the project components are eligible for funding through WWDC the districts may find that it is difficult to justify the need of this project. If the need of this project is attributable to development, or fire protection then the project would be ineligible. If the project were to provide a solution to failing source or storage supply or address safety issues then it would meets WWDCs requirements.

Table 4.6 Nordic Ranches/Etna WSD Transmission Line Estimated Cost

Nordic Ranches Water Master Plan Level I Study					
Conceptual Cost Estimate					
Nordic Ranches Community WSD/Etna WSD Regionalization					
Estimate Date August 2022					
Item #	Description	Units	Estimated Quantity	Unit Cost	Estimated Cost
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$ 170,000.00	$ 170,000.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$ 50,000.00	$ 50,000.00
3	6 - Inch Waterline w/Bedding	LF	1,350	$ 60.00	$ 81,000.00
4	10 - Inch Waterline w/Bedding	LF	15,750	$ 100.00	$ 1,575,000.00
5	Road Repair	LF	17,100	$ 45.00	$ 769,500.00
6	Valves	EACH	20	$ 4,500.00	$ 90,000.00
7	Fittings	EACH	15	$ 750.00	$ 11,250.00
8	Fire Hydrants w/Tee & Valve	EACH	5	$ 7,500.00	$ 37,500.00
9	10" Pressure Reducing Valve Vault	LS	1	$ 75,000.00	$ 75,000.00
10	Etna to Nordic Ranches Booster Station	LS	1	$ 150,000.00	$ 150,000.00
11	Import Trench Backfill	LF	17,100	$ 25.00	$ 427,500.00
Cost of Project Components Total (subtotal #1)					$ 3,436,750.00
Construction Engineering Cost (subtotal #1 x 10%)					$ 343,675.00
Components + Construction Engineering Costs (subtotal #2)					$ 3,780,425.00
Contingency (subtotal #2 x 15%)					$ 567,063.75
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ 4,347,488.75
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ 343,675.00
Permitting and Mitigation					$ 34,367.50
Legal Fees (Title of Opinion Only)					$ 378,042.50
Acquisition of Access and Rights of Way					$ 56,706.38
Pre-construction Costs Total (subtotal #4)					$ 812,791.38
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ 5,160,280.13
WWDC INELIGIBLE PROJECT COSTS					
NA					-
Additional Cost for Construction Engineering					$ -
Additional Cost for Preparation of Final Designs and Specifications					$ -
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ -
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 5,160,280.13
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ 3,780,425.00

Summary: For the purposes of this study a regionalization of the Nordic Ranches and Etna water systems is not recommended at this time. Though it is possible to connect the two systems the effects of implementing such a system are not considered a necessary cost at this time, financially and operationally. In the future as these two systems expand and potentially grow toward each other than a regional system may become more of a realistic scenario. As illustrated in this report, NRW's supply capacity is sufficient for its projected demands thus the introduction of a regional system would primarily benefit NRW with increased storage capacity. However comparing the NRWs portion of the cost for a regional system at approximately $2,000,000.00 with the estimated cost for replacing its storage system with a single 100,000 gallon storage tank (Table 7.4) at approximately $900,000.00 financially it makes more sense to pursue the installation of a new tank.

The combination of these two systems does have its challenges, as mentioned above, but it does present the potential for cost savings with regards to system operations, cost sharing and overburden. Unless an unforeseen major influx of population growth is experienced in the two systems the potential of a regional system appears to likely occur well beyond the useful life of this study.

4.4 Water Rights Review

In August 1984, four applications for groundwater rights were submitted to the Wyoming State Engineer's Office (SEO) for Nordic Ranches by John Clinger. The permits were later cancelled due to time limits for submitting Statements of Completion and Beneficial Use forms. The cancelled permits are summarized in Table 4.7 for reference purposes.

Pertinent active water rights details are summarized in Table 4.7 and copies of the Well Permits, Statements of Completion, and Beneficial use forms are presented in Appendix F. Nordic Ranches Well No. 1 has the original well permit, plus three enlargements for additional yield, points of use, and annual volumetric production. Nordic Ranches Well No. 2 has its original permit plus an enlargement for additional points of use and annual volumetric production. Water rights for Well No. 4 include the original well permit. The water rights have not been adjudicated as of the time of this report. The SEO can require that the current water rights be adjudicated before any additional water rights actions are approved in the future. The process of adjudication will include submitting a plat of beneficial use, a compliance review by SEO staff, approval of the plat, adjudication inspection and completion of proofs, and approval of the Board of Control. This process can take many months and adjudication inspections are scheduled during the summer.

Conditions and limitations have been made part of the permits for the enlargements for Well No. 1 (U.W. 95148, U.W. 100147, and U.W. 173584), the original permit for Well No. 2 (U.W.

108464), the enlargement for Well No. 2 (U.W. 173585), and the permit for Well No. 4 (U.W. 173583). The conditions and limitations of the SEO permits are as follows:

1. A meter acceptable to the State Engineer is required to accurately measure the total quantity of water produced from this well.
2. An annual report shall be submitted to the State Engineer no later than February 15 of each year stating the total amount of water produced from this well each month during the previous January 1 to December 31, twelve (12) month period.
3. The report shall identify the well by name, location, permit number and shall identify the type of meter used for the measurement.
4. The report shall contain at least two (2) semi-annual measurements of the static water level in the well as measured twenty-four (24) consecutive hours after pumping has ceased. The dates the measurements were obtained and the period of time the well was "shut-in" prior to obtaining the measurements must be specified.
5. The State Engineer reserves the right, upon written request, to modify or waive all or any portion of these conditions and limitations.

A review of the SEO on-line permit database found water production reports have been submitted to the SEO for 2002 to 2006, 2008 to 2012, and 2014. Production data from Well No. 4 was not provided in 2011. Water levels were included in annual reports to the SEO in 2004, 2006, 2008 to 2012, and 2014. No data has been submitted to SEO since 2014.

The original permit for Well No. 1 requested a pumping rate of 25 gpm, but the Statement of Completion for the permit reported a yield of 20 gpm, which is the permitted pumping rate for that water right. The first enlargement for Well No. 1 requested an additional 10 gpm and the second enlargement requested 85 gpm. The total instantaneous permitted pumping rate for Well No. 1 is 115 gpm. The permitted pumping rate for Well No. 2 is 120 gpm and the rate for Well No. 4 is 85 gpm. The total permitted instantaneous pumping rate for all three wells is 320 gpm. The annual volume of water requested for Well No. 1 is 190 acre-feet (61.91 million gallons), for Well No. 2 is 190 acre-feet (61.91 million gallons), and for Well No. 4 is 37.78 acre-feet (12.31 million gallons). Generally, SEO policy would not allow the total annual volume of the three wells to be the sum of the three volumes, but rather establishes an annual cap from all sources based on historic water demands during a compliance review process.

Table 4.7 Nordic Ranches Water Rights Summary

Permit No.	Permit Status	Permit Name	UW 5	UW 6	UW 8	PROOF	Pumping Rate	Annual Volume
P76226.0W	Incomplete	NORDIC RANCHES WELL #1	1/11/1988	12/11/1984	9/17/1988	None	20 gpm	NA
P95148.0W	Incomplete	ENL. NORDIC RANCHES WELL #1	3/8/1993	7/25/1994	3/10/1994	None	10 gpm	NA
P100147.0W	Incomplete	2ND ENL NORDIC RANCHES WELL #1	8/7/1995	10/16/1995	10/16/1995	None	85 gpm	100 AF
P173584.0W	Incomplete	3RD ENL. NORDIC RANCHES WELL NO. 1	3/23/2006	NA	12/11/1984	None	0 gpm	90 AF
P108464.0W	Unadjudicated	NORDIC RANCHES WELL #2	12/22/1997	12/22/1997	12/22/1997	None	120 gpm	100 AF
P173585.0W	Incomplete	ENL. NORDIC RANCHES WELL NO. 2	3/23/2006	NA	11/16/2007	None	0 gpm	90 AF
P173583.0W	Unadjudicated	NORDIC RANCHES WELL NO. 4	2/16/2006	11/16/2007	11/16/2007	None	85 gpm	37.78 AF
P68374.0W	Cancelled	NORDIC RANCHES #1	08/17/1984	None	None	None	NA	NA
P68375.0W	Cancelled	NORDIC RANCHES #2	08/17/1984	None	None	None	NA	NA
P68376.0W	Cancelled	NORDIC RANCHES #3	08/17/1984	None	None	None	NA	NA
P68377.0W	Cancelled	NORDIC RANCHES #4	08/17/1984	None	None	None	NA	NA
P95149.0W	Cancelled	NORDIC RANCHES WELL #2	3/8/1993	NA	NA	None	NA	NA
P100148.0W	Cancelled	ENL NORDIC RANCHES WELL #2	8/7/1998	NA	NA	None	NA	NA
P129012.0W	Cancelled	NORDIC RANCHES WELL #3	8/30/2000	NA	NA	None	NA	NA

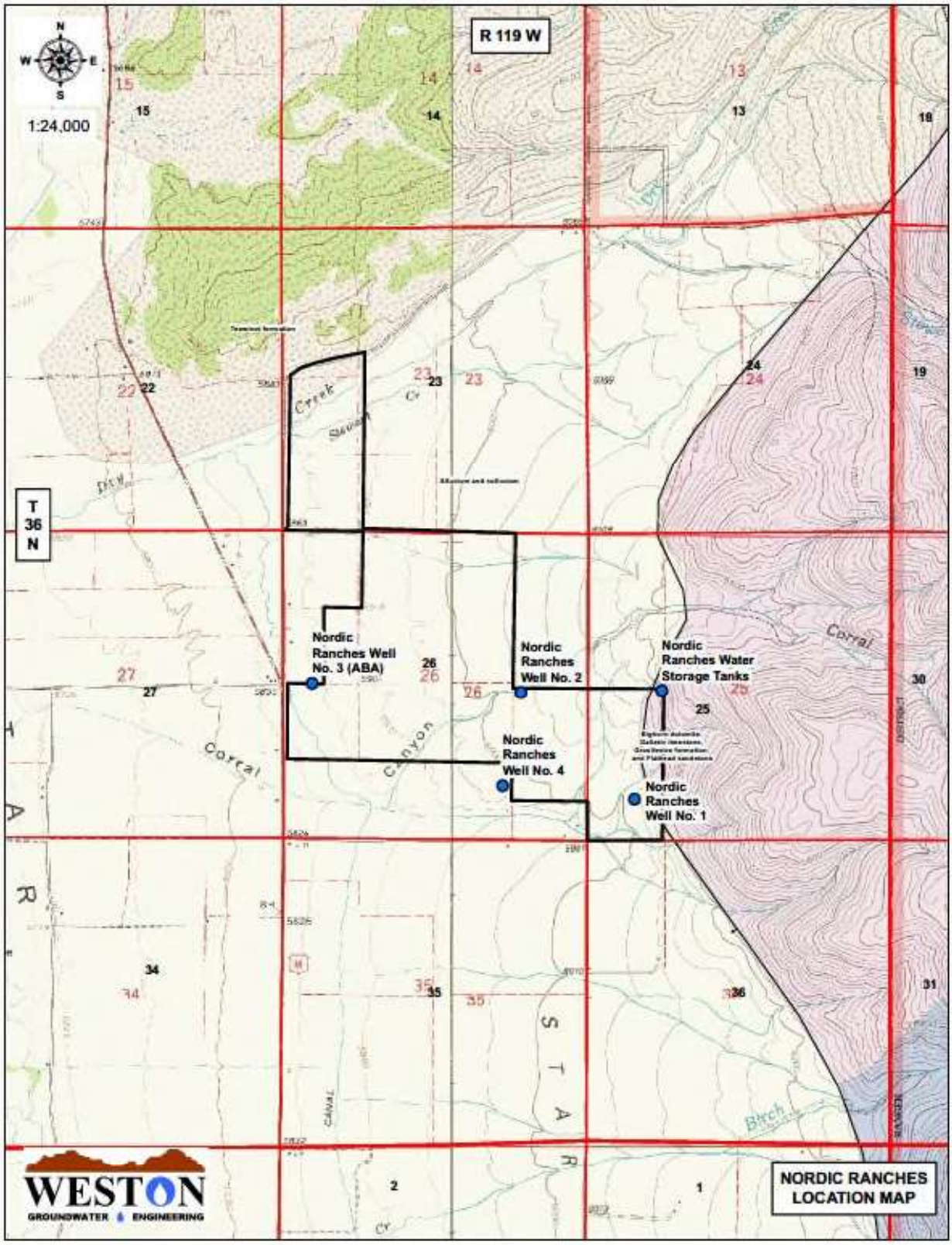

Figure 4.2 – Well Locations Map

4.5 Well Histories and Physical Yields

4.5.1 Introduction

The Nordic Ranches water supply system is comprised of three water supply wells. The locations of the wells are provided on Figure 4.2. SCADA level controls at the tanks trigger the pumps in the wells to turn on in sequence at 60%, 55% and 38% tank levels and turn off when the water levels recharge. The wells operate in the order of Well #1 followed by Well #2 and then Well #4. Each well operates for 12 hours total as the lead well then switch to the next following the order above. Water in the tanks provides pressure for the system.

As part of this project, the three Nordic Ranches wells were assessed by WESTON on October 19th and 20th, 2021. The assessment consisted of a review of records maintained by the owner, a visual inspection of the wellheads and discharge piping, measurement of water levels in the wells using the existing airlines, and brief pumping tests. Water quality samples were collected from the wells for analysis of major dissolved constituents and physical parameters, see Section 4.6 and Appendix H.

4.5.2 Water Demands

The projected water demands for the Nordic Ranches water system in 2051 for the long-term planning horizon is 75,043 gallons (52 gpm) for the average daily demand, with the average summer day demand being 85,437 gallons (59 gpm). The maximum daily demand is predicted to be 170,873 gallons (119 gpm). Some lots have access to a seasonal raw water irrigation system, which helps to reduce peak summer demands. Assuming that the future demands will be met with the three wells pumping for approximately 12 hours (720 minutes) each day, the capacity of the wellfield will need to be 105 gallons per minute (gpm) for meeting the average daily demand and 238 gpm for meeting the maximum daily demand.

4.5.3 Well Construction and Histories

4.5.4 Nordic Ranches Well #1

Well Drilling and Construction Data. Well No. 1, which is located on the southwestern corner edge of the water system in Lot 6 of Division 1, was drilled and constructed in 1984 by Darrel Ashboker. Construction details for Well No. 1 from the Statement of Completion are provided in Table 4.8 and on Figure 4.4.

The Statement of Completion for Well No. 1 reports that the well had a total depth of 283 feet with 25 feet of surface casing installed with a bentonite seal and 220 feet of 8-inch casing. The borehole diameter is 8 inches and was probably driven into place. The Statement of Completion states that a cement seal was not installed around the 8-inch casing and the borehole was left open below 220 feet. The Statement of Completion for the first enlargement of Well No. 1 states that the well was deepened to 360 feet in 1988. The main water bearing interval is fractured limestone lying between 300 and 360 feet.

Figure 4.3 – Well #1

The static water level when the well was completed was reported to be 67 feet on the Statement of Completion. Subsequent water levels are reported in Table 4.6 and indicate that the water level has dropped by approximately 11 feet since the well was put into production in 1984. The decline is not unexpected and does not pose an issue for the future productivity of the well. The well was originally equipped with a 10 HP, 85 gpm Goulds submersible pump set at a depth of 189 feet. DEQ Permit to Construct 93-475 for the Nordic Ranches subdivision indicates the pump was a Goulds 150L-10. In 2008 a Robco pump and 15 HP motor were installed in the well. The most recent pump replacement occurred in June 2020 but no records of the pump model were obtained for this study. The surface completion of the well is a Baker Monitor slide-in pitless adaptor with a water-tight vented well cap.

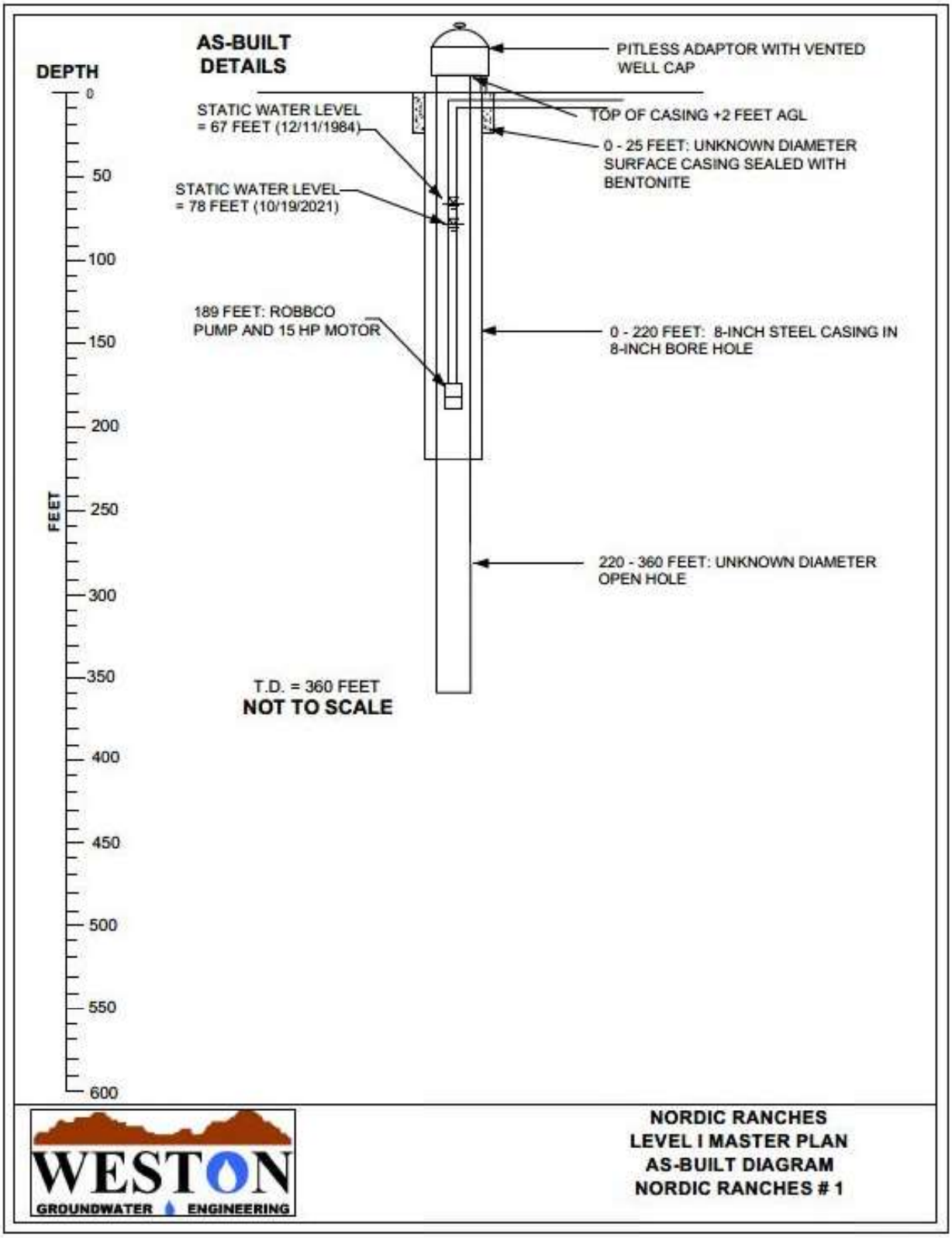

Figure 4.4 – Nordic Ranches Well #1 As-Built Diagram

Table 4.8 Nordic Ranches Well #1 Construction Summary

State Engineer Permit Number:	U.W. 76226, U.W. 95148, U.W. 100147, U.W. 173584
Location:	SW SW Section 25, Township 36 North, Range 119 West 43.071035°, -110.988894°
Total Depth:	283 feet (1984), 360 feet (deepened 1988)
Geologic Formation:	0 – 5 feet: Quaternary deposits 5 – 218 feet?: Salt Lake Formation 218? - 360 feet: Unknown Paleozoic formation
Hole Diameter:	Unknown
Casing:	0 – 25 feet: Unknown diameter surface casing 0 – 220 feet: 8-inch steel casing, 0.25-inch wall
Production Intervals:	220 – 360 feet: Open hole
Grout Seal:	0 – 25 feet: Bentonite around surface casing 25 – 220 feet: No seal
Filter Pack:	None
Static Water Level:	67 feet (December 1984) 12.9 feet (October 6, 2004) 70.3 feet (August 12, 2006) 80 feet (November 25, 2008) 71 feet (July 9, 2009) 69 feet (November 3, 2009) 83 feet (June 30, 2010) 81 feet (November 16, 2010) 78 feet (June 30, 2011) 53 feet (November 7, 2011) 81 feet (June 1, 2012) 81 feet (October 31, 2012) 76 feet (June 1, 2014) 76 feet (October 31, 2014) 78 feet (October 19, 2021)
Completion Date:	December 6, 1984 September 12, 1988 (deepened)
Testing Information:	125 gpm, 8 hours, 17 feet drawdown (May 7, 2003) 67.6 gpm, 1.5 hours, 41.0 feet drawdown (2022)
Pump Information:	10 HP Goulds pump and motor set at 189 feet (1988) 15 HP Robbco pump and motor set at 189 feet (2020)
Contractor:	Darrell Ashbocker, Idaho Falls, ID

Pump Testing. The Statements of Completion for Well No. 1 and the enlargements do not report pump testing was conducted on the well after completion. Data submitted to the SEO for Well No. 1 indicate that it was tested at a rate of 125 gpm on May 7, 2003 for 8 hours. The data sheet indicates the pump was turned on and off for unknown reasons during the test, which may have impacted the accuracy of the test results. The drawdown at the end of the test was 17 feet and the specific capacity of the well was 7.4 gpm per foot of drawdown. Inconsistency in the pumping of the well affected the accuracy of the testing results.

On October 19, 2021 Well No. 1 was pumped at a frequency of 42 Hz (out of 60 Hz maximum) for 103 minutes. The pumping rate could not be determined because new flow meters had not been connected to the SCADA system and do not have displays. Well No. 1 had been off overnight prior to testing and the water level was 78.12 feet. The maximum drawdown during the test was 4.62 feet and the water level in the well fully recovered 0.5 minutes after the pump was turned off. The water level did partially recover during testing, likely because of a slight reduction in the pumping rate. An attempt was made to run the well pump at 42 Hz after the meter was connected to the SCADA system, but the pump would not operate at that frequency with accurate flow meter readings.

The well was re-tested on March 8, 2022 at a rate of 67.6 gpm for 92 minutes. Data from the test is presented in Appendix G. Drawdown data from the test are plotted on Figure 4.5 in the semi-logarithmic method developed by Jacob (1946). Plotting the test data in a semi-logarithmic plot allows for straight-line extension of the test data to predict future water levels, assuming the aquifer is homogenous and there are no positive or negative hydraulic boundaries. In the case of the aquifers at Nordic Ranches, the aquifer is not homogeneous but the Jacob method likely provides a reasonable approach to predicting water level drawdowns. The drawdown in the well at the end of the test was 41.0 feet which left 65 feet of water over the pump intake and 96 feet of water over the bottom of the casing. The drawdown was 39.27 feet within the first two minutes of testing and was stable at 40.0 feet for the last 20 minutes. The specific capacity of the well is 1.65 gpm per foot of drawdown.

Pump Controls and Wellhouse Piping: Electrical service for the Well No. 1 building is 240 volt 200 amp single phase. The pump control is an ABB variable frequency (VFD) controller that is generally set to 60 Hz. A 100 amp service disconnect is located adjacent to the well. A vault beneath the pumphouse contains a 3-inch magnetic flow meter, isolation valve, a port and pressure transducer for the VFD, and a valve with a threaded nipple for sampling. There is no pressure gage, check valve, or smooth nosed sampling tap in the building. The static pressure in the water system in the building is 65 psi.

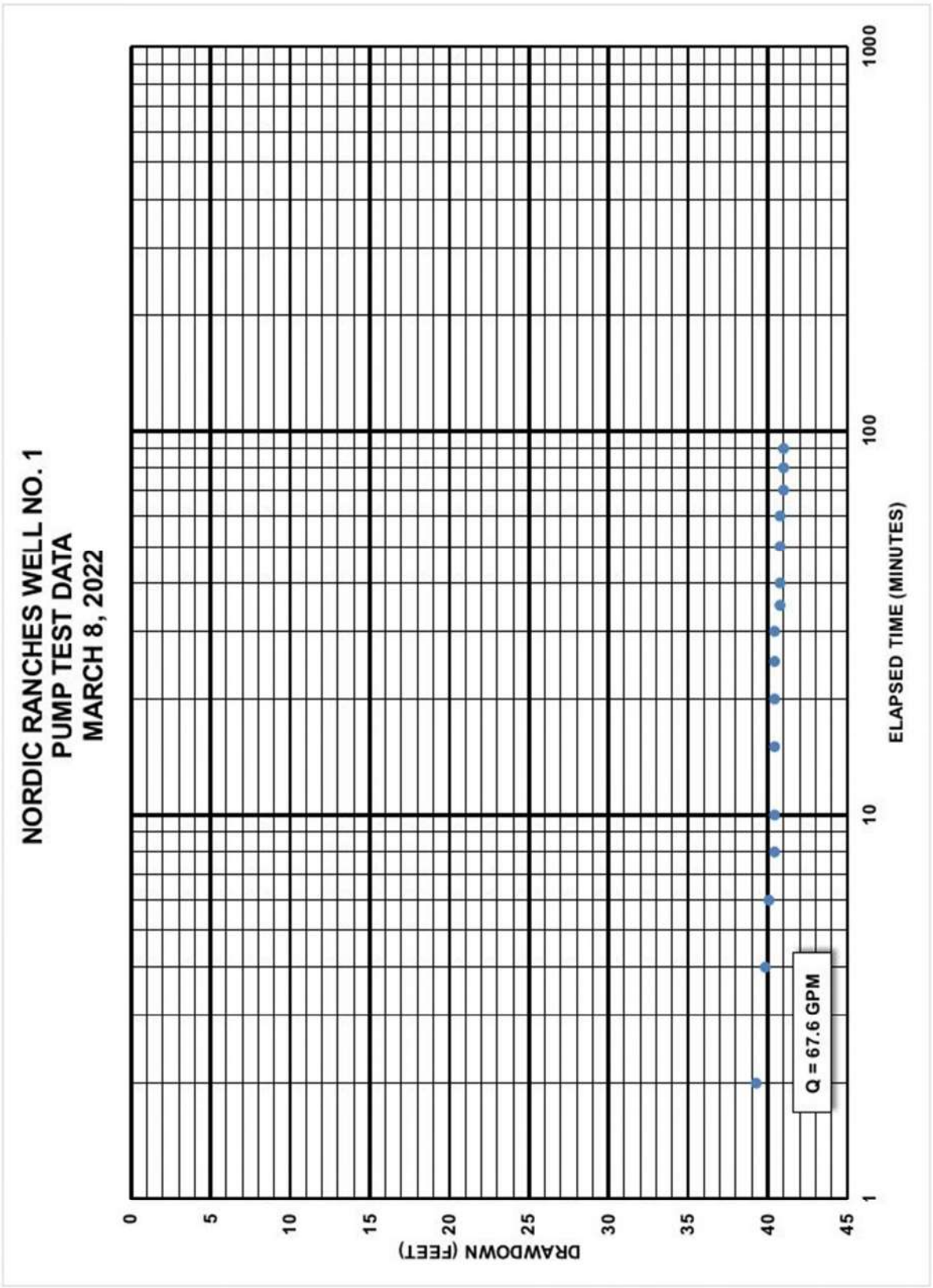

Figure 4.5 – Well #1 Pump Test Data

4.5.5 Nordic Ranches Well #2

Well Drilling and Construction Data. Nordic Ranches Well No. 2 is located on Lot 20 of Division 3 in the east-central part of the water system. As indicated in Table 4.9, the well was drilled in 1994 by Thomas Drilling to a depth of 550 feet. Well construction details are also presented in Figure 4.7. Twelve inch steel casing was set to a depth of 125 feet and an 8-inch liner with unknown perforations across three intervals between 220 and 490 feet. The sanitary seal in the annular space is an unknown material from 0 to 30 feet. The main water-bearing intervals in the well are fractured limestones from 227 to 248 feet, 287 to 364 feet, and 443 to 487 feet. The estimated yield during drilling was 120 to 130 gpm.

Figure 4.6 – Well #2

The static water level when Well No. 2 was completed was reported to be 207 feet on the Statement of Completion. Subsequent water levels are reported in Table 4.9 and indicate that the water level has dropped by approximately 38 feet since being put to use in 1994. The well was originally equipped with a 25 HP, 120 gpm Goulds 100H25 submersible pump set at a depth of 441 feet. The pump was last replaced in 2015. The surface completion of the well is a Baker Monitor slide-in pitless unit with a water-tight vented well cap.

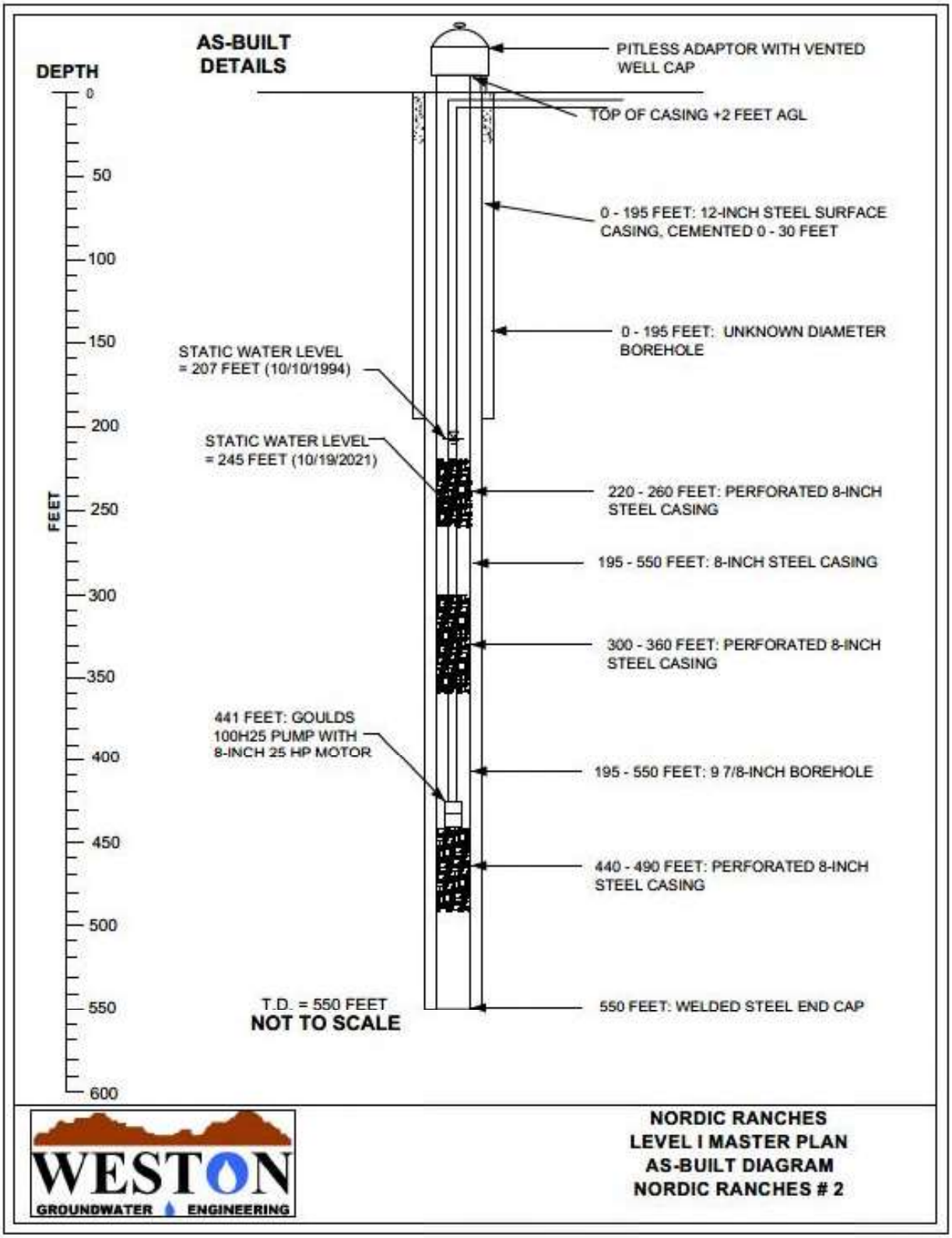

Figure 4.7 – Nordic Ranches Well #2 As-Built Diagram

Table 4.9 Nordic Ranches Well #2 Construction Summary

State Engineer Permit Number:	U.W. 108464, U.W. 173585
Location:	NE SE Section 26, Township 36 North, Range 119 West 43.076108°, -110.996235°
Total Depth:	550 feet
Geologic Formation:	0 – 3 feet: Top soil 3 – 100 feet?: Alluvial deposits 100? – 550 feet: Salt Lake Formation
Hole Diameter:	9 7/8 inches
Casing:	0 – 195 feet: 12-inch steel casing 195 – 550 feet: 8-inch steel casing
Production Intervals:	220 – 260 feet: unknown perforations 300 – 360 feet: unknown perforations 440 – 490 feet: unknown perforations
Sanitary Seal:	0 – 30 feet: 40 sacks of unknown material
Filter Pack:	Unknown interval: 3/8-inch gravel
Static Water Level:	207 feet (October 1994) 207 feet (November 26, 2008) 205 feet (July 21, 2009) 238 feet (November 12, 2009) 233 feet (July 2, 2010) 221 feet (November 11, 2010) 230 feet (June 23, 2011) 226 feet (November 9, 2011) 233 feet (May 31, 2012) 219 feet (October 31, 2012) 226 feet (May 31, 2014) 233 feet (October 31, 2014) 245 feet (October 20, 2021)
Completion Date:	October 10, 1994
Testing Information:	130 gpm, 7 hours, 5 feet drawdown (1994) 132 gpm, 1.62 hours, 9.82 feet drawdown (2020)
Pump Information:	Goulds 100H25, 120 gpm pump and 25 HP motor set at 441 feet (1994)
Contractor:	Thomas Drilling, Afton, WY

Pump Testing. The Statement of Completion for Nordic Ranches No. 2 reports that the well was pumped at a rate of 130 gpm for seven hours with a drawdown of five feet. The specific capacity of the well based on that data was 26 gpm per foot of drawdown.

Well No. 2 was pumped for 97 minutes on October 20, 2021 at 58 Hz. Figure 4.8 is a plot of the test data. Data from the test is presented in Appendix G. At the time of testing the 3-inch flow meter did not have an output that could be read and the pumping rate was later determined to be 132 gpm. The maximum drawdown was 9.8 feet and there was no additional drawdown during the last 17 minutes of the test. There was approximately 186.5 feet of water over the pump at the end of the test, but the upper 35 feet of perforations in the well were dewatered. Both DEQ and SEO have regulations prohibiting the dewatering of production intervals to prevent entraining air in the pump or causing bacterial fouling from the introduction of oxygen in the production zones. The specific capacity of the well in 2021 was 13.5 gpm per foot of drawdown, which is approximately 50% of the specific capacity when the well was new. The lower specific capacity suggests that the efficiency of the entry of water into the well has declined significantly. Possible reasons for the decline include fouling of the slots in the casing or fill in the well covering the slots. Sediment was not observed in water sampled from the discharge piping, but the water was effervescent. It is possible that the gas bubbles are from cavitation of water from dewatering the screens and that the perforations are partially obstructed. At the conclusion of the pump test the water level fully recovered two minutes after the pump was turned off.

Pump Controls and Wellhouse Piping. The pump control for Well No. 2 is an ABB VFD controller with line and load reactors that is generally set to 60 Hz. A diesel powered generator provides backup power for this well but the generator needs service according to the water system operator. A vault adjacent to the pumphouse contains a 3-inch magnetic flow meter, isolation valve, check valve, a port and pressure transducer for the VFD, and a valve with a threaded nipple for sampling. There is no pressure gage or smooth nosed sampling tap in the discharge piping. The static pressure at Well No. 2 is not known.

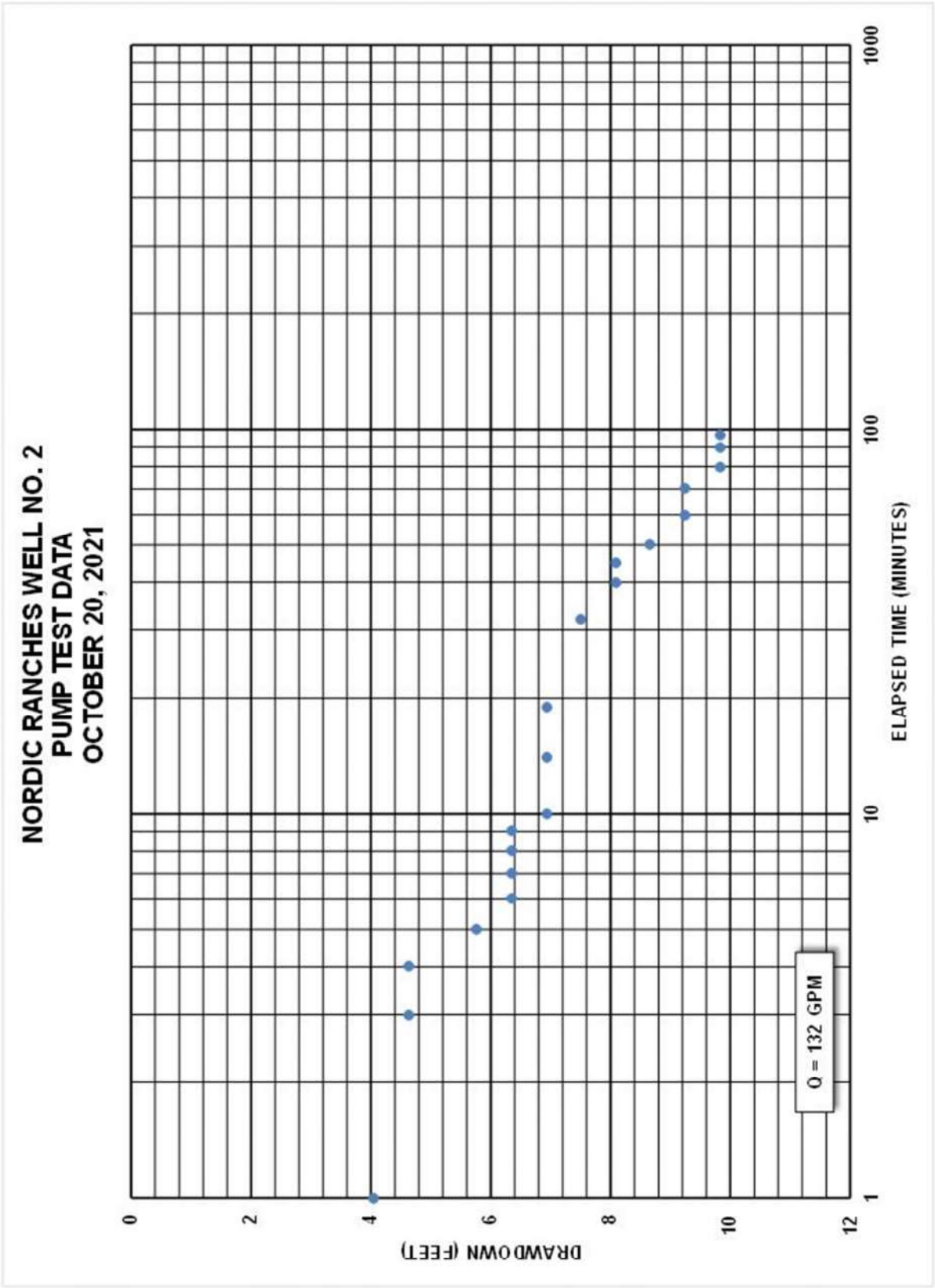

Figure 4.8 – Well #2 Pump Test Data

4.5.6 Nordic Ranches Well #3 (Abandoned)

Nordic Ranches Well No. 3 was drilled on the western side of the development on the "well lot" in Division 8. Nordic Ranches No. 3 was permitted with the SEO with Permit No. U.W. 129012 with a priority date of August 30, 2000. The well permit was cancelled after repeated permit extensions. A letter submitted to the SEO on December 30, 2002 from Benton Engineering stated that the targeted pumping rate for Well No. 3 was 495 gpm but after the well been drilled to a depth of "more than 1,100 feet" there was inadequate yield. The letter explained that water encountered at a depth of approximately 450 feet would be developed and the deeper intervals sealed with cement. Well development apparently consisted of "over pumping" but the development method was slow to clean the well and the yield was limited to 55 gpm. A drilling log for the well indicated a yield of 100 gpm with "50% sand content". The well had 8-inch steel casing installed below the 10-inch casing according to notes on a Statement of Completion included in Permit to Construct Application 02-S-023, but the notes had casing lengths that do not match borehole lengths. Further correspondence indicated the well had been plugged and abandoned. The well casing is still visible near the Well No. 3 pumphouse. Well No. 3 construction details are summarized in Table 4.10.

Table 4.10 Nordic Ranches Well #3 Construction Summary

State Engineer Permit Number:	U.W. 129012 (cancelled)
Location:	SW NW Section 26, Township 36 North, Range 119 West 43.076535°, -111.009718°
Total Depth:	1,100 feet
Geologic Formation:	0 – 4 feet: Top soil 4 – 1,100 feet: Alluvial deposits, Salt Lake Formation, unknown Paleozoic formation
Hole Diameter:	Unreported interval: 12 inches
Casing:	+1.5 – 250 feet: 12-inch steel casing, 0.25 inch wall +1.5 – 508 feet: 10-inch steel casing, 0.25 inch wall 450 – 718 feet: 8-inch steel casing
Production Intervals:	235 – 335 feet: mill knife Additional water reported at 361-374 feet, 384-405 feet, 405-455 feet, and 518-520 feet
Sanitary Seal:	0 – 38 feet: 24 sacks Portland Type I/II cement
Filter Pack:	None
Static Water Level:	107.7 feet (January 2001)
Completion Date:	January 2001
Testing Information:	75 gpm with 59.2 feet drawdown after 24 hours
Pump Information:	No permanent pump installed
Contractor:	Andrew Well Drilling Service, Idaho Falls, ID

4.5.7 Nordic Ranches Well #4

Figure 4.9 – Well #4

Well Drilling and Construction Data. Well No. 4 is located in Lot 235 of Division 14 on the south side of the water system. Figure 4.10 is an as-built diagram of the well and construction details are summarized in Table 4.11. Construction summaries state that the well has 30 feet of 16-inch surface casing cemented in place, 12-inch steel casing in a 12-inch borehole to a depth of 323 feet, and 8-inch casing in an 8-inch borehole to a depth of 607 feet. The 12-inch and 8-inch steel casings were likely driven as the boreholes were advanced. The Statement of Completion reports that torch cut slots and air shot perforations were set across four intervals between 255 and 560 feet and that ½-inch gravel was installed from 167 to 603 feet. It is not known how the gravel could be installed in the well since the casing diameter is the same as the borehole diameter and there is no annular space for the installation of the gravel. The lithologic log indicates that 40 gpm was encountered in gravel from 255 to 270 feet and 50 gpm from limestone from 300 to 320 feet. Twenty (20) gpm was observed from fractured limestone at 360 to 380 feet and 40 gpm from 540 to 560 feet.

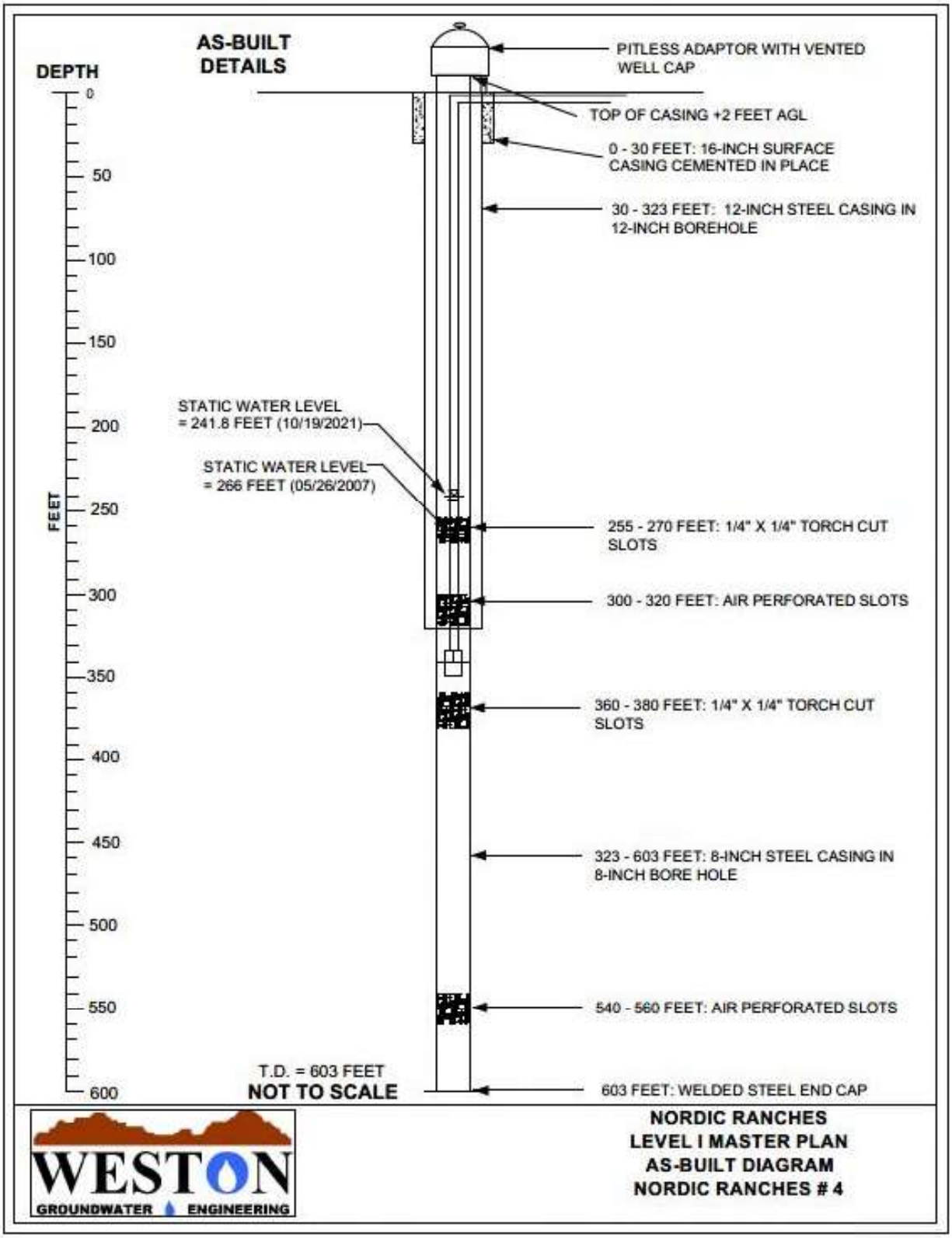

Figure 4.10 – Nordic Ranched Well #4 As-Built Diagram

Table 4.11 Nordic Ranches Well #4 Construction Summary

State Engineer Permit Number:	U.W. 173583
Location:	SW SE Section 26, Township 36 North, Range 119 West 43.071671°, -110.997399°
Total Depth:	603 feet
Geologic Formation:	0 – 310 feet: Alluvial deposits 310 – 603 feet: Salt Lake Formation
Hole Diameter:	0 – 30 feet: 18 inches 30 – 323 feet: 12 inches 323 – 603 feet: 8 inches?
Casing:	0 – 30 feet: 16-inch steel 30 – 323 feet: 12-inch steel 323 - 603 feet: 8-inch steel
Production Intervals:	255 – 270 feet: Torch cut slots 300 – 320 feet: Air perforator 360 – 380 feet: Torch cut slots 540 – 560 feet: Air perforator
Grout Seal:	0 – 30 feet: Neat cement grout
Filter Pack:	167 – 603 feet??: 1/2-inch minus gravel?
Static Water Level:	266 feet (May 2007) 235 (November 26, 2008) 232 feet (July 1, 2009) 228 feet (November 3, 2009) 239 feet (June 25, 2010) 239 feet (November 11, 2010) 232 feet (June 29, 2011) 232 feet (November 4, 2011) 235 feet (May 31, 2012) 242 feet (October 1, 2012) 228 feet (May 31, 2014) 232 feet (October 1, 2014) 242 feet (October 20, 2021)
Completion Date:	May 26, 2007
Testing Information:	125 gpm, 24 hours, 70 feet drawdown (2007) 102 gpm, 1.5 hours, 21.4 feet drawdown (2021)
Pump Information:	85 gpm Robbco pump and 30 HP motor set at 340 feet
Contractor:	Thomas Drilling, Afton, WY

The reported water level when the well was drilled was 266 feet. Prior to testing on October 20, 2021 the water level was 242 feet, indicating long-term water production from the well has not caused declines in the water level of the local aquifer. Documented water level readings from Well No. 4 are presented in Table 4.11. The well was originally equipped with a Robbco 85 gpm, 30 HP pump set at a depth of 340 feet. There are no records of subsequent pump replacement. The wellhead is currently equipped with a vented water-tight Baker Monitor well cap and a spool type pitless unit.

Pump Testing. The Statement of Completion for Nordic Ranches No. 4 does not have information for pump testing of the well when it was completed. Correspondence from DEQ for the well completion permit to construct states that the well was tested for 24 hours at a pumping rate of 125 gpm. The drawdown stabilized at seven feet after five hours of pumping, resulting in a specific capacity of 1.8 gpm per foot of drawdown.

Well No. 4 was pumped for 90 minutes on October 20, 2021 at 60 Hz. Data from the test is presented in Appendix G. At the time of testing the 3-inch flow meter did not have an output that could be read and the pumping rate was later determined to be 102 gpm. The test data is plotted on Figure 4.11. The maximum drawdown was 21.36 feet at the end of the test, which left approximately 77 feet of water over the pump. The test did dewater eight feet of the upper-most production interval. The specific capacity of the well from this test data is 4.8 gpm per foot of drawdown. This specific capacity is higher than the value calculated from testing conducted after the well was completed. At the end of the October 2021 test the water level was continuing to slowly drop and a straight line extension of the water level data indicates the drawdown would be approximately 25 feet after 5 hours of continuous pumping. At the conclusion of the pump test the water level fully recovered six minutes after the pump was turned off.

Pump Controls and Wellhouse Piping. The pump control for Well No. 4 is an ABB VFD controller with line and load reactors that is set to 60 Hz. The discharge piping for the well is contained in a wellhouse adjacent to the well. The discharge piping is 4-inch pipe with a new 3-inch flow meter, a bypass for pumping to waste, sample tap, pressure gage, check valve, and isolation valve. The static pressure in the water system in the building is 93 psi.

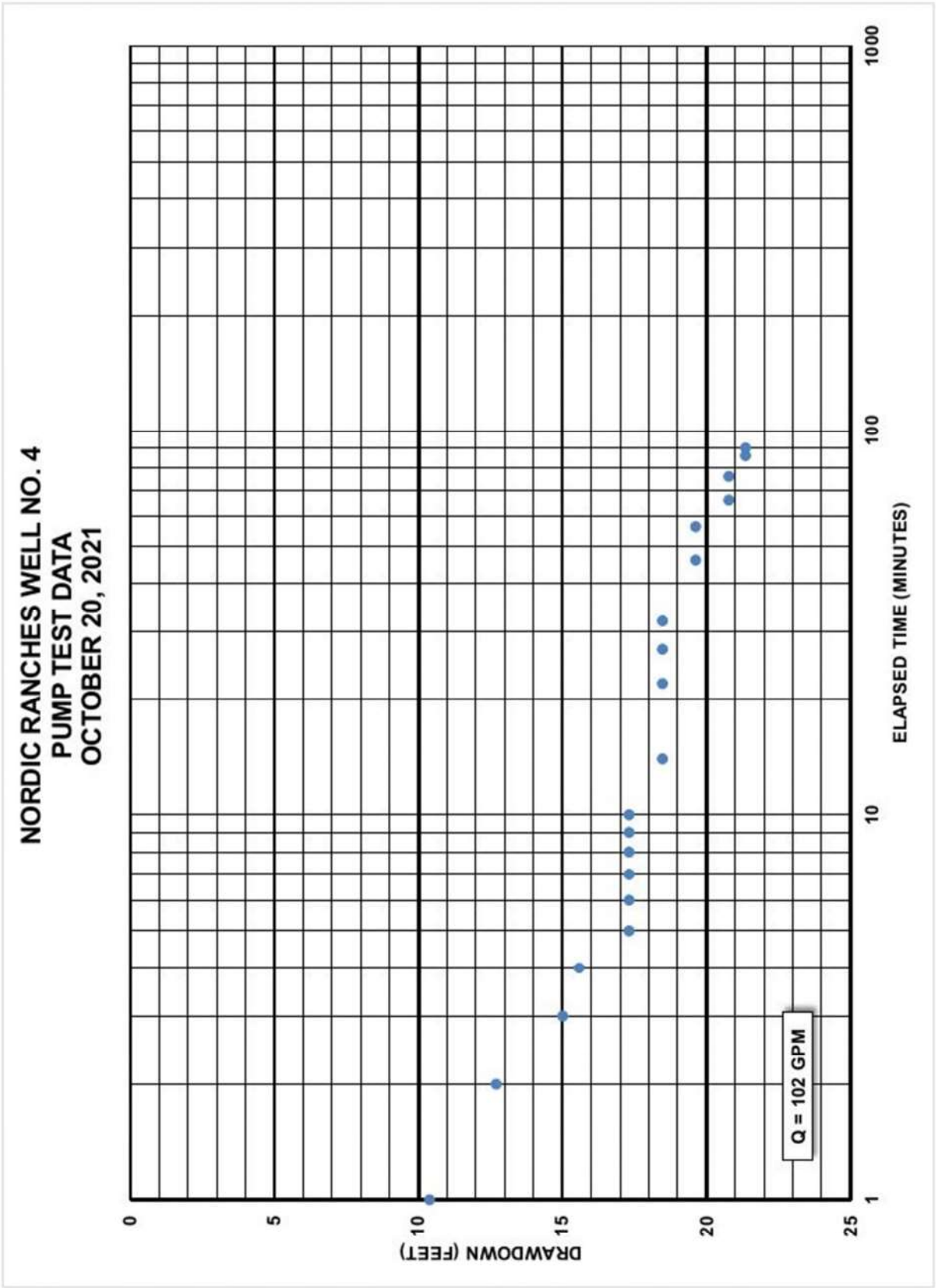

Figure 4.11 – Well #4 Pump Testing Data

4.6 Water Quality

The three Nordic Ranches wells produce water from the Salt Lake Aquifer, which generally has excellent water quality in the study area. Table 4.12 provides a summary of the results of water quality sampling performed for Nordic Ranches for compliance with EPA sampling and reporting requirements for the Consumer Confidence Reports from 2017 to 2019. The water meets the EPA standards for the constituents sampled.

Table 4.12 Nordic Ranches Water Quality Summary From 2017 to 2019 Consumer Confidence Reports

CONSUMER CONFIDENCE REPORT YEAR	YEAR SAMPLE ANALYZED	CONSTITUENT	RANGE OF RESULTS
2017	2015	Sodium	1.7 – 2 mg/l
2017	2017	Nitrate	0.18 – 4.2 mg/l
2017	2017	Gross alpha	2.1 – 5.7 pCi/l
2017	2017	Radium 226+228	1.6 pCi/l
2017	2017	Uranium	1.4 µg/l
2018	2018	Nitrate	0.18 – 3.52 mg/l
2019	2019	Nitrate	0.17 – 3.2 mg/l

Water samples were collected from the three Nordic Ranches wells on October 19 and 20, 2021 and submitted to the Wyoming State Agriculture Laboratory for analysis of major dissolved constituents and physical parameters. The results of the analyses are summarized in Table 4.13 and the laboratory reports are provided in Appendix H.

Table 4.13 Water Quality Sampling Results, Nordic Ranches Wells – October 2021

Constituent	Water Quality Standard Class I Water	Water Quality Standard Class II Water	Nordic Ranches #1	Nordic Ranches #2	Nordic Ranches #4
Date Collected	-	-	10/19/21	10/20/21	10/20/21
Alkalinity (mg/L)	No Standard	No Standard	179.2	181.2	173.5
Bicarbonate (mg/L)	No Standard	No Standard	179.2	181.2	173.5
Calcium (ppm)	No Standard	No Standard	47.47	43.11	38.18
Carbonate (mg/L)	No Standard	No Standard	<2.0	<2.0	<2.0
Chloride (mg/L)	250	100	<2.0	<2.0	<2.0
Conductivity (µS/cm)	No Standard	No Standard	334.4	356.9	326.4
Copper (ppm)	1.0	0.2	0.0259	0.0189	<0.00985
Fluoride (mg/L)	4.0	No Standard	<0.20	<0.20	<0.20
Iron (ppm)	0.3	5.0	**2.80**	<0.079	<0.079
Lead (ppm)	0.015	5.0	0.00797	0.00807	<0.005
Magnesium (ppm)	No Standard	No Standard	14.94	20.38	20.10
Manganese (ppm)	0.05	0.2	0.0267	<0.00471	<0.00471
Nitrate as N (mg/L)	10	No Standard	0.28	3.08	<0.20
Nitrite as N (mg/L)	1	No Standard	<0.20	<0.20	<0.20
pH (S.U.)	6.5 – 8.5	4.5 - 9.0	8.1	8.0	8.0
Potassium (ppm)	No Standard	No Standard	0.81	0.85	0.97
Sodium (ppm)	No Standard	No Standard	1.83	1.95	2.03
Sulfate (mg/L)	250	200	5.29	4.42	6.21
Total Dissolved Solids (mg/L)	500	2,000	160	173	153
Zinc (ppm)	5.0	2.0	0.538	0.0791	0.0214
Corrosivity	No Standard	No Standard	0.53	0.39	0.32
Total Hardness	No Standard	No Standard	180.1	191.6	178.1

Corrosivity for each well is non-aggressive

The overall water quality of water from the three Nordic Ranches wells is excellent with total dissolved solids concentrations being 153 to 173 mg/L. The water from the wells meets the EPA and DEQ standards for public drinking water systems, with the exception of an elevated iron concentration from Well No. 1. The standard for iron is based on aesthetics and elevated iron concentrations can cause staining of plumbing fixtures and laundry. The source of the iron is not known but may be the result of fine materials pumped from the open hole section of the well.

The turbidity of the water during testing and water sample collection was low and sediments were not observed in the water. It may be desirable to collect a follow-up sample of water from the well to confirm the laboratory results if residents observe iron staining. The nitrate sample from Well No. 2 was higher than the other two wells, but under the EPA and DEQ standards of 10 mg/L. The higher nitrate concentration in Well No. 2 is likely the result of influence from wastewater disposal systems but does not pose a health and safety threat.

4.7 Nordic Ranches Well Production Capacity

Table 4.14 provides a summary of the SEO permitted pumping rates, the safe yield presented in permitting correspondence with DEQ on behalf of Nordic Ranches, and the tested pumping rates for this project. Note that for the testing conducted for this Level I Project the wells were being pumped at the maximum pumping rates of the pumping equipment in the wells. The pumping rate of Well No. 1 is much less than the SEO permitted rate and Well Nos. 2 and 4 are pumping at a higher rate than permitted by the SEO. Testing of Well No. 2 at a rate of 120 gpm and Well No. 4 at a rate of 102 gpm did result in partial dewatering of production intervals. The project capacities of the wells are based on the current permitted yields and acceptance of partial dewatering of production intervals in Well No. 2. Pumping Well No. 4 at 85 gpm will likely result in no dewatering of production intervals and keep the production rate within the SEO permit conditions.

Table 4.14 Nordic Ranches Well Capacities

WELL	SEO PERMITTED PUMPING RATE	DEQ APPROVED CAPACITY	2021 TESTED RATE	PROJECTED CAPACITY
No. 1	115 gpm	120 gpm	67 gpm	115 gpm
No. 2	120 gpm	125 gpm	132 gpm	120 gpm
No. 4	85 gpm	85 gpm	102 gpm	85 gpm
Total	320 gpm	330 gpm	301 gpm	320 gpm

The projected average daily demand in the year 2051 for the Nordic Ranches water system is 52 gpm and the average summer daily demand is 59 gpm. The maximum daily demand is 119 gpm. To meet these demands, pumping the wells for 12 hours per day at a maximum, requires a pumping capacity at rates of 105 gpm and 238 gpm to meet the average daily demand and maximum daily demand respectivley.

DEQ Chapter 12, Section 9(b)(i) rules and regulations state, “Number and capacity of the total developed groundwater source, along with other water sources shall provide a combined capacity that shall equal or exceed the design maximum daily demand. A minimum of two wells, or 1 well and finished water storage equal to twice the maximum daily demand shall be provided. Where 2

wells are provided, the sources shall meet the average daily demand with the largest source out of service." Well No. 2 has the highest production capacity and without it being in service, the capacity of other two wells is 200 gpm, which is greater than the average daily demand. Based on these requirements, the Nordic Ranches wellfield has suitable capacity for meeting the current and projected water demands.

4.8 Well Conclusions and Recommendations

The Nordic Ranches wells have met the needs of the water system for many years and the water quality from the wells is very good. The wells have suitable capacity for meeting current and projected demands and water levels do not indicate that mining of the aquifer has occurred as a result of meeting demands.

The water rights for the wells should be brought into compliance with the conditions and limitations of the permits by submitting annual reports or informing the SEO that the data are not available. A plat of beneficial use map should be prepared and submitted to the SEO to initiate the adjudication process. It is understood that ownership of the well permits has caused a delay in the adjudication and completion of the wells. Once the ownership of the wells has been transferred to the NRW Trust this report recommends that NRW complete the adjudication process.

Minor improvements should be made to the water well piping including installation of a pressure gage, check valve, and smooth nose sample tap at Well No. 1 and installing a pressure gate and smooth nose sample tap at Well No. 2. The VFDs at Well Nos. 2 and 4 should be adjusted to pump the wells at rates of 120 and 85 gpm, respectively, to be within permitted pumping rates and minimize dewatering of production intervals.

5.0 SYSTEM MODELING AND GIS MAPPING

5.1 System Modeling

This master plan effort included the development of a system-wide computer model of the Nordic Ranches water system. In general. modeling of the water system showed that much of the infrastructure sizes and capabilities were capable of handling current and future demands, while several locations could use some updating to help remedy undersized lines, water age, etc. The results of the modeling will be discussed in further detail under this Section and Sections 6 and 7.

The system was modeled utilizing the most current Bentley WaterGEMS CONNECT Edition software with extended period simulations to analyze how the water system performed over an extended period. In addition, this model was used to evaluate the water age of the system particularly with relation to the seven (7) 10,000 gallon storage tanks. The diurnal curves used for modeling the demands on the system are shown in Figure 5.1. This curve is based off a typical diurnal curve from the AWWA M32 Manual. For clarification, a diurnal curve fluctuates the demands on a system based upon typical usage patterns (i.e. not as much water is in demand at 5:00 AM as is demanded at 5:00 PM. Figure 5.2 shows extended period simulation demands for the MDD on the system over a 168 hour or weekly period. This model will provide NRW with a "living" tool to evaluate current system operations and to plan for future growth. In order to ensure that this model was reflective of the actual system, the following tasks were performed:

- System Mapping and Documentation: Schematic system mapping showing pipeline sizes and location, and system components, were researched based on available mapping, as-built drawings, field investigations, and input from system operators.

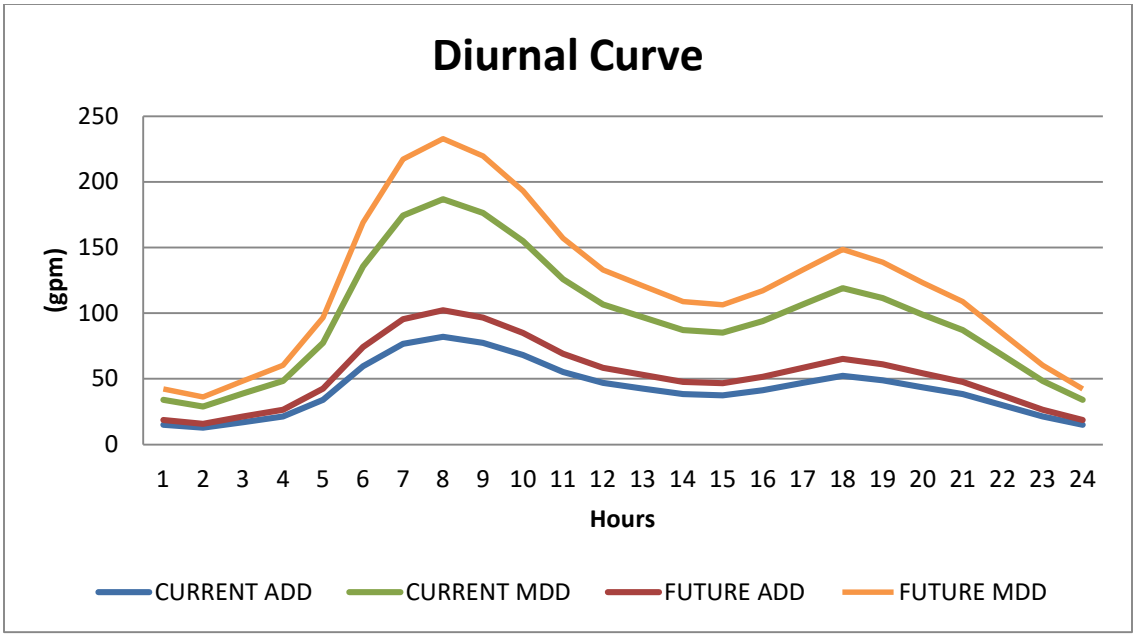

Figure 5.1 Diurnal Curve (Based on AWWA M32 Figure 2-12)

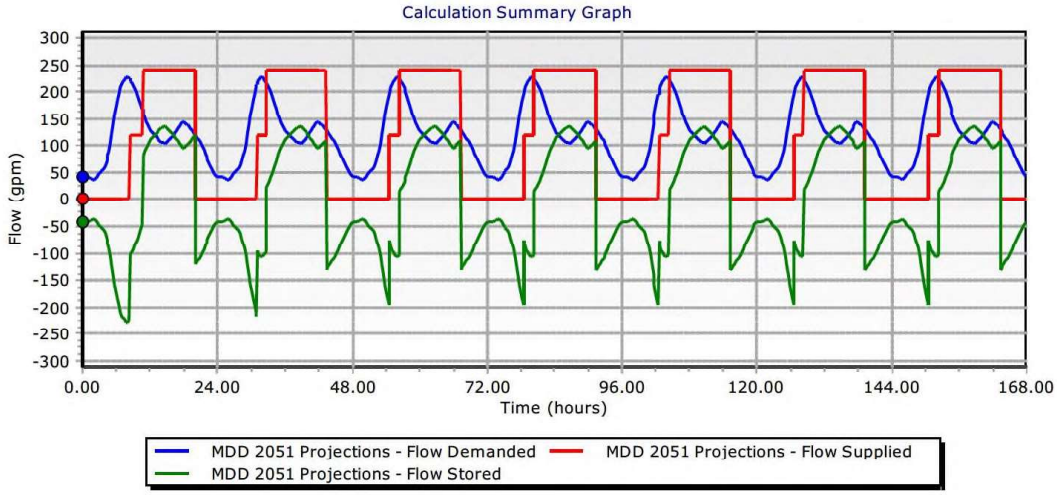

Figure 5.2 – Extended Period Simulation (EPS)

5.1.1 Water Model Calibration

- Creation of the Water Model: The Nordic Ranches water system did not have an existing water model prior to the beginning of this study. The base of developing a system model utilized the GIS system created for this study and record drawings. This effort provided piping sizes, materials (friction factors), lengths and locations.

- Establishing Modeling Nodes: Each node or data point in a model must contain relative properties that are intended to reflect "real life" locations of water system components. One of the properties that is critical to accurate system evaluation is node elevation. This

is an important factor for determining not only the actual length of pipe between nodes but in determining the outputs of the system such as pressures and fire flows. The establishment of these nodal evaluations was primarily based upon topographic mapping and recorded system pressures.

- Well Settings: The Nordic Ranches water system comes from three (3) groundwater supply wells that pump water into the distribution system and correspondingly the storage tanks. Information gathered during the well evaluation portion of this study provided a basis for establishing well and pump operations in the hydraulic model, such as pumping capacities, pump curves, operational set points, etc.

- System Demands: In order to fully evaluate the system and how it reacts to particular scenarios system demands were placed that are reflective of the work completed in Section 4. These demands represent multiple scenarios for both current and anticipated future demands on the system such as the Existing Average Day Demand and the Future Maximum Day Demand.

Multiple simulations using existing and future ADD, MDD and PHD were analyzed for the existing water system. In general, the modeling showed that all line configurations, sizes, and system components were adequate for current and future demands. Figures 5.3 and 5.4 show the system's pressures during the current and future MDD on the existing system respectively.

At first glance it may appear that Figures 5.3 and 5.4 are the same map but they are actually separate modeling events separated by 30 years of projected demands. The comparison of the two maps shows that the projected increase in demands by 2051 has a relatively minimal impact on the system and its serviceable pressures.

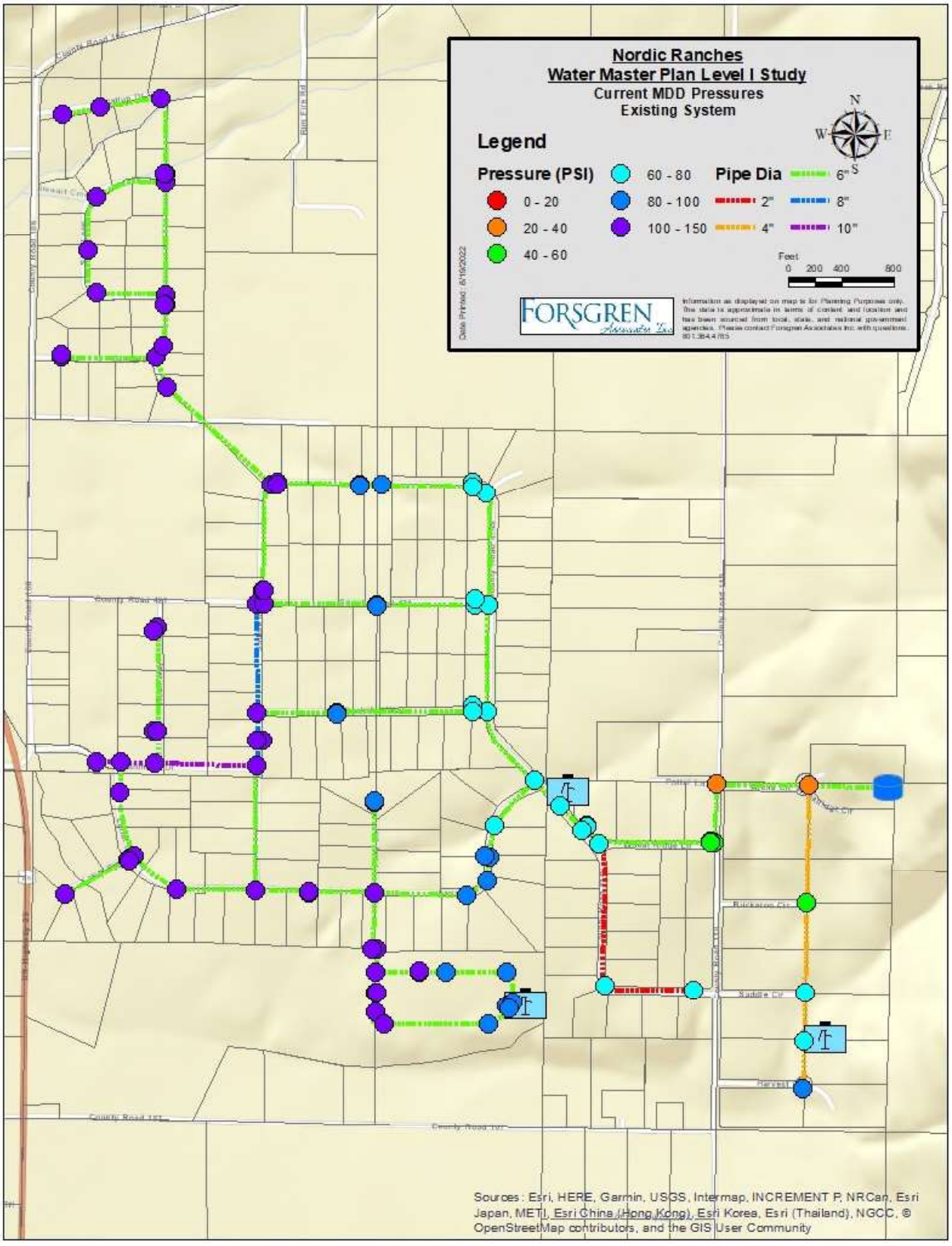

Figure 5.3 – Current MDD System Pressures

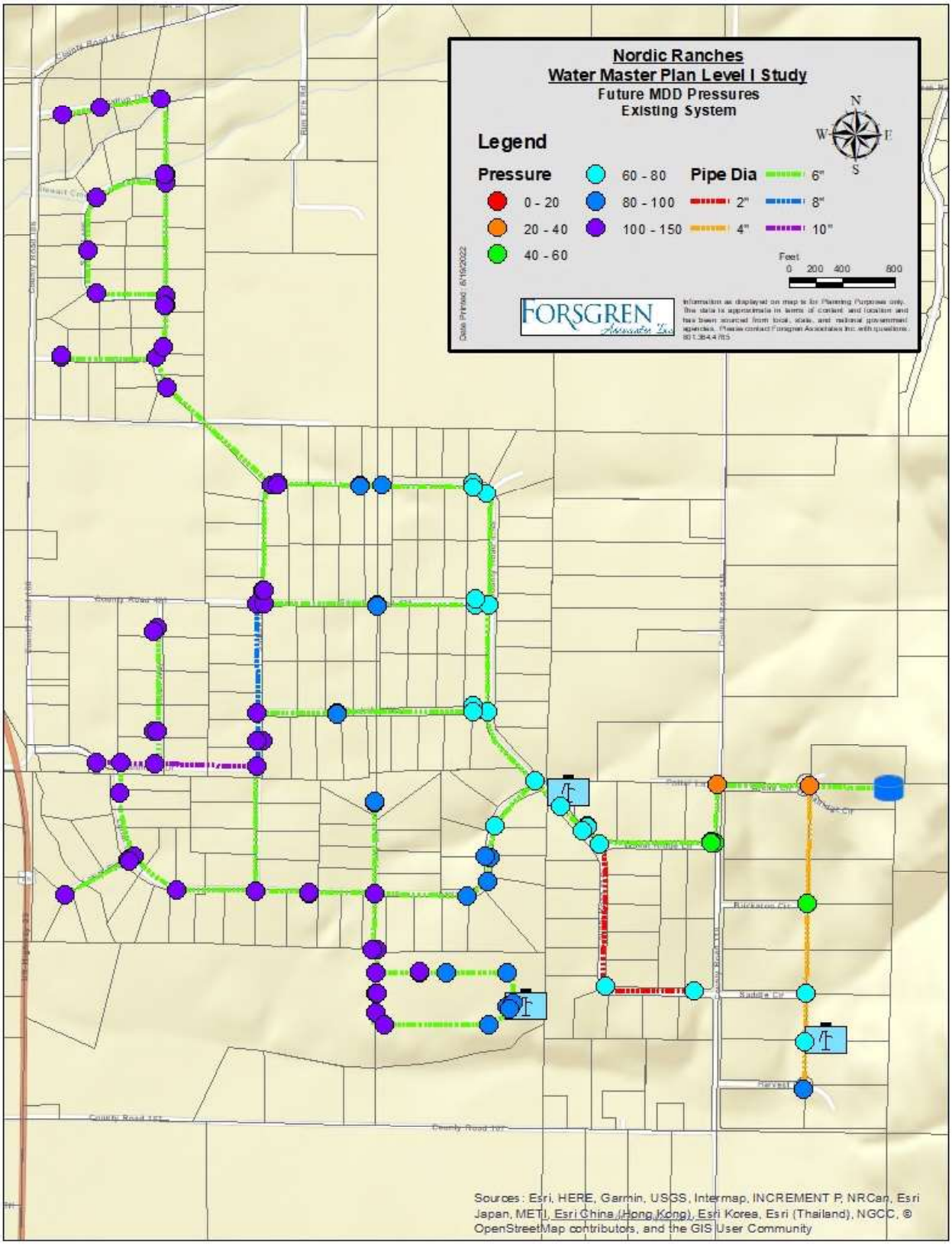

Figure 5.4 – Future MDD System Pressures

5.1.2 Water Age Evaluations

Due to a growing concern throughout the state, the Wyoming Water Development Commission is requiring water age evaluations in master plans. This is a warranted concern and can potentially have a harmful effect on the domestic users of a system. The water age in the Nordic Ranches water system does pose a concern primarily in the seven (7) 10,000 gallon storage tanks. As the tanks are essentially at a dead-end in the system, fed through the distribution/transmission system and have a single inlet/outlet configuration. The water from these tanks do not have the opportunity to circulate within the system. In general, the hydraulic modeling of the system found that as new water is pumped from the wells into the distribution/transmission system, water with a higher age is pushed to the dead-ends of the system such as the water tanks. This is often called a FILO tank system which mean a "First In Last Out" configuration for the tanks. This is a major concern as high water age can introduce disinfectant decay, byproduct formation and nitrification, to name a few. Part of the issue is the need to maintain water levels in the tanks. Maintaining these water levels is necessary for the function of the system as the tanks provide the storage and pressure control for the system. In an effort to see what operations could be done to help reduce the water age in the system, multiple modeling scenarios were analyzed. For each of these scenarios, the water age in the system starts at zero (0), which is not typical of a system but what we are trying to do with this effort is determine when the water age in the system stabilizes and reaches an equilibrium point. These scenarios look at a combination of different alternatives including the addition of tank mixers, flushing operations, alternative piping, etc.

Figures 5.5 thru 5.8 from the water modeling show the water age results for the storage tanks while utilizing a demand on the system of the Winter ADD as noted in Table 4.1. The current Winter ADD is approximately 16 gpm for the years of 2016-2021 for the months of November thru April. The reasoning behind utilizing the Winter ADD in demands scenarios is because it illustrates the worst possible water age conditions the system experiences due to low demands. Each water age figure will follow with a description of the modeling scenario used, an understanding of the storage water age, as well as system wide water age averages.

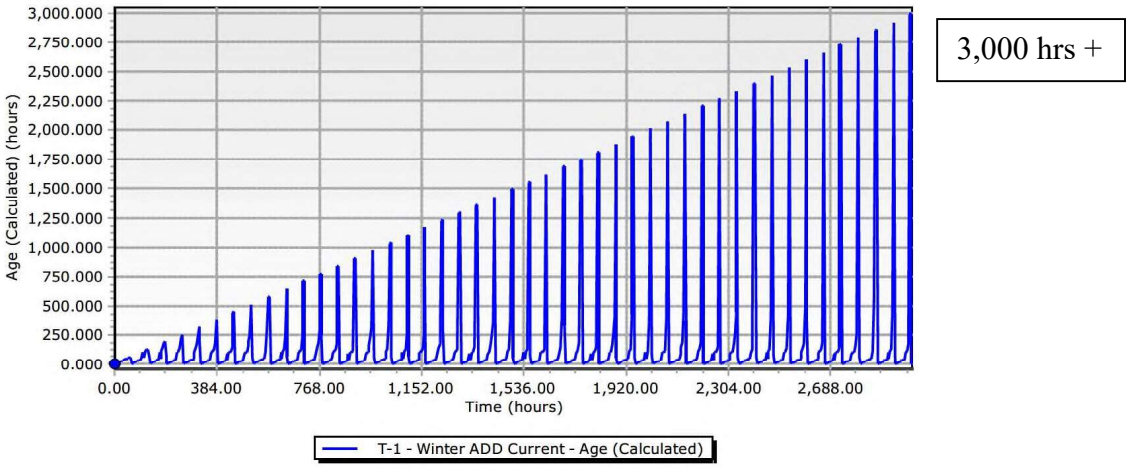

Figure 5.5 Winter ADD Water Age – Existing System, No Mitigations

Figure 5.5's scenario shows the current water age conditions of the existing storage system. As shown, the water age in the tanks is continually increasing and does not stabilize. The modeling nodes (which represent, system tees, connections, ends of lines in the distribution system) in the system do stabilize and present an average water age of 1,737 hours.

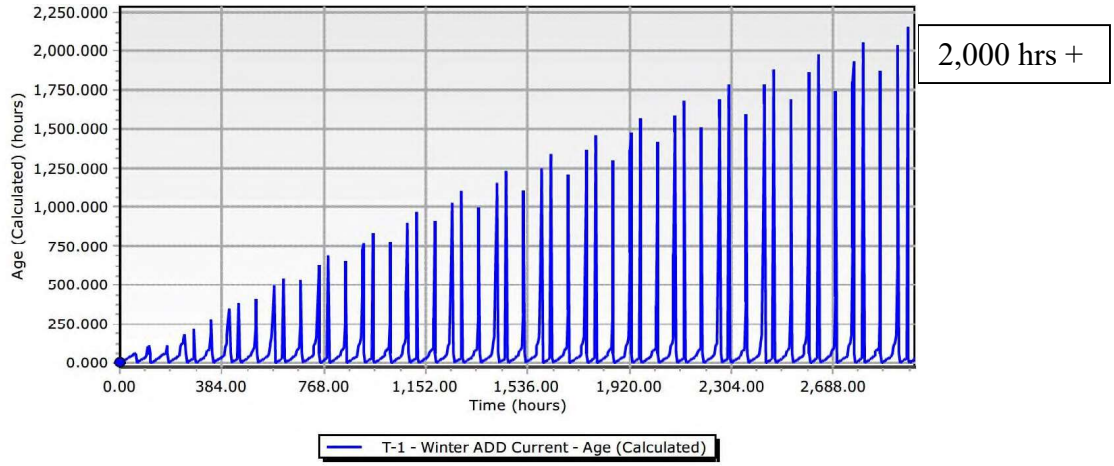

Figure 5.6 Winter ADD Water Age – Existing System, Weekly Flush (0.25 hrs @ 500 gpm)

Figure 5.6's scenario shows the current water age conditions of the existing storage system with the implementation of a weekly flush at the church hydrant at 500 gpm for 0.25 hours. As shown, the water age in the tanks is continually increasing, though at a slower rate. The modeling nodes (distribution connections) in the system do stabilize and present an average water age of 767 hours.

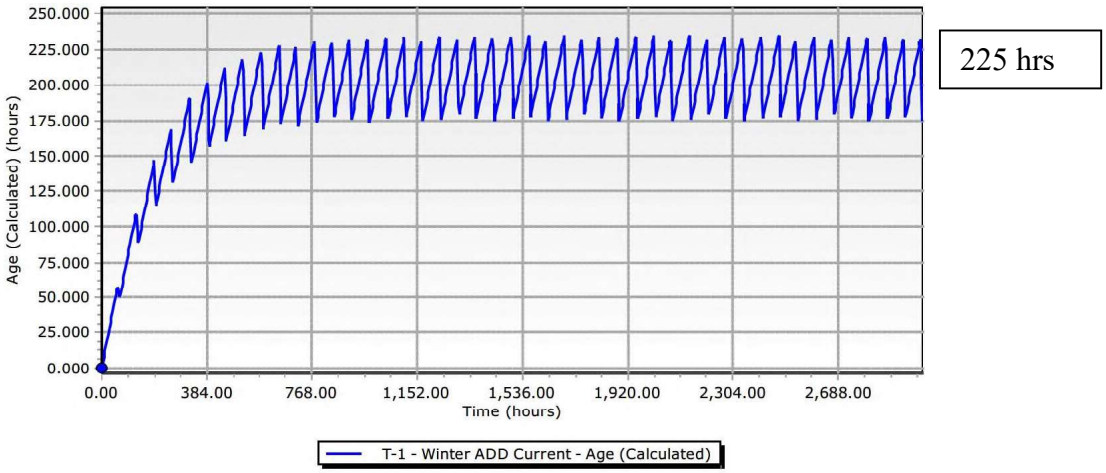

Figure 5.7 Winter ADD Water Age – Existing System, Completely Mixed

Figure 5.7 shows the water age modeling with current system and modeled with a completely mixed storage tank system. As shown, the water age in the tanks begins to level off and stabilize around 225 hours and the modeling nodes stabilize at an average age of 354 hours. The issue that presents itself is how to achieve a completely mixed storage tank system. Individual tank mixers can be installed in each of the seven (7) tanks, that helps, but only mixes the water within each tank. For a small rural system, it is operationally impractical to maintain seven mixers. The system operators could isolate and flush one tank once a week by installing a flushing line to the tank piping and rotating tank flushing sequentially. Then introduce new water to the tank, effectively mixing the system as a whole. Though operational cost/time would increase, this effort would result in relatively no capital costs.

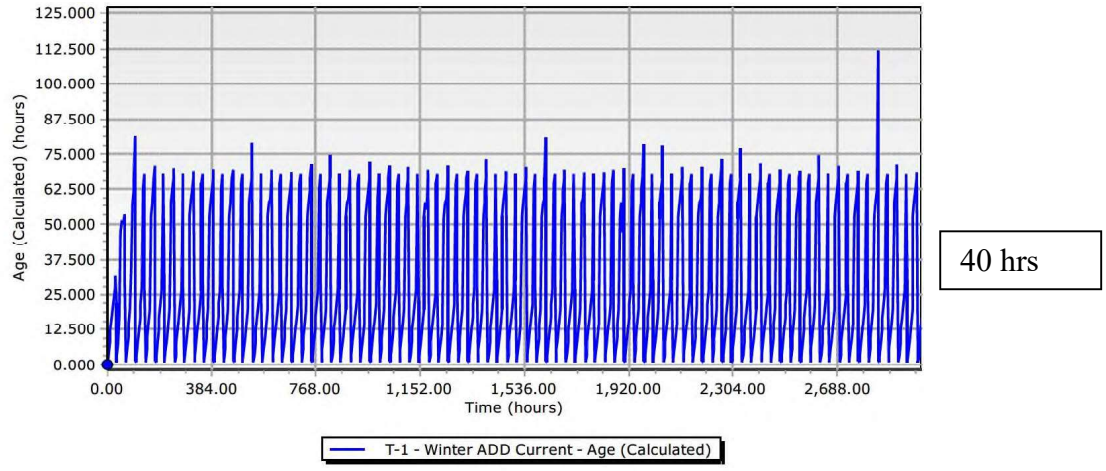

Figure 5.8 Winter ADD Water Age – Well Direct Feed

Figure 5.8 above reflects the water age in the tanks should the wells directly supply the tank through transmission lines instead of through the distribution system. This effort does appear to

have a dramatic effect on the water age of the system with the tanks water age effectively minimalized to 40 hours and modeling nodes averaged at 190 hours. The costs of implementing this system however far exceed any of the scenarios presented above and benefits may not outweigh the costs as opposed to the scenario presented with Figure 5.7. Effectively, the wells would have to be disconnected from the distribution system and new transmission lines would be installed from the wells to the tank site eliminating the storage as a dead-end in the system.

Current System Winter/Flushing Operations: To minimize the effects of water age the system operators do execute some mitigation efforts. These efforts include allowing the tank levels to drop to minimum elevations (to maintain system pressures) and manually operating the wells to force new water into the tanks and spring-time hydrant flushing to remove stagnant water in the distribution system.

System Flushing: As mentioned above, system flushing effectively has little impact on the storage water age but does reduce the overall system water age (i.e. water in the distribution system). The 'church' hydrant was modeled due to its mainline size (10") and dead-end location as a location where water age will see increases. Essentially the flushing of any hydrant within the system, particularly those at dead-ends, will help reduce the water age in the system.

Conclusion: As Figures 5.5 thru 5.8 show, the system's water age could potentially be cause for concern, particularly with the storage tanks. As stated above, one of the major concerns of water age is the potential for disinfectant decay or byproduct formation. As the system currently requires no disinfectant or additives to its water supply there is not an apparent risk or issue with the water age of the system. The consumer confidence reports (CCRs), as shown in Appendix M, show no sign of issues arising from an increased water age in the system. Should the system require disinfectants or start to experience water age related issues, this report conditionally recommends systematic weekly flushing of hydrants in the system to reduce distribution water age and recommends implementing a systematic flushing of tanks (1 tank per week) in an effort to create a mixed storage system. These recommendations will be described in further detail in Sections 6 & 7.

5.2 GIS Mapping and Database Creation

A Geodatabase for the water system was created with two purposes in mind: 1) for modeling analysis and 2) for a computerized database inventory/mapping of the system to meet the Wyoming Development Office's GIS Standards.

The line work utilized in the modeling was created in ESRI's ArcGIS software. The source of the information was derived from the NRW's As-Built sheets, hard copy maps, operator interviews and review of Wyoming DEQ's project records. The digitization of this information enables the line work to cartographically represent the water system as it has been constructed.

Of course, no engineering design or dispute resolutions should be based upon the line work generated for this model. This is simply a graphic representation of what is in place. Actual location of the line work as it represents the real world location of the pipes and system features should be considered at a planning level, which is plus or minus 200 feet in location accuracy. The data, meaning the line work, is not intended to meet a survey grade standard.

The GIS base mapping information was sourced from the Lincoln County Office of Planning & Engineering. This data information in this report uses the following Coordinate System:

GCS_North_American_1983

As such, the same Coordinate System was integrated into the Nordic Ranches Water System geodatabase created for this project. Both digitized mapping data and mapping-grade GPS information was used in the geodatabase creation. The GPS used for collection is the Trimble Geo7X, which has sub-meter accuracy. The system hydrants, hydrant valves, wells, meters and system valves were shot using the GPS unit with a data dictionary that matched the fields in the geodatabase.

An area base map has been created to maintain the water system inventory and contains the following layers:

- Water System Conveyances Geodatabase File – Forsgren Created
- Water System Structures Geodatabase File – Forsgren Created
- Water System POU Geodatabase File – Forsgren Created
- Water System Projects Geodatabase File – Forsgren Created
- Parcels Shapefile – Lincoln County
- District Boundaries Shapefile – Lincoln County

In addition to the ArcMap .mxd files of the water system geodatabase, NRW and NRCWSD has received a Published Map File (PMF), with the water system geodatabase and background files, that can be viewed in ESRI's free ArcView reader. In addition, NRW and NRCWSD has received hard copies of the system mapping created from the geodatabase and water modeling features. NRW record drawings were used to locate existing features for inclusion in the GPS data collection. Figure 5.9 shows a sample of the data collected.

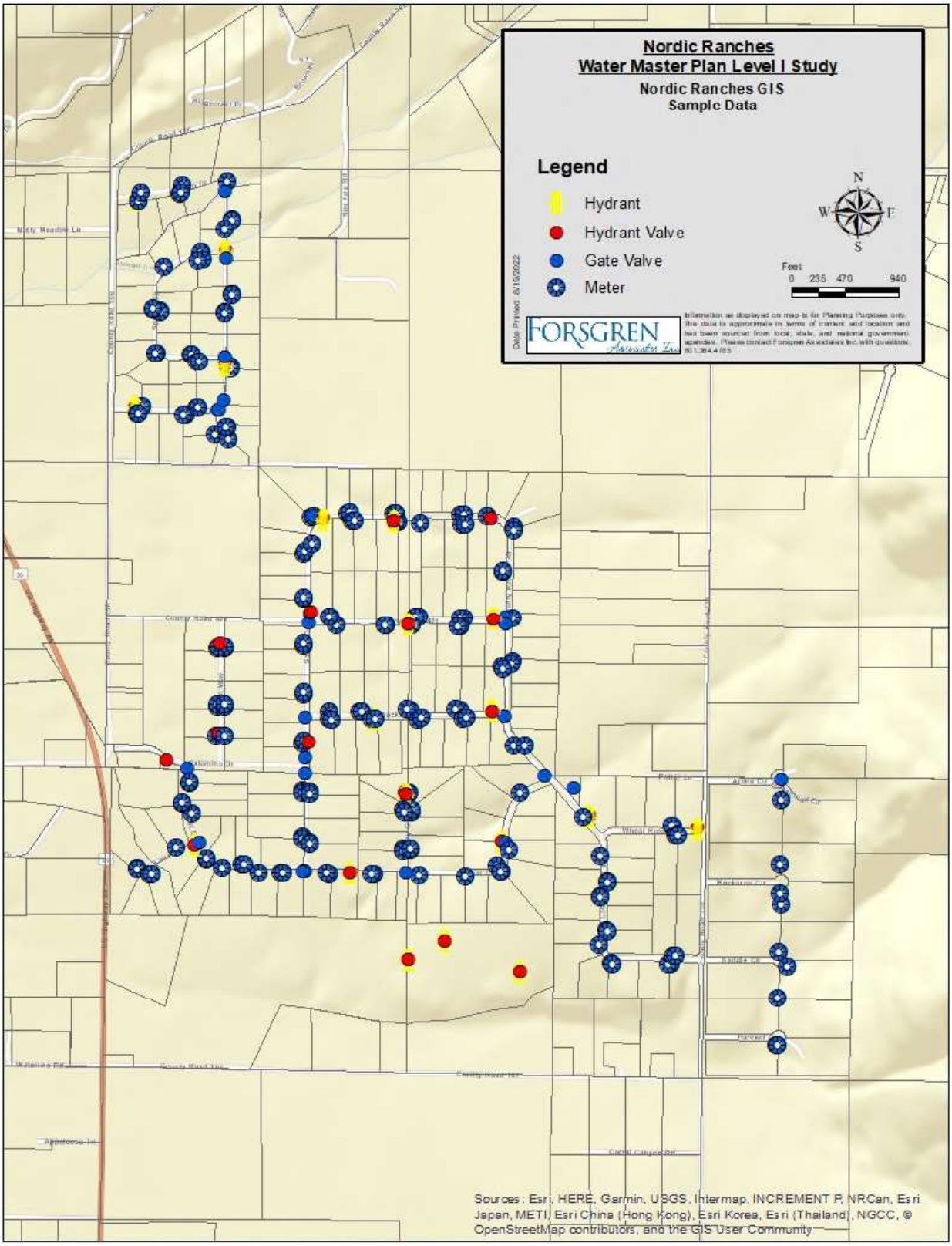

Figure 5.9 – GPS/GIS Data Collection

6.0 ALTERNATIVE EVALUATIONS

6.1 Design Criteria and Intent

When evaluating the needs of the Nordic Ranches water system, three major concerns must be addressed as follows:

- Health and Safety: The ability to provide an adequate, safe drinking water supply that meets Wyoming DEQ-WQD regulations (WDEQ-WQD, 2012-REV) and USEPA safe drinking water standards is of primary importance.

- System Reliability: Events such as power interruption and line breakages are a normal fact of life. They should not, in our opinion, result in water service interruption to the community at large. Adequate reserve facilities and redundancy of critical system components can minimize that risk.

- Ability to Accommodate Growth: This criteria involves not only the magnitude of growth, but also the locations of that growth. As moderate growth is expected for Nordic Ranches and Lincoln County in the foreseeable future this may not seem like a concern for the system, but growth projections are not always accurate. Understanding the adequacy of the water system under different demand locations and scenarios is important for current and future planning.

6.2 Fire Protection

The Nordic Ranches water system does not provide nor does purport to provide fire protection in the water system. The system was not designed to provide fire protection nor is required by state or federal regulations to provide fire protection with the existing development or the plans for additional development (Division 14). For the purposes of this study, this section is intended to show what current flow capabilities are from the flushing hydrants in the system and what system upgrades would be necessary if the system were to provide fire protection in the future. Some scenarios that may require system upgrades to accommodate fire protection services include; if the system transfers ownership to the District and the community desires to provide fire protection, development of public or private facilities that require State Fire Marshall reviews (5,000 square feet or greater, child care centers of more than 10 children, multi-story buildings, commercial buildings, etc.).

Wyoming DEQ-WQD Chapter 12 regulations require that systems “maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow.” This requirement includes fire demands under peak use conditions. Chapter 12

regulations also require that the minimum pipe size serving a fire hydrant be 6-inches (8” if line is over 250 feet and not looped).

A fire flow analysis, using the hydraulic model developed for this study, analyzed the current capacity of available flow from the flushing hydrants in the system. Figure 6.1 illustrates the results of this analysis under maximum day demands.

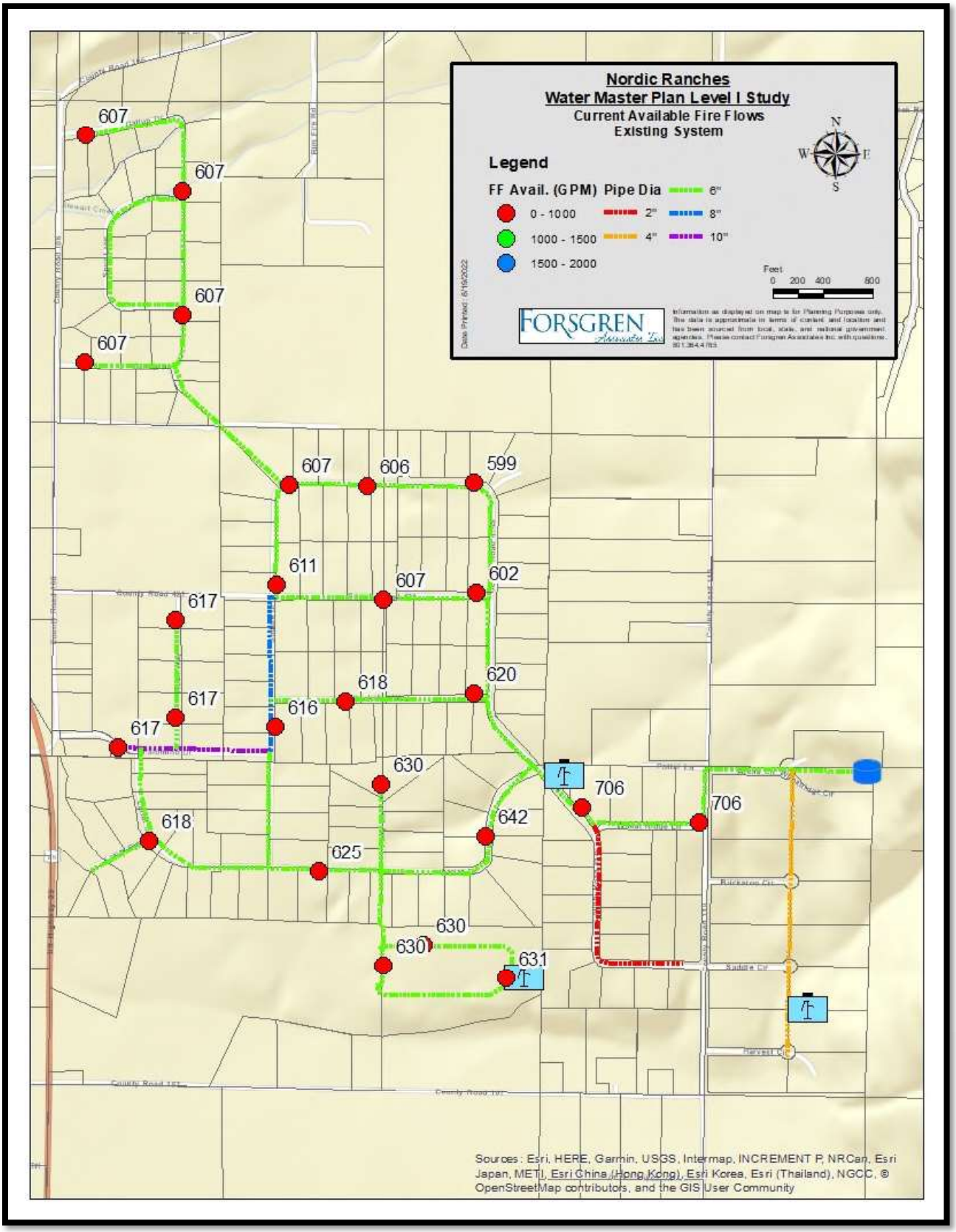

Figure 6.1- Current Available Fire Flows MDD w/Fire Flow (gpm)

As shown above, the current flow capacities of the hydrants in the system range from 599 – 706 gpm (average of 623 gpm). Though the Nordic Ranches water system does not provide fire flow, it does allow at times the filling of water trucks. The flow capacities of the hydrants in the system are an important factor to be aware of when allowing the filling of these trucks, such that pressures in the system do not drop below 20 psi as required by Wyoming DEQ Chapter 12. It is recommended that the local fire agency receive a copy of this data so that they are aware of the constraints and that NRW install flow capacity tags or rings indicating the capacities of each hydrant.

To evaluate the system upgrades needed to provide fire flow, should the system decide, Wyoming DEQ-WQD Chapter 12 regulations also state that "Water systems serving from 50,000 gallons to 500,000 gallons on the design average daily demand shall provide system storage equal to the ADD (average day demand) plus fire storage". Nordic Ranches' current ADD of 61,238 gpd, future 2051 ADD of 76,367 gpd and build-out ADD of 86,813 gpd meet the above requirements.

Lincoln County has adopted the 2006 International Building Code, Appendix B, C and D for fire flow for buildings, fire hydrant locations, distribution and fire apparatus access roads. These appendices are in the Lincoln County Land Use Regulations, Appendix N. The code states that residential buildings that do not exceed 3,600 square feet should have a fire flow capability of 1,000 gpm. As a rural community Nordic Ranches falls under this guidance. A typical fire flow event is considered a 2-hour design flow, thus a 1,000 gpm fire flow for two hours demands a design fire flow storage of 120,000 gallons.

In general, most of the distribution piping within the Nordic Ranches system are adequately sized for the potential fire flow demands. There are several locations however within the system, that supply an existing hydrant, that do not meet the current Wyoming Department of Environmental Quality (WyDEQ) standards. The Wyoming DEQ Chapter 12 guidance on fire protection line sizing states "The minimum size of a watermain for providing fire protection and serving fire hydrants shall be 6 inches diameter when service is provided from 2 directions, or where the maximum length of 6 inch pipe serving from 1 direction does not exceed 250 feet, or 8 inches where service is provided from 1 direction only". Such locations within the water system can be found in Section 7.1.2.

Storage and delivery from the tanks are a major limiting factor in converting the existing system to a fire flow supplying system. Section 6.4 will discuss the required storage should the system convert to a fire flow supplying system. This study found that increasing the size of the tank and the line from the tank to the intersection of Saddle Drive and Lariat Drive (near Well #2) from a 6" line to a 10" line allowed a majority of the system's hydrants to meet fire flow demands.

Figure 6.2 below shows the fire flow potentials with the recommended improvements discussed in this Section.

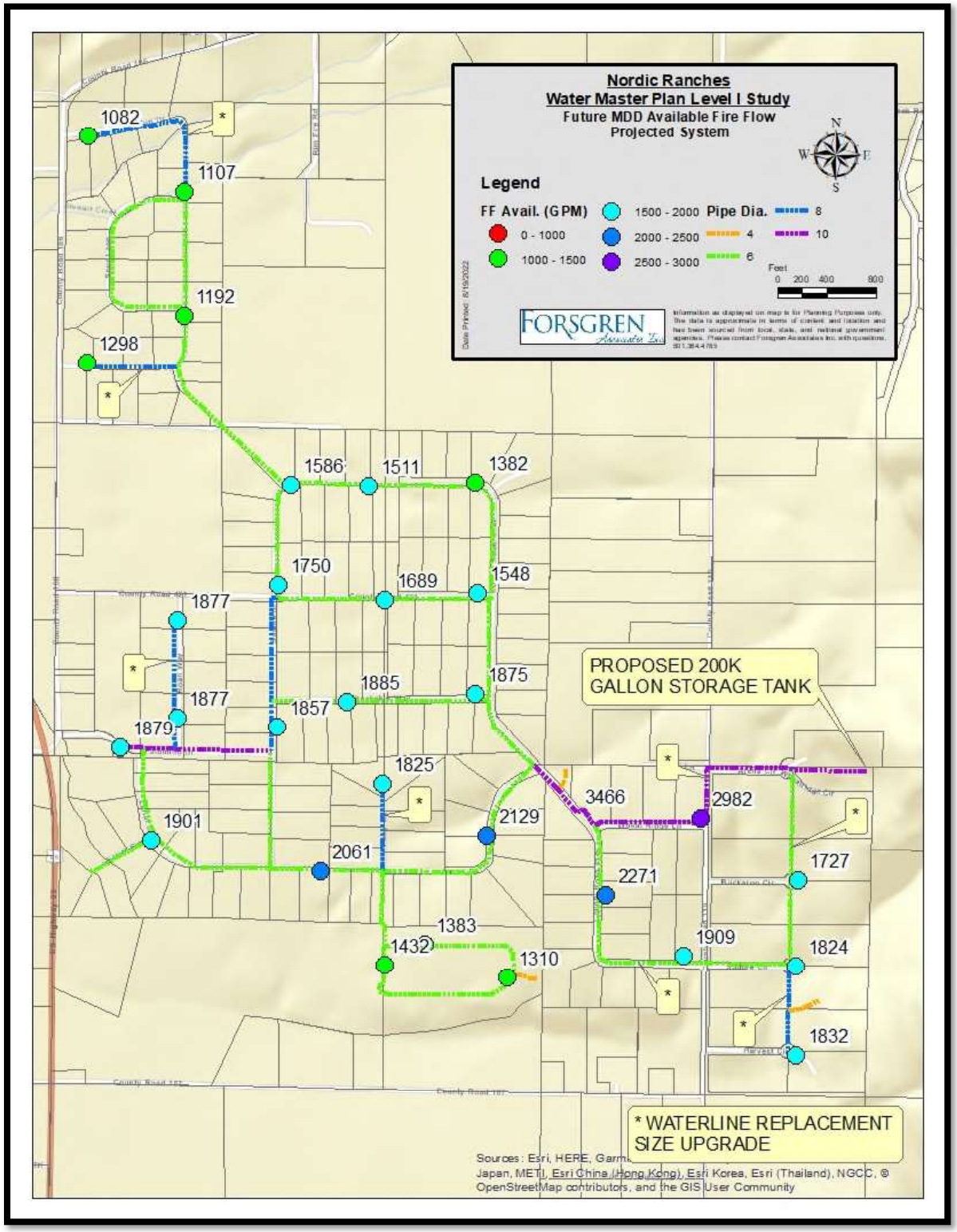

Figure 6.2- Flow Potential with Recommended Fire Flow Improvements

As shown above, the projected fire flow capacities of the hydrants in the system range from 1,081 – 3,466 gpm (average of 1,766 gpm).

6.3 Nordic Ranches Supply and Storage Requirements

The Nordic Ranches Water System, as stated in previous sections, is currently supplied from three (3) wells (Wells #1, #2 & #4), see Figures 3.1 and 4.2. The capacity and history of the wells supplying the Nordic Ranches system are discussed at length in Section 4.5 of this report.

Wyoming DEQ-WQD Chapter 12 Section 9.b.i states the following in regards to minimum system supply and storage:

> *The total developed groundwater source, along with other water sources, shall provide a combined capacity that shall equal or exceed the design maximum daily demand. A minimum of 2 wells, or 1 well and finished water storage equal to twice the maximum daily demand shall be provided. Where 2 wells are provided, the sources shall be capable of equaling or exceeding the design average daily demand with the largest producing well out of service.*

Table 6.1 shows how the existing Nordic Ranches Water System supply compares to current and future demands on the system per Wyoming DEQ-WQD regulations stated above.

Table 6.1 - Wyoming DEQ chapter 12 Section 9.b.i

Wyoming DEQ Chapter 12 Section 9.b.i	Current MDD (gpd)	Future MDD (gpd)	Current ADD (gpd)	Future ADD (gpd)	Wells and Storage (gpd)
Equal to or Exceed MDD (Wells #1 thru #4)	139,439	170,873	-	-	460,800
Minimum of 2 Wells or 1 Well plus FWS = 2xMDD (Wells #1 thru #4)	278,878	341,746	-	-	460,800
ADD with largest well out of service (Wells #1 and #4)	-	-	61,238	75,043	288,000

As shown in Table 6.1 all requirements of the Wyoming DEQ under the above mentioned section are met for current and future demand scenarios for the Nordic Ranches water system. For this study no exploration of additional water sources is recommended.

6.3.1 Alternative Power Evaluations

As part of this report, Alternative Power at the well field is evaluated in terms of WyDEQ's requirements. WyDEQ Chapter 12 Section 8 (d)(iii) states "Where the finished water storage volume that floats on the distribution system is not capable of supplying the maximum daily demand, an alternative power shall be provided for the finished water pumps. The combined

finished water storage and pumping capacity supplied by alternative power shall be adequate to provide the maximum day demand. Acceptable alternative power sources include an engine generator, engine drive pumps, or a second independent electrical supply." Currently, Well #2 is equipped with a stand-by emergency generator. Table 6.2 below summarizes the evaluation of the Nordic Ranches water system to this regulation.

Table 6.2 Alternative Power – Nordic Ranches Wells

	MDD (GPD)	FWS (GAL)	Well #2 (Existing Generator) 120 GPM	FWS + Well #2`	MDD > FWS + Well #2 / Need For Alternative Power?
Current	139,439	70,000	172,800	242,800	No
2051 Projections	170,873	70,000	172,800	242,800	No
Build-Out	194,248	70,000	172,800	242,800	No

As can be seen in Table 6.2 above, the current and future demands on the system does not mandate additional alternative power supply to the system wells.

6.4 System Storage

Section 13 of Wyoming DEQ-WQD Chapter 12 regulations require that "*Water system serving from 50,000 to 500,000 gallons on the design average daily demand shall provide clearwell and system storage capacity equal to the average daily demand plus fire storage, based on recommendations established by the State Fire Marshall or local fire agency."*

The Nordic Ranches' storage capacity is served by seven (7) 10,000 gallon storage tanks totaling 70,000 gallons of storage. As mentioned above, NRW does not provide fire flows for the system thus the storage requirements as based from Wyoming DEQ are equal to the average daily demand (ADD). For the purposes of this study, and as stated in Section 6.2, alternative evaluations on storage requirements are evaluated for comparison should system begin to provide fire flow capacities. Tables 6.3 thru 6.5 below illustrate the existing Nordic Ranches water system storage in comparison with Wyoming DEQ requirements stated above for current and future demands.

Table 6.3 Current Storage Requirements

Required Storage	Gallons
ADD +	61,283
Total Needed Storage	61,283
Total Current Storage	70,000
Storage Surplus (Deficit)	**8,717**

Table 6.4 Projected 2051 Storage Requirements

Required Storage	Gallons
ADD +	75,043
Total Needed Storage	75,043
Total Current Storage	70,000
Storage Surplus (Deficit)	**(5,043)**

Table 6.5 Build-Out Storage Requirements

Required Storage	Gallons
ADD +	85,308
Total Needed Storage	85,308
Total Current Storage	70,000
Storage Surplus (Deficit)	**(15,308)**

As shown in Tables 6.3 thru 6.5, the Nordic Ranches water system currently has enough storage capacity to meet the Wyoming DEQ-WQD Chapter 12 regulations for its current demands while future demands require additional storage. Based upon population projections it is estimated that around the year 2041 or when the population reaches 718 (approx. 198 system users) an additional 10,000 gallon storage tank will be required.

6.4.1 Storage & Fire Flow Considerations

Similar to Section 6.4 above, the calculation of required storage in the Nordic Ranches water system under the provision that the system provides fire flow remains the same. Thus the required storage for the system would be equal to the average day demand (ADD) plus fire flow. As stated in Section 6.2 the recommended fire flow for Nordic Ranches is 1,000 gpm. Fire flow events are typically calculated on a 2-hour fire event scenario, thus the fire flow component of the required storage is 120,000 gallons. With this scenario we will also account for clearwell capacity with regards to well production during the fire flow event. With a 320 gpm well capacity the clearwell storage for the 2-hour event is equal to 38,400 gallons. Tables 6.6 thru 6.8

below illustrate the system storage requirements for current and future forecasted demands with the inclusion of fire flow protection to the system.

Table 6.6 Current Storage Requirements with Fire Flow

Required Storage	Gallons
ADD +	61,283
Fire Storage +	120,000
Clearwell Capacity -	38,400
Total Needed Storage	142,838
Total Current Storage	70,000
Storage Surplus (Deficit)	**(72,838)**

Table 6.7 Projected 2051 Storage Requirements with Fire Flow

Required Storage	Gallons
ADD +	75,043
Fire Storage +	120,000
Clearwell Capacity -	38,400
Total Needed Storage	156,643
Total Current Storage	70,000
Storage Surplus (Deficit)	**(86,643)**

Table 6.8 Build-Out Storage Requirements with Fire Flow

Required Storage	Gallons
ADD +	85,308
Fire Storage +	120,000
Clearwell Capacity -	38,400
Total Needed Storage	166,908
Total Current Storage	70,000
Storage Surplus (Deficit)	**(96,908)**

As shown in Tables 6.6 thru 6.8 the Nordic Ranches water system storage would be in a deficit of required storage should the system provide fire flow and would need to increase storage capacity. In the event that the system does move towards a fire protection system it is not practical for the system to continue to install small storage structures (10,000 gallons at a time) but to replace the system with a single storage tank with a minimum volume of 175,000 gallons or a conservative volume of 200,000 gallons.

6.4.2 Storage Conclusions/Recommendations:

In summary, the storage requirements as based on the guidance from Wyoming DEQ are met with the current demands of the Nordic Ranches water system with additional storage required as system demands increase. Should NRW decide to provide fire flow protection capabilities the current system would fall out of compliance and additional storage would be needed for the system. For this study, no recommendation for additional storage at this time is necessary as the existing system meets regulations, with the understanding that around approximately 2041 an additional 10,000 gallon storage tank will be needed. With relation to the water age in the system however this study does provide recommendations to reduce the water age in the system as discussed in Sections 5.1.2 and 7.1.6.

6.5 Transmission and Distribution Piping

6.5.1 System Transmission Lines

As illustrated in Figure 3.8 of this report identifies three transmission lines that convey water from the wells to the storage tanks. These transmission lines are not purely dedicated to transmission but are interconnected with the distribution piping of the system.

6.5.2 System Distribution Piping

The Nordic Ranches water distribution system primarily consists of 2" thru 10" PVC waterlines, see Figure 3.1. As stated above, the distribution system appears to be in good condition. Though this study did not involve physical inspection of system piping, the age, types of construction materials and discussions with the system operator appear to indicate good conditions of the system. Results from the system hydraulic modeling show that, in general, the water lines are adequately sized for current and future system demands.

Valve Location/Additions Program: During the data collection portion of this study much of the mainline valving was located utilizing a GPS. In evaluation of that data, it appears that the hard copy mapping used by NRW is missing some of those valves. With the data this study has collected and the maps provided with this report NRW can gain more knowledge of the system and improve operations. Discussions with NRW have indicated that known valves (hard copy mapping) are operated on an as needed basis but there is no current systematic operation for an annual operation of the system valves. There are many locations within the water system that could benefit from additional valving, mainly for operational purposes. Wyoming DEQ recommends maximum spacing of mainline valving at 800 feet and at all intersections. The main purpose of a robust valving system primarily lies with operational impacts. For instance, if there is a leak or break in the system that needs to be addressed, a robust valving system can allow for minimal impact on system users during the repair of such issues. As an example, it becomes a numbers game such that it is better to disturb the service of 1 block of users instead of 20 blocks because of a lack of valving.

Fire Protection: As stated in this report, the Nordic Ranches Water LLC (the owner and operator of the system) does not currently provide for fire flow capabilities in the system and is not required to do so. However, should NRW decide to provide fire flow capabilities to the system in the future upgrades within the distribution system are recommended to increase the capacities of the distribution system to accommodate a minimum 1,000 gpm fire flow event. The upgrades recommended for the system, in the event of fire flow capabilities, are shown below in Figure 6.3.

As shown in Figure 6.3 the primary upgrade to the distribution system would be the replacement/installation of a 10" diameter line from the storage tank site to approximately the intersection of Lariat Drive and Saddle Drive. The existing 6" line from the tanks is currently adequate for the existing demands and operations of the system but it would limit the available fire capabilities just simply due to its size. Wyoming DEQ states that water distribution systems in a fire flow event shall not drop below 20 psi at any point in the distribution system. With the current 6" line and fire storage at the storage tank site the minimum 20 psi threshold is reached "quicker" due to pipeline carrying capacities, resulting in lower fire flow capabilities at hydrants, see Figure 6.1. With the implementation of these recommended distribution upgrades along with storage system upgrades the available fire flows of the system are as shown in Figure 6.2. Again, as stated above, this report does not take a position or propose recommendations on whether the system should or should not provide fire flow capabilities.

Fire Hydrant Replacement Program: Should the system decide to provide fire flow capabilities the following would be recommended. During the GIS data collection and evaluation of the existing flushing hydrants there are at least 4 type of hydrants. Due to the multitude of hydrant types throughout the system, the repair of these hydrants require that NRW stock parts for each type of hydrant. Below, Table 6.9 identifies the amounts of each hydrant type. Should NRW provide fire flow capabilities it is recommended that NRW make effort to homogenize the hydrant system. This would allow NRW to stock fewer parts that would cover a larger amount of hydrants. This report does not recommend a proactive approach to replacing the hydrants but more of a reactionary replacement approach in order to maximize the remaining life of each hydrant and only replace when broken or in need of repair.

Table 6.9 Hydrant Type Data

	Mueller	Waterous	Clow	Unknown	Total Hydrants
Hydrants	1	6	15	4	26

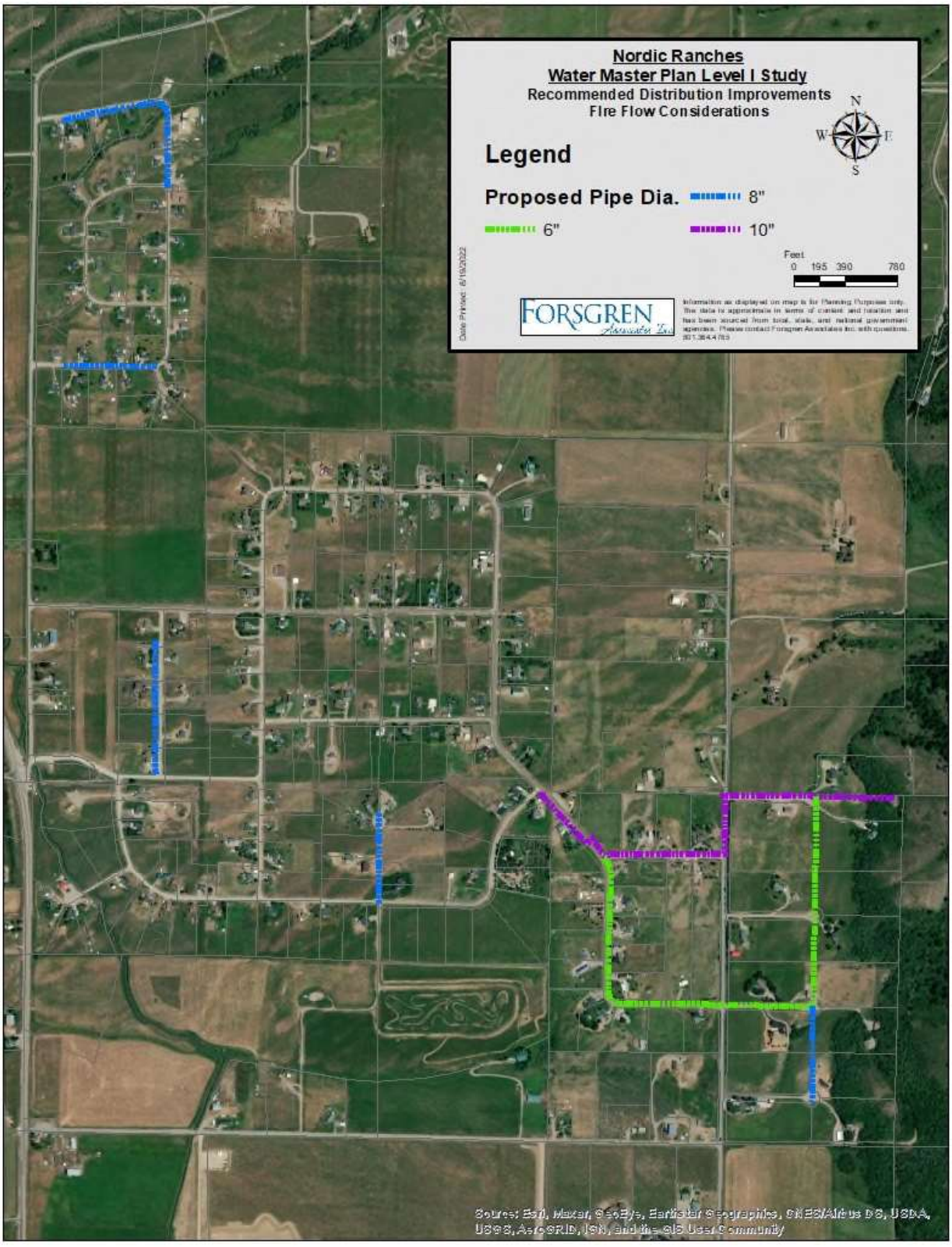

Figure 6.3- Distribution Improvements with Fire Flow Considerations

7.0 RECOMMENDATIONS AND COST ESTIMATES

7.1 Conclusions and Recommended System Improvements

Based upon the findings of this Master Plan Level I Study, the Nordic Ranches Water System is in good condition with relation to system components and a majority of it operations. This report does recommend several operational recommendations to help facilitate increased operational management and data collection, administrative recommendations regarding the water sources and future planning recommendations. Conditional recommendations are also included in this report that are based upon certain potential scenarios that may effect the water system such as a transfer of ownership, fire protection and water age. The sections below go into detail on each recommendation.

7.1.1 Source Supply Recommendations

As stated above in Section 6.3, the system wells are in good condition but there are a few recommendations pertaining to the supply system as a whole and for each individual well.

Overall System Supply: Annual reports of the wells should be submitted to the State Engineers Office (SEO) to meet the conditions and limitations of the permits. Additionally, a beneficial/point of use map should be prepared for the system source supply and submitted to the SEO to begin the adjudication process. This recommendation does not qualify as a capital improvement project but it does however come with additional operational costs in terms of operator labor/time and potential consulting costs, estimated additional operational costs are shown below in Table 7.1.

Well #1: During the well testing a few minor items were noted for Well #1 with regards to the well piping. This report recommends that a pressure gauge, check valve and smooth nose sample tap be installed in the system piping. The costs for these improvements are not considered capital improvement costs but as additional operational costs in terms of operator labor/time and minor material costs, estimated costs are shown below in Table 7.1.

Well #2: For Well #2, much like Well #1, this study recommends the installation of a pressure gauge and smooth nose sampling tap for the Well #2 piping. Additionally, this report recommends that the VFD (Variable Frequency Drive) for Well #2 be adjusted to allow for a pumping rate of 120 gpm to be within the permitted pumping rate and minimize the dewatering of production intervals. The costs for these improvements are not considered capital improvement costs but as additional operational costs in terms of operator labor/time and minor material costs, estimated costs are shown below in Table 7.1.

Well #4: In similar fashion to the recommendation of Well #2, this report recommends that the VFD of Well #4 be adjusted to the rate of 85 gpm to be within the permitted pumping rate and minimize the dewatering of production intervals. The costs for these improvements are not considered capital improvement costs but as additional operational costs in terms of operator labor/time and minor material costs, estimated costs are shown below in Table 7.1.

Table 7.1 – Source Supply Additional Operational Costs

Description	Estimated Material Costs	Estimated Consulting Costs	Estimated Annual Costs	Total Costs
Source Water Right Permits (Permit Conditions and Limitations)	**$0.00**	**$1,500.00**	**$500.00**	**$2,000.00**
Well #1 Upgrades	**$850.00**	**$0.00**	**$0.00**	**$850.00**
Well #2 Upgrades	**$250.00**	**$500.00**	**$0.00**	**$750.00**
Well #4 Upgrades	**$0.00**	**$500.00**	**$0.00**	**$500.00**
Totals	**$1,100.00**	**$2,500.00**	**$500.00**	**$4,100.00**

7.1.2 Distribution System Recommendations

As stated above in Section 6.5.2, the Nordic Ranches Water Distribution System is in great condition. Though this study did not include a visual inspection of existing distribution piping, the age of the system, associated construction standards/materials and operator interviews provide a justifiable assumption of the condition of the system. As shown from modeling results in Section 5.1, the current distribution system configuration and sizing is adequate to meet the demands of the system currently and for the projected 2051 future system. The fire flow considerations discussed in Section 6.5.2 are not considered recommendations as part of this study, but are provided purely as informational or conditional considerations should NRW decide to provide fire flow capacities in the system. This report however does have some recommendations for the distribution system with regards to system valving.

Implementation of an Annual Valve Inspection Program: During the course of the GPS data collection of the system, many system valves that did not appear on the NRW hard copy mapping were found using a metal detector and some minor hand excavations. It is assumed that these valves were not known to NRW or have not been operated for some time. One common misconception that regularly occurs with rural water systems is that minimal maintenance is needed to maintain a fully operational system. This is not to say that NRW does not perform system maintenance but that continually adding further maintenance will help extend the life of the system. If water main valves are not regularly operated (at least annually) the increased potential for valve seizing and mis-operation can be consequential. The need for a water system

to have fully operational valves is one of the key pillars to maintaining a system. This study recommends that NRW conduct an initial survey of all valves in the system and record the surface conditions of the valves, operational status and noticed issues. Then utilizing this data, initialize a plan to correct any deficiencies, install valve markers and install valve mud-plugs. The cost of such a program is considered to be relatively minimal and as part of normal operations. The costs associated with this recommendation are not considered capital improvement costs and are considered additional operational procedures.

Valve Addition Program: In conjunction with the valve inspection program mentioned above, this study recommends that NRW evaluate the system valving and identify locations within the distribution system that would benefit from additional mainline valving. This recommendation does not involve any immediate capital improvements. This recommendation relies on system operator knowledge and need for additional valving (as a result of the above Valve Inspection Program). Typical valve costs can be found in the associated line items of Table 7.2.

Conditional Recommendation – Distribution Fire Protection Upgrades: As stated above in Section 6.5.2, should the system move towards providing fire protection in the system additional upgrades to the distribution system piping are needed to increase the fire flow potentials. Figure 6.3 summarizes these piping upgrades and Table 7.2 below illustrates the cost of upgrading the distribution system.

Table 7.2 – Conditional – Distribution Fire Protection Upgrades Cost Estimate

Nordic Ranches Water Master Plan Level I Study					
Conceptual Construction Cost Estimate					
Conditional Distribution Replacements					
Estimate Date August 2022					
Item #	**Description**	**Units**	**Estimated Quantity**	**Unit Cost**	**Estimated Cost**
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
NA					
Cost of Project Components Total (subtotal #1)					$ -
Construction Engineering Cost (subtotal #1 x 10%)					$ -
Components + Construction Engineering Costs (subtotal #2)					$ -
Contingency (subtotal #2 x 15%)					$ -
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ -
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ -
Permitting and Mitigation					$ -
Legal Fees (Title of Opinion Only)					$ -
Acquisition of Access and Rights of Way					$ -
Pre-construction Costs Total (subtotal #4)					$ -
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ -
WWDC INELIGIBLE PROJECT COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$ 100,000.00	$ 100,000.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$ 50,000.00	$ 50,000.00
3	6 - Inch Waterline w/Bedding	LF	4,200	$ 60.00	$ 252,000.00
4	8 - Inch Waterline w/Bedding	LF	4,600	$ 80.00	$ 368,000.00
5	10 - Inch Waterline w/Bedding	LF	3,400	$ 100.00	$ 340,000.00
6	Service Connections	EACH	45	$ 3,500.00	$ 157,500.00
7	Gravel Road Repair	LF	12,200	$ 15.00	$ 183,000.00
8	Valves	EACH	25	$ 4,500.00	$ 112,500.00
9	Fittings	EACH	100	$ 750.00	$ 75,000.00
10	Fire Hydrants w/Tee & Valve	EACH	10	$ 7,500.00	$ 75,000.00
11	Import Trench Backfill	LF	12,200	$ 25.00	$ 305,000.00
					-
Additional Cost for Construction Engineering					$ 201,800.00
Additional Cost for Preparation of Final Designs and Specifications					$ 201,800.00
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ 2,421,600.00
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 2,421,600.00
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ -

Conditional Recommendation - Hydrant Replacement Program: As mentioned above in Section 6.5.2, it is recommended, should the system move towards providing fire protection, that the system implement a hydrant replacement program, such that as hydrants become worn down or broken they are replaced with one of the two selected fire hydrant types. As mentioned above there are at least four (4) different types of hydrants in the system. This recommendation is not an immediate capital improvement project but more of a recommendation of additional operational procedures. Typical fire hydrant costs can be found in associated line items from the distribution system improvements cost estimate above in Table 7.2.

7.1.3 Water Loss Program

As discussed in Section 4.1 above, the lack of well production data does not allow for an accurate representation and evaluation of analyzing the system's water loss. Water loss could be occurring at many locations within the system but without data to support no actions can be effectively taken. As part of this master plan, it is recommended that NRW consider developing a systematic water loss program to, at a minimum, include the following:

1. Collect and store water production data daily. With the implementation of the new SCADA system this should be easily achieved.
2. Compare metered monthly usage records against production records and accurately define the water loss percentage in the system.
3. Identify and record all unmetered use of the system water (i.e. flushing) and at a minimum estimate the amount of water used.
4. Systematically calibrate all meters within the system. Meters can often have errors with recording water flows and should be regularly calibrated to ensure accurate data collection. This can be a benefit to the system operations such that meters accurately measure the amount of water used and can reflect in the monthly billing.
5. Testing: At NRW's discretion, leak detection can be easily identified by NRW in terms of individual distribution lines. By isolating individual waterlines and installing a pressure gauge, leaks on the isolated sections should present themselves quickly.
6. Develop guidelines for how quickly identified and known leaks are remedied (i.e. budget accordingly)

This report recommends that the water system implement a water loss program to better identify system water losses and method(s) of remedy. The costs associated with this recommendation are not considered capital improvement but as additional operational procedures.

7.1.4 System GIS Program

This study recommends that NRW initiate a GIS based data collection plan into its operations. One major issue that is occurring in Wyoming is that much of the data of system operations is stored in institutionalized knowledge and as operators retire that data and experience is lost to the system. Notwithstanding institutionalized knowledge, hard copy mapping is great in its respect for the purpose it has served but it is a fragile component to system knowledge that can be lost with a spill of a coffee or weathering. By implementing a GIS (Global Information System) most of the data needed to efficiently operate and maintain a water system can be stored digitally and accessed while onsite. As mentioned above in Section 6.5.2, a lot of the valving data located during the data collection portion of this study was not present on hard copy mapping and can be useful to the system operators. Much of that data collected as part of this study can be used as a solid building block in developing a GIS system for NRW. Table 7.3 below presents the cost for initiating a basic GIS system through ESRI (Environmental Systems Research Institute, Leader in GIS Programs) including some consulting/training costs to get started with the system.

Table 7.3 – GIS System Costs

Description	Estimated Initial Costs	Estimated Annual Costs
GIS Online Licensing (3 User Licenses)	**$1,500.00**	**$1,500.00**
GIS Setup (Consulting)	**$2,500.00**	**$0.00**
Training (Consulting)	**$1,000.00**	**$0.00**
Totals	**$5,000.00**	**$1,500.00**

7.1.5 System Water Storage Recommendations

As stated above in Section 6.4, the current water storage of the Nordic Ranches water system meets the requirements of Wyoming DEQ in terms of capacity for the current system. Should demands and anticipated growth hold to projections the water system will not need to provide additional storage until approximately the year 2041 or when the number of the users of the system reaches approximately 198.

One issue that will likely arise when additional storage is needed is the availability of space at the storage site. This report recommends that when additional storage is required a single (larger) tank replace the existing 'tank field'. It is also recommended that this tank be designed and fabricated to expand as the system grows. For this, an above ground steel bolted tank is recommended with an initial design capacity of 100,000 gallons expandable to 200,000 gallons. Additionally, during the construction of this tank, a temporary storage facility should be constructed to meet the system demands. Many systems in the Star Valley area have implemented this type of tank because it allows for the flexibility to increase the storage capacity when the need occurs, diverting some cost at initial construction. Table 7.4 below summarizes the anticipated costs associated with the installation of this tank.

Table 7.4 – 100K Gallon Bolted Steel Tank (Expandable to 200K Gallons) Cost Estimate

Nordic Ranches Water Master Plan Level I Study					
Conceptual Construction Cost Estimate					
100,000 Gallon Bolted Steel (Expandable to 200K) Tank					
Estimate Date August 2022					
Item #	**Description**	**Units**	**Estimated Quantity**	**Unit Cost**	**Estimated Cost**
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
NA					
Cost of Project Components Total (subtotal #1)					$ -
Construction Engineering Cost (subtotal #1 x 10%)					$ -
Components + Construction Engineering Costs (subtotal #2)					$ -
Contingency (subtotal #2 x 15%)					$ -
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ -
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ -
Permitting and Mitigation					$ -
Legal Fees (Title of Opinion Only)					$ -
Acquisition of Access and Rights of Way					$ -
Pre-construction Costs Total (subtotal #4)					$ -
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ -
WWDC INELIGIBLE PROJECT COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$37,500.00	$ 37,500.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$15,000.00	$ 15,000.00
3	Excavation, Grading and Back Fill	LS	1	$85,000.00	$ 85,000.00
4	100,000 Gallon Steel Bolted Storage Tank (200K Expandable)	LS	1	$400,000.00	$ 400,000.00
5	Concrete Foundation (Designed for 200K Gallon)	LS	1	$120,000.00	$ 120,000.00
6	Disinfection and Testing (Tank)	LS	1	$18,000.00	$ 18,000.00
7	Tank Piping	LS	1	$15,000.00	$ 15,000.00
8	Chain-link Security Fence	LS	1	$10,000.00	$ 10,000.00
9	SCADA/Telemetry Control Upgrades	EACH	1	$3,000.00	$ 3,000.00
10	Tank Mixer	LS	1	$15,000.00	$ 15,000.00
11	Temporary Storage (During Construction)	LS	1	$25,000.00	$ 25,000.00
12	Power Connection	LS	1	$7,500.00	$ 7,500.00
					-
Additional Cost for Construction Engineering					$ 75,100.00
Additional Cost for Preparation of Final Designs and Specifications					$ 75,100.00
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ 901,200.00
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 901,200.00
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ -

Conditional Recommendation – Storage Fire Protection Upgrades: As stated above in Section 6.4.1, should the system move towards providing fire protection in the system additional storage will be required to accommodate required fire storage of 120,000 gallons (1,000 gpm for 2 hour fire flow event). In contrast to the above recommendation, this scenario would require the system to initially install a minimum of a 175,000 gallon tank or more conservatively a 200,000 gallon tank. This tank size allows for future growth (build-out) as well as the required fire flow storage for the system therefore a tank that is expandable is not necessary. Table 7.5 below illustrates the anticipated costs for increased storage capacity should the system begin to provide fire flow protection.

Table 7.5 – Conditional - 200K Gallon Concrete Storage Tank Cost Estimate

Nordic Ranches Water Master Plan Level I Study					
Conceptual Construction Cost Estimate					
200,000 Gallon Concrete Storage Tank					
Estimate Date August 2022					
Item #	**Description**	**Units**	**Estimated Quantity**	**Unit Cost**	**Estimated Cost**
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
NA					
Cost of Project Components Total (subtotal #1)					$ -
Construction Engineering Cost (subtotal #1 x 10%)					$ -
Components + Construction Engineering Costs (subtotal #2)					$ -
Contingency (subtotal #2 x 15%)					$ -
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ -
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ -
Permitting and Mitigation					$ -
Legal Fees (Title of Opinion Only)					$ -
Acquisition of Access and Rights of Way					$ -
Pre-construction Costs Total (subtotal #4)					$ -
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ -
WWDC INELIGIBLE PROJECT COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$40,000.00	$ 40,000.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$15,000.00	$ 15,000.00
3	Excavation, Grading and Back Fill	LS	1	$85,000.00	$ 85,000.00
4	200,000 Gallon Concrete Storage Tank	LS	1	$450,000.00	$ 450,000.00
5	Concrete Foundation	LS	1	$120,000.00	$ 120,000.00
6	Disinfection and Testing (Tank)	LS	1	$20,000.00	$ 20,000.00
7	Tank Piping	LS	1	$15,000.00	$ 15,000.00
8	Chain-link Security Fence	LS	1	$10,000.00	$ 10,000.00
9	SCADA/Telemetry Control Upgrades	EACH	1	$3,000.00	$ 3,000.00
10	Tank Mixer	LS	1	$15,000.00	$ 15,000.00
11	Temporary Storage (During Construction)	LS	1	$25,000.00	$ 25,000.00
12	Power Connection	LS	1	$7,500.00	$ 7,500.00
					-
Additional Cost for Construction Engineering					$ 80,550.00
Additional Cost for Preparation of Final Designs and Specifications					$ 80,550.00
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ 966,600.00
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 966,600.00
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ -

7.1.6 System Water Age Recommendations

Conditional Recommendation - Distribution System Flushing Program: As stated in Section 5.1.2 above, should the water system begin to see detrimental effects of increased water age the implementation of weekly distribution system flushing can help mitigate the water age within the distribution system. It is recommended that system operators sequentially rotate flushing locations weekly and flush at 500 gpm for a minimum of 0.25 hours for a total of 7,500 gallons per week. This recommendation does not require any capital improvement, but it does however come with the additional cost of production as shown below in Table 7.6. Table 7.7 shows a comparison of the summer and winter average well production increase required to implement a weekly flushing schedule of 7,500 gallons per week.

Table 7.6 – Annual Distribution System Flushing Cost

Weekly Flushing Cost				
Weekly Flush (gal)	Weeks per Year	Gallons Per Year	Production Cost Per 1,000 gallons (ref Table 4.4)	Total Annual Additional Production Cost
7,500	52	390,000	$13.22	$5,155.80

Table 7.7 – Winter vs. Summer Distribution System Flushing Comparison

	Monthly Average (gal)	120,000 gal Weekly Flush (gal per month)	Total (gal)	Increase of Production (%)
Summer 2016-2020	69,720	7,500	77,220	10.8%
Winter 2016-2020	23,068	7,500	30,568	32.5%

Conditional Recommendation - Tank Flushing Program: As shown in Section 5.1.2 and Figure 5.7 creating a completely mixed storage system results in a storage water age that stabilizes as opposed to continually increasing (as the system currently operates). This report recommends that should water age related effects become present in the water quality of the system the water system operators should take measures necessary to effectively and sequentially flush the water from one tank each week, particularly in the winter months, alternating tanks each week. This will effectively introduce new water into the storage system, mix the water and reduce water age. The storage tanks are currently established to accommodate the isolation of individual tanks (while allowing the others to operate) thus allowing for flushing/draining of the isolated tank. This recommendation does not require any capital improvement but it does however come with the additional cost of production as shown below in Table 7.8.

Table 7.8 – Annual Tank Flushing Cost

Weekly Flushing Cost				
Weekly Flush (gal)	Weeks per Year	Gallons Per Year	Production Cost Per 1,000 gallons (ref Table 4.4)	Total Annual Additional Production Cost
10,000	52	520,000	$13.22	$6,874.40

7.1.7 System Acquisition

Should Nordic Ranches Water LLC (NRW) become available to turn over or sell the water system to the Nordic Ranches Community Water and Sewer District (NRCWSD), this report recommends that the district makes the necessary efforts to acquire the system. If the District were to acquire the water system, the district would then become eligible for State and Federal funding for public facilities. This acquisition can come with its challenges but there are resources available to help with the administrative, operational, and financial aspects of the process.

The district has contacted the Wyoming representatives of the Midwest Assistance Program (MAP). This program is designed to assist rural communities find solutions to create sustainable infrastructure. These solutions include financial guidance and operations management expertise. Discussions with the Wyoming representatives from MAP during the process of this report have indicated that there is not much that MAP can assist the district with at this time other than some recommendations to be ready for acquisition if it comes. These recommendations include acquiring and appraisal of the system and presence on the Wyoming Intended Use Plan.

Currently, the District is on the Draft FY2023 Intended Use Plan (IUP) but some updates are needed for the purpose of system acquisition. The existing description of the project on the plan states “New well, replace distribution lines, add storage”. The issue with this description is that it implies that the NRCWSD owns the water system, but as that is not the case currently funds for these projects would not be available from the state. This report recommends that the district update the description on the plan to state, “Drinking Water System Acquisition from Private System Owner”. The modification period for the FY2023 IUP has closed but the district can update their submittal in the next cycle. Typically, the IUP is open for modifications in January through March. The online portal to view the IUP or to update submittals can be found on the Wyoming State Lands and Investment website.

As stated above in Section 3.5.5, the present worth of the system as presented in this report is not an official appraisal of the system. As the NRCWSD is public entity an appraisal of the water system will be required prior to the purchase of the system. The Midwest Assistance Program will be able to assist the district in acquiring this appraisal. Acquiring an appraisal is

recommended in conjunction with updating the IUP as stated above as project costs are associated with the submittal of the IUP.

If the District were to acquire the water system, the district should also understand that the operations and management of the system is necessary. The district will need to hire or contract with a certified water operator to operate and maintain the system to meet EPA Drinking Water Regulations as well as establish administrative operations to establish a budget and manage the finances of the system.

7.2 Priorities

Table 7.9 shows the recommended improvements/operations and priorities.

Table 7.9 – Recommended System Improvements

Priority	Description	Notes	Implementation Date
1	**Source Water Rights (7.1.1)**	***NRW should complete the water rights for Wells #1, #2 & #4.***	***As soon as possible***
2	**Well Improvements (7.1.1)**	***Minor updates to well house piping and control systems.***	***2022***
3	**Water Loss Program (7.1.3)**	***The Implementation of a water loss program will allow NRW to better understand loss in the system, maintain more accurate records and develop priorities for system replacement/repair.***	***2022***
4	**GIS System (7.1.4)**	***The implementation of a GIS based data collection system will help improve accurate data collection, maintain records and prioritize operations.***	***2022-2023***
5	**Valve Inspection Program (7.1.2)**	***Annual inspection and operation of all valves in the system. This will help ensure operability and help prioritize valving needs.***	***2023***
6	**Valve Replacement Program (7.1.2)**	***In conjunction with priorities 4 & 5 above, establish the needs of the system to replace/add additional valving for operational considerations.***	***2023***
7	**New 100K Gallon Steel Expandable Storage Tank (7.1.5)**	***When the system demands force additional storage capacity as stated in Section 6.4. NRW should consider the installation of a 100,000 gallon steel storage tank designed to accommodate an expansion to a 200,000 gallon tank.***	***2041 (Approximately)***

Table 7.10 below describes the conditional recommendations of this report.

Table 7.10 – Recommended Conditional System Improvements

Priority	Description	Notes	Implementation Date
1C	**Storage Flushing (7.1.6)**	***Should the system begin to experience the effects of water age related issues a weekly flush/drain of one (1) tank (tanks sequentially rotated weekly) will greatly reduce the water age in the tanks and overall system.***	***NA - Conditional upon arising water age related issues***
2C	**System Flushing (7.1.6)**	***Should the system begin to experience the effects of water age related issues a a 7,500 gallon weekly hydrant flush (0.25 hrs @ 500 gpm) will reduce the distribution systems water age.***	***NA - Conditional upon arising water age related issues***
3C	**New 200K Concrete Storage Tank (7.1.5)**	***Should the system begin to provide fire flow capacities additional storage will be required to accommodate required fire flow storage. A 200K gallon tank is sized to accommodate the projected build-out demands of the system as well as fire flow storage.***	***NA – Conditional upon whether fire flow capacities are provided to the system***
4C	**Distribution System Upgrades (7.1.2)**	***Should the system begin to provide fire flow capacities, distribution system upgrades will be required to meet Wyoming DEQ Standards for fire protection including line sizing and looping.***	***NA – Conditional upon whether fire flow capacities are provided to the system***
5C	**Hydrant Replacement Program (7.1.2)**	***Should the system provide fire flow protections, it is recommended that NRW replace existing hydrants (as they break/become inoperable) with a single hydrant type. This will allow for less on-hand repair parts as the hydrant system become more homogenized.***	***NA – Conditional upon whether fire flow capacities are provided to the system***

7.3 Economics

7.3.1 Estimated Capital Project Costs

Estimated costs for recommended capital projects are summarized in Table 7.11. These costs are reflective of estimated current construction costs and include engineering plus inflation as required by WWDC. All recommended capital improvement projects presented are either anticipated to occur in almost 20 years or on a conditional basis for which may not occur. Projecting timing of implementation or cost to the timing is relatively subjective. Detailed cost estimates can be found in Appendix I of this report.

Table 7.11 – Project Cost Estimates Summary

Item No.	Description	Estimated Cost (inclusive of engineering and inflation)
7	New 100K Gallon Steel Expandable Storage Tank	$901,200.00
3C	New 200K Concrete Storage Tank	$966,600.00
4C	Distribution System Upgrades	$2,421,600.00

7.3.2 Estimated Additional Operational Costs

Estimated operational costs for the recommendations listed above are summarized in Table 7.12 below. These costs do not include costs are associated with system operator's labor, only outside labor or materials.

Table 7.12 – Additional Operational Cost Estimates Summary

Item No.	Description	Estimated One-Time/Initial Costs	Estimated Annual Operational Cost or Per Each Cost
1	Source Water Rights	$1,500.00	$500.00
2	Well Improvements	$2,100.00	$0.00
4	GIS System	$5,000.00	$1,500.00
6	Valve Replacement Program	$0.00	$4,500.00
1C	Storage Flushing	$0.00	$6,875.00
2C	System Flushing	$0.00	$5,160.00
5C	Hydrant Replacement Program	$0.00	$7,500.00

7.3.3 Financing

Financing capital improvement projects for the Nordic Ranches water system is limited due to the ownership structure of the system. Nordic Ranches Water, LLC is a for-profit company and

as such does not qualify for many of the loan and grant funding opportunities that municipal water systems have. The Environmental Finance Center Network compiled a list of funding sources available to water systems in Wyoming and contact information for each funding opportunity, see Appendix J. The available sources of funding are as follows:

- **U.S. Environmental Protection Agency – Water Infrastructure Finance and Innovation (WIFIA)**: The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) established the WIFIA program, a federal credit program administered by EPA for eligible water and wastewater infrastructure project. The WIFIA program offers loans with low, fixed interest rates and flexible financial terms. The minimum project size for small communities, population of 25,000 of less is $5 million. At this time no project recommended meets that minimum $5 million dollar mark but a combination of the system upgrades required to bring the system into compliance with Wyoming DEQ for fire protection could. The application process is a two (2) phase process the first phase entails a letter of interest to WIFIA stating project eligibility requirements, creditworthiness, engineering feasibility, readiness to proceed and alignment with EPA's priorities. Once a notice has been given from WIFIA to proceed then an applicant can apply for the WIFIA Loan. This process entails a review from WIFIA on financial and engineering, negotiation of terms and execution of the loan. The loan interest rates are determined by the US Treasury and based upon the life of the loan (i.e. shorter loan life a small er interest rate).

- **USDA Rural Development – Business and Industry Guaranteed Loan**: This program is intended to improve the economic health of rural communities by increasing access to business capital through loan guarantees. However, private entity borrowers must demonstrate that loan funds will remain in the U.S. and the facility being financed will primarily create new or save existing jobs for rural U.S. residents. Due to this requirement the projects recommended in this report do not fall under this category and the zoning restrictions from Lincoln County that are intended to deter commercial and industrial facilities make this funding source unlikely.

- **CoBank – Rural Water and Wastewater Lending**: CoBank works with rural water and wastewater not-for-profit systems, municipalities and investor owned utility companies to provide interim and bridge financing, refinancing of existing debt, term loans for system upgrades, and lines of credit. This source of funding offers short and long term loan financing for water system upgrades applicable to this project. Interest rates on loans are subject to U.S. Treasury interest rates. Applications for this loan are accepted at all times and are available online.

- **Small Business Administration (SBA):** The Small Business Administration offers a variety of loans targeted at for-profit businesses that provide financing for small equipment replacement project through large investments up to $5 million dollars. Eligible for-profit businesses must meet certain requirements such that the net worth of the business must not be worth more than $15 million dollars or have a taxable net income over $5 million dollars. Interest rate on loans currently range from 4.5% up to 9% depending on the loan type and term length.

- **Live Oak Bank – Water and Environmental Programs**: Live Oak Bank provides USDA-guaranteed funding for rural communities and utilities looking to construct, enlarge, extend or otherwise improve rural drinking water facilities. USDA guaranteed loans support rural communities with populations less than 50,000 and provide fixed rate loans for terms up to 40 years. Applicants must contact a program specialist to begin the application process.

For reference, listed below is a summary of commonly used financing options for municipal water systems in Wyoming. Though these options are not available to the system at this time, this could be beneficial information should the water system become available to these financing options.

- **WWDC Funding:** An assumption of 67% grant assistance for new construction from WWDC is used in this financial analysis based on discussions with WWDC staff and experience with other similar projects. Eligible project expenses include supply, transmission, and storage. Distribution piping, fire protection, land development, services/maintenance, meters and water quality projects are typically not eligible for WWDC funding participation.

- **USDA Rural Development:** The USDA Rural Development Services (RUS) program favors rural low-to-moderate income communities. Eligibility criteria for grant funding is based on population size and median household income levels. USDA-RUS makes direct loans and grants to build or improve essential public use facilities such as water and sewer facilities, storm sewers, and solid waste facilities. Applicants must have a population less than 10,000 with the legal capacity to borrow money and be financially sound and be able to manage the facility, and have satisfactory sources of income to pay costs of operating, debt services, and reserve. Loans can have up to a 40-year payback period, based on the useful life of the facilities financed. The loan interest rates are fixed and are based on the need for the project and the median household income of the area to be served. USDA RD funding will require compliance with NEPA and other federal requirements

- **State of Wyoming Drinking Water Revolving Fund (DWSRF):** Portions of this project are likely eligible for DWSRF loan funding (for balance of the project not grant funded.) A DWSRF loan at 2.5% over a period of 20 years has been assumed. Although not shown in the finance options, recent loans from DWSRF have included up to a 25% principle forgiveness. DWSRF funding will require compliance with NEPA and other federal requirements.

- **Wyoming Business Council Grant:** This grant is intended to help cover the costs to communities in providing "business ready" and "community development" projects. Based upon the Lincoln County zoning of Nordic Ranches it is not anticipated that the recommended projects would qualify as "business ready". The Community Development Block Grant (CDBG) however does provide funding for projects that pose a serious or immediate threat to the health or welfare of the community. It can be assumed that some of the recommended project would qualify. This grant is quite limited in the amount of funding it has available per year ($2.2 to $3.75 million) and takes into consideration low to moderate income communities. With Nordic Ranches AMHI being well above the state average it may be difficult to obtain this grant.

7.3.4 Existing System Financials/Budget

For this section the water systems financials are analyzed to ensure that the water system is financially self-supporting such that the revenues generated from the water system are sufficient to accomplish the following:

- Retire existing water related debt (principal and interest)
- Pay the costs for employees
- Pay the costs of materials, supplies, utilities, and outside services necessary to operate and maintain the water system and provide normal improvements and replacement requirements for the system
- Pay for administrative and overhead expenses
- Provide an emergency fund that annually accrues at least an amount equal to 1.5% - 2.5% of the operating expenses
- Provide a fund that accrues sufficient reserves to pay for major repairs and replacement that will be required during the life of any associated project

Utility Annual Reports for the years of 2018 thru 2020 were provided by NRW for evaluation in this study, see Appendix C. These reports are submitted to the Wyoming Public Service Commission annually. As an overview of the system financials, one item that stands out is the shift in reported revenues from 2018 to 2019. Metered water revenues increased in 2018 from approximately $122,000 to approximately $182,000 in 2019, nearly a 50% increase in metered water revenue. The reason for this increase is because water rates were increased in 2019 under

the recommendation of the Wyoming Public Service Commission. Other noticeable changes in the financial statements include the addition reserve account for the system in 2019 and a jump in depreciation expenses from 2019 to 2020 from approximately $32,000.00 to $100,000.00 respectively. The year 2018 (and years prior according to NRW) saw a net loss financially, for 2018 the system financials had a net negative of approximately $62,000, see Table 7.13.

Table 7.13 – Income vs. Expenditures Summary

	2018	2019	2020	Averages
Operating Expenses	$195,195.00	$167,303.00	$202,295.00	$188,264.00
Revenue	$132,483.00	$195,103.00	$202,295.00	$176,627.00
Net Revenue over Expenses	**$62,712.00**	**$27,800.00**	**$0**	**$11,637.00**

As the water system is owned and operated as a private utility/business its purpose is to not only provide safe and reliable drinking water but to make a profit. Similarly, a public water system cannot properly operate when it is operating on a negative operating income. A public water system may not be in the business of making money, but it does need to at the very least break-even with operational costs and store funds for emergency & replacement reserves. Additionally, in 2019 NRW began investing revenues into emergency, replacement, and O & M reserves as it had not been previously. As shown above in Table 7.13, the Nordic Ranches water system is not in a great situation financially, but the actions taken in 2019 to raise rates to cover expenses, begin investing in reserve accounts and make a profit are working.

As opposed to a public water system, NRW does not necessarily compose an annual budget in the same fashion as a public utility. NRW does however have expected expenses that are accounted for in its water utility billings. A suggested annual operating budget for the Nordic Ranches water system is shown below in Table 7.14. This budget, in general is an average of the 3 years of income and expenses with considerations weighted more towards the 2019 and 2020 financials as those years more reflect current revenues and costs.

Table 7.14 – Suggested NRW Revenue, Operations and Maintenance Budget

	2023 FY
Revenues	Budget
Unmetered Water Revenue	$6,210.00
Metered Water Revenue	$190,000.00
Sales for Resale	$0.00
Guaranteed Revenues (Prior to Service)	$0.00
Other Water Revenues	$10,000.00
Other Income	$500.00
Water Operation and Maintenance Expenses	
Depreciation Expenses	$99,850.00
Income Taxes	$0.00
Interest Expense	$6,500.00
Salaries and Wages - Employees	$56,000.00
Salaries and Wages - Officers, Directors and Majority Stock Holders	$0.00
Employee Pension and Benefits	$0.00
Purchased Water	$0.00
Purchased Power	$6,500.00
Fuel for Power Production	$0.00
Chemicals	$0.00
Materials and Supplies	$1,500.00
Contractual Services - Billing	$0.00
Contractual Services - Professional	$5,000.00
Contractual Services - Testing	$1,200.00
Contractual Services - Other	$5,000.00
Rents	$7,000.00
Transportation Expenses	$2,000.00
Insurance Expense	$5,500.00
Regulatory Commission Expenses	$2,000.00
Bad Debt Expense	$0.00
Miscellaneous Expenses	$8,000.00
Net Revenue over Expenses	$660.00

Additionally, NRW reports balance accounts for the system as summarized below in Table 7.15. In general these accounts include total assets, liabilities, equity and reserves. One item of note is the Notes Payable account under Liabilities and Other Credits. This balance accounts for two (2) loans from the previous owner of the system. The current balances on the loans as of June 2022 were for $57,311.00 and $207,078.00. The loan for $57,311.00 is being paid monthly at

$1,500.00 and is expected to terminate December 2025. The second loan however was deemed unpayable by the Wyoming Public Service Commission (PSC) and as such no payments have been made on that loan. Though the loan cannot be paid the financial statements still require the loan amount to be present.

Table 7.15 – NRW 2018 – 2020 Account Balances

Balance Accounts	2018	2019	2020
Assets			
Utility Plant In Service	$810,351.00	$810,351.00	$894,752.00
Cash	$16,035.00	$78,168.00	$61,368.00
Customer Accounts Receivable	$26,226.00	$26,308.00	$27,544.00
Accumulated Depreciation	-$162,070.00	-$194,484.00	-$294,334.00
Total Assets	$690,542.00	$720,343.00	$689,330.00
Liabilities			
Accounts Payable	$903.00	$15.00	$294.00
Notes Payable	$338,779.00	$342,827.00	$309,995.00
Accrued Taxes	$1,332.00	$173.00	$1,713.00
Total Liabilities	$341,014.00	$343,015.00	$312,002.00
Equity Capital			
Proprietary Capital	$349,528.00	$377,328.00	$377,328.00
Total Equity Capital	$349,528.00	$377,328.00	$377,328.00
Total Liabilities and Equity	$690,542.00	$720,343.00	$689,330.00
Other Accounts			
Emergency Reserve	$0.00	$9,616.00	$16,637.00
Replacement Reserve	$0.00	$41,466.00	$30,579.00
O & M Reserve	$0.00	$12,372.00	$7,322.00

7.3.4.1 Funding Analysis Findings

Retire Existing Water Related Debt:

For all accounts and evaluation of the utility reports provided, Nordic Ranches Water, LLC has been capable of paying its debts as available. As mentioned above, the system currently has one loan that it is paying monthly and one loan that the PSC has prohibited NRW from paying. No specific project debt or loan information (terms & conditions) was provided to the consultant during the course of the study.

Pay the Cost for Employees; Pay the Cost of materials, supplies, utilities, and outside services necessary to operate and maintain the water system and provide normal improvements and replacement requirements for the system; pay for administrative and overhead expenses:

As shown in Table 7.13 above and the Utility Annual Reports in Appendix C, the actions taken in 2019 to raise water users rates has allowed the system to cover its operational expenses. In 2018 the system saw a $62,000 dollar shortfall meaning that the revenues accrued did not cover the operational expenses of the system. Due to the actions taken in 2019 and the financial correction of the revenues vs. expenditures this master plan does not recommend a change in the rate structure at this time. It is recommended however that rates are evaluated on an annual basis to identify trends in operational costs. These trend evaluations should include cost of living, material pricing, outside service pricing, etc.

The recent COVID pandemic has caused disruption of many service and material supplies that has resulted in increased costs. It is anticipated that these price increases will return to pre-pandemic levels, but it is unknown when or even if they will. Annual evaluations are recommended by this report to identify these increases followed by rate increases should they become necessary.

Provide an Emergency Fund that annually accrues at least an amount equal to 1.5% - 2.5% of the operating expenses; Provide a Fund that accrues sufficient reserves to pay for major repairs and replacement that will be required during the life of any associated project:

Prior to 2019 NRW had not been storing funds in reserve accounts. In 2019, three reserve fund were started, an Emergency Reserve, Replacement Reserve and an O & M Reserve. The initial deposit into the emergency reserve was approximately 5.75% of the operating expenses for 2019 and in 2020 deposits into this reserve were approximately 3.4% of the 2020 operating expenses. The replacement and O & M reserves were likewise started in 2019 but did see a decrease in total fund amount in 2020, see table 7.15 above.

As the accounts are in their early stages, funds necessary for major system repairs of replacement are not available. It is recommended that NRW continue to build these reserve accounts and only draw from them when necessary in order to preserve their function moving forward.

As NRW is a private company and as such is the developer of the system, costs such as the replacement of water tanks or expansion of the system due to further development will be the responsibility of NRW. It is important to consider building the replacement reserves to accommodate replacement costs when the need arises.

Pay other costs as may be identified by the consultant:

Besides the projects and programs recommended herein this report, no other costs have been identified as a need for the water system.

7.3.5 Project Rate Impacts / Financial Capacity

Anticipated project costs and rate payer impacts based on seven funding scenarios are summarized in Tables 7.16 thru 7.22. Project loan payments are broken down by monthly cost per existing system user to determine the average potential rate impact. Table 7.16 (Scenario #1) assumes no project funding is available and rate impacts reflect accruing funds for projects in two (2) years. Table 7.17 (Scenario #2) assumes a 100% project funding through a loan at a 6% interest rate for a 20-year term. Though NRW is not eligible for WWDC funding or many of the state sponsored programs Tables 7.18 thru 7.22 are provided for comparison purposes should the system become publicly owned. As noted in the cost estimates above, the recommended projects are not eligible for WWDC loans or grants as reflected in the funding scenario tables below.

Table 7.18 (Scenario #3) assumes a 67% WWDC Grant on eligible project components, a 33% WWDC 4% Loan (30 year term) and remaining non-eligible costs as self-funded. Table 7.19 (Scenario #4) assumes a 67% WWDC Grant on eligible project components and an SRF 2.5% Loan (20 year term) on remaining funding. Table 7.20 (Scenario #5) assumes a 67% WWDC grant of eligible project components and an USDA RUS 2.125% Loan (40 year term) on remaining funding. Table 7.21 (Scenario #6) assumes a 67% DWSRF 2.5% Loan (20 year term) and a 33% State or Federal grant. Table 7.22 (Scenario #7) assumes a 67% USDA RUS 2.125% Loan (40 Year Term) and a 33% State or Federal grant. Municipalities on Wyoming have typically pursued a USDA RUS Grant, Mineral Royalties Grant or Wyoming Business Council Grant where applicable. The Mineral Royalties Grant however has been terminated and is no longer available to help fund these types of project. A new grant opportunity through the American Rescue Plan Act (ARPA) has been implemented in 2022 but is unlikely to continue beyond a single phase of fund distribution.

A detailed five-year budget projection is contained in Appendix K. This spreadsheet is based on the capacity development worksheet format developed by the Wyoming SLIB/SRF program. Capital costs and loan payments for the proposed improvements recommended in this study have not been included as they are either conditionally based recommendations (i.e Fire Flow Protection) or not anticipated to be implemented for approximately 20 years.

For the purposes of these tables, it is assumed that the capital improvements recommended in this study would be constructed/implemented beginning in 2024. Some recommendations in this study are not anticipated for approximately 20 years (additional storage) or are conditional recommendations but are included in these tables for comparison purposes.

Table 7.16 – Scenario #1 No Project Funding (Recover Funds From User Rates in 2 Years)

Item #	Description	Estimated Project Cost	ASSUMED FUNDING SOURCE	Monthly Cost per Ratepayer *(Based on 173 current users)* Raise Funds in 2 Years
			None - Costs Assumed by NRW Directly	
7	New 100K Gallon Steel Expandable Storage Tank	$901,200	$901,200	$0.00*
3C	New 200K Concrete Storage Tank (Fire Suppression)	$966,600	$966,600	$232.80
4C	Distribution System Upgrades (Fire Suppression)	$2,421,600	$2,421,600	$583.24

Table 7.17 – Scenario #2 100% SBA/CoBank/Etc. Loan Funding

Item #	Description	Estimated Project Cost	ASSUMED FUNDING SOURCE		Monthly Cost per Ratepayer *(Based on 173 current users)*
			SBA/CoBank Loan (6%, 20 years)	Annual Loan Payment	
7	New 100K Gallon Steel Expandable Storage Tank	$901,200	$901,200	$78,571	$0.00*
3C	New 200K Concrete Storage Tank (Fire Suppression)	$966,600	$966,600	$84,273	$40.59
4C	Distribution System Upgrades (Fire Suppression)	$2,421,600	$2,421,600	$211,126	$101.70

Tables 7.16 and 7.17 illustrate available funding scenarios for NRW to complete the recommended projects of this study. For both scenarios the rate payer impacts for the installation of a 100,000-gallon tank to replace the existing storage facility is $0.00. As this tank would be a solution to further development of the system by NRW and lack of available space for additional 10,000-gallon tanks, the cost to develop the system should fall upon the developer and not the existing users of the system. Based upon these two scenarios it would appear that Scenario #2 would be more beneficial to user rate impacts than Scenario #1. However, the user rate impact for Scenario #2 has a duration of 20 years with a total ratepayer cost for the life of the loan at $34,148.60 as opposed to a 2-year cycle for Scenario #1 with a total ratepayer cost of $19,584.96. The same issue can be found with the funding of the 100,000-gallon tank directly by NRW. With a loan, NRW can expect to pay $1,571,420.00 over the life of the loan as opposed to saving and building replacement reserves to cover the cost of the tank replacement when the system demands require.

Table 7.18 – Scenario #3 WWDC Grant & Loan & Self-Funding Remaining (Not Eligible)

Item #	Description	Estimated Project Cost	ASSUMED FUNDING SOURCE				Monthly Cost per Ratepayer *(Based on 173 current users)* To Raise Funds in 2 Years
			WWDC Grant (67% Eligible new construction)	WWDC Loan (4%, 20-year) Eligible	Annual Loan Payment	Remaining Non-Eligible Cost Assumed By District	
7	New 100K Gallon Steel Expandable Storage Tank	$901,200	$0	$0	$0	$901,200	$217.05
3C	New 200K Concrete Storage Tank (Fire Suppression)	$966,600	$0	$0	$0	$966,600	$232.80
4C	Distribution System Upgrades (Fire Suppression)	$2,421,600	$0	$0	$0	$2,421,600	$583.24

Table 7.19 – Scenario #4 WWDC Grant and SRF Loan (Not Eligible)

Item #	Description	Estimated Project Cost	ASSUMED FUNDING SOURCE			Monthly Cost per Ratepayer *(Based on 173 current users)*
			WWDC Grant (67% new Eligible construction)	SRF Loan (2.5%, 20-year)	Annual Payment	
7	New 100K Gallon Steel Expandable Storage Tank	$901,200	$0	$901,200	$57,809	$27.85
3C	New 200K Concrete Storage Tank (Fire Suppression)	$966,600	$0	$966,600	$62,005	$29.87
4C	Distribution System Upgrades (Fire Suppression)	$2,421,600	$0	$2,421,600	$155,339	$74.83

Table 7.20 – Scenario #5 WWDC Grant and USDA RUS Loan (Not Eligible)

Item #	Description	Estimated Project Cost	ASSUMED FUNDING SOURCE			Monthly Cost per Ratepayer *(Based on 173 current users)*
			WWDC Grant (67% new Eligible construction)	USDA RUS (2.125%, 40-year)	Annual Payment	
7	New 100K Gallon Steel Expandable Storage Tank	$901,200	$0	$901,200	$33,671	$16.22
3C	New 200K Concrete Storage Tank (Fire Suppression)	$966,600	$0	$966,600	$36,114	$17.40
4C	Distribution System Upgrades (Fire Suppression)	$2,421,600	$0	$2,421,600	$90,475	$43.58

Table 7.21 – Scenario #6 DWSRF Loan and Federal/State Grant (Not Eligible)

Item #	Description	Estimated Project Cost	ASSUMED FUNDING SOURCE			Monthly Cost per Ratepayer *(Based on 173 current users)*
			Federal/State Grant 33%	SRF Loan (2.5%, 20-year)	Annual Payment	
7	New 100K Gallon Steel Expandable Storage Tank	$901,200	$297,396	$603,804	$38,732	$18.66
3C	New 200K Concrete Storage Tank (Fire Suppression)	$966,600	$318,978	$647,622	$41,543	$20.01
4C	Distribution System Upgrades (Fire Suppression)	$2,421,600	$799,128	$1,622,472	$104,077	$50.13

Table 7.22 – Scenario #7 USDA RUS Loan and Federal/State Grant (Not Eligible)

Item #	Description	Estimated Project Cost	ASSUMED FUNDING SOURCE			Monthly Cost per Ratepayer *(Based on 173 current users)*
			Federal/State Grant 33%	USDA RUS Loan (2.125%, 40-year)	Annual Payment	
7	New 100K Gallon Steel Expandable Storage Tank	$901,200	$297,396	$603,804	$22,559	$10.87
3C	New 200K Concrete Storage Tank (Fire Suppression)	$966,600	$318,978	$647,622	$24,196	$11.66
4C	Distribution System Upgrades (Fire Suppression)	$2,421,600	$799,128	$1,622,472	$60,619	$29.20

As stated above, Tables 7.18 thru 7.22 illustrate potential funding scenarios should the Nordic Ranches Community Water and Sewer District acquire the system. As shown, none the recommended project for the system are eligible for funding through WWDC whether the system is owned privately or publicly.

The American Water Works Association (AWWA) has developed a standard for average monthly residential water bills which is a factor of the Annual Median Household Income (AMHI) multiplied by 2.5% and divided by 12 months. AMHI data is not available for Nordic Ranches but we can look at the average for Lincoln County and Towns nearby. With the Lincoln County average AMHI at $66.964.00 the AWWA standard for average residential water bill is approximately $140. For comparison, nearby populations of the Town of Star Valley Ranch and Town of Alpine have an AMHI of approximately $77,000.00 which is likely more reflective of the Nordic Ranches AMHI. With the Nordic Ranches base rate of $78.39 it can be assumed that there is room to expand/increase water rates according to the AWWA standard. This is not to say that rates should be increased but that the current rates for the system are in line or below standard water rates.

In evaluating Tables 7.16 thru 7.22 it can be seen that Scenario #2 (Table 7.17) is likely the more user rate friendly (excluding Scenarios #3 thru #7 as NRW does not qualify for this type of funding), though not too friendly. These tables illustrate the difficulty for small private rural water systems (even small municipal systems) to engage in major capital improvement projects. Should major infrastructure projects be planned and implemented it is recommended that user rates are increased in phases over time and reserve funds are growing annually to accomplish capital improvement/replacement projects.

7.3.6 Operational Cost Impacts

Operational Costs are summarized in Table 7.23. This table assumes that all operational costs would be incurred by NRW with no increase to consumer rates. These costs do not include operational labor expenses, they only include material and outside costs (i.e., consulting). It is assumed that the recommended operations would be implemented in 2022-23.

Table 7.23 – Operational Cost Impact

Item No.	Description	Estimated One-Time/Initial Costs	Estimated Annual Operational Cost or Per Each Cost
1	**Source Water Rights**	**$1,500.00**	**$500.00**
2	**Well Improvements**	**$2,100.00**	**$0.00**
4	**GIS System**	**$5,000.00**	**$1,500.00***
6	**Valve Replacement Program**	**$0.00**	**$4,500.00**
7	**Storage Flushing**	**$0.00**	**$6,875.00***
8	**System Flushing**	**$0.00**	**$5,160.00***
3C	**Hydrant Replacement Program**	**$0.00**	**$7,500.00**
Monthly Operational Costs*		**Total***	**$1,128.00**

7.3.7 Ability to Pay

A water system's ability to pay for project funding in a timely manner is a key consideration for all funding sources that require payback. It is important that NRW be proactive in advancing specific financing plans for projects as it will put a higher priority on funding those projects in funding agencies eyes.

7.4 Project Permitting

The following permit requirements are anticipated for the implementation of the recommendations herein:

- **Wyoming DEQ-WQD Permit to Construct:** This permit is required for all water system projects. Wyoming DEQ-WQD will require final plans and specifications as part of the application and review process.

- **Right-of-way Acquisition**: It is likely that recommended improvements will be constructed within existing easements or rights-of-way controlled by NRW.

- **Lincoln County, Wyoming**: Waterline construction within Lincoln County right-of-way, will require a conditional use permit, temporary construction permit and right-of-way license agreement issued by Lincoln County,
    - 925 Sage Avenue, Kemmerer, WY, 83101, Phone – 307-877-2104 (County Engineer)

Using Federal funds (SBA) for this project will trigger the need for NEPA clearances. This could involve a categorical exclusion (cat-ex), or more likely an Environmental Assessment with a likely Finding of No Significant Impact (EA/FNSI) if construction disturbances are limited to previously disturbed areas.

8.0 References

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Nordic Ranches Water Master Plan Level I

APPENDIX

A. Nordic Ranches, LLC Water Utility Rules and Regulations
B. Metered Usage Records Summary
C. Annual Utility Reports (2018-2020)
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NORDIC RANCHES WATER, LLC

WATER UTILITY

RULES AND REGULATIONS

For Domestic Water Utility Service
Nordic Ranches Subdivisions,
Lincoln County, Wyoming

Nordic Ranches Water, LLC
Attn: Tanya DeJournett, General Manager
370 Pit Run Road
P. O. Box 5354
Etna, Wyoming 83118
nrw@silverstar.com
307-654-2005

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NORDIC RANCHES WATER, LLC
WATER UTILITY
RULES AND REGULATIONS

Water service will be supplied by water utility to its customers located within its Service Area. It is the water utility's intent to provide safe, reliable and dependable delivery of water to each of its Customers pursuant to the terms of these Rules and Regulations.

Management and Control

The water utility shall have exclusive control and management of its Water System and shall have exclusive management and control of the supply and distribution of water to Customers within its Service Area, subject to regulation by the Commission. The water utility may from time to time amend or otherwise modify these Rules as it deems necessary for the complete management, control, distribution, and supplying of water to the Customers upon approval of the Commission. No person shall operate a curb stop valve without express permission of the water utility.

New Customer Within Existing Service Area

A. Application.

Any Person desiring to obtain service from the water system within the existing Service Area for any service address that has previously been connected to the water system shall submit an application to the water utility containing the following information:

1. An acknowledgment that the applicant shall be governed by these Rules, the Commission's rules and regulations, and all other applicable federal, state, and local laws regarding the control and use of the water supply;

2. A legal description of the location of the service address; and

3. Identification of any anticipated change in types of use from the previous level of service, if any, including but not limited to types of use reasonably anticipated to require increased water usage at the service address.

B. Transfer Fee.

If the application for service is approved by the water utility, the new Customer shall pay a Transfer Fee of $250.00. (See Rates and Applicability sheet)

C. Water Usage Rates.

Charges for water service shall have two components: a monthly Service Charge and a monthly Usage Charge. The water utility's rates shall be reviewed and approved by the Commission pursuant to applicable rules and regulations, and may be amended from time to time with the approval of the Commission. Water rates shall be published in a separate Rates and Applicability sheet, which the water utility will provide to Customers upon request.

New Service Within Existing Service Area

A. Application.

Any Person desiring to connect to the water system within the existing Service Area for a service address not previously connected to the Water System shall submit an application to the water utility containing the following information:

1. An acknowledgment that the applicant shall be governed by these Rules, the Commission's rules and regulations, and all other applicable federal, state, or local laws regarding the control and use of the water supply;

2. A legal description of the location of the service address;

3. Identification of the anticipated types of use (e.g., Residential);

4. A description of the number and size of water connections and meters requested.

B. Review of Application and Inspection of Connection.

The water utility shall have authority to review an application for a new connection and request any additional information it deems necessary to make a determination of its fitness to supply water to the applicant, specifically including detailed information concerning the total average and maximum daily demand anticipated by the applicant. The water utility will condition any approval of an application on a satisfactory inspection of the hookup to the water system, based on applicable state and federal standards and codes, including but not limited to the AWWA standard and the National Plumbing Code.

C. Service Connections.

If the water utility approves the application for service, the applicant shall pay a Connection Fee based upon the type of use and the size of the service line and meter. Depending on level of prior service, this may be a Connection Fee, a Transfer Fee, Reconnect Fee. (See Rates and Applicability sheet). Connection fees are not intended to shift responsibility from the water utility to the Customer for the cost of installing or maintaining meters or any other equipment necessary in order to regulate and measure the water commodity delivered to the Customer per the Company's tariffs. Such ongoing expenses are the responsibility of the Company in accordance with Commission Rule Chapter 3, Section 15(c). The water utility shall establish per tariff terms and conditions applicable to service connections and line extensions as detailed in Commission Rule Chapter 3, Section 6.

D. Connection Fee.

In accordance with Section VII of the company's Rate Tariff, customers may establish a new service connection by paying a Connection Fee in the amount of $4000. The Connection Fee is a one-time fee assessed to Customers for the first time a service address is connected to the water system, and is not intended to shift responsibility from the utility to the Customer for the cost of installing or maintaining a meter or any other equipment necessary in order to regulate and measure the water commodity delivered to the Customer per the Company's tariffs. Such ongoing expenses are the responsibility of the Company in accordance with Commission Rule Chapter 3, Section 15(c).

E. Water Usage Rates.

Charges for water service shall have two components: a monthly Service Charge and a Usage Charge. The water utility's rates shall be reviewed and approved by the Commission pursuant to applicable rules and regulations, and may be amended from time to time with the approval of the Commission. Water rates shall be published in a separate Rates and Applicability sheet, which the water utility will provide to Customers upon request.

F. Infrastructure Requirements and Charges.

1. Every building located at a service address requiring shall have a separate service pipe and one meter at curb stop, except that detached private garages and non-commercial structures on residential property may be served by the same service pipe and meter as the main house structure.

2. No Customer shall connect, direct the connection of, or permit the connection of any groundwater heating or cooling system to the water utility Water System, without the prior express written consent of the water utility. This prohibition shall

not apply to conventional evaporative cooling systems or conventional air-conditioning systems that do not utilize large volumes of water for heat exchange.

G. Customer Deposits.

The water utility may require from any customer or prospective customer a deposit intended to guarantee payment of current bills, but only in accordance with Commission Rule Chapter 3, Section 7. The required deposit shall not exceed the amount of a customer's average estimated bill for three months of highest use, based on the premise's bills during the immediate previous 12-month period. Simple interest on the deposit shall be calculated by the utility on the deposits at a rate that is assigned by Commission. The simple interest is payable yearly or upon the return of the deposit, for the time the deposit was held by the Company until the deposit is personally returned or mailed to the customer. If the customer's location is unknown no interest is accrued from the date the service was discontinued. The customer will be considered to have demonstrated creditworthiness, when the customer has received 12 consecutive months of service, there has been no cause to disconnect, and bills have been paid by the payment due date. Upon this demonstration of creditworthiness, the deposit plus interest shall be promptly refunded to the customer or applied to the remaining balance by the utility. The Commission interest rate and customer deposit procedures detailed in Commission Rule Chapter 3, Section 7 will be followed.

H. Interpretation.

Subject to the ultimate authority of the Commission, if in the opinion of the water utility unique circumstances exist making the strict application of the requirements set forth in this Section inappropriate, the matter shall be considered by the water utility for the purpose of deciding the appropriate procedure to be followed or fees to be charged. An applicant aggrieved by a determination of the water utility with respect to the procedures or fees to be charged pursuant to this Section shall have the right to appeal the decision to the water utility or Commission for further consideration.

Backflow and Cross-Connection Protection

A. Generally. The purposes of this Section are to protect the water utility's water supply against actual or potential contamination through cross-connections and to prevent the making of cross-connections in the future. Except as otherwise provided in this Section, the cross-connection provisions of Chapter 12, Section 14 of the Wyoming Department of Environmental Quality, Water Quality Rules and Regulations are adopted by reference and incorporated herein as if fully set forth herein, with the penalties for violation thereof to be as provided therein and in these Rules. Unprotected cross-connections with the water utility's water supply are prohibited. Whenever the water utility, in its sole discretion, determines that backflow protection is necessary, the water utility will require the Customer to install, at the Customer's sole expense, a backflow

prevention assembly approved by the water utility. Until such prevention assembly is installed and approved by the water utility, the water utility reserves the right to discontinue service or deny new service to any Customer. For new water meter sets, the required backflow assembly shall be installed, inspected, approved, and certified test results provided to the water utility within five (5) days of the meter set, unless the water utility approves otherwise in writing. Water service will not be provided until the inspections and certifications are completed as specified above.

B. Where Backflow Protection is Required.

1. Each Service Connection from the water utility's Water System that supplies water to service address having an auxiliary water supply shall be protected against backflow of water from the service address into the water system unless the auxiliary water supply is an approved water supply, as determined by the Wyoming Department of Environmental Quality and the water utility.

2. Each Service Connection from the water utility's Water System that supplies water to service address on which any substance is handled in such fashion as may – in the water utility's sole discretion – allow its entry into the Water System shall be protected against backflow into the water utility's system.

3. Backflow prevention assemblies shall be installed on the Service Connection to any service address having (i) internal Cross-connections that cannot be permanently corrected and controlled to the satisfaction of the water utility, or (ii) intricate plumbing and piping arrangements or where entry to all portions of the service address is not readily accessible for inspection purposes, making it impracticable or impossible to ascertain whether Cross-connections exist.

C. Prohibitions.

No Person shall at any time make or maintain or cause to be made or maintained, temporarily or permanently, for any period of time whatsoever, any Cross-connection between plumbing pipes or water fixtures being served with water by the water system and any other source of water supply or to maintain any sanitary fixture or other appurtenances or fixtures which, by reason of their construction, may cause or allow backflow of water or other substances into the water system and/or the water pipes or fixtures of any Customer of the water utility.

Billing.

A. Mailing and Payment of Bills.

The water utility will process and mail water bills following the preceding month of meter reading as further detailed in the Rates and Applicability sheet. All bills for water are due 30 days from the day of mailing. All water bills shall be delinquent at the close of the office on the day on which they fall due, unless such day is a weekend or legal holiday, in which event they shall be delinquent at the close of the office on the next succeeding regular business day.

B. Interest on Unpaid Balances.

Unpaid balances will be subjected to interest at the annual percentage rating provided by Commission Rule Chapter 3, Section 7(f).

C. Method of Meter Reading.

Meters shall be located in the community utility easement serving and benefitting each lot, which is adjacent and parallel to the roads running through the Nordic Ranches development. The water utility will provide a description and explanation of the method of reading meters to a Customer upon written request. The water utility will maintain utility meters as detailed in Commission Rule Chapter 3, Sections 15, 16, 17, 18 and 19.

Water Service Termination and Reconnection of Service.

A. Notice.

If the water utility determines that any Customer has violated these Rules or has failed to timely pay its bill, the water utility will provide written notice of such violation to the Customer, which Customer shall then have 10 days to correct the violation or make payment. The contents of such notice will comply with Chapter 3, Section 9 of the Commission's rules and regulations. If the Customer does not correct the violation or make payment within the 10 day period, the water utility shall have the right to disconnect the Customer's service in accordance with Commission Rule Chapter 3, Section 9; provided, however, that the water utility shall not disconnect service on a legal holiday, during the period from December 24th to January 2nd, on any day the utility cannot reconnect service or any other reason pursuant to Commission Rule Chapter 3, Section 9(j). The water utility shall charge a Disconnect Fee detailed in the Rates and Applicability sheet.

B. Personal Notice.

The water utility shall attempt to personally contact a Customer with a notice of disconnection during the cold weather period of November 1 through April 30.

C. Third-Party Notice.

Any Customer may request at any time or upon application that a family member or third-party be notified of any past due bills or notice of termination of service. In the event the water utility has knowledge that it is proposing to disconnect service for nonpayment by a landlord, the water utility shall notify known tenants that such tenants have fifteen days to arrange for services to be provided directly to the tenant.

D. Disconnection When Notice Not Required.

When the water utility encounters a condition or water use that represents a clear and immediate hazard to the water supply and which cannot be immediately abated, or if reasons of health, safety, cooperation with civil authorities, fraudulent use, tampering with or destroying the water utility Water System facilities, failure of a Customer to cooperate with curtailment procedures during supply shortage, or any other reason for which termination authority is granted by the Commission rules and regulations or Wyoming Statutes, the water utility may terminate water service without advance notice to a Customer or Customers.

E. Disconnection Upon Request of a Customer.

Upon written request from a Customer, the water utility shall make its best effort to disconnect the Customer's service on the day requested. The water utility will prorate water usage rates for the month in which service is disconnected. If service is not immediately reconnected by a new Customer, the water utility will not assess Usage Charges, but it may charge the then-applicable Facilities Charge to the owner of the affected service address. The water utility shall charge a Disconnect Fee detailed in the Rates and Applicability sheet.

F. Maximum Disconnection Time.

When a Customer has been disconnected for a reason other than failure to pay the water utility bills, the maximum time period for such disconnection will be based on maintenance and repair requirements. The customer will be notified of the disconnection and estimated duration.

G. Reconnect Fee.

Whenever the water utility reconnects water service to any service address for which service was previously disconnected for non-payment or upon the request of the customer, the water utility shall charge a Reconnect Fee detailed in the Rate and Applicability sheet. If the reconnection is for a Customer who was previously disconnected from the Water System, the water utility shall require the Customer to pay in full any charges outstanding plus the Reconnect Fee prior to reconnecting service.

H. Connection Fee upon Reconnect after a Permanent Disconnect.

When service has been permanently disconnected upon request of a customer, and the water meter has been removed, then upon reconnection, a customer shall pay the Connection Fee and shall not pay the Reconnect Fee.

Fire Suppression.

At the present time, the water utility does not have fire suppression capability.

Customer Responsibilities.

A. Violation of Rules.

Any Customer who intentionally or willfully or negligently violates these Rules shall be subject to immediate termination of service, with written notice and reason(s).

B. No Waste.

No Customer shall knowingly waste water or allow it to be wasted by imperfect stops, valves, leaking joints or pipes, or allow tanks of water to leak or overflow, or wastefully run water from a faucet or stop, or through basins, water closets, urinals, or other apparatus, or use the water wastefully for a purpose other than those uses such as domestic use, water lawns and livestock approved by the water utility, or to use water in violation of the Rules.

C. Repair and Maintenance.

Customers are responsible for the, service pipes, connection, and other apparatus up to but not including the curb stop to the distribution main lines. Any repair and maintenance work performed on the curb stop valve or between the curb stop valve and the connection to distribution mail line requires the approval and direction of the water utility. All Customers shall keep their service pipes, connections, and other apparatus in good repair and protected from frost at their own expense and in such conditions that they will not

waste or permit the waste of water. All leaks in the service or any other pipe or fixture on the service address of the Customer shall be immediately repaired at the expense of the Customer. Upon failure to repair any such leak, the water utility may suspend water service until necessary repairs are made. If such repairs or maintenance are located in an area that have the potential to damage or threaten the Water System, the Customer shall notify the water utility of such planned repairs or maintenance so that the water utility may approve of and/or appropriately monitor such repairs or maintenance.

D. Access.

Customers shall allow reasonable access at all reasonable hours to the water utility for inspection, repair, maintenance, metering, and ascertaining any violation of these Rules. Curb stop valve caps are to be clearly visible in or above the ground, and accessible to the water utility operator(s). During winter months, curb stop valve locations are to be marked for easy identification above the snow level using a suitable marking pole. On developed lots the water utility shall provide customers with mapped locations of curb stop valves where available.

Interruption of Service.

The water utility shall make all reasonable efforts to avoid interruptions of service, and when such interruptions occur, shall endeavor to re-establish service with the shortest possible delay. The water utility shall notify its Customers and the Commission in advance of any contemplated interruption in service that affects the entire Water System or a major portion thereof. In time of water scarcity or in the event that the water utility's water sources are unable to furnish a sufficient supply of water for all purposes required by the water utility and its Customers, the water utility may limit the use of water for other than domestic purposes, including but not limited to lawn irrigation or watering, to such an extent as the water utility deems necessary. This limit will be applied equally to all Customers. The water utility shall not be liable to Customers for injury or damages arising out of any interruptions of water supply due to scarcity of water, repair or maintenance of the Water System, or any other cause beyond the control of the water utility.

Refusal to Serve New Customers or Expand Existing Service.

The water utility may refuse to provide, expand or materially change service to a requesting customer as detailed in Commission Rule Chapter 3, Section 8.

Amendment.

The water utility reserves the right to amend, delete, or otherwise add to these Rules at any time, subject to review and approval by the Commission.

Definitions

"Air gap separation" or "AG" means a physical break between a supply pipe and a receiving vessel. The air-gap shall be at least double the diameter of the supply pipe measured vertically above the top rim of the vessel, but in no case less than one inch (1").

"Approved Backflow Prevention Assembly" means an assembly that has been manufactured in full conformance with the standards established by the American Waterworks Association, entitled: AWWA C506, (Current Revision) Standards for Reduced Pressure Principle and Double Check Valve Backflow Prevention Devices, or as may be amended or revised from time to time, and has passed laboratory and field evaluation tests performed by a recognized testing organization which has demonstrated its competency to perform such test to the water utility.

"Approved water supply" means any water supply whose potability is regulated by the United States Environmental Protection Agency pursuant to the Safe Drinking Water Act.

"Auxiliary supply" means any water supply on or available to a service address other than through the water utility system.

"AWWA standard" means an official standard developed and approved by the American Water Works Association (AWWA).

"Backflow" means a flow condition, caused by a differential in pressure that causes the flow of water or other liquids, gases, mixtures or substances into the distributing pipes of a potable supply of water from any source or sources other than an approved water supply source. Back-siphonage and backpressure are two causes of backflow.

"Commission" means the Wyoming Public Service Commission.

"Connection Fee" means a one-time fee assessed to Customers for the first time a service address is connected to the water system and are not intended to shift responsibility from the water utility to the Customer for the cost of installing or maintaining meters or any other equipment necessary in order to regulate and measure the water commodity delivered to the Customer per the Company's tariffs. Such ongoing expenses are the responsibility of the Company in accordance with Commission Rule Chapter 3, Section 15(c).

"Contamination" means a degradation of the quality of the water by any foreign substance which creates a hazard to the public health, or which may impair the usefulness or quality of the water.

"Cross-connection" as used in these Rules, means any unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and any source or system containing unapproved water or substances that are not or cannot be approved as such. Bypass arrangements, jumper connections, removable sections, swivel or changeover assemblies, or other assemblies through which backflow could occur, shall be considered to be cross-connections.

"Customer" means a collective reference to Single-Family Customers, Commercial Customers or Multi-Family Customers.

"Disconnect Fee" means the fee assessed by the water utility to a Customer for disconnection from the water system for non-payment or upon the request of the customer.

"Distribution Line" means a water line, generally 6" in diameter or greater, used to convey potable water to multiple, individual service locations.

"Double check valve assembly" or "DC" means Approved Backflow Prevention Assembly of two (2) internally loaded, independently acting valves, including resilient seated shut-off valves on each end of the assembly and test cocks for testing the water-tightness of each check valve.

"Facilities Charge" means a monthly flat-rate charge assessed to the owners of lots within the Service Area who either have not been connected to the water system or have chosen to permanently disconnect from the water system for the purpose of using an independent water supply.

"Multi-Family Customer" means any Person, duly formed as a property owners association, condominium association, or similar entity with authority to represent and act on behalf of all Multi-Family Units located within a structure or structures, obtaining water from the water system for residential purposes.

"Multi-Family Structure" means a stand-alone building or structure designed for occupancy by multiple families or individuals and containing separate dwelling units which may be separated vertically or horizontally, such as apartments, condominiums or townhomes.

"Multi-Family Unit" means a separate dwelling unit within a Multi-Family Structure.

"The water system" means the water utility's system for the provision of potable water to its Customers within its certificated Service Area for human consumption, including but not limited to all pipes, pumps, pump stations, chlorination facilities, storage tanks, meters, wells, and appurtenances under the ownership or control of the water utility.

"Person" means any individual, corporation, company, association, partnership, business entity, municipality, public utility or other public body or institution.

"Potable" means water of a sufficient quality for human consumption as regulated by the United States Environmental Protection Agency pursuant to the Safe Drinking Water Act and applicable regulations thereunder.

"Reclaimed water" means a wastewater, which as a result of treatment, is suitable for uses other than potable use.

"Reconnect Fee" means the fee assessed by the water utility to a Customer for reconnection to the water system following previous disconnection from the water system for non-payment or upon the request of the customer.

"Reduced pressure principle backflow prevention assembly" or "RP" means an Approved Backflow Prevention Assembly incorporating two (2) internally loaded check valves and an automatically operating differential relief valve located between the two check valves, including resilient seated shut-off valves on each end of the assembly, and equipped with necessary test cocks for testing the assembly.

"Rules" means the rules and regulations adopted by the water utility governing the water system, as they may be amended from time to time

"Service Address" means any and all areas on a Customer's property which are served or have the potential to be served by the water system.

"Service Area" means that area in which the water utility has been authorized and certificated by the Commission to provide potable water service.

"Service Charge" means a monthly flat-rate charge assessed to Customers following connection to the water system, as described under "Water Usage Rates".

"Service Connection" refers to the point of connection of a Customer's piping to the water system, generally located at the curb stop on a service address.

"Service Line" means the line that transmits water from the Distribution Line to a single end user though a metered connection. A Service Line includes the line up to the point of the Approved Backflow Prevention Assembly on a Customer's Service Line.

"Single-Family Residential Customer" means any Person obtaining water from the water system for single-family home residential purposes.

"Transfer Fee" means the fee assessed by the water utility to a Customer for the transfer of water service into the name of a new or different Customer than previously identified for a service address when a lot is sold.

"Usage Charge" means a monthly rate assessed based on the volume of water used by a Customer.

"Water System Capacity Fee" means the impact fee to be paid by a developer or other Customer in conjunction with extending the water utility's Service Area and providing new service to one or more service address, which fee is based on a proportionate share by volume of the water system to be utilized within the extended area, as determined by the water utility.

Contact Information

Nordic Ranches Water, LLC
Attn: Tanya DeJournett, General Manager
370 Pit Run Road
P. O. Box 5354
Etna, Wyoming 83118
nrw@silverstar.com
307-654-2005

Nordic Ranches Water, LLC
370 Pit Run Road
P. O. Box 5354
Etna, Wyoming 83118

RATES AND APPLICABILITY

I. SERVICE: Water

II. AVAILABLE: Nordic Ranches Subdivisions

III. APPLICABLE: Domestic

IV. RATE:

(A) SERVICE CHARGE: Flat rate of $78.39 per month per meter (allows customer 10,000 gallons of water per billing cycle).

(B) RATE RIDER: $5.00 per month shown by separate line-item on customer bills, to be automatically discontinued once $50,000 in 2018 rate case expenses are collected.

(C) USAGE CHARGE: A volumetric rate of $1.60 per 1,000 gallons of water consumed after the first 10,000 gallons per billing cycle. Additionally, the rate is increased to $2.20 per 1,000 gallons after the use of 20,000 gallons per billing cycle.

(D) A billing cycle will be one calendar month. A bill will be issued once every month on the last day of the month unless that day falls on a weekend or holiday. Meter readings will be mailed with each billing from May to October.

V. FACILITIES CHARGE: A minimum fee of $12 per month will be assessed for each lot whose owners are not using the system.

VI. DISCONNECT, RECONNECT, AND TRANSFER FEES:

(A) DISCONNECT FEE: $100.00

(B) RECONNECT FEE: $75.00

(C) TRANSFER FEE: A fee of $250.00 will be assessed for a change in the name of the customer receiving service when a lot is sold.

VII. CONNECTION FEE: $4,000.00

VIII. DISCOUNT: Not presently contemplated.

IX. These rates, rules, and regulations shall apply to any service address who now is, or may hereafter become, a Customer of the water system. The geographic boundaries of water service served by Nordic Ranches Water are limited to Divisions 1 through 14 of the Nordic Ranches subdivision, Lincoln County, Wyoming, per the proceedings before the Wyoming Public Service Commission, Docket No. 80024-6-WR-18 (Record No. 14990).

B. Metered Usage Records Summary

Monthly Metered Usage Records 2016-2021					
Month/Year	Metered Water	Days	Users	Gallons Per Day	Gallons Per User Per Day
October 2015 - May 2016	6096600	242	159	25192.56198	158.4437861
Jun-16	2677800	32	158	83681.25	529.6281646
Jul-16	3755080	31	161	121131.6129	752.3702665
Aug-16	2981780	30	161	99392.66667	617.3457557
Sep-16	1812330	30	160	60411	377.56875
October 2016 - May 2017	4630000	244	163	18975.40984	116.4135573
Jun-17	2634300	29	163	90837.93103	557.2879205
Jul-17	2912980	31	159	93967.09677	590.98803
Aug-17	2147160	31	165	69263.22581	419.7771261
Sep-17	1740720	29	165	60024.82759	363.7868339
October 2017 - May 2018	6917750	245	164	28235.71429	172.1689895
Jun-18	2197103	31	162	70874.29032	437.4956193
Jul-18	2286428	29	167	78842.34483	472.1098493
Aug-18	2863450	31	163	92369.35484	566.6831585
Sep-18	1715504	31	163	55338.83871	339.502078
October 2018 - April 2019	5266165	212	168	24840.40094	147.8595294
May-19	738686	30	163	24622.86667	151.0605317
Jun-19	632654	31	164	20408.19355	124.4402046
Jul-19	2343711	30	166	78123.7	470.6246988
Aug-19	2384601	34	164	70135.32353	427.6544118
Sep-19	884340	27	162	32753.33333	202.18107
October 2019 - April 2020	5761592	214	169	26923.3271	159.3096278
May-20	1103123	31	163	35584.6129	218.3105086
Jun-20	1626905	30	169	54230.16667	320.8885602
Jul-20	2737067	30	169	91235.56667	539.8554241
Aug-20	3479996	32	171	108749.875	635.9641813
Sep-20	1893282	30	171	63109.4	369.0608187
October 2020 - April 2021	3090546	217	173	14242.14747	82.32455182
May-21	912224	26	166	35085.53846	211.3586654
Jun-21	2784393	30	170	92813.1	545.9594118
Jul-21	2841124	32	173	88785.125	513.208815
Aug-21	2002552	30	173	66751.73333	385.8481696
Sep-21	1273278	29	172	43906.13793	255.2682438

C. Annual Utility Reports (2018-2020)

WYOMING PUBLIC SERVICE COMMISSION

UTILITY ANNUAL REPORT 2018

WATER UTILITIES

WYOMING PUBLIC SERVICE COMMISSION (WPSC)
2515 Warren Avenue, Suite 300
CHEYENNE, WYOMING 82002

REQUIRED PURSUANT TO WPSC RULES CHAPTER 3 Section 32

Exact Legal Name of Reporting Company:	Nordic Ranches Water, LLC
Any Previous Names?:	
Any D/B/A's?:	Nordic Ranches Water, LLC
Street Address or P.O. Box:	PO Box 5354
City, State and Zip Code:	Etna, WY 83118
Telephone Number:	(307)654-2005
Fax Number:	
Web Site:	
Contact Person:	Tanya DeJournett
Docket Number:	80024

For the Calendar year Ended December 31, 2018

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

General Instructions

1. A completed annual report, including a copy of the notarized Oath and Verification page, shall be filed **electronically** with the Wyoming Public Service Commission on or before May 1 following the year end to which this report applies.

2. Each inquiry contained in this report must be definitely answered. If "none" or "not applicable" applies to a certain question, please respond accordingly.

3. Any material sought to be kept confidential must be mailed to the Wyoming Public Service Commission with a written request that the material be treated as confidential under Commission Rule Chapter 2, Section 30, Confidentiality of Information. All confidential information must be clearly labeled as such and printed on yellow paper.

4. Please provide Wyoming and Total Company numbers in the annual report. If Wyoming numbers equal Total Company numbers, please indicate such by including the numbers in both columns.

5. Please state each dollar amount response rounded to the nearest dollar.

6. Negative dollar amounts must be entered like this -$100 or $-100. Do not use () for negative amounts when entering information.

7. If the Company provides a service to customers in more than one state, please limit your responses to the amounts which are specific to the Company's Wyoming operations, unless otherwise noted.

8. Per the PSC Rules, Chapter 3, Section 12(b), the Income Statement, Plant Investment and Balance Sheet have been changed to incorporate the National Association of Regulatory Utility Commissioners (NAURUC), Uniform System of Accounts for Class C Water Utilities (for utilities having annual water operating revenues of less than $200,000). The account number is noted in parenthesis behind each account name. If you are unfamiliar with this System of Accounts, you can purchase a copy at the following website: http://www.naruc.org/Store/

9. Please contact the Wyoming Public Service Commission office at (307) 777-7427 if there are any questions concerning the content of this annual report.

Note: Please file ONLY an electronic copy of the notarized Oath and Verification page. Submitting a paper copy of the notarized Oath and Verification page is no longer necessary.

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

Company Information

Year of incorporation:	2010
Year company first began Wyoming operations:	2010
Business organization:	LLC
Specify organization type if "Other" is chosen:	
Total number of Wyoming customers as of December 31, 2018:	220

Names of counties, cities and towns served by the company:

Name of owning, controlling or operating corporation or organization:

Headquarters (H):	
Name:	Nordic Ranches Water LLC
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person to be contacted regarding Wyoming Regulatory (R):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person in charge of Wyoming Utility Assessments (S):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person to be contacted concerning Wyoming Annual Reports (N):	
Name:	David Larson, CPA
Address:	PO Box 1029
City, State, ZIP Code:	Afton, WY 83110
Telephone:	(307)885-4272
eMail:	davilars@msn.com
Person to be contacted concerning emergencies (E): (Provide a 24/7 contact telephone number.)	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)884-8179
eMail:	nrw@silverstar.com
Person to be contacted concerning Wyoming Complaints (P):	
Name:	Nordic Ranches Water LLC
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Registered Agent (G):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com

Notes:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

INCOME STATEMENT

REVENUES:

Unmetered Water Revenue (460)	$	5,800.00
Metered Water Revenue (461)	$	122,051.00
Sales for Resale (466)		
Guaranteed Revenues (Prior to Service) (469)		
Other Water Revenues (474)	$	4,500.00
Other Income (419-421)	$	132.00
TOTAL REVENUES (Calculated)	**$**	**132,483.00**

WATER OPERATION AND MAINTENANCE EXPENSES:

Depreciation Expenses (403)	$	32,414.00
Income Taxes (409)		
Interest Expense (427)	$	13,211.00
Salaries and Wages - Employees (601)	$	35,519.00
Salaries and Wages - Officers, Directors and Majority Stockholders (603)	$	15,418.00
Employee Pensions and Benefits (604)		
Purchased Water (610)		
Purchased Power (615)	$	3,972.00
Fuel for Power Production (616)		
Chemicals (618)		
Materials and Supplies (620)	$	2,596.00
Contractual Services - Billing (630)		
Contractual Services - Professional (631)	$	60,651.00
Contractual Services - Testing (635)	$	5,511.00
Contractual Services - Other (636)	$	7,407.00
Rents (640)	$	6,000.00
Transportation Expenses (650)	$	1,407.00
Insurance Expense (655)	$	2,321.00
Regulatory Commission Expenses (665)	$	1,635.00
Bad Debt Expense (670)		
Miscellanous Expenses (675)	$	7,133.00
TOTAL OPERATING EXPENSES (Calculated)	**$**	**195,195.00**
NET OPERATING INCOME (Calculated)	**$**	**(62,712.00)**
Operating Ratio: {Exp - Depr / Rev} (Calculated)		**123.00%**

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

GROSS INTRASTATE WYOMING RETAIL REVENUE RECONCILIATION

1 **Total Revenue Reported to the WPSC in this Annual Report**

2 Total Revenue Reported to WPSC **$132,483.00**

4

7 **Adjustments to Above Revenue to Arrive at Gross Wyoming Intrastate Retail Revenue (If Any)**

Line	Account	Explanation of Adjustment	Adjustment Amount
8			
9			
10			
11			
12			
13			
14			
15			
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33			

34 **Total Adjustments** **$0.00**

35

36 **Total Revenue Less Adjustments** **$132,483.00**

37

38 **Gross Intrastate Wyoming Retail Revenue Reported to Department Of Revenue** **$132,483.00**

Footnote - Explain any differences between Lines 36 and 38:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

INVESTMENT IN WATER FACILITIES

Organization (301)	
Franchises (302)	
Land and Land Rights (303)	
Structures and Improvements (304)	
Collecting and Impounding Reservoirs (305)	
Lake, River and Other Intakes (306)	
Wells and Springs (307)	
Supply Mains (309)	
Power Generation Equipment (310)	
Pumping Equipment (311)	
Water Treatment Equipment (320)	
Distribution Reservoirs and Standpipes (330)	
Transmission and Distribution Mains (331)	
Services (333)	
Meters and Meter Installations (334)	
Hydrants (335)	
Backflow Prevention Devices (336)	
Other Plant and Miscellaneous Equipment (339)	
Office Furniture and Equipment (340)	
Transportation Equipment (341)	
Tools, Shop and Garage Equipment (343)	
Power Operated Equipment (345)	
Other Tangible Plant (348)	
GROSS PLANT INVESTMENT (Calculated)	$0.00
Accumulated Depreciation (108)	$162,070.00
NET PLANT INVESTMENT (Calculated)	($162,070.00)

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

WATER PRODUCTION AND USAGE

Number of Gallons Produced or Purchased	15,753,696
Number of Gallons Sold	15,118,711
Percent of Water Lost: (Calculated)	0.040307049

If Percentage is above 5%, please explain reason for high percentage lost:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

BALANCE SHEET ACCOUNTS

ASSETS AND OTHER DEBITS:	
Utility Plant In Service (101)	$810,351.00
Property Held for Future Use (103)	$0.00
Utility Plant Purchased or Sold (104)	$0.00
Construction Work in Progress (105)	$0.00
Utility Plant Acquisition Adjustments (114)	$0.00
Utility Investments (124)	$0.00
Cash (131)	$16,035.00
Special Deposits (132)	$0.00
Customer Accounts Receivable (141)	$26,226.00
Accumulated Provision for Uncollectible Accounts (143)	$0.00
Plant Materials and Supplies (151)	$0.00
Miscellaneous Current and Accrued Assets (174)	$0.00
Miscellaneous Deferred Debits (186)	$0.00
Accumulated Deferred Income Taxes (190)	$0.00
Less: Accumulated Depreciation and Amortization of Utility Plant In Service (10	$162,070.00
(Enter as negative number, if appropriate)	
Less: Accumulated Depreciation of Utility Plant Acquisition Adjustments (115)	$0.00
(Enter as negative number, if appropriate)	
Total Assets	**$690,542.00**
LIABILITIES AND OTHER CREDITS:	
Long-Term Debt (224)	$0.00
Accounts Payable (231)	$903.00
Notes Payable (232)	$338,779.00
Customer Deposits (235)	$0.00
Accrued Taxes (236)	$1,332.00
Accrued Interest (237)	$0.00
Miscellaneous Current and Accrued Liabilities (241)	$0.00
Advances for Construction (252)	$0.00
Other Deferred Credits (253)	$0.00
Accumulated Deferred Investment Tax Credits (255)	$0.00
Miscellaneous Operating Reserves (265)	$0.00
Accumulated Deferred Income Taxes (281-283)	$0.00
Total Liabilities	**$341,014.00**
Equity Capital	
Common Stock Issued (201)	$0.00
Preferred Stock Issued (204)	$0.00
Other Paid-In Capital (211)	$0.00
Retained Earnings (215)	$0.00
Proprietary Capital (218)	$349,528.00
Total Equity Capital	**$349,528.00**
Total Liabilities and Equity	**$690,542.00**

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

RATE OF RETURN

Last authorized overall Rate of Return	
Last authorized Operating Ratio	
Date Authorized (mm/dd/yyyy)	
Docket Number of Authorization	
Operating Ratio (Calculated) from Income Statement	1.23

INTREST RATE USED ON CUSTOMER DEPOSITS

State the interest rate the utility used for deposits in 2018, pursuant to Commission Rule Chapter 3, Section 7. If the interest rate used by the utility is different from the Commission Authorized interest rate for 2018, please explain why and indicate how the utility will correct or has corrected the oversight.

2018 Interest Rate Utilized:	

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2018

OATH AND VERIFICATION

Once the report is complete, sign the Oath and Verification page before a notary public. Upload a copy of the notorized Oath and Verification page with the balance of the annual report files.

STATE OF: Wyoming
COUNTY OF: Lincoln

Name: Tanya DeJournett
The affiant is: Bookkeeper
(Official Title of Affiant)
of: Nordic Ranches Water LLC
(Exact legal name of reporting entity)

1. Affiant has, by all necessary action, been duly authorized to make this Verification;

2. Affiant has examined the foregoing Annual Report and all attachments thereto;

3. Except as may be set forth in Paragraph 4 of this Oath and Verification, Affiant hereby verifies, upon Affiant's knowledge, that all statements containedin the foregoing Annual Report and all attachments thereto are true and complete and constitute a correct statement of the business affairs of teh above-named reporting entity with respect to each and every matter set forth therein for the period from and including:
January 1, 2018, through December 31, 2018

4. (Here state the source of Affiant's information and grounds of Affiant's beliefs as to any matters not stated to be verified upon Affiant's knowledge):

Signature

Tanya DeJournett Bookkeeper
Printed Name and Title

Notary

STATE OF: WYOMING
COUNTY OF: LINCOLN

Subscribed and sworn to before me this 30 day of April 2019
Witness my hand and official seal:

Bryli West
Signature

My Commission Expires: 2/11/2023

SEAL:

BRYLI WEST - NOTARY PUBLIC
County of Lincoln
State of Wyoming
My Commission Expires 2/11/2023

WYOMING PUBLIC SERVICE COMMISSION

UTILITY ANNUAL REPORT 2019

WATER UTILITIES

WYOMING PUBLIC SERVICE COMMISSION (WPSC)
2515 Warren Avenue, Suite 300
CHEYENNE, WYOMING 82002

REQUIRED PURSUANT TO WPSC RULES CHAPTER 3 Section 32

Exact Legal Name of Reporting Company:	Nordic Ranches Water, LLC
Any Previous Names?:	
Any D/B/A's?:	Nordic Ranches Water, LLC
Street Address or P.O. Box:	PO Box 5354
City, State and Zip Code:	Etna, WY 83118
Telephone Number:	(307)654-2005
Fax Number:	
Web Site:	
Contact Person:	Tanya DeJournett
Docket Number:	80024

For the Calendar year Ended December 31, 2019

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

General Instructions

1. A completed annual report, including a copy of the notarized Oath and Verification page, shall be filed **electronically** with the Wyoming Public Service Commission on or before May 1 following the year end to which this report applies.

2. Each inquiry contained in this report must be definitely answered. If "none" or "not applicable" applies to a certain question, please respond accordingly.

3. Any material sought to be kept confidential must be mailed to the Wyoming Public Service Commission with a written request that the material be treated as confidential under Commission Rule Chapter 2, Section 30, Confidentiality of Information. All confidential information must be clearly labeled as such and printed on yellow paper.

4. Please provide Wyoming and Total Company numbers in the annual report. If Wyoming numbers equal Total Company numbers, please indicate such by including the numbers in both columns.

5. Please state each dollar amount response rounded to the nearest dollar.

6. Negative dollar amounts must be entered like this -$100 or $-100. Do not use () for negative amounts when entering information.

7. If the Company provides a service to customers in more than one state, please limit your responses to the amounts which are specific to the Company's Wyoming operations, unless otherwise noted.

8. Per the PSC Rules, Chapter 3, Section 12(b), the Income Statement, Plant Investment and Balance Sheet have been changed to incorporate the National Association of Regulatory Utility Commissioners (NAURUC), Uniform System of Accounts for Class C Water Utilities (for utilities having annual water operating revenues of less than $200,000). The account number is noted in parenthesis behind each account name. If you are unfamiliar with this System of Accounts, you can purchase a copy at the following website: http://www.naruc.org/Store/

9. Please contact the Wyoming Public Service Commission office at (307) 777-7427 if there are any questions concerning the content of this annual report.

Note: Please file ONLY an electronic copy of the notarized Oath and Verification page. Submitting a paper copy of the notarized Oath and Verification page is no longer necessary.

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

Company Information

Year of incorporation:	2010
Year company first began Wyoming operations:	2010
Business organization:	LLC
Specify organization type if "Other" is chosen:	
Total number of Wyoming customers as of December 31, 2019:	220

Names of counties, cities and towns served by the company:

Name of owning, controlling or operating corporation or organization:

Headquarters (H):	
Name:	Nordic Ranches Water LLC
Address:	PO Box 5354
City, State, ZIP Code:	Etma, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person to be contacted regarding Wyoming Regulatory (R):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etma, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person in charge of Wyoming Utility Assessments (S):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etma, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person to be contacted concerning Wyoming Annual Reports (N):	
Name:	David Larson, CPA
Address:	PO Box 1029
City, State, ZIP Code:	Afton, WY 83110
Telephone:	(307)885-4272
eMail:	davilars@msn.com
Person to be contacted concerning emergencies (E): (Provide a 24/7 contact telephone number.)	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etma, WY 83118
Telephone:	(307)884-8179
eMail:	nrw@silverstar.com
Person to be contacted concerning Wyoming Complaints (P):	
Name:	Nordic Ranches Water LLC
Address:	PO Box 5354
City, State, ZIP Code:	Etma, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Registered Agent (G):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etma, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com

Notes:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

INCOME STATEMENT

REVENUES:

Unmetered Water Revenue (460)	$	6,176.00
Metered Water Revenue (461)	$	182,219.00
Sales for Resale (466)		
Guaranteed Revenues (Prior to Service) (469)		
Other Water Revenues (474)	$	5,600.00
Other Income (419-421)	$	1,108.00
TOTAL REVENUES (Calculated)	**$**	**195,103.00**

WATER OPERATION AND MAINTENANCE EXPENSES:

Depreciation Expenses (403)	$	32,414.00
Income Taxes (409)		
Interest Expense (427)	$	7,048.00
Salaries and Wages - Employees (601)	$	54,324.00
Salaries and Wages - Officers, Directors and Majority Stockholders (603)		
Employee Pensions and Benefits (604)		
Purchased Water (610)		
Purchased Power (615)	$	5,946.00
Fuel for Power Production (616)		
Chemicals (618)		
Materials and Supplies (620)	$	8,158.00
Contractual Services - Billing (630)		
Contractual Services - Professional (631)	$	35,119.00
Contractual Services - Testing (635)	$	1,591.00
Contractual Services - Other (636)	$	1,055.00
Rents (640)	$	6,000.00
Transportation Expenses (650)	$	1,516.00
Insurance Expense (655)	$	5,349.00
Regulatory Commission Expenses (665)	$	1,708.00
Bad Debt Expense (670)		
Miscellanous Expenses (675)	$	7,075.00
TOTAL OPERATING EXPENSES (Calculated)	**$**	**167,303.00**
NET OPERATING INCOME (Calculated)	**$**	**27,800.00**
Operating Ratio: {Exp - Depr / Rev} (Calculated)		**69.00%**

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

GROSS INTRASTATE WYOMING RETAIL REVENUE RECONCILIATION

1 **Total Revenue Reported to the WPSC in this Annual Report**

2 Total Revenue Reported to WPSC — **$195,103.00**

4

7 **Adjustments to Above Revenue to Arrive at Gross Wyoming Intrastate Retail Revenue (If Any)**

8 Account	Explanation of Adjustment	Adjustment Amount
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
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29		
30		
31		
32		
33		

34 **Total Adjustments** — **$0.00**

35

36 **Total Revenue Less Adjustments** — **$195,103.00**

37

38 **Gross Intrastate Wyoming Retail Revenue Reported to Department Of Revenue** — **$195,103.00**

Footnote - Explain any differences between Lines 36 and 38:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

INVESTMENT IN WATER FACILITIES

Organization (301)	
Franchises (302)	
Land and Land Rights (303)	
Structures and Improvements (304)	
Collecting and Impounding Reservoirs (305)	
Lake, River and Other Intakes (306)	
Wells and Springs (307)	
Supply Mains (309)	
Power Generation Equipment (310)	
Pumping Equipment (311)	
Water Treatment Equipment (320)	
Distribution Reservoirs and Standpipes (330)	
Transmission and Distribution Mains (331)	
Services (333)	
Meters and Meter Installations (334)	
Hydrants (335)	
Backflow Prevention Devices (336)	
Other Plant and Miscellaneous Equipment (339)	
Office Furniture and Equipment (340)	
Transportation Equipment (341)	
Tools, Shop and Garage Equipment (343)	
Power Operated Equipment (345)	
Other Tangible Plant (348)	
GROSS PLANT INVESTMENT (Calculated)	$0.00
Accumulated Depreciation (108)	$194,484.00
NET PLANT INVESTMENT (Calculated)	($194,484.00)

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

WATER PRODUCTION AND USAGE

Number of Gallons Produced or Purchased	12,515,691
Number of Gallons Sold	12,151,157
Percent of Water Lost: (Calculated)	0.029126159

If Percentage is above 5%, please explain reason for high percentage lost:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

BALANCE SHEET ACCOUNTS

ASSETS AND OTHER DEBITS:	
Utility Plant In Service (101)	$810,351.00
Property Held for Future Use (103)	$0.00
Utility Plant Purchased or Sold (104)	$0.00
Construction Work in Progress (105)	$0.00
Utility Plant Acquisition Adjustments (114)	$0.00
Utility Investments (124)	$0.00
Cash (131)	$78,168.00
Special Deposits (132)	$0.00
Customer Accounts Receivable (141)	$26,308.00
Accumulated Provision for Uncollectible Accounts (143)	$0.00
Plant Materials and Supplies (151)	$0.00
Miscellaneous Current and Accrued Assets (174)	$0.00
Miscellaneous Deferred Debits (186)	$0.00
Accumulated Deferred Income Taxes (190)	$0.00
Less: Accumulated Depreciation and Amortization of Utility Plant In Service (10	$194,484.00
(Enter as negative number, if appropriate)	
Less: Accumulated Depreciation of Utility Plant Acquisition Adjustments (115)	$0.00
(Enter as negative number, if appropriate)	
Total Assets	**$720,343.00**
LIABILITIES AND OTHER CREDITS:	
Long-Term Debt (224)	$0.00
Accounts Payable (231)	$15.00
Notes Payable (232)	$342,827.00
Customer Deposits (235)	$0.00
Accrued Taxes (236)	$173.00
Accrued Interest (237)	$0.00
Miscellaneous Current and Accrued Liabilities (241)	$0.00
Advances for Construction (252)	$0.00
Other Deferred Credits (253)	$0.00
Accumulated Deferred Investment Tax Credits (255)	$0.00
Miscellaneous Operating Reserves (265)	$0.00
Accumulated Deferred Income Taxes (281-283)	$0.00
Total Liabilities	**$343,015.00**
Equity Capital	
Common Stock Issued (201)	$0.00
Preferred Stock Issued (204)	$0.00
Other Paid-In Capital (211)	$0.00
Retained Earnings (215)	$0.00
Proprietary Capital (218)	$377,328.00
Total Equity Capital	**$377,328.00**
Total Liabilities and Equity	**$720,343.00**

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

RATE OF RETURN

From the drop-down box below, please select the Company's profit-measuring metric authorized by the Commission:

Operating Ratio

		Notes:
Enter the Commission-authorized 'Operating Ratio' profit metric:	60.90%	
Enter the Authorizing Docket Number:	80024-6-WR-18	
Enter the Date Authorized:		Authorized 07/01/2019
Enter the actual achieved 'Operating Ratio' profit metric as calculated by the Company:	69%	
Total dollar amount of profit for the year:	$27,800.00	
Total dollar amount of profit for the year EXCLUDING reserves:	-$35,654.00	

INTEREST RATE USED ON CUSTOMER DEPOSITS

State the interest rate the utility used for deposits in 2019, pursuant to Commission Rule Chapter 3, Section 7. If the interest rate used by the utility is different from the Commission Authorized interest rate for 2019, please explain why and indicate how the utility will correct or has corrected the oversight.

2019	**Interest Rate Utilized:**	

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

RESERVE ACCOUNTS

	Description	Authorizing Docket Number (if applicable)	Date Collection Began	Authorized Annual Collection Amount	2019 Beginning Balance	2019 Ending Balance	Increase (Decrease) in Balance
1	EMERGENCY RESERVE		7/2/2019		$ -	$ 9,616	$ 9,616
2	REPLACEMENT RESERVE		7/2/2019		$ -	$ 41,466	$ 41,466
3	O & M RESERVE		7/2/2019		$ -	$ 12,372	$ 12,372
4							$ -
5							$ -
6							$ -
7							$ -
8							$ -
9							$ -
10							$ -
11							$ -
12							$ -
13							$ -
14							$ -
15							$ -
16							$ -
17							$ -
18							$ -
19							$ -
20							$ -
21							$ -
22							$ -
23							$ -
24							$ -
25	**Total**				**$ -**	**$ 63,454**	**$ 63,454**

Notes:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2019

OATH AND VERIFICATION

Once the report is complete, sign the Oath and Verification page before a notary public. Upload a copy of the notorized Oath and Verification page with the balance of the annual report files.

STATE OF: Wyoming
COUNTY OF: Lincoln

Name: Tanya DeJournett
The affiant is: Manager
(Official Title of Affiant)
of: Nadic Ranches Water, LLC
(Exact legal name of reporting entity)

1. Affiant has, by all necessary action, been duly authorized to make this Verification;

2. Affiant has examined the foregoing Annual Report and all attachments thereto;

3. Except as may be set forth in Paragraph 4 of this Oath and Verification, Affiant hereby verifies, upon Affiant's knowledge, that all statements containedin the foregoing Annual Report and all attachments thereto are true and complete and constitute a correct statement of the business affairs of teh above-named reporting entity with respect to each and every matter set forth therein for the period from and including:
January 1, 2019, through December 31, 2019

4. (Here state the source of Affiant's information and grounds of Affiant's beliefs as to any matters not stated to be verified upon Affiant's knowledge):

Signature

Tanya DeJournett Manager
Printed Name and Title

Notary

STATE OF: Wyoming
COUNTY OF: Lincoln

Subscribed and sworn to before me this 29 day of April 2020
Witness my hand and official seal:

SEAL:

BRYLI WEST - NOTARY PUBLIC
County of Lincoln
State of Wyoming
My Commission Expires 2/11/2023

Bryli West
Signature

My Commission Expires: 2/11/2023

WYOMING PUBLIC SERVICE COMMISSION

UTILITY ANNUAL REPORT 2020

WATER UTILITIES

WYOMING PUBLIC SERVICE COMMISSION (WPSC)
2515 Warren Avenue, Suite 300
CHEYENNE, WYOMING 82002

REQUIRED PURSUANT TO WPSC RULES CHAPTER 3

Exact Legal Name of Reporting Company:	Nordic Ranches Water, LLC
Any Previous Names?:	
Any D/B/A's?:	Nordic Ranches Water, LLC
Street Address or P.O. Box:	PO Box 5354
City, State and Zip Code:	Etna, WY 83118
Telephone Number:	(307)654-2005
Fax Number:	
Web Site:	
Contact Person:	Tanya DeJournett
Docket Number:	80024

For the Calendar year 2020 Ended December 3

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

Company Information

Year of incorporation:	2010
Year company first began Wyoming operations:	2010
Business organization:	LLC
Specify organization type if "Other" is chosen:	
Total number of Wyoming customers as of December 31, 2020:	220

Names of counties, cities and towns served by the company:

Name of owning, controlling or operating corporation or organization:

Headquarters (H):	
Name:	Nordic Ranches Water LLC
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person to be contacted regarding Wyoming Regulatory (R):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person in charge of Wyoming Utility Assessments (S):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Person to be contacted concerning Wyoming Annual Reports (N):	
Name:	David Larson, CPA
Address:	PO Box 1029
City, State, ZIP Code:	Afton, WY 83110
Telephone:	(307)885-4272
eMail:	davilars@msn.com
Person to be contacted concerning emergencies (E): (Provide a 24/7 conta	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)884-8179
eMail:	nrw@silverstar.com
Person to be contacted concerning Wyoming Complaints (P):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com
Registered Agent (G):	
Name:	Tanya DeJournett
Address:	PO Box 5354
City, State, ZIP Code:	Etna, WY 83118
Telephone:	(307)654-2005
eMail:	nrw@silverstar.com

Notes:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

INCOME STATEMENT

REVENUES:

Unmetered Water Revenue (460)	$ 6,648.00
Metered Water Revenue (461)	$ 185,013.00
Sales for Resale (466)	
Guaranteed Revenues (Prior to Service) (469)	
Other Water Revenues (474)	$ 10,175.00
Other Income (419-421)	$ 459.00
TOTAL REVENUES (Calculated)	**$**

WATER OPERATION AND MAINTENANCE EXPENSES:

Depreciation Expenses (403)	$ 99,850.00
Income Taxes (409)	
Interest Expense (427)	$ 6,168.00
Salaries and Wages - Employees (601)	$ 55,373.00
Salaries and Wages - Officers, Directors and Majority Stockholders (603)	
Employee Pensions and Benefits (604)	
Purchased Water (610)	
Purchased Power (615)	$ 7,186.00
Fuel for Power Production (616)	
Chemicals (618)	
Materials and Supplies (620)	$ 1,145.00
Contractual Services - Billing (630)	
Contractual Services - Professional (631)	$ 2,798.00
Contractual Services - Testing (635)	$ 1,200.00
Contractual Services - Other (636)	$ 7,190.00
Rents (640)	$ 6,700.00
Transportation Expenses (650)	$ 1,090.00
Insurance Expense (655)	$ 5,416.00
Regulatory Commission Expenses (665)	
Bad Debt Expense (670)	
Miscellanous Expenses (675)	$ 8,179.00
TOTAL OPERATING EXPENSES (Calculated)	**$**
NET OPERATING INCOME (Calculated)	**$**
Operating Ratio: {Exp - Depr / Rev} (Calculated)	

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

GROSS INTRASTATE WYOMING RETAIL REVENUE

1	**Total Revenue Reported to the WPSC in this Annual Report**	
2	Total Revenue Reported to WPSC	$202,295.0
4		
7	**Adjustments to Above Revenue to Arrive at Gross Wyoming Intra**	

8	Account	Explanation of Adjustment	Amount
9			
10			
11			
12			
13			
14			
15			
16			
17			
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19			
20			
21			
22			
23			
24			
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31			
32			
33			

34	**Total Adjustments**	$0.00
35		
36	**Total Revenue Less Adjustments**	
37		
38	**Gross Intrastate Wyoming Retail Revenue Reported to Department**	

Footnote - Explain any differences between Lines 36 and 38:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

INVESTMENT IN WATER FACILITIES

Organization (301)	
Franchises (302)	
Land and Land Rights (303)	
Structures and Improvements (304)	
Collecting and Impounding Reservoirs (305)	
Lake, River and Other Intakes (306)	
Wells and Springs (307)	
Supply Mains (309)	
Power Generation Equipment (310)	
Pumping Equipment (311)	
Water Treatment Equipment (320)	
Distribution Reservoirs and Standpipes (330)	
Transmission and Distribution Mains (331)	
Services (333)	
Meters and Meter Installations (334)	
Hydrants (335)	
Backflow Prevention Devices (336)	
Other Plant and Miscellaneous Equipment (339)	
Office Furniture and Equipment (340)	
Transportation Equipment (341)	
Tools, Shop and Garage Equipment (343)	
Power Operated Equipment (345)	
Other Tangible Plant (348)	
GROSS PLANT INVESTMENT (Calculated)	$0.00
Accumulated Depreciation (108)	$294,334.00
NET PLANT INVESTMENT (Calculated)	($294,334.00)

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

WATER PRODUCTION AND USAGE	
Number of Gallons Produced or Purchased	14,556,690
Number of Gallons Sold	14,132,709
Percent of Water Lost: (Calculated)	0.029126196

If Percentage is above 5%, please explain reason for high percentage lost:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

BALANCE SHEET A	
ASSETS AND OTHER DEBITS:	
Utility Plant In Service (101)	$894,752.00
Property Held for Future Use (103)	$0.00
Utility Plant Purchased or Sold (104)	$0.00
Construction Work in Progress (105)	$0.00
Utility Plant Acquisition Adjustments (114)	$0.00
Utility Investments (124)	$0.00
Cash (131)	$61,368.00
Special Deposits (132)	$0.00
Customer Accounts Receivable (141)	$27,544.00
Accumulated Provision for Uncollectible Accounts (143)	$0.00
Plant Materials and Supplies (151)	$0.00
Miscellaneous Current and Accrued Assets (174)	$0.00
Miscellaneous Deferred Debits (186)	$0.00
Accumulated Deferred Income Taxes (190)	$0.00
Less: Accumulated Depreciation and Amortization of Utility Plant In Service (108 (Enter as negative number, if appropriate)	$294,334.00
Less: Accumulated Depreciation of Utility Plant Acquisition Adjustments (115) (Enter as negative number, if appropriate)	$0.00
Total	**$689,3**
LIABILITIES AND OTHER CREDITS:	
Long-Term Debt (224)	$0.00
Accounts Payable (231)	$294.00
Notes Payable (232)	$309,995.00
Customer Deposits (235)	$0.00
Accrued Taxes (236)	$1,713.00
Accrued Interest (237)	$0.00
Miscellaneous Current and Accrued Liabilities (241)	$0.00
Advances for Construction (252)	$0.00
Other Deferred Credits (253)	$0.00
Accumulated Deferred Investment Tax Credits (255)	$0.00
Miscellaneous Operating Reserves (265)	$0.00
Accumulated Deferred Income Taxes (281-283)	$0.00
Total Li	**$312,0**
Equity Capital	
Common Stock Issued (201)	$0.00
Preferred Stock Issued (204)	$0.00
Other Paid-In Capital (211)	$0.00
Retained Earnings (215)	$0.00
Proprietary Capital (218)	$377,
Total Equi	**$377,3**
Total Liabili	**$689,3**

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

RATE OF RETURN

From the drop-down box below, please select the Company's profit-measuring metric authorized by the Commission:

Operating Ratio

		Notes:
Enter the Commission-authorized 'Operating Ratio' profit metric:	60.90%	
Enter the Authorizing Docket Number:	80024-6	
Enter the Date Authorized:	Authorized	
Enter the actual achieved 'Operating Ratio' profit metric as calculated by the Company:	51.00%	
Total dollar amount of profit for the year:	$0.00	
Total dollar amount of profit for the year EXCLUDING reserves:	$8,915.00	

INTEREST RATE USED ON CUSTOMER DEPOSITS

State the interest rate the utility used for deposits in 2020, pursuant to Commission Rule Chapter 3, Section 7. If the interest rate used by the utility is different from the Commission Authorized interest rate for 2020, please explain why and indicate how the utility will correct or has corrected the oversight.

2020 Interest Rate Utilized: 3.66%

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

RESERVE ACCOUNTS

	Description	Author Docket Number (if applicable)	Date Collection Began	Author Annual Collection Amount	2020 Beginning Balance	2020 Ending Balance	Increase (Decrease) in Balance
1	Emergency Reserve		7/1/2019		$ 9,616	$ 16,637	$ 7,021
2	Replacement Reserve		7/1/2019		$ 41,466	$ 30,579	$ (10,887)
3	O & M Reserve		7/1/2019		$ 12,372	$ 7,322	$ (5,050)
4							$ -
5							$ -
6							$ -
7							$ -
8							$ -
9							$ -
10							$ -
11							$ -
12							$ -
13							$ -
14							$ -
15							$ -
16							$ -
17							$ -
18							$ -
19							$ -
20							$ -
21							$ -
22							$ -
23							$ -
24							$ -
25	Tot				$ 63,	$ 54,	$ (8,

Notes:

Utility Name: Nordic Ranches Water, LLC
Docket No.: 80024
Reporting Year: 2020

OATH AND VERIFICATION

Once the report is complete, sign the Oath and Verification page before a notary public. Upload a copy of the notorized Oath and Verification page with the balance of the annual report files.

STATE OF: Wyoming
COUNTY OF: Lincoln

Name: Tanya DeJournett
The affiant is: manager
(Official Title of Affiant)

of: Nordic Ranches Water, LLC
(Exact legal name of reporting entity)

1. Affiant has, by all necessary action, been duly authorized to make this Verification;

2. Affiant has examined the foregoing Annual Report and all attachments thereto;

3. Except as may be set forth in Paragraph 4 of this Oath and Verification, Affiant hereby verifies, upon Affiant's knowledge, that all statements containedin the foregoing Annual Report and all attachments thereto are true and complete and constitute a correct statement of the business affairs of teh above-named reporting entity with respect to each and every matter set forth therein for the period from and including:

January 1, 2020 through December 31, 2020

4. (Here state the source of Affiant's information and grounds of Affiant's beliefs as to any matters not stated to be verified upon Affiant's knowledge):

Signature

Tanya DeJournett Manager
Printed Name and Title

Notary

STATE OF: Wyoming
COUNTY OF: Lincoln

Subscribed and sworn to before me this 28th day of April 2021
Witness my hand and official seal:

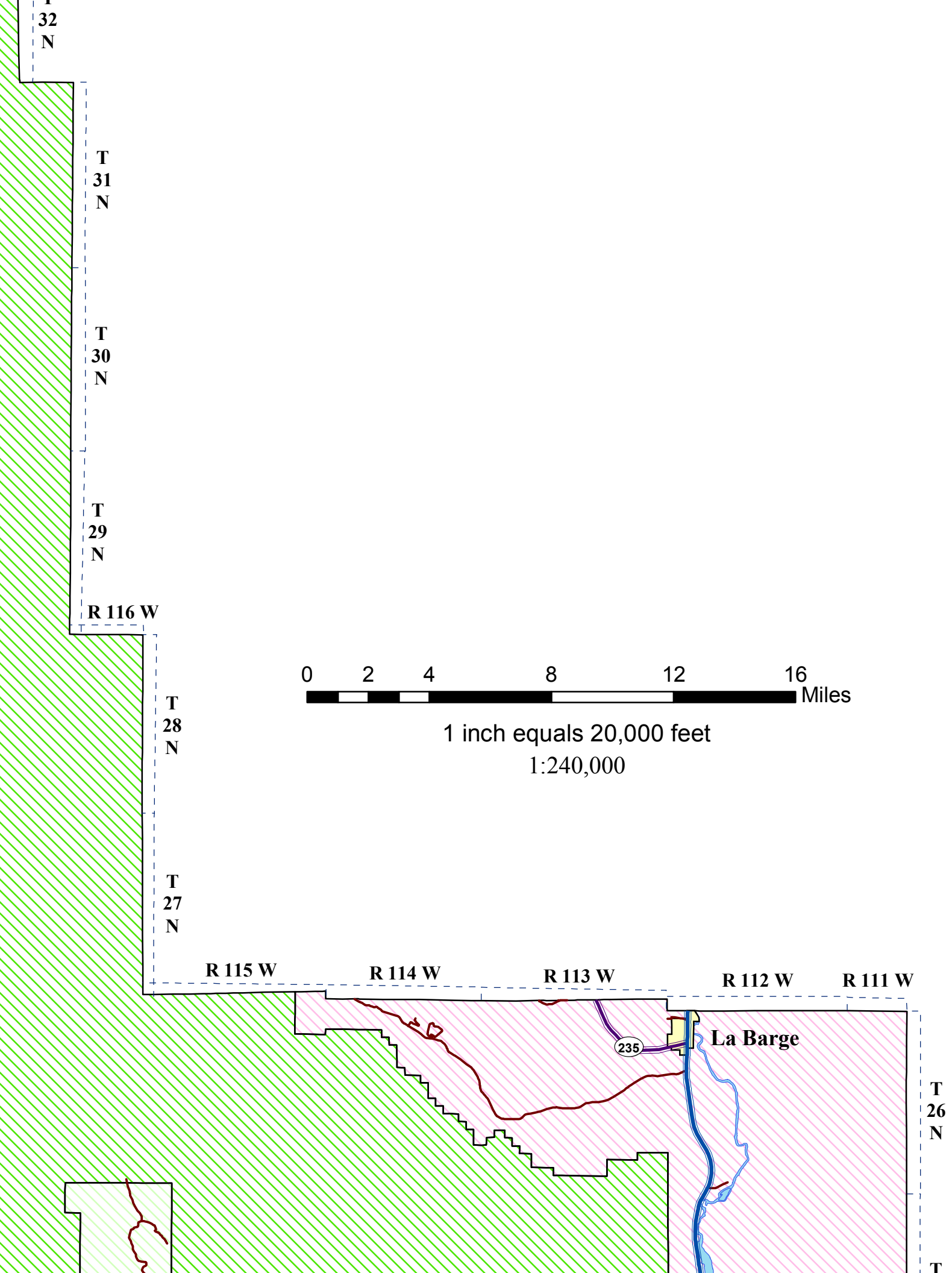
Mike Siddoway
Signature

My Commission Expires: 7/27/2023

SEAL:

TERRECE SIDDOWAY - NOTARY PUBLIC
County of Lincoln
State of Wyoming
My Commission Expires July 27, 2023

D. Lincoln County Community Plan Map


T 32 N
T 31 N
T 30 N
T 29 N
R 116 W
T 28 N
T 27 N
R 115 W
R 114 W
R 113 W
R 112 W
R 111 W
La Barge
235
T 26 N
0 2 4 8 12 16
Miles
1 inch equals 20,000 feet
1:240,000

E. Lower Valley Lincoln County Zoning Map

33	34	35	36	31
04	03	02	01	06
09	10	11	12	07
16	15	14	13	18
21	22	23	24	19
28	27	26	25	30

F. Well Permits, Statements of Completion, Beneficial use Forms

CHEYENNE, WYOMING 82002

MICRO FILMED MAR 3'88

APPLICATION FOR PERMIT TO APPROPRIATE GROUND WATER

FOR OFFICE USE ONLY

PERMIT NO. U.W. 76226

WATER DIVISION NO. 4 DISTRICT 12

U.W. DISTRICT Lincoln Co

Temporary Filing No. U.W. 9-1-388

NOTE: Do not fold this form. Use typewriter or print neatly with black ink. **ALL ITEMS MUST BE COMPLETED BEFORE APPLICATION IS ACCEPTABLE.**

NAME AND NUMBER OF WELL Nordic Ranches Well No. 1

1. Name of applicant(s) Clarence L. Reinhart, Dorothy I. Reinhart, Gay Edwards Phone: (307) 654-7737

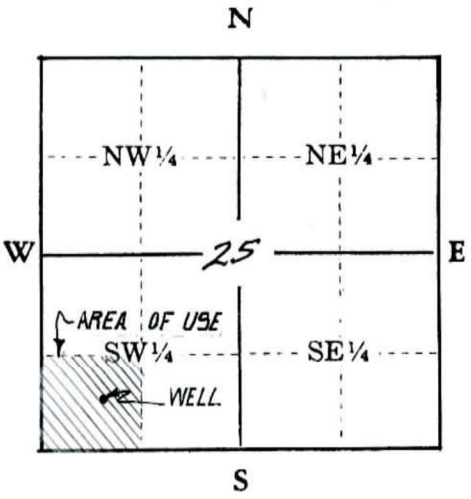
2. Address of applicant(s) Three Rivers Construction P.O. Box 258 Alpine, Wyoming Zip: 83128

3. Name & address of agent to receive correspondence and notices Same as above.

4. Use to which the water will be applied: Domestic [ ] Stock Watering [ ] Irrigation [ ] Municipal [ ] Industrial [ ] Miscellaneous [X] (Describe completely and accurately) To provide water for a sub-division, containing eight single family dwellings.

5. Location of the well: (NOTE: Quarter-quarter (40-acre subdivision) MUST be shown. EXAMPLE: SE¼NW¼ of Sec. 12, Township 14 North, Range 68 West.) Lincoln County, SW ¼ SW ¼ of Sec. 25, T. 36 N., R. 119 W. of the 6th P.M. (or W.R.M.), Wyoming. If located in a platted subdivision, **also** provide Lot Part of 6 Block -------- of the Nordic Ranches, Div #1 Subdivision (or Add'n) of ----------.

6. Mark the well location on the section grid to the right. LOCATION SHOWN IN ITEM 5 MUST AGREE WITH GRID. If the proposed well is for irrigation use, sketch and label all irrigation ditches and canals, stream, reservoirs and other wells. Indicate the point of use or lands to be irrigated from other sources.



Scale: 2" = 1 mile

Above diagram represents one full section. Locate well accurately in small square representing 40 ac.

7. Estimated depth of the well is 300 feet.

8. MAXIMUM quantity of water to be developed and beneficially used: 25 gallons per minute. NOTE: If for domestic or stock use, this application will be processed for a maximum of 25 gallons per minute. SPRINGS: Only springs flowing 25 gallons per minute or less, where the proposed use is domestic or stockwatering, will be considered as ground water appropriations. After approval of this application, some type of artificial diversion must be constructed to qualify for a water right.

9. If use is not irrigation, mark the point(s) or area(s) of use in the tabulation below.

10. If for irrigation use:
    a. Describe MAXIMUM acreage to be irrigated in each 40 acre subdivision in the tabulation below.
    b. [ ] Land will be irrigated from this well only.
    c. [ ] Land is irrigated from existing water right(s) with water from this well to be additional supply. Describe existing water right(s) under REMARKS.

Township	Range	Sec.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
36 N.	119W.	25											X						

The water from this well will supply one single family dwelling on each of lots 1 through 8 in the Nordic Ranches Subdivision.
See plat filed in Subdivision Plat File.
See copy of the covenants filmed with Permit No. UW68374.

to this office. If the landowner is included as a co-applicant on the application, this procedure need not be followed.)

REMARKS: This is a resubmital for a previously approved permit (No. U.W. 68374), due to expiration of the original on 4-21-87.

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

Signature of Applicant or Authorized Agent

Date, 19____

THE LEGALLY REQUIRED FILING FEE MUST ACCOMPANY THIS APPLICATION

DOMESTIC AND/OR STOCK WATERING USES (Domestic use is defined as a single-family dwelling and the watering of lawns and gardens not exceeding one (1) acre)	$10.00
IRRIGATION, MUNICIPAL, INDUSTRIAL, MISCELLANEOUS	$25.00
MONITOR (For water level measurements or chemical quality sampling)	NO FEE

IF WELL WILL SERVE MULTIPLE USES, SUBMIT ONLY ONE (THE HIGHER) FILING FEE.

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

THE STATE OF WYOMING)
) ss.
STATE ENGINEER'S OFFICE)

This instrument was received and filed for record on the 11th day of January, A. D. 19 88, at 2:00 o'clock PM.

Permit No. U.W. 76225

for State Engineer

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This application is approved subject to the condition that the proposed use shall not interfere with any existing rights to ground water from the same source of supply and is subject to regulation and correlation with surface water rights, if the ground and surface waters are interconnected. The use of water hereunder is subject to the further provisions of Chapter 169, Session Laws of Wyoming, 1957, and any subsequent amendments thereto.

Granting of a permit does not guarantee the right to have the water level or artesian pressure in the well maintained at any specific level. The well should be constructed to a depth adequate to allow for the maximum development and beneficial use of ground water in the source of supply.

If the well is a flowing artesian well, it shall be so constructed and equipped that the flow may be shut off when not in use, without loss of water into surface formations or at the surface.

This permit and accompanying notices serve to register an existing well and establish a valid water right for the same. Notice of Commencement is waived. Time limit for completion of construction waived.

~~Approval of this application may be considered as authorization to proceed with construction of the proposed well.~~

~~Construction of well will begin within one (1) year from date of approval. A Statement of Completion will be filed within thirty (30) days of completion of construction, including pump installation.~~

~~Completion of construction and~~ completion of the beneficial use of water for the purposes specified in Item 4 of this application will be made by December 31, 19 89. 90

The amount of appropriation shall be limited to the quantity to which permittee is entitled as determined at time of proof of application of water to beneficial use.

Witness my hand this 29th day of JANUARY, A.D. 19 88.

Gordon W. Fassett
Gordon W. Fassett, State Engineer

January 11, 1988--Statement of Completion on December 11, 1984 received.

MICRO FILMED MAR 3'88

SEP. 28 1989 NOTICE OF EXPIRATION OF TIME FOR COMPLETION OF BENEFICIAL USE

MICRO FILMED JUL 24'89

Permit No. U.W. 76226

PERMIT STATUS

Priority Date January 11, 1988 Date of Approval January 29, 1988

January 2, 1990 - Request for an extension of time for completion of beneficial use (PM 12-28-89) granted until December 31, 1990. Letter of request filed in Miscellaneous Notices under Permit No. U.W. 76226. Applicant notified of extension by letter on FEB 20 1990.

2-20-90
Date of Approval

RICHARD G. STOCKDALE, ADMINISTRATOR
Ground Water Division

January 22, 1990 - Notice of Existing Real Estate Purchase Agreement received. See filed in Certificate drawer under REINHART, CLARENCE L. AND DOROTHY I.

MICRO FILMED MAR 27 '90

December 31, 1990 - Proof of Beneficial Use on September 17, 1988 received.

MICRO FILMED JUL 01 '91

March 8, 1994 - This permit has been enlarged by Permit No. U.W. 95148 for additional yield and points of use only. Thre is no physical enlargment of this well.

MICRO FILMED JUL 27 1994

August 7, 1995 - This permit has been enlarged by Permit No. U.W. 100147 for additional yield and points of use only. There is no physical enlargement of this well.

MICRO FILMED DEC 21 1995

March 23, 2006 - This permit has been enlarged by Permit No. U.W. 173584 for additional points of use and volumetric quantity only. There is no physical enlargement of this well.

SCANNED MAY 01 2013 SCAN-MICRO AUG 16 2006

ABANDONED, SEE **STATEMENT OF COMPLETION AND DESCRIPTION OF WELL** ITEM 15, PAGE 4

FILMED MAR 3'88

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

SCANNED MAY 01 2013

PERMIT NO. U.W. 76226 NAME OF WELL Nordic Ranches Well No. 1

1. NAME OF OWNER Clarence L. Reinhart, and Dorothy I. Reinhart

2. ADDRESS Three Rivers Construction, P.O. Box 258 Alpine, Wyoming Zip Code 83128

3. USE OF WATER: Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☒
To provide water for a subdivision, containing eight single family dwelling

4. LOCATION OF WELL: ____¼____¼ of Section____, T.____N., R.____W., of the 6th P.M. (or W.R.M.), Wyoming, being specifically
(Bearing and Distance)
or 705.9 ft. North ~~South~~ and 821.6 ft. East ~~West~~ from the SW corner of Section 25, T. 36 N., R. 119 W.
(Strike out words not needed).

5. TYPE OF CONSTRUCTION: Drilled ☒ Rotary (Type of Rig) Dug ☐ Driven ☐ Jetted ☐
Other ____

6. CONSTRUCTION: Total Depth of Well 283 ft. Depth to Static Water Level 67 ft.

a. Casing Schedule New ☒ Used ☐

8"	diameter from 1+	ft. to 220	ft.	Material Steel Pipe	Gage 0.25
____	diameter from ____	ft. to ____	ft.	Material ____	Gage ____
____	diameter from ____	ft. to ____	ft.	Material ____	Gage ____

b. Perforations: Type of perforator used None

Size of perforations ____ inches by ____ inches.

Number of perforations and depths where perforated:

____ perforations from ____ ft. to ____ feet.

____ perforations from ____ ft. to ____ feet.

c. Was well screen installed? Yes ☐ No ☒

Diameter: ____ slot size: ____ set from ____ feet to ____ feet.

Diameter: ____ slot size: ____ set from ____ feet to ____ feet.

d. Was well gravel packed? Yes ☐ No ☒ Size of gravel ____

e. Was surface casing used? Yes ☒ No ☐ Was it cemented in place? Yes ☐ No ☒ (grouted to 25' with Bentonite)

7. NAME & ADDRESS OF DRILLER Darrel Ashbocker Route 2 Box 484, Idaho Falls, Idaho 83401

8. DATE OF COMPLETION OF WELL (including pump installation) Drilling 12-6-84, Pump Installation 12-11-84

9. PUMP INFORMATION: Manufacturer Myers Pump and Moter Type ____

Source of power Electricity Horsepower 1 1/2 Depth of Pump Setting 189'

Amount of Water Being Pumped 20 Gallons Per Minute. (For springs or flowing wells, see item 11.)

Yield: _____gal./min. with _____ foot drawdown after _____ hours.

Yield: _____gal./min. with _____ foot drawdown after _____ hours.

11. FLOWING WELL (Owner is responsible for control of flowing well).

If well yields artesian flow, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water.

The flow is controlled by: valve ☐ cap ☐ plug ☐

Does well leak around casing? Yes ☐ No ☐

12. LOG OF WELL: Total depth drilled 283 feet.

Depth of completed well 283 feet. Diameter of well 8 inches.

Depth to first water bearing formation 175 feet.

Depth to principal water bearing formation. Top 195 feet to Bottom 210 feet.

Ground Elevation, if known 5405.55

From Feet	To Feet	Material Type, Texture, Color	REMARKS (Cementing, Shutoff, Packing, etc.)	Indicate Water Bearing Formation	Indicate Perforated Casing Location
0	5	Top Soil			
5	25	Gummy Clay			
25	30	Clay and Shale			
30	55	Clay and Gummy Clay			
55	60	Clay and Shale			
60	65	Clay and Gummy			
65	90	Clay and Shale			
90	95	Loose Shale		Trickle Water	
95	120	Clay and Shale			
120	123	Loose Shale		Dried Up	
123	175	Clay and Shale			
175	180	Loose Shale		Water	
180	195	Loose Shale and Boulders			
195	210	Loose Shale and Boulders		Dirty Water	
210	218	Clay and Shale			
218	224	Limestone			
224	274	Clay and Shale			
274	283	Broken Limestone			

QUALITY OF WATER INFORMATION:

Was a chemical analysis made? Yes ☐ No ☒

If so, please include a copy of the analysis with this form.

If not, do you consider the water as: Good ☒ Acceptable ☐ Poor ☐ Unusable ☐

"Remarks" section, under Item 14, the means of conveying the water to the lands and the method of irrigation.

(Give irrigable acreage in each legal subdivision. If proposed use is for additional supply for lands with a right from another source, indicate in the tabulation the priority or permit number, the source of supply and the name of the ditch or other well.)

b. If not used for irrigation, show the area and point(s) of use and location of well in the tabulation below. Also describe the method of conveyance in the "Remarks" section under Item 14.

Town-Ship	Range	Sec.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
36N	119W	25											X						

TOTAL NUMBER OF ACRES TO BE IRRIGATED_____

Original Supply _____ acres

Additional Supply _____ acres

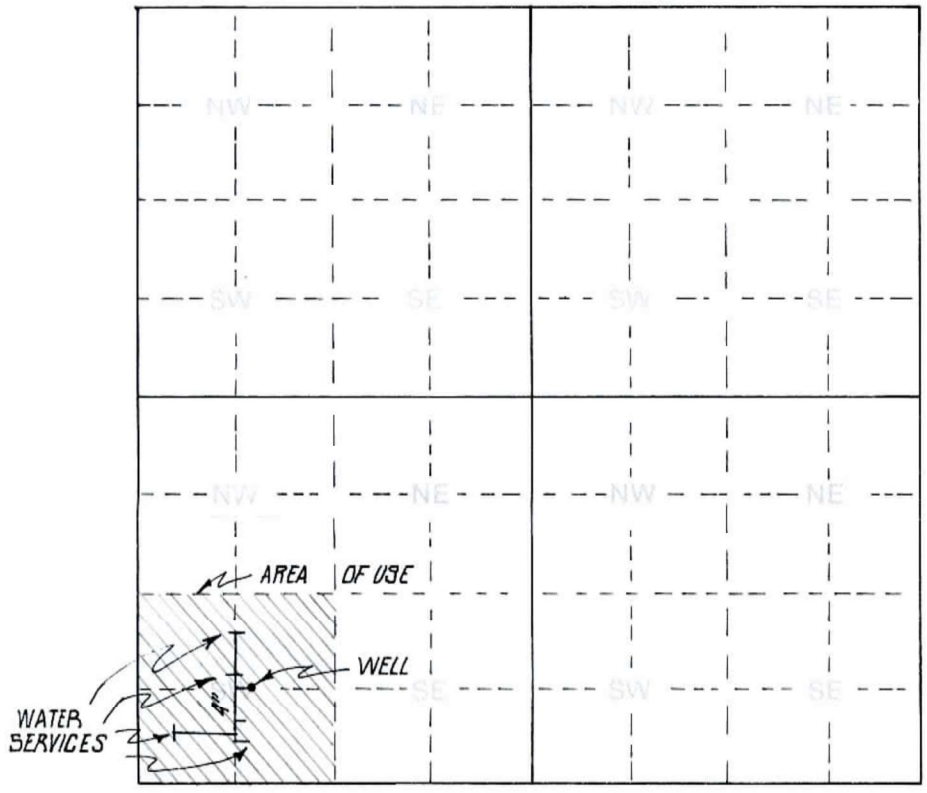
14. PLAT

a. If the well is to be used for irrigation, industrial, miscellaneous or municipal use, show the location of the well on the plat below. For such uses, a plat certified by a licensed engineer or land surveyor is required to be submitted at the time the Proof of Appropriation and Beneficial Use of Ground Water is submitted.

b. For other uses, accurately show the well location, point of use or uses and describe method of conveyance of water to points of use on plat and in "Remarks" section below. Make certain location on plat agrees with written description.

c. A separate map may be submitted if the information required cannot be shown on this plat.

R. 119 W. R. 119 W.



Scale: 2" = 1 Mile

T. 36 N.

T. 36 N.

REMARKS Method of Conveyance for the sub-irrigation is through a 4" PVC water main

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Signature of Owner or Authorized Agent

1-6-, 1987
Date

Date of Receipt JAN 11, 1988, 19

Date of Priority Jan. 11, 1988, 19

Date of Approval Jan. 29, 19 88

for State Engineer

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

PROOF OF APPROPRIATION AND BENEFICIAL USE OF GROUND WATER

The owner is responsible for submitting Parts I and II of this form. Part III will be prepared by a State Engineer Representative at time of inspection.

PART I

WATER DIVISION 4 (12)

U.W. DISTRICT Lincoln Co.

STATEMENT OF CLAIM

DATE OF PRIORITY ~~January 11, 1988~~

PERMIT NO. U.W. 76226

WELL REGISTRATION

LOCATION SW ¼ SW ¼ of Section 25

NAME OF WELL Nordic Ranches Well No. 1

T. 36 N., R. 119 W. per permit

1. Name of Claimant(s) Clarence L. & Dorothy I. Reinhart, Gay Edwards

2. Address Box 258, Alpine, Wyoming Zip Code 83128

3. For What Purpose(s) is Water Used? Use: Miscellaneous Date First Used Sept. 17, 1988

Use: _____ Date First Used: _____, 19____ Use: _____ Date First Used _____, 19____

If use is for irrigation, give date irrigation was completed on all lands under this Permit: _____

PART II

For Irrigation, Industrial, Municipal and Miscellaneous Wells

A plat which has been certified by a licensed professional engineer or land surveyor shall be submitted to accompany this form. The plat shall be in accordance with Sec. 33-29-111 Wyoming Statutes 1977 or see Chapter V and VI, Manual of Regulations and Instructions issued by the State Engineer's Office. (Minimum scale shall be 2" = 1 mile.) The map shall be prepared with waterproof black ink on tracing linen or an acceptable equivalent and shall show on a suitable scale the legal subdivisions, the accurate location of the well or wells, storage facilities, if any, main canals, streams, highways and other important cultural features. Land ownership will be shown, if there is more than one owner under the permit.

IRRIGATION WELLS

Acreage irrigated under terms of this permit will be clearly shown with a distinctive pattern and a distinction clearly made between lands having an original supply and those provided a supplemental supply. Where use is for supplemental supply for lands with a right from another source, indicate the priority or permit number of the source, the source of supply and the name of the ditch, pipe line or other well. Conveyance system will be shown and described. Indicate method of irrigation being used.

INDUSTRIAL WELLS

In addition to the information outlined above, industrial users will locate and describe conveyance facilities to the point(s) of use, giving as accurately as possible the location of points of use. Permits for other sources of water must be identified.

MUNICIPAL WELLS

The plat will show the area of use and show and describe the means of conveyance of the water from the well to the connection with the distribution system for a municipal water system.

MISCELLANEOUS WELLS

(1) The linen plat for wells where the use is described as miscellaneous and where the yield flow of the well exceeds twenty-five (25) gallons per minute must show the area of use and describe and show the means of conveyance from the well to the distribution system and/or points of use.

(2) The plat for wells where the use is described as miscellaneous and where the yield or flow is twenty-five (25) gallons per minute or less may be a 7½ minute United States Geological Survey Quadrangle map in lieu of a linen tracing provided the U.S. Geological Survey Quadrangle map is in compliance with the following conditions:

(a) The entire United State Geological Survey quadrangle map must be submitted to the State Engineer's Office.

(b) The scale on said quadrangle map must be one to twenty-four thousand.

(c) An identified section corner or quarter corner must be shown on said quadrangle map along with Section, Township and Range.

INVOLVED MUST ACCOMPANY THIS FORM.

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Dorothy J. Reinhart
Signature of Owner or Authorized Agent

Oct 22, 19 90
Date

DEC 31 1990
Date of Receipt: _____, 19 ____

APPLICATION FOR PERMIT TO APPROPRIATE GROUND WATER

FOR OFFICE USE ONLY

PERMIT NO. U.W. 95148

WATER DIVISION NO. 4 DISTRICT 12

U.W. DISTRICT Lincoln Co.

Temporary Filing No. U.W. 22-11-303

NOTE: Do not fold this form. Use typewriter or print neatly with black ink. **ALL ITEMS MUST BE COMPLETED BEFORE APPLICATION IS ACCEPTABLE.**

NAME AND NUMBER OF WELL Nordic Ranches Well No. 1 Enl. (Enlargement of Permit No. UW76226 for additional yield and points of use)

1. Name of applicant(s) Clarence L. Reinhart & Dorothy I. Reinhart Phone: 654-7587

2. Address of applicant(s) Three Rivers Const., P.O. Box 258, Alpine, Wyo. Zip: 83128

3. Name & address of agent to receive correspondence and notices same as above

4. Use to which the water will be applied: Domestic [ ] Stock Watering [ ] Irrigation [ ] Municipal [ ] Industrial [ ] Miscellaneous [X] (Describe completely and accurately) to provide culinary water for a subdivision containing 38 single family dwellings (8 under the original permit & 30 under this enlargement)

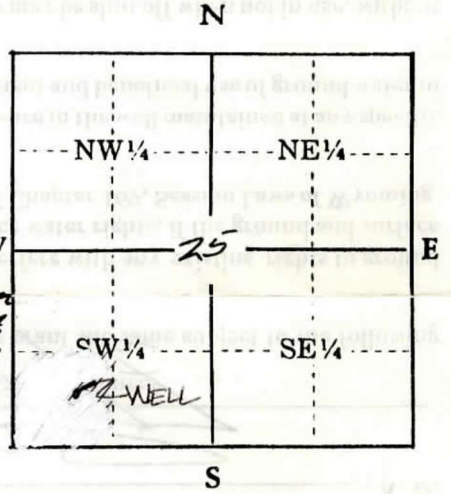
5. Location of the well: (NOTE: Quarter-quarter (40-acre subdivision) MUST be shown. EXAMPLE: SE¼NW¼ of Sec. 12, Township 14 North, Range 68 West.) Lincoln County, SW ¼ SW ¼ of Sec. 25, T. 36 N., R. 119 W. of the 6th P.M. (or W.R.M.), Wyoming. If located in a platted subdivision, **also** provide Lot Part of 6 Block ------- of the Nordic Ranches, Div #1 Subdivision (or Add'n) of ----------.

6. Mark the well location on the section grid to the right. LOCATION SHOWN IN ITEM 5 MUST AGREE WITH GRID. If the proposed well is for irrigation use, sketch and label all irrigation ditches and canals, stream, reservoirs and other wells. Indicate the point of use or lands to be irrigated from other sources.

7. Estimated depth of the well is 300 feet.

8. MAXIMUM quantity of water to be developed and beneficially used: 10 (this Enl.) gallons per minute. NOTE: If for domestic or stock use, this application will be processed for a maximum of 25 gallons per minute. SPRINGS: Only springs flowing 25 gallons per minute or less, where the proposed use is domestic or stockwatering, will be considered as ground water appropriations. After approval of this application, some type of artificial diversion must be constructed to qualify for a water right.

UW 76226 25 gpm
this Enl. 10 gpm
Total 35 gpm



Scale: 2" = 1 mile

Above diagram represents one full section. Locate well accurately in small square representing 40 ac.

9. If use is not irrigation, mark the point(s) or area(s) of use in the tabulation below.

10. If for irrigation use:
   a. Describe MAXIMUM acreage to be irrigated in each 40 acre subdivision in the tabulation below.
   b. [ ] Land will be irrigated from this well only.
   c. [ ] Land is irrigated from existing water right(s) with water from this well to be additional supply. Describe existing water right(s) under REMARKS.

Township	Range	Sec.	NE¼				NW¼				SW¼				SE¼				TOTALS
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
36N	119W	25										X	X		Nordic Ranches Div #1				
			Under the original Permit No. UW 76226 and this enlargement this well will serve one single family dwelling on each of lots 3, thru 10 of Division #1. Under this enlargement the water from this well will serve one single family dwelling on each of lots 11 thru 19 and lots 21 thru 39 of Nordic Rand Division #2 and #3: (See plats filed in Subdivision Plat Drawer)												
36	119	25										X	X		Nordic Ranch Div #2 & #3				
36	119	26													X			X	

(If the applicant is listed as a co-applicant on the application, this procedure need not be followed.)

REMARKS: This is a resubmittal of previously approved permit U.W. 76226 and is for the purpose of expanding the use from 20 g.p.m. to 35 g.p.m. The water from this well will be commingled with water from the Nordic Ranches Well No. 2, U.W. 95149.

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

Signature of Applicant or Authorized Agent

3/1/93
Date

, 19 93

THE LEGALLY REQUIRED FILING FEE MUST ACCOMPANY THIS APPLICATION

DOMESTIC AND/OR STOCK WATERING USES (Domestic use is defined as a single-family dwelling and the watering of lawns and gardens not exceeding one (1) acre)	$10.00
IRRIGATION, MUNICIPAL, INDUSTRIAL, MISCELLANEOUS	$25.00
MONITOR (For water level measurements or chemical quality sampling)	NO FEE

IF WELL WILL SERVE MULTIPLE USES, SUBMIT ONLY ONE (THE HIGHER) FILING FEE.

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

THE STATE OF WYOMING)
) ss.
STATE ENGINEER'S OFFICE)

This instrument was received and filed for record on the 8th day of March, A. D. 19 93, at 11:30 o'clock A. M.

Permit No. U.W. 95148

for State Engineer

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This application is approved subject to the condition that the proposed use shall not interfere with any existing rights to ground water from the same source of supply and is subject to regulation and correlation with surface water rights, if the ground and surface waters are interconnected. The use of water hereunder is subject to the further provisions of Chapter 169, Session Laws of Wyoming, 1957, and any subsequent amendments thereto.

Granting of a permit does not guarantee the right to have the water level or artesian pressure in the well maintained at any specific level. The well should be constructed to a depth adequate to allow for the maximum development and beneficial use of ground water in the source of supply.

If the well is a flowing artesian well, it shall be so constructed and equipped that the flow may be shut off when not in use, without loss of water into surface formations or at the surface.

FOR ADDITIONAL CONDITIONS AND LIMITATIONS SEE ATTACHED STATUS SHEET

This permit serves to enlarge an existing well for additional yield and points of use only and establish a valid water right for the same. NOTICE OF COMMENCEMENT WAIVED.

~~Approval of this application may be considered as authorization to proceed with construction of the proposed well.~~

~~Construction of well will begin within one (1) year from date of approval.~~ A Statement of Completion will be filed within thirty (30) days of completion of construction, including pump installation.

Completion of construction and completion of the beneficial use of water for the purposes specified in Item 4 of this application will be made by December 31, 19 95.

The amount of appropriation shall be limited to the quantity to which permittee is entitled as determined at time of proof of application of water to beneficial use.

Witness my hand this 1st day of May, A.D. 19 94.

Gordon W. Fassett

Gordon W. Fassett, State Engineer

PERMIT NO. U.W. 95148
T.F. No. U.W. 22-11-303

PERMIT STATUS

Priority Date March 8, 1993 **Approval Date** May 1, 1994

ADDITIONAL CONDITIONS AND LIMITATIONS:

1. A meter acceptable to the State Engineer is required to accurately measure the total quantity of water produced from this well.

2. An annual report shall be submitted to the State Engineer no later than February 15 of each year stating the total amount of water produced from this well each month during the previous January 1 to December 31, twelve (12) month period.

3. The report shall identify the well by name, location, permit number and shall identify the type of meter used for the measurement.

4. The report shall contain at least two (2) semi-annual measurements of the static water level in the well as measured twenty-four (24) consecutive hours after pumping has ceased. The dates the measurements were obtained and the period of time the well was "shut-in" prior to obtaining the measurements must be specified.

5. The State Engineer may, upon written request, waive all or any portion of these conditions and limitations.

May 1, 1994
DATE OF APPROVAL

Gordon W. Fassett
Gordon W. Fassett, State Engineer

MICRO FILMED JUL 27 1994

July 25, 1994 - Statement of Completion on September 12, 1988 received.
July 25, 1994 - Proof of Beneficial use on March 30, 1993 received.

MICRO FILMED FEB 07 1997

SCANNED SEP - 9 2013

(307) 777-6333

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 95148 NAME OF WELL (SPRING) Enl Nordic Ranches Well No. 1

1. NAME OF OWNER Clarence L. and Dorothy I. Reinhart

2. ADDRESS P.O. Box 258
Please check if address has changed from that shown on permit. ☐
City Alpine State WY Zip Code 83128 Phone No. (800) 331-4713

3. USE OF WATER: Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☒
Explain proposed use (Example: One single family dwelling) 38 Single Family Dwellings

4. LOCATION OF WELL (SPRING): SW ¼ SW ¼ of Section 25, T. 36 N., R. 119 W., of the 6th P.M. (or W.R.M.),
Subdivision Name Nordic Ranches Div. No. 1 Part of Lot 6 Block -----
If surveyed, bearing, distance and reference point:

5. TYPE OF CONSTRUCTION: Drilled ☒ Rotary (Type of Rig) Dug ☐ Driven ☐ Other ☐
Describe:

6. CONSTRUCTION: Total Depth of Well/Spring 360 ft. Depth to Static Water Level 67 ft. (Below land surface)
a. Diameter of borehole (Bit size) 8 inches.

b. Casing Schedule New ☐ Used ☐

8" diameter from 1+ ft. to 220 ft. Material Steel Pipe Gage 0.25

_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____

c. Was casing cemented: Yes ☐ No ☒ Cemented Interval, From _____ feet to _____ feet.

d. Number of sacks of cement used _____ type of cement _____

e. Perforations: Type of perforator used None
Size of perforations _____ inches by _____ inches.

Number of perforations and depths where perforated:
_____ perforations from _____ ft. to _____ feet.
_____ perforations from _____ ft. to _____ feet.

RECEIVED JUL 25 1994 STATE ENGINEER CHEYENNE, WY.

f. Was well screen installed? Yes ☐ No ☒
Diameter: _____ slot size: _____ set from _____ feet to _____
Diameter: _____ slot size: _____ set from _____ feet to _____

g. Was well gravel packed? Yes ☐ No ☒ Size of gravel _____

h. Was surface casing used: Yes ☒ No ☐ Was it cemented in place? Yes ☐ No ☒ Grouted to 25' w/Bentonite

7. NAME & ADDRESS OF DRILLING COMPANY Darrell Ashbocker, Route #2, Idaho Falls, Id. 83401

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) Drilling 12/6/84 Deepen 9/12/88

9. PUMP INFORMATION: Manufacturer Goulds Type Submersible
Source of power Lower Valley Power and Light Horsepower 10 Depth of Pump Setting or intake 189
Amount of Water Being Pumped 125/0 Gallons Per Minute. (For Springs or flowing wells, see item 10.)
Total Volumetric Gallons Used Per Calendar Year. Under This Enlargement 12-13-94 JB

10. FLOWING WELL (Owner is responsible for control of flowing well).
If well yields artesian flow, yield is _____ gal./min. Surface pressure is _____ lb./sq. inch, or _____ feet of water

If so, by whom _____ Address _____

Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled ~~283~~ 360 feet.

Depth of completed well ~~283~~ 360 feet. Diameter of well 8 inches.

Depth to first water bearing formation 175 feet.

Depth to principal water bearing formation. Top 195 feet to Bottom 210 feet.

Ground Elevation, if known 5405.55

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	5	Top Soil			
5	25	Gummy Clay			
25	30	Clay + Shale			
30	55	Clay + Gummy Clay			
55	60	Clay + Shale			
60	65	Clay + Gummy Clay			
65	90	Clay + Shale			
90	96	Loose Shale		Trickle water	
96	120	Clay + Shale			
120	123	Loose Shale		Dried up	
123	175	Clay + Shale			
175	180	Loose Shale		water	
180	195	Loose Shale + Boulders			
195	210	Loose Shale + Boulders		Dirty water	
210	218	Clay + Shale			
218	224	Limestone			
224	274	Clay + Shale			
274	283	Broken Limestone			
SEE PERMIT NUMBER 100147 FOR ADDITIONAL LOG.					

14. QUALITY OF WATER INFORMATION:

Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐

It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)

If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Dorothy I. Reinhart

Dorothy I. Reinhart

Signature of Owner or Authorized Agent

7/20/94, 19____

Date

UW 95148

FOR STATE ENGINEER'S USE ONLY

Date of Receipt JUL 25 1994, 19____

Date of Priority March 8, 19 93

Date of Approval Dec. 17, 19 96

John R. Hayes

for State Engineer

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

PROOF OF APPROPRIATION AND BENEFICIAL USE OF GROUND WATER

The owner is responsible for submitting Parts I and II of this form. Part III will be prepared by a State Engineer Representative at time of inspection.

PART I

WATER DIVISION 4 (12)

U.W. DISTRICT Lincoln Co.

STATEMENT OF CLAIM

DATE OF PRIORITY March 8, 1993

PERMIT NO. U.W. 95148

WELL REGISTRATION

LOCATION SW ¼ SW ¼ of Section 25

NAME OF WELL Enl Nordic Ranches Well No. 1

T. 36 N., R. 119 W.

1. Name of Claimant(s) Clarence L. and Dorothy I. Reinhart

2. Address P.O. Box 258 Alpine, WY Zip Code 83128

3. For What Purpose(s) is Water Used? Use: Miscellaneous Date First Used March 30 , 1993

Use: _____ Date First Used: _____ , 19 ____ Use: _____ Date First Used _____ , 19 ____

If use is for irrigation, give date irrigation was completed on all lands under this Permit: _____

PART II

For Irrigation, Industrial, Municipal and Miscellaneous Wells

A plat which has been certified by a licensed professional engineer or land surveyor shall be submitted to accompany this form. The plat shall be in accordance with Sec. 33-29-111 Wyoming Statutes 1977 or see Chapter V and VI, Manual of Regulations and Instructions issued by the State Engineer's Office. (Minimum scale shall be 2" = 1 mile.) The map shall be prepared with waterproof black ink on tracing linen or an acceptable equivalent and shall show on a suitable scale the legal subdivisions, the accurate location of the well or wells, storage facilities, if any, main canals, streams, highways and other important cultural features. Land ownership will be shown, if there is more than one owner under the permit.

IRRIGATION WELLS

Acreage irrigated under terms of this permit will be clearly shown with a distinctive pattern and a distinction clearly made between lands having an original supply and those provided a supplemental supply. Where use is for supplemental supply for lands with a right from another source, indicate the priority or permit number of the source, the source of supply and the name of the ditch, pipe line or other well. Conveyance system will be shown and described. Indicate method of irrigation being used.

INDUSTRIAL WELLS

In addition to the information outlined above, industrial users will locate and describe conveyance facilities to the point(s) of use, giving as accurately as possible the location of points of use. Permits for other sources of water must be identified.

MUNICIPAL WELLS

The plat will show the area of use and show and describe the means of conveyance of the water from the well to the connection with the distribution system for a municipal water system.

MISCELLANEOUS WELLS

(1) The linen plat for wells where the use is described as miscellaneous and where the yield flow of the well exceeds twenty-five (25) gallons per minute must show the area of use and describe and show the means of conveyance from the well to the distribution system and/or points of use.

(2) The plat for wells where the use is described as miscellaneous and where the yield or flow is twenty-five (25) gallons per minute or less may be a 7½ minute United States Geological Survey Quadrangle map in lieu of a linen tracing provided the U.S. Geological Survey Quadrangle map is in compliance with the following conditions:

(a) The entire United State Geological Survey quadrangle map must be submitted to the State Engineer's Office.

(b) The scale on said quadrangle map must be one to twenty-four thousand.

(c) An identified section corner or quarter corner must be shown on said quadrangle map along with Section, Township and Range.

Dorothy I. Reinhart
Signature of Owner or Authorized Agent

July 20, 19 94
Date

Date of Receipt: JUL 25 1994, 19 ____

APPLICATION FOR PERMIT TO APPROPRIATE GROUND WATER

APPLICATION FOR WELLS AND SPRINGS

Note: Only springs flowing 25 gallons per minute or less, where the proposed use is domestic and/or stock watering, will be considered as ground water appropriations.

FOR OFFICE USE ONLY

PERMIT NO. U.W. 100147

WATER DIVISION NO. 4 DISTRICT 12

U.W. DISTRICT Lincoln Co.

Temporary Filing No. U.W. 24-8-157

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

ALL ITEMS MUST BE COMPLETED BEFORE APPLICATION IS ACCEPTABLE

NAME AND NUMBER OF WELL or SPRING 2nd Enl Nordic Ranches Well No. 1 (Enlargement of Permit No. UW76226 for additional yield and points of use)

1. Name of applicant(s) Clarence L. Reinhart & Dorothy I. Reinhart Phone: (307) 654-7587

2. Address of applicant(s) Three Rivers Const., P.O. Box 258, Alpine, WY 83128
(MAILING ADDRESS) (CITY) (STATE) (ZIP)

3. Name & address of agent to receive correspondence and notices same as above
Phone:
(MAILING ADDRESS) (CITY) (STATE) (ZIP)

4. Use to which the water will be applied:

☐ Domestic: Use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less. Number of houses served? _____ .

☐ Stock Watering: Normal livestock use at four tanks or less within one mile of well or spring. Stockwatering pipelines and commercial feedlots are a miscellaneous use. Number of stock tanks? _____ .

☐ Irrigation: Watering of commercially grown crops (large-scale lawn watering of golf courses, cemeteries, recreation areas, etc., is miscellaneous use).

☐ Municipal: Use of water in incorporated Towns and Cities (use of water in unincorporated towns, subdivisions, improvement districts, mobile home parks, etc. are classified as miscellaneous use).

☐ Industrial: Long term use of water for the manufacture of a product or production of oil/gas or other minerals (oil field water flood operations, power plant water supply, etc.). (Describe in REMARKS)

☒ Miscellaneous: Any use of water not defined under previous definitions such as stockwater pipelines, subdivisions, mine dewatering, mineral / oil exploration drilling, reclamation purposes, potable and sanitary supplies in offices or light manufacturing, animal waste management, etc. Describe miscellaneous use completely: to provide culinary water for a subdiv. containing 104 family dwellings (single).

☐ Monitor, Observation or ☐ Test Well: (Describe in REMARKS)

5. Location of the well or spring: (NOTE: Quarter-quarter (40 acre subdivision) MUST be shown. EXAMPLE: SE 1/4 NW 1/4 of Sec. 12, Township 14 North, Range 68 West.)
Lincoln County, SW 1/4 SW 1/4 of Sec. 25, T. 36 N., R. 119 W. of the 6th P.M. (or W.R.M.), Wyoming. If located in a platted subdivision, also provide Lot 6 Block ____ of the Nordic Ranches, Div. #1 Subdivision (or Add'n) of _____. Resurvey Location: Tract _____, (or Lot) _____.

6. Estimated depth of the well or spring is 300 feet. UW 76226 25 gpm; UW 95148 10 gpm

7. (a) MAXIMUM instantaneous flow of water to be developed and beneficially used: This Enl. 85 gallons per minute. NOTE: If for domestic and / or stock use, this application will be processed for a maximum of 25 gallons per minute. For a spring, after approval of this application, some type of artificial diversion or improvement must be constructed to qualify for a water right. Total 120 gpm

(b) MAXIMUM volumetric quantity of water to be developed and beneficially used per calendar year: 100. Circle appropriate units: (Gallons) (Acre Feet) A four person family utilizes approximately one (1) acre-foot of water per year or 325,000 gallons.

8. Mark the point(s) or area(s) of use in the tabulation box below.

TABULATION BOX See attached sheet for an explanation of use.

			NE 1/4				NW 1/4				SW 1/4				SE 1/4				TOTAL
TWP	RNG	SEC	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
36N	119W	25											X						Div. #1
36N	119W	25										X							Div. #2,3
36N	119W	26		X	X		X			X									Div. #4,5,7
36N	119W	26									X					X			Div. #6
36N	119W	26													X			X	Div. #3

9. If for irrigation use:

a. Describe MAXIMUM acreage to be irrigated in each 40 acre subdivision in the tabulation box above.

be submitted to this office. If the landowner is included as co-applicant on the application, this procedure need not be followed.)
NOTE: Water rights attach to the area(s) and/or point(s) of use.

REMARKS: This is a enlargement of previously approved permit U.W. 76226 and U.W. 95148 is for the purpose of expanding the use from 35 g.p.m. to 120 g.p.m. The water from this well will be commingled with water from the Nordic Ranches Well #2, Permit No. U.W. 95149 and U.W. 100148
See plat filed in Subdivision Plat Drawer

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

Signature of Applicant or Authorized Agent

8/3 , 19 95
Date

THE LEGALLY REQUIRED FILING FEE MUST ACCOMPANY THIS APPLICATION

DOMESTIC AND/OR STOCK WATERING USES (Domestic use is defined as use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less.)	$25.00
IRRIGATION, MUNICIPAL, INDUSTRIAL, MISCELLANEOUS	$50.00
MONITOR (For water level measurements or chemical quality sampling) or TEST WELL	NO FEE

IF WELL WILL SERVE MULTIPLE USES, SUBMIT ONLY ONE (THE HIGHER) FILING FEE.

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

THE STATE OF WYOMING)
) ss.
STATE ENGINEER'S OFFICE)

This instrument was received and filed for record on the 7th day of August, A.D. 19 95, at 10:30 o'clock A. M.

Permit No. U.W. 100147

for State Engineer

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This application is approved subject to the condition that the proposed use shall not interfere with any existing rights to ground water from the same source of supply and is subject to regulation and correlation with surface water rights, if the ground and surface waters are interconnected. The use of water hereunder is subject to the further provisions of Chapter 169, Session Laws of Wyoming, 1957, and any subsequent amendments thereto.

Granting of a permit does not guarantee the right to have the water level or artesian pressure in the well maintained at any specific level. The well should be constructed to a depth adequate to allow for the maximum development and beneficial use of ground water in the source of supply.

If the well is a flowing artesian well, it shall be so constructed and equipped that the flow may be shut off when not in use without loss of water into sub-surface formations or at the land surface.

This permit serves to enlarge an existing well for additional yield and points of use only and establish a valid water right for the same.
FOR ADDITIONAL CONDITIONS AND LIMITATIONS SEE ATTACHED STATUS SHEET.

~~Approval of this application may be considered as authorization to proceed with construction of the proposed well or spring~~. A Statement of Completion will be filed within thirty (30) days of completion of construction, including pump installation.

Completion of construction and completion of the beneficial use of water for the purposes specified in Item 4 of this application will be made by December 31, 19 96 .

The amount of appropriation shall be limited to the quantity to which permittee is entitled as determined at time of proof of application of water to beneficial use.

Witness my hand this 4th day of September, A.D. 19 95 .

Gordon W. Fassett

Gordon W. Fassett, State Engineer

Town-ship	Range	Section	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	Total
			Under the original Permit No. UW 76226 the water from this well is supplied to Lots 3 to 10 of Division #1:																
36	119	25										X	X	Nordic Ranch Div. #1					
			Under the Enl. Nordic Ranch Well No. 1, Permit No. UW 95148 the water from this well supplies Lots 11 through 19 in Nordic Ranch Division #2 and lots 21 through 39 in Nordic Ranch Division #3:																
36	119	25										X	X	Nordic Ranch Div. #2					
36	119	26						Nordic Ranch Div. #3								X			X
			Under this enlargement the water from this well will supply one single family dwelling on each of Lots 40 through 51 in Division #4; Lots 52 through 75 in Division #5; Lots 76 through 85 in Division #6; and lots 86 through 106 in Division #7 of the Nordic Ranch Subdivision.																
36	119	26		X	X	Nordic Ranch Div. #4													
36	119	26		X	X	Nordic Ranch Div. #5													
36	119	26							Nordic Ranch Div. #6							X			
36	119	26		X			X			X		Nordic Ranch Div. #7							

PERMIT NO. U.W. 100147

T.F. No. U.W. 24-8-157

PERMIT STATUS

Priority Date August 7, 1995 **Approval Date** September 4, 1995

ADDITIONAL CONDITIONS AND LIMITATIONS:

1. A meter acceptable to the State Engineer is required to accurately measure the total quantity of water produced from this well.

2. An annual report shall be submitted to the State Engineer no later than February 15 of each year stating the total amount of water produced from this well each month during the previous January 1 to December 31, twelve (12) month period.

3. The report shall identify the well by name, location, permit number and shall identify the type of meter used for the measurement.

4. The report shall contain at least two (2) semi-annual measurements of the static water level in the well as measured twenty-four (24) consecutive hours after pumping has ceased. The dates the measurements were obtained and the period of time the well was "shut-in" prior to obtaining the measurements must be specified.

5. The State Engineer may, upon written request, waive all or any portion of these conditions and limitations.

September 4, 1995
DATE OF APPROVAL

Gordon W. Fassett
Gordon W. Fassett, State Engineer

October 16, 1995 - Statement of Completion on September 12, 1988 received.

October 16, 1995 - Proof of Beneficial Use on August 30, 1995 received.

(307) 777-5959

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 100147 NAME OF WELL (SPRING) 2ND ENL NORDIC RANCHES ~~WELL #1~~

1. NAME OF OWNER CLARENCE L/DOROTHY I REINHART

2. ADDRESS P.O. Box 258

Please check if address has changed from that shown on permit. ☐

City Alpine State ~~WY~~ delete Zip Code 83128 Phone No. (800) 331-4713

3. USE OF WATER: Domestic ☒ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☒ XXX

Explain proposed use (Example: One single family dwelling) 104 Single Family Dwellings

4. LOCATION OF WELL (SPRING): SW ¼ SW ¼ of Section 25, T. 36 N., R. 119 W., of the 6th P.M. (or W.R.M.),

Subdivision Name Nordic Ranches, Div. #1 Lot 6 Block _____

If surveyed, bearing, distance and reference point: _____

5. TYPE OF CONSTRUCTION: Drilled ☒ Rotary (Type of Rig) Dug ☐ Driven ☐ Other ☐

Describe: _____

6. CONSTRUCTION: Total Depth of Well/Spring 360 ft. Depth to Static Water Level 67 ft. (Below land surface)

a. Diameter of borehole (Bit size) 8 inches.

b. Casing Schedule New ☒ Used ☐

8" diameter from 0 ft. to 220 ft. Material Steel Pipe Gage 0.25

_____ diameter from _____ ft. to _____ ft. Material _____ Gage _____

c. Was casing cemented: Yes ☐ No ☒ Cemented Interval, From _____ feet to _____ feet.

d. Number of sacks of cement used _____ type of cement _____

e. Perforations: Type of perforator used None

Size of perforations _____ inches by _____ inches.

Number of perforations and depths where perforated:

_____ perforations from _____ ft. to _____ feet.

_____ perforations from _____ ft. to _____ feet.

RECEIVED OCT 16 1995 STATE ENGINEER Cheyenne, Wyo.

f. Was well screen installed? Yes ☐ No ☒

Diameter: _____ slot size: _____ set from _____ feet to _____.

Diameter: _____ slot size: _____ set from _____ feet to _____.

g. Was well gravel packed? Yes ☐ No ☒ Size of gravel _____

h. Was surface casing used: Yes ☒ No ☐ Was it cemented in place? Yes ☐ No ☒ Grouted to 25' w/Bentonite

7. NAME & ADDRESS OF DRILLING COMPANY ~~Darrell Ashbocker, Rt. #2, Idaho Falls, ID 83401~~

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) Drilling 12/06/84 ~~Deepen 09/12/88~~

9. PUMP INFORMATION: Manufacturer Goulds Type Submersible

Source of power Lower Valley Power & Light Horsepower 10 Depth of Pump Setting or intake 189

Amount of Water Being Pumped ~~120~~ 25 Gallons Per Minute. (For Springs or flowing wells, see item 10.)

Total Volumetric Gallons Used Per Calendar Year. _____

10. FLOWING WELL (Owner is responsible for control of flowing well).

12. PUMP TEST: Was a pump test made? Yes ☐ No ☐
If so, by whom _____ Address _____
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 360 feet.
Depth of completed well 360 feet. Diameter of well 8 inches.
Depth to first water bearing formation 175 feet.
Depth to principal water bearing formation. Top 300 feet to Bottom 360 feet.

Ground Elevation, if known 5,405.55

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	5	Topsoil			
5	25	Gummy Clay			
25	30	CLAY & SHALE			
30	55	CLAY + GUMMY CLAY			
55	60	CLAY + SHALE			
60	65	CLAY + GUMMY CLAY			
65	90	CLAY + SHALE			
90	95	LOOSE SHALE		TRICKLE WATER	
95	120	CLAY + SHALE		DEVED UP	
120	125	LOOSE SHALE		WATER	
125	175	CLAY + SHALE			
175	190	LOOSE SHALE		DIRTY WATER	
190	210	LOOSE SHALE + BOULDERS			
210	218	CLAY + SHALE			
218	224	LIMESTONE			
224	274	CLAY + SHALE			
274	283	BROKEN LIMESTONE			
283	300	Clay w/L.S. Interbeds			
300	360	Fractured Limestone		Water	

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☐ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

_____ 10/12 , 19 95
Signature of ~~Owner~~ or Authorized Agent Date

UW 100147

FOR STATE ENGINEER'S USE ONLY

Date of Receipt OCT 16 1995 , 19 _____

Date of Priority AUG 07 1995 , 19 _____

Date of Approval Feb 2 , 19 96

_____
for State Engineer

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

PROOF OF APPROPRIATION AND BENEFICIAL USE OF GROUND WATER

The owner is responsible for submitting Parts I and II of this form. Part III will be prepared by a State Engineer Representative at time of inspection.

PART I

WATER DIVISION 4 (12)

U.W. DISTRICT LINCOLN CO

STATEMENT OF CLAIM

DATE OF PRIORITY AUGUST 7, 1995

PERMIT NO. U.W. 100147
WELL REGISTRATION

LOCATION SW ¼ SW ¼ of Section 25

NAME OF WELL 2ND ENL NORDIC RANCHES WELL #1

T. 36 N., R. 119 W.

1. Name of Claimant(s) CLARENCE L/DOROTHY I REINHART

2. Address P.O. Box 258, Alpine, WY 83128 Zip Code

3. For What Purpose(s) is Water Used? Use: Domestic, Miscellaneous Date First Used August 30 , 19 95

Use: _____ Date First Used: _____ , 19 ____ Use: _____ Date First Used _____ , 19 ____

If use is for irrigation, give date irrigation was completed on all lands under this Permit: _____

PART II

For Irrigation, Industrial, Municipal and Miscellaneous Wells

A plat which has been certified by a licensed professional engineer or land surveyor shall be submitted to accompany this form. The plat shall be in accordance with Sec. 33-29-111 Wyoming Statutes 1977 or see Chapter V and VI, Manual of Regulations and Instructions issued by the State Engineer's Office. (Minimum scale shall be 2" = 1 mile.) The map shall be prepared with waterproof black ink on tracing linen or an acceptable equivalent and shall show on a suitable scale the legal subdivisions, the accurate location of the well or wells, storage facilities, if any, main canals, streams, highways and other important cultural features. Land ownership will be shown, if there is more than one owner under the permit.

IRRIGATION WELLS

Acreage irrigated under terms of this permit will be clearly shown with a distinctive pattern and a distinction clearly made between lands having an original supply and those provided a supplemental supply. Where use is for supplemental supply for lands with a right from another source, indicate the priority or permit number of the source, the source of supply and the name of the ditch, pipe line or other well. Conveyance system will be shown and described. Indicate method of irrigation being used.

INDUSTRIAL WELLS

In addition to the information outlined above, industrial users will locate and describe conveyance facilities to the point(s) of use, giving as accurately as possible the location of points of use. Permits for other sources of water must be identified.

MUNICIPAL WELLS

The plat will show the area of use and show and describe the means of conveyance of the water from the well to the connection with the distribution system for a municipal water system.

MISCELLANEOUS WELLS

(1) The linen plat for wells where the use is described as miscellaneous and where the yield flow of the well exceeds twenty-five (25) gallons per minute must show the area of use and describe and show the means of conveyance from the well to the distribution system and/or points of use.

(2) The plat for wells where the use is described as miscellaneous and where the yield or flow is twenty-five (25) gallons per minute or less may be a 7½ minute United States Geological Survey Quadrangle map in lieu of a linen tracing provided the U.S. Geological Survey Quadrangle map is in compliance with the following conditions:

(a) The entire United State Geological Survey quadrangle map must be submitted to the State Engineer's Office.

(b) The scale on said quadrangle map must be one to twenty-four thousand.

(c) An identified section corner or quarter corner must be shown on said quadrangle map along with Section, Township and Range.

INVOLVED MUST ACCOMPANY THIS FORM.

UW 100147

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

Signature of Owner or Authorized Agent

10/12, 19 95
Date

OCT 16 1995

Date of Receipt: _____, 19 ____

APPLICATION FOR WELLS AND SPRINGS SCAN-MICRO AUG 16 2006

Note: Only springs flowing 25 gallons per minute or less, where the proposed use is domestic and /or stock watering, will be considered as ground water appropriations

FOR OFFICE USE ONLY

PERMIT NO. U.W. 173584

WATER DIVISION NO. 4 DISTRICT 12

U.W. DISTRICT Lincoln Co.

Temporary Filing No. U.W. 38-4-525

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

ALL ITEMS MUST BE COMPLETED BEFORE APPLICATION IS ACCEPTABLE

NAME AND NUMBER OF WELL or SPRING 3rd Enl. NORDIC RANCHES WELL NO 1 (Enl of U.W. 76226 for additional areas of use and total volumetric quantity)

1. Name of applicant(s) Clarence L. & Dorothy L. Reinhart GAY Edwards Phone: 307 654 7588

2. Address of applicant(s) P.O. Box 3249 ALPINE WY 83128
(MAILING ADDRESS) (CITY) (STATE) (ZIP)

3. Name & address of agent to receive correspondence and notices DAVID E. BENTON P.E.
550 LINDEN DR Idaho Falls ID 83401 Phone: 208 522 8033 FAX 522 8039
(MAILING ADDRESS) (CITY) (STATE) (ZIP) E-mail benton@onewest.net

4. Use to which the water will be applied:

☐ Domestic: Use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totaling one acre or less. Number of houses served?____.

☐ Stock Watering: Normal livestock use at four tanks or less within one mile of well or spring. Stockwatering pipelines and commercial feedlots are a miscellaneous use. Number of stock tanks?____.

☐ Irrigation: Watering of commercially grown crops (large-scale lawn watering of golf courses, cemeteries, recreation areas, etc., is miscellaneous use).

☐ Municipal: Use of water in incorporated Towns and Cities. Note 1: use of water in unincorporated towns, subdivisions, improvement districts, mobile home parks, etc. is classified as miscellaneous use. Note 2: a permit may be required by the Wyoming Department of Environmental Quality (WDEQ) if the well will be classified as a public water supply under the WDEQ's rules and regulations.

☐ Industrial: Long term use of water for the manufacture of a product or production of oil/gas or other minerals (oil field water flood operations, power plant water supply, etc.). (Describe in REMARKS)

CW ☑ Miscellaneous: Any use of water not defined under previous definitions such as stock water pipelines, subdivisions, mine dewatering, mineral/oil exploration drilling, potable supplies in office, etc. Describe in Remarks. Note: a permit may be required by the WDEQ if the well will be classified as a public water supply under the WDEQ's rules and regulations. water comingled with water from well No 2 230 Lots for 2 well

☐ Coalbed Methane Water produced in the production of coal bed methane gas. Note: wells used in the production of coal bed methane will require a permit from the Wyoming Oil and Gas Conservation Commission.

☐ Monitor, Observation Note: a WDEQ permit may be required ☐ Test Well: (Describe in REMARKS)

5. Location of the well or spring: (NOTE: Quarter-quarter (40 acre subdivision) MUST be shown. EXAMPLE: SE 1/ 4 NW 1/ 4 of Sec. 12, Township 14 North, Range 68 West.)
Lincoln County, SW 1/4 SW 1/4 of Sec. 25, T. 36 N., R. 119 W. of the 6th P.M. (W.R.M.), Wyoming. If located in a platted subdivision, also provide Lot/Tract 6 Block ____ of the Noridic Ranches, Div. #1 Subdivision (or Add'n) of _____. Resurvey Location: Tract _____, (or Lot) _____ Per U.W. 76226 Per U.W. 6 of U.W. 76226

6. Estimated depth of the well or spring is 283 feet. Estimated production interval is 283 ft. to 220 ft. 25 g.p.m original U.W. 76226, 10 g.p.m Enl U.W. 95148, 85 g.p.m 2nd Enl U.W. 100147 120 g.p.m total

7. (a) MAXIMUM instantaneous flow of water to be developed and beneficially used: 120 This Enl gallons per minute. per call
NOTE: if for domestic and / or stock use, this application will be processed for a maximum of 25 gallons per minute. For a spring, after approval of this application, some type of artificial diversion or improvement must be constructed to qualify for a water right.

(b) MAXIMUM volumetric quantity of water to be developed and beneficially used per calendar year: 190 This Enl.
Circle appropriate units: (Gallons) (Acre Feet) A four person family utilizes approximately one (1) acre-foot of water per year or 325,000 gallons.
190 Acre Feet total
N.A. original U.W. 76226
N.A. Enl U.W. 95148
100 Acre-feet 2nd Enl. U.W. 100147

8. Mark the point(s) or area(s) of use in the tabulation box below. Note: Upper row refers to the quarter of the section. Next row refers to quarter of the quarter section.

TABULATION BOX Areas of Use Under this Enlargement

			NE¼	NW¼	SW¼	SE¼	TOTAL
		NE¼					
		NW¼					
		SW¼					
		SE¼					
		TOTAL					

(The granting of a permit does not constitute the granting of right-of-way. If any easement or right-of-way is necessary in connection with this application, it should be understood that the responsibility is the applicant's. A copy of the agreement should accompany this application, if the land is privately owned and the owner is not the co-applicant.)

12. The water is to be used on lands owned by Reinhart Edwards LLC per call 3-22-06
(If the landowner is not the applicant, a copy of the agreement relating to the usage of appropriated water on the land should be submitted to this office. If the landowner is included as co-applicant on the application, this procedure need not be followed.) NOTE: Water rights attach to the area(s) and/or point(s) of use.

REMARKS: 76226 (was wrote in the TF # space) Water from this well commingles with that of Nordic Ranches well No. 2 Permit No. U.W. 108464, And will also commingle with the Nordic Ranches Well No. 4 Permit No. U.W. T.F. # 38-3-473 173583

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

David E. Benton Agent — Signature of Applicant or Authorized Agent
March 20 — Date
, 2006

THE LEGALLY REQUIRED FILING FEE MUST ACCOMPANY THIS APPLICATION

DOMESTIC AND/OR STOCK WATERING USES (Domestic use is defined as use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less.)	$25.00
IRRIGATION, MUNICIPAL, INDUSTRIAL, MISCELLANEOUS, COAL BED METHANE	($50.00)
MONITOR (For water level measurements or chemical quality sampling) or TEST WELL	No Fee

IF WELL WILL SERVE MULTIPLE USES, SUBMIT ONLY ONE (THE HIGHER) FILING FEE.

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

THE STATE OF WYOMING)
) ss.
STATE ENGINEER'S OFFICE)

This instrument was received and filed for record on the ____ 23rd ____ day of March, A.D. 20 06, at 9:45 o'clock _ A _ M.

Permit No. U.W. 173584

for State Engineer

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This application is approved subject to the condition that the proposed use shall not interfere with any existing rights to ground water from the same source of supply and is subject to regulation and correlation with surface water rights, if the ground and surface waters are interconnected. The use of water hereunder is subject to the further provisions of Chapter 169, Session Laws of Wyoming, 1957, and any subsequent amendments thereto.

Granting of a permit does not guarantee the right to have the water level or artesian pressure in the well maintained at any specific level. The well should be constructed to a depth adequate to allow for the maximum development and beneficial use of ground water in the source of supply.

If the well is a flowing artesian well, it shall be so constructed and equipped that the flow may be shut off when not in use without loss of water into sub-surface formations or at the land surface.

Coal Bed Methane wells have Additional Conditions and Limitations on attachment sheet.

FOR ADDITIONAL CONDITIONS AND LIMITATIONS SEE ATTACHED STATUS SHEET.

This permit serves to enlarge an existing well for additional points of use and volumetric quantity of water only and establish a valid water right for the same. STATEMENT OF COMPLETION WAIVED

~~Approval of this application may be considered as authorization to proceed with construction of the proposed well or spring. A Statement of Completion will be filed within thirty (30) days of completion of construction, including pump installation.~~

~~Completion of construction and~~ Completion of the beneficial use of water for the purposes specified in Item 4 of this application will be made by December 31, 2007.

The amount of appropriation shall be limited to the quantity to which permittee is entitled as determined at time of proof of application of water to beneficial use.

Witness my hand this 24th day of Mar., A.D. 20 06.

PERMIT STATUS

Priority Date March 23, 2006 **Approval Date** MAR 24 2006

ADDITIONAL CONDITIONS AND LIMITATIONS:

1. A meter acceptable to the State Engineer is required to accurately measure the total quantity of water produced from this well.

2. An annual report shall be submitted to the State Engineer no later than February 15 of each year stating the total amount of water produced from this well each month during the previous January 1 to December 31, twelve (12) month period.

3. The report shall identify the well by name, location, permit number and shall identify the type of meter used for the measurement.

4. The report shall contain at least two (2) semi-annual measurements of the static water level in the well as measured twenty-four (24) consecutive hours after pumping has ceased. The dates the measurements were obtained and the period of time the well was "shut-in" prior to obtaining the measurements must be specified.

5. The State Engineer reserves the right, upon written request, to modify or waive all or any portion of these conditions and limitations.

3/24/2006
Date of Approval

for John R. Hayes
PATRICK T. TYRRELL, State Engineer

SCAN-MICRO AUG 16 2006

NOTICE OF EXPIRATION OF TIME FOR COMPLETION AND/OR COMPLETION OF BENEFICIAL USE MAILED SEP 28 '07

November 16, 2007 - Proof of beneficial use on December 11, 1984 received.

SCANNED NOV -7 2014

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

PROOF OF APPROPRIATION AND BENEFICIAL USE OF GROUND WATER

The owner is responsible for submitting Parts I and II of this form. Part III will be prepared by a State Engineer representative at time of inspection.

PART I

WATER DIVISION 4(12)

PERMIT NO. U.W. 173584

NAME OF WELL 3rd Enl. Nordic Ranches Well No. 1

U.W. DISTRICT _____

DATE OF PRIORITY March 23, 2006

LOCATION SW ¼ SW ¼ of Section 25

T. 36 N., R. 119 W.

1. Name of Claimant(s) Clarence & Dorothy Reinhart / Gay Edwards

2. Address PO Box 3249, Alpine, WY Zip Code 83128

3. For What Purpose(s) is Water Used? Use: Miscellaneous Date First Used: Drilled 12-6-84 Pump Installed 12-11-84

Use: _____ Date First Used: _____ Use: _____ Date First Used: _____

If use is for irrigation, give date irrigation was completed on all lands under this Permit: _____

PART II

For Irrigation, Industrial, Municipal, and Miscellaneous Wells

A plat which has been certified by a licensed professional engineer or land surveyor shall be submitted to accompany this form. The plat shall be in accordance with W.S. § 33-29-139 or Chapters V and VI, State Engineers Office Regulations and Instructions (Minimum scale shall be 2" = 1 mile). The map shall be prepared with waterproof black ink on tracing linen or an acceptable equivalent and shall show on a suitable scale the legal subdivisions, the accurate location of the well or wells, storage facilities, main canals, streams, highways and other important cultural features. Land ownership shall be shown, if there is more than one owner under the permit.

IRRIGATION WELLS

Acreage irrigated under terms of this permit will be clearly shown with a distinctive pattern and a distinction clearly made between lands having an original supply and those provided an additional supply. Where use is for additional supply for lands with a right from another source, indicate the priority or permit number of the source, the source of supply and the name of the ditch, pipe line, or other well. Conveyance system will be shown and described. Indicate method of irrigation being used.

INDUSTRIAL WELLS

In addition to the information outlined above, industrial users will locate and describe conveyance facilities to the point(s) of use, giving as accurately as possible the location of the point(s) of use. Permits for other sources of water must be identified.

MUNICIPAL WELLS

The plat will show the area of use and show and describe the means of conveyance of the water from the well to the connection with the municipal water system distribution network.

MISCELLANEOUS WELLS

(1) The linen plat for wells where the use is described as miscellaneous and where the yield or flow of the well exceeds twenty-five (25) gallons per minute must show the area of use and describe and show the means of conveyance from the well to the distribution system and/or point(s) of use.

(2) The plat for wells where the use is described as miscellaneous and where the yield or flow is twenty-five (25) gallons per minute or less may be a 7½ minute United States Geological Survey Quadrangle map in lieu of a linen tracing, provided that the Quadrangle map is in compliance with the following conditions:

(a) The entire Quadrangle map must be submitted to the State Engineer's Office.

(b) The scale on said Quadrangle map must be one to twenty-four thousand.

(c) An identified section corner or quarter corner must be shown on said Quadrangle map along with the Section, Township, and Range.

(d) The section in which the well is located and the section(s) where the area(s) or point(s) of use are located must be subdivided into forty (40)

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

X _____
Signature of Owner or Authorized Agent

_____, 20_____
Date

Date of Receipt: 11-16-07 (RT), 20_____

APPLICATION FOR WELLS AND SPRINGS

Note: Only springs flowing 25 gallons per minute or less, where the proposed use is domestic and/or stock watering, will be considered as ground water appropriations.

FOR OFFICE USE ONLY

PERMIT NO. U.W. 103464
WATER DIVISION NO. 4 DISTRICT 12
U.W. DISTRICT Lincoln Co.

Temporary Filing No. U.W. 26-10-47

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

ALL ITEMS MUST BE COMPLETED BEFORE APPLICATION IS ACCEPTABLE

NAME AND NUMBER OF WELL or SPRING Nordic Ranches Well No. 2

1. Name of applicant(s) Clarence L. Reinhart & Dorothy I. Reinhart Phone: (307) 654-7587

2. Address of applicant(s) Three Rivers Const., P.O. Box 258, Alpine, WY 83128
(MAILING ADDRESS) (CITY) (STATE) (ZIP)

3. Name & address of agent to receive correspondence and notices David E. Benton

550 Linden Drive Idaho Falls ID 83401 Phone: (208) 522-8033
(MAILING ADDRESS) (CITY) (STATE) (ZIP)

4. Use to which the water will be applied:

☐ Domestic: Use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less. Number of houses served? _____ .

☐ Stock Watering: Normal livestock use at four tanks or less within one mile of well or spring. Stockwatering pipelines and commercial feedlots are a miscellaneous use. Number of stock tanks? _____ .

☐ Irrigation: Watering of commercially grown crops (large-scale lawn watering of golf courses, cemeteries, recreation areas, etc., is miscellaneous use).

☐ Municipal: Use of water in incorporated Towns and Cities (use of water in unincorporated towns, subdivisions, improvement districts, mobile home parks, etc. are classified as miscellaneous use).

☐ Industrial: Long term use of water for the manufacture of a product or production of oil/gas or other minerals (oil field water flood operations, power plant water supply, etc.). (Describe in REMARKS)

☒ Miscellaneous: Any use of water not defined under previous definitions such as stockwater pipelines, subdivisions, mine dewatering, mineral / oil exploration drilling, reclamation purposes, potable and sanitary supplies in offices or light manufacturing, animal waste management, etc. Describe miscellaneous use completely: To provide culinary water to 104 single family dwellings in Nordic Ranches Subdivision.

☐ Monitor, Observation or ☐ Test Well: (Describe in REMARKS)

5. Location of the well or spring: (NOTE: Quarter-quarter (40 acre subdivision) MUST be shown. EXAMPLE: SE 1/4 NW 1/4 of Sec. 12, Township 14 North, Range 68 West.)
Lincoln County, NE 1/4 SE 1/4 of Sec. 26, T. 36 N., R. 119 W. of the 6th P.M. (or W.R.M.), Wyoming. If located in a platted subdivision, also provide Lot 20 Block ____ of the NORDIC RANCHES, DIV. #3 Subdivision (or Add'n) of Lincoln Co. . Resurvey Location: Tract _____, (or Lot) _____ .

6. Estimated depth of the well or spring is 550 feet.

7. (a) MAXIMUM instantaneous flow of water to be developed and beneficially used: 120 gallons per minute. NOTE: If for domestic and / or stock use, this application will be processed for a maximum of 25 gallons per minute. For a spring, after approval of this application, some type of artificial diversion or improvement must be constructed to qualify for a water right.

(b) MAXIMUM volumetric quantity of water to be developed and beneficially used per calendar year: 100 .
Circle appropriate units: ~~(Gallons)~~ (Acre Feet) A four person family utilizes approximately one (1) acre-foot of water per year or 325,000 gallons.

8. Mark the point(s) or area(s) of use in the tabulation box below.

TABULATION BOX

TWP	RNG	SEC	NE 1/4				NW 1/4				SW 1/4				SE 1/4				TOTAL
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
36N	119W	25	X										X						Div. #1
36N	119W	25										X							Div. #2,3
36N	119W	26													X			X	Div. #3
36N	119W	26		X	X		X			X									Div. #4,5,7
36N	119W	26									X					X			Div. #6

9. If for irrigation use:

a. Describe MAXIMUM acreage to be irrigated in each 40 acre subdivision in the tabulation box above.

b. ☐ Land will be irrigated from this well only.

c. ☐ Land is irrigated from existing water right(s) with water from this well to be additional supply. Describe existing water right(s)

(If the landowner is not the applicant, a copy of the agreement relating to the usage of appropriated water on the land should be submitted to this office. If the landowner is included as co-applicant on the application, this procedure need not be followed.)
NOTE: Water rights attach to the area(s) and/or point(s) of use.

REMARKS: This water comingled w/Nordic Ranches Well No. 1(Permit Numbers UW76226 UW95148, and UW100147).
This is a refiling of Permit No. UW95149 and UW100148(Enl) which were cancelled per statutes.

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

David E. Benton — Signature of Applicant or Authorized Agent

12-17, 19 97 — Date

THE LEGALLY REQUIRED FILING FEE MUST ACCOMPANY THIS APPLICATION

DOMESTIC AND/OR STOCK WATERING USES (Domestic use is defined as use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less.)	$25.00
IRRIGATION, MUNICIPAL, INDUSTRIAL, MISCELLANEOUS	$50.00
MONITOR (For water level measurements or chemical quality sampling) or TEST WELL	NO FEE

IF WELL WILL SERVE MULTIPLE USES, SUBMIT ONLY ONE (THE HIGHER) FILING FEE.

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

THE STATE OF WYOMING)
) ss.
STATE ENGINEER'S OFFICE)

This instrument was received and filed for record on the 22nd day of December, A.D. 19 97, at 7:30 o'clock A M.

Permit No. U.W. 108464

for State Engineer

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This application is approved subject to the condition that the proposed use shall not interfere with any existing rights to ground water from the same source of supply and is subject to regulation and correlation with surface water rights, if the ground and surface waters are interconnected. The use of water hereunder is subject to the further provisions of Chapter 169, Session Laws of Wyoming, 1957, and any subsequent amendments thereto.

Granting of a permit does not guarantee the right to have the water level or artesian pressure in the well maintained at any specific level. The well should be constructed to a depth adequate to allow for the maximum development and beneficial use of ground water in the source of supply.

If the well is a flowing artesian well, it shall be so constructed and equipped that the flow may be shut off when not in use without loss of water into sub-surface formations or at the land surface.

FOR ADDITIONAL CONDITIONS AND LIMITATIONS SEE ATTACHED STATUS SHEET.

This permit and accompanying notices serve to register an existing well and establish a valid water right for the same. Time limit for Completion of Construction and Completion of Beneficial Use is waived.

~~Approval of this application may be considered as authorization to proceed with construction of the proposed well or spring. A Statement of Completion will be filed within thirty (30) days of completion of construction, including pump installation.~~

~~Completion of construction and completion of the beneficial use of water for the purposes specified in Item 4 of this application will be made by December 31, 19 .~~

The amount of appropriation shall be limited to the quantity to which permittee is entitled as determined at time of proof of application of water to beneficial use.

Witness my hand this 11th day of JANUARY, A.D. 19 98.

GORDON W. FASSETT State Engineer

December 22, 1997 - Statement of Completion on October 10, 1997 [illegible] FEB 10 1998

Priority Date December 22, 1997 Approval Date January 11, 1998

ADDITIONAL CONDITIONS AND LIMITATIONS:

1. A meter acceptable to the State Engineer is required to accurately measure the total quantity of water produced from this well.

2. An annual report shall be submitted to the State Engineer no later than February 15 of each year stating the total amount of water produced from this well each month during the previous January 1 to December 31, twelve (12) month period.

3. The report shall identify the well by name, location, permit number and shall identify the type of meter used for the measurement.

4. The report shall contain at least two (2) semi-annual measurements of the static water level in the well as measured twenty-four (24) consecutive hours after pumping has ceased. The dates the measurements were obtained and the period of time the well was "shut-in" prior to obtaining the measurements must be specified.

5. The State Engineer may, upon written request, waive all or any portion of these conditions and limitations.

JANUARY 11, 1998
Date of Approval

Gordon W. Fassett
GORDON W. FASSETT, State Engineer

(307) 777-5959

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

PERMIT NO. U.W. 108464 NAME OF WELL (SPRING) Nordic Ranches Well #2

1. NAME OF OWNER Clarence L. Reinhart & Dorothy I. Reinhart

2. ADDRESS P.O. Box 258

Please check if address has changed from that shown on permit. ☐

City Alpine State WY Zip Code 83128 Phone No. (307) 654-7587

3. USE OF WATER: Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☒

Explain proposed use (Example: One single family dwelling) 104 Single Family Dwellings in Nordic Ranches Subdivision.

4. LOCATION OF WELL (SPRING): NE ¼ SE ¼ of Section 26, T. 36 N., R. 119 W., of the 6th P.M. (or W.R.M.),

Subdivision Name Nordic Ranches, Div. #3 Lot 20 Block _____

If surveyed, bearing, distance and reference point: _____

5. TYPE OF CONSTRUCTION: Drilled ☒ Rotary (Type of Rig) Dug ☐ Driven ☐ Other ☐

Describe: _____

6. CONSTRUCTION: Total Depth of Well/Spring 550 ft. Depth to Static Water Level 207 ft. (Below land surface)

a. Diameter of borehole (Bit size) 9 7/8 inches.

b. Casing Schedule New ☒ Used ☐

12" diameter from 0 ft. to 195 ft. Material Steel Pipe Gage _____

8" diameter from 195 ft. to 550 ft. Material Steel Pipe Gage 0.25

c. Was casing cemented: Yes ☒ No ☐ Cemented Interval, From 0 feet to 30 feet.

d. Number of sacks of cement used 40 type of cement _____

e. Perforations: Type of perforator used _____

Size of perforations _____ inches by _____ inches.

Number of perforations and depths where perforated:

_____ perforations from 220 ft. to 260 feet.

_____ perforations from 300 ft. to 360 feet.

_____ perforations from 440 ft. to 490 feet.

RECEIVED DEC 22 1997 STATE ENGINEER Cheyenne, Wyo.

f. Was well screen installed? Yes ☐ No ☒

Diameter: _____ slot size: _____ set from _____ feet to _____.

Diameter: _____ slot size: _____ set from _____ feet to _____.

g. Was well gravel packed? Yes ☒ No ☐ Size of gravel 3/8" min.

h. Was surface casing used: Yes ☒ No ☐ Was it cemented in place? Yes ☒ No ☐

7. NAME & ADDRESS OF DRILLING COMPANY Vaughn Thomas, Afton, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 10/10/94

9. PUMP INFORMATION: Manufacturer Gould Model 100 H25 Type 460 V 3 ϕ

Source of power Electric Horsepower 25 Depth of Pump Setting or intake 441 ft.

Amount of Water Being Pumped 120 Gallons Per Minute. (For Springs or flowing wells, see item 10.)

Total Volumetric Gallons Used Per Calendar Year. _____

10. FLOWING WELL (Owner is responsible for control of flowing well).

Yield: 130 gal./min. with 5 foot drawdown after 7 hours.
Yield: _____ gal./min. with _____ foot drawdown after _____ hours.

13. LOG OF WELL: Total depth drilled 550 feet.
Depth of completed well 500 feet. Diameter of well 8 inches.
Depth to first water bearing formation 235 feet.
Depth to principal water bearing formation. Top 300 feet to Bottom 360 feet.

Ground Elevation, if known _____

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	3	Topsoil			
3	12	Tan Clay			
12	75	Clay + Gravel			
75	83	L.S. Ledge			
83	100	Clay + Limestone Chips			
100	105	L.S. Ledge			
105	140	Clay + Limestone			
140	160	Clay + L.S. Gravel			
160	190	Clay + L.S.			
190	205	L.S. Ledge			
205	235	Clay + L.S.			
235	250	Fractured Limestone		Water	220' - 260'
250	283	Clay w/Small L.S. Interbeds			
283	364	Fractured L.S.		Water	300' - 360'
364	420	Clay + L.S. Interbeds			
420	465	Brown Sticky Clay			

14. QUALITY OF WATER INFORMATION:
Does a chemical and/or bacteriological water quality analysis accompany this form? Yes ☐ No ☐
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well. (Contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984.)
If not, do you consider the water as: Good ☒ Acceptable ☐ Poor ☐ Unusable ☐

REMARKS: Drill Cuttings Description (continued from above):
465 to 500 Limestone Water 440' - 490'
500 to 550 Limestone w/Clay Streamers

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct and complete.

David E Benton
Signature of Owner or Authorized Agent

12-17, 1997
Date

UW 108464
DEC 22 1997

FOR STATE ENGINEER'S USE ONLY

Date of Receipt _____, 19 _____

Date of Priority DEC 22 1997, 19 _____

Date of Approval Feb. 10, 1998

for State Engineer

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

PROOF OF APPROPRIATION AND BENEFICIAL USE OF GROUND WATER

The owner is responsible for submitting Parts I and II of this form. Part III will be prepared by a State Engineer Representative at time of inspection.

PART I

WATER DIVISION 4 (12)

U.W. DISTRICT Lincoln Co.

STATEMENT OF CLAIM

DATE OF PRIORITY DEC 22 1997

PERMIT NO. U.W. 108464
WELL REGISTRATION

LOCATION NE ¼ SE ¼ of Section 26

NAME OF WELL Nordic Ranches Well #2

T. 36 N., R. 119 W.

1. Name of Claimant(s) Clarence L. Reinhart & Dorothy I. Reinhart

2. Address P.O. Box 258, Alpine, WY Zip Code 83128

3. For What Purpose(s) is Water Used? Use: Culinary 104 Single Family Dwellings Date First Used 10/10, 19 94

Use: _____ Date First Used: _____, 19 ____ Use: _____ Date First Used _____, 19 ____

If use is for irrigation, give date irrigation was completed on all lands under this Permit: _____

PART II

For Irrigation, Industrial, Municipal and Miscellaneous Wells

A plat which has been certified by a licensed professional engineer or land surveyor shall be submitted to accompany this form. The plat shall be in accordance with Sec. 33-29-111 Wyoming Statutes 1977 or see Chapter V and VI, Manual of Regulations and Instructions issued by the State Engineer's Office. (Minimum scale shall be 2" = 1 mile.) The map shall be prepared with waterproof black ink on tracing linen or an acceptable equivalent and shall show on a suitable scale the legal subdivisions, the accurate location of the well or wells, storage facilities, if any, main canals, streams, highways and other important cultural features. Land ownership will be shown, if there is more than one owner under the permit.

IRRIGATION WELLS

Acreage irrigated under terms of this permit will be clearly shown with a distinctive pattern and a distinction clearly made between lands having an original supply and those provided a supplemental supply. Where use is for supplemental supply for lands with a right from another source, indicate the priority or permit number of the source, the source of supply and the name of the ditch, pipe line or other well. Conveyance system will be shown and described. Indicate method of irrigation being used.

INDUSTRIAL WELLS

In addition to the information outlined above, industrial users will locate and describe conveyance facilities to the point(s) of use, giving as accurately as possible the location of points of use. Permits for other sources of water must be identified.

MUNICIPAL WELLS

The plat will show the area of use and show and describe the means of conveyance of the water from the well to the connection with the distribution system for a municipal water system.

MISCELLANEOUS WELLS

(1) The linen plat for wells where the use is described as miscellaneous and where the yield flow of the well exceeds twenty-five (25) gallons per minute must show the area of use and describe and show the means of conveyance from the well to the distribution system and/or points of use.

(2) The plat for wells where the use is described as miscellaneous and where the yield or flow is twenty-five (25) gallons per minute or less may be a 7½ minute United States Geological Survey Quadrangle map in lieu of a linen tracing provided the U.S. Geological Survey Quadrangle map is in compliance with the following conditions:

(a) The entire United State Geological Survey quadrangle map must be submitted to the State Engineer's Office.

(b) The scale on said quadrangle map must be one to twenty-four thousand.

(c) An identified section corner or quarter corner must be shown on said quadrangle map along with Section, Township and Range.

David E. Benton
Signature of Owner or Authorized Agent

12-17, 19 97
Date

DEC 22 1997

Date of Receipt: _____, 19 _____

APPLICATION FOR WELLS AND SPRINGS

SCAN-MICRO AUG 16 2006

Note: Only springs flowing 25 gallons per minute or less, where the proposed use is domestic and /or stock watering, will be considered as ground water appropriations

FOR OFFICE USE ONLY

PERMIT NO. U.W. 173585

WATER DIVISION NO. 4 DISTRICT 12

U.W. DISTRICT Lincoln Co.

Temporary Filing No. U.W. 38-5[illegible]-525

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

ALL ITEMS MUST BE COMPLETED BEFORE APPLICATION IS ACCEPTABLE

NAME AND NUMBER OF WELL or SPRING Enl. NORDIC RANCHES WELL NO 2 (Enl. of U.W. 108464 for additional areas of use and total Volumetric quantity)

1. Name of applicant(s) Clarence L. & Dorothy L Reinhart Phone: 307 654 7586

2. Address of applicant(s) P.O. Box 3249 Alpine WY 83128
(MAILING ADDRESS) (CITY) (STATE) (ZIP)

3. Name & address of agent to receive correspondence and notices DAVID E. BENTON P.E

550 LINDEN DR. Idaho Falls ID 83401 Phone: 208 522 8033 FAX 8039
(MAILING ADDRESS) (CITY) (STATE) (ZIP)

Email benton@onewest.net

4. Use to which the water will be applied:

☐ Domestic: Use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totaling one acre or less. Number of houses served?____.

☐ Stock Watering: Normal livestock use at four tanks or less within one mile of well or spring. Stockwatering pipelines and commercial feedlots are a miscellaneous use. Number of stock tanks?____.

☐ Irrigation: Watering of commercially grown crops (large-scale lawn watering of golf courses, cemeteries, recreation areas, etc., is miscellaneous use).

☐ Municipal: Use of water in incorporated Towns and Cities. Note 1: use of water in unincorporated towns, subdivisions, improvement districts, mobile home parks, etc. is classified as miscellaneous use. Note 2: a permit may be required by the Wyoming Department of Environmental Quality (WDEQ) if the well will be classified as a public water supply under the WDEQ's rules and regulations.

☐ Industrial: Long term use of water for the manufacture of a product or production of oil/gas or other minerals (oil field water flood operations, power plant water supply, etc.). (Describe in REMARKS)

☑ Miscellaneous: Any use of water not defined under previous definitions such as stock water pipelines, subdivisions, mine dewatering, mineral/oil exploration drilling, potable supplies in office, etc. Describe in Remarks. Note: a permit may be required by the WDEQ if the well will be classified as a public water supply under the WDEQ's rules and regulations. Water comingled with well No 1 230 Lots together

☐ Coalbed Methane Water produced in the production of coal bed methane gas. Note: wells used in the production of coal bed methane will require a permit from the Wyoming Oil and Gas Conservation Commission.

☐ Monitor, Observation Note: a WDEQ permit may be required ☐ Test Well: (Describe in REMARKS)

5. Location of the well or spring: (NOTE: Quarter-quarter (40 acre subdivision) MUST be shown. EXAMPLE: SE 1/ 4 NW 1/ 4 of Sec. 12, Township 14 North, Range 68 West.) Per U.W. 108464

Lincoln County, NE 1/4 SE 1/4 of Sec. 26, T. 36 N., R. 119 W. of the 6th P.M. (W.R.M.), Wyoming. If located in a platted subdivision, also provide Lot/Tract 20 Block ____ of the Nordic Ranches Div #3 Subdivision (or Add'n) of _____. Resurvey Location: Tract _____, (or Lot) _____.

6. Estimated depth of the well or spring is 550 feet. Estimated production interval is 220 ft. to 490 ft. Per U.W. 108464

7. (a) MAXIMUM instantaneous flow of water to be developed and beneficially used: 120 gallons per minute. 120 gpm original U.W. 108464 0 This Enl Per call
NOTE: if for domestic and / or stock use, this application will be processed for a maximum of 25 gallons per minute. For a spring, after approval of this application, some type of artificial diversion or improvement must be constructed to qualify for a water right.

(b) MAXIMUM volumetric quantity of water to be developed and beneficially used per calendar year: 190 90 This Enl
Circle appropriate units: (Gallons) (Acre Feet) A four person family utilizes approximately one (1) acre-foot of water per year or 325,000 gallons.
100 acre-feet original U.W. 108464
190 acre-feet total

8. Mark the point(s) or area(s) of use in the tabulation box below. Note: Upper row refers to the quarter of the section. Next row refers to quarter of the quarter section.

TABULATION BOX Areas of use under this Enlargement

		NE¼	NW¼	SW¼	SE¼	TOTAL

(The granting of a permit does not constitute the granting of right-of-way. If any easement or right-of-way is necessary in connection with this application, it should be understood that the responsibility is the applicant's. A copy of the agreement should accompany this application, if the land is privately owned and the owner is not the co-applicant.)

12. The water is to be used on lands owned by Reinhart Edwards LLC per Call 3-22-06
(If the landowner is not the applicant, a copy of the agreement relating to the usage of appropriated water on the land should be submitted to this office. If the landowner is included as co-applicant on the application, this procedure need not be followed.) NOTE: Water rights attach to the area(s) and/or point(s) of use.

REMARKS: 108464 (was wrote in the TF# Space) Water from this well commingles with that of Nordic Ranches well No. 1 Permit No. U.W. 76226 and will also commingle with the Nordic Ranches Well No. 4 Permit No. U.W. T.F. # 38-3.473 UW173585

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

David E Benton Agent — Signature of Applicant or Authorized Agent
March 20, 20 06 — Date

THE LEGALLY REQUIRED FILING FEE MUST ACCOMPANY THIS APPLICATION

DOMESTIC AND/OR STOCK WATERING USES (Domestic use is defined as use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less.)	$25.00
IRRIGATION, MUNICIPAL, INDUSTRIAL, MISCELLANEOUS, COAL BED METHANE	$50.00
MONITOR (For water level measurements or chemical quality sampling) or TEST WELL	No Fee

IF WELL WILL SERVE MULTIPLE USES, SUBMIT ONLY ONE (THE HIGHER) FILING FEE.

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

THE STATE OF WYOMING)
) ss.
STATE ENGINEER'S OFFICE)

This instrument was received and filed for record on the 23rd day of March, A.D. 20 06, at 9:45 o'clock a M.

Permit No. U.W. 173585

for State Engineer

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This application is approved subject to the condition that the proposed use shall not interfere with any existing rights to ground water from the same source of supply and is subject to regulation and correlation with surface water rights, if the ground and surface waters are interconnected. The use of water hereunder is subject to the further provisions of Chapter 169, Session Laws of Wyoming, 1957, and any subsequent amendments thereto.

Granting of a permit does not guarantee the right to have the water level or artesian pressure in the well maintained at any specific level. The well should be constructed to a depth adequate to allow for the maximum development and beneficial use of ground water in the source of supply.

If the well is a flowing artesian well, it shall be so constructed and equipped that the flow may be shut off when not in use without loss of water into sub-surface formations or at the land surface.

Coal Bed Methane wells have Additional Conditions and Limitations on attachment sheet.

FOR ADDITIONAL CONDITIONS AND LIMITATIONS SEE ATTACHED STATUS SHEET.

This permit serves to enlarge an existing well for additional points of use and volumetric quantity of water only and establish a valid water right for the same. STATEMENT OF COMPLETION WAIVED

~~Approval of this application may be considered as authorization to proceed with construction of the proposed well or spring. A Statement of Completion will be filed within thirty (30) days of completion of construction, including pump installation.~~

~~Completion of construction and~~ Completion of the beneficial use of water for the purposes specified in Item 4 of this application will be made by December 31, 20 07.

The amount of appropriation shall be limited to the quantity to which permittee is entitled as determined at time of proof of application of water to beneficial use.

Witness my hand this 24th day of Mar., A.D. 20 06.

PERMIT STATUS

Priority Date March 23, 2006 **Approval Date** MAR 24 2006

ADDITIONAL CONDITIONS AND LIMITATIONS:

1. A meter acceptable to the State Engineer is required to accurately measure the total quantity of water produced from this well.

2. An annual report shall be submitted to the State Engineer no later than February 15 of each year stating the total amount of water produced from this well each month during the previous January 1 to December 31, twelve (12) month period.

3. The report shall identify the well by name, location, permit number and shall identify the type of meter used for the measurement.

4. The report shall contain at least two (2) semi-annual measurements of the static water level in the well as measured twenty-four (24) consecutive hours after pumping has ceased. The dates the measurements were obtained and the period of time the well was "shut-in" prior to obtaining the measurements must be specified.

5. The State Engineer reserves the right, upon written request, to modify or waive all or any portion of these conditions and limitations.

3/24/2006
Date of Approval

for John R. Hayes
PATRICK T. TYRRELL, State Engineer

SCAN-MICRO AUG 16 2006

NOTICE OF EXPIRATION OF TIME FOR COMPLETION AND/OR COMPLETION OF BENEFICIAL USE MAILED SEP 28 '07

November 16, 2007 - Proof of beneficial use on June 17, 2004 received.

SCANNED NOV -7 2014

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

PROOF OF APPROPRIATION AND BENEFICIAL USE OF GROUND WATER

The owner is responsible for submitting Parts I and II of this form. Part III will be prepared by a State Engineer representative at time of inspection.

PART I

WATER DIVISION 4 (12) U.W. DISTRICT _____

PERMIT NO. U.W. 173585 DATE OF PRIORITY March 23, 2006

NAME OF WELL Enl. Nordic Ranches Well No. 2 LOCATION NE ¼ SE ¼ of Section 26

T. 36 N., R. 119 W.

1. Name of Claimant(s) Clarence & Dorothy Reinhart

2. Address PO Box 3249, Alpine, WY Zip Code 83128

3. For What Purpose(s) is Water Used? Use: Miscellaneous Date First Used: JUNE 17, 2004

Use: _____ Date First Used: _____ Use: _____ Date First Used: _____

If use is for irrigation, give date irrigation was completed on all lands under this Permit: _____

PART II

For Irrigation, Industrial, Municipal, and Miscellaneous Wells

A plat which has been certified by a licensed professional engineer or land surveyor shall be submitted to accompany this form. The plat shall be in accordance with W.S. § 33-29-139 or Chapters V and VI, State Engineers Office Regulations and Instructions (Minimum scale shall be 2" = 1 mile). The map shall be prepared with waterproof black ink on tracing linen or an acceptable equivalent and shall show on a suitable scale the legal subdivisions, the accurate location of the well or wells, storage facilities, main canals, streams, highways and other important cultural features. Land ownership shall be shown, if there is more than one owner under the permit.

IRRIGATION WELLS

Acreage irrigated under terms of this permit will be clearly shown with a distinctive pattern and a distinction clearly made between lands having an original supply and those provided an additional supply. Where use is for additional supply for lands with a right from another source, indicate the priority or permit number of the source, the source of supply and the name of the ditch, pipe line, or other well. Conveyance system will be shown and described. Indicate method of irrigation being used.

INDUSTRIAL WELLS

In addition to the information outlined above, industrial users will locate and describe conveyance facilities to the point(s) of use, giving as accurately as possible the location of the point(s) of use. Permits for other sources of water must be identified.

MUNICIPAL WELLS

The plat will show the area of use and show and describe the means of conveyance of the water from the well to the connection with the municipal water system distribution network.

MISCELLANEOUS WELLS

(1) The linen plat for wells where the use is described as miscellaneous and where the yield or flow of the well exceeds twenty-five (25) gallons per minute must show the area of use and describe and show the means of conveyance from the well to the distribution system and/or point(s) of use.

(2) The plat for wells where the use is described as miscellaneous and where the yield or flow is twenty-five (25) gallons per minute or less may be a 7½ minute United States Geological Survey Quadrangle map in lieu of a linen tracing, provided that the Quadrangle map is in compliance with the following conditions:

(a) The entire Quadrangle map must be submitted to the State Engineer's Office.

(b) The scale on said Quadrangle map must be one to twenty-four thousand.

(c) An identified section corner or quarter corner must be shown on said Quadrangle map along with the Section, Township, and Range.

(d) The section in which the well is located and the section(s) where the area(s) or point(s) of use are located must be subdivided into forty (40)

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

X _____ _____ ,20_____

Signature of Owner or Authorized Agent Date

Date of Receipt: 11-16-07 R, 20_____

Note: Only springs flowing 25 gallons per minute or less, where the proposed use is domestic and/or stock watering, will be considered as ground water appropriations.

FOR OFFICE USE ONLY

PERMIT NO. U.W. 173583
WATER DIVISION NO. 4 DISTRICT 12
U.W. DISTRICT Lincoln Co.

Temporary Filing No. U.W. 38-3-423

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.

ALL ITEMS MUST BE COMPLETED BEFORE APPLICATION IS ACCEPTABLE

NAME AND NUMBER OF WELL or SPRING NORDIC RANCHES WELL NO 4

1. Name of applicant(s) REINHART-EDWARDS, LLC Phone: 307 654 7588

2. Address of applicant(s) P.O BOX 3249 (MAILING ADDRESS) ALPINE (CITY) WY (STATE) 83128 (ZIP)

3. Name & address of agent to receive correspondence and notices DAVID E BENTON P.E

550 LINDEN DR (MAILING ADDRESS) Idaho Falls (CITY) IDAHO (STATE) 83401 (ZIP) Phone: 208-522 8033
FAX 208-522 8039
Email benton@onewest.net

4. Use to which the water will be applied:

- ☐ Domestic: Use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less. Number of houses served? _____ .
- ☐ Stock Watering: Normal livestock use at four tanks or less within one mile of well or spring. Stockwatering pipelines and commercial feedlots are a miscellaneous use. Number of stock tanks? _____ .
- ☐ Irrigation: Watering of commercially grown crops (large-scale lawn watering of golf courses, cemeteries, recreation areas, etc., is miscellaneous use).
- ☒ Municipal: out — Use of water in incorporated Towns and Cities (use of water in unincorporated towns, subdivisions, improvement districts, mobile home parks, etc. are classified as miscellaneous use).
- ☐ Industrial: Long term use of water for the manufacture of a product or production of oil/gas or other minerals (oil field water flood operations, power plant water supply, etc.). (Describe in REMARKS)
- ☒ Miscellaneous: C/L — Any use of water not defined under previous definitions such as stockwater pipelines, subdivisions, mine dewatering, mineral / oil exploration drilling, potable supplies in office, etc. Describe in remarks.
- ☐ Coal Bed Methane: Water produced in production of coal bed methane gas.
- ☐ Monitor, Observation or ☐ Test Well: (Describe in REMARKS)

5. Location of the well or spring: (NOTE: Quarter-quarter (40 acre subdivision) MUST be shown. EXAMPLE: SE 1/4 NW 1/4 of Sec. 12, Township 14 North, Range 68 West.)
LINCOLN County, SW 1/4 SE 1/4 of Sec. 26, T. 36 N., R. 119 W. of the 6th P.M. (W.R.M.), Wyoming. If located in a platted subdivision, also provide Lot/Tract _____ Block _____ of the _____ Subdivision (or Add'n) of _____. Resurvey Location: Tract _____, (or Lot) Proposed NORDIC RANCHES DIV 14

6. Estimated depth of the well or spring is 550 feet.

7. (a) MAXIMUM instantaneous flow of water to be developed and beneficially used: 200 gallons per minute. NOTE: If for domestic and / or stock use, this application will be processed for a maximum of 25 gallons per minute. For a spring, after approval of this application, some type of artificial diversion or improvement must be constructed to qualify for a water right. Per fax Rec'd 3/8/06 AS

(b) MAXIMUM volumetric quantity of water to be developed and beneficially used per calendar year: 105,625,000 gallons Circle appropriate units: (Gallons) (Acre Feet) A four person family utilizes approximately one (1) acre-foot of water per year or 325,000 gallons.

8. Mark the point(s) or area(s) of use in the tabulation box below.

TABULATION BOX

TWP	RNG	SEC	NE 1/4				NW 1/4				SW 1/4				SE 1/4				TOTAL
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
36N	119	26		X	X		X		X	X	X	X	X	X	X	X	X	X	
36N	119	26																	DIV 14 out AS
36N	119	23							X			X	X						
36N	119	25										X	X						

DIV 14 80 AC

9. If for irrigation use:
a. Describe MAXIMUM acreage to be irrigated in each 40 acre subdivision in the tabulation box above.
b. ☐ Land will be irrigated from this well only.

be submitted to this office. If the landowner is included as co-applicant on the application, this procedure need not be followed.)
NOTE: Water rights attach to the area(s) and/or point(s) of use.

REMARKS: This well will be commingled with the Nordic Ranches well No. 1 Permit No. U.W. 76226 and it's enlargements U.W. 95148 & U.W. 100147. It will also commingle with the Nordic Ranches well No. 2 Permit No. 108464. Serving 320 residential lots within the Nordic Ranches Subdivision.

Per fax Rec'd 3/8/2006 AA

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

[signature] Member 2/14, 20 06
Signature of Applicant or Authorized Agent Date

THE LEGALLY REQUIRED FILING FEE MUST ACCOMPANY THIS APPLICATION

DOMESTIC AND/OR STOCK WATERING USES $25.00
(Domestic use is defined as use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less.)

IRRIGATION, MUNICIPAL, INDUSTRIAL, MISCELLANEOUS, COAL BED METHANE $50.00

MONITOR (For water level measurements or chemical quality sampling) or TEST WELL NO FEE

IF WELL WILL SERVE MULTIPLE USES, SUBMIT ONLY ONE (THE HIGHER) FILING FEE.

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

THE STATE OF WYOMING)
) ss.
STATE ENGINEER'S OFFICE)

This instrument was received and filed for record on the 16th day of February, A.D. 20 06, at 9:45 o'clock a M.

Permit No. U.W. 173583

[signature]
for State Engineer

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions:

This application is approved subject to the condition that the proposed use shall not interfere with any existing rights to ground water from the same source of supply and is subject to regulation and correlation with surface water rights, if the ground and surface waters are interconnected. The use of water hereunder is subject to the further provisions of Chapter 169, Session Laws of Wyoming, 1957, and any subsequent amendments thereto.

Granting of a permit does not guarantee the right to have the water level or artesian pressure in the well maintained at any specific level. The well should be constructed to a depth adequate to allow for the maximum development and beneficial use of ground water in the source of supply.

If the well is a flowing artesian well, it shall be so constructed and equipped that the flow may be shut off when not in use without loss of water into sub-surface formations or at the land surface.

Coal Bed Methane wells have Additional Conditions and Limitations on attachment sheet.
FOR ADDITIONAL CONDITIONS AND LIMITATIONS SEE ATTACHED STATUS SHEET.

Approval of this application may be considered as authorization to proceed with construction of the proposed well or spring. A Statement of Completion will be filed within thirty (30) days of completion of construction, including pump installation.

Completion of construction and completion of the beneficial use of water for the purposes specified in Item 4 of this application will be made by December 31, 20 07.

The amount of appropriation shall be limited to the quantity to which permittee is entitled as determined at time of proof of application of water to beneficial use.

Witness my hand this 24th day of May, A.D. 20 06.

for [signature]

PERMIT STATUS

Priority Date **February 16, 2006** **Approval Date** MAR 24 2006

ADDITIONAL CONDITIONS AND LIMITATIONS:

1. A meter acceptable to the State Engineer is required to accurately measure the total quantity of water produced from this well.

2. An annual report shall be submitted to the State Engineer no later than February 15 of each year stating the total amount of water produced from this well each month during the previous January 1 to December 31, twelve (12) month period.

3. The report shall identify the well by name, location, permit number and shall identify the type of meter used for the measurement.

4. The report shall contain at least two (2) semi-annual measurements of the static water level in the well as measured twenty-four (24) consecutive hours after pumping has ceased. The dates the measurements were obtained and the period of time the well was "shut-in" prior to obtaining the measurements must be specified.

5. The State Engineer reserves the right, upon written request, to modify or waive all or any portion of these conditions and limitations.

3/24/2006
Date of Approval

for John R. Hayes
PATRICK T. TYRRELL, State Engineer

SCAN-MICRO AUG 16 2006

NOTICE OF EXPIRATION OF TIME FOR COMPLETION AND/OR COMPLETION OF BENEFICIAL USE MAILED SEP 28 '07

November 16, 2007 - Statement of Completion on May 26, 2007 received.
November 16, 2007 - Proof of beneficial use on May 26, 2007 received.

SCANNED NOV - 7 2014

CHEYENNE, WYOMING 82002

(307) 777-6163

SCANNED NOV - 7 2014

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 173583 NAME OF WELL/SPRING Nordic Ranches Well No. 4

1. NAME OF OWNER Reinhart - Edwards, LLC

2 ADDRESS PO Box 3249, Alpine, WY 83128

☐ Please check if address has changed from that shown on permit

City _____ State _____ Zip Code _____ Phone No. 307-654-7588

3. USE OF WATER ☐ Domestic ☐ Stock Watering ☐ Irrigation ☐ Municipal ☐ Industrial ☒ Miscellaneous ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling) To provide water for a subdivision

4. LOCATION OF WELL/SPRING SW 1/4 SE 1/4 of Section 26 T. 36 N.,R. 119 W., of the 6th P.M. (or W.R.M.)

Subdivision Name Nordic Ranches Lot _____ Block _____

Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83 _____

Geographic Coordinates: Latitude 43°04'18.11211" N Longitude 110°59'50.70306" W (degrees, minutes, seconds)

UTM: Zone _____ Northing _____ Easting _____ (meters)

State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)

Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 ☐ NAVD88

Source ☐ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only)

5. TYPE OF CONSTRUCTION ☒ Drilled Air Rotary ☐ Dug ☐ Driven ☐ Other

Describe _____

6. CONSTRUCTION Total depth of well/spring 603 ft.

Depth of static water level 266 ft. (below land surface) Casing height 18" ft. above ground

a. Diameter of borehole (bit size) 18 12 8 inches

b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded

16" diameter from 0 ft. to 30 ft. Material Steel Gage .250

12" 8" diameter from 30' 323' ft. to 323' 603 ft. Material Steel Steel Gage .250 .250

c. Cemented/grouted interval, from _____ ft. to _____ ft.

Amount of cement/grout used _____ (example: 10 sacks) type _____ (example: bentonite pellets)

d. Type of completion ☐ Customized perforations ☐ Open hole ☐ Factory screen

Type of perforator used Cutting Torch Air Perforator

Size of perforations 1/4" inches by 1 1/4" inches. 6 cuts PER Ft 6 Rows MAKING 30 CUTS PER FT

Number of perforations and depths where perforated

600 perforations from 360 ft. to 380 ft.

450 perforations from 255 ft. to 270 ft.

600 perf. 300' - 320'
600 perf. 540' - 560'

Open hole from _____ ft. to _____ ft.

Well screen details

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

Diameter _____ slot size _____ set from _____ ft. to _____ ft.

e. Well development method Jetting tool How long was well developed? 15 HOURS

f. Was a filter/gravel pack installed? ☒ Yes ☐ No Size of sand/gravel 390 Bags Gravel Pack 1/2" MINUS gravel from 603'-167'

Filter/gravel pack installed from _____ ft. to _____ ft.

g. Was surface casing used? ☒ Yes ☐ No Was it ~~cemented~~ grouted in place? ☒ Yes ☐ No

Surface casing installed from 0 ft. to 30 ft.

7. NAME AND ADDRESS OF DRILLING COMPANY Thomas Drilling 676 N. WASHINGTON Afton, WY

8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) May 26, 2007 per call 11-20-07 RK

9. PUMP INFORMATION Manufacturer ROBBCO Type Submersible

Source of power Public Horsepower 30 Depth of pump setting or intake 340 ft.

Amount of water being pumped 85 gal./min.* (For springs or flowing wells, see item 10)

Total volumetric quantity used per calendar year.* 12,280,000 gal/yr

*If these amounts exceed permitted amount an enlargement is required.

10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)

Yield _____ gal./min. with _____ ft. drawdown after _____ hours

Yield _____ gal./min. with _____ ft. drawdown after _____ hours

13. LOG OF WELL Total depth drilled _____ ft.

Depth of completed well 603 ft. Diameter of well 18+12+8 inches

Depth to first water bearing formation _____ ft.

Depth to principal water bearing formation Top _____ ft. to Bottom _____ ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface	5	Top Soil		
5	10	Clay		
10	30	Gravel Clay		
30	70	Gravel Cobbles		
70	150	Gravel Clay		
150	170	Clay		
170	180	Gravel	Water Small amt	
180	190	Clay		
190	205	Gravel	Water 10-15 gpm	
205	220	Gravel Clay		
220	230	Gravel Cobbles		
230	255	Clay Reddish Brown		
255	265	Gravel	Water 40 gpm	
265	310	Gravel Clay		
310	323	Limestone	Water 50 gpm	

SEE Attached Page

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? ☐ Yes ☐ No

15. QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? ☐ Yes ☒ No

It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).

If not, do you consider the water as ☒ Good ☐ Acceptable ☐ Poor ☐ Unusable

REMARKS _____

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

_____ _____ ,20 ____

Signature of Owner or Authorized Agent Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 173583

Date of Receipt NOV 1 6 2007 , 20____

Date of Priorty Feb 14, 2006 , 20____

Date of Approval 2/23 , 20 12

_____

for State Engineer

DRILL CUTTINGS DESCRIPTION:

From Feet	To Feet	Material Type, Texture, Color	Remarks (Cementing, Shutoff)	Indicate Water Bearing Formation & Name	Indicate Perforated Casing Location
0	5	Top Soil			
5	10	Clay			
10	30	Gravel Clay			
30	70	Gravel Cobbles			
70	150	Gravel Clay			
150	170	Clay			
170	180	Gravel		Water small amt.	
180	190	Clay			
190	205	Gravel		Water 10-15 gpm	
205	220	Gravel Clay			
220	230	Gravel Cobbles			
230	255	Clay Reddish Brown			
255	265	Gravel		Water 40 gpm	255 – 270
265	310	Gravel Clay			
310	323	Limestone	12" casing stpd.	Water 50 gpm	300 – 320
323	340	Limestone			
340	350	Limestone Clay			
350	360	Fractured Limestone		Water 10-15 gpm	360 – 380
360	389	Fractured Limestone		Water 20 gpm	360 – 380
389	399	Fractured Limestone			
399	409	Limestone Clay			
409	429	Limestone Clay			
429	449	Frac. L.S. Tan Intrbds.			
449	489	Frac. L.S. Tan Intrbds			
489	509	L.S. Yellow Clay Mdst.			
509	529	Fractured Limestone			
529	534	L.S. Clay Orange Tan			
534	549	Fractured Limestone		Water 40 gpm	540 - 560
549	569	Fractured Limestone			
569	589	Limestone			
589	595	Fractured Limestone			
595	609	Limestone Clay			

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER

PROOF OF APPROPRIATION AND BENEFICIAL USE OF GROUND WATER

The owner is responsible for submitting Parts I and II of this form. Part III will be prepared by a State Engineer representative at time of inspection.

PART I

WATER DIVISION 4(12)

U.W. DISTRICT Lincoln Co.

PERMIT NO. U.W. 173583

DATE OF PRIORITY February 11, 2006

NAME OF WELL Nordic Ranches Well No. 4

LOCATION SW ¼ SE ¼ of Section 26

T. 36 N., R. 119 W.

1. Name of Claimant(s) Reinhart - Edwards, LLC

2. Address PO Box 3249, Alpine, WY Zip Code 83128

3. For What Purpose(s) is Water Used? Use: Miscellaneous Date First Used: May 26, 2007

Use: _____ Date First Used: _____ Use: _____ Date First Used: _____

If use is for irrigation, give date irrigation was completed on all lands under this Permit: _____

PART II

For Irrigation, Industrial, Municipal, and Miscellaneous Wells

A plat which has been certified by a licensed professional engineer or land surveyor shall be submitted to accompany this form. The plat shall be in accordance with W.S. § 33-29-139 or Chapters V and VI, State Engineers Office Regulations and Instructions (Minimum scale shall be 2" = 1 mile). The map shall be prepared with waterproof black ink on tracing linen or an acceptable equivalent and shall show on a suitable scale the legal subdivisions, the accurate location of the well or wells, storage facilities, main canals, streams, highways and other important cultural features. Land ownership shall be shown, if there is more than one owner under the permit.

IRRIGATION WELLS

Acreage irrigated under terms of this permit will be clearly shown with a distinctive pattern and a distinction clearly made between lands having an original supply and those provided an additional supply. Where use is for additional supply for lands with a right from another source, indicate the priority or permit number of the source, the source of supply and the name of the ditch, pipe line, or other well. Conveyance system will be shown and described. Indicate method of irrigation being used.

INDUSTRIAL WELLS

In addition to the information outlined above, industrial users will locate and describe conveyance facilities to the point(s) of use, giving as accurately as possible the location of the point(s) of use. Permits for other sources of water must be identified.

MUNICIPAL WELLS

The plat will show the area of use and show and describe the means of conveyance of the water from the well to the connection with the municipal water system distribution network.

MISCELLANEOUS WELLS

(1) The linen plat for wells where the use is described as miscellaneous and where the yield or flow of the well exceeds twenty-five (25) gallons per minute must show the area of use and describe and show the means of conveyance from the well to the distribution system and/or point(s) of use.

(2) The plat for wells where the use is described as miscellaneous and where the yield or flow is twenty-five (25) gallons per minute or less may be a 7½ minute United States Geological Survey Quadrangle map in lieu of a linen tracing, provided that the Quadrangle map is in compliance with the following conditions:

(a) The entire Quadrangle map must be submitted to the State Engineer's Office.

(b) The scale on said Quadrangle map must be one to twenty-four thousand.

(c) An identified section corner or quarter corner must be shown on said Quadrangle map along with the Section, Township, and Range.

(d) The section in which the well is located and the section(s) where the area(s) or point(s) of use are located must be subdivided into forty (40)

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

X _____ _____ ,20_____

Signature of Owner or Authorized Agent Date

Date of Receipt: 11-16-07 , 20_____

G. Well Testing Data

AQUIFER TEST DATA
NORDIC RANCHES WELL NO. 1 (U.W. 76226)

PUMP ON DATE: 3/8/22	TIME: 11:39	HOW W.L.'s MEASURED: Airline	HOW Q MEASURED: 3" McCrometer flow meter
PUMP OFF DATE: 3/8/22	TIME: 14:20	MEASURING POINT: TOC	DEPTH OF PUMP: 189 feet
DURATION OF TESTING: 103 minutes		STATIC WATER LEVEL: 82.74 feet	TYPE OF TEST: Short-term
			PREVIOUS PUMPING: Pumped for water system

								DISCHARGE DATA			
DATE	CLOCK TIME	PUMPING ELAPSED TIME	RECOVERY ELAPSED TIME	READING	CORRECTION FACTOR	WATER LEVEL	WATER LEVEL CHANGE (S)	READING	RATE (GPM)		COMMENTS
3/8	11:39	0		46.0		82.74	0.00				Start test
	11:41	2		29.0		122.01	39.27		68.7		56 Hz, 40.59 A
	11:43	4		28.8		122.59	39.85				
	11:45	6		28.7		122.82	40.08				
	11:47	8		28.5		123.17	40.43				
	11:49	10		28.5		123.17	40.43				
	11:54	15		28.5		123.17	40.43		67.6		
	11:59	20		28.5		123.17	40.43				
	12:04	25		28.5		123.17	40.43		67.6		
	12:09	30		28.50		123.17	40.43				
	12:14	35		28.35		123.51	40.77		67.6		
	12:19	40		28.35		123.51	40.77		67.6		
	12:29	50		28.35		123.51	40.77		67.6		
	12:39	60		28.35		123.51	40.77		67.6		
	12:49	70		28.25		123.74	41.00				
	12:59	80		28.25		123.74	41.00				
	13:09	90		28.25		123.74	41.00				
	13:11	92									Turn off pump
	23:18		7	33.5		111.62	28.88				

AQUIFER TEST DATA
NORDIC RANCHES WELL #2 (U.W. 108464)

PUMP ON DATE: 10/20/21	TIME: 8:12	HOW W.L.'s MEASURED: Airline	HOW Q MEASURED: 3" McCrometer flow meter
PUMP OFF DATE: 10/20/21	TIME: 9:49	MEASURING POINT: TOC	DEPTH OF PUMP: 441 feet
DURATION OF TESTING: 97 minutes		STATIC WATER LEVEL: 244.65 feet	TYPE OF TEST: Short-term
			PREVIOUS PUMPING: Pumped for water system

								DISCHARGE DATA			
DATE	CLOCK TIME	PUMPING ELAPSED TIME	RECOVERY ELAPSED TIME	READING	CORRECTION FACTOR	WATER LEVEL	WATER LEVEL CHANGE (S)	READING	RATE (GPM)		COMMENTS
10/20	8:12	0		85.0		244.65	0.00				Start test
	8:13	1		83.25		248.69	4.04		132		58 Hz, 32 A
	8:15	3		83.0		249.27	4.62				
	8:16	4		83.0		249.27	4.62				
	8:17	5		82.5		250.43	5.77				
	8:18	6		82.25		251.00	6.35				
	8:19	7		82.25		251.00	6.35				
	8:20	8		82.25		251.00	6.35				
	8:21	9		82.25		251.00	6.35				
	8:22	10		82.0		251.58	6.93				
	8:26	14		82.0		251.58	6.93		132		58 Hz, 31.7 A
	8:31	19		82.0		251.58	6.93				
	8:44	32		81.75		252.16	7.51				pH 7.43, 46.9°F, 225 ppm
	8:52	40		81.5		252.74	8.08				
	8:57	45		81.5		252.74	8.08				
	9:02	50		81.25		253.31	8.66				
	9:12	60		81.0		253.89	9.24				
	9:22	70		81.0		253.89	9.24				
	9:32	80		80.75		254.47	9.82				pH 7.50, 45.7°F, 226 ppm
	9:42	90		80.75		254.47	9.82		132		58 Hz, 32 A
	9:49	97		80.75		254.47	9.82				Turn off pump
	9:50		1	84.75		245.23	0.58				
	9:51		2	85.0		244.65	0.00				Fully recovered

AQUIFER TEST DATA
NORDIC RANCHES WELL NO. 4 (U.W. 173583)

PUMP ON DATE: 10/20/21	TIME: 10:23	HOW W.L.'s MEASURED: Airline	HOW Q MEASURED: 3" McCrometer flow meter
PUMP OFF DATE: 10/20/21	TIME: 11:53	MEASURING POINT: TOC	DEPTH OF PUMP: 340 feet
DURATION OF TESTING: 90 minutes		STATIC WATER LEVEL: 241.83 feet	TYPE OF TEST: Short-term
			PREVIOUS PUMPING: Pumped for water system

								DISCHARGE DATA			
DATE	CLOCK TIME	PUMPING ELAPSED TIME	RECOVERY ELAPSED TIME	READING	CORRECTION FACTOR	WATER LEVEL	WATER LEVEL CHANGE (S)	READING	RATE (GPM)		COMMENTS
10/20	10:23	0		42.5		241.83	0.00				Start test
	10:24	1		38.0		252.22	10.39		102		60 Hz, 34.6 A
	10:25	2		37.0		254.53	12.70				
	10:26	3		36.0		256.84	15.01				
	10:27	4		35.75		257.42	15.59				
	10:28	5		35.0		259.15	17.32				
	10:29	6		35.0		259.15	17.32				
	10:30	7		35.0		259.15	17.32				
	10:31	8		35.0		259.15	17.32				
	10:32	9		35.0		259.15	17.32		102		60 Hz, 34 A
	10:33	10		35.0		259.15	17.32				
	10:37	14		34.5		260.31	18.48				
	10:45	22		34.5		260.31	18.48				
	10:50	27		34.5		260.31	18.48				pH 7.63, 46.4°F, 211 ppm
	10:55	32		34.5		260.31	18.48				
	11:09	46		34.0		261.46	19.63				
	11:19	56		34.0		261.46	19.63				pH 7.66, 46.7°F, 198 ppm
	11:29	66		33.5		262.62	20.79				
	11:39	76		33.5		262.62	20.79				
	11:49	86		33.25		263.19	21.36		102		60 Hz, 33.9 A
	11:53	90		33.25		263.19	21.36				Turn off pump
	11:55		2	40.5		246.45	4.61				
	11:57		4	41.5		244.14	2.30				
	11:59		6	42.5		241.83	0.00				Fully recovered

H. Water Quality Sample Testing Data

Analytical Services Laboratory
1174 Snowy Range Road
Laramie, WY 82072
Email: analytical.lab@wyo.gov
307-742-2984

Laboratory Sample Report

Lab Number: **AA38329** Received Date/Time: 10/21/2021 8:39 am Received Temperature: 6.1°C

Customer Provided Information:

Weston Engineering
1050 N 3rd St. Suite E
Laramie, WY 82072
bjordan@westoneng.com

Collect Date/Time: 10/19/2021 1:15 pm
Sample Description: Nordic Ranch #1
Sample Collector: Ben Jordan

Test Results:

Analysis	Result	Unit	Volume Tested (ml)	EPA MCL[1] (mg/L)	Qualifier	Date Analyzed	Method
Alkalinity	179.2	mg/L				10/22/2021	SM2320 B
Bicarbonate	179.2	mg/L				10/22/2021	SM2320 B
Calcium	47.47	ppm				10/21/2021	WC.016
Carbonate	< 2.0	mg/L				10/22/2021	SM2320 B
Chloride	<2.0	mg/L		250		10/21/2021	EPA 300.0
Conductivity	334.4	uS/cm				10/22/2021	SM2510 B
Fluoride	<0.20	mg/L		4		10/21/2021	EPA 300.0
Magnesium	14.94	ppm				10/21/2021	WC.016
Nitrate (as N)	0.28	mg/L		10		10/21/2021	EPA 300.0
Nitrite (as N)	<0.20	mg/L		1		10/21/2021	EPA 300.0
pH	8.1			6.5 - 8.5		10/22/2021	SM4500-H+ B
Potassium	0.81	ppm				10/21/2021	WC.016
Sodium	1.83	ppm				10/21/2021	WC.016
Sulfate+	5.29	mg/L		250		10/21/2021	EPA 300.0
TDS by Summation	160	mg/L		500		10/25/2021	SM2540 C
Copper	0.0259	ppm		1.3		10/22/2021	WC.004
Iron	2.80	ppm		0.3		10/21/2021	WC.016
Lead	0.00797	ppm		0.015		10/22/2021	WC.004
Manganese	0.0267	ppm		0.05		10/22/2021	WC.004
Zinc	0.538	ppm		5		10/25/2021	WC.004
Corrosivity··	0.53					10/25/2021	SM2330 B
	Non-aggressive						
Total Hardness	180.1	mg/L				10/22/2021	Calculation
Nitrate + Nitrite (as N)	0.28	mg/L				10/21/2021	Calculation

Samples were received at the laboratory in acceptable condition unless noted in Comments.
The results included in this report relate only to the specific items submitted and as they were received for testing.
This report shall not be reproduced except in full without the written approval of the laboratory.

Report Authorized By: Teresa Jarvis, Laboratory Manager

Report Date: 10/26/2021

Analytical Services Laboratory
1174 Snowy Range Road
Laramie, WY 82072
Email: analytical.lab@wyo.gov
307-742-2984

Laboratory Sample Report

Lab Number: **AA38329** Received Date/Time: 10/21/2021 8:39 am Received Temperature: 6.1°C

Customer Provided Information:

Weston Engineering
1050 N 3rd St. Suite E
Laramie, WY 82072
bjordan@westoneng.com

Collect Date/Time: 10/19/2021 1:15 pm
Sample Description: Nordic Ranch #1
Sample Collector: Ben Jordan

Test Results:

Analysis	Result	Unit	Volume Tested (ml)	EPA MCL[1] (mg/L)	Qualifier	Date Analyzed	Method

Qualifier:
1- Maximum Contaminate Level (MCL)
EPA National Primary Drinking Water Regulations link: https://www.epa.gov/sites/production/files/2016-06/documents/npwdr_complete_table.pdf

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Report Date: 10/26/2021

Analytical Services Laboratory
1174 Snowy Range Road
Laramie, WY 82072
Email: analytical.lab@wyo.gov
307-742-2984

Laboratory Sample Report

Lab Number: **AA38327** Received Date/Time: 10/21/2021 8:39 am Received Temperature: 6.1°C

Customer Provided Information:

Weston Engineering
1050 N 3rd St. Suite E
Laramie, WY 82072
bjordan@westoneng.com

Collect Date/Time: 10/20/2021 9:00 am
Sample Description: Nordic Ranch #2
Sample Collector: Ben Jordan

Test Results:

Analysis	Result	Unit	Volume Tested (ml)	EPA MCL[1] (mg/L)	Qualifier	Date Analyzed	Method
Alkalinity	181.2	mg/L				10/22/2021	SM2320 B
Bicarbonate	181.2	mg/L				10/22/2021	SM2320 B
Calcium	43.11	ppm				10/21/2021	WC.016
Carbonate	< 2.0	mg/L				10/22/2021	SM2320 B
Chloride	<2.0	mg/L		250		10/21/2021	EPA 300.0
Conductivity	356.9	uS/cm				10/22/2021	SM2510 B
Fluoride	<0.20	mg/L		4		10/21/2021	EPA 300.0
Magnesium	20.38	ppm				10/21/2021	WC.016
Nitrate (as N)	3.08	mg/L		10		10/21/2021	EPA 300.0
Nitrite (as N)	<0.20	mg/L		1		10/21/2021	EPA 300.0
pH	8.0			6.5 - 8.5		10/22/2021	SM4500-H+ B
Potassium	0.85	ppm				10/21/2021	WC.016
Sodium	1.95	ppm				10/21/2021	WC.016
Sulfate+	4.42	mg/L		250		10/21/2021	EPA 300.0
TDS by Summation	173	mg/L		500		10/25/2021	SM2540 C
Copper	0.0189	ppm		1.3		10/22/2021	WC.004
Iron	< 0.079	ppm		0.3		10/21/2021	WC.016
Lead	0.00807	ppm		0.015		10/22/2021	WC.004
Manganese	< 0.00471	ppm		0.05		10/22/2021	WC.004
Zinc	0.0791	ppm		5		10/22/2021	WC.004
Corrosivity··	0.39					10/25/2021	SM2330 B
	Non-aggressive						
Total Hardness	191.6	mg/L				10/22/2021	Calculation
Nitrate + Nitrite (as N)	3.08	mg/L				10/21/2021	Calculation

Samples were received at the laboratory in acceptable condition unless noted in Comments.
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Report Authorized By: Teresa Jarvis, Laboratory Manager

Report Date: 10/26/2021

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1174 Snowy Range Road
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Email: analytical.lab@wyo.gov
307-742-2984

Laboratory Sample Report

Lab Number: **AA38327** Received Date/Time: 10/21/2021 8:39 am Received Temperature: 6.1°C

Customer Provided Information:

Weston Engineering
1050 N 3rd St. Suite E
Laramie, WY 82072
bjordan@westoneng.com

Collect Date/Time: 10/20/2021 9:00 am
Sample Description: Nordic Ranch #2
Sample Collector: Ben Jordan

Test Results:

Analysis	Result	Unit	Volume Tested (ml)	EPA MCL[1] (mg/L)	Qualifier	Date Analyzed	Method

Qualifier:
1- Maximum Contaminate Level (MCL)
EPA National Primary Drinking Water Regulations link: https://www.epa.gov/sites/production/files/2016-06/documents/npwdr_complete_table.pdf

Samples were received at the laboratory in acceptable condition unless noted in Comments.
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Report Authorized By: Teresa Jarvis, Laboratory Manager

Report Date: 10/26/2021

Analytical Services Laboratory
1174 Snowy Range Road
Laramie, WY 82072
Email: analytical.lab@wyo.gov
307-742-2984

Laboratory Sample Report

Lab Number: **AA38328** Received Date/Time: 10/21/2021 8:39 am Received Temperature: 6.1°C

Customer Provided Information:

Weston Engineering
1050 N 3rd St. Suite E
Laramie, WY 82072
bjordan@westoneng.com

Collect Date/Time: 10/20/2021 11:05 am
Sample Description: Nordic Ranch #4
Sample Collector: Ben Jordan

Test Results:

Analysis	Result	Unit	Volume Tested (ml)	EPA MCL[1] (mg/L)	Qualifier	Date Analyzed	Method
Alkalinity	173.5	mg/L				10/22/2021	SM2320 B
Bicarbonate	173.5	mg/L				10/22/2021	SM2320 B
Calcium	38.18	ppm				10/21/2021	WC.016
Carbonate	< 2.0	mg/L				10/22/2021	SM2320 B
Chloride	<2.0	mg/L		250		10/21/2021	EPA 300.0
Conductivity	326.4	uS/cm				10/22/2021	SM2510 B
Fluoride	<0.20	mg/L		4		10/21/2021	EPA 300.0
Magnesium	20.10	ppm				10/21/2021	WC.016
Nitrate (as N)	<0.20	mg/L		10		10/21/2021	EPA 300.0
Nitrite (as N)	<0.20	mg/L		1		10/21/2021	EPA 300.0
pH	8.0			6.5 - 8.5		10/22/2021	SM4500-H+ B
Potassium	0.97	ppm				10/21/2021	WC.016
Sodium	2.03	ppm				10/21/2021	WC.016
Sulfate+	6.21	mg/L		250		10/21/2021	EPA 300.0
TDS by Summation	153	mg/L		500		10/25/2021	SM2540 C
Copper	< 0.00985	ppm		1.3		10/22/2021	WC.004
Iron	< 0.079	ppm		0.3		10/21/2021	WC.016
Lead	< 0.005	ppm		0.015		10/22/2021	WC.004
Manganese	< 0.00471	ppm		0.05		10/22/2021	WC.004
Zinc	0.0214	ppm		5		10/22/2021	WC.004
Corrosivity··	0.32					10/25/2021	SM2330 B
	Non-aggressive						
Total Hardness	178.1	mg/L				10/22/2021	Calculation
Nitrate + Nitrite (as N)	<0.20	mg/L				10/21/2021	Calculation

Samples were received at the laboratory in acceptable condition unless noted in Comments.
The results included in this report relate only to the specific items submitted and as they were received for testing.
This report shall not be reproduced except in full without the written approval of the laboratory.

Report Authorized By: Teresa Jarvis, Laboratory Manager

Report Date: 10/26/2021

Analytical Services Laboratory
1174 Snowy Range Road
Laramie, WY 82072
Email: analytical.lab@wyo.gov
307-742-2984

Laboratory Sample Report

Lab Number: **AA38328** Received Date/Time: 10/21/2021 8:39 am Received Temperature: 6.1°C

Customer Provided Information:

Weston Engineering
1050 N 3rd St. Suite E
Laramie, WY 82072
bjordan@westoneng.com

Collect Date/Time: 10/20/2021 11:05 am
Sample Description: Nordic Ranch #4
Sample Collector: Ben Jordan

Test Results:

Analysis	Result	Unit	Volume Tested (ml)	EPA MCL[1] (mg/L)	Qualifier	Date Analyzed	Method

Qualifier:
1- Maximum Contaminate Level (MCL)
EPA National Primary Drinking Water Regulations link: https://www.epa.gov/sites/production/files/2016-06/documents/npwdr_complete_table.pdf

Samples were received at the laboratory in acceptable condition unless noted in Comments.
The results included in this report relate only to the specific items submitted and as they were received for testing.
This report shall not be reproduced except in full without the written approval of the laboratory.

Report Authorized By: Teresa Jarvis, Laboratory Manager

Report Date: 10/26/2021

I. Cost Estimates

Nordic Ranches Water Master Plan Level I Study					
Conceptual Cost Estimate					
Nordic Ranches LLC/Etna WSD Regionalization					
Estimate Date August 2022					
Item #	**Description**	**Units**	**Estimated Quantity**	**Unit Cost**	**Estimated Cost**
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
NA					
Cost of Project Components Total (subtotal #1)					$ -
Construction Engineering Cost (subtotal #1 x 10%)					$ -
Components + Construction Engineering Costs (subtotal #2)					$ -
Contingency (subtotal #2 x 15%)					$ -
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ -
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ -
Permitting and Mitigation					$ -
Legal Fees (Title of Opinion Only)					$ -
Acquisition of Access and Rights of Way					$ -
Pre-construction Costs Total (subtotal #4)					$ -
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ -
WWDC INELIGIBLE PROJECT COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$ 170,000.00	$ 170,000.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$ 50,000.00	$ 50,000.00
3	6 - Inch Waterline w/Bedding	LF	1,350	$ 60.00	$ 81,000.00
4	10 - Inch Waterline w/Bedding	LF	15,750	$ 100.00	$ 1,575,000.00
5	Road Repair	LF	17,100	$ 45.00	$ 769,500.00
6	Valves	EACH	20	$ 4,500.00	$ 90,000.00
7	Fittings	EACH	15	$ 750.00	$ 11,250.00
8	Fire Hydrants w/Tee & Valve	EACH	5	$ 7,500.00	$ 37,500.00
9	10" Pressure Reducing Valve Vault	LS	1	$ 75,000.00	$ 75,000.00
10	Etna to Nordic Ranches Booster Station	LS	1	$ 150,000.00	$ 150,000.00
11	Import Trench Backfill	LF	17,100	$ 25.00	$ 427,500.00
Additional Cost for Construction Engineering					$ 343,675.00
Additional Cost for Preparation of Final Designs and Specifications					$ 343,675.00
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ 4,124,100.00
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 4,124,100.00
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ -

Nordic Ranches Water Master Plan Level I Study					
Conceptual Construction Cost Estimate					
Conditional Distribution Replacements					
Estimate Date August 2022					
Item #	**Description**	**Units**	**Estimated Quantity**	**Unit Cost**	**Estimated Cost**
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
NA					
Cost of Project Components Total (subtotal #1)					$ -
Construction Engineering Cost (subtotal #1 x 10%)					$ -
Components + Construction Engineering Costs (subtotal #2)					$ -
Contingency (subtotal #2 x 15%)					$ -
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ -
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ -
Permitting and Mitigation					$ -
Legal Fees (Title of Opinion Only)					$ -
Acquisition of Access and Rights of Way					$ -
Pre-construction Costs Total (subtotal #4)					$ -
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ -
WWDC INELIGIBLE PROJECT COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$ 100,000.00	$ 100,000.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$ 50,000.00	$ 50,000.00
3	6 - Inch Waterline w/Bedding	LF	4,200	$ 60.00	$ 252,000.00
4	8 - Inch Waterline w/Bedding	LF	4,600	$ 80.00	$ 368,000.00
5	10 - Inch Waterline w/Bedding	LF	3,400	$ 100.00	$ 340,000.00
6	Service Connections	EACH	45	$ 3,500.00	$ 157,500.00
7	Gravel Road Repair	LF	12,200	$ 15.00	$ 183,000.00
8	Valves	EACH	25	$ 4,500.00	$ 112,500.00
9	Fittings	EACH	100	$ 750.00	$ 75,000.00
10	Fire Hydrants w/Tee & Valve	EACH	10	$ 7,500.00	$ 75,000.00
11	Import Trench Backfill	LF	12,200	$ 25.00	$ 305,000.00
					-
Additional Cost for Construction Engineering					$ 201,800.00
Additional Cost for Preparation of Final Designs and Specifications					$ 201,800.00
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ 2,421,600.00
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 2,421,600.00
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ -

Nordic Ranches Water Master Plan Level I Study					
Conceptual Construction Cost Estimate					
100,000 Gallon Bolted Steel (Expandable to 200K) Tank					
Estimate Date August 2022					
Item #	**Description**	**Units**	**Estimated Quantity**	**Unit Cost**	**Estimated Cost**
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
NA					
Cost of Project Components Total (subtotal #1)					$ -
Construction Engineering Cost (subtotal #1 x 10%)					$ -
Components + Construction Engineering Costs (subtotal #2)					$ -
Contingency (subtotal #2 x 15%)					$ -
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ -
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ -
Permitting and Mitigation					$ -
Legal Fees (Title of Opinion Only)					$ -
Acquisition of Access and Rights of Way					$ -
Pre-construction Costs Total (subtotal #4)					$ -
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ -
WWDC INELIGIBLE PROJECT COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$37,500.00	$ 37,500.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$15,000.00	$ 15,000.00
3	Excavation, Grading and Back Fill	LS	1	$85,000.00	$ 85,000.00
4	100,000 Gallon Steel Bolted Storage Tank (200K Expandable)	LS	1	$400,000.00	$ 400,000.00
5	Concrete Foundation (Designed for 200K Gallon)	LS	1	$120,000.00	$ 120,000.00
6	Disinfection and Testing (Tank)	LS	1	$18,000.00	$ 18,000.00
7	Tank Piping	LS	1	$15,000.00	$ 15,000.00
8	Chain-link Security Fence	LS	1	$10,000.00	$ 10,000.00
9	SCADA/Telemetry Control Upgrades	EACH	1	$3,000.00	$ 3,000.00
10	Tank Mixer	LS	1	$15,000.00	$ 15,000.00
11	Temporary Storage (During Construction)	LS	1	$25,000.00	$ 25,000.00
12	Power Connection	LS	1	$7,500.00	$ 7,500.00
					-
Additional Cost for Construction Engineering					$ 75,100.00
Additional Cost for Preparation of Final Designs and Specifications					$ 75,100.00
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ 901,200.00
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 901,200.00
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ -

Nordic Ranches Water Master Plan Level I Study					
Conceptual Construction Cost Estimate					
200,000 Gallon Concrete Storage Tank					
Estimate Date August 2022					
Item #	**Description**	**Units**	**Estimated Quantity**	**Unit Cost**	**Estimated Cost**
WWDC ELIGIBLE PROJECT COSTS					
CONSTRUCTION COSTS					
NA					
Cost of Project Components Total (subtotal #1)					$ -
Construction Engineering Cost (subtotal #1 x 10%)					$ -
Components + Construction Engineering Costs (subtotal #2)					$ -
Contingency (subtotal #2 x 15%)					$ -
Construction Cost Total (subtotal #2 + Contingency) (subtotal #3)					$ -
PRE-CONSTRUCTION COSTS					
Preparation of Final Designs & Specifications (subtotal #1 x 10%)					$ -
Permitting and Mitigation					$ -
Legal Fees (Title of Opinion Only)					$ -
Acquisition of Access and Rights of Way					$ -
Pre-construction Costs Total (subtotal #4)					$ -
TOTAL WWDC ELIGIBLE PROJECT COST					
Total WWDC Project Cost (subtotal #3 + subtotal #4) (subtotal #5)					$ -
WWDC INELIGIBLE PROJECT COSTS					
1	Mobilization (5% Construction Costs)	LS	1	$40,000.00	$ 40,000.00
2	Site Restoration, Erosion Control & Cleanup	LS	1	$15,000.00	$ 15,000.00
3	Excavation, Grading and Back Fill	LS	1	$85,000.00	$ 85,000.00
4	200,000 Gallon Concrete Storage Tank	LS	1	$450,000.00	$ 450,000.00
5	Concrete Foundation	LS	1	$120,000.00	$ 120,000.00
6	Disinfection and Testing (Tank)	LS	1	$20,000.00	$ 20,000.00
7	Tank Piping	LS	1	$15,000.00	$ 15,000.00
8	Chain-link Security Fence	LS	1	$10,000.00	$ 10,000.00
9	SCADA/Telemetry Control Upgrades	EACH	1	$3,000.00	$ 3,000.00
10	Tank Mixer	LS	1	$15,000.00	$ 15,000.00
11	Temporary Storage (During Construction)	LS	1	$25,000.00	$ 25,000.00
12	Power Connection	LS	1	$7,500.00	$ 7,500.00
					-
Additional Cost for Construction Engineering					$ 80,550.00
Additional Cost for Preparation of Final Designs and Specifications					$ 80,550.00
Total WWDC Ineligible Project Costs Total (subtotal #6)					$ 966,600.00
TOTAL PROJECT COST					
Total Project Cost (subtotal #5 + subtotal #6)					$ 966,600.00
MATERIALS ONLY TOTAL					
Materials Only Total Project Cost ((subtotal #1 + (subtotal #1 x 10%))					$ -

J. Environmental Finance Center Network – Wyoming Funding Sources

Wyoming Water and Wastewater Funding Sources

Compiled by the Environmental Finance Center Network, June 2020

Organization	Program (key words)	Gov Entity	Non-For-Profit	Private/For-Profit	Purpose or Use of Funds	How to Apply	Web
Wyoming Office of State Lands and Investments	Drinking Water State Revolving Fund (DWSRF) *(water)*	✓			The Drinking Water State Revolving Fund (DWSRF) makes loans to public entities for improvements of drinking water systems, including source, treatment, storage, transmission and distribution.	Applicants must submit their project application form to the Office of State Lands and Investments.	https://lands.wyo.gov/grants-loans/loans/drinking-water-state-revolving-funds Beth Blackwell elizabeth.blackwell@wyo. 307-777-6373 Herschler Building, 3W 122 West 25th Street Cheyenne, Wyoming 82002
	Clean Water State Revolving Fund (CWSRF) *(sewer)*	✓			The Clean Water State Revolving Fund (CWSRF) makes loans to public entities for sanitary sewer treatment and collection, storm water control, landfill water pollution control, and other water pollution control projects.		https://lands.wyo.gov/grants-loans/loans/clean-water-state-revolving-funds
U.S. Environmental Protection Agency	Water Infrastructure Finance and Innovation (WIFIA) *(water, wastewater)*	✓	✓	✓	The Water Infrastructure Finance and Innovation Act (WIFIA) established the WIFIA program administered by EPA to finance water infrastructure projects. The WIFIA program offers low, fixed interest rates. The minimum project size for small communities, with a population of 25,000 or less, is $5 million.	The WIFIA application process has two phases. Prospective borrowers must submit a letter of interest (LOI) by the announced annual deadline. For the selected projects, the applicant must submit an application and close its loan. Please check the WIFIA website for more information about program deadlines.	https://www.epa.gov/wifia Arielle Gerstein wifia@epa.gov 202-566-1868 1200 Pennsylvania Avenue Mail code 4201T Washington, District of
	Water Infrastructure Improvements for the Nation Act: Assistance for Small and Disadvantaged Communities Drinking Water Grant *(water)*	✓			The program supports drinking water projects and activities in small and disadvantaged communities to enforce projects to comply with the Safe Drinking Water Act. Eligible for assistance are technical, managerial, and activities necessary to respond to a contaminant.		https://www.epa.gov/dwcapacity/wiin-grant-assistance-small-and-disadvantaged-communities-drinking-water-grant For state contact information visit: https://www.epa.gov/ground-water-and-drinking-water/drinking-

Compiled by the Environmental Finance Center Network. For the most up-to-date informa
http://efcnetwork.org/funding-sources-by-state/. To make corrections, contact the

Wyoming Water and Wastewater Funding Sources

Compiled by the Environmental Finance Center Network, June 2020

Organization	Program (key words)	Gov	Non-For-Profit	For-Profit	Purpose or Use of Funds	How to Apply	Web
Economic Development Administration, Department of Commerce	Public Works Program (water, sewer)	✓	✓		This program empowers distressed communities to revitalize, expand, and upgrade their physical infrastructure, and generate or retain long-term, private sector jobs and investment.	Applications can be accessed on www.grants.gov. EDA accepts applications on an ongoing basis until the publication of a new EDAP Federal Funding Opportunity.	https://www.eda.gov/funding-opportunities/
	Economic Adjustment Assistance Program (water, sewer)	✓	✓		This program assists state and local interests in planning and implementing strategies to adjust or bring about change in an economy. The program focuses on areas that have experienced or are under threat of serious structural damage to the underlying economic base.		
	Planning and Local Technical Assistance (water, sewer)	✓	✓		Through its Planning and Local Technical Assistance programs, EDA assists eligible recipients in developing economic development plans and studies that guide the economic prosperity and resilience of an entire region.		
National Rural Water Association	NRWA Revolving Loan Fund (water, wastewater)	✓	✓		The Rural Water Loan Fund (RWLF) is a funding program specifically designed to meet the unique needs of small water and wastewater utilities. The RWLF provides low-cost loans for short-term repair costs, small capital projects, and pre-development costs associated with larger projects. The RWLF was established through a grant from the USDA/Rural Utilities Service, and repaid funds are used to replenish the fund and make new loans.	Applications can be accessed online at the RWLF website and can be mailed in.	Mark Pepper markp@warws.com 307-259-6903 P.O. Box 1750 Glenrock, Wyoming 82637
Rural Community Assistance Corporation (RCAC)	Rural Community Assistance Corporation (RCAC) Environmental Infrastructure Loans (water, wastewater)	✓	✓		RCAC provides loans to finance water and waste water projects. RCAC loans can be made for feasibility studies, pre-development costs and construction prior to receipt of funding. RCAC can also make long term loans for projects serving your state mandated populations. Loans are accepted on a rolling basis.	Applications can be accessed on the website and sent to your state office.	Yvette Looknanan ylooknanan@rcac.org (530) 908-0391 3120 Freeboard Drive, Su West Sacramento, Califor
CoBank	Rural Water and Wastewater Lending (water, wastewater)	✓	✓	✓	CoBank works with rural water systems, municipalities, and non-profit corporations to provide interim and bridge financing and long-term debt, term loans for system improvements and refinancing of existing debt.	Applications can be accessed online at www.cobank.com/Rural-Lending/Water-and-Waste.	Bentley Hodges bhodges@cobank.com 303-793-2139 5340 South Fiddlers Gree Greenwood Village, Color

Wyoming Water and Wastewater Funding Sources

Compiled by the Environmental Finance Center Network, June 2020

Organization	Program (key words)	Gov	Non-Profit	For-Profit	Purpose or Use of Funds	How to Apply	Web	Contact
Wyoming Business Council	Community Development Block Grant (CDBG) (Water and Wastewater Program) (water, sewer)	✓			The Community Development Block Grant Program (CDBG) is a federally funded pass through grant program from the U.S. Department of Housing and Urban Development (HUD). The Business Council manages funds for all cities, towns and counties outside Casper and Cheyenne who receive their own allocations. The State of Wyoming receives an annual allocation.	THE CDBG program transition and applications at this time.	http://www.wyomingbusiness.org/content/community-development-block-grant-cdbg	Karen Fate karen.fate@wyo.gov 307-777-2827 214 West 15th Street Cheyenne, Wyoming 82002

Organization	Program (key words)	Gov	Non-For-Profit	For-Profit	Purpose or Use of Funds	How to Apply		Web
US Department of the Interior - Bureau of Reclamation	WaterSMART Grants: Water & Energy Efficiency Grants *(water, energy efficiency)*	✓			Through Water and Energy Efficiency Grants, Reclamation provides 50/50 cost share funding to irrigation and water districts, tribes, states and other entities with water or power delivery authority. Projects should seek to conserve and use water more efficiently, increase the production of hydropower, mitigate conflict risk in areas at high risk of future water conflict; and accomplish other benefits that contribute to water supply reliability in the western United States.	Funding Opportunity Announcement [illegible] 2020.	https://www.usbr.gov/watersma [illegible]	
	WaterSMART Small-Scale Efficiency Projects *(water efficiency)*	✓			Through Small-Scale Water Efficiency Projects, Reclamation provides 50/50 cost share funding to irrigation and water districts, tribes, states and other entities with water or power delivery authority. Projects support small-scale water management efforts (up to $75,000 in Federal funding for each project) that have been identified through previous planning efforts. Reclamation has developed a streamlined selection and review process to reflect the small-scale nature of these projects.	Funding Opportunity Announcement (BOR-DO-19-F005) was posted to [illegible] 2019. Proposals [illegible] until the application submission deadline of April 24, 2019.	https://www.usbr.gov/watersma [illegible]	Josh German jgerman@usbr.gov 303-445-2839 or Robin Graber rgraber@usbr.gov 303-445-2764 Building 67 (84-51000) P.O. Box 25007 Denver, Colorado 80225
	WaterSMART Grants: Water Marketing *(water marketing)*	✓			Through Water Marketing Strategy grants Reclamation provides 50/50 cost share funding to irrigation and water districts, tribes, states and other entities with water or power delivery authority. These grants provide meaningful support for entities exploring actions that can be taken to develop or facilitate water marketing. Under this funding opportunity applicants will be invited to conduct planning activities to develop a water marketing strategy to establish or expand water markets or water marketing transactions.	Funding Opportunity Announcement [illegible] posted to grants [illegible] 2019.	https://www.usbr.gov/watersma [illegible] /index.html	
	Title XVI Water Reclamation & Reuse Program *(water, wastewater)*	✓			Title XVI is Reclamation's water recycling and reuse program. Reclamation works with non-Federal partners to identify and investigate opportunities to reclaim and reuse wastewaters and impaired ground and surface water in the 17 Western states and Hawaii. Entities with Congressionally authorized projects or that are eligible under section 4009(c) of the Water Infrastructure Improvements for the Nation Act (WIIN) may seek competitive, cost-shared funding to plan, design and construct projects.	In FY 2019, Reclamation will be offering funding under the Title XVI Program for [illegible] Congressionally authorized Title XVI Projects.	https://www.usbr.gov/watersmart [illegible]	Amanda Erath aerath@usbr.gov 303-445-2766 Building 67 (84-51000) P.O. Box 25007 Denver, Colorado 80225 For regional specific co http://www.usbr.gov/wate cts.html

Organization	Program *(key words)*	Gov	Non-Profit	For-Profit	Purpose or Use of Funds	How to Apply	Web
	Drought Response Program: Drought Resiliency Projects *(water, drought)*			✓	Through the Drought Response Program, Reclamation provides 50/50 cost share funding to states and other entities. Projects should increase the resiliency to drought, improve water management; and benefit fish, wildlife, and the environment.	Funding Announcement (BOR-DO-19-F003) is available at www.grants.gov.	Darion Mayhorn dmayhorn@usbr.gov 303-445-3121 Building 67 (84-51000) PO Box 25007 Denver, Colorado 80225 https://www.usbr.gov/drought/
Small Business Administration (SBA)	504 Fixed Asset Program (Certified Development Company) *(small business)*			✓	The 504 Loan Program provides long-term, fixed-rate financing for expansion or modernization of small businesses through Certified Development Company community based partners.	For additional information on the 504 Loan Program, please contact your local SBA office or visit https://www.sba.gov/offices/headquarters/ofa/resources/4049	https://www.sba.gov/offices/headquarters/ofa/resources/4049
	7(a) Loan Guarantee *(small business)*			✓	The 7(a) program is a flexible tool that can be used to finance a variety of business purposes. Borrowers may use the loan may be used to purchase real estate, make improvements to land and buildings, and augment working capital or refinance existing debt under certain circumstances. The 7(a) program's maximum loan amount is $5 million. Other, more specific maximum loan amounts and different terms and guarantee percentages apply.	For additional information on the 7(a) Loan Guaranteed Program, please see the SBA website.	Steve Immel steven.immel@sba.gov 307-261-6508 150 East B Street Room 1 P.O. Box 44001 Casper, Wyoming 82602 https://www.sba.gov/document/?program=7(a)
	Community Advantage Pilot *(small business)*			✓	Community Advantage is a pilot initiative aimed at increasing the number of SBA 7(a) lenders who reach underserved communities, targeting mission-focused financial institutions which were previously not able to offer SBA loans. The maximum loan size is $250,000. Guarantee can be up to 85 percent for loans up to $150,000 and 75 percent for those greater than $150,000.	All small business applicants must complete SBA Form 1919, Borrower Information Form, and 2449, the Community Advantage Addendum. Lenders must complete SBA Form 1920.	
	Microloan Program *(small business)*			✓	The purpose of the Microloan Program is to assist women, low income, veteran, and minority owned small businesses in need of small amounts of capital. Under the Microloan Program, SBA makes funds available to Intermediaries that, in turn, make loans to eligible micro borrowers.		https://www.sba.gov/tools/local-assistance/microloan

Organization	Program *(key words)*	Gov	Non-Profit	For-Profit	Purpose or Use of Funds	How to Apply	Web
Live Oak Bank	Water and Environmental Programs (water, wastewater)	✓	✓	✓	Live Oak Bank provides USDA-guaranteed funding for rural communities and utilities looking to construct, enlarge, extend or otherwise improve rural drinking water, sanitary sewage (wastewater), solid waste disposal and stormwater drainage facilities. USDA guaranteed loans support rural communities with populations up to 50,000, which was increased from 10,000 in the 2018 Farm Bill. USDA-guaranteed loans feature fixed rates and terms up to 40-years, along with federal protection against unauthorized annexation. Live Oak Bank was named the 2019 Commercial Lender of the Year by USDA Rural Development, and is based in Wilmington, NC.	Contact the program specialist to apply	Matt Peeler mpeeler@liveoak.bank 910-790-5867 1765 Buron Drive Wilmington, North Carolina	https://communities.liveoak.bank/water-wastewater-financing/

K. Assessment and Financial Capacity Development Worksheets

Capacity Assessment Worksheets for Public Water Systems to Demonstrate Capacity Development

Department of Environmental Quality
Water Quality Division
August, 1999

Notes: These capacity assessment worksheets are provided to assist facilities in meeting the requirements of Section 5(b) of Chapter 22, Capacity Development Standards for Public Water Systems, but are not part of the chapter.

Please complete all 5 tabs of this spreadsheet. Put your answers in the boxes with yellow background.

For assistance with these worksheets please call DEQ/WQD State Revolving Fund Section at (307) 777-7781.

Introduction

Wyoming State Statute W.S. 16-1-303(e) requires all new or modified community and noncommunity nontransient water systems commencing operations after October 1, 1999 to demonstrate Capacity Development. Capacity Development covers three areas:

> ***Technical capability*** - the physical infrastructure of the water system, including but not limited to the source water adequacy, infrastructure adequacy, and technical knowledge. In other words, does your treatment system work the way it is supposed to? Are you providing the safest and cleanest water possible and required by law to your customers right now, and will you be able to in the future?
>
> ***Managerial capability*** - the management structure of the water system, including but not limited to ownership accountability, staffing and organization, and effective linkages. In simpler terms, do you have a capable and trained staff? Do you have an effective management structure?
>
> ***Financial capability*** - the financial resources of the water system, including but not limited to the revenue sufficiency, credit worthiness, and fiscal controls. Basically, does your system have a budget and enough revenue coming in to cover costs, repairs, and replacements?

If it is determined that your system does NOT have the required capability(s), the goal of this program is to move your system towards attaining the required capability(s). If you have questions concerning Capacity Development please call our office at **(307) 777-7781**, and we will be happy to help.

After Department of Environmental Quality/Water Quality Division (DEQ) receives these worksheets, we will be studying them and other information located in our files to make a determination whether or not your public water system has demonstrated Capacity Development. A final report will be available upon completion of the analysis.

Applicant:	**Nordic Ranches Water, LLC**
PWS Number:	**WY5601418**
Prepared by:	**Ryan Welling**
(include title)	**Erofessional Engineer - Forsgren Associates**
Address:	**P.O. Box 5354**
City, State, Zip:	**Etna, WY 83118**
Telephone:	**(307)654-2005**
Date:	**4/22/2022**

The Managerial Portion of your System

This portion applies to all new or modified community and nontransient noncommunity water systems. To be completed by individuals responsible for facility management, e.g. Public Works Director, City Engineer, Council, Board, Owner, etc. Please mark (X) the appropriate box: *Yes* , *No* , or *Unknown* for each question. Please try to determine the answer to every question. ***If a question or section does not apply to your system, please write NA next to the question or section for not applicable. If additional space is needed please attach additional sheet(s) and refer to number***

Operation & Maintenance			
Operations Staff	**Yes**	**No**	**Unknown**
1. Do the persons operating your system have current water treatment plant and water distribution operator certification credentials from DEQ? ***If yes, list operators & classifications:*** **Tanya DeJournett - Level I Distribution Operator**	X		
2. Do your operators receive training on an ongoing basis to keep current on new developments in the field?	X		
Future Operational Demands	**Yes**	**No**	**Unknown**
3. Does your water system obtain any regular or occasional technical assistance from outside sources, such as DEQ, your engineer, other utilities or organizations specifically dedicated to providing technical assistance? ***If yes, who*** : **Wyoming Public Service Commission**	X		
Management & Administration			
Who's in Charge?	**Yes**	**No**	**Unknown**
4. Is there a clear plan of organization and control for management and operation of the system? If yes please attach appropriate documentation.		X	
5. Are the limits of the operators' authority clearly defined?	X		
6. Are all the specific functional areas of operations and management assigned?	X		
7. Does everyone involved in operations know who is responsible for each area?	X		
8. Is someone responsible for scheduling work? ***If yes, who:*** **Tanya DeJournett - System Operator/Owner**	X		
Rules and Standards	**Yes**	**No**	**Unknown**
9. Do you have rules governing new hook-ups?	X		
10. Do you have a water main extension policy?		X	
11. Do you have standard construction specifications to be followed?		X	
12. Do you have measures to assure cross-connection control and backflow prevention?		X	
13. Do you have policies or rules describing customer rights and responsibilities?	X		
Regulatory Compliance Program	**Yes**	**No**	**Unknown**
14. Do you have approved SDWA monitoring/reporting requirements?	X		
15. Do you satisfy reporting requirements?	X		
16. Do you know how to obtain the most recent information on regulatory requirements?	X		
17. Do you know how to obtain an explanation of requirements?	X		
18. Do you maintain bacteriological records for five years and chemical records for 10 years?	X		
19. Do you know what to do in the event of a violation?	X		
Emergencies	**Yes**	**No**	**Unknown**
20. Do you have an Emergency Response Plan? If yes, please attach.		X	

21. Does everyone involved in operations know what they are to do in the event of contamination from a toxic hazardous waste spill in your source water or a main break or a tank failure?	X		
22. Do you have a chain-of-command protocol for emergency action?	X		
23. Is someone responsible for emergency operations, for communications with regulators, for customer relations, for media relations? ***If yes, who (title):*** **Tanya DeJournett - System Operator/Owner**	X		

Safety	**Yes**	**No**	**Unknown**
24. Do you have a safety program defining measures to be taken if someone is injured? If yes, please attach.		X	
25. Do operators understand the risks and safety measures involved in handling water treatment chemicals?	X		
26. Do you have written operating procedures for both routine and emergency system operations? If yes, please attach.		X	
27. Are you fully aware of Occupational Safety and Health Administration (OSHA) confined space (such as trenches/manholes) regulations?	X		

Maintenance	**Yes**	**No**	**Unknown**
28. Do you have a planned maintenance management system -- a system for scheduling routine preventive maintenance?		X	
29. Do you have a system for assuring adequate inventory of essential spare parts and back-up equipment? ***If yes, please describe:***		X	
30. Do you have relationships with contractors and equipment vendors to assure prompt priority service?	X		
31. Do you have records and data management systems for system operating and maintenance data, for regulatory compliance data, and for system management and administration?	X		

Management Capability	**Yes**	**No**	**Unknown**
32. Do you receive outside services and technical assistance you need?	X		
33. Do you have adequate legal counsel, insurance, engineering advice, technical/operations assistance and financial advice?	X		

The Financial Portion of your System

This portion applies to all new or modified community and nontransient noncommunity water systems. To be completed by individuals responsible for facility finances, e.g. public works director, city engineer, clerks, council, board, owner, etc. Please mark (X) the appropriate box: *Yes*, *No*, or *Unknown* for each question. Please try to determine the answer to every question. ***If a question or section does not apply to your system, please write NA next to question or section for not applicable.***

Financial Planning Mechanisms	**Yes**	**No**	**Unknown**
34. Do you have an annual budget?			**NA**
35. Do you have within the annual budget a separate reserve account for equipment replacement and/or capital improvement?	X		
36. Do you have a capital budget or capital improvement plan that projects future capital investment needs some distance (at least four years) into the future?		X	
37. Do you have a process to schedule and commit to capital projects?		X	
38. Does your long-term planning incorporate analysis of alternative strategies that might offer cost saving to customers, such as consolidation with other nearby systems or sharing of operations and management expenses with other nearby systems?		X	
Rates/Billing	**Yes**	**No**	**Unknown**
39. Do you regularly review your rates? ***How often?*** **As Needed**		X	
40. Do you have a plan in place for periodic rate increases?		X	
41. Is the rate structure based on metered watered use? ***List water rates per 1000 gallons or attach rate schedule:*** **Base Rate: $78.39 (10,000 gallons) - $1.60 per 1,000 gallons up to 20,000 gallons, $2.20 per 1,000 gallons above 20,000 gallons**	X		
42. Do users pay a higher rate per 1000 gallons as they use more water?	X		
43. Do you have procedures for billing and collection?	X		
44. Is your billing collection rate greater than 95%?	X		
45. Do you have collection procedures for delinquent accounts?	X		
Financial Planning Mechanisms - Are they Adequate?	**Yes**	**No**	**Unknown**
46. Do you have audited financial statements?	X		
47. Does your water system presently operate at least on a break-even basis?	X		
48. Does the water system keep all the water revenues (i.e., water revenue does not support other municipal departments or unrelated activities)?	X		
49. Do you employ standardized accounting and tracking systems?			X
50. Please describe accounting system(s), e.g. GAAP, manual book entry, software program **NA**			
51. Do you keep records to substantiate depreciation of fixed assets and accounting for reserve funds?	X		
52. Are financial management record keeping systems organized?	X		
53. Are controls exercised over expenditures?	X		
54. Are controls exercised to keep from exceeding your budget?	X		
55. Are there purchasing procedures?	X		

Financial Spreadsheet

56. Please complete the financial spreadsheet

5 YR. Projections	Last Year	Current Year	Year 2 Est.	Year 3 Est.	Year 4 Est.	Year 5 Est.
1. Beginning Cash on Hand		$0.00	$0.00	$0.00	$0.00	$0.00
2. Operating revenues (see 13)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
3. Other receipts						
4. Total Available Cash (1+2+3)	See Financial Capacity Worksheets					
5. O&M and Replace. Expenses						
6. Debt Service						
7. Capital Improvements						
8. Other Expenses						
9. Total Cash Paid (5+6+7+8)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
10. Next Year's Begin. Cash (4-9)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
11. Number of Customer Accounts						
12. Average annual Account Charge						
13. Operating Revenue (11X12)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

The Technical Portion of your System

For existing water systems the technical capacity development assessment may be performed by completing the NEW WATER SYSTEM TECHNICAL CAPACITY WORKSHEET or by providing a copy of the most recent sanitary survey along with an action plan and schedule to address any deficiencies identified by the division in the sanitary survey.

For new water systems the **"NEW WATER SYSTEM TECHNICAL CAPACITY WORKSHEET"** needs to be completed to assess technical capacity.

NEW WATER SYSTEM TECHNICAL CAPACITY WORKSHEET

The Technical Portion of Your System-For New Water Systems

To be completed by individuals responsible for facility operation, e.g. Public works director, city engineer, council, board, owner. Please mark (X) the appropriate box: *Yes, No*, or *Unknown* for each section. Please try to determine the answer to every question. ***If a section or question does not apply to your system, please write NA next to the section or question for not applicable.***

Water Supply and Existing Demands	**Yes**	**No**	**Unknown**
57. Do you know your estimated average daily demand? Amount: **61,238 GPD**	X		
58.Do you know your maximum daily demand? Amount: **139,439 GPD**	X		
59. Do you know the maximum amount of water you can deliver from your source? Amount: **320 gpm**	X		
60. Is your source capacity higher than your maximum daily demand? Percentage higher or lower: **330% Higher**	X		
61. Can you meet peak demand without pumping at peak capacity for extended periods?	X		
62. Do you have an Emergency Response Plan that will allow you to meet system demand during a drought or shortage, such as the loss of the largest source? If yes, please attach.		X	
Water Demand	**Yes**	**No**	**Unknown**
63. Do you know whether your system demands will be growing, declining or remaining stable over the next ten years? If yes, please indicate below whether growing, declining, or stable. **Moderatley Growing**	X		
64. Does your source have additional water available for appropriation?	X		
65. If you have large commercial, industrial, or irrigation users, do you know their long-term plans and understand their needs?			NA
Purchased Water	**Yes**	**No**	**Unknown**
66. If you purchase water from another system or a wholesaler, do you know their long-term plans?			NA
67. Do you have a contract to purchase water? ***If yes, with whom?***			NA
68. Do you know the terms affecting your supply during drought conditions?			NA
Competing Uses of Water	**Yes**	**No**	**Unknown**
69. Do you know who the other users are and do you understand their future plans?			NA
70. Do you fully understand your legal rights to the water?			NA
71. Do you have a water right?	X		
Alternative Sources	**Yes**	**No**	**Unknown**
72. Are alternative water sources possibly available to you?			X
73. Are you knowledgeable of the characteristics and costs of using alternative sources?			X

Water Source	Yes	No	Unknown
74. Do you know the depth of your well(s)? ***Depth(s):*** **Well #1 - 360-feet, Well #2 - 550-feet, Well #4 - 603-feet**	X		
75. Do you know the geologic name of the aquifer system from which your water is drawn? ***If yes, geologic name :*** *Salt Lake Formation*	X		

Treatment - Microbiological Contamination	Yes	No	Unknown
Is your system using surface water or ground water under the influence of surface water? **(If you checked "no" skip to next section - Ground Water Systems.)**		X	

Surface Water Systems

Filtration Plant Condition	Yes	No	Unknown
76. Are repair parts available?			X
77. Do you have redundancy (back-ups/automatic switch-overs) for all major mechanical units? If no, list units you do NOT have redundancy for:			X
78. Do you have on-line continuous turbidimeters on each filter?			X
79. Have you adopted a turbidity goal lower than the standard?			X
80. Do you have the capability to add coagulant before the filter?			X

Ground Water Systems	Yes	No	Unknown
81. Is your Ground Water Under the Influence of Surface Water?		X	
82. Is your water free from variations in turbidity and temperature after storm events?	X		

Well Construction and Protection	Yes	No	Unknown
83. Is your well(s) constructed to current Wyoming regulations?	X		
84. Do you have an approved wellhead/source water protection plan?		X	
85. Is your wellhead finished with a pitless adapter that will prevent contamination from surface water?	X		

Disinfection	Yes	No	Unknown
Do you disinfect? (if "no", skip to the Infrastructure - Pumping section)		X	

Disinfection	Yes	No	Unknown
86. Do you regularly inspect and maintain your disinfection/chlorination equipment?			X
Type of Equipment: *X*			
How often? **X**			
Disinfectant used: **X**			
87. Do you have back-up equipment? ***Type:***			X
88. Do you have adequate contact time following disinfection and before the first user in the distribution system? ***Contact time:***			X
89. Can you detect a chlorine residual at taps at the ends of the distribution system? ***Free Chlorine Residual:***			X

Disinfection By-Products			
Treatment for the Control of Disinfection By-Products	**Yes**	**No**	**Unknown**
90. If you treat surface water, could you adopt "enhanced coagulation" in your current plant?			X
91. If you treat surface water, could you still meet current contact-time requirements if disinfection were not allowed before sedimentation?			X

Infrastructure - Pumping			
Condition of Pumping Equipment	**Yes**	**No**	**Unknown**
92. Do you routinely inspect for signs of pump/motor problems? ***How often:*** **Daily from SCADA system**	X		
93. Do you hire a qualified pump contractor to perform an inspection of all pumping equipment, identify potential problems, and perform maintenance, on an annual basis? ***Explain:*** **As Needed**		X	

Standby/Emergency Power Equipment	**Yes**	**No**	**Unknown**
94. Is there sufficient standby/emergency power capacity to supply 100% of the average daily demand of the system (excluding fire demand)?	X		
95. Are any existing standby/emergency power equipment, controls and switches tested or exercised routinely under load conditions, for at least 30 minutes at a time?	X		
96. Has the local electric utility been made aware of the standby/emergency power provisions made by the water system, so that it can reinforce and safeguard the electrical facilities serving the water operations?	X		

Infrastructure - Storage			
Storage Capacity	**Yes**	**No**	**Unknown**
97. Does the system have sufficient gravity-flow (non-pumped) or emergency generator-supported pumping capability to ensure adequate distribution storage to provide safe and adequate service for up to 24 hours without power? ***If no, how long:***	X		
98. Is there reserve capacity in the tank for fire protection support? ***Amount:***		X	

Security Measures	**Yes**	**No**	**Unknown**
99. Are all openings, such as vent pipes, screened to protect against the entrance of small animals, mosquitoes, flies and other small insects?	X		
100. Is there an entry hatch to allow access for cleaning and painting of the interior of the tank?	X		
101. Is your storage tank covered?	X		
102. Is the tank and the immediate surrounding area fenced?	X		

Control Systems	**Yes**	**No**	**Unknown**
103. Is there a high/water level signal system to control the pumps?	X		
104. Is there an altitude valve, to preclude the tank from overflowing?	X		
105. Is there a drain valve or hydrant to allow for draining of the tank?	X		
106. Is there an approved method for draining the tank, including any required discharge permits? ***If yes, list Surface Water Discharge permit number:***		X	

Tank Maintenance	**Yes**	**No**	**Unknown**
107. Will the tank be inspected at least every five years by a qualified tank contractor for evidence of corrosion or pitting, leakage, and structural weakness?			X

Infrastructure - Distribution			
System Maintenance	**Yes**	**No**	**Unknown**
108. Will the operator routinely flush, test, and maintain the hydrants in the system? **How often:** **As needed**			X
109. Are the locations of valves in the mains and curb stops on the service lines precisely known?		X	
110. Will the system keep a log of distribution system breaks to identify weak areas in the system?			X
111. Are locations, size, and type of mains and service lines detailed on records in a secure area?	X		
112. Will all valves be exercised and lubricated periodically?		X	
113. Will an O&M manual be developed for the systems?		X	
114. Will meter pits, pressure regulating valves, altitude valves, blow-offs, and other appurtenances be maintained on a regular basis?	X		
Water Quality in Distribution System	**Yes**	**No**	**Unknown**
115. Is there a program for installing and testing backflow prevention devices where potential contamination is present?		X	
116. Is there a program to eliminate "dead-ends" in the mains, where feasible?		X	
Construction Standards	**Yes**	**No**	**Unknown**
117. Are there suitable rights-of-way and easements provided to the water system for expansion, maintenance, and replacement of mains and services?	X		
118. Is there sufficient earth cover to protect the mains from frost damage or heavy loads, if driven over?	X		
119. Are materials of mains designed and selected to resist corrosion, electrolysis, and deterioration?	X		
120. Can you maintain adequate pressure in the distribution system under all conditions of flow?	X		
121. Are you familiar with Wyoming Water Quality Rules and Regulations Chapters 3 and 12 for construction permitting?	X		

CAPACITY DEVELOPMENT

Additional Financial Worksheets for DWSRF Loan Recipients and New Community Water Systems (CWS) and New Non-Transient Non-Community Water Systems

SUMMARY

Five Year Projections	Last Year Actual	Current Year Budget	Year 2 Projected	Year 3 Projected	Year 4 Projected	Year 5 Projected
Beginning Cash on Hand	$61,368	$61,368	$61,878	$66,299	$71,481	$69,800
Add:						
Cash Receipts (worksheet 1, 5T)	$202,295	$206,710	$208,631	$211,680	$213,687	$216,825
Less:						
Operating Expenditures (worksheet 2, 8T)	$102,445	$106,200	$104,210	$106,498	$111,868	$114,323
Debt Service (worksheet 3, 9T)	$99,850	$76,500	$76,500	$76,500	$80,000	$80,000
Capital Improvements (worksheet 4, 10T)	$0	$0	$0	$0	$0	$0
Deposits to Reserves (worksheet 5, 11T)	$0	$23,500	$23,500	$23,500	$23,500	$23,500
Ending Cash on Hand	$61,368	$61,878	$66,299	$71,481	$69,800	$68,802

Number of Customer Accounts	173	175	176	178	179	181
Average Annual User Charge per account	$1,166.68	$1,180.67	$1,182.20	$1,188.21	$1,188.30	$1,192.81
Coverage Ratio ((3T-8T)/9T)	1.00	1.31	1.36	1.37	1.27	1.28
Operating Ratio (1T/8T)	1.97	1.94	2.00	1.98	1.90	1.89

Applicant: Nordic Ranches Water, LLC
Completed by: Ryan Welling, P.E. - Forsgren Associates
Date: April 22, 2022

WORKSHEET 1 - RECEIPTS

Five Year Projections	Last Year Actual	Current Year Budget	Year 2 Projected	Year 3 Projected	Year 4 Projected	Year 5 Projected
1. Cash Receipts From Water Revenues:						
a. Unmetered Water Revenue	$6,648	$6,210	$6,521	$6,847	$7,189	$7,548
b. Metered Water Revenue	$185,013	$190,000	$191,086	$193,257	$194,343	$196,514
c. Other Water Revenue	$10,175	$10,000	$10,500	$11,025	$11,576	$12,155
1T. Total Water Revenues (1a thru 1c)	$201,836	$206,210	$208,106	$211,129	$213,108	$216,218
2. Cash Receipts From Other Income						
a. Connection Fees						
b. Interest and Dividend Income						
c. Other	$459	$500	$525	$551	$579	$608
2T. Total Other Income (2a thru 2c)	$459	$500	$525	$551	$579	$608
3T. Total Cash Revenues (1T + 2T)	$202,295	$206,710	$208,631	$211,680	$213,687	$216,825
4. Other Cash Receipts						
a. Transfers in						
b. Loans, Grants or other Cash Received						
(please specify)						
4T. Total Other Cash Receipts (4a + 4b)	$0	$0	$0	$0	$0	$0
5T. Total Cash Receipts (3T + 4T)	$202,295	$206,710	$208,631	$211,680	$213,687	$216,825

WORKSHEET 2 - OPERATING EXPENDITURES

Five Year Projections	Last Year Actual	Current Year Budget	Year 2 Projected	Year 3 Projected	Year 4 Projected	Year 5 Projected
6. Operating Expenses						
a. Salaries and wages	$55,373	$56,000	$57,680	$59,410	$61,193	$63,028
b. Employee Pensions and Benefits	$0					
c. Purchased Water	$0					
d. Purchased Power	$7,186	$6,500	$6,630	$6,763	$6,898	$7,036
e. Fuel for Power Production						
f. Chemicals						
g. Materials and Supplies	$1,145	$1,500	$1,575	$1,654	$1,736	$1,823
h. Contractual Services - Engineering	$2,798	$5,000	$2,500	$2,500	$3,000	$3,000
i. Contractual Services - Other	$8,390	$6,200	$5,000	$5,000	$5,500	$5,500
j. Rental of Equipment/Real Property	$6,700	$7,000	$7,070	$7,141	$7,212	$7,284
k. Transportation Expenses	$1,090	$2,000	$2,200	$2,420	$2,662	$2,928
l. Laboratory						
m. Insurance	$5,416	$5,500	$5,555	$5,611	$5,667	$5,723
n. Regulatory Commission Expenses		$2,000	$2,000	$2,000	$2,500	$2,500
o. Advertising						
p. Miscellaneous	$8,179	$8,000	$8,000	$8,000	$8,500	$8,500
q. other	$6,168	$6,500	$6,000	$6,000	$7,000	$7,000
6T. Total Operating Expenses (6a thru 6p)	$102,445	$106,200	$104,210	$106,498	$111,868	$114,323
7. Replacements:						
a. Replacement Expenditures						
Depreciation Expenses						
b. Other						
(please specify)						
7T. Total Replacement Expenditures	$0	$0	$0	$0	$0	$0
8T. Total OM&R Expenditures (6T+ 7T)	$102,445	$106,200	$104,210	$106,498	$111,868	$114,323

WORKSHEET 3 - DEBT SERVICE

Five Year Projections	Last Year Actual	Current Year Budget	Year 2 Projected	Year 3 Projected	Year 4 Projected	Year 5 Projected
9. Debt Service						
a. Capital Lease Payments						
(name, number, or description for each)						
b. Loan Principal Repayments						
(name, number, or description for each)						
c. Loan Interest Payments						
(namer, number, or description for each)						
d. Transfers Out	$99,850	$76,500	$76,500	$76,500	$80,000	$80,000
9T. Total Debt Service/Transfers Out	$99,850	$76,500	$76,500	$76,500	$80,000	$80,000

WORKSHEET 4 - CAPITAL IMPROVEMENTS

Five Year Projections	Last Year Actual	Current Year Budget	Year 2 Projected	Year 3 Projected	Year 4 Projected	Year 5 Projected
10. Capital Improvements (briefly describe each project)						
(project description)						
10T. Total Capital Improvements	$0	$0	$0	$0	$0	$0

WORKSHEET 5 - DEPOSITS TO RESERVES

Five Year Projections	Last Year Actual	Current Year Budget	Year 2 Projected	Year 3 Projected	Year 4 Projected	Year 5 Projected
11. Deposits to Reserves:						
a. Debt Service Reserve						
b. Bond Retirement Reserve						
c. Capital Improvement Reserve						
d. Replacement Reserve	$0	$10,000	$10,000	$10,000	$10,000	$10,000
e. Emergency Reserve	$0	$7,500	$7,500	$7,500	$7,500	$7,500
e. O & M Reserve	$0	$6,000	$6,000	$6,000	$6,000	$6,000
11T. Total Deposits to Reserves (11a thru 11e)	$0	$23,500	$23,500	$23,500	$23,500	$23,500

L. 2020 Wyoming Census Data, the Population and Housing Units By Census Block Link

http://eadiv.state.wy.us/demog_data/pop2020/pop20.html

M. Consumer Confidence Reports (2018-2020)

2018 Annual Water Quality Report

Nordic Ranches

PWS WY5601418

Is my water safe?

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies. Last year, we conducted tests for over 80 contaminants. We only detected 8 of those contaminants, and found only 1 at a level higher than the EPA allows. As we informed you at the time, our water temporarily exceeded drinking water standards. (For more information see the section labeled Violations at the end of the report.)

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

Where does my water come from?

Our water source consists of three ground water wells.

Source water assessment and its availability

You can request a copy from our office located at 370 Pitrun Rd., Etna, WY.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water

Hotline (800-426-4791). The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity: microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

How can I get involved?

We want our valued customers to be informed about their water utility. If you want to learn more, please Email nrw@silverstar.com with any questions that come to mind.

Water Conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
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- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
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Monitoring and reporting of compliance data violations

CCR Report
07/01/2018 to 12/31/2019

We failed to provide you an annual report that informs you about the quality of our drinking water and characterizes the risks from exposure to contaminants detected in our drinking water.

Additional Information for Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Nordic Ranches Water, LLC is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

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In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Inorganic Contaminants								
Nitrate [measured as Nitrogen] (ppm)	10	10	3.52	.18	3.52	2018	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
								deposits
Sodium (optional) (ppm)	NA		2	1.7	2	2015	No	Erosion of natural deposits; Leaching
Thallium (ppb)	.5	2	1.4	NA	1.4	2015	No	Discharge from electronics, glass, and Leaching from ore-processing sites; drug factories
Radioactive Contaminants								
Alpha emitters (pCi/L)	0	15	2.3	2.1	5.7	2017	No	Erosion of natural deposits
Radium (combined 226/228) (pCi/L)	0	5	2.4	NA	1.6	2017	No	Erosion of natural deposits
Uranium (ug/L)	0	30	.3	NA	1.4	2017	No	Erosion of natural deposits

Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source
Inorganic Contaminants							
Copper - action level at consumer taps (ppm)	1.3	1.3	.082	2018	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Inorganic Contaminants							
Lead - action level at consumer taps (ppb)	0	15	17	2018	1	No	Corrosion of household plumbing systems; Erosion of natural deposits

Exceedances
Lead - action level at consumer taps Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. NA NA

Unit Descriptions	
Term	**Definition**
ug/L	ug/L : Number of micrograms of substance in one liter of water
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ppb	ppb: parts per billion, or micrograms per liter (µg/L)
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
NA	NA: not applicable
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NR	NR: Monitoring not required, but recommended.

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MRDLG	MRDLG: Maximum residual disinfection level goal. The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	MRDL: Maximum residual disinfectant level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MNR	MNR: Monitored Not Regulated
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For more information please contact:

Contact Name: Tanya DeJournett
Address: P.O. Box 5354
Etna, WY 83118
Phone: (307) 654-2005

2019 Annual Water Quality Report

Nordic Ranches Water, LLC

PWS WY5601418

Is my water safe?

We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. We are committed to providing you with information because informed customers are our best allies.

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

Where does my water come from?

Our water source consists of three ground water wells.

Source water assessment and its availability

You can request a copy from our office located at 370 Pit Run Rd., Etna, WY.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791). The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or

from human activity:
microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

How can I get involved?

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- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
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Monitoring and reporting of compliance data violations

CCR REPORT
07/01/2018 – 12/31/2019
The Consumer Confidence Rule requires community water systems to prepare and provide to their customers annual consumer confidence reports on the quality of the water delivered by the system. We failed to submit our 2017 CCR to EPA by the July 1st deadline. The CCR was distributed to our consumers by July 1st 2018 deadline.

Additional Information for Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Nordic Ranches Water, LLC is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Water Quality Data Table

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				Low	High			
Inorganic Contaminants								
Nitrate [measured as Nitrogen] (ppm)	10	10	3.2	0.17	3.2	2019	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium (optional) (ppm)	NA		2.1	1.9	2.1	2017	No	Erosion of natural deposits; Leaching

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
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Alpha emitters (pCi/L)	0	15	2.3	NA	NA	2017	No	Erosion of natural deposits
Radium (combined 226/228) (pCi/L)	0	5	2.4	NA	NA	2017	No	Erosion of natural deposits
Uranium (ug/L)	0	30	0.3	NA	NA	2017	No	Erosion of natural deposits

Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source
Inorganic Contaminants							
Copper - action level at consumer taps (ppm)	1.3	1.3	0.12	2019	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead - action level at consumer taps (ppb)	0	15	3	2019	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

Unit Descriptions	
Term	**Definition**
ug/L	ug/L : Number of micrograms of substance in one liter of water
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For more information please contact:

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2020 Annual Water Quality Report

Nordic Ranches Water, LLC

PWS WY5601418

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from human activity:
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Radioactive Contaminants								
Radium (combined 226/228) (pCi/L)	0	5	1.8	1.2	1.8	2020	No	Erosion of natural deposits

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For more information please contact:

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N. 2018 Nordic Ranches Water Storage Tank Inspections

Midco
Diving & Marine Services, Inc.

Report of Procedures and Findings From the Cleaning and Inspection of the

Reservoir #1
Nordic Ranch Water
Etna, WY

By
Midco Diving & Marine Services, Inc.

800.479.1558
www.midcodiving.com
info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

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800.479.1558
www.midcodiving.com
info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Midco
Diving & Marine Services, Inc.

November 8, 2018

Nordic Ranch Water
Attn: Jake Edwards
P.O Box 3258
Alpine, WY 83128

INTRODUCTION

The following is a summary of a visual and video inspection of The Reservoir #1 for Nordic Ranch Water of Etna, WY. This inspection was undertaken on September 6, 2018 by Midco Diving & Marine Services, Inc., of Rapid City, SD. The findings of this inspection report are a supplement to the inspection video and worksheets, which are found under the same cover.

The Reservoir, which is the subject of this report, appears to be of conventional design and construction.

METHODOLOGY

The reservoir was inspected by a surface-supplied commercial air diver. The diver was equipped with real-time high-definition color video and a LED lighting system as well as live voice communication between the inspecting diver and the surface team. All procedures were carried-out in accordance with Midco Diving's *Standards and Procedures*. Prior to entering your reservoir the diver and equipment were disinfected with a 200 parts per million chlorine solution per ANSI/AWWA C652-11 standards.

EXTERIOR FINDINGS

Upon visual inspection of the exterior of the structure, the reservoir appears to be in good condition, with the following findings noted:

1. Coating failure with corrosion & staining noted.


INTERIOR FINDINGS

Upon visual inspection of the structure above and below the water line, the overall condition of the tank appears to be in good condition, with the following findings noted:

1. Up to ¼" of sediment with staining noted.
2. Areas of coating failure with corrosion noted.


DISCLAIMER

Midco Diving & Marine Services, Inc. does not provide consulting engineering services, nor do we employ licensed Professional Engineers. The findings contained herein were neither prepared or reviewed by a licensed engineer, but are based on the visual examination, experience, and training of the inspecting diver and dive support crew.

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Nordic Ranch Water

JOB NUMBER:	**P2017285**
UTILITY:	**Nordic Ranch Water**
DATE:	**September 6, 2018**
MANAGER:	**Jake Edwards**
ADDRESS:	**P.O Box 3258**
	Alpine, WY 83128

DIVE TEAM LEADER: **Derek Wilt**

Reservoir:	**Reservoir #1**
Gallons:	**10KG**
Construction:	**Steel Welded**

Recommendations:

1. **Re-coat roof vent & access hatch to prevent deterioration.**
2. **Monitor noted areas of coating failure with corrosion.**
3. **Have Midco Diving & Marine Services, Inc. clean and inspect every 3-5 years.**

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N/A - Not applicable
Excellent (Ex) - Like new condition, no maintenance needed.
Good - Cosmetic only problems, maintenance if wanted.
Fair - Minor problems, maintenance needed, not immediate.
Poor - Major problems, structural or like, immediate maintenance needed.

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Site Security	X					
Gate	X					
Fence	X					
Locks	X					
Alarm	X					
Reservoir Exterior	X					
Coating	X					
Foundation	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Roof	X					
Coating	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Ladder	X					
Coating	X					
Caged	X					
Safety Climb	X					
Roof Vents			X			**Size: 4”** **Height: 63”**
Coating	X					**Corrosion & Staining Noted**
Screen			X			
Side Vents	X					
Coating	X					
Screen	X					
Exterior Telemetry	X					
Coating	X					
Functioning	X					

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Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Manual Level Indicator	X					
Tag	X					
Cable	X					
Indicator	X					
Pulleys	X					
Base	X					
Man Entries	X					
Coating	X					
Gasket	X					
Exterior Inlet	X					
Coating	X					
Valve	X					
Exterior Outlet	X					
Coating	X					
Valve	X					
Exterior Drain/Scour			X			
Coating	X					
Valve			X			
Exterior Water Tap	X					
Coating	X					
Valve	X					
Exterior Overflow			X			**Size: 8”**
Coating	X					
Stand-offs	X					
Screen			X			**Type: Screen**
Access Hatch			X			**Size: 24”**
Weather Stripping			X			
Coating				X		**Coating Failure with Corrosion Noted**
Hinges			X			
Lock			X			
Safety Railing	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Ladder	X					
Caged	X					
Safety Climb	X					
Telemetry Sensor	X					
Functioning	X					
Float	X					
Guide Wires	X					
Interior Floor			X			
Coating			X			
Sediment			X			**Depth: Up to ¼" of Sediment Noted**
Seams/Joints			X			
Interior Walls			X			
Coating			X			**Staining Noted**
Seams/Joints			X			
Interior Ceiling			X			
Coating			X			
Rafters	X					
Interior Man Entries	X					
Coating	X					
Gasket	X					
Support Columns	X					
Coating	X					
Base	X					
Top	X					
Cathodic Protection	X					
Anodes	X					
Wires	X					
Sacrificial Anodes	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Overflow Pipe			X			
Coating			X			**Coating Failure with Corrosion Noted**
Top/Cap	X					
Connections/Flange	X					
Interior Inlet			X			**Size: 6 ½"**
Coating			X			
Riser	X					
Interior Outlet			X			**Size: 6 ½"**
Coating			X			
Riser	X					
Interior Drain/Scour			X			**Size:2 ½"**
Coating			X			**Coating Failure with Corrosion & Staining Noted**
Riser	X					
Interior Water Tap	X					
Coating	X					
Valve	X					

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Cleaning Reservoir

Cleaning Reservoir

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info@midcodiving.com
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Typical Floor

Floor to Wall Seam & Drain

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info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Typical Wall - Staining Noted

Overflow Plumbing/Roof Vent – Staining Noted

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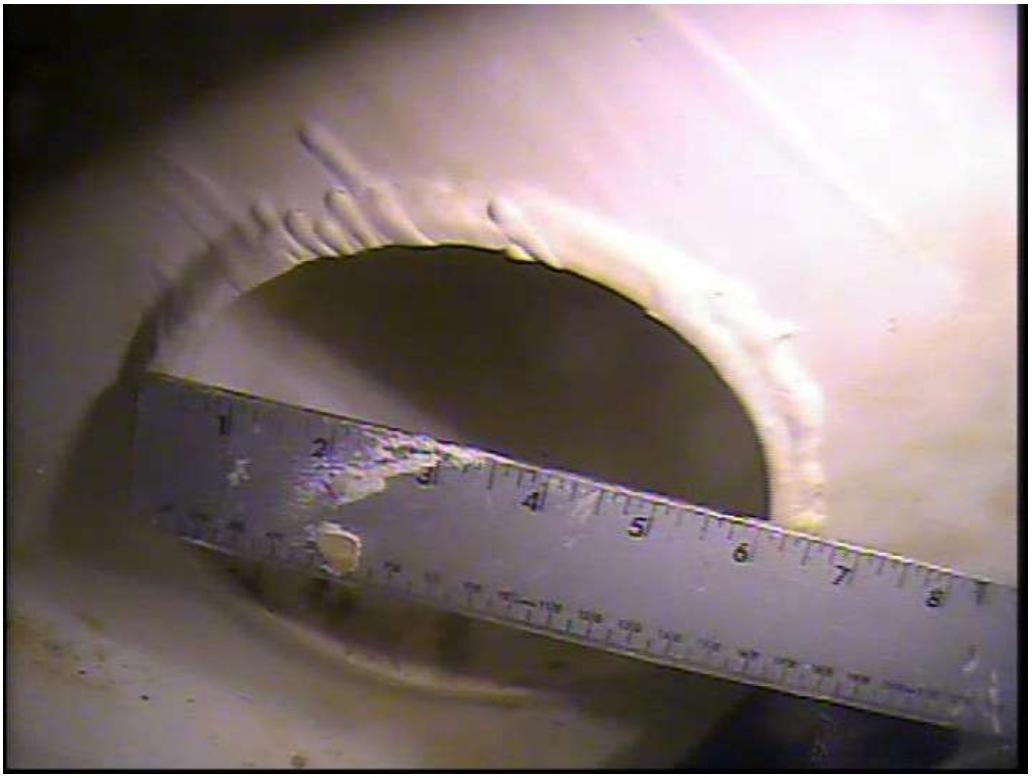

Common Inlet/Outlet

Drain Plumbing – Coating Failure with Corrosion Noted

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Roof Vent Screen

Roof Vent

800.479.1558
www.midcodiving.com
info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Access Hatch

Overflow Plumbing

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Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Roof Vent - Deterioration Noted

Exterior Reservoir

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EPA Region 8 Drinking Water Unit Finished Water Storage Tank Inspection/ Cleaning Checklist Fill out one checklist per storage tank & submit labeled photos of each tank component with this form		
Public Water System Name: Nordic Ranch Water	Public Water System ID:	
Reservoir Name: Reservoir #1	Reservoir ID: P2017275	
Proposed Inspection Date: September 6, 2018	Actual Inspection Date: September 6, 2018	
Name of Person Filling Out Form: Coral R. Braun	Title of Person Filling Out Form: Office Assistant	
I certify that this information is complete and accurate: Yes *Coral R. Braun*		Date: November 8, 2018

Inspector Qualifications (answer to all questions must be "yes")	
Name and contact information of inspector or inspection company: **Midco Diving & Marine Services, Inc.**	
☒ Yes ☐ No	Has the inspector completed confined space training?
☒ Yes ☐ No	Did the inspector have a confined space entry permit?

Overall Tank Condition				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Does the tank appear to be structurally sound?	If no, what repairs are suggested by the tank inspector?		
☐ Yes ☒ No	Are there any unprotected openings in the tank (breaches, leaks, daylight coming through tank in spots, etc.)	If yes, indicate type of breach and how it should be repaired.		

Air Vent				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Above Ground Tanks (Ground Level or Elevated)			☒ Check if NA	
☐ Yes ☐ No ☐ N/A	Downturned vent: Is the vent at least 24" or 3 pipe diameters above the roof?	If no reconfigure vent to provide proper air gap.		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is there a solid cover down to the bottom of the vent screen?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is the screen at least 8" above the roof surface? What is the height of the start of the screening above the tank?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Is the vent covered with #24 mesh corrosion resistant screening (some exceptions apply)? Mesh Size:	If no, indicate deficiency and proposed correction:		

Buried or Partially Buried Tanks ☐ Check if NA				
☒ Yes ☐ No	Is the vent covered with #24 mesh corrosion resistant screening?	If no, install proper #24 mesh corrosion resistant screening.		
☒ Yes ☐ No	Does the air vent terminate downward?	If no, re-configure the vent so that it terminates downward.		
☒ Yes ☐ No	Is the air vent at least 24" above the tank roof or ground surface (whichever is higher)? What is the height of the vent above the roof or ground surface?	If no, raise air vent to provide for an appropriate air gap.		

Access Hatch				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Is the hatch raised at least 4" above the roof (for ground level or elevated tanks) or at least 24 inches above the roof or ground, whichever is higher (for buried or partially buried tanks)? What is the height of the access hatch above the roof or ground surface?	If no, the hatch should be raised to the appropriate height above the tank roof or ground.		
☒ Yes ☐ No	Does the hatch have a shoe box lid?	If no, a properly designed shoe box type lid should be installed.		
☒ Yes ☐ No	Is the lid water tight and sealed with a rubber gasket?	If no, the reason for the lack of a seal should be investigated and repaired.		
☒ Yes ☐ No	Is the hatch locked?	If no, the hatch should be equipped with a lock.		

Overflow ☐ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Discharge has #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside (EPA recommends #24 mesh screen)?	If no, indicate proposed correction:		
☒ Yes ☐ No	Overflow terminates between 12 and 24 inches above the ground surface? At what height does the overflow discharge?	If no, modify overflow to provide for an appropriate air gap.		

☐ Yes ☒ No	Overflow discharges over an inlet structure, splash plate, or engineered rip-rap?	If no, indicate proposed correction:		
☐ Yes ☒ No	Is the overflow directly connected to a sanitary sewer or storm drain?	If yes, indicate proposed correction:		
☐ Yes ☒ No	Is there blockage in the overflow, an inadequately sized overflow, a malfunction of the level control system, or other issue that is causing the tank to overflow through the hatch or vent?	If yes, indicate what is causing the problem and how it should be repaired:		
☒ Yes ☐ No	Is the overflow discharge point visible? If no, it is recommended that the discharge point be moved to a location that is visible.		Not Required	

Drain ☒ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☐ Yes ☐ No	Does the drain pipe have an air gap of 3 or more pipe diameters above the entrance to any storm or sanitary sewers?	If no, indicate proposed correction:		
☐ Yes ☐ No	Does the discharge have a #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside? If no, EPA recommends that a #24 mesh screen be installed.		Not Required	
☐ Yes ☐ No	Does the drain terminate between 12 and 24 inches above the ground surface and discharges over an inlet structure or splash plate? If no, it is recommended that the discharge point be modified to provide for the appropriate air gap.		Not Required	

Cleaning and Other Items			
Significant Deficiency	**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Describe any other items noted by the inspector that have the potential to cause contamination of the finished drinking water:	What repairs are suggested to prevent or eliminate the source of contamination?		
Depth of sediment found in the tank before cleaning (inches): Up to ¼" of sediment noted How was the storage tank cleaned? Diver with hand nozzle system How was the storage tank disinfected after cleaning? N/A List any objects found inside the tank during cleaning that may have introduced contamination into the water system (examples: debris, animals, etc.): N/A Please attach tank as-built drawings (if available) or a sketch of the tank's configuration and dimensions including the location, layout and dimensions of all major components (i.e. access hatch, vent, overflow, drain)			

Midco
Diving & Marine Services, Inc.

Report of Procedures and Findings From the Cleaning and Inspection of the

Reservoir #2
Nordic Ranch Water
Etna, WY

By
Midco Diving & Marine Services, Inc.

800.479.1558
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info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
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Midco
Diving & Marine Services, Inc.

November 8, 2018

Nordic Ranch Water
Attn: Jacob Edwards
P.O Box 3258
Alpine, WY 83128

INTRODUCTION

The following is a summary of a visual and video inspection of Reservoir #2 for Nordic Ranch Water of Etna, WY. This inspection was undertaken on September 6, 2018 by Midco Diving & Marine Services, Inc., of Rapid City, SD. The findings of this inspection report are a supplement to the inspection video and worksheets, which are found under the same cover.

The Reservoir, which is the subject of this report, appears to be of conventional design and construction.

METHODOLOGY

The reservoir was inspected by a surface-supplied commercial air diver. The diver was equipped with real-time high-definition color video and a LED lighting system as well as live voice communication between the inspecting diver and the surface team. All procedures were carried-out in accordance with Midco Diving's *Standards and Procedures*. Prior to entering your reservoir the diver and equipment were disinfected with a 200 parts per million chlorine solution per ANSI/AWWA C652-11 standards.

EXTERIOR FINDINGS

Upon visual inspection of the exterior of the structure, the reservoir appears to be in good condition, with the following findings noted:

1. Coating failure with corrosion & staining noted.

INTERIOR FINDINGS

Upon visual inspection of the structure above and below the water line, the overall condition of the tank appears to be in good condition, with the following findings noted:

1. Up to ¾" of sediment noted
2. Staining noted.

DISCLAIMER

Midco Diving & Marine Services, Inc. does not provide consulting engineering services, nor do we employ licensed Professional Engineers. The findings contained herein were neither prepared or reviewed by a licensed engineer, but are based on the visual examination, experience, and training of the inspecting diver and dive support crew.

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Nordic Ranch Water

JOB NUMBER:	**P2017285**
UTILITY:	**Nordic Ranch Water**
DATE:	**September 6, 2018**
MANAGER:	**Jacob Edward**
ADDRESS:	**P.O Box 3258** **Alpine, WY 83128**

DIVE TEAM LEADER:	**Derek Wilt**
Reservoir:	**Reservoir #2**
Gallons:	**10KG**
Length x Width:	**7'**
Water Depth:	**7'**
Construction:	**Steel Welded**

Recommendations:

1. **Re-coat roof vent & access hatch to prevent deterioration.**
2. **Have Midco Diving & Marine Services, Inc. clean and inspect every 3-5 years.**

Midco
Diving & Marine Services, Inc.

N/A - Not applicable
Excellent (Ex) - Like new condition, no maintenance needed.
Good - Cosmetic only problems, maintenance if wanted.
Fair - Minor problems, maintenance needed, not immediate.
Poor - Major problems, structural or like, immediate maintenance needed.

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Site Security	X					
Gate	X					
Fence	X					
Locks	X					
Alarm	X					
Reservoir Exterior	X					
Coating	X					
Foundation	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Roof	X					
Coating	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Ladder	X					
Coating	X					
Caged	X					
Safety Climb	X					
Roof Vents			X			**Size: 4”** **Height: 59”**
Coating			X			**Corrosion & Staining Noted**
Screen			X			
Side Vents	X					
Coating	X					
Screen	X					
Exterior Telemetry	X					
Coating	X					
Functioning	X					

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Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Manual Level Indicator	X					
Tag	X					
Cable	X					
Indicator	X					
Pulleys	X					
Base	X					
Man Entries	X					
Coating	X					
Gasket	X					
Exterior Inlet	X					
Coating	X					
Valve	X					
Exterior Outlet	X					
Coating	X					
Valve	X					
Exterior Drain/Scour	X					
Coating	X					
Valve	X					
Exterior Water Tap	X					
Coating	X					
Valve	X					
Exterior Overflow			X			**Size: 4”**
Coating	X					
Stand-offs	X					
Screen			X			**Type: Screen**
Access Hatch			X			**Size: 25”**
Weather Stripping			X			
Coating				X		**Coating Failure with Corrosion**
Hinges			X			
Lock			X			
Safety Railing	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Ladder	X					
Caged	X					
Safety Climb	X					
Telemetry Sensor	X					
Functioning	X					
Float	X					
Guide Wires	X					
Interior Floor			X			
Coating			X			**Staining Noted**
Sediment			X			**Depth: Up to ¾" of Sediment Noted**
Seams/Joints			X			
Interior Walls			X			
Coating			X			**Staining Noted**
Seams/Joints			X			
Interior Ceiling			X			
Coating			X			
Rafters			X			
Interior Man Entries	X					
Coating	X					
Gasket	X					
Support Columns	X					
Coating	X					
Base	X					
Top	X					
Cathodic Protection	X					
Anodes	X					
Wires	X					
Sacrificial Anodes	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Overflow Pipe			X			Size: 6 ½"
Coating			X			
Top/Cap	X					
Connections/Flange	X					
Interior Inlet			X			Size: 6 ½"
Coating			X			
Riser	X					
Interior Outlet			X			Size: 6 ½"
Coating			X			
Riser	X					
Interior Drain/Scour			X			Size: 2 ½"
Coating			X			
Riser	x					
Interior Water Tap	X					
Coating	X					
Valve	X					

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Cleaning Reservoir

Cleaning Reservoir

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Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
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Typical Floor

Typical Wall

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Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Typical Wall – Staining Noted

Overflow Plumbing & Roof Vent

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www.midcodiving.com
info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Common Inlet/Outlet

Drain Plumbing

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info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
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Roof Vent

Roof Vent Screen

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info@midcodiving.com
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Access Hatch

Exterior Reservoir

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info@midcodiving.com
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EPA Region 8 Drinking Water Unit Finished Water Storage Tank Inspection/ Cleaning Checklist Fill out one checklist per storage tank & submit labeled photos of each tank component with this form		
Public Water System Name: Nordic Ranch Water	Public Water System ID:	
Reservoir Name: Reservoir #2	Reservoir ID: P2017285	
Proposed Inspection Date: September 6, 2018	Actual Inspection Date: September 6, 2018	
Name of Person Filling Out Form: Coral R. Braun	Title of Person Filling Out Form: Office Assistant	
I certify that this information is complete and accurate: Yes Coral R. Braun		Date: November 8, 2018

Inspector Qualifications (answer to all questions must be "yes")	
Name and contact information of inspector or inspection company: **Midco Diving & Marine Services, Inc.**	
☒ Yes ☐ No	Has the inspector completed confined space training?
☒ Yes ☐ No	Did the inspector have a confined space entry permit?

Overall Tank Condition				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Does the tank appear to be structurally sound?	If no, what repairs are suggested by the tank inspector?		
☐ Yes ☒ No	Are there any unprotected openings in the tank (breaches, leaks, daylight coming through tank in spots, etc.)	If yes, indicate type of breach and how it should be repaired.		

Air Vent				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Above Ground Tanks (Ground Level or Elevated)			☒ Check if NA	
☐ Yes ☐ No ☐ N/A	Downturned vent: Is the vent at least 24" or 3 pipe diameters above the roof?	If no reconfigure vent to provide proper air gap.		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is there a solid cover down to the bottom of the vent screen?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is the screen at least 8" above the roof surface? What is the height of the start of the screening above the tank?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Is the vent covered with #24 mesh corrosion resistant screening (some exceptions apply)? Mesh Size:	If no, indicate deficiency and proposed correction:		

Buried or Partially Buried Tanks ☐ Check if NA				
☒ Yes ☐ No	Is the vent covered with #24 mesh corrosion resistant screening?	If no, install proper #24 mesh corrosion resistant screening.		
☒ Yes ☐ No	Does the air vent terminate downward?	If no, re-configure the vent so that it terminates downward.		
☒ Yes ☐ No	Is the air vent at least 24" above the tank roof or ground surface (whichever is higher)? What is the height of the vent above the roof or ground surface?	If no, raise air vent to provide for an appropriate air gap.		

Access Hatch				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Is the hatch raised at least 4" above the roof (for ground level or elevated tanks) or at least 24 inches above the roof or ground, whichever is higher (for buried or partially buried tanks)? What is the height of the access hatch above the roof or ground surface?	If no, the hatch should be raised to the appropriate height above the tank roof or ground.		
☒ Yes ☐ No	Does the hatch have a shoe box lid?	If no, a properly designed shoe box type lid should be installed.		
☒ Yes ☐ No	Is the lid water tight and sealed with a rubber gasket?	If no, the reason for the lack of a seal should be investigated and repaired.		
☒ Yes ☐ No	Is the hatch locked?	If no, the hatch should be equipped with a lock.		

Overflow ☐ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Discharge has #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside (EPA recommends #24 mesh screen)?	If no, indicate proposed correction:		
☒ Yes ☐ No	Overflow terminates between 12 and 24 inches above the ground surface? At what height does the overflow discharge?	If no, modify overflow to provide for an appropriate air gap.		

☐ Yes ☒ No	Overflow discharges over an inlet structure, splash plate, or engineered rip-rap?	If no, indicate proposed correction:		
☐ Yes ☒ No	Is the overflow directly connected to a sanitary sewer or storm drain?	If yes, indicate proposed correction:		
☐ Yes ☒ No	Is there blockage in the overflow, an inadequately sized overflow, a malfunction of the level control system, or other issue that is causing the tank to overflow through the hatch or vent?	If yes, indicate what is causing the problem and how it should be repaired:		
☒ Yes ☐ No	Is the overflow discharge point visible? If no, it is recommended that the discharge point be moved to a location that is visible.		Not Required	

Drain ☒ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☐ Yes ☐ No	Does the drain pipe have an air gap of 3 or more pipe diameters above the entrance to any storm or sanitary sewers?	If no, indicate proposed correction:		
☐ Yes ☐ No	Does the discharge have a #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside? If no, EPA recommends that a #24 mesh screen be installed.		Not Required	
☐ Yes ☐ No	Does the drain terminate between 12 and 24 inches above the ground surface and discharges over an inlet structure or splash plate? If no, it is recommended that the discharge point be modified to provide for the appropriate air gap.		Not Required	

Cleaning and Other Items			
Significant Deficiency	**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Describe any other items noted by the inspector that have the potential to cause contamination of the finished drinking water:	What repairs are suggested to prevent or eliminate the source of contamination?		
Depth of sediment found in the tank before cleaning (inches): Up to ¾" of sediment noted How was the storage tank cleaned? Diver with hand nozzle system How was the storage tank disinfected after cleaning? N/A List any objects found inside the tank during cleaning that may have introduced contamination into the water system (examples: debris, animals, etc.): N/A Please attach tank as-built drawings (if available) or a sketch of the tank's configuration and dimensions including the location, layout and dimensions of all major components (i.e. access hatch, vent, overflow, drain)			

Midco
Diving & Marine Services, Inc.

Report of Procedures and Findings From the Cleaning and Inspection of the

Reservoir #3
Nordic Ranch Water
Etna, WY

By
Midco Diving & Marine Services, Inc.

800.479.1558
www.midcodiving.com
info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

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www.midcodiving.com
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Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Midco
Diving & Marine Services, Inc.

November 8, 2018

Nordic Ranch Water
Attn: Jacob Edwards
P.O Box 3258
Alpine, WY 83128

INTRODUCTION

The following is a summary of a visual and video inspection of Reservoir #3 for Nordic Ranch Water of Etna, WY. This inspection was undertaken on September 6, 2018 by Midco Diving & Marine Services, Inc., of Rapid City, SD. The findings of this inspection report are a supplement to the inspection video and worksheets, which are found under the same cover.

The Reservoir, which is the subject of this report, appears to be of conventional design and construction.

METHODOLOGY

The reservoir was inspected by a surface-supplied commercial air diver. The diver was equipped with real-time high-definition color video and a LED lighting system as well as live voice communication between the inspecting diver and the surface team. All procedures were carried-out in accordance with Midco Diving's *Standards and Procedures*. Prior to entering your reservoir the diver and equipment were disinfected with a 200 parts per million chlorine solution per ANSI/AWWA C652-11 standards.

EXTERIOR FINDINGS

Upon visual inspection of the exterior of the structure, the reservoir appears to be in good condition, with the following findings noted:

1. Coating failure with corrosion & staining noted.

INTERIOR FINDINGS

Upon visual inspection of the structure above and below the water line, the overall condition of the tank appears to be in good condition, with the following findings noted:

1. Up to ¼" of sediment noted.
2. Staining noted.

DISCLAIMER

Midco Diving & Marine Services, Inc. does not provide consulting engineering services, nor do we employ licensed Professional Engineers. The findings contained herein were neither prepared or reviewed by a licensed engineer, but are based on the visual examination, experience, and training of the inspecting diver and dive support crew.

800.479.1558
www.midcodiving.com
info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Nordic Ranch Water

JOB NUMBER:	**P2017285**
UTILITY:	**Nordic Ranch Water**
DATE:	**September 6, 2018**
MANAGER:	**Jacob Edwards**
ADDRESS:	**P.O Box 3258** **Alpine, WY 83128**

DIVE TEAM LEADER:	**Derrek Wilt**
Reservoir:	**Reservoir #3**
Gallons:	**10KG**
Height:	**7'**
Water Depth:	**7'**
Construction:	**Steel Welded**

Recommendations:

1. **Re-coat roof vent & access hatch to prevent deterioration.**
2. **Have Midco Diving & Marine Services, Inc. clean and inspect every 3-5 years.**

800.479.1558
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info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

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N/A - Not applicable
Excellent (Ex) - Like new condition, no maintenance needed.
Good - Cosmetic only problems, maintenance if wanted.
Fair - Minor problems, maintenance needed, not immediate.
Poor - Major problems, structural or like, immediate maintenance needed.

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Site Security	X					
Gate	X					
Fence	X					
Locks	X					
Alarm	X					
Reservoir Exterior	X					
Coating	X					
Foundation	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Roof	X					
Coating	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Ladder	X					
Coating	X					
Caged	X					
Safety Climb	X					
Roof Vents			X			**Size: 4”**
Coating	X					**Staining Noted**
Screen			X			
Side Vents	X					
Coating	X					
Screen	X					
Exterior Telemetry	X					
Coating	X					
Functioning	X					

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Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Manual Level Indicator	X					
Tag	X					
Cable	X					
Indicator	X					
Pulleys	X					
Base	X					
Man Entries	X					
Coating	X					
Gasket	X					
Exterior Inlet	X					
Coating	X					
Valve	X					
Exterior Outlet	X					
Coating	X					
Valve	X					
Exterior Drain/Scour	X					
Coating	X					
Valve	X					
Exterior Water Tap	X					
Coating	X					
Valve	X					
Exterior Overflow			X			**Size: 4”**
Coating	X					
Stand-offs	X					
Screen			X			**Type: Screen**
Access Hatch			X			**Size: 24”**
Weather Stripping			X			
Coating				X		
Hinges			X			**Coating Failure with Corrosion**
Lock			X			
Safety Railing	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Ladder	X					
Caged	X					
Safety Climb	X					
Telemetry Sensor	X					
Functioning	X					
Float	X					
Guide Wires	X					
Interior Floor			X			
Coating			X			**Staining Noted**
Sediment			X			**Depth: Up to ¼" of Sediment Noted**
Seams/Joints			X			
Interior Walls			X			**Staining Noted**
Coating			X			
Seams/Joints			X			
Interior Ceiling			X			
Coating			X			
Rafters	X					
Interior Man Entries	X					
Coating	X					
Gasket	X					
Support Columns	X					
Coating	X					
Base	X					
Top	X					
Cathodic Protection	X					
Anodes	X					
Wires	X					
Sacrificial Anodes	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Overflow Pipe			X			Size: 6 ½"
Coating			X			Coating Failure with Corrosion
Top/Cap	X					
Connections/Flange	X					
Interior Inlet			X			Size: 6 ½"
Coating			X			
Riser	X					
Interior Outlet			X			Size: 6 ½"
Coating			X			
Riser	X					
Interior Drain/Scour			X			Size: 2 ½"
Coating			X			Coating Failure with Corrosion
Riser	X					
Interior Water Tap	X					
Coating	X					
Valve	X					

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Cleaning Reservoir

Typical Floor

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Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Typical Wall

Common Inlet/Outlet

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Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Drain Plumbing – Coating Failure with Corrosion Noted

Interior Roof Vent

800.479.1558
www.midcodiving.com
info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Roof Vent

Roof Vent Screen

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Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
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Access Hatch

Exterior Reservoir

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info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

EPA Region 8 Drinking Water Unit Finished Water Storage Tank Inspection/ Cleaning Checklist Fill out one checklist per storage tank & submit labeled photos of each tank component with this form		
Public Water System Name: Nordic Ranch Water	Public Water System ID:	
Reservoir Name: Reservoir #3	Reservoir ID:	
Proposed Inspection Date: September 6, 2018	Actual Inspection Date: September 6, 2018	
Name of Person Filling Out Form: Coral R. Braun	Title of Person Filling Out Form: Office Assistant	
I certify that this information is complete and accurate: Yes Coral R. Braun		Date: November 8, 2018

Inspector Qualifications (answer to all questions must be "yes")	
Name and contact information of inspector or inspection company: **Midco Diving & Marine Services, Inc.**	
☒ Yes ☐ No	Has the inspector completed confined space training?
☒ Yes ☐ No	Did the inspector have a confined space entry permit?

Overall Tank Condition				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Does the tank appear to be structurally sound?	If no, what repairs are suggested by the tank inspector?		
☐ Yes ☒ No	Are there any unprotected openings in the tank (breaches, leaks, daylight coming through tank in spots, etc.)	If yes, indicate type of breach and how it should be repaired.		

Air Vent				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Above Ground Tanks (Ground Level or Elevated)			☒ Check if NA	
☐ Yes ☐ No ☐ N/A	Downturned vent: Is the vent at least 24" or 3 pipe diameters above the roof?	If no reconfigure vent to provide proper air gap.		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is there a solid cover down to the bottom of the vent screen?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is the screen at least 8" above the roof surface? What is the height of the start of the screening above the tank?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Is the vent covered with #24 mesh corrosion resistant screening (some exceptions apply)? Mesh Size:	If no, indicate deficiency and proposed correction:		

Buried or Partially Buried Tanks ☐ Check if NA				
☒ Yes ☐ No	Is the vent covered with #24 mesh corrosion resistant screening?	If no, install proper #24 mesh corrosion resistant screening.		
☒ Yes ☐ No	Does the air vent terminate downward?	If no, re-configure the vent so that it terminates downward.		
☒ Yes ☐ No	Is the air vent at least 24" above the tank roof or ground surface (whichever is higher)? What is the height of the vent above the roof or ground surface?	If no, raise air vent to provide for an appropriate air gap.		

Access Hatch				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Is the hatch raised at least 4" above the roof (for ground level or elevated tanks) or at least 24 inches above the roof or ground, whichever is higher (for buried or partially buried tanks)? What is the height of the access hatch above the roof or ground surface?	If no, the hatch should be raised to the appropriate height above the tank roof or ground.		
☒ Yes ☐ No	Does the hatch have a shoe box lid?	If no, a properly designed shoe box type lid should be installed.		
☒ Yes ☐ No	Is the lid water tight and sealed with a rubber gasket?	If no, the reason for the lack of a seal should be investigated and repaired.		
☒ Yes ☐ No	Is the hatch locked?	If no, the hatch should be equipped with a lock.		

Overflow ☐ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Discharge has #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside (EPA recommends #24 mesh screen)?	If no, indicate proposed correction:		
☒ Yes ☐ No	Overflow terminates between 12 and 24 inches above the ground surface? At what height does the overflow discharge?	If no, modify overflow to provide for an appropriate air gap.		

☐ Yes ☒ No	Overflow discharges over an inlet structure, splash plate, or engineered rip-rap?	If no, indicate proposed correction:		
☐ Yes ☒ No	Is the overflow directly connected to a sanitary sewer or storm drain?	If yes, indicate proposed correction:		
☐ Yes ☒ No	Is there blockage in the overflow, an inadequately sized overflow, a malfunction of the level control system, or other issue that is causing the tank to overflow through the hatch or vent?	If yes, indicate what is causing the problem and how it should be repaired:		
☒ Yes ☐ No	Is the overflow discharge point visible? If no, it is recommended that the discharge point be moved to a location that is visible.		Not Required	

Drain ☒ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☐ Yes ☐ No	Does the drain pipe have an air gap of 3 or more pipe diameters above the entrance to any storm or sanitary sewers?	If no, indicate proposed correction:		
☐ Yes ☐ No	Does the discharge have a #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside? If no, EPA recommends that a #24 mesh screen be installed.		Not Required	
☐ Yes ☐ No	Does the drain terminate between 12 and 24 inches above the ground surface and discharges over an inlet structure or splash plate? If no, it is recommended that the discharge point be modified to provide for the appropriate air gap.		Not Required	

Cleaning and Other Items			
Significant Deficiency	**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Describe any other items noted by the inspector that have the potential to cause contamination of the finished drinking water:	What repairs are suggested to prevent or eliminate the source of contamination?		
Depth of sediment found in the tank before cleaning (inches): Up to ¼" of sediment noted How was the storage tank cleaned? Diver with hand nozzle system How was the storage tank disinfected after cleaning? N/A List any objects found inside the tank during cleaning that may have introduced contamination into the water system (examples: debris, animals, etc.): N/A Please attach tank as-built drawings (if available) or a sketch of the tank's configuration and dimensions including the location, layout and dimensions of all major components (i.e. access hatch, vent, overflow, drain)			

Midco
Diving & Marine Services, Inc.

Report of Procedures and Findings From the Cleaning and Inspection of the

Reservoir #4
Nordic Ranch Water
Etna, WY

By
Midco Diving & Marine Services, Inc.

800.479.1558
www.midcodiving.com
info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

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Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Midco
Diving & Marine Services, Inc.

November 8, 2018

Nordic Ranch Water
Attn: Jacob Edwards
P.O Box 3258
Alpine, WY83128

INTRODUCTION

The following is a summary of a visual and video inspection of Reservoir #4 for Nordic Ranch Water of Etna, WY. This inspection was undertaken on September 6, 2018 by Midco Diving & Marine Services, Inc., of Rapid City, SD. The findings of this inspection report are a supplement to the inspection video and worksheets, which are found under the same cover.

The Reservoir, which is the subject of this report, appears to be of conventional design and construction.

METHODOLOGY

The reservoir was inspected by a surface-supplied commercial air diver. The diver was equipped with real-time high-definition color video and a LED lighting system as well as live voice communication between the inspecting diver and the surface team. All procedures were carried-out in accordance with Midco Diving's *Standards and Procedures*. Prior to entering your reservoir the diver and equipment were disinfected with a 200 parts per million chlorine solution per ANSI/AWWA C652-11 standards.

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EXTERIOR FINDINGS

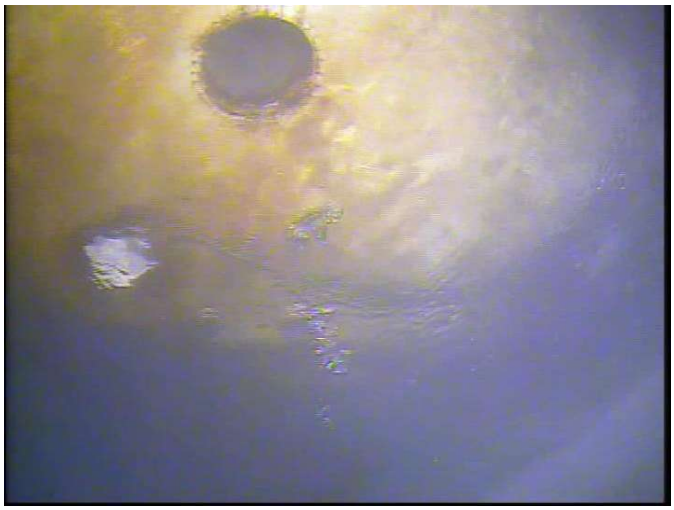
Upon visual inspection of the exterior of the structure, the reservoir appears to be in good condition, with the following findings noted:

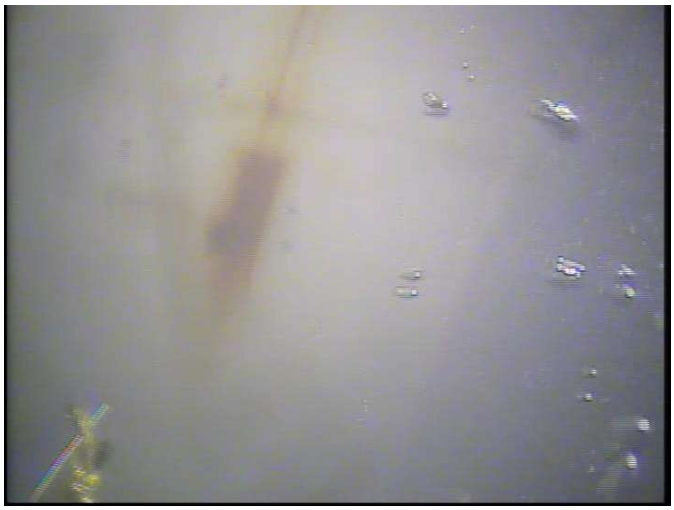
1. Coating failure with corrosion & staining noted

INTERIOR FINDINGS

Upon visual inspection of the structure above and below the water line, the overall condition of the tank appears to be in good condition, with the following findings noted:

1. Coating failure with corrosion & staining noted.





DISCLAIMER

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Regional Office P.O. Box 7396 Loveland, Colorado 80537 970-532-2128

Nordic Ranch Water

JOB NUMBER:	**P2017285**
UTILITY:	**Nordic Ranch Water**
DATE:	**September 6, 2018**
MANAGER:	**Jacob Edwards**
ADDRESS:	**P.O Box 3258** **Alpine, WY 83128**

DIVE TEAM LEADER:	**Derek Wilt**
Reservoir:	**Reservoir #4**
Gallons:	**10KG**
Length x Width:	**7′**
Water Depth:	**7′**
Construction:	**Steel Welded**

Recommendations:

1. **Re-coat roof vent & access hatch to prevent deterioration.**
2. **Epoxy repair noted interior areas of coating failure with corrosion.**
3. **Have Midco Diving & Marine Services, Inc. clean and inspect every 3-5 years.**

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Diving & Marine Services, Inc.

N/A - Not applicable
Excellent (Ex) - Like new condition, no maintenance needed.
Good - Cosmetic only problems, maintenance if wanted.
Fair - Minor problems, maintenance needed, not immediate.
Poor - Major problems, structural or like, immediate maintenance needed.

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Site Security	X					
Gate	X					
Fence	X					
Locks	X					
Alarm	X					
Reservoir Exterior	X					
Coating	X					
Foundation	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Roof	X					
Coating	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Ladder	X					
Coating	X					
Caged	X					
Safety Climb	X					
Roof Vents			X			**Size: 4” Height: 60”**
Coating			X			**Corrosion & Staining Noted**
Screen			X			
Side Vents	X					
Coating	X					
Screen	X					
Exterior Telemetry	X					
Coating	X					
Functioning	X					

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Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Manual Level Indicator	X					
Tag	X					
Cable	X					
Indicator	X					
Pulleys	X					
Base	X					
Man Entries	X					
Coating	X					
Gasket	X					
Exterior Inlet	X					
Coating	X					
Valve	X					
Exterior Outlet	X					
Coating	X					
Valve	X					
Exterior Drain/Scour	X					
Coating	X					
Valve	X					
Exterior Water Tap	X					
Coating	X					
Valve	X					
Exterior Overflow			X			**Size: 8”**
Coating	X					
Stand-offs	X					
Screen			X			**Type: Screen**
Access Hatch			X			**Size: 24”**
Weather Stripping			X			
Coating			X			**Coating Failure with Corrosion & Staining Noted**
Hinges	X					
Lock	X					
Safety Railing	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Ladder	X					
Caged	X					
Safety Climb	X					
Telemetry Sensor	X					
Functioning	X					
Float	X					
Guide Wires	X					
Interior Floor			X			
Coating			X			**Staining Noted**
Sediment			X			**Depth: Light Skiff of Sediment Noted**
Seams/Joints			X			
Interior Walls			X			
Coating			X			**Coating Failure with Corrosion & Staining Noted**
Seams/Joints			X			
Interior Ceiling			X			
Coating			X			**Staining Noted**
Rafters	X					
Interior Man Entries	X					
Coating	X					
Gasket	X					
Support Columns	X					
Coating	X					
Base	X					
Top	X					
Cathodic Protection	X					
Anodes	X					
Wires	X					
Sacrificial Anodes	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Overflow Pipe			X			Size: 6 ½"
Coating			X			Coating Failure with Corrosion & Staining Noted
Top/Cap	X					
Connections/Flange	X					
Interior Inlet			X			Size: 6 ½"
Coating			X			Staining Noted
Riser	X					
Interior Outlet			X			Size: 6 ½"
Coating			X			Staining Noted
Riser	X					
Interior Drain/Scour			X			Size: 2 ½"
Coating			X			Staining Noted
Riser	X					
Interior Water Tap	X					
Coating	X					
Valve	X					

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Common Drain – Coating Failure with Corrosion

Common Inlet/Outlet – Staining Noted

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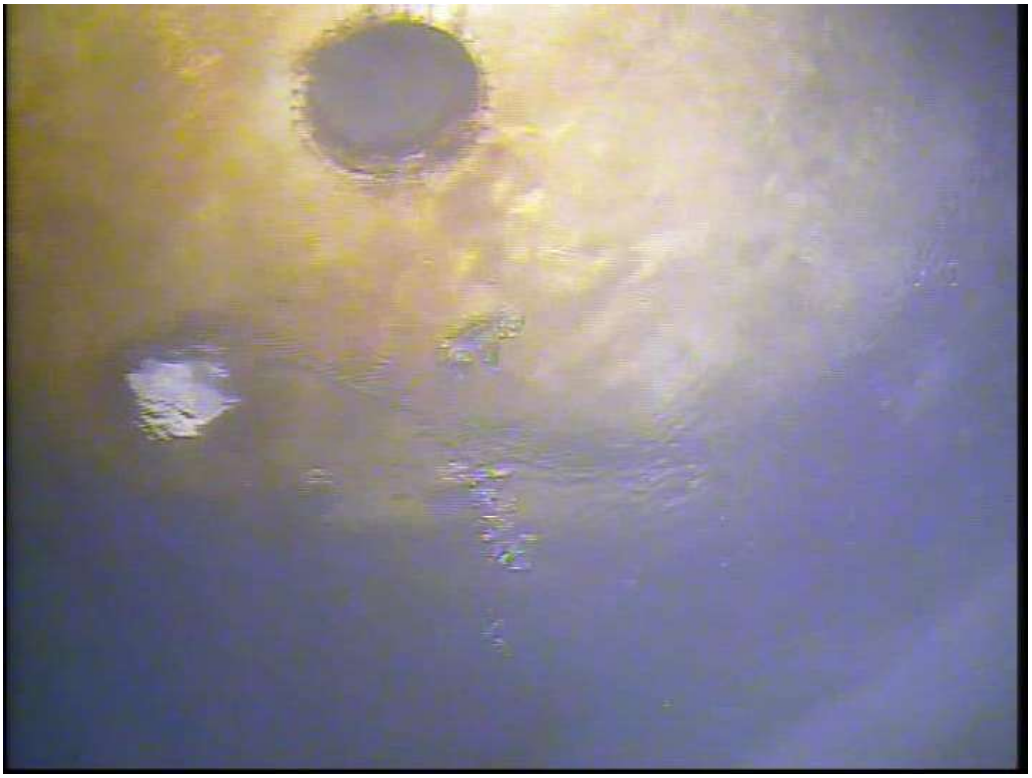

Overflow Plumbing/Roof Vent – Coating Failure with Corrosion

Typical Wall – Coating Failure with Corrosion

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Roof Vent Screen

Roof Vent

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Access Hatch – Coating Failure with Corrosion Noted

Exterior Reservoir

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EPA Region 8 Drinking Water Unit Finished Water Storage Tank Inspection/ Cleaning Checklist Fill out one checklist per storage tank & submit labeled photos of each tank component with this form		
Public Water System Name: Nordic Ranch Water	Public Water System ID:	
Reservoir Name: #4 Reservoir	Reservoir ID: P2017285	
Proposed Inspection Date: September 6, 2018	Actual Inspection Date: September 6, 2018	
Name of Person Filling Out Form: Coral R. Braun	Title of Person Filling Out Form: Office Assistant	
I certify that this information is complete and accurate: Yes Coral R. Braun		Date: November 8, 2018

Inspector Qualifications (answer to all questions must be "yes")	
Name and contact information of inspector or inspection company: **Midco Diving & Marine Services, Inc.**	
☒ Yes ☐ No	Has the inspector completed confined space training?
☒ Yes ☐ No	Did the inspector have a confined space entry permit?

Overall Tank Condition				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Does the tank appear to be structurally sound?	If no, what repairs are suggested by the tank inspector?		
☐ Yes ☒ No	Are there any unprotected openings in the tank (breaches, leaks, daylight coming through tank in spots, etc.)	If yes, indicate type of breach and how it should be repaired.		

Air Vent				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Above Ground Tanks (Ground Level or Elevated) ☒ Check if NA				
☐ Yes ☐ No ☐ N/A	Downturned vent: Is the vent at least 24" or 3 pipe diameters above the roof?	If no reconfigure vent to provide proper air gap.		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is there a solid cover down to the bottom of the vent screen?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is the screen at least 8" above the roof surface? What is the height of the start of the screening above the tank?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Is the vent covered with #24 mesh corrosion resistant screening (some exceptions apply)? Mesh Size:	If no, indicate deficiency and proposed correction:		

Buried or Partially Buried Tanks ☐ Check if NA				
☒ Yes ☐ No	Is the vent covered with #24 mesh corrosion resistant screening?	If no, install proper #24 mesh corrosion resistant screening.		
☒ Yes ☐ No	Does the air vent terminate downward?	If no, re-configure the vent so that it terminates downward.		
☒ Yes ☐ No	Is the air vent at least 24" above the tank roof or ground surface (whichever is higher)? What is the height of the vent above the roof or ground surface?	If no, raise air vent to provide for an appropriate air gap.		

Access Hatch				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Is the hatch raised at least 4" above the roof (for ground level or elevated tanks) or at least 24 inches above the roof or ground, whichever is higher (for buried or partially buried tanks)? What is the height of the access hatch above the roof or ground surface?	If no, the hatch should be raised to the appropriate height above the tank roof or ground.		
☐ Yes ☒ No	Does the hatch have a shoe box lid?	If no, a properly designed shoe box type lid should be installed.		
☒ Yes ☐ No	Is the lid water tight and sealed with a rubber gasket?	If no, the reason for the lack of a seal should be investigated and repaired.		
☐ Yes ☒ No	Is the hatch locked?	If no, the hatch should be equipped with a lock.		

Overflow ☐ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Discharge has #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside (EPA recommends #24 mesh screen)?	If no, indicate proposed correction:		
☒ Yes ☐ No	Overflow terminates between 12 and 24 inches above the ground surface? At what height does the overflow discharge?	If no, modify overflow to provide for an appropriate air gap.		

☐ Yes ☒ No	Overflow discharges over an inlet structure, splash plate, or engineered rip-rap?	If no, indicate proposed correction:		
☐ Yes ☒ No	Is the overflow directly connected to a sanitary sewer or storm drain?	If yes, indicate proposed correction:		
☐ Yes ☒ No	Is there blockage in the overflow, an inadequately sized overflow, a malfunction of the level control system, or other issue that is causing the tank to overflow through the hatch or vent?	If yes, indicate what is causing the problem and how it should be repaired:		
☒ Yes ☐ No	Is the overflow discharge point visible? If no, it is recommended that the discharge point be moved to a location that is visible.		Not Required	

Drain ☒ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☐ Yes ☐ No	Does the drain pipe have an air gap of 3 or more pipe diameters above the entrance to any storm or sanitary sewers?	If no, indicate proposed correction:		
☐ Yes ☐ No	Does the discharge have a #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside? If no, EPA recommends that a #24 mesh screen be installed.		Not Required	
☐ Yes ☐ No	Does the drain terminate between 12 and 24 inches above the ground surface and discharges over an inlet structure or splash plate? If no, it is recommended that the discharge point be modified to provide for the appropriate air gap.		Not Required	

Cleaning and Other Items			
Significant Deficiency	**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Describe any other items noted by the inspector that have the potential to cause contamination of the finished drinking water:	What repairs are suggested to prevent or eliminate the source of contamination?		
Depth of sediment found in the tank before cleaning (inches): Light skiff of sediment noted How was the storage tank cleaned? Diver with hand nozzle system How was the storage tank disinfected after cleaning? N/A List any objects found inside the tank during cleaning that may have introduced contamination into the water system (examples: debris, animals, etc.): N/A Please attach tank as-built drawings (if available) or a sketch of the tank's configuration and dimensions including the location, layout and dimensions of all major components (i.e. access hatch, vent, overflow, drain)			

Midco
Diving & Marine Services, Inc.

Report of Procedures and Findings From the Cleaning and Inspection of the

Reservoir #5
Nordic Ranch Water
Etna, WY

By
Midco Diving & Marine Services, Inc.

800.479.1558
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info@midcodiving.com
Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
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Midco
Diving & Marine Services, Inc.

November 8, 2018

Nordic Ranch Water
Attn: Jacob Edwards
P.O Box 3258
Alpine, WY83128

INTRODUCTION

The following is a summary of a visual and video inspection of Reservoir #5 for Nordic Ranch Water of Etna, WY. This inspection was undertaken on September 6, 2018 by Midco Diving & Marine Services, Inc., of Rapid City, SD. The findings of this inspection report are a supplement to the inspection video and worksheets, which are found under the same cover.

The Reservoir, which is the subject of this report, appears to be of conventional design and construction.

METHODOLOGY

The reservoir was inspected by a surface-supplied commercial air diver. The diver was equipped with real-time high-definition color video and a LED lighting system as well as live voice communication between the inspecting diver and the surface team. All procedures were carried-out in accordance with Midco Diving's *Standards and Procedures*. Prior to entering your reservoir the diver and equipment were disinfected with a 200 parts per million chlorine solution per ANSI/AWWA C652-11 standards.

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EXTERIOR FINDINGS

Upon visual inspection of the exterior of the structure, the reservoir appears to be in good condition, with the following findings noted:

1. Coating failure with corrosion noted

INTERIOR FINDINGS

Upon visual inspection of the structure above and below the water line, the overall condition of the tank appears to be in good condition, with the following findings noted:

1. Coating failure with corrosion &staining Noted

DISCLAIMER

Midco Diving & Marine Services, Inc. does not provide consulting engineering services, nor do we employ licensed Professional Engineers. The findings contained herein were neither prepared or reviewed by a licensed engineer, but are based on the visual examination, experience, and training of the inspecting diver and dive support crew.

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Nordic Ranch Water

JOB NUMBER:	**P2017285**
UTILITY:	**Nordic Ranch Water**
DATE:	**September 6, 2018**
MANAGER:	**Jacob Edwards**
ADDRESS:	**P.O Box 3258** **Alpine, WY 83128**

DIVE TEAM LEADER:	**Derek Wilt**
Reservoir:	**Reservoir #5**
Gallons:	**10KG**
Height:	**7′**
Water Depth:	**7′**
Construction:	**Steel Welded**

Recommendations:

1. **Re-coat roof vent & access hatch to prevent deterioration.**
2. **Epoxy repair noted areas of coating failure with corrosion.**
3. **Have Midco Diving & Marine Services, Inc. clean and inspect every 3-5 years.**

Midco
Diving & Marine Services, Inc.

N/A - Not applicable
Excellent (Ex) - Like new condition, no maintenance needed.
Good - Cosmetic only problems, maintenance if wanted.
Fair - Minor problems, maintenance needed, not immediate.
Poor - Major problems, structural or like, immediate maintenance needed.

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Site Security	X					
Gate	X					
Fence	X					
Locks	X					
Alarm	X					
Reservoir Exterior	X					
Coating	X					
Foundation	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Roof	X					
Coating	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Ladder	X					
Coating	X					
Caged	X					
Safety Climb	X					
Roof Vents			X			**Size: 4” Height: 11”**
Coating	X					**Corrosion & Staining Noted**
Screen			X			
Side Vents	X					
Coating	X					
Screen	X					
Exterior Telemetry	X					
Coating	X					
Functioning	X					

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Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Manual Level Indicator	X					
Tag	X					
Cable	X					
Indicator	X					
Pulleys	X					
Base	X					
Man Entries	X					
Coating	X					
Gasket	X					
Exterior Inlet	X					
Coating	X					
Valve	X					
Exterior Outlet	X					
Coating	X					
Valve	X					
Exterior Drain/Scour	X					
Coating	X					
Valve	X					
Exterior Water Tap	X					
Coating	X					
Valve	X					
Exterior Overflow			X			**Size: 8”**
Coating	X					
Stand-offs	X					
Screen			X			**Type: Screen**
Access Hatch			X			**Size: 25”**
Weather Stripping			X			
Coating			X			**Coating Failure with Corrosion & Staining Noted**
Hinges	X					
Lock			X			
Safety Railing	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Ladder	X					
Caged	X					
Safety Climb	X					
Telemetry Sensor	X					
Functioning	X					
Float	X					
Guide Wires	X					
Interior Floor			X			
Coating			X			**Staining Noted**
Sediment			X			**Depth: Up to ¼" of Sediment Noted**
Seams/Joints			X			
Interior Walls			X			
Coating			X			**Staining Noted**
Seams/Joints			X			
Interior Ceiling			X			
Coating			X			**Staining Noted**
Rafters			X			
Interior Man Entries	X					
Coating	X					
Gasket	X					
Support Columns	X					
Coating	X					
Base	X					
Top	X					
Cathodic Protection	X					
Anodes	X					
Wires	X					
Sacrificial Anodes	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Overflow Pipe			X			Size: 6 ½"
Coating			X			
Top/Cap	X					
Connections/Flange	X					
Interior Inlet			X			Size: 6 ½"
Coating			X			
Riser	X					
Interior Outlet			X			Size: 6 ½"
Coating			X			
Riser	X					
Interior Drain/Scour			X			Size: 2 ½"
Coating			X			Staining Noted
Riser	X					
Interior Water Tap	X					
Coating	X					
Valve	X					

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Common Inlet/Outlet

Drain Plumbing – Coating Failure with Corrosion Noted

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Roof Vent Screen - Staining Noted

Roof Vent

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Access Hatch – Coating Failure with Corrosion Noted

Exterior Reservoir

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EPA Region 8 Drinking Water Unit Finished Water Storage Tank Inspection/ Cleaning Checklist Fill out one checklist per storage tank & submit labeled photos of each tank component with this form		
Public Water System Name: Nordic Ranch Water	Public Water System ID:	
Reservoir Name: Reservoir	Reservoir ID: P2017285	
Proposed Inspection Date: September 6, 2018	Actual Inspection Date: September 6, 2018	
Name of Person Filling Out Form: Coral R. Braun	Title of Person Filling Out Form: Office Assistant	
I certify that this information is complete and accurate: Yes *Coral R. Braun*		Date: November 8, 2018

Inspector Qualifications (answer to all questions must be "yes")	
Name and contact information of inspector or inspection company: **Midco Diving & Marine Services, Inc.**	
☒ Yes ☐ No	Has the inspector completed confined space training?
☒ Yes ☐ No	Did the inspector have a confined space entry permit?

Overall Tank Condition				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Does the tank appear to be structurally sound?	If no, what repairs are suggested by the tank inspector?		
☐ Yes ☒ No	Are there any unprotected openings in the tank (breaches, leaks, daylight coming through tank in spots, etc.)	If yes, indicate type of breach and how it should be repaired.		

Air Vent				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Above Ground Tanks (Ground Level or Elevated)			☒ Check if NA	
☐ Yes ☐ No ☐ N/A	Downturned vent: Is the vent at least 24" or 3 pipe diameters above the roof?	If no reconfigure vent to provide proper air gap.		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is there a solid cover down to the bottom of the vent screen?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is the screen at least 8" above the roof surface? What is the height of the start of the screening above the tank?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Is the vent covered with #24 mesh corrosion resistant screening (some exceptions apply)? Mesh Size:	If no, indicate deficiency and proposed correction:		

Buried or Partially Buried Tanks ☐ Check if NA				
☒ Yes ☐ No	Is the vent covered with #24 mesh corrosion resistant screening?	If no, install proper #24 mesh corrosion resistant screening.		
☒ Yes ☐ No	Does the air vent terminate downward?	If no, re-configure the vent so that it terminates downward.		
☒ Yes ☐ No	Is the air vent at least 24" above the tank roof or ground surface (whichever is higher)? What is the height of the vent above the roof or ground surface?	If no, raise air vent to provide for an appropriate air gap.		

Access Hatch				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Is the hatch raised at least 4" above the roof (for ground level or elevated tanks) or at least 24 inches above the roof or ground, whichever is higher (for buried or partially buried tanks)? What is the height of the access hatch above the roof or ground surface?	If no, the hatch should be raised to the appropriate height above the tank roof or ground.		
☐ Yes ☒ No	Does the hatch have a shoe box lid?	If no, a properly designed shoe box type lid should be installed.		
☒ Yes ☐ No	Is the lid water tight and sealed with a rubber gasket?	If no, the reason for the lack of a seal should be investigated and repaired.		
☒ Yes ☐ No	Is the hatch locked?	If no, the hatch should be equipped with a lock.		

Overflow ☐ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Discharge has #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside (EPA recommends #24 mesh screen)?	If no, indicate proposed correction:		
☒ Yes ☐ No	Overflow terminates between 12 and 24 inches above the ground surface? At what height does the overflow discharge?	If no, modify overflow to provide for an appropriate air gap.		

☐ Yes ☒ No	Overflow discharges over an inlet structure, splash plate, or engineered rip-rap?	If no, indicate proposed correction:		
☐ Yes ☒ No	Is the overflow directly connected to a sanitary sewer or storm drain?	If yes, indicate proposed correction:		
☐ Yes ☒ No	Is there blockage in the overflow, an inadequately sized overflow, a malfunction of the level control system, or other issue that is causing the tank to overflow through the hatch or vent?	If yes, indicate what is causing the problem and how it should be repaired:		
☒ Yes ☐ No	Is the overflow discharge point visible? If no, it is recommended that the discharge point be moved to a location that is visible.		Not Required	

Drain ☒ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☐ Yes ☐ No	Does the drain pipe have an air gap of 3 or more pipe diameters above the entrance to any storm or sanitary sewers?	If no, indicate proposed correction:		
☐ Yes ☐ No	Does the discharge have a #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside? If no, EPA recommends that a #24 mesh screen be installed.		Not Required	
☐ Yes ☐ No	Does the drain terminate between 12 and 24 inches above the ground surface and discharges over an inlet structure or splash plate? If no, it is recommended that the discharge point be modified to provide for the appropriate air gap.		Not Required	

Cleaning and Other Items			
Significant Deficiency	**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Describe any other items noted by the inspector that have the potential to cause contamination of the finished drinking water:	What repairs are suggested to prevent or eliminate the source of contamination?		
Depth of sediment found in the tank before cleaning (inches): Up to ¼" of sediment noted How was the storage tank cleaned? Diver with hand nozzle system How was the storage tank disinfected after cleaning? N/A List any objects found inside the tank during cleaning that may have introduced contamination into the water system (examples: debris, animals, etc.): N/A Please attach tank as-built drawings (if available) or a sketch of the tank's configuration and dimensions including the location, layout and dimensions of all major components (i.e. access hatch, vent, overflow, drain)			

Midco
Diving & Marine Services, Inc.

Report of Procedures and Findings From the Cleaning and Inspection of the

Reservoir #6
Nordic Ranch Water
Etna, WY

By
Midco Diving & Marine Services, Inc.

800.479.1558
www.midcodiving.com
info@midcodiving.com
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Midco
Diving & Marine Services, Inc.

November 8, 2018

Nordic Ranch Water
Attn: Jacob Edwards
P.O Box 3258
Alpine, WY83128

INTRODUCTION

The following is a summary of a visual and video inspection of Reservoir #6 for Nordic Ranch Water of Etna, WY. This inspection was undertaken on September 6, 2018 by Midco Diving & Marine Services, Inc., of Rapid City, SD. The findings of this inspection report are a supplement to the inspection video and worksheets, which are found under the same cover.

The Reservoir, which is the subject of this report, appears to be of conventional design and construction.

METHODOLOGY

The reservoir was inspected by a surface-supplied commercial air diver. The diver was equipped with real-time high-definition color video and a LED lighting system as well as live voice communication between the inspecting diver and the surface team. All procedures were carried-out in accordance with Midco Diving's *Standards and Procedures*. Prior to entering your reservoir the diver and equipment were disinfected with a 200 parts per million chlorine solution per ANSI/AWWA C652-11 standards.

EXTERIOR FINDINGS

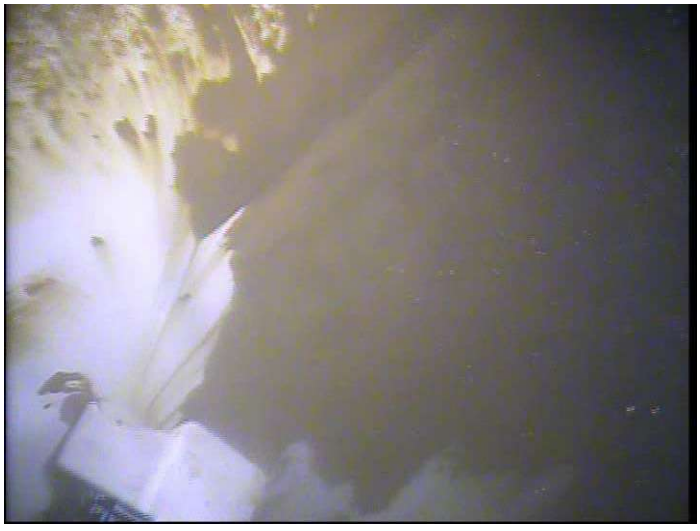
Upon visual inspection of the exterior of the structure, the reservoir appears to be in good condition, with the following findings noted:

1. Coating failure with corrosion noted.

INTERIOR FINDINGS

Upon visual inspection of the structure above and below the water line, the overall condition of the tank appears to be in good condition, with the following findings noted:

1. Up to ¼" of sediment noted.
2. Coating failure with corrosion & staining Noted



DISCLAIMER

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Nordic Ranch Water

JOB NUMBER:	**P2017285**
UTILITY:	**Nordic Ranch Water**
DATE:	**September 6, 2018**
MANAGER:	**Jacob Edwards**
ADDRESS:	**P.O Box 3258** **Alpine, WY 83128**

DIVE TEAM LEADER:	**Derek Wilt**

Reservoir:	**Reservoir #6**
Gallons:	**7'**
Height:	**7'**
Water Depth:	**10KG**
Construction:	**Steel Welded**

Recommendations:

1. **Re-coating roof vent to prevent deterioation.**
2. **Epoxy repair noted coating failure with corrosion.**
3. **Have Midco Diving & Marine Services, Inc. clean and inspect every 3-5 years.**

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N/A - Not applicable
Excellent (Ex) - Like new condition, no maintenance needed.
Good - Cosmetic only problems, maintenance if wanted.
Fair - Minor problems, maintenance needed, not immediate.
Poor - Major problems, structural or like, immediate maintenance needed.

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Site Security	X					
Gate	X					
Fence	X					
Locks	X					
Alarm	X					
Reservoir Exterior	X					
Coating	X					
Foundation	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Roof	X					
Coating	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Ladder	X					
Coating	X					
Caged	X					
Safety Climb	X					
Roof Vents			X			**Size: 4"** **Height: 6 ½"**
Coating	X					
Screen			X			
Side Vents	X					
Coating	X					
Screen	X					
Exterior Telemetry	X					
Coating	X					
Functioning	X					

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Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Manual Level Indicator	X					
Tag	X					
Cable	X					
Indicator	X					
Pulleys	X					
Base	X					
Man Entries	X					
Coating	X					
Gasket	X					
Exterior Inlet	X					
Coating	X					
Valve	X					
Exterior Outlet	X					
Coating	X					
Valve	X					
Exterior Drain/Scour	X					
Coating	X					
Valve	X					
Exterior Water Tap	X					
Coating	X					
Valve	X					
Exterior Overflow			X			**Size: 8”**
Coating	X		X			
Stand-offs	X					
Screen			X			**Type: Screen**
Access Hatch			X			**Size: 24”**
Weather Stripping			X			
Coating			X			
Hinges	X					
Lock			X			
Safety Railing	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Ladder	X					
Caged	X					
Safety Climb	X					
Telemetry Sensor	X					
Functioning	X					
Float	X					
Guide Wires	X					
Interior Floor			X			
Coating			X			**Staining Noted**
Sediment			X			**Depth: Up to 1" of Sediment Noted**
Seams/Joints			X			
Interior Walls			X			
Coating			X			**Areas of coating failure with corrosion & Staining Noted**
Seams/Joints			X			
Interior Ceiling			X			
Coating			X			
Rafters	X					
Interior Man Entries	X					
Coating	X					
Gasket	X					
Support Columns	X					
Coating	X					
Base	X					
Top	X					
Cathodic Protection	X					
Anodes	X					
Wires	X					
Sacrificial Anodes	x					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Overflow Pipe			X			Size: 6 ½"
Coating			X			Staining Noted
Top/Cap	X					
Connections/Flange	X					
Interior Inlet			X			Size: 6 ½"
Coating			X			
Riser	X					
Interior Outlet			X			Size: 6 ½"
Coating			X			
Riser	X					
Interior Drain/Scour			X			Size: 2 ½"
Coating			X			Staining Noted
Riser	X					
Interior Water Tap	X					
Coating	X					
Valve	X					

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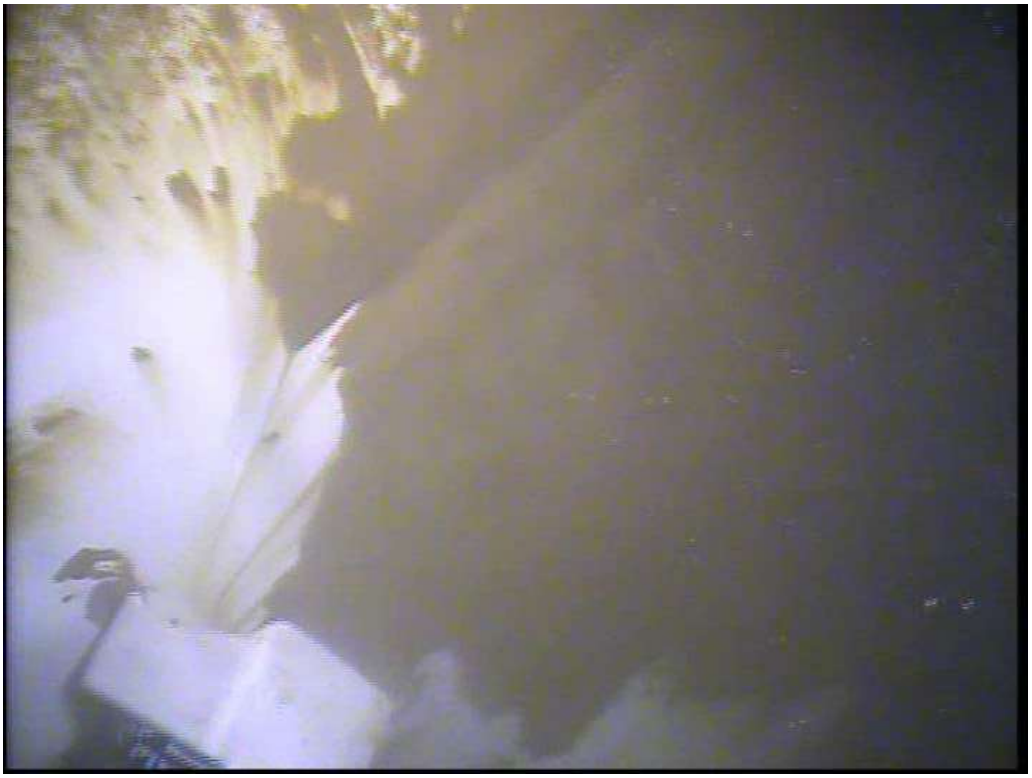

Cleaning Reservoir

Cleaning Reservoir

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Typical Wall

Access Hatch – Staining Noted

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Common Inlet/Outlet

Drain Plumbing – Coating Failure with Corrosion Noted

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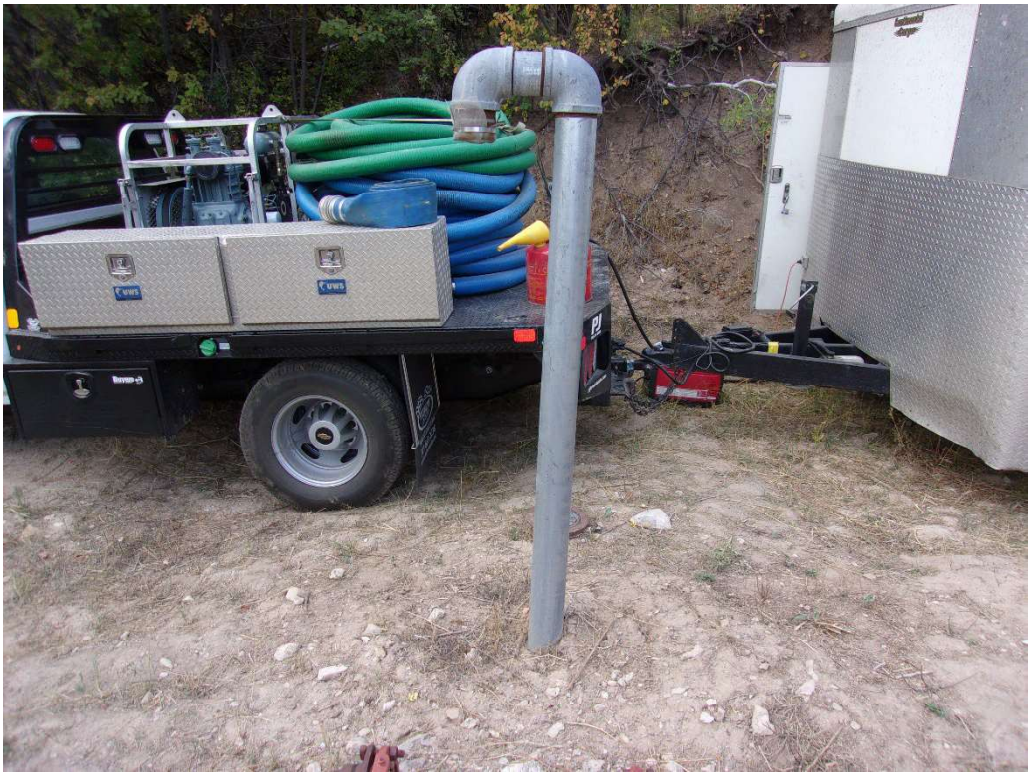
Roof Vent Screen



Exterior Vent

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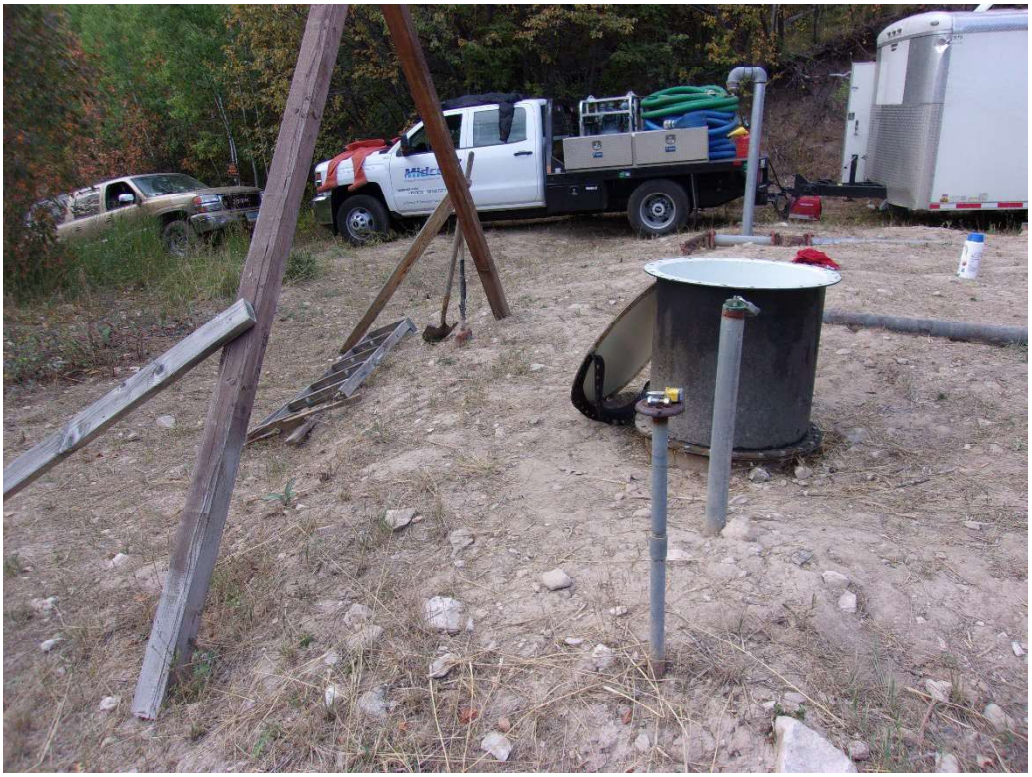
Access Hatch



Exterior Reservoir

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EPA Region 8 Drinking Water Unit Finished Water Storage Tank Inspection/ Cleaning Checklist Fill out one checklist per storage tank & submit labeled photos of each tank component with this form		
Public Water System Name: Nordic Ranch Water	Public Water System ID:	
Reservoir Name: #6 Reservoir	Reservoir ID: P2017285	
Proposed Inspection Date: September 6, 2018	Actual Inspection Date: September 6, 2018	
Name of Person Filling Out Form: Coral R. Braun	Title of Person Filling Out Form: Office Assistant	
I certify that this information is complete and accurate: Yes *Coral R. Braun*		Date: November 8, 2018

Inspector Qualifications (answer to all questions must be "yes")	
Name and contact information of inspector or inspection company: **Midco Diving & Marine Services, Inc.**	
☒ Yes ☐ No	Has the inspector completed confined space training?
☒ Yes ☐ No	Did the inspector have a confined space entry permit?

Overall Tank Condition				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Does the tank appear to be structurally sound?	If no, what repairs are suggested by the tank inspector?		
☐ Yes ☒ No	Are there any unprotected openings in the tank (breaches, leaks, daylight coming through tank in spots, etc.)	If yes, indicate type of breach and how it should be repaired.		

Air Vent				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Above Ground Tanks (Ground Level or Elevated)			☒ Check if NA	
☐ Yes ☐ No ☐ N/A	Downturned vent: Is the vent at least 24" or 3 pipe diameters above the roof?	If no reconfigure vent to provide proper air gap.		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is there a solid cover down to the bottom of the vent screen?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is the screen at least 8" above the roof surface? What is the height of the start of the screening above the tank?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Is the vent covered with #24 mesh corrosion resistant screening (some exceptions apply)? Mesh Size:	If no, indicate deficiency and proposed correction:		

Buried or Partially Buried Tanks ☐ Check if NA				
☒ Yes ☐ No	Is the vent covered with #24 mesh corrosion resistant screening?	If no, install proper #24 mesh corrosion resistant screening.		
☒ Yes ☐ No	Does the air vent terminate downward?	If no, re-configure the vent so that it terminates downward.		
☒ Yes ☐ No	Is the air vent at least 24" above the tank roof or ground surface (whichever is higher)? What is the height of the vent above the roof or ground surface?	If no, raise air vent to provide for an appropriate air gap.		

Access Hatch				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Is the hatch raised at least 4" above the roof (for ground level or elevated tanks) or at least 24 inches above the roof or ground, whichever is higher (for buried or partially buried tanks)? What is the height of the access hatch above the roof or ground surface?	If no, the hatch should be raised to the appropriate height above the tank roof or ground.		
☐ Yes ☒ No	Does the hatch have a shoe box lid?	If no, a properly designed shoe box type lid should be installed.		
☒ Yes ☐ No	Is the lid water tight and sealed with a rubber gasket?	If no, the reason for the lack of a seal should be investigated and repaired.		
☒ Yes ☐ No	Is the hatch locked?	If no, the hatch should be equipped with a lock.		

Overflow ☐ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Discharge has #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside (EPA recommends #24 mesh screen)?	If no, indicate proposed correction:		
☒ Yes ☐ No	Overflow terminates between 12 and 24 inches above the ground surface? At what height does the overflow discharge?	If no, modify overflow to provide for an appropriate air gap.		

☐ Yes ☒ No	Overflow discharges over an inlet structure, splash plate, or engineered rip-rap?	If no, indicate proposed correction:		
☐ Yes ☒ No	Is the overflow directly connected to a sanitary sewer or storm drain?	If yes, indicate proposed correction:		
☐ Yes ☒ No	Is there blockage in the overflow, an inadequately sized overflow, a malfunction of the level control system, or other issue that is causing the tank to overflow through the hatch or vent?	If yes, indicate what is causing the problem and how it should be repaired:		
☒ Yes ☐ No	Is the overflow discharge point visible? If no, it is recommended that the discharge point be moved to a location that is visible.		Not Required	

Drain ☒ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☐ Yes ☐ No	Does the drain pipe have an air gap of 3 or more pipe diameters above the entrance to any storm or sanitary sewers?	If no, indicate proposed correction:		
☐ Yes ☐ No	Does the discharge have a #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside? If no, EPA recommends that a #24 mesh screen be installed.		Not Required	
☐ Yes ☐ No	Does the drain terminate between 12 and 24 inches above the ground surface and discharges over an inlet structure or splash plate? If no, it is recommended that the discharge point be modified to provide for the appropriate air gap.		Not Required	

Cleaning and Other Items			
Significant Deficiency	**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Describe any other items noted by the inspector that have the potential to cause contamination of the finished drinking water:	What repairs are suggested to prevent or eliminate the source of contamination?		

Depth of sediment found in the tank before cleaning (inches): Up to 1" of sediment noted
How was the storage tank cleaned? Diver with hand nozzle system
How was the storage tank disinfected after cleaning? N/A
List any objects found inside the tank during cleaning that may have introduced contamination into the water system (examples: debris, animals, etc.): N/A
Please attach tank as-built drawings (if available) or a sketch of the tank's configuration and dimensions including the location, layout and dimensions of all major components (i.e. access hatch, vent, overflow, drain)

Midco
Diving & Marine Services, Inc.

Report of Procedures and Findings From the Cleaning and Inspection of the

Reservoir #7
Nordic Ranch Water
Etna, WY

By
Midco Diving & Marine Services, Inc.

800.479.1558
www.midcodiving.com
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Home Office P.O. Box 513 Rapid City, South Dakota 57709 605-791-3030
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Midco
Diving & Marine Services, Inc.

November 8, 2018

Nordic Ranch Water
Attn: Jacob Edwards
P.O Box 3258
Alpine, WY83128

INTRODUCTION

The following is a summary of a visual and video inspection of the Reservoir #7 for Nordic Ranch Water of Etna, WY. This inspection was undertaken on September 6, 2018 by Midco Diving & Marine Services, Inc., of Rapid City, SD. The findings of this inspection report are a supplement to the inspection video and worksheets, which are found under the same cover.

The Reservoir, which is the subject of this report, appears to be of conventional design and construction.

METHODOLOGY

The reservoir was inspected by a surface-supplied commercial air diver. The diver was equipped with real-time high-definition color video and a LED lighting system as well as live voice communication between the inspecting diver and the surface team. All procedures were carried-out in accordance with Midco Diving's *Standards and Procedures*. Prior to entering your reservoir the diver and equipment were disinfected with a 200 parts per million chlorine solution per ANSI/AWWA C652-11 standards.

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EXTERIOR FINDINGS

Upon visual inspection of the exterior of the structure, the reservoir appears to be in good condition, with the following findings noted:

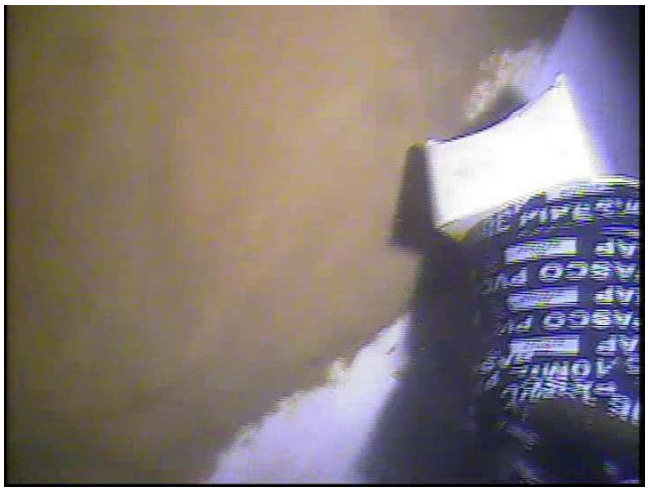
1. Overflow screen deterioration noted.
2. No gasket noted on access hatch.
3. Coating Failure with corrosion & staining noted.



INTERIOR FINDINGS

Upon visual inspection of the structure above and below the water line, the overall condition of the tank appears to be in good condition, with the following findings noted:

1. Up to 1" of sediment noted.
2. Corrosion & staining noted




DISCLAIMER

Midco Diving & Marine Services, Inc. does not provide consulting engineering services, nor do we employ licensed Professional Engineers. The findings contained herein were neither prepared or reviewed by a licensed engineer, but are based on the visual examination, experience, and training of the inspecting diver and dive support crew.

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Nordic Ranch Water

JOB NUMBER:	**P2017285**
UTILITY:	**Nordic Ranch Water**
DATE:	**September 6, 2018**
MANAGER:	**Jacob Edwards**
ADDRESS:	**P.O Box 3258** **Alpine, WY 83128**

DIVE TEAM LEADER:	**Derek Wilt**

Reservoir:	**Reservoir #7**
Gallons:	**10KG**
Height:	**7′**
Water Depth:	**7′**
Construction:	**Steel Welded**

Recommendations:

1. **Replace/repair deterioration on #24 corrosion resistant mesh on overflow plumbing.**
2. **Install a gasket on the access hatch.**
3. **Re-coat roof vent & access hatch to prevent deterioration.**
4. **Have Midco Diving & Marine Services, Inc. clean and inspect every 3-5 years.**

Midco
Diving & Marine Services, Inc.

N/A - Not applicable
Excellent (Ex) - Like new condition, no maintenance needed.
Good - Cosmetic only problems, maintenance if wanted.
Fair - Minor problems, maintenance needed, not immediate.
Poor - Major problems, structural or like, immediate maintenance needed.

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Site Security	X					
Gate	X					
Fence	X					
Locks	X					
Alarm	X					
Reservoir Exterior	X					
Coating	X					
Foundation	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Roof	X					
Coating	X					
Cleanliness	X					
Seams/Joints	X					
Exterior Ladder	X					
Coating	X					
Caged	X					
Safety Climb	X					**Type:**
Roof Vents			X			**Size: 4”** **Height: 59”**
Coating	X					
Screen			X			**Staining Noted**
Side Vents	X					
Coating	X					
Screen	X					
Exterior Telemetry	X					
Coating	X					
Functioning	X					

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Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Manual Level Indicator	X					
Tag	X					
Cable	X					
Indicator	X					
Pulleys	X					
Base	X					
Man Entries	X					
Coating	X					
Gasket	X					
Exterior Inlet	X					
Coating	X					
Valve	X					
Exterior Outlet	X					
Coating	X					
Valve	X					
Exterior Drain/Scour	X					
Coating	X					
Valve	X					
Exterior Water Tap	X					
Coating	X					
Valve	X					
Exterior Overflow			X			**Size: 8”**
Coating	X					
Stand-offs	X					
Screen			X			**Type: Screen – Deterioration Noted**
Access Hatch			X			**Size: 24” X 33”**
Weather Stripping				X		**No Gasket Noted**
Coating			X			
Hinges	X					
Lock			X			
Safety Railing	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Ladder	X					
Caged	X					
Safety Climb	X					
Telemetry Sensor			X			**Corrosion Noted**
Functioning	X					
Float	X					
Guide Wires	X					
Interior Floor			X			
Coating			X			**Staining Noted**
Sediment			X			**Depth: Up to " of Sediment Noted**
Seams/Joints			X			
Interior Walls			X			**Staining Noted**
Coating			X			
Seams/Joints			X			
Interior Ceiling			X			
Coating			X			**Staining Noted**
Rafters			X			
Interior Man Entries	X					
Coating	X					
Gasket	X					
Support Columns	X					
Coating	X					
Base	X					
Top	X					
Cathodic Protection	X					
Anodes	X					
Wires	X					
Sacrificial Anodes	X					

Component	Condition					Comments
	NA	Ex.	Good	Fair	Poor	
Interior Overflow Pipe			X			Size: 6 ½"
Coating			X			Coating Failure with Corrosion Noted
Top/Cap	X					
Connections/Flange	X					
Interior Inlet			X			Size: 6 ½"
Coating			X			Staining Noted
Riser	X					
Interior Outlet			X			Size: 6 ½"
Coating			X			Staining Noted
Riser	X					
Interior Drain/Scour			X			Size: 2 ½"
Coating			X			Coating Failure with Corrosion
Riser	X					
Interior Water Tap	X					
Coating	X					
Valve	X					

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Typical Floor

Floor to Wall Seam

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Typical Wall – Staining Noted

Wall to Roof Seam – Staining Noted

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Typical Roof – Staining Noted

Drain Plumbing – Coating Failure with Corrosion

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Common Inlet/Outlet

Overflow Plumbing – Coating Failure with Corrosion Noted

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Interior Plumbing – Coating Failure with Corrosion

Telemetry Sensor – Corrosion Noted

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Overflow Plumbing – Screen Deterioration Noted

Roof Vent Screen

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Roof Vent

Access Hatch

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EPA Region 8 Drinking Water Unit Finished Water Storage Tank Inspection/ Cleaning Checklist Fill out one checklist per storage tank & submit labeled photos of each tank component with this form		
Public Water System Name: Nordic Ranch Water	Public Water System ID:	
Reservoir Name: Reservoir #7	Reservoir ID: P2017285	
Proposed Inspection Date: September 6, 2018	Actual Inspection Date: September 6, 2018	
Name of Person Filling Out Form: Coral R. Braun	Title of Person Filling Out Form: Office Assistant	
I certify that this information is complete and accurate: Yes *Coral R. Braun*		Date: November 8, 2018

Inspector Qualifications (answer to all questions must be "yes")	
Name and contact information of inspector or inspection company: **Midco Diving & Marine Services, Inc.**	
☒ Yes ☐ No	Has the inspector completed confined space training?
☒ Yes ☐ No	Did the inspector have a confined space entry permit?

Overall Tank Condition				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Does the tank appear to be structurally sound?	If no, what repairs are suggested by the tank inspector?		
☐ Yes ☒ No	Are there any unprotected openings in the tank (breaches, leaks, daylight coming through tank in spots, etc.)	If yes, indicate type of breach and how it should be repaired.		

Air Vent				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Above Ground Tanks (Ground Level or Elevated)			☒ Check if NA	
☐ Yes ☐ No ☐ N/A	Downturned vent: Is the vent at least 24" or 3 pipe diameters above the roof?	If no reconfigure vent to provide proper air gap.		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is there a solid cover down to the bottom of the vent screen?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Non-downturned vent: Is the screen at least 8" above the roof surface? What is the height of the start of the screening above the tank?	If no, indicate deficiency and proposed correction:		
☐ Yes ☐ No ☐ N/A	Is the vent covered with #24 mesh corrosion resistant screening (some exceptions apply)? Mesh Size:	If no, indicate deficiency and proposed correction:		

Buried or Partially Buried Tanks ☐ Check if NA				
☒ Yes ☐ No	Is the vent covered with #24 mesh corrosion resistant screening?	If no, install proper #24 mesh corrosion resistant screening.		
☒ Yes ☐ No	Does the air vent terminate downward?	If no, re-configure the vent so that it terminates downward.		
☒ Yes ☐ No	Is the air vent at least 24" above the tank roof or ground surface (whichever is higher)? What is the height of the vent above the roof or ground surface?	If no, raise air vent to provide for an appropriate air gap.		

Access Hatch				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Is the hatch raised at least 4" above the roof (for ground level or elevated tanks) or at least 24 inches above the roof or ground, whichever is higher (for buried or partially buried tanks)? What is the height of the access hatch above the roof or ground surface?	If no, the hatch should be raised to the appropriate height above the tank roof or ground.		
☐ Yes ☒ No	Does the hatch have a shoe box lid?	If no, a properly designed shoe box type lid should be installed.		
☐ Yes ☒ No	Is the lid water tight and sealed with a rubber gasket?	If no, the reason for the lack of a seal should be investigated and repaired.		
☒ Yes ☐ No	Is the hatch locked?	If no, the hatch should be equipped with a lock.		

Overflow ☐ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☒ Yes ☐ No	Discharge has #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside (EPA recommends #24 mesh screen)?	If no, indicate proposed correction:		
☒ Yes ☐ No	Overflow terminates between 12 and 24 inches above the ground surface? At what height does the overflow discharge?	If no, modify overflow to provide for an appropriate air gap.		

☐ Yes ☒ No	Overflow discharges over an inlet structure, splash plate, or engineered rip-rap?	If no, indicate proposed correction:		
☐ Yes ☒ No	Is the overflow directly connected to a sanitary sewer or storm drain?	If yes, indicate proposed correction:		
☐ Yes ☒ No	Is there blockage in the overflow, an inadequately sized overflow, a malfunction of the level control system, or other issue that is causing the tank to overflow through the hatch or vent?	If yes, indicate what is causing the problem and how it should be repaired:		
☒ Yes ☐ No	Is the overflow discharge point visible? If no, it is recommended that the discharge point be moved to a location that is visible.		Not Required	

Drain ☒ Check if NA				
Significant Deficiency		**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
☐ Yes ☐ No	Does the drain pipe have an air gap of 3 or more pipe diameters above the entrance to any storm or sanitary sewers?	If no, indicate proposed correction:		
☐ Yes ☐ No	Does the discharge have a #24 mesh corrosion resistant screen OR a duckbill valve OR a properly sealed flapper valve with a screen inside? If no, EPA recommends that a #24 mesh screen be installed.		Not Required	
☐ Yes ☐ No	Does the drain terminate between 12 and 24 inches above the ground surface and discharges over an inlet structure or splash plate? If no, it is recommended that the discharge point be modified to provide for the appropriate air gap.		Not Required	

Cleaning and Other Items			
Significant Deficiency	**Required Correction**	**Proposed Completion Date**	**Proposed Completion Date**
Describe any other items noted by the inspector that have the potential to cause contamination of the finished drinking water:	What repairs are suggested to prevent or eliminate the source of contamination?		
Depth of sediment found in the tank before cleaning (inches): Up to ¼" of sediment noted How was the storage tank cleaned? Diver with hand nozzle system How was the storage tank disinfected after cleaning? N/A List any objects found inside the tank during cleaning that may have introduced contamination into the water system (examples: debris, animals, etc.): N/A Please attach tank as-built drawings (if available) or a sketch of the tank's configuration and dimensions including the location, layout and dimensions of all major components (i.e. access hatch, vent, overflow, drain)			