

MEMORANDUM

DATE: September 17, 2026
TO: Chance Baxter
Bear River Water Conservancy District
102 West Forest Street
Brigham City, Utah 84302

FROM: Ridley Griggs, M.Eng., P.E.
Hansen, Allen & Luce, Inc. (HAL)
859 West So. Jordan Pkwy – Suite 200
South Jordan, Utah 84095

SUBJECT: Tremonton Booster Station Re-Equipping
PROJECT NO.: 091.02.126

DRAFT

INTRODUCTION

This memorandum summarizes the analysis completed to identify design information for replacement pumps for the Tremonton Booster Station.

BACKGROUND

BRWCD has an agreement with Tremonton City to deliver water through a wholesale connection (referred to as the Tremonton Booster Station) to a pipeline that serves the Riverside-North Garland (RNG) and Ukon Water Company (Ukon) systems. When constructed, the wholesale connection was equipped with booster pumps designed to deliver future contract volumes and flow rates to RNG and Ukon, as well as a bypass system that can supply water at lower flow rates without pumping. This delivery system is shown in Figure 1.

For many years, pressure in the Tremonton system was high enough to deliver contracted flow rates to RNG and Ukon without pumping. However, Tremonton City recently made operational adjustments which reduced system pressures available to the wholesale connection. In the summer of 2026, BRWCD observed reduced pressure and flow delivery to the RNG system through the Tremonton Booster Station connection due to lower pressures in the Tremonton system.

Tremonton City has indicated that they are not comfortable making any changes to increase system pressure at the connection. Therefore, pumping is necessary to deliver contracted water supplies to RNG. BRWCD requested a hydraulic modeling evaluation to identify a recommended range of operating conditions for pump selection.

COORDINATION

BRWCD and HAL have coordinated with the affected water systems as described in this section.

Tremonton City

BRWCD has coordinated with Tremonton City Public Works regarding available system pressures and the possibility of increasing pressures at the wholesale connection. Tremonton City indicated that they are not comfortable increasing system pressures.

Riverside-North Garland Water Company

BRWCD has communicated regularly with RNG personnel to ask questions, collect pressure measurements, and discuss strategies to maximize deliveries during Summer 2026.

Ukon Water Company

Ridley Griggs, P.E. (HAL) met on behalf of BRWCD with Brett Jones, P.E. (Jones & Associates), working on behalf of Ukon, in a virtual meeting on August 17, 2026, to discuss Ukon's needs and concerns related to the existing connection and pump station upgrades. Ukon provided the following input:

- The lower pressures being supplied from Tremonton did not negatively impact the Ukon system in 2026.
- It would provide a redundancy benefit to the Ukon system if the pumps could provide enough pressure to fill their tank in case of emergency.

DESIGN CRITERIA

Based on the input received from RNG and Ukon, two pumping scenarios were considered:

1. Delivery to RNG – provide pressures to Ukon and RNG similar to the pressures that were provided in recent years
2. Delivery to Ukon – provide enough pressure to supply the Ukon tank in case of emergency.

Design criteria and expected operational conditions for the standard operation scenario are shown in Table 1.

Figure 1: Tremonton Booster Station Delivery System

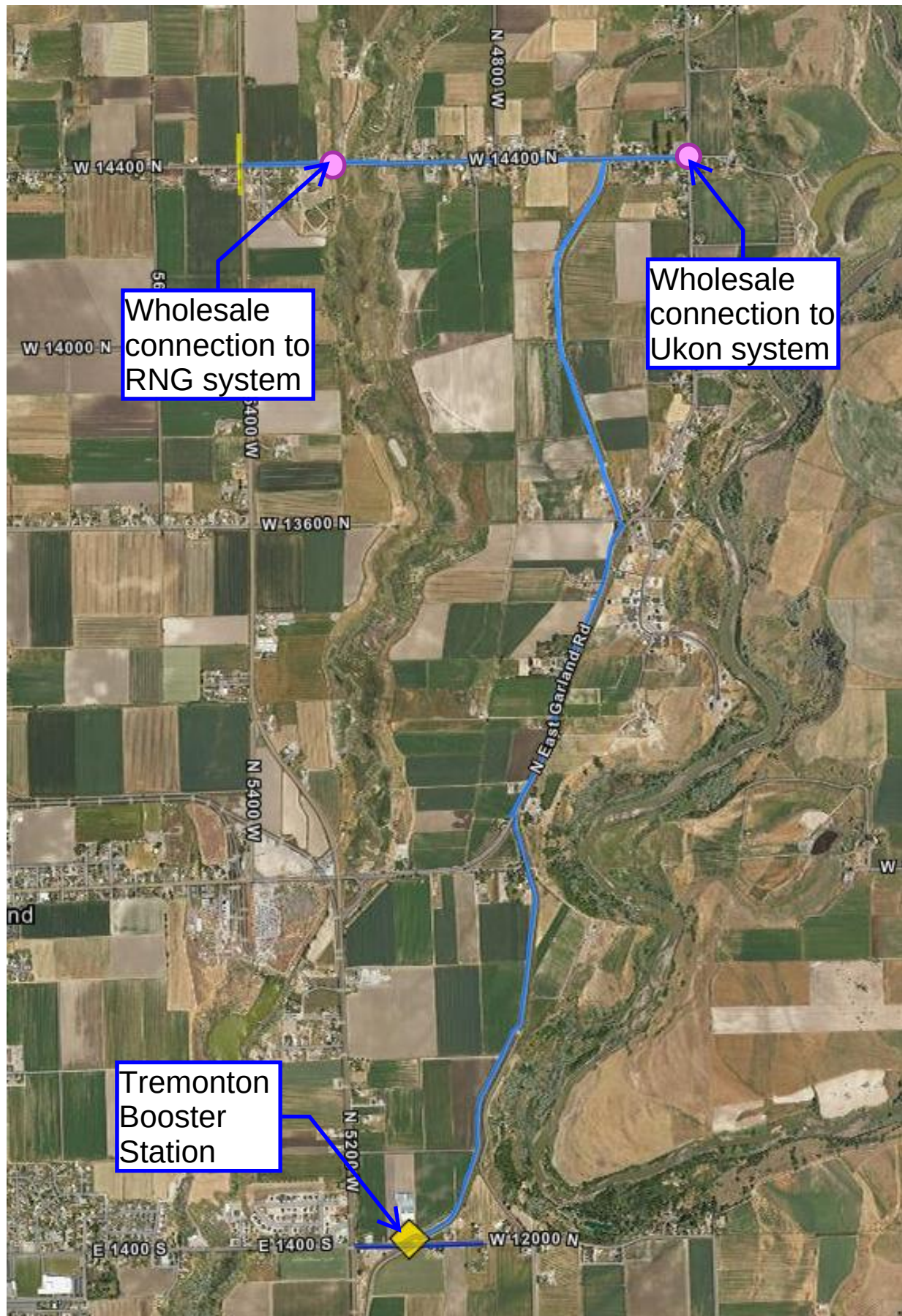


Table 1
Pump Selection Design Criteria for Delivery to RNG Tanks

Criteria	Standard Operation
Maximum Flow Rate (gpm)	300
Minimum Available Suction Pressure (psi)	80
Maximum Available Suction Pressure (psi)	95
Required Delivery Pressure to RNG (psi)	91
Required Hydraulic Grade to RNG (ft)	4,521
Expected Delivery Pressure to Ukon (psi)	70
Expected Hydraulic Grade to Ukon (ft)	4,521
Expected Pump Station Discharge Pressure at Maximum Flow Rate (psi)	105

Design criteria and expected operational conditions for the Ukon redundancy scenario are shown in Table 2.

Table 2
Pump Selection Design Criteria for Delivery to Ukon Tanks

Criteria	Ukon Redundancy
Maximum Flow Rate (gpm)	300
Minimum Available Suction Pressure (psi)	80
Maximum Available Suction Pressure (psi)	95
Required Delivery Pressure to Ukon (psi)	120
Required Hydraulic Grade to Ukon (ft)	4,637
Expected Delivery Pressure to RNG (psi)	141
Expected Hydraulic Grade to RNG (ft)	4,637
Expected Pump Station Discharge Pressure at Maximum Flow Rate (psi)	170

SYSTEM HEAD CURVES

System head curves for each scenario are attached.

RESULTS

Key results are as follows:

- A pump station discharge pressure of 170 psi would be required to deliver 300 gpm to the Ukon tanks.
- At a flow rate of 300 gpm, the difference between TDH delivering to Ukon (209 ft) vs. RNG (64 ft) is about 145 ft.

OTHER OPTIONS FOR UKON REDUNDANCY

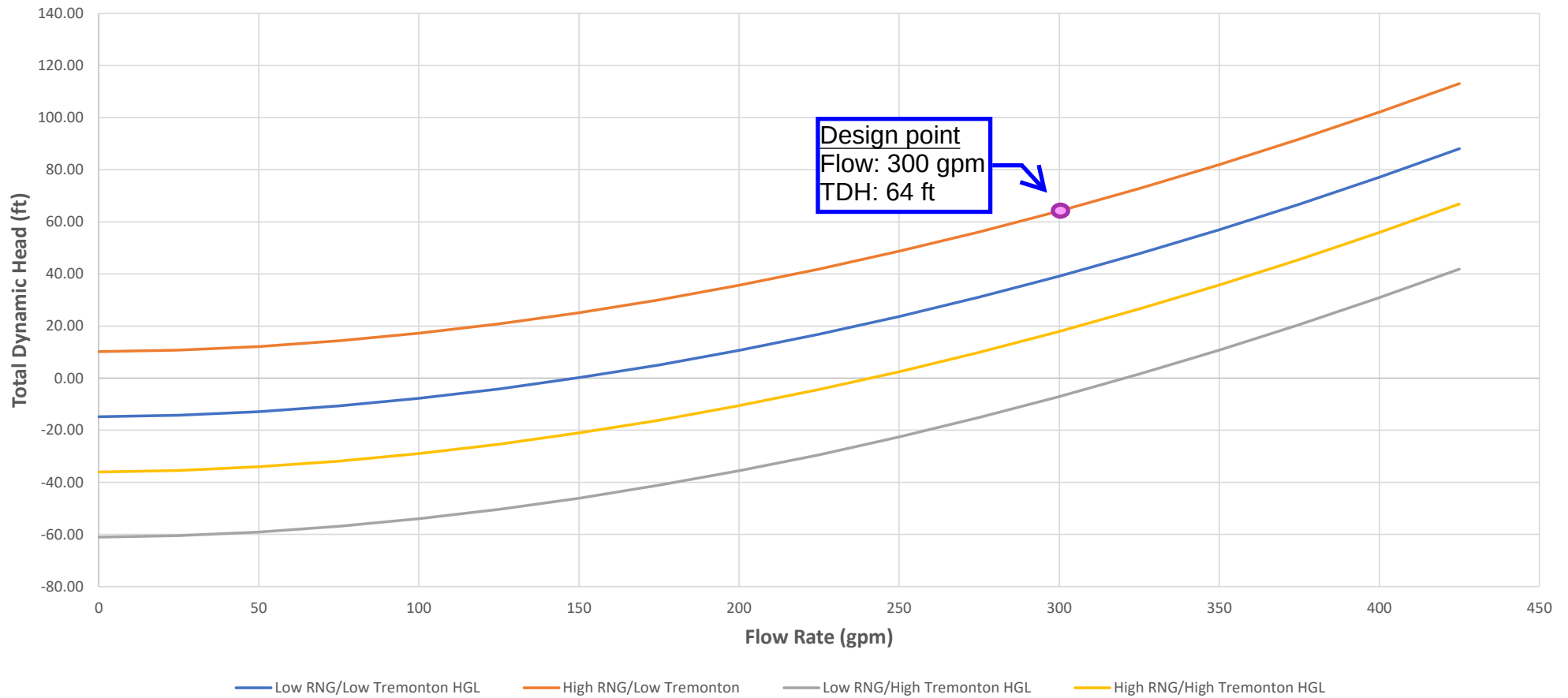
The Ukon system can receive water from the BRWCD Collinston system. As such, a degree of redundancy exists without equipping the pumps to provide additional redundancy. Ukon is also pursuing additional sources to provide supply and redundancy in their system.

RECOMMENDATIONS

Recommendations are as follows:

1. Pump curves should be evaluated to determine whether a pumping configuration can be provided that would allow BRWCD to pump to the Ukon tanks in an emergency but supply the RNG tanks during normal operations without wasting energy through pressure reducing valves.
 - a. If such a configuration does not exist, pumps should be equipped to provide water to the RNG tanks. Ukon can continue to operate as-is.
 - b. If such a configuration does exist, the additional cost of this configuration (as compared to equipping the pump station to pump to the RNG tanks) should be identified. If Ukon would like the redundancy benefit created by these costs, Ukon should pay BRWCD the difference in cost.

System Head Curve - Delivery to RNG Tanks



System Head Curve - Delivery to Ukon Tanks

