MARF Well and Water Information Summary

This document is to summarize the well and water system at the Millville Aquatic Research Facility (MARF). Please refer to this document for information regarding system function/operation.

The Well:

- The well was completed in summer of 2024 (Photo 1). It has a depth of approximately 360' and is a potable water well with a 100-foot-deep grout seal.
- The well is powered by the electrical panel approximately 20 feet to the east (Photo 2). The pump has an off setting, a manual setting, and an auto setting, meaning that in manual mode the pump will run until it is manually turned off at the panel. In auto mode (Photo 3), the pump will automatically shut off when water levels in the cisterns up the hill are full as indicated by the sensors via radio signal from the cisterns to the electrical panel (Photo 6).
- When the knob/dial is in the vertical position, the pump is turned off. When turned 45 degrees clockwise, the pump is on auto. 45 degrees counterclockwise is in manual.
- The pump should generally be left in the auto function unless specific circumstances require manual operation, such as filling one or more of the large in-ground ponds within the research facility.

Water Lines and Valves:

- There is a 6" water line running NE from the well into the property. The 6" line terminates at two valves near the large in-ground ponds (Photo 7).
- The larger 6" wheel valve provides water solely to the large in-ground pond system (Photo 9). Each of the large in-ground ponds has its own wheel valve for filling them up specific ponds once the main 6" wheel valve mentioned above is open.
- Adjacent SE to the 6" wheel valve is a smaller, 4" wheel valve that supplies water to the various hose bibs (Photos 13, 14), the lab building, and up the hill to fill the cisterns.
- Approximately 200' east of the two wheel valves is a 2" PVC riser and associated underground valve with a valve key (Photo 10). This 2" riser is where a pipe or hose can be attached to provide well water to the mesocosms (Photo 15).
- When the cisterns are full and the well is running on auto, the pump will shut off and the same 4" line serves as the gravity-fed system to the lab building, hose bibs, and 2" riser for the mesocosms.

Additional Notes:

- The location of the specific water lines running off the 4" cistern line to provide water to the lab building and hose bibs are unknown. They are plastic lines so we could not use a utility locator to find where they run.
- We do know that they are connected to the 4" line and that the connection is somewhere below the cisterns themselves, as we closed the cistern valve (Photos 11 and 12), let the system drain, turned the well on and got pressurized water to the lab and hose bibs.
- There is NOT a separate line solely for gravity-feeding the system. With water and the associated head pressure in the pipes, there should not be any jolts to the system when the well turns on to fill the cisterns. This would only happen if there are air bubbles in the lines, which there should not be if things are operated correctly.
- If the pump is set to manual operation, there MUST be a place for the water to go (aka a valve open to a pond or an open hose bib etc.). Turning the well on with all valves closed and creating back pressure with either burn the pump out or cause a break in the line. If the pump is in manual and the lines to the

cisterns are open, the pump will keep going while water overflows the cisterns and floods the hillside down to the facility below.

- With continuous research being carried out in the lab building, the beaver kennels, and the mesocosms, communication regarding water needs is imperative. Please coordinate your activities on the property to ensure that research is not disrupted, and that the well and water system can function properly.

Thank you for taking the time to review this information. Please do not hesitate to contact the Ecology Center with any questions related to the well and water information at the property.

Sincerely,

Ecology Center
UtahStateUniversity

Photo 1 – New well installed in Spring/Summer 2024

Photo 2 – Electrical panel that supplies power to well pump. White cylinder on top is radio receiver for automatic operation of well as determined by water level in cisterns

Photo 3 – “On” button for well pump and dial for manual or auto pump operation. Dial position in photo indicates the well is on automatic operation.

Photo 4 – Top of cisterns

Photo 5 – Radio emitter on cisterns for automatic well pump operation

Photo 6 – Sensors inside cisterns for automatic well pump operation

Photo 7 – 6” wheel valve (rear left) that provides water to large in-ground ponds, and 4” wheel valve (front right) that provides water up hill to cisterns, lab building, and hose bibs

Photo 8 – Identifying information of 4” wheel valve that provides water to cisterns, lab building, and hose bibs

Photo 9 – Identifying information on 6” wheel valve that provides water to large in-ground ponds

Photo 10 – Valve and 2” line along 4” cistern line for connecting Mesocosm ponds to system

Photo 11 – Valve at cisterns (NW corner)

Photo 12 – Close-up of cistern valve

Photo 13 – Red hose bib between beaver kennels and lab building

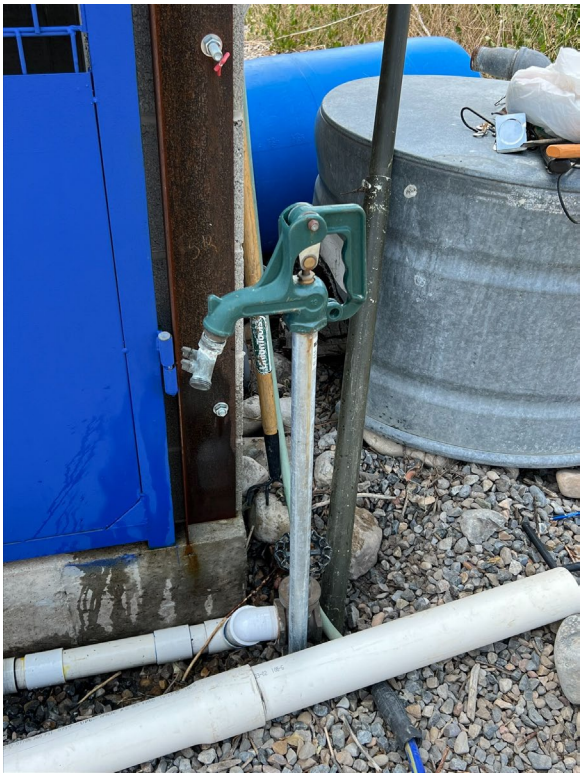

Photo 14 – Green hose bib at beaver kennels (NE corner)

Photo 15 – Mesocosm ponds


Millville Aquatic Research Facility
Overview
Legend
6" line to in-ground ponds
4" line to cisterns
6" line from well to property
Exact path of water lines to hose bibs unknown
Exact path of water line to lab building unknown
Well and electrical panel
2" line to cattle trough, CAAS/ Extension responsibility
Google Earth
300 ft
N


Legend
6" wheel valve to in-ground ponds
Red hose bib
Valve and 2" line to feed mesocosms
Valve to cisterns
4" wheel valve to cisterns
Cisterns
Green hose bib
Mesocosm ponds
N
100 ft
Google Earth