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# Rating Information

■ **Not Inspected:** This item was not inspected.

■ **Inspected:** This item was inspected and found to be functional. Any issues or variances will be listed.

■ **Maintenance:** Items with a maintenance shortcoming. This is mostly routine maintenance that is due now and that new owners should do periodically. These are often DIY items, and it is ongoing.

■ **Defect:** Items that are deteriorated, broken, or not functional. These sometimes result from delayed maintenance. It could result in related defects if not addressed.

■ **Not Present:** This item was not present.

■ **Priority:** Items with major concerns based on safety or cost of repairs. This includes system or component issues that may have an adverse impact on the value of the property, or that poses an unreasonable risk to people or property. Samples are a small electrical issue that pose a safety risk, or an imminent roof replacement that is high cost.

# Inspection Details

## Inspection Details

Inspector Name: Edwin Dunckley

Company Name: Chester County Home Inspections, LLC

Company Address: 1357 Elbow Ln

City: Chester Springs

State: PA

Zip: 19425

Phone: 484-212-1600

Email: [edwin.dunckley@chestercounthomeinspections.com](mailto:edwin.dunckley@chestercounthomeinspections.com)

Website: <https://chestercountyhomeinspections.com>.

## Well Basics

Read up on well basics at <https://wellowner.org/resources/basics/well-system-components/>.

Read up on filters and treatment systems at <https://www.cdc.gov/healthywater/drinking/home-water-treatment/water-filters.html>.

# Well Certification Scope and Process

## Restrictions

### Contamination Sources Not Determined

This inspection is non-invasive, visual only, and no digging or excavating is undertaken to determine locations of systems or potential underground contamination sources. Locations of septic system, including tank and leach lines should be determined by excavation or radio frequency locator to ascertain recommended clearances to contamination sources. Additionally, any underground fuel storage tanks should also be located. It is not in scope of this well certification inspection to determine potential contamination sources.

### Not all information can be obtained

Some information about the well system and related equipment might not be available, for instance the pump depth or the casing depth. We use information readily available at the equipment, recorded on the underside of the well cap, and information provided by the homeowner if it seems reliable and relevant. If the well depth cannot be determined during the Well Certification inspection, we will also search the DCNR well drillers database but it is unfortunately sparsely populated.

## Scope and expectations

### What is in scope

A Well Certification certifies whether the well and equipment are in good working condition and can deliver the water needed to sustain a home. The minimum required supply level in Pennsylvania is 100 gallons per bedroom, plus another 100 gallons for the rest of the home, in two hours or less. That is the same volume of water that a Pennsylvania septic system has to absorb in 24 hours. The test will determine adequacy of yield, water flow rate, water pressure and condition of related components.

### What is not in scope

1. This well certification does not determine the 'well yield' or the 'well recovery'. Well yield is the total expected volume that a well could deliver at a given extraction rate. Well recovery is the rate at which groundwater flows back into the well cavity. Those factors are determined when a well is drilled and generally remain static.
2. This is not a Water Quality test. We can conduct Water Quality testing separately if needed.
3. We cannot always determine the purpose of an installed water treatment system. We will try to identify the type of system or its purpose when it can be ascertained. There are many kinds of water treatment systems - activated carbon, resin, reverse osmosis, water ionizer, and UV filters. Each manufacturer have claims on what their systems can achieve, and it is sometimes wildly overstated. Some of the treatment systems consist of a cylindrical tank with a related controller. The actual function of the system will depend on the media that is put in the tank, which also determines the type of controller and the dispersion rate. We cannot test these systems, we only inspect them and report on their apparent condition, and if it needs service.

Water treatment systems include those components that treat or claim to treat these contaminants in well water:

- Sediment: this is the sand and dirt particles from earth that occur in all well water. It is harmless but in high concentrations it gives the water a brownish color, and it can clog water heaters and treatment systems. Removing the sediment is the first step to ensure clean water.
- Microorganisms: this is bacteria, typically coliform and E. Coli. Water is non-potable when bacteria is present. The likely source of bacteria in the water is the houses' plumbing system, often at the point of use such as unhygienic faucets. Less often, the source is contaminated groundwater directly entering at or near the well head.
- Iron: excess iron can cause health issues and is a nuisance. There are two types of iron. Ferric iron, a.k.a. red iron, cause staining in tubs, sinks and toilets. Ferrous iron, a.k.a. clear water iron, cause slimy buildup. Iron concentrations

are higher in shallow wells (< 100 feet).

- Nitrate: normally found in low concentrations; high amounts is a health concern.
- Heavy metals: high amounts of heavy metals such as copper, lead, cadmium, arsenic and chromium is a health concern.
- Sulfur: in excess, sulfur gives water the unpleasant rotten egg odor.
- Fluoride: acceptable in low volume but high amounts can have adverse health effects.
- Organic chemicals: these are breakdowns of pesticides and pharmaceuticals that leach into groundwater.

## Process

### Well Certification Process

We draw water directly from the drain at the pressure tank, or if that drain is unavailable, we attempt to draw from a location before filtering or treatment systems to prevent an undue load on those systems. As needed and when possible, we will bypass filtering or treatment systems. Some wells are located where there is an abundance of water. We may end the test early and declare success when it is abundantly clear that the well and equipment will deliver more than enough water in substantially less time.

Depending on the water table and the size of the casing and well, we may run into the condition that the well runs dry. We try to avoid letting the well run dry but that is sometimes unavoidable. All wells recover as groundwater seeps back into the well cavity. The recovery rate depends on factors such as soil condition and well casing depth. When deemed necessary, we will stop or decrease the rate of water drawn to allow the well to partially recover, but the clock continues to run for the two-hour limit. We resume the test when we believe the well may have recovered sufficiently to complete the test in the allowable time.

We may stop the test early and declare failure when it is abundantly clear that the well and equipment will not be able deliver the water needed in the allowable time.



# Well and Equipment

## Well

Inspected

Well depth could not be determined. There were no records at the equipment and nothing recorded on the underside of the well cap where well drillers typically record pertinent information. This well could not be found at the DCNR well database either - <https://gis.dcnr.pa.gov/pagecode/>.

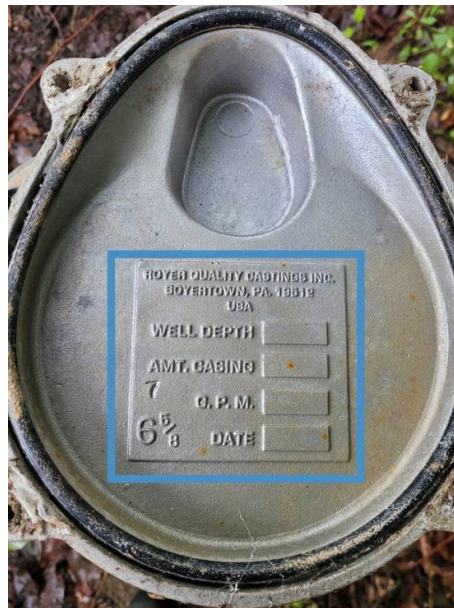
## Casing

Inspected

Casing size: 6 inches

Casing extends above ground: more than 18 inches

The casing depth information was not found at the inspection site. It is sometimes recorded on the underside of the well cap, or at the indoor equipment. This would be good-to-know but non-essential information.



## Well Cap

Inspected

## Pump

Inspected

**Pump Type**  
Submersible

Pump Set (a.k.a. pump depth) is not known. The pump is usually set about 20-40 feet above the bottom of the well

else it would pump out a high volume of sediment.

## Electric Supply

Inspected

### Voltage

240 Volt

### Amperage

20 Amp

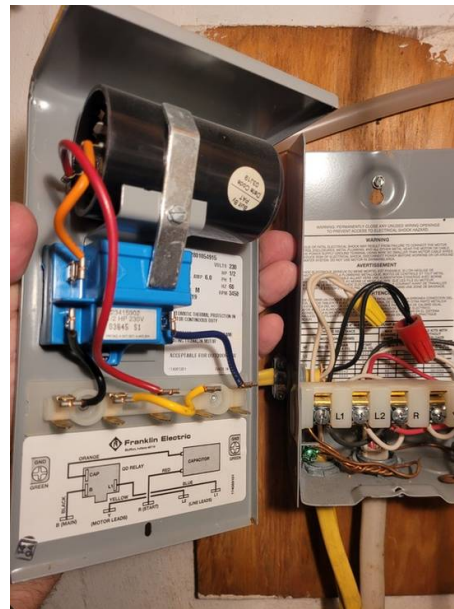
### Electric Supply Disconnect

breakers

## Submersible Motor Control

Inspected

The well pump has an exterior well pump control box which essentially houses the motor start capacitor. If you one day don't have water, chances are that this capacitor has failed which causes the motor not to start. Failure of the capacitor could be solved with a new inexpensive control box (or replacing the capacitor within it). Research "well pump control box" or "submersible motor control box" for more information.



## Pressure Switch

Inspected

40/60 PSI

The switch starts the pump at 40 PSI, and stops the pump at 60 PSI.

## Pressure Tank

Inspected



Water Worker model HT-32B, 32 gallon

## Sediment Filter

Inspected

There is one cartridge type sediment filter with a see-through cover.

## Treatment Systems

Inspected

### Water Treatment Types and Status

Generic water softener, Acid neutralizer, in service

## Plumbing

Inspected

# Well Flow Test

## Definitions

**Drawdown** refers to the amount of water that exits a full tank until the pressure switch turns the pump on again. Drawdown is affected by pressure settings. A lower pressure will yield greater drawdown. The greater the drawdown, the less frequently the pump needs to run which extends pump life. Larger tank sizes also increase the water storage volume to provide more consistent water pressure.

**Flow rate** is the time taken for the well equipment to deliver the required amount of water (or until the test was ended). The flow rate was checked multiple times during the certification process to determine consistency. Only the overall flow rate is listed. The flow rate is in gallons per minute.

**Drawdown variance** is due to deviations in measuring equipment and procedures, even ambient temperatures, and because these mechanical pressure switches cannot start / stop the pump at the precise pressure. Drawdown should be within about 25% of manufacturer specifications for the same pressure selection.

## Drawdown - Manufacturer Specification

8.57 gallons at @ 40/60 PSI

## Drawdown Measured

### Actual drawdown

7.7 gallon

The measured drawdown was within the acceptable variance range from the manufacturer's specifications.

## Flow Test Measured

567 gallons

### Gallons drawn

567 gallons

### Test duration

112 minutes

### Flow rate

5.06 gpm

**Delivery rate constant.** The water delivery rate remained constant for the duration of the test. That is an indication that the volume of water available is more than adequate. The delivery rate would have declined if the static water level dropped significantly.

# Well Status

## Well Status

The volume of water needed for house was delivered within the permitted time. The well flow is satisfactory without need for corrections.

## CERTIFICATION

- **Condition of well:** Satisfactory
- **Condition of equipment:** Satisfactory

## RECOMMENDATIONS

None, system was fully functional

## CONSIDERATIONS

**Spare control box consideration.** Consider keeping a spare control box on the ready near the well. Should you one day have no water without warning, chances are good the capacitor has failed. Anyone with basic home maintenance skills should be able to swap out the front panel within a minute. This can save you inconvenience and lots of money. These control boxes are readily available at plumbing supply stores or online at a cost of \$150 - \$200.

