



State of Utah

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Department of
Environmental Quality

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DIVISION OF DRINKING WATER
Marie E. Owens, P.E.
Director

August 24, 2020

Rodger Smith
Highland Subdivision Water System
5880 North Highland Drive
Mountain Green, Utah 84050

Subject: **Temporary Operating Permit**, Highlands Well #1(WS005);
Highland Subdivision, System #15005, File #7100

This Temporary Operating Permit Expires on September 30, 2020.

Dear Mr. Smith:

The Division of Drinking Water (the Division) received your request for the Operating Permit for Highlands Well #1(WS005), formerly known as the Johnson Well No. 1, from you on July 21, 2020. This project has met all conditions for receiving a temporary operating permit.

The history of the Highlands Well #1(WS005) Division's review is described below:

- The Division issued plan approval for well drilling for the Highlands Well #1(WS005) on April 18, 2007. This well is identified as WS005 in the Division's inventory database.
- The Division issued the original well equipping approval for Highlands Well #1(WS005) on June 16, 2015. The approved design in 2015 included a gas chlorinator in the well house.
- The Division issued Amended Plan Approval for the equipping of Highlands Well #1(WS005) on July 5, 2017. The proposed design submitted to the Division in 2017 did not include a gas chlorinator.
- The Division issued a Plan Approval Extension on July 5, 2018 for one year.
- In July 2019, Highland Subdivision water system requested and was granted a second extension of the Highlands Well #1(WS005) Plan Approval for one year. The second extension included documentation, that due to the time lapse of the original approval in 2015, the Division may need to re-evaluate the well's safe yield and approved capacity.
- An Operating Permit was requested on July 21, 2020.
- Division staff conducted a final inspection of this project on August 4, 2020.

- The site inspection identified the following items that the Division needed further information on before issuance of an Operating Permit for the Highlands Well #1(WS005) :
 - Documentation showing the Johnson Well No. 1 (Highlands Well #1) is clear of litigation
 - Additional documentation detailing the SCADA set points and what controls will be defined to control the function of the Highlands Well #1(WS005).
- Emails from Marjalee Smith, a representative from the water system, Kent Wilkerson, the water system's engineer, and Wendy Crowther, the water system's legal representative, provided the additional clarification on the operations of the Highlands Well #1(WS005). Items discussed including the existing system pressure controls/alarms and documentation on the litigation as of August 12, 2020.
- The operating permit request included a name change request from the previously known Johnson Well No. 1 to Highlands Well #1 (WS005).

The Division's understanding of the Highlands Well #1(WS005) project was for the water system to develop a third ground water source to supplement their spring flows and allow for more development within the water system service area.

Highlands Well #1 (WS005) was equipped with a variable frequency drive (VFD) 40-horsepower (HP) submersible Grundfos pump (model #475s400-4) with the pump capacity set to 265 gallons per minute (gpm). The equipped well pump capacity of Highlands Well #1 (WS005) has a maximum of 475 gpm, however, since the well pumps directly to the distribution Zone 1, the pump rate was limited to 265 gpm to provide a maximum of 10 psi increase in the current Zone 1. This results in a pressure of approximately 128 to 132 psi at the well and is sufficient pressure increase in Zone 1 to close the three pressure reducing valves (PRVs) that feed spring source water to the zone (WS002 and WS003). The Highlands Well #1 (WS005) will begin operating when there is drop in the Gordon Creek 250k (ST003) and Gordon Creek 700k (ST004) below a set point. The set point of the volume drop in the tanks was a combined 225,000 gallons or 24% drop in the tanks volumes, as the two Gordon Creek tanks are hydraulic connected. The operations of the Highlands Well #1(WS005) will be controlled manually until the SCADA installation across the system is completed in the coming weeks. Once SCADA is installed at the tanks and PRVs throughout the system, the programmed alarms will control the Highlands Well #1.

The safe yield of the Highlands Well #1(WS005) is rated at 1,400 gpm, which is calculated based on two-thirds of the constant-rate aquifer drawdown test results at 2,150gpm. In this case, even though this well's safe yield is calculated to be 1,400 gpm, the equipped pump capacity is limited to that of 265 gpm, which is the physical limiting factor of well capacity. In addition, the Drinking Water Source Protection (DWSP) plan considered a maximum pump rate of 500 gpm. The maximum pump rate of 265 gpm is the basis for determining the maximum number of connections that Highlands Well #1 (WS005) can serve. In the future if Highland Subdivision wishes to increase the pump rate of the Highlands Well #1 (WS005) the Land Use Agreement issue, resulting in the DWSP plan maximum pump rate limitation, needs to be rectified and an amended Operating Permit must be requested.

The Highlands Well #1(WS005) will be able to provide sufficient source for the Zone 1 portion of the water system, approximately one third of the system users. Zone 1 also includes the water system's heavy users such as the local church building and cemetery, which have a high outdoor demand water use. The addition of the Highlands Well #1(WS005) will be added to the Highland Subdivision's capacity investigation currently under review, see Division file #12203.

The Highlands Well #1 (WS005) does not currently include a chlorinator. Although it is not currently required, Highlands Subdivision provides chlorination for the springs (WS002 and WS003). The new source chemistry analysis of the Highlands Well #1 (WS005) did not show any exceedances in any water quality parameters. The Highland Subdivision stated that when the Highlands Well #1 (WS005) is expected to be dormant for a sustained amount of time, the water system will flush Zone 1 with chlorinated water from the Springs (WS002 and WS003) until a residual is detected at the dead ends of Zone 1 to ensure that said pressure zone is fully chlorinated again.

We have received the following information for the Highlands Well #1(WS005) project:

1. Certification of Rule Conformance with plan approval conditions by a professional engineer and changes made during construction were in conformance with rules R309-500 through 550.
2. As-built or record drawings.
3. Satisfactory bacteriological results as evidence of proper disinfection and flushing.
4. Evidence of O&M manual delivery.
5. Attorney Wendy Crowther's update on pending litigation regarding the Johnson Well No. 1.

We have determined that all conditions for issuing a Temporary Operating Permit have been met. On this basis, a **Temporary Operating Permit for the Highlands Well #1 is hereby issued as constituted by this letter contingent upon your compliance with the following condition(s):**

This Temporary Operating Permit expires on **September 30, 2020**.

1. Submit documentation showing the completion of the SCADA installation throughout the water system to the Division by **September 30, 2020**.

You may now place Highlands Well #1 (WS005) in service in your water system.

The issuance of the temporary operating permit will place a dormant deficiency S001, unapproved source in service. This item will have notes stating that the facility has an approved temporary operating permit and the System must obtain a permanent operating permit by September 30, 2020. Failure to submit the additional information stipulated in above condition of this temporary operating permit along with a request for a permanent operating permit before September 30, 2020 will result in this dormant deficiency being activated and 200 IPS points will be assessed at that point in time.

Rodger Smith
Page 4 of 4
August 24, 2020

Please maintain a copy of this letter with your permanent records for future reference.

If you have any questions regarding this Operating Permit, please contact Cheryl Parker, of this office, at (385) 271-7039, or Michael Newberry, Engineering Manager, at (385) 515-1464.

Sincerely,



Nathan Lunstad, P.E.
Assistant Director

CP/mnn/mrn/nl/mdb

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