



State of Utah

GARY R. HERBERT  
Governor

SPENCER J. COX  
Lieutenant Governor

Department of  
Environmental Quality

Alan Matheson  
Executive Director

DIVISION OF DRINKING WATER  
Kenneth H. Bousfield, P.E.  
Director

December 18, 2015

Steve Wilson  
405 South 9500 East  
Huntsville, Utah 84317

Dear Mr. Wilson:

Subject: (1) **After-the-Fact Plan Approval** for Church Well Drilling & Equipping (WS001), Pressure Tank (HD001), Storage Tank (ST001) and Distribution Lines (DS001)  
(2) **Exception to R309-515-6(6)(i) 100-Foot Well Seal** for Church Well (WS001)  
(3) **Exception to R309-515-6(10)(b) Constant Rate Test** for Church Well (WS001)  
Ogden Valley Community Church Water System, System #29122, File #10152

On August 19, 2015, the Division of Drinking Water (the Division) received the plans for the Ogden Valley Community Church water system from your consultant, Les Vierra, P.E. The Division received revised plans on October 5, 2015, October 15, 2015, and October 20, 2015. The Division received all of the required pre approval chemistry analysis for the well on December 10, 2015.

The Ogden Valley Community Church water system serves a church building, which has an estimated maximum capacity of 100 people and is accessible all year round. This water system is classified as a non-transient non-community public water system. Our understanding of the project is a 120-foot-deep well was drilled with an 8-inch steel casing and perforations between 105 and 115 depth. The Church Well (identified as WS001 in our inventory) was drilled and equipped without prior Division approval. The well is equipped with a FPS Series V 4-inch submersible 10 gallons per minute (gpm) pump set at a depth of 100 feet. The system will include a 19-gallon PSP pressure tank (identified as HD001 in our inventory), a 2,000-gallon buried concrete water storage tank (ST001), and 1 ¼-inch CTS Polyline distribution line (DS001).

**After-the-Fact Plan Approval for Church Well Drilling and Equipping (WS001) and Other Drinking Water Facilities in the Ogden Valley Community Church Water System**

We have received the following information for the Ogden Valley Community Church Well (WS001):

1. Project Notification Form
2. Start Card
3. Preliminary Evaluation Report (PER)
4. Well driller's log
5. Chemical analyses of the well water.
6. Plans for equipping the well.
  - a. Pump information (*pump specifications and pump curve*).
  - b. Well head discharge piping.
  - c. Pitless adapter design.

We have completed our review of the plans, stamped and signed by Les Vierra, P. E. and dated October 20, 2015, and find they basically comply with the applicable portions of *Utah's Administrative Rules for Public Drinking Water Systems* in R309. On this basis, an **after-the-fact Plan Approval is hereby granted for the plans for equipping the Church Well and construction of a well house, storage tanks (ST001, HD001) and associated water lines (ST001).**

This approval pertains to construction only. **An Operating Permit must be obtained from the Director before Church Well and new drinking water facilities may be put into service.** A checklist outlining the well approval process, including the items required for issuing an operating permit for this well is enclosed for your information.

Approvals or permits by local authority or county may be necessary before beginning construction of this project. As the project proceeds, notice of any changes in the approved design, as well as any change affecting the quantity or quality of the delivered water, must be submitted to the Division. We may also conduct interim and final inspections of this project. Please notify us when actual construction begins so that these inspections can be scheduled.

This approval must be renewed if construction has not begun or if substantial equipment has not been ordered within one year of the date of this letter.

#### **Source Protection Requirement & Preliminary Evaluation Report (PER) Review**

We have also reviewed your submission of the Preliminary Evaluation Report (PER)/Drinking Water Source Protection (DWSP) plan for the Church Well provided by your consultant, River Logic LLC. The Division **concurred** with this report in a letter dated Sept 16, 2015. An updated DWSP plan will be due on or before December 31, 2022 (not 2020, as stated in the previous letter).

#### **Exception to R309-515-6(6)(i) 100-foot Well Seal Requirement**

On August 28, 2015, the Division received your request that the Director, per State of Utah Administrative Rules for Public Drinking Water Systems *R309-500-4*, titled Authority, grant an exception to Rule *R309-515-6(6)(i)*, Well Sealing Techniques and Requirements. This Rule states specifically that for public drinking water wells, the annulus between the outermost well casing and the borehole shall be sealed with grout to a depth of at least 100 feet below the ground surface.

The Church Well (WS001) is a public drinking water well, which is supposed to meet the 100-foot well grout seal requirement. The 100 foot deep grout seal requirement is in place to prevent surface water and lower quality shallow waters from integrating with deeper “protected” aquifers. Due to the lack of a 100-foot grout seal and because septic systems are located within zone two of the well’s source protection zone, the well is located in what is classified as an unprotected aquifer at high risk.

The basis for your request for an exception to *R309-515-6(6)(i)* for this well includes the following:

- This water system received direction, prior to drilling the Church Well, from both the Utah Division of Water Rights and Weber County representatives that a well for a church did not require a 100-foot grout seal. Instead, a grout seal to only 30 feet deep was placed by the well driller and witnessed by a representative of the Morgan-Weber Health department.
- The costs associated with re-grouting or re-drilling the well is not reasonable considering the limited use of this small system.
- The geology recorded in the driller’s report for Church Well indicate that the clay layers are located between 59 and 84 feet and 99 and 108 feet, which should help mitigate the risk of unprotected aquifer.

**An exception to *R309-515-6(6)(i)*, Well Sealing Techniques and Requirements, is hereby granted for Church Well (WS001) with the following conditions once the well is issued an Operating Permit:**

1. The water system will be required to **take monthly *E. coli* samples from the well for a minimum of 12 months**. The monthly *E. coli* samples must be taken directly from the source at the well head (prior to any treatment) (WS001).
2. This water system will be required to **take quarterly nitrate samples from the well for a minimum of a year**. The quarterly nitrate samples must be taken directly from the source at the well head (prior to any treatment) (WS001).

3. If future well monitoring data indicate that the Church Well is under the direct influence of surface water or has persistent water quality problems, water treatment will be required as per Rule *R309-505-7(2)* or federal Ground Water Rule.
4. After the 12 months of well water monitoring, if the sample results consistently indicate that the well is not under the direct influence of surface water and does not have any water quality concerns, the system may request reducing the monitoring frequency.

**Exception to R309-515-6(10)(b) Well Assessment: Constant Rate Test**

On October 5, 2015, the Division received your request that the Director, per State of Utah Administrative Rules for Public Drinking Water Systems *R309-500-4*, titled Authority, grant an exception to Rule *R309-515-6(10)(b)*, Well Assessment: Constant Rate Test. This Rule states specifically that a constant-rate yield and drawdown test shall be performed on new public drinking water wells after well development and prior to placement of the permanent pump.

The basis for your request for an exception to *R309-515-6(10)(b)* includes the following:

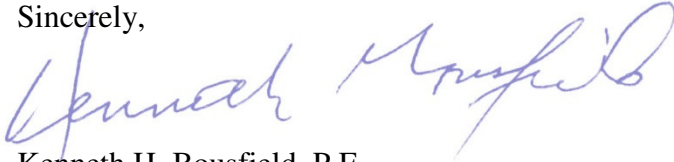
1. The Church Well information was submitted to the Division for review after the completion of the construction. The current design does not allow the ability to install a large enough pump to stress the aquifer allowing a safe yield to be determined.
2. When an Operating Permit is issued for Church Well, this water system will be required to measure and maintain a log of the measured Church Well water levels at least every six months for a minimum of three years. Enclosed is a sample log sheet for your use.
3. If the 3-year well water level monitoring data indicate that the well water level is consistently maintained without any evidence of unsustainable drawdown from this well, the system may request reduction or elimination of this monitoring requirement.
4. If the 3-year well water level monitoring data indicate evidence of unsustainable drawdown from this well, the system may be required to take actions to minimize unsustainable pumping of the aquifer from this well.

On this basis, **an exception to *R309-515-6(10)(b)*, Well Assessment: Constant Rate Test, is hereby granted for Church Well (WS001)**. When this well is issued an Operating Permit in the future, the condition of monitoring well water level will be included in the Operating Permit.

Steve Wilson  
Page 5  
December 18, 2015

If you have any questions regarding this letter, please contact Camron Harry, of this office, at (801) 536-0087, or Ying-Ying Macauley, Engineering Section Manager, of this office, at (801) 536-4188.

Sincerely,



Kenneth H. Bousfield, P.E.  
Director

CH

Enclosures — 1. Well Approval Checklist  
2. Operating Permit Checklist  
3. Sample Well Drawdown Log Sheet

cc: Louis Cooper, Environmental Director, Weber-Morgan Health Department, lcooper@co.weber.ut.us  
Steve Wilson, Ogden Valley Community Church, Wilson@reinfo.org  
Les Vierra, lesvierra@hotmail.com  
Camron Harry, Division of Drinking Water, caharry@utah.gov  
Kate Johnson, Division of Drinking Water, kjohnson@utah.gov  
Jennifer Yee, Division of Drinking Water, jyee@utah.gov  
Nagendra Dev, Division of Drinking Water, ndev@utah.gov

DDW-2015-017828.docx

**Division of Drinking Water**  
**Checklist for New Public Drinking Water Wells**  
(Per Utah Administrative Code, Rule *R309-515-6*)

System Name: \_\_\_\_\_ System Number: \_\_\_\_\_

Well Name & Description: \_\_\_\_\_

**1. Approval to Drill the Well**

- Project Notification Form (PNF)
- Preliminary Evaluation Report (PER) concurrence
- Well drilling specifications and plans
- Valid Start Card or authorization to drill letter from the Division of Water Rights

**2. Approval to Equip the Well**

- PNF (if the well drilling and well equipping are designed by different consultants)
- Well location data
- Certification of well seal
- Well driller's report (well log)
- Aquifer drawdown test results (step drawdown test & constant-rate test) for well yield determination
- Chemical analyses of the well water
- Plans and specifications for equipping the well
  - Pump information (e.g., pump specifications, pump curve & operating point, motor information, etc.)
  - Well head discharge piping
  - Well house design

**3. Operating Permit to Introduce the Well Water**

- Documentation of valid water right(s)
- Recorded land use agreements, or documentation that the requirements for coverage under the City/County source protection ordinance have been met
- Design engineer's certification of conformance with plan approval conditions
- Design engineer's certification of rule conformance for any deviation from approved plans
- As-built or record drawings
- Evidence of O&M manual delivery to system owner
- Satisfactory bacteriological results as evidence of proper flushing and disinfection

## Utah Division of Drinking Water — Checklist for Issuing Operating Permits

Water System Name: \_\_\_\_\_ System Number: \_\_\_\_\_

Project Description: \_\_\_\_\_ File Number: \_\_\_\_\_

Items 1 through 8 below must be submitted to the Division and found to be acceptable prior to operating permit issuance. However, distribution lines without booster pumps may be placed into service prior to submitting all of the items if a professional engineer (PE) responsible for the entire water system has been identified to the Director and has received items 1 through 4 below. *[In this case, a public water system will submit all items needed to obtain an Operating Permit for each distribution system project after the new water lines have been placed into service as determined by the water system's designated PE.]*

- 1. Certification of Rule Conformance by a PE that all conditions of Plan Approval have been accomplished, and if applicable, changes made during construction were in conformance with rules R309-500 through 550
- 2. As-built or record drawings incorporating all changes to approved plans and specifications, unless no changes were made to the previously submitted and approved pre-construction drawings
- 3. Confirmation that as-built or record drawings have been received by the water system
- 4. Evidence that bacteriological samples have been collected to verify proper flushing and disinfection in accordance with the appropriate ANSI/AWWA Standards:
  - ANSI/AWWA C651-14 AWWA Standard for Disinfecting Water Mains  
Two consecutive sample sets at least 16 hours apart, none positive (every 1200 feet, end-of-line, each branch, etc.)
  - ANSI/AWWA C652-11 AWWA Standard for Disinfection of Water-Storage Facilities  
One or more samples, none positive
  - ANSI/AWWA C653-13 AWWA Standard for Disinfection of Water Treatment Plants  
Two consecutive samples per unit, none positive, no less than 30 minutes apart
  - ANSI/AWWA C654-13 AWWA Standard for Disinfection of Wells  
Two consecutive samples, none positive, no less than 30 minutes apart
- 5. Water quality data, where appropriate *[Guidance: Include appropriate raw and finished water data that demonstrate satisfactory performance of the new treatment facility. Storage tank water shall be analyzed for residual volatile organic compounds after tank interior painting or re-coating.]*
- 6. If applicable, all other documentation that may have been required during the plan review process
- 7. If applicable, confirmation that the water system owner has received the O&M manual for the new facility
- 8. If applicable, location data of new storage tank, treatment facility, or source

### Church Well (WS001) Drawdown Data Collection

	Date	Pump Rate (gpm)	Draw Down Depth (ft)	Person Recording Data
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				