PASS-THROUGH CAPACITY REQUIREMENTS FOR SERVICE PUMPS

Rule Affected: Title 30 Texas Administrative Code §290.45

Background

This guidance clarifies the additional capacity requirement for those service pumps that are used to:

1. Meet peak hourly demand for the connections in one pressure plane. Total capacity requirement is 2.0 gallons per minute (gpm) per connection, or 0.6 gpm per connection for systems that provide an elevated storage capacity of 200 gallons per connection at that pressure plane.

2. Pass-through a supply of water to other pressure planes to meet their maximum daily demand. Total capacity requirement is 0.6 gpm per connection.

Guidance

Example 1: Consider a situation where the well pumps water directly into a ground storage tank (GST) located at Pump Station 1. Pump Station 1 distributes water to 100 connections in Pressure Plane 1 (PP1) and provides water to a storage tank located at Pump Station 2. Pump Station 2 distributes water to 50 connections in Pressure Plane 2 (PP2) with no other source of supply. Since Pump Station 1 provides a supply of water to Pressure Plane 2, the service pump (SP) capacity at Pump Station 1 must to be adequate to meet the demand for Pressure Planes 1 and 2:
Required total well capacity

(0.6 gpm/connection)(100 connections \(_{PP1} + 50 \text{ connections }_{PP2}\)) = \textbf{90 gpm}

Required service pump capacity at Pump Station 1

(2.0 gpm/connection)(100 connections) + (0.6 gpm/connection)(50 connections) = \textbf{230 gpm}

Required service pump capacity at Pump Station 2

(2.0 gpm/connection)(50 connections) = \textbf{100 gpm}

**Example 2:** Consider a situation where the well pumps directly into a GST located at Pump Station 1. Pump Station 1 distributes water to 100 connections in Pressure Plane 1, which has an elevated storage tank (EST) that meets the 200 gallons per connection requirement and provides water to a storage tank located at Pump Station 2. Pump Station 2 distributes water to connections in Pressure Plane 2 with no other source of supply. Since Pump Station 1 provides a supply of water to other pressure planes, the SP capacity at Pump Station 1 must be adequate to meet the demand for Pressure Planes 1 and 2:

![Diagram of water distribution system]

Required total well capacity

(0.6 gpm/connection)(100 connections \(_{PP1} + 50 \text{ connections }_{PP2}\)) = \textbf{90 gpm}

Required service pump capacity at Pump Station 1

(0.6 gpm/connection)(100 connections) + (0.6 gpm/connection)(50 connections) = \textbf{90 gpm}

Required service pump capacity at Pump Station 2

(2.0 gpm/connection)(50 connections) = \textbf{100 gpm}

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Example 3: Consider a situation where there are two well sources that pump directly into their own GSTs located at Pump Stations 1 and 3. Pump Station 1 conveys water to Pump Station 2 that distributes water to 50 connections in Pressure Plane 1. Water from Pump Stations 1 and 3 is distributed to 100 connections in Pressure Plane 2. Pressure Plane 2 has 2 ESTs that float on the system and meet the 200 gallon per connection requirement. Pump Stations 1 and 3 convey water to Pump Station 4 that distributes water to 60 connections in Pressure Plane 3 with no other source of supply. Since Pump Stations 1 and 3 provide a supply of water to other pressure planes, the SP capacity at Pump Stations 1 and 3 must each be adequate to meet the demand for Pressure Planes 1, 2, and 3:

Required total well capacity

\[ (0.6 \text{ gpm/connection})(50 \text{ connections}_{PP1} + 100 \text{ connections}_{PP2} + 60 \text{ connections}_{PP3}) = 126 \text{ gpm} \]

Required service pump capacity at Pump Station 1 and Pump Station 3

\[ \frac{(0.6 \text{ gpm/connection})(50 \text{ connections})}{\text{Capacity for Pressure Plane 1}} + \frac{(0.6 \text{ gpm/connection})(100 \text{ connections})}{\text{Capacity for Pressure Plane 2}} + \frac{(0.6 \text{ gpm/connection})(60 \text{ connections})}{\text{Capacity for Pressure Plane 3}} = 126 \text{ gpm} \]

Required service pump capacity at Pump Station 2

\[ (2.0 \text{ gpm/connection})(50 \text{ connections}) = 100 \text{ gpm} \]

Required service pump capacity at Pump Station 4

\[ (2.0 \text{ gpm/connection})(60 \text{ connections}) = 120 \text{ gpm} \]
Finalized and Approved by:

Joel Klumpp, Plan and Technical Review Section Manager, 05/07/2018

If no formal expiration date has been established for this staff guidance, it will remain in effect until superseded or canceled.

**Revision History:**

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