COLORADO
Department of Public Health & Environment

August 23, 2021

Mr. Marco Carani
Town of Johnstown
PO Box 609
Johnstown, CO 80534

Subject: Sanitary Survey of Town of Johnstown
Public Water System Identification No. CO0162418
Weld County

Dear Mr. Carani:

A sanitary survey was performed on July 30, 2021 by the Field Services Section of the Colorado Department of Public Health & Environment's Water Quality Control Division (the department) at the Town of Johnstown (the supplier) in accordance with the *Colorado Primary Drinking Water Regulations, 5 CCR 1002-11* (Regulation 11), Sections 11.38(1)(b) and 11.38(2). This letter serves to provide the supplier with written notification of the sanitary survey findings, including any identified significant deficiencies and violations of Regulation 11. The assistance provided was very helpful and is greatly appreciated. Table 1 identifies the parties present during the sanitary survey.

Table 1: Parties Present

Name	Organization
Marco Carani, Saul Herrera, Ellen, Hilbig, Michael Murphy, Maurice Pribble and Wayne Ramey	Town of Johnstown
Kit Armstrong, Ellen Henrichs and Paul Kosik	Colorado Department of Public Health & Environment

Table 2 summarizes the number of findings and the required written response and resolution dates.

Table 2: Sanitary Survey Findings

Severity Category	Number Identified	Written Response Due (within 45 days of letter date)	Resolution Due (within 120 days of letter, or department-approved alternate date)	Public Notice Required (Violations of Regulations 11)
Significant Deficiencies	0	No response required	Not applicable	Not required
Violations	0	No response required	Not applicable	Not required
Observations - Recommendations	8	No response required	Not applicable	Not applicable

A list of the findings for each category in Table 2 can be found in the following sections:

Section I: Significant Deficiencies

According to Regulation 11, Section 11.3(72), a significant deficiency means:

> *any situation, practice, or condition in a public water system with respect to design, operation, maintenance, or administration, that the state determines may result in or have the potential to result in production of finished drinking water that poses an unacceptable risk to health and welfare of the public served by the water system.*

No significant deficiencies were identified.

Section II: Violations

No violations were identified.

Section III: Observations/Recommendations

The department recommends the supplier follow up and consider the following observations-recommendations. Please direct questions regarding any of the items below to the department inspector.

1. T901 - Treatment: Johnstown SWTP01 (SDWIS ID: 001)
Cross-Connection: Uncontrolled cross-connection that may allow contamination to enter drinking water.

In accordance with Section 11.39(3)(b) of Regulation 11, suppliers of water are prohibited from installing or permitting any uncontrolled cross-connections within a supplier's treatment waterworks. Unprotected cross-connections present potential sanitary hazards and health risks that meet the definition of a significant deficiency as defined in Section 11.3(72) of Regulation 11 and must be corrected. At the time of the sanitary survey, the department inspector identified an improperly controlled cross-connection where a testable double check valve was used to control the filter surface washers connected to the potable water system which is considered an uncontrolled cross-connection (Attachment #1). Per the department's Backflow Prevention and Cross-Connection Control Policy (DW#-007), filter surface washes connected to the potable water system must be protected with an air gap, pressure-resistant vacuum breaker, spill-resistant vacuum breaker or reduced pressure zone (RPZ) backflow prevention assembly. The department recommends the supplier refer to Section 4.3.1.8 of the Colorado Design Criteria for Potable Water Systems which states surface or subsurface wash systems for filters must have a properly installed RPZ backflow preventer on the finished water system. The department may allow for a pressure vacuum breaker or spill-resistant vacuum breaker on the finished water line provided the vacuum breaker on the finished water feed line is immediately located above the overflow height of the filters.

In accordance with Section 11.39 of Regulation 11, the supplier must control or remove this cross-connection to prevent the potential backflow of the identified contaminant from entering the water supply system. In order to correct this deficiency, the supplier must install an appropriate backflow prevention assembly at the location which prevents backflow into the treatment waterworks or remove the identified cross-connection within 120 days of this letter or according to a department-approved alternative schedule. The supplier is expected to submit a photograph of the installed backflow prevention assembly to the department inspector that clearly demonstrates an appropriately installed backflow prevention assembly along with a narrative description of the work that was done. If a backflow assembly is installed, a copy of the test report from a certified cross-connection control technician should also be provided to the department inspector.

After the sanitary survey and before this letter was issued, the supplier provided a response and pictures demonstrating that the double check valve has been replaced with an RPZ backflow prevention assembly (Attachment #1). In addition, the supplier also provided a backflow assembly test report demonstrating the RPZ assembly was tested properly and passed. As such, the deficiency has been resolved and no further response is needed from the supplier at this time.

2. D410 - Distribution: Distribution System (SDWIS ID: DS001)
Valve Inspection and Exercising Program: Valve inspection and exercising program implementation.

At the time of the sanitary survey, the supplier's valve exercising program was discussed. The department inspector noted the supplier did not perform valve inspection or exercising for most of the distribution system. The department recommends developing a program in accordance with *American Water Works Association Standard G200-04 Distribution System Operation and Maintenance*, which states:

"This program shall include at least the following elements: a) A goal for the number of transmission valves to be exercised annually based on the percentage of the total valves in the system. b) A goal for the number of distribution valves to be exercised annually. c) Measures to verify that the goals are met and written procedures for action if the goals are not attained. d) Critical valves in the distribution system shall be

identified for exercising on a regular basis. Potential quality and isolation concerns shall be recognized. The program shall track the annual results and set goals to reduce the percent of inoperable valves."

Inspecting and exercising valves should include completely closing, opening and re-closing until the valve seats properly. Leaking or damaged valves should be scheduled for repair. Valves potentially incapable of properly opening or closing completely should be considered for replacement. A record of valve maintenance and operation, including the number and direction of turns to closure, should be kept. A written standard operating procedure (SOP) for the valve inspection and exercising program should be developed and incorporated into the supplier's operations and maintenance (O&M) plan.

3. M820 - Management:
Emergency Response Plan: Supplier emergency response plan.

At the time of the sanitary survey, the supplier had a written emergency response plan. The department recommends the supplier update its plan for distribution pressure drops below 20 pounds per square inch gauge (psig). The plan should be able to guide the supplier in the event of a naturally occurring or a human-caused failure or condition that might compromise the distribution of safe drinking water. Per Section 8.2.1 of Chapter 8 (Distribution Systems) of the Design Criteria, pressures in the distribution system must be at least 20 psig. Line breaks and pressures below 20 psig can lead to potential backflow situations in the distribution system. The department's environmental release and incident report line (1-877-518-5608) must be notified whenever the distribution system loses substantial water pressure. Guidance on responding to pressure loss and main break incidents may be found at the department's website: https://cdphe.colorado.gov/report-concern-emergency. For more information on responding to pressure loss and main break incidents, please contact Bryan Pilson of the department's Acute Response Team at 303-692-3318 or via email at bryan.pilson@state.co.us.

4. M651 - Management:
Customer Metering: Customer meters and accurate accounting of water used.

The supplier does not calculate water losses in the distribution system. The department recommends the supplier calculate water losses regularly in the distribution system based on metered water usage and/or estimation of the average, daily consumption of residents and visitors. Typical average daily consumption of year-round single-family dwellings without irrigation may range between 75 to 100 gallons per person. Based on this rate with an accurate count of residents and visitors or using more accurate figures developed with historical data and/or influent flow data to the sanitary sewer, an estimated consumption of water may be determined for a selected basis of time. Using this calculation with the amount of water purchased allows the supplier to calculate water losses on a yearly, quarterly or monthly basis which the supplier can use to assess the overall physical condition of the distribution system and help determine if there are line breaks or excessive leaks in the distribution system. If average monthly water losses are over 15 percent, the department recommends the supplier check calibration of meters to verify system losses are accurate and consider distribution piping replacement in combination with leak detection program to reduce water loss and provide improved protection of the finished water.

5. M622 - Management:
As-built Records: Current as-built records of water system facilities.

At the time of the sanitary survey, the supplier was beginning to move from hard copies of as-built drawings of the distribution system to an electronic system. The department recommends the supplier continue to transfer all as-built drawings of its system to its new electronic system. The supplier's electronic system should be a specialized geographic information system (GIS) program that includes a complete and detailed GIS map with inventory and specifications of the distribution system mains such as pipe size, date of installation, pipe material, etc. as well as valves, hydrants and all associated appurtenances. In addition, the department recommends the supplier also accurately determine the locations and construction details of sewer mains to ensure proper separation of potable water mains and sewer lines and to help keep sewer lines intact in the event the supplier is doing excavation work to replace or repair any potable water mains. Furthermore, the supplier should consider using planning and scheduling software compatible with the GIS data to help plan, coordinate and electronically document the supplier's O&M activities for the entire distribution system such as

valve exercising and inspection, hydrant flushing, etc. Planning and scheduling software allows the supplier to be more proactive, efficient, thorough and timely with its O&M activities.

6. M620 - Management:
Operations and Maintenance Plan: Operations and Maintenance Plan.

In accordance with industry practices and standards such as American Water Works Association *Standard G100-05 Water Treatment Plant Operation and Management*, the supplier should have a documented O&M plan. During the sanitary survey, the department inspector noted the supplier had a partially complete written O&M plan. The department recommends the supplier prepare an O&M plan to be maintained on-site. The O&M plan should include, but should not be limited to, a detailed drawing or schematic of the water system, equipment capacity, equipment operational procedures, equipment manuals, SOPs for water treatment and distribution, maintenance schedule and records, O&M records, important contacts and phone numbers, etc. In particular, the supplier should develop, implement and include distribution maintenance SOPs such as valve inspection and exercising, line repairs/replacements, disinfection and flushing. The O&M plan, along with the emergency response plan, should also address procedures for dealing with pipeline breaks and loss of water system pressure. These plans should include written procedures to repair leaks in the distribution system, and flushing and disinfection of affected portions of the distribution system when it is shut down for leak repairs. The department recommends that the O&M plan be prepared and reviewed concurrently with the emergency response plan in order to maintain consistency between the two.

7. F332 - Management:
Alternative Tank Inspection Schedule: Supplier is using an alternative tank inspection schedule.

At the time of the sanitary survey, the department reviewed the supplier's finished water storage tank inspection plan and observed that the supplier had an alternative schedule for periodic inspections of its storage tank which was done every two years. Periodic and comprehensive storage tank inspections must be performed quarterly and every five years, respectively, per Regulation 11, Section 11.28(2)(a)(iii). As discussed in the storage tank inspection violation (F318) noted earlier in the letter, full periodic inspections for tanks on an alternative inspection schedule are still expected by the department to be performed at least once a year. During the sanitary survey, the department noted that the supplier still intends to maintain an alternative tank inspection schedule for its storage tank that is to be performed on a yearly basis. At the time of the sanitary survey, the supplier's tank inspection plan intended that periodic inspections for the elevated storage tank (Storage Tank) are performed yearly due to safety concerns and cost. Please note that the justification for this alternative schedule must be included in the supplier's tank inspection plan which is subject to department review and revision.

8. R514 – Monitoring, Recordkeeping and Data Verification:
Sample Sites Not Representative: Sample site location not representative.

Regulation 11.16(4) the Revised Total Coliform Rule requires the supplier to develop a written sampling plan that identifies routine total coliform sample sites that are representative of water throughout the distribution system and Regulation 11.16(6) requires the supplier to collect samples according to the written sampling plan. At the time of the sanitary survey, the department inspector observed that the supplier's total coliform sampling had been performed by the Weld County Health Department according to the supplier's written total coliform sampling plan. However, the supplier's plan did not include upstream and downstream sites in the event of a positive coliform test result. In addition, the supplier's sampling plan did not include alternate routine sample sites in the event a regular routine sample site is temporarily available. The department recommends the supplier include additional alternate sample sites along with upstream and downstream sites. Although the use and rotation of additional sample sites representative of the distribution system is encouraged, the supplier is required to include all coliform sample sites/locations in its total coliform rule sampling plan. When adding new coliform sample sites, the supplier must update sample locations in the monitoring plan and submit a copy of the updated plan to the department. The monitoring plan templates are available at https://cdphe.colorado.gov/monitoringplans. For more information and guidance on selecting upstream and downstream sites, please contact Drinking Water Compliance Specialist Jamie Duvall at 303-692-3376 or jamie.duvall@state.co.us.

Section IV: Field Verification/Sampling

While performing the sanitary survey, the department inspector performed water quality sampling for free chlorine and turbidity. Table 3 indicates the results of the water quality sampling performed on-site.

Table 3: Sampling Results

Parameter	Sample Location	Value	Units	Notes
Turbidity	Johnstown SWTP01 – (Combined Filter Effluent)	0.08	NTU	The department measured turbidity using a Hach 2100Q. Mr. Michael Maring's turbidity reading at this location was 0.058 NTU. The WTP's online turbidimeter (Hach TU5300) was reading 0.044 NTU at this location.
Disinfectant Residual - Free Chlorine	Johnstown SWTP01 – (Entry Point)	1.86	mg/L	The department measured free chlorine using a Hach Pocket Colorimeter II. The online analyzer (Hach Cl17) for free chlorine was reading 1.91 mg/L at this location.
Disinfectant Residual - Free Chlorine	North Elevated Tank Booster Chlorinator – (Entry Point)	0.92	mg/L	The department measured free chlorine using a Hach Pocket Colorimeter II. Mr. Pribble's free chlorine reading at this location was 0.91 mg/L. The online analyzer (Hach Cl10) for free chlorine was reading 1.06 mg/L at this location.
Disinfectant Residual - Free Chlorine	Loaf 'N Jug Gas Station at 67 Gateway Circle - (Bathroom Sink - Distribution System)	0.99	mg/L	The department measured free chlorine using a Hach Pocket Colorimeter II.

Reminders

- Regulation 11, Section 11.4(1)(b) (Prior Approval Required) requires the department's approval prior to commencement of construction of any improvements, treatment process modifications or the addition of new water sources.

- Most regulations, guidance documents and forms are available on the department's website at https://wqcdcompliance.com.

- Regulation 11, Section 11.5 requires all suppliers of water to develop and implement a monitoring plan. The department's monitoring plan template is available at https://cdphe.colorado.gov/monitoringplans. For assistance developing or updating your monitoring plan, coaching assistance can be requested via the Local Assistance Unit website at https://cdphe.colorado.gov/dwtrain. The supplier is required to submit a copy of the updated plan via the department's online portal at https://wqcdcompliance.com/login. For portal support, please contact Kaleb Winisko at kaleb.winisko@state.co.us or 303-691-7803. The plan will then be reviewed by the Drinking Water Compliance Assurance Section. For questions regarding the monitoring plan requirements please contact the Compliance Assurance Section at 303-692-3556.

- In November 2018, the Water and Wastewater Facility Operators Certification Board updated and revised the criteria for facility classification in Regulation No. 100. These revisions are important because treatment and distribution/collection system classification establishes the minimum certification level for the operator in responsible charge. This may affect your facility's operator certification requirements. For existing facilities, the new criteria were applied March 1, 2021. More information is available at https://cdphe.colorado.gov/wq-facility-classification.

Attached is a form that the supplier may use to document the required written response to this letter. While using this form is optional, it will fulfill the requirement to provide a written response if completed and submitted to the department by the written response due date listed above. Please submit written response to

the drinking water portal at https://wqcdcompliance.com/login under the category "Sanitary Survey Inspection."

We would appreciate any feedback that you provide so that we can improve. Please take a few moments to complete this survey.

If you have any questions, please contact me at 303-692-3327 or paul.kosik@state.co.us. Thank you for your time and cooperation.

Sincerely,

Paul Kosik

Digitally signed by Paul Kosik
Date: 2021.08.23 15:37:10 -06'00'

Paul Kosik, P.E.
Senior Field Engineer
Field Services Section
Water Quality Control Division
Colorado Department of Public Health & Environment

Encl: Sanitary Survey Response Form

cc: Weld County Health Department
Drinking Water File, PWSID No. CO0162418
R Wayne Ramey, ORC
Clayton Moores, P.E., CDPHE-FSS, Unit Manager
Kit Armstrong, CDPHE-FSS, Staff Field Engineer
Ellen Henrichs, P.E., CDPHE-FSS, Staff Field Engineer
Jorge Delgado, P.E., CDPHE-DWCAS, Unit Manager
Jamie Duvall, CDPHE-DWCAS, Compliance Specialist

Attachments

Attachment: 1

Severity: Significant Deficiency No. 1

Facility ID: Johnstown SWTP01 (SDWIS ID: 001)

Category: Treatment – Cross-Connection

Attachment Comments: Top Picture – At the time of the sanitary survey, the house water used for providing water for surface washing of the filters was protected only by a double check valve (circled red) which is not considered an appropriate level of cross-connection control protection. Bottom Picture – After the sanitary survey, the supplier provided a response demonstrating the double check valve was replaced appropriately with an RPZ assembly to properly protect the potable water line supplying the surface wash to the filters.