

November 19, 2018

Lea Tyler, System Legal Representative
Panorama Ranches HOA
0165 Basalt Mountain Dr.
Carbondale, CO 81623

RE: Approval of Drinking Water Final Plans and Specifications for Construction
Chlorine Contact Improvements, Panorama Ranches HOA
Public Water System Identification (PWSID) No. CO0123595, Garfield County
ES Project No. ES.18.DWDR.04414

Dear Ms. Tyler:

The Colorado Department of Public Health & Environment (Department), Water Quality Control Division, Engineering Section has received and reviewed the Final Plans and Specifications for the Chlorine Contact Improvements in accordance with Section 11.4(1)(b) of the *Colorado Primary Drinking Water Regulations* (Regulation 11). The design meets or exceeds the requirements of the *State of Colorado Design Criteria For Potable Water Systems* (Design Criteria) and is hereby approved.

This approval is limited to the following:

- Modifications to Well No 1R (SDWIS ID: 006):
 - Replacement pump for well with flow rate of 50 gpm at TDH 324 feet, (design basis: Goulds 45GS75), controlled by VFD.
- Modifications to Well No 2 (SDWIS ID: 003):
 - Replacement pump for well with flow rate of 50 gpm at TDH 324 feet, (design basis: Goulds 45GS75), controlled by VFD.
- Modifications to treatment plant (CL2 for Wells SDWIS ID: 001):
 - Sodium hypochlorite feed pump with redundant spare pump (design basis: Prominent Beta B4 Pro Series), with auto degassing and anti-siphon/back pressure valves and 100 gallon solution tank.
 - Sodium hypochlorite feed pump turns on with raw water booster pump to control dosing.
 - Replacement booster pump in raw water wet well, with a flow rate of 50 gpm, TDH 370, (design basis: Goulds 45GS75).
- Serpentine Contact Pipe (SDWIS ID: (007):
 - Treatment for Wells (SDWIS ID: 003 and 006).
 - One (1) buried, three (3) section, contact pipeline.
 - Each section a 12-inch diameter, 45 feet long, PVC pipe, for a total length of 135 feet, and a total volume of 793 gallons.
 - Each section has a L/D > 40:1, entire length < 160:1, $R_e > 4,000$ (Approx. 7,000) so the baffle factor is assumed to be 0.7.
 - Entry point sampling moved to yard hydrant sampling tap after contact pipeline.

This approval acknowledges the previous review and approval of the following system components some of which were approved on October 26, 2011. The Department may review the conditions of these existing system components during sanitary surveys and during system modifications that directly impact those components.

- One existing well source: Well No. 2 (SDWIS ID: 003)
 - Well Permit Number 037220-F. Drilled well. Screen: 300 to 320 feet, total depth: 380 feet, static water level approximately 75 - 80 feet.
- One existing well source: Well 1R (SDWIS ID: 006)
 - Well Permit Number 047396-F. Drilled well. Screen: 400 to 435 feet, total depth: 435 feet, static water level unknown.
- Modifications to Well No 1R (SDWIS ID: 006):
 - Replacement pump for well with flow rate of 50 gpm at TDH 324 feet, (design basis: Goulds 45GS75), controlled by VFD.
- Storage Tank (SDWIS ID 005)

Approved Deviations:

The approval includes the following site specific deviation (s) from the Design Criteria:

- Section 4.4.1.2 of the Design Criteria requires that metering pumps have a minimum turndown ratio of 200:1. Panorama Ranches is requesting to install pumps with a minimum turndown ratio of only 100:1. Based on the ability to change/control the hypochlorite solution feed concentration and the 100:1 turn down of the new chemical feeder pumps, the Department accepts this deviation request and has approved use of feeder pumps with less than 200:1 turndown.
- Section 6.3.a of the design criteria states the two pumps must be provided for all pumping systems. With any one pump out of service, the remaining pump or pumps must be capable of providing the maximum pumping demand of the system. Panorama Ranches is requesting to have only one booster pump for their system at any one time. The system has a 100,000 gallon storage tank capable of providing for enough time to replace the booster pump. The size of the booster pump is also being increased to reduce the time needed to fill the 100,000 gallon tank. Based on the relatively large system storage, the Department accepts the deviation request and has approved, for this situation, to have only one booster pump.
- Section 5.1.10.h of the Design Criteria requires that any chemical storage tanks larger than 55 gallons must have proper ventilation. Panorama Ranches is requesting that the requirement for having a vent on their 100 gallon chemical storage tank be waived. The new hypochlorite feeder pumps are equipped with integral valves that allow the chemical feeder lines, and therefore the tank to equalize with atmospheric pressure. Based on these special valves, their reported abilities, and historical success of the valves, the Department accepts the deviation request and has approved to allow the tank and lines to be vented through the chemical feed pumps valve system.

Conditions of Approval:

The approval is subject to the following conditions:

General Requirements:

- Section 2.21 of the Design Criteria requires all chemicals and materials that come in contact with treated or partially treated water to be ANSI/NSF 60 and 61 certified, respectively, for potable water use.
- All wells, pipes, tanks and equipment that can convey or store water intended for potable use must be disinfected in accordance with current AWWA procedures prior to initial use as required in Sections 2.15, 6.6.2, 7.0.18 and 8.7.7 of the Design Criteria.
- All change orders or addenda that address treatment, storage or piping must be submitted to this office for review and approval by the Department.
- Upon completion of construction and prior to commencement of operation, a completed "Drinking Water Construction Completion as Approved Certification Form" stating that the system was constructed as approved and the operational starting date must be submitted to the Department. This form is available at <https://www.colorado.gov/cdphe/wq-facility-design-and-approval-forms> under the "Drinking water construction complete form" heading.
- As required by Section 11.4(3)(b) of Regulation 11, if construction of the project is not commenced within one year from the date of this letter, this approval will expire and all information will be required to be updated and resubmitted for review and approval by the Department. Please note that this requirement is specific to this approval and the associated commencement of construction

and has no impact on other compliance deadlines that are set forth in Regulation 11 and that may be included in other communications that are issued by the Department.

Monitoring Requirements:

- Section 11.5(5) of Regulation 11 requires that suppliers submit any revisions to the Monitoring Plan within 30 days of the effective date of the change. Changes that are made under this approval may require updates to multiple parts of the Monitoring Plan. Information regarding monitoring plan requirements is available online at: <http://www.colorado.gov/cdphe/wqforms> on the Drinking Water page under the "Inventory/System Updates" heading.

Lead and Copper Monitoring:

- In accordance with Part 11.26(2)(d)(iv)(D)(I) of Regulation 11, the Engineering Section reviewed the project scope to determine if lead and copper sampling requirement modifications are appropriate as a result of the project. Based on the project scope and in accordance with the State of Colorado Design Criteria for Potable water Systems - Table A.2 Impacts to Corrosivity Categories (Category 1, no apparent impact to corrosivity), the Engineering Section recommends that the supplier's lead and copper monitoring frequency and sample sites remain consistent with the supplier's current monitoring schedule.
- The supplier has elected to perform triggered source water monitoring. Therefore, under normal operating conditions the supplier does not need to maintain 4-log virus inactivation before or at the first customer on a continuous basis. In the event the supplier has a routine positive total coliform sample, the supplier will be required to monitor and sample the source water for fecal indicators at that time. If the source water sampling determines that fecal contamination exists within the source, the supplier may be required increase treatment to meet 4-log virus inactivation on a continuous basis until the source of contamination can be identified and removed. Alternatively, the supplier may opt to discontinue to use the source. As outlined in the Basis of Design Report, the treatment conditions that must exist to achieve 4-log inactivation of viruses are as follows:
 - The treatment conditions that must exist to achieve 4-log inactivation of viruses requires the supplier to continuously maintain a chlorine residual of 0.8 mg/L at the entry point monitoring location, assuming a flow rate of 50 gpm, a pH of 6.0 - 9.0, a liquid temperature at or greater than 5-degrees Celsius, a baffle factor of 0.7 and a storage volume of 735-gallons through the contact pipeline.
 - The Panorama Ranches HOA is a groundwater system with a population less than or equal to 3,300, therefore Section 11.11 of Regulation 11 requires daily chlorine monitoring at the monitoring location specified in the above bullet (i.e., downstream of chlorine contact time). The supplier will be required to work with the Department's Drinking Water Compliance Assurance Section regarding the specific monitoring requirements.

Facility Classification under Regulation 100:

- In accordance with the current Colorado Operators Certification Board regulations, the water treatment plant is a Class D water treatment facility and the distribution system is a Class 1 distribution system.

Funding Requirements:

Self-funded.

Please be advised of the following notifications and requirements that may apply to the project:

- Approval of this project is based only upon engineering design to provide safe potable water, as required by Regulation 11 and shall in no way influence local building department or local health department decisions on this project. This review does not relieve the owner from compliance with all Federal, State and local regulations and requirements prior to construction nor from responsibility for proper engineering, construction and operation of the facility.
- Any point source discharges of water from the facility are potentially subject to a discharge permit under the State Discharge Permit System. Any point source discharges to state waters without a permit are subject to civil or criminal enforcement action. If you have any questions regarding permit requirements contact the Permits Unit at 303-692-3500.

Please direct any further correspondence regarding the technical approval (plans and specifications/design review) to:

Eric Oppelt, P.E.
Colorado Department of Public Health & Environment
Water Quality Control Division - Engineering Section
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Thank you for your time and cooperation in this matter. Please contact me by telephone at 303-692-6437 or by email at eric.oppelt@state.co.us if you have any questions.

The Engineering Section is interested in gaining feedback about your experience during the engineering review process. We would appreciate your time to complete a Quality-of-Service Survey regarding your experience during the engineering review process leading up to issuance of this decision letter. The Engineering Section will use your responses and comments to identify strengths, target areas for improvement and evaluate process improvements to better serve your needs. Please take a moment to fill out our survey at the following website: <http://fs8.formsite.com/cohealth/form627710151/index.html> .

Sincerely,

Eric T. Oppelt, P.E.
Senior Review Engineer
Engineering Section | Water Quality Control Division
Colorado Department of Public Health & Environment

cc: Rick Higgins, SGM, Inc.
Garfield County Public Health Agency
Drinking Water File
Amy Zimmerman, WQCD ES Engineering Review Unit Manager
Margaret Talbott, DWCAS, Compliance & Enforcement Unit South