



COLORADO

Department of Public
Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

May 8, 2015

Trent Peterson
GCC Energy, LLC
6473 County Road 120
Hesperus, CO 81326

RE: Approval of Drinking Water Final Plans and Specifications for Construction
TMF for a New Water Source and Water System, GCC Energy Water System
Public Water System Identification (PWSID) No. CO0234301, La Plata County
ES Project No. ES.14.DWDR.01242

Dear Mr. Peterson:

The Colorado Department of Public Health and Environment (Department), Water Quality Control Division, Engineering Section has received and reviewed the Final Plans and Specifications for the TMF for a New Water Source and Water System in accordance with Section 11.4(1)(a) and Section 11.4(1)(b) of the *Colorado Primary Drinking Water Regulations* (Regulation 11). Additionally, the membrane filtration equipment was reviewed for conformance with the May 23, 2014 acceptance letter titled "Acceptance of Pentair Homespring Model UF211 Module an Alternative Filtration Technology to meet the *Colorado Primary Drinking Water Regulations* (CPDWR) requirements for *Giardia lamblia* and *Cryptosporidium* Removal" (Homespring Acceptance Letter). The design meets or exceeds the requirements of the New Public Water System Capacity Planning Manual and the *State of Colorado Design Criteria For Potable Water Systems* (Design Criteria) and is hereby approved.

This approval is limited to the following:

- Hay Gulch Ditch (IN001): Surface water source
 - Intake from La Plata River at Hay Gulch Ditch headgate.
 - One (1) existing 100,000 gallon steel raw water storage tank.
- GCC Water Treatment Plant (TP002):
 - Treatment for Hay Gulch Diversion (IN001), maximum flow rate of 4.5 gpm through each filter for a total of 9 gpm.
 - One (1) raw water booster pump (design basis: Cornell 2.5 RB).
 - Roughing filtration (P341):
 - One (1), 20-micron pleated polyester cartridge filter (design basis: Pentair, R Series).
 - One (1) cartridge filter housing (design basis: Pentair, Big Blue).
 - Compliance filtration (P895):
 - Pentair Homespring UF211 filter housing including Innovative Water Technologies IWT UF10 filtration skid (Two (2), 0.02 micron membrane filters housed on the skid).
 - Combined filter effluent monitoring location after the filter skid.
 - Sodium hypochlorite treatment (D421):
 - Sodium hypochlorite chemical feed pump (design basis: Stenner 45MHP2), with redundant feed pump kept on site.
 - One (1) 55 gallon solution feed tank (design basis: Pulsafeeder) with secondary containment.
 - Sodium hypochlorite injection point after membrane filter, but prior to storage tank. Residual chlorine monitoring location is in the treatment building downstream of the distribution pump.
 - Raw water pump and chlorine metering pump electrically connected to control dosing.



- Contact time in existing steel tank (D825):
 - One (1), 37,000 gallon circular, above grade, steel tank, 13.5-foot diameter, and 35-foot long.
 - Tank appurtenances:
 - 3-inch inlet pipe with 8-foot spray bar, including ¼ inch orifices at 4 and 8 o'clock spaced 2-inches apart.
 - 2-inch outlet pipe.
 - Existing 4-inch diameter float access pipe will serve as tank overflow pipeline. Pipe will terminate 12-inches above the ground with 24-mesh screen.
 - One (1), 24-inch manway. Retrofit existing manway to include overlapping cover.
- Treatment appurtenances: Raw water sample tap; two (2) flow meters, one for raw water and one for treated water (design basis: 2" Neptune T-10); pressure reducing valve set to deploy at 100 psi; two (2) flow control valves, one for each compliance filter, set to 4.5 gpm (design basis: Dole); membrane filter inlet and outlet pressure gauges; finished water tap (after distribution pump); on-line turbidimeter (design basis: GF Signet 4150); and continuous chlorine analyzer (design basis: Hanna Instruments PCA 320).
 - Distribution system pumps located within treatment plant. One (1) distribution pump (design basis: Griswold MU20MT).
- Associated piping and appurtenances.

Approved Deviations:

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

- Section 6.3 of the Design Criteria requires that at least two pumping units must be provided for all pumping systems. The design includes one raw water pump and one distribution pump. If the raw water pump were to fail, the submittal states that system will maintain a minimum of a three day water supply in the finished water storage tank. The submittal indicates three days would allow the system adequate time to make necessary repairs to the raw water pump. If the distribution pump were to fail, the system has a plan in place to haul water to the site until the pump could be repaired or replaced. Based on the information supplied to support this deviation, the Department accepts this deviation request and has approved a single raw water and distribution pump.
- Section 7.0.8 of the Design Criteria requires that finished water storage structures must have at least two (2) access openings above the water line. The design includes only one opening above the water line. The tank is an existing tank used at the site for potable water storage received from water hauling. The existing access opening will be used for tank inspections, maintenance and access for cleaning. Based on the information supplied to support this deviation, the Department accepts this deviation request and has approved a single access opening above the water line.

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 in duplicate for review and approval by the Department.

- Upon completion of construction and commencement of operation, a completed "Construction Completion Certification 'As Built' Form" stating that the system was constructed as approved and the operational starting date must be submitted to the Department. This form is available 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 systems 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 on the Drinking Water page under the "Inventory/System Updates" heading
- The surface water system must continuously meet the design, performance and operation and maintenance requirements established in the Department's Homespring Acceptance Letter, dated May 23, 2014. A copy of the acceptance letter is attached.
- In accordance with the Section 11.8 of Regulation 11, all public surface water systems must provide at least 2-log removal and /or inactivation of cryptosporidium, 3-log removal and/or inactivation of Giardia lamblia and 4-log removal and/or inactivation of virus. When operated and maintained in accordance with the May 23, 2014 Homespring Acceptance Letter, the Homespring units are granted 3-log removal of cryptosporidium and 3-log removal of Giardia lamblia, but are not granted virus removal credit. Therefore, the water system is required to provide a minimum of 4-log virus inactivation by disinfection to maintain a multiple treatment barrier approach and satisfy Section 11.8 of Regulation 11 treatment requirements. To achieve 4.0-log virus inactivation through disinfection, this water treatment system must continuously maintain the following conditions:
 - A chlorine residual of 0.4 mg/L at the entry point to the distribution system (sampling location in the water building downstream of the distribution pump), assuming a peak hour flow rate of 9 gpm, a pH between 6 and 9, a liquid temperature at or greater than 0.5 degrees Celsius, a baffle factor of 0.1 and a minimum active storage volume of 6,300 gallons.
- The GCC Energy Water System is a Surface Water System with a population below 500 therefore 11.8(3) of Regulation 11 requires a minimum of one chlorine residual sample per day. The final plans and specifications include a continuous chlorine analyzer for measurement of free chlorine at the finished water sampling location after contact time. The system is required to keep daily records of the chlorine residual results for Department review.

Facility Classification under Regulation 100:

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

The documents that were reviewed for this approval are as follows:

- Engineering Report dated September 9, 2014 titled *GCC Water System Design and Capacity Development TMF Submittal*. Prepared by Harris Water Engineering, Inc. for GCC Energy, LLC.
- Request for Information response letter dated January 28, 2015 regarding New Water System Capacity Planning and Drink Water Plans Submittal. Prepared by Harris Water Engineering, Inc.

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.
- Industrial waste impoundments, including water treatment backwash ponds and sludge drying beds, are subject to regulation by the Hazardous Materials Waste Management Division (HMWMD) of CDPHE under Section 9 (Waste Impoundment) Regulations (<http://www.colorado.gov/cdphe>, select Boards/Commissions, Solid and Hazardous Waste Commission, Solid and Hazardous Waste Regulations, Colorado Solid Waste Regulations 6 CCR 1007-2, and Part 1). The revised Section 9 regulations, adopted February 21, 2012, require water treatment systems managing waste by-products in impoundments to be evaluated to determine the appropriate design and permitting requirements for the impoundment. If an impoundment is not exempted in the Section 9 regulations, waste by-product discharge and handling must be evaluated in accordance with the Section 9 regulations. To inquire regarding the industrial impoundment regulations and schedules, please contact Jerry Henderson with the HMWMD at 303-692-3455 or jerry.henderson@state.co.us.

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

Emily Becker, P.E.
Colorado Department of Public Health and 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 303-692-3566 or by electronic mail at emily.becker@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,



Digitally signed by Emily Becker, P.E.
DN: cn=Emily Becker, P.E., o=Engineering
Section, ou=Water Quality Control
Division, email=emily.becker@state.co.us,
c=US
Date: 2015.05.08 14:29:59 -06'00'

Emily Becker, P.E.
Senior Review Engineer
Engineering Section
Water Quality Control Division
Colorado Department of Public Health and Environment

cc: Charles Homer Moore, GCC Energy LLC
Steven Harris, Harris Water Engineers, Inc.
Carrie Lile, Harris Water Engineers, Inc.
Victoria Schmitt, La Plata County
Greg Brand, San Juan Basin County Health Department
Amy Zimmerman, WQCD ES Engineering Review Unit Manager
Margaret Talbott, DWCAS, Compliance & Enforcement Unit South
Laurie Findlay, Drinking Water Compliance Assurance Section
Leticia Bisgard, Drinking Water Compliance Assurance Section
Drinking Water File

Attachments: Acceptance of Pentair Hometown Model UF211 Module an Alternative Filtration Technology to meet the Colorado Primary Drinking Water Regulations (CPDWR) requirements for *Giardia lamblia* and *Cryptosporidium* Removal, dated May 23, 2014.