THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF ENVIRONMENTAL HEALTH
Drinking Water Program

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July 24, 2015

Mr. Alan Steffert
City and Borough of Juneau
155 South Seward Street
Juneau, AK 99801

RE: City and Borough of Juneau Community Water System (Public Water System ID# 110342)
Salmon Creek Membrane Filtration Treatment Plant Addition
Conditional Construction Approval (PR# 9365)

Dear Mr. Steffert:

On June 8, 2015, a request was received in this office for approval to construct a membrane filtration system at the Salmon Creek water source, a modification to the drinking water system serving the City and Borough of Juneau (CBJ). We have reviewed the request, which includes engineering plans and specifications, and the additional information received on June 26, and July 2 and 9, 2015. Based on this review, we grant conditional construction approval as detailed below. This letter and the enclosed "Construction and Operation Certificate" are the written approval required by State of Alaska Drinking Water Regulations, 18 AAC 80.200(b). Use the noted public water system identification (PWSID#) and project (PR#) numbers to identify this project.

This project will result in CBJ providing filtration treatment for Salmon Creek, a source currently operated in accordance with the requirements contained in 40 CFR 141.71, *Criteria for avoiding filtration. Cryptosporidium parvum* source water monitoring for 24 months has been completed and the source assigned a bin classification of Bin 1. Bin 1 systems are required to operate treatment that will reduce Cryptosporidium concentrations by a minimum of 2-log. This membrane system is capable of providing this treatment. In conjunction with inactivation achieved through the existing chlorination and contact treatment, the system will also be capable of achieving 3-log *Giardia Lamblia* and 4-log virus reduction.

This approval is for the design detailed in the noted engineering plans and additional information submittals. <u>Approval of changes is required prior to implementation.</u> Please review the conditions listed below and assure compliance with all conditions before beginning construction. Interim and Final Approvals to Operate <u>may be withheld</u> unless all conditions are met. You are required to obtain <u>approval from this office before you serve water.</u>

WATER TREATMENT SYSTEM SUMMARY			
SYSTEM CLASSIFICATION: Community			
PWS ID# 110342			
POPULATION SERVED	Residents: ~31,000	Non-transients: TBD	Transients: ~6000
SOURCE: Salmon Creek Reservoir – Surface Water			
FILTRATION: PALL Aria FIT (2 racks, each with 48 modules (96 modules total), incorporating Pall Microza UNA-620A microfiltration membrane)			
FILTRATION SYSTEM CAPACITY: 2.0 MGD			
DISINFECTION: Existing onsite generation hypochlorination system and contact tank			

Project-specific conditions of approval:

1. The Project Information Form initially submitted did not include the non-transient and transient population served values. The transient population, estimated to be 6000 people per day, was provided in the July 2 submittal. Please provide an estimate of the non-transient population to assure information used by the department is accurate.

2. Please submit hard copies of the engineering plan information received on July 2 and 9.

3. Additional information is needed to further address the request of information regarding separation distances and waivers. Supplemental information provided on July 2 identifies eight (8) items, the issues associated with each, and the mitigating measures/considerations applicable to each. These waivers are conditionally approved as noted below (ref. Separation Distance Waiver Approvals).

   In addition to the waivers requested and conditionally approved, a review of the plans noted separation concerns requiring attention. Submit separation distance requests for reductions necessary to install the raw water and filtrate/filtered water lines as depicted in the submitted plans. This requirement must be addressed prior to beginning this part of the construction. To facilitate the review and documentation of the waivers, please provide a tabular summary of all crossings and sections requiring waivers (identify the lines (existing and proposed), requested separation distance waiver, mitigating construction considerations, and endorsement for the reduction in the required distance.)

4. Submit proposed monthly operator report (MOR) forms for review prior to requesting Interim Approval to Operate. Forms need to be approved before operational approval will be granted.

GENERAL CONDITIONS OF APPROVAL	
Separation Distances:	Except as approved herein, a minimum separation distance of 10 feet must be maintained between all water lines and wastewater sewer lines and appurtenances (including sewer manholes), as measured from the closest edges of each component. If this distance cannot be met, a separation distance waiver must be requested and granted prior to construction. *Record drawings for the project must include details adequate to confirm that the prescriptive requirements contained in Drinking Water Regulations, 18AAC80.020(f), for crossings of water and sewer mains, have been met during construction.*

Materials:	All materials used in this water system that will contact potable water must be lead-free and approved for that use by NSF International, Underwriter Laboratories (UL), or an equivalent organization that evaluates products using NSF/ANSI Standard 61. In the absence of NSF/ANSI 61 certification, materials must be approved by the Department on a case-by-case basis prior to construction.
Changes to approved plans:	Deviations from approved plans which affect capacity, flow, operation, major design of units, materials of major system components, or separation distances, must be approved in writing by this office prior to their implementation.
Flushing, Pressure Testing, and Disinfection	Following construction, the system shall be flushed, pressure tested and disinfected in accordance with standards approved by this office.
Chlorinated Discharges:	Water containing chlorine used during the disinfection or pressure testing processes requires proper management. This includes chlorine neutralization or disposal in an appropriate wastewater treatment and disposal system. This water must be managed to avoid adverse effects on groundwater, surface water or the environment.
2-Year Approval Duration and Extensions:	This **approval is valid for two years** from the date of this letter. If the applicant fails to construct, install, alter, renovate, or improve the water system within two years, the approval is void and the plans and information required under 18 AAC 80.210(a) must be resubmitted for Department review and approval. If during the two-year period, the site conditions, plans, and information, and requirements of this chapter do not change, and if the applicant pays the fee required by 18 AAC 80.1910(b)(12), the Department may grant the applicant an extension.
Other Required Authorizations:	This approval is also contingent upon your receipt of any other state, federal or local authorizations that are required for your project. You are required to obtain all other necessary authorizations before proceeding with your project.

TO REQUEST INTERIM APPROVAL TO OPERATE	
Upon completion of construction and ***prior to serving water***, the **project engineer must certify the following** information in the request for Interim Approval to Operate:	
Construction:	Construction has been completed under the direction of a registered engineer in accordance with the DEC approved plans.
Materials:	Only lead-free and NSF/ANSI 61 listed materials were used in the construction and only NSF/ANSI 60 listed chemicals are provided for water treatment.
Flushing, Pressure Testing and Disinfection:	The system was successfully flushed, pressure tested, and disinfected in accordance using department approved methods.
Disinfection Verification Coliform sampling:	The system was properly disinfected and verified to be free of Coliform bacteria in accordance with applicable AWWA standards (C651 and C653) or methods approved by the department prior to construction.
O & M Manual	An Operations & Maintenance manual has been provided to the water system operators.

Separation Distances:	All applicable minimum separation distance requirements have been met during construction. For conditional waiver approvals of separation distance requirements, provide confirmation that all conditions were met.
Conditions:	All conditions of construction approval have been met.

TO REQUEST FINAL APPROVAL TO OPERATE	
At least 30 days prior to the expiration of the Interim Approval to Operate, submit the following information in the request for Final Approval to Operate:	
Record Drawings:	Record drawings, sealed, signed and dated by a registered engineer. The record drawings must include: • clear delineations of any changes or deviations from the previously submitted and approved plans; • details verifying compliance with minimum separation distance requirements; and • construction details for all water and sewer main crossings.
Operator:	The Drinking Water Regulations, 18 AAC 80.007, require that this system be actively supervised as described in the Operator Certification Regulations, 18 AAC 74, by operators who are certified in accordance with AS 46.30 and 18 AAC 74. For more information on Operator Certification requirements contact Ken Smith, Environmental Program Specialist (907-465-5136 or Ken.Smith@alaska.gov.)
Disinfection Profile:	A disinfection profile (a representation of your system's level of Giardia lamblia and virus inactivation measured during the course of a year,) needs to confirm the treatment system has the ability to be operated to meet the inactivation requirements of the regulations on a consistent basis (the data should be submitted graphically and in an electronic format compatible with Microsoft Excel).
Turbidity Monitoring:	One year of continuous turbidity monitoring needs to confirm that the treatment system has ability to be operated to meet the turbidity requirements of the regulations on a consistent basis (the data should be submitted graphically and in an electronic format compatible with Microsoft Excel).
Outstanding Conditions:	Verification and applicable documentation demonstrating that all conditions contained in this Conditional Approval to Construct have been met.

Separation Distance Waiver Approvals:

The submitted engineering plans include requests for waivers of the minimum separation distances required under Drinking Water Regulations, 18 AAC 80.020. The challenges presented by the spatial constraints of the site and the number of existing and proposed drinking water and wastewater system components resulted in the need for multiple waivers and mitigating construction considerations. We have completed a review and find that the submitted information, justification, and endorsement of the project engineer adequately supports reductions of the minimum separation distances required in 18 AAC 80.020, as follows:

Item No.	Issue	Distance and Mitigating Construction
1	Reservoir drain line crosses existing 24" DIP drinking water outlet pipe from the Salmon Creek Reservoir CT tank ("CT Tank").	Existing CMP reservoir drain line to be replaced with 18" double wall HDPE storm drainpipe; pipe to be successfully pressure tested. New drain line to be in the same location as existing 24" CMP pipe being replaced. Maintain vertical separation of 2.45'
2	New reservoir drain line will cross new discharge pipe from new pump P-4, used to fill CT tank with drinking water from the Last Chance Basin (LCB) well field during WTP construction.	New drain line to be 18" double wall HDPE storm drainpipe; pipe to be successfully pressure tested. New drain line to be in the same location as existing 24" CMP pipe being replaced. Discharge pipe from pump P-4 to be 12" restrained joint DIP or fused HDPE. Maintain vertical separation of 2.3'
3	New reservoir drain line will cross new inlet pipe to new pump P-4, used to fill CT tank with drinking water from the LCB well field during WTP construction.	New drain line to be 18" double wall HDPE storm drainpipe; pipe to be successfully pressure tested. New drain line to be in the same location as existing 24" CMP pipe being replaced. Inlet pipe to pump P-4 to be 12" restrained joint DIP or fused HDPE. Maintain vertical separation of 2.2'
4	The existing 12" DIP drinking water line from the LCB well field will be replaced in part and placed under the new 18" double wall HDPE storm drainpipe from the reservoir drain line and within 2' of reservoir drainpipe manhole.	New drain line to be 18" double wall HDPE storm drainpipe; pipe to be successfully pressure tested. New drain line to be in the same location as existing 24" CMP pipe being replaced. New 12" water pipe from the LCB to be 12" restrained joint DIP or fused HDPE. Maintain vertical separation of 1.8'
5	New reservoir drain line to be ~1' horizontally and 24" vertically from existing 12" DIP drinking water line from the LCB well field.	New drain line to be 18" double wall HDPE storm drainpipe; pipe to be successfully pressure tested. New drain line to be in the same location as existing 24" CMP pipe being replaced.
6.	New reservoir drain line to have approximately 3.8' vertical separation to proposed 16" filtrate/filtered water line at crossing.	New drain line to be 18" double wall HDPE storm drainpipe; pipe to be successfully pressure tested. New drain line to be in the same location as existing 24" CMP pipe being replaced. New 16" filtrate/filtered water line be restrained joint DIP or fused HDPE. Maintain vertical separation of 3.8'
7	New 6" HDPE waste discharge line from the Waste Discharge Pump Station approximately 18" above and about 6" horizontally from the 16"	New waste discharge line to be SDR11 HDPE pipe operating at less than 10 psi. New waste discharge line to be successfully pressure tested to 150 psi.

	filtrate/filtered water line for approximately 80'.	Waste conducted by this line is water treatment related waste. New 16" filtrate/filtered water line be restrained joint DIP or fused HDPE.
8	New 6" HDPE waste discharge line from the Waste Discharge Pump Station approximately 3' horizontally from the new 12" DIP drinking water line from the LCB well field for approximately 140'.	New waste discharge line to be SDR11 HDPE pipe operating at less than 10 psi. New waste discharge line to be successfully pressure tested to 150 psi. Waste conducted by this line is water treatment related waste.

Please note this is a summary of the proposed mitigating construction and design considerations. Refer to the engineering plans for additional details. Also note, as detailed above, additional separation distance concerns need to be addressed for this project and must be approved by the department before that portion of the project is constructed.

Approval Limitations

This conditional construction approval does not imply the granting of additional authorizations, nor obligate any federal, state, or local regulatory body to grant required authorizations. This is not an approval of omissions or oversights by this office or noncompliance with any applicable regulation. The Department's construction approval does not guarantee correctness of the functional design or waive the owner's responsibility for compliance with applicable regulations.

The waiver approvals are valid only for the proposed use and the systems described in the above-referenced engineering submittals on file in this office. The waivers are valid as long as the drinking water contaminant concentrations do not exceed the maximum contaminant levels (MCLs) established in 18 AAC 80.300.

Appeal Process

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 - 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Requests for an adjudicatory hearing or informal review may be made by mail, electronic mail, or facsimile. Informal review requests must be delivered to the Division Director, Elaine Busse Floyd, 555 Cordova St., Anchorage, AK 99501, within 15 days of receipt of this decision. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, Larry Hartig, 410 Willoughby Ave., Suite 303, Juneau, AK 99801, within 30 days of this decision. If a hearing is not requested within 30 days, the right to appeal is waived. More information on the Department's administrative appeals process can be found at http://www.dec.state.ak.us/commish/ReviewGuidance.htm.

Sincerely:

Scott Forgue

Scott Forgue, P.E.
Regional Engineering Coordinator
Kenai/Southeast/Wasilla Engineering Area

Enclosure: Construction and Operation Certificate

cc: James L. Dorn, P.E., Principal, Carson Dorn, Inc. (via email)
Rob Kimble, DEC – Engineering Support and Plan Review (via email)
Sally Wanstall, DEC – Waste Water Discharge Authorization Program (via email)
Ken Smith, DEC – Operations Assistance (via email)
Beth Verrelli, DEC – Municipal Grants and Loans (via email)

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CONSTRUCTION AND OPERATION CERTIFICATE
FOR
PUBLIC WATER SYSTEMS

A. APPROVAL TO CONSTRUCT – City & Borough of Juneau Salmon Creek Membrane WTP

Plans for the construction or modification of the City and Borough of Juneau, (PWSID # 110342, Plan Review # 9365), a Community Water System, located in Juneau, Alaska, submitted in accordance with Drinking Water Regulations, 18 AAC 80.200 by James Dorn, P.E. /Alan Steffert, owner's representative have been reviewed and are

☐ approved as submitted ☒ conditionally approved (see attached conditions)

Scott Forgue, P.E. (Reviewing Engineer)	Regional Engineering Coordinator (Title)	July 24, 2015 (Date of Approval)

If applicant fails to construct, alter, install, or modify the system within two years of the date of approval to construct, approval is void, and plans must be resubmitted for Department review and approval.

B. APPROVED CHANGE ORDERS

Change (contract order number or descriptive reference):

(Reviewing Engineer)	(Title)	(Date of Approval)

Change (contract order number or descriptive reference):

(Reviewing Engineer)	(Title)	(Date of Approval)

C. INTERIM APPROVAL TO OPERATE

This section must be completed and signed by the Department before any water is made available for public use.

The construction of the above-referenced water system was completed and approved for operation on __/ __/ __. The system is hereby granted ***INTERIM APPROVAL TO OPERATE*** **for <u>90 days</u>** following the interim approval date. It is illegal to operate a public water system beyond 90 days without ***FINAL APPROVAL TO OPERATE*** from the Department.

Scott Forgue, P.E. (Reviewing Engineer)	Regional Engineering Coordinator (Title)	(Date of Approval)

D. FINAL APPROVAL TO OPERATE

Record drawings and other documents submitted to the Department, or an inspection by the Department, has confirmed that the above-referenced water system was constructed in substantial conformance with the approved plans. The system is hereby granted ***FINAL APPROVAL TO OPERATE***.

Scott Forgue, P.E. (Reviewing Engineer)	Regional Engineering Coordinator (Title)	(Date of Approval)