

Drinking Water Program Public Water System – Engineering Plan Review Checklists

Purpose

This checklist applies to obtaining construction and operational approval for both Class A and Class B Public Water Systems for:

- New construction,
- System modification and/or change of use, and
- Separation distance waiver requests.

The checklist is based on the plan review requirements as referenced in the State of Alaska Drinking Water Regulations, 18 AAC 80, effective August 26, 2004. This checklist supercedes all previous versions of plan review checklists. Checklists are updated when necessary, please contact your local Drinking Water Program office for the latest version.

Plan Review Process and Checklist Instructions

The plan review and approval process consists of two major stages that include certification for Approval to Construct and Approval to Operate.

Approval to Construct. Plan approval to construct requires submittal of engineering construction plans, specifications, and calculations to the department for review. Upon Department's review and approval, a Letter of Approval with an attached certificate for Approval to Construct will be issued. The steps below outline how to determine the submittal requirements for construction approval.

1. Complete the *Master Application Form*: This form compiles information of the owner/responsible party for the property, onsite contact information, facility information, and an owner's statement. The owner's statement must be signed by the property owner or responsible party before a plan review can be conducted.
2. Complete the *Drinking Water Program – Application for Engineering Plan Review Form*: This form identifies the registered engineer working on the project, the PWS information, and the checklists that are required for the plan submittal. To determine the checklists that need to be completed for the submittal:
 - Identify the column that matches the project type (i.e. New PWS, Modification of Existing PWS, Distribution Extension or Replacement, or Waiver) and check that column.
 - The project type column identifies the checklists that are required and maybe required depending on the water system's configuration. Mark all checklists that apply to this project. For example, you are submitting a design a new Class A PWS with a surface water source. You would mark Checklists No. 1.0, 1.1, 2.2, 3.0, 4.0, and 5.1 to include as a part of your submittal.
3. Complete and submit all checklists and items identified in Part III of *Application for Engineering Plan Review Form*.

Interim Approval to Operate is a temporary 90-day certificate that allows for a system to begin operation even though all plan review items have not yet been submitted. Upon Department’s review and approval, a Letter of Approval with an attached certificate for Interim Approval to Operate will be issued. The steps below outline how to determine the submittal requirements for interim operation approval.

1. Complete and submit all items on Checklist No. 6.0 – *Interim Approval to Operate*.
2. At a minimum, to obtain a certificate for Interim Approval to Operate, the following must be provided:
 - Verification that construction is complete.
 - Finished water analyses for any raw water contaminant are below maximum contaminant levels (MCL).

Final Approval to Operate will be issued after all remaining review information has been submitted and written terms and conditions set by the department have been met. Upon Department’s review and approval, a Letter of Approval with an attached certificate for Final Approval to Operate will be issued. The steps below outline how to determine the submittal requirements for final operation approval.

1. Complete and submit all items on Checklist No. 7.0 – *Final Approval to Operate*.
2. Verify that all remaining written terms and conditions set by the Department have been met.

General Information. As required by the Alaska drinking water regulations, “Subject to the availability of appropriations from the legislature and the staffing needs of other projects, the department will issue its approval or denial to construct a Class A or Class B public water system within 30 days after the department receives all of the plans and information required by this chapter. If the submittals are deficient, the department will notify the owner or operator that additional information is needed. Failure of the department to issue an approval or denial to construct within 30 days does not constitute automatic approval of the plans.”

Contacts

The Department encourages applicants, engineers, and system owners and operators to contact local plan review staff to discuss this checklist. It will be used to evaluate the completeness of submitted plans. If the submittal is not complete, the submittal may be returned to the applicant or held until contact is made with the applicant. Formal review may not begin until the department determines the plan submittal is complete. Fee payment must be included for the submittal to be complete.

Anchorage Office

Vanessa Blevins, P.E. (907) 269-7696
Sarah Rygh, E.I.T. (907) 269-3076

Fairbanks Office

Lee Johnson, P.E. (907) 451-2179
Johnny Mendez, E.I.T. (907) 451-5193

Juneau Office

David Khan, P.E. (907) 465-5317

Mat-Su Office

Allan Nakanishi, P.E. (907) 376-1862

Soldotna Office

Scott Forgue, P.E. (907) 262-5210
ext. 243



Master Application Form Engineering Plan Review

I. Owner/Operator/Responsible Party

Required Field in Bold

First Name: _____ **Last Name:** _____ **Phone:** _____
 Company Name: _____ Fax: _____
Mailing Address: _____

City: _____ **State:** _____ **Zip:** _____
 Email Address: _____

II. Onsite Contact

First Name: _____ Last Name: _____ Phone: _____

III. Facility Information

Facility Name: _____ **Phone:** _____
 AKA: _____ Fax: _____
Mailing Address: _____

City: _____ **State:** _____ **Zip:** _____
Physical Street Address: _____

Legal Address Lot: _____ Block: _____ Subdivision: _____ Addition: _____
OR
Legal Description Meridian: _____ Section: _____ Township: _____ Range: _____ Tax Lot: _____

IV. Owner's Statement

I submit the enclosed items concerning the above referenced project. By my signature (18 AAC 15.030), I certify that the above information is correct and the project is (check one):

- privately owned and I am the owner.
- owned by a sole proprietorship and that I am the proprietor.
- owned by a partnership of which I am a general partner.
- owned by a corporation of which I am a principal executive officer of at least the level of vice president, or a duly authorized representative responsible for overall project management.
- owned by a municipal, state, federal, or other public agency of which I am a principal executive officer, ranking elected official, or other duly authorized employee.

Signature

Date

Printed Name

Title



Drinking Water Program

Application for Engineering Plan Review

This form must be attached to a completed and signed *Master Application Form for Engineering Plan Review*. The accompanying hard copy plans must be signed and sealed by a State of Alaska Professional Engineer (PE) and submitted in half-size 11"x17" or standard 8"x10" format. If electronic copies are submitted they should be in Adobe ".pdf" format.

I. Project Engineer

Required Field in Bold

First Name: _____ **Last Name:** _____ **Phone:** _____
 Company Name: _____ Fax: _____
Mailing Address: _____
City: _____ **State:** _____ **Zip:** _____
 Email Address: _____ **AK PE License No.:** _____

II. Project Information

Public Water System ID: _____ **PWS Classification:** Class A
 (for existing water systems) (18 AAC 80.1990 (a) (12) & (13)) Class B

System Capacity: Number of Service Connections: _____
 Days per Year of Operation: _____
 Date(s) of Operation: _____
 Population Served - *Resident*: _____ (PWS primary place of abode)
 - *Non-Transient*: _____ (> 6 months/year of PWS use)
 - *Transient*: _____ (< 6 months/year of PWS use)
 Length of Extension or Replacement (ft): _____ (for distribution projects)

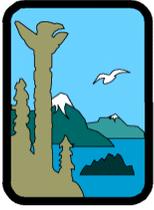
III. Plan Review Checklists for Construction Approval

Use the checklist matrix below to determine the checklists required for this plan review. First identify the column(s) that match the project type then read the corresponding row to identify the needed checklist(s). Mark all checklists that are attached with this submittal. Incomplete applications and plans will not be processed and will be returned.

Project Type: *Check one box that corresponds to project type* →

Approval Type	Checklist No.	Checklist Name	<input type="checkbox"/> New PWS	<input type="checkbox"/> Modification of Existing PWS	<input type="checkbox"/> Distribution Extension or Replacement	<input type="checkbox"/> Waiver
Approval to Construct	1.0	Approval to Construct - General	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	1.1	Capacity Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2.1a	Source - Groundwater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2.1b	Source - GWUDISW Determination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2.2	Source - Surface Water/GWUDISW	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3.0	Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	4.0	Distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5.1	Treatment - Surface Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5.2	Treatment - Corrosion Control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5.3	Treatment - Other Treatment System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Approval to Operate	6.0	Interim Approval to Operate	Required for Approval to Operate after construction is completed.			
	7.0	Final Approval to Operate				
Waiver	8.0a	Waiver Request - Water Source	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	8.0b	Waiver Request - Distribution System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Always required with submittal
 Required when applicable



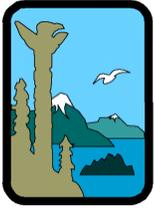
Drinking Water Program - Engineering Plan Review Approval to Construct - General Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for the construction of a new or modification of an existing Class A or Class B Public Water System. Hard copy plans must be signed and sealed by a registered engineer & submitted in half-size 11"x17" or standard 8"x10" format. If electronic copies are submitted they should be in Adobe ".pdf" format. Incomplete submittals will be returned.

- | | | |
|--------------------------|---|---|
| <input type="checkbox"/> | 1. Plan review fee. | <i>18 AAC 80.1910 (c)</i> |
| <input type="checkbox"/> | 2. Engineer's written report. Must be signed and sealed by a registered engineer. | <i>18 AAC 80.205
18 AAC 80.010(b c d)</i> |
| <input type="checkbox"/> | 3. Construction drawings and specifications. Must be sealed, signed and dated by a registered engineer. | <i>18 AAC 80.205(a)(1)</i> |
| <input type="checkbox"/> | 4. Design criteria, calculations, flow analysis and other computations. | <i>18 AAC 80.205(a)(3)</i> |
| <input type="checkbox"/> | 5. Manufacturer's specifications and performance curves for all pumps. | <i>18 AAC 80.205(a)(3)</i> |
| <input type="checkbox"/> | 6. Backflow and/or Cross Connection evaluation. | <i>18 AAC 80.025</i> |
| <input type="checkbox"/> | 7. Lead-free pipe, flux, and solder specification. | <i>18 AAC 80.500
18 AAC 80.205(b)(7)</i> |
| <input type="checkbox"/> | 8. Specification of National Sanitation Foundation (NSF), Underwriter Laboratories, or an equivalent organization that evaluates products using ANSI/NSF Standards 61 approved materials. | <i>18 AAC 80.010(b)(10)</i> |
| <input type="checkbox"/> | 9. Raw water analysis results if this is a new public water system proposing a new source. | <i>18 AAC 80.205(c)(2)</i> |
| <input type="checkbox"/> | 10. Raw water quality data for a potential contaminant, if the Department determines that the data serves the interest of public health. | <i>18 AAC 80.205(c)(6)</i> |
| <input type="checkbox"/> | 11. Design will need to address the need and location of pressure gages, flow meters, rate of flow controllers, sample points, valves, etc to allow the operator to operate the system in compliance with the monitoring requirements of 18 AAC 80. | <i>18 AAC 80.205(a)(1)</i> |
| <input type="checkbox"/> | 12. Submit details concerning the disposal of waters containing high amounts of disinfectant resulting from the disinfection process. A disposal permit may be required from this Department for the disposal of this water. | <i>EPA NPDES</i> |



Drinking Water Program - Engineering Plan Review Capacity Development Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for all new Class A Public Water Systems. When approvals to construct are sought, the department will determine whether it will have the technical, financial, and managerial capacity to consistently produce and deliver water that meets Alaska's drinking water regulations. The available water resources and the characteristics of the population served are considered. Technical capacity means the physical infrastructure of the water system, including but not limited to the adequacy of the source water, infrastructure (source, treatment, storage, and distribution), and the system personnel's ability to adequately operate and maintain the system and to implement technical knowledge. Financial capacity means the capability of the financial resources of the water system including but not limited to revenue sufficiency, credit worthiness, and fiscal controls. Managerial capacity refers to the management of the water system, including but not limited to ownership, accountability, staffing, and organization, and effective linkages to customers and regulatory agencies.

1. If this Class A public water system has 15 service connections or more, provide a copy of the Certificate of Public Convenience and Necessity (CPCN) application that is date stamped by the Regulatory Commission of Alaska (RCA). Checklist items below do not have to be completed if a CPCN application to RCA is required. Approval to construct will not be issued until RCA has issued a Finding of Public Convenience and Necessity. *18 AAC 80.207(c)(1)(A B)*

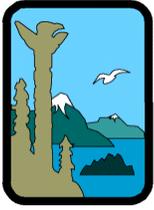
2. If the system does not fall under the jurisdiction of the Regulatory Commission of Alaska (RCA), submit a completed managerial and financial capacity form. This form is available on the Department's website in the Drinking Water Program section. *18 AAC 80.207(c d)*

3. Other information that the owner considers necessary to demonstrate financial and managerial capacity. *18 AAC 80.207(c d)*

4. If system is to serve over 500 people and/or will have 100 or more service connections or has a surface water or GWUDISW source, provide documentation that an operator certified under 18 AAC 74 will operate the system. *18 AAC 80.007*
18 AAC 74

5. For a proposed system that is not a public utility, provide documentation showing ownership and plans, if any, for transfer of that ownership on completion of construction or after a period of operation. *18 AAC 80.207(d)(3)(A)*

6. A written contingency plan showing that the owner is able to provide water in compliance with Alaska's drinking water regulations to each customer within 24 hours after an event that has the potential to cause contamination of the water system above applicable MCLs as described in 18 AAC 80.300 or a lack of water pressure or supply. *18 AAC 80.207(d)(5)*
18 AAC 80.300



Drinking Water Program - Engineering Plan Review Source - Groundwater Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for the construction of either a new or modification of an existing water groundwater source.

1. Drawings and specifications that cover construction of the water source, including casing and/or piping materials, well screen requirements, well grouting and source protection details and the proposed test pumping methods (drawdown). *18 AAC 80.205(a)(1)*

2. Well protection design specifications. *18 AAC 80.015*

3. Site Plan showing property boundaries, source location and all potential sources of contamination. *18 AAC 80.205(b)(3)*

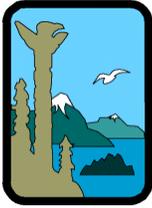
4. Driller's log of the well. The driller's log must be submitted within 30 days after the completion of well construction. *18 AAC 80.210(h)*

5. GWUDISW determination information. Checklist No. 2.1b - GWDISW Determination may be required as a part of the submittal for Approval to Construct. *18 AAC 80.205(c)(3)(a)*
18 AAC 80.605

6. The latitude and longitude to the closest second or 0.0003 degree, of each well on a form provided by the department. *18 AAC 80.205(b)(4)*

7. Submit details concerning the disposal of waters containing high amounts of disinfectant resulting from the well disinfection process. A disposal permit may be required from this Department for the disposal of this water. *EPA NPDES*

8. A copy of the Water Rights Application submitted to the Alaska Department of Natural Resources. *Inter-agency agreement*



Drinking Water Program - Engineering Plan Review Source - GWUDISW Determination Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for a new groundwater source that obtains water from a vertical depth of 50 feet or less and a horizontal distance of 500 feet to a surface water body. Information provided in this checklist will be used to evaluate whether the source is Groundwater or Groundwater Under the Direct Influence of Surface Water (GWUDISW). A public water system that uses a GWUDISW source is required to meet surface water treatment regulations.

1. A site plan showing the horizontal and vertical location of all surface water sources within 1000 feet of the proposed water source, regardless of property lines or ownership. *18 AAC 80.605(c)(1)(A)*

2. Evaluation of the sources of potential biological contamination. *18 AAC 80.605(c)(1)(B C D)*

3. The topography of the area surrounding the proposed source including whether drainage of surface water, rainfall, and snowmelt is directed away from the source. What is the risk of flooding? *18 AAC 80.605(c)(2)(B)*

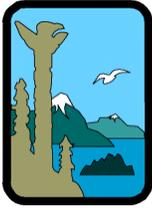
4. Geological and hydrogeological information on the proposed source. *18 AAC 80.605(c)(3)(D)*

5. A field assessment by the department including, a thorough inspection of the source construction. Contact the reviewing Drinking Water program office to determine if this item is required. *18 AAC 80.605(c)(2)*

6. Results of well flow or pump test, including drawdown and any effects on nearby surface waters. *18 AAC 80.605(c)(3)(B C)*

7. Plans for advanced water quality testing and analysis such as Microscopic Particulate Analysis (MPA), particle count analysis, specific ion ratio analysis, or chemical tracers, dyes. Contact the reviewing Drinking Water program office to determine if this item is required. *18 AAC 80.605(c)(5)*

8. A water quality assessment plan to evaluate the physical, chemical, and biological characteristics of the source and any nearby surface water sources, scope of water sources and bodies to be evaluated, water quality parameters to be measured, list of equipment, sample locations, sample times and duration, qualifications of the person conducting on site sampling, and data reporting frequency and format. Contact the reviewing Drinking Water program office to determine if this item is required. *18 AAC 80.605(c)(4)*



Drinking Water Program - Engineering Plan Review Source - SW/GWUDISW Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for all new or modification of existing Surface Water (SW) or Groundwater Under the Direct Influence of Surface Water (GWUDISW) sources.

1. Drawings and specifications that cover construction of the water source, including casing and/or piping materials, screen sizing requirements, location, floating intake details, anchoring, well grouting or source protection details and the proposed test (drawdown) pumping methods. It may also be appropriate to include the water line from the source to the treatment plant with this submittal. *18 AAC 80.205(a)(1)*

2. Issues of erosion, icing, and/or siltation have been addressed. *18 AAC 80.205(b)(9)*

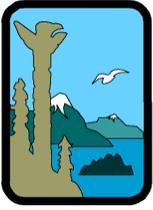
3. Intake screens can be backflushed or provisions for routine cleaning have been provided. *18 AAC 80.205(b)(9)*

4. The need for flexibility to use different intake levels has been addressed. *18 AAC 80.205(b)(9)*

5. A site plan showing the horizontal and vertical location of all proposed or existing wastewater treatment and disposal system component(s), sewage pump station(s), sewer line manhole(s) and cleanout(s), petroleum storage tank(s) and lines, and potential or actual sources of pollution or contamination, including the sources listed in Table A in 18 AAC 80.020(a), within 200 feet of a proposed water source, regardless of property lines or ownership. *18 AAC 80.205(b)(3)*

6. The latitude and longitude to the closest second or 0.0003 degree, of each well or intake on a form provided by the department. *18 AAC 80.205(b)(4)*

7. Operators Certification for systems serving between 25 and 500 people and using a surface water or GWUDISW source. *18 AAC 80.007*
18 AAC 80.74



Drinking Water Program - Engineering Plan Review Storage Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for the construction of new or the modification of existing Storage Systems. Storage includes both water holding tanks and hydroneumatic pressure tanks.

1. Drawings and specifications that cover construction of the storage system. *18 AAC 80.205(a)(1)*

2. For steel tanks with ANSI/NSF Standard 61 coatings applied onsite, address potential taste and odor problems associated with elevated VOC's from inadequate curing. This can be more of a problem where tanks hold water for long detention times. *18 AAC 80.010(b)*
18 AAC 80.030

3. For a public water system that uses compressed air to pressurize hydropneumatic tanks, provide information proving that air quality will not contribute contaminants to the water. *18 AAC 80.205(b)(8)*

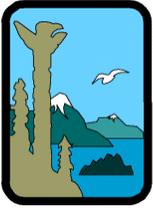
4. Address the need to provide for safe access for operation, maintenance, and inspections such as installation of ladder cages and railings around hatches. -----

5. For storage structures constructed to meet concentration Contact Time (CT) requirements for surface water disinfection include design information on design flow rate, operating levels, and hydraulic efficiency factor. *18 AAC 80.600*

6. If this is the only storage tank and is needed to meet CT, address operating conditions for the treatment system with the tank off line for cleaning or maintenance. *18 AAC 80.600*

7. Verify that vents and overflow lines are screened. *18 AAC 80.025*

8. Verify that the tank overflow discharge has an air gap of at least two pipe diameters above the surrounding area or discharge point. *18 AAC 80.025*



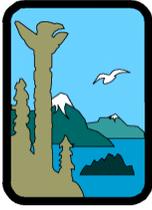
Drinking Water Program - Engineering Plan Review Distribution Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for the construction of new Distribution System, the modification of existing Distribution Systems and/or the extension of an existing Distribution System.

1. Drawings and specifications that cover construction of the distribution system, including piping materials, jointing, thrust blocking, bedding and the plan and profile of the water main. *18 AAC 80.205(a)(1)*
2. The design will need to address the horizontal and vertical separation distance requirements. *18 AAC 80.020*
3. Address sizing of mains, peak demand flow rates, velocities. *18 AAC 80.205(a)(4) (b)(2)*
4. If the proposed distribution system includes dead end lines, address how this will be operated to not adversely affect water quality. *18 AAC 80.205(b)(9)*
5. Is there a potential for freezing? How is freeze-protection provided? *18 AAC 80.205(a)(3)*
6. Has appropriate thrust blocking been provided? *18 AAC 80.205(a)(3)*
7. Can the system be flushed and can areas be isolated during flushing? *18 AAC 80.205(a)(3)*
8. If this is a seasonal distribution system how is it drained or prepared for the time it is not in operation? Issues may be the use of antifreeze, draining to sumps and potential cross connection or contamination. *18 AAC 80.205(a)(3)*
9. Calculations showing that the design is capable of maintaining at least 20 psi of service pressure at the highest elevation or pressure zone of a distribution main, under peak design demand flow conditions. *18 AAC 80.205(a)(4)*
10. Utilidor design adequately protects public health, drinking water systems and the environment. Include construction material, dimensions, thermal considerations, and operational considerations of utilidor should the wastewater collection lines break. If utilidor contains both water and sewer collection lines that the separation distance requirement is met. *18 AAC 80.020(g)*
11. If the water main to a Class A system is to be replaced, provide information on how temporary services will be provided. *18 AAC 80.207(d)(4)*



Drinking Water Program - Engineering Plan Review Treatment - SW/GWUDISW Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for the construction of new or modification of existing water treatment systems for surface water (SW) and groundwater under the direct influence of surface water (GWUDISW) sources. This information is needed to evaluate treatment effectiveness for all systems that use surface water or groundwater under the direct influence of surface water as a raw water source.

1. Drawings and specifications that cover construction of the Surface Water / GWUDISW water treatment system. *18 AAC 80.205(a)(1)*

2. Specification that all additives for water treatment in direct contact with potable water are approved for that use by the National Sanitation Foundation (NSF), Underwriter Laboratories, or an equivalent organization that evaluates products using ANSI/NSF Standard 60. *18 AAC 80.010(b)*
18 AAC 80.030

3. The characteristics of watershed, physical condition of water source, hydrogeology, and results of laboratory analyses of untreated water for biological quality & turbidity. *18 AAC 80.605*

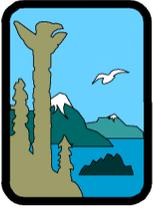
4. Explain how the proposed treatment system (filtration and disinfection) will achieve at least a three log removal/inactivation of *Giardia lamblia* and 4-log removal/inactivation of viruses. At a minimum, filtration must achieve at least 2-log removal and disinfection must achieve at least 0.5-log inactivation of *Giardia lamblia*. Also explain how the treatment system will achieve 2 log removal of *Cryptosporidium* (40 C.F.R. 141.500) *18 AAC 80.615(b)(2)*
18 AAC 80.645

5. For conventional or direct filtration include design calculations covering loading rates, back washing rates, volume of back wash water, and other items necessary to determine efficiency of proposed filtration process. Address the selection of filtration media and coagulants or filter aids. Please note that the finished water turbidity performance limit is 0.3 NTU. *18 AAC 80.650*

6. For alternative filtration using cartridge or bag filters identify and justify the type(s) of proposed filtration processes to reduce turbidity. Submittal will need to include make model of the filters as well as information on the maximum flow rate and differential pressure for each filter selected. The design will need to address the full range of water qualities expected. *18 AAC 80.650*

7. Specification that if alternate filtration is proposed, that the filters and filter housings are approved by the department. The department maintains a list of approved alternative filters. *18 AAC 80.030*

8. Identify and justify the disinfection parameters/assumptions such as pH, temperature, disinfectant dosage, disinfectant demand, residual disinfectant concentration, design log inactivation criteria, design flow rate, hydraulic efficiency factor, and contact time used in the proposed design. Design calculations for contact time, justifications for hydraulic efficiency factor, and location of the first user will need to be included in the report. *18 AAC 80.645*
18 AAC 80.660, CT Tables
9. For a system using a surface water or GWUDISW source, provide verification of the operator(s) certification. *18 AAC 80.007*
18 AAC 80.074
10. Filtration systems including a backwash process have the appropriate backflow prevention assembly on the backwash water supply line and the backwash waste line has as least two-pipe diameters of an air gap to the waste water line. *18 AAC 80.025*
11. Chemical feed systems have appropriate overfeed protection and water supply taps for chemical mixing solutions have appropriate backflow prevention assemblies or devices specified. *18 AAC 80.205(b)(9)*
18 AAC 80.025
12. Proper disposal of backwash water must be addressed. Wastewater disposal permit must be requested for backwash water disposed onto or into the land or water bodies. *NPDES*



Drinking Water Program - Engineering Plan Review Treatment - Corrosion Control Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for the construction of new or modification of existing corrosion control treatment systems.

- 1. Drawings and specifications that cover construction of the Corrosion Control Treatment system. *18 AAC 80.205(a)(1)*

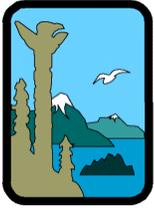
- 2. Specification that all additives for water treatment in direct contact with potable water are approved for that use by the National Sanitation Foundation (NSF), Underwriter Laboratories, or an equivalent organization that evaluates products using ANSI/NSF Standard 60. *18 AAC 80.010(b)*
18 AAC 80.030

- 3. Evaluate the corrosion control methods in at least one of the following: alkalinity and pH adjustment, calcium hardness adjustment, corrosion inhibitor addition. -----

- 4. Attach test results of samples collected before evaluating the corrosion control method. The following parameters must be tested on water provided for consumption: lead, calcium, copper, conductivity, pH, orthophosphate or silicate inhibitor (if used), alkalinity, and water temperature. -----

- 5. Identify each chemical or physical constraint that limits or prohibits the use of a particular treatment method. Provide documentation as to why the method does not work for this treatment plant. -----

- 6. What effect does the addition of the chosen process/chemical have on the water served or the treatment at this plant? -----



Drinking Water Program - Engineering Plan Review Treatment - Other Treatment Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for the construction of new or modification of existing treatment system other than surface water (SW), groundwater under the direct influence of surface water (GWUDISW) or Corrosion Control treatment systems. Application to demonstrate an Innovative Technology or Device should also use this checklist.

1. Drawings and specifications that cover construction of the treatment system. *18 AAC 80.205(a)(1)*

2. Specification that all materials in direct contact with the water and direct additives for water treatment, such as disinfectants, coagulants, or oxidizing agents must be approved for use in potable water systems by the National Sanitation Foundation (NSF), Underwriter Laboratories, or an equivalent organization that evaluates products using ANSI/NSF Standard 60. *18 AAC 80.010(b)*
18 AAC 80.030

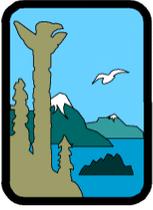
3. Results of laboratory analyses of untreated water for contaminant proposed treatment system is being designed to remove. *18 AAC 80.200(f)*
18 AAC 80.300(d)

4. Explain how the proposed treatment has been selected and its suitability for treating this water source. *18 AAC 80.225(c)*

5. For treatment utilizing filtration using media filtration including ion exchange include design calculations covering loading rates, back washing rates, volume of back wash water, and other items necessary to determine efficiency of proposed treatment process. Address the selection of filtration media, resins, coagulants, oxidizing agents, or filter aids. *18 AAC 80.225(c)*

6. For filtration using cartridge or bag filters identify and justify the type(s) of proposed filtration processes. Submittal will need to include make model of the filters as well as information on the maximum flow rate and differential pressure for each filter selected. The design will need to address the full range of water qualities expected. Estimates of intervals between filter changing will be needed to address the suitability of this technology for this water quality as well as, how and where the spent filters will be disposed. *18 AAC 80.200*

7. Address the selections of any chemical feed pump and document its suitability for the chemical being injected and the calculations showing it is properly sized for the water flow rates and chemical dosages necessary. *18 AAC 80.225(c)*



Drinking Water Program - Engineering Plan Review

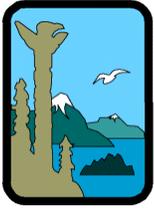
Interim Approval to Operate Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required to obtain a temporary 90-day Interim Approval to Operate the public water system. The applicant must demonstrate that the construction is complete and meets the minimum Drinking Water Regulations before serving water to the public. Hard copy plans must be signed and sealed by a registered engineer & submitted in half-size 11"x17" or standard 8"x10" format. If electronic copies are submitted they should be in Adobe ".pdf" format. Incomplete submittals will be returned.

- 1. Written verification that construction has been completed. *18 AAC 80.210(g)(1)*
- 2. Confirmation that the system has been successfully pressure tested. *18 AAC 80.210(g)(1)*
- 3. Verification that mains have been disinfected and flushed in accordance with the most recent version of AWWA standard C651. -----
- 4. Copies of analytical test reports for samples taken from the finished water confirming that the system is free from coliform bacteria and that the treatment system effectively reduces the concentration of any raw water contaminant to meet the finished MCL requirements. *18 AAC 80.210(g)(2)*
- 5. If a well was constructed, a completed well log and the well yield test data must be attached. *18 AAC 80.210(h)*



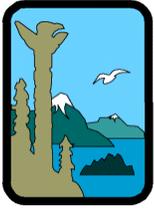
Drinking Water Program - Engineering Plan Review Final Approval to Operate Checklist

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required to obtain Final Approval to Operate the public water system. The applicant must demonstrate that the construction is completed, verify that the system meets Drinking Water Regulation, and that all required plan review items have been submitted and approved. Hard copy plans must be signed and sealed by a registered engineer & submitted in half-size 11"x17" or standard 8"x10" format. If electronic copies are submitted they should be in Adobe ".pdf" format. Incomplete submittals will be returned.

- | | | |
|--------------------------|--|--|
| <input type="checkbox"/> | 1. Record drawings, signed and sealed by a registered engineer, confirming that the system meets the requirements of 18 AAC 80. The source of record information should be indicated on each sheet for items not directly verified by the engineer. Use of contractor's notes and measurements to confirm construction may be acceptable subject to prior approval by the department and if confirmed or verified through the engineer's representative and daily field notes. | <i>18 AAC 80.210(j)(1)
18 AAC 80.210(j)(2)</i> |
| <input type="checkbox"/> | 2. Verification that all written terms and conditions of approval to construct the system have been met. | <i>18 AAC 80.210(i)(3)</i> |
| <input type="checkbox"/> | 3. Coliform sampling plan submitted for review for compliance with the Total Coliform Rule (TCR). | <i>18 AAC 80.410</i> |
| <input type="checkbox"/> | 4. Provide documentation that the operations and maintenance (O&M) manuals for all components of the water system have been completed and are provided to the operator prior to system startup. | ----- |
| <input type="checkbox"/> | 5. Verification that all required backflow prevention assemblies and devices are installed and tested after installation. | ----- |
| <input type="checkbox"/> | 6. Plan for public notification in the case of a monitoring or maximum contaminant violation as required by 18 AAC 80.1000. | <i>18 AAC 80.1000</i> |



Drinking Water Program - Engineering Plan Review Waiver Checklist - Water Source

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist is required for a separation distance waiver request between a Class A or Class B drinking water source, such as a well, infiltration gallery, or intake and a potential source of contamination such as septic systems, sewer lines, fuel tanks, storm drains, and other potential sources of contaminant.

1. The appropriate fee required under 18 AAC 80.1910(b)(11) shall be included with all waiver requests. *18 AAC 80.1910(b)(11)*

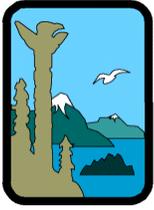
2. Justify the lesser distance and explain how it is protective of public health. *18 AAC 80.020(c)(2)*

3. Describe soil classifications, groundwater conditions, surface topography, geology and the other environmental conditions that would assist the Department in establishing a lesser separation distance and how this supports the waiver request. *18 AAC 80.020(c)(3)*

4. Include a set of plans consisting of record drawings, accurate description including the location of potential sources of contamination, surface water, groundwater, and existing or potential sources of drinking water. *18 AAC 80.020(c)(4)(A B)*

5. Provide details of the system design that addresses the physical and environmental conditions that would allow the department to assess the effect of the lesser distance upon public health, drinking water systems and the environment. *18 AAC 80.020(c)(4)(C)*

6. Provide details of of the system design that will prevent contamination fo the drinking water source(s). *18 AAC 80.020(c)(4)(ii)*



Drinking Water Program - Engineering Plan Review Waiver Checklist - Distribution System

Project Name: _____ Date: _____

Engineer's Name: _____ Registration No.: _____

This checklist must be provided as a part of a separation distance waiver request between Class A and Class B Distribution System and a potential source of contamination such as septic systems, sewer lines, fuel tanks, storm drains, and other potential sources of contaminant

- 1. Identify reason for requested lesser separation distance. *18 AAC 80.020(f)(3)*

- 2. Is the sewer line designed and constructed in a manner equivalent to the requirements for a potable water line? Will the sewer line be pressure tested to ensure water tightness or be enclosed in a carrier pipe of similar strength and ratings as the actual pipe, or stronger such that it is protective of public health, public and private water systems and the environment? *18 AAC 80.020(f)(3)(B)*

- 3. Will the sewer be constructed in a separate trench from potable water line? *18 AAC 80.020(f)(3)(C)*

- 4. For an above ground utilidor, is the utilidor water line above the sewer line and will not flood if pipe failure occurs? *18 AAC 80.020(g)(1)(A)*

- 5. For an underground utilidor, the water line is above the sewer line and the utilidor drains to a low point and has an automatic pumping and alarm system. Provide specifications and plans for pumping and alarm systems. *18 AAC 80.020(g)(1)(B)*