



Drinking Water Program Public Water System – Engineering Plan Review Checklists

Purpose

This checklist applies to obtaining construction and operational approval for Community Water System (CWS - "Class A"), Non-Transient Non-Community (NTNC - "Class A"), and Transient Non-Community (TNC - "Class B") Public Water Systems (PWS) 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 January 11, 2006. This checklist supercedes all previous versions of plan review checklists and will be updated when necessary. Please contact your local Drinking Water Program office for the latest version. This checklist is intended to be a guidance document only.

Completion of the checklist(s) may not constitute a complete submittal. Additional project information not identified in the checklist may be requested by the Department as a part of the plan review.

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 *Facility Information 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 – Project Information 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:
 - In Part III of the form, identify the column that matches the project type (i.e. New PWS, Modification of Existing PWS, Distribution Extension or Replacement, or Waiver).
 - 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.
3. Complete and submit all checklists and items identified in Part III of *Project Information Form*.

Interim Approval to Operate is a temporary 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. Submittal requirements for interim operation approval will be stated in the Letter of Approval for Construction. At a minimum, to obtain a certificate for Interim Approval to Operate, the following must be provided:

- Verification that construction is complete as approved for construction.
- 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.

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 with plan review questions. The checklist is used to evaluate the completeness of submitted plans. If the submittal is not complete, it 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.



Facility Information Form

Engineering Plan Review

I. Owner/Responsible Party

Required Fields in Bold

First Name: _____ **Last Name:** _____ **Phone:** _____
 Company Name: _____ Fax: _____
Mailing Address: _____
City: _____ **State:** _____ **Zip Code:** _____
 Email Address: _____

II. System Operator

First Name: _____ **Last Name:** _____ **Phone:** _____
Certification: _____ Fax: _____
Mailing Address: _____
City: _____ **State:** _____ **Zip Code:** _____

III. Facility Information

Facility Name: _____ **Last Name:** _____ **Phone:** _____
 AKA: _____ Fax: _____
Mailing Address: _____
City: _____ **State:** _____ **Zip Code:** _____
 Physical Address: _____

Legal Description: Lot: _____ Block: _____ Subdivision: _____ Addition: _____
or
Location: 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



**Alaska Department of Environmental Conservation
Division of Environmental Health**

**Drinking Water Program
Project Information Form**

This form must be attached to a completed and signed Facility Information Form. 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 Fields in Bold

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

II. Project Information

PWSID: _____ System Classification: Community Water System (CWS - Class A)
 (for existing water systems) _____ (18 AAC 80.1990(a)(12 & 13) Non-Transient Non-Community (NTNC - Class A)
 Transient Non-Community (TNC - Class B)

Number of Service Connections: _____
 Days per Year of Operation: _____
 Dates of Operation: _____
 Population Served - Resident: _____ (PWS at 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 Checklist for Construction Approval

(check mark checklists included with submittal)

Checklist No.	Checklist Name	New PWS	Modification of Existing PWS	Main Extension or Replacement	Waiver	Water Haul
1.0	Approval to Construct - General	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.0	Capacity Development (CWS/NTNC - Class A)	<input type="checkbox"/>	<input type="checkbox"/>			
3.0	Source - Groundwater	<input type="checkbox"/>	<input type="checkbox"/>			
3.1a	Source - GWUDISW Determination	<input type="checkbox"/>	<input type="checkbox"/>			
3.1b	Source - SW/GWUDISW	<input type="checkbox"/>	<input type="checkbox"/>			
4.0	Storage	<input type="checkbox"/>	<input type="checkbox"/>			
5.0	Distribution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.0	Treatment - SW/GWUDISW	<input type="checkbox"/>	<input type="checkbox"/>			
6.1	Treatment - Corrosion Control	<input type="checkbox"/>	<input type="checkbox"/>			
6.2	Treatment - POU-POE	<input type="checkbox"/>	<input type="checkbox"/>			
6.3	Treatment - Membrane Filtration	<input type="checkbox"/>	<input type="checkbox"/>			
6.4	Treatment - Ozone	<input type="checkbox"/>	<input type="checkbox"/>			
6.5	Treatment - Media Filtration	<input type="checkbox"/>	<input type="checkbox"/>			
6.6	Treatment - Other Treatment	<input type="checkbox"/>	<input type="checkbox"/>			
7.0	Waiver - Water Source	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.1	Waiver - Distribution System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.2	Waiver - Expedited Review	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.0	Water Haul	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>



Alaska Department of Environmental Conservation
Division of Environmental Health

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

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of a new or modification of an existing CWS (Class A), NTNC (Class A), or TNC (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.

Description	Regulatory Reference
1. Plan review fee. (Note: For submittals that request fee calculation assistance, a submittal may be accepted without the fee payment if prior approval from the reviewing engineer and all contact information of the person, agency, or company responsible for fee payment is provided. A plan review will not be completed until payment of the fee is received.)	18 AAC 80.1910(c)
2. Engineer's written report. Must be signed and sealed by a registered engineer.	18 AAC 80.205 18 AAC 80.010(b c d)
3. Construction drawings and specifications. Must be sealed, signed and dated by a registered engineer.	18 AAC 80.205(a)(2)
4. Provide the name and contact information of the registered engineer that will sign and seal the record drawings and request operational approval.	18 AAC 80.210(j)(1)
5. Design criteria, calculations, flow analysis and other computations.	18 AAC 80.205(a)(4)
6. Manufacturer's specifications and performance curves for all pumps.	18 AAC 80.205(a)(4)
7. Backflow and/or Cross Connection evaluation.	18 AAC 80.025
8. Lead-free pipe, flux, and solder specification.	18 AAC 80.500 18 AAC 80.205(b)(7)
9. Direct additives for water treatment (i.e. disinfectants, coagulants, or oxidizing agents, antiscalants, and etc.) must be certified to conform with ANSI/NSF Standard 60 for use in potable water systems by an ANSI accredited organization.	18 AAC 80.010(b)(9)
10. Materials in direct contact with the water must be certified to conform with ANSI/NSF Standard 61 by an ANSI accredited organization	18 AAC 80.010(b)(10)
11. Raw water analysis results if this is a new public water system proposing a new source.	18 AAC 80.205(c)(2)
12. Raw water quality data for a potential contaminant, if the Department determines that the data serves the interest of public health.	18 AAC 80.205(c)(6)
13. 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.	18 AAC 80.205(a)(2)
14. 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	EPA NPDES

water.

15. Provide the name and a copy of certification of the operator that will be running the PWS. An operator certified under 18 AAC 74 may be required to operate the system. The PWS operator certification level is determined by the classification of the PWS based on the complexity of the operation of the system. PWS classification rating system is specified in 18 AAC 74.120.

18 AAC 80.007
18 AAC 74



Drinking Water Program - Engineering Plan Review Capacity Development Checklist

Project Name: _____

Date: _____

Engineer 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.

Description

Regulatory Reference

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. ***OR***

18 AAC 80.207(c)(1)(AB)

If the system does not fall under the jurisdiction of the Regulatory Commission of Alaska (RCA), but has worked with the Rural Utility Business Advisor (RUBA) Program, submit the utility business plan completed in conjunction with RUBA. ***OR***

18 AAC 80.207(c d)

If the system does not fall under the jurisdiction of the Regulatory Commission of Alaska (RCA), and has not worked with RUBA, 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)
2. Other information that the owner considers necessary to demonstrate financial and managerial capacity.

18 AAC 80.207(c d)
3. Provide documentation that an operator certified under 18 AAC 74 will operate the system.

*18 AAC 80.007
18 AAC 74*
4. 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)
5. 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 Name: _____

Registration No.: _____

This checklist is required for the construction of either a new or modification of an existing water groundwater source. Groundwater sources from well less than 50 foot depth and/or 500 feet to nearest surface water body will be required to complete the GWUDISW Determination Checklist.

Description	Regulatory Reference
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)(2)
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 and must contain all elements listed in 18 AAC 80.210(h).	18 AAC 80.210(h)
5. GWUDISW determination information. Checklist No. 3.1b - GWUDISW Determination may be required as a part of the submittal for Approval to Construct.	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
9. Specification that the well will be disinfected and flushed in accordance with AWWA Standard A100.	18 AAC 80.010(d)(2)



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

Project Name: _____

Date: _____

Engineer 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/or that is located a horizontal distance of 500 feet or less 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.

Description	Regulatory Reference
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)
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 hydro-geological information on the proposed source.	18 AAC 80.605(c)(3)(D)
5. Results of well flow or pump test, including drawdown and any effects on nearby surface waters.	18 AAC 80.605(c)(2)
6. 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)(3)
7. 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)
8. 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)



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

Project Name: _____

Date: _____

Engineer 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.

Description	Regulatory Reference
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)(2)
2. Issues of erosion, icing, and/or siltation have been addressed.	18 AAC 80.205(b)(9)
3. Intake screens can be back flushed or provisions for routine cleaning have been provided.	18 AAC 80.205(b)(9)
4. Has the need for flexibility to use different intake levels 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 74



Drinking Water Program - Engineering Plan Review Storage Checklist

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of new or the modification of existing Storage Systems. Storage includes water holding tanks and hydropneumatic pressure tanks used for storage capacity.

Description	<i>Regulatory Reference</i>
1. Drawings and specifications that cover construction of the storage system.	<i>18 AAC 80.205(a)(2)</i>
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.	<i>18 AAC 80.010(b)(10) 18 AAC 80.030</i>
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.	<i>18 AAC 80.205(b)(8)</i>
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.	<i>18 AAC 80.600</i>
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.	<i>18 AAC 80.600</i>
7. Verify that vents and overflow lines are screened.	<i>18 AAC 80.025</i>
8. Verify that the tank overflow discharge has an air gap of at least two pipe diameters above the surrounding area or discharge point.	<i>18 AAC 80.025</i>
9. Specification that storage tanks will be disinfected in accordance with AWWA Standard C652.	<i>18 AAC 80.010(d)(2)</i>
10. Equalization Storage. If source capacity is less than instantaneous peak demand. Provide calculations demonstrating that proposed storage capacity is adequate.	<i>18 AAC 80.205(a)(4)</i>



Drinking Water Program - Engineering Plan Review Distribution Checklist

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of new, the modification of existing, and/or the extension of an existing water mains and raw-water transmission lines.

Description	Regulatory Reference
1. Drawings and specifications that cover construction of the distribution system and raw water transmission lines, including piping materials, jointing, thrust blocking, bedding and the plan and profile of the water main.	18 AAC 80.205(a)(2)
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) 18 AAC 80.205(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)(4)
6. Has appropriate thrust blocking been provided?	18 AAC 80.205(a)(4)
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 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)(5)
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 the 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)
12. Specification that water mains and transmission lines will be disinfected in accordance with AWWA Standard C651.	18 AAC 80.010(d)(2)



Drinking Water Program - Engineering Plan Review Treatment - Surface Water/GWUDISW - General Checklist

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of new or modification of existing water treatment systems for surface water (SW) or 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.

- | Description | <i>Regulatory Reference</i> |
|--|---|
| 1. Drawings and specifications that cover construction of the Surface Water / GWUDISW water treatment system. | <i>18 AAC 80.205(a)(2)</i> |
| 2. The characteristics of watershed, physical condition of water source, hydrogeology, and results of laboratory analyses of untreated water for biological quality & turbidity. | <i>18 AAC 80.605</i> |
| 3. 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 CFR 141.500). | <i>18 AAC 80.615(b)(2)
18 AAC 80.645</i> |
| 4. 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. | <i>18 AAC 80.650</i> |
| 5. For alternative filtration using cartridge or bag filters identify and justify the type(s) of proposed filtration processes that provides finished water turbidity of 1 NTU or lower 95% of the time. 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 raw water qualities expected. | <i>18 AAC 80.650</i> |
| 6. Specification that if alternate filtration is proposed, that the filters and filter housings must be ANSI/NSF Standard 53 listed for cyst removal or must be approved by the department. The department maintains a list of approved alternative filters on it's website at < www.dec.state.ak.us/eh/dw/dwmain/drinking_water.html >. | <i>18 AAC 80.030</i> |
| 7. 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 calculation for contact time, justifications for hydraulic efficiency factor, and location of the first user will need to be included in the report. | <i>18 AAC 80.645
18 AAC 80.660, CT Tables</i> |
| 8. For a system using a surface water or GWUDISW source, provide verification of the operator(s) certification. | <i>18 AAC 80.007
18 AAC 74</i> |
| 9. 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 | <i>18 AAC 80.025</i> |

to the waste water line.

10. 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

11. 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*

12. Documentation, calculations and specifications showing that the PWS will be able to maintain 0.2 mg/L minimum chlorine residual at the entry point to the distribution system. *18 AAC 80.655(c)*

13. For systems that use conventional or direct filtration, provide specifications showing that the type, quantity, and placement of turbidimeters are adequate to meet the combined and individual filter turbidity monitoring requirements of LT1ESWTR and IESWTR. *40 CFR 141*
40 CFR 174
40 CFR 550
40 CFR 560

14. Specification that all components in direct contact with potable water are disinfected in accordance with AWWA C653. *18 AAC 80.010(d)(2)*



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

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

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

Description

Regulatory Reference

1. Plan review fee for determination of optimum corrosion control. *18 AAC 80.1910 (b)(5)*
2. For new construction, provide drawings and specifications that cover construction of the Corrosion Control treatment system. *18 AAC 80.205(a)(2)*
3. Evaluate the corrosion control methods in at least one of the following: alkalinity and pH adjustment, calcium carbonate precipitation, corrosion inhibitor addition. If using computer software to determine corrosion control methods and parameters, provide the name of the software and pertinent reference information.
4. Attach test results of samples collected before evaluating the corrosion control method. The following parameters must be tested on water provided for consumption: iron, manganese, 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?
7. Monitoring equipment that will be used by the operator to maintain any chemical addition at the optimal dose.
8. Specification that all components in direct contact with potable water are disinfected in accordance with AWWA C653. *18 AAC 80.010(d)(2)*



Drinking Water Program - Engineering Plan Review

Treatment – Point of Use (POU) and Point of Entry (POE) Checklist

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of new or modification of existing treatment system that includes POU and/or POE treatment devices. Application to demonstrate an Innovative Technology or Device should also use this checklist. Note: POU treatment units may not be used to achieve compliance with an MCL or treatment technique for a microbial contaminant or an indicator of a microbial contaminant. POU treatment devices should not be used to treat for certain contaminants, such as radioactive contaminants and most volatile organic contaminants (VOCs), that would require protection against inhalation or contact exposure to these contaminants at untreated taps.

Description

Regulatory Reference

1. Provide a copy of a POU or POU Compliance Strategy Plan, signed by the PWS owner or authorized administrator that indicates that all POU and POE units are controlled, and maintained by the PWS to ensure proper operation and maintenance of the devices and compliance with MCLs. *CFR 141.100(b)*

2. Provide a copy of an Access and Maintenance Agreement that will be provided to all residences, lease holders, renters, and/or relevant non-transient users of the PWS. The Agreement must be signed by 100% of the users connected to the PWS in order to maintain approval of this treatment method. *CFR 141.100(e)*

3. Results of laboratory analyses of untreated water for the contaminant(s) that will be treated using POU/POE treatment devices. *18 AAC 80.200(f)*
18 AAC 80.300(d)

4. Provide objective and verifiable (by a third-party) data to support performance claims of the manufacturer. This may be in the form of verification that the POU/POE device is certified by an ANSI accredited laboratory to conform to ANSI/NSF standard 53 for removal of the contaminant in question. *18 AAC 80.010(b)(14)*
18 AAC 80.225(c)(18)

5. Provide pilot test results of the proposed POU/POE treatment device. Pilot testing of the proposed device should be conducted for a minimum of three-months using raw water from the PWS source. Provide monthly raw water and treated water sample results and media change-out/regeneration frequency information. Describe any operation and maintenance problems experienced during the pilot phase and how they will be addressed if the device is selected and approved for system-wide use. *18 AAC 80.225(d)*

6. Provide design calculations covering loading rates, back washing rates, volume of back wash water, and other items necessary to determine efficiency of proposed treatment process. Include estimated demand flow rate, device maximum flow rate, range of water qualities expected, and the suitability of this technology for this water quality. Address the selection of filtration media, resins, coagulants, oxidizing agents, and chemical additives. *18 AAC 80.225(c)*

7. Provide the make, model, manufacturer specifications, and an evaluation of suitability of this POU/POE device with consideration to the ability and experience of the PWS operator(s) and the end users. *18 AAC 80.205(b)(9)*

8. Provide information about the breakthrough curve characteristics (time to breakthrough, steepness of breakthrough curve) for the proposed POU/POE device taking into consideration the on-site water quality characteristics. Indicate the measures that will be taken to prevent operation of the units past the point where the Maximum Contaminant Level (MCL) may be exceeded. *18 AAC 80.205(b)(9)*

9. Provide verification that the POU and POE units have audible/visual warnings to automatically notify customers of operational problems. *18 AAC 80.205(b)(9)+*

10. Proper disposal of backwash water must be addressed. If backwash water is disposed in an onsite wastewater disposal system, provide verification that the onsite wastewater disposal system has sufficient capacity to receive the additional wastewater flow. Also include documentation that the appropriate wastewater discharge permits are being obtained (if applicable). *18 AAC 72*

11. Provide verification that the users of the PWS are informed of the contaminant being treated, directed to obtain drinking water only from taps where POU devices installed, provided instructions and contact information for POU malfunctions and warning device activation occurrences. Placing emergency contact information on the POU/POE devices is also recommended. *18 AAC 80.205(b)(9)*

12. Provide property location information (legal description) of each POU/POE device if the units are placed at multiple properties. Identify all water taps that could potentially be used to serve drinking water and all water taps that will have POU devices installed. *18 AAC 80.205(b)(9)*

13. Provide verification that the POU/POE devices are installed and will be maintained by manufacturer authorized or certified representative according to manufacturer specifications. *18 AAC 80.205(b)(9)*

14. Provide a proposed maintenance plan and schedule. The maintenance plan should include information on the type of maintenance performed; identify the person or contractor that will perform the work, and record keeping method. *18 AAC 80.205(b)(9)*

15. Contact compliance specialist serving in the region of the PWS to determine the monitoring plan for a system utilizing POU/POE treatment including sample protocol, water analysis, sample site location, and monitoring frequency required. *18 AAC 80.300*



Drinking Water Program - Engineering Plan Review Treatment - Membrane Filtration Checklist

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of new or modification of an existing membrane filtration treatment system. Membrane Filtration includes Reverse Osmosis (RO), Nano-Filtration, Ultra-Filtration, and Micro-Filtration systems.

- | Description | Regulatory Reference |
|---|--|
| 1. Drawings and specifications that cover construction of the treatment system. | <i>18 AAC 80.205(a)(2)</i> |
| 2. Indicate the treatment objective. Explain how the proposed treatment was selected and its suitability for treating this water source. The design will need to address the full range of raw water quality expected. | <i>18 AAC 80.225(c)</i> |
| 3. Describe the chemical cleaning process (i.e. Clean-In-Place). Include information on chemicals used, NSF-60 certification if available, duration, frequency, source of rinse water, disposal of spent chemicals and rinse water, and measures to prevent introduction of cleaning chemicals (or traces thereof) into the drinking water. | <i>18 AAC 80.010(b)(9)
18 AAC 80.030</i> |
| 4. Results of laboratory analyses of untreated water for contaminants that the proposed treatment system is being designed to remove. What is the range of values for each contaminant (i.e. seasonal variability)? | <i>18 AAC 80.200(f)
18 AAC 80.300(d)</i> |
| 5. Provide design calculations covering loading rates; backwash/backflush/reverse flow rates, duration, frequency, event triggers, and other items necessary to assess the hydraulic efficiency of the proposed treatment process. | <i>18 AAC 80.225(c)</i> |
| 6. Provide make and model of the filters as well as information on the maximum flow rate and maximum differential pressure. For RO and NF, also include the maximum filtrate flux rate at the expected operating temperatures. Also include information on flow direction (i.e. inside-out, outside-in) and flow pattern (i.e. cross-flow, dead-end) for the membrane technology. | <i>18 AAC 80.200</i> |
| 7. Specification that all components in direct contact with potable water are disinfected in accordance with AWWA C653. Please note that some membrane manufacturers may specify a maximum oxidant limit to prevent damage to the membranes | <i>18 AAC 80.225(c)</i> |
| 8. If a skid mounted unit, provide details of how the unit is connected to the rest of the treatment system. Specification that the pressure rating of the piping and appurtenances used to connect the membrane filtration unit is adequate for the operating pressure range of the pressure pump and membrane filtration unit | <i>18 AAC 80.010(d)(2)</i> |
| 9. Explain how the PWS water demand will be met during scheduled shutdown events such as chemical filter cleaning and direct membrane integrity testing. | |
| 10. If compressed air is used for membrane processes such as backwash and integrity testing, how will air quality be managed to prevent contaminants introduced into the water? | |

Questions below pertain to Membranes Filtration used as a Microbial Barrier

- | | |
|--|-----------------|
| 11. If membrane is used as a microbial barrier, describe method used for direct membrane integrity | <i>LT2ESWTR</i> |
|--|-----------------|

monitoring. Please include frequency of monitoring and resolution of the test (must be able to detect defects $\leq 3 \mu\text{m}$)

12. Describe method used for continuous indirect membrane integrity monitoring. Please include sampling frequency, instrument resolution and sensitivity. *LT2 ESWTR*
13. How will turbidity be monitored? If it is to be continuous monitoring, please provide specifications of the turbidimeter and location of the sampling point? *IESWTR, LT1ESWTR*
14. Provide information on third-party verification or challenge testing that shows the log-removal efficiency for cryptosporidium-sized particles achieved by the proposed membrane make and model. *LT2ESWTR*
15. If the membrane will be used to remove a primary contaminant, describe the monitoring scheme that will be used to assess process efficiency and reliability during daily operation.
16. Proper disposal of backwash/backflow/reverse flow water must be addressed. Identify required wastewater disposal permits and provide a copy of the permit application or permit approval. *NPDES, 18 AAC 72*



Drinking Water Program - Engineering Plan Review Treatment - Ozone Checklist

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of new or the modification of existing treatment systems proposing to include the addition of ozone. This includes the use of ozone for all intended purposes including disinfection, oxidation, and taste and odor control. If ozone is being used for disinfection of a surface water or GWUDISW source, please also use "Treatment – SW/GWUDISW Checklist".

Description	Regulatory Reference
1. Describe each of the intended purposes of the addition of ozone: disinfection, oxidation, taste and odor control, VOC removal, and any other purpose. If ozone is being used for disinfection to meet the Surface Water Treatment Rules, you will also need to submit the Treatment – SW/GWUDISW Checklist.	18 AAC 80.205(b)(5)
2. Submit applicable water sample results for ozone treatment. These are in addition to the sample results required for each source under 18 AAC 80.205(c)(2). These results should include: iron, manganese, color, Total Organic Carbon, hydrogen sulfide, pH, turbidity and bromide. For surface water sources, multiple sets of sample results may be necessary to adequately predict seasonal water quality changes.	18 AAC 80.205(c)(1)(A)
3. Explain how the proposed treatment scheme is suited for the source water quality found on-site. Please include description for any required pre- and post-ozonation treatment needed to achieve the intended treatment goal. Poor source water quality may need pretreatment. Sand, mixed media, or granular activated carbon filters may be required following ozonation (but before chlorination if proposed) for systems ozonating waters with a high organic or iron and manganese content.	18 AAC 80.205(b)(5)
4. Provide theoretical ozone oxidation calculations to show that the ozone generation unit has been adequately sized. Please use the applicable source water quality sample results from the proposed site. Include information on source water variability and a reasonable factor of safety.	18 AAC 80.205(a)(4)
5. For water systems using ozone for disinfection: Provide calculations showing that the required CT (concentration*contact time) for inactivation of the target pathogen can be achieved. Please clearly state all assumptions and the CT calculation method being employed.	18 AAC 80.205(a)(4)
6. Provide results and a description of any pilot or bench-scale ozone testing done with either the source water or water of similar quality.	18 AAC 80.205(b)(9)
7. Provide drawings and specifications of the ozone generator and its feed gas including the availability of the power required to run the ozone generator.	18 AAC 80.205(a)(2)
8. Provide information on the method for ozone dissolution (i.e. bubble diffusers, venturi injectors) and expected ozone transfer efficiency at the injection point(s) into the water system. What will be the expected ozone dose delivered to the water?	18 AAC 80.205(a)(2)
9. Provide drawings and specifications on the ozone destruct unit (s) as well as its proposed location(s).	18 AAC 80.205(a)(2)
10. For systems using ozone for disinfection, provide drawings and specifications for the ozone residual meter(s) as well as its proposed location(s).	18 AAC 80.205(a)(2)

11. For systems that use ozone for disinfection, provide drawings and/or specifications on the measures that will be used to assure that the required CT will be met at all times (e.g. flow monitoring, flow restriction devices, ozone level alarm systems, auto-shutoff mechanisms, etc.) *18 AAC 80.205(a)(2)*

12. Provide a description and justification of the location of each of the ozone injection points. Multiple injection points maybe needed to achieve a particular disinfection credit. *18 AAC 80.205(a)(2)*

13. Submit drawings and specifications describing the ozone contact chambers and baffle factor (T_{10}/T). *18 AAC 80.205(a)(2)*

14. Descriptions of ozone safety measures including air venting and ozone gas concentration alarms.

15. Specification that all components in direct contact with potable water will be disinfected in accordance with AWWA C653. *18 AAC 80.010(d)(2)*



Drinking Water Program - Engineering Plan Review Treatment - Media Filtration Checklist

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of new or modification of existing treatment system utilizing media filtration including ion exchange.

Description	Regulatory Reference
1. Drawings and specifications that cover construction of the treatment system.	18 AAC 80.205(a)(2)
2. Indicate the treatment objective for the proposed technology. Explain how the proposed treatment has been selected and its suitability for treating this water source. The design will need to address the full range of water qualities expected.	18 AAC 80.225(c) 18 AAC 80.205(b)(9)
3. Results of laboratory analyses of untreated water for contaminants that the proposed treatment system is being designed to remove. What is the range of values for each water contaminant?	18 AAC 80.200(f) 18 AAC 80.300(d)
4. Design calculations covering loading rates, back washing rates, volume of back wash water, and other items necessary to determine efficiency of proposed treatment proposed treatment process. Address the selection of filtration media, resins, coagulants, oxidizing agents, or filter aids.	18 AAC 80.225(c)
5. Address potential water quality interference constituents using the proposed treatment method. Pre-treatment may be required if interfering constituents are present in high concentrations in raw water.	18 AAC 80.205(b)(9) 18 AAC 80.205(c)(6)
6. 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)
7. Proper disposal of backwash water must be addressed. Provide documentation showing the pertinent permit application process has been initiated.	18 AAC 72
8. Provide documentation that the filtration system has 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. If surface wash is part of the design, provide specifications for the RPZ backflow prevention assembly to be used.	18 AAC 80.205(b)(9) 18 AAC 80.025
9. Address the need for redundant media filtration unit(s). Redundancy may be required to obtain construction approval, based on an evaluation of the acuteness and concentration of the contaminant, contaminant break-through characteristics, availability of media, media type, and risk factors of the facility served by the public water system.	
10. Specification that all water treatment plant components will be disinfected in accordance with the most recent version of AWWA Standard C-653.	18 AAC 80.010(d)(2)



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

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for the construction of new or modification of existing treatment system that do not fit within any other checklist category. Application to demonstrate an Innovative Technology or Device should also use this checklist.

Description	<i>Regulatory Reference</i>
1. Drawings and specifications that cover construction of the treatment system.	<i>18 AAC 80.205(a)(2)</i>
2. Results of laboratory analyses of untreated water for contaminant proposed treatment system is being designed to remove.	<i>18 AAC 80.200(f) 18 AAC 80.300(d)</i>
3. Explain how the proposed treatment has been selected and its suitability for treating this water source.	<i>18 AAC 80.225(c)</i>
4. 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 proposed treatment process. Address the selection of filtration media, resins, coagulants, oxidizing agents, or filter aids.	<i>18 AAC 80.225(c)</i>
5. 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.	<i>18 AAC 80.200</i>
6. 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.	<i>18 AAC 80.225(c)</i>
7. Specification that all components in direct contact with potable water are disinfected in accordance with AWWA C653.	<i>18 AAC 80.010(d)(2)</i>



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

Project Name: _____ **Date:** _____
Engineer 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.

- | Description | Regulatory Reference |
|--|-----------------------------|
| 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) |
| 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 the system design that will prevent contamination of the drinking water source(s). | 18 AAC 80.020(c)(4)(C) |



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

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist must be provided as a part of a separation distance waiver request between Class A or 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.

Description	Regulatory Reference
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. Identify reason for requested lesser separation distance.	18 AAC 80.020(f)(3)
3. 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)
4. Will the sewer be constructed in a separate trench from potable water line?	18 AAC 80.020(f)(3)(C)
5. 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)
6. 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)



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

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

*** Use of this checklist is limited only to projects within the Anchorage DW Program Office coverage area. ***

Expedited waiver reviews may be possible for waiver requests which are for no more than 10% of the distance required in regulation. These waiver requests may be approved if all of the following criteria are met. If the criteria are not all met, the system may apply for a waiver through the standard waiver approval process. If the Department determines that there are extenuating circumstances which warrant a full waiver review, then a full waiver review will be required.

Description

Regulatory Reference

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. Verify that the population that this water system will be expected to routinely serve supports its current public water system classification. State the required separation distance based on this classification. Note: The proposed separation distance must be no less than 90% of the required separation distance for a waiver application under this checklist. *18 AAC 80.200*

3. A stamped plan or survey of the system has been submitted showing the all potential sources of contamination within at least 200 feet of the water system source. These plans must include a north arrow and include an estimated groundwater flow direction.

4. Any existing drinking water system or wastewater system associated with the proposed waiver has been installed and is operating in accordance with minimum regulatory standards. Copies of any associated construction or operational approvals for the drinking water or wastewater systems are attached. *18 AAC 80.200
18 AAC 72.200*

5. If a well is included in the waiver, the well must be located up-gradient or cross-gradient to the potential contamination source OR the seasonal-high water table is at least 50 feet deep OR the well extends through a confining layer that vertically separates the well intake from the potential contamination source for a waiver application under this checklist.

6. If a well is included in the waiver, a well log is attached showing the well intake is at least 50 feet below natural grade. If no well log is available, well log information from at least 2 nearby wells and well depth measurement of the well may be substituted.

7. If a well is included in the waiver, the well associated with the waiver meets the following minimum construction standards: The casing extends at least 1 foot above grade; drainage is directed away from the casing for a 10 foot radius around the casing, all wires are enclosed in a conduit and the casing is capped by a sanitary seal (or equivalent).

8. If a well is included in the waiver, the well is grouted or the surface is sealed for a 4-foot radius around the casing.

9. If a public water line or sewer line is included in the waiver, all water or wastewater pipe materials used are either: HDPE with fused joints; or ductile iron pipe (DIP) with all joints within 20 feet of the affected area wrapped by a geo-membrane; or DIP with a video verification that the pipe is structurally sound and water-tight.

10. If a public water line and a sewer line are addressed in the waiver, any water line or sewer liner crossings must intersect at an angle of at least 45 degrees.

11. Any requested waiver involving a public water line and a sewer line are for EITHER a reduction in the required horizontal separation distance OR a reduction in the required vertical separation distance. Waiver request applications for both horizontal and vertical separation will not be accepted under this checklist.



Drinking Water Program - Engineering Plan Review Water Haul Checklist

Project Name: _____

Date: _____

Engineer Name: _____

Registration No.: _____

This checklist is required for all water-haul tank systems that provide water to one or more public or private water systems, not including owner hauled water for a single owner occupied dwelling.

Description

Regulatory Reference

1. The source of the water must be identified. Water must be obtained from an approved ADEC Class A water system. If permits are needed from the supplier, copies of the required permits must be included with the submittal. *18 AAC 80.205*
2. The population served and area of service must be identified. *18 AAC 80.205*
3. Schematic drawings and component specifications of the water haul system.
4. A unique tank identification number, such as tank manufacturer serial number, must be provided. This number should be permanently affixed to the tank. This will be referenced in issuing the ADEC PWSID (public water system identification number).
5. The water tank must be conspicuously marked "Potable Water Only". *18 AAC 80.220(e)*
6. The make and type of the components used in the system must be identified. Components used, which will be in contact with the drinking water, must be NSF approved where possible, or composed of NSF approved materials where possible, or constructed in accordance with accepted public drinking water system standards. *18 AAC 80.030*
7. Water tank vents are screened and readily accessible. Water tank vents must be designed to minimize icing problems and the associated risk of positive or negative pressure situations.
8. Exhaust vents from engines are directed away from any drinking water vents or outlets.
9. The fittings used on hoses must consist of anchored, locking fitting ("Cam-Lok" or equivalent) which provide a tight connection and prevent the hose from extending down into the water of the haul tank or delivery tank. End caps should be provided on hoses.
10. Hoses are stored in safe, protected manner which prevents contamination when not in use.
11. Food grade lubricants must be used in drinking water pumps.
12. An operator log is maintained and available which includes: maintenance (periodic cleaning), dates of delivery, delivery locations and delivery amounts.
13. A "Standard Operating Procedures" manual is available which includes cleaning/disinfecting protocol, flushing protocol, sampling protocol and routine maintenance schedules.

14. Haul tank fill lines must have an appropriate backflow prevention assembly that include either (for top-fill tanks) an air-gap that is at least two-pipe diameters of the fill line or (for bottom-fill tanks) a double check valve.