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| **Project Name:** |       | **Date:** |       |
| **Engineer Name:** |       | **AK P.E. License No.:** |       |
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| This checklist is required for the construction of new or modification of an existing treatment system utilizing media filtration. Media filtration includes granular filtration and ion exchange systems.**Note:** When completing this checklist, please answer the question and also include where in the submittal detailed information is found for each submittal requirement. Please be as specific as possible (specify document name, page number, section number, paragraph, etc.). This will accelerate the review process. |

| **Submittal Requirements** | ***Regulatory Reference*** |
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| 1. **Design Documents:** Do the drawings and specifications for the treatment system construction include a schematic, profile, and scaled plan view depicting the placement and location of the treatment unit(s) within the treatment process? Which plan sheet(s) or specification(s) detail the make, model, and description of key system components?
 | *18 AAC 80.205(a)(2)* |
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| 1. **Treatment Objectives:** What is the treatment objective for the proposed media filtration? How has the proposed treatment been selected and its suitability for treating this water source determined? Does the submittal discuss how the design will address the full range of seasonal variations in water quality expected during operation?
 | *18 AAC 80.205(a)(4)**18 AAC 80.205(b)(5)* |
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| 1. **Water Quality:** Are analytical results provided characterizing the complete range of water quality the system will be expected to treat?
 | *18 AAC 80.205(c)(1)(A)* |
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| 1. **Interferences:** Does the raw water have any contaminants with the potential to interfere with the proposed treatment system? If so, how will the system correct for any potential interferences? Pretreatment may be required if interfering raw water contaminants are consistently at high levels.
 | *18 AAC 80.205(b)(9)**18 AAC 80.205(c)(6)* |
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| 1. **Pretreatment:** If pretreatment is required, provide design criteria for pre-treatment process. Is the pretreatment suitability based on raw water quality and a pilot study or other demonstration of its effectiveness?
 | *Ten States Standards* |
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| 1. **Design Calculations:** Do design calculations include loading rates, backwash rates, volume of backwash water, individual amounts or dosages of filtration media, resins, coagulants, oxidizing agents, and filter aids, and other items necessary to determine efficiency of the proposed treatment? Are such factors considered as raw water quality, pretreatment, filter media, water quality control parameters, and competency of operating personnel?
 | *18 AAC 80.205(a)(4)* |
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| 1. **Media Replacement:** How often will filter media replacement need to be evaluated? What is the engineer’s estimate of how often the media will need to be replaced?
 | *18 AAC 80.205(b)(9)* |
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| 1. **Chemical Feed Pump(s):** What are the make and model of the chemical feed pump(s)? Has the engineer addressed the selection of the chemical feed pump(s)? Is documentation included of each pump’s suitability for the chemical it will be injecting, and are calculations provided showing the feed pump(s) are sized for the water flow rates and chemical dosages?
 | *18 AAC 80.030**18 AAC 80.205(a)(4)**18 AAC 80.205(b)(9)* |
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| 1. **Chemical Overfeed Protection:** What design features provide chemical overfeed protection and backflow prevention during system operation and shutdown?
 | *18 AAC 80.205(b)(9)* |
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| 1. **Heat Exchangers:** Does the design specify all heat exchangers be double wall?
 | *18 AAC 80.025* |
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| 1. **Backflow Prevention:** Has backflow prevention been addressed for the following items (if used):
* Backwash water supply line
* Backwash waste line
* Filter surface wash
 | *18 AAC 80.025* |
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| 1. **Redundancy:** Has the engineer considered the need for redundant media filtration units? Redundancy may be required due to the acuteness and concentration of the contaminant.
 | *18 AAC 80.205(b)(9)* |
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| 1. **Shutdowns:** How will the public water system water demand be met during scheduled shutdown events such as backwashing?
 | *18 AAC 80.205(b)(9)* |
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| 1. **WTP Disinfection:** Which specifications address disinfection of the treatment plant component(s) affected by the project before use? If AWWA Standard C653 is not specified, is the proposed method adequately detailed for the contractor to implement?
 | *18 AAC 80.205(a)(2)* |
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| 1. **Sample Taps**: Which drawing sheet shows where sample taps for compliance and operations monitoring will be installed? Which construction specification indicates compliance taps need to be clearly labeled?
 | *18 AAC 80.655**18 AAC 80.205(c)(6)* |
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| 1. **O&M Manual:** Is information provided specifying the schedule and responsible party for completing the system’s O&M manual? Please note that at least a draft version clearly stating the operational limits for the system will be required when applying for interim operational approval.
 | *18 AAC 80.207 (b)(3)(A)* |
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| 1. **Backwash:** Has the engineer discussed backwash duration, frequency, and triggers? If a backwash wastewater surge tank is specified, where in the submittal are calculations showing the adequacy of its storage capacity with respect to wastewater generated during each backwash and effluent pumping capacity? Which design drawing identifies the source of water for backwashing? Proper air gaps should be specified and shown in drawings for waste streams prior to discharge to sewer lines/floor drains.
 | *18 AAC 80.205(b)(9)* |
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| 1. **Compressed Air:** If compressed air is used for processes such as backwash, has the engineer shown how air quality will be managed to prevent contaminants introduced into the water and that an oilless compressor/blower or food grade lubricants are used?
 | *18 AAC 80.205(b)(8)* |
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| 1. **Monitoring Scheme:** Is there a description of the monitoring scheme that will be used to assess process efficiency and reliability during daily operation?
 | *18 AAC 80.205(c)(1)(C)* |
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| 1. **Automation and Alarms:** Describe reliability features including system alarms, critical alarm triggers, alarm follow-up actions (e.g. auto shut-off, filter-to-waste), and the system's capability for effective and safe manual operation.
 | *18 AAC 80.205(b)(9)* |
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| 1. **Power Supply:** Does the power quality analysis determine if an uninterruptible power supply (UPS) is required for critical electronic equipment and alarm systems?
 | *18 AAC 80.205(b)(9)* |
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| 1. **Startup:** Discuss how the plant startup will be implemented including details on any temporary piping and the anticipated startup schedule. If the project is a modification or replaces a water treatment plant, where in the submittal is a discussion of how the transition will be made from the existing system to the new? Is a description included of functional and performance tests that will be used during commissioning/startup? Please note that copies of these test results will be requested for operational approval.
 | *18 AAC 80.205(b)(9)* |
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| 1. **Operator On-site Training:** Does the submitted written plan for training the water system operator(s) to operate the media filtration system include who will provide the training, the scheduled date of training relative to the proposed system startup, training forms to be used, and spreadsheets and schedules the operator will be provided? The scope of training should include collecting, recording, and interpreting data necessary for on-going compliance and performance verification.
 | *18 AAC 80.007* |
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