

Project Review & Permit Procedures Manual

Version 4.2

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Project Review & Permit Procedures Manual

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Summary

This manual provides procedural guidance to the Office of Drinking Water (ODW) staff for the review and approval of design engineering documents and the issuance of all permits, as prescribed in the *Waterworks Regulations*. It does not include the following subjects, which are covered in the guidance documents (or working memos) located in the Virginia Townhall¹:

<https://townhall.virginia.gov/L/gdocs.cfm?agencynumber=601>

WTR-813(W) – Well Development (WM 813)

WTR-902(W) – Exceptions to Surface Water Treatment Plant Loading Rates (WM 902)

WTR-906(W) – Procedures for Arsenic Removal Treatment Systems (WM 906)

WTR-918(W) – Disinfection of Water Mains, Distribution Storage Tanks, Wells and Treatment Facilities (WM 918)

Disclaimer

The purpose of this manual is to provide consolidated guidance on the project review program and permit procedures administered by the Office of Drinking Water as authorized in the *Waterworks Regulations*. It does not replace the requirements of the Regulations. The Project Review and Permit Procedures Manual is intended for ODW staff use, and should not be provided to the waterworks or consultants in lieu of technical assistance from ODW staff.

List of Abbreviations

| | |
|--------------|---|
| AWWA | American Water Works Association |
| Board | State Board of Health |
| CO | Consulting Office (Consulting engineer/design engineer) |
| Commissioner | State Health Commissioner |
| CP&SOC | Construction Permit & Statement of Completion |
| DCLS | Virginia Department of General Services, Division of Consolidated Laboratory Services |
| DEQ | Virginia Department of Environmental Quality |
| DPOR | Virginia Department of Professional and Occupational Regulation |
| DTS | Division of Technical Services |
| DWSRF | Drinking Water State Revolving Loan Fund |
| EPA | U.S. Environmental Protection Agency |
| FCAP | Financial, and Construction Assistance Program |
| FO | Field Office |
| FSE | Field Services Engineer |
| gpd | Gallons per day |
| gpm | Gallons per minute |

¹ Working Memos Nos. 902, 906, and 918 are incorporated in the *Field Operations Manual*, and they would eventually be no longer applicable when the *Field Operations Manual* becomes an official guidance document on the Virginia Townhall.

| | |
|-------------|---|
| GUDI | Groundwater Under the Direct Influence of Surface Water |
| GWMA | Groundwater Management Area |
| MGD | Millions of gallons per day |
| MOU | Memorandum of Understanding |
| NTNC | Nontransient Noncommunity Waterworks |
| ODW | Office of Drinking Water |
| P&S | Plans and Specifications |
| PDF | Portable Document Format |
| PE | Licensed Professional Engineer |
| PEC | Preliminary Engineering Conference |
| PER | Preliminary Engineering Report |
| PF | Peaking Factor |
| PRP | Project Review Program |
| PRS | Project Review Supervisor |
| PWS | Public Water System |
| PWSID | Public Water System Identification Number |
| Regulations | <i>Waterworks Regulations, 12VAC5-590-10 et seq.</i> |
| SDWIS | Safe Drinking Water Information System |
| SF | Safety Factor |
| TCDO | Training, Capacity Development, and Outreach |
| TMF | Technical, Managerial, and Financial |
| TNC | Transient Noncommunity Waterworks |
| Va. Code | Code of Virginia |
| VAC | Virginia Administrative Code |
| VDH | Virginia Department of Health |
| VWP | Virginia Water Protection (Permit) |
| WBOP | Waterworks Business Operations Plan |
| WDS | Waterworks Description Sheet |
| WM | Working Memo |

Glossary of Terms

| | |
|---|---|
| Community Waterworks | A waterworks that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. 12VAC5-590-10. |
| Consecutive Waterworks | A waterworks that receives some or all of its finished water from one or more waterworks. Consecutive waterworks may provide additional treatment to finished water. Delivery may be through a direct connection or through the distribution system of one or more consecutive waterworks. 12VAC5-590-10. |
| Design Exception | Any approved deviation from mandatory criteria contained in the Manual of Practice presented in the Regulations. Approval for a design exception must be issued by the Commissioner. 12VAC5-590-220 B. |
| Design Engineer | An agent of the waterworks, or proposed waterworks, owner responsible for the engineering of the waterworks or modifications of the waterworks. |
| Nontransient Noncommunity Waterworks | A waterworks that is not a community waterworks and that regularly serves at least 25 of the same persons over six months out of the year. When used in the context of an NTNC, “regularly serves” means four or more hours per day, for four or more days per week, for 26 or more weeks per year. 12VAC5-590-10. |
| Owner | An individual, group of individuals, partnerships, firm, association, institution, corporation, governmental entity, or the federal government that supplies or proposes to supply water to any person within the Commonwealth from or by means of any waterworks. See Va. Code § 32.1-167 and 12VAC5-590-10. |
| Transient Noncommunity Waterworks (TNC) | A noncommunity waterworks that is not a nontransient noncommunity waterworks (NTNC). A TNC serves at least 25 persons daily for at least 60 days out of the year. 12VAC5-590-10. |
| Wholesale Waterworks | A waterworks that treats source water as necessary to produce potable water and then delivers some or all of that potable water to another waterworks. Delivery may be through a direct connection or through the distribution system of one or more consecutive waterworks. 12VAC5-590-10. |
| Waterworks | A system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. “Waterworks” includes all structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of potable water except the piping and fixtures inside the building where such water is delivered. 12VAC5-590-10 and Va. Code § 32.1-167. |

Chapter 1 – Introduction

1. Permit Process Overview

All waterworks are required to have a written permit from the Commissioner (Va. Code § 32.1-172, 12VAC5-590-190) unless exempted because a waterworks meets all four of the conditions specified in Va. Code § 32.1-168, or construction involves the extension of water distribution piping having a diameter of 8 inches or less and serving less than 15 equivalent residential connections. Va. Code § 32.1-172 A.

The *Waterworks Regulations* (Regulations), 12VAC5-590-10 *et seq.*, include requirements and procedures for the issuance of permits required by the Public Water Supplies Law. 12VAC5-590-190, requires an owner or authorized agent to submit an application for a permit from the Virginia Department of Health (VDH) to establish, construct, expand, modify, and/or operate a waterworks or water supply. The permitting process includes the following steps:

1. Completion of a Preliminary Engineering Conference (PEC).
2. Submittal and approval of a Waterworks Business Operation Plan (WBOP).
3. Submittal and approval of a Preliminary Engineering Report (PER).
4. Submittal of a Permit Application.
5. Submittal, review and approval of Final Plans, Specifications, and Design Criteria.
6. Issuance of a Construction Permit.
7. Final inspection of construction by ODW.
8. Issuance of a new or amended Operation Permit.

However, not every applicant will be required to go through each of the eight steps identified above to receive an Operation Permit.

There is a permit application form for construction of a new waterworks or the modification of an existing waterworks (See PM-C5-Attachment 3).

There is a separate permit application form for change of ownership of an existing waterworks (See PM-C8-Attachment 10). The application form and instructions, which are posted on the Office of Drinking Water's (ODW) external webpage, can be filled out on-line and printed, signed, and submitted to VDH. VDH requires a signed copy of the application for a waterworks' official file at the appropriate ODW field office. A printout or digitally signed PDF file of a completed electronic application satisfies this requirement.

There is also a separate permit application form for existing facilities to apply for an Operation Permit (See PM-C8-Attachment 15). This application includes questions that will aid field staff in determining whether the facility meets the definition of a waterworks.

2. New Wells

If a new well source is proposed, the appropriate field office² will require the following two steps in addition to those listed above (see 12VAC5-590-200, 12VAC5-590-840 and WTR-813(W) located at:

1. Well Site Approval; and
2. Well Construction.

<https://townhall.virginia.gov/L/gdocs.cfm?agencynumber=601>

Field office staff should refer owners or engineers considering the construction of a new well to ODW's most recent "Handbook for Developing a Public Water Supply Well" located at:

<https://www.vdh.virginia.gov/drinking-water/permits-and-design/well-development-procedures/>

The Department of Environmental Quality (DEQ) manages groundwater through a program regulating the withdrawals of groundwater in certain designated areas called Groundwater Management Areas (GWMA). See Va. Code §§ 62.1-254 to 62.1-270. In a designated GWMA, 9VAC25-610-40 of the State Water Control Board's Groundwater Withdrawal Regulations specifies that no person shall withdraw, attempt to withdraw, or allow the withdrawal of groundwater, except as authorized pursuant to a groundwater withdrawal permit, or as excluded in 9VAC25-610-50. Withdrawals of less than 300,000 gallons per month do not require a Groundwater Withdrawal Permit. 9VAC25-610-50. There are presently two Groundwater Management Areas in Virginia, per 9VAC25-600-20 of the State Water Control Board's Designated Groundwater Management Areas regulations:

1. Eastern Shore: Counties of Accomack and Northampton;
2. Eastern Virginia: Counties of Charles City, Essex, Gloucester, Isle of Wight, James City, King George, King and Queen, King William, Lancaster, Mathews, Middlesex, New Kent, Northumberland, Prince George, Richmond, Southampton, Surry, Sussex, Westmoreland, and York; the areas of Caroline, Chesterfield, Fairfax, Hanover, Henrico, Prince William, Spotsylvania, and Stafford counties east of Interstate 95; and the cities of Chesapeake, Franklin, Hampton, Hopewell, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg.

A "withdrawal system" is defined in DEQ's Groundwater Withdrawal Regulations (9VAC5-25-610-10) as follows:

Withdrawal system means (i) one or more wells or withdrawal points located on the same or contiguous properties under common ownership for which the withdrawal is applied to the same beneficial use or (ii) two or more connected wells or withdrawal points which are under common ownership but are not necessarily located on contiguous properties.

² Unless specified otherwise, references to the "central office" or "field office" refer, respectively, to ODW's central office in Richmond, Virginia, and six regional field offices in Norfolk, Richmond, Culpeper, Lexington, Danville, and Abingdon.

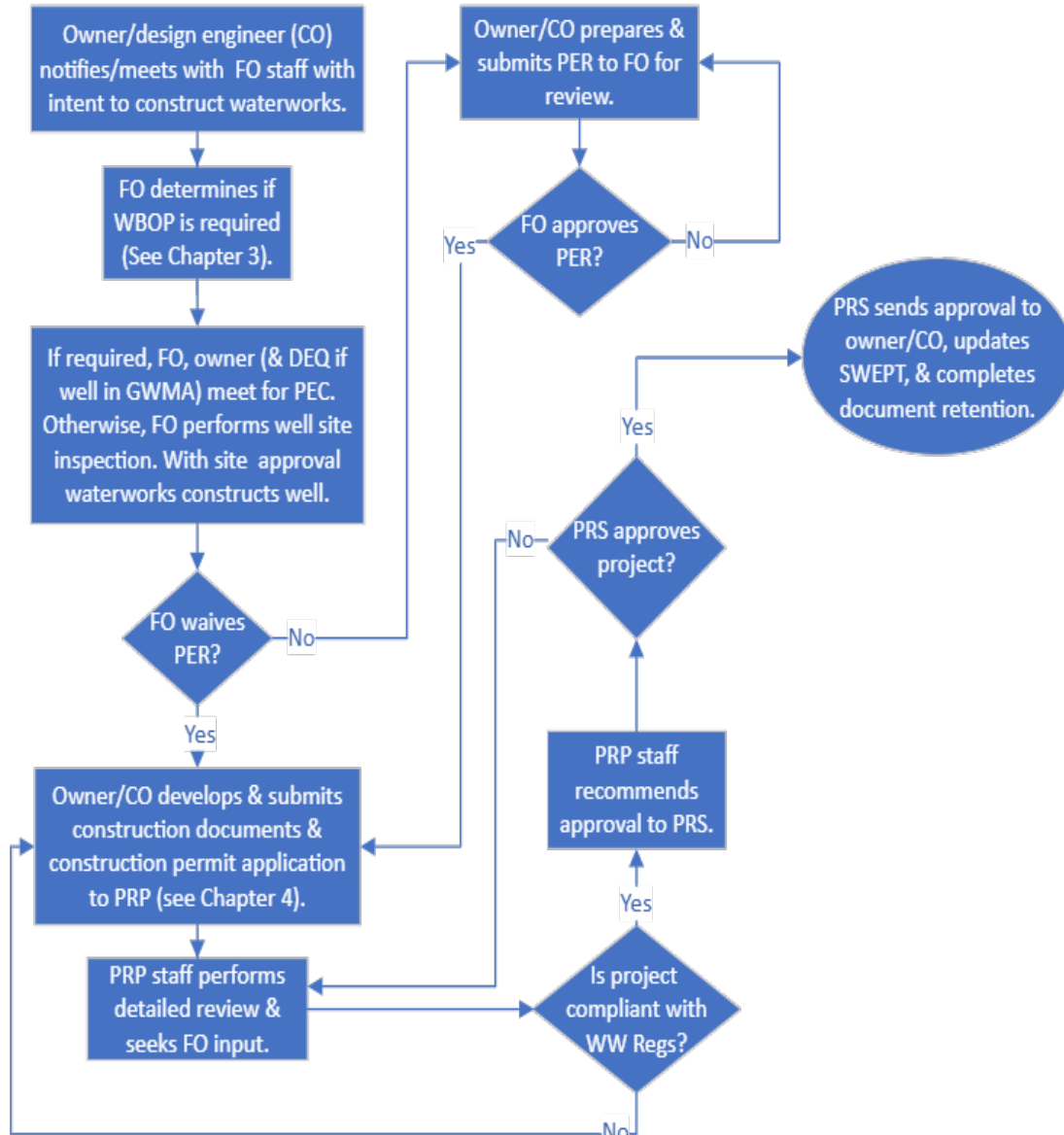
If a Groundwater Withdrawal Permit is required, the waterworks owner should obtain a draft permit from DEQ *prior to* constructing the well. DEQ may require specific construction features if a well is drilled through multiple aquifers (typical of the Coastal Plain region). Also, DEQ’s Aquifer Test Plan differs from the well yield and drawdown testing typically required by ODW. The waterworks should consult DEQ to determine what construction and testing requirements will apply before drilling and developing a public water supply well.

More information on DEQ water withdrawal permitting and Groundwater Management Areas can be found on the DEQ Water Withdrawal website here: <https://www.deq.virginia.gov/permits-regulations/permits/water/water-withdrawal>

3. Permit Types

ODW issues four types of permits, summarized in the following table. A further description of these permits, the purpose of each, and their attachments is provided in this manual.

| PERMIT | ATTACHMENTS | CHAPTER |
|---|--|----------------|
| Construction | Description Sheet of Proposed Construction (not required for some projects) | 5 |
| General (Local Review Program for construction of water distribution mains) | Memorandum of Understanding (MOU) with ODW | 7 |
| Operation – Standard | Operation Permit Conditions. May also have Variance or Exemption. | 8 |
| Operation – Temporary | Operation Permit Conditions, Temporary Operation Permit Requirements. May also have Variance or Exemption. | 8, Section 11 |



Flow Chart. Overview of the Construction Permit Issuance Process.

Legend: FO=Field Office; CO=Consulting Office; WBOP=Waterworks Business Operations Plan; DEQ=Department of Environmental Quality; PEC=Preliminary Engineering Conference; GWMA=Ground Water Management Area; PER=Preliminary Engineering Report; PRP=Project Review Program; SWEPT=Safe Water Engineering Project Tool; PRS=Project Review Supervisor.

Chapter 2 - Preliminary Engineering Conference & Report

The Preliminary Engineering Conference (PEC) is a feasibility discussion that establishes the project's direction and scope for construction of a new waterworks or modification or expansion of an existing waterworks. Field office staff may discuss the following elements with the applicant and design engineer³ at the PEC:

1. Service description and water demand;
2. Estimated construction development time frame and completion date;
3. Alternatives considered;
4. Issues related to the source of supply, *e.g.*, for wells: located in a GWMA, located in karst terrain, well development procedures, anticipated treatment needs, etc.;
5. Construction of storage and distribution facilities;
6. Permits and authorizations required from DEQ for surface or ground water withdrawal, treatment process wastewater discharge and/or disposal;
7. Proposed treatment processes to meet water quality standards;
8. Complex hydraulics;
9. Any potential design exceptions to the Regulations (all design exceptions must be approved by the Director, Division of Technical Services (DTS));
10. Future/anticipated monitoring and reporting requirements; and
11. Operator requirements.

For prospective owners who intend to purchase an existing waterworks or develop a new one, as well as owners who are proposing an expansion or modification to an existing waterworks, field office staff should review the owner's ongoing responsibilities and regulatory requirements after operation commences, including monitoring, reporting, operator requirements, etc. At this stage, it may be useful to review a draft Waterworks Business Operation Plan (WBOP) for new waterworks owners (covered in Chapter 3). An example PEC meeting minutes template is in PM-C2-Attachment 1.

A Preliminary Engineering Report (PER) is normally required by the ODW field office for projects involving:

1. Treatment processes (other than simple chemical solution feeders);
2. Pumping;
3. Storage;
4. Distribution system expansions or modifications that have the potential to result in exceeding 80% of a waterworks' permitted capacity or negatively impacting distribution system pressures; and
5. Receipt of Drinking Water State Revolving Funds (DWSRF).

³ For the purposes of this document, the term "design engineer" is used to describe an agent of the waterworks owner responsible for the engineering of the waterworks or modifications of the waterworks.

The field office will coordinate with the central office (DTS) on a PER that includes innovative/alternative technology or design exceptions to the Regulations. ODW requires an electronic PDF file of the final report. Upon approval, the field office will issue a PER approval letter (PM-C2-Attachment 2) and retain the approval letter and PER in the field office records. If central office coordination will be required for the project, the field office will forward an electronic copy of the final PER to the DTS following field office approval.

The Field Office Director has the discretion of waiving the requirement for a PER. This would be appropriate when the project consists of only simple additions or modifications that do not require analysis to determine the impact on the ability of the waterworks to comply with the Regulations and the proposed project design concept is typical and does not need analysis or further justification. Field office staff will provide appropriate justification and document such decision to waive the PER in the project review notes or in the memo to the file (use PM-C4-Attachment 1 to document this decision).

For Pilot Plant study reports, the field office should discuss results and conclusions with DTS and obtain concurrence prior to approval.

For evaluation reports of full-scale technology (demonstration studies), the field office should discuss results and conclusions with DTS and obtain concurrence prior to approval.

Field offices may issue approvals for engineering reports without central office document review.

Appendix

Attachments are located at: <\\odwsrv1\odwshare\13-Manuals\02-Permit Manual>

PM-C2-Attachment 1- PEC Meeting Minute Template

PM-C2-Attachment 2- PER Approval Letter

Chapter 3 - Waterworks Business Operation Plan (WBOP)

1. Authority

The requirement for a waterworks to complete a WBOP is established in Va. Code § 32.1-172 B, which states that an application for a permit “shall include a comprehensive business plan detailing the technical, managerial, and financial commitments to be made by the owner in order to assure that system performance requirements for providing the water supply will be met over the long term.” Section 32.1-172 B additionally allows the State Board of Health (Board) to “require the submission of a business plan by those existing waterworks that have demonstrated significant noncompliance with the Regulations. The term “comprehensive business plan” is synonymous with “Waterworks Business Operation Plan” and ODW acts on behalf of the Board to implement the Public Water Supplies Law.

The Regulations further codify the Waterworks Business Operation Plan at: 12VAC5-590-10 Definitions and units of measurement; 12VAC5-590-125 Chronically noncompliant waterworks; 12VAC5-590-200 Procedure for obtaining a construction permit; 12VAC5-590-290 Issuance of a temporary operation permit; and 12VAC5-590-310 Amendment or reissuance of operation permits.

Although the Regulations do not specify an option to waive the requirement for a WBOP, the Code of Virginia gives this authority to the Board. The Board has delegated this authority to the Commissioner, who has in turn delegated authority to the Field Office Directors to waive the requirement for a WBOP. The Field Office Director may waive the WBOP portion of the application if an applicant has “demonstrated a history of acceptable compliance with the Regulations.” Va. Code § 32.1-172 B. “Acceptable compliance” is not defined in the Public Water Supplies Law or the Regulations. It is up to the discretion of the relevant Field Office Director to determine, with the assistance of the central office (i.e., Division for the Training, Capacity Development, and Outreach (TCDO) and Division of Compliance, Enforcement and Policy) if necessary, whether the standard of “acceptable compliance” has been met.

2. WBOP Content

The Regulations specify the following four WBOP components (12VAC5-590-200 A 5):

- a. Waterworks information that includes ownership data, a waterworks facility description, operator requirements, staffing needs, and staff training.
- b. Management information that identifies critical business practices necessary for effective management and operation of the waterworks. Management information includes the requirements essential for managing and operating the waterworks and defines the processes, methods, and tasks necessary for complying with this chapter.
- c. Financial information that identifies projects, considering the waterworks revenues and cash flow, which will be sufficient for meeting the cost of operation and maintenance for at least five full years from the initiation of operations. Financial information also demonstrates the owner's ability to direct the waterworks' finances to support technical and managerial capacities and includes a self-assessment consisting of the following

financial metrics: operating cash reserve, debt service coverage, emergency reserve, and revenue sufficiency.

- d. Sustainability improvements that are identified throughout the waterworks business operation plan to address technical, managerial, and financial aspects of the waterworks' business processes that need improvement.

3. Applicability

Field Office Directors, the TCDO Division Director, and the Financial and Construction Assistance Program (FCAP) Division Director are to determine if a waterworks owner is required to submit a WBOP pursuant to Va. Code § 32.1-172. For each construction permit application, Field Office Directors will determine if a WBOP is required. Every construction permit application submitted to the PRP must address whether a WBOP has been waived. For a non-responsive answer in the application, the PRP assigned project engineer must contact the field office for final verification. Under the following circumstances, Field Office Directors will generally require waterworks owners to submit a WBOP:

3.1. First-Time Owners

ODW requires first-time owners of any new or existing waterworks, regardless of waterworks classification or type, to submit a WBOP. First-time owners generally may not understand their responsibilities and need technical assistance to understand their obligations. The WBOP includes sections that incorporate technical, managerial, financial, and regulatory requirements. It also requires that the waterworks have a budget and that the owner makes financial commitments to ensure the waterworks' expenses are covered. The process of working through the WBOP is inherently educational and owners are encouraged to work with ODW staff while completing the WBOP.

3.2. Previous or Current Owners of Waterworks with Poor Compliance History

ODW requires any previous or current owner of a waterworks that the Field Office Director has identified as “chronically noncompliant” to complete a WBOP when acquiring another waterworks. “Chronically noncompliant waterworks” is defined at Va. Code § 32.1-167 as “a waterworks that is unable to provide pure water for any of the following reasons: (i) the waterworks' record of performance demonstrates that it can no longer be depended upon to furnish pure water to the persons served; (ii) the owner has inadequate technical, financial, or managerial capacity to furnish pure water to the persons served; (iii) the owner has failed to comply with an order issued by the Board or Commissioner pursuant to § [32.1-26](#) or [32.1-175.01](#); (iv) the owner has abandoned the waterworks and has discontinued supplying pure water to the persons served; or (v) the owner is subject to a forfeiture order pursuant to § [32.1-174.1](#).” All potential waterworks owners are required to complete the permit application process. This process includes evaluations that identify if a potential owner has been involved with a waterworks that was determined to be chronically noncompliant. If that is the case, the field office director will determine if a WBOP is required and will notify the owner of the requirement to complete a WBOP during the permit application process.

Unrelated to taking over ownership, ODW may also require a WBOP from the current owner of an existing waterworks that the Field Office Director has identified as being chronically noncompliant. Enforcement staff will handle this requirement separate from the permitting

process and may be associated with enforcement actions. The Training, Capacity Development, and Outreach Division Director may also require a waterworks to complete a WBOP if staff identify substantial technical, managerial, and financial (TMF) weaknesses.

3.3. Current Waterworks Owners Applying for Funds from the Drinking Water State Revolving Fund (DWSRF)

The ODW FCAP and/or TCDO divisions may require applicants for funding support from the Drinking Water State Revolving Fund (DWSRF) to complete a WBOP or update an existing plan prior to receiving funds from the DWSRF. In addition to the standard application review, when a waterworks applies for funding, ODW staff evaluates the TMF capacity of the waterworks. The evaluation includes a review of compliance history, operation and maintenance practices, and financial capacity. The financial review will typically include, but is not limited to, review of financial credit ratios, established reserve funds, and properly set rates. If ODW staff identifies issues with the TMF capacity of the waterworks, they may require a WBOP as a condition of funding.

4. Preparer's Qualifications

TCDO staff developed the current WBOP documents to allow most waterworks owners the ability to complete the WBOP. However, the owner may seek advice and counsel from others having the appropriate business skills, knowledge, and expertise in the complexity of waterworks operations. If an owner needs assistance with any or all of the elements of a WBOP, ODW staff can provide the assistance or recommend that the owner seek outside help. Staff is encouraged to offer to provide relevant documents from the waterworks files at the field office. The owner may or may not have them, and they represent a critical part of the WBOP. The waterworks owner is ultimately responsible for the preparation, accuracy, and final certification of the WBOP.

5. Resources and Assistance

As previously stated, ODW staff is available to provide technical assistance to waterworks completing a WBOP. Field office staff typically offer this assistance to prospective waterworks owners during the Preliminary Engineering Conference (PEC) and permitting process. ODW staff will offer existing chronically noncompliant waterworks assistance with the WBOP in conjunction with enforcement action. Waterworks awarded DWSRF funds will be offered assistance during the initial funding meeting. TCDO staff will follow-up with DWSRF fund recipients to ensure progress on the required WBOP. Field office staff will follow-up with all other waterworks owners that are required to have a WBOP. Field office staff may also recommend that waterworks owners seek one-on-one technical assistance from TCDO staff.

WBOP resources for the three waterworks types (community, NTNC, and TNC) consist of handbooks, templates, worksheets, and related information. WBOP preparers should use the appropriate resources to develop the submittal for review and acceptance by the field office. These resources, including capacity development personnel for the service areas across the State, are located at:

<http://www.vdh.virginia.gov/drinking-water/capacity-development/waterworks-business-operations-plan/>.

ODW staff should direct waterworks to use the WBOP templates and resources that ODW provides. A WBOP completed using the ODW template will have all the minimal necessary and required information. The information will also be in a standard format, simplifying staff review. Waterworks may choose to submit the same information using another format, although this will likely increase review time. If a waterworks submits a WBOP in another format, staff must ensure that the waterworks has addressed all the elements contained in the ODW template.

Staff is encouraged to work with the owner or preparer as they work through the WBOP, providing constructive feedback and technical assistance to help the owner understand concepts contained in the WBOP. It is important that staff understand, and convey to the owner, that VDH does not require sensitive financial information (i.e., bank account numbers) for a WBOP to be complete. Additionally, the purpose of the WBOP is to capture a “snapshot in time” of the status of waterworks management and financial procedures to provide a roadmap for future decision-making. Lastly, the WBOP is an inherently educational tool that ODW uses to facilitate conversations with owners about the requirements of owning and operating a waterworks. As such, a well-constructed and thought-out WBOP will address issues before they become problems.

6. ODW Review Procedures

Review of the technical, managerial, and financial portions of the WBOP is required for every WBOP submitted in accordance with Va. Code § 32.1-172 and the Regulations.

Field staff are responsible for completing the final review of and issuing acceptance of WBOPs submitted in the context of an operations permit application or submitted as a requirement to address regulatory issues (chronically noncompliant waterworks). TCDO staff are responsible for completing the final review of and issuing acceptance of WBOPs submitted as a requirement of funding awards (typically DWSRF awards).

Reviewers will return WBOPs that are incorrect, incomplete, or fail to demonstrate acceptable technical, managerial, and financial capacities to the owner/preparer for revision. Staff will provide the waterworks with a list of required corrections so that the owner may resubmit a complete, acceptable WBOP. If the owner or preparer is uncooperative in complying with the requirements, staff may return the WBOP to the owner with explanation and inform the Field Office or Division that was requiring the WBOP. Waterworks required to complete a WBOP by the Field Office may face enforcement action. Waterworks that are required to complete a WBOP as a condition of funding may jeopardize the funding offer and may be ineligible for future funding unless the funding recipient submits an acceptable WBOP.

If a new community waterworks owner fails to submit an acceptable WBOP, the Field Office can include a Temporary Operation Permit condition requiring a WBOP. Staff should provide at least six months for a community or NTNC waterworks to complete a WBOP. The typical amount of time for a community or NTNC waterworks to complete a WBOP is approximately 12 months. Waterworks staff at TNCs should be able to complete a WBOP in approximately 2 months.

There are a few situations when ODW staff should require an “Annual Update.” If the WBOP was required as a condition of a funding agreement, annual updates may be required and staff should discuss this with the FCAP and TCDO Divisions. Annual updates should be required when the waterworks has or will have substantial long-term debt relating to capital improvements.

Annual updates may also be required if the waterworks has had financial mismanagement issues identified in audits, the WBOP, or other documents. An annual update consists of an updated budget (Worksheet 1: 6-Year TMF) with two years of actual revenues and expenses, and four-year forecasted revenues and expenses. It also should provide an update to staffing, responsibilities, procedures, and regulatory compliance. It does not have to be a complete WBOP as it will be an addendum/update to the current WBOP.

Upon receipt of the WBOP, the reviewer shall enter the WBOP into SWEPT as a report. Once the WBOP has been completed, submitted, reviewed, and found acceptable, the responsible ODW staff will follow these steps:

1. When applicable, use PM-C4-Attachment 5 (i.e., a comment letter) to identify deficiencies in the WBOP to the owner.
2. Send an acceptance letter to the owner, including any requirements for an annual update. Use “PM-C3-Attachment 1 – WBOP Acceptance Letter.” Send electronic copies to the Field Office Director, the TCDO Division Director, and (if the WBOP was required as part of a funding agreement) to the FCAP Director.
3. Save a scan of the signed acceptance document and the WBOP to [\\odwsrv1\odwshare\08-Documents and Data Files\809-Waterworks Business Operation Plans](#) using a file naming format of PWSID_WBOP_AP_YYYY_DD_MM.pdf.
4. Send the complete WBOP to the Capacity Development Supervisor in the TCDO Division for archiving.
5. Update the WBOP project record in SWEPT as “completed”.
6. Enter the WBOP acceptance date into SDWIS in accordance with the ODW SDWIS Manual.

Appendix

Attachments are located at: [\\odwsrv1\odwshare\13-Manuals\02-Permit Manual](#)

PM-C3-Attachment 1- WBOP Acceptance Letter

Chapter 4 – Project Review

1. Background

Historically, project review was conducted by each field office where the project occurred. In its broadest sense, a “project” included engineering plans and specifications (P&S) for the construction of new and/or modified waterworks infrastructure, engineering reports, monitoring plans, business plans, pilot studies, operation permit review for issuance or revocation, design exceptions, cross-connection control programs, and many other issues requiring some form of regulatory action, such as an approval, concurrence, etc. The project review function by the Office of Drinking Water (ODW) is now tasked with the Project Review Program (PRP) within the Division of Technical Services (DTS), with significantly less involvement by the relevant field office.

When a waterworks undergoes construction or change in the manner of transmission, storage, purification, treatment, or distribution of water (including the extension of water pipes for the distribution of water), and including any change in capacity, a construction permit is required (see Section 12VAC5-590-190 B of the Regulations). The tasks associated with review of engineering plans and specifications (and related change orders and addenda) and issuing the construction permit comprise the principal core of the PRP. Other projects not limited to those cited above will remain the responsibility and within the purview of the field office.

The following matrix (Table 1) outlines the project review tasks performed by ODW staff:

| Table 1- Project Review Task Assignments | |
|--|-----------------------|
| Project Type | Assigned Staff |
| Plans & Specifications (P&S) | PRP |
| Change Orders | PRP |
| Addenda | PRP |
| Laboratories included with P&S | PRP |
| Laboratories (individual project) | FO |
| Design Exception (submitted directly with P&S) | PRP |
| Design Exception (submitted directly/developed during PEC/PER) | FO |
| Preliminary Engineering Conference (PEC) | FO |
| Preliminary Engineering Report (PER) | FO |
| Final Inspections | FO |
| Replace-in-Kind Projects | FO |
| Engineering Studies | FO |
| Record Drawings | PRP |
| As-Built Drawings | PRP |
| Permit Application – Construction | PRP |
| Permit Application – General | PRP* & FO |
| Permit Application – Operation (Standard & Temporary) | FO |
| Non-SDWA Reports – non-conventional, engineering studies | FO |
| Miscellaneous (unusual & nonroutine projects) | FO & DTS/PRP |

**Limited to the review of the Standard Specifications and Plan Details (i.e., “Standard Specs”) associated with the General Permit and the Local Review Program for waterline extensions by a locality. Approval of the General Permit remains with the field office.*

2. Statutory and Regulatory Obligations

The PRP will follow the applicable regulations described in the Code of Virginia and the *Waterworks Regulations* as follows:

Code of Virginia

Va. Code §§ 32.1-167 through 32.1-176.

Waterworks Regulations

- 12VAC5-590-190. Permits.
 - 12VAC5-590-200. Procedure for obtaining a construction permit.
 - 12VAC5-590-210. Requirements for the submission of engineering data.
 - 12VAC5-590-220. Compliance with the Manual of Practice⁴.
 - 12VAC5-590-230. Issuance of the construction permit.
 - 12VAC5-590-240. Revisions of approved plans.
 - 12VAC5-590-250. Statement required upon completion of construction.
 - 12VAC5-590-300. Issuance of a general permit for construction of distribution mains.
- Part III – Manual of Practice for Waterworks Design

Project review and permitting guidance procedures are provided elsewhere in this manual, such as:

- Chapter 5 – Construction Permit
- Chapter 7 – General Permit & Standard Specifications
- Chapter 8 – Operation Permit
- Chapter 9 – Capacity Evaluation of Waterworks

Important: The PRP staff may not endorse any treatment and other types of equipment associated with project reviews. VDH does not give “blanket approval” for any specific material, equipment or treatment unit. Each situation must be evaluated on a case-by-case basis.

3. ODW Website

The design engineer considering a waterworks project (on behalf of a waterworks owner) for the PRP approval should consult the ODW website for current instructions to anticipate any changes or updates that might have been made to ensure that the latest construction permit application, project checklists⁵, templates, and other instructional materials regarding the submittal process are available and accessible. <https://www.vdh.virginia.gov/drinking-water>

Typically, the following are applicable to every submittal:

⁴ Details are provided in the *Waterworks Regulations* Part III - Manual of Practice for Waterworks Design.

⁵ All checklists and their internal “check marks” should be completed in their entirety as much as is practicable. ODW may consider a project submittal incomplete if complete answers to questions on the checklist are not provided. An indication of “N/A” for “not applicable” should only be used in cases where clarification is evidently not needed or necessary for an entry or field on the checklist.

- Within three business days after project submittal and logging the project into SWEPT, the assigned PRP staff should send an email to the design engineer indicating that the project was received and is either (i) placed in queue for review if the submittal appears to be complete, or (ii) the submittal is incomplete, with PRP staff identifying the deficiencies and notifying the design engineer and copying the owner.
- If the design engineer does not receive a confirmation email from PRP staff within three business days of project submittal and logging the project into SWEPT, the design engineer should check-in with PRP staff on the status of the project submittal to ensure that it was properly received and accepted for review.
- All entries on the checklists accompanying the submittal should be completed even if an entry is not applicable.

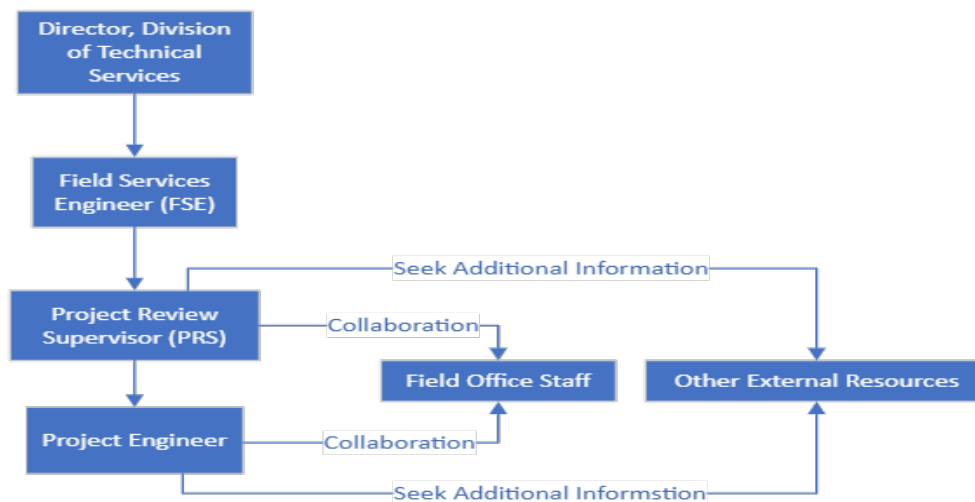
4. Project Review Defined

The project review undertaken by the PRP is defined as the set of activities primarily centered around 12VAC5-590-190 Permits of the Regulations, which addresses both operation and construction permits. Collectively, these are as follows:

- Review of P&S, change orders, and addenda for their approval including any other ancillary materials, and issuance of construction permits.
- Review of design exceptions that are requested at the PRP stage. *Note:* Design exceptions should be identified at the preliminary engineering conference (PEC) and submitted to the field office for review prior to development of plans and specifications to avoid delays or potential design change requirements. If design exception requests are not identified prior to development of plans and specifications, they may be included with the PRP submittals. In some cases, the field office may initiate and process some design exceptions. [See Section 10 of this chapter].

5. Role of the PRP Staff and their Inter-Relationships

Flow Chart 1 outlines the hierarchy within the PRP and the inter-relationships.



Flow Chart 1. Inter-Relationships within the Project Review Program (PRP).

Other reviews outside of this domain, such as preliminary engineering reports (PERs), pilot studies, monitoring plans, business plans, cross-connection control programs, etc., will be routinely handled by field office staff.

The PRP staff consists essentially of four principal participants with the Director of DTS overseeing the entire program. In some situations, field office staff may be included in a collaborative way, particularly in cases where a field staff member possesses especially significant technical expertise on a given project. For the review process, there are several roles and responsibilities defined for the review team.

5.1. Overview of the PRP

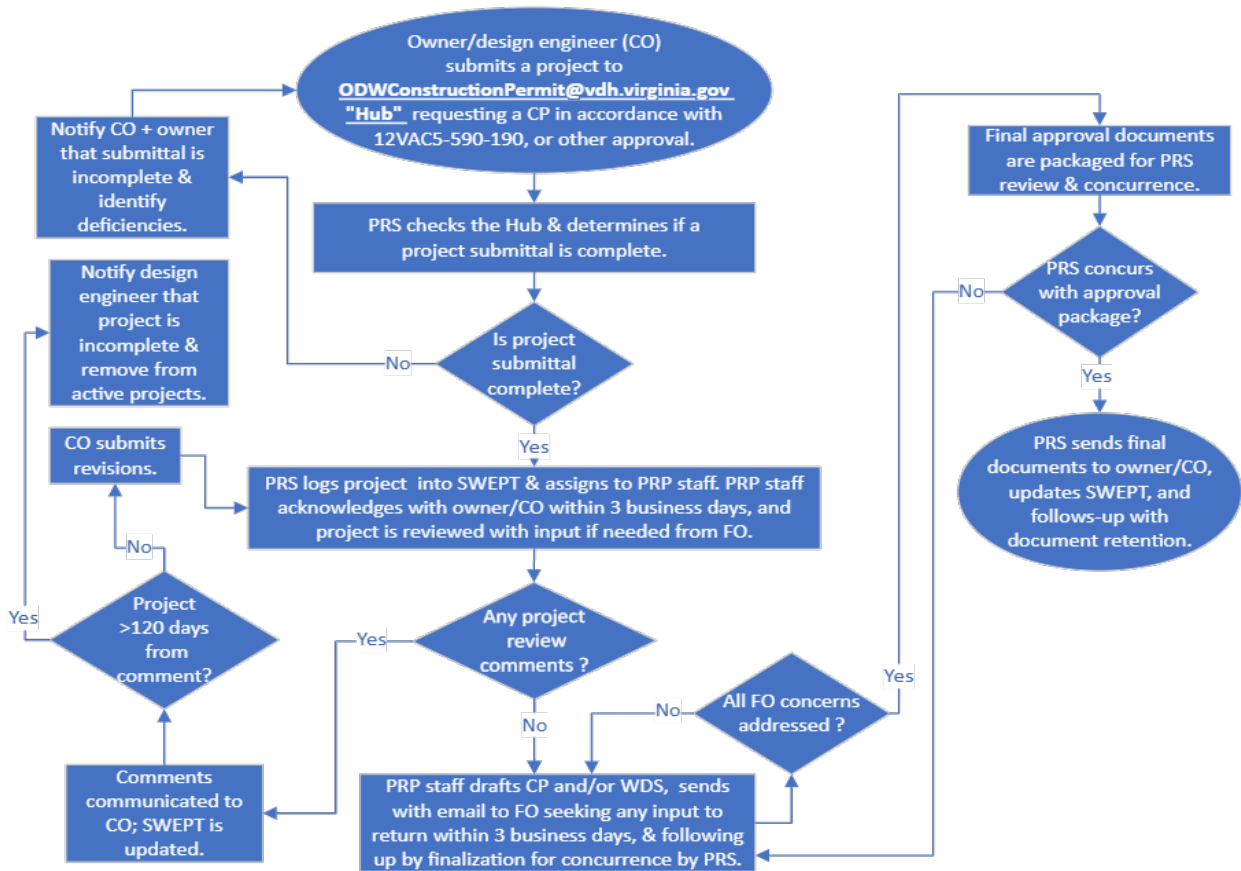
The roles of the PRP staff are briefly described in Flow Chart 2.

5.2. Director of the Division of Technical Services (DTS)

The Director of DTS uses his/her expertise (i.e., knowledge, skills, and abilities) to approve or deny design exception requests. In addition, the Director of DTS is the “go-to” person for advice and guidance when certain issues/situations need resolution, which may not be available at the field services engineer (FSE) level. Briefly, these responsibilities are as follows:

- Provides signature on approval or denial of a design exception;
- May provide specific expertise beyond the level of the FSE; and
- Provides signature on approval or denial of a design exception initiated by field office staff.⁶

⁶ Limited design exception requests can be approved or denied by the Engineering Field Director.



Flow Chart 2. Overview of the Project Review Program (PRP).

Legend: CP=Construction Permit; PRS=Project Review Supervisor; SWEPT=Safe Water Engineering Project Tool; FSE=Field Services Engineer; FO=Field Office; CO=Consulting Office; WDS=Waterworks Description Sheet.

5.3. Field Service Engineer (FSE)

The FSE uses his/her expertise (i.e., knowledge, skills, and abilities) to complete a final review (i.e., a concurrence) of the project review package recommended for approval by the PRS. At this point, two actions are likely: (i) approval for the PRS’s signature and mail out, or (ii) return for corrections. Briefly, these responsibilities are as follows:

- Reviews design exception requests;
- Provides PRP metrics to DTS Director.
- Revises PRP procedures to ensure optimum customer service, consistency, and efficiency.
- Performs PRS duties when absent (including signatory authority).

5.4. Project Review Supervisor (PRS)

The PRS manages the PRP on a day-to-day basis and provides the next level of review, although not as detailed as that conducted by the project engineer or other PRP assigned staff. It is, nonetheless, the PRS’s review that is a check for completeness and compliance, and generally identifies whether objectives of the PRP were met. The PRS may solicit input from the field office as necessary. Any input must be addressed. Barring any input, the review “package” is

sent to the FSE for final review and concurrence before being returned to the PRS for final signature. Briefly, these responsibilities are as follows:

- Ensures that project submittals received by the PRP are correctly logged into SWEPT;
- Assigns project review assignments to PRP staff;
- Provides approval, signature, and final mail out of construction permits, waterworks description sheets (WDS) of proposed construction, and other approvals supportive of the PRP, such as updates to review forms and letter templates, etc.
- Provides prompt updates to SWEPT to close out completed project reviews;
- Tracks review time using master spreadsheet;
- Checks SWEPT updates for accuracy;
- Reviews and processes design exceptions;
- Addresses other PRP assignments by FSE.

5.5. Project Engineer

The PRP project engineers are required to evaluate the assigned submittals for compliance with Part III of the Regulations using established review checklists. This review is in-depth and very substantive. The project engineers will identify noncompliance with Part III of the Regulations to the design engineer and owner. For project elements not specifically addressed in Part III of the Regulations, project engineers will make use of best practices, industry standards, and other resources to complete the review. Project engineers must be technically capable and have a willingness to collaborate with other sources for added expertise. The project engineer completes the following:

- Reviews assigned plans in a timely and efficient manner;
- Tracks review time using the master spreadsheet: located on the Y drive in folder 08 – Project Review Time Tracking;
- Updates SWEPT with the most recent events and plan status;
- Drafts construction permits, WDS for construction, comment letters, and other documentation;
- Addresses other program assignments by PRS.

5.6. Competence

The PRP team must demonstrate competence to the consulting engineering community and not be viewed as a “rubber-stamp”; i.e., the staff must be perceived as having sufficient knowledge, and the required skill, qualifications, ethics, integrity, etc. For the review process, PRP staff should only engage in review if he/she has knowledge, expertise, and the required skill for reviewing particular topics/material. Otherwise, the PRP staff should advise the PRS on any “skill-set” deficiencies, and the review may proceed as a collaborative/mentored approach. PRP staff should continue to improve skill sets by pursuing select training.

6. Pre-Review of Project Submittals

All design engineers are expected to be familiar with 12VAC5-590-200 et seq. before submitting a project for review and issuance of a construction permit or some other form of approval by the

PRP.⁷ Design engineers should refer to the ODW Construction Permit Website for up-to-date submittal instructions at: <https://www.vdh.virginia.gov/drinking-water/construction-permit-certification-checklist/>

For all project submittals, there are two possible review actions to be taken:

For a Complete Project Submittal – an email notification must be sent within three business days to the design engineer indicating that the submittal was received, assessed overall as complete, and placed in queue for review. An email template is provided at PM-C4-Attachment 1.

For an Incomplete Project Submittal – an email notification must be sent within three business days to the design engineer with a copy to the owner indicating that the submittal was received, and deemed **incomplete** for review due to identified deficiencies. Project review staff must list all deficiencies/errors of the submitted package. The notification will indicate that a review will not be started until all deficiencies/errors are addressed and that the updates/revisions should be provided promptly to the PRP to avoid delays. An email template is provided at PM-C4-Attachment 2.

6.1. Logging Project Submittals into SWEPT

ODW staff now uses the project tracking database, Safe Water Engineering Project Tool (SWEPT), to account for all activities related to the handling of reports, plans, specifications, addenda, change orders, etc. The assigned staff will enter projects into SWEPT immediately upon receipt of documents and update the system as actions are taken. The SWEPT User Guide is located at: gecsws.zendesk.com. ODW-specific SWEPT instructions are available at: **Y:\13-Manuals\09-Data Management Manual\SWEPT**.

If the design engineer (also known as the “Consulting Engineer” or “Consulting Office”) is not listed in SWEPT, the project engineer should provide the details about the consulting engineer, such as the business (or web site) address and phone number in an email to the SDWIS Administrator to update (i.e., add) the “Consulting Office” data in SDWIS. An email template is provided in PM-C4-Attachment 3. A design engineer must be in place in SWEPT to ensure that the project can be properly logged in. Without a listing for the design engineer, a “project record” cannot be saved.

Once a project has been logged into SWEPT, the project engineer must notify the design engineer within three business days by email that the project submittal was received and is now in queue for review or is being returned for incompleteness. If there are obvious missing items, this would be a good time to add this information to notify the design engineer in the email. (Use PM-C4-Attachments 1 & 2.)

6.2. Document Storage

The project engineer should use the link in the consulting engineer’s email transmitting the project to the PRP “hub” to download and transfer the documents into the SharePoint repository, using

⁷ Sections 12VAC5-590-200 et seq. outline the detailed procedure for obtaining a construction permit for either community or noncommunity waterworks. Familiarity and compliance with these requirements by the design engineer will optimize the review and turnaround time for an approval by ODW and the PRP.

the “Technical Services” folder #74, in ODW Electronic Content Management, Construction Permitting program. To avoid conflicts/duplication in SWEPT, the project engineer should identify any errors to the PRS, so only one individual manages the initial data entry. Each project is identified and tracked as follows:

Seven-digit PWSID number-Five-digit Project number - Name of project. As an example, for an existing system:

| |
|--|
| 2069329-88381*-Timber Ridge School storage modifications |
|--|

For a new waterworks:

| |
|--|
| 6000000-87724*-Nokesville Dentistry groundwater system |
|--|

**The five-digit number is generated by SWEPT. It is a unique number specific to a given project. It is also used as the Construction Permit number at the time of its issuance. The project number can be used to conduct searches and inquiries within SWEPT.*

6.3. Design Engineer Notification of Project Receipt and Completeness Review

Within three business day of receipt of a project, the assigned PRP staff must review the submittal for completeness. Based on the completeness review, the assigned PRP staff must notify the design engineer within three business days by email using PM-C4-Attachments 1 or 2 that the submittal was received and placed in queue for review, or not, and the reasons(s) why. If there are missing items, notify the engineer in this email. The narrative of the emails can be on a case-by-case basis depending on what the reviewer wishes to communicate with the design engineer.

7. Component Parts of a Submittal

The following is a brief description of the kinds of documents that may comprise a project submittal to the PRP:

7.1. Construction Permit Application

A construction permit application must be completed and submitted to the PRP “hub” prior to commencing a review of engineering documents for a construction permit or other approval (e.g., for as-built drawings). Applicants can download the application from the ODW webpage at: <https://www.vdh.virginia.gov/drinking-water/permits-and-design/>.

This document must be properly sealed, signed, and dated by the design (professional) engineer as required in the declaration on the final page of the application.

7.2. Plans and Specifications

In specific reference to the requirement for a PE seal, ODW and the PRP will process the plans and specifications only if the cover sheets to all plans and specifications bear an “original” seal and signature and are dated. Electronic copies of plans are preferable, and electronic seals with an electronic signature and date are acceptable. The remaining plan sheets need only have facsimiles of the seal, signature, and date. ODW and the PRP requires that any plan sheets prepared by a PE who is not the PE sealing the cover sheet, must bear facsimiles (as a minimum) of the seal and signature of that engineer.

7.3. Engineering Reports and Other Documents

Engineering reports submitted to PRP for review and approval may include demonstration studies, treatability studies, alternative design evaluations, non-conventional treatment methodologies, and preliminary engineering reports (PERs). However, these reports may have already been reviewed and acted upon by field office staff, and they are therefore for informational purposes for the PRP staff. The cover sheet of all PERs shall bear an "original" PE seal, signature, and date. ODW requires one electronic PDF file of the final approved report.

Other documents which are not engineering documents, such as compliance sampling reports, do not have to be prepared by or bear the seal of a PE.

7.4. Construction Drawings, Record Drawings, and Plans & Specifications

The PRP requires electronic documents for review, properly bearing the seal, signature, and date of the professional engineer (PE). Regarding the specific reference to the requirement for a PE seal, PRP will process the plans and specifications only if the cover sheets to all plans and specifications bear an "original" seal, signature, and are dated. The remaining plan sheets need only have facsimiles of the seal, signature, and date. The PRP requires that any plan sheets prepared by a PE, who is not the PE sealing the cover sheet, must bear facsimiles (as a minimum) of the seal and signature of that engineer.

Waterworks, particularly privately owned ones, may not always bid a project. Instead, the owner may pre-purchase equipment and include the manufacturer's literature (such as data sheets and shop drawings) in place of specifications and detailed drawings. The submittal must have sufficient detail that the contractor can construct the project and PRP can determine if the project complies with the requirements in Part III of the *Waterworks Regulations*. PRP requires that these be submitted together with the cover sheet sealed, signed, and dated by a licensed PE in an electronic format.

7.5. Addenda

The PRP requires that addenda to plans and specifications must bear an "original seal", signature, and date, or the transmittal letter must be dated and signed by the PE. The PRP requires electronic documents for review.

7.6. Change Orders

The PRP does not require a seal for change orders, but a PE's signature is required. The PRP staff may review and approve change orders that have not been executed (signed by representatives of the owner and contractor) if the field office confirms that the owner supports the change order through communication with the owner. The PRP requires electronic documents for review.

7.7. Design Calculations, Design Memoranda, and Hydraulic Analyses

Computer model simulations, spreadsheets, and other relevant calculations may be provided by the design engineer to support the basis for the construction plans and specifications. ODW requires one set of electronic documents for review.

7.8. Replacement-in-Kind

ODW does not generally require submission of design documents for approval of maintenance activities and “replacement-in-kind” project items. Some examples include, replacing a 1,000-gallon pressure tank with another 1,000-gallon pressure tank of the same dimensions, replacing a chemical metering pump with a chemical metering pump of equal or greater capacity, or replacing a 2-inch diameter water main with a 2-inch diameter water main in the same street. However, replacement items must nevertheless comply with all requirements of Part III of the *Waterworks Regulations*. The field office staff should verify the authenticity of any replacement-in-kind project with the waterworks owner.

7.9. Laboratories

ODW requires submission of plans and specifications for the construction of a chemistry or biology laboratory at a waterworks. However, it does not issue a construction permit if the laboratory is a separate project. If the laboratory is a separate project, ODW field staff will review the plans and specifications for conformance with 12VAC5-590-760 and notify the owner of any comments or notify the owner that ODW does not have any comments. When the laboratory is included in the construction documents for a new/upgraded/modified waterworks, PRP staff will review this portion of the project for conformance with 12VAC5-590-760. ODW staff will advise the owner and engineer that the Department of General Services, Division of Consolidated Laboratory Services (DGS, DCLS) certifies laboratories performing drinking water testing for microbiological and/or chemistry parameters for compliance with federal and state Safe Drinking Water Act (SDWA) requirements.

8. Other Considerations

In accordance with Va. Code § 54.1-410 B, ODW is required to ensure that plans, specifications, and calculations prepared in connection with water treatment and distribution systems be prepared by a professional engineer licensed or authorized pursuant to Chapter 4 (Va. Code § 54.1-400 *et seq.*) of Title 54.1 of the Code of Virginia. The Board for Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects (APELSCIDLA Board) is responsible for promulgating regulations for licensure. The Department of Professional and Occupational Regulation (DPOR) serves as staff to the APELSCIDLA Board.

The APELSCIDLA Board has issued regulations which call for all final documents prepared by a licensed professional to carry that person's seal (18VAC10-20-760 B). An electronic seal, signature, and date are permitted to be used in lieu of an original seal, signature, and date when specified criteria in 18VAC10-20-760 C are met. ODW requires that electronic PDF documents submitted bear the PE's digital signature, and date, regardless of whether the project is reviewed by the field office or by the PRP.

8.1. Land surveyors

Va. Code § 54.1-408 authorizes land surveyors to prepare plans and profiles for (among other things) sanitary sewer extensions and waterline extensions, but only for subdivisions, site plans, and development work. Va. Code § 54.1-408 specifically prohibits land surveyors from engaging in the design of pressure hydraulic systems, and states that the allowed work must involve the use and application of standards prescribed by local and state authorities.

Surveyors who were licensed under the prior law, former Va. Code § 54-17.1(3)(b), or who have passed the appropriate exam given by the APELSCIDLA Board may lay out the routing of a waterline on plans. They may not, however, select the size or materials for that waterline. That work must be performed by a PE. ODW will accept plans and specifications for waterlines prepared by a licensed surveyor if they are accompanied by hydraulic calculations (covering size and material selection) prepared and stamped by a PE with seal, signature, and date.

8.2. Impartiality, Integrity, and Accountability

The PRP staff must demonstrate key qualities of impartiality, integrity, and accountability. Impartiality simply means fairness in decision making, providing feedback, etc. PRP staff also have the responsibility to provide impartial, i.e., unbiased and constructive feedback to consulting/design engineers in a timely manner. PRP staff is also responsible to ensure that any feedback given is adequate with acceptable detail. Integrity means conducting oneself in accordance with ethical principles and acting in good faith with intellectual honesty and fairness. Accountability is simply taking responsibility for one's actions, decisions, and their consequences.

Any project proposed by a waterworks (or regulant) to be incorporated upon approval into a permitted waterworks must, under most circumstances, receive a review and final approval by the PRP. This ensures that waterworks operations and infrastructure are managed in a manner that assures the production of safe drinking water meeting regulatory standards.

To keep track of PRP actions and activities on a project submitted for approval, the project engineer must use the SWEPT for recording and tracking purposes. The project engineer is responsible for logging in every assigned project and its review progress into SWEPT, ensuring that the design engineer/consulting office information is already available in SWEPT. If not, contact the SDWIS Administrator (see PM-C4-Attachment 3).

Once a design engineer is available in SDWIS, it will show up in SWEPT in the drop-down box and allow logging in the project details into SWEPT, thereby marking the start of the review process.

9. Technical Review – Plans & Specifications

All reviews shall include clear, detailed notes, and relevant calculations. The recommended format for these review notes is provided in PM-C4-Attachment 4. PRP staff will check all engineering calculations critical to the process, including critical volumes, detention times, pump selection calculations and hydraulics. At a minimum, the proposed design must comply with the design criteria in Part III of the Regulations. The PRP staff will save review notes and relevant calculations (where applicable) in the agency records (i.e., SharePoint folder for the project) in addition to the plans and specifications and other documents submitted with the construction permit application.

PRP will not approve waterline extensions, etc. unless there is sufficient source capacity. If there is insufficient source capacity, the PRP staff should notify the design engineer and owner that ODW is not approving the project (use PM-C4-Attachment 2), with a statement that it may be resubmitted with documented provision of adequate source capacity in compliance with Part III of the Regulations.

9.1. Reviewer Actions

Following the successful completion of the completeness review and SWEPT log-in of the project, the PRS assigns the project to the selected PRP staff. The PRP staff examines the construction permit application (or other regulant request) and follows the project details through the drawings, plans and specifications (P&S), and the checklists for consistency, where applicable. Based on these findings, there are three possible outcomes:

1. There are no comments that need resolution and the project is approvable;
2. There are comments that need resolution and the project needs revisions; or
3. The project is unapprovable and must be returned [this action, however, must be confirmed with at least the concurrence of the PRS] (use PM-C4-Attachment 2).

All ongoing actions/events are to be tracked by updating SWEPT. In addition, the daily time spent on these review actions/activities/events must be tracked in the single master Excel spreadsheet using multiple repeating block-entries (see example) for every project reviewed. For example:

| | | | | | | | | | | | |
|-----------------|---------------------|----------|---------|----------|--|--|--|--|--|-------|---|
| Name of Project | John Doe Waterworks | | | | | | | | | | |
| Date of Review | 4/7/2022 | 4/8/2022 | 4/18/22 | Approved | | | | | | Total | |
| Review Time | 1 | 4 | 4 | | | | | | | | 9 |

The master spreadsheet is located at Y drive in folder 08 – Project Review Time Tracking.

PRP staff are expected to use the recommended “Plan Review Notes-Template” (PM-C4-Attachment 4) to keep all the pertinent notes in one place to facilitate completing other activities, such as the construction permit letter, waterworks description sheet, etc.

9.2. Other Project Requirements

If not evident on the construction permit application that a preliminary engineering conference (PEC) or a PER was addressed prior to the project submittal, PRP staff should contact the appropriate field office (via email or telephone call) to determine whether a PEC or a PER occurred, and if so, what should the PRP be aware of during its review. The PEC and PER are considered field office activities. PRP staff should not be involved in the determination of whether a PEC/PER should have occurred after a project is submitted for review. However, field staff and PRP staff should collaborate on matters relative to a PEC or PER that are beneficial to the project review process. The project review follows in large part the checklists (where applicable) established by ODW to ensure that the relevant regulatory requirements are considered. In addition, the reviewer is expected to apply engineering judgement, best practices, etc. to augment the review process. Once the project is approvable, the reviewer drafts the construction permit and the waterworks description sheet (WDS) where applicable. Typical reviewer actions/awareness include, but are not limited to, the following:

- i. Field office staff is responsible for conducting final inspections after receipt of the Statement of Completion.
- ii. The Field Office Director for the relevant field office must be given the opportunity to review the “draft” pre-signed project-review conclusion documents (i.e., the construction

- permit, waterworks description sheet, and all other approvals generated by the PRP). Simultaneously, the PRS and FSE must be copied in this communication. Three business days are allotted for this activity. If the field office offers no comments or objections after three business days, the project engineer may infer that the field office has no comments and the PRP may proceed with issuing the construction permit or approval.
- iii. Following the PRS’s signature, the FSE may review the project to ensure an adequate evaluation has been performed. The PRS may request that PRP staff perform further review or make corrections.
 - iv. If the PRS approves the project, the PRS will note the approval and update SWEPT with the approval under “event added”. This must be done on the same day as SWEPT uses this date as the default “today’s” date when adding the “approval” event. This marks the closure of the project review process by the PRP.
 - v. Quick review of the project drawings to determine the overall project scope; i.e., what items are presented to check against the checklists for corroboration.
 - vi. Systematic review of the checklists and observe if the “checks” are true, false, or questionable. Any observations requiring a comment are documented on the “Project Review Notes” in case they are needed as comments to the consulting engineer.
 - vii. More focused review of the project drawings, extracting additional information for the “Project Review Notes” for use in drafting the final approvals, etc.
 - viii. Send comment letter if necessary and update SWEPT or develop draft construction permit letter and WDS (if applicable) and forward for pre-approval input by field office staff, PRS, and the FSE.

9.3. Project Review Checklists

The following checklists (Table 3) must be submitted by the design engineer as appropriate, as they ensure that all the design standards in the Regulations are addressed. They are available on the ODW website. PRP staff must ensure that all appropriate checklists were completed to the extent practicable. An indication of this can be seen in the bottom section of the construction permit application. In some cases, the absence of a “required” checkmark on the checklist may form the basis of a project comment. For every comment where applicable, incorporate the applicable regulatory citation in the narrative to “emphasize” a regulatory requirement.

All entries on the checklists should be completed even if an entry is not applicable. Table 3 lists the more commonly encountered checklists that are available to the design engineer. The construction permit application will “check” the checklists associated with the project. The design engineer is expected to answer every question on the checklist to the extent practicable, even if the answer is “not applicable” or N/A. PRP staff should check for the “improper” or “inaccurate” use of check marks in the checklist.

| Table 3. Commonly Used Project Review Checklists*. |
|---|
| Atmospheric Storage Tank |
| Cation Exchange Softening |
| Construction Permit Application |
| Dry Chemical Feed System |
| Fluoridation |
| Groundwater Well |
| Hydraulic Model Data Summary |

| Table 3. Commonly Used Project Review Checklists*. |
|---|
| Hydraulic Modeling Analysis Certification (fillable) |
| Hypochlorite Disinfection |
| Iron and Manganese Control |
| Liquid Chemical Feed System |
| Pressure Tank |
| Pump Station |
| Waterline |

*Future checklists may be added to this list as the need arises.

9.4. Email Addresses of Copyholders

PRP staff should set up a compendium of email addresses of local officials who typically have some interest in the project outcomes; e.g., County Administrator, building officials, local health departments, etc. The use of emails facilitates ODW’s goal to go paperless and have an ongoing robust electronic document management system. It should be the FO’s responsibility to keep such a list current as the FO becomes aware of personnel changes in the work area. To go paperless, the reviewer should apply all pertinent information and email addresses associated with the project into the construction permit at the time it is submitted for final review and approval. For example:

Issued to:

(This is the person to whom the Construction Permit is sent.)

Name of Project Owner, email

Address of Project Owner

ec: Consulting Engineer, *Name, email*
Name County Health Department: EHM, *email*
Name County Administrator, *email*
Name County Building Official, *email*
Name County Planning/Zoning Manager, *email*
 ODW, *Name* Field Office, *Name of Field Office Director, PE, email*

9.5. Three-Business Day Review by Field Office

All imminent P&S approvals must be routed to the appropriate field office for a three-business day review for any additional review and comments prior to finalization by the review staff and signature by the PRS. All interested parties will receive the final “approval” communication from the PRS through these email contacts. This three-business day requirement will provide some familiarity to field staff on the project sufficient to facilitate an understanding of the project and coordinate a final inspection if needed. Project review staff will complete a comprehensive waterworks description sheet (WDS) where applicable to facilitate the final inspection and any permitting documentation; i.e., permit amendment, first-time issuance, permit conditions, etc. If the field office offers no comments or objections after three business days, the project engineer or PRP review staff may infer that the field office has no comments and the PRP may proceed with issuing the construction permit or approval.

9.6. Review Time Expectations

Timeliness and responsiveness are two of the prime tenets of the PRP. Timeliness simply means the quality of accomplishing a project review at a favorable or best time, whereas responsiveness simply means the quality of reacting quickly and positively. PRP staff are responsible for reviewing material quickly within the time requested and submitting it in a given period of time up the chain-of-command for concurrence and approval. PRP staff need to put every possible effort to completing a review in a positive manner within the time requested. (See Table 2 below).

| Table 2. Review Timelines. | |
|--|--|
| Completeness review and Consulting Office notification on receipt of submittal | Within 3 business days |
| Solicit constructive critique/input from field office after full review | Within 3 business days |
| Full 1 st round review (P&S) | Within 12 business days |
| All non-P&S | Within 5 business days |
| Full 2 nd round review (P&S) after receipt of revisions | Within 5 business days following receipt |

12VAC5-590-210 C states, “All reports, plans, and specifications shall be submitted to the [VDH] at least 60 days before the date upon which action by the [VDH] or [C]ommissioner is desired.” This implies that ODW, on behalf of VDH, will respond to submittals within 60 calendar days. Although the complexity of proposed projects and the available staff resources may prove the 60-day response time to be challenging or unattainable, every effort must be made to meet this time frame.

SWEPT determines a priority status for each active project. Any new or revised submittal that has not had ODW staff action taken within 60 days will be assigned Priority 1 status. If a project is assigned a Priority 1 status, the “remarks” section in SWEPT must be completed by ODW staff to include dates indicating when ODW staff comments or approval are expected to be made to the permit applicant. Additional information that explains the review delay may also be included in the comment section.

9.7. Document Retention

PRP records retention and disposition is governed by Library of Virginia Specific Schedule No. 601-190, effective October 18, 2022. The general rules are as follows:

- Documents detailed in Section 000440 must be retained until it is no longer necessary to be retained as an active record: construction permits, description sheets, well construction/yield and drawdown, review notes and plans for surface water treatment plant/groundwater under the direct influence of surface water (e.g., WTPs/GUDI).
- Documents detailed in Series 000441 must be retained until 10 years after issuance and include but are not limited to: master plans, Capital Improvement Program (CIP) documents, design reports, change orders, addenda, Preliminary Engineering Reports

(PERs), general sections of specifications, review notes and plans for groundwater (GW) sources/treatment and distribution systems.

9.8. Reviewer Tips

- a) When reviewing the construction permit application, the project engineer should attempt to get an overall “macro” sense of what issue is being addressed by the waterworks; e.g., (i) is this a new waterworks; (ii) is this an existing waterworks increasing permitted capacity or proposing other upgrades; and (iii) is this an existing waterworks proposing a solution to an existing problem? Document this narrative on a standardized “Review Notes” sheet (e.g., PM-C4-Attachment 4).
- b) Review the checklists and observe if the “checks” are true, false, or questionable. Any observations requiring a comment are documented on the “Project Review Notes” sheet in case they are needed as comments to the engineer.
- c) Quickly review the project drawings to determine if the narrative in the construction permit application is corroborated by the drawings. Perusal of the project drawings will help to determine if the checklists are consistent with the details shown on the plan sheets. If not, generate comments.
- d) Send a comment letter if necessary and update SWEPT or develop a construction permit letter for the PRS and FSE (use PM-C4-Attachment 5).
- e) Be mindful of any proposed “new” transient noncommunity (TNC) waterworks that could evolve into a nontransient noncommunity (NTNC) waterworks and query the future operations before issuing a Construction Permit.

9.9. Comment Communication

Upon completion of the review, PRP staff will call/email the design engineer to discuss any issues identified. If any comments remain unresolved following this conversation, PRP staff will send an email to the design engineer communicating remaining comments, with a copy to the funding agency if identified. The comments should include a request for a response within 30 days. The PRP staff shall clearly identify comments as requirements or recommendations. Only items that PRP staff identify as not in compliance with the Regulations will be indicated as requirements. A comment letter template is in PM-C4-Attachment 5.

9.10. Project Returns

If the permit applicant or design engineer does not address review comments within 30 calendar days of the date of the comment letter, the following procedure should be followed by the PRP staff until the review comments are addressed or a written request to delay the project is received:

1. PRP staff will contact both the owner and design engineer by email or letter to request that, within 15 calendar days, the permit applicant or engineer submit a written response and revisions, as appropriate, or a written request to delay the project review for a specific time period. PRP staff may also make contact by telephone but must confirm the contact in writing by email or letter.
2. If the owner or engineer does not respond to the PRP staff within 15 days of the reminder, PRP staff will use PM-C4-Attachment 2 to email the owner and engineer a “Project Return Letter”, providing notification that ODW is removing the project from active review and

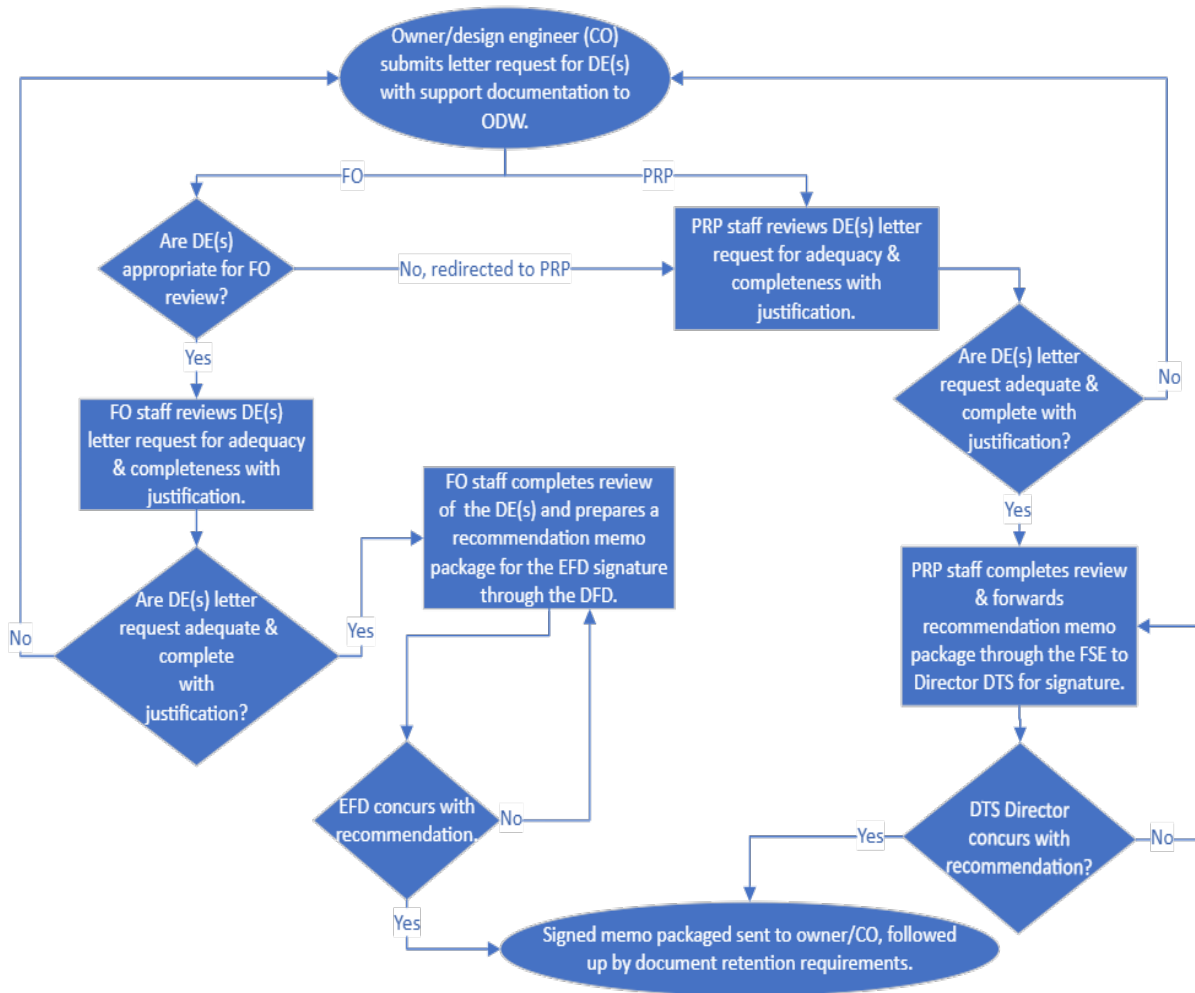
that the owner will need to resubmit the permit application package. The PRS will add a SWEPT event of “Disapproved/Returned”.

3. If the PRP staff receives a written response to delay the project for a specific time period and the PRS approves this request, the assigned project engineer will notify the owner and engineer by telephone, email, or letter, and the hold status and end date will be noted on the “remarks” section of the SWEPT record. In this case, the assigned project engineer will not proceed with the project return process unless a response is not received within the specified “agreed-upon” time period.

10. Technical Review - Design Exceptions

10.1. Procedure

ODW staff must follow the procedure for evaluating a design exception request. Design exceptions should be submitted for review with a PER (or discussed during a PEC) and recommended for approval/denial by the field office through the Director of DTS. If design exceptions are not



Flow Chart 3. Overview of Design Exception Request Processing.

Legend: CO=Consulting Office; DE=Design Exception; ODW=Office of Drinking Water; FO=Field Office; EFD=Engineering Field Director; DFD=Deputy Field Director; PRP=Project Review Program; FSE=Field Services Engineer; DTS=Division of Technical Services.

identified prior to development of plans and specifications, design exceptions may be submitted to the PRP with the plans and specifications for review by the PRP staff. The general procedure for evaluating a design exception request is depicted in Flow Chart 3

10.2. Criteria

Deviations from mandatory criteria contained in the Manual of Practice shall be identified and justified. ODW may grant certain exceptions if the design engineer provides adequate justification, and the resulting nonconformity will not affect the waterworks' ability to adequately safeguard public health and comply with the requirements for reliability specified in Part II (Operation Regulations for Waterworks) of the Regulations. 12VAC5-590-220 B. In effect, this means that design exceptions must not allow any of the requirements in Part II of the Regulations, including water quality, reliability, and the acceptable operating practices in 12VAC5-590-510, to be negatively impacted.

10.3. Approval and Documentation

Where exceptions are specifically allowed in the Regulations (i.e., Part III, Manual of Practice for Waterworks Design (12VAC5-590-640 et seq.)), ODW does not require an applicant to submit a formal Design Exception Request (described subsequently), provided that the design engineer submits the supporting documentation/evaluation as prescribed in the Regulations with the design submittal.

ODW must document all other design exceptions as follows:

1. Central office approval – The field office provides a Design Exception Request memorandum to the central office using the form in PM-C4-Attachment 6 to process the design exception request. Approval/denial will be determined by the DTS Director. Design exceptions submitted directly to the PRP will be reviewed for approval by PRP staff.
2. Field office approval – The following types of design exceptions can be reviewed and approved by the field office:
 - a. Reduction in 30-day onsite supply of sodium hypochlorite; and
 - b. Class IIIB well construction (as defined in 12VAC5-630-360 of the Private Well Regulations) instead of Class II or better well construction for noncommunity waterworks.

ODW staff are required to evaluate and document all design exceptions with a Design Exception Request memorandum (PM-C4-Attachment 6) for final review and approval. Use PM-C4-Attachment 7 to transmit a denial of a design exception to the project owner and engineer.

10.4. Tracking

The PRP and field offices will log all design exceptions in one Excel Workbook on “odwshare” that is maintained by the DTS. The design exceptions log is located at:

<odwsrv1\odwshare\14-Permits%20&%20Project%20Review\08-DESIGN%20EXCEPTIONS.xlsx>

11. Record Drawings (As-Built Plans)

ODW does not require record drawings (“as-built” plans) for projects that have a construction permit unless the actual construction/field conditions were substantially different from the approved plans. In these situations, ODW requires that record drawings accompany a fully executed change order. ODW cannot approve record drawings unless the drawings are sealed by a PE.

If construction was in substantial compliance with the approved project – as verified by an engineer’s letter of substantial completion received by the ODW field office – ODW does not require further action. Otherwise, the PRP will review the project and modify the approval letter according to the circumstances. For projects constructed prior to formal approval due to emergency conditions, PRP will review the record drawings and modify the approval letter accordingly. Refer to PM-C4-Attachment 9 for an example letter.

PRP staff will review record drawings (“as-built” plans) for projects constructed illegally with no prior approvals as though they were for a new project. This may result in significant comments that necessitate field modifications or reconstruction. If major reconstruction is necessary, ODW may require a construction permit. In this case, the project will need to be reviewed and approved by the PRP. Otherwise, once an approval is possible, the PRP will NOT issue a construction permit. A new/revised operation permit may be required. PRP staff will evaluate and document minor deviations from the Regulations in the review notes. ODW will not issue design exceptions for minor deviations from the Regulations on record drawings.

If ODW approval of record drawings is necessary, ODW requires the design engineer to submit final approved record drawings in electronic PDF format to be kept in SharePoint for review by the PRP. Note: At times, record drawings are submitted to ODW because the contract documents require the contractor to submit record drawings. If the constructed project was in substantial compliance with the approved documents, then no further review is necessary.

12. Change Orders and Addenda

Addenda are modifications to the construction documents after the notice to bidders is issued, but before the contract is awarded. Change orders are modifications to the documents made after the project is awarded. If these items are received prior to project approval, the PRP staff will process them with the entire package. If the PRP staff receives either after project approval, the owner/design engineer should be directed to forward them as a separate project to the PRP for review and approval. The PRP reviewer will utilize the letter template in PM-C4-Attachment 10.

ODW does not require approvals of change orders and addenda (CO&A) that are non-technical or do not fall under the purview of Part III of the Regulations. ODW requests that design engineers submit all CO&A for DWSRF projects directly to the DWSRF project engineer. The DWSRF project engineer will coordinate with the PRP staff to determine if there is a need to review and approve the change order or addenda. The DWSRF project engineer will also provide quantity adjustment change orders to field staff to decide whether quantity changes may require technical review.

Examples of CO&A’s that do not require PRP approval include, but are not limited to:

1. Non-technical: Changes in bid documents to include contract dates, bonding, bidding instructions, Davis-Bacon Act compliance information, unit costs, etc.
2. Technical changes that are minor or do not fall under the purview of Part III of the Regulations:
 - a. Changes to building paint color.
 - b. Changes to erosion and sediment control.
 - c. Changes to road compaction and material.
 - d. National Electrical Manufacturers Association (NEMA) enclosure.
 - e. Adding additional pipe supports to contract.

Examples of CO&A's that do require PRP approval (review and approval letter) include, but are not limited to:

- a. Changes in pipe material.
- b. Changes in tank interior coating.
- c. Treatment unit changes.
- d. Waterline alignment, length, and diameter changes.
- e. Changes to control settings.
- f. Changes to pumps or pump motors.

13. Exemptions for TNC Waterworks

ODW may exempt plans for construction permits for TNC waterworks from the professional engineer licensure requirements under the following conditions:

1. The waterworks is a TNC waterworks with actual or proposed service to no more than 100 persons per day.
2. The waterworks is a direct delivery system without any treatment, meaning that the system consists only of one groundwater source, a pressure tank no greater than 250-gallon capacity, and a single service connection (one structure). Note: The field office will require engineering plans and specifications for Point of Entry (POE) treatment.
3. The single service connection consists of a structure with area less than 5,000 square feet calculated using the outside dimensions of the structure.

Example #1: Allowed Exemption: A single story structure is 80 feet long and 50 feet wide

$$80 \text{ feet long} \times 50 \text{ feet wide} = 4,000 \text{ square feet}$$

Example #2: Not Allowed for Exemption: A 5-story structure is 80 feet long and 50 feet wide

$$80 \text{ feet long} \times 50 \text{ feet wide} \times 5 \text{ (stories)} = 20,000 \text{ square feet}$$

Important: Construction of the well must be by a water well systems provider certified by DPOR for drilling wells. Field office staff can verify a well driller's license using the DPOR website. Construction of the remainder of the waterworks must be by a master plumber or a certified water well systems provider. In order to qualify for the exemptions set forth above, the owner, pursuant to 12VAC5-590-220 E 1, shall submit a signed and dated statement attached to the permit application certifying that the above-listed requirements will be satisfied. Additionally, ODW

requires that the information described in the checklist in PM-C4-Attachment 8 be submitted by the waterworks owner in lieu of plans, specifications, documents, and designs normally prepared by a licensed professional engineer. This information may also be better completed by the water well systems provider since they would normally be more knowledgeable in the completion of the checklist and the associated project diagram or sketch. This exemption applies to new waterworks and modifications to existing waterworks that satisfy all the conditions listed above.

14. Specific Evaluation Topics

14.1. DEQ Notification Prior to Well Abandonment

The DEQ Ground Water Characterization Program is interested in re-using former production wells for groundwater monitoring purposes under the State Observation Well (SOW) network. If an owner plans to take a public water supply well out of service permanently, field offices will recommend to the waterworks that they contact the DEQ Ground Water Characterization Program regional geologist to determine if the well may be of interest to DEQ, prior to permanent well closure.

If a well is permanently abandoned, ODW requires that the well driller document the abandonment procedure using DEQ's form GW-5 (Well Abandonment Report) and submit the form to ODW and to DEQ.

14.2. Wastewater and Solid Waste Disposal

Wastewater discharged by the water treatment plant to a receiving stream/surface water or soil adsorption system may require a permit from DEQ and/or EPA. Field offices will notify the DEQ Regional Office, by letter, of the proposed discharge at the earliest possible time. Utilize the letter template in PM-C4-Attachment 11. As part of the permit review process, PRP staff are to confirm that DEQ and/or EPA has been notified of the wastewater discharge and completed the notification, if not already done.

During the PEC, field offices will advise the waterworks owner to follow up with DEQ regarding solid waste disposal.

Disposal restrictions that may be imposed by other agencies' permits (such as spent adsorption media, particularly if radionuclide removal is performed) should be addressed by the design engineer.

14.3. Internal Plant Recycle

The Filter Backwash Recycling Rule, 40 CFR § 141.76, applies to all surface water or groundwater under the direct influence of surface water (GUDI) systems that use conventional filtration or direct filtration and that recycle spent filter backwash water, thickener supernatant, or other dewatering process flows. Design engineers must take caution when considering the recycling of process waste flows within the treatment plant. When recycling is proposed, ODW requires that recycle must be returned prior to the point of primary coagulant addition and must receive full treatment through all of the plant processes. (See 12VAC5-590-395 C and 12VAC5-590-990 of the Regulations.)

ODW requires that recycle streams be controlled to prevent a hydraulic surge or a hydraulic loading in excess of plant capacity. The rate of recycle return should be no greater than 10% of the plant influent (actual flow). To obtain a more consistent influent water quality to the plant, ODW recommends additional settling of the recycle stream or recycle return to a pre-sedimentation basin as a minimum. If a waterworks owner or design engineer proposes alternative return locations, ODW will require supporting justification from the design engineer, and the FSE must approve the alternate location. (See 12VAC5-590-395 C.)

ODW does not permit lagoon water receiving flow from plant floor drains, pump drains, etc., to be returned to the water treatment plant process flow stream, or upstream of a public waterworks' intake.

14.4. Distribution Systems

ODW will not permit a new or expanded distribution system unless an adequate water source exists or is proposed. ODW requires that design fire flow (rate and duration) be documented by the design engineer indicating that the appropriate officials (fire marshal or local government building official) were consulted to establish the design fire flow.

Va. Code § 32.1-172 A provides an exemption from the statutory permit requirement for projects that consist of “the extension of water distribution piping having a diameter of eight inches or less and serving less than fifteen equivalent residential connections.” ODW interprets this exemption as applying to projects composed of pipe no greater than 8 inches in diameter, serving no more than 15 total connections, and serving an average daily demand of no more than 6,000 gallons⁸. The 15 equivalent residential connections are the determining factor, not the fire flow. The exception was not intended to allow owners to phase construction of large waterline extension projects to circumvent the permit requirement. A PE must design exempt projects, as stipulated in the Code of Virginia. Enforcement of the license requirements is DPOR's responsibility.

The waterworks owner may obtain VDH approval for Standard Specifications and Plan Details (or “Standard Specs”) from the DTS through the PRP. Thereafter, ODW only requires submission of the plans, provided that the plans reference the approved standards and details. (See Chapter 7 of this manual for guidance on the general permit.)

15. AWWA Disinfection Standards

Engineering specifications for disinfection of water treatment plants, wells, storage tanks and waterlines may reference the applicable AWWA Standards or the Regulations. Since the AWWA Standards are copyrighted, ODW does not require duplication of the AWWA Standards in the specifications. Refer to WM-918 for additional information about requirements for disinfection and bacteriological sampling procedures following construction, maintenance, and repair of waterworks facilities.

⁸ The 6,000 gallons per day average daily demand is based on 12VAC5-590-10, which previously stated, “Equivalent residential connection means a volume of water used equal to a residential connection that is 400 gallons per day unless supportive data indicates otherwise.”

16. Construction Permit

For a full discussion of the construction permit, see Chapter 5. The “abridged” construction permit to be used by PRP does not require a narrative of the project and capacity evaluation as done in the past. It only identifies the title and specifications of the project and their respective effective dates. The reviewer saves some time by not having to develop a project narrative which is already known by the consulting engineer and owner. If applicable, an “abridged” waterworks description sheet (WDS) is prepared with details to be used by field staff in updating or issuing a new operation permit. When a project is approvable, the PRP reviewer should assign the SWEPT Project ID as the construction permit number.

16.1. Program Manager Review

The program manager’s review is performed by the PRS or a designee determined by the Director of DTS. The focus of this review will include, but is not limited to, the following:

- The PRS will review the work (e.g., combined distribution systems (CDS), project review notes, checklists, the draft construction permits, waterworks description sheets as needed, and other ancillary matters) of PRP staff and, if necessary, the plans and specifications to ensure that PRP’s staff review is adequate.
- The PRS may request corrections from PRP staff if necessary.
- The PRS adds an approval event to SWEPT.
- The PRS saves the signed construction permit to SharePoint in the ODW Electronic Content Management System, in Folder 74 - Technical Services/Construction Permitting Program.
- The PRS saves the signed construction permit at the following location:
 - To Y:\08-Documents and Data Files\801-Construction Permits, Final Insp, Record Drawings, S&D Returns
 - In the format: PWSID CP permit# Project Name
- The PRS emails the construction permit to the applicant, all electronically copied parties on the permit, and odwconstructionpermits@vdh.virginia.gov.

16.2. Quality Assurance/Quality Control (QA/QC)

The PRP review procedures provide sufficient QA/QC elements from at least two lines of oversight: (i) the project review supervisor (PRS); and (ii) the regional deputy field office director. While this is not a substantive review, it represents a level of completeness and fulfillment by ODW of its oversight obligations under the Regulations. The burden of project review lies predominantly with the PRP staff or project engineer.

Appendix

Attachments are located at: <\\odwsrv1\odwshare\13-Manuals\02-Permit Manual>

PM-C4-Attachment 1- Email Template-Submittal Acceptable for Review

PM-C4-Attachment 2- Email Template-Submittal Incomplete

PM-C4-Attachment 3- Email Template-Project Review Comments

PM-C4-Attachment 4- Project Review Notes-Template

PM-C4-Attachment 5- Email Template-SDWIS Administrator to Add Design Engineer

PM-C4-Attachment 6- Design Exception Memo
PM-C4-Attachment 7- Design Exception Denial Template
PM-C4-Attachment 8- TNC Design and Construction Checklist (for Non-PE Design Projects)
PM-C4-Attachment 9- Record Drawings Approval Letter
PM-C4-Attachment 10- Change Order/Addenda Approval Letter
PM-C4-Attachment 11- DEQ Notification of Wastewater Discharge

Chapter 5 - Construction Permit

1. Permit and Description Sheet of Proposed Construction

The project number generated by SWEPT is a unique number for each new project that is logged in. This is the number that will be assigned by the PRP staff at the time when a construction permit issuance is imminent.

- a) Construction permits are written following the template in PM-C5-Attachment 1. Construction permits expire five years from the date of issuance. The PRS must sign all construction permits⁹. In the absence of the PRS, the FSE will sign the construction permits.
- b) When applicable, the project engineer will prepare a Description Sheet of Proposed Construction to accompany the construction permit. A template for the Description Sheet is provided in PM-C5-Attachment 2. The Description Sheet, when used, must contain an evaluation of the design capacity of the project only, and wording in the final paragraph that indicates to the owner that the capacity will be re-evaluated for the waterworks' operation permit. Chapter 9 of this manual provides many examples of this requirement.

Projects that require a separate Description Sheet of Proposed Construction include, but are not limited to, the following:

1. Projects resulting in changes to the waterworks operation permit capacity.
2. Projects that require a capacity evaluation of more than one process or component.
3. Projects that involve installation or changes to treatment, except as noted below.

The project description in the Description Sheet of Proposed Construction must contain all information required to update the description sheet for the Operation Permit issuance/amendment.

Projects that do not require a separate Description Sheet of Proposed Construction are limited to the following:

1. Waterline extensions and transmission mains.
2. Projects that do not affect waterworks capacity, such as solution-type chemical feed systems and filters without backwash features.

Note, however, for the above projects, the permit review notes must include a description to contain all the information required to update the description sheet for a future Operation Permit issuance/amendment.

⁹ It is assumed that the Commissioner, in accordance with 12VAC5-590-200 A, will delegate the Project Review Supervisor (PRS) as the primary signatory authority, with the Field Services Engineer (FSE) as the backup.

2. Construction Permit Processing

The PRP staff is responsible for the construction permit program. See Chapter 4 for a comprehensive description of the PRP.

3. Well Data

A web-based database, VA Hydro, serves as the main repository of Water Well Completion Reports (GW-2 forms) for all drilled, modified, and abandoned wells in Virginia. It is accessible to registered Water Well System Providers (well drillers), and registered DEQ and VDH staff at <http://deq1.bse.vt.edu/d.dh>. Each field office must have a primary and alternate staff member with login credentials to VA Hydro.

DEQ will monitor VA Hydro entries and send notifications of new entries to the ODW FSE/Special Projects Engineer for download of the electronic GW-2s and post them in the folder:

[odwsrv1\odwshare\14-Permits & Project Review\02-Well Data scanned\VA_Hydro_GW-2s.](#)

The Special Projects Engineer will then send email notification of their availability to affected Field Office Directors and deputy Field Office Directors. The Field Office Directors will share the notification with appropriate district engineers and inspectors.

Every completed hardcopy GW-2 form received by ODW will be scanned by the field office into a single PDF file (ensure well location coordinates and datum, PWSID, and SDWIS well identification number are included), and uploaded to:

[odwsrv1\odwshare\14-Permits & Project Review\02-Well Data scanned\FO upload](#)

along with the following files:

1. Yield and Drawdown Test (for new or modified wells),
2. Well development chemical test sample results (for new or modified wells).

Field offices will follow a file naming scheme of the 7-digit PWSID number, followed by the SDWIS well identification number (e.g., [3165011WL002.pdf](#)). The ODW FSE/Special Projects Engineer will forward the uploaded well data files to DEQ on a quarterly basis.

4. Electronic Plan Submission

ODW requires that the design engineer submit final plans and specifications, preferably in an electronic PDF format, along with a construction permit application (PM-C5-Attachment 3). The electronic copies will serve as the official record.

All project documents such as plans and specifications are stored in SharePoint (i.e., ODW Electronic Content Management Construction on Permitting Program) in accordance with ODW's document retention schedule until the project is complete and ODW field office staff has conducted the final inspection and approved the project for operation.

5. Expired Construction Permits

Construction permits expire after 5 years, and ODW does not extend the permit expiration date. Occasionally, the construction permit expires before construction of the project begins.

In the event of an expired construction permit, ODW requires a new construction permit if the owner wishes to construct the project in accordance with the previously approved plans and specifications. The PRP will reference the previously expired construction permit number and approval date in the first paragraph of the new construction permit (with a new permit number). The PRP staff must verify if the plans and specifications have changed or not. All changes must be reviewed. Also, the PRP staff must consider whether any changes to the Regulations or AWWA standards since the issuance of the now expired construction permit will require changes to the plans and specifications from what was previously approved.

6. Completed Construction Projects

Upon completion of construction, the owner shall submit a statement signed by a licensed professional engineer (or PE) certifying that the work was completed in accordance with the approved documents. Depending on the scope of the project¹⁰, ODW field staff may make a final inspection of the project to determine that the project was constructed in accordance with the approved plans. ODW field staff shall not certify that the construction has been substantially completed; this is the responsibility of an engineer retained by the project owner. ODW staff will utilize the final inspection letter template in PM-C5-Attachment 4 for the project closeout. For final inspection of a new waterworks, field staff should carry out a sanitary survey to cover all eight essential elements.

The field office, through the Field Office Director as required, may allow the owner to place the project in service, or issue or amend the operation permit once the field office receives the engineer's letter of substantial completion, staff perform a final inspection (if necessary), the owner addresses inspection comments (if necessary), and all bacteriological samples (if necessary) are acceptable.

7. Changes to Projects Under Construction

ODW will not normally require a new construction permit for change orders to projects under construction, with the possible exception of those funded by the DWSRF. In those cases, field office staff must work with the DWSRF Project Engineer to verify the owner will satisfy all federal contract requirements.

8. Alternate Project Delivery

Alternate project delivery methods are frequently utilized for utility construction projects and may provide the owner advantages over the traditional "design-bid-build" delivery method. These projects provide a fast track to project completion by allowing construction to begin before the final design is complete. Common examples of alternate project delivery methods include "design-build" and public-private partnerships.

The PRP must issue a construction permit prior to the beginning of construction, per Va. Code § 32.1-172. To accommodate alternate project delivery projects, PRP will issue a construction permit with conditions. This will allow PRP staff to review and approve preliminary plans so that

¹⁰ A project that may not require an ODW final inspection is a waterline that is not financed through the DWSRF.

construction can begin. The conditions will require review and approval of final plans prior to completion of construction.

Alternate Project Delivery Construction Permitting Steps:

1. Preliminary Engineering Conference between the field office and the design engineer to establish submittal requirements and procedures, including requirements for a PER, preliminary and final plans, specifications, meetings, permit issuance, field inspections, completion statements, etc. The field office staff will inform the design engineer of the PRP and provide guidance on the submittal process.
2. PER submitted by the design engineer and reviewed by ODW field office staff.
3. The field office must determine submittal requirements to ensure the project will meet applicable regulations prior to the post-PER Review Conference.
4. Post-PER Review Conference between the field office and the design engineer to establish the requirements of the preliminary, interim, and final submissions. The requirements for submission and approval of the preliminary plans, specifications, etc. must be identified and documented by the field office staff, because PRP will not receive the final documents prior to issuance of a construction permit. PRP requires the submission requirements to include, at a minimum: preliminary drawings (process flow schematic, site plan), draft specifications, and design calculations (design flows, loading rates for all units, hydraulic profiles), functional description of alarms controls and backup power, etc. The field office staff will remind the design engineer that the PRP may deny issuance of a construction permit if the proposal does not satisfy ODW's concerns for maintaining adequate oversight, and that unapproved construction may require correction before the project may be placed into service.
5. Submission and review of preliminary plans, specifications, and design calculations by the design engineer. Preliminary documents may be 30% complete (at the PER), 60% complete when submitted (as part of a construction permit application) by the design engineer, or as agreed upon at the Post-PER Review Conference. The field office should identify design exception requests during this step, if not sooner, and advise the design engineer of the role of the PRP. A Professional Engineer shall seal the preliminary documents. To distinguish the preliminary documents from final documents, the design engineer may stamp "Preliminary" on the drawings, specifications, etc.
6. Issuance of a construction permit with conditions by the PRP. An example of a construction permit with conditions is in PM-C5-Attachment 5. Establish conditions that specify the following:
 - a. Construction must adhere to Part III of the Regulations, Manual of Practice for Waterworks Design.
 - b. Failure to comply with the Regulations will require corrections to achieve compliance with the Regulations, regardless of construction status.
 - c. At least 180 days (the number of days may be adjusted as appropriate) prior to completion of construction, a complete set of final plans and specifications must be submitted to the PRP for review and approval. The plans and specifications must be properly signed and sealed by a professional engineer licensed in Virginia.
 - d. Any deviations from the approved preliminary documents affecting capacity, hydraulic conditions, operating units, the functioning of the treatment processes, or

the water quality delivered, must be approved by PRP before any such changes are made.

7. Field staff must communicate with the owner and design engineer throughout the construction process to minimize the risk of construction components not meeting the requirements in Part III of the Regulations. This may require field staff's attendance at construction meetings, site visits, review of progress reports, or phone conferences.
8. Approval of final plans (PRP staff will modify PM-C4-Attachment 10 for Change Order approval and replace with "Final Plans and Specifications", as appropriate).
9. Construction completed.
10. Receipt of Letter of Substantial Completion from the design engineer (or other licensed professional engineer acceptable to the project owner).
11. Final inspection by field staff, finished water quality testing, and sanitary survey (if necessary). (Use PM-C5-Attachment 4 to document the final inspection.)
12. Approval letter from the Field Office Director authorizing the owner to place the constructed waterworks in service.

Appendix

Attachments are located at: <\\odwsrv1\odwshare\13-Manuals\02-Permit Manual>

PM-C5-Attachment 1- Construction Permit + Statement of Completion

PM-C5-Attachment 2- Description Sheet of Proposed Construction

PM-C5-Attachment 3-Construction Permit Application

PM-C5-Attachment 4- Summary of Final Inspection

PM-C5-Attachment 5- Example Construction Permit with Conditions for Alternate Project Delivery

Chapter 6 - New or Nonconventional Methods, Processes, and Equipment

ODW will issue a temporary operation permit (formerly called a provisional operation permit) upon completion of construction projects involving the evaluation and approval of new or nonconventional methods, processes, and equipment. Field offices will coordinate all such proposals through the DTS central office and track temporary operation permits and expiration dates in SDWIS. The process for evaluation and approval of new or nonconventional methods, processes, and equipment is described in 12VAC5-590-290.

Chapter 7 - General Permit & Standard Specifications

Background

12VAC5-590-300 of the *Waterworks Regulations* (i.e., Regulations) provides the basis for all approved local review and approval programs. By this two-step procedure, ODW delegates, by general permit, plan review authority involving water distribution mains to a waterworks owner, or their representative. A flow chart outlining the overview of the General Permit issuance procedure is described later in the chapter.

1. Procedure

STEP ONE: The waterworks owner must first adopt, and then obtain ODW approval of General Specifications and Plan Details (i.e., “Standard Specs”) covering all aspects of water distribution mains. The requirements of these specifications must be at least as stringent as the requirements in the current Regulations. A professional engineer licensed to practice in Virginia shall prepare these Standards¹¹. Standard specifications are reviewed by the PRP staff for conformance with applicable Regulations following a process similar to the procedural guidance described in Chapters 4 and 5 for construction projects approved by the PRP, except that the field office will coordinate the issuance of the General Permit and its accompanying Memorandum of Understanding (MOU) with the locality.

STEP TWO: The waterworks owner shall enter into a Memorandum of Understanding (MOU) with ODW Field Office outlining waterworks-specific provisions and the owner’s method of compliance. The sample MOU in PM-C7-Attachment 1 provides typical language. These provisions, at a minimum, include the following:

1. The maximum size of pipe covered by the general permit. This applies only to distribution mains (as opposed to transmission mains). This has generally ranged from 12-inch to 16-inch diameter. See the definitions in the Regulations if you need further clarification.
2. Any modifications or amendments to the approved general specifications and plan details must be reviewed and approved by ODW prior to implementation. Optionally, language may be added describing the waterworks owner’s procedures for modifying the general specifications and plan details, including ODW review and approval prior to implementation.
3. The waterworks owner must maintain adequate engineering staff (or retain a consultant) to conduct plan reviews. Adequate staff means at least one individual licensed as a Professional Engineer (PE) in Virginia with at least two years of experience in the design and construction of water distribution systems, or an individual with a governmental exemption. The PE must sign their approval on all projects processed under the general permit.

¹¹ A June 2005 APELSCIDLA Board ruling clarified that Regional Construction Standards, meaning general standards and standard details, do not need to be sealed by a professional engineer; however, project specific documents which incorporate, in whole or in any part thereof, and/or modify such standards are required to be sealed by a professional engineer.

4. All individual projects serving 15 or more service connections or consisting of pipe greater than 8 inches in diameter shall have specific engineering plans and specifications prepared and approved under the general permit prior to construction. The general permit does not allow a waterworks owner to construct water distribution mains without project specific plans. Projects where the waterworks owner acts as both design engineer and review engineer are not allowed when review authority has been delegated from ODW to the owner. ODW will only grant exceptions when the waterworks provides documented proof to the ODW field office of a clear separation of design and review responsibilities, i.e., different departments or divisions, etc.
5. The waterworks owner shall maintain current distribution system maps. Generally, ODW requires system map(s) of the waterworks to be updated at least annually. Records, including copies of all project documents and approvals, must be available for ODW inspection.
6. The waterworks owner agrees to submit an annual report (PM-C7-Attachment 2) and project summary report (PM-C7-Attachment 3) of each project approved and/or constructed under the terms of the MOU and general permit. This would include any related or supporting documents deemed necessary.

Once Steps One and Two are successfully completed, a general permit for distribution mains may be issued with the MOU attached. The general permit template is included in PM-C7-Attachment 4. A template for the transmittal letter to the waterworks' owner is given in PM-C7-Attachment 5.

2. Multiple Waterworks With Same Owner

ODW may issue a general permit to an owner of multiple waterworks. In these cases, the general permit shall clearly define which systems are covered, either by listing specific systems or describing the geographical jurisdiction of the owner.

3. Field Office Jurisdiction

If a waterworks' service area crosses ODW field office boundaries, the general permit shall be issued by the same field office that issued the waterworks' operation permit. Design standards shall be reviewed and approved by the PRP. If a waterworks owner has multiple waterworks located in the jurisdiction of more than one field office, the Field Office Directors shall collectively determine which field office shall coordinate the issuance of the general permit. A copy of the approved standards shall be provided by the waterworks to all other field offices affected by the general permit.

4. Reporting and Audit of Local Review Programs

At a minimum of every 5 years, ODW field staff will inspect the utility's program records and audit at least one set of plans. The field staff will audit the program for conformance with the MOU. The template for the audit review is included in PM-C7-Attachment 6. ODW field staff shall record audit dates in the general permit tracking log on "odwshare".

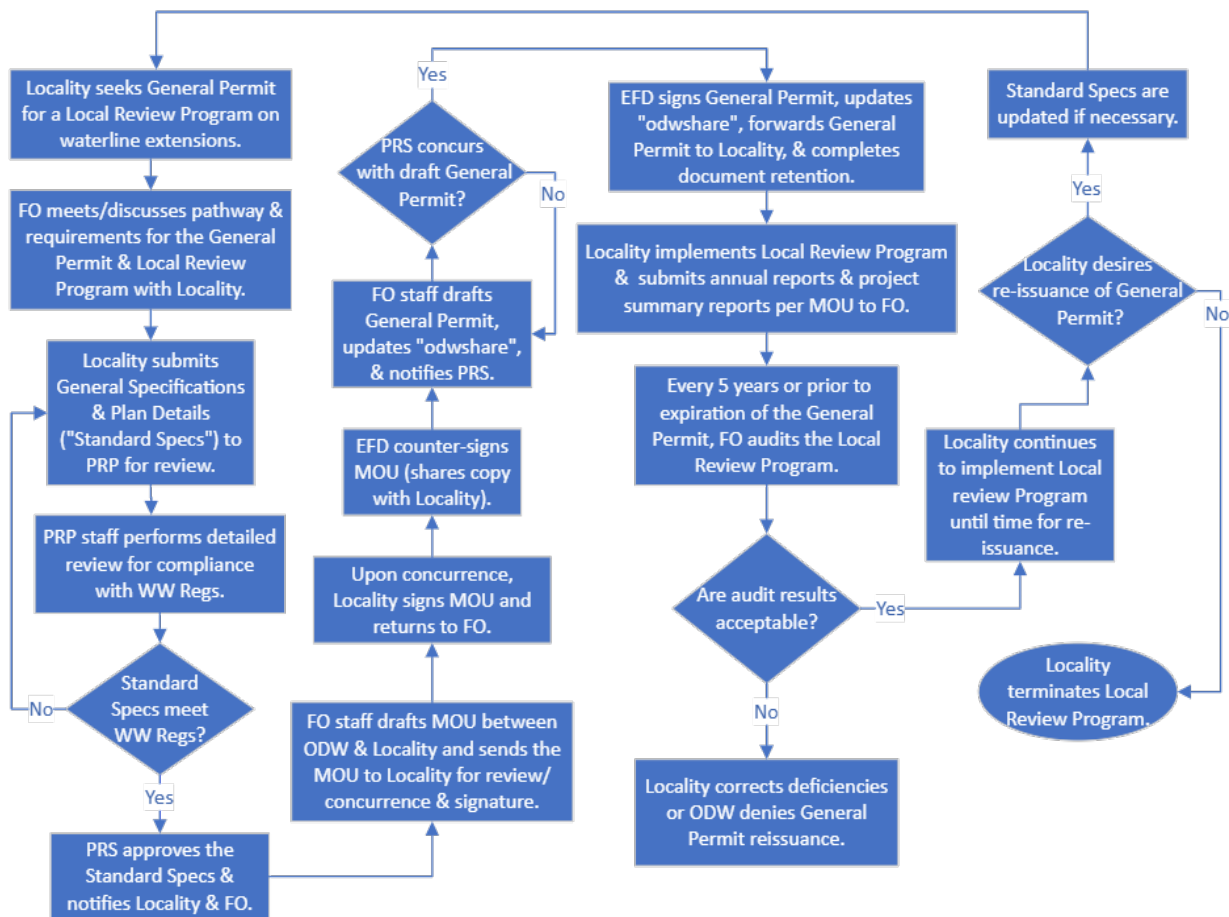
5. Expiration Date and Re-issuance of General Permits

Under previous policy, general permits expired after 5 years. Initial issuance of general permits must have a 5-year expiration date; however, re-issuances may be extended to 10 years if the Local

Review Program is in good standing. To grant the extended 10-year expiration, the ODW program audit must reveal complete compliance with the MOU. If the Regulations or consensus standards referenced by the Regulations (e.g., AWWA C900, AWWA C651, etc.) have been revised during the general permit period or since the standards were last updated, then the utility’s standards must be reviewed and updated to comply with the Regulations and reference the most recent standards as it pertains to waterline extensions, prior to re-issuance of the general permit.

6. Processing and Tracking General Permits

Each field office maintains a tracking log (Excel workbook) on “odwshare” of general permits and Standards that were approved. Field Office Directors/Deputy Field Directors will be responsible for updating this log for their respective field office’s worksheet tab. The flow chart below outlines the general permit process for the general permit and local review program.



Flow Chart. Overview of the General Permit Issuance Process.

Legend: FO=Field Office; PRS=Project Review Supervisor; PRP=Project Review Program; ODW=Office of Drinking Water; MOU=Memorandum of Understanding; EFD=Field Director; WW Regs=Waterworks Regulations..

General permits are assigned permit numbers in the same manner as described in Chapter 5, Section 5.1 for construction permits.

The field office will obtain the owner's signature on two copies of the MOU, and the Field Office Director will countersign both copies of the MOU. At this time, the field office will also upload electronic files of the general permit and supporting documents (MOU, audit, project summary form, annual report form, etc.) to “odwshare” and update the tracking log’s “Processing Log” tab.

The central office PRP staff will notify the field office when the general permit is compliant and ready for the Field Director’s signature. The Field Office Director will then sign the general permit. The field office will update the tracking log, scan the general permit and the MOU, and upload them to “odwshare”. The field office will mail the general permit and one copy of the MOU to the waterworks, followed by all document retention requirements.

Appendix

Attachments are located at: <\\odwsrv1\odwshare\13-Manuals\02-Permit Manual>

PM-C7-Attachment 1- Memorandum of Understanding (M.O.U.) for General Permit

PM-C7-Attachment 2- General Permit - Annual Report

PM-C7-Attachment 3- General Permit - Project Summary Report

PM-C7-Attachment 4- General Permit for Distribution Mains

PM-C7-Attachment 5- General Permit Transmittal Letter

PM-C7-Attachment 6- General Permit & Local Review Program Audit Review

Chapter 8 - Operation Permit

1. General

Va. Code § 32.1-172 and 12VAC5-590-190 require all waterworks or water supplies in Virginia to be operated under the authorization of a permit issued by the Commissioner to the owner. The Commissioner has delegated the authority to review and issue the operation permit to the Office of Drinking Water and has delegated signature authority to the Field Office Director.

ODW may issue operation permits for newly constructed waterworks and previously unpermitted waterworks that have been located and identified as meeting the definition of a “waterworks.” Under specified circumstances, ODW may also amend operation permits.

ODW issues an operation permit to the owner of the waterworks or water supply. “Owner” is defined as “an individual, group of individuals, partnership, firm, association, institution, corporation, governmental entity, or the federal government that supplies or proposes to supply water to any person within this Commonwealth from or by means of any waterworks.” Va. Code § 32.1-167; see also 12VAC5-590-10 which has a substantively identical definition.

ODW understands “owner” to mean the entity that owns the property where the water supply is located and who owns and may operate the water treatment plant, its major appurtenances, and the distribution system. In the case of some TNC or NTNC waterworks, a property owner (the “lessor”) may lease the property where the waterworks is located to another entity (the “lessee”) who uses the property, including the waterworks, for some reason, such as operating a business. For purposes of the operation permit, the waterworks “owner” will be the property owner (the lessor) and should be the party in whose name the permit is issued. For example, John Deer owns property that contains a well that is used to supply water to a building on the property. There is only one service connection, to the building, and water from the well is used for a restaurant with 10 employees that typically serves 100 customers a day, 5 days a week. A pump, sampling ports, water softener, and chlorinator are inside the building, along with sinks, restroom facilities, and dishwashers. The company known as Jill’s Restaurant leases the building and operates the restaurant. ODW should issue the operation permit to John Deer, not Jill’s Restaurant, because John Deer owns the waterworks.

In very limited circumstances, it is permissible to issue the permit to an entity other than the property owner if there is a contractual agreement that assigns sufficient access, control, and responsibility over operation of the waterworks to that entity. This shifting of responsibility is common in a triple net lease.¹² ODW shall not provide legal advice to any party to the agreement, but in determining who is the “owner” of the waterworks for purposes of the operation permit, ODW analyzes the following terms in the agreement:

¹² A triple net lease (triple-Net or NNN) is a lease agreement on a property whereby the tenant or lessee promises to pay all the expenses of the property including real estate taxes, building insurance, and maintenance. These payments are in addition to the fees for rent and utilities. Taxes, insurance, building maintenance, and sometimes utilities are typically the responsibility of the landlord in the absence of a triple, double, or single net lease.

1. Right of access to all parts of the waterworks;
2. Identify the infrastructure (physical elements of the waterworks);
3. Responsibility for operation, maintenance, repair, and replacement of waterworks components;
4. Responsibility for compliance with the Regulations; and
5. Duration of the agreement.

ODW field staff should direct questions of lease interpretation to the central office, through either the Field Services Engineer or the Director of Compliance, Enforcement and Policy.

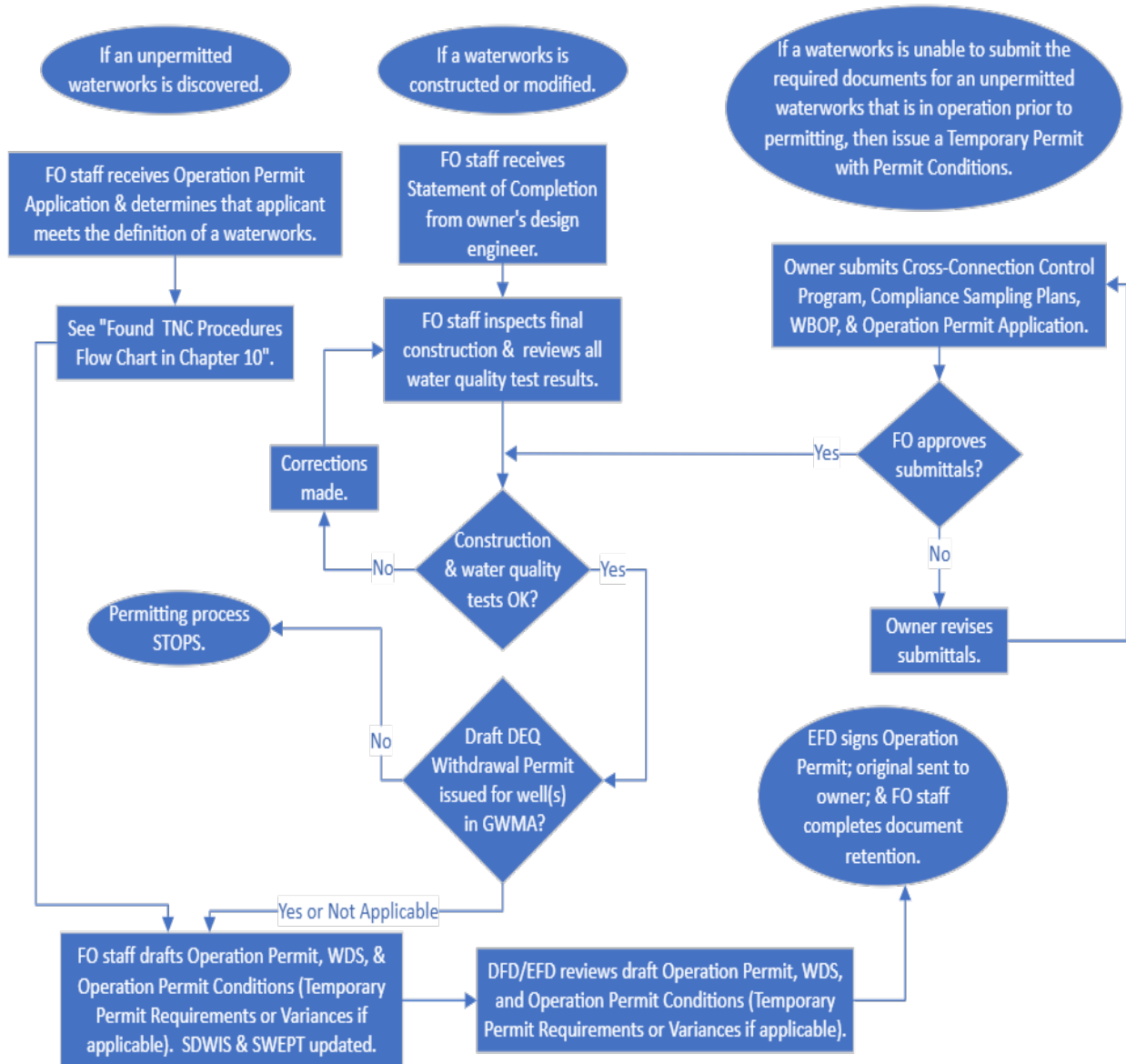
ODW issues two types of operation permits, as listed in Chapter 1, Section 3 of this manual: standard and temporary. Templates for each type of operation permit are available in PM-C8-Attachment 1 and PM-C8-Attachment 2, respectively.

ODW normally issues an owner a standard operation permit, which consists of a permit plus operation permit conditions. The conditions generally include minimum operator license requirements; treatment technique requirements (if any); operation, monitoring and reporting requirements; and the waterworks' permitted capacity. The format and content of the operation permit conditions are available in PM-C8-Attachment 3.

Va. Code § 32.1-172 E also authorizes the Commissioner, who has delegated authority to the Field Office Director, to issue a temporary permit if a waterworks is not in compliance with all the requirements in the Regulations, as long as operation of the waterworks will not jeopardize public health. The temporary permit will have operation permit conditions, a set expiration date, and temporary operation permit requirements, for the owner to achieve compliance with the Regulations. See PM-C8-Attachment 4.

Standard operation permits will not be issued conditionally (i.e., standard operation permits will not be issued while requiring an action be taken prior to the permit becoming effective, such as the drilling of a new well, or testing a pump to determine/verify capacity). ODW issues a temporary operation permit, with temporary permit requirements, to address the actions required, including provisions of permit application submittals.

The procedures for issuing an operation permit to the owner of a "found" TNC waterworks are in Chapter 10. "Found" means a business is operating its own water system, using that water system to provide water for human consumption to 25 or more people for 60 or more days per year, and at the time of ODW identifying those conditions, the owner does not have a permit to operate the waterworks.



Flow Chart. Operation Permit Issuance Process.

Legend: FO=Field Office; TNC=Transient Noncommunity; WBOP=Waterworks Business Operation Plan; DFD=Deputy Field Director; EFD=Engineering Field Director; WDS=Waterworks Description Sheet; SDWIS=Safe Drinking Water Information System; SWEPT=Safe Water Engineering Project Tool.

2. Operation Permit Processing and Routing

The district engineer is responsible for overseeing all waterworks permitting activity within the district. The district engineer will prepare or supervise the preparation of a permit and necessary documents for each waterworks within the district and conduct all investigations necessary to ensure that the permit is accurate. The deputy Field Office Director shall provide a technical review of the operation permit and all attachments before forwarding to the Field Office Director.

The Field Office Director is responsible for all aspects of the permit program within the field office region. The Field Office Director reviews the permit and associated documents. The procedure for processing operation permits shall be as follows:

1. The deputy Field Office Director shall complete a technical review of the draft operation permit and all attachments, including the waterworks description sheet (PM-C8-Attachment 5).
2. Field office administrative staff shall print the draft operation permit and all attachments. The Field Office Director will complete a final review of the documents and sign the approved operation permit (and variance, if applicable).¹³
3. The field office will scan the signed permit documents and upload to “odwshare.” The district engineer prepares a transmittal letter from the template in PM-C8-Attachment 6, and mails the permit and attachments to the owner. The transmittal letter template contains sample paragraphs that may be included for the following circumstances:
 - a. Permit is an amended permit;
 - b. Waterworks is “grandparented”¹⁴ (serves to notify the owner that the “grandparented” status may be terminated by expansion, modification, change of use, or failure to maintain reliability);
 - c. Temporary permit is being issued with temporary permit requirements attached (described in Section 8.11 of this manual);
 - d. Operation permit conditions are attached;
 - e. Variance is included (PM-C8-Attachment 7);
 - f. Waterworks has been, or will be, issued a draft or final Withdrawal Permit by DEQ.

3. Enforcement Issues and Insufficient Data for Capacity Determination

Before issuing or amending an operation permit for a waterworks that has a history of non-compliance, enforcement issues, or reliability problems, the Field Office Director should consult with the Division of Technical Services regarding the most effective way to ensure a safe, adequate drinking water supply and which permit type, Standard or Temporary, is appropriate.

¹³ In accordance with 12VAC5-590-190 A and Va. Code § 2.2-604, the State Health Commissioner will delegate signatory authority regarding permit types and variances. This manual is based upon the current delegation of authority for operation permits and variances.

¹⁴ Compliance with design criteria set forth in Part III of the Regulations is required for modifications to existing waterworks and for all construction of new waterworks commenced after June 23, 2021 (12VAC5-590-50 B). ODW may apply a “grandparented” status to existing waterworks permitted by ODW following changes in ODW policy or regulations. Generally, if an existing waterworks does not comply with the design requirements in Part III of the Regulations but exhibits satisfactory performance and compliance with Part II of the Regulations such that modification of the waterworks is not needed, and the waterworks owner is not seeking to modify the waterworks, ODW can consider the waterworks as “grandparented.” This can include existing waterworks that are “found,” and often may apply to noncommunity waterworks that reenter the program for one reason or another. This “grandparented” status may exempt the waterworks from certain design requirements of the Regulations as determined by the field office.

The Field Office Director should also contact the Division of Compliance, Enforcement and Policy to determine if enforcement action is appropriate.

Where insufficient data is available to establish hydraulic capacity, but the field office has made a decision to issue the permit for the existing services, then “existing” should appear in the WDS, operation permit conditions, and operation permit. By example,

1. TNC waterworks permit with capacity stated: “One existing structure with 80 existing restaurant seats.”
2. NTNC waterworks permit with capacity stated: “existing service up to 950 students and staff.”

4. Format

Field offices maintain the standard operation permit appearance (layout, fonts, line spacing, etc.) in all permits. Staff follow the guidelines below:

1. Only use general references to the Va. Code and Regulations in the operation permit, as shown in the templates.
2. Designate waterworks class and operator class in Arabic numerals or note as “unclassified.” Refer to the Regulations and ODW guidance for more information on this determination.
3. Designate NTNC and TNC status without hyphens or slashes.
4. Do not include “VA” in the permit number.
5. Do not use underlines in the fill in portions of the permit, except for an underline for the Director’s signature.
6. If a city is the owner, then issue to “City of...” and for a town, use “Town of...” Do not include the county’s name for cities and towns.
7. If the “name of the service area” is subject to change because the tenant is not the property owner (as is the case with some TNC waterworks), substitute a property address and/or description for a proprietary name.

5. Operation Permit Number

Field offices will assign and maintain all permit numbers using the PWS identification number as the operation permit number. This is a seven-digit number as follows:

Digits 1 – 4: Locality Code

| CODE | COUNTY/CITY | CODE | COUNTY/CITY | CODE | COUNTY/CITY |
|------|----------------|------|----------------|------|----------------|
| 3001 | Accomack | 6630 | Fredericksburg | 5135 | Nottoway |
| 2003 | Albemarle | 1640 | Galax | 6137 | Orange |
| 6510 | Alexandria | 1071 | Giles | 2139 | Page |
| 2005 | Alleghany | 4073 | Gloucester | 5141 | Patrick |
| 5007 | Amelia | 4075 | Goochland | 3730 | Petersburg |
| 5009 | Amherst | 1077 | Grayson | 5143 | Pittsylvania |
| 5011 | Appomattox | 2079 | Greene | 3740 | Portsmouth |
| 6013 | Arlington | 3081 | Greensville | 4145 | Powhatan |
| 2015 | Augusta | 5083 | Halifax | 5147 | Prince Edward |
| 2017 | Bath | 3650 | Hampton | 3149 | Prince George |
| 5019 | Bedford County | 4085 | Hanover | 6153 | Prince William |

| CODE | COUNTY/CITY | CODE | COUNTY/CITY | CODE | COUNTY/CITY |
|------|------------------|------|----------------|------|-----------------|
| 1021 | Bland | 2660 | Harrisonburg | 1155 | Pulaski |
| 2023 | Botetourt | 4087 | Henrico | 1750 | Radford |
| 1520 | Bristol | 5089 | Henry | 6157 | Rappahannock |
| 5025 | Brunswick | 2091 | Highland | 4760 | Richmond City |
| 1027 | Buchanan | 3670 | Hopewell | 4159 | Richmond County |
| 5029 | Buckingham | 3093 | Isle Of Wight | 2770 | Roanoke City |
| 2530 | Buena Vista City | 3095 | James City | 2161 | Roanoke County |
| 5031 | Campbell | 4097 | King And Queen | 2163 | Rockbridge |
| 6033 | Caroline | 6099 | King George | 2165 | Rockingham |
| 1035 | Carroll | 4101 | King William | 1167 | Russell |
| 4036 | Charles City | 4103 | Lancaster | 2775 | Salem |
| 5037 | Charlotte | 1105 | Lee | 1169 | Scott |
| 2540 | Charlottesville | 2678 | Lexington | 2171 | Shenandoah |
| 3550 | Chesapeake | 6107 | Loudoun | 1173 | Smyth |
| 4041 | Chesterfield | 2109 | Louisa | 3175 | Southampton |
| 2043 | Clarke | 5111 | Lunenburg | 6177 | Spotsylvania |
| 3570 | Colonial Heights | 5680 | Lynchburg | 6179 | Stafford |
| 2580 | Covington | 6113 | Madison | 2790 | Staunton |
| 2045 | Craig | 6685 | Manassas | 3800 | Suffolk |
| 6047 | Culpeper | 6687 | Manassas Park | 3181 | Surry |
| 5049 | Cumberland | 5690 | Martinsville | 3183 | Sussex |
| 5590 | Danville | 4115 | Mathews | 1185 | Tazewell |
| 1051 | Dickenson | 5117 | Mecklenburg | 3810 | Virginia Beach |
| 3053 | Dinwiddie | 4119 | Middlesex | 2187 | Warren |
| 3595 | Emporia | 1121 | Montgomery | 1191 | Washington |
| 4057 | Essex | 2125 | Nelson | 2820 | Waynesboro |
| 6059 | Fairfax County | 4127 | New Kent | 4193 | Westmoreland |
| 6061 | Fauquier | 3700 | Newport News | 3830 | Williamsburg |
| 1063 | Floyd | 3710 | Norfolk | 2840 | Winchester |
| 2065 | Fluvanna | 3131 | Northampton | 1195 | Wise |
| 3620 | Franklin City | 4133 | Northumberland | 1197 | Wythe |
| 5067 | Franklin County | 1720 | Norton | 3199 | York |
| 2069 | Frederick | | | | |

Digits 5 – 7: Sequence Number

The sequence number ranges from 000 through 999. This system will accommodate 1,000 waterworks in each city or county. Previously assigned numbers maintain an alphabetical series for each city and county. Field offices assign new waterworks a sequence number based on the alphabetical name, using a number halfway between two existing numbers in the alphabetical order.

Waterworks that have been inactivated and then become active with or without a change in ownership, name or waterworks classification, shall retain the previously issued PWSID and operation permit number.

6. Operation Permit Conditions

Operation permits will contain an attachment titled “Operation Permit Conditions.” A Template for this form is in PM-C8-Attachment 3.

The operation permit conditions highlight regulatory requirements that are applicable to the specific waterworks. They will include a capacity evaluation that itemizes source, treatment, storage and delivery capacities, and the waterworks' overall permitted capacity. Field offices must specify *all treatment* in the operation permit conditions, including treatment that was voluntarily added by the waterworks owner. Staff will provide in-depth descriptions of the waterworks, *i.e.*, treatment unit details, distribution system details, and capacity calculations, in a separate Waterworks Description Sheet (see Section 8.6).

The operation permit conditions will contain operator and attendance requirements for the waterworks, and all federal treatment technique requirements. This could include:

1. Specific log inactivation requirements (Surface Water Treatment Rule, LT2 Rule, and the Groundwater Rule).
2. Turbidity removal requirements (Surface Water Treatment Rule).
3. Water quality parameters (Lead & Copper Rule).
4. Corrosion Control (treatment technique required by Lead & Copper Rule).
5. Disinfection (log inactivation treatment technique).

The operation permit conditions may also include additional operation, monitoring and reporting requirements for specific treatment processes, such as UV disinfection and membrane filtration.

7. Waterworks Description Sheet

Field offices will write a Waterworks Description Sheet (WDS) for each waterworks using the template in PM-C8-Attachment 5. The WDS will provide important system information, including a description of the entire waterworks, all treatment processes, and a detailed capacity evaluation as described in the examples provided in Chapter 9.

The WDS is not an attachment to the operation permit, but rather a stand-alone document. The field office will keep the WDS up-to-date. The field office may issue an updated WDS to the waterworks owner without issuing an updated operation permit. Field offices must issue a new or updated WDS with any new or updated operation permit.

The WDS will include the effective date of the current operation permit. Historical operation permit numbers and issuance dates should be included on all newly written WDSs, to clarify ownership, name, or classification changes, or to describe inactive periods. This information may also be included on updated WDSs.

Formatting and content of the "Description of the Waterworks" is at the discretion of the field office, but the following components should be included:

1. A description of the service population used to determine waterworks type (community, TNC, or NTNC). Pertinent data may include:
 - a. Business type,
 - b. Number of customers served daily,
 - c. Number of employees,
 - d. Number of year-round residents,
 - e. Days/weeks/months of operation,
 - f. Hours per day of operation (needed for the TNC vs. NTNC determination),

- g. Population served, and
 - h. Number of service connections.
2. Adequate information to support the capacity evaluation, including relevant dimensions and capacities of treatment units, pumps, and storage or pressure tanks.
 3. Specific automated control settings that must remain in place for the waterworks to work properly or remain in compliance with the Regulations, such as booster pump initiation or low suction pressure cutoff settings.

Chapter 9 of this manual provides details on the capacity evaluation required in each WDS.

If a Groundwater Withdrawal Permit has been or will be issued by DEQ, then ODW staff will include a section in the WDS entitled “Other Permits.” Use the following language for the section:

“The Department of Environmental Quality has (drafted) (issued) a Groundwater Withdrawal Permit (No. -XXX) to this waterworks.”

Include the permitted withdrawal values, typically a maximum annual and a maximum monthly quantity. ODW does not limit waterworks permit capacity to permitted withdrawal values.

Add the following language to “Other Permits”:

“Compliance with the conditions and requirements of the Groundwater Withdrawal Permit shall not limit the authority of the Virginia Department of Health to assign capacity to the waterworks, based on the evaluation as follows.”

If located in a Groundwater Management Area, but DEQ has not issued a groundwater withdrawal permit, note this information using the following language:

“This waterworks is located in the (*Eastern Shore / Eastern Virginia*) Groundwater Management Area. However, a groundwater withdrawal permit is not required by the Department of Environmental Quality at this time. A groundwater withdrawal permit may be required for this waterworks in the future.”

8. Wholesale and Consecutive Waterworks

“‘Wholesale waterworks’ means a waterworks that treats source water as necessary to produce potable water and then delivers some or all of that potable water to another waterworks. Delivery may be through a direct connection or through the distribution system of one or more consecutive waterworks.” 12VAC5-590-10.

“‘Consecutive waterworks’ means a waterworks that receives some or all of its finished water from one or more waterworks. Consecutive waterworks may provide additional treatment to finished water. Delivery may be through a direct connection or through the distribution system of one or more consecutive waterworks.” 12VAC5-590-10.

The sum of the storage on both the wholesale and consecutive waterworks should be adequate for the sum of the water demand, as demonstrated by computations and/or hydraulic modeling. Consecutive waterworks are not required to have separate storage when storage is adequately provided for by the wholesale waterworks and can be reliably delivered by the wholesale waterworks. ODW staff will identify an allocation of both source and storage capacity between

the wholesale waterworks and consecutive waterworks in the WDS of the wholesale waterworks and tabulate this allocation in the table under Waterworks Capacity.

As part of the process to evaluate and issue an operation permit, the district engineer will identify and obtain a copy of any contractual agreements and limitations on water transfer between each wholesale and consecutive waterworks. ODW will encourage all consecutive waterworks to obtain firm gallons-per-day contracts, so that their growth will not be limited by another waterworks' service area growth. ODW will also encourage all consecutive waterworks to obtain firm water quality standards in their purchase contracts, particularly for disinfectant residuals, disinfection byproducts, and disinfection byproduct precursors. Allocations of source (production) capacity and storage should be defined in the contractual agreement between the wholesale and consecutive waterworks. When a contract with a firm capacity is not available, field staff will consult DTS to determine how to set the permitted capacity of the waterworks.

Permitting of consecutive waterworks shall follow these procedures:

1. Identify point(s) of water transfer. Identify and obtain a copy of any contractual limitations on water transfer.
2. Identify any physical or design limitation on water transfer (for example, a pump station may establish the capacity at a particular connection).
3. Identify water transfer limitations due to wholesale source capacity and wholesale system water use (the sum of the parts \leq the whole).
4. The permitted capacity of the consecutive waterworks shall be the lowest identified capacity limitation.

In cases where a waterworks does not have a contractual or written agreement (or the contract does not stipulate a quantity), but on-going receipt of water can be demonstrated, the historical water usage shall be used as a basis for allocating waterworks capacity. ODW recommends the maximum monthly consumption over a period of at least 2 years as a capacity value.

If the field office issues a temporary operation permit for the consecutive waterworks (purchaser), the expiration date of the permit shall not extend beyond the term specified in the purchase contract.

The field office will verify the applicable Combined Distribution System schematic, and provide any revisions to the field services engineer. Combined Distribution System schematics are located at <odwsrv1\odwshare\06-Technical Resources\635-Combined Distribution Systems>

9. Variances

Variances, when granted by the Commissioner or ODW, are usually issued with an operation permit. They also may be issued by ODW separately, without amending an existing permit. Variances only apply to Part II of the Regulations.

ODW sometimes grants variances for the number of operators in attendance or the level of operator licensure specified in 12VAC5-590-461 B and has the option to specify the period of time the variance is effective. ODW may issue a variance to 12VAC5-590-461 B with the understanding that the owner intends to return to compliance when trainees or junior operators attain the appropriate level of licensure.

ODW may issue to a waterworks a temporary operation permit when additional measures are required to meet a Primary Maximum Contaminant Level or Treatment Technique requirement. Variances and exemptions are allowed in the Regulations for this purpose but should rarely be issued by ODW. The Regulations authorize the issuance of variances to a Secondary Maximum Contaminant Level, but ODW generally does not issue such variances.

A waterworks owner may apply in writing for a variance as specified in 12VAC5-590-140 B. The application must meet these requirements.

The variance format is provided in PM-C8-Attachment 7. The variance should clearly and completely specify deviations from the regulatory requirements that are being granted. An expiration date, other appropriate conditions, and information to support the variance request may also be included as necessary.

10. Amended Permits

Va. Code § 32.1-173 and 12VAC5-590-310 allow the Commissioner to amend an operation permit for an existing waterworks when there is, among other things, a change in the manner of storage or treatment, or the source of supply of the water at a permitted location. Examples of these changes may include:

1. Certain changes to the storage or distribution systems;¹⁵
2. Changes to the treatment process or equipment;¹⁶
3. Changes in waterworks capacity specified in the permit; and
4. Issuance of variances, temporary permit requirements, or operation permit conditions.

In addition, Va. Code § 32.1-173 states that the Commissioner may amend a permit whenever he determines that the existing permit is no longer valid. An operation permit is not valid when, for example, there are:

1. Changes in the waterworks' name, ownership, classification, or type;
2. Reactivation of a previously permitted waterworks (with or without changes in name, ownership, or system type); or
3. Errors in the permit.

Unless the owner requests the amendment, ODW is required to provide the owner notice and, if requested, an opportunity to participate in an informal fact-finding proceeding and/or formal hearing before amending the permit. The purpose of the informal proceeding and/or formal hearing is for ODW to establish the fact basis for the decision to amend the permit and for the owner to have an opportunity to present facts and evidence for the agency to consider in making its decision. Virginia's Administrative Process Act defines the agency decision as a "case decision." *See* Va. Code §§ 2.2-4001 and 2.2-4019. Compliance, Enforcement and Policy Division staff can provide assistance with an informal fact-finding proceeding.

¹⁵ Distribution system storage, pumping, or water line extensions that have no impact on permitted capacity do not require a permit amendment.

¹⁶ Changes to treatment processes or equipment that have no impact on permitted capacity or Operation Permit Conditions do not require a permit amendment.

10.1. Notification

The district engineer shall inform the owner that ODW intends to amend the waterworks operation permit before the field office issues the amended permit. This notification shall be by written letter, sent by First Class U.S. Mail. The district engineer may supplement this letter by an email, meeting, or conversation with the owner. When the permit amendment is a unilateral decision made by ODW (*i.e.*, the owner did not request to amend the operating permit or apply for a construction permit) and amending the permit will affect the owner's existing rights (*e.g.*, reduce capacity of the waterworks, which may reduce the owner's ability to serve customers), the field office will send the notification letter by certified mail, return receipt requested.

The district engineer will state in the letter to the owner that ODW intends to amend the operation permit and provide the specific reason(s) for the amendment. The notice will also contain a request that the owner notify ODW in writing if the owner objects to the amendment of the permit. The district engineer will use the letter template in PM-C8-Attachment 8, Notice of Intent to Amend Permit. If the owner objects to ODW's proposed permit amendment, the owner is entitled to and may request that ODW make a case decision regarding the requirement to amend the permit. At this point, ODW can decide not to amend the permit and inform the owner that the current operation permit remains in effect. Alternatively, if ODW still intends to amend the permit, the owner is entitled to have ODW conduct an informal fact-finding proceeding, in accordance with Va. Code § 2.2-4019, or both sides may agree to waive informal proceedings and go directly to a formal hearing, prior to the permit being amendment becoming effective. See Va. Code § 2.2-4020. In any situation where an owner requests that ODW make a case decision, the Field Office Director must refer the case to the Compliance, Enforcement and Policy Division in the central office.

If the certified mail is returned undelivered, then the district engineer should make additional efforts to contact the owner in person or by email or telephone. If these attempts are unsuccessful, then the district engineer will document the attempts to reach the owner and, after at least 15 business days, proceed to issue the amended permit.

10.2. Procedures

Field offices will follow the procedures below when amending a permit:

1. Retain existing permit number,
2. Modify effective date of permit,
3. Modify date of operation permit conditions, and
4. Update the WDS operation permit history.

The operation permit checklist should include a brief explanation for the permit amendment in the "Comments" section of the Transmittal Checklist (PM-C8-Attachment 9).

Field offices will send a copy of the amended permit to all entities (local governments, etc.) that received a copy of the original permit from ODW. The district engineer will use the template transmittal letter provided in PM-C8-Attachment 6, including an explanation that the amended permit replaces and nullifies the original, and directs the owner to destroy the original permit immediately.

10.3. Change in Ownership

ODW will amend the operation permit based on the Commissioner's authority to amend any permit, on his own motion, whenever he determines that the existing permit is no longer valid. *See* Va. Code § 32.1-173 B.

When the field office becomes aware of a proposed or actual change in ownership, the district engineer will attempt to contact the new waterworks owner to explain that ODW intends to amend the operation permit and follow the procedures outlined above to notify the former and new owner of the amendment using the letters provided in PM-C8-Attachment 10. Field offices will send the letters to both the former owner and the new owner of the waterworks and the change in ownership form to complete (PM-C8-Attachment 11).

If a new owner is informed about the requirement to amend the operation permit to reflect the change in ownership and fails or refuses to accept responsibility for the waterworks by obtaining an operation permit, the district engineer or Field Office Director should consult with Compliance, Enforcement and Policy Division staff in the central office about enforcement options.

10.4. Existing Operation Permits That Are No Longer Valid

Rather than revoking the operation permit for a water system that no longer meets the definition of a "waterworks," ODW will utilize the authority provided by Va. Code § 32.1-173 B to invalidate the permit. Va. Code § 32.1-173 B states, "The Commissioner may on his own motion, amend any permit whenever he determines that: ... [t]he existing permit is no longer valid."

The procedure for invalidation of an existing permit is as follows:

1. Owner notifies ODW field office - If a waterworks owner believes that their system does not meet the definition of a "waterworks," it is their responsibility to provide sufficient information and records for ODW, acting under delegated authority from the Commissioner, to determine whether the operation permit for that waterworks is still valid.
2. Field office evaluation - The ODW field office will evaluate the justification and records provided by the owner.
 - a. The field office will review the guidance provided by Working Memo 896 and determine if the justification provided by the owner suggests that the system may not be a waterworks. If the field office determines that the system is a waterworks based on the guidance found in Working Memo 896, field office staff will notify the owner and will not proceed with permit invalidation.
 - b. The field office will determine if records provided by the owner thoroughly support the owner's justification. Claims made by the owner about the service population, water system configuration, or other criteria used to evaluate whether the system meets the definition of a "waterworks" will not be considered unless supported by records, such as business ledgers, sales receipts, or photographs.
3. Site visit - Field office staff will perform a site visit to confirm information provided by the owner, such as closure of the facility, the number of seats in a restaurant, or physical separation of the water system. Field office staff may also review documents sent to the field office as a result of the site visit. Field staff may perform this site visit unannounced.
4. Sister agency notification - Field office staff will notify any other state agency regulating the facility to confirm ODW's proposed permit invalidation aligns with other permits and

programs (e.g., local building official, local zoning, local health department (restaurant permit, campground permit, hotel permit, etc.), Virginia Department of Agriculture and Consumer Services (VDACS, food permit), Virginia Department of Education (child day programs and schools), VDH's Office of Environmental Health Services, etc.). If information the owner provides to ODW disagrees with information obtained from other agencies, ODW will not proceed with invalidation of the permit without resolving the discrepancies.

5. Central Office review –
 - a. When the field office has collected adequate information such that the Field Office Director is assured that the water system does not meet the definition of a waterworks, the Field Office Director will email a summary of the situation and copies of the documentation compiled to the Field Services Engineer and the Director of the Division of Technical Services. This email will explain how the field office determined that the system does not meet the definition of a “waterworks”.
 - b. If the Field Services Engineer and the Director of the Division of Technical Services concur with the Field Office Director's assessment, they will present this information to the ODW Office Director.
 - c. If the ODW Office Director concurs, the Field Services Engineer will inform the Field Office Director that the field office may inform the owner that the operation permit is no longer valid because the water system is not a waterworks.
6. Owner notification – If the ODW Office Director agrees that the permit should be invalidated because the system no longer meets the definition of a “waterworks,” field office staff will utilize attachment PM-C8-Attachment 12- Operation Permit No Longer Valid to notify the owner. If the owner does not agree with ODW's decision (i.e., the waterworks permit is no longer valid), they may request an informal fact-finding proceeding.
7. Failure to Invalidate the Permit – If at any point ODW declines to find that the information and records provided are sufficient to invalidate the permit, the owner may request an informal fact-finding proceeding on the issue. Field office staff should coordinate with the Division of Compliance, Enforcement and Policy regarding providing notice to the owner of the opportunity for an informal fact-finding proceeding.

11. Temporary Permits

A temporary operation permit allows additional time for the waterworks to achieve required reliability or performance standards, collect additional data, and perform tests and/or determinations to establish hydraulic capacity. ODW describes these requirements to achieve compliance in temporary permit requirements.

The ODW field office may issue a temporary operation permit for the following circumstances:

1. Upon expiration or modification of an existing water purchase contract, where a new agreement includes a termination date which is less than 5 years from the operation permit issuance date (otherwise issue a standard permit);
2. When an enforcement action (Consent or Special Order) requires specific studies or improvements;

3. When existing source(s) have shown declining yield over time, as documented by sanitary surveys and monthly operation reports. Groundwater wells would require a yield and drawdown test; other sources may require special studies and evaluations;
4. Following construction of water treatment methods, processes, or equipment which are not covered by the design criteria in Part III of the Regulations, and which in principle and/or application are new or non-conventional. A temporary operation permit allows additional time for testing and evaluation of the treatment methods, process, or equipment to establish confidence the waterworks will operate as proposed;
5. When a standard operation permit has not been issued, and the owner has failed to submit in a timely manner the required documentation for issuance of a standard operation permit. Such required documentation *may include* the WBOP¹⁷, Cross Connection Control Plan, Operation Permit Application, Bacteriological Sample Siting Plan, well lot plat, etc.; and
6. When permitting existing but newly-discovered or reclassified waterworks having groundwater sources without complete water quality test results, and the waterworks is operating without a permit. If the waterworks is an existing but unpermitted TNC (not an NTNC or community waterworks), refer to the Found TNC procedures in Chapter 10 of this manual. Examples of activities that could be completed by a waterworks owner under this scenario include:
 - a. Initial compliance chemical sampling such as nitrate/nitrite, unpreserved nitrite, inorganics, metals, volatile organic chemicals (VOCs), and cyanide;
 - b. Lead and copper tap sampling;
 - c. Raw water sampling (or distribution sampling if no treatment is provided and substitution is allowed) to support a GUDI evaluation. Normally, at least ten monthly samples are required. The district engineer may adjust the sampling frequency;
 - d. Completion and submittal of a bacteriological sampling siting plan (BSSP), or a disinfectants/disinfection byproducts monitoring plan;
 - e. Completion and submittal of lead and copper materials survey and Cross Connection Control Plan;
 - f. Completion and submittal of a WBOP; and
 - g. Completion and submittal of a signed agreement with a licensed waterworks operator.

If a waterworks does not meet the requirements of the Temporary Operation Permit, then enforcement action may be necessary.

Place a “T” at the end of the permit number and include an expiration date below the effective (issue) date. The expiration date will depend on the reason for issuance, and the date determination will be documented by the field office. Generally, a Temporary Permit shall expire in 12 – 18 months and should not extend more than 24 months. However, the field office may consider longer

¹⁷ SPECIAL NOTE: ODW will not issue a temporary permit to an owner of a “for-profit” TNC or NTNC waterworks solely because a WBOP has not been submitted. In these cases, a standard permit will be issued and the field office will inform the waterworks owner of the requirement to submit a WBOP.

Temporary Permit durations in special cases, for example, three years, to allow re-evaluation of the yield of wells or springs.

Field office staff will track Temporary Operation Permit issuance and expiration as “indicators” in SDWIS.

The field office should issue a Standard Operation Permit before the Temporary Permit expires if the Temporary Operation Permit Requirements have been completed. The Temporary Permit expiration date should be at least one month later than the deadline for the final temporary permit requirement to allow time to issue a Standard Permit before the Temporary Permit expires. This one-month period will also allow the field office time to review sample results, approve sampling plans, and complete GUDI evaluations in advance of issuing a Standard Permit.

Field office staff track completion of temporary permit requirements utilizing SDWIS compliance schedules. See the ODW SDWIS Users’ Manual for detailed instructions. If the owner fails to meet a deadline or complete actions required to meet a deadline, field office staff should remind the owner of the requirements, encourage completion of the requirements, and notify the Division of Compliance, Enforcement and Policy. If a temporary permit expires and the requirements have not been completed, field office staff will:

1. Contact the owner to establish a schedule for completion.
2. Assist the owner, to the extent possible, with completion.
3. Confer with the Division of Compliance, Enforcement and Policy to determine next steps.
4. Issue a Notice of Alleged Violation for operation without an Operation Permit.

Reissuance of Temporary Operation Permits when the owner has failed to complete the required temporary permit requirements is considered by ODW on a case-by-case basis considering the following:

1. Owner must have a reasonable explanation for not meeting the requirements of the previous Temporary Operation Permit and the field office staff must concur.
2. Field office staff must be reasonably confident that the owner will complete the requirements of the new Temporary Operation Permit within the revised timeframe.
3. Owner has another VDH operation permit, e.g., food permit, campground permit, or marina permit, that could possibly be revoked or not renewed by the local health department.
4. ODW has confirmed the local health department is willing to work with ODW to compel compliance through their permit revocation process.
5. Division of Compliance, Enforcement and Policy staff must concur with this approach.

Field office staff will generally utilize the template found in PM-C8-Attachment 2- Temporary Operation Permit for temporary permits.

After approval by the Field Office Director, field offices will route temporary permits through the compliance specialist to enter the temporary permit requirements into SDWIS and notify TCDO staff if a WBOP is required.

12. Permit Revocation

ODW may revoke a permit pursuant to Va. Code § 32.1-174 when the Commissioner determines that:

1. The waterworks can no longer be depended upon to furnish pure water;
2. The capacity of the waterworks is inadequate for the purpose of furnishing pure water;
3. The owner has failed to abide by an order issued by the Commissioner;
4. The owner has abandoned the waterworks and discontinued supplying pure water; or
5. The owner has failed to pay the waterworks operation fee required by § 32.1-171.1.

ODW previously revoked permits because of changes in ownership, replacing a standard permit with a temporary permit, and determination that a water system does not meet the definition of a waterworks. In the case of changes in ownership or replacing a standard permit with a temporary permit, ODW will issue an amended permit. The procedures for changes in ownership are in Chapter 8, Section 10.3. Change in Ownership. If ODW determines that a water system does not meet the definition of a waterworks, ODW will determine the permit to not be valid as described in Chapter 8, Section 10.4.

The field office will evaluate the justification for revocation on a case-by-case basis with input from the enforcement staff. In some situations, the field office may need to pursue permit revocation through the enforcement process.

When the owner (i.e., the permit holder) is initiating the revocation, they may request permit revocation in writing, stating the reason for the permit revocation and, if applicable, should specify in the request that a hearing is not required. Field office staff then prepare a letter revoking the permit for the Field Office Director's signature.

When ODW is initiating the revocation, the district engineer, with concurrence of the Field Office Director, will send a notice by certified mail, return receipt requested, to the permit holder stating that it is ODW's intention to revoke the permit and the reason for the revocation. The notice shall also contain a request that the permit holder notify ODW in writing that they do or do not object to the revocation of the permit. Use the letters given in PM-C8-Attachment 13 (Notice of Intent to Revoke Permit) and PM-C8-Attachment 14 (Operation Permit Revocation letter).

Two courses of action may be followed, depending on receipt of the certified mail:

1. If the certified mail is returned undelivered, the district engineer should make every effort to contact the owner in person, or by telephone or email. If the attempts are unsuccessful, then the district engineer, with concurrence from the Field Office Director, will prepare a letter of revocation for the Field Office Director's signature. The field office will mail the letter, signed by the Field Office Director, to the owner at the last known address by certified mail, return receipt required. If the letter is returned undelivered, the field office will retain the letter in the correspondence file as evidence of notification and will serve as authorization to revoke the permit.
2. If the owner notifies the field office in writing that he does not object to revocation of the permit, prepare a letter for the Field Office Director's signature revoking the permit. If the owner objects to the revocation of the permit, ODW will hold a hearing, in accordance with

12VAC5-590-115 of the Regulations. In these situations, the field office will refer to the Director of the Division of Compliance, Enforcement and Policy in the central office for further guidance.

The owner must notify customers of the operation permit revocation. If the owner is unable or unwilling to do so, the Field Office Director will consult with the local Health Director regarding the need to notify customers directly. ODW will notify the local building official of the details pursuant to permit revocation, by copy of the notification letter.

The procedure for processing a permit revocation are as follows:

1. The field office will post the electronic document file of the draft revocation letter on “odwshare” and update the tracking spreadsheet.
2. The effective date of the permit revocation letter shall be at least five working days after the date on which the letter (electronic document) is posted to “odwshare” by the field office.
3. The Field Services Engineer, the Director of Technical Services, and the Office Director will review the documents and may make edits to the revocation letter or ask the field office to provide more information or corrections to the revocation letter.
4. After the central office approves the revocation letter, the FSE will update the tracking spreadsheet. The central office will notify the field office after revocations are approved.
5. Field office administrative staff will print the version of the revocation letter reviewed and potentially edited by the central office. If the field office deems changes to the revocation letter necessary, the field office will contact the Field Services Engineer. The Field Office Director will sign the approved revocation letter.
6. The field office will scan the signed permit documents, upload them to “odwshare” and update the tracking spreadsheet. The field office will mail the revocation letter via Certified Mail to the waterworks owner. The field office will also email copies of the revocation letter to all parties listed after the Field Office Director’s signature.

Important: All unpermitted waterworks must complete and submit an Operation Permit Application to obtain a Waterworks Operation Permit (PM-C8-Attachment 15).

Appendix

Attachments are located at: <\\odwsrv1\odwshare\13-Manuals\02-Permit Manual>

PM-C8-Attachment 1- Standard Operation Permit
PM-C8-Attachment 2- Temporary Operation Permit
PM-C8-Attachment 3- Operation Permit Conditions
PM-C8-Attachment 4- Temporary Operation Permit Requirements
PM-C8-Attachment 5- Waterworks Description Sheet
PM-C8-Attachment 6- Operation Permit Transmittal Letter
PM-C8-Attachment 7- Variance
PM-C8-Attachment 8- Notice of Intent to Amend Operation Permit
PM-C8-Attachment 9- Transmittal Checklist – Operation Permit
PM-C8-Attachment 10- Cover Letter – Change of Ownership Agreement Form
PM-C8-Attachment 11- Change of Ownership Agreement Form (C.O.A.F.)

PM-C8-Attachment 12- Operation Permit No Longer Valid
PM-C8-Attachment 13- Notice of Intent to Revoke Operation Permit
PM-C8-Attachment 14- Operation Permit Revocation Letter
PM-C8-Attachment 15- Operation Permit Application

Chapter 9 - Capacity Evaluation of Waterworks

1. Introduction

12VAC5-590-640 of the Regulations requires that community waterworks' capacity be designed to meet or exceed the estimated maximum daily water demand of the system at the design year. The waterworks' capacity is determined through an evaluation of the major components' ability to meet that demand at a minimum 20 psi pressure.¹⁸ (Major component categories are source, treatment, delivery and storage.) Noncommunity waterworks shall be designed to meet or exceed the peak hour demand. The limiting value becomes the permitted capacity of the waterworks.

Water withdrawals may be limited by the DEQ, through a Groundwater Withdrawal Permit, a Virginia Water Protection Permit, or by the DEQ, Virginia Marine Resources Commission (VMRC) and U.S. Army Corps of Engineers (USACE) collectively through a joint permit. These permits may affect the source capacity of the waterworks.

The overall capacity may also be limited for some waterworks by other VDH permits issued by the local health department, such as a food establishment permit, or an on-site sewage disposal permit. When permitting a very small waterworks (serving less than 5 connections), field office staff should request all VDH permits for the facility from the local health department if the waterworks is new, or any new permits if the waterworks is expanded.

An on-site waste disposal permit may limit the overall capacity when no substantial amount of water is used by the water system for purposes that do not contribute to sewage volume. Examples of water uses that do not contribute to sewage volume include irrigation, filling swimming pools, and producing canned or bottled beverages.

Other VDH permits are typically only limiting when the waterworks capacity is limited to existing facilities due to inadequate information to evaluate the capacity. In this case, the waterworks' permitted capacity will typically match the other VDH-permitted capacity, unless the waterworks serves more facilities than the other VDH permit (i.e., if a waterworks has connections to or serves a restaurant and an adjacent residence, the permitted capacity should include both, though only the restaurant would be included on the food establishment permit).

2. Estimated Demand

In the past, ODW based design daily water demands on Equivalent Residential Connections (ERC). An ERC was equivalent to 400 gallons per day (gpd).¹⁹ This often resulted in an inflated water demand, as national and state data now show that typical water usage for a single-family residential connection is 100-200 gpd per residence, or less. In addition, non-residential water

¹⁸ The recommended minimum working pressure is 40 psi for all waterworks; 20 psi is the absolute minimum required in the Regulations.

¹⁹ 12VAC5-590-10 previously stated, "Equivalent residential connection means a volume of water used equal to a residential connection that is 400 gallons per day unless supportive data indicates otherwise." However, 400 gallons per day overestimates current design demand for residential connections and ODW is no longer relying on this design criteria.

demands are not accurately reflected in the ERC values, particularly when waterworks provide water to commercial or industrial consumers with significant water use/consumption.

For new waterworks, the design engineer must provide estimated water demands as the design basis for the system. Actual water usage measurements from similar facilities or other published references are recommended by ODW.

The field office staff estimates the maximum daily water demand determined for each waterworks and includes it in the capacity evaluation section of the WDS. If actual water usage figures are available and reliable, staff will use this data to evaluate the estimated demand. Staff will obtain historical water use data from monthly operation reports for metered systems and use a minimum of 12 months of water production data. To account for seasonal variations in water use and avoid biasing the calculated average, multiples of 12 months of water production should be used.

Field office staff may estimate daily water demands for small non-community systems without historical water use records using AWWA’s “Design and Construction of Small Systems”, 1999. (PM-C9-Attachment 1). When actual or revised data is available, it should be used instead of these values.

Field office staff may use U.S. Census data to determine the average number of persons per residential connection (<https://www.census.gov/quickfacts/fact/table/US/PST045221>) or, without actual population data or representative Census data, assume each single family dwelling connection serves 2.5 persons per residence.

Field office staff may use a peaking factor (PF) to establish a peak hourly demand from average or maximum monthly water consumption data. Peaking factors should be used with caution, as they will depend on the type of customers in the service area. Particular attention to commercial and industrial water users is advised. Typical peaking factors are as follows:

| | |
|--------------------------------|------------------------------|
| Maximum Day = PF * Average Day | Peak Hour = PF * Average Day |
| PF Range = 1.5 – 3.0 | PF Range = 2.5 – 5.0 |

Reference: Handbook of Public Water Supply Systems, HDR Engineering, 2001

Demand Calculation:

Community waterworks

Field office staff estimated maximum daily demand in gpd or million gallons per day (MGD) if an estimate is not provided by the design engineer. For example:

$$1 \text{ mobile home connection} = (50 \text{ gpd/person}) (3.0 \text{ persons/home}) = 150 \text{ gpd}$$

$$1 \text{ residential connection} = (50 \text{ gpd/person}) (2.5 \text{ persons/residence}) = 125 \text{ gpd}$$

Staff evaluate the capacity of a community waterworks in terms of flowrate (gpd or MGD) in the WDS and on the Operation Permit, unless adequate information is not available to establish a permit capacity. If only one groundwater source is available, ODW limits the waterworks to a maximum of 49 residential connections. In this case, staff write the permit

capacity as “### gpd and no more than 49 residential connections”. Refer to the example in this manual.

Noncommunity waterworks:

Field office staff also clearly define the design basis for waterworks with non-residential water use, for example:

Factory A: 25 gpd / person / 8-hr shift

Hospital B: 300 gpd / bed

School C: 25 gpd / pupil

Regardless of whether a meter is provided, staff include an estimate of the water usage in flow rate units (gpd), and define the basis for the estimate in the capacity evaluation. Where a meter is not provided, staff define the waterworks’ capacity in terms of the user characteristics, i.e., number of hospital beds, restaurant seats, students, etc.

3. Groundwater Sources

3.1. Well Yield and Groundwater Source Capacity

Field staff determine groundwater well source capacity from the well yield test results and the well pump performance characteristics. The well yield is equal to the stabilized pumping rate during the test. In situations where the capacity of the test pump is the limiting factor, the measured pumping rate will be used as the well yield. Field staff should ensure that the pump is sized to not exceed the well yield test results, except under unusual circumstances.

3.2. Yield Test Requirements – Wells Constructed in the Coastal Plain Region

DEQ currently regulates two Groundwater Management Areas (GWMA) in the Coastal Plain: the Eastern Virginia GWMA and the Eastern Shore GWMA. Facilities with wells in these areas may require a Groundwater Withdrawal Permit from DEQ if they withdraw 300,000 gallons per month or more. In 2014, DEQ expanded the Eastern Virginia GWMA.²⁰ DEQ’s permit program has requirements for persons withdrawing groundwater when a groundwater management area is declared or expanded.

DEQ will forward all draft Groundwater Withdrawal Permits to ODW for review and comment. The ODW Source Water Manual provides coordination procedures.

When issuing a Construction Permit for a waterworks within a GWMA, field office staff will include the appropriate comment regarding the DEQ Groundwater Withdrawal Permit in the Construction Permit application (see PM-C5-Attachment 1).

If DEQ issues a Groundwater Withdrawal Permit, ODW field office staff will include the DEQ permit withdrawals in the Waterworks Description Sheet (WDS). ODW does not use the DEQ

²⁰ 30:5 VA.R 465-466 November 4, 2013.

permit maximum month or maximum annual groundwater withdrawals to determine source capacity; instead, the values shall be included for reference only.

When a DEQ Groundwater Withdrawal Permit is not required, the yield and drawdown test duration will be a minimum of 48 hours. The field office may require longer yield and drawdown test durations if conditions warrant (12VAC5-590-840 H). The well driller will run the test such that, at a constant flowrate, a stabilized pumping water level is achieved for at least the last 6 hours of the test. Immediately following the pumping test, the well driller will record the water level recovery in the well for no less than 6 hours, or until the well returns to its static water level, whichever occurs first.

3.3. Yield Test Requirements – Wells Constructed in Areas Other than the Coastal Plain Region

The well driller will normally run a 48-hour yield and drawdown test at exhaustive capacity, which is the maximum rate the pump can deliver without lowering the water level below the minimum submergence required for the pump. The well driller will also:

1. Control the pumping rate throughout the test to maximize the production from the well during the test.
2. Run the yield and drawdown test such that at a constant flowrate, a stabilized pumping water level is achieved for at least the last six hours of the yield test.
3. Record the water level recovery in the well, immediately following the yield and drawdown test, for no less than 6 hours, or until the well returns to its static water level, whichever occurs first.

3.4. Other Yield Considerations

The Regulations allow noncommunity waterworks to reduce the yield test to no less than 12 hours, if the source capacity requirement is 3 gpm or less. Any reduction in the test duration shall be reviewed and approved by the field office before conducting the test. See 12VAC5-590-840 H.

NTNC waterworks serving schools and commercial areas that do not operate 24 hours a day may reduce the yield test to 24 hours (or 12 hours in the Coastal Plain), provided that the well drawdown reaches equilibrium prior to the last 6 hours of the reduced test period.

When an existing well fails to deliver the yield previously established by methods described above and/or the actual yield of the well is known to vary depending on the month of the year, the field office will assign the yield as:

1. The lowest day production rate of record if the well is the sole source for the waterworks, or
2. The lowest average daily production rate for any month if the well is not the sole source for the waterworks.

Field office staff will then reevaluate the yield periodically (every three years is recommended).

VDH may require the owner to reevaluate the source water capacity of a well by conducting a yield and drawdown test in accordance with 12VAC5-590-840 H when the well has demonstrated declining yield. (12VAC5-590-520 B.)

For community waterworks that have a well or wells in consolidated rock formations, staff will assign a safety factor of 1.8 to well pump test results to determine the well’s sustainable yield. Wells in the Eastern Virginia and Eastern Shore Groundwater Management Areas do not require a safety factor when determining that well’s sustainable yield. (12VAC5-590-840 Q.)

Systems serving 50 or more residential connections employing only wells must provide at least two wells. If only two wells are provided, the second well must be rated for at least 30% of the waterworks’ permit capacity (12VAC5-590-840 R.)

Well Yield Calculation:

Community waterworks in consolidated rock formations

$$(\underline{Q} \text{ gpm over a 48 hr test}) (1440 \text{ min/day}) / 1.8 \text{ safety factor (SF)} = \underline{\hspace{2cm}} \text{ gpd}$$

Community waterworks in unconsolidated formation within the GWMA

$$(\underline{Q} \text{ gpm over a 48 hr test}) (1440 \text{ min/day}) = \underline{\hspace{2cm}} \text{ gpd}$$

Noncommunity waterworks

$$(\underline{Q} \text{ gpm over a 48 hr test}) (1440 \text{ min/day}) = \underline{\hspace{2cm}} \text{ gpd}$$

(conversion to gpd may be reduced, depending on system time of operation)

Well Pump Calculation:

Critical capacity = Q gpm, as determined from the pump performance curve at the design head requirements, or for existing systems by actual observed pump output when system head and pump curve data are not available.

$$\underline{Q} \text{ gpd} = (\underline{Q} \text{ gpm}) (1440 \text{ min/day}) = \underline{\hspace{2cm}} \text{ gpd}$$

ODW field staff will evaluate wells individually for both *yield* and *pump capacity*, and select the limiting value for each well. Staff evaluate the source capacity of waterworks with multiple wells as illustrated below:

| Well # | Well Yield | | Well Pump | | Limiting Capacity |
|--------|------------|------------------|-----------|------------------|-------------------|
| | gpm | gpd ¹ | gpm | gpd ² | |
| 1 | 10 | 8,000 | 10 | 14,400 | 8,000 |
| 2 | 20 | 16,000 | 10 | 14,400 | 14,400 |
| Total | - | - | - | - | 22,400 |

¹ gpd = gpm * 1440 min/day / 1.8 SF

² gpd = gpm * 1440 min/day

NOTE: The 1.8 SF is not used in unconsolidated formations in the Eastern Virginia and Eastern Shore GWMA's.

4. Spring Sources

Field office staff determine the yield of new springs using actual source water flow data to estimate the available flow during a 30-year drought using the Log Pearson Type III method. Field staff use a minimum of 1,000 daily flow measurements for analysis utilizing the Log Pearson Type III method when possible. Until sufficient data is available to conduct a frequency distribution analysis, staff assign the capacity as:

1. The lowest day production rate of record if the spring is the sole source for the waterworks, or
2. The lowest average daily production rate for any month if the spring is not the sole source for the waterworks.

$(Q \text{ gpm}) (1440 \text{ min/day}) = \text{___ gpd}$

Other unusual surface water sources, such as reclaimed mines, may be suitable to this method of determining yield. Staff will reevaluate the yield of these sources periodically (every three years recommended). If this evaluation indicates a change in the permitted capacity, the staff will amend the operation permit as described in Chapter 8, Section 10. Field office staff may utilize a spreadsheet located in PM-C9-Attachment 2 for assistance in performing this analysis.

5. Surface Water Sources

5.1. “Safe Yield” and Sustainable Surface Water Capacity

12VAC5-590-830 includes the definitions for “safe yield” of simple and complex intakes, with a recommendation to request assistance from the State Water Control Board to determine this value. Section 830 has not been amended to reflect the creation of DEQ, and requests for assistance should be directed to DEQ instead of the State Water Control Board. The “safe yield” is only one of several parameters considered in the determination of allowable surface water withdrawal by DEQ.

Surface water withdrawal restrictions are typically established through a Virginia Water Protection (VWP) permit that DEQ issues. The permit is sometimes issued jointly by DEQ, the Virginia Marine Resources Commission, and the U.S. Army Corps of Engineers, and is referred to as a joint permit. The VWP permit may restrict the surface water withdrawal rate under certain conditions and times of the year, and may specify different maximum daily, monthly, annual, and instantaneous withdrawal rates.

There are also several waterworks that do not hold a VWP permit from DEQ.²¹ Generally, these waterworks established their surface water withdrawal rights and intakes prior to July 1, 1989 and have not made alterations or improvements to them that would require a VWP permit. In cases

²¹ DEQ refers to these facilities as “grandfathered,” which should not be confused with ODW’s use of the term “grandparent” or “grandparented” as they refer to existing waterworks that are exempted from certain design requirements in Part III of the *Waterworks Regulations*.

where the waterworks does not hold a VWP permit from DEQ, the source capacity was *most likely* assigned to be the “safe yield” value determined when the intake was designed.

If a waterworks is subject to a DEQ VWP permit, ODW field offices will use the maximum daily withdrawal rate in that permit as the limiting source water quantity. If a maximum daily withdrawal rate is not stipulated in an existing VWP Permit, or if the waterworks does not hold a VWP Permit, or is not subject to the VWP permitting program, then ODW will consider the capacity of the intake structure, historical withdrawal rates, and the most current “safe yield” determinations of the stream or reservoir to determine source capacity.

Field office staff shall contact DEQ, Office of Water Supply, to obtain a copy of the current VWP permit. Field office staff will include background information on the source of the safe yield determination and the VWP permit in the “Capacity Evaluation” section of WDS (see PM-C8-Attachment 5).

5.2. Intake Capacity

Pumps

Field office staff will determine the intake pump capacity with the largest pump out of service (the “firm” pump capacity). At least two pumps are required.

$$(Q \text{ gpm})(1440 \text{ min/day}) = \text{___ gpd}$$

Screens

Intake screen design may be restricted in the VWP permit or joint permit from DEQ, VMRC and USACE, and ODW field office staff must include the screen capacity in the capacity evaluation. Common restrictions include the maximum screen opening size and maximum screen face intake velocity. This information, evaluated with the actual intake screen design, may limit the hydraulic flowrate permissible through the intake structure.

6. Purchased Supply

Waterworks may obtain all of the water supply or a portion of the supply from a wholesale waterworks. The daily allocated volume of water supply from the wholesaler should be documented in a legal agreement between the consecutive and wholesale waterworks. Field office staff must include the allocated volume in the source capacity section of the WDS and operation permit conditions, and cite the supporting legal agreement.

7. Treatment

Field office staff will evaluate all major treatment process units for hydraulic capacity and document that in the WDS capacity evaluation. For conventional surface water treatment plants, the major processes include:

1. Coagulation
2. Flocculation
3. Sedimentation
4. Filtration
5. Disinfection

Flocculation:

$Q_{\text{gpm}} = \text{Number of Floc Basins} * \text{Volume of each Floc. Basin (gal)} / \text{Required Detention Time (min)}$

$$(Q_{\text{gpm}})(1440 \text{ min/day}) = \text{___ gpd}$$

Filtration:

$Q_{\text{gpm}} = \text{Number of filters} * \text{Surface loading rate (gpm/sf)} * \text{surface area per filter (sf)}$

$$(Q_{\text{gpm}})(1440 \text{ min/day}) = \text{___ gpd}$$

In nonconventional plants, major process units evaluated by staff include:

Ion Exchange:

Hydraulic capacity: $Q_{\text{gpm}} = \text{Surface loading rate (gpm/sf)} * \text{surface area (sf)}$

Loading rate: $\text{Grains of filter capacity} / \text{grains/gal of constituents} = \text{___ gal treated prior to regeneration}$. A realistic regeneration frequency should be established.

Membrane Filter:

$Q_{\text{gpm}} = \text{permeate flow rate}$

$$(Q_{\text{gpm}})(1440 \text{ min/day}) = \text{___ gpd}$$

If unfiltered water is blended with permeate (for reverse osmosis systems), then this amount is added to Q to determine the total capacity.

8. Delivery Systems

8.1. Booster Pump Capacity

This includes pump stations that pump water to pressure storage (hydropneumatic tank).

1. At least two pumps are required.
2. Capacity is the combined pump capacity with all pumps in service.

Note that for small noncommunity systems, the booster pump duplicity and capacity requirements may be reduced by the field office in accordance with the type and size of system served.

The required capacity must meet the *peak* hour demand, or the maximum day demand + fire flow (whichever is the design condition). The *peak* hour demand or the maximum day demand + fire flow must be provided by the owner's engineer.

$$(\text{No. of pumps})(Q_{\text{gpm}})(1440 \text{ min/day}) = \text{___ gpd}$$

Field office staff calculate the transfer capacity for noncommunity waterworks using the criteria noted in 12VAC5-590-640 B 2: Delivery capacity is the capacity of the well pump or booster pump output over 1 hour + effective storage. For example, a TNC waterworks has a peak hourly

demand of 50 gpm, a well pump capacity of 44 gpm, and a pressure tank with an effective storage of 360 gal.

| | | |
|------------------------------------|---|----------------|
| The required delivery capacity is: | (50 gpm) (60 min) = | 3,000 gal |
| The delivery capacity provided is: | (44 gpm) (60 min) = | 2,640 gal |
| | <u>+ effective storage of the hydropneumatic tank =</u> | <u>360 gal</u> |
| Total delivery capacity = | | 3,000 gal |

In some cases, the well pump may not directly serve the demand, such as a well that pumps to an atmospheric storage tank, followed by a booster pump that pumps from the atmospheric storage tank to a hydropneumatic tank. In this case, the delivery capacity is the booster pump output over 1 hour + effective storage of the hydropneumatic tank; well pump capacity and atmospheric storage capacity are not included. However, field staff evaluate these capacities to ensure that they can adequately supply the booster pump capacity. For example, a TNC waterworks has a peak hourly demand of 55 gpm, a well pump capacity of 44 gpm, an atmospheric storage tank with an effective storage of 1,000 gal, a booster pump capacity of 50 gpm, and a pressure tank with an effective storage of 360 gal.

| | | |
|------------------------------------|---|----------------|
| The required delivery capacity is: | (55 gpm) (60 min) = | 3,300 gal |
| The delivery capacity provided is: | (50 gpm) (60 min) = | 3,000 gal |
| | <u>+ effective storage of the hydropneumatic tank =</u> | <u>360 gal</u> |
| Total delivery capacity = | | 3,360 gal |

Supply check:

| | | |
|--|--|------------------|
| The booster pump capacity provided is: | (50 gpm) (60 min) = | 3,000 gal |
| The well pump capacity provided is: | (44 gpm) (60 min) = | 2,640 gal |
| | <u>+ effective storage of the atmospheric tank =</u> | <u>1,000 gal</u> |
| Total delivery capacity = | | 3,640 gal |

This calculation only needs to be provided in the capacity evaluation if the booster pump supply capacity is limiting.

When facility expansion is expected, ODW staff will calculate a 24-hour equivalent capacity as shown below. This capacity is not limiting, but will serve as a threshold to indicate that the waterworks' delivery capacity should be reevaluated if the 24-hour equivalent capacity is exceeded.

$$24\text{-hour equivalent capacity} = (\text{Peak Hour Capacity}) (24 \text{ hr/day}) / [(1 \text{ hr}) (\text{peaking factor})]$$

8.2. Transfer Pump Capacity

This includes pump stations which pump water to atmospheric storage, such as raw water pumps, low service pumps, high service pumps (surface water facilities), and distribution pump stations.

1. At least two pumps are required.
2. Capacity is determined with the largest pump out of service (the “firm” pump capacity).

$$(Q \text{ gpm})(1440 \text{ min/day}) = \text{___ gpd}$$

9. Storage

9.1. Storage Capacity

The amount of storage capacity required is the sum of the equalizing storage, fire flows (if fire protection is provided), and sometimes a reserve for emergencies. Equalizing storage is the amount of water needed to allow the water production facilities to operate at a constant rate, since demands will vary over time during a day.²² Community waterworks shall provide sufficient finished water effective storage to enable the waterworks to meet the estimated maximum daily water demand at the design year. Compliance with this requirement is normally determined by the use of a hydraulic model. In the absence of a hydraulic model, effective storage shall be a minimum of one-half of estimated maximum daily water demand of the waterworks at the design year. (12VAC5-590-640 B 3 a).

Noncommunity systems shall be designed to meet or exceed the peak hour demand. Either pump capacity or storage capacity or both may be used to meet the peak hour demand. (12VAC5-590-640 B 2).

Field office staff do not include raw or partially treated water storage in the evaluation of water storage capacity.

9.2. Storage in Wholesale & Consecutive Waterworks

The operation permit WDS of both wholesale and consecutive waterworks must include information on the provision of storage, whether storage is provided by the wholesale waterworks, by the consecutive waterworks, or a combination thereof, and whether the storage arrangement is by contract.

9.3. Storage: Atmospheric Tanks

Total effective storage volume is the useable volume available to store water in reservoirs or tanks, measured as the difference between the overflow elevation or the normal maximum operating level, and the minimum storage elevation. For tanks that directly provide system pressure, the effective volume is the storage volume above the minimum elevation that can provide a minimum pressure of 20 psi throughout the reservoir’s service area under maximum daily water demand. Ground storage tanks that serve as reservoirs for booster pumps may have a minimum water elevation determined by pump controls.

²² Handbook of Public Water Systems, Culp/Wesner/Culp, 1986.

9.4. Storage: Pressure Tanks

When a hydropneumatic tank (or bladder tank) is fed directly by a well (or wells), the effective storage volume is typically taken as one-third of the tank gross volume. Alternatively, effective storage can be calculated directly from pump control settings (pump on and off elevations), if the resulting value is more conservative.

9.5. Storage: Combined Tanks

When a pressure tank is fed from a ground storage tank, the total effective storage is the sum of the effective storage from the ground storage tank(s) and the pressure tank(s).

10. Design Exceptions and Permit Capacity

10.1. Hydraulic Modeling

Hydraulic modeling is necessary to demonstrate compliance with the requirement for effective storage. Hydraulic modeling must demonstrate that adequate pressure will be maintained under peak demands, including fire flows. The design engineer will use an extended period simulation for this purpose. ODW has established the following minimum requirements for the model:

1. Use a calibrated system model that accurately reflects the existing pipes, pump stations, and storage tanks and the way they are actually operated;
2. Model realistic water demands: Develop Maximum Day Demand: Average Day Demand (MDD:ADD) ratios and diurnal variations from historical data; model anticipated growth by increasing demands at existing nodes in probable locations;
3. Input set points (pump on/off, tank levels) similar to normal operating values;
4. Model extended period simulation of MDD with fire flow added during the peak hour; and
5. Model duration of at least 30 hours (48 hours recommended).

ODW has established the following success criteria required to demonstrate that the waterworks has sufficient capacity to meet both existing and future water demands:

1. All nodes must be able to provide a minimum 20 psi at both MDD plus fire flow and at peak hour flow conditions;
2. Total storage volume must recover to within 5% of the initial value at the end of the simulation. Individual storage tank levels must recover to within 10% of their initial levels; and
3. Tanks must not empty. The levels for elevated tanks must fluctuate less than 30 feet.

Waterworks that use hydraulic modeling to determine compliance with the storage requirement in the Regulations must update their computer model continuously to reflect changing facilities, demands and operating conditions. The waterworks must update the model at least every two years to verify that the waterworks is able to meet the defined success criteria at the permitted flow. The field office will include this requirement as a condition of the operation permit.

The field office will require emergency/standby power capabilities to provide emergency power for all pumping needs required in the computer model. The field office will require emergency power capabilities (i.e., portable generator receptacle/hook up and manual transfer switch) at

waterworks serving a population of less than 500 and standby power (i.e., automatically activated on-site generator) for waterworks with a population of 500 or more.

10.2. Conventional Plant Re-rating

Field staff will refer to 12VAC5-590-871 B, 12VAC5-590-872 B, and 12VAC5-590-874 B for information on re-rating conventional treatment processes, including flocculation, sedimentation, and gravity filters. Plant re-rating may be considered by the department as long as effective performance at the unit treatment processes can be demonstrated.

11. Conclusions

The capacity evaluation in the WDS or description sheet of proposed construction will conclude with a summary sentence/paragraph. These will be different for construction permits and operation permits.

11.1. Construction Permits

The field office will not “promise” an operation permit capacity at this stage, unless the construction permit is for an entire, new waterworks. In most cases, the summary in a construction permit description sheet of proposed construction will contain the following language:

“Conclusion: This project may result in change in the permitted capacity of the waterworks. After the proposed improvements are constructed and placed in operation, the permitted capacity of the entire waterworks will be re-evaluated.”

11.2. Operation Permits

The capacity evaluation conclusion in a WDS and the operation permit conditions will state the permitted capacity of the entire waterworks and provide an explanation for the assigned value. When information on individual components of a waterworks is insufficient, such as well yield or well pump rating, a capacity determination for the entire system may be difficult. The conclusions made in the capacity evaluation for a pre-existing system will depend on the evidence to substantiate whether the system is performing adequately. Field offices may permit existing systems with no evidence of inadequate performance in the past for the capacity of the existing service(s), described in appropriate units for the waterworks (such as restaurant seats), until the field office obtains and evaluates the missing data.

Operation permit - Examples of common evaluation conclusions:

Waterworks’ limiting hydraulic component is storage:

“Conclusion: This waterworks is limited to a capacity of ### gpd due to limited storage.”

Only one well source, community waterworks’ limiting hydraulic component is well yield:

“Conclusion: This waterworks is limited to a capacity of ### gpd due to limited well yield. However, the number of connections cannot exceed 49 until an acceptable additional source is provided.

NOTE: On the permit face the capacity will read “### gpd and no more than 49 connections.”

Existing TNC waterworks, hydraulic data is lacking for existing well and bladder tank, but past performance is satisfactory:

“Conclusion: This waterworks is limited to a capacity of one existing structure with ## existing restaurant seats until information on the well yield and pump capacity is provided and the need for additional storage is evaluated.”

Operation permit - Examples of more unusual evaluation conclusions:

The field office has granted the waterworks a design exception to storage requirement after the waterworks demonstrated reliable service through computer modeling and storage is no longer the limiting component. The field office will include a statement such as:

“Conclusion: Storage is adequate for a maximum daily water demand of ## MGD, based on the waterworks’ evaluation of the distribution system using a computer model. Therefore, this waterworks is limited to a capacity of ### MGD due to limited (raw water withdrawal)(specific treatment component hydraulic capacity)(low service/high service pumping capacity).”

Consecutive waterworks without firm gallon-per-day purchase contract; source or transfer facility is limiting component:

“Conclusion: This waterworks is limited to a capacity of ### gpd due to the ability of the water purveyor to deliver.”

12. Calculation Units

Field staff utilize the following abbreviations in capacity calculations to ensure consistency.

| | |
|--|---|
| C - degrees Celsius [°C] | lb – pounds |
| F – degrees Fahrenheit [°F] | lb/ft ² – pounds per square foot |
| CT – (the residual disinfectant concentration, in mg/L) x (contact time, in min) | mg – milligrams |
| CU – color units | MGD – million gallons per day |
| ft ² – square foot (feet) of area | mg/L – milligrams per liter |
| ft/min – foot (feet) per minute | min – minutes |
| ft/sec – foot (feet) per second | mL – milliliters |
| gal – gallon(s) | mm – millimeters |
| gpd – gallons per day | NTU – nephelometric turbidity units |
| gpd/ft ² – gallons per day per square foot | pCi – picocurie(s) |
| gpm – gallons per minute | psi – pound(s) per square inch |
| gpm/ft – gallons per minute per foot | T – time, in minutes |
| gpm/ft ² – gallons per minute per square foot | µm - micrometers (or microns) |
| in – inch(es) | µg/L - micrograms per liter |

13. Example Calculations

To estimate water demands for existing waterworks:

1. Historical usage/production data is preferred.
2. If historical data is not available, estimate demands based on similar facilities or published references.

To estimate water demands for new waterworks:

1. Use estimated demands provided by the engineer from the approved PER or project design calculations.
2. The capacity of the waterworks must meet or exceed the maximum daily water demand of the system.

For noncommunity waterworks, if the field office cannot determine a flow rate for source, treatment, or delivery, then the field office will limit the waterworks' capacity to the existing facility(ies) (i.e., existing restaurant seats, students and staff, buildings, etc.).

Example 1 - Existing TNC – no historical usage data

ODW will follow the procedures in Chapter 10 for unpermitted (“found”) TNC waterworks. If an existing TNC waterworks has a triggering event that requires further evaluation of its capacity, then use the following example to determine capacity.

Existing system without well yield or pump capacity information; no meter: the water system consists of a well and 86-gallon bladder tank serving one building that is being used as a restaurant. No meter or treatment is included in the waterworks. The restaurant has seating for 30 patrons at a time and the owner states they serve an average of 120 patrons per day.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average water use = 10 gpd/restaurant patron*

Average daily demand = (10 gpd/patron) (120 patrons) = 1,200 gpd

Estimated peaking factor (PF) = (4) (24 hrs/day / 12 hrs/day operation) = 8.0

(8.0) (1,200 gpd) = 9,600 gpd

Peak hour demand = (9,600 gpd) (1 hr) / (24 hrs/day) = 400 gal

(*per AWWA Design and Construction of Small Water Systems, 2nd Edition, 1999)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|---------|------------------------|---------|-------------------|
| | unknown | unknown | unknown | unknown | |
| Well 1 | unknown | unknown | unknown | unknown | unknown |
| Total | - | - | - | - | unknown |

^{1,2} gpd = gpm x 1440 min/day

3. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|----------------------|--|
| Hydropneumatic Tank: | $(1/3)(86 \text{ gal}) = 29 \text{ gal}$ |
| Total: | 29 gal |

Noncommunity waterworks are required to provide delivery capacity to meet peak hour demand.

Conclusion: This waterworks is permitted for a capacity of one existing structure with 30 existing restaurant seats until information on the well yield and pump capacity is provided and the need for additional storage is evaluated. *(The field office staff would write the capacity on the operation permit as one existing structure with 30 existing restaurant seats. The staff would not evaluate peak hour delivery capacity because data is not available on the well pump capacity.)*

Example 2 - Existing TNC – with meter data

Existing system with information on the well construction, yield and pump capacity; treatment and meter are provided:

A picnic area and visitor center is open 16 hours per day from May 1 to October 31 every year. It averages 1,500 visitors/day and has two comfort stations behind the visitor center. The comfort stations have sinks for handwashing. A 6-inch diameter well is used which yielded 51 gpm. The well is provided with a 5-hp submersible pump rated for 26 gpm. The system includes a meter, hypochlorite feed system, and 20,000-gal storage tank. Water flows by gravity from the tank through 3-inch and 4-inch diameter distribution lines.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 15,000 gpd*

(*Per Monthly Operating Reports dated April 2016 - July 2018, the average water production is 15,000 gpd)

Peak hour demand:

Estimated PF = (4) (24 hrs/day / 16 hrs/day operation) = 6.0

(6.0) (15,000 gpd) = 90,000 gpd

(90,000 gpd) (1 hr) / (24 hrs/day) = 3,750 gal

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|------------|------------------------|------------|-------------------|
| Well 1 | 51 gpd | 73,440 gpd | 26 gpd | 37,440 gpd | 37,440 gpd |
| Total | - | - | - | - | 37,440 gpd |

^{1,2} gpd = gpm x 1440 min/day

3. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|----------------------------------|--------------------------|
| <u>Atmospheric Storage Tank:</u> | <u>20,000 gal</u> |
| Total: | 20,000 gal |

Noncommunity systems are required to provide delivery capacity to meet peak hour demand.

4. Delivery Capacity:

Peak Hour Delivery:

| | |
|--|-------------------|
| Well pumping: (26.0 gpm) (60 min/hr) = | 1,560 gal |
| <u>Storage:</u> | <u>20,000 gal</u> |
| Total: | 21,560 gal |

Peak hour demand = 3,750 gal < 21,560 gal provided

Equivalent 24-hour capacity = (21,560 gal) (24 hr/day) / [(1 hr) (4.0)] = 129,400 gpd

This capacity is not limiting, but exceedance may indicate that peak hour delivery capacity is inadequate.

Conclusion: This waterworks is permitted for a capacity of 37,400 gpd due to limited well pump capacity. *(The field office staff would write the capacity on the operation permit as 37,400 gpd. Note that the waterworks provided inadequate information on the hypochlorite feed system. If treatment is required then field office staff will verify this data and check the adequacy of the treatment capacity. Staff do not need to include simple solution-type chemical feed systems in the Waterworks Description Sheet Capacity Evaluation, but need to include them in the reviewer's notes.)*

Example 3 - New NTNC

A school designed for 200 students is served by a groundwater well with a reported yield test of 12 gpm, furnished with a 10-gpm submersible pump. One 2.0-ft diameter manganese greensand filter is supplied with sodium hypochlorite and permanganate feed systems. One 5,000-gal atmospheric storage tank, two booster pumps with a combined capacity of 30 gpm, and one 5,000-gal hydropneumatic tank are also provided.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 4,000 gpd*
Maximum Daily Demand = 5,000 gpd*
Peak hour demand = 2,500 gal*

(*Per the approved Preliminary Engineering Report titled XXXX, dated XXXX)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|------------|------------------------|------------|-------------------|
| | gpm | gpd | gpm | gpd | |
| Well 1 | 12 gpm | 17,280 gpd | 10 gpm | 14,400 gpd | 14,400 gpd |
| Total | - | - | - | - | 14,400 gpd |

^{1,2} gpd = gpm x 1440 min/day

3. Treatment Capacity:

Greensand filtration:

Number of filters: 1

Total surface area: 3.1 sf

Maximum filtration rate 3 gpm/sf

Capacity = (3.1 sf) (3 gpm/sf) (1,440 min/day) = 13,400 gpd

Limiting treatment capacity: 13,600 gpd based on Filtration

(Simple solution-type chemical feed systems must be verified for feed capacity with respect to the well pump capacity, but do not need to be included in the Waterworks Description Sheet capacity evaluation.)

4. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|---------------------------|-------------------------------|
| Hydropneumatic Tank: | (1/3) (5,000 gal) = 1,667 gal |
| Atmospheric Storage Tank: | 5,000 gal |
| Total: | 6,667 gal |

Noncommunity systems are required to provide delivery capacity to meet peak hour demand.

5. Delivery Capacity:

Booster Pump:

Number of Pumps: 2

Capacity = (30.0 gpm) (1,440 min/day) = 43,200 gpd

Peak Hour Delivery:

Booster pumping: (30.0 gpm) (60min/hr) = 1,800 gal

Hydropneumatic Tank: 1,667 gal

Total: 3,467 gal

Peak hour demand = 2,500 gal < 3,467 gal provided

Estimated Peak Hour PF = (2,500 gal)(16 hr/day operation) / (5,000 gpd) = 8.0

Equivalent 24-hour capacity = (3,467 gal) (24 hr/day) / [(1 hr) (8.0)] = 10,400 gpd

This capacity is not limiting, but exceedance may indicate that peak hour delivery capacity is inadequate.

Conclusion: This waterworks is permitted for a capacity of 13,600 gpd due to limited treatment capacity. *(The capacity on the operation permit would be written as 13,600 gpd. Note that because there are components located upstream of the booster pumps, there is potential for those components to limit the peak hour delivery capacity. To ensure that this is not the case, field office staff will perform a supply check as follows. This does not need to be included in the capacity evaluation calculations unless the supply is limiting.*

Supply check:

| | | |
|--|----------------------------|------------------|
| <i>The well pump capacity provided is:</i> | <i>(10 gpm) (60 min) =</i> | <i>600 gal</i> |
| <i>+ effective storage of the atmospheric tank =</i> | | <i>5,000 gal</i> |
| <hr/> | | |
| <i>Total delivery capacity =</i> | | <i>5,600 gal</i> |
| <i>5,600 gal > 3,467 –ok</i> | | |

Example 4 - Existing community

A 40-home subdivision is served by a simple groundwater system consisting of one drilled well with a 48-hr test yield of 30 gpm, a 20-gpm submersible well pump, a 20,000-gal atmospheric storage tank, two booster pumps with a combined capacity of 120 gpm, and a 5,000-gal hydropneumatic tank. The well is drilled in consolidated bedrock. Accurate historical metering data is not available.

WATERWORKS CAPACITY

1. Estimated Water Demand:

1 residential connection = 75 gpd/person*

Population density: 2.4 persons/residence**

Average water use = (75 gpd/person) (2.4 persons/residence) = 180 gpd/residence

Average daily demand = (180 gpd) (40) = 7,200 gpd

(*per AWWA Design and Construction of Small Water Systems, 2nd Edition, 1999)

**per 2020 US Census Data for XXX County)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|--------|------------------------|--------|-------------------|
| | gpm | gpd | gpm | gpd | |
| Well 1 | 30 | 24,000 | 20 | 28,800 | 24,000 |
| Total | - | - | - | - | 24,000 |

¹ gpd = gpm x 1440 min/day / 1.8 SF

² gpd = gpm x 1440 min/day

3. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|---------------------------|-------------------------------|
| Hydropneumatic Tank: | (1/3) (5,000 gal) = 1,667 gal |
| Atmospheric Storage Tank: | 20,000 gal |
| Total: | 21,667 gal |

Available storage capacity at half-day storage = 21,667 gal/0.5 day = 43,333 gpd

4. Delivery Capacity:

Booster Pump:

Number of Pumps: 2

Capacity = (120.0 gpm) (1,440 min/day) = 172,800 gpd

Conclusion: This waterworks is permitted for a capacity of 24,000 gpd due to limited well yield. However, the number of connections cannot exceed 49 until an acceptable additional source is provided.

(Since well yield is limiting and there is only one well, the field office should limit the capacity on the operation permit to no more than 24,000 gpd or 49 connections, whichever is reached first. In the absence of well yield information, the field office would limit the permit to 40 existing residential connections.)

Example 5 - Existing community

A community system has 50 connections and a historical average daily water production of 8,300 gpd, two wells with a yield of 10 gpm and 20 gpm respectively, and individual well pump capacities of 10 gpm, a 20,000-gal atmospheric storage tank, two booster pumps with a capacity of 60 gpm each, and a 5,000-gal hydropneumatic tank. The wells are located in consolidated rock formation.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 8,300 gpd*

(*Per Monthly Operating Reports dated April 2016 - March 2018, the average water production is 8,300 gpd)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|------------|------------------------|------------|-------------------|
| | gpm | gpd | gpm | gpd | |
| Well 1 | 10 gpm | 8,000 gpd | 10 gpm | 14,400 gpd | 8,000 gpd |
| Well 2 | 20 gpm | 16,000 gpd | 10 gpm | 14,400 gpd | 14,400 gpd |
| Total | - | - | - | - | 22,400 gpd |

¹ gpd = gpm x 1440 min/day / 1.8 SF

² gpd = gpm x 1440 min/day

3. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|----------------------------------|-------------------------------|
| Hydropneumatic Tank: | (1/3) (5,000 gal) = 1,667 gal |
| <u>Atmospheric Storage Tank:</u> | <u>20,000 gal</u> |
| Total: | 21,667 gal |

Available storage capacity at half-day storage = 21,667 gal/0.5 day = 43,333 gpd

4. Delivery Capacity:

Booster Pump:

Number of Pumps: 2

Capacity = (2) (60.0 gpm) (1,440 min/day) = 172,800 gpd

Conclusion: This waterworks is permitted for a capacity of 22,400 gpd due to source capacity. *(The field office would write the capacity on the operation permit as 22,400 gpd.)*

Example 6 - Existing community

A mobile home park with 44 existing connections is provided with a well and three 86-gal bladder tanks. The well yield is reported to be 32 gpm and the pump is rated for 30 gpm. A review of the waterworks performance over the past 5 years demonstrates that the facilities have provided adequate service (quantity and pressure) to all customers. The well is drilled in consolidated bedrock.

WATERWORKS CAPACITY

1. Estimated Water Demand:

1 residential connection = 50 gpd/person*

Population density: 3.6 persons/residence**

Average water use = (50 gpd/person) (3.6 persons/residence) =180 gpd/residence

Average daily demand = (180 gpd) (44) = 7,920 gpd

(*per AWWA Design and Construction of Small Water Systems, 2nd Edition, 1999)
 (**per 2020 US Census Data for XXX County)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|------------|------------------------|------------|-------------------|
| | gpm | gpd | gpm | gpd | |
| Well 1 | 32 gpm | 25,600 gpd | 30 gpm | 43,200 gpd | 25,600 gpd |
| Total | - | - | - | - | 25,600 gpd |

¹ gpd = gpm x 1440 min/day / 1.8 SF

² gpd = gpm x 1440 min/day

3. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|----------------------|---------------------------|
| Hydropneumatic Tank: | (1/3) (3x86 gal) = 86 gal |
| Total: | 86 gal |

Available storage capacity at half-day storage = 86 gal/0.5 day = 172 gpd

Conclusion: This waterworks is permitted for a capacity limited to the existing 44 mobile home connections until the need for additional storage is evaluated.

(The field office would write the capacity on the operation permit as 44 existing mobile home connections.)

Example 7 - New community

A developer proposed a new residential subdivision with 80 single-family dwellings and a recreation center. The waterworks will use groundwater pumped from two drilled wells located in consolidated rock. Well 1 has a 48-hr test yield of 50 gpm and is installed with a 45-gpm submersible well pump. Well 2 has a 48-hr test yield of 22 gpm and is installed with a 22-gpm submersible well pump. The wells pump to a 5,000-gal ground storage tank. The system is served by dual 10,000-gal hydropneumatic tanks and dual 50-gpm booster pumps. The approved PER lists average daily demand of 12,000 gpd.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 12,000 gpd*

Maximum daily demand = 18,000 gpd*

(*Per the approved Preliminary Engineering Report titled XXXX, dated XXXX)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|------------|------------------------|------------|-------------------|
| | gpm | gpd | gpm | gpd | |
| Well 1 | 50 gpm | 40,000 gpd | 45 gpm | 64,800 gpd | 40,000 gpd |
| Well 2 | 22 gpm | 17,600 gpd | 22 gpm | 31,680 gpd | 17,600 gpd |
| Total | - | - | - | - | 57,600 gpd |

¹ gpd = gpm x 1440 min/day / 1.8 SF

² gpd = gpm x 1440 min/day

3. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|--------------------------|--------------------------------|
| Hydropneumatic Tank 1: | (1/3) (10,000 gal) = 3,333 gal |
| Hydropneumatic Tank 2: | (1/3) (10,000 gal) = 3,333 gal |
| <u>Atmospheric Tank:</u> | <u>5,000 gal</u> |
| Total: | 11,667 gal |

Available storage capacity at half-day storage = 11,667 gal/0.5 day = 23,333 gpd

4. Delivery Capacity:

Booster Pump:

Number of Pumps: 2

Combined Capacity = (2)(50.0 gpm) (1,440 min/day) = 144,000 gpd

Conclusion: This waterworks is permitted for a capacity of 23,333 gpd due to limited storage capacity. *(The field office would write the capacity on the operation permit as 23,333 gpd.)*

Example 8 - Conventional Surface Water Treatment Plant

The DEQ has issued a waterworks containing a conventional surface water treatment plant an updated VWP Permit limiting the maximum daily withdrawal to 2.5 MGD.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 745,600 gpd*

(*Per Monthly Operating Reports dated March 2015 - February 2018, the average water production is 745,600 gpd. Maximum day water production was 810,000 gpd.)

2. Source Water Capacity:

| <u>Source Name</u> | <u>Capacity</u> |
|------------------------------|-----------------|
| North Fork Shenandoah River: | 2,500,000 gpd |

Total Source Capacity: 2,500,000 gpd

3. Treatment Capacity:

Raw water pumps:

Number of pumps: 2

Capacity (1 unit out of service) = (2,300 gpm) (1,440 min/day) = 3,312,000 gpd

Flocculation:

Number of basins: 3

Total volume: 56,104 gal

Required retention time: 25 min

Capacity = (56,104 gal) / (25 min) (1,440 min/day) = 3,232,000 gpd

Sedimentation:

Number of basins: 3

Total volume: 448,830 gal

Required retention time: 200 min

Capacity = (448,830 gal) / (200 min) (1,440 min/day) = 3,232,000 gpd

Media filtration:

Number of filters: 3

Total surface area: 675.0 sf

Maximum filtration rate 4 gpm/sf

Capacity = (675.0 sf) (4 gpm/sf) (1,440 min/day) = 3,888,000 gpd

Clearwell:

Number of vessels: 1

Total volume: 299,220 gal

(299,220 gal) (0.9 baffle factor) = 269,298 gal

Minimum chlorine residual = 1.2 mg/L

Required CT = 36.0 min-mg/L at 0.5 °C and pH = 7.0

Required retention time = (36.0 min-mg/L) / (1.2 mg/L) = 30 min

Required retention time: 30 min

Capacity = (269,298 gal) / (30 min) (1,440 min/day) = 12,930,000 gpd

Sodium Hypochlorite:

Chemical concentration: 12.5% = 125,000 mg/L

Metering pump capacity: 115.2 gpd

Required concentration: 1.2 mg/L

Capacity = (125,000 mg/L)/(1.2 mg/L)(115.2 gpd) = 12,000,000 gpd

Orthophosphate:

Chemical concentration: 36% = 360,000 mg/L

Metering pump capacity: 24.0 gpd

Required concentration: 2.0 mg/L

$$\text{Capacity} = (360,000 \text{ mg/L}) / (2.0 \text{ mg/L}) (24.0 \text{ gpd}) = 4,320,000 \text{ gpd}$$

Caustic Soda:

Chemical concentration: 50% = 500,000 mg/L

Metering pump capacity: 115.2 gpd

Required concentration: 10.0 mg/L

$$\text{Capacity} = (500,000 \text{ mg/L}) / (10.0 \text{ mg/L}) (115.2 \text{ gpd}) = 5,760,000 \text{ gpd}$$

High service pumps:

Number of pumps: 3

$$\text{Capacity (1 unit out of service)} = (2,084 \text{ gpm}) (1,440 \text{ min/day}) = 3,001,000 \text{ gpd}$$

Limiting treatment capacity: 3,001,000 gpd based on High Service Pumping

4. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|--------------------------------|--------------------------|
| Banks Fort Road Elevated Tank: | 200,000 gal |
| Strasburg Reservoir: | 1,000,000 gal |
| Strasburg Junction Tank: | 66,300 gal |
| Route 55 Tank: | 2,105,000 gal |
| Total: | 3,371,300 gal |

$$\text{Available storage capacity at half-day storage} = 3,371,300 \text{ gal} / 0.5 \text{ day} = 6,743,000 \text{ gpd}$$

5. Delivery Capacity:

Aileen Avenue Booster Pump Station:

Number of Pumps: 2

$$\text{Capacity (1 unit out of service)} = (1) (300.0 \text{ gpm}) (1,440 \text{ min/day}) = 432,000 \text{ gpd}$$

Strasburg Junction Booster Pump Station:

Number of Pumps: 2

$$\text{Capacity (1 unit out of service)} = (1) (46.0 \text{ gpm}) (1,440 \text{ min/day}) = 66,240 \text{ gpd}$$

North Shenandoah Industrial Park Booster Pump Station:

Number of Pumps: 2

$$\text{Capacity (1 unit out of service)} = (1) (412.0 \text{ gpm}) (1,440 \text{ min/day}) = 593,280 \text{ gpd}$$

Fairfield Drive Booster Pump Station:

Number of Pumps: 2

$$\text{Capacity (1 unit out of service)} = (1) (120.0 \text{ gpm}) (1,440 \text{ min/day}) = 172,800 \text{ gpd}$$

Conclusion: This waterworks is permitted for a capacity of 2.5 MGD due to limited source water capacity.

Example 9 - Coastal Plain Groundwater Management Area

A Community waterworks serving less than 50 connections has a well located within the coastal plain Groundwater Management Area.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 8,562 gpd*

(*Per Monthly Operating Reports dated March 2015 - February 2018, the average water production is 8,562 gpd)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|------------|------------------------|------------|-------------------|
| Well 1 | 36 gpd | 51,840 gpd | 14 gpd | 20,160 gpd | 20,160 gpd |
| Total | - | - | - | - | 20,160 gpd |

^{1,2} gpd = gpm x 1440 min/day

3. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|--------------------------|----------------------------|
| Hydropneumatic Tank: | (1/3)(2,960 gal) = 987 gal |
| <u>Atmospheric Tank:</u> | <u>9,134 gal</u> |
| Total: | 10,121 gal |

Available storage capacity at half-day storage = 10,121 gal/0.5 day = 20,242 gpd

4. Delivery Capacity:

Booster Pump Station:

Number of Pumps: 2

Capacity = (2) (88.0 gpm) (1,440 min/day) = 253,440 gpd

Conclusion: This waterworks is permitted for a capacity of 20,160 gpd due to limited source capacity, and no more than 49 residential connections.

Example 10 - Consecutive waterworks

A consecutive community waterworks, the XYZ Service Authority, consists of a consecutive connection with the Town of Happyville and a distribution system. The XYZ Service Authority has a purchase contract with the Town of Happyville, dated 12/31/2015, providing up to 40,000 gpd of finished water. The XYZ Service Authority waterworks has no storage facilities and relies on the Town of Happyville to provide storage capacity.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 90,837 gpd*

(*Per Monthly Operating Reports dated March 2015 - February 2018, the average water purchased from Happyville is 90,837 gpd)

2. Source Water Capacity:

| | |
|--|-----------------|
| <u>Source Name</u> | <u>Capacity</u> |
| Town of Happyville, Purchase [PWSID XXXXXXXX]: | 40,000 gpd |
| Total Source Capacity: | 40,000 gpd |

Water production and storage is allocated to the following consecutive waterworks as follows:

| Waterworks Name | PWSID | Permit Capacity (gpd) | Delivered Capacity (gpd) | Total Storage Required ¹ (gal) | Storage Provided- Consecutive ² (gal) | Storage Provided – Wholesale ³ (gal) |
|-----------------------|--------|-----------------------|--------------------------|---|--|---|
| XYZ Service Authority | XXXXXX | 40,000 | None | 20,000 | None | 20,000 |

1. Total storage required by the consecutive waterworks.
2. Total effective storage provided by the consecutive waterworks.
3. Total effective storage provided by this wholesale waterworks.

Conclusion: This waterworks is permitted for a capacity of 40,000 gpd due to limited source capacity.

Example 11 - Storage Capacity justified by hydraulic model

A community waterworks has two wells located in a consolidated rock formation. The owner’s engineer has provided a hydraulic model indicating minimum pressure requirements can be obtained throughout the distribution system during peak hour and during max-day demand plus fire flow.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 280,000 gpd*

(*Per Monthly Operating Reports dated March 2015 - February 2018, the average water production is 280,000 gpd. Maximum daily production is 360,000 gpd.)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|-------------|------------------------|-------------|-------------------|
| Well 1 | 100 gpm | 80,000 gpd | 100 gpm | 144,000 gpd | 80,000 gpd |
| Well 2 | 200 gpm | 160,000 gpd | 150 gpm | 216,000 gpd | 160,000 gpd |
| Total | - | - | - | - | 240,000 gpd |

¹ gpd = gpm x 1440 min/day / 1.8 SF

² gpd = gpm x 1440 min/day

3. Storage Capacity:

The waterworks' system-wide hydraulic model titled, "Town of Bridgewater, Hydraulic Modeling Report", dated June 4, 2014, demonstrated that adequate pressure can be maintained during peak demands (maximum daily production of 360,000 gpd and fire flow) with a total atmospheric storage of 120,000 gal.

4. Delivery Capacity:

Booster Pump Station:

Number of Pumps: 2

Capacity (1 unit out of service) = (1) (200.0 gpm) (1,440 min/day) = 288,000 gpd

Conclusion: This waterworks is permitted for a capacity of 240,000 gpd due to limited source capacity.

Example 12 - 4-log virus inactivation

A noncommunity waterworks has one well located in a consolidated rock formation and requires 4-log virus inactivation. The engineer's analysis indicates that a contact time of 6.0 min-mg/L is required.

WATERWORKS CAPACITY

1. Estimated Water Demand:

Average daily demand = 5,000 gpd*

Peak hour demand = 900 gal*

(*Per the approved Preliminary Engineering Report titled XXXX, dated XXXX)

2. Source Water Capacity:

| Well Name | Well Yield ¹ | | Well Pump ² | | Limiting Capacity |
|-----------|-------------------------|------------|------------------------|------------|-------------------|
| Well 1 | 14 gpm | 20,160 gpd | 15 gpm | 21,600 gpd | 20,160 gpd |
| Total | - | - | - | - | 20,160 gpd |

^{1,2} gpd = gpm x 1440 min/day

3. Treatment Capacity:

Clearwell:

Number of vessels: 1

Total volume: 212 gal

(212 gal) (0.3 baffle factor) = 63 gal

Required CT = 6.0 min-mg/L at 10 °C and pH = 6.0 – 9.0

Average retention time = (63 gal) / (14 gpm) = 4.5 min

Minimum C = (6.0 min-mg/L) / (4.5 min) = 1.33 mg/L free chlorine

4. Storage Capacity:

| <u>Tank Name</u> | <u>Effective Storage</u> |
|----------------------|-----------------------------|
| Hydropneumatic Tank: | (1/3) (1,000 gal) = 333 gal |
| Total: | 333 gal |

Noncommunity systems are required to provide delivery capacity to meet peak hour demand.

5. Delivery Capacity:

Peak Hour Delivery:

Well pumping: (15.0 gpm) (60 min/hr) = 900 gal

Storage: 333 gal

Total: 1,233 gal

Peak hour demand = 900 gal < 1,233 gal provided

Conclusion: This waterworks is permitted for a capacity of 20,160 gpd due to limited source capacity.

Appendix

Attachments are located at: <\\odwsrv1\odwshare\13-Manuals\02-Permit Manual>

PM-C9-Attachment 1- Estimated Maximum Daily Water Demand

PM-C9-Attachment 2 - Log Pearson Type III Calculation

Chapter 10 - Found Transient Noncommunity Expedited Permit Procedures

1. Overview

This Chapter provides consolidated guidance on “found” transient noncommunity (TNC) waterworks and permit procedures administered by the Office of Drinking Water as authorized in the Regulations. It does not replace the requirements of the Regulations.

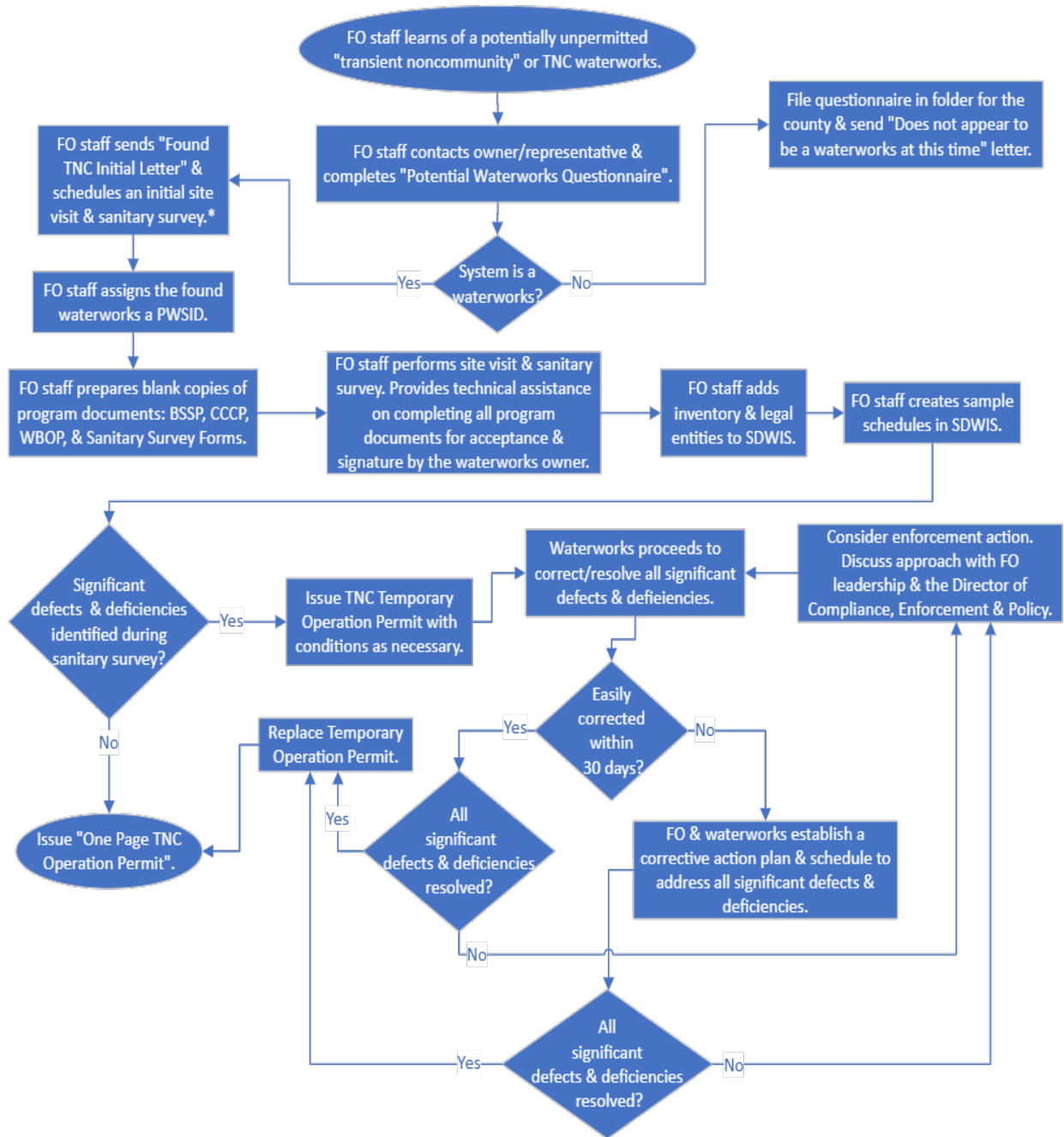
2. Scope

“Found” means a business is operating its own water system, using that water system to provide water for human consumption to 25 or more people for 60 or more days per year, and at the time of ODW identifying those conditions, the owner does not have a permit to operate the waterworks. This chapter outlines how ODW will evaluate the water system and issue an operation permit to the owner, subject to meeting certain requirements explained below.

ODW has procedures and requirements that all classifications of waterworks must follow if they are constructing a new waterworks or modifying an existing waterworks described in the chapters above; however, as policy, ODW does not generally require existing, previously unpermitted TNC waterworks to modify or update the waterworks to comply with the current design requirements in the Regulations prior to issuing an operation permit unless the field office determines deficiencies represent an unacceptable threat to public health. For a “found” TNC, the procedures and policies described in this chapter will take precedence over the prior chapters and the ODW Sampling Manual.

When permitting found TNC waterworks, ODW generally permits the waterworks without requiring the owner to upgrade or replace components that do not meet current regulatory requirements (i.e., the waterworks is permitted “as is”) so long as there are not any significant deficiencies present at the time of the initial sanitary survey. However, if a found TNC fails to continue meeting water quality standards or is operated in a manner that is not in compliance with the Regulations, ODW may require the owner to make repairs and/or bring it into compliance with Part III of the Regulations. Additionally, if a found TNC is modified, expanded, or significantly changed (i.e., change of facility use, change in service area or population served, change of pump size or storage capacity, addition of treatment, addition of source – actions requiring a construction permit by the PRP) after receiving an operation permit, such changes require prior approval by ODW (construction permit and/or amended permit) to ensure that they meet the requirements set out by the Regulations.

3. Found TNC Procedure Flow Chart



*If at any point after FO staff makes the assertion that the water system meets the definition of a waterworks, the owner may request that ODW make a formal decision using the appropriate administrative processes, which may include an IFFP and/or formal hearing. Staff should work with the FO Compliance Specialist in this event. If the owner is unresponsive, ODW may need to proceed with formal hearings and/or court proceedings in consultation with the Director of Compliance, Enforcement and Policy.

Legend: FO=Field Office; TNC=Transient Noncommunity waterworks; CCCP=Cross-Connection Control Program; WBOP=Waterworks Business Operation Plan; BSSP=Bacteriological Sample Siting Plan; SDWIS=Safe Drinking Water Information System; PWSID=Public Water System Identification.

4. Permitting Procedures for Found TNCs

1. ODW field office staff learn of a potential “found” TNC waterworks. This information may come from a variety of sources, some of which will need separate procedures. However, for this process, it is only relevant that ODW has learned of a business that is operating its own water source and, because of the population served, the water system may meet the definition of a waterworks.
2. Field office staff contact the owner of the water system and complete the “Potential Waterworks Questionnaire” (PM-C10- Attachment 1). Collect information or make a site visit as needed to have sufficient facts/observations to form the basis for making a decision.
3. If the water system appears to meet the definition of transient noncommunity waterworks, continue on with **STEP 4** of these procedures.
 - a. If the water system does **not** appear to meet the definition of a waterworks, **STOP** following these procedures. File a copy of the completed questionnaire for the owner and water system in the general folder for the county in which it is located.
 - b. Send the owner the “Appears to not be a waterworks” (PM-C10- Attachment 2) letter at this time.
4. ODW staff send the owner the “Found TNC Initial Letter (IFFP)” (PM-C10- Attachment 3) with a copy of the questionnaire and waterworks permit application included. Approximately 10 business days after sending the letter, ODW staff should contact the owner by telephone to follow up and provide assistance as needed:
 - a. If the owner agrees that their water system meets the definition of a waterworks, have them fill out and submit an operation permit application (PM-C8-Attachment 15) as soon as possible. It would be best to email this to them while staff has them on the phone.
 - i. At this time, staff should schedule an initial site visit and sanitary survey.
 - ii. It is preferable to have the owner present during the initial survey.
 - b. If the owner has questions about the basis for ODW’s belief or does not agree that their water system meets the definition of a waterworks, they may (and should) present additional facts and information to ODW so that the agency can make a determination. That course of action is outlined in the letter.
 - i. At this time, the attending staff member needs to alert the field office’s Compliance Specialist of the possible dispute.
 - ii. This situation may result in an Informal Fact-Finding Proceeding (IFFP) if the owner and ODW do not come to a mutual agreement.
 - c. If staff have not been able to follow up with the owner by phone and the owner does not respond to the “Found TNC Initial Letter” in writing within 20 days, the field office staff should reach out to the owner again by telephone or email. If ODW does not receive a written response within 30 days after sending the “Found TNC Initial Letter,” then the field office staff shall notify the field office’s Compliance Specialist of the situation and work with the Division of Compliance, Enforcement and Policy to mutually determine the next steps.

5. Review SDWIS for all PWSID Nos. (active and inactive) and assign a PWSID to the found TNC waterworks. See the ODW SDWIS Users' Manual for detailed instructions.
6. Print blank copies of the following: Bacteriological Sample Siting Plan (BSSP), Cross-Connection Control Plan (CCCP), and TNC WBOP.
7. Print a blank ground water sanitary survey form.
8. Perform the site visit and sanitary survey.
 - a. Explain the BSSP and CCCP to the owner and complete each plan, designing it for the specific conditions at the waterworks.
 - i. If the owner is present with ODW staff, have the owner sign the completed plans.
 - ii. If the owner is not present, the Field Office Director will issue approved plans based on the findings from the visit. The owner will need to sign and return the signature pages before the field office issues the operation permit.
 - iii. Make sure to take the time to properly instruct the waterworks' representative on proper sampling procedures and CCCP implementation.
 - b. Waterworks Business Operation Plan
 - i. To the extent possible, work with the owner to complete the plan during the initial visit. This may require staff to call the owner ahead of the initial sanitary survey to gather information or to ensure the owner has the necessary information on hand on the day of the survey.
 - ii. ODW may waive the requirement for submission of a WBOP for owners who have demonstrated a history of acceptable compliance with the Regulations. The Field Office Director, in consultation with TCDO staff, determines when waiver is appropriate.
 - iii. If the owner is not present and staff have sufficient information to draft a WBOP, they can provide it to the owner for signature prior to issuance of the operation permit, or include it with the operation permit and ask the owner to return a signed copy.
 - c. Gather copies of any records with information about well construction, well yield, water quality analysis, equipment literature, water usage history, etc., to add to the found waterworks file. While this information is not required in order to issue the operation permit, it may prove beneficial in the future if problems arise or expansion is needed at the waterworks.
 - d. As soon as practicable following the sanitary survey, send the owner the sanitary survey report with items noted for correction and a timeline for the permitting process.
9. Field office staff will add inventory information and legal entities into SDWIS. See the ODW SDWIS Users' Manual for detailed instructions.
10. Create sample schedules in SDWIS for the waterworks. See the ODW SDWIS Users' Manual for detailed instructions.
 - a. Combined nitrate-nitrite
 - b. Quarterly bacteriological P/A distribution sample(s)

- c. Quarterly raw water MPN sample, if disinfection is provided. Continue quarterly sampling until ODW receives results from 10 [consecutive] samples to perform GUDI analysis, then yearly if the source is not GUDI. If the source is GUDI, or in karst topography, then continue quarterly or more frequent sampling as required by 12VAC5-590-379 C.
11. If there are no significant deficiencies, issue a one-page waterworks operation permit. – “One Page TNC Operation Permit” (PM-C10-Attachment 4).
- a. If ODW identifies significant deficiencies that are usually correctable within 30 days, ODW will streamline the significant deficiency process by allowing the owner to make corrections prior to issuing the operation permit. ODW will provide written notice to the owner, identifying the significant deficiencies and the expectation that the owner will correct them within 30 days of the date of the notice. The notice may be in either the sanitary survey report (Step 8 d) or a separate letter, considering the most timely and efficient means to notify the owner so they can correct the significant deficiencies and not delay the permit process. ODW will not require a formal corrective action plan so long as the owner satisfies the timeline in the notice.
 - i. If the necessary corrections are made within the 30-day period provided in the notice, issue an operation permit. – “One Page TNC Operation Permit.”
 - ii. If the owner has not corrected significant deficiencies within 30 days of the aforementioned notice, ODW will issue a Notice of Alleged Violation for operating a waterworks without a permit. ODW staff will construct a corrective action plan for significant deficiencies that the owner commits to correct pursuant to 12VAC5-590-350 D. ODW will record uncorrected significant deficiencies in SDWIS.
 - b. If there are significant deficiencies that cannot be easily corrected, please consult Central Office staff as needed to develop a Corrective Action Plan for the found waterworks.

Appendix

Attachments are located at: <\\odwsrv1\odwshare\13-Manuals\02-Permit Manual>

PM-C10-Attachment 1 - Potential Waterworks Questionnaire
PM-C10-Attachment 2 - Appears to not be a waterworks
PM-C10-Attachment 3 - Found TNC Initial Letter (IFFP)
PM-C10-Attachment 4 - One Page TNC Operation Permit

PRELIMINARY ENGINEERING CONFERENCE

Date: _____

General Information

Applicant (or agent) to bring supporting documentation to the conference, including:

- 1. Preliminary land use plans, site plans, topographic maps
- 2. Water demand estimates
- 3. Description of proposed source(s), treatment, storage, distribution, including preliminary sketches, plans, specifications, manufacturer's literature

Location (County):

Owner:

Name:

New waterworks proposed: or **Expansion to existing:** **PWSID #:** _____

Waterworks Type: Community NTNC TNC

Efforts to preserve/protect farm & forest lands:

Service Description & Water Demand (residential, commercial, mixed use; estimated population; average annual, maximum day, peak hour water demand; fire flow protection provided):

Estimated construction completion date:

Phased development (build out) time frame:

Describe impact on water demand:

VDH determination only:
Will sampling requirements need to be modified during build out?

State Corporation Commission Contacted? Yes Date: _____ No
Not Required (community system < 50 connections; non-community system)

VDH determination only:
Business Operations Plan Required? Yes No
Rationale:
Recommended by:
Concurred by:

Alternatives Considered

- 1. Connection to existing waterworks: Identify name and distance of nearest potable water systems; capacity available; feasibility of interconnection
- 2. Leakage reduction
- 3. Other

PRELIMINARY ENGINEERING CONFERENCE

Date: _____

Construction of Public Water Supply ▪ Wells

Located in Groundwater Management Area?

Yes Groundwater Withdrawal Permit Required? Yes No
DEQ Aquifer Test Plan developed/approved?

No

Located in Karst Geology?

Yes = Annual raw water MPN sampling required

No

Review Well Development Procedures (handout). Comments:

Explain GUDI Determination

Well Water Characteristics (quantity, chemical, physical):

{Anticipated from nearby well water quality, test results, etc.}

Treatment Anticipated/Proposed:

Groundwater Rule requirement for 4-log inactivation of virus considered? Yes No

Construction of Public Water Supply ▪ Surface Water Intakes

DEQ / VMRC / COE "Joint Permit" (Raw Water Withdrawal Permit) Yes No

Permit No.:

Issuance Date:

Conditions:

DEQ Water Supply Plan

VDH Receipt Date:

VDH Review Date:

Comments:

PRELIMINARY ENGINEERING CONFERENCE

Date: _____

Construction or Modification of Treatment Facilities

{Refer to specific technology Working Memo guidance as appropriate}

Construction of Storage or Distribution Facilities

½ Day Storage Provided? Yes No

Pressure Tanks:

Gravity Tanks:

Computer Model of Distribution System? Yes No

- Static Model
- Extended Period Simulation

Design Exceptions

{Identify all anticipated}

New Waterworks only

| Compliance Sampling Requirements | Due Date | Comments |
|---|-----------------|--|
| • Bacteriological Sample Siting Plan | _____ | Complete before Operation Permit issued |
| • Lead & Copper Sampling Plan | _____ | Materials evaluation & sites; complete before Operation Permit issued |
| • D/DBP Sampling Plan | _____ | |
| • Phase II – V Waiver Application | _____ | If site survey, SOC results support; complete before Operation permit issued |

Other Requirements

- Cross-Connection Control Program
- Licensed Operator Required? Yes No Class:
- Monthly Operation Reports (describe)

PRELIMINARY ENGINEERING CONFERENCE

Date: _____

| Attendees | | |
|------------------|--------------------|------------------|
| Name | Affiliation | Signature |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins. This format may be adapted as an email instead of a formal letter.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner, name + email
Address 1
Address 2
City, State, Zip

Dear Waterworks Owner:

A Preliminary Engineering Report prepared by consultant or waterworks' owner for waterworks name located in city/county, has been reviewed by this office. The report is titled "report title" and is dated date.

The report proposes to describe project.

The Virginia Department of Health, Office of Drinking Water, in accordance with 12VAC5-590-200 of the Virginia *Waterworks Regulations*, approves the Preliminary Engineering Report (with the following comments and/or conditions:)

- 1.
- 2.

An approved copy of this document is on file in the (field office name).

If applicable:

This waterworks is located in a Groundwater Management Area as declared by the State Water Control Board. You may need to obtain a Groundwater Withdrawal Permit from the Department of Environmental Quality (DEQ) in order to withdraw and use water from the proposed well. Please contact (name) in the DEQ's (name) Regional Office at (phone number) for further information on the Groundwater Withdrawal Permit.

If we can be of additional assistance, please contact (District Engineer or Deputy Field Director) at phone number or (insert email address).

Sincerely,

Director name, PE, Engineering Field Director
Field Office Name Field Office

XYZ:ABC

ec: Consulting engineer, email
County Administrator, email
Funding agency, name, email

PM-C3-Attachment 1. WBOP Acceptance Letter. This format may be adapted as an email instead of a formal letter.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Waterworks Owner, name + email

Address 1

Address 2

City, State, Zip

Dear Waterworks Owner:

The Virginia Department of Health, Office of Drinking Water (ODW) has received the (initial / annual update) submittal of the Waterworks Business Operation Plan (WBOP) for the (waterworks name), dated (date).

ODW has determined that this WBOP appears to meet the requirements of a comprehensive business plan as outlined by Section 32.1-172 of the *Code of Virginia* and 12VAC5-590-200 A 5 of the Virginia *Waterworks Regulations*, and hereby accepts the WBOP.

[Only If Required: You are required to submit an update of the WBOP annually, due no later than (insert date). The purpose of the annual update is (to document the completion of any sustainability improvements contained in the WBOP) and/or (to meet X requirement of DWSRF funding received by the waterworks) and/or (other-describe).]

If you have questions, please contact me by email at (email address), or by telephone at (telephone number). Additional assistance can be provided by (insert name of SC), Sustainability Coordinator for your region at (telephone and email).

Sincerely,

(Name)

District Engineer

ec: VDH – ODW, Central Office

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins. This format may be adapted as an email instead of a formal letter.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Consulting Engineer, name + email
Address 1
Address 2
City, State, Zip

Dear Consulting Engineer:

This office has received (plans and specifications) (change order) (addenda) (Preliminary Engineering Report) (Operation and Maintenance Manual) prepared by your firm for describe project or give title of document.

The submittal appears to be complete and is placed in queue for review to begin shortly.

If you have any questions concerning the review process or desire further information, please do not hesitate to contact us at (insert phone number) or at (insert email address).

Sincerely,

Name,
Project Review Engineer
Office of Drinking Water

ec: Waterworks Owner, name, email
Funding agency, email

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins. This format may be adapted as an email instead of a formal letter.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Consulting Engineer, name + email
Address 1
Address 2
City, State, Zip

Dear Consulting Engineer:

This office has received plans and specifications prepared by your firm for describe project or give title of project documents. This submittal is incomplete. As such, we cannot proceed with the technical evaluation of this project.

(Alternate 1:)

(The following information is required:

- 1.
- 2.
- 3.
- 4.

Please submit this information within 30 days, so that we may initiate a technical evaluation of the project.)

(Alternate 2:)

(The documents are returned with this (letter/email). Please refer to the Waterworks Regulations for submittal requirements for a construction permit.)

By copy of this (letter or email) the owner is reminded that 12VAC5-590-190 of the Virginia Waterworks Regulations requires that no construction or modification to the waterworks shall proceed without a written Construction Permit. If you have any questions concerning the above comments or desire further information, please do not hesitate to contact me at (insert phone number) or at (insert email).

Sincerely,

Name
Project Review Engineer
Office of Drinking Water

XYZ:ABC

cc: Waterworks Owner, name, email
Building Official, name, email

PM-C4-Attachment 3. Email Template -SDWIS Administrator to Add Consulting Office. Provide complete information on the consultant as noted below:

Send email to the SDWIS Administrator

Subject: Add Consulting Office to SDWIS

Dear SDWIS Administrator:

Please add the following Consulting Office into SDWIS:

(Name of website with URL and phone number)

(Name of Consulting Engineer with phone number and email address.)

Please let me know when this is complete.

Thank you

Project Review Supervisor/Engineer

Tel:

Email:

Plan Review Notes – Name of Reviewer

Project Name:

Waterworks Name/PWSID:

Date Started:

Construction Permit No.

Project Owner (with email):

Address:

Administrative Contact:

Consulting Engineer (with email):

Title of Plans & Date:

Title of Specifications & Date:

Waterworks Regulations:

Part III - Manual of Practice for Waterworks Design (Identify/keep applicable citations only)

12VAC5-590-660. Site location

12VAC5-590-670. Site size

12VAC5-590-680. Treatment process selection and BAT

12VAC5-590-700. Metering total water production

12VAC5-590-720. Building design and construction

12VAC5-590-725. Automated monitoring and control systems

12VAC5-590-730. Alternate power sources

12VAC5-590-760. Laboratory facilities

12VAC5-590-770. Sampling and monitoring equipment

12VAC5-590-790. Process water

12VAC5-590-810. Components, materials, and products

12VAC5-590-820. New source water selection and sampling

12VAC5-590-830. Surface water sources; quantity; quality; development structures

12VAC5-590-840. Groundwater sources

12VAC5-590-850. Appropriate treatment

12VAC5-590-860. Chemical application

12VAC5-590-865. Conventional filtration treatment

12VAC5-590-871. Coagulation and flocculation

12VAC5-590-872. Sedimentation

12VAC5-590-873. Solids contact treatment units

12VAC5-590-874. Gravity filtration

12VAC5-590-875. Direct filtration

12VAC5-590-880. Diatomaceous earth filtration

12VAC5-590-881. Slow sand filtration

12VAC5-590-882. Membrane filtration

12VAC5-590-883. Bag and cartridge filtration

12VAC5-590-895. Pre-engineered package treatment units

12VAC5-590-900. Cation exchange softening
12VAC5-590-910. Aeration
12VAC5-590-920. Iron and manganese control
12VAC5-590-930. Fluoridation
12VAC5-590-940. Fluoride removal
12VAC5-590-950. Corrosion control or stabilization
12VAC5-590-960. Taste and odor control
12VAC5-590-975. Removal of radionuclides
12VAC5-590-985. GAC contactors
12VAC5-590-990. Waterworks waste
12VAC5-590-1000. Disinfection
12VAC5-590-1001. Chlorination
12VAC5-590-1002. Chloramination
12VAC5-590-1003. Chlorine dioxide addition
12VAC5-590-1004. Ozonation
12VAC5-590-1005. Ultraviolet light (UV) disinfection
12VAC5-590-1010. Basic pumping facility design criteria
12VAC5-590-1020. Location
12VAC5-590-1040. Pump stations
12VAC5-590-1050. Pumps and controls
12VAC5-590-1065. Piping, valves, and meters
12VAC5-590-1080. Basic finished water storage structure design criteria
12VAC5-590-1081. Atmospheric tank storage
12VAC5-590-1082. Pressure tank storage
12VAC5-590-1090. Plant storage
12VAC5-590-1110. Distribution system materials
12VAC5-590-1120. Minimum pipe size
12VAC5-590-1130. Distribution system design
12VAC5-590-1140. Installation and testing of water mains
12VAC5-590-1150. Separation of water mains and sanitary sewers
12VAC5-590-1160. Valve, air relief, meter, and blowoff chambers
12VAC5-590-1170. Hydrants
12VAC5-590-1180. Surface water crossings
12VAC5-590-1210. Disinfection and testing of water mains
12VAC5-590-1220. Pipe cover
12VAC5-590-1230. Service connection metering
12VAC5-590-1235. Water loading stations

Existing Situation:

Proposed Situation:

Comments:

Conclusions:

XYZ:ADM

Copyholders (Obtain email contacts):

Consulting Engineer: name, email

xxxCounty Health Department, email

xxxCounty Administrator, email

xxxCounty Building Official, email

Name of Field Director, PE, ODW, name of Field Office, email

PM-C4-Attachment 5. INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on VDH letterhead. Pages are 1" top, bottom, and side margins. This format may be adapted as an email instead of a formal letter.

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Date

Consulting Engineer, name + email
Address 1
Address 2
City, State, Zip

Dear Consulting Engineer:

This office has received (plans and specifications) (change order) (addenda) (Preliminary Engineering Report) (Operation and Maintenance Manual) prepared by your firm for describe project or give title of document. We have completed review of the documents and

1. To complete our review, we request the following information:
2. The following revisions are necessary to comply with the *Waterworks Regulations*:
3. We provide the following recommendations:

Please submit a written response to these comments within 30 days. This written response must provide clarification of and/or revisions to the project so that we may complete our review of the project, request to delay project review for a specific time period, or formally withdraw the project from our review process.

If you have any questions concerning the above comments or desire further information, please do not hesitate to contact us at (insert phone number) or at (insert email).

Sincerely,

Name
Project Review Engineer
Office of Drinking Water

XYZ:ABC

cc: Waterworks Owner, name, email
Funding agency

PM-C4-Attachment 6. INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Use Central Office letterhead for electronic transmission.

DATE: Date

TO: name, Director
Division of Technical Services

THROUGH: name, Field Services Engineer
Division of Technical Services

FROM: name, Project Review Engineer
Division of Technical Services

SUBJECT: Design Exception Request
PWSID: waterworks PWSID
City / County: location name
Project: waterworks name & project title

| | |
|-----------------------------------|----------|
| COMMONWEALTH OF VIRGINIA | |
| Department of Health | |
| Office of Drinking Water | |
| <input type="checkbox"/> Approved | |
| <input type="checkbox"/> Denied | |
| _____ | _____ |
| Date | Director |

This office has received a design exception request for the subject project.

SECTION: applicable Waterworks Regulation section(s)

DESCRIPTION: brief description of exception

JUSTIFICATION: brief explanation of special or extenuating circumstances showing that the exception is reasonable and necessary

RECOMMENDATION: We believe that the engineer has (has not) adequately justified the request, as outlined in the enclosed engineer's letter, dated date.

We recommend that you approve (disapprove) the request (add conditions as appropriate)



COMMONWEALTH of VIRGINIA

Insert name
State Health Commissioner

Department of Health
P O BOX 2448
RICHMOND, VA 23218

TTY 7-1-1 OR
1-800-828-1120

Date

SUBJECT:
Waterworks:
PWSID No:

Engineer name+email
Address

Dear *Engineer*:

We have reviewed your request for approval regarding the design exception for the top of the underground atmospheric storage tank to be less than two feet above the normal ground surface as required in Section 12VAC5-590-1080 C 3 of the *Waterworks Regulations*. This request for approval has been considered by the Virginia Department of Health, Office of Drinking Water as a design exception to the Virginia *Waterworks Regulations* and is denied. This decision is based on the following:

1. The distance above the top of the storage tank provided in the proposed design will not adequately safeguard public health, as there are increased risks of groundwater contamination in the buried structure, and it leaves little ability to easily inspect the condition of the tank.
2. Complying with this regulatory requirement is not impractical to achieve in this situation, and reasonable means exist to have a safer and less risky design.
3. We believe that a more compliant design will be to consider the installation of a fully above-ground structure where physical observations of the tank can more easily be made. For details, please refer to Sections 12VAC5-590-1080 and 12VAC5-590-1081 of the *Waterworks Regulations*.

Please contact me if you have questions or need additional information.

Sincerely,

Name, Director
Division of Technical Services
Office of Drinking Water

cc: *Owner, email*
Field Office Director, email

TRANSIENT NON-COMMUNITY WATERWORKS DESIGN AND CONSTRUCTION CHECKLIST

Under provisions of the Code of Virginia, Title 54.1, Chapter 4, Section 54.1-402, and the Virginia Waterworks Regulations, information described by this checklist may be submitted by a waterworks owner in lieu of plans, specifications, documents, and designs prepared by a licensed professional engineer.

The following conditions apply:

1. This procedure is only available to transient non-community waterworks serving no more than 100 persons total per day.
2. Waterworks must be a direct delivery system without any treatment, meaning that system consists only of one source, small pressure storage tank, and single service connection.
3. Single service connection consists of a structure with area less than 5,000 square feet.
4. Construction of well must be by a well driller with Class A contractor license.
5. Construction of remainder of waterworks must be by a master's level plumber or Class A contractor.

Owner Name: _____
 Owner Address: _____
 Waterworks Name: _____

Fill in all blanks, check all boxes to indicate that item has been completed, and attach to this form copies of information as described.

Design Basis

Type of Business: _____
 Total Number of Persons Served Per Day: _____
 Water uses: _____
 Days of operation: _____ Hours of operation: _____

Water Quality

- Bacteriological results – series of 20 for MPN analysis
- Chemical results – inorganic, metals, nitrate/nitrite, VOCs, SOCs (if required), and radiological

Construction Information – attach sketch of well, piping, storage tank, and appurtenances.

Water Well Completion Report – attach copy signed and dated by well driller that includes the following:

- 1. Well depth and hole size
- 2. Casing material, diameter, depth, weight/thickness
- 3. Screen length, depth, material, size
- 4. Grout type, depth

Well Yield and Drawdown Test Report – attach copy signed and dated by person conducting test that includes the following:

- 1. Test pump size and depth
- 2. Pumping rates and drawdown depths
- 3. Recovery data
- 4. Well pump information, model number and pump curve – attach copy of manufacturer's literature

TRANSIENT NON-COMMUNITY WATERWORKS DESIGN AND CONSTRUCTION CHECKLIST

TNC CHECKLIST (cont.)

- Well Lot Plat** - attach a copy (If required by ODW)
- Well Lot Dedication Document** – attach a copy (If required by ODW)

Well Enclosure, if provided

1. Dimensions: _____
2. Material of construction: _____
3. Access hatch or door: _____
4. Freeze protection: _____

- Concrete pad, if provided-** Dimensions: _____

- Pitless Adapter and Watertight Cap, if provided** – attach copy of manufacturer's information confirming certified by Water Systems Council.

Pump Information

1. Depth of pump: _____ feet below ground level.
2. Well drop pipe diameter (inches): _____
3. Type of material: _____

Waterline

1. Diameter (inches): _____
2. Type of material: _____
(must be NSF approved for potable water)
3. Describe pipe joints: _____
4. Describe trenching, bedding, and pipe installation procedures (attach separate sheet or describe below): _____

Waterline Appurtenances (check all provided)

- Check valve
- Gate valve
- Sampling tap
- Blowoff

Pressure Tank (check all provided)

- Attach copy of manufacturer's information that shows dimensions and features
- Pressure gauge
- Air relief (if needed according to manufacturer)

System Disinfection, Flushing, and Sampling (attach separate sheet or describe below)

- Bacteriological Sampling** – attach Lab results (2 negative samples on consecutive days after construction completed are required)

TRANSIENT NON-COMMUNITY WATERWORKS DESIGN AND CONSTRUCTION CHECKLIST

TNC CHECKLIST (cont.)

Name of Contractor: _____

License No: _____

The information provided above, plus information on any attachments, is correct to the best of my knowledge.

Owner/Agent Signature: _____

Date: _____

Construction completion statement

Owner must sign and date a second copy of this form completed in its entirety and submit it to VDH-ODW immediately following completion of construction.

Construction of the waterworks was completed in substantial compliance with the design and construction information presented in this form.

Owner Signature: _____

Date: _____

PM-C4-Attachment 9. INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and sides. This format may be adapted as an email instead of a formal letter.

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Waterworks Owner + email
Address 1
Address 2
City, State, Zip

Dear Waterworks Owner:

Record drawings for the construction of (additions to) (modifications to) the (name of waterworks) (community) (nontransient noncommunity) (transient noncommunity) waterworks located in (name) County, prepared by (Consulting Engineer) have been reviewed by the Office of Drinking Water (“Office”). The plans titled “(title)” (are dated) (are stamped with our receipt date of) (date) and include sheets __ through __. The specifications titled “(title)” (are dated) (are stamped with our receipt date of) (date).

The project consists of (brief project description).

The plans and specifications are technically adequate and are approved by this Office, in accordance with the Virginia *Waterworks Regulations*, 12VAC5-590-220. A copy of these documents is on file in this Office.

CASE 1: Since these plans reflect changes to a previously approved project, a construction permit will not be issued.

CASE 2: Since the construction of this project preceded the formal approval process due (specify emergency condition), a construction permit will not be issued.

Upon completion of construction, the owner shall submit a statement signed by a professional engineer licensed in Virginia stating that the work was completed in accordance with the approved plans and specifications. [Upon receipt of this statement, (the satisfactory results of bacteriological analysis), and final inspection by an Office representative, the State Health Commissioner will (amend your present waterworks operation permit) (issue a waterworks operation permit) in accordance with the *Waterworks Regulations*.]

or

[Upon final inspection by an Office representative and satisfactory results of the bacteriological analysis, you may put the project into service.]

You are reminded that 12VAC5-590-190 of the *Waterworks Regulations* requires that no construction or modifications to a waterworks shall be made without obtaining a written Construction Permit.

PM-C4-Attachment 9. INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1" top, bottom, and sides. This format may be adapted as an email instead of a formal letter.

If we can be of additional assistance, please feel free to contact me at *(telephone number)* or *(email address)*.

Sincerely,

| |
|---|
| <p><u>Name</u> Field Services Engineer Office of Drinking Water</p> |
|---|

XYZ:ADM

ec: Consulting Engineer, name, email
Local Health Department, attn: Health Director, name, email
County Administrator, name, email
County Building Official, name, email
Funding agency, email

PM-C4-Attachment 10. Instructions: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1" top, bottom, and side margins. This format may be adapted as an email instead of a formal letter.

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Waterworks Owner, email
Address 1
Address 2
City, State, Zip

Dear Waterworks Owner:

Change Order (Addendum) (Addenda) No(s). ___ and ___ to the plans and specifications for the (Name of Project) project for the waterworks name located in County / City have been reviewed by the Office of Drinking Water ("Office"). The original plans and specifications were approved on approval date.

Change Order (Addendum) (Addenda) No(s). ___ and ___ provide(s) for brief description.

The Change Order (Addendum) (Addenda) is (are) technically adequate and is (are) approved by this Office, in accordance with the Virginia Waterworks Regulations, 12VAC5-590-240. A copy of these documents is on file in this Office.

This approval does not suspend, minimize, or otherwise alter the waterworks' obligation to comply with federal, state, or local laws and regulations or permits.

If we can be of additional assistance, please contact name at phone number or at email address.

Sincerely,

Name
Field Services Engineer
Office of Drinking Water

XYZ:ABC

cc: Consulting engineer, name, email
Local Health Department, attn: Health Director, name, email
County Administrator, name, email
County Building Official, name, email
Funding agency, name, email

PM-C4-Attachment 11. INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Central Office letterhead. Pages are 1" top, bottom, and side margins. This format may be adapted as an email instead of a formal letter.

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Regional Director, name + email
Regional Office
Department of Environmental Quality (DEQ)
Address 1
Address 2
City, State, Zip

Dear Regional Director:

The Virginia Department of Health has received plans and specifications from waterworks owner for construction of a water treatment facility to serve service area, located in County/City name.

The (waterworks) (water treatment facility) is designed for a capacity of ___ mgd. Wastewater will be generated from describe unit treatment processes (and treated subsequently by describe further treatment and dewatering, if applicable). Wastewater from these processes will be (discharged to the receiving stream) (disposed in a soil adsorption system located at - describe).

We are supplying this information to you so that DEQ can take whatever action is necessary.

Sincerely,

Name
Project Review Engineer
Office of Drinking Water

cc: Design Engineer, name, email
Local Health Department, attn: Health Director, name, email

ODW will then issue or amend your waterworks operation permit in accordance with the *Waterworks Regulations*.

If we can be of additional assistance, please contact ODWConstructionPermits@vdh.virginia.gov.

Sincerely,

Name
Field Services Engineer
Office of Drinking Water

XYZ:ABC

ec: *Consulting Engineer: name, email*
Xxx County Health Department, email
Xxx County Administrator, email
Xxx County Building Official, email
Name of Field Director, PE, name of Field Office, email

STATEMENT OF COMPLETION OF CONSTRUCTION

Date: _____

Waterworks Owner: _____

Licensed PE: _____

For your use in complying with 12VAC5-590-250 of the Virginia *Waterworks Regulations*, I submit the following statement:

The construction work described as _____ and permitted by the State Health Commissioner under Construction Permit No. *number* issued on *date, year*, was completed in accordance with the approved plans and specifications, revised only in accordance with the provisions of 12VAC5-590-240, as described below, and including successful completion of all specified pressure testing, disinfection, and satisfactory bacteriological analysis results. Copies of bacteriological analysis results are attached to this statement as applicable.

In accordance with 12VAC5-590-250 B, all project specific requirements, including performance validation, process testing and validation, water quality testing, and operator training, are completed and reports and certificates of testing and training are attached to this statement as applicable.

In accordance with 12VAC5-590-240, all deviations from the approved plans and specifications affecting capacity, hydraulic conditions, operating units, the functioning of water treatment processes, or the quality of water to be delivered, were approved by the Virginia Department of Health under the following documents:

| Revised Plans and Specifications/Addenda/Change Orders/Field Orders/Engineers Supplemental Instructions | | |
|---|----------------|-------------------|
| Number or Title | Execution Date | VDH Approval Date |
| | | |
| | | |
| | | |
| | | |

This statement is based upon inspections of the waterworks during and after the construction.

Waterworks Owner Signature: _____ Date: _____
 (Required if the waterworks owner is not the permit applicant)

Consulting Engineer Signature: _____ Date: _____
 Engineer Seal:

**VIRGINIA DEPARTMENT OF HEALTH
DESCRIPTION SHEET
of Proposed Construction**

WATERWORKS NAME:

PERMIT NUMBER:

EFFECTIVE DATE:

EXPIRATION DATE:

SOURCE: *wells, springs or surface water source(s)*

PROJECT DESCRIPTION

The project consists of

- *detailed description of construction project*
- *follow water from source to distribution*
- *use subject headings for clarity*

PROJECT CAPACITY EVALUATION

Include:

- *Design Basis,*
- *capacity evaluation for each major element included in the project,*
- *Conclusion*

SUMMARY OF FINAL INSPECTION

DATE: date

SUBJECT: County/City
Waterworks Name
PWSID

PROJECT: project title

CONSTRUCTION
PERMIT NO.: permit number EFFECTIVE DATE: date

DATE OF INSPECTION: date

THOSE PRESENT: list all those present during the inspection to include ODW staff, owner, engineer, etc.

COMMENTS:

The project consists of brief project description.

The statement of completion of construction dated date was received by this Office on date. Acceptable bacteriological sampling results were received on date.

ODW staff inspection found the construction to have been satisfactorily completed in accordance with approved plans and specifications. Construction appeared to meet *Waterworks Regulations'* requirements and the scope of the approved Construction Permit. (This project may be placed into operation.) (This project may be placed into operation now with the completion of the following incidental items to be completed by date.) (Following the completion of the following items, this project may be placed into operation.)

1. List remaining items to be completed
2. ...

Insert photos, as needed.

Virginia Department of Health – Office of Drinking Water Construction Permit Application

Instructions: This form is to be submitted with the plans and specifications for any project requiring a Waterworks Construction Permit. Retain a copy of the completed form for your records. This form contains personal information subject to disclosure under the Freedom of Information Act.

| Applicant (Project Owner) | | |
|--|--|--|
| Name: <i>First Middle Last/Business or Entity</i> | Affiliation: <i>business/organization name</i> | |
| Address: <i>street</i> | | |
| City: <i>City</i> | State: <i>State</i> | Zip: <i>zip code</i> |
| Phone Number: <i>(xxx) xxx-xxxx</i> | Email: <i>email address</i> | |
| I hereby authorize the Virginia Department of Health, Office of Drinking Water to inspect all proposed facilities. | | |
| Signature: _____ | Date: _____ | |
| Agent (Design Engineer) | | |
| Name: <i>First Middle Last</i> | Affiliation: <i>business/organization name</i> | |
| Address: <i>street</i> | | |
| City: <i>City</i> | State: <i>State</i> | Zip: <i>Zip Code</i> |
| Phone Number: <i>(xxx) xxx-xxxx</i> | Email: <i>email address</i> | |
| Permit Type | | |
| <input type="checkbox"/> Construct and Operate New Waterworks | <input type="checkbox"/> Construct Waterworks Additions or Modifications | <input type="checkbox"/> Waterworks owner contacted (if applicant is not the owner) Waterworks Name: <i>Name</i> PWSID: <i>XXXXXXX</i> Person contacted: <i>First Last Name</i> Email: <i>email address</i> |
| Project Description: | | |
| Location: <i>Describe the location of the project</i> | | |
| Description: <i>Provide a brief description of the proposed construction</i> | | |
| Type (generally): <input type="checkbox"/> Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other-specify: <i>Describe</i> | | |
| Proposed number of connections: <i>enter number</i> | <input type="checkbox"/> Contacted the State Corporation Commission (community waterworks serving 50+ connections) | |
| | | |
| Submittal Requirements | | |

Virginia Department of Health – Office of Drinking Water Construction Permit Application

| | | |
|---|---|---|
| Preliminary Engineering Conference | <input type="checkbox"/> Held-date: <i>enter date</i> | <input type="checkbox"/> Waived-date: <i>enter date</i> |
| Waterworks Business Operation Plan | <input type="checkbox"/> Submitted-date: <i>enter date</i> | <input type="checkbox"/> Waived-date: <i>enter date</i> |
| Preliminary Engineering Report | <input type="checkbox"/> Approved-date: <i>enter date</i> | <input type="checkbox"/> Waived-date: <i>enter date</i> |
| Design exceptions required? | <input type="checkbox"/> Yes, ODW approval included | <input type="checkbox"/> N/A |
| DEQ Groundwater Withdrawal Permit obtained? | <input type="checkbox"/> Yes, documentation included | <input type="checkbox"/> N/A |
| “Joint Permit” for surface water withdrawal obtained? | <input type="checkbox"/> Yes, documentation included | <input type="checkbox"/> N/A |
| Waste Disposal Permit (VPDES, other) Application submitted? | <input type="checkbox"/> Yes, documentation included | <input type="checkbox"/> N/A |
| Plans: | Cover Page: <input type="checkbox"/> Owner & Engineer name & address <input type="checkbox"/> Professional Engineer (PE) seal with signature & date | Plan Pages: <input type="checkbox"/> Legible & adequate size <input type="checkbox"/> Facsimile PE seal with signature & date |
| Specifications: | <input type="checkbox"/> Provided, with PE seal with signature & date | <input type="checkbox"/> References approved standard specifications <input type="checkbox"/> N/A |
| Design Notes: | <input type="checkbox"/> Hydraulic Model with Hydraulic Model Summary and Hydraulic Model Certification | <input type="checkbox"/> Other Calculations <input type="checkbox"/> N/A |
| Requirements for a proposed well: <input type="checkbox"/> Recorded plat (may be required for a noncommunity waterworks), <input type="checkbox"/> Recorded Dedication Document (may be required for noncommunity waterworks), <input type="checkbox"/> Well Completion Report, <input type="checkbox"/> Yield and Drawdown Report, <input type="checkbox"/> Chemical Quality Results, <input type="checkbox"/> Bacteriological Quality Results, <input type="checkbox"/> Radiological Quality Results (may not be required for transient noncommunity waterworks), <input type="checkbox"/> Well Checklist | | |
| Waterlines | <input type="checkbox"/> Waterline Checklist | |
| Pump Stations | <input type="checkbox"/> Pump Station Checklist (1 per pump station) | |
| Atmospheric Storage Tanks | <input type="checkbox"/> Atmospheric Storage Tank Checklist (1 per atmospheric storage tank) | |
| Pressure Tanks | <input type="checkbox"/> Pressure Tank Checklist (1 per pressure tank) | |
| Hypochlorite Disinfection | <input type="checkbox"/> Hypochlorite Disinfection Checklist (1 per treatment system) | |
| Liquid Chemical Feeders | <input type="checkbox"/> Liquid Chemical Feeder Checklist (1 per liquid chemical feeder) | |
| Powdered Chemical Feeders | <input type="checkbox"/> Powdered Chemical Feeders Checklist (1 per powdered chemical feeders) | |
| Cation Exchange Softening | <input type="checkbox"/> Cation Exchange Softening Checklist (1 per treatment system) | |
| Iron and Manganese Control | <input type="checkbox"/> Iron and Manganese Control Checklist (1 per treatment system) | |
| Fluoridation | <input type="checkbox"/> Fluoridation Checklist (1 per treatment system) | |

**Virginia Department of Health – Office of Drinking Water
Construction Permit Application**

The following statement must be signed and sealed by the Virginia licensed design engineer:

“As discussed in 12VAC5-590-220, the referenced design documents are in substantial compliance with Part III - Manual of Practice for Waterworks Design, of the Virginia Waterworks Regulations (12VAC5-590-640 et seq.). I have identified and justified herein any and all items that differ from the mandatory design criteria in the Manual of Practice per 12VAC5-590-220 B.”

Licensed Design Engineer's Signature and original seal (signed and dated)

Date

SUBJECT: Bedford County
WATERWORKS: Smith Mountain Lake
Central Water System
PWSID: 5019400

WATERWORKS CONSTRUCTION PERMIT

Permit No.: 502115 Effective Date: September 11, 2015 Expiration Date: September 11, 2020

Issued to:

Bedford Regional Water Authority
1723 Falling Creek Road
Bedford, Virginia 24523

Attn: Mr. Brian M. Key, Executive Director:

Preliminary plans and specifications for the construction of additions to the Smith Mountain Lake Central Water System community waterworks located in Bedford County, prepared by Black & Veatch, have been reviewed by this Office. The plans titled "Bedford Regional Water Authority, Bedford, Virginia; Smith Mountain Lake WTP & Raw Water Pumping Station/Intake" are dated August 2015 and include sheets G-00-001 through E-30-702 (157 sheets total). The specifications titled "Project Manual, Bedford Regional Water Authority, Bedford, Virginia; Smith Mountain Lake Raw Water Pumping Station and Water Treatment Plant" are dated July 2015.

The project consists of the construction of a raw water intake, raw water pump station, raw water storage tank, surface water membrane treatment plant, clearwell, finish water pumps and associated appurtenances as described on the attached engineering description sheet.

The Virginia Department of Health, Office of Drinking Water, in accordance with § 12VAC5-590 of the Commonwealth of Virginia *Waterworks Regulations* approves the preliminary plans and specifications with the following conditions:

1. Construction must adhere to Part III, Manual of Practice for Waterworks Design, of the Commonwealth of Virginia *Waterworks Regulations*.

Bedford Regional Water Authority
Waterworks Construction Permit No. 502115
September 11, 2015
Page 2

2. Failure to comply with Part III, Manual of Practice for Waterworks Design, of the Commonwealth of Virginia *Waterworks Regulations* will require corrections to obtain compliance with the *Waterworks Regulations* regardless of construction status.
3. At least 90 days prior to completion of construction, a complete set of final plans and specifications must be submitted to the Office of Drinking Water, Danville Field Office for review and approval. The plans and specifications must be properly signed and sealed by a professional engineer licensed in Virginia. The submission must include a completed Basis of Design Report and any associated calculations.
4. Any deviations from the approved preliminary documents affecting capacity, hydraulic conditions, operating units, the functioning of the treatment processes, or the water quality delivered, must be approved by this Office before any such changes are made.
5. As needed: Within 90 days after the project has been placed into service, a completed Operations and Maintenance Manual must be submitted to the Office of Drinking Water, Danville Field Office for review and approval.

A copy of these preliminary documents is on file in the Danville Field Office.

This approval does not suspend, minimize, or otherwise alter the waterworks obligation to comply with federal, state, or local laws and regulations or permits.

This Waterworks Construction Permit is issued in accordance with Title 32.1 of the *Code of Virginia*, and § 12VAC5-590 *et seq.* of the *Waterworks Regulations*. This is your authorization from the State Health Commissioner to construct additions to the subject waterworks in accordance with the approved preliminary documents. Any deviations from the approved preliminary documents affecting capacity, hydraulic conditions, operating units, the functioning of the treatment processes, or the water quality delivered, must be approved by this Office before any such changes are made. Revised preliminary plans and specifications shall be submitted to the Danville Field Office in time to permit review and approval before construction.

Upon approval of final plans and specifications, satisfactory results of bacteriological analysis and final inspection by an Office representative, the State Health Commissioner will issue a waterworks operation permit in accordance with the *Regulations*.

Bedford Regional Water Authority
Waterworks Construction Permit No. 502115
September 11, 2015
Page 3

If we can be of additional assistance, please contact *(insert name)* at *(insert phone number)* or at *(insert email address)*.

Sincerely,

Name
Field Services Engineer
Office of Drinking Water

XYZ:ABC

Enclosure

cc: *Paul Delphos, PE, Black & Veatch, email*
Bedford County Health Department, Attn: Kerry W. Gateley, MD, MPH, CPE, Director, email
Mark K. Reeter, Bedford County Administrator, email
Gary McIver, Bedford County Building Official, email
Philip Martin, PE, Western Virginia Water Authority, email

(VDH Letterhead)

MEMORANDUM OF UNDERSTANDING
General Permit for Distribution Mains

Waterworks' owner
Address 1
Address 2
City, State Zip

SUBJECT: *City/County*
WATERWORKS: *waterworks name*
PWSID: *PWSID*

A waterworks owner may apply for a General Permit for Distribution Mains if they have on record with the Virginia Department of Health, Office of Drinking Water, approved general specifications and plan details covering distribution waterline design and construction. This is allowed in accordance with 12VAC5-590-300 of the Virginia *Waterworks Regulations*. The General Permit for Distribution Mains delegates review and approval authority for the construction of distribution mains from the Virginia Department of Health and the State Health Commissioner to the waterworks owner. In order to receive and maintain this General Permit for Distribution Mains, the waterworks owner must establish a program consisting of the following items set forth in this MEMORANDUM OF UNDERSTANDING.

1. This General Permit is limited to the review and approval of distribution main extension projects only. The maximum pipe diameter to be reviewed under this program shall be _____ inches. Any project that includes transmission mains (a pipeline whose primary purpose is to move significant quantities of treated water among service areas) must be submitted to the Office of Drinking Water ODWConstructionPermits@vdh.virginia.gov for review, approval, and issuance of a Waterworks Construction Permit by the State Health Commissioner.
2. Any modifications of the *(waterworks owner's)* general specifications and plan details must be approved by the State Health Commissioner or designee and any such modification shall be at least as stringent as set forth in the *Waterworks Regulations*.
3. A review staff satisfactory to the Office of Drinking Water and including at least one Professional Engineer (PE) licensed to practice in Virginia shall be maintained (or retained on contract) by *(waterworks owner)*. Any change of the licensed Professional Engineer shall be reported immediately to the *Field Office Name*.
4. All individual projects serving 15 or more service connections or consisting of pipe greater than 8 inches in diameter shall have specific engineering plans and specifications prepared and approved under the General Permit prior to construction. These plans and specifications must be prepared by a PE licensed to practice in Virginia, independent of and separate from the review staff described in Item 3 above.
5. A project summary shall be completed for each project reviewed and approved under the General Permit. The summary report shall include project location, pipe material, diameter, length, and design population (or number of connections). In addition, the project summary shall indicate the minimum and maximum pressures under peak hour demand, or maximum day demand plus fire flow demand (if applicable). A copy of the project summary report must be forwarded to the *Field Office Name* as each project is approved. An example project summary report is attached.
6. The *(waterworks owner)* shall maintain and keep on file copies of the plans and all supporting documentation for each project approved under the General Permit. The Office of Drinking Water staff may perform an audit of the files.

PM-C7-Attachment 1. MOU for General Permit.

7. The *(waterworks owner)* shall maintain current distribution system maps showing the system layout of each waterworks covered by the General Permit, with pipe diameters and hydraulic capacities. A copy of the distribution map(s) shall be provided to the Office of Drinking Water upon request.
8. The Office of Drinking Water Field Director may at any time require the submittal of any set of project plans and specifications submitted to or prepared by *(waterworks owner)* under the General Permit.
9. The *(waterworks owner)* shall submit an Annual Report to *(Field Office name)* no later than *(month)* 1 of each year that the General Permit is in effect. The Annual Report shall include the following information:
 - a. A summary of the total quantity of water pipe installed under the General Permit during the preceding 12 months, indicating the respective pipe diameter and material;
 - b. The number of connections, by category, currently connected to each of the waterworks covered by the General Permit; and
 - c. The average daily demand and peak daily demand for each of the preceding 12 months, unless this data has been previously reported.
10. The conditions contained in this MEMORANDUM OF UNDERSTANDING shall be adhered to throughout the duration that *(waterworks owner)* holds a valid General Permit.
11. This MEMORANDUM OF UNDERSTANDING may be revoked by either party at any time. Revocation of the General Permit by the Commissioner automatically revokes the MEMORANDUM OF UNDERSTANDING.

Name & Title of Waterworks' Representative

Date

The conditions as outlined above are satisfactory to allow the Office of Drinking Water to issue a General Permit for Distribution Systems to *(waterworks owner)*.

Field Director Name
Engineering Field Director

Date

WATER PROJECTS ANNUAL REPORT

MEMORANDUM TO: VDH – Office of Drinking Water – (*Field Office*)

DATE:

FROM:

WATERWORKS:

SUBJECT: Local Review Program – Annual Report

REFERENCE: General Permit Number

=====
=====
Summary of water main installation projects during the period _____ through _____:

| Pipe Size | Pipe Length | Pipe Material |
|-----------|-------------|---------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Total Number of Projects Reviewed and Approved Under General Permit _____

Total Number of Connections as of _____ :
date

Twelve Month Average Daily Water Use: _____

Signature PE

PROJECT SUMMARY REPORT

MEMORANDUM TO: VDH – Office of Drinking Water – *Field Office Name*

DATE:

FROM:

PROJECT NAME:

PROJECT LOCATION:

PLANS PREPARED BY:

PROJECT SERVICE AREA DESIGN CONDITIONS:

| Connection Type | Number of Connections | Average Day | | Maximum Day | |
|------------------|-----------------------|----------------|-----|----------------|-----|
| | | GPD/Connection | GPD | GPD/Connection | GPD |
| Residential | | | | | |
| Commercial | | | | | |
| Industrial | | | | | |
| Other (identify) | | | | | |
| TOTAL | | | | | |

| Pipe Size | Pipe Length | Pipe Material |
|-----------|-------------|---------------|
| | | |
| | | |
| | | |
| | | |

Fire hydrants located on pipe \geq 6-inch diameter? _____
 Maximum of 600 ft of 3-inch diameter water line? _____
 Maximum of 300 ft of 2-inch diameter water line? _____

HYDRAULIC EVALUATION OF THIS PROJECT:

| Flows | | Minimum Pressure |
|-------------------------|--|------------------|
| Peak Hour Demand | | |
| Maximum Day Demand | | |
| Design Fire Flow | | |
| Maximum Day + Fire Flow | | |
| No. of Fire Hydrants | | |

Design Fire Flow Acceptable To Fire Official? _____ Y/N

_____ **PE**
Signature of Project Reviewer



COMMONWEALTH OF VIRGINIA

DEPARTMENT OF HEALTH OFFICE OF DRINKING WATER

GENERAL PERMIT FOR CONSTRUCTION OF WATERWORKS DISTRIBUTION MAINS

(Waterworks name) is hereby granted permission to construct waterline extensions located in *(City or County)* in accordance with §§ 32.1-172 and 32.1-173 of the *Code of Virginia* and the *Waterworks Regulations* of the Virginia Department of Health (12VAC5-590). This permit is issued in accordance with the General Specifications and Plan Details covering water supply main design and construction, titled *(Title of standards)*, dated *(date of standards)*, and the attached Memorandum of Understanding.

PERMIT NO.: *(construction permit number)*
EFFECTIVE DATE: *(use format: January 1, 2014)*
EXPIRATION DATE: *(use format: January 1, 2014, + 5 or 10 years)*

APPROVED _____

Director's name, PE, Engineering Field Director,
Field Office Name Field Office
for the State Health Commissioner pursuant to VA Code § 2.2-604

PM-C7-Attachment 5. General Permit Transmittal Letter. INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Waterworks Owner, email
Address 1
Address 2
City, State, Zip

Dear (Waterworks Owner):

Enclosed please find a signed General Permit for Construction of Waterworks Distribution Mains and the associated Memorandum of Understanding (MOU) towards implementation of (waterworks' name) Local Review Program. Projects reviewed under this program will be constructed in accordance with the (waterworks name) standard specifications approved by the Office of Drinking Water on (date).

Should you have any questions, please feel free to contact (District Engineer) or (Deputy Field Director) in our (name) Field Office at (phone number).

Sincerely,

name
Engineering Field Director

XYZ:ABC

Enclosure

ec: Local Health Department, attn: Health Director, name, email
County Administrator, name, email
County Building Official, name, email

General Permit & Local Review Program Audit Review

Section A - General

Name of Waterworks:

PWSID:

General Permit No.:

Issue Date:

Expiration Date:

Waterworks Contact:

Audit Conducted By:

Date of Audit:

Date of Signed MOU:

Section B – Standard Construction Specifications

Title of Standard Construction Specifications:

ODW Approval Date:

Are the approved Standard Construction Specifications up to date:

Date standard specifications were last amended:

Section C – Local Review Program

Person(s) responsible for project review:

Name: PE License Number

Name: PE License Number

Name: PE License Number

Name: PE License Number

1. Do all individual projects serving 15 or more service connections have specific engineering plans and specifications prepared and approved?

2. Is an individual project review conducted for every project?
3. Are review notes or checklists utilized?
If yes, is the review adequate?
4. Does the project review include an evaluation of system hydraulics, including potential impacts on the entire waterworks?
5. Does the project review include an evaluation of minimum pressures to ensure that 20 psi is maintained at all locations under all flow conditions?
6. Does the waterworks have a calibrated system-wide hydraulic model?
If yes, is the model utilized to evaluate projects under the local review program?
7. Maximum pipe size per Memorandum of Understanding?
Do projects comply with this maximum diameter?
8. Is a project summary sheet completed for each project?
9. Does the project summary sheet indicate the following:
 - Project location
 - Pipe material?
 - Diameter and length of all piping?
 - Design population or number of connections?
 - Minimum and maximum pressures under peak hour demand or maximum day demand plus first flow demand (if applicable)?
 - Number and type of connections served?
 - Design flow and maximum flow?
 - Minimum pressure and critical point?
10. Are the summary sheets submitted to the respective ODW District Engineer for each project?
11. Does the waterworks do ANY in-house design of water line projects?

If yes, are these projects submitted to ODW for review, approval, and issuance of a construction permit?

If no, identify the third-party professional engineer that conducts the review:

Name: PE License Number

Name: PE License Number

Section D – Records and Reporting

1. Does the waterworks maintain up-to-date distribution system maps?
2. Does the utility keep file copies of all approved projects?
3. Does the utility keep file copies of all project reviews and approvals?
4. Does the utility submit the required annual report to ODW?

Section E – Selected Project Review Audit

Name of project selected for audit:

Date of approval:

Reviewer:

1. Were project review sheets adequate?
2. Were system hydraulics and minimum pressure adequately evaluated?
3. Were impacts on overall distribution system evaluated?
4. Did the project appear to be in accordance with the *Waterworks Regulations*?
5. Was the ODW summary sheet completed and submitted?
6. Is the Local Review Program following all the conditions of the MOU?



Virginia Department of Health
Office of Drinking Water

Waterworks Operation Permit

(Waterworks Owner) is hereby granted permission to operate the *(name of service area and/or name of waterworks)* waterworks, a Class *(1, 2, 3, 4, 5, 6 or an unclassified)* *(community, nontransient noncommunity, transient noncommunity)* waterworks located in *(City, Town or County)*, in accordance with Title 32.1 of the *Code of Virginia* and the *Virginia Waterworks Regulations, 12VAC5-590-10 et seq.* The waterworks has a capacity of *(flowrate in gpd, or existing units as appropriate)*. This permit is issued with the understanding that this owner shall operate the waterworks in accordance with Part II of the *Virginia Waterworks Regulations* titled "Operation Regulations for Waterworks." This permit does not suspend, minimize, or otherwise alter this owner's obligation to comply with applicable federal, state, or local laws and regulations or permits. This permit may be revoked at any time upon written notice of revocation by the State Health Commissioner if it is determined that *(Owner)* has failed to comply with this permit, including the Operation Permit Conditions.

Attachments: Operation Permit Conditions (), Variances (), Exemptions ()

PERMIT NO.: *(PWSID#)*

EFFECTIVE DATE: *(use format: January 1, 2014)*

APPROVED _____

Director's name, PE, Engineering Field Director, *Field Office Name* Field Office
for the State Health Commissioner pursuant to VA Code § 2.2-604



Virginia Department of Health
Office of Drinking Water

Temporary Waterworks Operation Permit

(Waterworks Owner) is hereby granted permission to operate the *(name of service area and/or name of waterworks)* waterworks, a Class *(1, 2, 3, 4, 5, 6 or an unclassified)* *(community, nontransient noncommunity, transient noncommunity)* waterworks located in *(City, Town or County)*, subject to the attached Temporary Permit Requirements to protect public health and demonstrate compliance with Title 32.1 of the *Code of Virginia* and of the *Virginia Waterworks Regulations, 12VAC5-590-10 et seq.* The waterworks has a capacity of *(flowrate in gpd, or existing units as appropriate)*. This temporary permit is issued with the understanding that this owner shall operate the waterworks in accordance with Part II of the *Virginia Waterworks Regulations* titled "Operation Regulations for Waterworks." This temporary permit does not suspend, minimize, or otherwise alter this owner's obligation to comply with applicable federal, state, or local laws and regulations or permits. This temporary permit shall expire on *(January 1, 2007)* or may be revoked at any time upon written notice of revocation by the State Health Commissioner if it is determined that *(Waterworks Owner)* has failed to comply with any of the attached Temporary Permit Requirements.

Attachments: Operation Permit Conditions (), Variances (), Exemptions (), or Temporary Permit Requirements ()

PERMIT NO.: *(PWSID#)*T

EFFECTIVE DATE: *(use format: January 1, 2007)*

EXPIRATION DATE: *(use format: January 1, 2007)*

APPROVED _____

Director's name, PE, Engineering Field Director, *Field Office Name* Field Office
for the State Health Commissioner pursuant to VA Code § 2.2-604

OPERATION PERMIT CONDITIONS

(1 line space)

Operation Permit No.: *(insert #)*
2015)

Permit Effective Date: *(format: January 1,*

Waterworks Name:

Waterworks Class: *(1, 2, 3, 4, 5, 6, or Unclassified)*

(2 line spaces)

OPERATOR REQUIREMENTS: *(insert current Operator and attendance requirements – this may change in future based on regulation revisions)*

(1 line space)

This waterworks shall be operated by a Class X or greater operator. When the operator is not in attendance, a substitute operator equal to or greater than Class X shall be in attendance.) *This is typical for Class 1-3 waterworks.*

or

A Class X operator shall be in attendance at the waterworks each day the plant is in operation for sufficient time to perform necessary monitoring and process evaluation, and to make any process adjustments) – *This is typical for Class 4 non-conventional filtration systems such as membranes.*

or

A Class (4, 5 or 6) operator shall be in attendance as necessary to perform monitoring and process evaluation, and to make any process adjustments.

or

Operating personnel shall be in attendance as necessary to perform monitoring and process evaluation, and to make any process adjustments.

(2 line spaces)

TREATMENT TECHNIQUE REQUIREMENTS:

This waterworks shall meet the following treatment techniques: *(Only include if federal or state treatment techniques are required. Select all that apply.)*

(1 line space between Rules)

Groundwater Rule *(include if required)*

Required disinfection inactivation: 4-log Virus inactivation

(1 line space between Rules)

Surface Water Treatment Rule and LT1 and LT2 Enhanced Surface Water Treatment Rules

(include if BIN 1)

Required microbial filtration removal and/or disinfection inactivation:

Virus: 4-log *(If more than one disinfection method is used to achieve disinfection credit, then this must be clearly identified in the Waterworks Description Sheet (WDS))*

Giardia: 3-log

Cryptosporidium: 2-log

Conventional filtration plants meeting the turbidity treatment technique requirements of the Surface Water Treatment Rule are credited with 3.0-log removal of Cryptosporidium and 2.5-log removal of Giardia.

Required Turbidity removal:

The combined filter effluent turbidity shall be less than or equal to 0.3 NTU in 95% of measurements recorded each month. The combined filter effluent turbidity shall not exceed 1 NTU.

(include if BIN 2)

Based on source water monitoring under the LT2 Enhanced Surface Water Treatment Rule, the name source has been classified as Bin “X” and requires 1-log additional cryptosporidium removal.

Required microbial filtration removal and/or disinfection inactivation:

Adhere to format shown in this document; including margins, line spacing and font.

Virus: 4-log (*If more than one disinfection method is used to achieve disinfection credit, then this must be clearly identified in the WDS*)

Giardia: 3-log

Cryptosporidium: 4-log

Conventional filtration plants meeting the turbidity treatment technique requirements of the Surface Water Treatment Rule are credited with 3.0-log removal of Cryptosporidium and 2.5-log removal of Giardia. To achieve a total of 4-log removal/inactivation of Cryptosporidium, an additional 1-log of removal/inactivation is required.

Required Turbidity removal: (*If waterworks is achieving LT2 additional cryptosporidium log removal through filter performance criteria*):

The combined filter effluent turbidity and all individual filter effluent turbidity shall be less than or equal to 0.15 NTU in 95% of measurements recorded each month. The combined filter effluent turbidity shall not exceed 0.3 NTU.

(1 line space between Rules)

Lead and Copper Rule Water Quality Parameters (*include if required*)

(Select the water quality parameters and limits, as determined by the Field Office)

Entry Point

pH > X

calcium > X mg/l

conductivity > X µmhos/cm

orthophosphate > X mg/l as P

Distribution System

pH > X

calcium > X mg/l

conductivity > X µmhos/cm

orthophosphate > X mg/l as P

(2 line spaces)

OPERATION, MONITORING, AND REPORTING:

(1 line space)

(If no additions to the Waterworks Regulations standard operational requirements are imposed):

Operation, monitoring, and reporting shall be in accordance with Title 32.1 of the *Code of Virginia* and 12VAC5-590-10 *et seq.* of the *Virginia Waterworks Regulations*.

(Or if specific additional operational requirements are imposed and presented below):

Operation, monitoring, and reporting shall be in accordance with Title 32.1 of the *Code of Virginia* and 12VAC5-590-10 *et seq.* of the *Virginia Waterworks Regulations*. The State Board of Health of the Commonwealth of Virginia has issued additional operational, monitoring, and reporting requirements. This waterworks is subject to the following additional requirements: (*Include all the "specific" requirements as necessary. Number each additional requirement.*)

(1 line space)

1. Specific operational requirements for conventional filtration at the XXXXX water treatment plant: (*BIN 1, include if applicable*)

1. In order to achieve a 2.5-log removal credit of Giardia and 3-log removal credit of Cryptosporidium, the conventional filtration water treatment plant shall consistently maintain (as reported on the monthly operation report):
 - a. The combined filter effluent turbidity at less than or equal to 0.3 NTU in 95% of measurements recorded each month.
 - b. The combined filter effluent turbidity at less than or equal to 1 NTU in all measurements recorded each month.
2. An additional 0.5-log inactivation of Giardia by free chlorine disinfection as reported on the monthly operation report shall be maintained.
3. 4-log inactivation of virus by free chlorine disinfection as reported on the monthly operation report shall be maintained.
4. The individual filter hydraulic loading rate shall not exceed X gpm/sf.

2. Specific operational requirements for conventional filtration at the XXXXX water treatment plant: *(BIN 2, include if treatment plant is achieving the additional LT2 crypto credit through filter performance)*

1. In order to achieve a 4-log removal credit of Cryptosporidium, the conventional filtration water treatment plant shall consistently maintain (as reported on the monthly operation report):
 - a. The combined filter effluent turbidity at less than or equal to 0.15 NTU in 95% of measurements recorded each month.
 - b. The individual filter effluent turbidity of every filter shall be less than or equal to 0.15 NTU in 95% of measurements recorded each month.
 - c. The individual filter effluent turbidity of every filter shall never exceed 0.3 NTU in two consecutive measurements taken 15 minutes apart.
2. In order to achieve a 2.5-log removal credit of Giardia, the conventional filtration water treatment plant shall consistently maintain (as reported on the monthly operation report):
 - a. The combined filter effluent turbidity at less than or equal to 0.3 NTU in 95% of measurements recorded each month.
 - b. The combined filter effluent turbidity at less than or equal to 1 NTU in all measurements recorded each month.
3. An additional 0.5-log inactivation of Giardia by free chlorine disinfection, as reported on the monthly operation report, shall be maintained.
4. 4-log inactivation of virus by free chlorine disinfection, as reported on the monthly operation report, shall be maintained.
5. The individual filter hydraulic loading rate shall not exceed X gpm/sf.

(1 line space)

3. Specific operational requirements for membrane filtration: *(include if applicable)*

1. In order to achieve a 3-log removal credit of Giardia and 3-log removal credit of Cryptosporidium, the water treatment plant shall consistently maintain (as reported on the monthly operation report):
 - a. The combined filter effluent turbidity at less than or equal to 0.3 NTU in 95% of measurements recorded each month.
 - b. The combined filter effluent turbidity at less than or equal to 1 NTU in all measurements recorded each month.
2. An additional 0.5-log inactivation of Giardia by free chlorine shall be maintained.
3. 4-log inactivation of virus by free chlorine disinfection as reported on the monthly operation report shall be maintained.

| OPERATIONAL CONTROL PARAMETER | ALARM SET POINT | SHUTDOWN SET POINT |
|--|--|--|
| Entry Point Free Chlorine Residual | <i>Not less than ___ mg/L</i> | <i>Not less than ___ mg/L</i> |
| Direct Integrity Test; Log Removal Value (LRV) | <i>Not greater than ___ psi/minute with a test pressure not less than ___ psi throughout the test; equivalent to LRV not less than _____</i> | <i>Not greater than ___ psi/minute with a test pressure not less than ___ psi throughout the test; equivalent to LRV not less than _____</i> |
| Membrane Filtrate Turbidity | <i>Not greater than ___ NTU</i> | <i>Not greater than ___ NTU</i> |

(1 line space)

Adhere to format shown in this document; including margins, line spacing and font.

4. Specific operational requirements for cartridge filtration: *(include if applicable)*

1. In order to achieve a 3-log removal credit of Giardia and 3-log removal credit of Cryptosporidium, the water treatment plant shall consistently maintain (as reported on the monthly operation report):
 - a. The combined filter effluent turbidity at less than or equal to 0.3 NTU in 95% of measurements recorded each month.
 - b. The combined filter effluent turbidity at less than or equal to 1 NTU in all measurements recorded each month.
2. 4-log inactivation of virus by free chlorine disinfection as reported on the monthly operation report shall be maintained.

| OPERATIONAL CONTROL PARAMETER | ALARM SET POINT | SHUTDOWN SET POINT |
|------------------------------------|--------------------------------|--------------------------------|
| Entry Point Free Chlorine Residual | <i>Not less than ___mg/L</i> | <i>Not less than ___mg/L</i> |
| Differential Pressure | <i>Not greater than ___psi</i> | <i>Not greater than ___psi</i> |
| Filtrate Turbidity | <i>Not greater than ___NTU</i> | <i>Not greater than ___NTU</i> |

(1 line space)

5. Specific operational requirements for UV disinfection: *(include if applicable)*

The following operating conditions shall be met to achieve a (X-log) credit for cryptosporidium inactivation.

| UV REACTOR PARAMETER | MINIMUM REACTOR OPERATIONAL LIMIT (ALARM REQUIRED) |
|---|--|
| UV Intensity (those using single UV Intensity setpoint control) | <i>___W/m²</i> |
| UV Dose (those using calculated dose control) | <i>___mJ/cm²</i> |

or

| UV REACTOR PARAMETER | ALARM CRITERIA |
|---|----------------|
| <i>High Flow Rate</i> | <i>Gpm</i> |
| Low UV Transmittance (those using calculated dose control) | <i>% UVT</i> |
| Lamp/Ballast Failure | <i>Failure</i> |
| High Temperature | <i>°C</i> |
| Mechanical Wiper Failure (if applicable) | <i>Failure</i> |

(1 line space)

6. Specific operational, monitoring, and reporting requirements for 4-log Virus disinfection credit with Free Chlorine, as required by the Groundwater Rule: *(include if applicable)*

1. In order to consistently achieve 4-log inactivation of virus, the minimum free residual chlorine concentration, measured at the entry point sample tap for {name of source} must be maintained at {insert} mg/L.

Waterworks service population > 3,300 or service population ≤ 3,300 choosing this option:

Adhere to format shown in this document; including margins, line spacing and font.

2. The free chlorine residual concentration must be continuously monitored and recorded at the approved entry point location to the distribution system each day that you serve water from {name of source} to the public. The daily lowest free chlorine residual concentration must be reported on the monthly operations report.

Or Waterworks service population $\leq 3,300$:

3. The free chlorine residual concentration must be measured and recorded on a grab sample collected at the approved entry point location to the distribution system during the hour of maximum peak flow each day that you serve water from {name of source} to the public. The daily grab sample chlorine residual concentration must be reported on the monthly operations report.
4. The monthly operations report must be submitted no later than the 10th day of the month following the month in which data is reported.

(1 line space)

7. Specific operational, monitoring, and reporting requirements for disinfection credit with Free Chlorine: *(include if applicable, MPN geometric mean > 3)*

Waterworks service population > 3,300 or service population $\leq 3,300$ choosing this option:

1. The free chlorine residual concentration must be continuously monitored and recorded at the approved entry point location to the distribution system each day that you serve water from {name of source} to the public. The daily lowest free chlorine residual concentration must be reported on the monthly operations report.

Or Waterworks service population $\leq 3,300$:

2. The free chlorine residual concentration must be measured and recorded on a grab sample collected at the approved entry point location to the distribution system during the hour of maximum peak flow at least (X) days per week that you serve water from {name of source} to the public. The daily grab sample chlorine residual concentration must be reported on the monthly operations report.
3. The monthly operations report must be submitted no later than the 10th day of the month following the month in which data is reported.

(1 line space)

8. Lead and Copper Rule Water Quality Parameters

(1 line space)

The {waterworks name} shall conduct monitoring for Lead and Copper Rule (LCR) Water Quality Parameters at the locations and frequency indicated below to begin during any monitoring period in which the lead or copper Action Level is exceeded.

| Water Quality Parameter | Monitoring Location | Monitoring Frequency |
|--------------------------------|----------------------------|---|
| pH | Entry Point | Every 2 weeks |
| Calcium | Entry Point | Every 2 weeks |
| Conductivity | Entry Point | Every 2 weeks |
| Orthophosphate (as P) | Entry Point | Every 2 weeks |
| pH | Distribution System | Two (2) samples at 2 separate distribution system locations during each 6-month LCR monitoring period |

Adhere to format shown in this document; including margins, line spacing and font.

| | | |
|-----------------------|---------------------|---|
| Calcium | Distribution System | Two (2) samples at 2 separate distribution system locations during each 6-month LCR monitoring period |
| Conductivity | Distribution System | Two (2) samples at 2 separate distribution system locations during each 6-month LCR monitoring period |
| Orthophosphate (as P) | Distribution System | Two (2) samples at 2 separate distribution system locations during each 6-month LCR monitoring period |

(Adjust number of samples based on waterworks population served) (1 line space)

9. Specific operational, monitoring, and reporting requirements for corrosion control treatment:
(1 line space)

This waterworks shall continuously operate corrosion control treatment and maintain the following corrosion control treatment operational control parameters:

(1 line space)

1. In order to ensure satisfactory corrosion control treatment, the {waterworks name} shall maintain and monitor:
 - a. pH equal to or greater than X at the {entry point name} entry point.
Measure the pH value at least two times per week and report the pH values on the monthly operation report.
 - b. Orthophosphate (measured as P) of equal to or greater than X mg/L at the {entry point name} entry point.
Measure the P value at least two times per week and report the P values on the monthly operation report.

(2 line spaces)

WATERWORKS CAPACITY:

(1 line space)

Source Capacity: *(List each individual source capacity as calculated in the WDS, to include as needed)*

Well (name): XXX MGD or gpd
 Surface Water (name): XXX MGD or gpd
 Purchased Water (waterworks name, PWSID): XXX MGD or gpd
 Total source capacity: XXX MGD or gpd

(Source capacity is defined as the limiting factor of either source yield, or pumping and delivery. If a DEQ VWP or Groundwater Withdrawal Permit is issued, include the permit requirements in the Capacity Evaluation section of the WDS.)

(1 line space)

Treatment Capacity:

No treatment is provided.

or

The following treatment is provided (for the _____ treatment plant):

List all treatment processes described in the WDS for each facility. Include special conditions/qualifiers in parentheses. Processes may include the following:

(1 line space)

- Rapid Mix (Coagulation)
- Flocculation
- Sedimentation
- Superpulsators, Solids Contact Clarifiers, Absorption Clarifiers

PM-C8-Attachment 3 Operation Permit Conditions

Adhere to format shown in this document; including margins, line spacing and font.

Ozonation (treatment technique requirement) (not a treatment technique requirement)
Gravity Filtration, granular media
Pressure Filtration – *type (i.e. KMnO4-Greensand media) (for XX removal) if specific parameter known, such as iron*
Membrane Filtration, Microfiltration, Ultrafiltration (log inactivation treatment technique requirement)
Nanofiltration
Reverse Osmosis
Cartridge Filtration (voluntary) (log inactivation treatment technique requirement)
UV Disinfection (voluntary) (log inactivation treatment technique requirement)
Granular Activated Carbon Adsorption
Ion Exchange (for XX removal) *if specific parameter known, such as arsenic*
Cation Exchange Softening
Oxidation – *type*
Corrosion Control, pH Adjustment chemical feed (treatment technique requirement) (not a treatment technique requirement)
Corrosion Control, orthophosphate chemical feed (treatment technique requirement) (not a treatment technique requirement)
Sequestering (Iron & Manganese treatment) chemical feed
Fluoridation
Chlorine Disinfection – [type] (voluntary) (required due to distribution water quality, but not a treatment technique requirement) (required due to source water quality, but not a treatment technique requirement) (log inactivation treatment technique requirement)
Chlorine Dioxide Disinfection (log inactivation treatment technique requirement)

(1 line space)

Limiting treatment capacity: XXX MGD or gpd based on xxx treatment process

or

The permitted capacity is not limited by the installed (chemical feed system) (treatment unit).

Use this sentence for “treatment unit” only if voluntary treatment such as water softener, UV, etc. are installed.

(1 line space)

Storage and Delivery Requirements:

For community waterworks:

The waterworks shall provide sufficient storage and distribution pumping capacity to provide a minimum working pressure of 20 psig at all service connections. *(required)*

The total available system effective storage volume is XXX gal which is equivalent to ½ day storage of the water demand of XXX gpd. *(As determined in the WDS based a minimum of ½ day storage.)*

or

Actual operation history indicates the existing finished water storage of XXX gal meets the system demand and minimum pressure requirements. *(Use when there is not ½ day storage, but the waterworks has acceptable operating history).*

or

The hydraulic model, titled “xxx”, dated “xxx”, indicates the waterworks has sufficient storage to meet the maximum daily demand of XXX gpd.

For Noncommunity waterworks:

The waterworks shall provide sufficient distribution storage and pumping capacity to meet peak hourly flow demand.

(1 line space)

Adhere to format shown in this document; including margins, line spacing and font.

VDH Sewage Disposal System Operation Permit: *(Only include if sewage is limiting permitted capacity)*

___ gpd

(1 line space)

Permitted Capacity:

This waterworks is permitted for a capacity of ___ gpd due to (limited source capacity) (limited treatment capacity) (limited storage capacity) (VDH Sewage Disposal System permitted capacity) (other explanation). (However, the number of connections cannot exceed 49 until an acceptable additional source is provided.)

or

If gpd capacity cannot be determined:

This waterworks is permitted for a capacity limited to the existing (*X* restaurant seats/*X* building structures/*X* campsites/*other*) until (information on the well yield/pump capacity/*other* is provided) (and) (the need for additional storage is evaluated).

PM-C8-Attachment 4. Temporary Operation Permit Requirements. List specific action items, relevant Code or Regulation section, and include an individual deadline for each action. Place action items in order of health protection (list most critical first). Examples are given below.

TEMPORARY PERMIT REQUIREMENTS

Temporary Operation Permit No. [#]T

[Waterworks Name]

(Waterworks Owner), owner of the [Waterworks Name] waterworks, shall comply with the temporary permit requirements below to protect public health and bring the [Waterworks Name] waterworks into compliance with Title 32.1 of the Code of Virginia and 12VAC5-590-10 *et seq.* of the Virginia *Waterworks Regulations (Regulations)*.

Examples:

1. Hire a Professional Engineer, licensed in the Commonwealth of Virginia, to provide the information necessary to resolve [], as required by 12VAC5-590-210 A of the *Regulations*. Schedule a Preliminary Engineering Conference with the Office of Drinking Water (ODW) [*Field Office*] Field Office staff and the selected Professional Engineer. This meeting should be held in the [Field Office] Field Office **no later than [date]**.
2. Submit engineering documents (plans and specifications, design calculations, etc.) for appropriate upgrades to bring the waterworks into compliance with the *Regulations* **no later than [date]**. Such documentation is required by 12VAC5-590-200 of the *Regulations*.
3. Collect samples for inorganic chemicals, metals, radiological, nitrate/nitrite, unpreserved nitrite, volatile organic chemicals (VOCs) and cyanide from the [well name or number] entry point. Sample collection shall begin **no later than [date]**, and all samples shall be collected **no later than [date]**. Sampling requirements are specified in 12VAC5-590-370 [B (Chemicals); 12VAC5-590-372 (Inorganics), 12VAC5-590-373 (Organics), and 12VAC5-590-378 (Radiologicals)] of the *Regulations*.
4. Collect [#] lead and copper samples from approved locations within the distribution system no later than June 30, [year]. A second set of [#] lead and copper samples from approved locations within the distribution system must be collected **between July 1, [year] and December 31, [year]**. Sampling requirements are specified in 12VAC5-590-375 of the *Regulations*.
5. Collect a series of 20 most probable number (MPN)-type bacteriological samples from the raw water sample tap at [well name or number] and have them analyzed by a certified laboratory. Sample collection shall begin with one raw water sample taken **no later than [date]**, with succeeding individual samples taken approximately every two weeks until all 20 samples are collected and analyzed, with all MPN samples collected **no later than [date]**. A Groundwater Under the Direct Influence of Surface Water (GUDI) determination is required by 12VAC5-590-430 of the *Regulations*.
6. Submit a Bacteriological Sample Siting Plan (BSSP), required by 12VAC5-590-370 A of the *Regulations*, for approval to the [Field Office] Field Office **no later than [date]**.
7. Collect [#] routine bacteriological [select one] monthly from approved locations in the distribution system and have them analyzed by a certified laboratory. Bacteriological sampling shall begin in **[month year] and continue each month** thereafter in accordance with the approved BSSP. Sampling requirements are specified in 12VAC5-590-370 of the *Regulations*.

PM-C8-Attachment 4. Temporary Operation Permit Requirements. List specific action items, relevant Code or Regulation section, and include an individual deadline for each action. Place action items in order of health protection (list most critical first). Examples are given below.

8. Submit a Disinfectants/Disinfections Byproducts Monitoring Plan, required by 12VAC5-590-374 of the *Regulations*, for approval to the [Field Office] Field Office **no later than [date]**.
9. Submit a Lead and Copper Materials Survey, as specified by 12VAC5-590-375 B of the *Regulations*, for approval to the [Field Office] Field Office **no later than [date]**.
10. Submit a Cross Connection and Backflow Prevention Program, as required by 12VAC5-590-600 A of the *Regulations*, for approval to the [Field Office] Field Office **no later than [date]**.
11. Submit a waterworks permit application, as required by Va. Code § 32.1-172, to the [Field Office] Field Office **no later than [date]**.
12. Submit a Waterworks Business Operation Plan (WBOP) to the ODW *[Field Office]* Field Office for review and approval **no later than [date]**. Submission of the WBOP with the permit application is a requirement of Va. Code § 32.1-172 and is a key element for establishing sustainable operations of the waterworks.
13. Develop an Emergency Management Plan for extended power outages and certify in writing that the Plan has been established as specified in 12VAC5-590-505 of the *Regulations* **no later than [date]** (Community Only).
14. Submit a copy of a signed agreement with a waterworks operator with a Class 6 or higher Virginia license to operate a waterworks **no later than [date]**. Waterworks Operator requirements are specified in 12VAC5-590-461 of the *Regulations*.
15. Install a totalizing-type meter on the well discharge of the [well name or number], in accordance with 12VAC5-590-700 of the *Regulations*, **no later than [date]**. Record meter readings and number of connections monthly on the Monthly Operation Report form submitted to the ODW *[Field Office]* Field Office **by the 10th of the month** following the reporting period. (Community Only)
16. Install a threadless raw water sample tap, pointing downward and away from the well casing, on the discharge of the well pump, **no later than [date]**. This requirement is specified in 12VAC5-590-1065 E 2 of the *Regulations*.

**VIRGINIA DEPARTMENT OF HEALTH
WATERWORKS DESCRIPTION SHEET**

DATE: *(format: January 1, 2015)*

WATERWORKS NAME:

WATERWORKS CLASS: *(1, 2, 3, 4, 5, 6, or Unclassified)*

COUNTY/CITY:

TYPE:

PERMIT NUMBER: *(insert #)*

TYPE OF TREATMENT: *list all unit treatment processes*

SOURCE: *wells, springs or surface water source(s)*

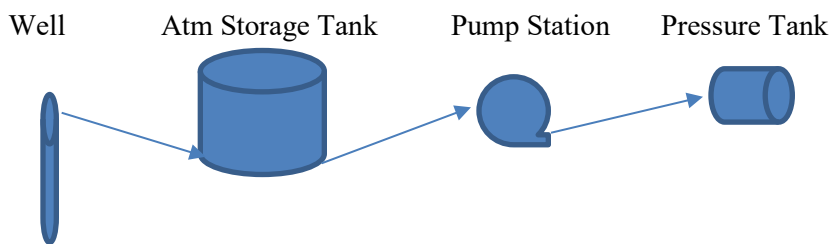
CAPACITY: *_____ gpd or other basis*

DESCRIPTION OF THE WATERWORKS

Service population

| | |
|--------------------------------|--|
| Business type | |
| Number customers served daily | |
| Number of employees | |
| Number year round residents | |
| Days/weeks/months of operation | |
| Hours per day of operation | |
| Population served | |
| Number of service connections | |

System Diagram *(Recommended, particularly for complicated systems, example below. Excel or Lucid Charts can be more effective tools for creating diagrams than Word)*



For the tables below, enter the available information. Enter "unknown" if the information is not available.

Wells

| | | | |
|---|--|--|--|
| Name | | | |
| Well Class | | | |
| Casing Depth | | | |
| Casing Material | | | |
| Grout Depth | | | |
| Grout Type | | | |
| Screen Depths | | | |
| Total Well Depth | | | |
| Pump Depth | | | |
| Pumping Capacity | | | |
| Yield | | | |
| Yield and Drawdown duration and date | | | |
| Treatment requirements (GUDI, 4-log virus, Fe+Mg control, etc.) | | | |
| Pump control scheme | <i>Describe, e.g., on-off pressures, timer setting, etc.</i> | | |

Pressure Tanks *(ensure locations are entered into SDWIS)*

| | | | |
|--------------------|--|--|--|
| Name | | | |
| Nominal Capacity | | | |
| Effective Capacity | | | |

Atmospheric Storage Tanks *(ensure locations are entered into SDWIS)*

| | | | |
|--------------------------------------|-----------------|--|--|
| Name | | | |
| Constructed in Accordance with Regs? | | | |
| Nominal Capacity | | | |
| Effective Capacity | | | |
| Effective Storage Elevation | | | |
| Overflow Elevation | | | |
| Mixing or Aeration | <i>Describe</i> | | |

Pump Stations *(ensure locations are entered into SDWIS)*

| | | | |
|---------------------------------|--|--|--|
| Name | | | |
| Number of Pumps | | | |
| Individual Capacities of Pumps | | | |
| Firm Capacity of Pump Station | | | |
| Description of operation scheme | <i>Describe, e.g., on-off pressures, timer setting, etc.</i> | | |

Chemical Feed Systems

| | | | |
|------------------------|-----------------|--|--|
| Type | | | |
| Metering Pump Capacity | | | |
| Chemical tank volume | | | |
| SCADA/operating scheme | <i>describe</i> | | |
| Required treatment? | | | |
| Solution strength | | | |

OTHER

Provide written descriptions of facilities not covered by the tables above, or any particular circumstance not covered by the tables above.

OTHER PERMITS

Select as applicable:

The Department of Environmental Quality has issued a Virginia Water Protection Permit (No. _____) to this waterworks for raw water withdrawal. *(If a final DEQ permit has been issued, then summarize the hydraulic capacity limitations of the permit here to include maximum daily withdrawal, maximum monthly withdrawal, and maximum annual withdrawal, as provided.)*

The Department of Environmental Quality has not issued a Virginia Water Protection Permit to this waterworks for raw water withdrawal. *(For waterworks with “grandfathered” surface water withdrawals.)*

The Department of Environmental Quality has *(drafted) (issued)* a Groundwater Withdrawal Permit (No. - XXX) to this waterworks. *(If a final DEQ permit has been issued, then summarize the hydraulic capacity limitations of the permit here.)*

This waterworks is located in the *(Eastern / Eastern Virginia)* Groundwater Management Area. However, a groundwater withdrawal permit is not required by the Department of Environmental Quality at this time. A groundwater withdrawal permit may be required for this waterworks in the future.

Compliance with the conditions and requirements of the *(name of DEQ permit type)* permit shall not limit the authority of the Virginia Department of Health to assign a capacity to the waterworks, based on the evaluation as follows.

This facility has been issued a Virginia Department of Health Food Establishment Operation Permit, with an expiration date of *date*, and (does not include design or operation capacity limitation) (includes a limiting capacity of xxx seats).

WATERWORKS CAPACITY

All calculations should consistently incorporate ODW’s frequently used abbreviations and symbols, as well as use consistent mathematical expressions throughout. Do not use “x” or “” in a formula,*

instead use parentheses. See Chapter 9 of the Permit Manual for guidance and example waterworks capacity evaluations.

1. Estimated Water Demand: (Cite the actual reported production or other design reference, such as the AWWA Design and Construction of Small Systems, 1999)
2. Source Capacity: (Include raw water sources and purchased water sources.)
3. Treatment Capacity:
4. Storage Capacity:
5. Delivery Capacity: (may be combined with 4. Storage Capacity for Non-community waterworks)

Include the following table with permits issued to wholesale waterworks that provide water to one or more consecutive waterworks:

Water production and storage is allocated to the following consecutive waterworks as follows:

| Waterworks Name | PWSID | Permit Capacity (gpd) | Delivered Capacity (gpd) ¹ | Total Storage Required ² (gal) | Storage Provided-Consecutive ³ (gal) | Storage Provided – Wholesale ⁴ (gal) |
|-----------------|-------|-----------------------|---------------------------------------|---|---|---|
| | | | | | | |
| | | | | | | |
| <i>Total</i> | - | | | | | |

1. Portion of the permit capacity provided by this (primary) waterworks.
2. Total storage required by the consecutive waterworks.
3. Total effective storage provided by consecutive waterworks.
4. Total effective storage dedicated to the consecutive waterworks by this (wholesale) waterworks.

CONCLUSION:

for community waterworks:

This waterworks is permitted for a capacity of __ gpd due to the (limited source capacity) (limited storage capacity) (other explanation). (However, the number of connections cannot exceed 49 until an acceptable additional source is provided.)

for noncommunity waterworks:

This waterworks is permitted for a capacity of __ gpd {or describe existing connections}, due to the (limited source capacity) (limited storage capacity) (other explanation).

for grandparented waterworks (if insufficient data available to establish hydraulic capacity):

This waterworks is permitted for a capacity limited to the existing (X restaurant seats/X building structures/X campsites/other) until (information on the well yield/pump capacity/other is provided) (and) (the need for additional storage is evaluated).

Optional for “back-populating” old permit issuance dates. Required for amendments after July 2014:

OPERATION PERMIT HISTORY

| Permit Issuance (Effective Date) | Description / Reason ¹ |
|----------------------------------|-----------------------------------|
| | |

| | |
|--|--|
| | |
| | |

1. Description/Reason may include:

- *Original issuance;*
- *Ownership change;*
- *Waterworks consolidation/merger (describe briefly);*
- *Addition or deletion of source, treatment, storage, pumping facilities, etc. (describe briefly, and add Construction Permit #s and dates, as applicable)*

PM-C8-Attachment 6- Operation Permit Transmittal Letter

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead.

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Waterworks Owner, email

Address 1

Address 2

City, State Zip Code

Dear (Waterworks Owner):

Enclosed please find Waterworks Operation Permit No. _____ with Operation Permit Conditions dated _____ issued by the Virginia Department of Health, Office of Drinking Water. This permit is your authorization from the State Health Commissioner to operate the subject waterworks located in (County/ City name) in accordance with the *Waterworks Regulations*. This permit is not transferable. This permit does not suspend, minimize, or otherwise alter this owner’s obligation to comply with applicable federal, state, or local laws and regulations or permits.

Optional paragraph #1 (If amended permit):

This permit is an amendment of the previously issued permit dated _____, due to the *provide a brief explanation for the revision*. This revised permit replaces and nullifies the original permit which should be destroyed immediately.

You will note that the permit indicates that this waterworks has a permitted capacity of _____. This limit is based on (the existing system usage and shall not be exceeded.) (the maximum capacity of the system and shall not be exceeded.)

Optional paragraph #2 (If permit issued to a “grandparented” waterworks):

Please note that any expansion of service, modification to the waterworks, failure to maintain reliability, or future sale of the waterworks may require an engineering evaluation of the entire waterworks, and compliance with Part III of the *Waterworks Regulations*.

Optional paragraph #3 (If waterworks in violation and Temporary Permit issued):

12VAC5-590-xxx of the *Waterworks Regulations* states _____. The _____ waterworks may be in violation of this requirement in that _____. The Virginia Department of Health requests that you _____ so that the waterworks may operate in compliance with the *Waterworks Regulations*.

Optional paragraph #4 (If Temporary Permit Requirements are attached):

Temporary Permit Requirements are included for this waterworks. (*Add brief description*).

Optional paragraph #5 (If a Variance is included):

A variance to the *Waterworks Regulations* is included for this waterworks. (*Add brief description, including time limits, if any*).

<Water System Owner Name>

<Date>

Page 2

Optional paragraph #6 (If well sources subject to Groundwater Withdrawal Permit by DEQ):

The enclosed Waterworks Operation Permit specifies a maximum volume that this waterworks may produce, in terms of gallons per day. This capacity is based on public health requirements and the application of engineering principles. The Department of Environmental Quality has also (issued a/developed a draft) Groundwater Withdrawal Permit covering this waterworks, based on conservation of water as a natural resource. Both permits apply to you as a waterworks owner, and you are responsible for complying with each permit.

Optional paragraph #7 (If waterworks has been or will be issued a Virginia Water Protection Permit or a Joint Permit from DEQ, VMRC and Corps of Engineers for surface water withdrawal):

The enclosed Waterworks Operation Permit specifies a maximum volume that this waterworks may produce, in terms of gallons per day. This capacity is based on public health requirements and the application of engineering principles. The Department of Environmental Quality (, Virginia Marine Resource Commission, and the U.S. Army Corps of Engineers) (has/have) (developed a draft) / (issued a) (Virginia Water Protection Permit) / (Joint Permit) covering this waterworks. Both permits apply to you as a waterworks owner, and you are responsible for complying with each permit.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty (30) days from the date you actually received this permit or the date it was mailed to you, whichever occurred first, within which to appeal this permit by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the State Health Commissioner. In the event that this permit is sent to you by mail, three days are added to that period.

We look forward to your (continued) cooperation in the maintenance and operation of this waterworks.

Sincerely,

name
District Engineer

XYZ:ABC

cc: _____ County Health Department
_____ County Administrator, email
_____ County Building Official, email
if applicable: DEQ - Office of Water Supply, email
if applicable: name, VDH – Marina Programs Manager, email
VDH – ODW, Central Office

PM-C8-Attachment 7- Variance

INSTRUCTIONS: Complete / select items shown with blanks and *italics*.

Adhere to format shown in this document, including margins, line spacing and font. Print on plain paper.

OPERATION PERMIT VARIANCE

(Waterworks Name)

Permit No. _____

Edit as applicable:

This Variance to 12VAC5-590-461 C of the *Waterworks Regulations* is issued with the following conditions:

1. Operation of this system is permitted with (a sole) operator(s) in attendance, having less than a Class __ waterworks license, provided that the operator(s) (has)/(have) reliable communication with the Operator in Responsible Charge (OIRC) having a Class __ or Class _ license. The operator must obtain confirmation from the OIRC prior to making changes in _____.
2. This Variance is nontransferable and must be attached to the Operation Permit.
3. This Variance is a condition of the Operation Permit and is revoked when the Operation Permit is revoked.

Approved:

Director's name, PE, Engineering Field Director
Field Office Name Field Office
For the State Health Commissioner pursuant to VA Code § 2.2-604

Date:

PM-C8-Attachment 8- Notice of Intent to Amend Operation Permit

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Waterworks Owner/Entity, email
Address
City, State, Zip Code

Dear (Waterworks Owner/Entity):

I hereby notify (name of entity owner, or if the waterworks is owned by a person(s) use “you”) that the Virginia Department of Health, Office of Drinking Water (ODW), pursuant to the authority of the State Health Commissioner, intends to amend Virginia Department of Health Waterworks Operation Permit Number (insert permit number and its associated Waterworks Description Sheet and Operation Permit Conditions), issued on (insert date), covering the operation of the waterworks at (service area name) in (City / County name), Virginia. This amendment is in accordance with the provisions of *Code of Virginia* § 32.1-173. ODW proposes to amend the permit due to (insert the specific reasons why ODW intends to amend the permit; e.g., the addition of _____) (the deletion of _____) (a change in the design capacity of the waterworks due to _____). The proposed Waterworks Description Sheet and Operation Permit Conditions for the amended permit are enclosed.

(Name of entity owner, or if the waterworks is owned by a person(s) use “you”) (has / have) the right to an administrative hearing prior to amendment of the Operation Permit pursuant to *Code of Virginia* § 2.2-4019 and 12VAC5-590-115 of the *Waterworks Regulations*. If (name of entity owner, or if the waterworks is owned by a person(s) use “you”) (wishes / wish) to request a hearing, send a written request to schedule an administrative hearing no later than 30 calendar days from the date that this certified letter is received. Please use the attached form for this purpose and send it to (provide address information, including to whose attention the request should be sent). If ODW does not receive a request for an administrative hearing within 30 calendar days, or if this certified letter is returned to ODW for non-receipt, ODW will conclude that (name of entity owner, or if the waterworks is owned by a person(s) use “you”) (has / have) waived (its / your) right to an administrative hearing and will immediately amend the permit and send written confirmation of the decision.

If ODW can be of further assistance, please contact (name of District Engineer) at (insert phone number) or at (email address).

Sincerely,

Name
Engineering Field Director

XYZ:ABC

Enclosures:

1. Waterworks Description Sheet
2. Operation Permit Conditions
3. Objection and Request for a Hearing form

PM-C8-Attachment 8- Notice of Intent to Amend Operation Permit

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

cc: _____ *County Health Department*
_____ *County Administrator, email*
_____ *County Building Official, email*

PM-C8-Attachment 8- Notice of Intent to Amend Operation Permit

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

OBJECTION AND REQUEST FOR A HEARING

This is to advise the Virginia Department of Health that I, _____,
object to the amendment proposed by the Virginia Department of Health-Office of Drinking Water dated
_____ of Waterworks Operation Permit No. _____ for

located in _____

and request an administrative proceeding in accordance with 12VAC5-590-115 of the *Waterworks Regulations*.

My specific objection(s) to the proposed amendment are as follows:

(Name)

(Date)

(Title)

**OPERATION PERMIT CHECKLIST
for Signature**

| | | | | | |
|---|--|---|-----------------------------|---|----------|
| DATE: | | FROM: | | | |
| PWSID #: | | CITY/COUNTY: | | | |
| WATERWORKS NAME: | | | | | |
| WATERWORKS TYPE: | C, NTNC, TNC, CONSECUTIVE | | | | |
| PERMIT TYPE: | STANDARD, TEMPORARY | | | | |
| PERMIT ACTION: | NEW AMENDED – Change in NAME, OWNERSHIP, CAPACITY, TREATMENT, REPLACE A TEMPORARY PERMIT | | | | |
| ENCLOSURES: (Check all that apply) | <input type="checkbox"/> | OPERATION PERMIT AND OPERATION PERMIT CONDITIONS | | | |
| | <input type="checkbox"/> | WATERWORKS DESCRIPTION SHEET | | | |
| | <input type="checkbox"/> | VARIANCE, EXEMPTION, or SPECIAL PERMIT REQUIREMENTS | | | |
| | <input type="checkbox"/> | PERMIT APPLICATION | | | |
| | <input type="checkbox"/> | ENGINEER'S STATEMENT OF COMPLETION | | | |
| | <input type="checkbox"/> | FINAL INSPECTION REPORT | | | |
| | <input type="checkbox"/> | NEW/REVISED CDS SCHEMATIC # | | | |
| | <input type="checkbox"/> | APPLICATION FOR METERING VARIANCE | | | |
| | <input type="checkbox"/> | OTHER (LIST): | | | |
| OTHER | NOT REQUIRED | APPROVED - DATE | NOT APPROVED - EXPLAIN | | |
| WBOP | | | | | |
| LICENSED OPERATOR | | | | | |
| CCCP | | | | | |
| BSSP | | | | | |
| DDBP SAMPLING PLAN | | | | | |
| LCR SAMPLING PLAN | | | | | |
| GUDI DETERMINATION | DATE | GUDI | NOT GUDI | | |
| WELL # | | | | | |
| WELL # | | | | | |
| WELL # | | | | | |
| RELIABILITY VERIFICATION | | SATISFACTORY | UNSATISFACTORY ¹ | | |
| WATER QUALITY | | | | | |
| HYDRAULIC CAPACITY (Adequate Pressure, Leakage, Water Outages, etc.) | | | | | |
| Field Office Document QA/QC | Operation Permit | Waterworks Description Sheet | Permit Conditions | Temporary Operation Permit Requirements | Variance |
| Document Author | | | | | |
| First Reviewer | | | | | |
| PE Reviewer | | | | | |

COMMENTS:

¹ Temporary Permit Required.

PM-C8-Attachment 10- Cover Letter - Change of Ownership Agreement Form

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

WATERWORKS CHANGE OF OWNERSHIP

New Owner Name/Entity, email
Address
City, State, ZIP

Dear New Owner Name/Entity:

The Virginia Department of Health, Office of Drinking Water (ODW) believes the name waterworks is under new ownership. Changing owners is not prohibited in the Public Water Supplies Law or *Waterworks Regulations*. However, if (new owner name/entity / you – use “you” if the owner is a person(s)) (is / are) not the owner named on the current waterworks operation permit for the name waterworks, (new owner name/entity / you) may be in violation of the requirement to have a permit. As explained below, ODW would like to work with (new owner name/entity / you) to amend the waterworks operation permit so that it identifies (new owner name/entity / you) as the “owner” of the waterworks.

In order to amend the permit, ODW requests that (new owner name/entity / you) and name on the permit complete and return the enclosed Change of Ownership Agreement Form. By completing the form, (new owner name/entity / you) acknowledge(s) ownership of the name waterworks, review of the draft Waterworks Operation Permit identified above, and that the waterworks must be operated in accordance with the *Waterworks Regulations*. (new owner name/entity / you) also acknowledge(s) that (it / you) will be responsible for the activities at the waterworks that are necessary to comply with the requirements in the Waterworks Operation Permit. If (new owner name/entity / you) intend(s) to change the name of the waterworks, please indicate the new name on the Change of Ownership Agreement Form.

Following receipt and verification of a properly completed Change of Ownership Agreement Form, ODW will amend the Waterworks Operation Permit for the name waterworks to identify (new owner name/entity / you) as the owner. Certain operational requirements will be included as “conditions” in the amended Waterworks Operation Permit. These are specific requirements of the *Waterworks Regulations* that are unique to the waterworks and may include, but are not limited to, minimum operator requirements, minimum system pressure, and sample collection.

If there are questions or if additional information is required, please contact me at (insert phone number) or at (insert email address).

Sincerely,

Name
District Engineer

XYZ:ABC

Enclosure: Change of Ownership Agreement Form
Operation Permit Number NNNNNN – DRAFT

PM-C8-Attachment 10- Cover Letter - Change of Ownership Agreement Form

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

ec: Local Health Department, attn: Health Director, name, email
County/City/Town Administrator/Manager, name, email
County Building Official, name, email

PM-C8-Attachment 10- Cover Letter - Change of Ownership Agreement Form

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

WATERWORKS CHANGE OF OWNERSHIP

Permit No.: PWSID _____ Effective Date: mm/dd/yyyy Expiration Date: mm/dd/yyyy

Old Owner Name/Entity, email
Address
City, State, ZIP

Dear Old Owner Name/Entity:

The Virginia Department of Health, Office of Drinking Water (ODW) understands that (Old Owner Name/Entity / you – “you” should be used if the old owner/entity is a person(s)) (has / have) sold the name waterworks and it is under new ownership. Changing owners is not prohibited in the Public Water Supplies Law or *Waterworks Regulations*. As explained below, ODW would like to confirm that (Old Owner Name/Entity / you) (is / are) no longer the “owner” of the waterworks.

In order to amend the permit to reflect the new owner, ODW requests that, within 30 days, (Old Owner Name/Entity / you) complete and return the enclosed Change of Ownership Agreement Form. By completing the form, (Old Owner Name/Entity / you) acknowledge(s) (it / you) (is / are) no longer the owner of the name waterworks and do not object to ODW reissuing the waterworks operation permit to Name of New Owner/Entity.

If there are questions or if additional information is required, please contact me at (insert phone number) or at (insert email address).

Sincerely,

Name
District Engineer

XYZ:ABC

Enclosure: Change of Ownership Agreement Form

ec: Local Health Department, attn: Health Director, name, email
County/City/Town Administrator/Manager, name, email
County Building Official, name, email

Virginia Department of Health, Office of Drinking Water
Waterworks Change of Ownership Agreement Form
(Please Type or Print All Information)

This form must be signed by properly authorized individuals. Mail or email the signed and completed form to the appropriate ODW Field Office, and please retain a copy of this form for your records.

Waterworks Operation Permit Number: _____ Date Issued (mm/dd/yyyy): _____

Waterworks Name: _____

FORMER WATERWORKS OWNER:

Name: _____ Tax ID No.: _____

Contact: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____ Phone: _____

Email Address (if available): _____

"I (We) hereby agree to the change of ownership, responsibility, coverage, and liability for the Insert Waterworks Name waterworks, identified by Waterworks Operation Permit Number Insert Number."

Printed Name: _____ Title: _____

Signature: _____ Date: _____

NEW WATERWORKS OWNER:

Name: _____ Tax ID No.: _____

Contact: _____

New Waterworks Name (if applicable): _____

Mailing Address: _____

City: _____ State: _____ Zip: _____ Phone: _____

Email Address (if available): _____

"I (We) hereby agree to the change of ownership, responsibility, coverage, and liability for the Insert (New) Name waterworks, identified by Waterworks Operation Permit Number Insert Number. I (We) acknowledge that I (we) have reviewed the Operation Permit identified above. I (We) understand that I (we) must operate the waterworks in accordance with the Virginia Public Water Supplies Law, Va. Code § 32.1-167 *et seq.*, the Waterworks Regulations, 12VAC5-590-10 *et seq.*, and all conditions of the permit."

I (We) certify that the information concerning ownership/control of the Insert Name waterworks is accurate.

Printed Name: _____ Title: _____

Signature: _____ Date: _____

INSTRUCTIONS for the WATERWORKS CHANGE OF OWNERSHIP AGREEMENT FORM

- 1) **Waterworks Operation Permit Number:** Unless completed by the Virginia Department of Health-Office of Drinking Water (VDH-ODW), enter the Operation Permit Number, or PWSID Number if no previous Waterworks Operation Permit has been issued. This number is located on the Waterworks Operation Permit or correspondence from (VDH-ODW).
- 2) **Date Issued:** Unless completed by VDH-ODW, enter the effective date of the Waterworks Operation Permit.
- 3) **Waterworks Name:** Unless completed by VDH-ODW, enter the waterworks name that is on the existing Waterworks Operation Permit. If the new owner plans to change the waterworks' name, that will be entered as part of the New Waterworks Owner information.
- 4) **Former Waterworks Owner:**
 - a. **Name:** Provide the legal name of the previous entity or individual owning the waterworks. If deceased, identify the Executor or Trustee of the Estate.
 - b. **Tax ID No.:** Provide the Taxpayer Identification Number used by the Internal Revenue Service in the administration of tax laws. The number may be a Social Security Number, Employer Identification Number, or Individual Taxpayer Identification Number.
 - c. **Contact:** If 4a above is an entity, identify the legally authorized representative for the entity. If the owner did not operate the waterworks, provide the name of the person with primary responsibility for operating the waterworks.
 - d. **Mailing Address / City / State / Zip / Phone / Email Address:** Enter the contact information as requested for the previous owner.
 - e. **Printed Name / Title:** Legibly print the name and title of the individual signing the document.
- 5) **New Waterworks Owner:**
 - a. **Name:** Provide the legal name of the new entity or individual owning the waterworks.
 - b. **Tax ID No.:** Provide the Taxpayer Identification Number used by the Internal Revenue Service in the administration of tax laws. The number may be a Social Security Number, Employer Identification Number, or Individual Taxpayer Identification Number.
 - c. **Contact:** If 5a above is an entity, identify the legally authorized representative for the entity. If the owner does not, or will not, operate the waterworks, also provide the name of the person with primary responsibility for managing and operating the waterworks.
 - d. **New Waterworks Name:** If the new owner proposes to change the name of the waterworks, possibly because the name of the business will change, enter the new waterworks name.
 - e. **Mailing Address / City / State / Zip / Phone / Email Address:** Enter the contact information as requested for the new owner.
 - f. **Printed Name / Title:** Legibly print the name and title of the individual signing the document.

6) Signatures Required for Transfer of Ownership

The signatures of legally authorized representatives from the previous owner and new owner must be obtained before VDH-ODW will amend the Waterworks Operation Permit to reflect the name of the new owner. If the former owner is not available, VDH-ODW will accept a deed, bill of sale, or other proof that the new owner has acquired a property interest in the waterworks.

7) Definition of Legally Authorized Representative:

- ❖ **Corporation** – President, secretary, treasurer, vice-president, or any person registered as such with the Virginia State Corporation Commission
- ❖ **Partnership** – General partner
- ❖ **Sole Proprietorship** – Owner(s)
- ❖ **City, County, State, Federal, or other Public Facility** – Principal executive officer or ranking elected official
- ❖ **Limited Liability Company** – A member of the LLC
- ❖ **Trusts** – Acting trustee

Change of Ownership will be formally recognized by VDH-ODW by the issuance of an amended Operation Permit for the Waterworks.

PM-C8-Attachment 12- Operation Permit No Longer Valid

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1" top, bottom, and side margins.

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Waterworks Owner/Entity
Address
City, State, Zip Code

Dear (Waterworks Owner/Entity):

In accordance with *Code of Virginia* § 32.1-173, I provide notice of the Virginia Department of Health's determination that Waterworks Operation Permit Number _____ issued on _____ covering the operation of the waterworks at (service area name) in (County name or City), Virginia, is no longer valid. *Code of Virginia* § 32.1-167 states that a "waterworks" means a system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. The permit is determined to be no longer valid because the system (describe current service) such that it does not meet the definition of a waterworks.

Upon any changes in operation of the water system such that the definition of a waterworks described above may be met, (Waterworks Owner / you – use "you" if the owner is a person(s)) (is / are) required to contact me at (phone number or at email address) to determine if the water system is subject to the Virginia *Waterworks Regulations*. Failure to contact me may result in the Virginia Department of Health taking enforcement actions.

(NOTE to ODW staff: This letter presumes that the owner has requested that the permit be invalidated so that they will no longer be subject to regulation. If this is a unilateral action by ODW, then we need to provide notice of an opportunity for a hearing. Consult with the central office if that is the case prior to sending this letter.)

Sincerely,

Name
Engineering Field Director

XYZ:ABC

cc: Local Health Department, attn: Health Director
County Administrator, email
County Building Official, email

PM-C8-Attachment 13 – Notice of Intent to Revoke Operation Permit

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Waterworks Owner/Entity

Address

City, State, Zip Code

Dear Waterworks Owner/Entity:

I hereby notify (*Waterworks Owner Name / you – use “you” if the owner is a person(s)*) that the Virginia Department of Health (VDH), pursuant to the authority of the State Health Commissioner, intends to revoke Virginia Department of Health Waterworks Operation Permit Number _____ issued on _____ covering the operation of the waterworks at (*service area name*) in (*City / County*), Virginia. Revocation is in accordance with the provisions of *Code of Virginia § 32.1-174* and *12VAC5-590-320* of the *Waterworks Regulations*. VDH proposes to revoke the permit because of the following reasons: [staff to identify the specific statutory grounds for revocation that are mirrored in the Regulations; e.g., The waterworks can no longer be dependent upon to furnish pure water; the capacity of the waterworks is inadequate for the purposes of furnishing pure water; the owner has failed to abide by an order issued by the State Health Commissioner; the owner has abandoned the waterworks and discontinued supplying pure water; and the owner has failed to pay the waterworks operation fee required by Va. Code § 32.1-171.1].

If (*Waterworks Owner Name / you – use “you” if the owner is a person(s)*) agree(s) to the revocation of this permit, please sign and date the statement at the bottom of this letter and return it to this office. Please note that (*Waterworks Owner Name / you*) have the right to an administrative hearing prior to revocation of the Operation Permit. Any request for an administrative hearing must be sent **no later than 30 calendar days** from the date this certified letter is received. A request for an administrative hearing must be sent to (*provide address information, including to whose attention the request should be sent*). If VDH does not receive a request for an administrative hearing within that period, or if this certified letter is returned to VDH for non-receipt, VDH will conclude that (*Waterworks Owner Name / you*) (*has / have*) waived (*its / your*) right to an administrative hearing and will immediately revoke the permit and send written confirmation of the decision.

A copy of this letter is enclosed for your records.

If VDH can be of further assistance, please contact me at (*phone number or email address*).

Sincerely,

Name

District Engineer

XYZ:ABC

cc: Name County Health Department
Name County Administrator, email

PM-C8-Attachment 13 – Notice of Intent to Revoke Operation Permit

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

Name County Building Official, email

This is to advise VDH that I, _____, have no objection to the revocation of
(Print Name)
Waterworks Operation Permit No. _____, issued *(date)* for *(Waterworks name)*
located in *(City/County)*.

(Name and Title)

(Date)

PM-C8-Attachment 14- Operation Permit Revocation Letter

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Date

SUBJECT: County/City
Waterworks: Waterworks Name
PWSID No: PWSID

Waterworks Owner/Entity
Address
City, State, Zip Code

Dear (Waterworks Owner)

In accordance with *Code of Virginia § 32.1-174 and 12VAC5-590-320 of the Waterworks Regulations*, you are hereby notified of the revocation of Virginia Department of Health Waterworks Operation Permit Number _____ issued on _____ covering the operation of the waterworks at (service area name) in (County name or City), Virginia.

The permit is being revoked because (staff to identify the specific statutory ground(s) for revocation previously used in the “Notice of Intent to Revoke Operation Permit letter; e.g., The waterworks can no longer be dependent upon to furnish pure water; the capacity of the waterworks is inadequate for the purposes of furnishing pure water; the owner has failed to abide by an order issued by the State Health Commissioner; the owner has abandoned the waterworks and discontinued supplying pure water; and the owner has failed to pay the waterworks operation fee required by Va. Code § 32.1-171.1).

Revocation is to become effective upon receipt (or return for non-receipt) of this letter.

By direction of the State Health Commissioner.

Sincerely,

Name
Engineering Field Director

XYZ:ABC

ec: Local Health Department, attn: Health Director
County Administrator, email
County Building Official, email
VDH – ODW, Central Office

Virginia Department of Health – Office of Drinking Water Operation Permit Application

Instructions: This form is to be submitted by owners of existing facilities seeking a Waterworks Operation Permit. Mail or fax a signed and dated application to the Office of Drinking Water Field Office in your region. Retain a copy of the completed form for your records. This form contains personal information subject to disclosure under the Freedom of Information Act.

| Applicant (Waterworks Owner) | | | | |
|---|---------------------------------|--|---------------------------------|----------------------------|
| Name: <i>First Middle Last</i> | | Affiliation: <i>business/organization name</i> | | |
| Address: <i>street</i> | | | | |
| City: <i>City</i> | | State: <i>State</i> | | City: <i>City</i> |
| Phone Number: <i>(xxx)xxx-xxxx</i> | | Email: <i>email address</i> | | |
| If Applicable: Federal Employer Identification Number (EIN): <i>enter number</i> | | | State EIN: <i>enter number</i> | |
| I hereby authorize the Virginia Department of Health, Office of Drinking Water to inspect all proposed facilities. | | | | |
| Signature: | | | Date: | |
| Permit Information | | | | |
| PWSID (if any): <i>XXXXXXXX</i> | | City/County: <i>city/county</i> | | |
| Waterworks Name: <i>name</i> | | | | |
| Waterworks Description: | | | | |
| Waterworks location) <i>Provide address or describe the location of the project</i> | | | | |
| Describe the facilities served and the types of water use: <i>Describe the facilities served (i.e. restaurant or bath house) and the types of water use (i.e. drinking, hand washing, food prep, ect)</i> | | | | |
| Population Served: | Employees: <i>XX</i> | Customers: <i>XX</i> | Residents: <i>XX</i> | Others: <i>XX</i> |
| Period of Operation: | # Hours/Day: <i>XX</i> | | # Days/Week: <i>XX</i> | #Months/Year: <i>XX</i> |
| Water Source: <input type="checkbox"/> Surface Water <input type="checkbox"/> Well <input type="checkbox"/> Spring <input type="checkbox"/> Purchase-wholesaler name: <i>name</i> | | | | |
| Records available: <input type="checkbox"/> Well Construction Information <input type="checkbox"/> Water Sample Data <input type="checkbox"/> Water Usage Data | | | | |
| If water is treated, please describe: <i>Describe the types of treatment proposed in the order in which the water will be treated</i> | | | | |
| Water served for drinking: <input type="checkbox"/> Tap/Fountain <input type="checkbox"/> Bottled <input type="checkbox"/> Both <input type="checkbox"/> Neither | | | | |
| Is there a VDH issued Variance to allow bottled water for drinking? <input type="checkbox"/> Yes (attach copy) <input type="checkbox"/> No | | | | |
| Existing Permit(s): <input type="checkbox"/> VDH-Food <input type="checkbox"/> VDH-Campground <input type="checkbox"/> VDH-Hotel/Motel <input type="checkbox"/> Onsite Sewer <input type="checkbox"/> Marina <input type="checkbox"/> Other: <i>describe</i> | | | | |
| Permit Capacity: | Seats: <i>enter number</i> | | Campsites: <i>enter number</i> | Rooms: <i>enter number</i> |
| | Sewer(gpd): <i>enter number</i> | | Boat Slips: <i>enter number</i> | Other: <i>enter number</i> |

Estimated Maximum Daily Water Demand Table^{1,2}

Table 1-3 Planning guide for water use

| Type of Establishment | Water Used <i>gpd (L/day)</i> | |
|---|----------------------------------|-------------|
| Airport (per passenger) | 3-5 | (11-19) |
| Apartment, multiple family (per resident) | 60 | (227) |
| Bathhouse (per bather) | 10 | (38) |
| Camp | | |
| Construction, semipermanent (per worker) | 50 | (189) |
| Day, no meals served (per camper) | 15 | (57) |
| Luxury (per camper) | 100-150 | (379-568) |
| Resort, day and night, limited plumbing (per camper) | 50 | (189) |
| Tourist, central bath and toilet facilities (per person) | 35 | (132) |
| Cottage, seasonal occupancy (per resident) | 50 | (189) |
| Court, tourist, individual bath units (per person) | 50 | (189) |
| Club | | |
| Country (per resident member) | 100 | (379) |
| Country (per nonresident member present) | 25 | (95) |
| Dwelling | | |
| Boardinghouse (per boarder) | 50 | (189) |
| Additional kitchen requirements for nonresident boarders | 10 | (38) |
| Luxury (per person) | 100-150 | (379-568) |
| Multiple-family apartment (per resident) | 40 | (151) |
| Rooming house (per resident) | 60 | (227) |
| Single family (per resident) | 50-75 | (189-284) |
| Estate (per resident) | 100-150 | (379-568) |
| Factory (gallons per person per shift) | 15-35 | (57-132) |
| Highway rest area (per person) | 5 | (19) |
| Hotel | | |
| Private baths (2 persons per room) | 60 | (227) |
| No private baths (per person) | 50 | (189) |
| Institution other than hospital (per person) | 75-125 | (284-473) |
| Hospital (per bed) | 250-400 | (946-1,514) |
| Laundry, self-serviced (gallons per washing [per customer]) | 50 | (189) |
| Livestock (per animal) | | |
| Cattle (drinking) | 12 | (45) |
| Dairy (drinking and servicing) | 35 | (132) |
| Goat (drinking) | 2 | (8) |
| Hog (drinking) | 4 | (15) |
| Horse (drinking) | 12 | (45) |
| Mule (drinking) | 12 | (45) |
| Sheep (drinking) | 2 | (8) |
| Steer (drinking) | 12 | (45) |

¹Additional demand may be due to fire flow, irrigation, swimming pools, or other outside uses.

²AWWA Design and Construction of Small Systems, 1999.

Table 1-3 Planning guide for water use (*continued*)

| Type of Establishment | Water Used <i>gpd (L/day)</i> | |
|---|----------------------------------|-----------|
| Motel | | |
| Bath, toilet, and kitchen facilities (per bed space) | 50 | (189) |
| Bed and toilet (per bed space) | 40 | (151) |
| Park | | |
| Overnight, flush toilets (per camper) | 25 | (95) |
| Trailer, individual bath units, no sewer connection (per trailer) | 25 | (95) |
| Trailer, individual baths, connected to sewer (per person) | 50 | (189) |
| Picnic | | |
| Bathhouses, showers, and flush toilets (per picnicker) | 20 | (76) |
| Toilet facilities only (gallons per picnicker) | 10 | (38) |
| Poultry | | |
| Chickens (per 100) | 5–10 | (19–38) |
| Turkeys (per 100) | 10–18 | (38–68) |
| Restaurant | | |
| Toilet facilities (per patron) | 7–10 | (26–38) |
| No toilet facilities (per patron) | 2½–3 | (9–11) |
| Bar and cocktail lounge (additional quantity per patron) | 2 | (8) |
| School | | |
| Boarding (per pupil) | 75–100 | (284–379) |
| Day, cafeteria, gymnasiums, and showers (per pupil) | 25 | (95) |
| Day, cafeteria, no gymnasiums or showers (per pupil) | 20 | (76) |
| Day, no cafeteria, gymnasiums, or showers (per pupil) | 15 | (57) |
| Service station (per vehicle) | 10 | (38) |
| Store (per toilet room) | 400 | (1,514) |
| Swimming pool (per swimmer) | 10 | (38) |
| Theater | | |
| Drive-in (per car space) | 5 | (19) |
| Movie (per auditorium seat) | 5 | (19) |
| Worker | | |
| Construction (per person per shift) | 50 | (189) |
| Day (school or offices per person per shift) | 15 | (57) |

| | | K value | K value | K value | K value * | LOG | |
|-----------|-----|---------|---------|---------|-----------|---------|------------|
| if SKEW = | | #DIV/0! | #DIV/0! | #DIV/0! | STANDARD | RANKED | Flow (gpd) |
| | | #DIV/0! | #DIV/0! | #DIV/0! | DEVIATION | FLOW | |
| | 2 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 5 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 10 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 25 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 50 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 100 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 200 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

mean #DIV/0!
 std dev 0.000
 skew #DIV/0!
 minimum 0

30 Year Low Flow = #DIV/0!

| Year | Minimum | (Q-Qavg)^2 | (Q-Qavg)^3 | Rank | Return Period | Exceedance Probability |
|------|---------|------------|------------|------|---------------|------------------------|
| 1990 | | | | | | |
| 1991 | | | | | | |
| 1992 | | | | | | |
| 1993 | | | | | | |
| 1994 | | | | | | |
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| 2022 | | | | | | |
| 2023 | | | | | | |
| 2024 | | | | | | |
| 2025 | | | | | | |

| | |
|--------------------|---------|
| Qavg | #DIV/0! |
| Count | 0 |
| sum(Q-Qavg)^2 | 0 |
| sum(Q-Qavg)^3 | 0 |
| Variance | 0 |
| Standard Deviation | 0 |
| Skew Coeff | #DIV/0! |

WEIGHTED SKEW COEFFICIENT

| Cw | 200 Recurrence Interval In Years 0.5 Percent Chance (\geq) = 1-F | | | | | | | |
|-------|---|---------|---------|----------|---------|---------|----------|------|
| | 1.0101 99 | 2 50 | 5 20 | 10 10 | 25 4 | 50 2 | 100 1 | |
| -3.00 | -4.05 | 0.40 | 0.64 | 0.66 | 0.67 | 0.67 | 0.67 | 0.67 |
| -2.90 | -4.01 | 0.39 | 0.65 | 0.68 | 0.68 | 0.69 | 0.69 | 0.69 |
| -2.80 | -3.97 | 0.38 | 0.67 | 0.70 | 0.71 | 0.71 | 0.71 | 0.71 |
| -2.70 | -3.93 | 0.38 | 0.68 | 0.72 | 0.74 | 0.74 | 0.74 | 0.74 |
| -2.60 | -3.90 | 0.37 | 0.70 | 0.75 | 0.76 | 0.77 | 0.77 | 0.77 |
| -2.50 | -3.85 | 0.36 | 0.71 | 0.71 | 0.79 | 0.80 | 0.80 | 0.80 |
| -2.40 | -3.80 | 0.35 | 0.73 | 0.80 | 0.82 | 0.83 | 0.83 | 0.83 |
| -2.30 | -3.75 | 0.34 | 0.74 | 0.82 | 0.86 | 0.86 | 0.87 | 0.87 |
| -2.20 | -3.71 | 0.33 | 0.75 | 0.84 | 0.89 | 0.90 | 0.91 | 0.91 |
| -2.10 | -3.66 | 0.32 | 0.77 | 0.87 | 0.92 | 0.94 | 0.95 | 0.95 |
| -2.00 | -3.61 | 0.31 | 0.78 | 0.90 | 0.96 | 0.98 | 0.99 | 1.00 |
| -1.90 | -3.55 | 0.29 | 0.79 | 0.92 | 1.00 | 1.02 | 1.04 | 1.04 |
| -1.80 | -3.50 | 0.28 | 0.80 | 0.95 | 1.04 | 1.07 | 1.09 | 1.10 |
| -1.70 | -3.44 | 0.27 | 0.81 | 0.97 | 1.08 | 1.12 | 1.14 | 1.16 |
| -1.60 | -3.88 | 0.25 | 0.82 | 0.99 | 1.12 | 1.17 | 1.20 | 1.22 |
| -1.50 | -3.33 | 0.24 | 0.83 | 1.02 | 1.16 | 1.22 | 1.26 | 1.28 |
| -1.40 | -3.27 | 0.23 | 0.83 | 1.04 | 1.20 | 1.27 | 1.32 | 1.35 |
| -1.30 | -3.21 | 0.21 | 0.84 | 1.06 | 1.24 | 1.32 | 1.38 | 1.42 |
| -1.20 | -3.15 | 0.20 | 0.84 | 1.09 | 1.28 | 1.38 | 1.45 | 1.50 |
| -1.10 | -3.09 | 0.18 | 0.85 | 1.11 | 1.32 | 1.44 | 1.52 | 1.58 |
| -1.00 | -3.02 | 0.16 | 0.85 | 1.13 | 1.37 | 1.49 | 1.59 | 1.66 |
| -0.90 | -2.96 | 0.15 | 0.85 | 1.15 | 1.41 | 1.55 | 1.66 | 1.75 |
| -0.80 | -2.89 | 0.13 | 0.86 | 1.17 | 1.45 | 1.61 | 1.73 | 1.84 |
| -0.70 | -2.82 | 0.12 | 0.86 | 1.18 | 1.49 | 1.66 | 1.81 | 1.93 |
| -0.60 | -2.76 | 0.10 | 0.86 | 1.20 | 1.53 | 1.72 | 1.88 | 2.02 |
| -0.50 | -2.69 | 0.08 | 0.86 | 1.22 | 1.57 | 1.78 | 1.96 | 2.11 |
| -0.40 | -2.62 | 0.07 | 0.86 | 1.23 | 1.61 | 1.83 | 2.03 | 2.20 |
| -0.30 | -2.54 | 0.05 | 0.85 | 1.25 | 1.64 | 1.89 | 2.10 | 2.29 |
| -0.20 | -2.47 | 0.03 | 0.85 | 1.26 | 1.68 | 1.95 | 2.18 | 2.39 |
| -0.10 | -2.40 | 0.02 | 0.85 | 1.27 | 1.72 | 2.00 | 2.25 | 2.48 |
| 0.00 | -2.33 | 0.00 | 0.84 | 1.28 | 1.75 | 2.05 | 2.33 | 2.58 |
| 0.10 | -2.25 | -0.02 | 0.84 | 1.29 | 1.79 | 2.11 | 2.40 | 2.67 |
| 0.20 | -2.18 | -0.03 | 0.83 | 1.30 | 1.82 | 2.16 | 2.47 | 2.76 |
| 0.30 | -2.10 | -0.05 | 0.82 | 1.31 | 1.85 | 2.21 | 2.54 | 2.86 |
| 0.40 | -2.03 | -0.07 | 0.82 | 1.32 | 1.88 | 2.26 | 2.62 | 2.95 |
| 0.50 | -1.96 | -0.08 | 0.81 | 1.32 | 1.91 | 2.31 | 2.69 | 3.04 |
| 0.60 | -1.88 | -0.10 | 0.80 | 1.33 | 1.94 | 2.36 | 2.76 | 3.13 |
| 0.70 | -1.81 | -0.12 | 0.79 | 1.33 | 1.97 | 2.41 | 2.82 | 3.22 |
| 0.80 | -1.73 | -0.13 | 0.78 | 1.34 | 1.99 | 2.45 | 2.89 | 3.31 |
| 0.90 | -1.66 | -0.15 | 0.77 | 1.34 | 2.02 | 2.50 | 2.96 | 3.40 |
| 1.00 | -1.59 | -0.16 | 0.76 | 1.34 | 2.04 | 2.54 | 3.02 | 3.49 |
| 1.10 | -1.52 | -0.18 | 0.75 | 1.34 | 2.07 | 2.59 | 3.09 | 3.58 |
| 1.20 | -1.45 | -0.20 | 0.73 | 1.34 | 2.09 | 2.63 | 3.15 | 3.66 |
| 1.30 | -1.38 | -0.21 | 0.72 | 1.34 | 2.11 | 2.67 | 3.21 | 3.75 |
| 1.40 | -1.32 | -0.23 | 0.71 | 1.34 | 2.13 | 2.71 | 3.27 | 3.83 |
| 1.50 | -1.26 | -0.24 | 0.69 | 1.33 | 2.15 | 2.74 | 3.33 | 3.91 |
| 1.60 | -1.20 | -0.25 | 0.68 | 1.33 | 2.16 | 2.78 | 3.39 | 3.99 |
| 1.70 | -1.14 | -0.27 | 0.66 | 1.32 | 2.18 | 2.82 | 3.44 | 4.07 |
| 1.80 | -1.09 | -0.28 | 0.64 | 1.32 | 2.19 | 2.85 | 3.50 | 4.15 |
| 1.90 | -1.04 | -0.29 | 0.63 | 1.31 | 2.21 | 2.88 | 3.55 | 4.22 |
| 2.00 | -0.99 | -0.31 | 0.61 | 1.30 | 2.22 | 2.91 | 3.61 | 4.30 |
| 2.10 | -0.95 | -0.32 | 0.59 | 1.29 | 2.23 | 2.94 | 3.66 | 4.37 |
| 2.20 | -0.91 | -0.33 | 0.57 | 1.28 | 2.24 | 2.97 | 3.71 | 4.44 |
| 2.30 | -0.87 | -0.34 | 0.56 | 1.27 | 2.25 | 3.00 | 3.75 | 4.52 |
| 2.40 | -0.83 | -0.35 | 0.54 | 1.26 | 2.26 | 3.02 | 3.80 | 4.58 |
| 2.50 | -0.80 | -0.36 | 0.52 | 1.25 | 2.26 | 3.05 | 3.85 | 4.65 |
| 2.60 | -0.77 | -0.37 | 0.50 | 1.24 | 2.27 | 3.07 | 3.89 | 4.72 |
| 2.70 | -0.74 | -0.38 | 0.48 | 1.22 | 2.27 | 3.09 | 3.93 | 4.78 |
| 2.80 | -0.71 | -0.38 | 0.46 | 1.21 | 2.28 | 3.11 | 3.97 | 4.85 |
| 2.90 | -0.69 | -0.39 | 0.44 | 1.20 | 2.28 | 3.13 | 4.01 | 4.90 |
| 3.00 | -0.67 | -0.40 | 0.42 | 1.18 | 2.28 | 3.15 | 4.05 | 4.97 |



Virginia Department of Health
Office of Drinking Water
Potential Waterworks Questionnaire



Business Name: _____ County: _____

Property Owner's Name: _____

Legal Owner/Corporation Name (if applicable): _____

Owner/Manager Contact: _____ Email: _____

Address: _____

Phone: _____ Mobile Phone: _____ Fax: _____

Type of Business: _____

Capacity: Seats _____ Campsites _____ Rooms _____ Children _____ Boat slips _____ Other _____

Daily Population Served: _____ Employees _____ Customers _____ Others _____

Period of Operation: _____ # Hours/Day _____ # Days Per Week _____ # Months Per Year _____ # Days Per Year

Description of population served/business operation: _____

Water Source(s): _____ Drilled Well _____ Bored Well _____ Spring _____ Public waterworks: _____

Additional equipment in water system (pressure tank, sample taps): _____

If water is treated, please describe: _____

Records available: Well Construction Information Water Sample Data Water Usage Data

ODW Reviewer: _____ Date _____

Method of data collection: _____ Phone _____ Mail _____ Site Visit

Notes:

APPEARS TO BE A WATERWORKS: Yes No (initials & date _____)

Justification:

PM-C10-Attachment 2 – Appears to not be a waterworks.

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

Date

Facility: Facility Name

Subject: County

Facility Owner/Entity

Address

City, State, Zip Code

Re: Water System Serving Facility Name (County)

Dear Water System Owner/Entity:

On date, Name, Environmental Inspector for the Virginia Department of Health, Office of Drinking Water (ODW) contacted you by telephone, email, in-person to complete a questionnaire about the water system serving Facility Name. A copy of the completed questionnaire is enclosed for your information.

Based on your responses to the questionnaire, ODW observed the following (use the example below for context):

- The water system at the facility consists of describe the water system: a single drilled well, pump, pressure tank, and softener.
- The water system provides water to describe the facility.
- Facility name is ... describe operating conditions: open Monday through Friday from 8am to 5pm. Optional: The facility has a (insert other agency) permit for XX customers.
- Describe population served: There are 2 employees, with 1 present most days and, on average, you serve 10 customers each day that the facility is open.

Code of Virginia (Va. Code) § 32.1-167 defines “waterworks” as:

[A] system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. “Waterworks” includes all structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of pure water except the piping and fixtures inside the building where such water is delivered.

Based on the above-listed observations and the statutory definition of “waterworks,” Facility Name, does **not** appear to meet the definition of a “waterworks” at this time.

Water System Owner Name/Entity

Date

Page 2

Va. Code § 32.1-172.A states, in part, that “[n]o owner shall establish, construct or operate any waterworks or water supply in the Commonwealth [of Virginia] without a written permit from the [State Health] Commissioner....”

If the observations about the water system are correct, no further action is required at this time concerning the status of the water system. Should the population the water system serves, the hours/days of operation, or the number of connections change in the future such that it serves 25 or more individuals for at least 60 days out of the year, or 15 or more service connections, please contact the ODW Field Office at (xxx) xxx-xxxx regarding the status of the system.

If (Water System Owner/Entity or you – use “you” if the owner is a person(s)) (has / have) questions or need more information about this conclusion and the permit requirements for waterworks, please contact Staff Name, Title, at phone number or email.

Sincerely,

Name
Engineering Field Director

XYZ:ABC

Enclosure: Completed Questionnaire

cc: ODW General County File

PM-C10-Attachment 3 – Found TNC Initial Letter (IFFP)

INSTRUCTIONS: Complete / select items shown with *italics* and convert to regular font. Print on Field Office letterhead. Pages are 1” top, bottom, and side margins.

VIA CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Date

Facility: Facility Name
Subject: County/City

Water System Owner/Entity, email
Address 2
City, State, Zip Code

Re: Water System Serving Business Name (County)

Dear Water System Owner/Entity:

On date, Name, Environmental Inspector for the Virginia Department of Health, Office of Drinking Water (ODW) contacted you by telephone to complete a questionnaire about the water system serving Business Name. [Optional: On date, Name subsequently met with you at the facility to conduct a site visit to gather additional information regarding the water system.] A copy of the completed questionnaire [and site visit report] is enclosed for your information. Based on your responses to the questionnaire [and the site visit report], ODW observed the following (use the example below for context):

- The water system at the facility consists of ... describe the water system: a single drilled well, pump, pressure tank, and softener.
- The water system provides water to describe the business; e.g., the kitchen area, restrooms, spigots on the outside of the building, etc.
- Business Name is describe operating conditions: open Tuesday through Sunday for lunch and dinner. The restaurant has seating for XX customers.
- There are 20 employees, with 8-12 present most days and, on average, you serve 50-75 customers each day that the restaurant is open.

Code of Virginia (Va. Code) § 32.1-167 defines “waterworks” as:

[A] system that serves piped water for human consumption to at least 15 service connections or 25 or more individuals for at least 60 days out of the year. “Waterworks” includes all structures, equipment, and appurtenances used in the storage, collection, purification, treatment, and distribution of pure water except the piping and fixtures inside the building where such water is delivered.

The term “human consumption” is defined as “drinking, food preparation, dishwashing, bathing, showering, hand washing, teeth brushing, and maintaining oral hygiene.” Va. Code § 32.1-167.

The Public Water Supplies Law, Va. Code § 32.1-167 *et seq.*, requires that waterworks owners have a permit to operate a waterworks and states that owners must comply with the operational and water quality standards set forth in the Virginia Waterworks Regulations, 12VAC5-590-10 *et seq.* The specific requirements for a

particular waterworks vary depending on the size of the system, population served (e.g., transient versus year-round consumers), water treatment, and source water.

If (Waterworks Owner Name / you – use “you” if the owner is a person(s)) agree(s) with the observations that form the fact basis for ODW’s belief that the subject water system meets the definition of a waterworks, then **please submit a permit application to ODW, at the address shown above, within 30 days of the date of this letter.** A permit application is enclosed with this letter for your convenience.

Should (Waterworks Owner Name / you – use “you” if the owner is a person(s)) have additional information for ODW to consider about the business/facility and the water system, or dispute the observations listed above, please notify ODW in writing within 30 days of the date of this letter so that ODW can consider that information before taking further action. (Waterworks Owner Name / you – use “you” if the owner is a person(s)) (has / have) the right to participate in an informal fact-finding proceeding (IFFP) prior to ODW making a decision regarding the status of the subject water system. Va. Code § 2.2-4019 provides information regarding (Waterworks Owner Name's / your – use “your” if the owner is a person(s)) rights prior to and during an IFFP. Any request for an IFFP must be sent no later than 30 calendar days from the date this certified letter is received. A request for an IFFP must be sent to (provide address information, including to whose attention the request should be sent). If ODW does not receive additional information or a request for an IFFP within that period, or if this certified letter is returned to ODW for non-receipt, ODW will conclude (Waterworks Owner Name / you) (has / have) no further information to provide and (has / have) waived (its / your) right to an IFFP.

While this letter does not constitute a case decision, as defined in Va. Code § 2.2-4001, the failure to submit a permit application or otherwise respond to this letter may result in ODW initiating enforcement action under Va. Code §§ 32.1-27, 32.1-172, and 32.1-176. Enforcement actions may include criminal proceedings and/or pursuit of a civil action for an injunction and civil penalties for operating a waterworks without a permit.

ODW looks forward to working with (Waterworks Owner Name / you) to determine whether the subject water system meets the definition of a waterworks, and, if so, to assist with the process for obtaining a permit and operating the waterworks in compliance with the law and regulations. Please do not hesitate to contact Staff name, Title, at Email or Phone if you have any questions or concerns.

Sincerely,

Name
Engineering Field Director

XYZ:ABC

Enclosures: Waterworks Permit Application; Questionnaire; Site Visit Report

cc: Local Health Department, attn: Health Director, name, email
County/City/Town Administrator/Manager, name, email
County Building Official, name, email



Virginia Department of Health
Office of Drinking Water

Waterworks Operation Permit

Owner Name is granted permission to operate the **Waterwork Name** waterworks, an unclassified transient noncommunity waterworks located in **Name** County, in accordance with Title 32.1 of the *Code of Virginia* and 12VAC5-590-10 *et seq.* of the *Virginia Waterworks Regulations*. The waterworks has a capacity **to serve a (describe business and service area) restaurant and brewery with an occupancy limit of 150 people and seating for 50 people in the restaurant.** The owner understands the operation of the waterworks shall be in compliance with Part II of the *Virginia Waterworks Regulations* titled “Operation Regulations for Waterworks.” This permit does not suspend, minimize, or otherwise alter the owner’s obligation to comply with other applicable federal, state, or local laws and regulations or permits. Notify the Office of Drinking Water immediately upon change of ownership. The State Health Commissioner may revoke this permit at any time upon determining that the waterworks can no longer be depended upon to furnish pure water, or meets other criteria in *Code of Virginia* § 32.1-174. The waterworks may not be changed, altered, or improved without prior approval from the Office of Drinking Water, consistent with the requirements in 12VAC5-590-190 *et seq.* of the *Virginia Waterworks Regulations*.

All required sampling must be completed in accordance with the *Virginia Waterworks Regulations* and associated sampling plans.

Inventory: One drilled well, one x gallon bladder tank, softening treatment (x gpm), UV disinfection unit (x gpm), (x”) totalizing water meter, etc.

Operating Conditions: Submit monthly operations reports (if applicable)

PERMIT NO.: Number

EFFECTIVE DATE: Date

APPROVED _____

Director’s Name, PE, Engineering Field Director, **Name** Field Office
for the State Health Commissioner pursuant to VA Code § 2.2-604