

NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES

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PART Env-Dw 405 DESIGN STANDARDS FOR SMALL COMMUNITY WATER SYSTEMS

REVISION NOTE:

Document #10612, effective 6-1-14, readopted with amendments and renumbered former Part Env-Ws 372 under a new subtitle as Part Env-Dw 405. The redesignation from subtitle Env-Ws to subtitle Env-Dw was done pursuant to a rules reorganization plan for Department rules approved by the Director of the Office of Legislative Services on 9-7-05.

The former Part Env-Ws 372 had last been filed under Document #8496, effective 11-30-05. The rules in former Part Env-Ws 372 did not expire on 11-30-13 since they were extended pursuant to RSA 541-A:14-a until replaced by the rules in Document #10612, effective 6-1-14.

Document #10612 replaces all prior filings for the rules formerly in Env-Ws 372. The prior filings for rules in the former Env-Ws 372, beginning with Document #6521, effective 6-4-97, which had readopted with amendments the entire Chapter Env-Ws 300, include the following documents:

#6521, eff 6-4-97
#7105, eff 9-23-99
#8360, INTERIM, eff 6-4-05
#8496, eff 11-30-05

Env-Dw 405.01 Purpose; Authority.

(a) As required by RSA 485:8, all proposals to establish or expand a public water system shall be submitted to the department for review and approval before construction.

(b) The purpose of this part is to specify design criteria for small community water systems.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.02 Applicability.

(a) The rules of this part shall apply to community water systems, as defined in RSA 485:1-a, I, that serve 25 or more but fewer than 1,000 persons without fire protection provided by street hydrants.

(b) Water systems serving 1,000 persons or more or having fire protection provided by street hydrants shall be governed by Env-Dw 302, Env-Dw 402, Env-Dw 404, and Env-Dw 602.

(c) Vacation home developments and conversions from transient use occupancy to year-round residential use shall be considered community water systems as specified in Env-Dw 401.01 (a) through (e).

(d) A small community water system shall be assumed to serve 2.5 people per household for residences with 2 or more bedrooms. Residences with fewer than 2 bedrooms, efficiency apartments, elderly housing units, or other similar types of residences where more specific information is provided shall be assumed to serve 1.5 people per residence.

(e) The department shall determine whether a water system is a small community water system based on the following criteria:

- (1) The number of people or households served;
- (2) Suitability for year-round occupancy, in accordance with Env-Dw 401.01 (b); and
- (3) Whether the occupancy is by the same person(s) on each occasion.

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(f) For the purpose of (e), above, a small community water system shall be one proposed to ultimately serve a permanent, year-round, residential population even if that population is initially weekend or seasonal in nature.

(g) Those non-transient, non-community (NTNC) water systems whose reliability is directly important to public health, such as schools or other facilities that are used as shelters during public emergencies, shall comply with the design criteria of this part pertaining to the sizing of the water storage tanks and booster pumps and other related appurtenances.

(h) Existing small community water systems that propose to expand shall comply with the design criteria of this part.

(i) Existing small community water systems that are ordered by the department to make water system improvements shall comply with the design criteria of this part.

(j) A water system with 3 or more separate sources or distribution systems, where each source or distribution system serves less than 10 households, shall be considered a small community water system as long as the total number of households served by the multiple sources or distribution systems exceeds 10.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.03 Public Water System Capacity Assurance. A proposed small community water system shall comply with the capacity requirements of Env-Dw 602 before the operation of such water system begins.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.04 Concept Approval for Proposed Small Community Water Systems.

(a) No well construction or water system design shall commence on a proposed small community water system until a concept approval is issued by the department.

(b) Subject to (f), below, the issuance of concept approval for a proposed small community water system shall be based on the following criteria:

(1) Water service from another approved public water system is not available, determined based on the willingness of the potential provider to offer service and a comparison of the overall project cost to extend water service versus the overall project cost of constructing the proposed small community water system;

(2) The method of operation of the proposed small community water system is adequate to ensure that all applicable requirements of subtitle Env-Dw are met;

(3) The proposed small community water system is consistent with state, regional, or local water resource/water supply management plans for the area;

(4) The proposed small community water system ownership and operation is consistent with other New Hampshire public utility commission (PUC) franchises in the area;

(5) The proposed water system will use the best feasible source of water available; and

(6) The proposed small community water system does not have 3 or more separate water supply sources or distribution systems where each source or distribution system will serve less than 10 households.

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(c) For purposes of this section, the best feasible source of water shall be determined based on a comparison of alternatives based on project cost and other technical factors. Such a comparison shall include capital and operational costs to provide an equivalent level of safe and reliable water supply service, for both domestic and fire flow needs, from an entity having adequate financial and managerial capability.

(d) Favorable criteria for the best source concept shall include the following:

- (1) Larger public water systems;
- (2) Public water systems which have full time employees who have higher levels of training and experience in the water works profession;
- (3) Public water systems with large volume water storage tank(s); and
- (4) Public water systems which have available equipment, controls, and communications that better ensure the reliability of operations and water quality.

(e) To request concept approval, the applicant shall submit a brief letter identifying the following:

- (1) The size of the proposed system;
- (2) The type of the proposed system;
- (3) The nature of the proposed system; and
- (4) A map specifically locating the proposed service area.

(f) The department shall not approve a proposed small community water system design until the PUC has provided comment concerning whether the water system is subject to PUC jurisdiction.

(g) If the PUC asserts that the water system is subject to PUC jurisdiction, the department shall:

- (1) Consider all comments submitted by the PUC in its review of the proposed system; and
- (2) Not take any action that would interfere with the PUC process.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.05 Preliminary and Final Well Site Selection Report. Any proposed water supply source for a small community water system to which this part applies shall also meet the requirements specified in Env-Dw 301 or Env-Dw 302, namely the well site selection rules. A preliminary well site selection report shall be submitted, as specified in Env-Dw 301 or Env-Dw 302, at the same time as the request for concept approval submittal. The final well site selection report specified in Env-Dw 301 or Env-Dw 302 shall be submitted with or prior to submittal of the water system's plans and specifications.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.06 Design Review Checklist.

(a) The person proposing to construct a new small community water system or to expand or modify an existing small community water system shall provide the following to the department:

- (1) A letter with the information specified in (b), below;
- (2) A copy of the concept approval received pursuant to Env-Dw 405.04;
- (3) A copy of the preliminary well siting report in compliance with Env-Dw 301 or Env-Dw 302;

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- (4) A preliminary business plan in compliance with Env-Dw 602;
 - (5) A copy of a final well siting report in compliance with Env-Dw 301 or Env-Dw 302;
 - (6) One copy of plans and specifications for the pumphouse and water distribution system in compliance with Env-Dw 405.21 and Env-Dw 405.32;
 - (7) One copy of a revised business plan in compliance with Env-Dw 602;
 - (8) One copy of an operations and maintenance manual in accordance with Env-Dw 503;
 - (9) Identification of the certified operator for the system;
 - (10) A verification of distribution pipe installation in accordance with Env-Dw 405.26;
 - (11) One copy of a final business plan in compliance with Env-Dw 602; and
 - (12) One copy of an emergency plan in compliance with Env-Dw 503.21.
- (b) The applicant shall provide the following information on the letter required by (a)(1), above:
- (1) For existing water systems, the system's PWS identification (ID) number;
 - (2) The name and address, by street location and municipality, of the water system or proposed water system;
 - (3) Whether the project is a proposed water system, a new well, or a modification to an existing water system;
 - (4) The design flow, in gallons per day (gpd);
 - (5) The number of residential units or equivalent units based on one unit being equivalent to 300 gpd;
 - (6) Whether water quality testing has already been done, and if so, the sample identification numbers;
 - (7) The amount of the design review fee calculated in accordance with Env-Dw 405.07;
 - (8) The name, mailing address, and daytime telephone number of the project owner and, if the owner is other than an individual, the name of an individual who can be contacted regarding the application on behalf of the owner; and
 - (9) The name, mailing address, and daytime telephone number of the project designer and, if the project will serve more than 50 units or otherwise has a design flow greater than 20,000 gpd, the professional engineer license number of the project designer.
- (c) The applicant shall sign and date the letter required by (a)(1), above, to certify that the information provided is accurate.
- (d) The plans and specifications for all proposed small community water systems or modifications, including expansions, to existing small community water systems with a design flow greater than 20,000 gpd or with 50 or more service connections shall be stamped by a professional civil or sanitary engineer licensed in the State of New Hampshire.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

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Env-Dw 405.07 Design Review Fee.

- (a) As specified in RSA 485:8, III, the applicant shall pay an application fee for the review of:
- (1) A proposed small community water system; or
 - (2) The modification of an existing public water system, including:
 - a. The conversion of a transient/non-community system from transient use to residential-type use; or
 - b. The expansion of a small community water system within 2 years of its original approval.
- (b) The fee shall be determined as follows:
- (1) For proposed residential-type units, the fee shall be as stated in RSA 485:8, III per unit, regardless of the size of the residential units;
 - (2) For proposed non-residential units, the fee shall be determined by conversion of the water system design flow to a residential-equivalent unit basis. For purposes of this rule, a “residential-equivalent unit” means a design flow of 300 gpd;
 - (3) The design flow for non-residential units shall be as specified in Env-Dw 405.10 or Env-Wq 1008;
 - (4) The fee for each residential-equivalent unit shall be as stated in RSA 485:8, III. The calculated fee for non-residential systems shall be determined by rounding off to the nearest full residential-equivalent unit;
 - (5) In determining the number of units the water system is designed to accommodate, the department shall use system design parameters, proposed plans for additional construction, and other factors bearing on the ultimate design flow for the water system;
 - (6) The department shall presume that any application for expansion within 2 years of the initial submittal is part of the initial water system design and therefore subject to the design review fee;
 - (7) If the design flow of a non-residential public water system is less than one-half of a residential equivalent unit, the fee shall be zero dollars;
 - (8) The maximum fee shall be based on 175 units or equivalent residential units; and
 - (9) No additional fee shall be charged for revised submissions which do not include additional units, or for submissions requesting an extension or expansion of an existing small community water system.
- (c) The design review fee shall be paid in conjunction with the design review application form submitted as required by Env-Dw 405.06(a)(1).

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

Env-Dw 405.08 Plans.

- (a) Design documents shall provide adequate information to analyze the expected system performance and serve as a detailed permanent record for future owners, maintenance personnel, and the department.
- (b) All water system plans submitted to the department by or on behalf of the water system owner shall be:

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- (1) Prints or copies of original drawings, with no original drawings or line work and no highlighting unless existing line work is traced;
 - (2) On paper that is 24 inches by 36 inches;
 - (3) For site plans, drawn to a scale no greater than one inch equals 60 feet; and
 - (4) For architectural plans, drawn to the scale of one foot equals 1/4 inch or one foot equals 3/8 inch.
- (c) The plans and other documents shall be neat, fully detailed, and drawn to scale. All lettering shall be neatly printed or mechanically or electronically set.
- (d) The project plan(s) shall include the following items:
- (1) A location key or locus plan, which shall:
 - a. Be not less than 3 inches by 3 inches;
 - b. Be on a scale equal to the latest United States Geological Survey (USGS) scale, 1 inch being equal to 2,000 feet, if available; and
 - c. Identify street names and other principal features;
 - (2) A title block, which shall include the following:
 - a. The name of the project, its location, and the design date;
 - b. The name, mailing address, and daytime phone number of the owner;
 - c. The name, mailing address, and daytime phone number of the system designer;
 - d. The scale used; and
 - e. Space for noting the date(s) of any subsequent plan revisions;
 - (3) A site plan, which shall be drawn to a scale in the range of one inch being equal to 20 feet to 1 inch being equal to 50 feet and show or identify the following:
 - a. Property boundaries, the name of each adjacent owner, and the ultimate scope of the project;
 - b. All roads, existing and proposed wastewater disposal, green areas, north arrow, lot numbers, and property lines;
 - c. The water distribution piping system including:
 1. Pipe size, location, and material;
 2. Gate valves and blow-offs;
 3. A typical trench section showing depth of cover and bedding material; and
 - d. Elevation contours at not less than 5 foot intervals; and
 - (4) The plans for a pump house, which shall include the following:
 - a. At least one detailed scaled plan and elevation and one section view of the proposed pump house, piping, and storage tanks;
 - b. The building dimensions, elevations, and construction details, and finished site grading;
 - c. All construction materials to be used for floors, walls, roof, and stairs;

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- d. Pipe sizes and materials, valves such as check, gate, and pressure reducing valves, water meter(s), sampling taps, air compressor(s), storage tanks, booster pumps, heat, lights, ventilation, and any gravity floor drains; and
- e. An electrical wiring schematic including all water system control devices such as on/off switches and low water level alarms.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.09 Specifications.

- (a) The specifications accompanying design plans shall include, but not be limited to:
 - (1) All construction information not shown on the plans necessary to inform the builder of the design requirements as to the quality of materials, workmanship, and fabrication of the project and the type, size, strength, operating characteristics, and rating of equipment;
 - (2) The requirements for all mechanical and electrical equipment, including valves, piping, and jointing of pipe;
 - (3) Electrical apparatus, wiring, meters, construction materials, and miscellaneous appurtenances; and
 - (4) Instructions for testing materials and equipment as necessary to meet design standards, and operating tests for the completed works and component units.
- (b) The specifications shall include specific references to the following national standards:
 - (1) The appropriate American Water Works Association (AWWA) manufacturing standards with respect to piping, valving and related appurtenances;
 - (2) The appropriate AWWA standards for construction of the water system;
 - (3) The AWWA standards for disinfecting water mains, AWWA C651-86; and
 - (4) The AWWA standard for hydrostatic testing of water mains, AWWA C600, Section 4, or equivalent.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.10 Design Flow.

(a) Subject to (b), below, anticipated design flows for a proposed small community water system shall be based on the type of use, as specified in Table 405-1 below:

Table 405-1: Anticipated Design Flows

Type of Use	Design Flow
Single family homes	150 gpd per bedroom
Recreational/vacation homes	150 gpd per bedroom
Mobile homes	150 gpd per bedroom
Apartments/Condominiums	150 gpd per bedroom
Efficiency Apartments	225 gpd per unit
Elderly Housing:	
One bedroom	150 gpd per unit
2 or more bedrooms	100 gpd per bedroom
Nursing Homes	125 gpd per bed

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Type of Use	Design Flow
Dormitories	100 gpd per student
Other Institutions	135 gpd per bed

(b) If the specific type of use is not listed above, the design flow shall be determined in accordance with Env-Wq 1008.

(c) For small community water systems that are being expanded or upgraded, the design flow shall be determined either in accordance with (a) and (b), above, or by using historical water readings in accordance with one of the following:

- (1) By finding the daily average flow from water meter readings and multiplying the average by a minimum factor of 2 or a maximum factor of 3 depending on the type or frequency of the meter readings; or
- (2) By examining 12 months of consecutive daily water meter readings, in which case the water system's design flow shall be based on the highest daily flow noted, without application of a multiplying factor.

(d) Since design flows contained in Table 405-1 and Env-Wq 1008 do not include exterior water use, for those water systems where watering lawns and garden, filling swimming pools, supplying fire protection systems such as hydrants or sprinklers, and other unusually high water demand situations are expected, additional supply capacity shall be provided.

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

Env-Dw 405.11 Acceptable Sources of Water Supply.

- (a) The use of surface water shall not be allowed for any small community water system.
- (b) A minimum of 2 wells shall be required for the following systems:
 - (1) A community water system where the design flow exceeds 13,500 gpd; and
 - (2) Any NTNC water system whose reliability is directly important to the public health as specified in Env-Dw 405.02(g) and where the residential-equivalent units exceeds 30.
- (c) If connection to a municipal water system is proposed, the applicant shall submit to the department a letter of confirmation from the supplying water system owner.
- (d) The letter of confirmation shall state that:
 - (1) Adequate quantities of water are available to serve the proposed water system; and
 - (2) With the proposed water system on-line, adequate system pressures will be maintained.
- (e) Design criteria for municipal water system piping extensions shall be as specified in Env-Dw 404.

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

Env-Dw 405.12 Required Source Capacity.

(a) The required minimum total source capacity for community water systems and those NTNC water systems whose reliability is directly important to public health as specified in Env-Dw 405.02(g) shall be not less than 2 times the design flow for the water system based on a 24-hour day.

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(b) For small community water systems and NTNC water systems whose reliability is directly important to public health as specified in Env-Dw 405.02(g) that are required to have 2 or more wells, the minimum total permitted production volume with the largest source out of service shall be equal to or greater than 50% of the system's design flow.

(c) For all types of water systems, the minimum total permitted production volume shall not be less than the design flow for the water system.

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

Env-Dw 405.13 Well Location.

(a) Well(s) shall be located at least 50 feet from surface waters, wetlands, and natural drainage ways.

(b) The wellhead shall be above the 100-year flood level, provided, however, that where a well must be located within a flood way, the area immediately surrounding the well and pumphouse shall be built up above the 100-year flood elevation.

(c) Well siting for small community water system sources shall be as specified in Env-Dw 301 or Env-Dw 302.

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

Env-Dw 405.14 Sanitary Protective Area and Permitted Production Volume for Groundwater Sources.

(a) To protect the long-term quality of each public water system, a sanitary protective area shall be established around each groundwater source and a permitted production volume shall be assigned to the source based on the size of the sanitary protective area established. The sanitary protective area shall be a circle with a specified radius, centered on the well.

(b) The sanitary protective area for small community water systems shall be in accordance with Env-Dw 301 or Env-Dw 302.

(c) The total permitted production volume shall be at least equal to the required source capacity based on a 24-hour period defined by the pumping test in accordance with Env-Dw 405.15.

(d) The sanitary protective area shall be based on the permitted production volume established by the system, as specified in Table 405-2, below:

Table 405-2: Sanitary Protective Area

Permitted Production Volume (gpd)	Sanitary Protective Radius Length (ft.)
0 - 750	75
751 - 1440	100
1441 - 4320	125
4321 - 14,400	150
14,401 - 28,800	175
28,801 - 57,600	200
57,601 - 86,400	250
86,401 - 115,200	300
115,201 - 144,000	350
Greater than 144,000	400

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(e) When more than one well is inside the sanitary protective area of another well, the individual sanitary protective areas for these wells shall be based on the combined permitted production volume of the wells unless the applicant demonstrates through hydrogeological means that the wells are not interconnected.

(f) Land use within the sanitary protective area for small community water systems shall be in accordance with Env-Dw 301 or Env-Dw 302.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.15 Pumping Tests.

(a) For all NTNC water systems whose reliability is directly important to public health as specified in Env-Dw 405.02(g), the water system owner shall demonstrate adequate source capacity by a sustained 48-hour pumping test at a constant rate before final plans can be approved. The pumping test shall demonstrate stabilized drawdown for at least the last 12 hours of the test. Stabilization is defined as a drawdown of less than one inch in 2 hours. If stabilization is not achieved, the pumping test shall continue and the department shall be contacted.

(b) The water system owner shall submit data documenting the pumping test on a pumping test log sheet that includes the following items:

- (1) Well depth, in feet;
- (2) The date of the pumping test;
- (3) The pumping rate, in gallons per minute (gpm);
- (4) The level of water in the well prior to pumping in feet below top of casing;
- (5) The drawdown level during pumping, in feet below top of casing;
- (6) The time the test was initiated and concluded and the total hours of the test; and
- (7) A graph showing drawdown versus time curve, to scale.

(c) Each log sheet shall be identified by project name, location, and submittal date.

(d) Readings for water level and pumping rate shall be taken at least every hour so long as the change in drawdown exceeds 2 feet per hour. Thereafter, readings may be taken at appropriate intervals not to exceed 4 hours. Readings shall be direct measurements and not inferred from pump curves or other inferential methods.

(e) Where wells are within 150 feet of each other, the pumping tests shall be run simultaneously.

(f) Pumping tests for small community water systems shall be performed in accordance with Env-Dw 301 or Env-Dw 302.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.16 Water Supply Quality.

(a) Prior to the end of the pumping test, the water system owner shall take a water sample from each source and have the sample analyzed for quality by a laboratory accredited for the analysis requested. Results from unaccredited laboratories shall not be accepted. Wells for small community water systems shall also be sampled in accordance with Env-Dw 301 or Env-Dw 302. Dip samples from wells shall not be acceptable.

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(b) Special containers and sampling techniques shall be required for those sources which will supply small community water systems as specified in Env-Dw 707 through Env-Dw 713.

(c) Water quality shall meet the appropriate standards established in Env-Dw 703 through Env-Dw 706 or shall be capable of meeting these standards with approved treatment. The analysis shall have been performed within the previous 6 months.

(d) Subject to (e), below, the water system owner shall submit the results of the laboratory analyses to the department as originals or photostatic copies of the original laboratory report. Re-typing or re-writing the data shall not be acceptable.

(e) The water system owner may have the results submitted directly to the department by the laboratory. If the laboratory submits results directly, the results shall be submitted in the same format as results on existing water systems.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.17 System Concept.

(a) For any particular water supply project there is likely more than one approvable water system design concept. This part shall not be interpreted to specify a particular design concept, but to ensure water system adequacy and reliability. Factors which shall govern the design criteria of the 4 most common water system design concept types used for small community water systems and for those NTNC water systems whose reliability is directly important to public health as specified in Env-Dw 405.02(g) are listed in (b) through (e), below. Modification of the design concepts identified in (b) through (e), below by the water system designer shall be allowed where the modification can be justified as a waiver pursuant to Env-Dw 405.35.

(b) A hydropneumatic or pressure storage only type of water system, also known as a straight pressure system, shall require multiple high capacity wells and pumps.

(c) An atmospheric storage and hydropneumatic storage type of water system shall require:

- (1) One or more wells with low or intermediate yields that discharge into a relatively large capacity atmospheric storage tank; and
- (2) High capacity booster pumps rated at the peak flow of the water system to re-pump or re-pressurize water from this tank into a smaller hydropneumatic storage tank for direct feed into the water distribution piping system.

(d) An atmospheric storage and variable speed booster pumps type of water system shall require:

- (1) One or more wells with low or intermediate yields that discharge into a large capacity atmospheric storage tank; and
- (2) High capacity variable speed booster pumps rated at the peak flow of the water system to re-pump or re-pressurize water from this tank for direct feed into the water distribution piping system.

(e) A gravity storage type of water system shall require atmospheric storage at a high elevation, wherein:

- (1) A minimum pressure of 20 pounds per square inch (psi) during peak flow periods shall be required at the highest service connection on the water system, requiring that the highest service connection be at least 6 feet lower, measured vertically, than the bottom of the storage tank; and

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(2) Additional elevation shall be required to compensate for frictional losses through the water distribution piping system and atmospheric storage tank drawdown.

(f) If limited fire protection service is to be provided, the following water system design criteria shall be observed:

(1) Where fire hydrants are planned by the water system owner, at least one additional separate water storage tank shall be installed and the fire hydrants shall connect to only the separate water storage tank(s). The re-fill pipe for this water storage tank shall incorporate an air gap. There shall be no connection between the domestic water system and the fire storage tank(s);

(2) Where residential sprinklers are planned to be installed within the premises of one or more customers, the service line and domestic plumbing shall be appropriately increased in size. The service line shall be sized to accommodate a design flow rate specified in the state fire code, Saf-C 6000. The sprinkler piping shall be isolated from the domestic plumbing by at least a testable double check valve. The minimum duration of sprinkler flow shall be assumed to be 10 minutes; and

(3) Additional provisions for source capacity and storage facilities shall be made in the water system's design to accommodate fire flows.

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

Env-Dw 405.18 Sizing of Storage Tanks.

(a) The criteria specified in this section shall apply to small community water systems and to those NTNC water systems whose reliability is directly important to public health as specified in Env-Dw 405.02(g).

(b) The required atmospheric water storage capacity for a water system with only one well shall be based on the safe yield of the well and the water system's design flow, as specified in Table 403-3 below:

Table 405-3: Requirement for Atmospheric Water Storage Capacity For Water Systems That Have Only One Source

Groundwater Source Capacity	Atmospheric water storage capacity required
Peak flow	50 percent of design flow
2.5 times the design flow	75 percent of design flow
2.0 times the design flow	100 percent of design flow
Less than 2.0 times the design flow	Not acceptable

(c) The required atmospheric water storage capacity for a water system with more than one well shall be based on the safe yields of the wells and the water system's design flow, as specified in Table 403-4 below:

Table 405-4: Requirement for Atmospheric Water Storage Capacity For Water Systems That Have More Than One Source

Minimum groundwater source capacity with largest producing well out-of-service	Atmospheric water storage capacity required
Peak flow	none required
2.5 times the design flow	25 percent of design flow
1.5 times the design flow	50 percent of design flow
Design flow	75 percent of design flow
Less than design flow	100 percent of design flow

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(d) The required hydropneumatic storage capacity shall be 10 percent of total design flow.

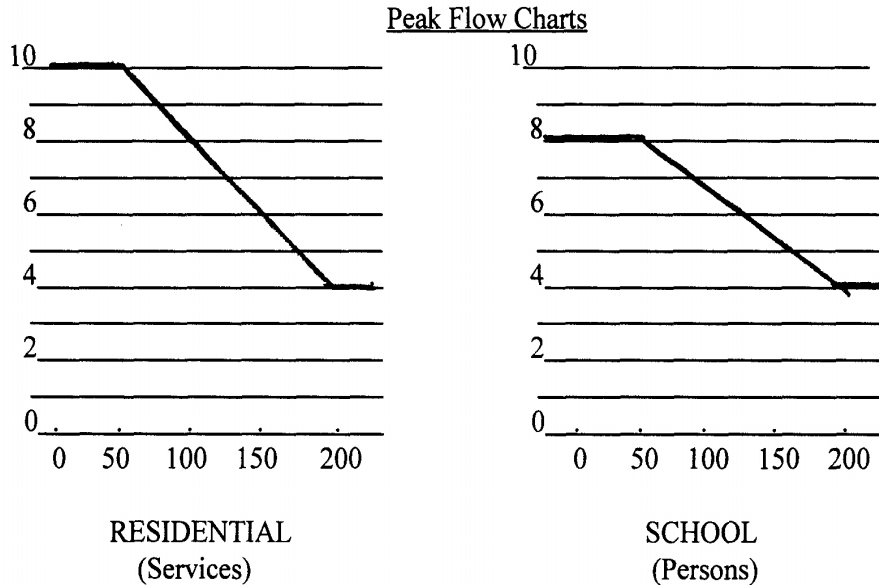
(e) Pre-charged pressure storage tanks shall be accepted on an equivalent gross volume basis to conventional hydropneumatic storage. No more than 6 tanks of the pre-charged pressure type shall be permitted.

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

Env-Dw 405.19 Peak Flow.

(a) The relationship between peak flow and design flow shall be defined by the following Table 405-5 for residential type developments and schools:

Table 405-5: Peak Flow Charts



(b) If the specific type of use is not listed above, the department shall be contacted to determine the peak flow multiplying factor.

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

Env-Dw 405.20 Sizing and Installing Booster Pumps.

(a) All small community water systems and those NTNC water systems important to the public health as specified in Env-Dw 405.02(g) shall comply with this section relative to booster pumps, which withdraw water from atmospheric storage tanks and pump to hydropneumatic or pressure tanks.

(b) Where booster pumps are used, total booster pump capacity shall be at least equal to peak flow. Booster pumps shall be in duplicate.

(c) Booster pumps shall be connected to a flat, secure surface of sufficient strength to withstand vibration, thrust, and weight. The installed elevation of the pump base shall be at least 8 inches above the finished floor in the pump house.

Source. (See Revision Note at part heading for Env-Dw 405) #10612, eff 6-1-14

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Env-Dw 405.21 Pump House Design and Construction.

(a) All small community water systems and those NTNC water systems important to public health as specified in Env-Dw 405.02(g) shall comply with this section.

(b) Pump houses shall have screened gravity floor drains or equivalent with all floors pitched $\frac{1}{4}$ inch per foot toward the drains. Sump pumps shall not be acceptable. The drain pipes shall not discharge to any surface water and shall be screened at the discharge end to prevent small animals or insects from blocking flow. The pump house floor level shall be above the seasonal high water table.

(c) The layout of equipment and the design of the pump house shall provide for convenient operation and preventative maintenance. The design and materials shall include provisions to minimize vandalism damage to wells, doors, and roofs. Windows shall be avoided. The pump station walls and ceilings shall be fully insulated. Construction materials shall be highly resistant to moisture, decay, and vandalism.

(d) For all proposed pump houses, the applicant shall make every reasonable effort to design and construct the pump house at finished grade. Where constraints are encountered, the pump house may be as much as 5 feet below grade. If the floor of the pump house is below grade, the design shall address the "confined space rules" of the U.S. Department of Labor, Occupational and Health Administration (OSHA) as specified in 29 CFR 1910.146.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.22 Pumps and Auxiliary Equipment.

(a) All small community water systems and those NTNC water systems important to public health as specified in Env-Dw 405.02(g) shall comply with this section.

(b) In addition to the electrical control system, an alarm system shall be provided to note failure of pumps and low water levels in the atmospheric storage tank(s). Each alarm function shall be labeled and the alarm shall be equipped with a silencing mechanism.

(c) In instances where the pumphouse is not easily seen, the alarm system shall be of an auto dialer for telephone, radio, or audio signal to insure that the alarmed condition is communicated to nearby occupied residences or other locations acceptable to the department where action can be initiated.

(d) A water meter shall be installed on each incoming source line before the water enters the storage tank(s).

(e) A pressure gauge shall be provided. Gauges shall be installed with gauge cocks for isolation and of suitable range for the expected pressure range.

(f) The water system shall be capable of receiving an immediate addition of a disinfectant.

(g) Components of the system required by (f) above, shall include:

- (1) An injection tap on source water feed lines, before all water storage tanks;
- (2) An electrical outlet interconnected with the source pump electrical system; and
- (3) A flow indicator on the source water feed lines to prevent over chlorination.

(h) The pump controls shall have a manual "off/on" switch to control pump operations.

(i) Where an air compressor is provided for air which will be in direct contact with drinking water, the air compressor shall be of the oil-less type.

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Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.23 Well Appurtenances and Pump Installation.

- (a) All small community water systems and those NTNC water systems important to public health as specified in Env-Dw 405.02(g) shall comply with this section.
- (b) No well installed after June 4, 1997 shall be placed inside a pumphouse or building being served by the water system.
- (c) Well casings shall project at least one foot above finished grade.
- (d) For bedrock wells installed prior to June 4, 1997 that are inside a pumphouse where the floor is below finished grade, the well casing shall extend above the finished floor at least 2 feet.
- (e) A tight seal shall be provided around all entry ports into the well. Provisions shall be made to allow the removal of well pump for repair.
- (f) All well sources shall be capable of being separately sampled for water quality before entering storage tank(s).
- (g) Wells shall have an appropriately-sized air tube or alternative provisions for electronic drawdown probes permanently installed in the well so as to allow determination of the static and drawdown water levels. Wells existing as of November 1, 2005 shall conform with this requirement when the well pump is replaced or when well pump repair work is next done.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.24 Appurtenances and Installation of Storage Tanks.

- (a) All small community water systems and those NTNC water systems important to public health as specified in Env-Dw 405.02(g) shall comply with this section.
- (b) All water storage tanks shall have drains. All water storage tanks installed outdoors shall be totally backfilled to minimize damage to the tank coating, and any damage to the exterior coating during construction shall be repaired prior to tank backfill. Water storage tanks shall be located above the seasonal high ground water table to prevent possible flotation when empty. Proposals to bury the water storage tank into or below the water table shall not be acceptable.
- (c) Atmospheric water storage tanks shall have a downward turned “U” vent with fine mesh screening to prevent the entry of small living things such as insects and small animals.
- (d) To help ensure the integrity of water storage tanks, all buried steel water storage tanks shall:
 - (1) Be installed in accordance with current industry practice;
 - (2) Be provided with an adequate underdrain system or a passive cathodic protection system; and
 - (3) Have a protective coating both inside and out that is certified as being manufactured and applied in accordance with the approved listings in Env-Dw 403.
- (e) Atmospheric water storage tanks shall be equipped with a capped filler pipe, which shall be lockable if located on the exterior of the tank, to accommodate tank truck water delivery.

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(f) All water storage tanks larger than 500 gallons and installed after January 1, 1996 shall have a name plate identifying the following:

- (1) Year of manufacture;
- (2) Size; and
- (3) Pressure rating.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.25 Wiring and Control Devices.

(a) All small community water systems and those NTNC water systems important to public health as specified in Env-Dw 405.02(g) shall comply with this section.

(b) All wiring for water system controls and equipment shall be in accordance with the requirements of the version of the National Electrical Code used as the basis for licensing electricians in New Hampshire, as specified in Elec 404.04.

(c) All electrical devices shall be grounded by a separate and dedicated groundwire.

(d) Convenience outlets shall be of the ground fault interrupting type.

(e) All junction boxes, relays, and contactors shall be in enclosures.

(f) Conduits shall be run no less than 2 feet above the floor. Panels shall be mounted at least 3.5 feet above the floor.

(g) All equipment disconnects shall be capable of being locked out during service.

(h) Motorized equipment shall have a functional overload protection above and beyond the protection offered by fuses or circuit breakers. Excluded from this requirement shall be items such as fans, chemical feed pumps, mixers, treatment sequence timers, and dehumidifiers.

(i) All relays and starters not part of an integrated panel shall be labeled.

(j) A detail schematic of the electrical system shall be posted in the enclosure or in an obvious place in the pumphouse, and shall also be part of the operational manual.

(k) For all systems, the pump controls shall have a manual “off/on/auto” switch to control pump operations where water is pumped into a vented tank or the equivalent. Where the water is pumped into a pressure system, a pressure relief valve or spring loaded “on” switch shall be provided.

(l) Mercury-type float switches shall not be in direct contact with drinking water, and shall, if present, be removed and replaced.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.26 Water Treatment Facilities.

(a) Water treatment processes at small community water systems shall:

- (1) Maximize the effectiveness of treatment;
- (2) Have sufficient controls and monitors to identify treatment performance and aid in operation;
- (3) Support reliability and flexibility of operations;

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- (4) Have low capital and operational costs;
 - (5) Be easily repaired; and
 - (6) Be sized and configured consistent with the practices and standards of the professional water treatment industry.
- (b) Each water system owner who wishes to install or modify a treatment process shall submit the following to the department in writing:
- (1) The name, location, and PWS ID number of the system;
 - (2) The name, mailing address, and daytime telephone number of an individual who is knowledgeable about the proposed treatment process who can answer questions about the proposal on behalf of the owner;
 - (3) A description of the proposed treatment process, including how the process functions conceptually;
 - (4) A technical design proposal which identifies necessary equipment, chemicals, plumbing, and electrical elements, as specified in Env-Dw 405.27;
 - (5) A description of the anticipated treatment wastes and their disposal, in accordance with Env-Dw 405.28; and
 - (6) An operation and maintenance manual, as specified in Env-Dw 405.29; and
 - (7) A monitoring plan for determining the quality of the treated water and waste flows, as specified in Env-Dw 405.30.
- (c) The department shall approve the water treatment process application if the department determines that the proposal meets the criteria specified in (a), above, and any item-specific criteria listed in Env-Dw 405.27 through Env-Dw 405.30.
- (d) The department shall inform the applicant of its decision in writing. If the decision is to not approve the proposal, the decision shall specify the reason(s) for the non-approval.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.27 Criteria of the Technical Design Proposal. The technical design proposal required by Env-Dw 405.26(b)(4) shall:

- (a) Identify the water treatment process to be used and the equipment to be installed;
- (b) Describe the chemical(s), plumbing, and electrical control modifications that represent a complete treatment process;
- (c) Include a tabular summary of laboratory sampling results analyzed by a New Hampshire-accredited laboratory, which identifies:
 - (1) The contaminant(s) to be modified by the treatment process; and
 - (2) All other water quality factors, by name and concentration, that are predicted to be modified by the treatment process;
- (d) Describe the expected water quality change by the water treatment process, including:
 - (1) The concentration of the target contaminant at normal and peak production rates; and

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- (2) The concentrations of all other affected water quality parameters at normal and peak production rates;
- (e) Identify the configuration of all components of the treatment process, including:
- (1) The rationale for a series or parallel configuration;
 - (2) The number of trains of equipment; and
 - (3) A description of each pretreatment process;
- (f) Describe the design goal of the treatment process, as follows:
- (1) Removal of the contaminant(s) to de minimis levels; or
 - (2) A reduction of the contaminant so as to achieve compliance with the maximum contaminant levels or the maximum contaminant level goals specified in Env-Dw 702 through Env-Dw 705;
- (g) Identify, as appropriate, the criteria used for each treatment component of the process, including:
- (1) The loading rate;
 - (2) The detention time or empty bed contact time;
 - (3) The backwash or regeneration flow rate required; and
 - (4) The concentration of target contaminant selected to control the end of the treatment cycle;
- (h) Require a sampling tap to be installed between each treatment component of the treatment process and identify plumbing appurtenances throughout the treatment sequence, including:
- (1) Connecting pipe size, gate valves, check valves, unions, and bypasses;
 - (2) Meter(s) and their type including whether indicating, totalizing, or recording; and
 - (3) Flow restrictors and their rating;
- (i) Identify measuring, control, and communication/alarm equipment, including:
- (1) Chemical feed pump pacing method and associated equipment;
 - (2) Flow switch interrupt of chemical feed equipment when there is no production flow; and
 - (3) Other automatic monitoring and communication devices; and
- (j) For each treatment chemical to be used:
- (1) Identify the chemical and the anticipated concentration(s) to be used during both the initial start-up phase and the operational phase, if different; and
 - (2) Include the following information:
 - a. Documentation that the chemical is approved for drinking water use in accordance with the American National Standards Institute (ANSI) standard 60 as required in Env-Dw 403; and
 - b. A copy of the material safety data sheet (MSDS) for that chemical.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

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Env-Dw 405.28 Disposal of Treatment Wastes and By-Products. The proposal for disposal of treatment wastes and by-products required by Env-Dw 405.26(b)(5) shall:

- (a) Identify the volume and strength of treatment wastes and by-products expected to be generated;
- (b) Identify whether the expected treatment wastes or by-products are hazardous and cite the applicable rule(s);
- (c) Identify the state agency having jurisdiction over the treatment wastes or by-products;
- (d) Identify the method(s) proposed to dispose of the treatment wastes or by-products; and
- (e) Estimate the annual cost of waste disposal.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.29 Operation and Maintenance Manual.

(a) The builder of the public water system shall prepare an operation and maintenance manual for the water system owner to submit to the department.

(b) The manual shall be bound so as to provide a permanent document for the water system owner and a ready reference for the water system operator.

(c) The operation and maintenance manual shall include:

(1) A schematic drawing of the treatment process, which shall identify each unit of the treatment equipment by:

- a. Type;
- b. Size;
- c. Model number; and
- d. Any appurtenances;

(2) An original or a photocopy of the description of the treatment equipment from the manufacturer's catalogue;

(3) A separate schematic drawing of the treatment process in the normal production configuration, which shall include:

- a. A written description of the process, which shall reference the schematic drawing and show flow direction; and
- b. The approximate expected values, settings or feed rates for pumps, gauges, gate valves and controllers in the production mode;

(4) A separate schematic drawing of the treatment process in the normal backwash or regeneration configuration, which shall include:

- a. A written description which references the schematic drawing, showing the backwash or regeneration process functions which shall include:
 - 1. The flow rate of backwash or regeneration and its temperature dependency where applicable;
 - 2. The duration of backwash or regeneration; and

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3. The frequency of anticipated backwashes or regenerations; and
 - b. The approximate expected values, settings, or feed rates for pumps, gauges, gate valves and controllers in the backwash mode;
- (5) Recommended short- and long-term maintenance schedules for each piece of equipment;
- (6) A description of common operational problems and proposed corrective operator responses;
- (7) A description of how the operator can maximize the efficiency of the treatment process relative to:
 - a. Energy use;
 - b. Chemical use;
 - c. Maximizing the net treated water production volume;
 - d. Minimizing the volume of waste and by-products produced; and
- (8) A blank copy of the compliance and oversight operational form that is required by Env-Dw 503 to be submitted to the department when a water system performs treatment.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.30 Water Quality Monitoring Plan. The water quality monitoring plan required by Env-Dw 405.26(b)(7) shall:

- (a) Identify appropriate raw water test parameters and sampling frequencies;
- (b) Identify appropriate finished water test parameters and sampling frequencies;
- (c) Include any proposed modifications to the finished water sampling schedules once a data record is established showing the consistency and reliability of the treatment process; and
- (d) Identify the treated water safety factor, as specified in Env-Dw 707.02, for changing sampling frequencies.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.31 Verification of Quality of Distribution Pipe Installation.

(a) Water distribution piping at small community water systems shall be installed in accordance with the provisions of the appropriate AWWA specification listed in Env-Dw 407, as applicable to the type of distribution pipe chosen.

(b) At a proposed small community water system, the quality of the workmanship and adherence to the approved design and pipe specifications shall be documented in writing to the department in accordance with (c) through (g), below. Such certification shall not be required for the expansion or modification of the distribution system once the initial design has been completed and the water system has been assigned an PWS ID number.

(c) The person who owns and is proposing the creation of the new small community water system shall retain the services of a qualified third party who is not an employee or otherwise has a financial interest in the project or legal relationship with the project principals to certify the quality of the water distribution piping installation.

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- (d) The following parties shall be acceptable to the department for providing certification:
- (1) A New Hampshire-certified water distribution system operator with a grade III or higher certificate;
 - (2) A New Hampshire-licensed civil or sanitary engineer;
 - (3) A city or town building or code enforcement official or other person with significant experience in drinking water industry specifications for piping and pipe installation of the city or town in which the project is located; or
 - (4) A public water system designer.
- (e) Certification from the owner or developer of the water system or from the contractor performing the distribution pipe installation shall not be acceptable.
- (f) The person or firm selected as the third party to inspect the quality of the distribution piping installation shall:
- (1) Inspect a minimum of 20% of the total footage for each size of water distribution pipe included on the approved plans; and
 - (2) Provide to the department a map identifying the pipe section(s) observed and a certificate or letter indicating that the quality of the distribution pipe installation met the applicable AWWA installation standard and was consistent with the best practices in the industry.
- (g) The certificate required by (f)(2), above, shall include:
- (1) The name and address of the owner or developer;
 - (2) The name of the development and city or town in which it is located;
 - (3) The name of the street and center line stationing for which the certificate applies;
 - (4) The name of the contractor;
 - (5) Pipe information including type, size, and cover depth;
 - (6) The date(s) of the inspection(s) for the distribution pipe installation;
 - (7) The inspector's qualification pursuant to (d), above, which indicate expertise with pipe line installation and the applicable AWWA pipe installation standards; and
 - (8) Confirmation that the results of the leakage test on the pipe did not exceed the leakage limits specified in the applicable AWWA pipe installation standards.
- (h) Copies of the leakage test results for the entire water distribution system and the certificate and map as per (f), above, shall accompany the as-built plans or record drawings submitted pursuant to Env-Dw 405.33.
- (i) Such certification shall not be required if the total length of new distribution piping installed is less than 250 feet.
- (j) If the local legislative body of a political subdivision that owns a small community water system does not vote to approve funding for the requirements of this section and the requirements are not fully funded by the state, the department shall not require the political subdivision to comply with this section.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

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Env-Dw 405.32 Distribution System.

(a) All small community water supply systems and those NTNC water systems important to public health as specified in Env-Dw 405.02(g) shall comply with this section.

(b) The water distribution piping system shall be capable of passing peak flow without excessive frictional loss. At peak flow, pressure at the sill elevation of each lot or unit shall be at least 20 psi. This determination shall be made at peak flow and when the atmospheric water storage tank is in a one-half empty condition. Consideration shall be given to possible future expansion in the sizing and layout of the proposed water distribution piping system.

(c) Other requirements relative to water pressure shall include the following:

(1) Where operational pressure is anticipated to be less than 30 psi, the service line shall be oversized so as to reduce frictional losses. The water system owner shall inform each potential service customer of this low pressure before each unit is constructed;

(2) Individual booster pumps to increase water pressure shall not be used on the service customer's premises to maintain the required 20 psi minimum working pressure; and

(3) Maximum system pressure shall be 100 psi. Any portion of the water distribution piping system where pressure is expected to exceed 100 psi shall have pressure reducing valves installed on each individual water service line or on the water main to maintain pressure at less than 100 psi. Any bypass line around a water main pressure reducer shall also have a pressure reducer. The water system shall maintain all pressure reducing devices.

(d) The water distribution piping shall be so valved as to allow isolation of major sections of the water distribution piping system for repairs while still providing service to most of the water system. The spacing for on-line gate valves installed on water mains shall not exceed every 1,500 feet. Gate valves shall be provided at all intersecting pipes.

(e) Blow-offs shall be installed to allow flushing of the water distribution piping system near the ends of the water mains. The size of the blow-off shall be such as to permit high velocities, at least 2.5 feet per second, to be developed in the water distribution piping.

(f) Where possible, dead-end piping shall not be used. Near the temporary end of a water main, a gate valve shall be installed to allow future piping extension without shutting down the system or jeopardizing the health of existing consumers.

(g) Water distribution piping shall be bedded in sand or other appropriate material with a minimum cover of not less than 5 feet for year-round systems.

(h) If a water main and sewer pipe are to be installed adjacent to one another, a minimum horizontal separation of 10 feet shall be maintained.

(i) When conditions prevent 10 feet of separation, the following shall be considered by the water system:

(1) Where other utilities or obstacles, not including bedrock, prevent such separation, a waiver shall be granted to allow location of the sewer pipe not less than 3 feet from a water main horizontally, provided that the water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer pipe;

(2) If a water main must cross a sewer pipe, the water main shall cross above the sewer pipe with not less than 18 inches of clear separation;

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- (3) Water piping shall cross under sewer piping only when this is demonstrated to be unavoidable and only when granted by specific waiver. Special construction, including use of ductile iron water and sewer pipe, no pipe joints within 9 feet of the crossing points, and minimum 18 inches clearance shall be required; and
- (4) Technical criteria supporting a waiver of sewer pipe and water main separation criteria include:
- a. The topography of the area; and
 - b. The number of utility interferences.
- (j) Piping and valving material and installation techniques shall conform with the appropriate AWWA specification, in accordance with Env-Dw 407, for that type of piping material where such specification exists. Where such specification does not exist for the size pipe included in the system design, the minimum pressure rating for piping shall be 200 psi and the piping shall meet the manufacturing requirements of the American Society of Testing and Materials (ASTM) specification 2241, available as noted in Appendix B.
- (k) Other utilities including but not limited to natural gas, storm drainage, electric, telephone, steam and cable television, shall not be installed within 3 feet of water mains.
- (l) All buried non-metallic piping shall be backfilled with an effective metal tracing element located above the pipe approximately 6 inches below the finished grade.
- (m) On-line gate valves and house service shut-offs shall be equipped with cast iron gate box extensions. Gate valve boxes shall have cast iron covers clearly marked by the word "water" or other appropriate water supply marking and shall be installed flush with the finished grade.
- (n) Rigid connections shall not be used to construct or repair water distribution piping systems.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.33 System Construction.

- (a) All small community water systems and those NTNC water systems important to public health as specified in Env-Dw 405.02(g) shall comply with this section.
- (b) No person shall construct a public water system until all required state and local approvals, including water system design approval, have been obtained. If a portion of the water system is to be constructed at a later date, or phased with the actual growth of the development, this shall be indicated at the time of original submittal.
- (c) Detailed measurements shall be made of the exact location of all buried water distribution piping and related service connections, gate valves, and blow-offs, and recorded on as-built plans or record drawings.
- (d) The as built plans or record drawings of the water distribution piping system shall conform to the following conditions:
- (1) Precisely-measured dimensions to all on-line gate valves;
 - (2) Precisely-measured dimensions to all blow-offs;
 - (3) Precisely-measured dimensions to all house service shut-offs;
 - (4) Precisely-measured dimensions to all house service taps to water mains;

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(5) Precisely-measured dimensions to all water distribution piping at approximately 200 foot intervals; and

(6) Precisely-measured dimensions to any principal changes in pipe direction or size.

(e) For purposes of this section, “precisely measured” means of sufficient accuracy to locate the piping or appurtenance to within 1 foot accuracy, recorded to the nearest 0.5 foot.

(f) The water system owner shall file a copy of the as-built plan or record drawing of the water distribution piping system with dimensions noted with the department and with the entity that operates or will operate the water system.

(g) Flushing and chlorination of the water distribution piping system shall be required before use. Before the final certified inspection, the entire water system, distribution pipes, storage tanks and pumps shall be flushed to remove any dirt or other contaminants, and then chlorinated at a concentration of 50 parts per million in accordance with the appropriate AWWA specification, as listed in Env-Dw 407. After 24 hours, the system shall then be flushed again to remove all traces of chlorine and a water sample shall be taken from the end of the distribution system and analyzed for bacterial quality at a laboratory accredited for such test.

(h) The water system owner shall perform a leakage test of the piping system before system use. The distribution system shall be checked for leakage by conducting a sustained pressure test for at least 2 hours, in accordance with the appropriate AWWA specification, as listed in Env-Dw 407. Leakage shall not exceed the value given in AWWA specification C 600.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.34 Final Inspection.

(a) All small community water systems and those NTNC water systems important to public health as specified in Env-Dw 405.02(g) shall comply with this section.

(b) Upon completion of the construction of a public water system but before any service is offered, the department shall conduct a sanitary survey, or inspection, of the water system. This inspection shall be performed within 5 working days after notification by the owner of the proposed water system that construction, including all required testing, is complete. The water system shall not be approved for any service unless this inspection is completed.

(c) The proposed operator for a new public water system shall:

(1) Have taken or arranged to take the operator certification exam as required under Env-Dw 502; and

(2) Be in attendance at this inspection.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.35 Waivers.

(a) Small community water systems that have operated in compliance with all applicable requirements of subtitle Env-Dw for at least 12 months may apply to the department for a waiver of particular criteria.

(b) Waivers shall not be granted for criteria which pose a direct risk to public health, such as proper well construction, back-up wells where required, water quality standards, or the integrity of the water storage tank(s).

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(c) Waivers shall be granted where the water system can document effective operation in its current configuration.

(d) Waiver requests for small community water systems shall be made in accordance with Env-Dw 202 and either Env-Dw 301 or Env-Dw 302.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Env-Dw 405.36 Expiration of Design Approvals.

(a) An approval for a proposed small community water system design shall expire 4 years after issuance if 50% or more of the proposed water distribution piping system and pump house has not been completed.

(b) Any water system that has completed 50% or more of the proposed water distribution piping system and pump house but has not started operation as of 4 years after the approval date shall comply with all then-current design criteria prior to start-up.

(c) A new design review fee and appropriate design revision shall be required for review and re-approval of lapsed designs.

(d) A new complete water quality test shall be required for each source for the appropriate parameters listed in Env-Dw 701 through Env-Dw 706 for re-approval of lapsed designs.

Source. (See Revision Note at part heading for Env-Dw 405)
#10612, eff 6-1-14

Appendix A: State Statutes and Federal /Regulations Implemented

Rule Section(s)	State Statute(s) Implemented	Federal Requirement(s) Implemented
Env-Dw 405.01 - 405.36	RSA 485:1, II(c); 485:8	

Appendix B: Incorporation By Reference Information

Rule Section(s)	Title	Dated	Obtain at:
Env-Dw 405.32(j)	“Historical Standard: ASTM D2241-05 Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series)”.	2005	American Society for Testing and Materials (ASTM) http://www.astm.org/