ARTICLE II

PROTECTION OF DRINKING WATER SOURCES AND SUPPLIES

2.1.0 Declaration of Policy

It is hereby declared to be the health policy of the Rockland Health District to protect present and potential future sources of water supplies, and to work to ensure that all residents have access to water that is safe and sanitary for washing, bathing, drinking, culinary or food processing purposes.

Furthermore, Part 5 of the New York State Sanitary Code and included appendices (10 NYCRR Part 5) is adopted, in its application to Rockland County by reference, as now promulgated or as subsequently amended, with the same force and effect as though fully incorporated herein and set forth at length. In the event of a conflict between this Article and any provision of the New York State Sanitary Code, the more stringent provision shall apply.

2.2.0 Definitions

2.2.1 **Abandoned Well**

The term "**abandoned well**" means any well as defined in this section which is not in use and is not properly maintained, or which endangers or threatens the quality of subsurface and/or percolating waters and/or surface waters, or which endangers or threatens human health.

2.2.2 **Confining Layer**

The term "**confining layer**" means a layer of natural earth materials having a low hydraulic conductivity that inhibits the movement of water into and out of an aquifer.

2.2.3 **Commissioner**

The term **"Commissioner"** refers to the Rockland County Commissioner of Health or his or her designee.

2.2.3 **Decommissioning**

The term **"decommissioning"** means the permanent closure or sealing of any well in accordance with the procedures set forth in Paragraph 2.8.4

2.2.4 **Geothermal System** (*Added 6/16/10.)

The term "**geothermal system**" refers to any apparatus, equipment or facility designed to extract heat from or discharge heat to the Earth.

2.2.5 **Geothermal Well** (*Added 6/16/10.)

The term "**geothermal well**" means a well constructed in support of, or to allow installation of, a geothermal system.

2.2.6 **Ground Water**

The term "**ground water**" means water below the land surface in a zone of saturation.

2.2.7 **Monitoring Well**

The term "**monitoring well**" means a well installed to observe the elevation of the water table or potentiometric surface, or to access the ground water to allow measurement of water quality or quantity.

2.2.8 **Non-Public Water System**

The term **"non-public water system"** means any water supply system not meeting the definition for a public water system as defined in Part 5, Subpart 5-1 of the New York State Sanitary Code.

2.2.9 **Person**

The term **"person"** shall mean and include any individual, firm, public or private corporation, municipality, political subdivision, association, trust, estate, agency, board, department or bureau of a municipality, partnership, or any other legal entity whatsoever which is recognized by law as the subject of rights and duties.

2.2.10 **Potable Water**

The term "**potable water**" means water meeting the minimum standards for drinking water as prescribed for public water systems by Part 5 of the New York State Sanitary Code and the Federal Safe Drinking Water Act.

2.2.11 **Public Water System**

The term **"public water system"** means any water supply system meeting the definition contained in Part 5, Subpart 5-1 of the New York State Sanitary Code.

2.2.12 **Pump Contractor**

The term **"pump contractor"** means any person, firm, corporation, or other entity engaged in the placement, protection and preparation for operation of pumps and pumping equipment, including all activities involved in making entrance to the well and establishing sanitary connections.

2.2.13 **Pumps and Pumping Equipment**

The term "**pumps and pumping equipment**" means any equipment or materials used or intended for use in withdrawing or obtaining ground water for any use; including, without limitation, pumps, piping, seals, tanks, and all associated fittings and controls.

2.2.14 **Resource Evaluation Well**

The term "**resource evaluation well**" includes monitoring wells, air sparging wells, soil vapor extraction wells, recovery wells, wells or wellpoints installed for environmental investigation or remediation projects, test borings, probe holes, uncased holes drilled or otherwise constructed for the purpose of obtaining soil or rock samples or data for engineering and/or geophysical, hydrological or geological purposes, and borings involving the use of direct-push technologies.

2.2.13 **Specific Capacity**

The term **"specific capacity"** means the yield of a well per unit drawdown expressed either as gallons per minute per foot (gpm/ft) or as liters per minute per meter.

2.2.14 **Water Supply Well**

The term "**water supply well**" means a well for which the intended or actual use is to access ground water for any purpose other than as described for resource evaluation wells.

2.2.15 **Well Drilling Contractor**

The term **"well drilling contractor"** means any person, firm, corporation, or other entity engaged in the business of constructing wells.

2.2.16 **Water System Structure**

The term **"water system structure"** means any portion of a water supply facility that comes into contact with the water, including but not limited to spring basins, collecting basins, reservoirs, wells, pumps, piping, tanks and valves.

2.2.17 **Well**

The term "well" means a hole or excavation with a depth greater than 10 feet, and greater than its maximum horizontal dimension. Depth of the hole or excavation shall be measured from the intended final grade immediately surrounding the hole or excavation. (*Amended 10/15/08. Revised 6/16/10.)

2.2.18 **Yield**

The term **"yield"** means the quantity of water per unit of time which may flow or be pumped from a well, and is typically expressed using the units, gallons per minute (gpm).

2.3.0 Freedom From Pollution

No person shall provide, or make accessible for others, any water unless the source, treatment, quality, and distribution of such water shall be so maintained, and the supply so protected from pollution, as to deliver potable water at all times.

2.3.1 The Commissioner may make, or cause to be made, any investigation or study which in his or her opinion, is necessary to determine the nature and extent of any contamination or pollution or potential contamination or pollution that may impact the quality of a potential source of potable water within the Rockland County Health District. Such contamination or pollution shall be defined as the presence of any constituent at a concentration in excess of health-based maximum contaminant levels or cleanup goals, guidelines or requirements in any one of the following documents.

2.3.1.1 Part 5-1 of the New York State Sanitary Code, as now promulgated or as subsequently amended

2.3.1.2 New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (1.1.1), as now published or as subsequently revised

2.3.1.3 NYSDEC Technical and Administrative Guidance Memorandum No. 4046, as now published or as subsequently revised

2.3.1.4 NYSDEC Spill Technology and Remediation Series Memorandum No. 1, as now published or as subsequently revised

2.3.2 It shall be the responsibility and obligation of any person who discharges, or causes or permits the discharge of any toxic or hazardous material to the ground, ground water or surface water of Rockland County to cease said discharge, to reclaim, recover, and/or properly dispose of the discharged toxic or hazardous material and any other substance contaminated there from, to repair any damages caused thereby, and to restore the environment to a condition which complies with the standards and guidelines contained within the documents listed in 2.3.1.1 through 2.3.1.4.

2.3.3 All remedial actions conducted pursuant to Paragraph 2.3.2 shall be subject to the review and approval of the Commissioner.

2.3.4 The Commissioner may order the owner, operator, or any person in possession of any land, structure, or equipment and/or any person who causes or allows contamination or pollution, as defined in Paragraph 2.3.1, of any land, structure, or equipment to take whatever action is necessary in the opinion of the Commissioner to bring the land, structure or equipment into compliance with the standards and guidelines contained within the documents listed in 2.3.1.1 through 2.3.1.4. This includes but is not limited to the closure and decommissioning of any facility for which continued use represents a potential source of contamination or pollution, or a hazard or potential hazard to the general public, fire fighting personnel, property, plant or animal life, ground water quality, surface water quality, or which interferes with the healthful enjoyment of life and property throughout such areas of the Rockland County Health District as may be affected thereby.

2.3.5 The Commissioner may set additional standards for soil, ground water and surface water remediation as necessary to ensure the protection of potable water supplies within the Rockland County Health District.

2.3.6 Nothing in this section shall be construed to require the Commissioner to take regulatory or enforcement action if in his or her opinion sufficient and appropriate regulatory or enforcement actions are being taken by state or federal authorities.

2.4.0 Water System Sampling Requirements

2.4.1 The Commissioner may, at his/her discretion, require sampling and analysis of any water system to establish or verify that the water is potable.

2.4.2 All required analyses shall be conducted within the time frame specified by the Commissioner, at the expense of the water system owner, by a New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP) -certified laboratory.

2.4.3 Sample collection shall be performed in accordance with procedures approved by the Commissioner by qualified samplers as follows:

2.4.3.1 For public water systems, samples must be collected: (1) by, or under the direct supervision of, a water treatment operator, water treatment assistant operator or distribution system operator with the appropriate New York State Department of Health (NYSDOH) certification for the system being sampled; (2) by qualified samplers approved and designated by the NYSDOH ELAP-certified laboratory conducting the analyses, or (3) by qualified samplers employed by NYSDOH or Rockland County Department of Health (RCDOH).

2.4.3.2 For non-public water systems, samples must be collected by: (1) qualified samplers approved and designated by the NYSDOH ELAP-certified laboratory conducting the analyses, or (2) qualified samplers employed by NYSDOH or RCDOH.

2.4.3.3 Sampling will be conducted by RCDOH only at the discretion of the Commissioner, and only upon payment of a fee as prescribed by the Commissioner.

2.4.4 Analytical results for public water systems shall be submitted to RCDOH in a report signed by the Operator in Responsible Charge. Analytical results for non-public water systems shall be submitted directly to RCDOH by the laboratory performing the analyses.

2.5.0 Corrective Actions for Water Systems

The Commissioner may order at his/her discretion treatment, decommissioning, posting, or restricted use of any water system or of any bottled or tanked water not meeting the requirements of the Rockland County Sanitary Code or of the New York State Sanitary Code.

2.6.0 Connections and Interconnections

2.6.1 No person shall establish or permit additional connections to an existing potable water system, or establish or permit a change of use of an existing water system, whether potable or non-potable, without prior approval of the Commissioner. (*Added 6/16/10.)

2.6.2 No person shall establish or permit a cross connection between a potable water system or water course, and any apparatus, facility, piping, structure or vehicle containing sewage, non-potable water, or other substance injurious or potentially injurious to health, except where constructed with an appropriate cross connection control device that is approved in advance by the Commissioner.

2.6.3 No person shall establish or permit a cross connection between any water system, whether potable or non-potable, and a potable public water system, except where an appropriate cross connection control device approved by the NYSDOH or other delegated entity is installed and tested in accordance with Subpart 5-1.31 of the New York State Sanitary Code.

2.7.0 Disinfection of Water System Structures

No new or repaired water system structure; or any water system structure which may become contaminated accidentally or otherwise, shall be placed in use before such structure has been effectively cleaned and disinfected in a manner approved by the Commissioner. The owner of the water system structure shall be responsible for verifying successful disinfection by collection and analysis of a representative water sample in accordance with paragraph 2.4.0.

2.8.0 Well Construction, Operation, Maintenance and Decommissioning

2.8.1 Statement

The improper construction, operation, maintenance or decommissioning of wells and the improper installation of well pumps and pumping equipment represent a potential endangerment of water resources, and a potential hazard to public health and safety.

2.8.2 Scope

2.8.2.1 Minimum requirements are hereby prescribed governing the permitting, location, construction and decommissioning of wells. No person shall construct or decommission or cause to be constructed or decommissioned, any well, nor shall any person install or cause to be installed, any pump or pumping equipment contrary to this Article.

2.8.2.2 Any well, pump or other related equipment, whether temporary or permanent, shall also comply with all applicable federal, state and local standards, laws and regulations.

2.8.2.3 Distribution of potable water beyond the point of discharge from the storage or pressure tank, or beyond the point where it exits the well casing if no tank is employed, shall comply with all applicable federal, state and local standards, laws and regulations. (*Revised 6/16/10.)

2.8.2.4 The well construction, operation, maintenance and decommissioning requirements specified in Paragraph 2.8.0 shall not apply to excavations that are otherwise regulated under the provisions of 10 NYCRR Appendix 75-A, Wastewater Treatment Standards, Individual Household Systems; or under the provisions of New York State Environmental Conservation Law §17-0701.

2.8.2.5 The Commissioner may exempt other specific wells from the requirements specified in Paragraph 2.8.0 if, in his/her opinion, the construction, operation, maintenance and decommissioning of such wells are otherwise adequately regulated. (*Added 6/16/10.)

2.8.3 Construction Requirements

2.8.3.1 The Commissioner may require or allow a well to be constructed by a method other than as set forth in Paragraph 2.8.3 where special circumstances are encountered which would prevent adherence with standard construction requirements. Any such alternative construction methods must be approved in advance by the Commissioner.

2.8.3.2 General Construction Requirements for all Wells (*Revised 6/16/10.)

2.8.3.2.1 All well construction or repair activities, or pump installation activities shall be performed by a person or business with current NYSDEC and RCDOH well contractor registration. Valid NYSDEC and RCDOH registration numbers shall be provided on the RCDOH *Application for Permit to Construct a Water Supply Well* or *Application for Permit to Construct a Resource Evaluation Well or Application for Permit to Perform Well Maintenance* or Application to Construct a Geothermal Well. (*Amended 10/15/08. Amended 6/16/10.)

2.8.3.2.2 All well construction or repair activities, or pump installation activities shall be performed by, or under the constant on-site supervision of, an individual who is certified pursuant to Environmental Conservation Law §15-1525 for the activities being performed. Proof of appropriate certification shall be available on the site of the well construction or pump installation for inspection upon demand by the Commissioner.

2.8.3.2.3 All water added to any well during construction, alteration, repair or decommissioning, whether directly or as a mixture with other drilling or sealing materials, shall be potable.

2.8.3.2.4 All well drilling rigs, tools, pipe and other drilling equipment shall be maintained in a clean and operational state to prevent contamination to the well or work site.

2.8.3.2.5 The RCDOH may prohibit for use in construction or maintenance of any well any material or equipment that may pose a significant hazard to public health, safe drinking water, ground water or surface water.

2.8.3.2.6 Drilling materials, including but not limited to, cuttings, sediment, and displaced water with turbidity greater than 200 nephelometric turbidity units (NTU), generated during the drilling procedure shall not be discharged to any wetland area, water course, drainage swale, or storm sewer.

2.8.3.2.7 In the event that contamination at concentrations exceeding either NYSDEC soil or ground water cleanup criteria as referenced in Paragraphs 2.3.1.2, 2.3.1.3 and 2.3.1.4, may be encountered during well construction, drilling materials as defined in Paragraph 2.8.3.2.5 shall be retained in appropriate containers, and tested to determine proper disposal in accordance with all applicable federal, state and local laws, rules and regulations.

2.8.3.2.8 Any industrial or hazardous wastes, including but not limited to, contaminated casing, cuttings, sediment, displaced water, or non-aqueous liquid, generated during the drilling procedure shall be contained and disposed in accordance with 6 NYCRR Parts 371 through 374.

2.8.3.2.9 Steel pipe that is used as permanent well casing shall be new pipe that contains a label or imprint indicating compliance with ASTM specification A53, A106, A500 or A589 or API specification 5L.

2.8.3.2.10 A drive shoe shall be placed on steel casing that is to be driven, whether into an undersized borehole or to seat the casing into bedrock.

2.8.3.2.11 When permanent steel casing is to be driven into an undersized borehole, the borehole diameter shall be less than the inside diameter of the casing.

2.8.3.2.12 PVC and other thermoplastic materials shall not be used as casing in bedrock and shall not be driven into any undersized borehole.

2.8.3.2.13 When casing is installed in an oversized borehole, the borehole diameter shall be at least four inches larger than the inside diameter of the casing (two inches larger if the annular space will be grouted using a method described in Paragraph 2.8.3.5.1.2, 2.8.3.5.1.3, or 2.8.3.5.1.4.

2.8.3.2.14 Where possible, all annular space between well casings, and between any casing and the borehole, shall be sealed in accordance with Paragraph 2.8.3.5 immediately following the setting of the casing, but in no case later than 24 hours after the well casing has been set in place.

2.8.3.2.15 A temporary outer casing of the same inner diameter as the oversized borehole may be installed to prevent cave-in, provided the temporary casing is removed during the sealing of the annular space. Alternatively, such casing may be left in place permanently if installed using the grouting method described in Paragraph 2.8.3.5.7.

2.8.3.2.16 A well shall not be screened or gravel packed in more than one water bearing unit or across a confining unit greater than 10 feet in thickness without prior written approval by the Commissioner.

2.8.3.2.17 Adequate protection shall be provided for the top of the borehole and/or the top of the well casing to prevent surface contamination from entering the well during the drilling operation and when the driller is not at the drilling site.

2.8.3.2.18 When the drilling of a borehole for any well is permanently suspended and the rig moves away from the drilling site, the borehole shall be considered abandoned and subject to the decommissioning requirements in Paragraph 2.8.4.

2.8.3.2.19 Immediately following installation, a well must be secured by installing a cap until the pump is installed and/or the well is placed into service or until the well is properly decommissioned. The cap shall be threaded onto the casing, or be a friction type device that locks onto the outside of the casing, or a blank sanitary well seal, or any other equivalent type of cap as may be approved by the Commissioner. Resource evaluation wells shall be permanently marked as such. All water wells shall be permanently marked with the name of the drilling contractor, the total depth of the well, the total length of casing installed and the yield.

2.8.3.2.20 All monitoring well and observation wells shall be clearly identified by permanent markings, and shall have locking caps to prevent accidental or intentional misuse.

2.8.3.2.21 All flowing wells shall be equipped with a water-tight cap which is threaded, slip-on, or welded, and a control valve or necessary appurtenances to allow water flow to be controlled. Unnecessary discharges of water shall be eliminated to conserve ground water. Any necessary discharge shall be equipped with an air gap or backflow prevention device and shall be screened to prevent entry of vermin. There shall be no overflow of water from the well that may become a public nuisance or violate any other New York State or Rockland County law or regulation.

2.8.3.2.22 If the Commissioner determines that any well water system, or any appurtenance thereto, is not being properly maintained, or has deteriorated to such an extent that contamination might enter the well or enter the ground water

or surface water or constitute a physical hazard, the Commissioner may order work to be performed on the well or appurtenances thereto as is deemed necessary to prevent contamination of the ground water or mitigate the physical hazard.

2.8.3.2.23 When permanent well pumping equipment is required for any well, all installation or replacement work shall be performed by a person or business with current NYSDEC and RCDOH well contractor registration. Valid NYSDEC and RCDOH registration numbers shall be provided on the RCDOH *Application for Permit to Construct a Water Supply Well* or *Application for Permit to Construct a Resource Evaluation Well.* All work performed shall comply with all applicable standards (e.g., NYSDOH, NYS Residential Code, NYS Fire Code).

2.8.3.2.24 When permanent well pumping equipment is required for any well, all installation or replacement work shall be performed by, or under the constant on-site supervision of, an individual who is certified pursuant to Environmental Conservation Law §15-1525 for the activities being performed. Proof of appropriate certification shall be available on the site of the pump installation or replacement for inspection upon demand by the Commissioner.

2.8.3.2.25 Any portion of a well borehole which is drilled into a confining layer greater than 10 feet in thickness or through any confining layer where the deeper aquifer will not be used, shall be considered abandoned and that portion of the well borehole shall be decommissioned and sealed in accordance with Paragraph 2.8.4 prior to completion of the well.

2.8.3.2.26 Any well installed in an area of known or suspected contamination at concentrations exceeding either NYSDEC soil or ground water cleanup criteria as defined in Paragraph 2.3.1 may be required to have doubled-cased well construction as follows:

2.8.3.2.26.1 The outer-most well casing shall be constructed into the first significant confining layer which separates the contamination from uncontaminated rock units or aquifers. This casing shall extend at least 10 feet into the confining layer or to the bottom of the confining layer.

2.8.3.2.26.2 The annular space between the casing and borehole shall be sealed in accordance with Paragraph 2.8.3.5. The annular space between all subsequent well casings shall also be permanently sealed in accordance with

Paragraph 2.8.3.5 to prevent contaminant migration into underlying rock units or aquifers.

2.8.3.3 Construction requirements for Water Supply Wells (*Revised 6/16/10.)

2.8.3.3.1 In addition to the well construction requirements in 2.8.3.2, all parts of a water supply well shall be tested, designed, located, and constructed in accordance with all applicable provisions and standards in Part 5 of the New York State Sanitary Code and included appendices (10 NYCRR Part 5), as amended.

2.8.3.3.2 Any repairs made to existing wells or pump systems, where the well head terminates below the ground surface or less than 18 inches above the ground surface, shall include extending the well casing to at least 18 inches above the ground surface and installing a pitless adapter or pitless unit in accordance with the provisions and standards in 10 NYCRR, Appendix 5B. Casing extensions shall be constructed of the same materials as the existing casing. Steel casing extensions shall be connected either by welding or by threaded couplings. Thermoplastic casing extensions shall be connected using either solvent-welded or threaded couplings. (*Revised 4/16/08.)

2.8.3.4 Construction Requirements for Geothermal Wells (*Added 6/16/10.)

2.8.3.4.1 In addition to the well construction requirements in 2.8.3.2, the following requirements apply to all closed loop geothermal wells:

2.8.3.4.1.1 The borehole shall be of sufficient diameter to allow for proper grouting, with a minimum 2-inch thickness of grout surrounding all portions of the piping loop.

2.8.3.4.1.2 Any associated geothermal system shall meet the construction and operation requirements specified in Paragraph 2.14.3.2 and included subparagraphs.

2.8.3.4.1.3 The entire annular space between the closed loop and the uncased borehole shall be sealed under pressure in accordance with 2.8.3.5 and 2.8.3.6.

2.8.3.4.2 In addition to the well construction requirements in 2.8.3.2, the following requirements apply to all open loop geothermal wells:

2.8.3.4.2.1 Wells that also provide a potable water supply shall also meet all location and construction requirements specified in 2.8.3.3.

2.8.3.4.2.2 Any associated geothermal system shall meet the construction and operation requirements specified in Paragraph 2.14.3.3 and included subparagraphs.

2.8.3.5 Required Materials for Sealing the Annular Space of any Well

2.8.3.5.1 Unless approved in advance by the Commissioner, only the following materials shall be used for sealing the annular space between the casing and the oversized borehole or between casings of multiple cased wells:

2.8.3.5.1.1 Portland neat cement in accordance with Table 1 below,

2.8.3.5.1.2 Concrete (Portland cement and sand) in accordance with Table 2 below,

2.8.3.5.1.3 Portland cement and high grade bentonite in accordance with Table 3 below,

2.8.3.5.1.4 High grade granular bentonite in accordance with Table 4 below,

2.8.3.5.1.5 High grade chipped bentonite, e.g., Holeplug®, Enviroplug®, or equivalent approved in advance by the Commissioner.

Table 1
Portland Cement Grout

Type Of Cement	Pounds Of Cement	Gallons Of Water	Target Density (lbs/gal)	Acceptable Density Range (lbs/gal)	Water/Cement Ratio
I & II	94	5.2	15.6	15.0 to 16.3	0.46
III	94	6.3	14.8	14.2 to 15.5	0.56

Table 2
Concrete Grout

Type Of Cement	Pounds Of Cement	Volume Of Sand (cubic feet)	Gallons Of Water	Target Density (lbs/gal)	Acceptable Density Range (lbs/gal)	Water/Cement Ratio
I & II	94	1.1	5.2	18.1	17.5 to 18.8	0.46
III	94	1.1	6.3	17.3	16.7 to 18.0	0.56

Table 3
Portland Cement (Types I & II Only) and High Grade Powdered Bentonite

Percent Bentonite	Pounds of Bentonite	Pounds of Cement	Gallons of Water	Target Density (lbs/gal)	Acceptable Density Range (lbs/gal)	Water/Cement Ratio
5.3	5	94	8.3	13.9	13.4 to 14.5	0.74

Table 4
High Grade Granular Bentonite† (Figures based on 15 to 30 percent solids by weight)

Pounds of Bentonite	Target Gallons of Water	Acceptable Range of Water Content (gallons)	Target Density (lbs/gal)	Acceptable Density Range (lbs/gal)
50	18	14 to 34	9.8	9.2 to 10.2

† **BENSEAL/EZ-MUD®, EZ-SEAL®, Enviroplug® Grout, or approved equivalent**

2.8.3.5.2 Concrete grout as specified in Paragraph 2.8.3.4.1.2 may only be used in the dry portion of the borehole.

2.8.3.5.3 Granular bentonite grout materials as specified in Paragraph 2.8.3.4.1.4 or chipped bentonite as specified in Paragraph 2.8.3.4.1.5 shall not be used for sealing the annular space when the depth to be sealed is less than 40 feet or where it will come into contact with water with a pH less than 5.0 or with a total dissolved solids content in excess of 1,000 ppm. Furthermore, such bentonite grout materials may not be used for sealing any annular space where the method of emplacement could potentially prevent seating the casing firmly into the rock formation following grout emplacement, e.g., the Haliburton method (Paragraph 2.8.3.5.1.4) if drillable plugs will be forced out through the bottom of the casing.

2.8.3.5.4 All materials shall be accurately measured prior to mixing. The grout material shall have a maximum permeability of 1 x 10^{-7} centimeters per second when prepared in accordance with manufacturer's specifications.

2.8.3.5.5 All water used for the mixing of grout shall be of potable quality.

2.8.3.5.6 All grout mixtures shall be weighed with a mud balance or otherwise verified by the well driller to conform to the requirements in Paragraph 2.8.3.4.1.

2.8.3.5.7 Bentonite products and additives shall be mixed in accordance with manufacturer's specifications.

2.8.3.5.8 Where the grout material extends through zones of salt water, a salt-resistant grout material shall be used.

2.8.3.6 Required Procedures for Sealing the Annular Space of any Well

2.8.3.6.1 The annular space within any well must be cleared of all drill cuttings prior to sealing. Subsequent collapse of the annular space must then be prevented, as necessary, by introduction of suitable drilling fluid. The entire annular space shall then be sealed using materials as described in Paragraph 2.8.3.4 and one of the following methods:

2.8.3.6.1.1 For the pressure method, the grout shall be pumped through a tremie pipe installed into the annular space of the well in one continuous operation from the bottom to the top of the annular space unless the depth, resulting pressures, or subsurface conditions necessitate that the grout be installed in lifts. The tremie pipe shall be slowly raised as the grout is being placed, keeping the discharge end of the pipe submerged in the grout at all times until the sealing of the annular space is completed. When pressure sealing the annular space directly above a filter or gravel pack, the grout shall be discharged from the tremie pipe so as not to disturb the gravel pack.

2.8.3.6.1.2 For the inner string method, the grout shall be pumped through a tremie pipe and grout (float) shoe installed inside the casing of the well in one continuous operation to completely fill the annular space.

2.8.3.6.1.3 The displacement method shall be used only for wells in consolidated formations, with no caving overburden materials. A sufficient quantity of grout shall be pumped under pressure through a tremie pipe into the oversized borehole to ensure that the annular space will be completely filled with grout after emplacement of a plugged casing into the borehole. Alternatively, if the oversized borehole, after having been cleared of all drill cuttings and fluids, remains completely dry (i.e., no influx of ground water), the grout may be poured into the borehole from the surface while the drilling tools are still deployed to the full depth of the borehole. The grout shall be poured at a rate that will prevent bridging. The drilling tools shall then be extracted in a manner that will ensure a uniform column of grout within the borehole prior to placement of the plugged casing.

2.8.3.6.1.4 For the casing (Haliburton) method, the grout shall be forced from the inside of the casing into the annular space utilizing a series of plugs. If the casing, once installed in the oversized borehole has an internal volume greater than or equal to the volume of the annular space to be filled, is cleared of all drill cuttings and fluids, and then remains completely free of ground water, the grout may be emplaced directly into the empty casing without the use of a bottom plug, then forced into the annular space by advancing a single drillable plug placed on top of the grout.

2.8.3.6.2 If a cavern more than twice the diameter of the borehole exists, or if the grout level fails to rise after insertion of either one cubic yard of grout or the quantity of grout necessary to fill ten vertical feet of the hole, then the following materials and methods may be used only in the portions of the borehole where the conditions exist:

2.8.3.6.2.1 Stone aggregate not larger than one-half inch in diameter may be poured into the borehole while simultaneously pumping neat cement grout (Table 1 or 2) in a ratio not to exceed five parts aggregate to one part grout. The aggregate must be poured into the borehole at a rate that prevents bridging.

2.8.3.6.2.2 A mixture of stone aggregate not larger than one-half inch diameter and cement grout (Table 1 or 2) in a ratio not to exceed five parts aggregate to one part grout may be pumped into the borehole.

2.8.3.6.3 The grout mixture shall be brought up to ground level to displace all water and materials in the annular space.

2.8.3.6.4 The grout discharged from the top of the annular space shall be weighed with a mud balance or otherwise verified by the well driller to comply with the requirements of Paragraph 2.8.3.4.

2.8.3.6.5 When steel casing is set into a consolidated formation, the casing shall be fitted with a drive shoe, and shall be driven to seat the casing firmly into solid rock immediately following grout emplacement. Alternatively, the bottom of the casing may be completely encased in Portland cement-based grout (Tables 1, 2 or 3) that has been emplaced under pressure using one of the methods described in Paragraphs 2.8.3.5.1.1 through 2.8.3.5.1.4, and allowed to cure completely in accordance with Paragraph 2.8.3.5.6. Such a

method may be required if the method of grout emplacement could potentially prevent seating the casing firmly into the rock formation following grout emplacement, e.g., the Haliburton method (Paragraph 2.8.3.5.1.4) if drillable plugs will be forced out through the bottom of the casing.

2.8.3.6.6 The driller shall return to the well following the appropriate curing/hydration time as specified in Paragraphs 2.8.3.5.6.1, 2.8.3.5.6.2 and 2.8.3.5.6.3 to fill any settlement of the grout and to resume drilling operations. Any settlement of the grout less than 10 feet from the ground surface, or from the base of the pitless well adapter if used, shall be regrouted by the gravity or pressure method. Any settlement of 10 feet or greater shall be regrouted using the pressure method. The finished level of the grout shall be within one foot below the level of the pitless well adapter or other connections.

2.8.3.6.6.1 For neat cement, cement-sand, or cement-bentonite grouts prepared using Type I or Type II Portland cement, the minimum curing time shall be 24 hours.

2.8.3.6.6.2 For neat cement or cement-sand grouts prepared using Type III Portland cement, the minimum curing time shall be 12 hours.

2.8.3.6.6.3 For granular bentonite or chipped bentonite grouts, the minimum hydration time shall be two (2) hours.

2.8.3.6.7 For wells constructed by cable tool, hollow rod, jetting, or other drilling method where the permanent casing is driven, and where neither temporary casing nor an oversize borehole are used, dry granular bentonite of the 8-mesh size shall be maintained in contact with the casing at the surface, e.g., by continuous feeding into a starter hole, such that it will be carried down along the outer surface of the casing during driving. Collar flared joints or weld beads extending beyond the outside diameter of the casing shall be used with sufficient spacing to ensure that the grout seal is continuous and extends downward into the saturated zone. This method can also be used when driving a “temporary” casing to prevent collapse of the oversized borehole. The bentonite may facilitate subsequent removal of the casing, and will prevent a violation of Paragraph 2.8.3.2.15 in the event the casing cannot be removed.

2.8.3.7 Well Development and Redevelopment

2.8.3.7.1 All well development or redevelopment activities shall be performed by a person or business with current NYSDEC and RCDOH well contractor registration. Valid NYSDEC and RCDOH registration numbers shall be provided on the

RCDOH *Application for Permit to Perform Well Maintenance*. (*Amended 10/15/08.)

2.8.3.7.2 All well development or redevelopment activities shall be performed by, or under the constant on-site supervision of, an individual who is certified pursuant to Environmental Conservation Law §15-1525 for the activities being performed. Proof of appropriate certification shall be available on the site of the well construction or pump installation for inspection upon demand by the Commissioner.

2.8.3.7.3 Any water added to the well during development or redevelopment shall be of potable quality.

2.8.3.7.4 No water with turbidity greater than 200 NTU, whether from the well itself or resulting from erosion due to discharge of the well water, shall be allowed to enter any wetland area, water course, drainage swale, or storm sewer.

2.8.3.7.5 If water extracted from any well is known or suspected to contain any constituents at concentrations exceeding NYSDEC Groundwater Cleanup criteria as referenced in Paragraph 2.3.1.2, it shall be retained in appropriate containers, and analyzed to determine the proper disposal in accordance with applicable federal, state and local laws, rules and regulations.

2.8.4 Requirements and Procedures for Decommissioning Wells

2.8.4.1 The Commissioner may order the decommissioning of any well which:

2.8.4.1.1 Is abandoned as defined in paragraph 2.2.1 of the Rockland County Sanitary Code;

2.8.4.1.2 Has been constructed in violation of state or federal law, or of any provision of the Rockland County Sanitary Code;

2.8.4.1.3 Has not been maintained in a condition that ensures protection for the subsurface and percolating waters of the State;

2.8.4.1.4 Is damaged beyond feasible repair;

2.8.4.1.5 Has been replaced by another well and will no longer be used;

2.8.4.1.6 Is contaminated, as defined by paragraph 2.3.1, unless treatment and monitoring are regulated under Subpart 5-1 of the New York State Sanitary Code;

2.8.4.1.7 Has salt water intrusion, unless it can be demonstrated that the well causes no migration of salt water into a fresh water

aquifer, and any necessary treatment and monitoring are regulated under Subpart 5-1 of the New York State Sanitary Code.

2.8.4.2 All wells shall be decommissioned by a person or business with current NYSDEC and RCDOH well contractor registration. Valid NYSDEC and RCDOH registration numbers shall be provided on the RCDOH *Application for Permit to Decommission a Well*.

2.8.4.3 All well decommissioning activities shall be performed by, or under the constant on-site supervision of, an individual who is certified pursuant to Environmental Conservation Law §15-1525 for the activities being performed. Proof of appropriate certification shall be available on the site of the well decommissioning activities for inspection upon demand by the Commissioner.

2.8.4.4 The well driller shall obtain all applicable well records prior to sealing the well in order to verify the depth, diameter and construction details of the wells.

2.8.4.5 The Commissioner may require additional information about a well prior to the well being decommissioned as is reasonable and necessary to determine appropriate methods and materials. Such information may include, but is not limited to, data gathered via geophysical logging or down-hole televising.

2.8.4.6 The Commissioner may require or allow a well to be decommissioned by a method other than as set forth in Paragraph 2.8.4 where special circumstances are encountered which would prevent adherence with standard sealing requirements. Such special circumstances may include, but are not limited to:

2.8.4.6.1 Wells that are known or suspected to be contaminated with hazardous waste;

2.8.4.6.2 Wells that are affected by salt water intrusion;

2.8.4.6.3 Wells installed in unconsolidated formations that are screened in more than one aquifer;

2.8.4.6.4 Wells that cannot be cleared of all obstructions throughout the entire length and diameter of the well;

2.8.4.6.5 Multiple cased wells; or

2.8.4.6.6 Elevator shafts.

2.8.4.7 Any industrial or hazardous wastes, including but not limited to, contaminated casing, cuttings, sediment, displaced water, or non-aqueous liquid, generated during the sealing procedure shall be contained and disposed in accordance with 6 NYCRR Parts 371 through 374.

2.8.4.8 Wells not specifically addressed in Paragraphs 2.8.4.9, 2.8.4.10 or 2.8.4.11 shall be decommissioned as follows unless prior approval of any deviation has been granted by the Commissioner:

2.8.4.8.1 The well shall be cleared of the pump, pipe, debris, and all other obstructions;

2.8.4.8.2 If the well has been overdrilled to remove the entire casing, screen and gravel pack, the resulting borehole shall be constructed to, and maintained at, the original depth of the well until this borehole is sealed in accordance with all provisions Paragraph 2.8.4.

2.8.4.8.3 Adequate protection shall be provided for the top of the borehole and/or top of the casing to prevent surface contamination from entering the well during the sealing operation and when the driller is not at the sealing site.

2.8.4.8.4 If it is known or suspected that an unsealed annular space exists between the outermost casing and the borehole, or if it is known or suspected that a pathway with higher hydraulic permeability than the surrounding rock formation exists between the outermost casing and the borehole, e.g., if the casing is not grouted or if the grout is cracked or otherwise damaged, the casing shall either be removed or perforated to allow grout to flow into and seal this annular space.

2.8.4.8.5 If well casing is left in place, it shall be cut off a minimum of 5 feet below the finished ground surface or to the competent bedrock surface.

2.8.4.8.6 Materials used to seal and decommission wells shall conform to all requirements specified in 2.8.3.4 for materials used to seal annular spaces in wells. Additionally, only neat cement grout, as specified in Paragraph 2.8.3.4.1.1 or cement-bentonite grout, as specified in Paragraph 2.8.3.4.1.3, may be used to seal the annular space through perforated casing, if required pursuant to Paragraph 2.8.4.8.4.

2.8.4.8.7 Sealing materials shall be pumped into the well under pressure through a tremie pipe which discharges at the bottom of the well. If an annular space is being sealed, the material shall discharge at the bottom of the annular space. During sealing, the tremie pipe may be raised from the bottom of the space being filled in a manner that ensures that the discharge end of the tremie pipe remains constantly submerged within the column of undiluted sealing material.

2.8.4.8.8 If a cavern more than twice the diameter of the borehole exists, or if the grout level fails to rise after insertion of either one cubic yard of grout or the quantity of grout necessary to fill ten vertical feet of the hole, then the following materials

and methods may be used only in the portions of the borehole where the conditions exist:

2.8.3.8.8.1 Stone aggregate not larger than one-half inch in diameter may be poured into the borehole while simultaneously pumping neat cement grout (Table 1 or 2) in a ratio not to exceed five parts aggregate to one part grout. The aggregate must be poured into the borehole at a rate that prevents bridging.

2.8.3.8.8.2 A mixture of stone aggregate not larger than one-half inch diameter and cement grout (Table 1 or 2) in a ratio not to exceed five parts aggregate to one part grout may be pumped into the borehole.

2.8.4.8.9 The sealing material shall be pumped into the well or annular space until all water has been displaced and until the sealing material overflowing the well or annular space has a density within the acceptable range for that material.

2.8.4.8.9.1 The driller who seals the well shall return to the well no sooner than 24 hours nor later than 72 hours after the initial sealing operation to fill all settling in the well with concrete. Additional concrete shall be poured to form a slab which shall encompass the top of the casing if left in place. The top of this slab shall be a minimum of 4.5 feet below the finished grade or at the competent bedrock surface if there is less than 4.5 feet of unconsolidated overburden.

2.8.4.8.9.2 Any settlement less than 10 feet below the ground surface shall be resealed using either the pressure method described in Paragraph 2.8.4.8.7 or by filling from the surface via the gravity method. If the gravity method is employed, use of a rod or pipe may be necessary to ensure that bridging of the sealing material does not result in unfilled voids.

2.8.4.8.9.3 Any settlement of 10 feet or greater below the ground surface shall be resealed using the pressure method described in Paragraph 2.8.4.8.7 prior to placement of the concrete slab pursuant to Paragraph 2.8.4.8.8.1.

2.8.4.8.10 A RCDOH *Well Abandonment Report* shall be completed, in its entirety, by the driller who decommissioned the well. This

report shall be submitted to the Commissioner within 60 days of the completion of the sealing.

2.8.4.9 Specific requirements for decommissioning of hand dug wells less than 25 feet in depth.

2.8.4.9.1 Water shall be pumped from the well in order to ensure that no debris lies at the bottom of the well and to minimize settlement of the fill material. The well shall then be filled using one of the following methods.

2.8.4.9.1.1 The well shall be filled from its base up to five (5) feet below the finished grade with concrete. The upper portion of the well shall then be filled with compacted soil similar to the surrounding area.

2.8.4.9.1.2 The well shall be filled with clean crushed stone to the water table surface. The upper portion of the well shall then be filled with compacted soil similar to the surrounding area.

2.8.4.10 Specific requirements for decommissioning of resource evaluation wells that do not intercept ground water.

2.8.4.10.1 All borings shall be decommissioned within 48 hours of completion.

2.8.4.10.2 Borings less than 25 feet in depth may be decommissioned by backfilling with uncontaminated cuttings and then tamping in order to restore to the maximum extent possible the natural conditions of the site that existed prior to drilling the borings.

2.8.4.10.3 Borings 25 feet or greater in depth shall be decommissioned pursuant to Paragraph 2.8.4.9.

2.8.4.11 Specific requirements for decommissioning of borings installed using direct-push technologies.

2.8.4.11.1 Materials used to seal and decommission direct-push borings shall conform to all requirements specified in 2.8.3.4 for materials used to seal annular spaces in wells.

2.8.4.11.2 The drive casing may be used as a tremie pipe providing the drive shoe is of the sacrificial type, or the casing is equipped with a grout shoe and is withdrawn as the sealing material is pumped into the driven borehole.

2.8.4.11.3 The direct push device may be removed and a second casing of equal diameter to the drive casing may be used as tremie pipe provided the casing is equipped with a sacrificial

tip or plug, and is reinserted into the same hole to the original depth of the boring.

2.8.4.11.4 If an outer casing is simultaneously driven with the direct-push device and the inner drive casing and the cone and inner casing are retrieved, the outer casing may be used as a tremie pipe.

2.8.4.11.5 If the direct-push device and drive casing are retrieved, the borehole may be overdrilled using a hollow stem auger and decommissioned in accordance with Paragraph 2.8.4.9.

2.8.5 Applications to Construct or Decommission a Well, or to Perform Maintenance on a Well

An application for a permit to construct or perform maintenance on a water supply well or a resource evaluation well or a geothermal well, or to decommission a well shall be completed in its entirety and submitted to the Commissioner. (*Amended 10/15/08. Amended 6/16/10.)

2.8.5.1 Application to Construct a Water Supply Well

The RCDOH *Application for Permit to Construct a Water Supply Well* shall be completed, in its entirety, by the owner of the property upon which the well is to be constructed and all parties associated with the construction of the water supply well. The completed application must be submitted to the Commissioner. In addition, the following items must be submitted with the completed application:

2.8.5.1.1 A Plot/Site Plan showing topography, indicating the 100-year flood plain elevation; and showing all existing and proposed features such as property lines, easements, structures, streets, driveways, parking areas, dry wells, existing wells, streams, lakes, watercourses, wetlands, septic systems, sewer lines, gas lines, water lines, gasoline tanks, heating oil tanks, storm drains and outfalls there from, etc. within 250 feet of the proposed well location indicating distances from the proposed well;

2.8.5.1.2 A written statement that describes any known or suspected contaminants of concern that could potentially impact ground water, surface water, bedrock, or unconsolidated overburden materials within 250 feet of the proposed well;

2.8.5.1.3 A written proposal that specifies drilling methods, well construction details, and standard operating procedures that include handling and disposition of drilling fluids and cuttings;

2.8.5.1.4 A cross connection control plan approved by the NYSDOH or other delegated entity, if the property on which the well is to be constructed has or will have a connection to a public water system;

2.8.5.1.5 Payment of an application fee, as required by the Commissioner.

2.8.5.2 Application to Construct a Resource Evaluation Well

A RCDOH *Application for Permit to Construct a Resource Evaluation Well* shall be completed in its entirety by the owner of the property upon which the well is to be constructed and all parties associated with the construction of the well. The completed application must be submitted to the Commissioner. One application may be submitted for multiple resource evaluation wells proposed for installation on a single contiguous property. The following items must be submitted with the completed application:

2.8.5.2.1 A plot/site Plan showing topography, indicating the 100-year flood plain elevation; and showing all existing and proposed features such as property lines, easements, structures, streets, driveways, parking areas, dry wells, water supply wells, monitoring wells, streams, lakes, watercourses, wetlands, septic systems, sewer lines, gas lines, water lines, gasoline tanks, heating oil tanks, storm sewers and outfalls there from, etc. within 250 feet of any proposed well location indicating distances from the proposed well.

2.8.5.2.2 A written statement that describes any known or suspected contaminants of concern that could potentially impact ground water, surface water, bedrock, or unconsolidated overburden materials within 250 feet of the proposed well;

2.8.5.2.3 A written proposal that specifies drilling methods, well construction details, and standard operating procedures that include handling and disposition of drilling fluids and cuttings;

2.8.5.2.4 Payment of an application fee, as required by the Commissioner.

2.8.5.3 Application to Construct a Geothermal Well (*Added 6/16/10.)

A RCDOH *Application for Permit to Construct a Geothermal Well* shall be completed in its entirety by the owner of the property upon which the well is to be constructed and all parties associated with the construction of the well. The completed application must be submitted to the Commissioner. One application may be submitted for multiple geothermal wells proposed for installation of a single geothermal system. The following items must be submitted with the completed application:

2.8.5.3.1 A plot/site Plan showing topography, indicating the 100-year flood plain elevation; and showing all existing and proposed features such as property lines, easements, structures, streets, driveways, parking areas, dry wells, water supply wells, monitoring wells, streams, lakes, watercourses, wetlands, septic systems, sewer lines, gas lines, water lines,

gasoline tanks, heating oil tanks, storm sewers and outfalls there from, etc. within 250 feet of any proposed well location indicating distances from the proposed well.

2.8.5.3.2 A written statement that describes any known or suspected contaminants of concern that could potentially impact ground water, surface water, bedrock, or unconsolidated overburden materials within 250 feet of the proposed well;

2.8.5.3.3 A written proposal that specifies drilling methods, well construction details, geothermal system design, testing and operational details, and standard operating procedures that include handling and disposition of drilling fluids and cuttings;

2.8.5.3.4 Payment of an application fee, as required by the Commissioner.

2.8.5.4 Application to Decommission a Well

A RCDOH *Application for Permit to Decommission a Well* shall be completed in its entirety by the owner of the property upon which the well is to be decommissioned and all parties associated with decommissioning the well. The completed application must be submitted to the Commissioner. In addition, the following items must be submitted with the completed application:

2.8.5.4.1 A plot/site Plan showing topography and all existing and proposed features such as property lines, easements, structures, streets, driveways, parking areas, dry wells, wells, streams, lakes, watercourses, wetlands, septic systems, sewer lines, gas lines, water lines, gasoline tanks, heating oil tanks, storm sewers and outfalls there from, etc. within 250 feet of the well location indicating distances from the well to be decommissioned.

2.8.5.4.2 A boring log and well construction diagram showing all details known about the well to be decommissioned. In the event that well construction details are unknown, provide as a minimum, the total depth of the well, the type of casing found at the surface, type of overburden material, presence or absence of a grout seal surrounding the casing, condition of the grout seal if present, and the approximate depth to and type of bedrock expected on the basis of local geologic conditions.

2.8.5.4.3 A written proposal that specifies the procedures and materials to be used for decommissioning the well.

2.8.5.4.4 Payment of an application fee, as required by the Commissioner.

2.8.5.5 Application to Perform Maintenance on a Well (*Added 10/15/08.)

A RCDOH *Application for Permit to Perform Maintenance on a Well* shall be completed in its entirety by the owner of the property upon which the well maintenance is to be performed and all parties associated with maintenance the well. The completed application must be submitted to the Commissioner. In addition, the following items must be submitted with the completed application:

2.8.5.5.1 A plot/site Plan showing topography and all existing and proposed features such as property lines, easements, structures, streets, driveways, parking areas, dry wells, wells, streams, lakes, watercourses, wetlands, septic systems, sewer lines, gas lines, water lines, gasoline tanks, heating oil tanks, storm sewers and outfalls there from, etc. within 250 feet of the well location indicating distances from the well.

2.8.5.5.2 A boring log and well construction diagram showing all details known about the well to be maintained. In the event that well construction details are unknown, provide as a minimum, the total depth of the well, the type of casing found at the surface, type of overburden material, presence or absence of a grout seal surrounding the casing, condition of the grout seal if present, and the approximate depth to and type of bedrock expected on the basis of local geologic conditions.

2.8.5.5.3 A written proposal that specifies the procedures and materials to be used during well maintenance.

2.8.5.5.4 Payment of an application fee, as required by the Commissioner.

2.8.5.5.5 The requirement for a permit shall be waived for replacement of pumps or pumping equipment that involve no drilling operations or casing extension. However, the RCDOH Pump Installation Report, completed in its entirety, must be submitted to RCDOH within 60 days of the replacement pursuant to Paragraph 2.8.9.1.2.

2.8.6 Fee

A fee shall be charged for each permit application in accordance with Article I of the Rockland County Sanitary Code. This fee shall be paid by cash, check or money order made payable to the Commissioner of Finance. Payment shall accompany the application for the permit. (*Amended 6/16/10.)

2.8.7 Permits

No person shall construct, perform maintenance on or decommission any well or allow the construction, maintenance or decommissioning of any well unless a permit has first been secured from the Commissioner. Deepening an existing well will be considered well construction and will require either a *Permit to Construct a Water Supply Well*, a *Permit to Construct a Resource Evaluation Well*, or a Permit to Construct a Geothermal Well, whichever is applicable. Any well repair, cleaning, redevelopment or other modification that involves well drilling operations, including but not limited to replacing , extending, cutting or resetting a well casing, installing or replacing a pitless unit or pitless adapter, or hydrofracturing to increase yield, shall be considered well maintenance, and will require a *Permit to Perform Maintenance on a Well*. (*Revised 10/15/08. Revised 6/16/10.)

2.8.7.1 The requirement for a permit shall be waived for the following:

2.8.7.1.1 pump or pumping equipment replacements that involve no drilling operations. However, the RCDOH Pump Installation Report, completed in its entirety, must be submitted to RCDOH within 60 days of the replacement installation pursuant to Paragraph 2.8.9.1.2.

2.8.7.1.2 Decommissioning resource evaluation wells that do not intercept ground water.

2.8.7.2 The Commissioner shall issue a permit after determination that all of the following conditions have been met:

2.8.7.2.1 All well contractors making application for the permit hold current NYSDEC and RCDOH well contractor registration;

2.8.7.2.2 No party to the application is in violation of any applicable law, rule or regulation;

2.8.7.2.3 The appropriate application form has been completed in its entirety;

2.8.7.2.4 All additional information required has been submitted with the application;

2.8.7.2.5 The appropriate application fee has been paid;

2.8.7.2.6 On the basis of the information provided on and with the application, the proposed well construction or decommissioning will not pose a known or potential threat to human health or the environment and will not contravene any applicable laws, rules or regulations.

2.8.7.3 Once approved, the Commissioner will issue a copy of the permit to all applicants via United States postal service. A copy of the approved permit must be kept on site and available for review during any well construction, decommissioning, or pump installation activities.

2.8.7.4 All activities associated with construction or decommissioning of wells must be conducted in compliance with the terms and conditions stated on the approved permit.

2.8.8 Notice of Disapproval and Appeal

The Commissioner shall issue a "Notice of Disapproval" whenever an application fails to meet the requirements for issuance of a permit as hereinabove provided. Such notice shall:

2.8.8.1 state the grounds for disapproval; and

2.8.8.2 be served upon each party to the application, provided, however, that such notice shall be deemed to be properly served if a copy thereof is sent via United States postal service to the address provided for each party on the application, or if said party is served by such other methods as are, or may be authorized, under the laws of this State governing personal service of process upon individuals. Such notice may state any remedial action which, if taken, will effect compliance with this Article and permit approval of the application. It shall be the responsibility of each party to the application to provide written notification to the Commissioner of any changes to information provided on the permit application.

2.8.9 Completed Works

Each party to the application shall comply with all requirements and conditions as stated on the approved permit as well as those that follow.

2.8.9.1 Water Supply Wells

2.8.9.1.1 The drilling contractor must:

2.8.9.1.1.1 provide a minimum of two (2) business days notice to RCDOH prior to drilling the well. Such notice may be provided via telephone, using the telephone number provided on the permit. A confirmation number shall be provided to the drilling contractor to evidence said notification. This notification confirmation number shall be recorded in the space provided on the permit.

2.8.9.1.1.2 construct the well in accordance with all provisions of paragraph 2.8.0.

2.8.9.1.1.3 pump the well until water is clear.

2.8.9.1.1.4 submit a copy of the NYSDEC Well Completion Report, completed in its entirety*, to RCDOH within 60 days of drilling the well. *If pump not installed within 60 days, the drilling contractor

should check “No” for line 26, and leave lines 27 through 33 blank.

2.8.9.1.2 The pump contractor must submit a copy of RCDOH Pump Installation Report, completed in its entirety, to RCDOH within 60 days of pump installation.

2.8.9.1.3 The property owner must:

2.8.9.1.3.1 disinfect the well in accordance with procedures published by the NYSDOH or approved in advance by the Commissioner.

2.8.9.1.3.2 conduct all sampling and analyses as required on the approved permit under “sampling requirements” and submit all analytical results to RCDOH. All sampling and analysis must be conducted in compliance with Paragraph 2.4.0. In addition, sample collection shall be conducted no sooner than two weeks following any well construction activities that involve drilling operations, including but not limited to development or redevelopment of a water supply well or immediately following test pumping procedures equivalent to those required pursuant to 10 NYCRR, Appendix 5B or Subpart 5-1 of the New York State Sanitary Code.

2.8.9.1.3.3 submit documentation of appropriate waste disposal pursuant to all applicable federal, state and local laws and regulations to RCDOH within 60 days of drilling the well(s).

2.8.9.2 Resource Evaluation Wells

2.8.9.2.1 The drilling contractor must:

2.8.9.2.1.1 provide a minimum of two (2) business days notice to RCDOH prior to drilling the well(s). Such notice may be provided via telephone, using the telephone number provided on the permit. A confirmation number shall be provided to the drilling contractor to evidence said notification. This notification confirmation number shall be recorded in the space provided on the permit.

2.8.9.2.1.2 install, develop and secure the well(s) in accordance with the written proposal submitted

with the *Application for Permit to Construct a Resource Evaluation Well*.

2.8.9.2.1.3 submit a copy of a drilling log and well completion diagram (if applicable) for each well to RCDOH within 30 days of drilling the well(s).

2.8.9.2.2 The property owner or party responsible for the investigation must submit documentation of appropriate waste disposal pursuant to all applicable federal, state and local laws and regulations to RCDOH within 30 days of drilling the well(s).

2.8.10 Certificate or Letter of Compliance

Upon satisfactory completion of the requirements as contained in Subsections 2.8.1 through 2.8.9 above, a Certificate of Compliance will be issued to the property owner. Water from the permitted well may not be used for any purpose other than sample collection prior to receipt of a Certificate of Compliance from the Commissioner.

2.8.11 Well Contractor Registration

A valid RCDOH well contractor certificate of registration issued by the Commissioner is required for lawful conduct of any well drilling, maintenance or pump installation activities within the Rockland Health District. (*Amended 10/15/08.)

2.8.11.1 Registration Requirements

2.8.11.1.1 The registrant shall complete in its entirety the RCDOH *Application for Well Contractor Registration*.

2.8.11.1.2 The registrant must possess a valid NYSDEC well contractor registration.

2.8.11.1.3 The registrant must have no outstanding violations of this code.

2.8.11.1.4 The registrant must be responsible for no unpaid fines associated with past violations of this code.

2.8.11.1.5 The registrant must pay a registration fee as specified by the Commissioner.

2.8.11.2 Registration Renewal

Registrations will be valid for one year from the date of issuance, unless otherwise suspended or revoked pursuant to Paragraph 2.8.11.3. Renewal will require the registrant to meet the registration requirements in Paragraph 2.8.11.1.

2.8.11.3 Enforcement Actions

2.8.11.3.1 Conduct of any well construction, maintenance or pump installation activities without a valid RCDOH well contractor registration is a violation of this Article. The Commissioner may order the immediate cessation of any such work being performed without appropriate registration. (*Amended 10/15/08.)

2.8.11.3.2 For serious, repeated or persistent violations of any of the requirements of this Article, or for interference with the Commissioner in the performance of his or her duties, the certificate of registration may be revoked for a period of one year after notice and an opportunity for a hearing has been provided by the Commissioner.

2.8.11.3.3 In the event that NYSDEC revokes or fails to renew the certificate of registration for any person pursuant to Environmental Conservation Law §15-1502, the corresponding RCDOH certificate of registration will be immediately revoked.

2.9.0 Operator Requirements for Public Water Systems

2.9.1 Statement

Paragraph 2.9.0 and the included subparagraphs specify minimum certification, presence and availability requirements for operators of public water systems. These requirements shall be used to amplify the standards of Subpart 5-1.71 of the New York State Sanitary Code (10 NYCRR), which requires that the supplier of water and the person or persons operating a water treatment plant or distribution system exercise due care and diligence in the operation, maintenance and supervision of the public water system to ensure compliance with Subpart 5-1 of the NYS Sanitary Code.

2.9.2 Definitions

As used in Paragraph 2.9.0, the following words and terms shall have the meanings as stated in Subpart 5-4 of the New York State Sanitary Code (10 NYCRR).

2.9.2.1 Available

2.9.2.2 Operation

2.9.2.3 Operator in responsible charge

2.9.2.4 IA Certification

2.9.2.5 IIA Certification

2.9.2.6 IB Certification

2.9.2.7 IIB Certification

2.9.2.8 C Certification

2.9.2.9 D Certification

2.9.2.10 Distribution system

2.9.2.11 Distribution system operator

2.9.2.12 Public water system

2.9.2.13 Water treatment assistant operator

2.9.2.14 Water treatment operator

2.9.2.15 Water treatment plant

2.9.3 Water Treatment Plants with IA Classification

2.9.3.1 A water treatment operator with current IA certification or a water treatment assistant operator with current IIA certification must be present on the premises of the water treatment plant during all periods of operation, unless all conditions within Paragraph 2.9.3.1.1 are met. This water treatment operator or water treatment assistant operator may not simultaneously satisfy the presence, availability, or standby requirements for operation of any other water treatment plant or distribution system. (*Amended 4/19/08.)

2.9.3.1.1 Water treatment plants with IA classification may operate without the direct on-premises presence of a water treatment operator with current IA certification or a water treatment assistant operator with current IIA certification, provided all conditions in paragraphs 2.9.3.1.1.1 through 2.9.4.1.1.6 are met. (*Added 4/16/08.)

2.9.3.1.1.1 The water treatment plant referenced in Paragraph 2.9.3.1.1 shall be equipped for fully automated operation pursuant to the "*Policy Statement on Automated/Unattended operation of Surface Water Treatment Plants*;" [Recommended Standards for Water Works, 2003 Edition], with the following additional requirements. "Reasonable response time," is hereby defined as no more than one hour. The certified operator on "standby duty" must hold either a current IA certification or a current IIA certification. The standby duties may be split between two appropriately certified individuals, one with remote monitoring and control capabilities and the other being available and able to report to the treatment plant within one

hour. "Sufficient finished water storage" must include adequate capacity to provide the rated peak capacity of the water treatment plant following an automatic shut down until the plant can be staffed and operated manually.

2.9.3.1.1.2 The proposed automation and surveillance infrastructure and all operational plans and protocols must be reviewed and approved by the New York State Department of Health (NYSDOH) and the Rockland County Department of Health (RCDOH) prior to initiation of the demonstration period described in Paragraph 2.9.3.1.1.3.

2.9.3.1.1.3 The suitability and reliability of all automation and surveillance infrastructure and operational plans and procedures must be proven to the satisfaction of the NYSDOH and the RCDOH during a minimum 6-month demonstration period. Logs must be kept during the demonstration period to document each task performed, by whom, and the time spent. Copies of these logs, signed by the operator in responsible charge, must be submitted along with the monthly operating report by the 10th day of the month following each period of record. For plants that operate on a seasonal basis, the demonstration period may be completed over two seasons of operation.

2.9.3.1.1.4 Following the demonstration period, "as built" engineering plans detailing all automation and surveillance infrastructure, including documentation of all approved modifications must be submitted to the NYSDOH and the RCDOH.

2.9.3.1.1.5 Final operating plans and protocols, with any revisions warranted by the operational experience gained during the demonstration period, must be submitted to and approved by the NYSDOH and the RCDOH. These plans must specify each required task that will be conducted pursuant to item numbers 7 and 13 of the "*Policy Statement on Automated / Unattended operation of Surface Water Treatment Plants*;" [Recommended Standards for Water Works, 2003 Edition], and must specify the minimum time that a water treatment operator with current IA certification

or a water treatment assistant operator with current IIA certification will be present on the premises of the water treatment plant during each day of operation. These plans must also specify the minimum time that a water treatment operator with current IA certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be present on the premises of the water treatment plant during each calendar month of operation.

2.9.3.1.1.6 The water treatment plant must be operated in compliance with the final approved plans and protocols. In the event either NYSDOH or RCDOH determines that unattended operation in accordance with these plans is not sufficiently protective of the public health, revisions may be required and/or approval for unattended operation may be rescinded.

2.9.3.2 A water treatment operator with current IA certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be available, and must be able to report to the water treatment plant within a one-hour period, during all periods of operation. This water treatment operator may not simultaneously satisfy the presence, availability or standby requirements for operation of any other water treatment plant or distribution system, except as explicitly defined in a water treatment plant staffing plan that has been reviewed and approved by RCDOH and NYSDOH. Such a plan must detail all responsibilities of each staff position necessary for operation of all water treatment plants in the public water system, and must be updated, reviewed and approved prior to issuance of a Completed Works Approval for any new source. (*Amended 4/16/08. Amended 6/16/10.)

2.9.3.3 A water treatment operator with current IA certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be present on the premises of the water treatment plant during a minimum of 18% of the time of water treatment plant operation within each calendar month, for a minimum of two consecutive hours during any 66 hours of water treatment plant operation, and for a minimum of 30 hours within any calendar week during which the water treatment plant was operational, unless all conditions within Paragraph 2.9.3.1.1 are met. This water

treatment operator may not simultaneously satisfy the presence, availability, or standby requirements for operation of any other water treatment plant or distribution system. (*Amended 4/16/08.)

2.9.4 Water Treatment Plants with IB Classification

2.9.4.1 A water treatment operator with current IB certification or a water treatment assistant operator with current IIB certification must be present on the premises of the water treatment plant during all periods of operation, unless all conditions within either Paragraph 2.9.4.1.1 or 2.9.4.1.2 are met. This water treatment operator or water treatment assistant operator may not simultaneously satisfy the presence, availability or standby requirements for operation of any other water treatment plant. (*Amended 4/16/08.)

2.9.4.1.1 Individual water treatment plants with IB classification may operate for a maximum of 18 hours without the presence of a water treatment operator with current IB certification or a water treatment assistant operator with current IIB certification, provided all conditions in paragraphs 2.9.4.1.1.1 through 2.9.4.1.1.3 are met.

2.9.4.1.1.1 The water treatment plant referenced in Paragraph 2.9.4.1.1 shall be equipped with automated capabilities to continuously monitor the quantity of finished water available in storage, as well as the status of any treatment process that will function without operator presence. If ultraviolet disinfection and/or air strippers are used, the automated equipment shall have the capability of monitoring whether the system is functioning properly. If any agent is added for pH adjustment, the automated equipment shall have the capability of monitoring pH in the water at or immediately before the entry point to the distribution system. Similarly, if any agent is added for chlorination, the automated equipment shall have the capability of monitoring chlorine residual in the water at or immediately before the entry point to the distribution system. There shall be no requirement for continuous monitoring of the concentrations of phosphate or silica resulting from addition of corrosion control inhibitors. The potential requirement for continuous automated monitoring of any other treatment process shall be evaluated on a case-by-case basis.

2.9.4.1.1.2 All monitoring equipment required by Paragraph 2.9.4.1.1.1 shall have an automated alarm system that is linked to a facility that is staffed

during all periods of water treatment plant operation by a competent individual approved in advance by the Commissioner. This alarm system shall provide immediate notification in the event any monitored parameter falls outside a preset range of normal operation.

2.9.4.1.1.3 A water treatment operator with current IB certification or a water treatment assistant operator with current IIB certification must be available during all periods of operation and be able to report to the water treatment plant referenced in Paragraph 2.9.4.1.1 within a one-hour period following any alarm notification as described in Paragraph 2.9.4.1.1.2.

2.9.4.1.2 Interconnected systems comprised of multiple dispersed water treatment plants may be operated by a single water treatment operator with current IB certification or water treatment assistant operator with current IIB certification who is present at a location from which the entire system of water treatment plants can be effectively monitored and controlled, i.e., a central control facility, provided all conditions in paragraphs 2.9.4.1.2.1 through 2.9.4.1.2.3 are met.

2.9.4.1.2.1 The central control facility referenced in Paragraphs 2.9.4.2.1 shall have the ability to monitor the status of any treatment process used at all water treatment plants within the interconnected system. If ultraviolet disinfection and/or air strippers are used, the central control facility shall have the capability of monitoring whether the system is functioning properly. If any agent is added for pH adjustment, the central control facility shall have the capability of monitoring pH in the water at or immediately before the entry point to the distribution system. Similarly, if any agent is added for chlorination, the central control facility shall have the capability of monitoring chlorine residual in the water at or immediately before the entry point to the distribution system. There shall be no requirement for the central control facility to monitor the concentrations of phosphate or silica resulting from addition of corrosion control inhibitors. The potential requirement for monitoring/control of any other treatment process shall be evaluated on a case-by-case basis.

2.9.4.1.2.2 The central control facility referenced in Paragraph 2.9.4.2.1 shall have the ability to control all water production and treatment operations at all water treatment plants in the interconnected system.

2.9.4.1.2.3 A water treatment operator with current IB certification or a water treatment assistant operator with current IIB certification must be available and able to report to any one of the water treatment plants within a one-hour period, while the presence of a water treatment operator with current IB certification or a water treatment assistant operator with current IIB certification is maintained at the central control facility during all periods of operation.

2.9.4.2 A water treatment operator with current IB certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be available, and must be able to report to the water treatment plant within a one-hour period, during all periods of operation. For interconnected systems comprised of multiple dispersed water treatment plants, this operator must be able to report to a central control facility that meets all requirements in Paragraph 2.9.4.2.1 and/or any one of the individual water treatment plants within a one hour period. This water treatment operator may not simultaneously satisfy the presence or availability requirements for operation of any other water treatment plant, except as explicitly defined in a water treatment plant staffing plan that has been reviewed and approved by RCDOH and NYSDOH. Such a plan must detail all responsibilities of each staff position necessary for operation of all water treatment plants in the public water system, and must be updated, reviewed and approved prior to issuance of a Completed Works Approval for any new source. (*Amended 6/16/10.)

2.9.4.3 A water treatment operator with current IB certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be present on the premises of the water treatment plant during a minimum of 18% of the time of water treatment plant operation within each calendar month, for a minimum of two consecutive hours during any 66 hours of water treatment plant operation, and for a minimum of 30 hours within any calendar week during which the water treatment plant was operational. For interconnected systems comprised of multiple dispersed water treatment plants, presence at either a central control facility that meets all requirements in Paragraph 2.9.4.2.1 or any one of the individual water treatment plants shall apply. This water treatment operator may not simultaneously satisfy the presence or availability requirements for operation of any other water treatment plant.

2.9.5 Water Treatment Plants with IIA Classification

2.9.5.1 A water treatment operator or a water treatment assistant operator with current IIA certification must be present on the premises of the water treatment plant during all periods of operation, unless all conditions within Paragraph 2.9.5.1.1 are met. This water treatment operator or water treatment assistant operator may not simultaneously satisfy the presence, availability or standby requirements for operation of any other water treatment plant or distribution system. (*Amended 4/16/08.)

2.9.5.1.1 Water treatment plants with IIA classification may operate without the direct on-premises presence of a water treatment operator or a water treatment assistant operator with current IIA certification, provided all conditions in paragraphs 2.9.5.1.1.1 through 2.9.5.1.1.6 are met. (*Added 4/16/08.)

2.9.5.1.1.1 The water treatment plant referenced in Paragraph 2.9.5.1.1 shall be equipped for fully automated operation pursuant to the "*Policy Statement on Automated/Unattended operation of Surface Water Treatment Plants*;" [Recommended Standards for Water Works, 2003 Edition], with the following additional requirements. "Reasonable response time," is hereby defined as no more than one hour. The certified operator on "standby duty" must hold a current IIA certification. The standby duties may be split between two appropriately certified individuals, one with remote monitoring and control capabilities and the other being available and able to report to the treatment plant within one hour. "Sufficient finished water storage" must include adequate capacity to provide the rated peak capacity of the water treatment plant following an automatic shut down until the plant can be staffed and operated manually.

2.9.5.1.1.2 The proposed automation and surveillance infrastructure and all operational plans and protocols must be reviewed and approved by the New York State Department of Health (NYSDOH) and the Rockland County Department of Health (RCDOH) prior to initiation of the demonstration period described in Paragraph 2.9.5.1.1.3.

2.9.5.1.1.3 The suitability and reliability of all automation and surveillance infrastructure and operational plans and procedures must be proven to the satisfaction of the NYSDOH and the RCDOH

during a minimum 6-month demonstration period. Logs must be kept during the demonstration period to document each task performed, by whom, and the time spent. Copies of these logs, signed by the operator in responsible charge, must be submitted along with the monthly operating report by the 10th day of the month following each period of record.

2.9.5.1.1.4 Following the demonstration period, "as built" engineering plans detailing all automation and surveillance infrastructure, including documentation of all approved modifications must be submitted to the NYSDOH and the RCDOH.

2.9.5.1.1.5 Final operating plans and protocols, with any revisions warranted by the operational experience gained during the demonstration period must be submitted to and approved by the NYSDOH and the RCDOH. These plans must specify each required task that will be conducted pursuant to item numbers 7 and 13 of the "*Policy Statement on Automated /Unattended operation of Surface Water Treatment Plants*;" [Recommended Standards for Water Works, 2003 Edition], and must specify the minimum time that a water treatment operator or a water treatment assistant operator with current IIA certification will be present on the premises of the water treatment plant during each day of operation. These plans must also specify the minimum time that a water treatment operator with current IIA certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be present on the premises of the water treatment plant during each calendar month of operation.

2.9.5.1.1.6 The water treatment plant must be operated in compliance with the final approved plans and protocols. In the event either NYSDOH or RCDOH determines that unattended operation in accordance with these plans is not sufficiently protective of the public health,

revisions may be required and/or approval for unattended operation may be rescinded.

2.9.5.2 A water treatment operator with current IIA certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be available, and must be able to report to the water treatment plant within a one-hour period, during all periods of operation. This water treatment operator may not simultaneously satisfy the presence, availability or standby requirements for operation of any other water treatment plant or distribution system, with the sole exception described in Paragraph 2.9.5.2.1, except as explicitly defined in a water treatment plant staffing plan that has been reviewed and approved by RCDOH and NYSDOH. Such a plan must detail all responsibilities of each staff position necessary for operation of all water treatment plants in the public water system, and must be updated, reviewed and approved prior to issuance of a Completed Works Approval for any new source. (*Amended 4/16/08. Amended 6/16/10.)

2.9.5.2.1 For multiple automated IIA water treatment plants that are also part of an interconnected system of wells, e.g., in the case of ground water sources that have been classified as Ground Water Under the Direct Influence (GWUDI) of surface water, a single IIA water treatment operator may satisfy the availability requirement for multiple IIA water treatment plants provided all of these water treatment plants meet all of the conditions in paragraphs 2.9.5.1.1.1 through 2.9.5.1.1.6. (*Added 4/16/08.)

2.9.5.3 A water treatment operator with current IIA certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be present on the premises of the water treatment plant during a minimum of 18% of the time of water treatment plant operation within each calendar month, for a minimum of two consecutive hours during any 66 hours of water treatment plant operation, and for a minimum of 30 hours within any calendar week during which the water treatment plant was operational, unless all conditions within Paragraph 2.9.5.1.1 are met. This water treatment operator may not simultaneously satisfy the presence, availability, or standby requirements for operation of any other water treatment plant or distribution system. (*Amended 4/16/08.)

2.9.6 Water Treatment Plants with IIB Classification

2.9.6.1 A water treatment operator or a water treatment assistant operator with current IIB certification must be present on the premises of the water treatment plant during all periods of operation, unless all conditions within either Paragraph 2.9.6.1.1 or 2.9.6.1.2 are met. This water treatment operator or water treatment assistant operator may not

simultaneously satisfy the presence or availability requirements for operation of any other water treatment plant.

2.9.6.1.1 Individual water treatment plants with IIB classification may operate for a maximum of 18 hours without the presence of a water treatment operator or a water treatment assistant operator with current IIB certification, provided all conditions in paragraphs 2.9.6.1.1.1 through 2.9.6.1.1.3 are met.

2.9.6.1.1.1 The water treatment plant referenced in Paragraph 2.9.6.1.1 shall be equipped with automated capabilities to continuously monitor the quantity of finished water available in storage, as well as the status of any treatment process that will function without operator presence. If ultraviolet disinfection and/or air strippers are used, the automated equipment shall have the capability of monitoring whether the system is functioning properly. If any agent is added for pH adjustment, the automated equipment shall have the capability of monitoring pH in the water at or immediately before the entry point to the distribution system. Similarly, if any agent is added for chlorination, the automated equipment shall have the capability of monitoring chlorine residual in the water at or immediately before the entry point to the distribution system. There shall be no requirement for continuous monitoring of the concentrations of phosphate or silica resulting from addition of corrosion control inhibitors. The potential requirement for continuous automated monitoring of any other treatment process shall be evaluated on a case-by-case basis.

2.9.6.1.1.2 All monitoring equipment required by Paragraph 2.9.6.1.1.1 shall have an automated alarm system that is linked to a facility that is staffed during all periods of water treatment plant operation by a competent individual approved in advance by the Commissioner. This alarm system shall provide immediate notification in the event any monitored parameter falls outside a preset range of normal operation.

2.9.6.1.1.3 A water treatment operator or a water treatment assistant operator with current IIB certification must be available during all periods of operation and be able to report to the water treatment plant referenced in Paragraph 2.9.6.1.1 within a

one-hour period following any alarm notification as described in Paragraph 2.9.6.1.1.2.

2.9.6.1.2 Interconnected systems comprised of multiple dispersed water treatment plants may be operated by a single water treatment operator or water treatment assistant operator with current IIB certification who is present at a location from which the entire system of water treatment plants can be effectively monitored and controlled, i.e., a central control facility, provided all conditions in paragraphs 2.9.6.1.2.1 through 2.9.6.1.2.3 are met.

2.9.6.1.2.1 The central control facility referenced in Paragraphs 2.9.6.1.2 shall have the ability to monitor the status of any treatment process used at all water treatment plants within the interconnected system. If ultraviolet disinfection and/or air strippers are used, the central control facility shall have the capability of monitoring whether the system is functioning properly. If any agent is added for pH adjustment, the central control facility shall have the capability of monitoring pH in the water at or immediately before the entry point to the distribution system. Similarly, if any agent is added for chlorination, the central control facility shall have the capability of monitoring chlorine residual in the water at or immediately before the entry point to the distribution system. There shall be no requirement for the central control facility to monitor the concentrations of phosphate or silica resulting from addition of corrosion control inhibitors. The potential requirement for monitoring/control of any other treatment process shall be evaluated on a case-by-case basis.

2.9.6.1.2.2 The central control facility referenced in Paragraph 2.9.6.1.2 shall have the ability to control all water production and treatment operations at all water treatment plants in the interconnected system.

2.9.6.1.2.3 A water treatment operator or water treatment assistant operator with current IIB certification must be available and able to report to any one of the water treatment plants within a one-hour period, while the presence of a water treatment operator or water treatment assistant operator with current IIB certification is maintained at the

central control facility during all periods of operation.

2.9.6.2 A water treatment operator with current IIB certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be available, and must be able to report to the water treatment plant within a one-hour period, during all periods of operation. For interconnected systems comprised of multiple dispersed water treatment plants, this operator must be able to report to a central control facility that meets all requirements in Paragraph 2.9.6.1.2 and/or any one of the individual water treatment plants within a one hour period. This water treatment operator may not simultaneously satisfy the presence or availability requirements for operation of any other water treatment plant, except as explicitly defined in a water treatment plant staffing plan that has been reviewed and approved by RCDOH and NYSDOH. Such a plan must detail all responsibilities of each staff position necessary for operation of all water treatment plants in the public water system, and must be updated, reviewed and approved prior to issuance of a Completed Works Approval for any new source. (*Amended 6/16/10.)

2.9.6.3 A water treatment operator with current IIB certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be present on the premises of the water treatment plant during a minimum of 18% of the time of water treatment plant operation within each calendar month, for a minimum of two consecutive hours during any 66 hours of water treatment plant operation, and for a minimum of 30 hours within any calendar week during which the water treatment plant was operational. For interconnected systems comprised of multiple dispersed water treatment plants, presence at either a central control facility that meets all requirements in Paragraph 2.9.6.1.2 or any one of the individual water treatment plants shall apply. This water treatment operator may not simultaneously satisfy the presence or availability requirements for operation of any other water treatment plant.

2.9.7 Water Treatment Plants with C Classification

2.9.7.1 A water treatment operator with current C certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be available during all times of plant operation. (*Revised 4/16/08.)

2.9.7.2 An individual who is capable and fully authorized by the operator in responsible charge to perform all water treatment plant operation actions under the direction of a water treatment operator with current C

certification, must be able to report to the water treatment plant within a one hour period during all times of plant operation. (*Added 4/16/08.)

2.9.7.3 A water treatment operator with current C certification who is fully authorized by the operator in responsible charge to make any and all process control/system integrity decisions necessary to operate the water treatment plant, and who is able to perform all water treatment plant operation actions and procedures must be present for a minimum of one hour during each calendar month to inspect the treatment plant infrastructure, ensure proper operation, and verify the accuracy of monthly operational reports. (*Amended 4/16/08.)

2.9.8 Water Distribution Systems with D Classification

A distribution system operator with current D certification who is fully authorized by the Operator in Responsible Charge to make any and all process control/system integrity decisions necessary to operate the distribution system, and who is able to perform all distribution system operation actions and procedures must be available, and must be able to report to any point within the distribution system within a one-hour period, during all times of operation. This distribution system operator may not simultaneously satisfy the presence or availability requirements for operation of any other water treatment plant or distribution system.

2.10.0 Records of Operation

A written duty log identifying the water treatment operators, water treatment assistant operators and distribution system operators, along with the dates and times each individual serves to satisfy any requirement identified in Paragraph 2.9.0 or included subparagraphs shall be maintained by the operator in responsible charge, and shall be available for review upon request by any NYSDOH or RCDOH personnel. Copies of these duty logs shall be signed by the operator in responsible charge and submitted to the Commissioner every month by the tenth calendar day following the month of record.

2.11.0 Bottled Drinking Water

The sale, offering for sale, or delivery of bottled or bulk natural or distilled water for human consumption, food preparation or culinary purposes is prohibited unless the person bottling such water shall have first obtained a valid Certificate of Approval from New York State and meet all requirements of Bottled and Bulk Water Standards, published by the New York State Department of Health. Each bottle or container must bear a label with the NYSHD Certificate Number. The delivery of such water and any equipment or appurtenances provided with the product must be so maintained as to provide a safe and sanitary water to the consumer.

2.12.0 Ice Manufacturing and Distribution

2.12.1 No person shall sell, offer for sale or deliver any artificial ice unless it shall have been produced from a potable water system and manufactured, sorted and delivered under clean and sanitary conditions. Compliance with applicable sections of Part 5 of the New York State Sanitary Code is required. The sale, offering for sale, or delivery of any natural ice for domestic refrigeration or for use in foods or beverages is prohibited.

2.12.2 Permit

It shall be unlawful for any person to manufacture artificial ice for sale without a permit issued by the Commissioner. Only persons who comply with this Article and the applicable sections of Part 5 of the New York State Sanitary Code shall be entitled to receive and retain such permit. This permit will be issued annually and will expire one (l) year from the date of issuance, except as otherwise stipulated on the permit. Application shall be made at least twenty-one (21) days before the first day of intended operation on a form prescribed by the Commissioner. A permit may be suspended by the Commissioner upon violation, by the holder, of any of the requirements of this Article or Part 5 of the New York State Sanitary Code, when in his opinion, public health is in peril, or revoked after an opportunity for a hearing by the Commissioner.

2.12.3 Fee

A fee shall be charged for each permit issued in accordance with Article I of the Rockland County Sanitary Code. This fee shall be paid by cash, check or money order made payable to the Commissioner of Finance. Payment shall accompany the application for the permit. (*Amended 6/16/10.)

2.12.4 Analytical Requirements

In order to ensure potability of the source water and the sanitary quality of the ice being manufactured, sampling and analysis shall have to be completed according to the following schedule.

2.12.4.1 Only water from a public water system registered with the New York State Department of Health pursuant to the requirements of Part V of the New York State Sanitary Code shall be used for the manufacture or production of ice by any person within the Rockland County Health District. Each manufacturer of ice within the Rockland County Health District shall by January 31, April 31, July 31, and October 31 of each year have the manufactured ice tested for coliform bacteria and general bacteria (standard plate count) by a laboratory approved by the New York State Department of Health. Said reports shall be submitted to the Rockland County Health Department by the tenth (10^{th}) calendar day of the next reporting period. All water used for the manufacture or production of ice shall meet the standards for potable water as set forth in Part V of the New York State Sanitary Code.

2.12.4.2 Notwithstanding any other provision of this article to the contrary, the manufacturer or producer of ice within the Rockland County Health District may use a water supply other than a public water system registered with the New York State Department of Health, provided that

said water supply for the manufacture or production of ice meets all of the standards for potable water as set forth in Part V of the New York State Sanitary Code.

2.13.0 Sanitary Drinking Fountains

Wherever a drinking fountain is provided for the use of employees or the public, such fountain shall be connected to potable water and shall be of a sanitary type constructed with a side angle projecting orifice shielded so as to prevent contamination by hands, lips or sputum of the drinker and with such orifice located at least one-half (l/2) inch above the level of overflow.

2.14.0 Geothermal System Construction and Operation (*Added 6/16/10.)

2.14.1 Statement

Improper or inappropriate construction of geothermal systems, including use of inappropriate materials in below-grade components, represents a potential endangerment of water resources, and a potential hazard to public health and safety.

2.14.2 Scope

2.14.2.1 Minimum requirements are hereby prescribed governing the construction, installation and operation of geothermal systems. No person shall construct or install, or cause to be constructed or installed, any geothermal system contrary to this Article.

2.14.2.2 Any geothermal system, including all related equipment and infrastructure, whether temporary or permanent, shall also comply with all applicable federal, state and local standards, laws and regulations.

2.14.3 Construction Requirements

2.14.3.1 The Commissioner may require or allow a geothermal system to be constructed using methods or materials other than as set forth in Paragraph 2.14.3 where special circumstances are encountered which would prevent adherence with standard construction requirements. Any such alternative construction methods must be approved in advance by the Commissioner.

2.14.3.2 Construction Requirements for all Closed-Loop Geothermal Systems

2.14.3.2.1 All geothermal wells used for installation of closed-loop geothermal systems shall meet the requirements identified in Paragraph 2.8.3.4.1 and included subparagraphs.

2.14.3.2.2 All horizontal piping systems shall be installed in accordance with the specifications provided

in the International Ground Source Heat Pump Association (IGSHPA) *Closed-Loop/Geothermal Heat Pump Systems Design and Installation Standards*, 2008 Edition or as subsequently revised (hereafter referred to as IGSHPA Standards), unless otherwise specified within this article.

2.14.3.2.3 The pipe material for the closed loop shall be polyethylene meeting the specifications provided in the IGSHPA Standards.

2.14.3.2.4 Buried polyethylene pipe systems shall be joined using a heat fusion process, and by an appropriately trained individual, as specified in the IGSHPA Standards. No metal components may be used in the buried portion of the piping system.

2.14.3.2.5 The entire ground loop assembly shall be flushed, purged, and leak tested in accordance with IGSHPA Standards.

2.14.3.2.6 The heat exchange fluid circulated in the buried closed loop shall be potable water or a mixture of potable water with one of the following additives: calcium chloride, sodium chloride, ethanol, potassium acetate, potassium carbonate, or propylene glycol.

2.14.3.3 Construction Requirements for all open loop geothermal systems:

2.14.3.3.1 All geothermal wells used for installation of open-loop geothermal systems shall meet the requirements identified in Paragraph 2.8.3.4.2 and included subparagraphs.

2.14.3.3.2 Unless otherwise approved by the Department, all return water shall be through a return well to the originating aquifer, and must be introduced below the water surface in the return well. The geothermal system must be designed such that it cannot operate if the water level in the return well drops below the return outlet.

2.14.3.3.3 All water returned to the originating aquifer shall, except for a difference in temperature and oxygen content, have the same physical and chemical characteristics as were present prior to withdrawal. No corrosion inhibitors, water

softeners or other additives shall be added to water that will be returned to the originating aquifer.

2.14.3.3.4 All materials and equipment that come into contact with water shall be approved for potable use.

2.15.0 Sampling of Public Water Systems

Water from all public water systems shall be sampled and analyzed as required by Part 5 of the New York State Sanitary Code and by the Commissioner pursuant to Paragraph 2.4.0 of this article. All required analyses shall be performed by a NYSDOH ELAP-certified laboratory, and the results reported to RCDOH by the Operator in Responsible Charge. Sample collection shall be performed in accordance with procedures approved by the Commissioner by: (1) a water treatment operator, water treatment assistant operator or distribution system operator with the appropriate NYSDOH certification for the system being sampled; (2) qualified samplers approved and designated by the NYSDOH ELAP-certified laboratory conducting the analyses, or (3) qualified samplers employed by NYSDOH or RCDOH. Sampling will be conducted by RCDOH only at the discretion of the Commissioner, and only upon payment of a fee as prescribed by the Commissioner.

2.16.0 Chlorine Waivers

A public water system may make application to waive the disinfection requirements established by Part 5 of the New York State Sanitary Code. Upon submission of the written application, the Department may grant a waiver from the disinfection requirements based upon the bacteriological and physical characteristics of the water and water system, and consideration of any other applicable federal, state or local regulations. The Department shall specify the period of time for which the waiver is granted.

2.17.0 Exemptions

The Commissioner may, upon receiving written application from any party subject to the requirements of this Article, grant an exemption from one or more specific provisions contained herein.

2.17.1 An exemption may be granted on the basis of a finding that:

2.17.1.1 because of compelling factors, the regulated party is unable to comply with the provision or provisions;

2.17.1.2 granting the exemption will not result in an unreasonable risk to health and safety.

2.17.2 An application for a exemption must:

2.17.2.1 identify the specific section or sections from which a waiver is sought.

2.17.2.2 provide the Commissioner with sufficient evidence to justify the need for the waiver.

2.17.2.3 be accompanied by payment of an application fee as required by the Commissioner.

2.17.3 Exemptions, if granted, will be issued with a mandatory compliance strategy to include but not be limited to the following:

2.17.3.1 a specific time within which to achieve compliance;

2.17.3.2 control measures as the Commissioner may require to ensure the public health; and

2.17.3.3 appropriate modifications and/or improvements to the regulated system, facility, or operation as may be necessary to fully conform to the requirements of this Article.

2.17.4 The schedule prescribed by the Commissioner pursuant to Paragraph 2.16.3.1 shall require full compliance with each provision no later than twelve months after the issuance of the exemption.

2.17.5 All conditions of the compliance strategy mandated by Paragraph 2.16.3 shall be enforceable, on the application of the Commissioner, by any court of competent jurisdiction, in the same manner as the provisions of this Article.

2.18.0 Effective Dates

The effective date for Paragraphs 2.8.3.2.1, 2.8.3.2.2, 2.8.3.2.23, 2.8.3.2.24, 2.8.4.2, 2.8.4.3, 2.8.7.2.1 and 2.9.0 and included subparagraphs shall be August 1, 2005. The remainder of this Article shall be effective April 1, 2005. Amended and revised April 16, 2008. Added to, amended and revised October 15, 2008. Added to, amended and revised June 16, 2010.