

# MECKLENBURG COUNTY GROUNDWATER WELL REGULATIONS



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**CHAPTER I  
GENERAL PROVISIONS**

Be it ordained by the Mecklenburg County Board of Commissioners (while exercising the power of a board of health, which powers it has assumed and conferred on itself by action pursuant to G.S. 153A-77), that the following Mecklenburg County Groundwater Well Regulations requiring registration, permitting and monitoring activities for certain wells in Mecklenburg County for the protection of the public health and safety, are hereby adopted pursuant to G.S. 130A-39(a). These Regulations shall apply throughout Mecklenburg County, North Carolina, including, but not limited to, all cities and towns, whether incorporated or unincorporated.

SECTION I      GENERAL PROVISIONS and ADMINISTRATION

- (A) Authorization - The Mecklenburg County Board of Commissioners, acting as a board of health, is authorized under the provisions of Chapter 130A, Section 39 of the General Statutes of North Carolina to adopt appropriate rules and regulations for the protection of the public health.
  
- (B) Delegation of Authority- The Health Director (hereinafter called the Director) may delegate the processing of permit applications, the issuance of permits, the denial of permits, the renewal of permits, and the modification of permits, to the supervisory level that he considers appropriate, provided this delegation shall not include the authority to revoke, or suspend a permit. The Director shall appoint adequate administrative and technical staff within the Department to assure the efficient administration of this section.
  
- (C) Purpose – It is the finding of the Mecklenburg County Board of Commissioners, acting as a board of health, that the entire geographical area of Mecklenburg County is vulnerable to groundwater pollution from improperly located, constructed, operated, altered or abandoned water supply and other wells. Therefore, in order to insure reasonable protection of the groundwater resource and consistent with the responsibility to protect and advance the public health, it is declared to be policy of the Mecklenburg County Board of Commissioners to require that the location, construction, repair and abandonment of wells conform to these regulations which it has determined to be necessary to protect the public health and groundwater resources.
  
- (D) Scope - No Person shall construct, repair or abandon or cause to be constructed, repaired or abandoned, any well contrary to the provisions of these regulations and standards.

- Previously adopted procedures and requirements of the Mecklenburg County Health Department (hereinafter called the Department) are superseded by these Regulations.
- (E) Conflict with other Laws and Regulations - The provisions of any federal, State or municipal law or regulation establishing standards affording greater protection to the public welfare, safety, health and the groundwater resources shall prevail within the jurisdiction of such agency or municipality over standards established by these Regulations. If any section or sections conflict within these Regulations or with any other regulation, the more strict regulation prevails.
  - (F) If any section or sections of these Regulations is/are held to be invalid or unenforceable, all other sections shall nevertheless continue in full force and effect.
  - (G) Permit – All newly constructed wells must be evaluated by the Director in accordance with these Regulations. A well construction permit shall be issued in compliance with these Regulations.
  - (H) Inspection and final permit – No Person shall consume water from a newly constructed well or following repair of an existing well until an inspection by the Director has determined that the well complies with the provisions of these Regulations. The Director shall make these inspections as soon as practicable after he receives notice that an installation is to be made.

No Person shall occupy a residence, place of business or place of public assembly or place a well into use for a residence, place of business or place of public assembly until a final certificate of inspection for the construction or repair of a well has been issued or authorization has been granted from the Director.

Emergency repairs to an existing well that are made outside normal working hours of the Department, i.e., nights, weekends and holidays, shall require the use of well casing complying with all the provisions of Chapter II, Section IV (D). Location of the well must comply with all requirements of Chapter II, Section IV (A) and a well permit must be obtained on the next regular working day from the Department.

- (I) Responsibilities of Well Owners – It shall be unlawful for any Person to rent or offer to rent, lease or offer to lease, any residence or place of business which does not have a potable water supply. The Well Owner, when required by the Department, shall provide proof that the water supply meets the water quality standards of these Regulations.

## SECTION II    DEFINITIONS

Abandon	To discontinue the use of and to seal a well according to the requirements of 15A NCAC 2C .0113.
Abandoned Well	A well whose use or construction has been discontinued, or which is in such a state of disrepair that continued use for obtaining groundwater or other useful purpose is impracticable. A well can be temporarily or permanently abandoned.
Access Port	An opening in the well casing or wellhead installed for the primary purpose of determining the position of the water level in the well or to facilitate disinfection.
Active	A term denoting the status of a well. To be considered active a well must be in use for its intended purpose in a current and ongoing fashion.
Addition	Any structure, whether free standing or attached to another ( including swimming pools, oil tanks, signs, etc.) which is constructed, altered or placed on property that contains one or more wells. This would not include replacement of existing equipment within the existing footprint of a structure and addresses only those situations for which a building permit is required.
Agent	Any Person who by mutual and legal agreement has authority to act on behalf of a Person. The agent may be either a general agent or a limited agent authorized to do one particular act.
Annual or annually	Recurring, done or performed every year, yearly
Annular Space	The space between the casing and the walls of the borehole or outer casing, or the space between a liner pipe and well casing.
Approved	That which has been considered acceptable to the State or Director
Area of Regulated Groundwater Usage	That zone surrounding and including a contamination plume or contamination site in which construction of new wells may be restricted or modified, and regular sampling and testing for the contaminant of concern may be required for both new and existing wells. The Area of Regulated Groundwater Usage is defined by the Department following a hydrogeologic review.

Artesian Well	A well that taps groundwater under pressure, causing the water to rise above the surface without pumping.
ASTM	American Society for Testing and Materials.
Authorized Representative	A person empowered or designated by the Mecklenburg County Health Director to enforce the provisions of the Mecklenburg County Well Regulations.
Bedrock	Any consolidated rock encountered in the place in which it was formed or deposited and which cannot be readily excavated without explosives or power equipment.
Biannual	Once every two years.
Biofilm	A collection of microorganisms which may exist on solid surfaces within a water well. This collection includes, but is not limited to, slime-formers, iron related bacteria, sulfate reducing bacteria, pseudomonas and coliforms.
Breakthrough	In a treatment system, the condition of the treatment media becoming saturated with the contaminant to the point the system is no longer effective at removing the contaminant.
Casing	Pipe or tubing constructed of specified materials and having dimensions and weights as specified in the Rules of this Subchapter, that is installed in a borehole, during or after completion of the borehole, to support the side of the hole and thereby prevent caving, to allow completion of a well, to prevent formation material from entering the well, to prevent the loss of drilling fluids into permeable formations, and to prevent entry of contamination.
Certified Laboratory	A laboratory certified under the requirements of NCAC Title 10A Subchapter 42D Section.0100.
Certified Well Contractor	A person who has satisfactorily met the requirements of the Well Contractors Commission relating to well contractor activities referenced in 15A NCAC 27 .0100-.0900.
Clay	A substance comprised of natural, inorganic, fine-grained crystalline mineral fragments which, when mixed with water forms a pasty, moldable mass that preserves its shape when air dried.

Committee	The Groundwater Advisory Committee.
Community Well	A well that serves 15 or more connections or at least 25 year round residents.
Compliance Audit	A scheduled or unscheduled visit to a site and its environs by the Department personnel for the purpose of inspecting and documenting the physical characteristics of the site, including but not limited to the physical characteristics of wells.
Consolidated Rock	Rock that is firm and coherent, solidified or cemented, such as granite, gneiss, limestone, slate or sandstone, that has not been decomposed by weathering.
Contaminant	Any substance or combination of substances occurring in groundwater in concentrations exceeding the lower of 15A NCAC 2L .0202 standards, National Primary Drinking Water Regulations, or site specific standard established by the North Carolina Department of Health and Human Services, Epidemiology Section.
Contamination	The introduction of a contaminant into the soil or groundwater.
Contamination Plume	Three-dimensional zone containing a contaminant or contaminants
Contamination Site	Real property where contamination has occurred.
County	Mecklenburg County, North Carolina.
Department	The Mecklenburg County Health Department
Design Capacity	The capacity that is equal to the yield that is specified by the well Owner or his agent prior to the construction of the well.
Director	The Mecklenburg County Health Director or his/her authorized representative.
Disinfection	A process which inactivates pathogenic organisms in water.
Division of Epidemiology	The North Carolina Department of Health and Human Services, Division of Public Health, Epidemiology Section.
Driller	See certified well contractor.

Existing Well	A well constructed prior to January 1, 2005.
Fecal coliform	Bacteria consistently found in the intestine of human and other warm blooded animals which are not normally disease producing, but serve as indications of recent fecal contamination. They are members of the family Enterobacteriaceae, genus Esherichia, species coli.
Federal	The United States of America government.
Fee Schedule	The current schedule of fees as approved by the Mecklenburg County Board of Commissioners.
Filtered	For a substance, the state of having been passed through or over another substance such that the quality of the first substance is improved.
Formation Material	Naturally occurring material generated during the drilling process that is composed of sands, silts, clays or fragments of rock and which is not in a dissolved state.
Free Product	Any accumulation of a substance of greater than or equal to 1/8 inch (0.01 feet) in contact with groundwater or perched on the water table, with a density of less than or greater than water and existing as a non aqueous phase liquid.
Groundwater Advisory Committee	The Committee appointed by the Board of County Commissioners with duties as provided in Chapter VIII of these Regulations.
Grout	Means a material approved in accordance with Chapter II Section IV(E) 3 or Chapter IV Section IV (E)3 for use in sealing the annular space of a well or liner or for sealing a well during abandonment.
Health Department	The Mecklenburg County Department of Public Health.
Health Director	The Director of the Mecklenburg County Department of Public Health or his/her Authorized Representative.

High Risk	<p>For sites where an underground storage tank system is the source of contamination a high risk classification means that any of the following apply:</p> <ul style="list-style-type: none"> <li>a) an existing water supply well, including one used for non-drinking purposes, has been contaminated</li> <li>b) a water supply well used for drinking water is located within 1,000 feet of the source of contamination</li> <li>c) a water supply well not used for drinking water is located within 250 feet of the source of contamination</li> <li>d) the groundwater within 500 feet of the source of contamination had the potential for future use in that there is no source of water supply other than the groundwater</li> <li>e) there exist a serious threat of explosion due to the accumulation of vapors in a confined space as a result of the contamination</li> <li>f) there exist an imminent danger to public health, public safety or the environment, as a result of the release.</li> </ul>
Hydrogeologic Review	<p>The consideration of existing scientific data, the relevancy of which is determined by the Department, that describes the interrelationships of geologic materials and processes with groundwater impacted by a contaminant or contaminants.</p>
Injection Well	<p>Any excavation which is cored, bored, drilled, jetted, dug, or otherwise constructed, whose depth is greater than its largest surface dimension and which is used, or intended to be used, for the injection of fluids or solids into the subsurface or groundwater.</p>
Inspection	<p>A visit to a site and its environs by the Department personnel to examine and document the construction and installation of new or the repair of existing wells.</p>
Intermediate Risk	<p>For sites where an underground storage tank system is the source of contamination an intermediate risk classification means that any of the following apply:</p> <ul style="list-style-type: none"> <li>a) surface water is located within 500 feet of the source of contamination and the maximum groundwater contaminant concentration exceeds the applicable surface water quality standard and criteria found in 15A NCAC 2B. 0200 by a factor of 10.</li> <li>b) the source of contamination is located within a designated wellhead protection area, as defined in 42 USC 300h-7(e).</li> <li>c) the levels of groundwater contamination for any contaminant (except ethylene dibromide, benzene and the aliphatic and aromatic carbon fraction classes) exceed 50 percent of the solubility of the contaminant at 25 degrees</li> </ul>

Celsius or 1,000 times the groundwater quality standard or interim standard established in 15A NCAC 2L .0202.

d) the levels of groundwater contamination for ethylene dibromide or benzene exceed 1,000 times the federal drinking water standard set out in 40 CFR 141.

e) free product is present.

Irrigation well	An excavation that is cored, bored, drilled, jetted, dug or otherwise constructed for the purpose of withdrawing groundwater to be used for agricultural purposes either commercial or residential and will not be used as a potable supply.
Liner Pipe	Pipe that is installed inside a completed and cased well for the purpose of preventing the entrance of contamination into the well or for repairing ruptured, corroded or punctured casing or screen.
Memorandum of Agreement (MOA)	A written collaborative work agreement between the Mecklenburg County Land Use and Environmental Service Agency (LUESA) and NCDENR.
Monitor Well	Any well constructed for the primary purpose of obtaining samples of groundwater or other liquids for examination or testing, or for the observation or measurement of groundwater levels. This definition excludes lysimeters, tensiometers and other devices used to investigate the characteristics of the unsaturated zone but includes piezometers, a type of monitor well constructed solely for the purpose of determining groundwater levels.
NCDENR	North Carolina Department of Environment and Natural Resources.
NCPWS	North Carolina Public Water Supply Section.
Non-community Well	A well that serves 25 or more transient people 60 days of the year.
Non-potable well	Water containing bacteria, minerals, organic or inorganic chemicals or petroleum products of such quantity as to render the water unsafe, harmful or generally unsuitable for domestic use.
Non-transient non-community Well	A well that regularly serves at least 25 of the same persons over 6 months per year.
Orphan Site	A contamination site where a responsible party has not been identified or assigned.

Owner	Any person who holds the fee or other property rights in the well being constructed. A well is real property and its construction on land rests ownership in the land Owner in the absence of contrary agreement in writing.
Permit	A written document issued by the Health Department authorizing or allowing the construction or repair of any well as defined by these regulations
Person	Any and all persons including individuals, firms, partnerships, associations, public or private institutions, municipalities or political subdivisions, governmental agencies or private or public corporations organized or existing under the laws of this State or of any other state or county.
Pitless adapters or pitless units	Are devices specifically manufactured to the standards specified under 15A NCAC 2c.0107 (I) (5) for the purpose of allowing a subsurface lateral connection between a well and plumbing appurtenances.
Place of business	A store, warehouse, manufacturing establishment, place of amusement or recreation, service station, office building, or any other place where people work.
Place of Public Assembly	A fairground, auditorium, stadium, church, campground, theater or and other place where people assemble.
Potable Water	Water of such quality that it is suitable for human consumption.
Public Notice	The act of providing information to the persons required. This should take the form of certified mail sent to every occupant and Owner of all buildings, condominiums, office buildings, etc., within the specified area. If the number of correspondents makes certified mail impractical, then the responsible party may post the notice in a prominent place where the occupants are most likely to see it.
Pump	The well pump, pump pipe, pump supply line and any other equipment or materials used or intended to be used for with drawing or obtaining groundwater.
Raw Water	Water which has not been treated to make it potable.

Recovery Well	Any well constructed for the purpose of removing contaminated groundwater or other liquids from the subsurface.
Registered Pump Installer	A person that has fulfilled the requirements of 15A NCAC 2C. 0103.
Repair	Work involved in deepening or changing depths, reaming, sealing, lining, perforating, screening, cleaning, acidizing, "dry icing", freezing, hydraulic fracturing, or otherwise redeveloping a well excavation or any other work which requires breaking or opening the well seal. This shall not apply to routine pump maintenance or replacement; However, routine pump maintenance or replacement shall be followed by disinfection of the water system and proper replacement of the seal.
Residence	The place in which one lives, a dwelling.
Responsible Party(s)	Entity(ies) determined by the State to have caused contamination.
Sample	A representative portion of a substance collected for analysis.
Sealed	No detectable leakage under the casing shall be allowed to enter the bore hole.
Seated	A part of the surface on or which another part or surface rests to fix firmly in place to rest or fit into another part.
Settleable Solids	The volume of solid particles in a well mixed one liter sample which will settle out of suspension, in the bottom of an Imhoff Cone, after one hour.
Site	All contiguous property under the same ownership or all contiguous property wherein wells are under the same ownership.
Site Plan	A drawing not necessarily drawn to scale that shows the existing and proposed property lines with dimensions, and the specific location of all structures and proposed structures and appurtenances, including decks, porches, pools, driveways, out buildings, existing and proposed wastewater systems, existing and proposed wells, springs, water lines, surface waters or designated wetlands, easements, including utility easements, and the location of existing or proposed sewer lines and/or sewage disposal systems, and existing or proposed chemical or petroleum storage tanks above or below ground..

Source Area	That portion or point on a site where a contaminant or contaminants has been released.
Specific Capacity	The yield of the well expressed in gallons per minute per foot of draw-down of the water level (gpm/ft.dd)
State	The State of North Carolina government.
Static Water Level	The level at which the water stands in the well when the well is not being pumped and is expressed as the distance from a fixed reference point to the water level in the well.
Suspended Solids	The weight of those solid particles in a sample which are retained by a standard glass micro fiber filter, with pore openings of one and one-half microns, when dried at a temperature of 103 to 105 degrees Fahrenheit.
Temporary Well	A well, other than a water supply well that is constructed to determine aquifer characteristics, and which will be permanently abandoned or converted to a permanent well within five days (120 hours) of the completion of drilling of the borehole.
Transient Non-community Well	A water supply well that provides potable water to a non-community water system that does not regularly serve at least 25 of the same persons over six months per year
Treated Water	Water that has been successfully purified by a system designed to remove contaminants or other unwanted particles from the water by either physical or chemical processes.
Turbidity	The cloudiness in water, due to the presence of suspended particles such as clay and silt that may create aesthetic problems or analytical difficulties for determining contamination. Turbidity measure in Nephelometric Turbidity Units (NTU) is based on a comparison of the cloudiness in the water with that in a specially prepared standard.
Unconsolidated Rock	Those rock formations that are not firm and coherent, solidified or cemented, such as sand rock, sand, clay, shell, saprolite or decaying rock.
Underground Storage Tank (UST)	Underground Storage Tank means any one or a combination of tanks that is used to contain and accumulation of regulated substances, and the volume of which is 10% or more beneath the surface of the ground.

Vent	An opening in the wellhead installed for the purpose of allowing changes in the water level in a well due to natural atmospheric changes or to pumping. A vent can also serve as an access port.
Water Sample	A representative portion of groundwater collected specifically for water quality analysis, whether by field or laboratory testing.
Water supply	The groundwater that is obtained through a water supply well.
Water Supply Standard	The maximum allowable concentration of any substance or combination of substances in the groundwater, which may be tolerated without creating a threat to human health.
Water Supply Well	A well, well pump and pipe used in connection with or pertaining to the operation of a water supply, including pressure tank and fittings. A irrigation well is a type of water supply well.
Well	Any excavation that is cored, bored, drilled, jetted, dug or otherwise constructed for the purpose of locating, testing, developing, draining or recharging any groundwater reservoirs or aquifer, or that may control, divert, or otherwise cause the movement of water from or into any aquifer including any and all materials installed to facilitate these actions.
Well Cap	A watertight, lockable, removable plug used to temporarily seal the well casing in order to prevent water or other material from entering the well.
Well Contractor	A person who undertakes to perform a well contractor activity or who undertakes to personally supervise or personally manage the performance of a well contractor activity on the person's own behalf or for any person, firm, or corporation in accordance with the well contractor certification requirements of 15A NCAC 27.
Well Contractor Activity	The construction, installation, repair, alteration, or abandonment of any well.

Well Cover	<p>For a monitoring well either flush-mount or above-grade intended to protect the well casing from tampering and damage. Typically flush-mount covers are used in areas of vehicular traffic and have bolt-on lids and a o-ring seal. Above-grade covers are typically used in areas where vehicle traffic does not have the potential to cause damage to the well and have lockable covers.</p> <p>For water supply wells, any structure placed around the well head with the intent of affording protection to the well head.</p>
Well Driller	See certified well contractor.
Well Head	The upper terminus of a well including adapters, ports, valves, seals and/or other attachments.
Well Owner	Entity(ies) who hold the fee or other property rights in the well. A well is real property and its construction on land rests ownership in the land Owner in absence of a contrary agreement.
Well Permit	A document issued by the Department allowing the construction, repair, or abandonment of any well as defined in these Regulations.
Yield	Amount of water or other fluid that can be extracted from a well under a given set of conditions.

## CHAPTER II

### CONSTRUCTION, REPAIR, AND ABANDONMENT FOR WATER SUPPLY WELLS

#### SECTION I     REGISTRATION

- (A) The Owner of a water supply well installed prior to January 1, 2005 may voluntarily register a water supply well with the Department by submitting the following information:
1. Names, addresses and phone numbers of the water supply well Owner and/or legal agent of the property Owner.
  2. Address and tax parcel number of the property for the water supply well.
  3. Use of water (domestic, irrigation, etc.)
- (B) The Owner of a water supply well installed or repaired after January 1, 2005 must register a water supply well with the Department by completing the following Application and Permit process.

#### SECTION II     APPLICATION

- (A) A complete application for a permit to construct, repair or abandon a water supply well shall be submitted to the Director by an Owner or legal agent of the property Owner who intends to construct repair or abandoned a water supply well within Mecklenburg County. The following information will be required.
1. Names, addresses and phone numbers of the proposed water supply well property Owner and/or Owner's legal agent.
  2. Signature of property Owner and/or legal agent.
  3. Address and tax parcel number of the property for the proposed water supply well.
  4. A plat or site plan as defined in these rules.
  5. Intended use(s) of the property

6. Proposed use of water (domestic, irrigation, etc.)
  7. Other information deemed necessary to determine the location of the property and any site characteristics such as existing or permitted sewage disposal systems, easements or rights of way, existing water supply wells or springs, surface water or designated wetlands, chemical or petroleum storage tanks, landfills, waste storage, known underground contamination and any other characteristics or activities on the property or adjacent properties that could impact groundwater quality or suitability of the site for water supply well construction.
  8. Any current or pending restrictions regarding groundwater use as specified in G.S. 87-88(a) and
  9. Any Variances regarding water supply well construction or location issued under 15A NCAC 02C .0118.
- (B) Applications for a water supply well construction, repair and abandonment shall be submitted on forms to be supplied by the Department.
- (C) A non-refundable fee as specified in the fee schedule shall be submitted with each permit application.
- (D) An application for a permit shall be submitted by the Owner or his legal agent. In the event that the permit applicant is not the Owner of the property on which the water supply well or water supply well system is to be constructed, the permit application must contain written approval from the property Owner and a statement that the applicant assumes total responsibility for ensuring that the water supply well(s) will be located, constructed, maintained and abandoned in accordance with these rules and regulations

*History Note : Authority G.S. 87-87; 87-97;  
July 1,2008  
Reference (15A NCAC 02C .0303)  
Reference (15A NCAC 02C .0105)*

### SECTION III PERMITS

#### (A) Water supply wells

1. It shall be unlawful for any Person to commence any water supply well contractor activities in Mecklenburg County without first obtaining a water supply well construction permit from the Department. The water supply well Owner or their authorized legal agent shall obtain the permit. The permit is valid for one year from date of issuance except that the Department may revoke a permit if it determines that there has been a material change in any fact or circumstance upon which the permit is issued or that incorrect information was included in the application. The validity of a construction permit or a repair permit is not affected by a change in ownership of the site on which a water supply well is proposed to be located. If construction or repairs have not been commenced within one year from the date of issuance of the permit, the permit then becomes invalid. When a permit has become invalid, construction or repairs may not be commenced until a new permit is issued.
2. It shall be unlawful for any Person to repair a water supply well in Mecklenburg County without first obtaining a water supply well repair permit from the Department. The water supply well Owner or their authorized legal agent shall obtain the permit. Except a water supply well repair permit is not required for maintenance or pump repair or replacement. Disinfection in accordance with 15A NCAC 02C .0113 is a maintenance activity that does not require a repair permit.
3. The location of all new proposed water supply wells in Mecklenburg County shall comply with these rules and regulations.
4. Before issuing a water supply well construction permit, the Department shall conduct a field investigation to evaluate the topography, landscape position, available space and potential sources for groundwater contamination on or around the site on which a water supply well is to be located.
5. The Department shall issue a water supply well construction permit after determining the site can be permitted for a water supply well meeting the rules of this section. Notwithstanding the above, the Department shall not issue a construction permit for a water supply well with a design capacity of 100,000 gal per day or greater. The construction permit shall include a site plan showing the location of potential sources of contamination and area(s) suitable for water supply well construction.

6. The Department shall issue a written notice of denial of a construction permit if it determines a water supply well cannot be constructed in compliance with the rules of this Section. The notice of Denial shall include reference to specific laws or rules that cannot be met and shall be provided to the applicant.
7. The water supply well contractor shall maintain a copy of the water supply well construction permit or repair permit on the job site at all times during the construction, repair or abandonment of the water supply well. The water supply well contractor shall meet all the conditions of the permit.
8. A Department representative is authorized to obtain a water/soil sample, witness any portion of the drilling or construction process, repair, or abandonment of any water supply well in Mecklenburg County as part of the inspection. Failure of the Owner or contractor to allow inspection of any material or observation of any drilling or construction, repair or abandonment of any water supply well in Mecklenburg County will be grounds for the revocation of the permit.
9. Failure to comply with the Regulations authorizes the Director to revoke any permits issued pursuant to these Regulations.
10. Only certified water supply well contractors shall perform water supply well contractor activities.
11. If there is an improperly abandoned water supply well(s) on site, the construction permit shall be conditioned upon repair or abandonment of any improperly abandoned water supply well(s) in accordance with the 15A NCAC 02C .0100.
12. No permit will be issued until all fees have been paid in accordance with Section II (C) of this Chapter.

*History Note : Authority G.S. 87-87; 87-97;  
Reference (15A NCAC 02C .0304)*

## SECTION IV STANDARDS OF CONSTRUCTION

### (A) Location

1. The water supply well shall not be located in an area generally subject to flooding. Areas which have a propensity for flooding include those with concave slope, alluvial or colluvial soils, gullies, depressions and drainage ways. The water supply well shall not be located in the Community Special Flood Hazard area designated on the Flood Insurance Rate Maps (FIRMS).
2. The minimum horizontal separation between a water supply well and potential sources of groundwater contamination, which exist or have been permitted at the time the water supply well is constructed, shall be as follows unless otherwise specified:
  - a. Septic tank and drain field including drainfield repair area 100 ft.
  - b. Other sub-surface ground absorption waste disposal system 100 ft.
  - c. Industrial or municipal sludge-spreading or wastewater irrigation sites 100 ft.
  - d. Sewage or liquid-waste collection or transfer facility constructed to water main standards in accordance with 15A NCAC 02T .0305 (g)(2) or 15A NCAC 18A .1950(e) 50 ft.
  - e. Other sewage or liquid-waste collection or transfer facility 100 ft.
  - f. Cesspools and privies 100 ft.
  - g. Animal feed lots or manure piles 100 ft.
  - h. Fertilizer, pesticide, herbicide or other chemical storage areas 100 ft.
  - i. Non-hazardous waste storage, treatment or disposal lagoons 100 ft.
  - j. Sanitary landfills /Hazardous Waste landfills/Construction & Demolition landfills/ municipal solid waste landfill facilities/ incinerators 500 ft.
  - k. Other non-hazardous solid waste landfills, such as Land Clearing and Inert
  - l. Debris (LCID) landfills (Permitted, Non permitted, Nonconforming) 100 ft.
  - m. Animal barns, watering troughs, or animal feeding areas 100 ft.
  - n. Building foundations, excluding the foundation of a structure housing a water supply well head 25 ft.
  - o. Surface water bodies 50 ft.

- p. Chemical or petroleum fuel underground storage tank systems regulated under 15A NCAC 02N:
    - i. with secondary containment 50 ft.
    - ii. without secondary containment 100 ft.
  - q. Aboveground or underground storage tanks which contain petroleum fuels used for heating equipment, boilers, or furnaces 50 ft
  - r. Interstate Petroleum Pipeline 100 ft.
  - s. Cemetery or Burial Ground 100 ft.
  - t. All other potential sources of ground water contamination 50 ft.
  - u. Property boundaries 10 ft
3. For a water supply well serving a single-family residence where lot size or other fixed conditions preclude the separation distances specified in Section IV (A) 2 of this rule, the required horizontal separation distances shall be the maximum possible but shall in no case be less than the following:
- a. Septic tank and drain field including drainfield repair areas, except saprolite systems as defined in 15A NCAC 18A .1956 (6) 50 ft.
  - b. Sewage or liquid waste collection or transfer facility constructed to water main standards in accordance with 15A NCAC 02T. 0305(g)(2) or 15A NCAC 18A .1950(e) 25 ft.
  - c. Cesspools or privies 50 ft.
  - d. Animal barns, watering troughs or animal feeding areas 50 ft.
4. Separation distances as required in Section IV(A)2 or Section IV(A)3 of this Chapter apply to all additions. Additions of a type not covered by Section IV(A)2 or Section IV(A)3 of this Chapter shall be located the maximum distance possible from any existing water supply well but shall in no case be less than 25 feet.
5. The water supply well owner shall not place potential sources of groundwater contamination closer to the water supply well than the separation distances specified in Section IV (A)2 or Section IV (A)3 of this Chapter as applicable.
6. When water-tight public sewer lines are installed or extended, they shall maintain a minimum distance of 100 feet from any water supply well. In some cases, the Director may allow water tight sewer lines constructed of ductile iron pipe with mechanical joints or push-on joints equivalent to water main standards within 25 feet of a water supply well. Locating public water-tight sewer lines closer to a water

supply well shall necessitate proper abandonment of the water supply well according to these rules.

7. The water supply well shall not be located in any easement or right-of-way except for easements such as conservation easements.
8. Actual separation distances must conform with the most stringent of applicable federal, State or local requirements.
9. The water supply well location must allow access for maintenance, repair, treatment, testing and such other attention as may be necessary.
10. Additional restrictions apply for water supply wells located within an area of regulated groundwater usage. The additional restrictions are defined in Chapter VII.

(B) Drilling Fluids and Additives

1. Drilling fluids and additives shall not contain organic or toxic substances or include water obtained from surface water bodies or water from a non potable supply and may be comprised only of:
  - a. the formational material encountered during drilling; or
  - b. materials manufactured specifically for the purpose of borehole conditioning or water supply well construction.
2. Lubricants used on drill pipe and down hole hammers and lubricating liquids injected into the air flowing through the drill stem shall be designed and approved for use in potable water supply wells

(C) Source of Water

1. Shall be at least 40 feet below land surface.
2. Shall not be from a water bearing zone or aquifer that is known to be contaminated.

(D) Casing

1. In constructing any water supply well, all water bearing zones that are known to contain polluted, saline or other non-potable water shall be adequately cased and cemented so that the pollution of underlying or overlying groundwater zones shall not occur.
2. Every water supply well shall be cased with the bottom of the casing adequately seated and sealed to a minimum depth of at least forty feet below the surrounding land surface or at least 5 feet into the top of bedrock.
3. The top of the casing shall be terminated by the water supply well driller at least twelve inches above the surrounding land surface.
4. The casing in water supply wells constructed to obtain water from a consolidated rock formation shall be:
  - a. adequate to prevent any formation material from entering the water supply well in excess of the levels specified in paragraph (h) of these Regulations; and
  - b. firmly seated and sealed at least five feet into the rock.
5. The casing in water supply wells constructed to obtain water from an unconsolidated rock formation shall extend at least 12 inches into the top of the water bearing formation.
6. The Director may inspect the casing material before it is installed, as the casing is installed in a borehole and/or after the casing is set. The water supply well contractor shall contact the Department to schedule a casing inspection before casing a water supply well. Contact shall include the location, permit number and anticipated time for casing each water supply well. The inspection shall be scheduled during regular Mecklenburg County work hours on regular workdays according to the Well Regulation Notification Policy.

## 7. Galvanized Steel Water supply well Casing

- a. The casing shall be new, seamless or electric-resistance welded galvanized steel pipe. Galvanizing shall be done in accordance with requirements of ASTM A-53/A53M-07.
- b. The casing, threads and couplings shall meet or exceed the specifications of ASTM A53/A53M-07 or A589/A589M-06.
- c. The minimum wall thickness for a given diameter shall equal or exceed that specified in Table 1.
- d. Each length of galvanized steel water supply well casing shall be legibly marked by rolling, stamping or stenciling to show the name or brand of the manufacturer and ASTM designation number.
- e. Shall have water-tight joints that are electrically welded or threaded and coupled with heavy recessed-type couplings. The couplings should cover the threads when power tight.
- f. Shall be equipped with a drive shoe if the casing is driven in a consolidated rock formation. The drive shoe shall be made of forged, high carbon, tempered seamless steel and shall have a beveled, hardened cutting edge. A drive shoe shall not be required for water supply wells in which a cement or concrete grout surrounds and extends the entire length of the casing.

## 8. Thermoplastic Water supply well Casing

- a. The casing shall be new.
- b. The casing and joints shall meet or exceed all the specifications of ASTM F-480-06b, except that the outside diameters shall not be restricted to those listed in F-480-06b.
- c. Solvent cement used for joining sections of thermoplastic water supply well casing, liner pipe, pump pipe or any connections thereto shall bear the National Sanitation Foundation (NSF) seal of approval for use on potable water systems and shall be marked with the designation ASTM D-2564 as meeting all the

requirements of ASTM D-2564, requirements and recommendations of ANSI/ASTM.

- d. Shall have a minimum wall thickness and tolerance, which meets or exceeds requirements for SDR-21 thermoplastic water supply well casing pipe for a maximum depth of 185 feet. Galvanized steel water supply well casing as specified in subparagraph (D)(7) shall be required for the entire length of the casing for any water supply well in which the casing depth exceeds 185 feet.
  - e. Shall be equipped with a coupling or other device approved by the manufacturer of the casing that is sufficient to protect the physical integrity of the thermoplastic casing during the processes of seating and grouting the casing and subsequent drilling operations.
  - f. Shall be installed in straight, obstruction free bore holes only.
  - g. Thermoplastic casing shall not be driven into consolidated rock.
9. Stainless Steel Water supply well Casing
- a. Stainless steel casing, threads and couplings shall conform in specifications to the general requirements in ASTM A530/A530M-04a and also shall conform to the specific requirements in the ASTM standard that best describes the chemical make-up of the stainless steel casing that is intended for use in the construction of the water supply well.
  - b. Stainless steel casing shall be equipped with a drive shoe if the casing is driven in a consolidated rock formation. The drive shoe shall be made of forged, high carbon, tempered seamless steel and shall have a beveled, hardened cutting edge.
  - c. Stainless steel casing shall have a minimum wall thickness that is equivalent to standard schedule number 10S.

(E) Grouting

1. The water supply well contractor shall contact the Department to schedule a grout inspection before grouting a water supply well. Contact shall include the location, permit number and anticipated time for grouting each water supply well. The inspection shall be scheduled during regular Mecklenburg County work hours on regular workdays according to the Well Notification Policy.
2. Upon completion of a grout inspection, the Department shall provide a written certification on the water supply well permit that a grout inspection was completed and in compliance with the rules in Chapter II. When the Department is unable to conduct a grout inspection within one hour of the scheduled time, the water supply well contractor may grout a water supply well without a grout inspection by the Department. The water supply well contractor shall provide a written certification to the Department that the water supply well has been grouted in compliance with the rules in Chapter II. A completed water supply well construction record form GW-1 indicating the water supply well was grouted in compliance with the rules of Chapter II shall serve as the water supply well contractor's grout certification. For the purpose of issuing the certificate of completion, the water supply well contractor's grout certification shall be accepted by the Department as evidence the grout complies with the rules of this Section if the Department:
  - a. Was contacted by the water supply well contractor to schedule a grout inspection;
  - b. Was unable to inspect the grouting of the water supply well within the one hour following the scheduled time; and
  - c. Upon final inspection, finds no evidence to indicate the water supply well grout does not comply with the rules of this Section.
3. Allowable Grouts
  - a. One of the following grouts shall be used wherever grout is required by a Rule of this Section. Where a particular type of grout is specified by a Rule of this Section no other type of grout shall be used.
    - i. "Neat cement grout" shall consist of a mixture of not more than six gallons of clear, potable water to one 94 pound bag of Portland cement. Up to five

percent, by weight of bentonite clay may be used to improve flow and reduce shrinkage. If Bentonite is used additional water may be added at a rate not to exceed 0.6 gallons of water for each pound of bentonite.

- ii. "Sand cement grout" shall consist of a mixture of not more than two parts sand and one part cement and not more than six gallons of clear, potable water per 94 pound bag of Portland cement.
- iii. "Concrete grout" shall consist of a mixture of not more than two parts gravel to one part cement and not more than six gallons of clear, potable water per 94 pound bag of Portland cement. One hundred percent of the gravel must pass through a one-half inch mesh screen.
- iv. "Gravel cement grout, sand cement grout or rock cutting cement grout" shall consist of a mixture of not more than two parts gravel and sand or rock cuttings to one part cement and not more than six gallons of clear, potable water per 94 pound bag of Portland cement.
- v. "Bentonite slurry grout" shall consist of a mixture of not more than 20 gallons of clear potable water to one 50 pound bag of commercial sodium bentonite. Non-organic, non-toxic substances may be added to improve particle distribution and pumpability. Bentonite slurry grout may only be used in those instances where specifically approved in this Section and only in accordance with the manufacturer's written instructions.
- vi. Bentonite Chips or pellets shall consist of pre-screened sodium bentonite chips or compressed sodium bentonite pellets with largest dimension of at least one-fourth (1/4) inch but not greater than one-fifth (1/5) of the width of the annular space into which they are being placed. Bentonite chips or pellets shall be hydrated in place. Bentonite chips or pellets may only be used in accordance with the manufacturer's written instructions.
- vii. "Specialty grout" means a mixture of non-organic, non-toxic materials with characteristics of expansion, chemical-resistance, rate of heat of hydration, viscosity, density or temperature-sensitivity applicable to specific grouting requirements. Specialty grouts may not be used without prior approval by the Director. Approval of the use of specialty grouts shall be based on a demonstration that the finished grout has a permeability less than  $10^{-6}$

centimeters per second and will not adversely impact human health or the environment.

- b. With the exception of bentonite chips or pellets, the liquid and solid components of all grout mixtures shall be thoroughly blended prior to emplacement below land surface,
  - c. No fly ash, other coal combustion byproducts, or other wastes may be used in any grout.
4. Grout Emplacement
- a. Casing shall be grouted to a minimum depth of 20 feet below land surface.
  - b. Casing shall be grouted as necessary to seal off, from the producing zone(s), all aquifers or zones that are known to contain contaminated, saline or other non potable water so that contamination of the overlying and underlying aquifers or zones shall not occur.
  - c. Where grouting is required by the provisions of this section, the grout shall extend outward from the casing wall to a minimum thickness equal to either one-third of the diameter of the outside dimension of the casing or two inches, whichever is greater; excepting, however, that large diameter bored water supply wells shall meet the requirement of Section IV (E)(10) of this Chapter.
  - d. Bentonite slurry grout may be used in that portion of the borehole that is at least three feet below land surface. Bentonite slurry grout must be placed in the annular space by use of either the pumping or pressure method. That portion of the borehole from land surface to three feet below land surface shall be filled with a cement, concrete grout, or bentonite chips or pellets that are hydrated in place.
  - e. The grout shall be placed around the casing by one of the following methods:
    - i. Pressure-grout shall be pumped or forced under pressure through the bottom of the casing until it fills the annular space around the casing and overflows at the surface.

- ii Pumping - grout shall be pumped into place through a hose or pipe extended to the bottom of the annular space which can be raised as the grout is applied. The grout hose or pipe shall remain submerged in grout during the entire application.
  - iii Other -grout may be emplaced in the annular space by gravity flow in such a way to ensure complete filling of the space. Gravity flow shall not be used if water or any visible obstruction is present in the upper 20 feet of annular space at the time of grouting. If the grout contains bentonite clay it must be emplaced by either the pumping or pressure method.
- f. Where consolidated rock is encountered at a depth of less than twenty feet below land surface such that the annular space around the casing (as required by Section IV E(4) of this Chapter) may not be kept free of formation material from the drilling process to a minimum depth of twenty feet, the grout shall be placed around the casing immediately following the placement of the casing in the bore hole. Subsequent drilling operations may not continue until such time as the grout remains permanently in place around the water supply well casing.
  - g. If an outer casing is installed, it shall be grouted by either the pumping or pressure method.
- 5. The liquid and solid components of all cement grouts, concrete grouts and bentonite slurry grouts shall be thoroughly blended prior to emplacement below land surface.
  - 6. Bentonite chips or pellets shall be used in compliance with all manufacturer's instructions including pre-screening the material to eliminate fine-grained particles, installation rates, hydration methods, tamping and other measures to prevent bridging.
  - 7. Bentonite grout shall not be used to seal zones of water with chloride concentration of 1500 parts per million or greater,
  - 8. The water supply well shall be grouted within five working days after the casing is set.
  - 9. No additives which will accelerate the process of hydration shall be used in grout for thermoplastic water supply well casing.

10. For large diameter water supply wells cased with concrete pipe or ceramic tile of a pipe diameter equal to or greater than 20 inches the following shall apply:
  - a. The borehole shall have a minimum diameter of six inches larger than the outside diameter of the casing.
  - b. The annular space around the casing shall be filled with grout to a depth of at least twenty feet below land surface.
  - c. The annular space around the casing below the grout shall be filled with sand or gravel.

(F) Water supply well Screen

1. The water supply well, if constructed to obtain water from an unconsolidated rock formation, shall be equipped with a screen that will prevent the entrance of formation material into the water supply well after the water supply well has been developed and completed by the water supply well contractor.
2. The water supply well screen shall be of a design to permit the optimum development of the aquifer with minimum head loss consistent with the intended use of the water supply well and with screen placement at intervals which allow for optimal water movement. The openings shall be designed to prevent clogging and shall be free of rough edges, irregularities or other defects that may accelerate or contribute to corrosion or clogging.
3. Multi-screen water supply wells shall not connect aquifers or zones which have differences in water quality which would result in contamination of any aquifer or zone.

(G) Gravel and/or Sand-Packed Water supply wells

1. In constructing a gravel and/or sand-packed water supply well:
  - a. The packing material shall be composed of quartz, granite, or similar mineral or rock material and shall be clean, of uniform size, water-washed and free from clay, silt or other deleterious material.
  - b. The size of the packing material shall be determined from a grain size analysis of the formation material and shall be of a size sufficient to

prohibit the entrance of formation materials into the water supply well in concentrations above those permitted by Section IV (H) of this Chapter.

- c. The packing material shall be placed in the annular space around the screens and casing by a fluid circulation method to insure accurate placement and avoid bridging.
  - d. The packing material shall be disinfected.
  - e. Centering guides shall be installed within five feet of the top packing material to insure even distribution of the packing material in the bore hole.
2. The packing material shall not connect water bearing or zones which have differences in water quality that would result in contamination of any aquifer or zone.

(H) Water supply well Development

1. All water supply wells shall be developed by the water supply well contractor.
2. Development shall include removal of formation materials, mud, drilling fluids and additives such that the water contains no more than:
  - a. Five milliliters per liter of settleable solids; and
  - b. Ten NTUs of turbidity as suspended solids.
3. Development does not require efforts to reduce or eliminate the presence of dissolved constituents which are indigenous to the groundwater quality in that area.
4. Upon completion of the water supply well, the water supply well shall be sufficiently free of obstacles including formation material as necessary to allow for the installation and proper operation of pumps and associated equipment.

(I) Water supply well Contractor Identification Plate

1. An identification plate showing the water supply well contractor and his individual certification number shall be installed on the water supply well within 72 hours after the drilling is complete.
2. The identification plate shall be constructed of a durable waterproof, rustproof metal or equivalent material approved by the Director of the Division of Water Quality, NCDENR.
3. The identification plate shall be permanently attached to either the aboveground portion of the water supply well casing, surface grout pad, or enclosure floor around the casing where it is readily visible and easily readable. The method of attachment shall not obscure information on the identification plate.
4. The identification plate shall not be removed by any Person.
5. The identification plate shall be stamped or otherwise imprinted with a permanent legible marking to show the:
  - a. total depth of water supply well
  - b. casing or liner depth (ft.) and inside diameter (in.);
  - c. screened interval of screened water supply well
  - d. packing interval of gravel or sand-packed water supply wells;
  - e. yield, in gallons per minute (gpm) or specific capacity in gallons per minute per foot of drawdown (gpm/ft-dd)
  - f. static water level and date measured; and
  - g. date water supply well completed or lined.
  - h. the water supply well construction permit number or numbers, if such a permit is required

(J) Pump Installer Identification Plate

1. An identification plate showing the name and registration number or water supply well contractor certification number of the pump installation contractor shall be installed on the water supply well within 72 hours after completion of the pump installation.
2. The identification plate shall be constructed of a durable waterproof, rustproof, metal or equivalent material approved by the Director of the Division of Water Quality, NCDENR.
3. The identification plate shall be permanently attached to either the aboveground portion of the water supply well casing, surface grout pad or enclosure floor around the casing where it is readily visible and easily readable. The method of attachment shall not obscure information on the identification plate.
4. The identification plate shall not be removed by any Person.
5. The identification plate shall be stamped or otherwise imprinted with a permanent legible marking to show the:
  - a. date the pump was installed
  - b. the depth of the pump intake, and
  - c. the horsepower rating of the pump

(K) Water supply well Head Completion and Equipment

1. The water supply well pump must be installed in the water supply well and the water supply well head completed within 30 days of the date construction is begun on the water supply well, or the water supply well must be temporarily or permanently abandoned.
2. The top of the casing shall be cut off smooth and level, be free from dents and cracks, and shall terminate at least eight inches above the concrete slab around the casing where a slab has been installed.
3. The Builder, water supply well contractor, pump installer or homeowner, as applicable shall provide assistance when necessary to gain access for inspection of the water supply well, pumps and pumping equipment.

4. The Water supply well Contractors identification plate, if removed or obscured during pump installation shall be relocated and permanently attached to the aboveground portion of the water supply well casing, surface grout pad or enclosure floor around the casing where it is readily visible and easily readable.
5. All piping, wiring, and vents shall enter the water supply well at least twelve inches above land surface, except where pitless adapters or pitless units are used, and shall be adequately sealed to preclude the entrance of contaminants into the water supply well.
6. Every water supply well shall be equipped by the Person completing the water supply well head with a useable access port or air line.
  - a. The access port shall be located directly on top of the water supply well if the pump is offset from the water supply well.
  - b. For water supply wells on which the pump is installed directly over the water supply well, an access port pipe shall be installed through the pump base or outside the water supply well casing, and terminate inside the water supply well casing at some point below the base of the pump.
  - c. The access port shall have a minimum inside diameter of one-half inch, so that the position of the water level may be determined at any time.
  - d. The access port shall be installed and maintained in such a manner as to prevent the entrance of water, dust, insects or other foreign material, and to permit ready access for water level measurements.
7. Every water supply well that flows under natural artesian pressure shall be properly constructed, equipped and operated to prevent the unnecessary discharge of water. Flow shall be completely stopped unless the discharge is for beneficial use and only for the duration of that beneficial use. Flow discharge control shall be provided to conserve the groundwater resource and prevent or reduce the loss of artesian hydraulic head. Flow control may consist of valved pipe connections, watertight pump connections, receiving tank, flowing well pitless adapter, packer or other methods approved by the Department to prevent the loss of artesian hydraulic head and stop the flow of water. The water supply well will be equipped with a check valve sized to the overflow line diameter to prevent back siphonage. Water supply well owners shall be responsible for the operation, and maintenance of such equipment.

8. Pitless adapters or pitless units shall be allowed as a method of water supply well head completion under the following conditions:
  - a. The pitless device shall be manufactured specifically for the purpose of water supply well construction;
  - b. Design, installation and performance standards shall be those specified in PAS-1 (Pitless Adapter Standard No. 1) as adopted by the Water System Council's Pitless Adapter Division;
  - c. The pitless device shall be compatible with the water supply well casing;
  - d. The top of the pitless device shall extend at least 12 inches above land surface;
  - e. The excavation surrounding the casing and pitless device is filled with grout from the top of the casing grout to the land surface.
  - f. The pitless device shall have an access port.
  - g. If a pitless adapter or pitless unit is used as a method of water supply well head completion, the water supply well is not required to have a cover.
  - h. If a pitless adapter or pitless unit is used as a method of water supply well head completion, a sample tap shall be installed between the pump and the pressure tank by the Person installing the pump for the purpose of obtaining water samples.
9. Each new water supply well shall be equipped with a cover or enclosure, which is free of, cracks, holes, etc. and is determined to be approved by the Director. No single dimension of the cover or enclosure shall exceed seven feet in length and it should be secured firmly to the ground surface, while still being easily accessible for inspection. If a concrete floor is poured within the cover or enclosures, a drain hole must be provided to allow water to drain out.
10. The pumping capacity of the pump shall be consistent with the intended use and yield characteristics of the water supply well.
11. The pump and related equipment for the water supply well shall be conveniently located to permit easy access and removal for repair and maintenance.

12. The base plate of a pump placed directly over the water supply well shall be designed to form a watertight seal with the water supply well casing or pump foundation.
13. In installations where the pump is not located directly over the water supply well, the annular space between the casing and pump intake or discharge piping shall be closed with a water tight seal preferably designed specifically for this purpose.
14. The water supply well shall be properly vented at the water supply well head to allow for the pressure changes within the water supply well except when a suction lift type pump is used.
15. A sample tap shall be installed between the pump and the pressure tank by the Person installing the pump for the purpose of obtaining water samples. In the case of offset jet pump installations, the sample tap shall be installed on the return (pressure) side of the jet pump installations. To prevent the sample tap from being a possible conduit of contamination, a spring loaded check valve, sized to at least the diameter of the drop pipe, shall be installed at the head of the pump.
16. The sample tap must be located in the piping and positioned such that a sample may be obtained by placing the sample bottle underneath the sample tap or a minimum distance of eight inches without interference from the water supply well cover, enclosure, slab or any part of the water supply well head.
17. A priming tee shall be installed at the water supply well head in conjunction with offset jet pump installations.
18. Joints of any suction line installed underground between the water supply well and pump shall be tight under system pressure.
19. The drop piping and electrical wiring used in connection with the pump shall meet all applicable underwriters specifications.
20. Contaminated water shall not be used for priming the pump.

*History Note : Authority G.S. 87-87; 87-88;  
Reference (15A NCAC 02C .0107)  
Reference (15A NCAC 02C .0301)  
Reference (15A NCAC 02C .0305)*

SECTION V    DISINFECTION OF WATER SUPPLY WELLS

- (A) All water supply wells shall be disinfected upon completion of construction, maintenance, repairs, pump installation and testing as follows:
1. Chlorine shall be placed in the water supply well in sufficient quantities to produce a free chlorine residual of at least 100 parts per million in the water supply well. The chlorine shall be placed in the water supply well by one of the following or equivalent methods:
    - a. Chlorine granules or tablets shall be placed in the top of the water supply well and allowed to settle to the bottom of the water supply well.
    - OR
    - b. Chlorine solution shall be placed in the bottom of the water supply well by using a bailer or by pouring the solution through the drill rod, hose or pipe placed in the bottom of the water supply well. The solution shall be flushed out of the drill rod, hose or pipe using water or air.
  2. Agitate the water in the water supply well to ensure thorough dispersion of the chlorine
  3. The water supply well casing, pump column and any other equipment above the water level in the water supply well shall be thoroughly rinsed with the chlorine solution as a part of the disinfecting process.
  4. The chlorinated water shall stand in the water supply well for a period of at least twenty-four hours, then pumped until the system is free of any chlorine residual.
  5. The water supply well shall not be used as a source of drinking water supply until such time as water samples collected from the water supply well indicates that the water supply well is free of coliform bacteria.
  6. Other materials and methods of disinfection at least as effective as those in item (1) of this rule may be used upon prior approval by the Director.

*Authority G.S. 87-87; 87-88*  
*Reference (15A NCAC 02C .0111)*

## SECTION VI SAMPLING

- (A) Within 30 days of the completion of the water supply well for a newly constructed water supply well, the Department shall obtain water samples and submit them to a Certified Laboratory for analyses or ensure that the water obtained from the water supply well has been sampled and analyzed by a Certified Laboratory, in accordance with this Chapter.
- (B) Samples collected from water supply wells pursuant to the rules of this Chapter shall be collected by an employee of the Department, or a Certified Laboratory. The sample collector shall use aseptic sampling techniques for collection of coliform bacteria and sampling techniques and containers for chemical constituents following methods described in 40 Code of Federal Regulations 141.23 Inorganic Chemical Sampling and Analytical Requirements and 40 Code of Federal Regulations 143.4 Monitoring, which are incorporated by reference including any subsequent amendments, additions or editions.
- (C) The sample collectors shall be trained in accordance with guidance developed by the Department.
- (D) Water samples shall be collected from the sample tap at the water supply well or the closest accessible collection point to the water source with a tap capable of being disinfected, providing the sampling point shall precede any water treatment devices.
- (E) It is the responsibility of the water supply well Owner to provide access and a source of power for the purpose of collecting the required water sample.
- (F) For all new water supply wells, samples for total coliform and fecal coliform bacteria shall be collected after the disinfectant agent has been flushed from the water supply well and water supply system. The water shall be determined to be free of disinfectant before collection of samples for bacteria. Required water samples shall not be collected from water supply wells that are not constructed and located in accordance with the rules of this Chapter.

- (G) Samples shall be transported to the laboratory following the procedures for sample preservation and within holding times required in 40 Code of Federal Regulations 141.21(f) Analytical Methodology, 141.23 Inorganic Chemical Sampling and Analytical Requirements, and 143.4 Monitoring, which are hereby incorporated by reference including any subsequent amendments, additions or editions.
- (H) Additional or retest samples may be collected if:
1. during permitting, construction and sampling process, information indicates the potential for other contaminants to be present in the groundwater source;  
or
  2. if necessary to confirm initial testing results.
- (I) The water supply well shall not be used as a source of drinking water supply until such time as a bacteria, nitrate and nitrite analysis collected from the water supply well indicates that the water supply well is absent of coliform bacteria and that the nitrate and nitrite analysis does not exceed the Maximum Contaminant levels (MCLs) for public drinking water, as defined in 40 Code of Federal Regulations 141.
- (J) Water samples shall be analyzed in the North Carolina State Laboratory of Public Health or a Certified Laboratory
- (K) A water sample shall be tested for total coliform bacteria and if present, further analyzed for the presence of fecal coliform bacteria or E. coli.
- (L) A water supply well shall be analyzed for Arsenic, Barium, Cadmium, Chromium, Copper, Fluoride, Lead, Iron, Magnesium, Manganese, Mercury, Selenium, Silver, Sodium, Zinc, and pH. The Department shall provide information to the water supply well Owner or respective lease holder concerning chemical and biological contaminants exceeding public drinking water MCLs and the need for exposure limitation, remediation and or future sampling.
- (M) The Department will randomly collect samples from a percentage of the repaired water supply wells for a bacteriological analysis.
- (N) Additional sampling requirements may apply for water supply wells located within an area of regulated groundwater usage. The additional restrictions are defined in Chapter VII.

SECTION VII WATER SUPPLY WELL MAINTENANCE AND REPAIR

- (A) Every water supply well shall be maintained by the Owner in a condition whereby it will conserve and protect the groundwater resources, and whereby it will not be a source or channel of contamination to the groundwater.
- (B) All construction and materials used in the maintenance, replacement or repair of any water supply well shall meet the requirements for new installations.
- (C) The Director may inspect the liner and packer materials before they are installed, as they are installed in the casing and bore hole and/or after the liner is set. The water supply well contractor shall contact the Department to schedule a liner inspection before lining a water supply well. Contact shall include the location, permit number and anticipated time for lining each water supply well. The inspection shall be scheduled during regular Mecklenburg County work hours on regular workdays according to the Well Regulation Notification Policy.
- (D) Broken, punctured or otherwise defective or unserviceable casing, screens, fixtures, seals or any part of the water supply well head shall be repaired or replaced, or the water supply well shall be abandoned pursuant to the requirements of 15A NCAC 02C .0013.
- (E) National Science Foundation (NSF) approved PVC pipe rated at 160 psi or greater may be used for liner pipe. The annular space around the liner pipe shall be at least five-eighths inches and shall be completely filled with neat-cement grout. Bentonite clay shall not be used in grouting a liner. The water supply well liner shall be completely grouted within ten working days after the liner has been installed.
- (F) The Director shall not approve any water supply well which has the uppermost end of the casing terminating below land surface.
- (G) All water supply well repairs shall be completed with the water supply wellhead terminating at least twelve inches above land surface

- (H) Repairs to any water supply well completed with the water supply well head terminating below ground (buried seal) shall include extending the water supply well casing above land surface. The extension shall be made as follows:
1. The extension casing shall be welded or bonded to the existing casing around the outside of the joint, providing a watertight seal, or a sleeve shall be forced over the existing casing with at least six inches of overlap, providing a watertight seal.
  2. Grout shall be placed around the casing, extending from land surface to a depth of twenty feet. In lieu of twenty feet of grout for those water supply wells drilled prior to 1972 only, a liner properly installed and grouted inside the existing casing, extending below the bottom of the existing casing and firmly sealed a minimum of one foot into consolidated rock, shall be acceptable as meeting this requirement.
- (I) An accepted alternative method of water supply well repair is permitted only for water supply wells drilled prior to 1972. A sleeve shall be forced over the existing casing with at least six inches of overlap. Cement grout shall be placed around the casing, extending from land surface to a depth of at least one foot below the joint formed by the casings. The grout thickness shall be as specified in these regulations. This alternative method of repair shall not apply to water supply wells drilled after January 1, 1972. This procedure involves extending the existing casing. It is therefore a water supply well contractor activity and may only be performed by a certified water supply well contractor. This repair does not meet the requirement of grouting to a depth of twenty feet and the water supply well shall not be considered a properly protected water supply well.
- (J) Prior to a repaired water supply well being returned to service, the water supply well shall be redeveloped to remove biofilm or formational material from the water supply well. The methods of water supply well redevelopment include, but are not limited to, the methods listed in Chapter I Section II "Repair". The method of water supply well redevelopment shall be listed on the water supply well's record of repair.
- (K) Any repair, pump maintenance, or pump replacement shall be completed by disinfection of the water supply well and water system in accordance with Section V of this Chapter and the water supply well head completed in accordance with Sections IV(J), IV(K) and IV(L) of this Chapter.
- (L) Water supply well contractors and pump installers will submit notification of chlorination within 10 working days.

*Authority G.S. 87-87; 87-88*  
*Reference (15A NCAC 02C .0112)*

SECTION VIII ABANDONMENT OF WATER SUPPLY WELLS

(A) Temporarily abandoned water supply wells

1. Temporarily abandoned water supply wells shall be cased and grouted in accordance with these Regulations.
2. Temporarily abandoned water supply wells shall be sealed at the top of the casing with a watertight cap compatible with casing and installed such that it cannot be removed easily by hand.
3. Temporarily abandoned water supply wells shall be maintained such that they are not a source or channel of contamination to groundwater.
4. Temporarily abandoned water supply wells shall be equipped with a cover or enclosure free of cracks and holes determined to be approved by the Director.
5. The identification plate must be maintained as specified in Section IV (I) (3) of this Chapter.
6. Temporarily abandoned water supply wells shall be protected with a casing.

(B) Permanently Abandoned water supply wells

1. The casing in any water supply well to be permanently abandoned shall be grouted in accordance with these rules and regulations or removed.
2. The entire depth of the water supply well shall be sounded before it is sealed to ensure freedom from obstructions that may interfere with sealing operations.
3. The water supply well shall be thoroughly disinfected according to Section V(A) of this Chapter prior to sealing.
4. Procedures for permanent abandonment of water supply wells, other than bored or hand dug water supply wells

- a. Water supply wells constructed in consolidated rock formations or that penetrate zones of consolidated rock may be filled with cement grout, bentonite grout, sand, gravel or drill cuttings opposite the zones of consolidated rock. The top of the sand, gravel or cutting fill shall be at least ten feet below the top of the consolidated rock or five feet below the bottom of the casing. The remainder of the water supply well shall be filled with cement grout or bentonite grout only. For any water supply well in which the depth of casing or the depth to the bedrock is not known or cannot be confirmed, the entire depth of the water supply well shall be filled with cement grout or bentonite grout up to land surface.
  - b. water supply wells constructed in unconsolidated rock formations other than bored or hand dug shall be completely filled with neat cement grout or bentonite grout by introducing it through a pipe extending to the bottom of the water supply well which can be raised as the water supply well is filled.
  - c. Gravel packed water supply wells in which the casing and screen have not been removed shall be abandoned by injecting neat cement grout or bentonite grout into the water supply well filling it from the bottom of the casing to the top.
5. Procedures for permanent abandonment of bored water supply wells or cased hand dug water supply wells constructed into unconsolidated material.
- a. Remove all plumbing or piping into the water supply well, along with any obstructions inside the water supply well.
  - b. Remove as much of the water supply well tile casing as possible, but no less than to a depth of three (3) feet below land surface;
  - c. Remove all soil or other subsurface material present down to the top of the remaining water supply well casing, and extending to a width of at least twelve (12) inches outside of the water supply well casing on all sides
  - d. Fill the water supply well up to the top of the remaining casing with cement grout, concrete grout, or bentonite grout.
  - e. Pour a one (1) foot thick concrete grout or cement grout plug that fills the entire excavated area above the top of the casing, including the area

extending on all sides of the casing out to a width of at least twelve (12) inches on all sides.

- f. Complete the abandonment process by filling the remainder of the water supply well above the concrete or cement plug with additional concrete grout, cement grout, or soil.
6. Procedures for permanent abandonment of uncased hand dug water supply wells constructed into unconsolidated material.
    - a. Remove all plumbing or piping into the water supply well, along with any obstructions inside the water supply well.
    - b. Remove all soil or other subsurface material present down to a depth of three (3) feet below land surface and extending to a width of at least twelve (12) inches outside of the water supply well diameter on all sides.
    - c. Fill the water supply well up to the top of the original diameter with cement grout, concrete grout, bentonite grout, or dry clay compacted in place.
    - d. Pour a one (1) foot thick concrete grout or cement grout plug that fills the entire excavated area above the top of the original diameter, including the area extending on all sides of the original diameter out to a width of at least twelve (12) inches on all sides.
    - e. Complete the abandonment process by filling the remainder of the water supply well above the concrete or cement plug with additional concrete grout, cement grout, or soil.
  7. Procedures for permanent abandonment of contaminated water supply wells.
    - a. All casing and screen materials may be removed prior to initiation of abandonment procedures if such removal will not cause or contribute to contamination of the groundwater. Any casing not grouted in accordance with 15A NCAC 2C .0107(e) shall be removed or properly grouted.
    - b. The entire depth of the water supply well shall be sounded before it is sealed to ensure freedom from obstructions that may interfere with sealing operations.

- c. In the case of gravel-packed water supply wells in which the casing and screens have not been removed, neat-cement, or bentonite grout shall be injected into the water supply well completely filling it from the bottom of the casing to the top.
  - d. Water supply wells constructed in unconsolidated formations shall be completely filled with cement grout, or bentonite grout by introducing it through a pipe extending to the bottom of the water supply well which can be raised as the water supply well is filled.
  - e. Water supply wells constructed in consolidated rock formations or that penetrate zones of consolidated rock shall be filled with cement grout or bentonite grout by introducing it through a pipe extending to the bottom of the water supply well which can be raised as the water supply well is filled. The top of the cement grout or bentonite grout shall extend up to land surface.
- (C) The Owner shall be responsible for permanent abandonment of a water supply well except that:
- 1. The water supply well contractor is responsible for water supply well abandonment if abandonment is required because the water supply well contractor improperly locates, construct, repairs or completes the water supply well. The water supply well contractor shall permanently abandon any water supply well in which the casing has not been installed or from which the casing has been removed prior to removing his equipment from the site.
  - 2. The pump installer is responsible for water supply well abandonment if abandonment is required because of improper water supply well pump installation, repair, or removal. A certified water supply well contractor must abandon the water supply well.
- (D) Any water supply well not in compliance with the conditions for temporary abandonment shall be brought into compliance or permanently abandoned within thirty days of receipt of notice from the Director.
- (E) Any water supply well whose construction would have a propensity to transfer contamination to the groundwater shall be repaired so that it will not act as a source or channel of contamination to the groundwater, or permanently abandoned within thirty days of receipt of notice from the Department. The person abandoning the water supply well shall provide a minimum 24 Hour notice

to the Department prior to commencement of permanent abandonment procedures.

- (F) Where a new water supply well or public water supply is replacing an old water supply well and the Owner wishes to continue using the old water supply well for irrigation or other uses, the old water supply well may not be connected to the primary water supply system in any way and must conform with Section VIII (E) of this Chapter.
- (G) Where a new water supply well or public water supply is replacing an existing water supply well in which contamination has been confirmed through analyses, the existing water supply well shall be permanently abandoned within thirty days of receipt of notice from the Department.
- (H) The Director shall have the right to enter any property for the purpose of determining whether or not there may be an improperly abandoned water supply well on the property.
- (I) The water supply well contractor shall contact the Department to schedule an abandonment inspection before abandoning a water supply well. Contact shall include the location, permit number and anticipated time for abandoning each water supply well. The inspection shall be scheduled during regular Mecklenburg County work hours on regular workdays according to the Well Regulation Notification Policy.

*Authority G.S. 87-87; 87-88*

*Reference (15A NCAC 02C .0113)*

## SECTION IX RECORDS REQUIRED

- (A) Reports
  - 1. Any Person performing water supply well contractor activities in Mecklenburg County shall submit to the Director and to the water supply well Owner, a record of construction, repair, or abandonment to include the Owner's name, the water supply well's location, size and depth, the casing materials and depth, depth of water bearing zones, the method of finishing, the method of repairing, the method of abandoning, static water level, pumping water level, yield and pump type.

2. Any Person installing a pump or equipment in a water supply well must be registered with the Department and shall be listed separately on the record of construction as having installed the pump.
3. The reports required in this section shall be submitted within 15 days after completing construction, repair, abandonment, or pump installation.
4. Reports shall be certified by the water supply well contractor or pump installer completing the construction, repair, abandonment, or pump installation.

#### SECTION X WATER SUPPLY WELL COMPLETION AND CERTIFICATION

- (A) After receiving a permit to construct a water supply well, the property Owner or Owner's legal agent shall notify the Department prior to water supply well construction if any of the following occur:
1. The separation criteria specified in Chapter II Section IV cannot be met.
  2. The residence or other structure is located other than as indicated on the permit;
  3. The use of the structure is changed from the use as specified on the permit;
  4. The septic system needs to be changed from the location indicated on the permit;
  5. Landscaping changes have been made that may affect the integrity of the water supply well;
  6. There are current or pending restrictions regarding groundwater use as specified in G.S. 87-88(a);
  7. The water source of any water supply well intended for water supply is adjacent to any water-bearing zone suspected or known to be contaminated; or
  8. Any other changes occur in the information provided in the application for the water supply well permit.
- (B) The water supply well contractor shall maintain a copy of the water supply well construction permit or repair permit on the job site at all times during the

construction, repair or abandonment of the water supply well. The water supply well contractor shall meet all the conditions of the permit.

- (C) Upon completion of construction of a water supply well, the Department shall complete an “as built” drawing of the water supply well location. The water supply well contractor shall submit a copy of water supply well construction record to the Department. Upon completion of construction or repair of a water supply well for which a permit is required, the Department will inspect the water supply well and issue a Certificate of Completion. Prior to issuance of a Certificate of Completion, the Department shall:
1. verify that the water supply well was constructed in the designated area and according to the water supply well construction permit and the rules of this Chapter.
  2. inspect the grout around the casing
  3. inspect the water supply wellhead after the water supply well seal is in place
  4. obtain a water supply well construction record from the Certified Water supply well Contractor
  5. obtain a bacteriological analysis that is absent of coliform bacteria
  6. obtain a nitrate and nitrite analysis that does not exceed the Maximum Contaminant levels (MCLs) for public drinking water, as defined in 40 Code of Federal Register 141.
- (D) No person shall place a water supply well into service without first having obtained a Certificate of Completion

*Authority G.S. 87-87; 87-88*

*Reference (15A NCAC 02C .0306)*

<b>Table 1</b>	
<b>Minimum Wall Thickness for Steel Casing</b>	
Nominal Diameter (inches)	Wall Thickness (inches)
For 3 ½ or smaller pipe, schedule 40 is required	
4	0.142
5	0.156
5 ½	0.164
6	0.185
8	0.250
10	0.279
12	0.330
14 and larger	0.375

## CHAPTER III

### PUBLIC WATER SUPPLY WELLS

#### COMMUNITY AND NON-TRANSIENT NON-COMMUNITY WATER SUPPLY WELLS

##### SECTION I     REGISTRATION

- (A) The Owner of a Community water supply well and/or a Non-Transient Non-Community water supply well must register each Community water supply well and/or a Non-Transient Non-Community water supply well located in Mecklenburg County with the Department by completing the following information.
1. Names, addresses and phone numbers of the Community water supply well and/or a Non-Transient Non-Community water supply well Owner and/or legal agent of the property Owner.
  2. Address and tax parcel number of the property for the Community water supply well and/or a Non-Transient Non-Community water supply well.
  3. Name of the system and contact information
  4. Construction information (date installed, depth, casing depth, static water level, capacity)
  5. Number of connections and the number of people served
- (B) Applications for Community or Non-Transient Non-Community water supply well registration shall be submitted on forms to be supplied by the Department.
- (C) A non-refundable fee as specified in the fee schedule shall be submitted with each registration.
- (D) Wells drilled for public water supply systems regulated by the NC Department of Environment and Natural Resources, Division of Environmental Health shall meet the siting and all other requirements of that Division.

SECTION II ABANDONMENT OF COMMUNITY WATER SUPPLY WELL AND/OR A NON-TRANSIENT NON-COMMUNITY WATER SUPPLY WELLS

- (A) Temporarily Abandoned Community water supply well and/or a Non-Transient Non-Community Water Supply Wells
1. Temporarily abandoned Community water supply well and/or a Non-Transient Non-Community water supply wells shall be cased and grouted in accordance with these Regulations.
  2. Temporarily abandoned Community water supply well and/or a Non-Transient Non-Community water supply wells shall be sealed at the top of the casing with a watertight cap compatible with the casing and installed such that it cannot be removed easily by hand.
  3. Temporarily abandoned Community water supply well and/or a Non-Transient Non-Community water supply wells shall be maintained such that they are not a source or channel of contamination to groundwater.
  4. Temporarily abandoned Community water supply well and/or a Non-Transient Non-Community water supply wells shall be equipped with a cover or enclosure free of cracks and holes and is determined to be approved by the Director.
  5. The identification plate must be maintained as specified in Section IV (I) 3 of Chapter II.
  6. Temporarily abandoned Community water supply well and/or a Non-Transient Non-Community water supply wells shall be protected with a casing.
- (B) Permanently Abandoned Community water supply well and/or a Non-Transient Non-Community Water Supply Wells
1. The casing in any Community water supply well and/or a Non-Transient Non-Community water supply well to be permanently abandoned shall be grouted in accordance with these rules and regulations or removed.

2. The entire depth of the Community water supply well and/or a Non-Transient Non-Community water supply well shall be sounded before it is sealed to ensure freedom from obstructions that may interfere with sealing operations.
3. The Community water supply well and/or a Non-Transient Non-Community water supply well shall be thoroughly disinfected according to Section V(A) of Chapter II prior to sealing.
4. Procedures for permanent abandonment of Community water supply well and/or a Non-Transient Non-Community water supply wells, other than bored or hand dug Community water supply well and/or a Non-Transient Non-Community water supply wells.
  - a. Community water supply well and/or a Non-Transient Non-Community water supply wells constructed in consolidated rock formations or that penetrate zones of consolidated rock may be filled with cement grout, bentonite grout, sand, gravel or drill cuttings opposite the zones of consolidated rock. The top of the sand, gravel or cutting fill shall be at least ten feet below the bottom of the casing. The remainder of the Community water supply well and/or a Non-Transient Non-Community water supply well shall be filled with cement grout or bentonite grout only. For any Community water supply well and/or a Non-Transient Non-Community water supply well in which the depth of casing or the depth to the bedrock is not known or cannot be confirmed, the entire depth of the Community water supply well and/or a Non-Transient Non-Community water supply well shall be filled with cement grout or bentonite grout up to land surface.
  - b. Community water supply well and/or a Non-Transient Non-Community water supply wells constructed in unconsolidated rock formations other than bored or hand dug shall be completely filled with neat cement grout or bentonite grout by introducing it through a pipe extending to the bottom of the Community water supply well and/or a Non-Transient Non-Community water supply well which can be raised as the Community water supply well and/or a Non-Transient Non-Community water supply well is filled.
  - c. Gravel packed Community water supply well and/or a Non-Transient Non-Community water supply wells in which the casing and screen have not been removed shall be abandoned by injecting neat cement grout or bentonite grout into the Community water supply well and/or a Non-

Transient Non-Community water supply well filling it from the bottom of the casing to the top.

5. Procedures for permanent abandonment of bored Community water supply well and/or a Non-Transient Non-Community water supply wells or cased hand dug Community water supply well and/or a Non-Transient Non-Community water supply wells constructed into unconsolidated material.
  - a. Remove all plumbing or piping into the Community water supply well and/or a Non-Transient Non-Community water supply well, along with any obstructions inside the Community water supply well and/or a Non-Transient Non-Community water supply well.
  - b. Remove as much of the well tile casing as possible, but no less than to a depth of three (3) feet below land surface;
  - c. Remove all soil or other subsurface material present down to the top of the remaining well casing, and extending to a width of at least twelve (12) inches outside of the well casing on all sides
  - d. Fill the Community water supply well and/or a Non-Transient Non-Community water supply well up to the top of the remaining casing with cement grout, concrete grout, or bentonite grout.
  - e. Pour a one (1) foot thick concrete grout or cement grout plug that fills the entire excavated area above the top of the casing, including the area extending on all sides of the casing out to a width of at least twelve (12) inches on all sides.
  - f. Complete the abandonment process by filling the remainder of the well above the concrete or cement plug with additional concrete grout, cement grout, or soil.
6. Procedures for permanent abandonment of uncased hand dug Community water supply well and/or a Non-Transient Non-Community water supply wells constructed into unconsolidated material.
  - a. Remove all plumbing or piping into the well, along with any obstructions inside the well.

- b. Remove all soil or other subsurface material present down to a depth of three (3) feet below land surface and extending to a width of at least twelve (12) inches outside of the well diameter on all sides.
  - c. Fill the Community water supply well and/or a Non-Transient Non-Community water supply well up to the top of the original diameter with cement grout, concrete grout, bentonite grout, or dry clay compacted in place.
  - d. Pour a one (1) foot thick concrete grout or cement grout plug that fills the entire excavated area above the top of the original diameter, including the area extending on all sides of the original diameter out to a width of at least twelve (12) inches on all sides.
  - e. Complete the abandonment process by filling the remainder of the Community water supply well and/or a Non-Transient Non-Community water supply well above the concrete or cement plug with additional concrete grout, cement grout, or soil.
7. Procedures for permanent abandonment of contaminated Community water supply well and/or a Non-Transient Non-Community water supply wells.
- a. All casing and screen materials may be removed prior to initiation of abandonment procedures if such removal will not cause or contribute to contamination of the groundwater. Any casing not grouted in accordance with 15A NCAC 2C .0107(e) shall be removed or properly grouted.
  - b. The entire depth of the Community water supply well and/or a Non-Transient Non-Community water supply well shall be sounded before it is sealed to ensure freedom from obstructions that may interfere with sealing operations.
  - c. In the case of gravel-packed Community water supply well and/or a Non-Transient Non-Community water supply wells in which the casing and screens have not been removed, neat-cement, or bentonite grout shall be injected into the Community water supply well and/or a Non-Transient Non-Community water supply well completely filling it from the bottom of the casing to the top.
  - d. Community water supply well and/or a Non-Transient Non-Community water supply wells constructed in unconsolidated formations shall be completely filled with cement grout, or bentonite grout by introducing it

through a pipe extending to the bottom of the Community water supply well and/or a Non-Transient Non-Community water supply well which can be raised as the well is filled.

- e. Community water supply well and/or a Non-Transient Non-Community water supply wells constructed in consolidated rock formations or that penetrate zones of consolidated rock shall be filled with cement grout or bentonite grout by introducing it through a pipe extending to the bottom of the well which can be raised as the well is filled. The top of the cement grout or bentonite grout shall extend up to land surface.

- (C) The Owner shall be responsible for permanent abandonment of a Community water supply well and/or a Non-Transient Non-Community water supply well except that:
  - 1. The well contractor is responsible for well abandonment if abandonment is required because the well contractor improperly locates, construct, repairs or completes the well. The well contractor shall permanently abandon any Community water supply well and/or a Non-Transient Non-Community water supply well in which the casing has not been installed or from which the casing has been removed prior to removing his equipment from the site.
  - 2. The pump installer is responsible for Community water supply well and/or a Non-Transient Non-Community water supply well abandonment if abandonment is required because of improper well pump installation, repair, or removal. A certified well contractor must abandon the well.
- (D) Any Community water supply well and/or a Non-Transient Non-Community water supply well not in compliance with the conditions for temporary abandonment shall be brought into compliance or permanently abandoned within thirty days of receipt of notice from the Director.
- (E) Any Community water supply well and/or a Non-Transient Non-Community water supply well whose construction would have a propensity to transfer contamination to the groundwater shall be repaired so that it will not act as a source or channel of contamination to the groundwater, or permanently abandoned within thirty days of receipt of notice from the Department.
- (F) Where a new Community water supply well and/or a Non-Transient Non-Community water supply well or public water supply is replacing an old Community water supply well and/or a Non-Transient Non-Community water supply well and the Owner wishes to continue using the old Community water

- supply well and/or a Non-Transient Non-Community water supply well for irrigation or other uses, the old Community water supply well and/or a Non-Transient Non-Community water supply well may not be connected to the primary Community water supply well and/or a Non-Transient Non-Community water supply system in any way and must conform with Section II (E) of this Chapter.
- (G) Where a new Community water supply well and/or a Non-Transient Non-Community water supply well is replacing an existing Community water supply well and/or a Non-Transient Non-Community water supply well in which contamination has been confirmed through analyses, the existing well shall be permanently abandoned within thirty days of receipt of notice from the Department.
  - (H) The Director shall have the right to enter any property for the purpose of determining whether or not there may be an improperly abandoned Community water supply well and/or a Non-Transient Non-Community water supply well on the property.
  - (I) The well contractor shall contact the Department to schedule an abandonment inspection before abandoning a Community water supply well and/or a Non-Transient Non-Community water supply well. Contact shall include the location, permit number and anticipated time for abandoning each Community water supply well and/or a Non-Transient Non-Community water supply well. The inspection shall be scheduled during regular Mecklenburg County work hours on regular work days according to the Well Regulation Notification Policy.

*Authority G.S. 87-87; 87-88*

*Reference (15A NCAC 02C .0113)*

**CHAPTER IV  
CONSTRUCTION, REPAIR, AND ABANDONMENT FOR TRANSIENT NON-  
COMMUNITY WATER SUPPLIES**

**SECTION I      REGISTRATION**

- (A) The Owner of a Transient Non-Community water supply well installed prior to January 1, 2005 must register a Transient Non-Community water supply well with the Department by submitting the following information:
1. Names, addresses and phone numbers of the Transient Non-Community water supply well Owner and/or legal agent of the property Owner.
  2. Address and tax parcel number of the property for the Transient Non-Community water supply well.
  3. Use of water (domestic, irrigation, etc.)
- (B) Transient Non-Community water supply well must be registered every 12 months. The registration shall be submitted on forms to be supplied by the Department during the period from January 1 to January 31 of each year or such time as the Department designates.
- (C) A non-refundable fee as specified in the fee schedule shall be submitted with each registration.
- (D) The Owner of a Transient Non-Community water supply well installed or repaired after January 1, 2005 must initially register the Transient Non-Community water supply well with the Department by completing the following Application and Permit process.

**SECTION II      APPLICATION**

- (A) A complete application for a permit to construct, repair or abandon a Transient Non-Community water supply well shall be submitted to the Director by an Owner or legal agent of the property Owner who intends to construct a Transient Non-Community water supply well within Mecklenburg County. The following information will be required.

1. Names, addresses and phone numbers of the proposed Transient Non-Community water supply well Owner and/or legal agent.
  2. Signature of property Owner and /or legal agent.
  3. Address and tax parcel number of the property for the proposed Transient Non-Community water supply well.
  4. A plat or site plan as defined in these rules.
  5. Intended use(s) of the property.
  6. Proposed use of water (domestic, irrigation, etc.)
  7. Other information deemed necessary to determine the location of the property and any site characteristics such as existing or permitted sewage disposal systems, easements or rights of way, existing wells or springs, surface water or designated wetlands, chemical or petroleum storage tanks, landfills, waste storage, known underground contamination and any other characteristics or activities on the property or adjacent properties that could impact groundwater quality or suitability of the site for Transient Non-Community water supply well construction.
  8. Any current of pending restrictions regarding groundwater use as specified in G.S. 87-88(a) and
  9. Any Variances regarding well construction or location issued under 15A NCAC 2C .0118.
- (B) Applications for Transient Non-Community water supply well construction repair and abandonment shall be submitted on forms to be supplied by the Department.
- (C) A non-refundable fee as specified in the fee schedule shall be submitted with each permit application.
- (D) An application for a permit shall be submitted by the Owner or his legal agent. In the event that the permit applicant is not the Owner of the property on which the Transient Non-Community water supply well or Transient Non-Community water supply well system is to be constructed, the permit application must contain written approval from the property Owner and a statement that the applicant assumes total responsibility for

ensuring that the Transient Non-Community water supply well(s) will be located, constructed, maintained and abandoned in accordance with these rules and regulations

*History Note: Authority G.S. 87- 85; 87-87; 87-88  
Reference (15A NCAC 02C .0303)  
Reference (15A NCAC 02C .0105)*

### SECTION III PERMITS

#### (A) Transient Non-Community Water Supply Wells

1. It shall be unlawful for any Person to commence any Transient Non-Community water supply well contractor activities in Mecklenburg County without first obtaining a Transient Non-Community water supply well construction permit from the Department. The Transient Non-Community water supply well Owner or their authorized legal agent shall obtain the permit. The permit is valid for one year from date of issuance except that the Department may revoke a permit if it determines that there has been a material change in any fact or circumstance upon which the permit is issued. The validity of a construction permit or a repair permit is not affected by a change in ownership of the site on which a Transient Non-Community water supply well is proposed to be located. If well excavation by use of powered equipment designed specifically for that purpose and operated by a well contractor, or well repair, is not commenced within one year from the date of issuance of the permit, the permit then becomes invalid. When a permit has become invalid, construction or repairs may not be commenced until a new permit is issued.
2. It shall be unlawful for any person to repair a Transient Non-Community water supply well in Mecklenburg County without first obtaining a Transient Non-Community water supply well repair permit from the Department. The Transient Non-Community water supply well Owner or their authorized legal agent shall obtain the permit. Except a Transient Non-Community water supply well repair permit is not required for maintenance or pump repair or replacement. Disinfection in accordance with 15A NCAC 02C .0113 is a maintenance activity that does not require a repair permit.
3. The location of all new proposed Transient Non-Community water supply wells in Mecklenburg County shall comply with these rules and regulations.

4. Before issuing a Transient Non-Community water supply well construction permit the Department shall conduct a field investigation to evaluate the topography, landscape position, available space and potential sources for groundwater contamination on or around the site on which the Transient Non-Community water supply well is to be located.
5. The Department shall issue a Transient Non-Community water supply well construction permit after determining the site can be permitted for a Transient Non-Community water supply well meeting the rules of this Chapter. Notwithstanding the above, the Department shall not issue a construction permit for a Transient Non-Community water supply well with a design capacity of 100,000 gal per day or greater. The construction permit shall include a site plan showing the location of potential sources of contamination and area(s) suitable for Transient Non-Community water supply well construction.
6. The Department shall issue a written notice of denial of a construction permit if it determines a Transient Non-Community water supply well cannot be constructed in compliance with the rules of this Chapter. The notice of denial shall include reference to specific laws or rules that cannot be met and shall be provided to the applicant.
7. The well contractor shall maintain a copy of the Transient Non-Community water supply well construction permit or repair permit on the job site at all times during the construction, repair or abandonment of the Transient Non-Community water supply well. The Transient Non-Community water supply well contractor shall meet all the conditions of the permit.
8. A Department representative is authorized to witness any portion of the drilling or construction process, repair, or abandonment of any Transient Non-Community water supply well in Mecklenburg County as part of the inspection. Failure of the Owner or contractor to allow inspection of any material or observation of any drilling or construction, repair or abandonment of any Transient Non-Community water supply well in Mecklenburg County will be grounds for the revocation of the permit.
9. Failure to comply with the regulations authorizes the Director to revoke any permits issued pursuant to these regulations.
10. Only Certified well contractors shall perform well contractor activities

11. If there is an improperly abandoned well(s) on site, the construction permit shall be conditioned upon repair or abandonment of any improperly abandoned well(s) in accordance with the 15A NCAC 02C .0100.
12. No permit will be issued until all fees have been paid in accordance with Section II (C) of this Chapter.

*History Note: Authority G.S. 87- 85; 87-87; 87-88  
Reference (15A NCAC 02C .0304)*

#### SECTION IV STANDARDS OF CONSTRUCTION

##### (A) Location

1. The Transient Non-Community water supply well shall not be located in an area generally subject to flooding. Areas which have a propensity for flooding include those with concave slope, alluvial or colluvial soils, gullies, depressions and drainage ways. The Transient Non-Community water supply well shall not be located in the Community Special Flood Hazard area designated on the Flood Insurance Rate Maps (FIRMS).
2. The minimum horizontal separation between a Transient Non-Community water supply well and potential sources of groundwater contamination, which exist or have been permitted at the time the Transient Non-Community water supply well is constructed, shall be as follows unless otherwise specified:
 

a. Septic tank and drain field including drainfield repair area	100 ft.
b. Other sub-surface ground absorption waste disposal system	100 ft.
c. Industrial or municipal sludge-spreading or wastewater irrigation sites	100 ft.
d. Sewage or liquid-waste collection or transfer facility constructed to water main standards in accordance with 15 A NCAC 02T .0305 (g)(2) or 15A NCAC 18A .1950(e)	50 ft.
e. Other sewage or liquid-waste collection or transfer facility	100 ft.
f. Cesspools and privies	100 ft.
g. Animal feed lots or manure piles	100 ft.
h. Fertilizer, pesticide, herbicide or other chemical storage areas	100 ft.
i. Non-hazardous waste storage, treatment or disposal lagoons	100 ft.
j. Sanitary landfills /Hazardous Waste landfills/Construction & Demolition landfills/ municipal solid waste landfill facilities/ incinerators	500 ft.

- |    |                                                                                                                                              |         |
|----|----------------------------------------------------------------------------------------------------------------------------------------------|---------|
| k. | Other non-hazardous solid waste landfills, such as Land Clearing and Inert Debris (LCID) landfills (Permitted, Non permitted, Nonconforming) | 100 ft. |
| l. | Animal barns, watering troughs, or animal feeding areas                                                                                      | 100 ft. |
| m. | Building foundations, excluding the foundation of a structure housing a water supply well head                                               | 50 ft.  |
| n. | Surface water bodies                                                                                                                         | 50 ft.  |
| o. | Chemical or petroleum fuel underground storage tank systems regulated under 15A NCAC 02N:                                                    |         |
|    | (I) with secondary containment                                                                                                               | 100 ft. |
|    | (II) without secondary containment                                                                                                           | 500 ft. |
| p. | Aboveground or underground storage tanks which contain petroleum fuels used for heating equipment, boilers, or furnaces                      | 100 ft. |
| q. | Interstate Petroleum Pipeline                                                                                                                | 100 ft. |
| r. | Cemetery or Burial Ground                                                                                                                    | 100 ft. |
| s. | All other potential sources of ground water contamination                                                                                    | 100 ft. |
| t. | Property boundaries                                                                                                                          | 10 ft.  |
3. Separation distances as required in Sections IV(A)2 of this Chapter apply to all additions. Additions of a type not covered by Sections IV(A)2 of this Chapter shall be located the maximum distance possible from any existing Transient Non-Community water supply well but shall in no case be less than 25 feet.
  4. The Transient Non-Community water supply well Owner shall not place potential sources of groundwater contamination closer to the Transient Non-Community water supply well than the separation distances specified in Section IV (A)2 or Section IV (A) 3 as applicable.
  5. When water-tight public sewer lines are installed or extended, they shall maintain a minimum distance of 100 feet from any Transient Non-Community water supply well. In some cases, the Director may allow water-tight sewer lines constructed of ductile iron pipe with mechanical joints or push-on joints equivalent to water main standards within 25 feet of a Transient Non-Community water supply well. Locating public water-tight sewer lines closer to a Transient Non-Community water supply well, shall necessitate proper abandonment of the Transient Non-Community water supply well according to these rules.
  6. The Transient Non-Community water supply well shall not be located in any easement or right-of-way except for easements such as conservation easements.

7. Actual separation distances must conform with the most stringent of applicable federal, State or local requirements.
8. Transient Non-Community water supply wells drilled for public water supply systems regulated by the NC Department of Environment and Natural Resources, Division of Environmental Health shall meet all requirements of that Division.
9. The Transient Non-Community water supply well location must allow access for maintenance, repair, treatment, testing and such other attention as may be necessary.
10. Additional restrictions apply for Transient Non-Community water supply wells located within an area of regulated groundwater usage. The additional restrictions are defined in Chapter VII.

(B) Drilling Fluids and Additives

1. Drilling fluids and additives shall not contain organic or toxic substances or include water obtained from surface water bodies or water from non potable supply and may be comprised only of:
  - a. the formational material encountered during drilling; or
  - b. materials manufactured specifically for the purpose of borehole conditioning or Transient Non-Community water supply well construction.
2. Lubricants used on drill pipe and down hole hammers and lubricating liquids injected into the air flowing through the drill stem shall be designed and approved for use in potable Transient Non-Community water supply wells

(C) Source of Water

1. Shall be at least 40 feet below land surface.
2. Shall not be from a water bearing zone or aquifer that is known to be contaminated.

(D) Casing

1. In constructing any Transient Non-Community water supply well, all water bearing zones that are known to contain polluted, saline or other non-potable water shall be adequately cased and cemented so that the pollution of underlying or overlying groundwater zones shall not occur.
2. Every Transient Non-Community water supply well shall be cased with the bottom of the casing adequately seated and sealed to a minimum depth of at least forty feet below the surrounding land surface or at least 5 feet into the top of bedrock.
3. The top of the casing shall be terminated by the well driller at least twelve inches above the surrounding land surface.
4. The casing in Transient Non-Community water supply wells constructed to obtain water from consolidated rock formation shall be:
  - a. the casing shall be adequate to prevent any formation material from entering the Transient Non-Community water supply well in excess of the levels specified in Section IV (H) of this Chapter.
  - b. firmly seated and sealed at least five feet into the rock.
5. The casing in Transient Non-Community water supply wells constructed to obtain water from an unconsolidated rock formation shall extend at least 12 inches into the top of the water bearing formation.
6. The Director may inspect the casing material before it is installed, as the casing is installed in a borehole and/or after the casing is set. The well contractor shall contact the Department to schedule a casing inspection before casing a Transient Non-Community water supply well. Contact shall include the location, permit number and anticipated time for casing each Transient Non-Community water supply well. The inspection shall be scheduled during regular Mecklenburg County work hours on regular work days according to the Well Regulation Notification Policy.
7. Galvanized Steel Transient Non-Community Water Supply Well Casing
  - a. The casing shall be new, seamless or electric-resistance welded galvanized steel pipe. Galvanizing shall be done in accordance with requirements of ASTM A-53/A53M-07.

- b. The casing, threads and couplings shall meet or exceed the specifications of ASTM A53/A53M-07 or A589M-06.
  - c. The minimum wall thickness for a given diameter shall equal or exceed that specified in Table 1.
  - d. Each length of galvanized steel Transient Non-Community water supply well casing shall be legibly marked by rolling, stamping or stenciling to show the name or brand of the manufacturer's and ASTM designation number.
  - e. Shall have water-tight joints that are electrically welded or threaded and coupled with heavy recessed-type couplings. The couplings should cover the threads when power tight.
  - f. Shall be equipped with a drive shoe if the casing is driven in a consolidated rock formation. The drive shoe shall be made of forged, high carbon, tempered seamless steel and shall have a beveled, hardened cutting edge. A drive shoe shall not be required for Transient Non-Community water supply wells in which a cement or concrete grout surrounds and extends the entire length of the casing.
8. Thermoplastic Transient Non-Community Water Supply Well Casing
- a. The casing shall be new.
  - b. The casing and joints shall meet or exceed all the specifications of ASTM F-480-06b, except that the outside diameters shall not be restricted to those listed in F-480-06b.
  - c. Solvent cement used for joining sections of thermoplastic Transient Non-Community water supply well casing, liner pipe, pump pipe or any connections thereto shall bear the National Sanitation Foundation (NSF) seal of approval for use on potable water systems and shall be marked with the designation ASTM D-2564 as meeting all the requirements of ASTM D-2564, requirements and recommendations of ANSI/ASTM.
  - d. Shall have a minimum wall thickness and tolerance, which meets or exceeds requirements for SDR-21 thermoplastic Transient Non-Community water supply well casing pipe for a maximum depth of 185 feet. Galvanized steel Transient

Non-Community water supply well casing as specified in subparagraph (D)(8) shall be required for the entire length of the casing for any Transient Non-Community water supply well in which the casing depth exceeds 185 feet.

- e. Shall be equipped with a coupling or other device approved by the manufacturer of the casing that is sufficient to protect the physical integrity of the thermoplastic casing during the processes of seating and grouting the casing and subsequent drilling operations.
  - f. Shall be installed in straight, obstruction free bore holes only.
  - g. Thermoplastic casing shall not be driven into consolidate rock.
9. Stainless Steel Transient Non-Community Water Supply Well Casing
- a. Stainless steel casing, threads and couplings shall conform in specifications to the general requirements in ASTM A-530/A530M-04a and also shall conform to the specific requirements in the ASTM standard that best describes the chemical make-up of the stainless steel casing that is intended for use in the construction of the Transient Non-Community water supply well.
  - b. Stainless steel casing shall be equipped with a drive shoe if the casing is driven in a consolidated rock formation. The drive shoe shall be made of forged, high carbon, tempered seamless steel and shall have a beveled, hardened cutting edge. A drive shoe will not be required for Transient Non-Community water supply wells in which a cement or concrete grout surrounds and extends the entire length of the casing.
  - c. Stainless steel casing shall have a minimum wall thickness that is equivalent to standard schedule number 10S.

(E) Grouting

- 1. The water supply well contractor shall contact the Department to schedule a grout inspection before grouting a Transient Non-Community water supply well. Contact shall include the location, permit number and anticipated time for grouting each Transient Non-Community water supply well. The inspection shall be scheduled during regular Mecklenburg County work hours on regular workdays according to the Well Regulation Notification Policy.

2. Upon completion of a grout inspection, the Department shall provide a written certification on the Transient Non-Community water supply well permit that a grout inspection was completed and in compliance with the rules in Chapter II. When the Department is unable to conduct a grout inspection within one hour of the scheduled time, the water supply well contractor may grout a Transient Non-Community water supply well without a grout inspection by the Department. The water supply well contractor shall provide a written certification to the Department that the Transient Non-Community water supply well has been grouted in compliance with the rules in Chapter II. A completed Transient Non-Community water supply well construction record for GW-1 indicating the Transient Non-Community water supply well was grouted in compliance with the rules of Chapter II shall serve as the water supply well contractor's grout certification. For the purpose of issuing the Certificate of Completion, the water supply well contractor's grout certification shall be accepted by the Department as evidence the grout complies with the rules of this Section if the Department:
  - a. Was contacted by the water supply well contractor to schedule a grout inspection;
  - b. Was unable to inspect the grouting of the Transient Non-Community water supply well within the one hour following the scheduled time; and
  - c. Upon final inspection, finds no evidence to indicate the Transient Non-Community water supply well grout does not comply with the rules of this Section.
3. Allowable Grouts
  - a. One of the following grouts shall be used wherever grout is required by a Rule of this Section. Where a particular type of grout is specified by a Rule of this Section no other type of grout shall be used.
    - i. "Neat cement grout" shall consist of a mixture of not more than six gallons of clear, potable water to one 94 pound bag of Portland cement. Up to five percent, by weight of bentonite clay may be used to improve flow and reduce shrinkage. If Bentonite is used additional water may be added at a rate not to exceed 0.6 gallons of water for each pound of bentonite

- ii. "Sand cement grout" shall consist of a mixture of not more than two parts sand and one part cement and not more than six gallons of clear, potable water per 94 pound bag of Portland cement.
- iii. "Concrete grout" shall consist of a mixture of not more than two parts gravel to one part cement and not more than six gallons of clear, potable water per 94 pound bag of Portland cement. One hundred percent of the gravel must pass through a one-half inch mesh screen.
- iv. "Gravel cement grout, sand cement grout or rock cutting cement grout" shall consist of a mixture of not more than two parts gravel and sand or rock cuttings to one part cement and not more than six gallons of clear, potable water per 94 pound bag of Portland cement.
- v. "Bentonite slurry grout" shall consist of a mixture of not more than 20 gallons of clear potable water to one 50 pound bag of commercial sodium bentonite. Non-organic, non-toxic substances may be added to improve particle distribution and pumpability. Bentonite slurry grout may only be used in those instances where specifically approved in this Section and only in accordance with the manufacturer's written instructions.
- vi. Bentonite Chips or pellets shall consist of pre-screened sodium bentonite chips or compressed sodium bentonite pellets with largest dimension of at least one-fourth (1/4) inch but not greater than one-fifth (1/5) of the width of the annular space into which they are being placed. Bentonite chips or pellets shall be hydrated in place. Bentonite chips or pellets may only be used in accordance with the manufacturer's written instructions.
- vii. "Specialty grout" means a mixture of non-organic, non-toxic materials with characteristics of expansion, chemical-resistance, rate of heat of hydration, viscosity, density or temperature-sensitivity applicable to specific grouting requirements. Specialty grouts may not be used without prior approval by the Director. Approval of the use of specialty grouts shall be based on a demonstration that the finished grout has permeability less than  $10^{-6}$  centimeters per second and will not adversely impact human health or the environment

- b. With the exception of bentonite chips or pellets, the liquid and solid components of all grout mixtures shall be thoroughly blended prior to emplacement below land surface,
  - c. No fly ash, other coal combustion byproducts, or other wastes may be used in any grout.
4. Grout Emplacement
- a. Casing shall be grouted to a minimum depth of 20 feet below land surface.
  - b. Casing shall be grouted as necessary to seal off, from the producing zone(s), all aquifers or zones that are know to contain contaminated, saline or other non potable water so that contamination of the overlying and underlying aquifers or zones shall not occur.
  - c. Where grouting is required by the provisions of this section, the grout shall extend outward from the casing wall to a minimum thickness equal to either one-third of the diameter of the outside dimension of the casing or two inches, whichever is greater; excepting, however, that large diameter bored Transient Non-Community water supply wells shall meet the requirement of Section IV (E)(10) of this Chapter.
  - d. Bentonite slurry grout may be used in that portion of the borehole that is at least three feet below land surface. Bentonite slurry grout must be placed in the annular space by use of either the pumping or pressure method. That portion of the borehole from land surface to three feet below land surface shall be filled with a cement or concrete grout, or bentonite chips or pellets that are hydrated in place.
  - e. The grout shall be placed around the casing by one of the following methods:
    - i. Pressure- grout shall be pumped or forced under pressure through the bottom of the casing until it fills the annular space around the casing and overflows at the surface.
    - ii. Pumping - grout shall be pumped into place through a hose or pipe extended to the bottom of the annular space which can be raised as the grout is applied. The grout hose or pipe shall remain submerged in grout during the entire application.

- iii. Other – Grout may be emplaced in the annular space by gravity flow in such a way to ensure complete filling of the space. Gravity flow shall not be used if water or any visible obstruction is present in the upper 20 feet of annular space at the time of grouting. If the grout contains bentonite clay it must be emplaced by either the pumping or pressure method.
  - f. Where consolidated rock is encountered at a depth of less than twenty feet below land surface such that the annular space around the casing (as required by Section IV (E)4 of this Chapter) may not be kept free of formation material from the drilling process to a minimum depth of twenty feet, the grout shall be placed around the casing immediately following the placement of the casing in the bore hole. Subsequent drilling operations may not continue until such time as the grout remains permanently in place around the Transient Non-Community water supply casing.
  - g. If an outer casing is installed, it shall be grouted by either the pumping or pressure method.
- 5. The liquid and solid components of all cement grouts, concrete grouts, and bentonite slurry grouts shall be thoroughly blended prior to emplacement below land surface.
  - 6. Bentonite chips or pellets shall be used in compliance with all manufacturer's instructions including pre-screening the material to eliminate fine-grained particles, installation rates, hydration methods, tamping and other measures to prevent bridging
  - 7. Bentonite grout shall not be used to seal zones of water with chloride concentration of 1500 parts per million or greater.
  - 8. The Transient Non-Community water supply well shall be grouted within five working days after the casing is set.
  - 9. No additives, which will accelerate the process of hydration, shall be used in grout for thermoplastic Transient Non-Community water supply well casing.

10. For large diameter Transient Non-Community water supply wells cased with concrete pipe or ceramic tile, of a pipe diameter equal to or greater than 20 inches the following shall apply:
  - a. The borehole shall have a minimum diameter of six inches larger than the outside diameter of the casing.
  - b. The annular space around the casing shall be filled with grout to a depth of at least twenty feet below land surface.
  - c. The annular space around the casing below the grout shall be filled with sand or gravel.

(F) Transient Non-Community Water Supply Well Screen

1. The Transient Non-Community water supply well, if constructed to obtain water from an unconsolidated rock formation, shall be equipped with a screen that will prevent the entrance of formation material into the Transient Non-Community water supply well after the Transient Non-Community water supply well has been developed and completed by the water supply well contractor.
2. The Transient Non-Community water supply well screen shall be of a design to permit the optimum development of the aquifer with minimum head loss consistent with the intended use of the Transient Non-Community water supply well and with screen placement at intervals, which allow for optimal water movement. The openings shall be designed to prevent clogging and shall be free of rough edges, irregularities or other defects that may accelerate or contribute to corrosion or clogging.
3. Multi-screen Transient Non-Community water supply wells shall not connect aquifers or zones, which have differences in water quality which would result in contamination of any aquifer or zone.

(G) Gravel and/or Sand-Packed Transient Non-Community Water Supply Wells

1. In constructing a gravel and/or sand-packed Transient Non-Community water supply well:
  - a. The packing material shall be composed of quartz, granite, or similar mineral or rock material and shall be clean, of uniform size, water-washed and free from clay, silt or other deleterious material.

- b. The size of the packing material shall be determined from a grain size analysis of the formation material and shall be of a size sufficient to prohibit the entrance of formation materials into the Transient Non-Community water supply well in concentrations above those permitted by Section IV (H) of this Chapter.
  - c. The packing material shall be placed in the annular space around the screens and casing by a fluid circulation method, preferably through a conductor pipe to insure accurate placement and avoid bridging.
  - d. The packing material shall be disinfected.
  - e. Centering guides shall be installed within five feet of the top packing material to insure even distribution of the packing material in the borehole.
2. The packing material shall not connect water bearing or zones, which have differences in water quality that would result in contamination of any aquifer or zone.

(H) Transient Non-Community Water Supply Well Development

1. All Transient Non-Community water supply wells shall be developed by the water supply well contractor.
2. Development shall include removal of formation materials, mud, drilling fluids and additives such that the water contains no more than:
  - a. Five milliliters per liter of Settleable solids; and
  - b. Ten NTUs of turbidity as suspended solids.
3. Development does not require efforts to reduce or eliminate the presence of dissolved constituents, which are indigenous to the ground water quality in that area. Typical dissolved constituents include, but are not limited to aluminum, calcium, chloride, iron, magnesium, manganese, sodium, and sulfate.
4. Upon completion of the Transient Non-Community water supply well, the Transient Non-Community water supply well shall be sufficiently free of obstacles including formation material as necessary to allow for the installation and proper operation of pumps and associated equipment.

(I) Water Supply Well Contractor Identification Plate

1. An identification plate showing the water supply well contractor and his individual certification number shall be installed on the Transient Non-Community water supply well within 72 hours after the drilling is complete.
2. The identification plate shall be constructed of a durable waterproof, rustproof metal or equivalent material approved by the Director of the Division of Water Quality, NC DENR.
3. The identification plate shall be permanently attached to either the aboveground portion of the Transient Non-Community water supply well casing, surface grout pad, or enclosure floor around the casing where it is readily visible and easily readable. The method of attachment shall not obscure information on the identification plate.
4. The identification plate shall not be removed by any Person.
5. The identification plate shall be stamped or otherwise imprinted with a permanent legible marking to show the:
  - a. total depth of Transient Non-Community water supply well
  - b. casing or liner depth (ft.) and inside diameter (in.);
  - c. screened interval of screened wall
  - d. packing interval of gravel or sand-packed Transient Non-Community water supply wells;
  - e. yield, in gallons per minute (gpm) or specific capacity in gallons per minute per foot of drawdown (gpm/ft-dd)
  - f. static water level and date measured; and
  - g. date Transient Non-Community water supply well completed or lined.
  - h. The Transient Non-Community water supply well construction permit number or numbers if such a permit is required.

(K) Pump Installer Identification Plate

1. An identification plate showing the name and registration number or water supply well contractor certification number of the pump installation contractor shall be installed on the Transient Non-Community water supply well within 72 hours after completion of the pump installation.
2. The identification plate shall be constructed of a durable waterproof, rustproof, metal or equivalent material approved by the Director of the Division of Water Quality, NC DENR.
3. The identification plate shall be permanently attached to either the aboveground portion of the Transient Non-Community water supply well casing, surface grout pad or enclosure floor around the casing where it is readily visible and easily readable. The method of attachment shall not obscure information on the identification plate.
4. The identification plate shall not be removed by any Person.
5. The identification plate shall be stamped or otherwise imprinted with a permanent legible marking to show the:
  - a. date the pump was installed
  - b. the depth of the pump intake, and
  - c. the horsepower rating of the pump

(L) Transient Non-Community Water Supply Well Head Completion and Equipment

1. The Transient Non-Community water supply well pump must be installed in the Transient Non-Community water supply well and the Transient Non-Community water supply well head completed within 30 days of the date construction is begun on the Transient Non-Community water supply well, or the Transient Non-Community water supply well must be temporarily or permanently abandoned.
2. The top of the casing shall be cut off smooth and level, be free from dents and cracks, and shall terminate at least eight inches above the concrete slab around the casing where a slab has been installed.

3. The builder, water supply well contractor, pump installer or homeowner as applicable shall provide assistance when necessary to gain access for inspection of the Transient Non-Community water supply well, pumps and pumping equipment.
4. The identification plate, if removed or obscured during pump installation shall be relocated and permanently attached to the aboveground portion of the Transient Non-Community water supply well casing, surface grout pad or enclosure floor around the casing where it is readily visible and easily readable.
5. All piping, wiring, and vents shall enter the Transient Non-Community water supply well at least twelve inches above land surface, except where pitless adapters or pitless units are used, and shall be adequately sealed to preclude the entrance of contaminants into the Transient Non-Community water supply well.
6. Every Transient Non-Community water supply well shall be equipped by the Person completing the Transient Non-Community water supply well head with a useable access port or air line.
  - a. The access port shall be located directly on top of the Transient Non-Community water supply well if the pump is offset from the water supply well.
  - b. For Transient Non-Community water supply wells on which the pump is installed directly over the Transient Non-Community water supply well, an access port pipe shall be installed through the pump base or outside the Transient Non-Community water supply well casing, and terminate inside the Transient Non-Community water supply well casing at some point below the base of the pump.
  - c. The access port shall have a minimum inside diameter of one-half inches, so that the position of the water level may be determined at any time.
  - d. The access port shall be installed and maintained in such a manner as to prevent the entrance of water, dust, insects or other foreign material, and to permit ready access for water level measurements.
7. Every Transient Non-Community water supply well that flows under natural artesian pressure shall be properly constructed, equipped and operated to prevent the unnecessary discharge of water. Flow shall be completely stopped

unless the discharge is for beneficial use and only for the duration of that beneficial use. Flow discharge control shall be provided to conserve the groundwater resource and prevent or reduce the loss of artesian hydraulic head. Flow control may consist of valved pipe connections, watertight pump connections, receiving tank, flowing well pitless adapter, packer or other methods approved by the Department to prevent the loss of artesian hydraulic head and stop the flow of water. The water supply well will be equipped with a check valve sized to the overflow line diameter to prevent back siphonage. Transient Non-Community water supply Well Owners shall be responsible for the operation, and maintenance of such equipment.

8. Pitless adapters or pitless units shall be allowed as a method of Transient Non-Community water supply well head completion under the following conditions:
  - a. The pitless device shall be manufactured specifically for the purpose of Transient Non-Community water supply well construction;
  - b. Design, installation and performance standards shall be those specified in PAS-1 (Pitless Adapter Standard No. 1) as adopted by the Water System Council's Pitless Adapter Division;
  - c. The pitless device shall be compatible with the Transient Non-Community water supply well casing;
  - d. The top of the pitless device shall extend at least 12 inches above land surface;
  - e. The pitless device shall have an access port.
  - f. If a pitless adapter or pitless unit is used as a method of Transient Non-Community water supply well head completion, the Transient Non-Community water supply well is not required to have a cover.
  - g. If a pitless adapter or pitless unit is used as a method of Transient Non-Community water supply well head completion, a sample tap shall be installed between the pump and the pressure tank by the Person installing the pump for the purpose of obtaining water samples.
9. Each new Transient Non-Community water supply well shall be equipped with a cover or enclosure, which is free of cracks, holes, etc. and is

determined to be approved by the Director. No single dimension of the cover or enclosure shall exceed seven feet in length and it should be secured firmly to the ground surface, while still being easily accessible for inspection. If a concrete floor is poured within the cover or enclosures, a drain hole must be provided to allow water to drain out.

10. All new Transient Non-Community Water Supply wells and Transient Non-Community water supply wells constructed after July 1, 1993, and serving an establishment regulated by 15A NCAC 18A shall have a slab which complies with paragraph .1722(e) of Section .1700 - Protection of Water Supplies.
11. A new Transient Non-Community water supply well designed to serve a water supply system where system components will require an area with an enclosure having a single dimension exceeding seven feet in length, shall have a four-inch thick concrete floor. The enclosure shall be anchored to the floor and shall have a drain hole provided to allow water to drain out, with the Transient Non-Community water supply well being accessible for inspections.
12. The pumping capacity of the pump shall be consistent with the intended use and yield characteristics of the Transient Non-Community water supply well.
13. The pump and related equipment for the Transient Non-Community water supply well shall be conveniently located to permit easy access and removal for repair and maintenance.
14. The base plate of a pump placed directly over the Transient Non-Community water supply well shall be designed to form a watertight seal with the Transient Non-Community water supply well casing or pump foundation.
15. In installations where the pump is not located directly over the Transient Non-Community water supply well, the annular space between the casing and pump intake or discharge piping shall be closed with a water tight seal preferably designed specifically for this purpose.
16. The Transient Non-Community water supply well shall be properly vented at the Transient Non-Community water supply well head to allow for the pressure changes within the Transient Non-Community water supply well except when a suction lift type pump is used.
17. A sample tap shall be installed between the pump and the pressure tank by the Person installing the pump for the purpose of obtaining water samples. In the case of offset jet pump installations, the sample tap shall be installed on the

return (pressure) side of the jet pump installations. To prevent the sample tap from being a possible conduit of contamination, a spring loaded check valve, sized to at least the diameter of the drop pipe, shall be installed at the head of the pump.

18. The sample tap must be located in the piping and positioned such that a sample may be obtained by placing the sample bottle underneath the sample tap or a minimum distance of 8 inches without interference from the Transient Non-Community water supply well cover, enclosure, slab or any part of the Transient Non-Community water supply well head.
19. A priming tee shall be installed at the Transient Non-Community water supply well head in conjunction with offset jet pump installations.
20. Joints of any suction line installed underground between the Transient Non-Community water supply well and pump shall be tight under system pressure.
21. The drop piping and electrical wiring used in connection with the pump shall meet all applicable underwriters' specifications.
22. Contaminated water shall not be used for priming the pump.

*History Note: Authority G.S. 87- 85; 87-87; 87-88  
Reference (15A NCAC 02C .0107)  
Reference (15A NCAC 02C .0301)  
Reference (15A NCAC 02C .0305)*

#### SECTION V DISINFECTION OF TRANSIENT NON-COMMUNITY WATER SUPPLY WELLS

- (A) All Transient Non-Community water supply wells shall be disinfected upon completion of construction, maintenance, repairs, pump installation and testing as follows:
  1. Chlorine shall be placed in the Transient Non-Community water supply well in sufficient quantities to produce a free chlorine residual of at least 100 parts per million in the Transient Non-Community water supply well. The chlorine shall be placed in the Transient Non-Community water supply well by one of the following or equivalent methods:

- a. Chlorine granules or tablets shall be placed in the top of the Transient Non-Community water supply well and allowed to settle to the bottom of the Transient Non-Community water supply well.

OR

- b. Chlorine solution shall be placed in the bottom of the Transient Non-Community water supply well by using a bailer or by pouring the solution through the drill rod, hose or pipe placed in the bottom of the Transient Non-Community water supply well. The solution shall be flushed out of the drill rod, hose or pipe using water or air.
2. Agitate the water in the Transient Non-Community water supply well to ensure thorough dispersion of the chlorine.
  3. The Transient Non-Community water supply well casing, pump column and any other equipment above the water level in the Transient Non-Community water supply well shall be thoroughly rinsed with the chlorine solution as a part of the disinfecting process.
  4. The chlorinated water shall stand in the Transient Non-Community water supply well for a period of at least 24 hours, then pumped until the system is free of any chlorine residual.
  5. The Transient Non-Community water supply well shall not be used as a source of drinking water supply until such time as water samples collected from the Transient Non-Community water supply well indicates that the Transient Non-Community water supply well is free of coliform bacteria.
  6. Other materials and methods of disinfection, at least as effective as those in Section V (A)1 of this Chapter may be used upon prior approval by the Director.

*History Note: Authority G.S. 87- 85; 87-87; 87-88  
Reference (15A NCAC 02C .0111)*

## SECTION VI SAMPLING

- (A) Within 30 days of the TNC completion of the Transient Non-Community water supply well for a newly constructed Transient Non-Community water supply well, the Department shall obtain water samples and submit them to a certified laboratory for analyses or ensure that the water obtained from the Transient Non-

Community water supply well has been sampled and analyzed by a certified laboratory, in accordance with this Chapter.

- (B) Samples collected from Transient Non-Community water supply wells pursuant to the rules of this Chapter shall be collected by an employee of the Department, or a certified laboratory. The sample collector shall use aseptic sampling techniques for collection of coliform bacteria and sampling techniques and containers for chemical constituents following methods described in 40 Code of Federal Regulations 141.23 Inorganic Chemical Sampling and Analytical Requirements and 40 Code of Federal Regulations 143.4 Monitoring, which are incorporated by reference including any subsequent amendments, additions or editions.
- (C) The sample collectors shall be trained in accordance with guidance developed by the Department.
- (D) Water samples shall be collected from the sample tap at the Transient Non-Community water supply well or the closest accessible collection point to the water source with a tap capable of being disinfected, providing the sampling point shall precede any water treatment devices
- (E) It is the responsibility of the Transient Non-Community water supply well Owner to provide access and a source of power for the purpose of collecting the required water sample.
- (F) For all new Transient Non-Community water supply wells , samples for total coliform and fecal coliform bacteria shall be collected after the disinfectant agent has been flushed from the Transient Non-Community water supply well and water supply system. The water shall be determined to be free of disinfectant before collection of samples for bacteria. Required water samples shall not be collected from Transient Non-Community water supply wells that are not constructed and located in accordance with the rules of this Chapter.
- (G) Samples shall be transported to the laboratory following the procedures for sample preservation and within holding times required in 40 Code of Federal Regulations 141.21(f) Analytical Methodology, 141.23 Inorganic Chemical Sampling and Analytical Requirements, and 143.4 Monitoring, which are hereby incorporated by reference including any subsequent amendments, additions or editions.
- (H) Additional or retest samples may be collected if:

1. during permitting, construction and sampling process, information indicates the potential for other contaminants to be present in the groundwater source; or
  2. if necessary to confirm initial testing results
- (I) Prior to final approval of a new Transient Non-Community water supply well a water sample from the Transient Non-Community water supply well will be analyzed for a suite of Volatile Organic Compounds (VOC) and a suite of toxic metals to be determined by the Director to document the water quality. Additional analysis may be required if deemed necessary by the Director.
1. If the sample analysis indicates the presence of a VOC or toxic metal at or above the laboratory practical quantification level additional sampling as determined by the director will be required.
  2. If the sample analysis does not indicate a concentration of a VOC or a toxic metal. No further sampling will be required unless warranted by changes in site conditions, land use or determined by the Director to protect human health.
  3. If a sample analysis indicates a concentration above the Groundwater Quality Standards referenced in Chapter V the water must be treated/filtered to remove or lower the contaminant below the Groundwater Quality Standards prior to public use.
- (J) Water samples shall be analyzed in the North Carolina State Laboratory of Public Health or a certified laboratory
- (K) A water sample shall be tested for total coliform bacteria and if present, further analyzed for the presence of fecal coliform bacteria or E. coli.
- (L) A Transient Non-Community water supply well shall be analyzed for Arsenic, Barium, Cadmium, Chromium, Copper, Fluoride, Lead, Iron, Magnesium, Manganese, Mercury, Selenium, Silver, Sodium, Zinc, and pH. The Department shall provide information to the Transient Non-Community water supply well Owner or respective lease holder concerning chemical and biological contaminants exceeding public drinking water MCLs and the need for exposure limitation, remediation and or future sampling.

(M) In addition to the monitoring required by the NCPWS all existing Transient Non-Community water supply wells in Mecklenburg County will be sampled for a suite of Volatile Organic Compounds (VOC) and a suite of toxic metals to be determined by the Director.

1. If the sample analysis indicates a concentration of a VOC or a toxic metal additional sampling as determined by the director will be required.
2. If the sample analysis does not indicate a concentration of a VOC or a toxic metal. No further sampling for VOC or toxic metals will be required unless warranted by changes in site conditions, land use or determined by the Director to protect human health.

(N) In addition to the monitoring required by the NCPWS all existing Transient Non-Community water supply wells within an Area of Regulated Groundwater Usage designated in Mecklenburg County will require:

1. an initial water sample following identification of the contaminant. The water sample must be analyzed for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. The analysis must be submitted to the Department for review.
2. biannual sampling and analysis for the contaminant(s)-of-concern. The water sample must be analyzed for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. The analysis must be submitted to the Department for review.
3. the Department may waive or modify sampling requirements on a Transient Non-Community water supply well by Transient Non-Community water supply well basis if:
  - a. it can demonstrated that a non-impacted water supply well of similar dimensions to the subject Transient Non-Community water supply well exist between the contaminant plume and the subject well, or
  - b. a hydrogeologic review of the Area of Regulated Groundwater Usage, conducted by a North Carolina Professional Engineer or a North Carolina Licensed Geologist and presented to the Department, indicates that the Transient Non-Community water supply well is not at risk of being impacted by the contaminant plume. The Department must concur with the findings of the review before modification to the sampling schedule may be granted.

- (O) Fees for sampling services performed by the Department will be charged according to the current fee schedule.
- (P) Records required in this section shall be submitted within 30 days of receipt of laboratory analysis reports.

*History Note: Authority G.S. 87- 85; 87-97  
Reference (15A NCAC 18A .3802)*

**SECTION VII TRANSIENT NON-COMMUNITY WATER SUPPLY WELL  
MAINTENANCE AND REPAIR**

- (A) Every Transient Non-Community water supply well shall be maintained by the Owner in a condition whereby it will conserve and protect the groundwater resources, and whereby it will not be a source or channel of contamination to the groundwater.
- (B) All construction and materials used in the maintenance, replacement or repair of any Transient Non-Community water supply well shall meet the requirements for new installations.
- (C) The Director may inspect the liner and packer materials before they are installed, as they are installed in the casing and bore hole and/or after the liner is set. The water supply well contractor shall contact the Department to schedule a liner inspection before lining a Transient Non-Community water supply well. Contact shall include the location, permit number and anticipated time for lining each Transient Non-Community water supply well. The inspection shall be scheduled during regular Mecklenburg County work hours on regular workdays according to the Well Regulation Notification Policy.
- (D) Broken, punctured or otherwise defective or unserviceable casing, screens, fixtures, seals or any part of the Transient Non-Community water supply well head shall be repaired or replaced, or the Transient Non-Community water supply well shall be abandoned pursuant to the requirements of 15A NCAC 02C .0013.
- (E) National Science Foundation (NSF) approved PVC pipe rated at 160 psi or greater may be used for liner pipe. The annular space around the liner pipe shall be at least five-eighths inches and shall be completely filled with neat-cement grout. Bentonite clay shall not be used in grouting a liner. The Transient Non-Community water supply well liner shall be completely grouted within ten working days after the liner has been installed.

- (F) The Director shall not approve any new Transient Non-Community water supply well which has the uppermost end of the casing terminating below land surface.
- (G) All Transient Non-Community water supply well repairs shall be completed with the wellhead terminating at least twelve inches above land surface
- (H) Repairs to any Transient Non-Community water supply well completed with the Transient Non-Community water supply well head terminating below ground (buried seal) shall include extending the Transient Non-Community water supply well casing above land surface. The extension shall be made as follows:
1. The extension casing shall be welded or bonded to the existing casing around the outside of the joint, providing a watertight seal or a sleeve shall be forced over the existing casing with at least six inches of overlap, providing a watertight seal.
  2. Grout shall be placed around the casing, extending from land surface to a depth of twenty feet. The grout thickness shall be as specified in these regulations. In lieu of twenty feet of grout for those Transient Non-Community water supply wells drilled prior to 1972 only, a liner properly installed and grouted inside the existing casing, extending below the bottom of the existing casing and firmly sealed a minimum of one foot into consolidated rock, shall be acceptable as meeting this requirement.
- (I) An accepted alternative method of Transient Non-Community water supply well repair is permitted only for Transient Non-Community water supply wells drilled prior to 1972. A sleeve shall be forced over the existing casing with at least six inches of overlap. Cement grout shall be placed around the casing, extending from land surface to a depth of at least one foot below the joint formed by the casings. The grout thickness shall be as specified in these regulations. This alternative method of repair shall not apply to Transient Non-Community water supply wells drilled after January 1, 1972. This procedure involves extending the existing casing. It is therefore a water supply well contractor activity and may only be performed by a certified well contractor. This repair does not meet the requirement of grouting to a depth of twenty feet and the water supply well shall not be considered a properly protected Transient Non-Community water supply well.
- (J) Prior to a repaired Transient Non-Community water supply well being returned to service, the Transient Non-Community water supply well shall be redeveloped to remove biofilm or formational material from the Transient Non-Community water

supply well. The methods of Transient Non-Community water supply well redevelopment include, but are not limited to, the methods listed in Chapter I, Section II “Repair”. The method of Transient Non-Community water supply well redevelopment shall be listed on the Transient Non-Community water supply well’s record of repair.

- (K) Any repair, pump maintenance, or pump replacement shall be completed by disinfection of the Transient Non-Community water supply well and water system in accordance with Section V of this Chapter and the Transient Non-Community water supply well head completed in accordance with Sections IV(J), IV(K) and IV(L) of this Chapter.
- (L) Water supply well contractors and pump installers will submit notification of chlorination within 10 working days.

*History Note: Authority G.S. 87- 85; 87-87; 87-88  
Reference (15A NCAC 02C .0112)*

**SECTION VIII ABANDONMENT OF TRANSIENT NON-COMMUNITY WATER SUPPLY WELLS**

- (A) Temporarily Abandoned Transient Non-Community water supply wells
  1. Temporarily abandoned Transient Non-Community water supply wells shall be cased and grouted in accordance with these Regulations.
  2. Temporarily abandoned Transient Non-Community water supply wells shall be sealed at the top of the casing with a watertight cap compatible with the casing and installed such that it cannot be removed easily by hand.
  3. Temporarily abandoned Transient Non-Community water supply wells shall be maintained such that they are not a source or channel of contamination to groundwater.
  4. Temporarily abandoned Transient Non-Community water supply wells shall be equipped with a cover or enclosure free of cracks and holes and is determined to be approved by the Director.
  5. The identification plate must be maintained as specified in Section IV (I) 3 of this Chapter.

6. Temporarily abandoned Transient Non-Community water supply wells shall be protected with casing.

(B) Permanently Abandoned Transient Non-Community Water Supply Wells

1. The casing in any Transient Non-Community water supply well to be permanently abandoned shall be grouted in accordance with these rules and regulations or removed.
2. The entire depth of the Transient Non-Community water supply well shall be sounded before it is sealed to ensure freedom from obstructions that may interfere with sealing operations.
3. The Transient Non-Community water supply well shall be thoroughly disinfected according to Section IV(A) of this Chapter prior to sealing.
4. Procedures for permanent abandonment of Transient Non-Community water supply wells, other than bored or hand dug Transient Non-Community water supply wells
  - a. Transient Non-Community water supply wells constructed in consolidated rock formations or that penetrate zones of consolidated rock may be filled with cement grout, bentonite grout, sand, gravel or drill cuttings opposite the zones of consolidated rock. The top of the sand, gravel or cutting fill shall be at least ten feet below the top of the consolidated rock or five feet below the bottom of the casing. The remainder of the Transient Non-Community water supply well shall be filled with cement grout or bentonite grout only. For any Transient Non-Community water supply well in which the depth of casing or the depth to the bedrock is not known or cannot be confirmed, the entire depth of the Transient Non-Community water supply well shall be filled with cement grout or bentonite grout up to land surface.
  - b. Transient Non-Community water supply wells constructed in unconsolidated rock formations other than bored or hand dug shall be completely filled with neat cement grout or bentonite grout by introducing it through a pipe extending to the bottom of the Transient Non-Community water supply well which can be raised as the Transient Non-Community water supply well is filled.

- c. Gravel packed Transient Non-Community water supply wells in which the casing and screen have not been removed shall be abandoned by injecting neat cement grout or bentonite grout into the Transient Non-Community water supply well filling it from the bottom of the casing to the top.
5. Procedures for permanent abandonment of bored Transient Non-Community water supply wells or cased hand dug Transient Non-Community water supply wells constructed into unconsolidated material.
  - a. Remove all plumbing or piping into the Transient Non-Community water supply well, along with any obstructions inside the Transient Non-Community water supply well.
  - b. Remove as much of the Transient Non-Community water supply well tile casing as possible, but no less than to a depth of three (3) feet below land surface;
  - c. Remove all soil or other subsurface material present down to the top of the remaining Transient Non-Community water supply well casing, and extending to a width of at least twelve (12) inches outside of the Transient Non-Community water supply well casing on all sides
  - d. Fill the Transient Non-Community water supply well up to the top of the remaining casing with cement grout, concrete grout, or bentonite grout.
  - e. Pour a one (1) foot thick concrete grout or cement grout plug that fills the entire excavated area above the top of the casing, including the area extending on all sides of the casing out to a width of at least twelve (12) inches on all sides.
  - f. Complete the abandonment process by filling the remainder of the Transient Non-Community water supply well above the concrete or cement plug with additional concrete grout, cement grout, or soil.
6. Procedures for permanent abandonment of uncased hand dug Transient Non-Community water supply wells constructed into unconsolidated material.
  - a. Remove all plumbing or piping into the Transient Non-Community water supply well, along with any obstructions inside the Transient Non-Community water supply well.

- b. Remove all soil or other subsurface material present down to a depth of three (3) feet below land surface and extending to a width of at least twelve (12) inches outside of the Transient Non-Community water supply well diameter on all sides.
  - c. Fill the Transient Non-Community water supply well up to the top of the original diameter with cement grout, concrete grout, bentonite grout, or dry clay compacted in place.
  - d. Pour a one (1) foot thick concrete grout or cement grout plug that fills the entire excavated area above the top of the original diameter, including the area extending on all sides of the original diameter out to a width of at least twelve (12) inches on all sides.
  - e. Complete the abandonment process by filling the remainder of the Transient Non-Community water supply well above the concrete or cement plug with additional concrete grout, cement grout, or soil.
7. Procedures for permanent abandonment of contaminated Transient Non-Community water supply wells.
- a. All casing and screen materials may be removed prior to initiation of abandonment procedures if such removal will not cause or contribute to contamination of the groundwater. Any casing not grouted in accordance with 15A NCAC 2C .0107(e) shall be removed or properly grouted.
  - b. The entire depth of the Transient Non-Community water supply well shall be sounded before it is sealed to ensure freedom from obstructions that may interfere with sealing operations.
  - c. In the case of gravel-packed Transient Non-Community water supply wells in which the casing and screens have not been removed, neat-cement, or bentonite grout shall be injected into the Transient Non-Community water supply well completely filling it from the bottom of the casing to the top.
  - d. Transient Non-Community water supply wells constructed in unconsolidated formations shall be completely filled with cement grout, or bentonite grout by introducing it through a pipe extending to the bottom of the Transient Non-Community water supply well which can be raised as the Transient Non-Community water supply well is filled.

- e. Transient Non-Community water supply wells constructed in consolidated rock formations or that penetrate zones of consolidated rock shall be filled with cement grout or bentonite grout by introducing it through a pipe extending to the bottom of the Transient Non-Community water supply well which can be raised as the Transient Non-Community water supply well is filled. The top of the cement grout or bentonite grout shall extend up to land surface.
- (C) The Owner shall be responsible for permanent abandonment of a Transient Non-Community water supply well except that:
- 1. The water supply well contractor is responsible for Transient Non-Community water supply well abandonment if abandonment is required because the water supply well contractor improperly locates, construct, repairs or completes the Transient Non-Community water supply well. The water supply well contractor shall permanently abandon any Transient Non-Community water supply well in which the casing has not been installed or from which the casing has been removed prior to removing his equipment from the site.
  - 2. The pump installer is responsible for Transient Non-Community water supply well abandonment if abandonment is required because of improper Transient Non-Community water supply well pump installation, repair, or removal. A certified water supply well contractor must abandon the Transient Non-Community water supply well.
- (D) Any Transient Non-Community water supply well not in compliance with the conditions for temporary abandonment shall be brought into compliance or permanently abandoned within thirty days of receipt of notice from the Director.
- (E) Any Transient Non-Community water supply well whose construction would have a propensity to transfer contamination to the groundwater shall be repaired so that it will not act as a source or channel of contamination to the groundwater, or permanently abandoned within thirty days of receipt of notice from the Department. The person abandoning the Transient Non-Community water supply well shall provide a minimum 24 hour notice to the Department prior to commencement of permanent abandonment procedures.
- (F) Where a new Transient Non-Community water supply well or public water supply is replacing an old Transient Non-Community water supply well and the Owner wishes to continue using the old Transient Non-Community water supply well for irrigation or other uses, the old Transient Non-Community water supply well may

not be connected to the primary water supply system in any way and must conform with Section VIII (E) of this Chapter.

- (G) Where a new private Transient Non-Community water supply well or public water supply is replacing an existing Transient Non-Community water supply well in which contamination has been confirmed through analyses, the existing Transient Non-Community water supply well shall be permanently abandoned.
- (H) The Director shall have the right to enter any property for the purpose of determining whether or not there may be an improperly abandoned Transient Non-Community water supply well on the property.
- (I) The well contractor shall contact the Department to schedule an abandonment inspection before abandoning a Transient Non-Community water supply well. Contact shall include the location, permit number and anticipated time for abandoning each Transient Non-Community water supply well. The inspections shall be scheduled during regular Mecklenburg County work hours on regular workdays according to the Well Regulation Notification Policy.

*History Note: Authority G.S. 87- 85; 87-87; 87-88  
Reference (15A NCAC 02C .0113)*

#### SECTION IX RECORDS REQUIRED

- (A) Reports
  1. Any Person performing Transient Non-Community water supply well contractor activities in Mecklenburg County shall submit to the Director and to the Transient Non-Community water supply well Owner, a record of construction, repair, or abandonment to include the Owner's name, the Transient Non-Community water supply well's location, size and depth, the casing materials and depth, depth of water bearing zones, the method of finishing, the method of repairing, the method of abandoning, static water level, pumping water level, yield and pump type.
  2. Any Person installing a pump or equipment in a Transient Non-Community water supply well must be registered with the Department and shall be listed separately on the record of construction as having installed the pump.
  3. The reports required in Section IX shall be submitted within 15 days after completing construction, repair, abandonment, or pump installation.

4. Reports shall be certified by the water supply well contractor or pump installer completing the construction, repair, abandonment, or pump installation.

SECTION X TRANSIENT NON-COMMUNITY WATER SUPPLY WELL  
COMPLETION AND CERTIFICATION

- (A) After receiving a permit to construct a Transient Non-Community water supply well, the property Owner or Owners legal agent shall notify the Department prior to Transient Non-Community water supply well construction if any of the following occur:
1. The separation criteria specified in Chapter II Section IV cannot be met.
  2. The residence or other structure is located other than; indicated on the permit;
  3. The use of the structure is changed from the use; specified on the permit;
  4. The septic system needs to be changed from the location indicated on the permit;
  5. Landscaping changes have been made that may affect the integrity of the Transient Non-Community water supply well;
  6. There are current or pending restrictions regarding groundwater sue as specified in G.S. 87-88(a);
  7. The water source of any Transient Non-Community water supply well intended for water supply is adjacent to any water-bearing zone suspected or known to be contaminated; or
  8. Any other changes occur in the information provided in the application for the Transient Non-Community water supply well permit.
- (B) The well contractor shall Maintain a copy of the Transient Non-Community water supply well construction permit or repair permit on the job site at all times during the construction, repair or abandonment of the Transient Non-Community water supply well. The well contractor shall meet all the conditions of the permit.

- (C) Upon completion of construction of a Transient Non-Community water supply well, the Department shall complete an “as built” drawing of the Transient Non-Community water supply well location. The well contractor shall submit a copy of Transient Non-Community water supply well construction Record to the Department. Upon completion of construction or repair of a Transient Non-Community water supply well for which a permit is required, the Department will inspect the Transient Non-Community water supply well and issue a Certificate of Completion. Prior to issuance of a Certificate of Completion, the Department shall:
1. verify that the Transient Non-Community water supply well was constructed in the designated area and according to the Transient Non-Community water supply well construction permit and the rules of this Chapter.
  2. inspect the grout around the casing
  3. inspect the Transient Non-Community water supply wellhead after the Transient Non-Community water supply well seal is in place
  4. obtain a Transient Non-Community water supply well construction record from the Certified Well Contractor
  5. obtain a bacteriological analysis that is absent of coliform bacteria
  6. obtain a nitrate and nitrite analysis that does not exceed the Maximum Contaminant levels (MCLs) for public drinking water, as defined in 40 Code of Federal Regulations 141.
- (D) No person shall place a Transient Non-Community water supply well into service without first having obtained a Certificate of Completion

*Authority G.S. 87-87; 87-88*  
*Reference (15A NCAC 02C .0306)*

<b>Table 1</b>	
<b>Minimum Wall Thickness for Steel Casing</b>	
Nominal Diameter (inches)	Wall Thickness (inches)
For 3 ½ or smaller pipe, schedule 40 is required	
4	0.142
5	0.156
5 ½	0.164
6	0.185
8	0.250
10	0.279
12	0.330
14 and larger	0.375

**CHAPTER V  
WATER SUPPLY STANDARDS**

**SECTION I STANDARDS**

- (A) The Water Supply Standards for the protection of the Water Supply in Mecklenburg County are those specified in subsections (B), (C) and (D) below. They are the maximum allowable concentrations of any substance or combination of substances in the groundwater of the County, which may be tolerated without creating a threat to human health or which would otherwise render the groundwater unsuitable for its usage as a water supply.
- (B) The Water Supply Standards are (1) those defined in 40 Code of Federal Regulations 141 and 143 (National Primary Drinking Water Standards; National Secondary Drinking Water Standards) (“40 CFR 141,143”), and (2) for those contaminants for which no standards are contained in 40 CFR 141,143.
- (C) Those contained in 15A NCAC 2L .0202 (g), (h) or (i).
- (D) The Water Supply Standards for contaminants specified in 15A NCAC 2L .0202 (g), (h) or (i) (“2L Standard”) shall be as listed, except that:
1. Where the 2L Standard for a substance is less than the practical quantitation limit, the detection of that substance at or above the practical quantitation limit shall constitute a violation of the Water Supply Standards.
  2. Where two or more substances exist in combination below the 2L Standards, the Water Supply Standard for the substances shall be as determined by the Division of Epidemiology to be protective of human health.
  3. Where an interim maximum allowable concentration has been established by the NCDENR pursuant to 15A NCAC 2L .0202 (c) such concentration shall constitute a violation of the Water Supply Standards.
  4. Except for tracers used in concentrations which have been determined by the Division of Epidemiology to be protective of human health, and the use of which has been permitted by the NCDENR, detectible concentrations of substances which are not naturally occurring and for which no standard is specified shall constitute a violation of the Water Supply Standards .
- (E) Parameters exceeding the concentrations listed in the National Secondary Drinking Water Standards will not constitute a violation of the Water Supply Standards for the purpose of requiring the abandonment of the water supply well or treatment of the raw well water prior to usage.

**CHAPTER VI  
CONSTRUCTION, REPAIR, AND ABANDONMENT FOR MONITORING,  
INJECTION AND RECOVERY WELLS**

**SECTION I      REGISTRATION**

- (A) The Owner of a monitoring, injection or recovery well installed prior to January 1, 2005 must register the monitoring, injection or recovery well with the Department by submitting the following information on forms provided by the Department:
1. Names, addresses and phone numbers of the monitoring, injection or recovery well Owner and/or legal agent of the property Owner.
  2. Address and tax parcel number of the property for the monitoring, injection or recovery well (s).
  3. Number of monitoring, injection or recovery wells located on the property.
  4. Use of the monitoring, injection or recovery well (monitoring, injection, recovery etc.).
  5. Violations of the Groundwater Standard referenced in Chapter V of these Regulations.
- (B) Monitoring, injection and recovery wells must be registered every 12 months. The registration shall be submitted on forms to be supplied by the Department during the period from January 1 to January 31 of each year or such time as the Department designates.
- (C) A non-refundable fee as specified in the fee schedule shall be submitted with each registration if applicable.
- (D) The Owner of a monitoring, injection or recovery well installed or repaired after January 1, 2005 must register the monitoring, injection or recovery well with the Department by completing the following Application and Permit process.

## SECTION II    APPLICATION

- (A) On or after January 1, 2005 any entity seeking to install a monitoring, injection, or recovery well(s) must file an application, with the Department in order to receive a subsurface investigation permit. The permit must be obtained prior to the start of monitoring, injection or recovery well installation.
- (B) Applications for monitoring, injection or recovery well construction and abandonment shall be submitted on forms to be supplied by the Department.
- (C) A monitoring well open more than five days is a permanent monitoring well and must be registered with the Department within 30 days by submitting the following information on forms provided by the Department:
  - 1. Names, addresses and phone numbers of the monitoring, injection or recovery well Owner and/or legal agent of the property Owner.
  - 2. Address and tax parcel number of the property for the monitoring injection or recovery well (s).
  - 3. Number of monitoring, injection or recovery wells located on the property.
  - 4. Use of the monitoring, injection or recovery well (monitoring, injection, recovery etc.).
  - 5. Violations of the Groundwater Standard referenced in Chapter V of these Regulations.
- (D) A monitoring, injection or recovery well closed within five days is a temporary monitoring, injection or recovery well. Notification of completion of the subsurface investigation, the type and number of monitoring, injection or recovery wells installed, the date of installation and the date of abandonment must be provided the Department within 30 days of monitoring, injection or recovery well abandonment.

### SECTION III PERMITS

#### (A) Subsurface Investigation Permits

1. It shall be unlawful for any Person to commence any well contractor activities in Mecklenburg County without first obtaining a permit from the Director. The monitoring, injection or recovery well Owner or their authorized legal agent shall obtain the permit. The permit is valid for one year from date of issuance. If construction has not been commenced within one year from the date of issuance of the permit, the permit then becomes invalid. When a permit has become invalid, construction may not be commenced until a new permit is issued.
2. A copy of the permit must be on site during the construction, or abandonment of any monitoring, injection or recovery well.
3. A Department representative is authorized to witness any portion of the drilling or construction process, or abandonment of any monitoring, injection or recovery well in Mecklenburg County as part of the inspection. Failure of the Owner or contractor to allow inspection of any material or observation of any drilling or construction, or abandonment of any monitoring, injection or recovery well in Mecklenburg County will be grounds for the revocation of the permit.
4. Failure to comply with these Regulations authorizes the Director to revoke any permits issued pursuant to these Regulations.

### SECTION IV PERMANENT MONITORING, INJECTION AND RECOVERY WELLS

#### (A) Permanent monitoring, injection, and recovery wells are required to be registered with the Department.

1. It shall be the responsibility of the monitoring, injection or recovery well Owner or their legal agent to provide the Department with complete information on the total number of monitoring, injection or recovery wells installed, their type, purpose and location.
2. Registration information must be provided in the manner and format proscribed by the Department including but not limited to the site name, location, type of monitoring, injection or recovery well, Owner, name and

address of the monitoring, injection or recovery well contractor and/or the consultant.

3. Registration information must be submitted within thirty (30) days of monitoring, injection or recovery well completion.
- (B) It shall be the responsibility of the monitoring, injection or recovery well Owner or their legal agent to annually update the monitoring, injection or recovery well status and changes to Groundwater Quality Standards referenced in Chapter V of these Regulations.
  - (C) It shall be the responsibility of the monitoring, injection or recovery well Owner or their legal agent to provide the Department with monitoring, injection or recovery well abandonment records within thirty (30) days of abandonment completion.

#### SECTION V STANDARDS OF CONSTRUCTION

- (A) No monitoring, injection or recovery well shall be located, constructed, operated, or repaired in any manner that may adversely impact the quality of groundwater.
- (B) Injection wells shall conform to the standards set forth in 15A NCAC 2C .0200
- (C) Monitoring wells and recovery wells shall be located, designed, constructed, operated and abandoned with materials and by methods, which are compatible with the chemical and physical properties of the contaminants involved, specific site conditions and specific subsurface conditions. The following general requirements will apply:
  1. The borehole shall not penetrate to a depth greater than the depth to be monitored or the depth from which contaminants are to be recovered.
  2. The monitoring, injection or recovery well shall not hydraulically connect: separate aquifers; or those portions of a single aquifer where known or suspected contamination would occur in separate and definable layers within the aquifer.
  3. The monitoring, injection or recovery well construction materials shall be compatible with the depth of the monitoring, injection or recovery well and the contaminants to be monitored or recovered.

4. The monitoring, injection or recovery well shall be constructed and maintained in such a manner that water or contaminants from the land surface cannot migrate along the borehole annulus into any packing material or monitoring, injection or recovery well screen area.
5. Packing material placed around the screen shall extend at least one foot above the top of the screen. Unless the depth of the screen necessitates a thinner seal; a one foot thick seal, comprised of bentonite clay or other material approved by the Director, shall be emplaced directly above and in contact with the packing material.
6. Grout shall be placed in the annular space between the outermost casing and the borehole wall from the land surface to the top of the bentonite clay seal above any monitoring, injection or recovery well screen or to the bottom of the casing for open end monitoring, injection or recovery wells. To provide stability for the monitoring, injection or recovery well casing, the uppermost three feet of grout below land surface must be a concrete or cement-type grout.
7. All monitoring, injection or recovery wells shall be secured, with a locking monitoring, injection or recovery well cap, to reasonably ensure against unauthorized access and use.
8. All monitoring, injection or recovery wells shall be afforded reasonable protection against damage during construction and use.
9. Any monitoring, injection or recovery wells that would flow under natural artesian conditions shall be valved so that the flow can be regulated.
10. The monitoring, injection or recovery well casing shall be terminated no less than 12 inches above land surface datum unless both of the following conditions are met:
  - a. site-specific conditions directly related to business activities, such as vehicle traffic, would endanger the physical integrity of the monitoring, injection or recovery well; and
  - b. the monitoring, injection or recovery well head is completed in such a manner so as to preclude surficial contaminants from entering the monitoring, injection or recovery well.

11. Each well shall have securely affixed an identification plate constructed of a durable material and shall contain the following information:
  - a. drilling contractor, or pump installation contractor, name and applicable certification or registration numbers; date monitoring, injection or recovery well completed; total depth of monitoring, injection or recovery well;
  - b. a warning that the monitoring, injection or recovery well is not for water supply and that the groundwater may contain hazardous materials; and
  - c. depth(s) to the top(s) and bottom(s) of the screen(s).
12. Each monitoring, injection or recovery well shall be developed such that the level of turbidity or settleable solids does not preclude accurate chemical analyses of any fluid samples collected.
13. Monitoring, injection or recovery wells constructed for the purpose of monitoring or testing for the presence of liquids associated with tanks regulated under 15A NCAC 02N (Criteria and Standards Applicable to Underground Storage Tanks) shall be constructed in accordance with 15A NCAC 02N .0504.
14. Monitoring, injection or recovery wells constructed for the purpose of monitoring for the presence of vapors associated with tanks regulated under 15A NCAC 02N shall:
  - a. be constructed and maintained in such a manner as to prevent the entrance of surficial contaminants or water into or alongside the monitoring, injection or recovery well casing; and
  - b. be provided with a lockable cap in order to reasonably ensure against unauthorized access and use.
15. Non-water supply monitoring, injection or recovery wells shall be constructed and abandoned in such a manner as to preclude the vertical migration of contaminants within and along the borehole channel
16. For monitoring, sand-or gravel packed monitoring, injection or recovery wells, centering guides must be evenly distributed in the borehole.

*Reference (15A NCAC 02C .0108)*

## SECTION VI ABANDONMENT

- (A) Procedures for permanent abandonment of monitoring, injection and recovery wells.
1. All casing and screen materials may be removed prior to initiation of abandonment procedures if such removal will not cause or contribute to contamination of the groundwater. Any casing not grouted in accordance with 15A NCAC 2C .0107(e) shall be removed or properly grouted.
  2. The entire depth of the monitoring, injection and recovery well shall be sounded before it is sealed to ensure freedom from obstructions that may interfere with sealing operations.
  3. In the case of gravel-packed monitoring, injection and recovery wells in which the casing and screens have not been removed, neat-cement, or bentonite grout shall be injected into the monitoring, injection and recovery well completely filling it from the bottom of the casing to the top.
  4. Monitoring, injection and recovery wells constructed in unconsolidated formations shall be completely filled with cement grout, or bentonite grout by introducing it through a pipe extending to the bottom of the monitoring, injection and recovery well which can be raised as the monitoring, injection or recovery well is filled.
  5. Monitoring, injection and recovery wells constructed in consolidated rock formations or that penetrate zones of consolidated rock shall be filled with cement grout or bentonite grout by introducing it through a pipe extending to the bottom of the monitoring, injection or recovery well which can be raised as the monitoring, injection or recovery well is filled. The top of the cement grout or bentonite grout shall extend up to land surface.

*Reference (15A NCAC 02C .0113)*

## SECTION VII INSPECTION AND FEES

- (A) The Department shall conduct random inspections of new and existing monitoring, injection, and/or recovery wells to ensure the conditions of Section V and Section VI of this Chapter are met.
- (B) The Director shall have the right to enter any property for the purpose of identifying the location and to evaluate the condition of existing monitoring, injection and recovery wells on the property.
- (C) The Department shall conduct compliance audits to identify the location and evaluate the condition of existing monitoring, injection and recovery wells. If the Department identifies a monitoring, injection and recovery well that is not registered the monitoring, injection or recovery well Owner and/or property Owner shall pay the full registration fee plus a compliance inspection fee within thirty (30) days of notification.
- (D) Following the inspection, the Department shall notify the monitoring, injection or recovery well Owner and/or property Owner of its findings and any requirements for repair. The monitoring, injection or recovery well Owner and/or property Owner shall have thirty days from the date of notification to conduct any required repairs or to properly abandon the monitoring, injection or recovery well(s).
- (E) Monitoring, injection, and recovery wells in existence prior to January 1, 2005 must pay the appropriate annual registration fee. Registration fees for existing monitoring, injection or recovery wells shall be waived until July 1, 2005 if the existing well(s) is registered by July 1, 2005.
- (F) Annual registration fees must be paid by the monitoring, injection or recovery well Owner, or their legal agent for all active monitoring, injection, or recovery wells. Fees must be paid between September 1 and October 1 of each year the monitoring, injection or recovery wells are active.
- (G) Permanent monitoring, injection and recovery wells installed by a State or federal entity shall be exempt from registration fee requirements when
  1. acting as the lead at an orphan site
  2. conducting remedial activities at an orphan site, or

3. investigating a contamination incident for purposes of determining the responsible party.

SECTION VIII PETROLEUM UNDERGROUND STORAGE TANK MONITORING,  
INJECTION AND RECOVERY WELL EXEMPTIONS

- (A) Monitoring, injection and recovery wells installed at petroleum UST contamination sites classified as High Risk are exempt from Mecklenburg County Well Regulations so long as the site is in compliance with NCDENR requirements for well construction and maintenance. All other UST contamination sites, regardless of risk ranking or No Further Action status are required to comply with Mecklenburg County Well Regulations. For sites ranked High Risk, if the risk ranking is lowered, the site is then required to comply with Mecklenburg County Well Regulations within sixty (60) days, including but not limited to the annual registration fee and well maintenance rules.
- (B) This exemption can be repealed by the Department on a site-by-site basis if NCDENR notifies the Department in writing that a contamination site is not in compliance with NCDENR requirements for well construction and maintenance. If the exemption is repealed all applicable Mecklenburg County registration fees and maintenance requirements will be applicable.

## CHAPTER VII

### AREAS OF REGULATED GROUNDWATER USAGE

#### SECTION I ESTABLISHMENT OF AN AREA OF REGULATED GROUNDWATER USAGE

- (A) The Department shall establish an Area of Regulated Groundwater Usage when:
- 1 a violation of the groundwater standards as referenced in 15A NCAC 2L .0202 (g), (h) or (i) as applicable, or
  - 2 soil contamination in exceedance of the Soil-to-Groundwater Maximum Soil Contaminant Concentration as referenced in 15A NCAC 2L .0115 (m) has occurred, or in violation of 15A NCAC 2L .0202 or in violation of the Oil Pollution Hazardous Substances Control Act of 1978, or
  - 3 such an area is deemed necessary by the Director to protect public health.
- (B) The Area of Regulated Groundwater Usage shall extend 1,500 feet around:
1. the boundary of a defined or partially defined contaminant plume and include the zone in which the contaminant exists; or
  2. the edge of the contaminant source area, including the source area itself, if the contaminant plume has not been defined or partially defined; or
  3. the property boundary of the contamination site, including the contamination site itself, if the source area of the contaminant is unknown and the contaminant plume has not been defined or partially defined.
- (C) The Department may amend the shape or size of the Area of Regulated Groundwater Usage when deemed necessary by the Department because:
1. of changes in groundwater usage, or
  2. of changes in hydrogeologic conditions, or
  3. of a determination by the Director as being necessary to protect public health.

- (D) The Department shall maintain public records identifying parcels subject to the restrictions imposed by areas of regulated groundwater usage. The Department shall make these records available to the public.

SECTION II REPEAL OF AN AREA OF REGULATED GROUNDWATER USAGE

- (A) When, to the satisfaction of the Department, it has been demonstrated that a contamination site and the groundwater quality has been restored to its natural state, the Area of Restricted Groundwater Usage may be repealed by the Department.

SECTION III REQUIREMENTS FOR NEW WATER SUPPLY WELLS WITHIN AN AREA OF REGULATED GROUNDWATER USAGE

- (A) If a public water supply (exclusive of Transient and Non Transient water supply wells) is available, then:
1. a new well will not be permitted 1,000 feet or less from:
    - a. the boundary of a defined or partially defined contaminant plume; or
    - b. the edge of the contaminant source area, if the contaminant plume has not been defined or partially defined; or
    - c. the property boundary of the contamination site, if the source area of the contaminant is unknown and the contaminant plume has not been defined or partially defined
  2. a new well may be permitted at distances greater than 1,000 feet and up to and including 1,500 feet from:
    - a. the boundary of a defined or partially defined contaminant plume; or
    - b. the edge of the contaminant source area, if the contaminant plume has not been defined or partially defined; or
    - c. the property boundary of the contamination site, if the source area of the contaminant is unknown and the contaminant plume has not been defined or partially defined
  3. a well permitted within the zone defined in Section IV (A) 2 of this Chapter will require:

- a. compliance with well construction standards in Chapter II of these Regulations
  - b. grouting the full extent of the casing
  - c. an initial water sample following well completion per the provisions in Chapter II Section VI Sampling. In addition the water sample must be analyzed for the contaminant(s)-of-concern. A Certified Laboratory must perform the analysis. The analysis must be submitted to the Department for review and approval prior to the well being placed in service.
  - d. biannual sampling (every two years) and analysis for the contaminant(s)-of-concern. A Certified Laboratory must perform the analysis. The analysis must be submitted to the Department within 24 hours if any contaminant is detected. All reports of sample analysis shall be kept by the well Owner for at least six years and provided to the Department upon request. Or the Owner may submit all analytical reports. Sampling is the responsibility of the Owner of the well.
4. the Department may waive or modify sampling requirements on a well by well basis if:
- a. it can be demonstrated that a non-impacted well of similar dimensions to the subject well exist between the contamination plume and the new well, or
  - b. a hydrogeologic review of the Area of Regulated Groundwater Usage, conducted by a North Carolina Professional Engineer or Licensed Geologist and presented to the Department, indicates that the well is not at risk of being impacted by the contamination plume. The Department must concur with the findings of the review before modification to the sampling schedule may be granted.
5. a new well determined to contain a contaminant must be treated to remove the contaminant(s)-of-concern, such that the water would be considered potable, for as long as the well is active and the raw water contains the contaminant(s)-of-concern. A notice of Groundwater Contamination must be notarized and recorded with the Register of Deeds prior to the Department issuing a Certificate of Completion and the well being placed in service.
6. treated water must be sampled according to manufacturer's specifications to insure the treatment system is functioning as designed. The period of sampling shall be sufficient to insure against contaminant breakthrough.

7. the water sample must be analyzed for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. Sample results must be submitted to the Department for review.
  8. treatment is the responsibility of the responsible party except under the following condition:
    - a. the contaminant(s) identified in the water sample taken from the subject well is not associated with the contaminant released by the Responsible Party.
  9. in instances where a contaminant(s) detected in a water sample is not associated with the contaminant released by the responsible party or where no responsible party has been identified, the well Owner is responsible for water treatment.
  10. a well which contains contaminant(s), but is not active must be permanently abandoned per provisions of Chapter II Section VIII paragraph B (7) of these Regulations.
- (B) If a public water supply is not available, then:
1. a new well may be permitted inside the Area of Regulated Groundwater Usage so long as the well is located outside the defined or partially defined contaminant plume and the well location meets all other site and setback requirements listed in Chapter II of these Regulations.
  2. a new well constructed within an Area of Regulated Groundwater Usage will require:
    - a. compliance with the well construction standards in Chapter II of these Regulations
    - b. grouting the full extent of the casing
    - c. an initial water sample following well completion per the provisions in Chapter II Section VI Sampling. In addition the water sample must be analyzed for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. The analysis must be submitted to the Department for review and approval prior to the well being placed in service.
    - d. biannual sampling (every two years) and analysis for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis.

The analysis must be submitted to the Department within twenty-four hours if any contaminant is detected. All reports of sample analysis shall be kept by the responsible party for at least six years and provided to the Department upon request. Biannual sampling is the responsibility of the contamination plumes responsible party.

3. the Department may waive or modify periodic sampling requirements on a well by well basis if:
  - a. it can be demonstrated that a non-impacted well of similar dimensions to the subject well exist between the contamination plume and the subject well, or
  - b. a hydrogeologic review of the Area of Regulated Groundwater Usage, conducted by a North Carolina Professional Engineer or Licensed Geologist and presented to the Department, indicates that the well is not at risk of being impacted by the contaminant plume. The Department must concur with the findings of the review before modification to the sampling schedule may be granted.
4. if the contamination site in question is an orphan site with the State or federal government acting in place of the responsible party, or if no responsible party has been assigned then periodic sampling may be completed by the Department if funding is available. Otherwise, periodic sampling and analysis becomes the responsibility of the well Owner. A laboratory certified by the State must perform the analysis. The analysis must be submitted to the Department for review.
5. water from a new well that is determined to contain a contaminant(s) must be treated to remove the contaminant(s)-of-concern, such that the water would be considered potable, for as long as the well is active and the raw water contains the contaminant(s)-of-concern. A notice of Groundwater Contamination must be notarized and recorded with the Register of Deeds prior to the Department issuing a Certificate of Completion and the well being placed in service.
6. treated water must be sampled according to manufacturer's specifications to insure the treatment system is functioning as designed. The period of sampling shall be sufficient to insure against contaminant breakthrough.
7. the water sample must be analyzed for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. Sample results must be submitted to the Department for review.

8. treatment is the responsibility of the responsible party except under the following condition:
  - a. the contaminant(s) identified in the water sample taken from the subject well is not associated with the contaminant released by the Responsible Party.
9. in instances where a contaminant(s) detected in a water sample is not associated with the contaminant released by the responsible party or where no responsible party has been identified, the well Owner is responsible for water treatment.
10. a well which contains contaminant(s), but is not active must be permanently abandoned per provisions of Chapter II Section VIII paragraph B (7) of these regulations.

SECTION IV REQUIREMENTS FOR EXISTING WATER SUPPLY WELLS  
WITHIN AN AREA OF REGULATED GROUNDWATER USAGE.

- (A) An existing water supply well located within an Area of Regulated Groundwater Usage will require:
1. an initial water sample following identification of the contaminant. The water sample must be analyzed for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. The analysis must be submitted to the Department for review.
  2. biannual sampling (every two years) and analysis for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. The analysis must be submitted to the Department for review. Biannual sampling is the responsibility of the contaminant plumes responsible party.
  3. the Department may waive or modify sampling requirements on a well by well basis if:
    - a. it can demonstrated that a non-impacted well of similar dimensions to the subject well exist between the contaminant plume and the subject well, or
    - b. a hydrogeologic review of the Area of Regulated Groundwater Usage, conducted by a North Carolina Professional Engineer or a North Carolina Licensed Geologist and presented to the Department, indicates that the well is not at risk of being impacted by the contaminant plume. The

Department must concur with the findings of the review before modification to the sampling schedule may be granted.

4. if the contamination site in question is an orphan site with the State or federal government acting in place of the responsible party, or if no responsible party has been assigned then periodic sampling may be completed by the Department if funding is available. Otherwise, sampling and analysis becomes the responsibility of the well Owner. The water sample must be analyzed for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. The analysis must be submitted to the Department for review.
5. water from an existing water supply well that is determined to contain a contaminant(s) must be treated to remove the contaminant(s)-of-concern, such that the water would be considered potable, for as long as the well is active and the raw water contains the contaminant(s)-of-concern. A notice of Groundwater Contamination must be notarized and recorded with the register of Deeds.
6. treated water must be sampled according to manufacturer's specifications to insure the treatment system is functioning as designed. The period of sampling shall be sufficient to insure against contaminant breakthrough.
7. the water sample must be analyzed for the contaminant(s)-of-concern. A laboratory certified by the State must perform the analysis. Sample results must be submitted to the Department for review.
8. treatment is the responsibility of the responsible party except under the following condition:
  - a. the contaminant(s) identified in the water sample taken from the subject well is not associated with the contaminant released by the Responsible Party.
9. in instances where a contaminant(s) detected in a water sample is not associated with the contaminant released by the responsible party or no responsible party has been identified the well Owner is responsible for water treatment.
10. a well which contains a contaminant(s) but is not active must be permanently abandoned per provisions of Chapter II Section VIII paragraph B (7).

## CHAPTER VIII

### ENFORCEMENT

#### SECTION I PENALTIES

- (A) Any Person who violates any of the provisions of these Regulations is subject to a criminal penalty. Any Person who willfully violates any provision of these Regulations, or any order issued by the Director pursuant thereto, shall be guilty of a misdemeanor punishable by a fine not to exceed five hundred dollars or imprisonment not to exceed thirty (30) days.
- (B) Any Person, who violates any of the provisions of these Regulations is subject to a civil penalty. A civil penalty may be assessed from the date the violation first occurs. No penalty shall be assessed until the Person alleged to be in violation has been notified of the violation. The notice of violation shall identify the nature of the violation, set forth those measures necessary to comply with these Regulations and provide a specific time period for compliance. The notice may be served by mail, hand delivery or any other means determined to give actual notice. Refusal to accept the notice shall not relieve the violator of his obligation to comply with these Regulations or to pay such penalty.
- (C) The maximum civil penalty for each violation of these Regulations is \$10,000.00. Each day of violation shall constitute a separate violation.
- (D) In determining the amount of a civil penalty, all relevant mitigating and aggravating factors shall be considered including, but not limited to the following: the degree and extent of harm caused by the violation; the cost of rectifying the damage; whether the violator saved money through noncompliance; whether the violation was committed willfully; whether the violator reported the violation to the Department; and the prior record of the violator in complying or failing to comply with these Regulations or any other local, or State or federal pollution control ordinance or regulation. The amount of per diem penalty set in paragraph (C) of this Section may vary based on the aforementioned relevant mitigating and aggravating factors. The “Mecklenburg County Groundwater Enforcement Guidance” document as approved by the Director will serve as the guiding document for assessment of penalties.

- (E) The Director shall determine the amount of the civil penalty assessment and shall notify the Person responsible for the violation of the amount of the penalty and the reason for assessing the penalty. The notice of assessment shall be issued in writing and sent via registered or certified mail or other means of determined to give actual notice to the Person responsible for the violation and shall direct the violator to either pay the assessment or appeal the assessment as described in Section III of this Chapter within thirty (30) days of receipt of notice. If an alleged violator does not pay a civil penalty assessed by the Director within thirty (30) days after it is due, or does not appeal a civil penalty as provided in Section III of this Chapter, the Director shall request the County Attorney to institute a civil action to recover the amount of the assessment. The civil action shall be brought in Mecklenburg County General Court of Justice or in any other court of competent jurisdiction. A civil action must be filed within three (3) years of the date the assessment was due.
- (F) Civil penalties collected pursuant to these Regulations shall be credited to the Mecklenburg County general fund as non-tax revenue, or to such other fund as determined by the Board of County Commissioners.

## SECTION II INJUNCTIVE RELIEF

- (A) Whenever the Director has reasonable cause to believe that any Person is violating or threatening to violate these Regulations or any term, condition, or provision of an approved permit, the Director may, either before or after the institution of any other action or proceeding authorized by these Regulations, authorize the County Attorney to institute a civil action in the name of Mecklenburg County for injunctive relief to restrain the violation or threatened violation. The action shall be brought pursuant to G.S. 130A-18 in Mecklenburg County Superior Court.
- (B) Upon determination by a court that an alleged violation is occurring or is threatened, the court shall enter such orders or judgments as are necessary to abate the violation or to prevent the threatened violation. The institution of an action for injunctive relief under this section shall not relieve any party to such proceedings from any civil or criminal penalty prescribed for violations of these Regulations.
- (C) The Director shall also have the authority to exercise those remedies listed in G.S. 130A-17, -19 and -20 as necessary to enforce these Regulations or to protect the public health.

### SECTION III APPEAL

(A) Disapproval or modification of well permits

1. The disapproval or modification of any proposed well by the Director shall entitle the Person submitting the Plan ("Petitioner") to a public hearing before the Groundwater Advisory Committee ("Committee") if such Person submits written demand for a hearing to the Clerk of the Committee ("Clerk") within 30 Days after receipt of written notice of the disapproval or modification. The demand for a hearing filed with the Clerk shall be accompanied by a filing fee as established by the Groundwater Advisory Committee. The Committee may order the refund of all or any part of the filing fee if it rules in favor of the Petitioner. Failure to timely file such demand and fee shall constitute a waiver of any rights to appeal under this Chapter and the Groundwater Advisory Committee shall have no jurisdiction to hear the appeal.
2. Within five (5) Days of receiving the demand for a hearing, the Clerk shall notify the Chairman of the Committee ("Chairman") of the demand for hearing. As soon as possible after the receipt of said notice, the Chairman shall set a time and place for the hearing and notify the Petitioner by mail of the date, time and place of the hearing. The time specified for the hearing shall be either at the next regularly scheduled meeting of the Committee from the submission of the notice, or as soon thereafter as practical, or at a special meeting. The hearing shall be conducted by the Committee in accordance with the provisions of Section III (C) of this Chapter.
3. Any party aggrieved by the decision of the Committee with regard to the disapproval or modification of a proposed well following the public shall have thirty (30) Days from the receipt of the decision of the Committee to file a petition for review in the nature of certiorari in Superior Court with the Clerk of the Mecklenburg County Superior Court.

(B) Issuance of a Notice of Violation (including the Assessment of a Civil Penalty)

1. The issuance of a notice of violation with an assessment of a civil penalty by the Director shall entitle the Person responsible for the violation of the Ordinance ("Petitioner") to a public hearing before the Groundwater Advisory Committee ("Committee") if such Person submits written demand for a hearing to the Clerk of the Committee ("Clerk") within thirty (30) Days of the receipt of the notice of violation, assessment of a civil penalty or order of restoration. The demand for a hearing filed with the Clerk shall be accompanied by a filing fee as established by the

Groundwater Advisory Committee. The Committee may order the refund of all or any part of the filing fee if it rules in favor of the Petitioner. Failure to timely file such demand and fee shall constitute a waiver of any rights to appeal under these Regulations and the Groundwater Advisory Committee shall have no jurisdiction to hear the appeal.

2. Within five (5) Days of receiving the Petitioner's demand for a hearing, the Clerk shall notify the Chairman of the Committee ("Chairman") of the request for a hearing. As soon as possible after the receipt of said notice, the Chairman shall set a time and place for the hearing and notify the Petitioner by mail of the date, time and place of the hearing. The time specified for the hearing shall be either at the next regularly scheduled meeting of the Committee from the submission of the notice, or as soon thereafter as practical, or at a special meeting. The hearing shall be conducted pursuant to the provisions of Section III (C) of this Chapter.
3. Any party aggrieved by the decision of the Committee with regard to the issuance of a notice of violation, assessment of civil penalties or order of restoration shall have thirty (30) Days from the receipt of the decision of the Committee to file a petition for review in the nature of certiorari in Superior Court with the Clerk of the Mecklenburg County Superior Court.

(C) Hearing Procedure. The following provisions shall be applicable to any hearing conducted by the Committee pursuant to Section II (A) or (B) or Section IV of this Chapter.

1. At the hearing, Petitioner and the Director shall have the right to be present and to be heard, to be represented by counsel, and to present evidence through witnesses and competent testimony relevant to the issue(s) before the Committee.
2. Rules of evidence shall not apply to a hearing conducted pursuant to these Regulations and the Committee may give probative effect to competent, substantial and material evidence.
3. At least seven (7) Days before the hearing, the parties shall exchange a list of witnesses intended to be present at the hearing and a copy of any documentary evidence intended to be presented unless both parties otherwise agree. The parties shall submit a copy of this information to the Clerk. Additional witnesses or documentary evidence may not be presented except upon consent of both parties or upon a majority vote of a quorum of the Committee.

4. Witnesses shall testify under oath or affirmation to be administered by the Court Reporter or another duly authorized official.
5. The procedure at the hearing shall be such as to permit and secure a full, fair and orderly hearing and to permit all relevant, competent, substantial and material evidence to be received therein. A full record shall be kept of all evidence taken or offered at such hearing. Both the representative for the Department or Director and for the Petitioner shall have the right to cross-examine witnesses.
6. At the conclusion of the hearing, the Committee shall render its decision on the evidence submitted at such hearing and not otherwise.
  - a. If, after considering the evidence presented at the hearing, the Committee concludes by a preponderance of the evidence that the grounds for the Director's actions (including the amount assessed as a civil penalty) with regard to either disapproving or modifying a proposed permit, issuing a notice of violation, assessing a civil penalty, ordering restoration, or granting or denying a request for a variance are true and substantiated, the Committee shall uphold the action on the part of the Director.
  - b. If, after considering the evidence presented at the hearing, the Committee concludes by a preponderance of the evidence that the grounds for the Director's actions (including the amount assessed as a civil penalty) are not true and substantiated, the Committee shall, as it sees fit either reverse or modify any order, requirement, decision or determination of the Director, including granting a variance. If the Committee finds that the violation has occurred, but that in setting the amount of a penalty the Director has not considered or given appropriate weight to either mitigating or aggravating factors, the Committee shall either decrease or increase the per day civil penalty within the range allowed by these Regulations.
  - c. Any decision of the Committee which modifies the amount of the civil penalty shall include, as part of the findings of fact and conclusions of law, findings as to which mitigating or aggravating factors exist and the appropriate weight that should have been given to such factors by the Director in setting the amount of the civil penalty levied against the Petitioner.

7. The Committee shall keep minutes of its proceedings, showing the vote of each member upon each question and the absence or failure of any member to vote. The decision of the Committee shall be based on findings of fact and conclusions of law to support its decision.
8. The Committee shall send a copy of its findings and decision to the Applicant/Petitioner and the Director. If either party contemplates an appeal to a court of law, the party may request and obtain, at that party's own cost, a transcript of the proceedings.
9. The decision of the Committee shall constitute a final decision, subject to the right of the Petitioner or Director to file a petition for review as provided in Section III (B) 3 or Section IV (D) of this Chapter.

#### SECTION IV            VARIANCE

- (A) The Director may grant a variance from any construction standard under these Regulations except those required by State law or regulations. Any variance will be in writing and may be granted upon written application to the Director by the person responsible for the construction of the well for which the variance is sought, if the Director finds facts to support the following conclusions:
1. That the use of the well will not endanger human health and welfare of the groundwater.
  2. That construction in accordance with the standards was not technically feasible in such a manner as to afford a reasonable water supply at a reasonable cost.

The Director may require the variance applicant to submit such information as he deems necessary to make a decision to grant or deny the variance. The Director may impose such conditions on a variance or the use of a well for which a variance is granted as he deems necessary to protect human health and welfare and the groundwater resources. The brief findings of fact supporting any variance shall be in writing and made part of the variance.

- (B) A person requesting a variance to the Mecklenburg Groundwater Well Regulations may first seek the variance from the Director. In the event the Director denies a variance or an aggrieved party disputes the issuance of a variance, the person requesting the variance or the aggrieved party may appeal the Directors decision to the Groundwater Advisory

Committee ("Committee") by submitting written demand for a hearing to the Clerk of the Committee ("Clerk") within 30 Days after receipt of written notice of the Director's action granting or denying the request for a variance. The demand for a hearing filed with the Clerk shall be accompanied by a filing fee as established by the Groundwater Advisory Committee. The Committee may order the refund of all or any part of the filing fee if it rules in favor of the Petitioner. Failure to timely file such demand and fee shall constitute a waiver of any rights to appeal under these Regulations and the Groundwater Advisory Committee shall have no jurisdiction to hear the appeal.

- (C) Within five (5) Days of receiving the demand for a hearing, the Clerk shall notify the Chairman of the Committee ("Chairman") of the demand for a hearing. As soon as possible after the receipt of said notice, the Chairman shall set a time and place for the hearing and notify the Petitioner by mail of the date, time and place of the hearing. The time specified for the hearing shall be either at the next regularly scheduled meeting of the Committee from the submission of the notice, or as soon thereafter as practical, or at a special meeting. The hearing shall be conducted by the Committee in accordance with the provisions of Section III (C) of this Chapter.
- (D) Any party aggrieved by the decision of the Committee with regard to a decision on a variance appeal shall have thirty (30) Days from the receipt of the decision of the Committee to file a petition for review in the nature of certiorari in Superior Court with the Clerk of the Mecklenburg County Superior Court.

## CHAPTER IX

### Groundwater Advisory Committee

#### SECTION I GROUNDWATER ADVISORY COMMITTEE

- (A) A seven member citizens advisory committee shall be established with representatives of the following categories:
1. public – 2 members (individuals to be Owners of a well);
  2. industry, manufacturing, or commercial – 1 member (individual to be employed full time in the management and/or operation of industrial, manufacturing, or commercial property that is the Owner of a well);
  3. environmental consultant – 1 member (individual to be employed full time in providing environmental consulting services to owners of groundwater wells);
  4. health professional – 1 member (individual to receive a recommendation from the Health Committee of the Human Services Council by the Mecklenburg Board of Commissioners);
  5. realtor or developer or land development design professional – 1 member (individual to be employed full time as a Realtor or in land development or the design of building or land improvements);
  6. well contractor or pump installer – 1 member (individual to be employed full time as a well contractor or pump installer);
- (B) The members shall be appointed by the Mecklenburg Board of County Commissioners
- (C) The members will serve staggered three year terms. No member may be appointed to more than two full or partial terms. Any member who fails to attend at least seventy-five percent of the regular and special meetings of the Committee during any calendar year shall be automatically removed from the Committee. The Committee shall select a Chairperson each year as provided in the rule of procedure adopted by the committee from its own members by majority vote. Each member will continue to serve until 1) his or her term has expired and a successor has been appointed; 2) his or her resignation; or

3) his or her removal. If a vacancy on the Committee occurs resulting from resignation or removal, a Person will be appointed to complete the unexpired term associated with such vacant position in the same manner as such position was originally filled. The successor must represent the same category.

(D) A majority of the membership constitutes a quorum. Every action of the Committee requires the concurring votes of the majority present. The Committee may adopt its own rules of procedure which may not be inconsistent with the terms of this Agreement. The responsibilities of the Advisory Committee shall be as follows:

1. Policy. Review and recommend to the Board of County Commissioners groundwater management policies, policy changes, long-range plans, and their budgetary and rate impacts. Hear requests for changes from County staffs and from private parties, and make recommendations to the Board of County Commissioners on the following matters: the application, modification and enforcement of groundwater policies. These policies should be reviewed and evaluated on the basis of a comprehensive groundwater management program in Mecklenburg County.
2. Operations Program. Review and comment to the Board of County Commissioners on the annual operating budget for their respective service charge areas including but not limited to public education activities and customer service.
3. Groundwater Appeals. Hear appeals and reach decisions on: denial, modifications, revocation or issuance of well permits and notices of violations. Hear requests for changes from County staffs and from private parties, and make recommendations to the Board of County Commissioners on the following matters: the application, modification and enforcement of groundwater policies. These policies should be reviewed and evaluated on the basis of a comprehensive groundwater management program in Mecklenburg County.
4. Variations. Hear appeals from the granting or denial of variations by the Director, and grant variations when appropriate.
5. Councils, Commissions, and Staff Resource. Respond to the Board of County Commissioners and staff requests for advice on matters related to the comprehensive groundwater management program in Mecklenburg County.

6. Reporting. Present the Board of County Commissioners with an annual report of key actions and issues.