

8/6/24
agenda

REGULATIONS
GOVERNING
THE
CONSTRUCTION, REPAIR AND ABANDONMENT OF WELLS
IN
WARREN COUNTY, NORTH CAROLINA

WARREN COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH SECTION
WARRENTON, NORTH CAROLINA

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SECTION I GENERAL PROVISIONS

A. AUTHORIZATION. THE WARREN COUNTY BOARD OF HEALTH IS AUTHORIZED UNDER THE PROVISIONS OF CHAPTER 130, SECTION 17, OF THE GENERAL STATUTES OF NORTH CAROLINA TO ADOPT APPROPRIATE RULES AND REGULATIONS FOR THE PROTECTION OF THE PUBLIC HEALTH.

B. PURPOSE. CONSISTENT WITH THE RESPONSIBILITY TO PROTECT AND ADVANCE THE PUBLIC HEALTH, IT IS DECLARED TO BE THE POLICY OF THE WARREN COUNTY BOARD OF HEALTH TO REQUIRE THAT THE LOCATION, CONSTRUCTION, REPAIR AND ABANDONMENT OF WATER SUPPLY WELLS CONFORM TO SUCH REASONABLE STANDARDS AND REQUIREMENTS AS MAY BE NECESSARY TO PROTECT THE PUBLIC HEALTH AND GROUNDWATER RESOURCES.

C. 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 PREVIOUSLY ADOPTED PROCEDURES AND REQUIREMENTS OF THE WARREN COUNTY HEALTH DEPARTMENT ARE SUPERSEDED BY THESE REGULATIONS AND STANDARDS.

D. 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.

E. INSPECTION. BEFORE BEING USED TO SUPPLY WATER FOR HUMAN CONSUMPTION, ALL NEWLY CONSTRUCTED WELLS SHALL BE INSPECTED AND FOUND TO COMPLY WITH THE PROVISIONS OF THIS ORDINANCE. ANY REPAIRS TO A WELL WHICH NECESSITATE BREAKING THE WELL'S SEAL, SHALL BE INSPECTED BY THE HEALTH DEPARTMENT BEFORE USE. THE HEALTH DEPARTMENT SHALL MAKE THESE INSPECTIONS AS SOON AS PRACTICABLE AFTER RECEIVING NOTICE THAT AN INSTALLATION OR REPAIR HAS BEEN MADE.

EMERGENCY REPAIRS THAT ARE MADE OUTSIDE NORMAL WORKING HOURS OF THE HEALTH DEPARTMENT I.E., NIGHTS, WEEK-ENDS, AND HOLIDAYS, SHALL BE INSPECTED ON THE NEXT REGULAR WORKING DAY OR AS SOON AS PRACTICABLE THEREAFTER.

F. APPEALS. ANY PERSON AGGRIEVED BY ANY ACTION OF THE HEALTH DEPARTMENT REPRESENTATIVE WITH REGARD TO WELLS SHALL FIRST CONFER WITH THE LOCAL HEALTH DIRECTOR WHO MAY AFFIRM OR REVERSE THE ORIGINAL DECISION OF THE REPRESENTATIVE. IF THE PERSON IS DISSATISFIED WITH THE HEALTH DIRECTOR'S DECISION, HE SHALL GIVE A WRITTEN NOTICE OF APPEAL TO THE HEALTH DIRECTOR WITHIN FIFTEEN DAYS AFTER THE CONFERENCE WITH THE HEALTH DIRECTOR. THE NOTICE OF APPEAL SHALL SET FORTH THE PERSON'S GRIEVANCES. UPON RECEIVING THIS NOTICE THE HEALTH DIRECTOR SHALL, WITHIN FIVE WORKING DAYS, TRANSMIT TO THE CHAIRMAN OF THE BOARD OF HEALTH THE NOTICE AND ALL OTHER PERTINENT PAPERS. THE BOARD SHALL HOLD A HEARING WITHIN FIFTEEN DAYS AFTER IT RECEIVES THE NOTICE OF APPEAL. THE BOARD SHALL GIVE THE APPELLANT NO LESS THAN FIVE DAYS NOTICE OF THE DATE, TIME, AND PLACE OF THE HEARING. ANY PARTY MAY APPEAR IN PERSON OR BY AGENT OR ATTORNEY. NO PERSON SHALL TAKE ANY ACTION PROHIBITED BY THE HEALTH DEPARTMENT UNTIL THERE IS A FINAL RESOLUTION OF THE GRIEVANCE.

SECTION II DEFINITIONS

A. ABANDONED WELL MEANS A WELL WHOSE USE OR CONSTRUCTION HAS BEEN DISCONTINUED, OR WHICH IS IN SUCH A STATE OF DISREPAIR THAT CONTINUED USE FOR OBTAINING GROUND WATER OR OTHER USEFUL PURPOSE IS IMPRACTICABLE.

1. TEMPORARILY ABANDONED WELL MEANS ANY USABLE WELL WHOSE USE HAS BEEN TEMPORARILY DISCONTINUED BECAUSE OF WELL OR PUMP MAINTENANCE PROBLEMS AND NEWLY CONSTRUCTED WELLS NOT YET PUT INTO SERVICE.
2. PERMANENTLY ABANDONED WELL MEANS ANY WELL REMOVED FROM OR NOT YET PUT INTO SERVICE; OR WHOSE USE IS IMPRACTICABLE BECAUSE OF FAULTY CONSTRUCTION, LOCATION, WATER QUALITY, INSUFFICIENT YIELD, UNSERVICEABLE CASING AND SCREEN; OR WHICH HAS BEEN REMOVED FROM SERVICE BECAUSE IT NO LONGER SERVES ITS INTENDED USE.

B. ABANDON MEANS TO DISCONTINUE THE USE OF AND TO SEAL THE WELL ACCORDING TO THE REQUIREMENTS OF SECTION X OF THESE REGULATIONS.

C. ACCESS PORT MEANS AN OPENING IN THE WELL CASING OR WELL HEAD INSTALLED FOR THE PRIMARY PURPOSE OF DETERMINING THE WATER LEVEL IN THE WELL.

D. AGENT MEANS ANY PERSON WHO BY MUTUAL AND LEGAL AGREEMENT WITH A WELL OWNER HAS AUTHORITY TO ACT IN HIS BEHALF IN EXECUTING APPLICATIONS FOR PERMITS. THE AGENT MAY BE EITHER GENERAL AGENT OR A LIMITED AGENT TO DO ONE PARTICULAR ACT.

E. AQUIFER MEANS A GEOLOGICAL FORMATION, GROUP OF FORMATIONS, OR PART OF A FORMATION THAT WILL YIELD USABLE QUANTITIES OF WATER TO WELLS.

F. BOARD OF HEALTH MEANS THE WARREN COUNTY BOARD OF HEALTH OR ITS OFFICIAL REPRESENTATIVES.

G. CASING MEANS PIPE OR TUBING CONSTRUCTED OF SPECIFIED MATERIALS AND HAVING SPECIFIED DIMENSIONS AND WEIGHTS, 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 UNDESIRABLE WATER.

H. CONSOLIDATED ROCK MEANS ROCK THAT IS FIRM AND COHERENT, SOLIDIFIED OR CEMENTED AND THAT HAS NOT BEEN DECOMPOSED BY WEATHERING. EXAMPLES ARE GRANITE, GNEISS, LIMESTONE, SLATE OR SANDSTONE.

I. WELL CONSTRUCTION INCLUDES ALL ACTS NECESSARY TO CONSTRUCT WELLS FOR ANY INTENDED USE, INCLUDING THE LOCATION AND EXCAVATION OF THE WELL, PLACEMENT OF CASINGS, GROUTING, SCREENS, AND FITTINGS, DEVELOPMENT AND TESTING.

J. CONTAMINATION MEANS THE PRESENCE OF ANY FOREIGN SUBSTANCE (ORGANIC, INORGANIC, RADIOLOGICAL, OR BIOLOGICAL) IN WATER WHICH TENDS TO DEGRADE ITS QUALITY SO AS TO CONSTITUTE A HAZARD OR IMPAIR THE USEFULNESS OF THE WATER.

K. DOMESTIC USE MEANS USE OF WATER FOR DRINKING, BATHING, HOUSEHOLD PURPOSES, LIVESTOCK OR GARDENS.

L. GROUT SHALL MEAN AND INCLUDE THE FOLLOWING:

1. NEAT CEMENT GROUT MEANS A MIXTURE OF NOT MORE THAN SIX GALLONS OF CLEAR WATER TO ONE 95 POUND BAG OF PORTLAND CEMENT. UP TO FIVE PERCENT, BY WEIGHT, OF BENTONITE CLAY MAY BE USED TO IMPROVE FLOW AND REDUCE SHRINKAGE.
2. SAND CEMENT GROUT MEANS A MIXTURE OF NOT MORE THAN TWO PARTS SAND AND ONE PART CEMENT AND NOT MORE THAN SIX GALLONS OF CLEAR WATER PER 95 POUND BAG OF PORTLAND CEMENT.
3. CONCRETE GROUT MEANS A MIXTURE OF NOT MORE THAN TWO PARTS GRAVEL TO ONE PART CEMENT AND NOT MORE THAN SIX GALLONS OF CLEAR WATER PER 95 POUND BAG OF PORTLAND CEMENT. ONE HUNDRED PERCENT OF THE GRAVEL MUST PASS THROUGH A $\frac{1}{2}$ INCH MESH SCREEN.

M. HEALTH DEPARTMENT MEANS THE WARREN COUNTY HEALTH DEPARTMENT, ENVIRONMENTAL HEALTH SECTION.

N. HEALTH DIRECTOR MEANS THE DIRECTOR OF THE WARREN COUNTY HEALTH DEPARTMENT.

O. HEALTH DEPARTMENT REPRESENTATIVE MEANS AN AUTHORIZED AGENT OF THE WARREN COUNTY HEALTH DEPARTMENT, ENVIRONMENTAL HEALTH SECTION.

P. INSTALLING PUMPS AND PUMPING EQUIPMENT MEANS PLACING AND PREPARING PUMPS AND PUMPING EQUIPMENT FOR OPERATION, INCLUDING ALL CONSTRUCTION INVOLVED IN MAKING ENTRANCES TO THE WELL AND ESTABLISHING WELLS.

Q. LINER PIPE MEANS PIPE THAT IS INSTALLED INSIDE A COMPLETED AND CASED WELL FOR THE PURPOSE OF SEALING OFF UNDESIRABLE WATER OR FOR REPAIRING RUPTURED OR PUNCTURED CASING OR SCREENS.

R. NON-POTABLE MINERALIZED WATER MEANS BRACKISH, SALINE, OR OTHER WATER CONTAINING MINERALS OF SUCH QUANTITY OR TYPE AS TO RENDER THE WATER UNSAFE, HARMFUL, OR GENERALLY UNSUITABLE FOR DOMESTIC USE.

S. OWNER MEANS ANY PERSON WHO HOLDS THE FEE OR OTHER OWNERSHIP RIGHTS IN THE WELL BEING CONSTRUCTED. A WELL IS REAL PROPERTY AND ITS CONSTRUCTION ON LAND CREATES A PRESUMPTION THAT THE OWNER OF THE LAND ALSO OWNS THE WELL.

T. PERMIT MEANS A WRITTEN PERMIT ISSUED BY THE HEALTH DEPARTMENT PERMITTING THE CONSTRUCTION OR REPAIR OF ANY WELL AS DEFINED IN THIS ORDINANCE.

U. PERSON MEANS ANY AND ALL PERSON; 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 COUNTRY.

V. POLLUTED WATER MEANS WATER CONTAINING ORGANIC OR OTHER CONTAMINANTS OF SUCH TYPE AND QUANTITY AS TO RENDER IT UNSAFE, HARMFUL OR UNSUITABLE FOR HUMAN CONSUMPTION.

W. PRIVATE WELL WATER SUPPLY MEANS ANY WATER SUPPLY FURNISHING POTABLE WATER TO ONE RESIDENCE OR BUSINESS THAT IS OWNER OCCUPIED, EXCEPT WHERE EITHER MIGHT FURNISH WATER TO PERSONS ON A REGULAR BASIS WHO ARE NOT MEMBERS OF THE HOUSEHOLD OR IMMEDIATE FAMILY.

X. PUBLIC WATER SYSTEM

1. PUBLIC WATER SYSTEM MEANS A SYSTEM FOR THE PROVISION TO THE PUBLIC OF PIPED WATER FOR HUMAN CONSUMPTION IF SUCH SYSTEM HAS AT LEAST FIFTEEN (15) SERVICE CONNECTIONS OR REGULARLY SERVES AN AVERAGE OF AT LEAST TWENTY-FIVE (25) INDIVIDUALS DAILY AT LEAST SIXTY (60) DAYS OUT OF THE YEAR.

2. PUBLIC WATER SYSTEM IS EITHER A "COMMUNITY WATER SYSTEM" OR A "NON-COMMUNITY WATER SYSTEM".

(A) "COMMUNITY WATER SYSTEM" MEANS A PUBLIC WATER SYSTEM WHICH SERVES AT LEAST FIFTEEN (15) SERVICE CONNECTIONS USED BY YEAR-ROUND RESIDENTS OR REGULARLY SERVES AT LEAST TWENTY FIVE (25) YEAR-ROUND RESIDENTS.

(B) "NON-COMMUNITY WATER SYSTEM" MEANS A PUBLIC WATER SYSTEM WHICH IS NOT A COMMUNITY WATER SYSTEM.

Y. PUMPS AND PUMPING EQUIPMENT MEANS THE WELL SEAL AND ANY OTHER EQUIPMENT OR MATERIALS USED OR INTENDED TO BE USED FOR WITHDRAWING OR OBTAINING GROUNDWATER.

Z. REPAIR MEANS WORK INVOLVED IN DEEPENING OR CHANGING DEPTHS, REAMING, SEALING, INSTALLING, PERFORATING, SCREENING OR CLEANING, ACIDIZING OR REDEVELOPING A WELL EXCAVATION OR ANY OTHER WORK WHICH RESULTS IN BREAKING OR OPENING THE WELL SEAL.

AA. UNCONSOLIDATED ROCK FORMATION MEANS THOSE ROCK FORMATIONS THAT ARE NOT SOLID, I.E. SAND, CLAY, SHELL, SAPROLITE OR DECAYING ROCK.

BB. WATER SUPPLY MEANS ANY SOURCE OF GROUNDWATER.

CC. WATER SUPPLY SYSTEM MEANS PUMP AND PIPE USED IN CONNECTION WITH OR PERTAINING TO THE OPERATION OF A WATER SUPPLY, INCLUDING PUMPS, PIPES, PRESSURE TANKS, AND FITTINGS.

DD. WELL MEANS ANY EXCAVATION (1) THAT IS CORED, BORED, DRILLED, JETTED, DUG OR OTHERWISE CONSTRUCTED FOR THE PURPOSE OF LOCATING, TESTING OR WITHDRAWING GROUND-WATER; (2) CONSTRUCTED FOR EVALUATING, TESTING, DEVELOPING, DRAINING, OR RECHARGING ANY GROUND WATER-RESERVOIRS, OR AQUIFERS, OR; (3) THAT MAY CONTROL, DIVERT OR OTHERWISE CAUSE THE MOVEMENT OF WATER FROM OR INTO ANY AQUIFER.

EE. WELL CAPACITY MEANS THE MAXIMUM QUANTITY OF WATER THAT A WELL WILL YIELD CONTINUOUSLY.

FF. WELL DRILLER, DRILLER, OR WATER-WELL CONTRACTOR MEANS ANY PERSON, FIRM OR CORPORATION ENGAGED IN THE BUSINESS OF CONSTRUCTING WELLS.

GG. WELL HEAD MEANS THE UPPER TERMINAL OF THE WELL INCLUDING ADAPTERS, PORTS, VALVES, SEALS, AND OTHER ATTACHMENTS.

HH. WELL SEAL MEANS AN APPROVED ARRANGEMENT OR DEVICE USED TO CAP A WELL OR TO ESTABLISH AND MAINTAIN A JUNCTION BETWEEN THE CASING OR CURBING OF A WELL AND THE PIPING OR EQUIPMENT INSTALLED THEREIN, THE PURPOSE OR FUNCTION OF WHICH IS TO PREVENT POLLUTANTS FROM ENTERING THE WELL AT THE UPPER TERMINAL.

SECTION III DRILLER REGISTRATION

A. EVERY PERSON, FIRM OR CORPORATION ENGAGED IN THE BUSINESS OF USING POWER MACHINERY TO DRILL, BORE, CORE OR CONSTRUCT WELLS IN WARREN COUNTY SHALL REGISTER ANNUALLY WITH THE HEALTH DEPARTMENT.

B. REGISTRATION SHALL BE ACCOMPLISHED DURING THE PERIOD FROM JANUARY 1 TO DECEMBER 31 OF EACH YEAR.

C. REGISTRATION SHALL BE ACCOMPLISHED BY COMPLETING AND SUBMITTING TO THE HEALTH DEPARTMENT A REGISTRATION APPLICATION FORM PROVIDED BY THE HEALTH DEPARTMENT FOR THIS PURPOSE.

D. UPON SUBMITTING A PROPERLY COMPLETED APPLICATION FORM, THE APPLICANT WILL BE ISSUED A CERTIFICATE OF REGISTRATION.

SECTION IV PERMITS

A. IT IS THE FINDING OF THE HEALTH DEPARTMENT THAT THE ENTIRE GEOGRAPHICAL AREA OF WARREN COUNTY IS VULNERABLE TO GROUNDWATER POLLUTION FROM IMPROPERLY LOCATED, CONSTRUCTED, OPERATED, ALTERED, OR ABANDONED WATER AND NON-WATER SUPPLY WELLS. THEREFORE, IN ORDER TO INSURE REASONABLE PROTECTION OF THE GROUNDWATER RESOURCES AND THE PUBLIC HEALTH, PRIOR PERMISSION FROM THE HEALTH DEPARTMENT MUST BE OBTAINED FOR THE CONSTRUCTION OR REPAIR OF THE TYPES OF WELLS LISTED IN (B) OF THIS SECTION. UNLESS OTHERWISE SPECIFIED IN WRITING BY THE HEALTH DEPARTMENT, PERMITS SHALL BECOME INVALID AFTER TWELVE MONTHS FROM THE DATE OF ISSUE IF THE CONSTRUCTION HAS NOT BEEN COMPLETED DURING THAT TIME PERIOD. WHEN A PERMIT HAS BECOME INVALID, THE INSTALLATION SHALL NOT BE COMMENCED OR COMPLETED UNTIL A NEW PERMIT HAS BEEN OBTAINED.

B. IT SHALL BE UNLAWFUL FOR ANY PERSON TO LOCATE, CONSTRUCT, REPAIR ANY OF THE FOLLOWING WELLS IN WARREN COUNTY WITHOUT A PERMIT ISSUED BY THE HEALTH DEPARTMENT:

- (1) ANY WATER WELL OR WELL SYSTEM
- (2) ANY WELL ADDED TO AN EXISTING SYSTEM
- (3) ANY TEST WELL
- (4) ANY MONITORING WELL
- (5) ANY RECOVERY WELL
- (6) ANY WELL INTENDED FOR THE RECOVERY OF MINERALS OR ORES
- (7) ANY GEOPHYSICAL EXPLORATION WELL
- (8) ANY OIL OR GAS EXPLORATION OR RECOVERY WELL
- (9) ANY WELL FOR RECHARGE OR INJECTION PURPOSES
- (10) ANY CATHODIC PROTECTION WELL
- (11) ANY WELL ASSOCIATED WITH A WASTE WATER TREATMENT AND DISPOSAL FACILITY
- (12) ANY WELL WITH A DESIGN DEVIATION FROM THE STANDARDS SET FORTH THEREIN

C. IT SHALL BE THE RESPONSIBILITY OF THE WELL OWNER OR HIS AGENT TO SEE THAT A PERMIT IS SECURED PRIOR TO THE CONSTRUCTION OR REPAIR OF ANY WELL FOR WHICH A PERMIT IS REQUIRED.

D. THE LOCATION OF ANY PRIVATE WELL WATER SUPPLY IN WARREN COUNTY SHALL BE APPROVED BY THE HEALTH DEPARTMENT BEFORE ANY CONSTRUCTION ACTIVITY ON THE LOT IS BEGUN. WELLS DRILLED FOR PUBLIC WATER SUPPLY SYSTEMS REGULATED BY THE DEPARTMENT OF HUMAN RESOURCES SHALL MEET THE SITING AND ALL OTHER REQUIREMENTS OF THAT DEPARTMENT.

E. THE WELL CONTRACTOR SHALL NOT COMMENCE ANY DRILLING ACTIVITY UNTIL THE PERMIT HAS BEEN OBTAINED.

F. THE HEALTH DEPARTMENT IS AUTHORIZED TO REVOKE ANY PERMITS ISSUED PURSUANT TO THESE REGULATIONS UPON THE DETERMINATION THAT THESE REGULATIONS NOT BEING FULLY COMPLIED WITH.

SECTION V STANDARDS OF CONSTRUCTION: WATER SUPPLY WELLS

A. LOCATION

(1) THE WELL SHALL BE LOCATED:

- (A) FOR PRIVATE WELL WATER SUPPLIES, AT A SITE NOT GENERALLY SUBJECT TO FLOODING; THE SITE FOR PUBLIC WELL WATER SUPPLIED SHALL NOT BE SUBJECT TO FLOODING.
- (B) FOR PRIVATE WELL WATER SUPPLIES, A MINIMUM HORIZONTAL DISTANCE OF 50 FEET FROM ANY WATERTIGHT SEWAGE AND LIQUID WASTE COLLECTION FACILITY (SUCH AS CAST IRON PIPES WITH LEADED JOINTS) EXCEPT WHERE IT IS NOT FEASIBLE TO OBTAIN 50 FEET SEPARATION BECAUSE OF LOT SIZE OR OTHER FIXED CONDITIONS, THE HORIZONTAL DISTANCE SHALL BE THE MAXIMUM FEASIBLE DISTANCE, BUT IN NO CASE LESS THAN 25 FEET. FOR PUBLIC WELL WATER SUPPLIES, THE WELL SHALL BE LOCATED AT LEAST 100 FEET FROM ANY SEWER OR OTHER POTENTIAL SOURCES OF POLLUTION UNLESS THE SEWER IS CONSTRUCTED OF MATERIALS AND JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS, IN WHICH CASE THE SEWER SHALL BE AT LEAST 50 FEET FROM THE WELL.
- (C) FOR PRIVATE WELL WATER SUPPLIES, A MINIMUM HORIZONTAL DISTANCE OF 100 FEET FROM ANY GROUND ABSORPTION SEWAGE DISPOSAL SYSTEM (SUCH AS A SEPTIC TANK SYSTEM) AND ANY OTHER SOURCE OF POTENTIAL POLLUTION OR CONTAMINATION EXCEPT WHERE IT IS NOT FEASIBLE TO OBTAIN 100 FEET SEPARATION BECAUSE OF LOT SIZE OR OTHER FIXED CONDITIONS, THE SEPARATION DISTANCE SHALL BE THE MAXIMUM FEASIBLE DISTANCE, BUT IN NO CASE LESS THAN 50 FEET. FOR PUBLIC WELL WATER SUPPLIES, THE WELL SHALL BE LOCATED ON A LOT SO THAT THE AREA WITHIN 100 FEET OF THE WELL SHALL BE OWNED OR CONTROLLED BY THE PERSON SUPPLYING THE WATER. VARIANCES IN THE WELL LOT AREA MAY BE PERMITTED BY A REPRESENTATIVE OF THE DIVISION OF HEALTH SERVICES WHERE EMERGENCY CONDITIONS EXIST AS DETERMINED BY THE REPRESENTATIVE OF THE DIVISION OF HEALTH SERVICES.
- (D) A MINIMUM HORIZONTAL DISTANCE OF 10 FEET FROM ANY PROPERTY BOUNDARY;
- (E) AT A SITE THAT PERMITS ACCESS FOR MAINTENANCE, REPAIR, TREATMENT TESTING, AND SUCH OTHER ATTENTION AS MAY BE NECESSARY;
- (F) AT A SITE THAT IS WELL DRAINED. THE SITE FOR PUBLIC WELL WATER SUPPLIES SHALL BE GRADED OR SLOPED SO THAT SURFACE WATER IS DIVERTED AWAY FROM THE WELL.
- (G) AT A MINIMUM HORIZONTAL DISTANCE OF 50 FEET FROM A BUILDING FOUNDATION SUBJECT TO TERMITE TREATMENT.

B. SOURCE OF WATER

- (1) THE SOURCE OF WATER FOR ANY WELL INTENDED FOR DOMESTIC USE SHALL BE FROM A WATER-BEARING ZONE OR AQUIFER THAT IS NOT POLLUTED AND THAT DOES NOT CONTAIN NONPOTABLE MINERALIZED WATER.
- (2) IN AREAS DESCRIBED IN SECTION XIII THE SOURCE SHALL BE AT LEAST 35 FEET BELOW LAND SURFACES.
- (3) IN ALL OTHER AREAS, THE SOURCE SHALL BE AT LEAST 20 FEET BELOW LAND SURFACE.

C. DRILLING AND CASING

- (1) THE WELL SHALL BE CONSTRUCTED SO THAT A PUMP WITH A CAPACITY EQUAL TO THE WELL CAPACITY (WITHIN THE PRACTICAL LIMITS OF PUMPS FOR A GIVEN DIAMETER WELL) CAN BE INSTALLED AND OPERATED WITHOUT BINDING OR WITHOUT INTERFERENCE BY CONTACT WITH ANY PART OF THE WELL.
- (2) ALL WATER-BEARING ZONES THAT CONTAIN POLLUTED OR NONPOTABLE MINERALIZED WATER SHALL BE ADEQUATELY CASING AND CEMENTED OFF SO THAT POLLUTION OF UNDERLYING OR OVERLYING WATER-BEARING ZONES WILL NOT OCCUR.
- (3) DRILLING FLUIDS SHALL BE OBTAINED FROM AN UNCONTAMINATED SOURCE, OR SHALL BE DISINFECTED PRIOR TO USE.
- (4) EVERY WELL SHALL BE CASING WITH THE BOTTOM OF THE CASING EXTENDING TO A MINIMUM DEPTH AS FOLLOWS:
 - (A) WELLS LOCATED WITHIN THE AREA DESCRIBED IN SECTION XIII SHALL BE CASING FROM LAND SURFACE TO A DEPTH OF AT LEAST 35 FEET.
 - (B) WELLS LOCATED IN ANY OTHER AREA SHALL BE CASING FROM LAND SURFACE TO A DEPTH OF AT LEAST 20 FEET.
- (5) THE TOP OF THE CASING SHALL BE TERMINATED, BY THE DRILLING CONTRACTOR, AT LEAST 12 INCHES ABOVE LAND SURFACE.
- (6) THE WELL SHALL BE ADEQUATELY CASING TO PREVENT FORMATION MATERIAL FROM ENTERING THE WELL AFTER THE WELL HAS BEEN DEVELOPED AND COMPLETED BY THE DRILLING CONTRACTOR.
- (7) THE CASING IN WELLS CONSTRUCTED TO OBTAIN WATER FROM A CONSOLIDATED ROCK FORMATION SHALL BE FIRMLY SEATED AND SEALED TO A DEPTH OF AT LEAST ONE FOOT BELOW THE TOP OF THE CONSOLIDATED ROCK.
- (8) THE CASING IN WELLS CONSTRUCTED TO OBTAIN WATER FROM AN UNCONSOLIDATED ROCK FORMATION (SUCH AS GRAVEL, SAND OR SHELLS), SHALL EXTEND AT LEAST TO THE TOP OF THE WATER-BEARING FORMATION.
- (9) EXCEPT AS OTHERWISE SPECIFIED IN THESE REGULATIONS, THE PERMANENT WELL CASING SHALL:
 - (A) CASING WEIGHING LESS THAN STANDARD WEIGHT STEEL PIPE IS NOT RECOMMENDED BY THE DEPARTMENT FOR WATER SUPPLY WELLS, HOWEVER, STEEL CASING OF 6 5/8 INCHES OUTSIDE DIAMETER WEIGHING LESS THAN STANDARD WEIGHT STEEL PIPE WILL BE PERMITTED IF THE FOLLOWING REQUIREMENTS ARE MET:
 - (I) THE OWNER PREFERS CASING WEIGHING LESS THAN STANDARD WEIGHT STEEL PIPE.
 - (II) THE CASING SHALL HAVE A MINIMUM WEIGHT OF 13 LBS. PER FOOT WHEN THREADED AND COUPLED.
 - (III) THE CASING SHALL HAVE A MINIMUM NOMINAL WALL THICKNESS FOR A GIVEN DIAMETER EQUAL TO THAT SPECIFIED IN TABLE 1.
 - (IV) THE CASING SHALL MEET THE REQUIREMENTS FOR WATER WELL CASING PIPE OF ASTM-A589-70 SPECIFICATIONS.
 - (B) HAVE WATER-TIGHT JOINTS THAT SHALL BE ELECTRICALLY WELDED, OR THREADED AND COUPLED WITH HEAVY RECESSED-TYPE COUPLINGS. THE COUPLING SHOULD COVER THE THREADS WHEN MADE POWER TIGHT.
 - (C) BE EQUIPPED WITH A DRIVE SHOE WHEN THE CASING IS SEATED IN A CONSOLIDATED ROCK FORMATION AND ANY OTHER WELLS IF THE CASING IS DRIVEN. THE DRIVE SHOE SHALL BE FORGED, HIGH CARBON, TEMPERED, SEAMLESS STEEL AND HAVE A BEVELED HARDENED CUTTING EDGE. A DRIVE SHOE WILL NOT BE REQUIRED FOR WELLS IN WHICH:

- (I) THE CEMENT GROUT SURROUNDS AND EXTENDS THE ENTIRE LENGTH OF THE CASING; AND
- (II) THE CASING IS INSTALLED WITHOUT INTERFERENCE FROM FORMATIONAL MATERIAL
- (D) IF GALVANIZED, MUST BE GALVANIZED IN COMPLIANCE WITH THE REQUIREMENTS OF THE LATEST REVISION OF ASTM SPECIFICATION A120.

D. GROUTING

- (1) THE CASING IN WELLS LOCATED WITHIN AREAS DESCRIBED IN SECTION XIII SHALL BE GROUTED FROM LAND SURFACE TO A DEPTH OF AT LEAST 35 FEET.
- (2) THE CASING IN WELLS IN WHICH THE PRODUCING ZONE UNDERLIES ZONES CONTAINING NON-POTABLE WATER SHALL BE GROUTED FROM LAND SURFACE TO THE TOP OF THE PRODUCING ZONE OR FIRST IMPERVIOUS LAYER HAVING A THICKNESS OF AT LEAST 10 FEET ABOVE THE PRODUCING ZONE.
- (3) THE CASING IN ALL OTHER WELLS SHALL BE GROUTED FORM LAND SURFACE TO A MINIMUM DEPTH OF 20 FEET.
- (4) THE CEMENT GROUT SHALL BE PLACED AROUND THE CASING BY ONE OF THE FOLLOWING METHODS:
 - (A) PRESSURE. THE ANNULAR SPACE BETWEEN THE CASING AND FORMATION SHALL BE MINIMUM OF 1.5 INCHES. CEMENT GROUT SHALL BE PUMPED OR FORCED UNDER PRESSURE THROUGH THE BOTTOM OF THE CASING UNTIL IT FILLS THE ANNULAR AREA AROUND THE CASING AND OVERFLOWS AT THE SURFACE.
 - (B) PUMPING. THE ANNULAR SPACE BETWEEN THE CASING AND FORMATION SHALL BE MINIMUM OF 1.5 INCHES. CEMENT 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 SHOULD REMAIN SUBMERGED IN GROUT DURING THE ENTIRE APPLICATION.
 - (C) OTHER. THE ANNULAR SPACE AROUND THE CASING SHALL BE A MINIMUM OF THREE INCHES. THE ANNULAR SPACE SHALL BE COMPLETELY FILLED WITH CEMENT GROUT BY ANY METHOD THAT WILL INSURE COMPLETE FILLING OF THE SPACE, PROVIDED THE ANNULAR AREA DOES NOT CONTAIN WATER. IF THE ANNULAR AREA CONTAINS WATER, THE WATER SHALL BE REMOVED OR THE GROUT SHALL BE PLACED BY EITHER THE PUMPING OR PRESSURE METHODS.
- (5) IF AN OUTER CASING IS INSTALLED, IT SHALL BE GROUTED BY EITHER THE PUMPING OR PRESSURE METHODS.
- (6) ALL GROUT MIXTURES SHALL BE PREPARED BEFORE EMPLACEMENT.
- (7) THE WELL SHALL BE GROUTED WITHIN FIVE WORKING DAYS AFTER COMPLETION OF DRILLING.
- (8) THE CONTRACTOR WILL GIVE ORAL NOTICE TO THE HEALTH DEPARTMENT OF ANY GROUTING TO BE DONE. THE NOTICE SHALL BE GIVEN IN SUFFICIENT TIME TO ALLOW THE HEALTH DEPARTMENT TO INSPECT THE WELL BEFORE THE GROUT IS EMPLACED.

E. LARGE DIAMETER WELLS

- (1) A LARGE DIAMETER WELL CASED WITH CONCRETE PIPE AND COMMONLY REFERRED TO AS A "BORED" WELL, MAY BE CONSTRUCTED FOR DOMESTIC USE. HOWEVER, THIS TYPE OF WELL IS NOT RECOMMENDED BY THE HEALTH DEPARTMENT WHERE A STANDARD WELL, CASED WITH "STANDARD WEIGHT" STEEL PIPE IS POSSIBLE.
- (2) IF THE CASING JOINTS ARE NOT SEALED, THE CONSTRUCTION SHALL BE AS FOLLOWS:
 - (A) THE BORE 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 NEAT CEMENT, SAND-CEMENT OR CONCRETE GROUT TO A DEPTH OF AT LEAST 20 FEET BELOW LAND SURFACE.
 - (C) THE ANNULAR SPACE AROUND THE CASING BELOW THE GROUT SHALL BE FILLED WITH SAND OR GRAVEL.
 - (D) THE GRAVEL-PACK SHALL HAVE A MINIMUM THICKNESS OF AT LEAST THREE INCHES.
 - (E) THE GRAVEL-PACK MATERIAL SHALL BE COMPOSED OF QUARTZ, GRANITE, OR SIMILAR ROCK MATERIAL AND SHALL BE CLEAN, ROUNDED, UNIFORM, WATER-WASHED AND FREE FROM CLAY, SILT, OR OTHER DELETERIOUS MATERIAL.
 - (F) THE GRAVEL SHALL BE STERILIZED BEFORE OR DURING THE INSTALLATION WITH A SOLUTION CONTAINING AT LEAST 100 PARTS PER MILLION RESIDUAL CHLORINE, OR MG/L.

F. WELL SCREENS

- (1) THE WELL, IF CONSTRUCTED TO OBTAIN WATER FROM AN UNCONSOLIDATED ROCK FORMATION, SHALL BE EQUIPPED WITH A SCREEN THAT WILL ADEQUATELY PREVENT THE ENTRANCE OF FORMATION MATERIAL INTO THE WELL AFTER THE WELL HAS BEEN DEVELOPED AND COMPLETED BY THE WELL CONTRACTOR.
- (2) THE WELL SCREEN SHALL:
 - (A) BE OF A STANDARD DESIGN AND MANUFACTURED SPECIFICALLY FOR THE PURPOSE OF WELL CONSTRUCTION.
 - (B) BE OF STEEL, BRASS, BRONZE OR PLASTIC AND SHALL BE OF A STRENGTH TO WITHSTAND SATISFACTORILY CHEMICAL AND PHYSICAL FORCES APPLIED TO IT DURING AND AFTER INSTALLATION. PLASTIC WELL SCREENS SHALL:
 - (I) HAVE AN ACCURATE UNIFORM GAUGE;
 - (II) HAVE A MINIMUM WALL THICKNESS AND TOLERANCE WHICH MEETS OR EXCEEDS REQUIREMENTS FOR SCHEDULE 40 THERMOPLASTIC WATER WELL CASING PIPE FOR NOMINAL SIZES THREE INCHES AND SMALLER;
 - (III) HAVE A MINIMUM WALL THICKNESS AND TOLERANCE WHICH MEETS OR EXCEEDS REQUIREMENTS FOR SDR 17 THERMOPLASTIC WATER WELL CASING FOR NOMINAL SIZES GREATER THAN THREE INCHES;
 - (IV) BE CONSTRUCTED WITH KEYSTONE SHAPED NSF APPROVED PLASTIC WIRE OR RINGS SURROUNDING PIPE OR CALIBRATED SLOTS CUT IN PIPE BASE;
 - (V) BE INSTALLED IN WELLS WITHOUT INTERFERENCE FROM FORMATION MATERIAL OR OTHER OBJECTS THAT MAY CAUSE PHYSICAL DAMAGE DURING EMPLACEMENT; AND
 - (VI) BE APPROVED BY FEDERAL, STATE, AND MUNICIPAL AGENCIES HAVING REQUIREMENTS APPLICABLE TO WELL CONSTRUCTION.
 - (C) BE DESIGNED TO PERMIT THE OPTIMUM DEVELOPMENT OF THE AQUIFER WITH MINIMUM HEAD LOSS CONSISTENT WITH INTENDED USE OF THE WELL. 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.
 - (D) BE PROVIDED WITH SUCH FITTINGS AS ARE NECESSARY TO SEAL THE TOP OF THE SCREEN TO THE CASING AND TO CLOSE THE BOTTOM; IF THE SCREEN IS INSTALLED INSIDE THE CASING, A LEAD-PACKER SEAL OR OTHER APPROVED DEVICE SHALL BE USED TO SEAL THE SCREEN, OR SCREEN EXTENSION TO THE CASING.

G. WELL DEVELOPMENT

- (1) EVERY WELL SHALL BE PROPERLY DEVELOPED BY THE DRILLING CONTRACTOR.
- (2) DEVELOPMENT SHALL INCLUDE REMOVAL OF:
 - (A) FORMATION CUTTINGS AND MUD FROM THE ENTIRE DEPTH OF THE WELL;
 - (B) DRILLING FLUIDS AND ADDITIVES; AND,
 - (C) ANY FORMATION MATERIAL FROM THE WATER BEARING ZONES OR OTHER SOURCE

THAT MAY ENTER THE WELL AS A RESULT OF PUMPING AT A RATE WITHIN THE LIMITS OF THE REPORTED YIELD.

H. WELL IDENTIFICATION PLATE

- (1) AN IDENTIFICATION PLATE SHOWING THE DRILLING CONTRACTOR AND HIS REGISTRATION NUMBER SHALL BE INSTALLED ON THE WELL WITHIN 24 HOURS AFTER THE DRILLING IS COMPLETE.
- (2) THE IDENTIFICATION PLATE SHALL BE CONSTRUCTED OF A DURABLE, WEATHERPROOF, RUSTPROOF METAL OR EQUIVALENT MATERIAL.
- (3) THE IDENTIFICATION PLATE SHALL BE SECURELY ATTACHED TO THE WELL CASING OR ENCLOSURE FLOOR AROUND THE CASING WHERE IT IS READILY VISIBLE.
- (4) THE IDENTIFICATION PLATE SHALL NOT BE REMOVED FROM THE WELL BY ANY PERSON.
- (5) THE IDENTIFICATION TAG SHALL BE STAMPED WITH A PERMANENT MARKING WITHIN THIRTY (30) DAYS AFTER DRILLING IS COMPLETED TO SHOW THE:
 - (A) TOTAL DEPTH OF WELL,
 - (B) CASING DEPTH (FT.) AND INSIDE DIAMETER (IN.),
 - (C) SCREENED INTERVALS OF SCREENED WELLS,
 - (D) GRAVEL INTERVAL OF GRAVEL PACKED WELLS,
 - (E) YIELD OR SPECIFIC CAPACITY EXPRESSED IN GALLONS PER MINUTE (GPM), OR GALLONS PER MINUTE PER FOOT OF DRAW-DOWN (GPM/FT.-DD), AND
 - (F) STATIC WATER LEVEL AND DATE MEASURED.

I. WELL-HEAD COMPLETION AND EQUIPMENT

- (1) THE TOP OF THE CASING SHALL BE CUT OFF SMOOTH AND LEVEL, BE FREE FROM DENTS AND CRACKS, AND SHALL TERMINATE AT LEAST SIX INCHES ABOVE THE CONCRETE SLAB AROUND THE CASING.
- (2) THE IDENTIFICATION PLATE, IF REMOVED OR OBSCURED DURING PUMP INSTALLATION SHALL BE RELOCATED AND SECURELY ATTACHED TO THE WELL CASING OR ENCLOSURE FLOOR AROUND THE CASING BY THE PERSON INSTALLING THE PUMP AND PUMPING EQUIPMENT.
- (3) ALL PIPING, WIRING, AND VENTS SHALL ENTER THE WELL AT LEAST EIGHT INCHES ABOVE LAND SURFACE.
- (4) THE WELL-HEAD SHALL BE COMPLETELY ENCLOSED EXCEPT ON WELLS WITH TURBINE OR OTHER TYPE PUMPS AND PUMPING EQUIPMENT DESIGNED FOR ALL WEATHER CONDITIONS. THE ENCLOSURE SHALL BE WELL DRAINED AND CONSTRUCTED TO PREVENT THE ENTRANCE OF SURFACE AND RAIN WATER, INSECTS AND RODENTS, AND TO PROTECT THE WELL-HEAD EQUIPMENT AGAINST FREEZING. THE ENCLOSURE SHALL HAVE A CONCRETE FLOOR WITH A THICKNESS OF AT LEAST FOUR INCHES AND EXTENDING A MINIMUM OF 2 FEET OUTWARD FROM THE OUTER WELL CASING. EVERY PUBLIC WELL WATER SUPPLY SHALL HAVE A CONTINUOUS BOND CONCRETE SLAB OR WELL HOUSE CONCRETE FLOOR EXTENDING AT LEAST THREE FEET HORIZONTALLY AROUND THE OUTSIDE OF THE WELL CASING. THE TOP OF THE FLOOR SHALL BE AT LEAST TWO INCHES ABOVE LAND SURFACE AND SHALL SLOPE AWAY FROM THE WELL CASING IN ALL DIRECTIONS. THE SURFACE OF THE GROUND SHALL BE GRADED TO SLOPE AWAY FROM THE WELL-HEAD ENCLOSURE IN ALL DIRECTIONS. A CONDUIT OF SUFFICIENT SIZE SHALL BE CAST INTO THE FLOOR TO PROVIDE FOR INSTALLING THE PUMP PIPING AND WIRING THROUGH THE FLOOR. THE SPACE BETWEEN THE PIPING AND WIRING AND THE CONDUIT WALLS SHALL BE SEALED.
- (5) EVERY WELL SHALL BE EQUIPPED BY THE PERSON COMPLETING THE WELL-HEAD WITH A USABLE ACCESS PORT.

- (A) THE ACCESS PORT SHALL BE LOCATED DIRECTLY ON TOP OF THE WELL IF THE PUMP IS OFFSET FROM THE WELL.
- (B) FOR WELLS ON WHICH THE PUMP IS INSTALLED DIRECTLY OVER THE WELL, AN ACCESS PORT PIPE SHALL BE INSTALLED THROUGH THE PUMP BASE OR OUTSIDE OF THE WELL CASING, AND TERMINATE INSIDE THE WELL CASING AT SOME POINT BELOW THE BASE OF THE PUMP.
- (C) THE ACCESS PORT SHALL HAVE A MINIMUM INSIDE DIAMETER OF $\frac{1}{2}$ OR FIVE TENTHS OF AN INCH, SO THAT THE POSITION OF THE WATER LEVEL MAY BE DETERMINED BY MEASURING WITH A STEEL OR ELECTRIC TAPE THROUGH THE ACCESS PORT.
- (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.

J. SUCTION PUMPING

- (1) ANY SUCTION LINE INSTALLED UNDERGROUND BETWEEN THE WELL AND PUMP SHALL BE SURROUNDED BY SIX INCHES OF CEMENT, OR ENCASED IN A LARGER PIPE THAT IS SEALED AT EACH END.

SECTION VI STANDARDS OF CONSTRUCTION: WELLS OTHER THAN WATER SUPPLY

A. NO WELL SHALL BE LOCATED, CONSTRUCTED, OPERATED, OR REPAIRED IN ANY MANNER THAT MAY ADVERSELY IMPACT THE QUALITY OF GROUNDWATER. ANY TEST HOLES AND BORINGS SHALL BE PERMANENTLY ABANDONED BY THE DRILLER IN ACCORDANCE WITH SECTION X OF THESE RULES WITHIN TWO (2) DAYS AFTER DRILLING OR TWO (2) DAYS AFTER TESTING IS COMPLETE, WHICHEVER IS LEAST RESTRICTIVE; EXCEPT IN THE CASE THAT A TEST WELL IS BEING CONVERTED TO A PRODUCTION WELL, IN WHICH CASE CONVERSION SHALL BE COMPLETED WITHIN 30 DAYS.

B. INJECTION WELLS

- (1) NO WELL SHALL BE CONSTRUCTED OR USED FOR RECHARGE, INJECTION OR DISPOSAL PURPOSES WITHOUT PRIOR PERMISSION FROM THE HEALTH DEPARTMENT.
- (2) THE DISCHARGE OF ANY WASTE TO THE SUBSURFACE OR GROUND WATERS OF WARREN COUNTY THROUGH WELLS IS PROHIBITED.

C. MONITORING WELLS AND RECOVERY WELLS

- (1) ALL 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. SPECIFIC CONSTRUCTION STANDARDS WILL BE ITEMIZED UPON ISSUANCE OF THE PERMIT, BUT THE FOLLOWING GENERAL REQUIREMENTS WILL APPLY:
 - (A) THE BOREHOLE SHALL NOT PENETRATE TO A DEPTH GREATER THAN THE DEPTH TO BE MONITORED OR THE DEPTH WHICH CONTAMINANTS ARE TO BE RECOVERED.
 - (B) THE WELL SHALL NOT HYDRAULICALLY CONNECT SEPARATE AQUIFERS.
 - (C) CONSTRUCTION MATERIALS SHALL BE COMPATIBLE WITH THE CONTAMINANTS TO BE MONITORED OR RECOVERED.
 - (D) THE WELL SHALL BE CONSTRUCTED IN SUCH A MANNER THAT WATER FROM THE LAND SURFACE CANNOT MIGRATE INTO GRAVEL PACK OR WELL SCREEN AREA.
 - (E) WHEN A GRAVEL PACK IS PLACED AROUND THE SCREEN, A SEAL SHALL BE INSTALLED ABOVE THE GRAVEL.
 - (F) GROUT SHALL BE PLACED IN THE ANNULAR SPACE BETWEEN THE CASING AND THE BOREHOLE WALL FROM LAND SURFACE TO A DEPTH WITHIN TWO FEET ABOVE THE TOP OF THE WELL SCREEN OR TO THE BOTTOM OF THE CASING FOR OPEN END WALLS.
 - (G) ALL WELLS SHALL BE SECURED TO REASONABLY INSURE AGAINST UNAUTHORIZED ACCESS AND USE.
 - (H) ALL WELLS SHALL BE AFFORDED REASONABLE PROTECTION AGAINST DAMAGE DURING

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CONSTRUCTION AND USE.

- (1) EACH WELL SHALL HAVE PERMANENTLY AFFIXED AN IDENTIFICATION PLATE CONSTRUCTED OF A DURABLE MATERIAL AND SHALL CONTAIN THE FOLLOWING FOLLOWING:
 - (I) DRILLING CONTRACTOR NAME AND REGISTRATION NUMBER;
 - (II) DATE WELL COMPLETED;
 - (III) TOTAL DEPTH OF WELL; AND
 - (IV) A WARNING THAT THE WELL IS NOT FOR WATER SUPPLY AND THAT THE GROUNDWATER MAY CONTAIN HAZARDOUS MATERIALS.

D. OBSERVATION WELLS:

- (1) OBSERVATION WELLS CONSTRUCTED FOR THE PURPOSE OF OBTAINING HYDROLOGIC OR OTHER DATA SHALL MEET THE STANDARDS OF CONSTRUCTION FOR WATER SUPPLY WELLS.

SECTION VII WELL TESTS FOR YIELD

A. EVERY WATER SUPPLY WELL SHALL BE TESTED FOR CAPACITY BY A METHOD AND FOR A PERIOD OF TIME ACCEPTABLE TO THE DEPARTMENT. THE PERMITTER MAY BE REQUIRED AS A PERMIT CONDITION TO TEST ANY WELL FOR CAPACITY BY A METHOD STIPULATED IN THE PERMIT.

B. STANDARD METHODS FOR TESTING WELL CAPACITY INCLUDE:

(1) DOMESTIC WELLS

(A) PUMP METHOD

- (I) SELECT A PERMANENT MEASURING POINT, SUCH AS THE TOP OF THE CASING;
- (II) MEASURE AND RECORD THE STATIC WATER LEVEL BELOW OR ABOVE THE MEASURING POINT PRIOR TO STARTING THE PUMP;
- (III) MEASURE AND RECORD THE DISCHARGE RATE AT INTERVALS OF 10 MINUTES OR LESS;
- (IV) MEASURE AND RECORD WATER LEVELS USING A STEEL OR ELECTRIC TAPE AT INTERVALS OF 10 MINUTES OR LESS;
- (V) CONTINUE THE TEST FOR A PERIOD OF AT LEAST ONE HOUR;
- (VI) MAKE MEASUREMENTS WITHIN AN ACCURACY OF PLUS OR MINUS 0.25 OF A FOOT.

(B) BAILER METHOD

- (I) SELECT A PERMANENT MEASURING POINT, SUCH AS THE TOP OF THE CASING;
- (II) MEASURE AND RECORD THE STATIC WATER-LEVEL BELOW OR ABOVE THE MEASURING POINT PRIOR TO STARTING THE BAILING PROCEDURE;
- (III) BAIL THE WATER OUT OF THE WELL AS RAPIDLY AS POSSIBLE FOR A PERIOD OF AT LEAST ONE HOUR; DETERMINE AND RECORD THE BAILING RATE: IN GALLONS PER MINUTE AT THE END OF THE BAILING PERIOD;
- (IV) MEASURE AND RECORD THE WATER-LEVEL IMMEDIATELY AFTER STOPPING BAILING PROCESS.

(C) AIR ROTARY DRILL METHOD

- (I) MEASURE AND RECORD THE AMOUNT OF WATER BEING INJECTED INTO THE WELL DURING DRILLING OPERATIONS;
- (II) MEASURE AND RECORD THE DISCHARGE RATE IN GALLONS PER MINUTE AT INTERVALS OF ONE HOUR OR LESS DURING DRILLING OPERATIONS;
- (III) AFTER COMPLETION OF THE DRILLING, CONTINUE TO BLOW THE WATER OUT OF THE WELL FOR AT LEAST 30 MINUTES AND MEASURE AND RECORD THE DISCHARGE RATE IN GALLONS PER MINUTE AT INTERVALS OF 10 MINUTES OR LESS DURING THE PERIOD;
- (IV) MEASURE AND RECORD THE WATER LEVEL IMMEDIATELY AFTER DISCHARGE CEASES

(D) AIR LIFT METHOD

- (I) MEASUREMENTS SHALL BE MADE THROUGH A PIPE PLACED IN THE WELL;
- (II) THE PIPE SHALL HAVE A MINIMUM INSIDE DIAMETER OF AT LEAST FIVE-TENTHS OF AN INCH AND SHALL EXTEND FROM TOP OF THE WELL HEAD TO A POINT INSIDE THE WELL THAT IS BELOW THE BOTTOM OF THE AIR LINE;

- (III) MEASURE AND RECORD THE STATIC WATER LEVEL PRIOR TO STARTING THE AIR COMPRESSOR;
 - (IV) MEASURE AND RECORD THE DISCHARGE RATE AT INTERVALS OF 10 MINUTES OR LESS;
 - (V) MEASURE AND RECORD THE PUMPING LEVEL USING A STEEL OR ELECTRIC TAPE AT INTERVALS OF 10 MINUTES OR LESS;
 - (VI) CONTINUE THE TEST FOR A PERIOD OF AT LEAST ONE HOUR.
- (2) PUBLIC, INDUSTRIAL AND IRRIGATION WELLS., EVERY PUBLIC, INDUSTRIAL AND IRRIGATION WELL UPON COMPLETION, SHALL BE TESTED FOR CAPACITY BY THE DRILLING CONTRACTOR (EXCEPT WHEN THE OWNER SPECIFIES ANOTHER AGENT),

SECTION VIII WELL CHLORINATION

A. ALL WELLS SHALL BE DISINFECTED UPON COMPLETION OF CONSTRUCTION, MAINTENANCE, REPAIRS, AND PUMP INSTALLATION AS FOLLOWS:

- (1) CHLORINE SHALL BE PLACED IN THE WELL IN SUFFICIENT QUANTITIES TO PRODUCE A CHLORINE RESIDUAL OF AT LEAST 100MG/L IN THE WELL. A CHLORINE SOLUTION MAY BE PREPARED BY DISSOLVING HIGH TEST CALCIUM HYPOCHLORITE (TRADE NAMES INCLUDE TH, CHLORTABS, ETC.) IN WATER. ABOUT 0.12 LBS. OR TWO OUNCES OR HYPOCHLORITE CONTAINING 70 PERCENT AVAILABLE CHLORINE IS NEEDED PER 100 GALLONS OF WATER FOR A 100 MG/L CHLORINE RESIDUAL. AS AN EXAMPLE, A WELL HAVING A DIAMETER OF SIX INCHES, HAS A VOLUME OF ABOUT ONE AND FIVE-TENTHS GALLONS PER FOOT. IF THE WELL HAS 200 FEET OF WATER, THE MINIMUM AMOUNT OF HYPOCHLORITE REQUIRED WOULD BE 0.36 LBS. ($1.5 \times 200 \text{ FEET} = 300 \text{ GALLONS}$, $0.12 \text{ LBS. PER } 100 \text{ GALLONS}$, $0.12 \times 3 = 0.36 \text{ LBS.}$)
 - (2) THE CHLORINE SHALL BE PLACED IN THE WELL BY ONE OF THE FOLLOWING OR EQUIVALENT METHODS:
 - (A) CHLORINE TABLETS MAY BE DROPPED IN THE TOP OF THE WELL AND ALLOWED TO SETTLE TO THE BOTTOM,
 - (B) CHLORINE SOLUTIONS SHALL BE PLACED IN THE BOTTOM OF THE WELL BY USING A BAILER OR BY POURING THE SOLUTION THROUGH THE DRILL ROD, HOSE, OR PIPE PLACED IN THE BOTTOM OF THE WELL. THE SOLUTION SHALL BE FLUSHED OUT OF THE DRILL ROD, HOSE, OR PIPE BY USING WATER OR AIR.
 - (3) AGITATE THE WATER IN THE WELL TO INSURE THOROUGH DISPERSION OF THE CHLORINE.
 - (4) THE WELL CASING, PUMP COLUMN AND ANY OTHER EQUIPMENT ABOVE THE WATER LEVEL IN THE WELL SHALL BE THOROUGHLY RINSED WITH THE CHLORINE SOLUTION AS A PART OF THE DISINFECTING PROCESS.
- B. THE CHLORINE SHALL STAND IN THE WELL FOR A PERIOD OF AT LEAST 24 HOURS.
- C. THE WELL SHALL BE PUMPED UNTIL THE SYSTEM IS CLEAR OF THE CHLORINE BEFORE THE SYSTEM IS PLACED IN USE.
- D. A SAMPLE OF THE WATER SHALL BE COLLECTED AND ANALYZED FOR BACTERIA NOT LESS THAN 24 HOURS AFTER CHLORINE HAS BEEN REMOVED FROM THE WELL. FOR PRIVATE WATER SUPPLY WELLS, THE RESULTS OF THIS ANALYSIS SHALL BE FURNISHED TO THE HEALTH DEPARTMENT AT OR BEFORE THE TIME THE HEALTH DEPARTMENT REPRESENTATIVE INSPECTS THE WELL.

SECTION IX WELL MAINTENANCE AND REPAIR

A. EVERY WELL SHALL BE MAINTAINED IN A CONDITION WHEREBY IT WILL NOT BE A SOURCE OR CHANNEL OF CONTAMINATION OR POLLUTION TO THE WATER SUPPLY, OR ANY AQUIFER.

B. ALL MATERIALS USED IN THE MAINTENANCE, REPLACEMENT, OR REPAIR OF ANY WELL SHALL MEET THE REQUIREMENTS FOR NEW INSTALLATION.

C. BROKEN, PUNCTURED OR OTHERWISE DEFECTIVE OR UNSERVICEABLE CASING, SCREENS, FIXTURES, SEALS, OR ANY PART OF THE WELL HEAD SHALL BE REPAIRED OR REPLACED, AS SOON AS POSSIBLE, OR THE WELL SHALL BE PERMANENTLY ABANDONED.

D. REPAIRS TO WELLS COMPLETED WITH THE WELL HEAD TERMINATING BELOW GROUND (BURIED SEAL) SHALL INCLUDE EXTENDING THE WELL CASING ABOVE LAND SURFACE. THE HEALTH DEPARTMENT SHALL NOT APPROVE ANY WELL HAVING AN ENTRY BELOW LAND SURFACE. THE EXTENSION SHALL BE MADE AS FOLLOWS:

- (1) A TAPERED SLEEVE SHALL BE INSERTED INSIDE OF THE CASING AND SHALL EXTEND AT LEAST SIX INCHES DOWN INTO THE EXISTING CASING. THE EXTENSION CASING SHALL BE WELDED OR BONDED TO THE EXISTING CASING AROUND THE OUTSIDE OF THE JOINT; OR
- (2) A SLEEVE SHALL BE HEATED AND SWEDGED OVER THE EXISTING CASING WITH AT LEAST SIX INCHES OF OVERLAP.

CEMENT GROUT SHALL BE PLACED AROUND THE CASING, EXTENDING FROM LAND SURFACE TO DEPTH OF AT LEAST ONE FOOT BELOW THE JOINT FORMED BY THE CASINGS. THE GROUT SHALL HAVE A MINIMUM THICKNESS OF ONE AND FIVE-TENTHS INCHES.

F. NATIONAL SANITATION FOUNDATION (NSF) APPROVED PVC PIPE RATED AT 160 PSI MAY BE USED FOR LINER CASING. THE LINER CASING SHALL BE INSTALLED WITH CENTERING GUIDES TO INSURE PROPER CENTERING IN THE WELL. THE ANNULAR SPACE AROUND THE LINER CASING SHALL BE AT LEAST FIVE-EIGHTS INCHES AND SHALL BE COMPLETELY FILLED WITH NEAT-CEMENT GROUT.

SECTION X ABANDONING WELLS

A. EVERY WELL WHOSE USE OR CONSTRUCTION HAS BEEN DISCONTINUED, EITHER TEMPORARILY OR PERMANENTLY, SHALL BE ABANDONED IN ACCORDANCE WITH THESE REGULATIONS.

B. WHEN ANY WELL IS TEMPORARILY REMOVED FROM SERVICE OR BEFORE ANY WELL IS PUT INTO SERVICE, IT SHALL BE SEALED WITH A WATER-TIGHT CAP OR SEAL.

C. THE WELL SHALL BE MAINTAINED WHEREBY IT IS NOT A SOURCE OR CHANNEL OF CONTAMINATION DURING TEMPORARY ABANDONMENT.

D. EVERY TEMPORARILY ABANDONED WELL SHALL BE PROTECTED WITH A CASING.

E. ANY WELL THAT IS A SOURCE OR CHANNEL OF CONTAMINATION SHALL BE REPAIRED OR PERMANENTLY ABANDONED WITHIN 30 DAYS OF RECEIPT OF AN ORDER FROM THE HEALTH DEPARTMENT.

F. THE DRILLING CONTRACTOR SHALL PERMANENTLY ABANDON ANY WELL IN WHICH THE CASING HAS NOT BEEN INSTALLED OR FROM WHICH THE CASING HAS BEEN REMOVED, BEFORE REMOVING HIS EQUIPMENT FROM THE SITE.

G. ANY WELL NOT IN COMPLIANCE WITH THE CONDITIONS FOR TEMPORARY ABANDONMENT SHALL BE BROUGHT INTO COMPLIANCE OR PERMANENTLY ABANDONED WITHIN 30 DAYS OF RECEIPT OF NOTICE FROM THE HEALTH DEPARTMENT.

H. THE WELL OWNER SHALL BE RESPONSIBLE FOR PERMANENT ABANDONMENT OF A WELL EXCEPT:

- (1) AS OTHERWISE SPECIFIED IN THESE REGULATIONS; OR
- (2) IF WELL ABANDONED IS REQUIRED BECAUSE THE DRILLER IMPROPERLY LOCATES, CONSTRUCTS, OR COMPLETES THE WELL, IN WHICH CASE THE DRILLER IS RESPONSIBLE FOR ABANDONING THE WELL.

I. PERMANENT ABANDONMENT PROCEDURES

- (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 GROUND WATERS.
- (2) IN THE CASE OF GRAVEL-PACKED WELLS IN WHICH THE CASING AND SCREENS HAVE NOT BEEN REMOVED THE CASING SHALL BE PERFORATED OPPOSITE THE GRAVEL PACK AT INTERVALS NOT EXCEEDING 10 FEET AND GROUT INJECTED THROUGH THE PERFORATIONS UNDER PRESSURES, OR NEAT CEMENT SHALL BE INJECTED INTO THE GRAVEL BY WASHING A LINE TO THE BOTTOM OF THE GRAVEL AND PUMPING THE CEMENT IN FROM THE BOTTOM UP INTO THE GRAVEL UNTIL A RETURN IS OBTAINED AT THE TOP THROUGH THE GRAVEL.
- (3) THE WELL SHALL BE CHECKED FROM LAND SURFACE TO THE ENTIRE DEPTH OF THE WELL BEFORE IT IS SEALED TO INSURE FREEDOM FROM OBSTRUCTIONS THAT MAY INTERFERE WITH SEALING OPERATIONS.
- (4) THE WELL SHALL BE THOROUGHLY CHLORINATED BEFORE SEALING.
- (5) "BORED" WELLS SHALL BE COMPLETELY FILLED WITH CEMENT GROUT, DRY CLAY OR MATERIAL EXCAVATED DURING DRILLING OF THE WELL AND SHALL BE COMPACTED IN PLACE.
- (6) WELLS CONSTRUCTED IN UNCONSOLIDATED FORMATION OTHER THAN "BORED" WELLS SHALL BE COMPLETELY FILLED WITH CEMENT GROUT BY INTRODUCING IT THROUGH A PIPE EXTENDING TO THE BOTTOM OF THE WELL WHICH CAN BE RAISED AS THE WELL IS FILLED.
- (7) WELLS CONSTRUCTED IN CONSOLIDATED ROCK FORMATIONS OR THAT PENETRATE ZONES OF CONSOLIDATED ROCK MAY BE FILLED WITH CEMENT, SAND, GRAVEL OR DRILL CUTTINGS OPPOSITE THE ZONES OF CONSOLIDATED ROCK. THE TOP OF THE SAND, GRAVEL OR CUTTINGS FILL SHALL BE AT LEAST FIVE FEET BELOW THE TOP OF THE CONSOLIDATED ROCK. THE REMAINDER OF THE WELL SHALL BE FILLED WITH CEMENT GROUT ONLY.
- (8) TEST WELLS LESS THAN 20 FEET IN DEPTH THAT DO NOT PENETRATE THE WATER TABLE SHALL BE ABANDONED IN SUCH MANNER AS TO PREVENT THE WELL FROM BEING A CHANNEL ALLOWING THE VERTICAL MOVEMENT OF WATER OR A SOURCE OF CONTAMINATION TO THE GROUND-WATER SUPPLY. TEST WELLS OR BORINGS THAT PENETRATE THE WATER TABLE SHALL BE ABANDONED BY COMPLETELY FILLING WITH CEMENT GROUT.

SECTION XI RECORDS REQUIRED

A. REPORTS

- (1) ANY PERSON COMPLETING OR ABANDONING ANY WELL IN WARREN COUNTY SHALL SUBMIT TO THE HEALTH DEPARTMENT AND TO THE WELL OWNER A RECORD OF THE CONSTRUCTION OR ABANDONMENT TO INCLUDE THE OWNER'S NAME; THE WELL'S LOCATION, SIZE AND DEPTH; THE CASING RECORD; THE METHOD OF FINISHING OR ABANDONING; FORMATION LOG; STATIC WATER LEVEL; PUMPING WATER LEVEL; YIELD; PUMP TYPE; CAPACITY AND SETTING; AND DATE OF COMPLETION OR ABANDONMENT.
- (2) ANY PERSON REPAIRING A WELL SHALL SUBMIT TO THE HEALTH DEPARTMENT AND THE WELL OWNER A RECORD OF THE REPAIR TO INCLUDE THE OWNER'S NAME; LOCATION OF THE WELL; CHANGE IN CONSTRUCTION AND MATERIALS REPLACED; AND DATE OF REPAIR.

- (3) THE REPORTS REQUIRED IN A.(1) AND A.(2) ABOVE SHALL BE SUBMITTED TO THE HEALTH DEPARTMENT WITHIN THIRTY DAYS AFTER COMPLETING CONSTRUCTION, ABANDONMENT, OR REPAIR.
- (4) REPORTS SHALL BE CERTIFIED BY THE CONTRACTOR OR PERSONS COMPLETING THE CONSTRUCTION, ABANDONMENT, OR REPAIR.

SECTION XII DIAGRAMS AND FORMS

A. DIAGRAMS. DIAGRAMS ILLUSTRATING SEVERAL PARTS OF THE REGULATIONS ARE AVAILABLE UPON REQUEST FROM THE HEALTH DEPARTMENT. PERSONS WANTING COPIES OF THESE DIAGRAMS SHOULD REFER TO THEM BY THEIR FIGURE NUMBERS WHEN MAKING REQUESTS AS FOLLOWS:

- (1) FIGURE No. 1 ILLUSTRATES THE PROPER SEATING AND SEALING OF CASING OF WELLS CONSTRUCTED TO OBTAIN WATER FROM CONSOLIDATED ROCK FORMATIONS.
- (2) FIGURE No. 2 ILLUSTRATES THE PROPER SEATING OF SCREENS REQUIRED TO PREVENT THE ENTRANCE OF FORMATION MATERIAL INTO A WELL CONSTRUCTED TO OBTAIN WATER FROM AN UNCONSOLIDATED ROCK FORMATION.
- (3) FIGURE No. 3 ILLUSTRATES THE PROPER CONSTRUCTION OF GRAVEL-PACKED WELLS.
- (4) FIGURE No. 4 ILLUSTRATES THE CONSTRUCTION OF BORED WELLS FOR DOMESTIC USE.
- (5) FIGURE No. 5 ILLUSTRATES PROPER PLACEMENT OF REQUIRED WELL IDENTIFICATION PLATE, AND THE ACCESS PORT.
- (6) FIGURE No. 6 ILLUSTRATES PROPER PLACEMENT OF ACCESS PORTS.
- (7) FIGURE No. 7 ILLUSTRATES CONSTRUCTION OF AN ACCESS PORT.
- (8) FIGURE No. 8 ILLUSTRATES WELL CHLORINATION REQUIRED BY SECTION VIII OF THIS SUBCHAPTER.

B. FORMS. THE FOLLOWING FORMS REQUIRED BY THESE REGULATIONS ARE AVAILABLE UPON REQUEST FROM THE HEALTH DEPARTMENT.

- (1) DRILLER REGISTRATION APPLICATION
- (2) CERTIFICATE OF REGISTRATION
- (3) COMPLETION OR ABANDONMENT REPORT
- (4) REPAIR REPORT

SECTION XIII DESIGNATED AREAS IN WHICH WELLS SHALL BE CASED TO A MINIMUM DEPTH OF 35 FEET

A. WELLS DRILLED IN AREAS UNDERLAIN BY METAVOLCANIC ROCKS IDENTIFIED ON THE 1958 STATE GEOLOGIC MAP AS BEDDED ARGILLITIES OF THE CAROLINA SLATE BELT SHALL BE CASED TO A MINIMUM DEPTH OF 35 FEET. THESE AREAS ARE GENERALLY DESCRIBED AS FOLLOWS:

A DOMINANT LANDSCAPE OF GENTLY SLOPING RIDGES AND STRONGLY SLOPING SIDE SLOPES WITH WELL DRAINED SOILS OCCURRING ON THE UPLANDS. THE SOILS ARE CHARACTERIZED BY DEEP SOILS WITH FIRM SILTY CLAY SUBSOILS AND SOILS WITH SHALLOW ROCK AND SAPROLITE. THE MAJOR SOIL SERIES ARE GEORGEVILLE, HERNDON, TATUM, NASON, LIGNUM, AND GOLDSTON.

SECTION XIV SEMI PUBLIC WELL WATER SUPPLIES

A. IT SHALL BE UNLAWFUL FOR ANY PERSON OR FIRM TO RENT OR OFFER FOR RENT, LEASE OR OFFER FOR LEASE, ANY RESIDENCE OR PLACE OF BUSINESS WITHOUT A POTABLE WATER SUPPLY. THE OWNER SHALL PROVIDE PROOF THAT THE WATER QUALITY MEETS BACTERIOLOGICAL STANDARDS RECOMMENDED BY THE DIVISION OF HEALTH SERVICES. THE SUPPLY SHALL ALSO HAVE AT LEAST ONE SAMPLE RECORDED WITH THE HEALTH DEPARTMENT AS TO THE NITRATE LEVEL.

B. ALL WELLS UNDER THIS SECTION SHALL BE PROTECTED ACCORDING TO THE RECOMMENDED STANDARDS OF THE DIVISION OF HEALTH SERVICES.

C. ALL SUPPLIES THAT SERVE TWO (2) CONNECTIONS (RESIDENCES OR BUSINESSES) OR MORE BUT LESS THAN FIFTEEN (15) WILL BE SAMPLED BY THE HEALTH DEPARTMENT FOR BACTERIOLOGICAL ANALYSIS SEMI-ANNUALLY.

D. WHERE ONLY ONE CONNECTION (RESIDENCE OR BUSINESS) IS INVOLVED, THE HEALTH DEPARTMENT SHALL BE NOTIFIED BY THE OWNER OR AGENT UPON OCCUPANCY OF EACH NEW TENANT. THE HEALTH DEPARTMENT WILL COLLECT A SAMPLE FOR BACTERIOLOGICAL ANALYSIS AT THAT TIME.

E. ALL WATER SUPPLIES COVERED UNDER THIS SECTION THAT FAIL TO MEET THE BACTERIOLOGICAL STANDARDS SHALL BE TREATED BY AN APPROVED CHLORINATION METHOD. IF PERIODIC CONTAMINATION OCCURS, THOSE WATER SUPPLY SYSTEMS SHALL BE EQUIPPED WITH MECHANICAL DEVICES TO INSURE ADEQUATE DISINFECTION.

SECTION XV VARIANCE

A. BECAUSE OF THE EXTREMELY WIDE RANGE OF CONDITIONS OF GROUNDWATER OCCURRENCES AND CHEMICAL QUALITY, VARIANCES TO THESE STANDARDS MAY BE GRANTED FOR THE CONSTRUCTION, REPAIR OR ABANDONMENT OF WATER SUPPLY WELLS. A REQUEST FOR A VARIANCE SHALL BE SUBMITTED IN WRITING TO THE HEALTH DEPARTMENT.

SECTION XVI SEVERABILITY

A. IF ANY PROVISION OR CLAUSE OF THESE REGULATIONS SHALL BE DECLARED INVALID, VOID OR UNCONSTITUTIONAL, SUCH DECLARATION SHALL NOT INVALIDATE ANY OTHER PROVISION OR CLAUSE OF SAID REGULATIONS.

SECTION XVII PENALTIES

A. ANY PERSON WHO WILLFULLY VIOLATES ANY PROVISION OF THESE REGULATIONS, OR ANY ORDER ISSUED PURSUANT THERETO, SHALL BE GUILTY OF A MISDEMEANOR PUNISHABLE BY A FINE NOT TO EXCEED FIFTY (50) DOLLARS OR IMPRISONMENT NOT TO EXCEED THIRTY (30) DAYS AND MAY HAVE ANY PERMIT OR CERTIFICATE OF REGISTRATION ISSUED PURSUANT TO THESE RULES SUSPENDED OR REVOKED. AS PROVIDED BY G.S. 130-205, THE HEALTH DIRECTOR MAY ALSO INSTITUTE AN ACTION IN THE WARREN COUNTY SUPERIOR COURT FOR INJUNCTIVE RELIEF.

SECTION XVIII EFFECTIVE DATE

THESE RULES AND REGULATIONS ADOPTED BY THE WARREN COUNTY BOARD OF HEALTH ON THIS THE 23RD DAY OF JULY, 1984, SHALL BE IN FULL FORCE AND EFFECT FROM AND AFTER THE 4TH DAY OF SEPTEMBER, 1984.

SIGNED: George E. Shearin, Jr.
CHAIRMAN
WARREN COUNTY BOARD OF HEALTH

SIGNED: Joseph S. Lemon
DIRECTOR
WARREN COUNTY HEALTH DEPARTMENT

SIGNED: Em M. Clayton
CHAIRMAN
WARREN COUNTY BOARD OF COMMISSIONERS

SIGNED: Judy J. Harris
SECRETARY
WARREN COUNTY BOARD OF COMMISSIONERS

TABLE 1: MINIMUM WALL THICKNESS FOR STEEL CASING:

Nominal Diameter (in.)	Wall Thickness (in.)
For 3½" or smaller pipe, schedule 40 is required	
4	0.142
5	0.156
5½	0.164
6	0.185
8	0.250
10	0.279
12	0.330
14 and larger	0.375

PROTECTING DRILLED WELLS

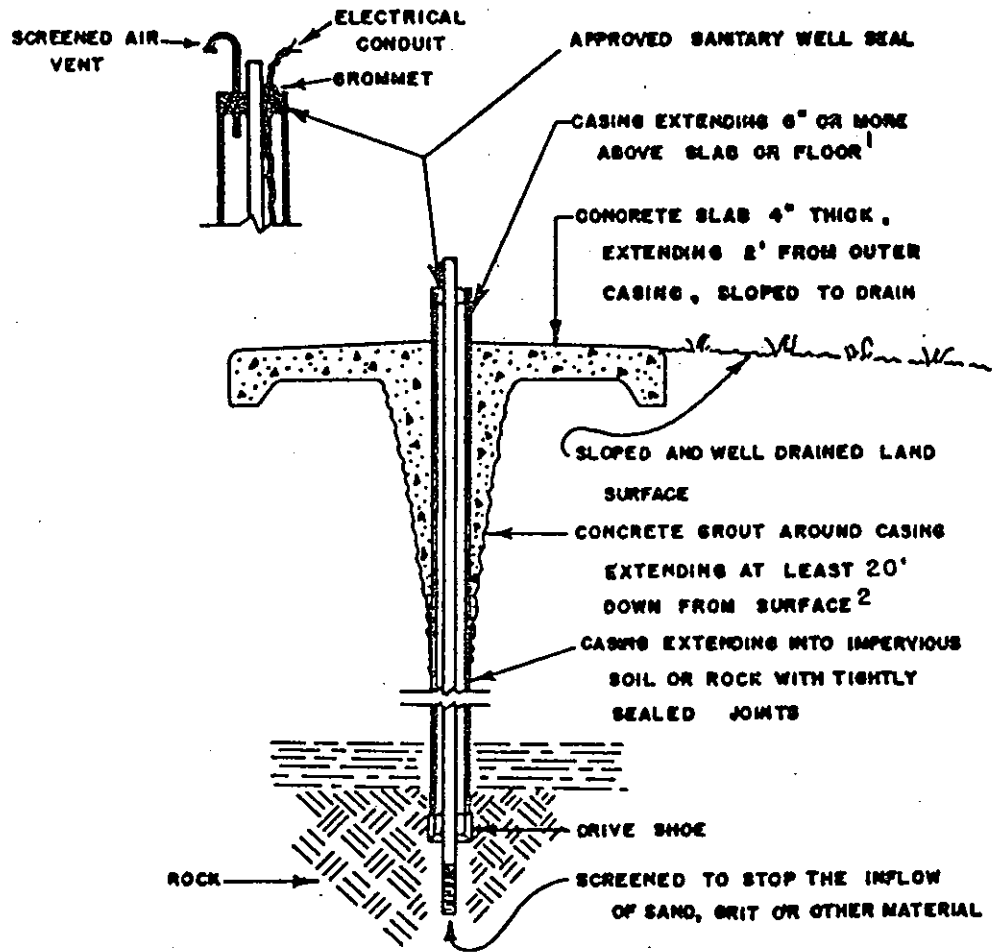


FIGURE 1

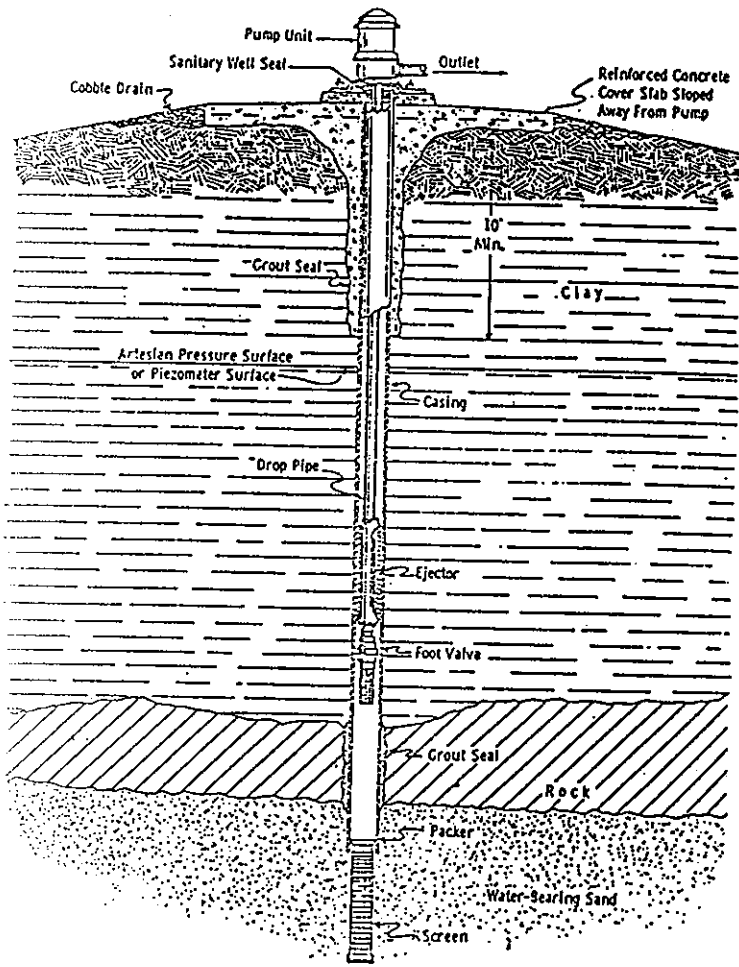


FIGURE 2

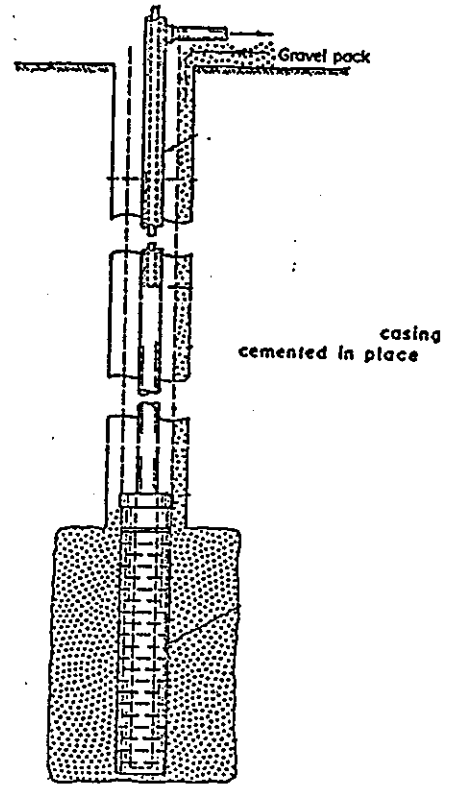
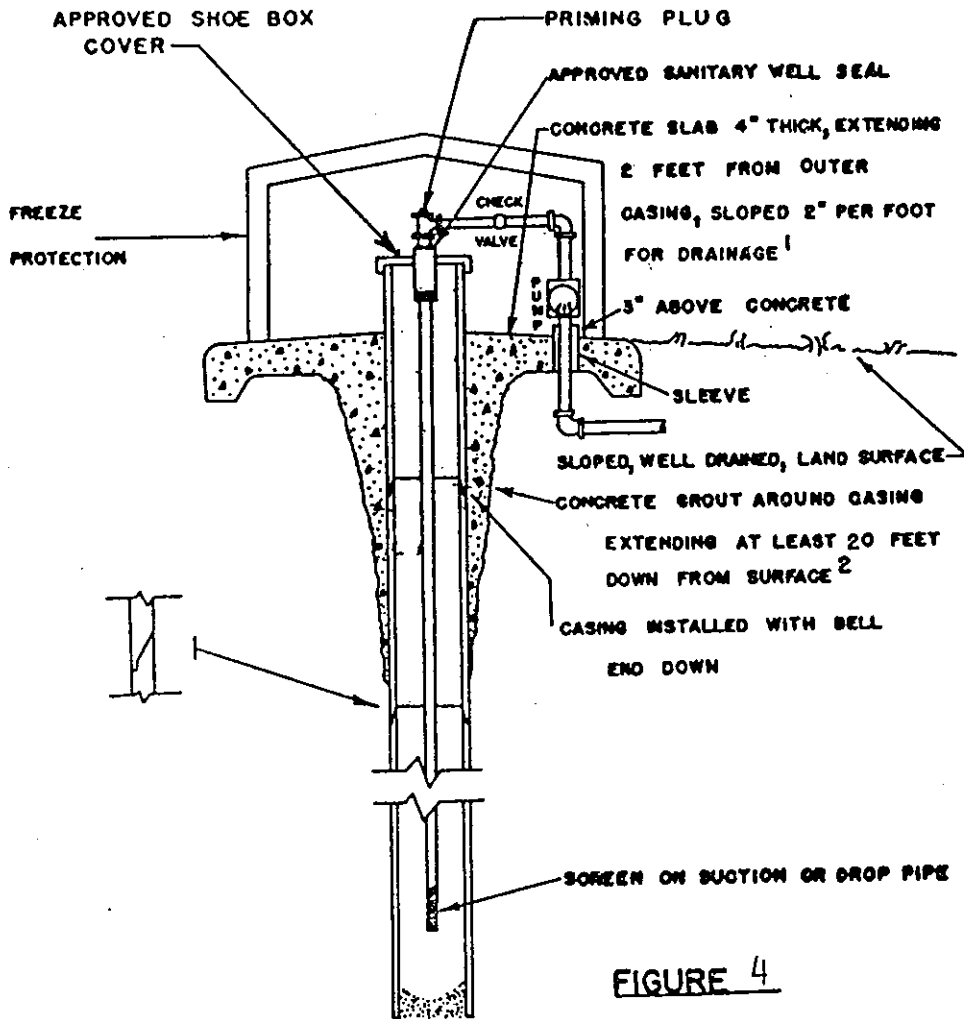


FIGURE 3

PROTECTING BORED WELLS



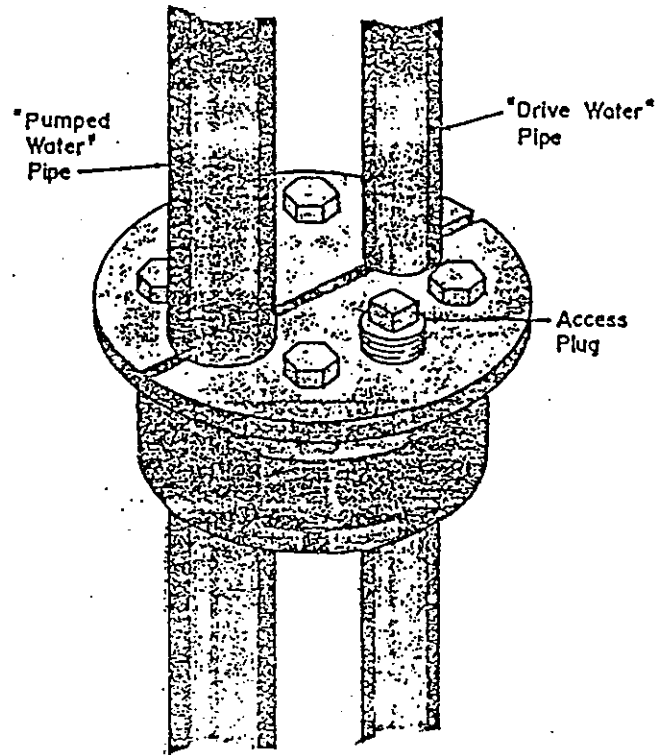
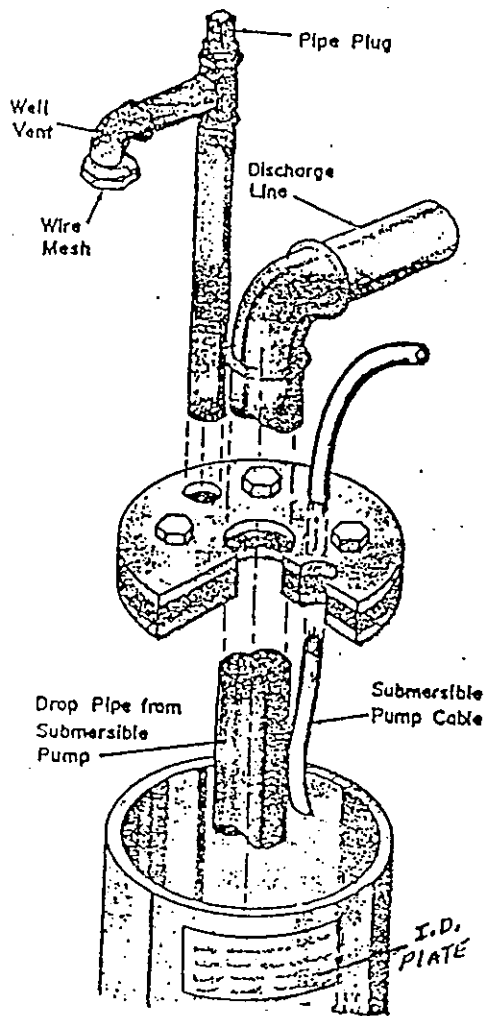


FIGURE 5,6,& 7

DISINFECTION OF WELLS

1. A SATISFACTORY DISINFECTING SOLUTION MAY BE PREPARED BY USING HOUSEHOLD BLEACH SUCH AS CLOROX, PUREX, ETC. ONE GALLON OF HOUSEHOLD BLEACH IS USUALLY ADEQUATE FOR THE AVERAGE WELL. MIX THE BLEACH WITH THREE TO FOUR GALLONS OF WATER AND POUR INTO THE WELL.

CHLORINE POWDER SUCH A B.K. POWDER OR HTH MAY ALSO BE USED. FOR SAFETY REASONS, THESE PRODUCTS MUST BE USED WITH CAUTION.
2. CONNECT A GARDEN HOSE TO AN OUTSIDE FAUCET AND RUN WATER INTO THE WELL UNTIL A CHLORINE ODOR CAN BE DETECTED. THIS CIRCULATION AIDS IN THE WELL AND DISTRIBUTION SYSTEM.
3. OPEN COLD WATER FAUCETS IN THE HOUSE UNTIL A CHLORINE ODOR CAN DE DETECTED. CLOSE FAUCETS.
4. ALLOW THE CHLORINE TO REMAIN IN THE WELL FOR TWELVE OR MORE HOURS.
- *5. CONNECT A GARDEN HOSE TO AN OUTSIDE FAUCET AND PUMP OFF WATER UNTIL NO CHLORINE ODOR OR TASTE CAN BE DETECTED.

KEEP THE DISCHARGE OUT OF THE SEPTIC TANK OR SEPTIC TANK DRAIN LINE AREA.
6. HAVE A SAMPLE COLLECTED BY THE LOCAL HEALTH DEPARTMENT FOR BACTERIOLOGICAL ANALYSIS AFTER CHLORINE HAS BEEN REMOVED FROM WELL AND HOUSEHOLD SYSTEM.

*NOTE: PRECAUTION MUST BE TAKEN WHEN PUMPING OFF WATER TO PREVENT PUMPING WELL DRY AND POSSIBLY BURNING UP PUMP.