

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

CLICK ANYWHERE on THIS PAGE to RETURN TO WATER WELL CONSTRUCTION, MAINTENANCE, ABANDONMENT GUIDES at [InspectApedia.com](http://InspectApedia.com)

## N.J.A.C. 7:9D

### WELL CONSTRUCTION AND MAINTENANCE; SEALING OF ABANDONED WELLS

Statutory authority: N.J.S.A. 13:1D-1 et seq., N.J.S.A. 58:4A-4.1 et seq., and N.J.S.A. 58:12A-1 et seq.

Date last amended: April 2, 2007

For regulatory history and effective dates, see the New Jersey Administrative Code

#### TABLE OF CONTENTS

#### SUBCHAPTER 1 GENERAL REQUIREMENTS FOR PERMITTING OF WELLS, AND FOR LICENSING OF WELL DRILLERS AND PUMP INSTALLERS, PROCEDURES AND PRACTICES OF THE STATE WELL DRILLERS AND PUMP INSTALLERS EXAMINING AND ADVISORY BOARD

|           |  |    |
|-----------|--|----|
| 7:9D-1.1  | Scope _____  | 1  |
| 7:9D-1.2  | Construction _____   | 1  |
| 7:9D-1.3  | Applicability _____  | 1  |
| 7:9D-1.4  | Severability _____   | 1  |
| 7:9D-1.5  | Definitions _____  | 2  |
| 7:9D-1.6  | General provisions _____   | 8  |
| 7:9D-1.7  | General provisions for well driller licenses of the proper class, pump installer licenses and apprentice registrations _____   | 8  |
| 7:9D-1.8  | Application and licensing examination procedures and requirements for well driller licenses of the proper class, pump installer licenses, and apprentice registrations _____   | 11 |
| 7:9D-1.9  | Licensing examination application fees, licensing fees and renewal requirements for all well driller licenses of the proper class and pump installer licenses and apprentice registrations, and establishment of special dedicated non-lapsing account _____ | 15 |
| 7:9D-1.10 | State Well Drillers and Pump Installers Examining and Advisory Board _____   | 16 |
| 7:9D-1.11 | Well Permits _____   | 17 |
| 7:9D-1.12 | Provisions for issuance of emergency well drilling permits _____   | 20 |
| 7:9D-1.13 | Provisions for issuance of expedited well drilling permits _____   | 21 |
| 7:9D-1.14 | Provisions for denial, revocation or cancellation of well permits _____  | 21 |
| 7:9D-1.15 | Well record requirements _____   | 22 |
| 7:9D-1.16 | Fees for permit to drill well _____  | 24 |

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

## SUBCHAPTER 2 REQUIREMENTS AND PROCEDURES FOR THE CONSTRUCTION, INSTALLATION, OPERATION AND MAINTENANCE OF WELLS

|           |   |    |
|-----------|---|----|
| 7:9D-2.1  | Well categories _____   | 24 |
| 7:9D-2.2  | General construction requirements for all wells _____                               | 25 |
| 7:9D-2.3  | Specific requirements for the construction of Category 1 and Category 2 wells _____ | 27 |
| 7:9D-2.4  | Requirements for the construction and maintenance of all Category 3 wells _____     | 34 |
| 7:9D-2.5  | Requirements for the installation of Category 4 wells _____                         | 35 |
| 7:9D-2.6  | Specific requirements for the installation of Category 5 geotechnical borings _____ | 39 |
| 7:9D-2.7  | Minimum distance requirements _____   | 39 |
| 7:9D-2.8  | Deviation from construction standards _____   | 40 |
| 7:9D-2.9  | Required materials for sealing the annular space of any well _____                  | 41 |
| 7:9D-2.10 | Required procedures for sealing the annular space of any well _____                 | 43 |
| 7:9D-2.11 | Well development and well redevelopment _____                                       | 45 |

## SUBCHAPTER 3 REQUIREMENTS AND PROCEDURES FOR THE DECOMMISSIONING OF WELLS

|          |   |    |
|----------|---|----|
| 7:9D-3.1 | General requirements for the decommissioning of all wells _____                                   | 46 |
| 7:9D-3.2 | Specific requirements for the decommissioning of dewatering wells and dewatering wellpoints _____ | 51 |
| 7:9D-3.3 | Specific requirements for the decommissioning of hand dug wells _____                             | 52 |
| 7:9D-3.4 | Specific requirements for the decommissioning of Category 5 geotechnical borings _____            | 52 |

## SUBCHAPTER 4 CIVIL ADMINISTRATIVE PENALTIES; INJUNCTIVE RELIEF; DENIAL, SUSPENSION AND REVOCATION OF LICENSES; AND REQUESTS FOR ADJUDICATORY HEARINGS

|          |   |    |
|----------|---|----|
| 7:9D-4.1 | Purpose _____   | 53 |
| 7:9D-4.2 | General provisions _____  | 53 |
| 7:9D-4.3 | Administrative orders _____   | 54 |
| 7:9D-4.4 | Civil administrative penalties _____  | 54 |
| 7:9D-4.5 | Basis for denial of license _____   | 57 |
| 7:9D-4.6 | Basis for suspension or revocation of license _____   | 57 |
| 7:9D-4.7 | Procedures for civil administrative orders, assessment of civil administrative penalties and suspension or revocation of license and adjudicatory hearings _____          | 58 |
| 7:9D-4.8 | Procedures to request an adjudicatory hearing to contest an administrative order, administrative penalty assessment, suspension of license or revocation of license _____ | 59 |

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

**SUBCHAPTER 1 GENERAL REQUIREMENTS FOR PERMITTING OF WELLS, AND FOR LICENSING OF WELL DRILLERS AND PUMP INSTALLERS, PROCEDURES AND PRACTICES OF THE STATE WELL DRILLERS AND PUMP INSTALLERS EXAMINING AND ADVISORY BOARD**

**7:9D-1.1 Scope**

Unless otherwise provided by rule or statute, this subchapter shall constitute the rules governing the requirements and standards for the permitting, construction and decommissioning of wells, the standards and requirements for the licensing of all well Drillers of the proper class and pump installers in accordance with N.J.S.A. 58:4A-4.1 et seq., and the activities, duties, procedures and practices of the State Well Drillers and Pump Installers Examining and Advisory Board.

**7:9D-1.2 Construction**

These rules shall be liberally construed to permit the Department and the Board to discharge their statutory functions under the "New Jersey Subsurface and Percolating Waters Act," N.J.S.A. 58:4A-4.1 et seq.

**7:9D-1.3 Applicability**

(a) This chapter applies to any person, well drilling companies, partnerships, corporations or other entities engaged in pump installation, well or well pump repair, well drilling, well construction and decommissioning of wells and to any person licensed under this chapter, or seeking a license as a well driller or pump installer of the proper class.

(b) Nothing in this chapter shall be construed as applying to the drilling of blast holes in quarries or mines or to persons licensed pursuant to, and acting in accordance with The State Plumbing License Law of 1968, P.L. 1968, c.382 (N.J.S.A. 45:14C-1 et seq.); or to excavations and certain activities that do not endanger or threaten subsurface or percolating waters or endanger life.

**7:9D-1.4 Severability**

If any section, subsection, provision, clause or portion of this chapter is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of these rules shall not be affected thereby.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

## **7:9D-1.5 Definitions**

As used in this chapter, the following words and terms shall have the following meanings unless the context clearly indicates otherwise: "Abandoned well" means any well as defined in this section which is not in use, is not properly maintained, or no longer serves its intended use as demonstrated by the permit issued for its construction, or any well which endangers or threatens the subsurface and percolating waters by the intrusion of salt water or from any other cause, or endangers life.

"Act" means the New Jersey Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1 et seq., as amended.

"Administrative authority" means the local board of health having jurisdiction. When water systems serve county, State, or Federal facilities the administrative authority shall mean the Bureau of Safe Drinking Water in the Department.

"Annular space" means the space between the well casing/well screen and the wall of the borehole or in the case of a multiple cased well, all space(s) between casing(s) and all space between the outer casing and the wall of the borehole.

"Aquifer" means a water-bearing layer of natural earth materials that will yield water in a usable quantity to a well or spring.

"Board" means the State Well Drillers and Pump Installers Examining and Advisory Board established pursuant to the Subsurface and Percolating Waters Act, N.J.S.A. 58:4A-4.1 et seq.

"Borehole" means the hole made by driving, jetting, coring, drilling, augering or other means into the ground for the purpose of constructing a well pursuant to this chapter.

"Boring" or "soil boring" means any hole, any temporarily cased hole or any other such installation using direct-push methods which do not exceed duration of 48 hours.

"Boring log" means a description of the boring including, but not limited to, the depth and nature of the material that has been penetrated, water zones and any other data or information required by the Department under this chapter.

"Building sewer line" means the pipe extending from the outer wall of a building to a septic tank or approved place of disposal including a public sewer, and the lines to all parts of the subsurface sewage disposal system, except those classified as distribution lines.

"Casing" means a pipe or tubing installed into a borehole during or after drilling to support the sides of the holes and prevent caving or the entrance of water, gas or other fluid into the hole.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

"Cesspool" means a covered pit with open-jointed lining into which untreated sewage is discharged, the liquid portion of which is disposed of by leaching into the surrounding soil, the solids or sludge being retained within the pit.

"Closed loop geothermal well" means a well or a borehole drilled to a specific depth either singly or in a series wherein a continuous closed loop of pipe is inserted from one well to another for the purpose of non-contact thermal energy transfer from a fluid in the loop to or from the earth.

"Commissioner" means the Commissioner of the Department of Environmental Protection.

"Confining layer" means a layer of natural earth materials having very low hydraulic conductivity that inhibits the movement of water into and out of an aquifer.

"Consolidated formation" means a geologic formation where the sands, gravels, clays or other similar materials have been lithified. These rock formations will commonly remain stable around an open borehole without caving.

"Coring" means drilling with a hollow bit and core barrel in order to obtain a representative sample of the geologic formation.

"Decommissioning" means the permanent closure or sealing of any well in accordance with the procedures set forth in N.J.A.C. 7:9D-3.

"Department" means the Department of Environmental Protection.

"Dewatering system permit" means a permit to drill well(s) for the installation, operation and abandonment of a dewatering well or dewatering well point system for temporary construction dewatering projects only.

"Dewatering well driller" means a person possessing a New Jersey dewatering well driller's license who has at least three years of experience under the supervision of a New Jersey licensed master or journeyman well driller or dewatering well driller with concentration in the practical construction of only dewatering wells or dewatering wellpoints or who satisfies equivalent experience and other requirements of N.J.A.C. 7:9D-1.7

"Dewatering well" or "dewatering wellpoint" means a well or wellpoint installed for the removal of ground water with the intent of temporarily lowering the water table or aquifer level during construction operations.

"Disposal field" means a disposal bed or a group of one or more disposal trenches. The perimeter of the disposal field corresponds to the perimeter of the disposal bed, or a line circumscribing the outermost edges of the outermost disposal trenches and including the area between the disposal trenches.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

"Distribution box" means a watertight structure, which receives sanitary sewage effluent from a septic tank and distributes such sewage effluent in equal portions to two or more pipelines leading to the disposal field.

"Domestic well" means a Category 1 well as described in N.J.A.C. 7:9D-2.1(a)1, that is used primarily to supply drinking and sanitary water supply for an individual dwelling unit.

"Driving" means the pounding of the well casing into the ground.

"Dry well" means a covered pit with open-jointed lining through which drainage from roofs, basement floors or area-ways may seep or leach into the surrounding soil.

"Geologic log" means a description of the materials and drilling conditions encountered during the drilling of a well or boring.

"Geophysical log" means the graphic or electronic record of certain physical properties of material. Logs may include, but are not limited to, measurement of spontaneous potential, resistivity, electromagnetic response, natural gamma radiation, temperature, caliper, water flow, velocity (sonic) and induced nuclear methods such as gamma gamma and neutron logs.

"Ground water" means water below the land surface in a zone of saturation.

"Grout" means any material approved by the Department for use in sealing the annular space of a well during construction, or for sealing a well during decommissioning.

"Hand dug well" means a manually excavated well of permanent nature installed for water supply.

"Immediate on-site supervision" means that a New Jersey licensed well driller of the proper class is present on-site during each entire well drilling operation to oversee the work and performance of any person engaging in or assisting with the operation of the well drilling machine or the construction of any well. On site supervision does not include mobilization and de-mobilization of the well drilling equipment.

"Injection well" means a well through which liquid or gas is injected, under pressure or gravity flow, into the ground for the purpose of disposing wastes, maintaining formation pressure, recharging the aquifer, or environmental remediation.

"Jetting" means the use of a high-pressure stream of air or water to mobilize earth material in advance of penetrating, driving or lowering of well casing into an aquifer.

"Journeyman well driller" means a well driller possessing a New Jersey journeyman well driller's license who has at least three years of experience under the supervision of a New Jersey licensed master or journeyman well driller in the trade, business, or calling of well drilling, with concentration in the practical construction of wells, and the installation and repair of well

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

pumping equipment and appurtenances thereto, or who satisfies equivalent experience and other requirements pursuant to N.J.A.C. 7:9D-1.7.

"License of the proper class" or "license" means a document issued to a person pursuant to N.J.S.A. 58:4A-11 authorizing the individual to engage and perform work in the trade, business, or calling of well drilling, or pump installing.

"Maintenance casing" means an inner casing which can be removed to repair or replace the screen, which is attached to it.

"Master well driller" means a well driller possessing a New Jersey master well driller's license who has at least five years experience in the trade, business, or calling of well drilling, including at least two years of experience as a licensed journeyman well driller in this State, skilled in the planning, superintending, and practical construction of wells, and the installation and repair of well pumping equipment and appurtenances thereto, or who satisfies equivalent experience and other requirements pursuant to N.J.A.C.7:9D-1.7.

"Monitoring well" means a well used to observe the elevation of the water table or potentiometric surface, or to measure the water quality of a water-bearing zone.

"Monitoring well driller" means a well driller possessing a New Jersey monitoring well driller's license who has at least three years of experience under the supervision of a New Jersey licensed master, journeyman, or monitoring well driller in the trade, business, or calling of well drilling, with concentration in the practical construction of wells, or who satisfies equivalent experience and other requirements pursuant to N.J.A.C. 7:9D-1.7.

"Open loop geothermal well" means a well designed and installed specifically for use of the earth as a source for heat extraction/rejection.

"Oversized borehole" means a borehole, which is at least four inches greater than the inside diameter of the casing, which is to be inserted.

"Pitless well adapter" means a manufactured device designed for attachment to one or more openings through a well casing, and constructed so as to prevent the entry of contamination into the well, to conduct water from the well, to protect the water from freezing or extremes of temperature, and to provide access to water system components within the well.

"Pitless well unit" means a preassembled device which extends the upper end of a well casing to above grade, provided with a pitless well cap, and constructed so as to prevent the entry of contamination into the well, to conduct water from the well, to protect the water from freezing or extremes of temperature, and to provide access to the well and to the water system components within the well.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

"Pitless well cap" means a gasketed, watertight, sanitary device that covers and encloses the upper termination of a pitless well unit or the well casing, and is provided with watertight connections for electrical power lines and well vent.

"Potable water" means water of a bacteriological and chemical quality conforming to applicable standards and free from impurities in such amounts sufficient to cause disease or harmful physiological effects.

"Pump" means a mechanical device used to remove or emplace gases, water or fluids from or into a well.

"Pump installer" means a person possessing a New Jersey license as a pump installer who has at least one year experience under the supervision of a New Jersey licensed master, journeyman or journeyman (Class B) well driller or a New Jersey licensed pump installer, and is qualified to engage in pump installing.

"Pump installing" means the installation, removal, alteration, or repair of well pumping equipment and appurtenances thereto in connection with any well including connecting lines between a well and storage tank or appurtenance thereto.

"Sanitary well seal" means a manufactured device or approved arrangement which is used to cap a well or to establish or maintain a watertight junction between the well casing and the piping or equipment installed therein.

"Seepage pit" means a covered pit with open-jointed lining material through which septic tank effluent may seep or leach into the surrounding soil.

"Septic tank" means a watertight receptacle which receives the discharge of sanitary sewage from a building sewer or part thereof, and is designed and constructed so as to permit settling of settleable solids from the liquid, partial digestion of the organic matter, and discharge of the liquid portion into a disposal field or seepage pit.

"Service line" means a pipe for the transmission or conveyance of potable water under pressure either from an individual well or from a distribution main to a single realty improvement.

"Site-wide permit" means a permit to drill well, which allows for the construction of an undetermined number of closed-loop geothermal wells or cathodic protection wells or geotechnical borings or dewatering wells or dewatering wellpoints or other types of wells as determined by the Department, restricted to a single lot and block or an easement right-of-way within a single municipality, or a contiguous property of common ownership consisting of multiple lots or blocks within a single municipality.

"Soil borer" means a person possessing a New Jersey soil borer's license who has at least three years of experience under the supervision of only a New Jersey licensed master or journeyman well driller or soil borer or monitoring well driller with concentrations in the practical construction

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

of borings, or who satisfies equivalent experience and other requirements pursuant to N.J.A.C.7:9D-1.7.

"Sub-account" means a special dedicated non-lapsing account established pursuant to N.J.S.A. 58:4A-14.1(b) that may be used by a licensed well driller or licensed pump installer to cover permit or license renewal fees.

"Suction line" means a pipe, which conveys water at less than atmospheric pressure from a well to a pump.

"Test well" means any well which is drilled, bored, cored, or otherwise constructed for temporary use in obtaining data for engineering or for geophysical or geological exploration or evaluating aquifer potential or quality for a specific use.

"Unconsolidated formation" means a geologic formation where the sands, gravels, clays or other similar materials are loosely arranged. These formations will commonly not remain stable around an open borehole.

"Undersized borehole" means a borehole, which is no larger than the inside diameter of the well casing and is constructed, for emplacement of a well.

"Well" means a hole or excavation larger than four inches in diameter or a hole or excavation deeper than 10 feet in depth that is drilled, bored, cored, driven, jetted, dug, or otherwise constructed for the purpose of removal or emplacement of, or investigation of, or exploration for, fluids, water, oil, gas, minerals, soil, or rock, or for the installation of an elevator shaft.

"Well driller" means a person possessing a New Jersey license as a well driller of the proper class, including, but not limited to, test borers and such other classifications as the Department establishes by regulation, who engages in well drilling or pump installing.

"Well drilling" means any operation or activity involving the drilling, constructing, installing, repairing, replacing, modifying, stimulating or sealing of any well.

"Well permit" means a written approval issued by the Department to a licensed well driller and a property owner which authorizes a licensed well driller of the proper class to construct a well or wells.

"Well pit" means a below ground chamber or vault for the purpose of enclosing and providing access to a wellhead which terminates below grade.

"Well record" means the form to be completed by the well driller, depicting the construction details of any well provided by the Department at the time of well permit issuance.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

"Well stimulation" means the stimulation of a well to increase its productivity. Stimulation techniques include, but are not limited to, blasting, hydro-fracturing, chemical treatment, surging, and dry-icing.

"Well water system" means a system, which derives water from a well to supply potable or non-potable water for any purpose.

#### **7:9D-1.6 General provisions**

(a) No person shall drill, construct, install, repair, replace, modify, stimulate or decommission any well or engage in such business without possessing a valid New Jersey well driller's license of the proper class unless that activity is performed under the direct and immediate on-site supervision of a New Jersey licensed well driller of the proper class issued by the Department.

(b) No person shall drill, construct, install, or replace a well without first having obtained a well permit pursuant to this chapter, except in the case of an emergency under N.J.A.C. 7:9D-1.12.

(c) No person shall install, repair or replace a well pump or well pumping equipment or engage in such business without being or employing a New Jersey licensed pump installer or a New Jersey licensed well driller of the proper class.

(d) No person shall conduct any operation involving the drilling, coring, boring, driving, jetting, digging or other construction or repair of any well pursuant to N.J.A.C. 7:9D:-1.11 without the immediate on-site supervision of a licensed well driller of the proper class. The name of the well drilling company shall be displayed on the equipment used by such driller.

1. There shall be one licensed well driller of the proper class on site for each well drilling rig on site.

(e) No well driller shall perform any well drilling operation without maintaining the area surrounding the operation in a sanitary condition and providing proper containment of all materials and surface drainage away from the well.

#### **7:9D-1.7 General provisions for well driller licenses of the proper class and pump installer licenses**

(a) Well driller licenses are classified as master well driller licenses, journeyman and journeyman (Class B) well driller licenses, monitoring well driller licenses, dewatering well driller licenses, and soil borer licenses. The Department may establish other license categories of the proper class as deemed necessary by recommendation of the Board. The authority to conduct the well drilling activities for each license of the proper class is established as follows:

1. A master well driller is authorized to:

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- i. Drill, construct, install, repair, replace, modify, stimulate, or disconnect a well of any category;
  - ii. Install or replace well pumping equipment and appurtenances, storage tanks and appurtenances and connecting lines between a well and storage tank;
  - iii. Perform yield and drawdown testing of wells;
  - iv. Supervise three or more journeyman well drillers;
  - v. Certify public non-community and non-public well water systems where the mains are less than four inches in diameter;
  - vi. Certify that a well has been drilled, constructed, installed, repaired, replaced, modified, or stimulated in conformance with all applicable State and well drilling and pump installation standards;
  - vii. Qualify as a candidate to be appointed to the Board;
  - viii. Perform field observations to verify qualifications of applicants for all licenses covered by this chapter; and
  - ix. Seal and decommission any well in compliance with N.J.A.C.7:9D-3,
2. A journeyman well driller is authorized to:
- i. Drill, construct, install, repair, replace, modify, stimulate, or disconnect a well of any category except public community supply wells;
  - ii. Install or replace well pumping equipment and appurtenances, storage tanks and appurtenances and connecting lines between a well and storage tank;
  - iii. Perform yield and drawdown testing of wells;
  - iv. Seal and decommission any well in compliance with N.J.A.C.7:9D-3; and
  - v. Qualify as a candidate for appointment to the Board.
3. A journeyman (Class B) well driller is authorized to:

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- i. Drill, construct, install, repair, replace, modify, stimulate, or disconnect a well of any category except public community supply wells and Category 3 wells;
  - ii. Install or replace well pumping equipment and appurtenances, storage tanks and appurtenances and connecting lines between a well and storage tank;
  - iii. Perform yield and drawdown testing of wells;
  - iv. Seal and decommission any well, except Category 3 wells, in compliance with N.J.A.C. 7:9D-3; and
  - v. Qualify as a candidate for appointment to the Board.
4. A dewatering well driller is authorized to:
  - i. Drill, construct, install, replace, modify, stimulate or disconnect any dewatering well or dewatering wellpoint which does not penetrate a confined aquifer;
  - ii. Seal and decommission only dewatering wells or dewatering wellpoints which have not penetrated any confining layers; and
  - iii. Qualify as a candidate for appointment to the Board.
5. A soil borer is authorized to:
  - i. Drill and install any Category 5 well;
  - ii. Seal and decommission only Category 5 wells in compliance with N.J.A.C. 7:9D-3; and
  - iii. Qualify as a candidate for appointment to the Board.
6. A monitoring well driller is authorized to:
  - i. Drill, construct, install, repair, replace, modify, stimulate, or disconnect any Category 3 and Category 5 well which does not require permanent well pumping equipment;
  - ii. Seal and decommission any Category 3 and Category 5 well in compliance with N.J.A.C. 7:9D-3; and
  - iii. Qualify as a candidate for appointment to the Board.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

(b) A pump installer is authorized to:

1. Install or replace well pumping equipment and appurtenances, storage tanks and appurtenances and connecting lines between a well and storage tank;
2. Perform yield and drawdown testing of wells; and
3. Qualify as a candidate for appointment to the Board.

(c) A licensed well driller of the proper class or a pump installer shall at all times during any operation have in her or his possession the valid license of the proper class.

**7:9D-1.8 Application and licensing examination procedures and requirements for well driller licenses of the proper class and pump installer licenses**

(a) An applicant for a New Jersey master well drilling license shall:

1. Submit a complete application on the form prescribed by the Department pursuant to (k) below and satisfy all experience and other requirements specified by this subchapter and provide evidence of the following:
  - i. Five years of well drilling experience, of which two years must be as a licensed New Jersey journeyman well driller; and
  - ii. That he or she has resolved any revocation or suspension of a previously issued well drilling license or settled any outstanding violation or fine pursuant to the Act.
2. Obtain a passing grade of at least 80 percent on each portion of the written examination for the master well driller license administered and
3. Satisfy all licensing requirements as set forth in this chapter.

(b) An applicant for a New Jersey journeyman or journeyman (Class B) well drilling license shall:

1. Submit a completed application on the form prescribed by the Department pursuant to (k) below and satisfy all experience and other requirements specified by this subchapter and provide evidence of the following:
  - i. Three years of well drilling experience under the supervision of a master or journeyman well driller;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- ii. A high school diploma or G.E.D.;
- iii. That he or she has resolved any revocation or suspension of a previously issued well drilling license or of any outstanding violation or fine pursuant to the Act; and
- iv. Any applicant that does not possess the required experience in the State of New Jersey shall submit evidence that he or she is in possession of a valid National Ground Water Association Certification (NGWA) in the appropriate well drilling category, evidence of three years of drilling experience in any other state, and any other requirements deemed necessary by the Board for such applicants.

- 2. Obtain a passing grade of at least 80 percent on each portion of the written examination for the journeyman well driller license administered; and
- 3. Satisfy all licensing requirements as set forth in this chapter.

(c) An applicant for a New Jersey dewatering well drilling license shall:

- 1. Submit a completed application on the form prescribed by the Department pursuant to (k) below and satisfy all experience and other requirements specified by this subchapter and provide evidence of the following:
  - i. Three years of experience drilling and sealing dewatering well or dewatering wellpoints under the supervision of either a master or journeyman well driller or licensed dewatering well driller;
  - ii. A high school diploma or G.E.D.; and
  - iii. That he or she has resolved any revocation or suspension of a previously issued license of the proper class or any outstanding violation or fine pursuant to the Act.
- 2. Obtain a passing grade of at least 80 percent on each portion of the written examination for the dewatering well drillers license administered; and
- 3. Satisfy all licensing requirements as set forth in this chapter.

(d) An applicant for a New Jersey soil borer license shall:

- 1. Submit a completed application on the form prescribed by the Department pursuant to (k) below and satisfy all experience and other requirements specified by this subchapter and provide evidence of the following:

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- i. Three years of experience drilling and sealing borings under the supervision of either a master or journeyman well driller, licensed soil borer or monitoring well driller; or monitoring well drilling;
    - ii. A high school diploma or G.E.D.; and
    - iii. That he or she has resolved any revocation or suspension of a previously issued license of the proper class or any outstanding violation or fine pursuant to the Act;
  2. Obtain a passing grade of at least 80 percent on each portion of the written examination for the soil borer license administered; and
  3. Satisfy all licensing requirements as set forth in this chapter.
- (e) An applicant for a New Jersey monitoring well drilling license shall:
  1. Submit a completed application on the form prescribed by the Department pursuant to (k) below and satisfy all experience and other requirements specified by this subchapter and provide evidence of the following:
    - i. Three years of well drilling experience under the supervision of a master or journeyman well driller or a monitoring well driller;
    - ii. A high school diploma or G.E.D.;
    - iii. That he or she has resolved any revocation or suspension of a previously issued well drilling license or of any outstanding violation or fine pursuant to the Act; and
    - iv. All applicants that do not possess the required experience in the State of New Jersey shall submit evidence that he or she is in possession of a valid National Ground Water Association Certification (NGWA) in the appropriate well drilling category, evidence of three years of drilling experience in any other state, and any other requirements deemed necessary by the Board for such applicants;
  2. Obtain a passing grade of at least 80 percent on each portion of the written examination for the monitoring well driller license administered; and
  3. Satisfy all licensing requirements as set forth in this chapter.
- (f) An applicant for a New Jersey pump installers license shall:

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

1. Submit a completed application on the form prescribed by the Department pursuant to (k) below and satisfy all experience and other requirements specified by this subchapter and provide evidence of the following:
  - i. One year of experience in the installation, removal, alteration and repair of well pumping equipment and appurtenances under the supervision of either a master or journeyman well driller or New Jersey licensed pump installer;
  - ii. A high school diploma or G.E.D.; and
  - iii. That he or she has resolved any revocation or suspension of a previously issued license of the proper class or any outstanding violation or fine pursuant to the State Act.
2. Obtain a passing grade of at least 80 percent on each portion of the written examination for the pump installer's license administered; and
3. Satisfy all licensing requirements as set forth in these rules.

(g) The Department shall review each application upon receipt of all the information required in (k) below and either notify the applicant of any deficiencies or notify the applicant of her or his eligibility to take the appropriate examination.

1. The Department shall grade all examinations and submit the results to the State Well Drillers and Pump Installers Examining and Advisory Board.
2. The Board shall review the results of each examination at the next regularly scheduled meeting and certify the findings to the Commissioner or designee.

(h) The Department shall notify all applicants of the results of their examination.

(i) The Department shall issue the appropriate license to successful applicants upon full payment of the appropriate initial license fee in N.J.A.C. 7:9D-1.9.

(j) An unsuccessful applicant may review his or her examination at the Department during normal working hours for a period of 30 days from the date of written receipt of their examination results.

(k) Applications for a license under this section shall be submitted on a form prescribed by the Department and shall include the following:

1. Name, address, age, and daytime or work telephone number;
2. Social security number;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- i. Under the New Jersey Child Support Act, N.J.S.A. 2A:4-30 et seq., disclosure of applicant's social security number is mandatory. The social security number shall be used solely for the purpose of an internal unique identifier;
- 3. Education;
- 4. Work experience;
- 5. Verification of work experience; and
- 6. A signed and notarized Oath of Applicant stating as follows: "I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment." If, at anytime, the Department finds information or evidence that an applicant obtained a license under false pretenses, such findings shall render the license null and void.

**7:9D-1.9 Licensing examination application fees, licensing fees and renewal requirements for all well driller licenses of the proper class, pump installer licenses, and establishment of special dedicated non-lapsing account**

- (a) All classes of well driller licenses and pump installer licenses shall be renewed once every three years on a schedule, which applies to all licensees. Renewals shall be made by submitting the renewal form provided by the Department and the renewal fee prior to June 30.
- (b) A non-refundable \$50.00 application fee is required with all applications made for any licensing examination and shall be made by check or money order payable to "Treasurer, State of New Jersey" and submitted to the Department.
- (c) The initial and renewal fees for all licenses of the proper class and late renewals are as follows:

|                                      |          |
|--------------------------------------|----------|
| 1. Master well driller's license     | \$300.00 |
| 2. Journeyman well driller's license | \$300.00 |
| 3. Dewatering well driller's license | \$300.00 |
| 4. Soil borer's license              | \$300.00 |
| 5. Monitoring well driller's license | \$300.00 |
| 6. Pump installer's license          | \$150.00 |

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

7. Late renewal fee \$50.00

(d) A licensee who fails to renew his or her license prior to the June 30 renewal payment deadline may have his or her license renewed by payment of the appropriate renewal fee and late payment fee within six months following the renewal date of the license.

(e) A licensee who fails to renew his or her license within six months following the renewal date of the license shall not have the license reinstated until he or she successfully passes the written examination prescribed by the Department for applicants for a new license of the proper class.

(f) A special dedicated non-lapsing account is established by the Division of Budget and Finance within the Department into which any licensed individual may deposit funds to cover well permit and license renewal fees. Sub-accounts shall be established for each individual licensee or company, if specifically requested. Upon authorization of the licensee, the Department shall withdraw well permit application fees or license renewal application fees from the appropriate subaccount.

#### **7:9D-1.10 State Well Drillers and Pump Installers Examining and Advisory Board**

(a) The nine members of the State Well Drillers and Pump Installers Examining and Advisory Board are appointed by the Commissioner or his or her designee.

(b) The Board shall be composed of the following:

1. Three master well drillers whose collective experience represents each geologic area of the State and each drilling method allowed under this chapter;
2. One member who is a well driller in any classification established by the Department;
3. One member not employed by the State and who has no pecuniary involvement in well drilling or pump installing;
4. Three representatives of the Department; and
5. One licensed pump installer.

(c) All Board members shall be appointed for a term of three years with three members appointed or reappointed each year.

1. A Board member may be removed by the Commissioner upon a determination that the Board member exhibited misconduct, incompetence, neglect of duty or for other good cause shown.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- (d) Board members, except for those who are Department employees, shall receive reimbursement for travel expenses in accordance with departmental policies and procedures which the Department determines are necessary and incident to the position.
- (e) At least once each year, the Commissioner shall call for meetings of the Board, having a quorum of five or more members of which at least three shall be licensees.
- (f) The duties of the Board shall include, but not be limited to, the following:
  - 1. Examining the qualifications and experience of all persons applying for any well driller license of the proper class or pump installer license;
  - 2. Certifying all applicants scheduled for a license examination and certifying the results of any examinations administered pursuant to N.J.A.C. 7:9D-1.8 to the Commissioner;
  - 3. Recommending to the Commissioner appropriate new rules or amendments to this chapter;
  - 4. Advising the Department regarding any enforcement actions or any complaints against licensed well drillers, licensed pump installers or any person pursuant to this chapter; and
  - 5. Periodically reviewing and modifying the contents of the examinations administered pursuant to N.J.A.C. 7:9D-1.8.

#### **7:9D-1.11 Well permits**

- (a) Except where the emergency procedures set forth in N.J.A.C.7:9D-1.12 apply, the owner or authorized agent of the land on which the well drilling activity is conducted and the New Jersey licensed well driller of the proper class shall sign and obtain a valid New Jersey well permit from the Department prior to drilling, constructing, installing, physically altering, or redesignating the use of any well.
- (b) The use of a well may not be redesignated pursuant to (a) above unless the well driller is able to verify that the well to be redesignated satisfies all applicable construction standards established for the new use of the well.
- (c) A licensed well driller may obtain a site-wide permit when installing dewatering well point systems, closed-loop geothermal well systems, cathodic protection wells, or soil borings.
- (d) Well permits are valid for a period of one year from the date of issuance except for well permits issued for domestic use which are valid for a period of two years.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

1. If the well is not constructed within the appropriate period, a new well permit shall be obtained from the Department prior to the start of any well drilling activity.

(e) Original State well permits or copies thereof shall be available on-site at all times for inspection by any authorized local and/or State representative.

(f) A State well permit shall be required prior to the construction of all wells as described in N.J.A.C.7:9D-2, regardless of well diameter and total well depth except for those wells described in (g) and (h) below.

1. For each well requiring a permit, a well permit application shall be submitted on the forms prescribed by the Department giving the owner's name and address, name of facility, well driller's name and address, the proposed diameter, the proposed depth, the proposed pumping capacity, the type of well, the proposed location of well in relation to any building structure and potential sources of contamination, the date of application, the signature of owner, signature of well driller and registration number of the well driller who has submitted the application form.
2. Prior to June 30, 2008, the New Jersey Rectangular Coordinate Grid System (Atlas Sheet System) shall be used to report well locational information in a well permit application. In addition to the Atlas Sheet System, well location coordinate data obtained using the methods described at (f)3iv below may also be submitted.
3. Starting July 1, 2008, the proposed well location (horizontal data point) as well as the method used to obtain the proposed well location shall be reported in all well applications according to (f)3i through iv below. Explanatory information and program contacts are provided in the Department's "Guidance for Reporting Well Locations to the New Jersey Department of Environmental Protection Well Permitting Program," available at [www.state.nj.us/dep/watersupply](http://www.state.nj.us/dep/watersupply) or by contacting the Well Permitting Program at (609) 984-6831.
  - i. All well location coordinates shall be mapped within 100 feet of the actual proposed location. The mapping method used shall have horizontal accuracy of at least 30 meters.
  - ii. Horizontal data points shall be submitted in New Jersey State Plane coordinates using the North American Datum of 1983 (NAD 1983), in accordance with the Department's Mapping and Digital Data Standards at N.J.A.C. 7:1D Appendix A, using units of United States survey feet.
  - ii. Locational information collected in latitude and longitude shall be converted to New Jersey State Plane coordinates.
  - iv. Well locational information shall be reported using one of the following methods:

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- (1) Global Positioning System (GPS). GPS data shall be obtained in accordance with Department standards set forth at N.J.A.C. 7:1D Appendix A. More information on GPS is available on the Department's Bureau of Geographic Information Systems' web site at <http://www.nj.gov/dep/gis>. The GPS coordinates shall be collected by the well drillers as close as possible to the proposed well location. GPS receivers used for GIS data collection shall be either mapping or resource grade receivers that meet the standards in N.J.A.C. 7:1D Appendix A;
- (2) i-MapNJ. Access to i-MapNJ and a tutorial for New Jersey well drillers is available through the Department's Bureau of Geographic Information Systems' (BGIS) web site at <http://www.nj.gov/dep/gis>; or
- (3) Survey. All surveyed coordinate locations for a proposed well shall be established by a New Jersey licensed land surveyor.

(g) As provided by N.J.S.A. 58:4A-14a(2), the following activities may be conducted by a well driller without an individual permit issued by the Department:

1. The repair of any well to include redevelopment or in kind well screen replacements;
2. The installation of pitless well adapters;
  - i. Pitless well adapters may also be installed by licensed pump installers without an individual permit.
3. Test borings and any Category 5 wells which are 50 feet or less in total depth and 8.5 inches or less in borehole diameter;
4. Cathodic protection wells which are 50 feet or less in total depth and six inches or less in borehole diameter; and
5. Dewatering wells or dewatering wellpoints which are 25 feet or less in total depth and six inches or less in borehole diameter.

(h) Any activity performed pursuant to (g) above shall be performed and completed by a licensed well driller of the proper class and any resulting well shall be decommissioned in accordance with N.J.A.C.7:9D-3 except that no well abandonment report shall be required.

(i) Where appropriate, the Department shall, as a condition of a well permit, require that a well driller comply with one or more of the following conditions:

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

1. Limit or modify the depth, screened interval or open hole interval, design, well location and/or specify special or alternative construction methods used;
2. Provide advanced notice of drilling in order to allow for the inspection of the well site by authorized representatives and/or provide for the taking of geophysical logs, geologic or water samples as necessary; and/or
3. Any requirement deemed necessary by the Department to protect public health and/or the subsurface and percolating waters of the State.

(j) The owner of the property on which a well is drilled shall be responsible for ensuring that all information provided on the well permit application is true, accurate and complete. In cases where the licensed well driller or other authorized agent signs for the owner he or she shall assume the owner's responsibility for the information on the permit application.

(k) The well permit application shall be returned without review to the licensed well driller if the Department determines that:

1. The application is incomplete, contains inaccurate information, lacks sufficient information or is illegible;
2. The application is not accompanied by a check or money order made payable to the "Treasurer, State of New Jersey"; or
3. Insufficient funds are available in the specified sub-account authorized for well permit application fee payment.

(l) Any request for deviation from standards pursuant to N.J.A.C. 7:9D-2.8 shall be submitted to the Department.

#### **7:9D-1.12 Provisions for issuance of emergency well drilling permits**

(a) The Department may issue an emergency well permit to minimize actual or avert potential harm to human health, the environment, or property.

(b) A licensed well driller requesting an emergency well permit under this section shall contact the Department on the day of the emergency or, when the emergency occurs after business hours, on a weekend or on a holiday, the next working day thereafter. The Department must receive a completed well permit application from the well driller.

1. Within five business days of the emergency well permit number issuance, the licensed well driller shall submit to the Department a completed well permit application.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

2. The application shall include a clear and concise factual description of the nature and scope of the emergency and verification upon request by the Department.

(c) The Department, upon issuance of an emergency permit, shall assign to the licensed well driller an emergency well drilling permit number and specify the date of approval. The licensed well driller shall make the permit number and approval date available for any onsite inspection by any authorized local, State or Federal representative.

#### **7:9D-1.13 Provisions for issuance of expedited well drilling permits**

(a) The Department may issue an expedited well permit for those well permit applications initially received via telefax machines or other electronic media. The expedited permit processing service can be utilized only in conjunction with the special dedicated non-lapsing account established under N.J.A.C. 7:9D-1.9(f) or any other Department approved payment method.

(b) A licensed well driller requesting an expedited well permit under this section shall properly complete the appropriate well permit application form and send a copy to the Department via telefax machine or other electronic media.

(c) Upon receipt of a properly completed permit application via electronic media, the Department shall verify that sufficient funds exist in the driller's sub-account to cover the appropriate well permit fee and the additional fee for the expedited service as per N.J.A.C. 7:9D-1.16(b). Upon this finding, the Department shall transmit an approved copy of the well permit to the licensed driller via telefax machine or other electronic media.

(d) The well driller shall submit the completed well permit application form (hard copy) to the Department within five business days of the expedited well permit number issuance. The well driller shall assure that the assigned well permit number is properly noted on the application form.

(e) An expedited well permit approval may be issued for a public community supply well only in those cases where the Bureau of Water Systems and Well Permitting has issued its approval to construct the well in accordance with the New Jersey Safe Drinking Water Act rules, N.J.A.C. 7:10.

#### **7:9D-1.14 Provisions for denial, revocation or cancellation of well permits**

(a) The Department shall deny the issuance of a well permit upon a determination of the following:

1. The well driller has failed to pay the required initial or renewal licensing fee, pursuant to these rules or the Subsurface and Percolating Waters Act. Such action taken by the

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

Department to deny such well permit applications shall not restrict or prohibit the property owner from securing the services of another New Jersey licensed well driller to obtain a permit to drill well; or

2. The site where the well is to be drilled is designated by the Department as an area where wells may not be constructed, including but not limited to contaminated aquifers, areas of salt water intrusion, and other areas where environmental remediation may be adversely affected by the construction and/or operation of wells.

(b) The Department may revoke a well permit upon a determination of the following:

1. The permit application contained false or inaccurate information; or
2. The owner, well driller or both failed to comply with any requirement of the State Act or this subchapter or has not complied with one or more conditions of the State well permit issued for the particular well.

(c) The well driller shall be responsible for cancellation of all approved State well permits which have either expired or in those instances where the well construction was never initiated. All cancellations shall be made by the New Jersey licensed well driller using the forms prescribed by the Department.

#### **7:9D-1.15 Well record requirements**

(a) All well records shall be maintained as follows:

1. A licensed well driller shall, within 90 days of completion of the drilling, constructing, installing, repairing, replacing or modifying any well requiring a permit to drill, file a completed well record on the forms provided by the Department.
  - i. A well is completed when all drilling and the physical construction of the well has been completed by the well driller.
  - ii. All well records shall be signed by the well driller who actually performed the construction of the well, or provided the onsite supervision of the well construction;
2. Where a well is equipped with a pump having a capacity in excess of 70 gallons per minute (gpm) and the equipment is installed after the well record has been submitted, the well record shall be amended by the licensed well driller or pump installer and resubmitted to the Department within 90 days of installation of the pumping equipment;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

3. Well records shall be accurate, complete and legible using the forms prescribed by the Department giving the geologic log (that is, description of materials penetrated during well drilling), the location of the well, the date of well construction and date well completed, the size and depth of the well, the diameter of the borehole and well casing installed, the length of well casing, the length of any well screen or open hole interval, a description of all equipment and materials used to construct the well, the static water level and yield of the well, information on any permanent well pumping equipment installed by the well driller or pump installer, name and registration number of the well driller who constructed the well and other such information pertaining to the construction of the well; and
4. Starting July 1, 2008, the as-built location of the well shall be reported in all well records as follows:
  - i. All well location coordinates shall be mapped within 10 feet of the actual location. The mapping method used shall have horizontal accuracy of at least five meters.
  - ii. Horizontal data points shall be submitted in New Jersey State Plane coordinates using the North American Datum of 1983 (NAD 1983), in accordance with the Department's Mapping and Digital Data Standards at N.J.A.C. 7:1D Appendix A, using units of United States survey feet.
  - iii. Location information collected in latitude and longitude shall be converted to New Jersey State Plane coordinates.
  - iv. Well locational information shall be reported using one of the following methods:
    - (1) Global Positioning System (GPS). GPS data shall be obtained in accordance with Department standards set forth at N.J.A.C. 7:1D Appendix A. More information on GPS is available on the Department's Bureau of Geographic Information Systems' web site at <http://www.nj.gov/dep/gis/>. The GPS coordinates shall be collected by the well drillers as close as possible to the as-built well location. GPS receivers used for GIS data collection shall be either mapping grade or resource grade receivers that meet the standards in N.J.A.C. 7:1D Appendix A; or
    - (2) Survey. All surveyed coordinate locations for an as-built well shall be established by a New Jersey licensed land surveyor.

(b) Where a site-wide permit is issued, one well record form shall be submitted for all wells that are the subject of that permit.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

#### **7:9D-1.16 Fees for permit to drill well**

(a) Non-refundable payment of well permit fees is required for any well requiring a permit to drill pursuant to the State Act and these rules. Payment shall be made by check or money order, payable to "Treasurer, State of New Jersey" and submitted with the appropriate permit application to the Department.

(b) Well permit fees are assessed as follows:

1. Each permit application for any well other than those described in (b)2 below shall be accompanied by a fee of \$130.00;
2. Each permit application for a well equipped with a pump capable of producing 70 gallons per minute or more shall be accompanied by a fee of \$250.00;
3. Each site-wide permit application for borings, cathodic protection wells, closed loop geothermal well systems or dewatering well systems shall be accompanied by a fee of \$1,300.00. A site-wide permit shall allow for the construction of 10 or more borings, cathodic protection wells, closed loop geothermal wells, or dewatering wells or dewatering wellpoints for each project area. Where less than 10 borings, cathodic protection wells, closed loop geothermal wells, or dewatering wells or dewatering wellpoints are proposed to be drilled at a site, individual well permits are required, and the fee at (b)1 above applies.

(c) The Department shall annually publish a list of acceptable electronic media for expedited permit processing and the associated additional fee for each individual permit shall be \$25.00.

### **SUBCHAPTER 2 REQUIREMENTS AND PROCEDURES FOR THE CONSTRUCTION, INSTALLATION, OPERATION AND MAINTENANCE OF WELLS**

#### **7:9D-2.1 Well categories**

(a) The following well categories are for the purposes of establishing general and specific well construction standards:

1. Category 1 Potable Water Supply Wells: domestic, non-public, public community supply, and public non-community wells;
2. Category 2 Non-Potable Water Supply Wells: fire protection, irrigation, test, industrial, livestock, open loop geothermal and injection or recharge wells;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

3. Category 3 Resource Evaluation Wells: monitoring wells, air sparging wells, soil vapor extraction wells, recovery wells, and wells or wellpoints installed for environmental remediation projects;
4. Category 4 Special Use Wells: methane gas extraction wells, closed-loop geothermal wells, dewatering wells or dewatering wellpoints, cathodic protection wells, oil and gas exploration wells, elevator shafts and any other such well which may, in the discretion of the Department require a permit pursuant to the State Act and N.J.A.C. 7:9D-1.11; and
5. Category 5 Geotechnical Wells: test borings, probe holes, uncased holes drilled or otherwise constructed for the purpose of obtaining data for engineering and/or geophysical, hydrological or geological purposes and borings involving the use of direct-push technologies.

#### **7:9D-2.2 General construction requirements for all wells**

(a) The following general construction requirements shall apply to the construction of all categories of wells pursuant to the State Act:

1. A New Jersey licensed well driller shall be on-site and directly supervise each well drilling operation, and there shall be one licensed well driller of the proper class on site for each well drilling rig on site;
2. All water used in the construction, alteration, repair or decommissioning of any well shall be of potable quality;
3. All well drilling rigs, tools, pipe and other drilling equipment shall be maintained in a clean and operational state to prevent contamination to the well or work site;
4. The Department may prohibit for use in the construction or maintenance of any well any material or equipment that may pose a significant hazard to public health, safe drinking water or ground water;
5. Any hazardous waste, including but not limited to, contaminated casing, cuttings, sediment, displaced water, or free product, generated during the drilling procedure shall be handled in accordance with N.J.A.C. 7:26G;
6. No new Category 1 or Category 2 well shall be located or enclosed in a basement or cellar of a building;
  - i. No existing well shall be built over by any realty improvement that would inhibit access to the well for any repair, replacement or decommissioning;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

7. When permanent casing is to be driven into an undersized borehole, the borehole diameter shall be less than the inside diameter of the casing;
8. A drive shoe shall be placed on casing that is to be driven;
9. When casing is to be installed into an oversized borehole, the borehole diameter shall be at least four inches greater than the inside diameter of the well casing to be installed;
10. Where applicable, all annular space between well casings, and the annular space between any casing and borehole, shall be sealed immediately following the setting of the well casing, but no later than 24 hours after the well casing has been set in place;
11. A temporary outer casing of the same inner diameter as the oversized borehole may be installed to prevent cave-in provided the temporary casing is removed, if possible, during the sealing of the annular space;
12. A well shall not be screened or gravel packed in more than one water bearing unit or across a confining unit without prior written approval by the Department;
13. Adequate protection shall be provided for the top of the borehole and/or the top of the well casing to prevent surface contamination from entering the well during the drilling operation and when the driller is not at the drilling site;
14. When the drilling of a borehole for any well is temporarily suspended and the rig moves away from the drilling site, the borehole shall be considered abandoned and subject to the decommissioning requirements in N.J.A.C.7:9D-3;
15. Once the well has been installed, the well casing shall be securely capped until the pump is installed and/or the well is placed in service or until the well is properly decommissioned. The cap shall be threaded onto the casing, or be a friction type device which locks onto the outside of the casing, or a blank sanitary well seal, or any other equivalent type of cap as may be approved by the Department;
16. All flowing wells shall be equipped with a water-tight cap which is threaded, slip-on or welded, and a control valve or necessary appurtenances to protect the integrity of the well construction and/or wellhead.
  - i. There shall be no overflow of water from the well which may become a public nuisance or violate any other New Jersey State law or regulation;
17. Unsuitable or non-productive wells that cannot be used for their intended purpose shall be decommissioned in accordance with N.J.A.C. 7:9D-3. These include, but are not limited to, wells which are abandoned during construction, are contaminated, exhibit a loss of supply or are damaged;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

18. If the Department determines that any well water system, or any appurtenance thereto, is not being properly maintained, or has deteriorated to such an extent that contamination might enter the well or enter the ground water or constitute a physical hazard, the Department may order work to be performed on the well or appurtenances thereto as is deemed necessary to prevent contamination of the ground water or mitigate the physical hazard;
19. When permanent well pumping equipment is required for any well, all installation or replacement work shall be performed by a New Jersey licensed pump installer or New Jersey licensed master or journeyman well driller. All such work shall conform with the standards set forth in N.J.A.C. 5:23-3.16 and N.J.A.C. 13.31-1.18(a).
20. Any portion of a well borehole which is drilled into a confining layer or through a confining layer where the deeper aquifer will not be used, shall be considered abandoned and that portion of the well borehole shall be decommissioned and sealed prior to the completion of the well in accordance with N.J.A.C. 7:9D-3.

(b) Any well installed in an area of known contamination or salt water intrusion may be required to have double-cased well construction as follows:

1. The outer-most well casing shall be constructed into the first significant confining layer which separates the water supply from any such contamination. This casing shall extend at least 20 feet into the confining layer or to the base of the confining layer;
2. The annular space between the casing and borehole shall be sealed in accordance with N.J.A.C. 7:9D-2.9 and 2.10. The annular space between all subsequent well casings installed shall also be permanently sealed to protect all underlying aquifers as well as the water supply; and
3. All wells with casing that extends through salt water into fresh water shall be double-cased.

**7:9D-2.3 Specific requirements for the construction of Category 1 and Category 2 wells**

(a) In addition to the well permitting requirements in N.J.A.C.7:9D-1 and the well construction standards in N.J.A.C. 7:9D-2.2, the following requirements shall also apply to all Category 1 wells:

1. All parts of the well water system shall be tested, installed, designed, located, and constructed in accordance with all applicable sections of N.J.A.C. 7:10-12 or 11;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

2. All wells shall be disinfected pursuant to the applicable requirements of N.J.A.C. 7:10-12 or 11;
3. For potable water supply wells installed in unconsolidated formations:
  - i. All well casing shall be no less than four inches in inner diameter and no less than 50 feet in depth;
  - ii. The diameter of any well screen shall not be less than two inches; and
  - iii. All wells shall have a minimum length of 50 feet of grout seal extending from the top of the gravel pack or top of the well screen to grade.
4. For potable water supply wells installed in consolidated formations:
  - i. All well casing shall not be less than six inches in inner diameter;
  - ii. Each well shall have a minimum of 50 feet of casing and be constructed with a minimum of 20 feet of casing set into unweathered rock; and
  - iii. All wells shall have a minimum length of 50 feet of grout seal extending from the bottom of the casing described in (a)4ii above to grade; and
5. All well water systems which may require water treatment pursuant to (a)1 above shall conform with all applicable requirements set forth in N.J.A.C. 7:10-12 or 11.

(b) In addition to the well permitting requirements in N.J.A.C. 7:9D-1 and the well construction standards in N.J.A.C. 7:9D-2.2, the following requirements shall also apply to all Category 1 and 2 wells:

1. All well casings shall extend a minimum of 12 inches above grade and shall be equipped with pitless adapters or pitless well units. The pitless adapter or pitless well unit requirement does not apply to wells equipped with a turbine pump. Exceptions to this 12 inch requirement are those well casings located in a well pit or pump house where adequate protection from surface drainage or contamination is provided and those located in driveways as flush mount installations provided with a water tight lid;
2. All wells shall be equipped with a down facing casing vent located at least 12 inches above the flood level. All vents shall be screened to prevent the entry of insects;
3. Any repairs made to existing wells or pump systems, where the well head terminates below ground, shall include extending the well casing above the land surface and installing a pitless adapter. Extending the well casing above grade shall be accomplished by either welding additional casing on the existing casing, or the use of

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

a gasketed, water-tight casing adapter which complies with the Pitless Adapter Standard - 1997 (PAS-97) Performance Standards document set forth at (a)6ii below;

4. The annular space between the casing and the oversized borehole shall be sealed in accordance with the requirements set forth in N.J.A.C. 7:9D-2.9 and 2.10;
5. All annular space between any well casings shall be sealed, excluding the annular space between a maintenance casing and any permanent casing; and
6. All permanent well pumping equipment, well pump controls, pitless well adapters and pitless well units for Category 1 and 2 wells shall be installed as follows:
  - i. A pitless well installation shall consist of either a pitless well unit or pitless well adapter, and a pitless well cap or a sanitary well seal;
  - ii. Pitless well units, pitless well adapters and pitless well caps shall be manufactured and installed in accordance with the Pitless Adapter Standard - 1997 (PAS-97) Performance Standards of the Water Systems Council, incorporated herein by reference, as amended and supplemented. The standard may be obtained from the Water Systems Council, 800 Roosevelt Road, Building C, Suite 20, Glen Ellyn, IL 60137;
  - iii. The lateral discharge line from the well shall be covered with a minimum of 3.0 feet of earth. In northern portions of the State (that is, Passaic, Sussex and Warren counties) additional earth cover to prevent freezing may be necessary;
  - iv. The hole used to install the lateral discharge line into the well casing shall be made in such a manner as to provide a watertight connection;
  - v. The exterior connection between the adapter and the well casing shall be a watertight seal either welded, threaded, or of a clamp-on gasket type. A clamp-on gasketed adapter shall be installed only on a well casing with a smooth, clean surface;
  - vi. At the point of attachment to the well casing, a pitless well unit shall be field-welded, threaded, or of the slip-on type with "O-ring" gasket, and shall be of watertight construction;
  - vii. If the connection is by means of a field-weld, the pitless well unit shall be of a type specifically designed for a welded connection;
  - viii. If the connection is of the slip-on type with "O-ring" gasket, the surface of the well casing shall be smooth and clean;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- ix. The field connection between the pitless well unit and the lateral discharge line shall be either threaded, flanged or a mechanical joint, and shall be constructed and installed so as to be watertight;
- x. Well pumps and appurtenant equipment shall be designed and installed to ensure adequate protection of the water supply and protection against freezing of the water;
- xi. Each well pump shall have a foot-valve or a check valve;
- xii. In a screened well, the well pump setting and suction inlet shall be located so that the pumping level of the water cannot be drawn below the top of the screen;
- xiii. Any well with a yield of less than five gallons per minute (gpm) shall be equipped with a low water level cut-off device;
- xiv. Any well with a pump capacity greater than the yield of the well shall be equipped with a low water level cut-off device;
- xv. Whenever possible, pumping equipment shall be designed and located so as to avoid the need for a pump pit. A pump pit, if used, shall be of watertight construction and shall have a drainage system or sump pump installed to prevent flooding;
- xvi. The pumping equipment shall be located so as to permit convenient access for the removal and repair of the pump and related appurtenances;
- xvii. Each pump shall be mounted so as to minimize vibration and noise and to minimize damage to the pump;
- xviii. A pressure switch and a thermal overload switch shall be included on all pump installations;
- xix. A pressure relief valve is required on all positive displacement pumping systems; and
- xx. Pump controls or accessories shall either be housed in a secured building or be enclosed in a weather-proof, locked cabinet.

(c) All wells installed in unconsolidated formations shall be constructed as follows:

- 1. When used, all well screens shall be properly sized to produce water free of sand and silt at the well head to the extent that the sand and silt will not interfere with the intended use and operation of the well water system.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- (d) All wells installed in consolidated formations shall be constructed as follows:
1. All well casing shall be steel and shall conform to the minimum specifications and requirements set forth in Table 1 of (e)4 below;
  2. All wells shall have a minimum of 50 feet of casing, with a minimum of 20 feet of casing set into unweathered rock; and
  3. If broken rock, mud seams, etc., are encountered when drilling below the base of the permanent casing, the driller shall pull out the permanent casing, ream the hole to below the problem zone and reinstall the well casing. In those instances or situations where the well driller is unable to remove the permanent well casing, a deviation from the construction standards shall be requested in accordance with N.J.A.C. 7:9D-2.8.
- (e) All materials used for the maintenance, replacement, repair, or modification of any Category 1 or 2 well shall meet the following requirements:
1. All well casing shall be approved for its intended use by the National Sanitation Foundation (NSF) and either the American Water Works Association (AWWA) or the American Society for Testing and Materials (ASTM);
  2. Outer casings and liners shall be of the same weight and thickness as the permanent casings;
  3. Plastic well casing shall conform to the following requirements:
    - i. Plastic well casing shall be limited to use in unconsolidated formations;
    - ii. Plastic well casing or screen shall not be driven;
    - iii. Plastic well casing shall meet the requirements specified in the American Society for Testing and Materials (ASTM) Standard F480-91, "Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80," incorporated herein by reference, as amended and supplemented. The Society's address is 1916 Race Street, Philadelphia, PA 19013;
    - iv. ABS casing shall meet the requirements specified in the American Society for Testing and Materials Standard D1527, "Standard Specifications for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe, Schedules 40 and 80" incorporated herein by reference, as amended and supplemented. The Society's address is 1916 Race Street, Philadelphia, PA 19013;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- v. Plastic well casing shall also meet the requirements of the National Sanitation Foundation Standard Number 14; "Plastic Piping System Components and Related Materials," incorporated herein by reference, as amended and supplemented. The Foundation's address is P.O. Box 130140, 789 Dixboro Road, Ann Arbor, MI 48113-0140;
  - vi. Each length of plastic casing shall be marked in accordance with the ASTM marking specifications noted in ASTM standard F480 (see (c)3iii above); and
  - vii. Plastic well casing may be joined by solvent welding or mechanically joined by threads or other means depending on the type of material and its fabrication. Solvent cement used for solvent welding shall meet the specifications for the type of plastic well casing being used. Solvent cement shall be applied in accordance with the instructions of the solvent and casing manufacturer;
4. Standard steel casing shall be manufactured and installed to conform to ASTM designation A-53 or A-120, or American Petroleum Institute (API) standard Specifications 5A or 5L, incorporated herein by referenced, as amended and supplemented. The latter are available from API, Division of Production, 300 Corrigan Tower Building, Dallas, TX 75201. All steel casing shall be manufactured to conform to the American National Standards Institute (ANSI) dimensions and shall conform to the minimum specifications and requirements listed in Table 1 below:

TABLE 1  
Minimum Steel Casing Pipe Weights and Dimensions

| Nominal size (inches) | Weight (lb. Per foot)* |                     |  | Thickness (inches) | Diameter |        |
|-----------------------|------------------------|---------------------|--|--------------------|----------|--------|
|                       | Plain end              | Threads & couplings | Threads reamed/ recessed & drifted couplings |                    | Outside  | Inside |
| 4                     | 10.79                  | 10.89               | 11.00  | . 237              | 4.500    | 4.026  |
| 5                     | 14.62                  | 14.81               | 15.00  | . 258              | 5.563    | 5.047  |
| 6                     | 18.97                  | 19.18               | 19.45  | . 280              | 6.625    | 6.065  |
| 8                     | 24.70                  | 25.55               |  | . 277              | 8.625    | 8.071  |
| 10                    | 40.48                  | 41.85               |  | . 365              | 10.750   | 10.020 |
| 12                    | 43.77                  | 45.45               |  | . 330              | 12.750   | 12.090 |
| 14                    | 54.57                  | 57.00               |  | . 375              | 14.000   | 13.250 |
| 16                    | 62.58                  | 65.30               |  | . 375              | 16.000   | 15.250 |
| 18                    | 70.59                  | 73.00               |  | . 375              | 18.000   | 17.250 |
| 20                    | 78.60                  | 81.00               |  | . 375              | 20.000   | 19.250 |

\*Nominal weight based on length of 20 feet including coupling.

- 5. Well screens other than those commercially manufactured shall be constructed by creating slots or openings in approved casing materials as specified at (e) above.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

(f) All gravel or filter packs installed in Category 1 or 2 wells shall conform to the following requirements:

1. All gravel or filter pack placed between the borehole and the well screen shall be clean, washed, and disinfected prior to emplacement, or provisions made for performing disinfection in place. Gravel pack may be disinfected by introducing granular chlorine or chlorine tablets during the gravel pack operation;
2. The grain size and gradation of the filter material shall be selected to stabilize the aquifer material during well development;
3. The gravel pack shall not extend into any confining layer above the screen:
  - i. For well screens less than or equal to 20 feet in length, the filter pack shall not extend more than 10 feet above the top of the well screen;
  - ii. For well screens greater than 20 feet in length, the filter pack shall not extend more than 50 percent of the length of the well screen itself above the top of the well screen. The filter pack shall not extend more than 50 feet above the top of any well screen;
4. Gravel refill pipes may be installed if they terminate above the ground surface, are sealed in place, are provided with water tight caps and the well casings are eight inches or greater in diameter; and
5. The filter-pack or gravel shall be placed around each screen in a manner that will enhance well production and assist in preventing sand and silt infiltration through the well screen following well development. Filter materials may be introduced into a well provided that:
  - i. For gravity placement, the filter material shall be poured into the annular space around the screen at a measured and uniform rate; and
  - ii. For tremie pipe placement, the filter material shall be placed through a tremie pipe that has been lowered to the bottom of the well.

(g) In addition to the general well permitting requirements in N.J.A.C. 7:9D-1 and the construction requirements in N.J.A.C. 7:9D-2.2 and 7:9D-2.3, the following specific requirements shall apply to all open loop geothermal wells constructed for heating and cooling:

1. Unless otherwise approved by the Department, all return water shall be through a return well to the originating aquifer;
2. All water returned to the originating aquifer shall, except for a difference in temperature and oxygen content, have the same physical and chemical

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

characteristics as were present prior to withdrawal. No corrosion inhibitors, water softeners or other additives shall be added to water that will be returned to the originating aquifer;

3. The annular space between the casing and the oversized borehole shall be sealed in accordance with the requirements in N.J.A.C. 7:9D-2.9 and 2.10; and
4. Wells that also provide a potable water supply shall be constructed according to the requirements specified for Category 1 wells.

#### **7:9D-2.4 Requirements for the construction and maintenance of all Category 3 wells**

(a) In addition to the well permitting requirements in N.J.A.C. 7:9D-1 and the general construction specifications in N.J.A.C. 7:9D-2.2, the following specific requirements shall apply to all Category 3 wells:

1. The State well permit number shall be prominently displayed and permanently affixed to each well in addition to the site-specific well identification number set forth on the approved well permit application (for example, MW-1);
2. Copies of the site-specific well construction requirements shall be maintained at the drilling site by the well driller;
3. All annular space between the casing and the oversized borehole shall be sealed in accordance with the requirements in N.J.A.C. 7:9D-2.9 and 2.10;
4. For all monitoring wells, except those used for aquifer pump tests, no more than 25 feet total of well screen shall be installed and no more than five feet of filter pack shall be placed above the top of the well screen. For all monitoring wells constructed without a screen, except those used for aquifer pump tests, there shall be no more than 25 feet total of open borehole;
5. Protective steel casing shall be installed to a minimum depth of three feet below grade, equipped with a steel locking cap and securely set in concrete. This requirement shall only apply to all above grade well installations;
6. All flush-mounted monitoring wells shall be constructed with manholes, locking caps, and seals to prevent leakage of surface water into the well; and
7. Below-grade installations of monitoring wells shall be in accordance with the Department's Field Sampling Procedures Manual, May, 1992, as amended and supplemented.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

(b) Category 3 wells in consolidated formations shall be constructed in accordance with the following:

1. The borehole drilled to case off the overburden shall extend a minimum of 10 feet into competent bedrock; and
2. If a well screen and riser pipe are to be installed, applicable well specifications for wells shall be adhered to pursuant to N.J.A.C. 7:9D-2.2.

(c) Category 3 wells in unconsolidated aquifers where a confining layer(s) exist shall be constructed in accordance with the following:

1. The screened interval or the filter pack shall not extend across the interface of a confining layer and an aquifer.

#### **7:9D-2.5 Requirements for the installation of Category 4 wells**

(a) In addition to the well permitting requirements in N.J.A.C 7:9D-1 and the well construction requirements in N.J.A.C. 7:9D-2.2, the following requirements apply to all vertical closed loop geothermal wells:

1. The vertical closed loop geothermal well shall be constructed using a borehole with sufficient diameter to allow for proper grouting;
2. The tremie or grout pipe shall be installed with the closed loop upon completion of the borehole. The entire annular space between the closed loop and the uncased borehole shall only be sealed under pressure in accordance with N.J.A.C. 7:9D-2.9 and 2.10 using the following materials:
  - i. High grade bentonite, cementitious thermally enhanced grout or Thermal Grout 85 or equal for wells constructed into unconsolidated formations; and
  - ii. Cementitious thermally enhanced grout for wells constructed into consolidated formations;
3. The circulating fluids utilized in the closed loop system shall be potable water or an appropriate mixture of potable water with one of the following antifreeze solutions:
  - i. Calcium Chloride;
  - ii. Ethanol;
  - iii. Potassium Acetate;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- iv. Potassium Carbonate;
  - v. Propylene Glycol; or
  - vi. Sodium Chloride;
4. Pipe material for the underground buried portion of the heat exchanger shall be 160 psi polyethylene pipe as specified below:
- i. Polyethylene - All material shall maintain a 1600 psi hydrostatic design basis at 73.4 degrees F per ASTM D-2837, and shall be listed in PPI TR4 as a PE3408 piping formulation. The material shall be a high density, polyethylene extrusion compound having a cell classification of PE345434C or PE355434C with a UV stabilizer of C, D or E as specified in ASTM D-3350 with the following exception: this material shall exhibit zero failures (FO) when tested for 192 or more hours under ASTM D-1693, condition C, as required in ASTM D-3350;
5. Buried pipe systems shall be joined so that the resultant assembly is leak-proof using one of the following methods:
- i. The heat fusion process in accordance with the pipe manufacturer's specifications; or
  - ii. Those joined using the International Ground Source Heat Pump Association (IGSHPA) approved mechanical stab fittings.

(b) In addition to the well permitting requirements in N.J.A.C. 7:9D-1 and the well construction standards in N.J.A.C. 7:9D-2.2, the following requirements shall apply to all dewatering wells or dewatering wellpoints:

- 1. Any dewatering well or dewatering wellpoint installed pursuant to N.J.A.C. 7:9D-1.11(g) or that requires an individual or site-wide well permit shall be installed by a New Jersey licensed well driller of the proper class;
- 2. A dewatering well which penetrates a confined aquifer shall be installed by a New Jersey licensed master or journeyman well driller and constructed in accordance with the requirements in N.J.A.C. 7:9D-2.2;
- 3. The owner of the project requiring a dewatering system is responsible for obtaining all other necessary permits and for the hiring of a licensed dewatering well driller or a New Jersey licensed well driller of the proper class to install and properly decommission all dewatering wells or dewatering wellpoints;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

4. A permit is required prior to the installation of any dewatering well or dewatering wellpoint in accordance with N.J.A.C. 7:9D-1;
5. The location and construction specifications for dewatering wells shall be as follows:
  - i. A dewatering well shall be located to facilitate temporary dewatering operations and shall be constructed and maintained to prevent surface flow or any other source of pollution from entering the well;
  - ii. Temporary erosion control measures shall be employed to reduce erosion caused by groundwater diversion including, but not limited to, berms, dikes, drains, soil stabilization matting, diversion channels, baled hay or straw, silt fences or sedimentation basins. All soil erosion control shall be in accordance with Standards for Soil Erosion and Sediment Control in New Jersey (see N.J.A.C. 2:90-1.3);
  - iii. The owner of the project where dewatering is taking place shall be responsible for the repair or replacement of any potable water well system which becomes contaminated, damaged, has reduced capacity, reduced water quality or is otherwise rendered unusable as a potable water well system as a result of the dewatering operation. All work shall be in accordance with this subchapter and N.J.A.C. 7:10-12, or N.J.A.C. 7:10-11; and
6. The requirements for the installation of dewatering well casings and screens are as follows:
  - i. The wall thickness of the dewatering well casing shall be selected to withstand the forces exerted on the well casing during both installation and removal;
  - ii. The dewatering well casing shall extend not less than 12 inches above the working grade of the well, except where the operation is under a vacuum and closed piping is maintained to prevent surface contamination from entering the well;
  - iii. The top of the dewatering well casing shall be capped with either a sanitary well seal, a metal plate welded into place or a threaded cap from date of installation until it is taken out of service and properly decommissioned. The device shall be constructed so as to prevent pollution or physical injury;
  - iv. The material used between the borehole and the dewatering well casing shall be clean and free of harmful material. Above grade, the material shall be placed around the well casing in a mound to divert surface waters away from the well casing;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- v. When a gravel pack is not used, any annular space between the well casing and the wall of the borehole shall be sealed from the top of the screen or base of the casing pursuant to N.J.A.C. 7:9D-2.9 and 2.10;
- vi. Dewatering well screens shall be sufficiently strong and durable to ensure that they may be removed intact from the dewatering well; and
- vii. The screening of a dewatering well in more than one aquifer is prohibited.

(c) In addition to the general well drilling and well permitting requirements in N.J.A.C. 7:9D-1 and 2.2, the following requirements shall apply to the construction of all cathodic protection wells:

1. The borehole shall be at least four inches larger than the diameter of the anode, cathode, or casing to be used;
2. The top of a cathodic protection well casing shall be fitted with watertight caps, covers, "U" bends, or equivalent devices or housings to prevent entry of surface water and pollutants. All such covers shall allow venting of gases from the well; and
3. The annular space between the casing and the oversized borehole shall be sealed in accordance with the requirements in N.J.A.C. 7:9D-2.9 and 2.10.

(d) In addition to the general well drilling and well permitting requirements in N.J.A.C.7:9D-1 and N.J.A.C.7:9D-2.2, the following requirements shall apply to the construction of all elevator shafts:

1. Wells constructed or boreholes drilled for the installation of elevator shafts or hydraulic cylinders shall be cased, sealed and maintained in a manner to prevent the vertical movement of water as a source of contamination to any aquifer;
2. Casing shall either be driven into an undersized borehole or installed using the oversized borehole method. If the oversized borehole method is used, the borehole shall be at least four inches larger than the casing to be installed;
3. The annular space between the casing and the oversized borehole shall be sealed in accordance with the requirements set forth in N.J.A.C. 7:9D-2.9 and 2.10; and
4. To prevent any contaminants from entering the ground water at the bottom of the casing, the bottom of the casing shall be:
  - i. Permanently capped prior to installation; or

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- ii. A neat cement plug at least two feet thick shall be installed at the bottom of the casing in accordance with 7:9D-2.9 after it is installed.

(e) In addition to the general well drilling and well permitting requirements in N.J.A.C. 7:9D-1 and 2.2, all oil and gas exploration wells shall conform to the installation and reporting requirements pursuant to N.J.S.A. 13:1M-1 et seq..

**7:9D-2.6 Specific requirements for the installation of Category 5 geotechnical borings**

(a) In addition to the general well permitting requirements in N.J.A.C. 7:9D-1 and any applicable construction requirements in N.J.A.C. 7:9D-2.2, the following specific requirements shall apply to all test borings and borings using direct-push technologies:

1. The driller or borer may request up to 10 individual borings on one permit to drill well application. In this case, a separate well permit number shall be issued for each boring specified on the application, up to 10 well permit numbers per application; or
2. The driller or borer may request any number of borings on one permit to drill well application. In this case, a single site-wide well permit number shall be issued for all borings specified on the application; and
3. Geotechnical borings involving the use of direct-push technologies shall be installed so as to provide an effective means of decommissioning the borehole in accordance with N.J.A.C. 7:9D-3.

**7:9D-2.7 Minimum distance requirements**

(a) All new Category 1 and Category 2 wells shall be located at least five feet horizontally from a building or any portion thereof, except for a pumphouse.

(b) All Category 1 wells and components shall be located no less than the minimum distances prescribed as follows (all distances are in feet):

| Component          | Building sewer | Septic tank | Distribution box | Disposal field | Seepage pit* | Dry well | Cess-pool | Fuel Storage tank |
|--------------------|----------------|-------------|------------------|----------------|--------------|----------|-----------|-------------------|
| Well               | 25             | 50          | 50               | 100            | 150/100      | 50       | 150       | 25                |
| Suction line       | 25             | 50          | 50               | 100            | 100          | 50       | 150       | -                 |
| Water service line | 5              | 10          | 10               | 10             | 10           | -        | 25        | -                 |

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

\*Note: The 150 foot minimum distance between a well and a seepage pit system shall apply only in those instances where a new well is being installed in conjunction with a new seepage pit system pursuant to N.J.A.C. 7:9A-4.3.

1. Where gravel, limestone, or fractured, creviced or fissured rock formations are encountered and may pose a threat to the water supply, the local administrative authority may require a greater distance of a well from a subsurface sewage disposal system;
  2. A well shall not be drilled within 20 feet of a wood frame building.
- (c) All Category 2 wells shall be located no less than 25 feet from a fuel storage tank.
- (d) Additional minimum distance requirements for any well may be required by the Department as necessary to protect ground water supplies in areas of known contamination.
- (e) The Department may modify the minimum distances in this section for individual well installations where it has determined that additional controls are necessary to protect water supplies.

#### **7:9D-2.8 Deviation from construction standards**

(a) Where unusual conditions occur at a well site and compliance with this subchapter shall not result in a satisfactory well or protection of the water supply, the New Jersey licensed well driller shall request that special standards be prescribed for the particular well. All deviations from standards shall be requested pursuant to N.J.A.C. 7:9D-1.11, shall be in writing, and shall include as appropriate:

1. The purpose of the well construction;
2. The location of the well to include a site plan;
3. The name, address, and telephone number of the owner;
4. The name, address, and telephone number of the driller;
5. The unusual conditions existing at the well site;
6. The reasons that compliance to the rules for minimum standards will not result in a satisfactory well;
7. The proposed method of construction that the well contractor believes shall be adequate for each well; and
8. A diagram showing the pertinent features of the proposed well design and construction.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

(b) The Department shall provide the driller with written approval of the deviation which may include special requirements, or with written denial of the deviation citing specific reasons for the denial.

**7:9D-2.9 Required materials for sealing the annular space of any well**

(a) Except with the approval of the Department, only the following materials shall be acceptable for the sealing of the annular space between the casing and the oversized borehole or between casing(s) of multiple cased wells:

1. Portland Neat Cement in accordance with Table 1 below;
2. Portland Cement and High Grade Bentonite in accordance with Table 2 below;
3. High-Grade Bentonite in accordance with Table 3 below;
4. Cementitious Thermally Enhanced Grout in accordance with Table 4 below;
5. Thermal Grout 85. or equal in accordance with Table 5 below.

Table 1.  
Portland Cement

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

Table 2.  
Portland Cement and High Grade Bentonite; Use Portland Cement Types I or II Only

| Percent Bentonite | Pounds of Bentonite | Pounds of Cement | Gallons of Water | Target Density lbs/gal | Acceptable Density/ Range lbs/gal | Water/ Cement Ratio |
|-------------------|---------------------|------------------|------------------|------------------------|-----------------------------------|---------------------|
| 5.3               | 5.0                 | 94               | 8.3              | 13.9                   | 13.4 to 14.5                      | 0.74                |

Table 3.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

High Grade Bentonite (Figures Based on 15 to 30 Percent Solids by Weight)

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

Table 4.  
Cementitious Thermally Enhanced Grout

| Pounds of Cement (Type I, II or V) | Amount of Superplasticizer (Sulfonated Napthalene)    | Pounds of Dried Silica Sand Conforming to the Sieve Analysis* | Pounds of 200 Mesh Sodium Bentonite | Target Gallons of Water | Target Density lbs/gal |
|------------------------------------|---|---|-------------------------------------|-------------------------|------------------------|
| 94                                 | 21 ounces per bag of cement (not to exceed 29 ounces) | 200   | 1.04                                | 6.19                    | 18.2                   |

\*Sieve No. (Size, um)

\*Percent Passing (%)

8 (2360)

100

16 (1180)

95-100

30 (595)

55-80

50 (297)

30-55

100 (149)

10-30

200 (75)

0-10

Table 5  
Thermal Grout 85™ or equal -  
(Figures based on 63.5 Percent solids by weight)

| Pounds of Bentonite | Pounds of Thermal Enhancement Compound* | Target Gallons of Water | Acceptable Range of Water (gallons) | Target Density lb/gal |
|---------------------|---|-------------------------|-------------------------------------|-----------------------|
| 54                  | 200                                     | 17.5                    | 17 - 18                             | 13.1                  |

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

Table 5  
Thermal Grout 85™ or equal -  
(Figures based on 63.5 Percent solids by weight)

| Pounds of Bentonite | Pounds of Thermal Enhancement Compound* | Target Gallons of Water | Acceptable Range of Water (gallons) | Target Density lb/gal |
|---------------------|---|-------------------------|-------------------------------------|-----------------------|
|---------------------|---|-------------------------|-------------------------------------|-----------------------|

\*Compound shall be washed, dried silica sand which is graded and shall have less than 20 percent by weight retained on a U.S. Sieve #50 and shall have AFS GFN (American Foundrymen's Society Grain Fineness Number) between 55.0 and 75.0. The silica content (SiO<sub>2</sub>) shall be greater than 99 percent.

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

(c) Bentonite products and additives shall be mixed in accordance with manufacturer's specifications.

(d) Bentonite-based grout materials listed in Table 3 and Table 5 shall not be used for sealing any annular space in consolidated formations or in those instances where it will come in contact with ground water of a pH of less than 5.0 or a total dissolved solids content in excess of 1,000 ppm.

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

**7:9D-2.10 Required procedures for sealing the annular space of any well**

(a) The annular space within any well shall be sealed in accordance with one of the following methods:

1. For the pressure method, the grout shall be pumped through a tremie pipe installed into the annular space of the well in one continuous operation from the bottom to the top of the annular space unless the depth, resulting pressures, or subsurface conditions necessitate that the grout be installed in lifts;
  - i. The tremie pipe shall be slowly raised as the grout is being placed, keeping the discharge end of the pipe submerged in the grout at all times until the sealing of the annular space is completed;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

- ii. When pressure sealing the annular space directly above a filter or gravel pack, the grout shall be discharged from the tremie pipe so as not to disturb the top of the gravel pack;
  2. For the inner string method, the grout shall be pumped through a tremie pipe and float shoe installed inside the casing of the well in one continuous operation so as to completely fill the annular space;
  3. The displacement method shall be used only for wells in consolidated formations. A sufficient quantity of grout shall be pumped under pressure through a tremie pipe into the oversized borehole to ensure that the annular space will be completely filled with grout after the emplacement of a plugged casing into the borehole; or
  4. For the casing method (Haliburton Method), the grout shall be forced from the inside of the casing into the annular space utilizing a series of plugs.
- (b) For wells in unconsolidated formations, when the casing is driven into an undersized hole, the provision for sealing shall be waived.
- (c) The following procedures shall be followed when sealing the annular space of any well:
1. All water used for the mixing of grout shall be of potable quality;
  2. All grout mixtures shall be weighed with a mud balance or otherwise verified by the well driller of the proper class so as to conform with the requirements in N.J.A.C. 7:9D-2.9;
  3. The grout mixture shall be brought up to ground level to displace all water and materials in the annular space. Regrouting of a well is acceptable and shall be performed as follows.
    - i. Any settlement of the grout less than 10 feet from the ground surface shall be regrouted and completed by the gravity or pressure method;
    - ii. The driller shall return to the well no sooner than 24 hours nor later than 72 hours and fill all settling;
    - iii. Any settlement of 10 feet or greater shall be regrouted using the pressure method; and
    - iv. The finished level of the grout seal shall be at the level of the pitless well adapter or other connection; and

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

4. The grout being discharged from all annular space shall be weighed with a mud balance or otherwise verified by the well driller so as to comply with the requirements in N.J.A.C. 7:9D-2.9.

#### **7:9D-2.11 Well development and well redevelopment**

- (a) A well permit is not required for performing any well development or well redevelopment.
- (b) All well development or redevelopment work shall be performed by a well driller licensed in accordance with this chapter.
- (c) All well development or well redevelopment shall be performed with care so as not to damage the well structure or cause adverse subsurface conditions that may destroy the natural barriers which prevent the movement of poor quality water or contaminants.
- (d) Acceptable well development/redevelopment methods include:
  1. Overpumping;
  2. Mechanical surging;
  3. Air surging;
  4. Jetting;
  5. Chemical treatment:
    - i. Detergents, chlorine, acids, or other chemicals may be used for the purpose of increasing or restoring well yield;
    - ii. All acids must be specifically designed for use in water well rehabilitation, and shall be used in accordance with the manufacturer's specifications; and
    - iii. The well shall be thoroughly pumped after the completion of development/redevelopment operations to remove such chemical agents or residues;
  6. Explosives:
    - i. The use of explosives shall be limited to wells constructed in consolidated formations;
    - ii. Explosives shall be used by a person licensed pursuant to N.J.A.C. 12:190 by the New Jersey Department of Labor, Office of Safety Compliance

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

Explosive Regulations and only after approval is obtained from the Department;

- iii. The well shall be thoroughly pumped after the completion of development/redevelopment operations to remove such explosive agents or residues;
- iv. The well to be treated must be a minimum of 150 feet from the nearest wells and;
- v. The well site owner or the licensed well driller who will conduct the well development/redevelopment , shall notify the owner(s) of any property adjacent to the well site of the development/redevelopment procedure no less than 24 hours prior to the procedure; and

7. Hydrofracturing:

- i. The use of hydrofracturing technologies shall be limited to wells constructed in consolidated formations;
- ii. The well to be treated shall be a minimum of 150 feet from the nearest wells;
- iii. A packer shall be set no less than 50 feet below the bottom of the well casing; and
- iv. The well site owner or by the licensed well driller who shall conduct the well development/redevelopment shall notify the owner(s) of any property adjacent to the well site of the development/redevelopment procedure no less than 24 hours prior to the procedure.

(e) All water used during any selected method or process shall be of potable quality.

(f) All wells which have been subjected to development or redevelopment shall be free of sand or silt upon completion of development/redevelopment operations.

### **SUBCHAPTER 3 REQUIREMENTS AND PROCEDURES FOR THE DECOMMISSIONING OF WELLS**

#### **7:9D-3.1 General requirements for the decommissioning of all wells**

- (a) The Department may order the decommissioning of any well which:
- 1. Is abandoned as defined in this chapter;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

2. Has been constructed in violation of N.J.S.A. 58:4A-4.1 et seq.;
3. Has not been maintained in a condition that ensures protection from contamination for the subsurface and percolating waters of the State;
4. Is damaged;
5. Has been replaced by another well;
6. Is contaminated;
7. Has salt water intrusion; or
8. Is non-productive.

(b) The Department may require or allow a well to be decommissioned by a method other than as set forth in this subchapter where unusual circumstances are encountered which would prevent adherence with the standard sealing requirements.

(c) All wells shall be decommissioned by, or under the constant on-site supervision of, a New Jersey licensed well driller of the proper class.

(d) The well driller shall obtain all applicable well records prior to sealing the well in order to verify the depth and diameter of the well.

(e) The Department may require additional information about a well prior to the well being decommissioned. Such information may include, but is not limited to, data gathered via geophysical logging or downhole televising.

(f) Any hazardous waste (that is, contaminated casing, cuttings, sediment, displaced water, or free product) generated during the sealing shall be handled in accordance with N.J.A.C. 7:26G.

(g) The following types of wells shall not be decommissioned until the driller proposing to seal the well has obtained approval from the Department:

1. Wells, other than hand dug wells, for which no well record can be obtained;
2. Wells that are contaminated with hazardous waste;
3. Wells that are affected by salt water intrusion;
4. Wells installed in unconsolidated formations that are screened in more than one aquifer;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

5. Wells which cannot be cleared of all obstructions throughout the entire length and diameter of the well;
6. Multiple cased wells; or
7. Elevator shafts.

(h) All other wells shall be decommissioned as follows:

1. The well shall be cleared of pump, pipe, debris, and all other obstructions;
2. If the well has been overdrilled to remove the entire casing, screen, and gravel pack, the resulting borehole shall be constructed to, and maintained at, the original depth of the well until this borehole is properly sealed in accordance with this subchapter;
3. Adequate protection shall be provided for the top of the borehole and/or the top of the well casing to prevent surface contamination from entering the well during the sealing operation and when the driller is not at the sealing site;
4. If it is known that an unsealed annular space exists between the outermost casing and the borehole, the casing shall be perforated, ripped, or removed to insure that this space is sealed; and
5. All water used in the sealing process shall be of potable quality.

(i) The materials specified in N.J.A.C. 7:9D-2.9 shall also be used to seal and decommission wells:

1. Portland Cement in accordance with Table 1 below;
2. Portland Cement and High Grade Bentonite in accordance with Table 2 below;
3. High Grade Bentonite in accordance with Table 3 below;
4. Cementitious Thermally Enhanced Grout in accordance with Table 4 below;
5. Thermal Grout 85. or equal in accordance with Table 5 below.
6. The Department may approve alternate or additional sealing materials;
7. Only those materials or additives specifically designed for well sealing by the manufacturer and approved by the Department shall be used to decommission wells. The material shall have a maximum permeability of  $1 \times 10^{-7}$  centimeters per second when prepared in accordance with manufacturer's specifications;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

8. Bentonite-based grout materials listed in Table 3 and Table 5 below shall not be used as a sealing material in consolidated formations or in those instances where it will come in contact with groundwater of a pH of less than 5.0 or a Total Dissolved Solids content in excess of 1,000 ppm.

Table 1.  
Portland Cement

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

Table 2.  
Portland Cement and High Grade Bentonite; Use Portland Cement Types I or II Only

| Percent Bentonite | Pounds of Bentonite | Pounds of Cement | Gallons of Water | Target Density lbs/gal | Acceptable Density/ Range lbs/gal | Water/ Cement Ratio |
|-------------------|---------------------|------------------|------------------|------------------------|-----------------------------------|---------------------|
| 5.3               | 5.0                 | 94               | 8.3              | 13.9                   | 13.4 to 14.5                      | 0.74                |

Table 3.  
High Grade Bentonite (Figures Based on 15 to 30 Percent Solids by Weight)

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

Table 4.  
Cementitious Thermally Enhanced Grout

| Pounds of Cement (Type I, II or V) | Amount of Superplasticizer (Sulfonated Napthalene)    | Pounds of Dried Silica Sand Conforming to the Sieve Analysis* | Pounds of 200 Mesh Sodium Bentonite | Target Gallons of Water | Target Density lbs/gal |
|------------------------------------|---|---|-------------------------------------|-------------------------|------------------------|
| 94                                 | 21 ounces per bag of cement (not to exceed 29 ounces) | 200   | 1.04                                | 6.19                    | 18.2                   |

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

| *Sieve No. (Size, um) | *Percent Passing (%) |
|-----------------------|----------------------|
| 8 (2360)              | 100                  |
| 16 (1180)             | 95-100               |
| 30 (595)              | 55-80                |
| 50 (297)              | 30-55                |
| 100 (149)             | 10-30                |
| 200 (75)              | 0-10                 |

Table 5  
 Thermal Grout 85™ or equal -  
 (Figures based on 63.5 Percent solids by weight)

| Pounds of Bentonite | Pounds of Thermal Enhancement Compound* | Target Gallons of Water | Acceptable Range of Water (gallons) | Target Density lb/gal |
|---------------------|---|-------------------------|-------------------------------------|-----------------------|
| 54                  | 200                                     | 17.5                    | 17 - 18                             | 13.1                  |

\*Compound shall be washed, dried silica sand which is graded and shall have less than 20 percent by weight retained on a U.S. Sieve #50 and shall have AFS GFN (American Foundrymen's Society Grain Fineness Number) between 55.0 and 75.0. The silica content (SiO2) shall be greater than 99 percent.

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

(k) The sealing material shall be pumped into the well until all water has been displaced from the well and until the sealing material overflowing the well has a density within the acceptable density range for that material.

1. Any settlement of the sealing material less than 10 feet from the ground surface shall be resealed by the gravity or pressure method.
2. The driller who seals the well shall return to the well no sooner than 24 hours nor later than 72 hours and fill all settling in the well with concrete. Additional concrete shall be

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

poured to form a slab which shall encompass the top of the casing. This slab shall be located at or below grade.

3. Any settlement of 10 feet or greater shall be resealed using pressure method, prior to placement of the concrete slabs pursuant to (k)2 above.

(l) The driller who decommissioned the well shall submit a complete, legible Well Abandonment Report on the form prescribed by the Department giving the location and date the well was sealed, the permit number (if applicable) of the well sealed, the property owner name, address, lot and block, the total well depth, the well diameter and well casing materials, a cross-section of the sealed well and a description of the materials used to decommission the well, and the signature name and registration number of the driller who sealed the well. The Well Abandonment Report shall be submitted with a copy of all applicable well records to the Department within 90 days of the completion of sealing.

(m) The driller shall obtain Departmental approval prior to deviating from the methods set forth in this subchapter.

### **7:9D-3.2 Specific requirements for the decommissioning of dewatering wells and dewatering wellpoints**

(a) Any dewatering well constructed into confined aquifers shall be decommissioned only by a New Jersey master or journeyman well driller in accordance with N.J.A.C. 7:9D-3.1.

(b) Decommissioning of all other dewatering wells and dewatering wellpoints shall be performed by the licensed well driller of the proper class and shall be completed within five business days after the dewatering well or dewatering wellpoint is taken out of service.

(c) The well sealer shall obtain approval from the Department prior to instituting any modification in the decommissioning procedures.

(d) For all dewatering wells 25 feet or less in depth, that have not penetrated a confining layer, decommissioning shall be completed by employing one of the following methods:

1. If backfilling of the borehole is utilized:
  - i. Backfilling the hole with clean native materials;
  - ii. Tamping the backfill materials in layers to within several feet below proposed finished grade;
  - iii. Placing a minimum of a three foot concrete plug; and

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

iv. Backfilling the remaining portion of the hole with top soil or native soil materials; or

2. If decommissioning with an approved grout material, the decommissioning of the dewatering well or dewatering wellpoint shall be completed in accordance with N.J.A.C. 7:9D-3.1.

(e) If the casing and screen are completely removed from a dewatering well which is greater than 25 feet in depth but has not intersected a confining layer, the top 25 feet of the original borehole shall be cleared of all obstructions or drilled out to allow for the placement of a grout plug in accordance with N.J.A.C. 7:9D-3.1.

(f) If the casing and screen are left in place in a dewatering well greater than 25 feet in depth which has not penetrated a confining layer, the entire well/hole shall be sealed by pumping grout through a tremie pipe from the bottom of the well to the top in accordance with N.J.A.C. 7:9D-3.1. In order to prevent surface contamination from entering any annular space which has been gravel packed, the top 25 feet of the gravel pack and casing shall be removed to allow for the placement of a grout plug in accordance with N.J.A.C. 7:9D-3.1.

(g) Dewatering wells penetrating bedrock shall have that part of the well drilled into the bedrock formation sealed with neat cement grout. The balance of the hole shall be sealed in accordance with N.J.A.C. 7:9D-3.1, as applicable.

### **7:9D-3.3 Specific requirements for the decommissioning of hand dug wells**

(a) Water shall be pumped from the well in order to ensure that no debris lies at the bottom of the well and to minimize settlement of the fill material.

(b) The total depth of the well shall be sealed using one of the following methods:

1. The entire well shall be sealed in accordance with N.J.A.C. 7:9D-3.1 using only cement-based sealing materials; or
2. The well shall be filled with sand or gravel to three feet from the land surface. The sand or gravel shall be thoroughly tamped. The remainder of the well shall be filled in with topsoil. Additional topsoil shall be mounded over the well to allow for settlement.

### **7:9D-3.4 Specific requirements for the decommissioning of Category 5 wells-geotechnical borings**

(a) All borings shall be decommissioned within 48 hours of completion.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

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

(c) All borings 25 feet or greater in depth shall be decommissioned using an approved sealing material in accordance with N.J.A.C. 7:9D-3.1.

(d) The decommissioning of borings installed by direct-push technologies shall be in accordance with this subchapter except as follows:

1. The drive casing may be used as a tremie pipe provided the drive point is of the sacrificial type, or the casing is equipped with a grout shoe and is withdrawn as the sealing material is pumped into the driven borehole;
2. The direct-push device may be removed and a second casing of equal diameter to the drive casing may be used as a tremie pipe provided the casing is equipped with a sacrificial tip or plug, and is reinserted into the same hole to the boring's original depth;
3. If an outer casing is simultaneously driven with the direct push device and inner drive casing and the cone and inner casing are retrieved, the outer casing may be used as tremie pipe; or
4. If the direct-push device and drive casing are retrieved, the borehole may be overdrilled using a hollow stem auger and decommissioned in accordance with this subchapter.

#### **SUBCHAPTER 4 CIVIL ADMINISTRATIVE PENALTIES; INJUNCTIVE RELIEF; DENIAL, SUSPENSION AND REVOCATION OF LICENSES; AND REQUESTS FOR ADJUDICATORY HEARINGS**

##### **7:9D-4.1 Purpose**

This subchapter establishes the procedures governing the issuance of civil administrative orders, the assessment of civil administrative penalties and the suspension or revocation of any license issued pursuant to the Act. This subchapter also governs the procedures for the submittal and review and grant or denial of any requests for adjudicatory hearings on appeal from any contested case arising from the implementation of any provision of this chapter.

##### **7:9D-4.2 General provisions**

(a) The Department or the Board may investigate any possible violation of any provision of the Act or any provision of any rule, permit, license or administrative order promulgated or

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

issued pursuant thereto including, but not limited to, obtaining a license or permit through error or fraud, exhibiting gross negligence, incompetence or misconduct in the practice of well drilling or pump installation pursuant to this chapter and the Department may take one or more of the following actions:

1. Suspend a well driller's license or pump installer's license for a period not to exceed one year;
2. Revoke a well driller's license or pump installer's license
3. Issue an administrative order; or
4. Assess an administrative penalty.

(b) The Department or the Board will also take action against any person who has aided or abetted a violation as set forth in (a) above.

#### **7:9D-4.3 Administrative orders**

(a) The Department may issue an administrative order against any person who has violated any provision of this chapter, or any provision of the Act pursuant to which this chapter has been promulgated, for one or more of the following purposes:

1. To direct any person to cease violation of any provision of this chapter;
2. To assess a civil administrative penalty pursuant to this subchapter; or
3. To suspend or revoke a permit pursuant to this subchapter.

#### **7:9D-4.4 Civil administrative penalties**

(a) The Department may, in accordance with (d) below, assess a civil administrative penalty of not more than \$5,000 per day for each violation of any provision of the Act or any provision of any rule, license or administrative order promulgated or issued pursuant thereto.

(b) The authority to assess a civil administrative penalty pursuant to (a) above is in addition to any other remedies available to the Department pursuant to law.

(c) The Department may consider each violation of any provision of the Act, or any rule, license or administrative order issued pursuant thereto, as a separate and distinct violation. Each day during which a violation continues may constitute an additional, separate and distinct offense subjecting the violator to the penalties in accordance with this subchapter.

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

(d) The Department may assess a civil administrative penalty for each violation of any provision of the Act, any provision of this chapter, or any provision of a license or an administrative order promulgated or issued pursuant thereto in an amount as follows:

1. For any violation not related to the construction of a well, the penalty shall be at the midpoint of the range as follows unless adjusted pursuant to (g) below:

|         |          | SERIOUSNESS     |               |               |
|---------|----------|-----------------|---------------|---------------|
|         |          | Major           | Moderate      | Minor         |
| CONDUCT | Major    | \$800 - \$1,000 | \$550 - \$750 | \$400 - \$500 |
|         | Moderate | \$550 - \$750   | \$400 - \$500 | \$250 - \$350 |
|         | Minor    | \$400 - \$500   | \$250 - \$350 | \$100 - \$200 |

2. For any violation directly related to the construction of a well, the penalty shall be at the midpoint of the range as follows unless adjusted pursuant to (g) below:

|         |          | SERIOUSNESS       |                   |                   |
|---------|----------|-------------------|-------------------|-------------------|
|         |          | Major             | Moderate          | Minor             |
| CONDUCT | Major    | \$4,000 - \$5,000 | \$2,750 - \$3,750 | \$2,000 - \$2,500 |
|         | Moderate | \$2,750 - \$3,750 | \$2,000 - \$2,500 | \$1,250 - \$1,750 |
|         | Minor    | \$2,000 - \$2,500 | \$1,250 - \$1,750 | \$500 - \$1,000   |

(e) The Department shall determine the seriousness of the violation as major, moderate or minor as set forth in (e)1 through 3 below.

1. Major violations shall be determined as follows:
  - i. Major violations not related to well construction shall include engaging in any regulated activity pursuant to this chapter without obtaining a license or permit or with a revoked or suspended license.
  - ii. Major violations related to the construction of a well shall include drilling or installing a well in violation of the provisions of this chapter or in violation of a permit condition imposed pursuant to this chapter;
2. Moderate violations shall be determined as follows:
  - i. Moderate violations not related to well construction shall include engaging in any regulated activity pursuant to this chapter with an expired license or permit.
  - ii. Moderate violations related to well construction shall include the installation of any pump or appurtenance or the decommissioning of any well in a

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

manner that violates the provisions of this chapter or a condition of a permit issued pursuant to this chapter.

3. Minor violations shall be determined as follows:

- i. Minor violations not related to well construction shall include violations of any provisions of this chapter or a condition of a permit issued pursuant to this chapter involving record keeping, failure to submit information to the Department or the submission of inaccurate or incomplete information, failure to notify the Department prior to drilling.
- ii. Minor violations related to well construction shall include anything not included in (e)1ii or 2ii, above.

(f) The Department shall determine the conduct of the violator as major, moderate or minor as follows:

1. Major conduct shall include any intentional, deliberate, purposeful, knowing or willful act or omission by the violator;
2. Moderate conduct shall include any unintentional but foreseeable act or omission by the violator; and
3. Minor conduct shall include any other conduct not identified in (f) 1 or 2 above.

(g) The Department shall increase or reduce the amount determined pursuant to (d) above, and in accordance with applicable law, to an amount no greater than the top nor less than the bottom of each applicable range, on the basis of the following factors:

1. The compliance history of the violator;
2. The nature, timing and effectiveness of any measures taken by the violator to mitigate the effects of the violation for which the penalty is being assessed;
3. The nature, timing and effectiveness of any measures taken by the violator to prevent future similar violations;
  - i. Implementation of measures that can reasonably be expected to prevent a recurrence of the same type of violation will result in a reduction equal to the bottom of the range;
4. Any unusual or extraordinary costs or impacts directly or indirectly imposed on the public or the environment as a result of the violation; and/or

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

5. Other specific circumstances of the violator or violation determined on an individual case basis.

(h) The Department may settle any civil administrative penalty assessed pursuant to this section according to the following factors:

1. Mitigating or extenuating circumstances not previously considered in the notice of civil administrative penalty assessment;
2. The timely implementation by the violator of measures leading to compliance not previously considered in the penalty assessment;
3. The nature, timing and effectiveness of measures taken to mitigate the effects of the violation or prevent future similar violations not previously considered in the penalty assessment;
4. The compliance history of the violator not previously considered in the penalty assessment;
5. The deterrent effect of the penalty not previously considered in the penalty assessment; and/or
6. Any other terms or conditions acceptable to the Department.

#### **7:9D-4.5 Basis for denial of license**

(a) The Department may deny issuance of a well drilling license of the proper class or pump installer license upon a determination that:

1. The applicant has failed the examination administered pursuant to N.J.A.C. 7:9D-1.12;
2. The applicant has provided false or inaccurate information in the application; or
3. The applicant has one or more outstanding violations of any provision of the Subsurface and Percolating Waters Act.

#### **7:9D-4.6 Basis for suspension or revocation of license**

(a) The Department may take or the Board may recommend to the Commissioner that the Department take action to suspend or revoke, on an individual case basis, any license when any of the following circumstances are evident:

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

1. That a licensee has been found guilty of fraud or deceit in obtaining his or her license;
2. That a licensee has been found guilty of one or more construction related violation(s);
3. That a licensee has been found guilty of repeated non-construction related violations;
4. That a licensee has been found guilty of gross neglect, incompetence or misconduct in the business of well drilling or pump installation or repair in the State of New Jersey;
5. That a licensee has violated any provision of the Subsurface and Percolating Waters Act or any other State Act relating to the installation or repair of wells and well pumping equipment;
6. That the licensee has failed to respond to efforts by the Department to resolve or correct a violation; or
7. That the licensee has been found guilty of a violation determined to cause, or tend to cause, substantial harm to public health, safety and welfare.

**7:9D-4.7 Procedures for civil administrative orders, assessment of civil administrative penalties and suspension or revocation of license and adjudicatory hearings**

(a) Any order, notice of civil administrative penalty assessment, notice of suspension of license or notice of revocation of license issued pursuant to this subchapter shall:

1. Be served by certified mail, return receipt requested upon the person or persons who are the subject of the order or notice;
  - i. Where certified mail has been attempted by the Department and returned, service shall be by first class mail;
2. Identify the person or persons claimed by the Department to have committed the violation described in the order or notice;
3. Describe the activity or activities which are in violation;
4. Identify the specific provision or provisions of the Act, rule, license or order which have been violated;
5. Describe the remedial or other action which must be implemented or caused to be implemented by the violator and the time periods within which such implementation shall commence and be completed;

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

6. Identify the office within the Department to which any required reply or other correspondence must be directed;
7. Advise the person or persons named in the order of the right to request an adjudicatory hearing pursuant to the provisions of N.J.A.C. 7:10A-2.8 and 7:9D-4.8;
8. In the case of a civil administrative penalty assessment, specify the amount of the civil administrative penalty to be imposed;
9. In the case of a suspension or revocation of a license, a description of the specific grounds for the suspension or revocation; and
10. In the case of a suspension of license the length of time for which a suspension shall remain in effect.

(b) If a civil administrative penalty is assessed against more than one person for the same violation or violations, each shall be jointly and severally liable for the penalty assessed.

(c) Suspension or revocation of license shall commence and payment of a civil administrative penalty is due upon receipt by the violator of a final order of the Department in a contested case proceeding or when the notice of suspension or revocation of license or notice of civil administrative penalty assessment becomes a final order as follows:

1. If no hearing is requested pursuant to N.J.A.C. 7:9D-4.8, a notice of civil administrative penalty assessment becomes a final order on the 21st day following receipt of the notice of civil administrative penalty assessment by the violator;
2. If the Department denies a hearing request, a notice of civil administrative penalty assessment becomes a final order upon receipt by the violator of the notice of denial;
3. If a hearing request is submitted by the violator and subsequently withdrawn, the notice of civil administrative penalty assessment becomes a final order upon such withdrawal unless the violator and the Department have executed an administrative consent order or comparable instrument providing otherwise.

**7:9D-4.8 Procedures to request an adjudicatory hearing to contest an administrative order, administrative penalty assessment, suspension of license or revocation of license**

(a) Any person (hereinafter "petitioner") requesting an adjudicatory hearing to contest an administrative order, civil administrative penalty assessment, denial, suspension or revocation of a license or permit or to challenge any permit or license condition, or who believes himself or herself to be aggrieved with respect to decisions made by the Department, shall:

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

1. Submit the original request in writing to:

Attention: Adjudicatory Hearing Requests  
Office of Legal Affairs  
Department of Environmental Protection  
P.O. Box 402  
Trenton, New Jersey 08625-0402

2. Submit a copy of the request to the offices indicated in the enforcement document.

(b) All written requests for an adjudicatory hearing must be received by the Department within 20 calendar days after receipt by the petitioner of notice of the Department's action being contested. If the Department does not receive a hearing request within the allotted time, it shall deny the hearing request.

(c) Any written request for an adjudicatory hearing shall include the following:

1. The name, address and telephone number of the petitioner and of its legal or authorized representative;
2. An admission or denial of each of the Department's findings of fact;
  - i. If the petitioner lacks sufficient knowledge or information to form a belief as to the truth of a finding, the petitioner shall so state and this shall have the effect of a denial.
  - ii. A denial shall fairly meet the substance of the findings denied. When the petitioner intends, in good faith to deny only part or a qualification of a finding, the petitioner shall specify so much of it as is true and material and deny only the remainder.
  - iii. The petitioner may not generally deny all of the findings, but shall make all denials as specific denials of designated findings.
  - iv. For each finding the petitioner denies, the petitioner shall allege the fact or facts as the petitioner believes it or them to be;
3. A description of any facts or issues which the petitioner believes constitute a defense to the allegations made by the Department;
4. Information supporting the hearing request and specific reference to, or copies of, other written documents relied upon to support the request;
5. An estimate of the time required for the hearing (in days or hours); and

THIS IS A COURTESY COPY OF THIS RULE. ALL OF THE DEPARTMENT'S RULES ARE COMPILED IN TITLE 7 OF THE NEW JERSEY ADMINISTRATIVE CODE.

6. A request, if necessary, for a barrier-free hearing location for physically disabled person;

(d) If the petitioner fails to provide all of the information required by (c) above, the Department may deny the hearing request.

(e) All adjudicatory hearings shall be conducted in accordance with the Administrative Procedure Act, N.J.S.A. 52:14B-1 et seq., and the Uniform Administrative Procedure Rules, N.J.A.C. 1:1.

(f) No permit or license which is the subject of an order of suspension or revocation shall be valid during the pendency of any action on appeal from that order.