

**A Compendium of Federal, State, and Local
Regulatory Authorities that Support
The Source Water Assessment and Protection Program
In Delaware**

Version 02.02



State of Delaware
Department of Natural Resources and Environmental Control
Division of Water Resources
Dover, Delaware

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Introduction

In 1998 the Delaware Source Water Citizens and Technical Advisory Committee (CTAC) requested more information on existing regulatory authorities that directly address activities within delineated source water assessment areas. The Water Supply Section of the Division of Water Resources, Department of Natural Resources and Environmental Control (DNREC), initially compiled a partial listing of state-level program authorities in the early 1990's to assist with the State's Wellhead Protection (WPP) Program for public water supply wells. Because the scope of the Source Water Assessment and Protection Program (SWAPP) extends beyond the WPP to include surface water watersheds, the Water Supply Section felt that a more up-to-date compilation was necessary.

The purpose of this compendium is to outline, in one document, all significant Federal, State, and local authorities in Delaware that provide for the protection of the sources of public drinking water. This compendium includes *relevant excerpts* from those laws, rules, and regulations, and policies. The choice to include only those excerpts to source water protection was made to allow the user to jump immediately to the key reference within the appropriate document without having to wade through the entire text.

This listing provides the user, from the general public and water system owner to the scientific consultant and governmental regulator, the ability to quickly determine the most relevant authorities that apply within delineated (mapped) source water assessment areas within the State of Delaware. However, the user is cautioned to contact the specific programs for complete citations and for other uses beyond the scope of source water protection.

This compendium will be periodically updated as laws, rules, and regulations are modified, or as new authorities arise. Consequently, it is important that the user verify with the respective program to assure that the most current version of a citation is used when referenced from this document.

Listing of Existing Authorities

Though it is impossible to cite every law or regulation, the DNREC has worked to include as many applicable references that address the protection of drinking water derived from surface water and ground-water sources.

In the event that a municipality in Delaware has an ordinance for wellhead protection, every effort was made to keep the text for such ordinance intact. Because the Resource Protection Standards from the New Castle County Unified Development Code (UDC) and the Town of Townsend Environmental Protection Regulations extend beyond the scope of both surface water and wellhead protection, only those sections dealing with the protection of drinking water have been included in this document.

In an effort to stay as consistent as possible, references to Federal Law are cited as United States Code (USC) and references to Federal Regulations are cited as United States Government Code of Federal Regulations (CFR). Every effort was made to ensure the most up-to-date citations were used for all sources contained within this compendium.

Online Resources

Many, but not all, of the resources found in this document can be located on the internet for further reference. Below is a listing of internet sites where additional information can be found:

Delaware City and Town Charters:	http://www.state.de.us/research/dor/charter/charter.htm
Delaware Code online :	http://www.lexislawpublishing.com/
Delaware DNREC:	http://www.dnrec.state.de.us/
Municipal Codes Online:	http://municode.com/
New Castle Co., DE Unified Development Code:	http://co.new-castle.de.us/
United States Federal Code:	http://www4.law.cornell.edu/uscode/index.html
United States Code of Federal Regulations:	http://www.access.gpo.gov/nara/cfr/index.html - page1
United States EPA:	http://www.epa.gov/epahome/laws.htm

Disclaimer

The Department of Natural Resources and Environmental Control are providing the citations contained within for reference only. Every effort has been made to provide the most accurate citation. No text has been changed in any way from the original source other than to edit out sections that do not deal with source water protection. Any typographical errors are purely unintentional and references herein should be verified with the responsible agency or a reliable reference prior to use.

Information

For further information regarding the protection of public drinking water sources in Delaware please contact:

State of Delaware
Department of Natural Resources and Environmental Control
Division of Water Resources
Water Supply Section
89 Kings Highway
Dover, Delaware 19901
Phone: (302) 739-4793 Fax: (302) 739-2296

State of Delaware Source Water Protection Law

141st General Assembly
Delaware State Senate Bill 119
Signed into law: June 27, 2001

Title 7 Chapter 60 Subchapter VI: Source Water Protection

AN ACT TO AMEND CHAPTER 60, TITLE 7, OF THE DELAWARE CODE RELATING TO THE FORMULATION AND IMPLEMENTATION OF A SOURCE WATER PROTECTION PROGRAM.

WHEREAS, sixty percent of the residents of the State of Delaware rely on ground water and forty percent rely on surface water as their sole sources of drinking water; and

WHEREAS, certain public drinking water supplies exceed maximum contaminant levels for various chemical constituents; and

WHEREAS, the United States Congress has mandated the assessment of drinking water supplies through the provisions of the Safe Drinking Water Act Amendments of 1996; and

WHEREAS, the United States Congress has encouraged the protection of drinking water supplies through the provisions of the Safe Drinking Water Act Amendments of 1996; and

WHEREAS, the United States Environmental Protection Agency granted approval of the State of Delaware's Wellhead Protection Plan on July 31, 1990 and the State of Delaware Source Water Assessment Plan on October 27, 1999; and

WHEREAS, the State of Delaware is required to complete the delineation of source water assessment areas and an assessment of their susceptibility to contamination for all public water supplies by April 2003; and

WHEREAS, the State of Delaware will have completed mapping the areas of ground water recharge potential within the state by 2001; and

WHEREAS, the protection of existing and proposed sources of water for public consumption is critical to protection of public health and the environment and continued economic prosperity.

NOW, THEREFORE:

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF DELAWARE:

Section 1. Amend §6002, Chapter 60, Title 7, Delaware Code by adding new definitions as follows:

"(63) 'Delineation' shall mean the process of defining and/or mapping a boundary that approximates the areas that contribute water to a particular water source used as a public water supply.

(64) 'Public Drinking Water System' shall mean a community, non-community, or non-transient non-community water system, which provides piped water to the public for human consumption. The system must have at least 15 service connections or regularly serve at least 25 individuals daily for at least 60 days.

(65) 'Source Water' shall mean any aquifer or surface water body from which water is taken either periodically or continuously by a public drinking water system for drinking or food processing purposes.

(66) 'Source Water Assessment Area' shall mean the delineated area which contributes water to a public water supply system. This is called a wellhead protection area for a well and a watershed or basin for a surface water intake. A Source Water Assessment Area shall constitute a critical area as defined under Chapter 92, Title 29 of the Delaware Code.

(67) 'Source Water Assessment Plan' shall mean the October 1999 U.S. EPA approved plan for evaluating the sources of public drinking water in Delaware for their vulnerability and susceptibility to contamination.

(68)'Source Water Assessment' shall mean the identification and evaluation of the sources of water within the state that are used by public drinking water systems in an effort to determine the susceptibility of those sources to contamination.

(69) 'Wellhead Protection Area' shall mean the surface and subsurface area surrounding a water well, or wellfield supplying a public water system through which contaminants are likely to reach such well, or wellfield. A Wellhead Protection Area shall constitute a critical area as defined under Chapter 92, Title 29 of the Delaware Code.

(70) 'Wellhead Protection Plan' shall mean the March 1990 U.S. EPA approved plan for protecting the quality of drinking water derived from public water supply wells in Delaware.

(71) 'Excellent Ground-Water Recharge Potential Area' shall mean any area where soils and sedimentary deposits of the most coarse grained nature have the best ability to transmit water vertically through the unsaturated zone to the water table as mapped by the methods described in the Delaware Geological Survey Open File Report No. 34, "Methodology For Mapping Ground-Water Recharge Areas in Delaware's Coastal Plain" (August 1991), and as depicted on a series of maps prepared by the Delaware Geological Survey. An Excellent Ground-Water Recharge Potential Area shall constitute a critical area as defined under Chapter 92, Title 29 of the Delaware Code."

(72) 'Source Water Protection Citizens Technical Advisory Committee' shall mean a group to advise the Secretary of the Department of Natural Resources and Environmental Control including, but not limited to, representatives of the following organizations or municipalities: DNREC, Department of Health and Social Services, Department of Agriculture, the Delaware Nature Society, the Delaware Public Health Association, the American Association of Retired Persons, the United States Geological Survey, the Christina River Conservancy, the Water Resources Agency of the University of Delaware, the Council of Farm Organizations, the Delaware Rural Water Association, the League of Women Voters, the Friends of Herring Creek, the Civic League of New Castle County, the Delaware Geological Survey, the Committee of 100, the City of Dover, the City of Lewes, the New Castle County Department of Land Use, Kent County Levy Court, Sussex County Council, the League of Local Governments, the Sussex County Association of Towns, the Homebuilders Association of Delaware, the Commercial Industrial Realty Council, public water suppliers and the Delaware Association of Professional Engineers."

Section 2. Amend Chapter 60, Title 7, Delaware Code by redesignating existing Subchapters VI, and VII as Subchapters VII and VIII and by adding a new subchapter to read as follows:

"Subchapter VI. Source Water Protection"

§6081. Reporting on Source Water Protection

(a) The Secretary shall prepare, periodically, a report to the Governor and General Assembly, beginning in 2003, of the potential threats, including contaminants currently not regulated, to public drinking water systems. The report shall identify actions that the Secretary proposes to control these threats.

(b) The Secretary shall periodically prepare a report to the respective counties and municipalities, beginning in 2003, that denotes the availability of source water assessments completed by the Department. The Secretary shall also report on the status of the Ground-Water Recharge Potential mapping project.

§6082. Adoption of Source Water Assessment, Wellhead Protection, and Excellent Ground-Water Recharge Potential Areas by Counties and Municipalities

By December 31, 2004, the Department shall develop a guidance manual, in conjunction with and with the substantial concurrence of the Source Water Protection Citizens Technical Advisory Committee, for desirable land uses within source water assessment areas that promote the long-term protection of public drinking water supplies, consistent with "Shaping Delaware's Future: Managing Growth in 21st Century Delaware, Strategies for State Policies and Spending" (December 1999)

(b) The counties and municipalities with populations of 2,000 persons or more, with the assistance of the Department, shall adopt as part of the update and implementation of the 2007 Comprehensive Land Use Plans, the overlay maps delineating, as critical areas, source water assessment, wellhead protection, and excellent ground-water recharge potential areas. Furthermore, the counties and municipalities shall adopt, by December 31, 2007, regulations governing the use of land within those critical areas designed to protect those critical areas from activities and substances that may harm water quality and subtract from overall water quantity.

(c) Municipalities with populations of less than 2,000 persons, with the assistance of the Department, may adopt by ordinance, the overlay maps delineating, as critical areas, source water assessment, wellhead protection, and excellent ground-water recharge potential areas. Furthermore, the ordinance shall include regulations governing the use of land within those critical areas designed to protect those critical areas from activities and substances that may harm water quality and subtract from overall water quantity. Counties and municipalities of more than 2,000 persons that have previously adopted ordinances that include the Department's overlay maps and regulations that protect public water supplies and are consistent with minimum standards identified in the guidance manual shall be exempt from the provisions of this subsection.

(d) The Department shall make source water assessment areas available to the public as they are completed, with all systems to be completed by 2003.

(e) The Department may, when based on sound science and factual information, revise and update the overlay maps of source water assessment areas.

(f) Counties and municipalities with populations of 2,000 persons or more shall update their overlay maps in accordance with changes made by the Department with respect to source water assessment, wellhead protection, and excellent ground-water recharge potential areas.

(g) Municipalities with populations of less than 2,000 persons may update their overlay maps in accordance with changes made by the Department with respect to source water assessment, wellhead protection, and excellent ground-water recharge potential areas.

§6083. Adoption of Source Water Assessment, Wellhead Protection and Excellent Ground-Water Recharge Potential Areas by the Governor's Cabinet Committee on State Planning Issues.

The Department shall make source water assessment, wellhead protection, and excellent ground-water recharge potential area delineations available for maps developed as part of "Shaping Delaware's Future: Managing Growth in 21st Century Delaware, Strategies for State Policies and Spending" (December 1999).

§6084. Source Water Protection Citizen and Technical Advisory Committee.

The Secretary shall consult a citizen and technical advisory committee, as established by the Delaware Source Water Assessment Plan, on matters related to the implementation of the Source Water Assessment Plan and the requirements of this statute."

SYNOPSIS

This Bill requires county governments and municipalities with populations of 2,000 or more, as part of the updates to the 2007 Comprehensive Land Use Plans, to adopt maps delineating source water assessment, wellhead protection and excellent groundwater recharge areas, and regulations governing the use of land within those critical areas designed to protect drinking water supplies. The bill obligates DNREC to provide the necessary technical assistance to local governments to adopt these measures and defines and clarifies source water and wellhead protection areas as critical areas as defined under Chapter 92, Title 29 of the Delaware Code. The bill also requires that a citizen and technical advisory committee be consulted in the implementation of the Source Water Assessment Plan and closely related matters.

Author: Sen. McBride

PART I: AUTHORITY ENABLED BY LAW OR STATUTE

Section I: Delaware Code

TITLE 3 Agriculture

Responsible Agency: DE Department of Agriculture

Sections: **Pesticides, Nutrient Management**

Chapter 12 Delaware Pesticide Law

§ 1201. Declaration of purpose.

The purposes of this chapter are:

- (1) To regulate the sale, use and application of pesticides in the interest of the overall public welfare;
- (2) To protect the consumer by requiring that pesticides sold in this State be correctly labeled with warnings and adequate directions for use; and
- (3) To restrict the use of any pesticides which are found to be so hazardous to man or to his environment that restrictions are necessary in the overall public interest, weighing the benefits and the risks of that use.

§ 1224. Unlawful acts; criminal penalties; jurisdiction.

(a) The following acts shall constitute a class A misdemeanor:

- (1) Making a pesticide recommendation or use or application inconsistent with the labeling, the U.S. EPA., or state registration for the pesticide, or in violation of the U.S. EPA, or state restrictions of the use of that pesticide; except that the first offense shall constitute a class B misdemeanor

§ 1235. Storing and disposal of pesticides and pesticide containers.

No person shall transport, store or dispose of any pesticide or pesticide container in such a manner as to cause injury to humans, vegetation, crops, livestock, wildlife, beneficial insects or to pollute any waterway in a way harmful to any wildlife therein. The Department may promulgate rules and regulations governing the storing and disposal of such pesticides or pesticide containers. In determining these standards, the Department shall take into consideration any regulations issued by the U.S. EPA.

Related Reference: Delaware Pesticide Rules and Regulations

§ 2201. Declaration of purpose.

The purposes of this chapter are:

- (1) To regulate those activities involving the generation and application of nutrients in order to help improve and maintain the quality of Delaware's ground and surface waters and to meet or exceed federally mandated water quality standards, in the interest of the overall public welfare;
- (4) To formulate a systematic and economically viable nutrient management program that will both maintain agricultural profitability and improve water quality in Delaware.

§ 2247. Nutrient management plans.

- (e) If a person implementing a nutrient management plan intends to store manure, other than in an approved manure storage structure or facility, such outdoor storage shall:
 - (2) Be at least 100 feet from any body of water or drainage ditch;
 - (4) Be at least 200 feet from any residence that is not located on the person's property; and
- (k) County, municipal and industrial facilities discharging solid or liquid waste and permitted by the Department of Natural Resources and Environmental Control under The Guidance and Regulations Governing the Land Treatment of Wastes shall be exempt from the provisions of this chapter. Provided, however that they provide the Commission with an annual report as required by their land treatment permit.

§ 2248. Confined animal feeding operations subject to Clean Water Act § 402 requirements.

(a) Section 301(a) of the Clean Water Act (CWA) establishes statutory requirements for the discharge of pollutants from point sources to waters of the United States. Under CWA § 502(14) and implementing regulations at 40 C.F.R. § 122.23 and 40 C.F.R. Part 122, Appendix B, and "concentrated animal feeding operations" are point sources subject to the National Pollutant Discharge Elimination System (NPDES) program. Generally, these regulations define a CAFO as an animal feeding operation where more than 1,000 animal units are confined at the facility.

(c) In preparing the State's NPDES program submission for CAFOs, the Secretary shall rely to the maximum extent practicable on the authorities, requirements and procedures established in this chapter. The State NPDES program submission shall include the following provisions in addition to those specified in this chapter:

- (1) Each person covered by this section shall develop a nutrient management plan (NMP) which is signed and kept under their control. This NMP shall be developed per § 2247 of this title and shall also include, as necessary, the following additional site specific handling and storage considerations:
 - a. Diverting clean water from contacting animal waste or litter;
 - b. Preventing storage, collection and conveyance systems from leaking organic matter, nutrients and pathogens to ground or surface water;
 - c. Providing adequate storage to prevent polluted runoff;
 - e. Managing dead animals to protect ground and surface waters; and
 - f. Tillage and crop residue management practices.

(2) The NMP shall be amended per § 2247(d) of this title or whenever there is any significant change in the design, construction or operation which has a significant effect on the potential for the discharge of pollutants to State waters.

(e) With the guidance, advice and consent of the Commission, the Secretary is hereby authorized to require any person otherwise covered by this chapter to apply for and obtain an NPDES permit if that person:

(2) There is evidence indicating that person is a significant contributor of a pollutant to waters of the State.

§ 2280. Enforcement; fines and penalties.

(a) Whoever violates this chapter, any rule or regulation duly promulgated thereunder, any condition of a certificate issued pursuant to this chapter or any order of the Secretary issued pursuant to this chapter shall be subject to the following fines and penalties, as well as any other remedy described elsewhere in this chapter.

(1) A civil penalty shall be imposed by the Justice of the Peace Court of not less than \$25 nor more than \$1,000 for each violation. Each day of continued violation shall be considered as a separate violation up to a limit of \$10,000. The Justice of the Peace Court shall have jurisdiction of a violation in which a civil penalty is sought. In setting penalty amounts under this section, consideration shall be given to offsetting any economic benefit from noncompliance or any delayed or avoided costs to any person. Further, penalty assessments shall be sufficient to deter recurrence of noncompliance. If there is a substantial likelihood that noncompliance will reoccur, the Commission may recommend that the Secretary also seek a permanent or preliminary injunction or temporary restraining order in the Court of Chancery. Civil penalties imposed under this section may not be suspended.

(2) In its discretion, the Commission may recommend that the Secretary impose an administrative penalty of not more than \$1,000 for each violation. Prior to assessment of an administrative penalty, written notice of the Secretary's proposal to impose such penalty shall be given to the violator, and the violator shall have 30 days from receipt of said notice to request a public hearing. Any public hearing, if requested, right of appeal and judicial appeal shall be conducted pursuant to this chapter.

Assessment of an administrative penalty shall be determined by the nature, circumstances, extent and gravity of the violation or violations, ability of the violator to pay, any prior history of such violations, the degree of culpability, economic benefit or savings (if any) resulting from the violation, and such other matters as justice may require.

TITLE 7 Conservation

Responsible Agency: Department of Natural Resources and Environmental Control

**Sections: Solid and Hazardous Waste Management, Ground-Water Discharges,
 Surface Water, Water Supply**

Chapter 60 Environmental Control

§ 6003. Permit - Required.

- (a) No person shall, without first having obtained a permit from the Secretary, undertake any activity:
 - (2) In a way which may cause or contribute to discharge of a pollutant into any surface or ground water; or
 - (3) In a way which may cause or contribute to withdrawal of ground water or surface water or both; or
 - (4) In a way which may cause or contribute to the collection, transportation, storage, processing or disposal of solid wastes, regardless of the geographic origin or source of such solid wastes; or
 - (5) To construct, maintain or operate a pipeline system including any appurtenances such as a storage tank or pump station; or
 - (6) To construct any water facility; or
 - (7) To plan or construct any highway corridor which may cause or contribute to the discharge of an air contaminant or discharge of pollutants into any surface or ground water.
- (b) No person shall, without first having obtained a permit from the Secretary, construct, install, replace, modify or use any equipment or device or other article:
 - (2) Which may cause or contribute to the discharge of a pollutant into any surface or ground water; or
 - (3) Which is intended to prevent or control the emission of air contaminants into the atmosphere or pollutants into surface or ground waters; or
 - (4) Which is intended to withdraw ground water or surface water for treatment and supply; or
 - (5) For disposal of solid waste.
- (c) The Secretary shall grant or deny a permit required by subsection (a) or (b) of this section in accordance with duly promulgated regulations and no permit may be granted unless the county or municipality having jurisdiction has first approved the activity by zoning procedures provided by law.
- (g) No county, municipality or other governmental entity shall issue any building, placement, storage or occupancy permit or license until the property owner has obtained from the Department any necessary permits for underground discharge of wastewater and withdrawal of groundwater.

Effective Date: July 12, 1985

§ 7401. Declaration of purpose

The General Assembly finds and declares that the storage of petroleum products and other hazardous liquids in underground storage tanks is emerging as a major cause of groundwater contamination in the State; that the State's groundwater resources are vital to the population and economy of the State; that millions of gallons of gasoline and other hazardous substances are stored in underground storage tanks; that leaks of stored substances are occurring in a significant number of these tanks due to corrosion, structural defect and improper installation; that leaks are often difficult to detect early because of insufficient product inventory or other control systems; and that it is necessary to provide more stringent control of the installation, operation, retrofitting and abandonment of underground storage tanks to prevent leaks, and where leaks should occur, detect them at the earliest possible stage and thus minimize further degradation of groundwater. (65 Del. Laws, c.161, § 1.)

§ 7406. Release of substances prohibited; correction of substance release; Department intervention.

- (a) No person shall knowingly allow a release from an underground storage tank to continue without taking immediate steps to report the release to the Department.
- (b) Responsible parties shall take measures for the prompt control, containment, removal of the released substance to the satisfaction of the Department.
- (c) The Department may assume control of any release situation when it is determined that responsible parties are not responding promptly. However, all liability will remain with the responsible party. (65 Del. Laws, c.161, § 1.)

§ 7407. Release detection, prevention and correction regulations.

- (a) The Department, after notice and opportunity for public comment, and within 12 months after July 12, 1985, shall promulgate release detection, prevention and correction regulations applicable to underground storage tanks, as may be necessary to protect human health and the environment.
- (b) In promulgating regulations under this section, the Department shall take into consideration factors which affect tank integrity, including, but not limited to, tank location, type and age, soil conditions, hydrogeology, compatibility of the stored substances and the materials of which the tank is constructed, current industry recommended practices, national consensus codes and the impact of the regulations on the regulated community. The Department shall distinguish in such standards between requirements appropriate for new tanks, for tanks in existence on the date of promulgation of the standards and for abandoned tanks. The Department shall require permits for certain classes of tanks or for tanks located in certain environmentally sensitive areas where such a permit system would lead to better management of groundwater resources.

- (c) The Department's regulations shall, at a minimum, include the following provisions:
- (1) A requirement that a product inventory or other such control system, adequate to identify releases from underground storage tanks, be maintained;
 - (2) Procedures to follow when inventory or such control system records indicate an abnormal loss or gain which is not explainable by spillage, temperature verifications, or other known causes;
 - (3) A requirement that appropriate corrective action be taken in response to a release from an underground storage tank as may be necessary to protect human health or the environment;
 - (4) A requirement to maintain records documenting actions taken in accordance with paragraphs (1) through (3) of this subsection;
 - (5) A requirement for an enforcement program; and
 - (6) A requirement for standards that will ensure against any future release from an underground storage tank being closed or otherwise taken out of operation. (65 Del. Laws, c.161, § 1.)

§ 7416. Groundwater risk assessment

Because groundwater protection and management is an underlying issue related to underground storage tanks, information on the risks to groundwater resources will be needed to facilitate implementation of the regulations.

The Delaware Geological Survey shall, under the auspices and direction of the Committee¹, and in cooperation with the Department, examine the need for prioritizing possible leak risks. The Survey may assist the Committee by identifying areas where existing or abandoned leaking underground storage tanks would pose the most significant risk. (65 Del. Laws, c.161, § 1.)

1. Reference to the Leaking Underground Storage Tank Committee that was formed under § 7414 of this Chapter.

Chapter 91. Delaware Hazardous Cleanup Act

Effective July 13, 1995 (as amended)

§ 9102. Declaration of Purpose; Applicability

- (a) The General Assembly recognizes that large quantities of hazardous substances are and have been generated, transported, treated, and stored within the State. The General Assembly also recognizes that some hazardous substances have been stored or disposed of at facilities in the State in a manner insufficient to protect public health or welfare or the environment. The General Assembly finds that the release of a hazardous substance constitutes an imminent threat to public health or welfare or the environment of the State. The General Assembly intends by passage of this chapter to exercise the powers of the State to require prompt containment and removal of such hazardous substances, to eliminate or minimize the risk to public health or welfare or the environment, and to provide a fund for the cleanup of the facilities affected by the release of hazardous substances.

§ 9106. Investigation and Access

- (a) (1) If there is a reasonable basis to believe there was a release or is an imminent threat of release, the Secretary may require information or documents relevant to the release or imminent threat of release from any person who may have information pertinent to:
- (a) The identification, nature and volume of materials generated, treated, stored, transported to or disposed of at a facility, and the dates thereof;
 - (b) The extent of a release or imminent threat of release from a facility;
 - (c) The identity of potentially responsible parties;
 - (d) The financial ability of a potentially responsible party to perform a remedy.
- (b) If the Secretary determines that:
- (1) An emergency exists that requires immediate action to protect public health or welfare or the environment; and
 - (2) The operator is unwilling or unable to take such immediate action, the Secretary, or his or her authorized employees or agents, without court order, may enter upon a facility and take immediate action necessary to abate the emergency notwithstanding the provisions of § 9107 (e) of this title. (67 Del. Laws, c.326, § 1.)

TITLE 16 Health and Safety

Responsible Agency: Department of Health and Social Services
Section: Division of Public Health - Office of Drinking Water

Chapter 13 Pollution of Streams

§ 1301. Pollution of streams supplying drinking water; nuisance; penalty; abatement; jurisdiction.

- (a) No person shall cast, put, place, discharge in or permit or suffer to be cast, put, placed, discharged in or to escape into any running stream of water within the limits of this State, from which stream the inhabitants of any borough, town or city within this State are supplied wholly or in part with water for and as drink or beverage, any dye-stuffs, drugs, chemicals or other substance or matter of any kind whatsoever whereby the water so supplied as and for a drink or beverage is made and becomes noxious to the health or disagreeable to the senses of smell or taste.
- (b) Whoever violates subsection (a) of this section shall be fined not less than \$1,000 nor more than \$5,000.
- (c) The Superior Court shall have exclusive jurisdiction of offenses under this section.
- (d) In addition to the fine imposed under subsection (b) of this section, the Court shall issue an order for the abatement of the nuisance within 20 days after conviction. The sheriff of the county in which the conviction takes place shall, under such order, unless the nuisance was abated before the expiration of the time allowed for its abatement, abate the same, and to this end shall enter on the premises from which the nuisance proceeded and arrest, stop and put an end to the business from the carrying on of which or in the process of which the nuisance was created and carried on.

Chapter 15 Cesspools, Privy Wells, Drainage Systems and Water Supply Systems

§ 1501. Regulating construction of drainage systems and water supply systems.

- (a) The Department of Health and Social Services may regulate and prescribe the manner in which all cesspools, privy wells and other drainage systems shall be constructed within the limits of all incorporated towns and at any place within 1 mile from the water supply thereof. The Department of Health and Social Services may adopt regulations to insure that water supply systems are constructed or altered in a manner that preserves the quality of water supplied to the public.
- (b) As used in this chapter, "water supply system" means all plants, systems, facilities or properties used or useful, or having the present capacity for future use, in connection with the supply or distribution of water, and any integral part thereof, including water distribution systems, mains, laterals, pumping stations, standpipes, filtration plants, purification plants, hydrants, meters, valves and equipment, appurtenances and all properties, rights, easements and franchises relating thereto and deemed necessary or convenient by the authority for the operation thereof. Except as otherwise provided in this chapter, the term "water supply system" shall not mean a dam, reservoir, surface water intake, waterway obstruction or well.

§ 1502. Changing existing drainage systems.

The Department of Health and Social Services may order and direct any changes in the construction of any cesspool or privy well or other drainage already constructed and used on any property in any incorporated town or within 1 mile of the water supply of the town which it deems necessary for the protection of the health of the inhabitants of the town or for the protection of the water supply thereof.

§ 1504. Prohibiting surface drainage.

The Department of Health and Social Services may prohibit the owner or tenant of any property within any incorporated town or within 1 mile from the water supply thereof from discharging any sewerage or drainage from any house or building on or over the surface of the ground adjoining the same whenever it determines that the same is detrimental to the health of the inhabitants of the town or those living within 1 mile from the water supply thereof.

§ 1506. Plans for construction or alteration of a water supply system.

All plans for the construction or alteration of a water supply system shall be submitted to the Division of Public Health of the Department of Health and Social Services for approval before the construction or alteration of said water supply system begins. Notwithstanding the exclusions in § 1501(b) of this title, the Division of Public Health may review and inspect the construction of wells, dams, reservoirs, surface water intakes and waterway obstructions for health aspects, including but not limited to such features as venting, grouting, integrity of well seals and protection from contamination. Any negative health aspects observed by the Division of Public Health during such review or inspection shall be referred to the Department of Natural Resources and Environmental Control for investigation, resolution or enforcement action. In addition, and pursuant to § 7931 of Title 16, a dug well or any type of private water supply that is located where there is access to a public water supply shall not be permitted unless the private water supply is approved in writing by the Department of Health and Social Services.

§ 1507. Penalties; jurisdiction.

(a) Whoever violates this chapter or any order or regulation of the Department of Health and Social Services or any laws of this State conferring powers upon boards of health or refuses or omits to obey such order and regulation within the time prescribed for the performance thereof, or obstructs or interferes with the execution of such order or regulation, shall, for the first offense, be fined not less than \$10 and not more than \$100 and for any subsequent offense not less than \$25 nor more than \$200.

(b) Prosecutions under this section may be brought before the alderman of the incorporated town in which the violation occurs.

Section II: Delaware Law

34 Delaware Laws

Chapter 121 The City of Wilmington

Title: An Act to Provide for a Water Supply for the City of Wilmington and Empowering the Mayor and Council of Wilmington to Acquire Property Therefore by Purchase or Condemnation

Be it enacted by the Senate and House of Representatives of the State of Delaware in General Assembly met (two-thirds of all the members elected to both houses concurring):

Section 1. The Mayor and Council of Wilmington, acting by and through the agency of the Board of Water Commissioners, shall have the power to acquire by purchase or condemnation as hereinafter provided, any lands, buildings, structures, franchises, easements, highways, roads, ways, bridges, waters, water rights, or any other property, real or personal, of whatever nature, in New Castle County, as may be necessary for furnishing to the City of Wilmington, a supply of pure and wholesome water adequate to meet the present and future needs of the said City.

Section III: Authorities Enacted Through Local Ordinance

Responsible Agency: New Castle County

Section: Dept. of Land Use

Address: 87 Reads Way

New Castle Corporate Commons

New Castle, DE 19720-1648

Chapter 40: Article 10: Environmental Standards

DIVISION 40.10.000 PURPOSE

This Article establishes the basic performance standards to protect natural resources. Developments are required to conduct a carrying capacity analysis (Article 05) which regulates the maximum intensity based on actual site conditions. The site carrying capacity analysis ensures that public health, safety, general welfare and quality of life is protected and preserved for future generations. This Article establishes the protection standards used in Article 05 and sets additional standards for activities in areas of natural resources or the mitigation of resource areas that are disturbed.

DIVISION 40.10.100 RESOURCE PROTECTION STANDARDS

SECTION 40.10.110 RESOURCE PROTECTION STANDARDS

- A. The protection of natural resources is achieved in three (3) ways. First, specific open space standards are proposed to protect each natural resource by insuring that some portion of the area remains undisturbed. Secondly, site capacity calculation (Article 05) is provided to regulate development of sites to that which is consistent with the level of protection. Lastly, specific use, protection, and mitigation standards are provided for each resource.
- B. Natural resources are protected by requiring the preservation of a minimum amount of the resource as open space. Such open space shall be part of the open space ratio in residential developments and part of the landscape surface ratio in non-residential developments. Unless otherwise permitted in this Article or Table 40.10.210, the open space shall remain undisturbed. Resource protection levels are specified in Table 40.10.010 and must be met within any development. The development intensity may be modified by the site capacity calculations in Division 40.05.100. Natural resource definitions are described in Division 40.33.300.

DIVISION 40.10.300 ADDITIONAL RESOURCE STANDARDS

The following Sections set forth additional standards that protect natural resources or permit mitigation.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.310 FLOODPLAINS AND FLOODWAYS

- A. **Boundary interpretation.** Where there appears to be a conflict between a mapped boundary and actual field conditions, a determination of the exact boundary of the area subject to inundation by the base flood shall be made by the Department using the one hundred (100) year flood elevation information provided in the flood insurance study for the flood fringe portions of the floodplain and using the best one hundred (100) year floodplain elevation information available for general floodplain areas. For the floodway portion of the floodplain the exact boundaries shall be determined by scaling the distances shown on the floodway map and by utilizing the data in Table 3 of the flood insurance study for the County. Where the boundary of the floodplain is disputed, the burden of proof shall be on the applicant.
- B. There are two (2) areas within the floodplain, the floodway and the floodfringe.
1. No structure shall intrude into the floodway except for piers needed to support bridges, erosion control structures, dams for flood control or water supply, and utility crossings.
 2. Only structures essential to the permitted uses (Table 40.03.110) shall be permitted in the floodplain. Roads and other essential crossings shall be located to minimize the impact on natural resources.
 3. No structures designed for human habitation are permitted except:
 - a. Where approved under the beneficial use provisions of Section 40.10.315 and Division 40.31.600.
 - b. Nonconforming uses that already exist in the floodplain (see 40.10.311).
 4. Structures shall be constructed and placed on the building site so as to cause an increase of less than one-tenth (0.10) foot in flood height off site and offer no obstruction to the flow of flood waters. All piers in the floodways should have sufficient clearance between flood elevation and any horizontal portions of the bridge to avoid debris jams. The Department shall approve all such crossings.
 5. Structures shall be firmly anchored to prevent them from floating away or collapsing. Structures shall be certified by a professional engineer to withstand velocities and likely debris loadings at that point in the floodplain.
 6. Where approved, development shall meet the following standards:
 - a. Construction materials shall be resistant to flood damage.
 - b. All electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities shall be designed and located at least one (1) foot above the one hundred (100) year floodplain so as to prevent water from entering or accumulating within the components during conditions of flooding.
 - c. New or replacement water supply systems and/or sanitary sewage systems or other utilities shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.

On-site waste disposal systems shall be located so as to avoid impairment or contamination and flooding.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.311 NONCONFORMING STRUCTURES AND USES IN FLOODPLAIN

Nonconforming structures and uses of land within the floodplain district shall be regulated by the following:

- A. Existing nonconforming buildings, structures or uses located in the floodplain shall not be expanded or enlarged except as permitted in subsection C of this section.
- B. The reconstruction or substantial repair of a nonconforming structure in a floodplain must be authorized and approved by the Department pursuant to the standards specified in Section 40.10.315 of this Article.
- C. Any existing nonconforming building, structure, or use which is proposed to be expanded or enlarged in the flood fringe may be permitted, provided that such expansion or enlargement does not result in an increase to the building or structure footprint (foundation) and has received approval from the Department. The Department's approval shall be conditioned upon the applicant addressing to the satisfaction of the Department all public health, safety or general welfare concerns related to the proposed expansion or enlargement raised by the Department.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.312 NONDELINEATED FLOODPLAIN

The subdivision or development of land within and adjacent to nondelineated floodplain areas shall include the submission of a flood study by the applicant to establish the limits of flooding from the one hundred (100) year storm event using one (1) of the following sources as deemed appropriate by the Department. Nondelineated floodplains are subject to all of the regulations and standards in this Article.

- A. One hundred (100) year flood elevations established by the county based on the drainage basin's ultimate development as projected by the Department.
- B. U.S. Department of Agriculture, Soil Survey Manual for New Castle County (1970). Soils considered to be flood hazard soils, including tidal flooding, shall be those shown on Table 7 therein. Questions concerning the boundaries of such soils shall be resolved by the Natural Resources Conservation Service of the U.S. Department of Agriculture. This method shall not be used for delineating a manmade floodplain.
- C. Where the specific one hundred (100) year elevation cannot be determined using the sources established in this subsection, the applicant for the proposed development shall submit his or her suggested determination of this elevation in accordance with accepted hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analysis shall be undertaken only by a professional engineer who shall certify to the Department that the technical methods used correctly reflect currently accepted technical concepts. Studies, analyses, computations, etc. shall be submitted in sufficient detail to allow a thorough technical review by the Department.

- D. Recorded high water marks from past floods based on historical data, including, but not limited to, photographic documentation and water marks on vegetation or structures.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.313 DEVELOPMENT IN FLOODPLAINS

This Chapter is predicated on minimizing building or filling in the floodplain. However it shall be permitted as follows:

- A. Use is permitted in Table 40.10.210. Such uses shall demonstrate they are situated to minimize trapping of debris or any other such condition that reduces flood storage.
- B. Replacement or improvement to a nonconforming structure which already exists in the floodplain (Section 40.10.311).
- C. It is ordered as a beneficial use, after a beneficial use appeal Section 40.31.600.
- D. All uses and development occurring in areas/properties determined to be a Brownfield as demarcated by the Department of Natural Resources and Environmental Control (DNREC), Air and Waste Management Division, are permitted only upon approval of the Department with the consent of County Council by resolution after an applicant has submitted a certification from the DNREC that the property meets Brownfield criteria. All new construction or substantial improvements to nonresidential structures located in a designated Brownfield area shall meet all of the requirements of Section 40.10.316 except C, (G)(5) and P. Brownfield criteria that must be met include:
 - 1. Areas/properties located in targeted census tracts as defined by the Delaware Economic Development Office (DEDO).
 - 2. Areas/properties identified by the DNREC as contaminated by the release or threatened release of a hazardous substance as defined under 7 Del. C., ch. 91.
 - 3. Properties that are zoned either Commercial or Industrial Use, and which meet the DEDO criteria for underutilized.
- E. Substantial improvements to structural buildings associated with a current operational petroleum underground storage tank (UST) facility is permitted, provided the impetus for the owner of said UST facility in upgrading or replacing all or a portion of the UST system is to achieve compliance with the State Regulations Governing Underground Storage Tank Systems as established under 7 Del. C., ch. 74.
- F. All new construction or substantial improvements to nonresidential structures located in a designated Brownfield area must have a floor area elevation equal to or above the base flood elevation or must be flood proofed to the base flood elevation.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.314 FILLING IN THE FLOODPLAIN

Where permitted by Section 40.10.313 filling shall adhere to all of the following conditions:

- A. Such fills shall only be permitted in the fringes of the floodplain and are prohibited in the floodway.
- B. Filling shall not be used as a means of increasing the development yield of the site capacity calculation (Division 40.05.400). The original floodplain shall be used in the site capacity calculation, not the smaller floodplain.
- C. The total area of the floodplain on the site may not be reduced by more than ten (10) percent in conjunction with channel improvements, flood storage, and detention that would have the effect of reducing the floodplain elevation.
- D. All filling shall meet the following construction requirements:
 - 1. The fill shall be protected against erosion by riprap, vegetative cover, sheet piling, or bulkheading sufficient to prevent erosion.
 - 2. The fill shall be clean and compacted to minimize erosion potential.
 - 3. Hydraulic openings shall be designed to convey one hundred (100) year flow unimpeded.
 - 4. As a result of filling on the site, there shall be no net loss of flood storage capacity. Compensation shall be made for the volume of fill so that neither cross-sectional area decreases nor flood level increases.
- E. Where filling is proposed the record plan shall not be approved until FEMA certifies a new floodplain limit so that no lots are shown to be in the floodplain.
- F. Where homes existing as of the date of adoption of this Chapter can be protected from existing flooding conditions by filling not exceeding twenty (20) cubic yards per lot, such filling may be permitted by the Department provided all the requirements of subsection D above are met.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.315 STANDARDS FOR BENEFICIAL USES IN FLOODPLAINS

All new construction, reconstruction, subdivision proposals, substantial improvements or repairs, prefabricated structures and other developments shall be prohibited except where approved as essential to the beneficial use of property. Approval shall require the issuance of a beneficial use permit. In approving a beneficial use permit, in addition to the standards for beneficial uses in Division 40.31.600, the following standards shall be met:

- E. Storage, material, and equipment:
 - 1. The storage or processing of materials within the special flood hazard area that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal, or plant life is prohibited.

2. Storage of other material or equipment may be allowed if not subject to major damage by floods, if firmly anchored to prevent flotation, or if readily removable from the area within the time available after a flood warning.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.316 CRITERIA FOR BUILDING IN AND NEAR THE FLOODPLAIN

In reviewing an application, the Department shall consider and/or require the following:

- A. Any development in the floodway that would cause an increase in flood heights in excess of that allowed in Section 40.10.310 B 4 shall be prohibited.
- B. New construction of or substantial improvements to residential structures shall have the lowest floor, including basement, elevated not less than eighteen (18) inches above the one hundred (100) year flood. Additions to residential structures not constituting a substantial improvement shall have the lowest floor, including basement elevated above the one hundred (100) year flood.
- C. New construction of or substantial improvements to nonresidential structures shall have the lowest floor, including basement, elevated not less than eighteen (18) inches above the one hundred (100) year flood or, together with attendant utility and sanitary facilities, shall be floodproofed up to not less than eighteen (18) inches above the level of the one hundred (100) year flood. Such floodproofing shall be watertight, with walls substantially impermeable to the passage of water, and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Wet floodproofing that allows the free flow of flood waters through the areas of a structure above its lowest floor shall not be permitted. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice for meeting these provisions.
- D. Electrical, heating, ventilation, plumbing and air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating with the components during conditions of flooding.
- E. For all new construction and substantial improvements, fully enclosed areas below the lowest floor area that are useable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must be certified by a professional engineer with a background in structural design and must meet or exceed the following minimum criteria:
 1. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided.
 2. The bottom of all openings shall be no higher than one foot above grade.
 3. Openings may be equipped with screens, louvers or other coverings or devices provided they permit the automatic entry and exit of floodwaters.

- F. All structures, residential and non-residential, shall be:
 - 1. Designed and adequately anchored to prevent flotation, collapse or lateral movement of the structure.
 - 2. Constructed with materials and utility equipment resistant to flood damage.
 - 3. Constructed by methods and practices that minimize flood damage.
- G. If fill is used to raise the finished surface of the lowest floor to the base flood elevation:
 - 1. Fill shall extend beyond a structure for a sufficient distance to provide acceptable access.
 - 2. Fill material shall be compacted to provide the necessary stability and resistance to erosion, scouring and settling.
 - 3. Fill slopes shall be no steeper than one (1) vertical on two (2) horizontal.
 - 4. Fill shall be used only to the extent to which it does not adversely affect adjacent properties.
 - 5. Fill shall not be used for the purpose of enhancing the future development potential of an existing property by creating new lots or land areas for future development that would have been located in the floodplain prior to the placement of the fill material.
- H. The danger to life and property due to increased flood heights or velocities caused by encroachments.
- I. The danger that materials may be swept on to other lands or downstream to the injury of others.
- J. The proposed water supply and sanitation systems and the ability of these systems to avoid causing disease, contamination, and unsanitary conditions.
- K. The expected heights, velocities, duration, and sediment transport of the floodwater expected at the site.
- L. The proposed activity's undue alteration of natural water flows.
- M. No development shall be permitted in floodplain and nondelineated floodplain areas where no floodway has been designated and where one hundred (100) year flood elevations have been provided, unless the applicant demonstrates that the proposed use, when combined with all other existing and anticipated development, will not increase the water surface elevation of the one hundred (100) year flood more than two tenths (0.2) of a foot at any point.
- N. Any permitted development is subject to all applicable state and federal rules and regulations.
- O. Manufactured homes shall be placed on a permanent foundation and shall have the lowest floor elevated not less than eighteen (18) inches above the one hundred (100) year flood level and anchored to resist floatation, collapse or lateral movement.

- P. The extent to which the applicant's primary purpose can be achieved by the use of alternatives or without the use of lands in the floodplain, or the extent to which the applicant can employ mitigation measures to offset adverse impacts, or to which the public at large would benefit from the activity or project and the extent to which it would suffer detriment.
- Q. The susceptibility of the proposed use to flood damage and the effect of such damage on the owner.
- R. The protection of individuals who might choose, despite the flood dangers, to develop or occupy land on the floodplain; or protection of other landowners from damages resulting from the development of a floodplain and the consequent obstruction of the flood flow; or the protection of the entire community from individual choices of land use which requires subsequent public expenditures for public works and disaster relief; or protection of the quality of surface and subsurface water supplies adjacent to and underlying floodplain areas.
- S. The safety of access to the property in times of flood for ordinary and emergency vehicles.
- T. The likelihood that the proposed use will result in extraordinary public expense, will create nuisances or will conflict with existing County ordinances or regulations.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.330 RIPARIAN BUFFER AREAS (RBA)

The water body buffers shall meet the following standards which are intended to preserve and enhance existing vegetation and to revegetate disturbed areas.

SECTION 40.10.332 SURFACE WATER BODIES

A. Non-water-supply water bodies.

1. No septic systems shall be allowed within an RBA.
2. All developments shall maximize the drainage amount conducted in natural swales rather than storm sewers. A stormwater system's discharge to streams or watercourses shall be by sheet flow through a grassland or discharged from a stormwater management facility having a wetland or aquatic bench.
3. Stormwater runoff from all parking areas shall be directed to a stormwater management facility before it is discharged into an RBA.

B. Public water supply surface storage reservoir.

1. All developments which drain on the surface or underground to existing public water supply reservoirs shall be limited to ten (10) percent impervious coverage. Public water supply reservoirs (or reservoir watersheds) are depicted on the three (3) map series "Water Resource Protection Areas for the City of Newark, City of Wilmington, New Castle County, Delaware", prepared by the Water Resources Agency for New Castle County that is dated 1993, or as may be amended.

2. No septic systems shall be allowed within six hundred (600) feet of the water supply surface storage reservoir.
3. All developments shall maximize the drainage amount conducted in natural swales rather than storm sewers. A stormwater system's discharge to streams or watercourses shall be by sheet flow through a grassland or discharged from a stormwater management facility having a wetland or aquatic bench.
4. No industrial or commercial parking shall be permitted within three hundred (300) feet of the public water supply surface storage reservoir.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.340 STEEP SLOPES

A. **Public purpose.** The public purpose of this Section is to protect the public health, safety and welfare. To this end, this Section is intended to protect the environment through the preservation of natural resources and to complement the sections relating to open space. This Section is designed to encourage the sensitive treatment of hillsides and their related soil and vegetation resources in an effort to minimize adverse environmental impacts. The following objectives serve to complement these specific purposes and the overall purposes of this Section, and the objectives shall be to:

1. Conserve and protect steep slopes from inappropriate development, such as excessive grading, land form alteration and extensive vegetation removal.
2. Avoid potential hazards to property and the disruption of ecological balance which may be caused by increased runoff, flooding, soil erosion and sedimentation, blasting and ripping of rock and landslide and soil failure.
3. Encourage the use of steep slopes for open space and other uses which are compatible with the preservation of natural resources and protection of areas of environmental concern.
4. Avoid public expenses of repair and restoration of damage to downhill sites caused by the improper development of steep slopes.

B. **Standards and criteria.** The following practices shall be required when developing in a precautionary steep slope area:

1. All grading shall be minimized, and no grading shall be undertaken within any area of the steep slope area except where approved.
2. Disturbance of steep slopes must consider unique characteristics of topographic, soil and vegetation resources and the techniques proposed to mitigate potential adverse environmental impacts.
3. The effect the development of the steep slope would have on adjacent properties.
4. The compatibility of the proposed uses with public purposes.

5. No other alternative location within the subdivision being considered is feasible or practical.
 6. Earth-moving activities and vegetation removal will be conducted only to the extent necessary to accommodate proposed uses and structures and in a manner that will not cause excessive surface water runoff, erosion, sedimentation or unstable soil conditions.
 7. Mitigation techniques will be utilized, including but not limited to retaining walls, tree wells, the establishment of ground covers and/or low spreading shrubs, the use of erosion control fabric and the like.
 8. The proposed buildings or structures shall be of sound engineering design. Footings shall be designed in response to the site's slope, soil and bedrock characteristics.
 9. Disturbance to particularly sensitive features of the site shall be minimized; special emphasis in planning for the site should be given to the protection of:
 - a. Soils with seasonal high water table, as listed in Appendix I, Table C of Chapter 12 of this Code pertaining to drainage.
 - b. Underlying geology which comprises or contributes to a major groundwater resource including the flow of existing springs.
 10. Disturbance shall be minimized where the length of area of steep slope, both on the site and on adjacent lands within two hundred (200) feet of the site, is extensive.
 11. The proposed development, any impervious ground cover and the resultant disturbance to the land and existing vegetative cover will not cause runoff and/or related environmental problems off the site.
 12. Removal of or disturbance to existing vegetation on the site shall be minimized. The proposed impacts on existing vegetation shall be evaluated in terms of the potentially detrimental effects on slope stability, recharge of stormwater and existing drainage patterns.
 13. Road construction shall follow the natural topography, with cuts and grading minimized; the location of any proposed point of access to an activity or use on the lot shall reflect the need to avoid steep slope disturbances.
- C. In a prohibitive steep slope area, roads and driveways shall only be permitted if no viable alternative alignment or location is feasible provided that such roads and driveways are aligned predominately parallel to the contours as demonstrated by an environmental impact assessment report.
- D. Permits shall require all earth work to be conducted so as to be concluded one (1) month prior to the end of the planting seasons (i.e., April 30 and September 30). This practice will enable a ground cover to be established after work completion.
- E. A ground cover shall be placed on all exposed surfaces prior to the end of the planting season, or as the work is completed prior to that date. The Department is authorized to permit temporary

cover in limited situations where unusual weather or the type of project requires earth work beyond a planting season. Surety may be required for remedial work if temporary cover is to be used.

- F. All slopes exceeding fifteen (15) percent or where water flows can be anticipated shall have a protective cover to hold the seed or plants in place. All protective covers shall be approved by the Department.
- G. All plant materials should be approved by the Department as suitable for the area's soils and exposure, growth, and coverage rate.

DIVISION 40.10.380 WATER RESOURCES PROTECTION AREAS (WRPA)

- A. Water resource protection areas are the Cockeysville Formation, Cockeysville Formation Drainage Area, wellheads, and recharge areas. All such areas are as depicted on the three (3) map series "Water Resource Protections Areas for the City of Newark, City of Wilmington, New Castle County, Delaware," prepared by the Water Resources Agency for New Castle County that is dated 1993, or as amended. These areas shall be protected as required by the following sections to protect the County's water resources from contamination and pollution and to insure adequate water quantity for future needs.
- B. No development shall be permitted to have more than twenty (20) percent impervious surface ratio unless an environmental impact assessment report certified by a state registered professional geologist or professional engineer with a background in hydrogeology indicates that additional development would not endanger the public or the environment. All environmental impact assessment reports performed pursuant to this Section shall be reviewed in accordance with Section 10.385 and the procedures set forth in Article 30 and Article 31 for environmental impact assessment reports. The impervious surface ratio and open space ratio operate independently and are based on the base site area.
- C. The Department may permit the redevelopment of existing nonconforming sites within Water Resource Protection Areas, which exceed the twenty (20) percent impervious cover standard, provided the proposed redevelopment of the site will reduce the existing impervious cover by a minimum of five (5) percent for sites of two (2) acres or less, a minimum of ten (10) percent for sites greater than two (2) acres and less than five (5) acres, and a minimum of twenty (20) percent for sites greater than five (5) acres and larger.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.381 COCKEYSVILLE FORMATION

Special on-site investigation as required by Section 40.22.110.

- A. The County shall require a subsurface investigation report on the stability of the rock formation and likely contamination risks.
- B. In addition, surface drainage shall be designed to prevent infiltration that could lead to increased erosion of supporting rock. The County may require lined channels or stormwater pipes that decrease the level of infiltration to the groundwater.

- C. In determining whether development may be permitted beyond the twenty (20) percent impervious surface ratio limitation of this Division, the contribution of like land by the applicant to be preserved in the Cockeysville Formation shall be considered as a factor in the environmental study and report.

SECTION 40.10.383 WELLHEAD PROTECTION AREAS (PUBLIC WATER SUPPLY WELLS)

- A. Wellhead protection areas.
1. Type A wellhead areas shall be one hundred (100) percent open space within three hundred (300) feet of the wellhead. Within that area, impervious surface shall be limited to building and access associated with the well and distribution and treatment facilities and their maintenance. In the case where the three hundred (300) foot required open space cannot be attained on the same lot as the wellhead, a conservation easement on one or more adjacent lots shall be necessary.
 2. Type B and C wellhead areas shall be limited to twenty (20) percent impervious surface ratio within three hundred (300) feet of the wellhead.
- B. The resource protection area around a public water supply well which draws from a confined aquifer as interpreted by the Delaware Geological Survey (DGS), DNREC, or a state registered professional geologist with approval by DGS and DNREC shall be one hundred and fifty (150) feet. The protection area around a well not interpreted as drawing from a confined aquifer may be reduced below three hundred (300) feet where an environmental impact assessment report is approved demonstrating that a minimum sixty (60) day time of travel from a potential contaminant to the public water supply well is maintained. In no case shall the protection area for unconfined aquifers be less than one hundred fifty (150) feet. The assessment reports shall be based on an on-site hydrogeologic study.

Notwithstanding any other provisions in Article 13 of the New Castle County Code, the minimum lot area required for a public water supply well and related facility drawing from a confined aquifer shall be one (1) acre; and, the minimum lot area required for a public water supply well and related facility drawing from an unconfined aquifer shall be two (2) acres. In the case where the minimum lot area cannot be met, because the public water supply well and related facility is proposed on an existing lot less than the minimum required, and where the total wellhead protection area required is not wholly owned by the public water utility, a conservation easement on one or more adjacent properties shall be necessary to satisfy the appropriate public water supply well minimum wellhead protection areas. The terms of the conservation easement shall prohibit any activity detrimental to the public water supply well. The owner of the public water supply well shall be responsible for monitoring the property pursuant to the terms of the easement.

- C. The natural runoff flowing into wellhead areas shall be allowed and all new stormwater runoff shall be diverted around the wellhead protection areas wherever practical.
- D. A stormwater system's discharge to wellhead WRPA's shall be by sheet flow through a grassland or discharged from a stormwater management facility having a wetland or aquatic

bench. Stormwater runoff from all parking areas shall be directed to a stormwater management facility before it is discharged into a wellhead WRPA.

- E. The replacement of any existing public water supply well that was not required to meet this wellhead protection requirement at the date of its original installation and that has failed, shall be exempt from meeting this wellhead protection requirement.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.384 RECHARGE AREAS AND COCKEYSVILLE FORMATION DRAINAGE AREAS

- A. When impervious cover is proposed by the applicant at a rate greater than twenty (20) percent of the site, the applicant shall be required to demonstrate that the quality of storm water runoff is equal to or greater than predevelopment conditions and the quantity of stormwater runoff is equal to or less than predevelopment conditions.
- B. Those areas of open space not currently forested, shall have a minimum of twenty-five (25) percent of their area reforested pursuant to Section 40.10.351. The Department may reduce this requirement where the applicant prepares an Environmental Impact Assessment Report demonstrating to the satisfaction of the Department that reforestation will result in more than a twenty (20) percent loss in groundwater recharge due to the soils and hydrogeologic conditions of the site. The report shall include an annual water budget compiled on a month by month basis comparing existing and post-development mature forest conditions. Applicants shall submit information regarding the types of trees evaluated, soil conditions (including percolation rates), pH types, assumptions regarding rainfall events, and topography. The report shall also include a water quality analysis comparing the water quality benefits of mature forest cover to the proposed alternative ground cover.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.385 UNIFORM STANDARDS AND CRITERIA

- A. The following standards and criteria shall be applicable to any limited use, special use or other use requiring an environmental impact assessment permitted pursuant to this Division:
 1. Stormwater management facilities shall be designed and constructed in accordance with DNREC "Delaware Sediment and Stormwater Regulations," dated January 23, 1991 or as later revised.
 2. With the exception of floodplain and erosion-prone slope water resource protection areas, stormwater management and recharge facilities shall be designed with the goal of maintaining the quantity and quality of groundwater recharge at predevelopment levels. To facilitate the design of recharge facilities, a manual of best management practices for the design, construction and maintenance of recharge structures shall be developed. The manual shall be approved by the resource protection area technical advisory committee (RPATAC) and may be revised as necessary to reflect advances in recharge technology.
 3. In order to establish the predevelopment standards required by subsection (A)(2) of this Section, a study shall be prepared under the supervision of a state-registered professional geologist or professional engineer with a background in hydrogeology. The report of the

study shall be submitted to the Department, the Delaware Geological Survey and the Water Resources Agency and shall be reviewed in accordance with the procedures set forth in Article 30 for environmental impact reports.

4. In wellhead water resource protection areas all development shall be maintained at a minimum sixty (60) day horizontal time of travel from any public water supply well as established by the on-site hydrogeologic study required by subsection (A)(3) of this Section or three hundred (300) feet from the public water supply well, whichever is less.
5. When facilities are proposed to augment groundwater recharge, to ensure that the quality of groundwater recharge shall be maintained, a groundwater quality monitoring program shall be established as part of the report prepared pursuant to subsection (A)(3) of this Section. The program shall establish the number of wells to be installed, as well as the duration and frequency regarding the monitoring of the wells to be installed. The wells shall be installed and secured in accordance with DNREC "State of Delaware Regulations Governing the Construction of Water Wells." All laboratory test results shall be submitted to the Water Resources Agency to ensure the County that satisfactory water quality is maintained.
6. Provisions for the maintenance of groundwater recharge facilities and the frequency of groundwater quality testing and monitoring shall be established by a water management agreement between the property owner and the county. The agreement shall not be amended without the approval of the County.
7. In water resource protection areas, sanitary sewer systems which utilize land application of treated effluent shall be required to use extended aeration and disinfection. Treated wastewater shall not be applied to the ground at a rate that saturates soils. Crops or vegetation to which treated wastewater is applied shall be harvested periodically to prevent a build-up of metals or other constituents in the soil or groundwater.

(Amended September 22, 1998 by Ordinance 98-080)

SECTION 40.10.386 BOUNDARY DETERMINATION

- A. All subdivision and land development plans depicting development or land disturbance submitted for County review shall be evaluated for the existence of water resource protection areas by scaling the distances shown on the water resource protection area map. If existing, the boundaries of the areas shall be delineated on the plan.
- B. When there appears to be a conflict between the mapped boundary and actual site conditions, the applicant may engage the services of professional practitioners set forth in this Section to prepare a report intended to determine more accurately the precise boundary of the water resource protection area, which report shall be submitted to the Department with the detailed findings necessary to indicate the location of the boundary in conformance with the definitions given in Article 33, including:
 1. A detailed topographic layout of the subdivision and/or area to be developed and prepared by a State-registered professional land surveyor or professional engineer;

2. For floodplain and erosion-prone slopes boundary determinations, a revised surface soils map of the subdivision and/or area prepared by a DNREC-licensed soil scientist including a written report of the on-site field inspection and test boring data;
3. For reservoir watershed, Cockeysville formation, wellhead and recharge boundary determinations, a site-specific geological and hydrogeological analysis shall be performed by a State-registered professional geologist or professional engineer with a background in hydrogeology and shall be based upon thorough site investigation, subsurface testing and other testing as may be determined appropriate by the Department; and
4. Evidence derived from a site-specific investigation which may include aquifer testing, test borings, test pits, observation wells, groundwater elevations and topography surveys as appropriate for the type of water resource protection area to clearly demonstrate that the area in question does not meet the definition of a water resource protection area as defined in this Division.

- C. Reserved.
- D. The Department, with the advice of the Delaware Geological Survey and the Water Resources Agency, may adjust the boundary or area designation based thereon. Such adjustments shall have the effect of exempting the subject parcel from the use regulations of this Chapter and shall have the effect of amending the limits of the water resource protection area. However, when the water resource protection area map is updated or amended, the Department shall review each of the exemptions approved since the last map revision to determine if a district boundary should be amended to reflect the findings of the geologic analysis performed at the time of the exemption.
- E. Notwithstanding any other section of this Chapter, if an owner initiates a precise boundary delineation pursuant to this section, any and all time review limitations shall be stayed pending the submission of the report contemplated by this section. Following submission of the report, the Department shall have twenty (20) days to finally approve or disapprove the exploratory sketch plan submission or such further time as deemed necessary by the Department, but not to exceed an additional twenty (20) days.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.387 RESOURCE PROTECTION AREA TECHNICAL ADVISORY COMMITTEE (RPATAC)

- A. The purposes and duties of the RPATAC are to:
1. Provide technical support and recommendations to the Department concerning the technical definition and criteria of any resource protection area as depicted on the three (3) map series designated in this Chapter.
 2. Advise the Department when it is determined that performance standards should be amended.
 3. Provide technical support and recommendations to the Board of Adjustment and Planning Board concerning any application.

4. Advise the Department when it is determined that this Chapter should be amended.
5. Assist the Department as requested.

(Amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.388 RPATAC REVIEW

Neither the Board of Adjustment, nor the Planning Board shall consider any application for a variance from this Division until the RPATAC has had an opportunity to review the application and make a written recommendation to the respective board. Any application for a variance from this Division shall be transmitted to the RPATAC, which shall have forty-five (45) days from the filing of the application to review and issue its recommendation.

(Amended December 14, 1999 by Ordinance 99-075)

SECTION 40.10.410 ENVIRONMENTAL IMPACT ASSESSMENT REPORT

If a proposed use requires an environmental impact assessment report, pursuant to Table 40.10.210 and Section 40.10.540, the applicant shall have such a report certified by a professional engineer, geologist or other certified professional in the applicable environmental discipline. Mitigation cannot be used where the conflict can be avoided or minimized. The report shall contain the following criteria, given in order of preference:

- A. **Site character.** The report shall identify all potential on-site sensitive environmental concerns.
- B. **Avoidance.** Alternative sites or routes shall be identified that would not damage the resource or result in less resource damage. Reasons shall be provided explaining why using these sites is impossible or infeasible versus that proposed.
- C. **Minimization.** The applicant shall demonstrate that the plan minimizes the impact of the activity, route, or use on the resource. The applicant shall also demonstrate that the areas impacted shall be the lowest quality and result in the least damage to the resource.
- D. **Mitigation** A mitigation plan shall be submitted indicating mitigation activities. On-site replacement is the most acceptable form of mitigation. However, mitigation can include restoration and enhancement after the use is abandoned. Mitigation by replacement on another site shall be at a ratio of two to one (2:1). Mitigation may also include enhancement; this ratio shall be four to one (4:1). See Table 40.10.350B.

(Amended September 22, 1998 by Ordinance 98-080)

DIVISION 40.10.600 STORAGE OF HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

The storage, maintenance, use, or sale of substances listed in 40 CFR 116 in an aggregate quantity equal to or greater than a reportable quantity as defined in 40 CFR 117 shall be governed by the following provisions. Petroleum products shall also meet the requirements of this section.

- A. All such activities are prohibited in floodplains, floodways, wellhead class A, B or C, the Cockeysville Formation, drainageways, recharge areas, steep slopes, critical natural areas, wetlands, riparian buffers and sinkholes, unless such substances are used in the process of public water supply and treatment and sewer treatment facilities.
- B. The replacement of existing underground petroleum storage tanks in any area other than a water resource protection area (WRPA) shall be permitted provided all State and federal regulations are met. The replacement of existing underground petroleum storage tanks in a water resource protection area (WRPA) where an upgrade is required by DNREC shall be permitted provided all State and federal regulations are met and secondary containment is provided.
- C. In all other areas where permitted, above ground storage shall be permitted provided such facilities are designed so that all spills are fully contained in a secondary containment facility that is designed such that there is no spill into soils, surface waters, sewers. The replacement of existing above ground storage facilities in any area shall be permitted provided the State Fire Marshall's Office provides the Department with written approval and all other applicable state and federal regulations are met and secondary containment is provided. Secondary containment shall not be required for above ground storage used exclusively for private residential purposes when located on the residential lot within the setback lines.
- D. In all other areas where permitted, underground storage shall be permitted only for petroleum products, provided all State and federal regulations are met.

(Amended September 22, 1998 by Ordinance 98-080; amended December 14, 1999 by Ordinance 99-075)

City of Newark Wellhead Protection Ordinance

Responsible Agency: City of Newark

Section: Water and Waste Water Department

Address: 220 Elkton Rd.

Newark, DE 19711

Article VII. Water Resource Protection Regulations

Amended: April 22, 1991

Sec. 30-52. Purpose

Because clean and safe water is a paramount requirement for public health, the City of Newark water supply must be preserved and protected. Therefore, it is the purpose of this article to promote public health, safety, and general welfare of our community by protecting our drinking water supply from pollution that may be associated with inappropriate land uses.

(Ord. No. 91-16, Amend. No. 1, 4/22/91)

Sec. 30-53. General provisions

(a) *Wellhead resource protection areas.*

- (1)** Wellhead resource protection areas shall be those areas delineated by the Water Resources Agency for New Castle County, in conjunction with the City of Newark Water and Wastewater Department, and shown on the Water Resources Agency's Water Resource Protection Area map, dated 1987.
- (2)** Said map is incorporated by reference herein, and copies may be found in the City of Newark Water and Wastewater Department.
- (3)** Wellhead resource protection area means the surface and subsurface areas surrounding a water well or wellfield supplying a public water system through which contaminants are likely to move toward and reach such well or wellfield. These areas are graphically depicted on the water resources protection area map, dated 1987.
- (4)** The wellhead resource protection areas may be modified from time to time based on the recommendation of the technical advisory committee established in subsection (d) of this article and the water resources protection area map shall be revised accordingly; substantial modifications in the water resource protection area map, based on the recommendation of the technical advisory committee, shall be made by city council by ordinance.

(b) *Recharge protection areas.*

- (1)** Recharge protection areas shall be those areas delineated by the Water Resources Agency for New Castle County, in conjunction with the City of Newark Water and Wastewater

Department, and shown on the Water Resources Agency's Water Resource Protection Area map, dated 1987.

- (2) Said map is incorporated by reference herein, and copies may be found in the City of Newark Water and Wastewater Department.
- (3) Recharge protection areas are those land areas consisting of highly permeable geologic deposits including areas where surficial geologic deposits generally consist of coarse sand and gravel beds, silty gravels, coarse sand, or rock, coarse to medium sand, that have a hydraulic conductivity of 100 feet per day or greater.
- (4) The recharge protection areas may be modified from time to time based on the recommendation of the technical advisory committee established in subsection (d) of this article and the water resources protection area map shall be revised accordingly; substantial modifications in the water resource protection area map, based on the recommendation of the technical advisory committee, shall be made by city council by ordinance.

(c) *Interpretation of boundaries.*

Where interpretation is needed concerning the exact location of the wellhead resource protection and recharge protection areas, the water and waste water director shall make the necessary and final interpretation, with the assistance of the technical advisory committee established in subsection (d) of this article. Any person contesting the location of these areas shall have the burden of establishing that such land does not lie within the areas as defined herein. To contest a location of a water resource protection area, the following information shall be submitted:

- (1) A detailed topographical survey of the location in question prepared by a registered professional land surveyor;
- (2) A revised surface soils map of the property prepared by a DNREC (Delaware Department of Natural Resources and Environmental Control) licensed soil scientist, including a written report of the on-site field inspection and test boring data;
- (3) Site specific geological and hydrogeological analyses shall be performed by a Delaware registered professional geologist and shall be based upon thorough site investigation and testing to be determined and established through regulations promulgated by the water and waste water department in consultation with the technical advisory committee; and
- (4) Evidence derived from a pumping test(s) or a sufficient number of test borings, test pits, observation wells, and groundwater elevations to clearly demonstrate that the area in question does or does not meet the definition of wellhead resources or recharge protection areas as defined in this article.

(d) *Technical Advisory Committee*

A committee shall be established to assist in the interpretation of and/or revision of boundaries established in this article, the review of development plans within wellhead resources and recharge protection areas, and other related matters that may arise in the administration of this article. The committee shall consist of representatives from the Newark Planning and Water and Waste Water Departments, the Delaware Geological Survey, the Delaware Department of Natural Resources and Environmental Control, the Soil Conservation Service, and the Water Resources Agency for New Castle County. The committee shall be chaired by the Newark Director of Water and Waste Water and shall be convened by the director when, in the director's opinion, technical advice is necessary for the administration of this article as described herein. The committee shall be advisory only; all final determinations shall be made by the water and waste water director.

(Ord. No. 91-16, Amend. No. 1, 4/22/91)

Sec. 30-54. Use Regulations

Notwithstanding the uses permitted and area requirements and zoning districts established in Chapter 32, Zoning, the following water resources protection use regulations shall apply:

- (a) *Wellhead resource protection areas.*
 - (1) In residential districts in Chapter 32, Zoning, the permitted uses shall be restricted to one family detached dwellings with a maximum number of dwellings per gross area not to exceed one dwelling per two acres, with a minimum total gross lot area of two acres, except for open space, parks, municipal facilities, street rights-of-way, private and public swimming pools, accessory uses and accessory buildings, public transit stops and related uses, and provided that any construction consisting of structures and/or paved areas shall be maintained at least 150 feet from the wellhead, with the impervious surface for any permitted use not to exceed 10% of the total lot area for the use; except that subject to the approval of the water and waste water director, one family detached dwellings with a maximum number of dwelling units per gross acre not to exceed two dwelling units per acre, with a minimum total lot area of one acre, with the impervious surface for any permitted use not to exceed 20% of the total area for the use, and with any construction consisting of structures and/or paved areas maintained at least 150 feet from the wellhead, subject to the submittal of on-site hydrogeological studies that show that such development shall be maintained at a minimum 60 day horizontal time of travel from any water well supplying a public water system, whichever is greater; and subject to hydrogeological studies that show that the volume and quantity of groundwater recharge shall be maintained at predevelopment levels.
 - (2) In business, industrial, manufacturing office research, and university districts, in Chapter 32, Zoning, the impervious surface for any permitted use shall not exceed 50% of the total lot area for the use, and provided that any construction consisting of structures and/or paved areas, shall be maintained at least 150 feet from the wellhead subject to the submittal of on-site hydrogeological studies that show that such development shall be maintained at a minimum 60 day horizontal time of travel from any water well supplying a public water system, whichever is greater.

- (3) The use, storage, treatment, or disposal of hazardous substances defined as substances listed in 40 Code of Federal Regulations, Part 116, "Designation of Hazardous Substances," in quantities listed in 40 Code of Federal Regulations, Part 117, "Determination of Reportable Quantities for Hazardous Substances," which are defined as substances that when discharged into the environment are an imminent and substantial danger to public health, welfare, ground and surface water, aquatic organisms, including but not limited to fish, shellfish, terrestrial life, birds, and other wildlife, and infectious wastes as defined in 7 Del.C., Ch.60, Sec. 11, shall be prohibited, except that subject to the approval of the water and waste water director, the use, storage, treatment, or disposal may be permitted of the substances described in this section with appropriate safeguards based on applicable federal, state and local regulations which shall be installed to prevent the release and/or discharge into the environment of these substances.
 - (4) The underground storage of oil, petroleum, and petroleum products shall be prohibited. The above ground storage of oil, petroleum, and petroleum products shall be permitted provided that secondary containment facilities based on applicable federal, state and local regulations capable of capturing the materials stored on the site are provided, subject to the approval of the water and waste water director.
 - (5) The burial, dumping, or disposal of municipal, industrial, or agricultural waste, defined as any land use associated with the disposal, storage and treatment, or transfer of municipal solid waste, sewerage treatment plant sludge, or industrial residual waste, and other special solid waste, shall be prohibited.
- (b) *Recharge protection areas.*
- (1) Appropriate safeguards based on applicable federal, state, and local regulations shall be required to be installed to prevent the release and/or discharge into the environment resulting from the use, storage, or treatment of hazardous substances defined as substances listed in 40 Code of Federal Regulations, Part 116, "Designation of Hazardous Substances," in quantities listed in 40 Code of Federal Regulations, Part 117, "Determination of Reportable Quantities for Hazardous Substances," which are defined as substances that when discharged into the environment are an imminent and substantial danger to public health, welfare, ground and surface water, aquatic organisms, including but not limited to fish, shellfish, terrestrial life, birds, and other wildlife, and infectious wastes as defined in 7 Del.C., Ch.60, Sec. 11.
 - (2) Secondary containment pursuant to State of Delaware regulations governing underground storage tanks shall be required to be installed for the underground storage of oil, petroleum, or petroleum products.
 - (3) The burial, dumping, or disposal of municipal, industrial, or agricultural waste, defined as any land use associated with the disposal, storage and treatment, or transfer of municipal solid waste, sewerage treatment plant sludge, or industrial residual waste, and other special solid waste, shall be prohibited

- (4) The above ground storage of oil, petroleum, and petroleum products shall be prohibited. The above ground storage of oil, petroleum, and petroleum products shall be permitted provided that secondary containment facilities based on applicable federal, state and local regulations capable of capturing the materials stored on the site are provided, subject to the approval of the water and waste water department.
- (5) For any use permitted in this section, the volume and quantity of groundwater recharge shall be maintained at predevelopment levels. In order to establish that this standard is met, landowners may be required by the water and waste water director to conduct appropriate hydrogeological studies.

(c) *Nonconforming uses.*

Nonconforming uses may continue to wellhead resource protection and recharge protection areas in the form in which they existed at the time of the adoption of this article, unless they pose a direct hazard to the city's water supply, as determined by the water and waste water department upon advice from the Delaware Division of Public Health, or are causing some foreign substances (oil, salts, chemicals, or other substances) to be introduced into the city's water supply, as determined by the water and waste water department upon advice from DNREC's Division of Air and Waste Management and Division of Water Resources. In the latter case, the building department shall issue a mandatory cease and desist to stop the offending activity within the area. Nonconforming existing underground or above-ground storage of oil, petroleum and petroleum products shall require secondary containment pursuant to the State of Delaware regulations governing underground storage tanks or for above-ground storage of petroleum products secondary containment facilities capable of capturing the material stored on the site, for existing facilities that are either proposed to be upgraded or replaced.

(Ord. No. 91-16, Amend. No. 1, 4/22/91)

Sec. 30-55. Enforcement.

This article shall be enforced by the water and waste water director with the assistance of the planning and building directors. No building permit shall be issued for the construction of any building or structure, or for any use in violation of the provisions of these regulations.

(Ord. No. 91-16, Amend. No. 1, 4/22/91)

Sec 30-56. Effective date.

This article shall become effective upon adoption by city council, except that subdivisions and/or building permits approved prior to this date shall be exempt from the provisions of this article, except as otherwise regulated herein.

(Ord. No. 91-16, Amend. No. 1, 4/22/91)

Town of Townsend Environmental Protection Regulations

Responsible Agency: **Town of Townsend**
Section: **Engineering Section**
Address: **P.O. Box 223.**
Townsend, DE 19734

Article XI Townsend Environmental Protection Regulations

Section 1100 Intent.

The intent of this section is to provide clarification on the environmental constraints and requirements for development in environmentally sensitive areas.

Section 1109 Water Resources Protection Areas (WRPA).

Water resource protection areas are Wellheads Class A and Recharge Areas. All such areas are as depicted on the three-map series "Water Resource Protections Areas for the City of Newark, City of Wilmington, New Castle County, Delaware," prepared by the Water Resources Agency for New Castle County that is dated 1993, or as amended. These areas shall be protected as required by the following sections to protect the Town's water resources from contamination and pollution.

Section 1110 Wellheads Class A.

- A. Areas within three hundred (300) feet of the well shall be one hundred (100) percent open space.
- B. The protection area around the well may be reduced to a one hundred and fifty (150) foot radius provided a hydrogeologic report, prepared by a Delaware Registered Geologist and submitted to the satisfaction of the Delaware Geological Survey and the DNREC, is prepared. The report must certify that (1) the minimum 60-day time of travel from a point to the public water supply well is maintained and (2) the well draws from a confined aquifer.
- C. The natural runoff flowing into wellhead areas shall be allowed and all new stormwater run-off shall be diverted around the wellhead protection areas wherever practical.
- D. The stormwater system's discharge to wellhead WRPA's shall be by sheet through a grassland or discharge from a stormwater management facility having a wetland or aquatic bench. Stormwater runoff from all parking areas shall be directed to a stormwater management facility before it is discharged into a wellhead WRPA.
- E. Within the wellhead area, impervious surfaces shall be limited to the buildings and access associated with the well and distribution and treatment facilities and their maintenance.
- F. The minimum lot area for a proposed public water supply well and related facility drawing from a confined aquifer shall be 1 acre and the minimum lot area for a public well drawing from an unconfined aquifer shall be 2 acres.

- G. This Section does not apply to wellheads constructed prior to August 2001. All existing wellheads constructed prior to this date are considered as being "grandfathered" and the regulations of the section do not apply.

Section 1111 Recharge Areas.

Recharge Areas are those areas with high percentages of sand and gravel that have "excellent" potential for recharge as determined through a Stack Unit Mapping Analysis performed originally by the Delaware Geological Survey.

- A. Within Townsend Proper - Development within the environs of downtown Townsend (Townsend Proper, as defined in Section 1101) may occur provided the gross percent impervious cover of the parcel within the recharge area is either 50% or as dictated under Appendix A of the Town Code for maximum lot coverage (whichever is most stringent). In situations where the existing impervious cover of a property is over 50% and the applicant desires to re-develop the property, the gross impervious cover shall be equal to or less than the original impervious cover percentage of the original site. In areas zoned as either Commercial (C) or Industrial (I) within Townsend Proper, the applicant can seek relief by submitting an environmental study and report certified by a state registered professional geologist or professional engineer with a background in hydrogeology that indicates that additional development would not endanger the public or the environment.
- B. Within Townsend Greenbelt - New development within the environs outside of Townsend Proper (Townsend Greenbelt, as defined in Section 1101) may occur provided the gross percent impervious cover of the entire parcel and/or development within the recharge area to be constructed is 30% or less.
- C. No underground storage tanks containing petroleum or any chemicals shall be permitted in a designated recharge area.
- D. For all new construction, all structures shall be required to discharge all roof drains into underground recharge systems. No above ground discharge is permitted in recharge areas by roof drains.
- E. Refer to Figure 11-11.1 for the Town boundaries of the areas designated as "Townsend Proper" and "Townsend Greenbelt".

Section 1112 Boundary Determination for WRPA.

- A. All subdivision and land development plans depicting development or land disturbance submitted for Town review shall be evaluated for the existence of water resource protection areas by scaling for distances shown on the water resource protection area map. If existing, the boundaries of the areas shall be delineated on the plan by the applicant's engineer.
- B. When there appears to be a conflict between the mapped boundary and actual site conditions, the applicant may engage the services of professional practitioners set forth in this section to prepare a report intended to determine more accurately the precise boundary of the water resource

protection area, which report shall be submitted to the Town with the detailed findings necessary to indicate the location of the boundary.

C. The plan showing the boundary conflict should indicate the following:

1. A detailed topographic layout of the subdivision and/or area to be developed prepared by a land surveyor or engineer.
 2. For floodplain and erosion-prone slopes boundary determinations, a revised surface soils map of the subdivision and/or area prepared by a DNREC-licensed soil scientist including a written report of the on-site field inspection and test boring data;
 3. For reservoir watershed, wellhead and recharge boundary determinations, a site-specific geological and hydro-geological analysis shall be performed by a state-registered professional geologist or engineer with a background in hydro-geology and shall be based upon through site investigation and testing; and
 4. Evidence derived from a site-specific investigation which may include aquifer testing, test borings, test pits, observation wells, groundwater elevations and topography surveys as appropriate for the type of water resource protection area to clearly demonstrate that the area in question does not meet the definition of a water resource protection area as defined in this section.
- D. The applicant is permitted to make a submission to the County with the advice of the Delaware Geological Survey and the Water Resources Agency, to adjust the boundary or area designation based thereon. Such adjustments shall have the effect of exempting the subject parcel from the use regulations of this section and shall have the effect of amending the limits of the water resource protection area. The applicant will then be required to provide a notification sent by the County indicating that they concur with the amended boundary location in order to be exempted from the requirements of this section.

Town of Smyrna Wellhead Protection Ordinance

Address: **Town of Smyrna**
Town Hall
P.O. Box 307
Smyrna, DE 19977

Title: **Wellhead Protection Overlay District**
Adopted: **July 20, 1998**

An Ordinance To Amend Appendix A, Smyrna Zoning Ordinance, Section 5.

Be it hereby enacted by the Town Council of the Town of Smyrna, a majority thereof concurring in council duly met that Appendix A, Smyrna Zoning Ordinance, be amended as follows:

Section #1 In Section 5. District Regulations, insert a new subsection 18. Wellhead Protection Overlay District (WPOD) as follows:

18. Wellhead Protection Overlay District (WPOD)

- a. Declaration of legislative intent. The intent of this ordinance is to insure the provision of a safe and sanitary drinking water supply for the Town of Smyrna by the establishment of wellhead protection overlay districts. Each district shall be established around wells which are owned by the Town, and in use for potable water or proposed for use for potable water.
- b. Applicability of the wellhead protection overlay districts.
 - (1) Regulations pertaining to the wellhead protection overlay districts shall be applicable to all land areas designated within each district on the Town's official Zoning Map (Zoning Map). The area to be contained within each wellhead protection overlay district shall be a radius of 500' from the center of the wellhead and shall be shown on the Zoning Map.
 - (2) The regulations of each wellhead protection overlay district shall be superimposed over the regulations of the underlying zoning district in which such parcels or lots are located. In the event of conflicting zoning regulations between the various zones in which a lot or parcel is located, the regulations for the wellhead protection overlay district shall be controlling.
- c. Wellhead protection overlay map.
 - (1) The Town shall have prepared and keep current as part of the Town Official Zoning Map, a delineation showing the lands consisting of and containing that real property listed in subsection b of this section. Said Map shall be made available to the public and shall be utilized by the administrative official in determining whether a lot or parcel lies within the wellhead protection overlay district as described in subparagraph b of this section. The lack of an indication on this map as to whether certain property is within or outside of the boundaries of this overlay district shall not be construed as a conclusive determination that said property is or outside the boundaries of the wellhead protection

overlay district. Rather, the controlling factor in making such a determination shall be the description contained in subparagraph (b) of this subsection.

d. Uses permitted in Wellhead Protection District.

- (1) Uses permitted by right. Only those uses permitted in the underlying zoning district; no additional uses shall be permitted as of right by virtue of being in the wellhead protection overlay district.

e. Prohibited uses. The following uses are specifically prohibited:

- (1) Surface use of hazardous materials, including commercial use of agricultural pesticides, herbicides, or fertilizers in concentrations greater than the manufacturer's or USDA recommendations;
- (2) Storage of such materials as provided in (1) or stockpiling of manure;
- (3) Intensive agricultural practices such as feedlots or chicken houses;
- (4) Septic tanks or drain fields appurtenant thereto;
- (5) Impervious surfaces other than roofs of buildings, and streets, parking lots, driveways and walks serving buildings as permitted in the underlying zoning district.
- (6) Sanitary landfills;
- (7) Hazardous waste disposal sites;
- (8) Storm water infiltration basins;
- (9) Underground storage tanks;

Section 2 In Section 19. Definitions. add the following definitions alphabetically:

Hazardous waste or material -- Any waste or material which, because of its quantity, concentration or physical, chemical, or infectious characteristics may:

1. Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or
2. Pose a substantial present or potential hazard to human health or to the environment when improperly treated, stored, transported, disposed of or otherwise managed.

Potable water -- is that water that is satisfactory for drinking, culinary and domestic purposes, meeting current state and federal drinking water standards.

Sanitary landfill -- a disposal site where solid wastes, including putrescible wastes or hazardous wastes, are disposed of on land by placing earth cover thereon

Wellhead -- the upper terminal of a well, including adapters, ports, seals, valves and other attachments.

Wellhead protection area -- the surface and subsurface area surrounding a water well or well field supplying a public water system through which contaminants are reasonably likely to move toward and reach such well or well field.

Town of Delmar Wellhead Protection Ordinance

Responsible Agency: **Town of Delmar**

Address: **100 South Pennsylvania Ave.
Delmar, DE 21875**

Title: **Resolution # 1997-5: Wellhead Protection Delineation Area**
Adopted: **May 27, 1997**

Title: **Ordinance # 40: An Ordinance Relating to the Conservation of Water**
Adopted: **February 12, 1962.**

RESOLUTION # 1997-5: Wellhead Protection Delineation Area

WHEREAS, the Mayor and Council recognized the importance of and benefits to public health provided by a non-polluted drinking water supply;

WHEREAS, the Town of Delmar draws drinking water from two wells in an unconfined aquifer located on York Street;

WHEREAS, the State of Delaware has delineated a wellhead protection area based on a computer simulation study, exhibit 'A';

THEREFORE, Mayor and Council desire to adopt the referenced wellhead delineation area for the purpose of providing public education to encourage and promote safe practices to prevent pollution ground water within the adopted area, exhibit 'A'.

ORDINANCE NO. 40: An Ordinance Relating To The Conservation of Water in the Town of Delmar, DE

Section 1. No person shall carelessly or intentionally overuse the water being supplied by the Town to the citizens of Delmar, Delaware.

Section 2. No person shall allow their lawn sprinklers, hoses, or the like to run continuously during the hours of darkness.

Section 3. The Mayor and the Council of the Town of Delmar, Delaware may prescribe the hours for sprinkling of lawns, washing of cars, hosing of sidewalks and the like and any person violating such an order which shall be published in the local newspaper and posted in three public places shall be guilty under this Ordinance of a misdemeanor.

Section 4. The Mayor and the Council of the Town of Delmar, Delaware in an emergency may set forth such rules and regulations that are necessary to conserve the Town's water supply and any person violating such rules and regulations which shall be published in the local newspaper and posted in three public places shall be guilty under this Ordinance of a misdemeanor.

Section 5. Whoever violating any provision of this Ordinance or any order, rule or regulation set forth hereunder by the Mayor and Council of the Town of Delmar, Delaware, shall be fined not less than \$25.00 nor more than \$100.00 or imprisoned not less than 10 days nor more than 30 days, or both.

Section IV: Authorities Enacted Through Federal Code or Regulation

UNITED STATES CODE

TITLE 7 Chapter 6 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Sec. 136j. Unlawful acts

- (2) It shall be unlawful for any person -
 - (G) to use any registered pesticide in a manner inconsistent with its labeling;

TITLE 7 Chapter 86 Water policy with respect to agrichemicals

Sec. 5506. Water policy with respect to agrichemicals

(a) Authority

The Department of Agriculture shall be the principal Federal agency responsible and accountable for the development and delivery of educational programs, technical assistance, and research programs for the users and dealers of agrichemicals to insure that -

- (1) the use, storage, and disposal of agrichemicals by users is prudent, economical, and environmentally sound; and
- (2) agrichemical users, dealers, and the general public understand the implications of their actions and the potential effects on water. The Secretary is authorized to undertake such programs and assistance in cooperation with other Federal, State, and local governments and agencies, and appropriate nonprofit organizations. The Secretary shall disseminate the results of efforts in extension, technical assistance, research, and related activities. The Secretary shall undertake activities under this subtitle in coordination with the Office of Agricultural Environmental Quality in section 5402 of this title.

(b) Effect on existing authority

The authority granted in subsection (a) of this section does not alter or effect the responsibility of the Environmental Protection Agency under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.).

(c) Participation

The following agencies shall participate in the Department's water program: the Agricultural Research Service; the Agricultural Stabilization and Conservation Service; the Animal and Plant Health Inspection Service; the Cooperative State Research Service in conjunction with the system of State agricultural experiment stations; the Economic Research Service; the Extension Service, in conjunction with State and county cooperative extension services; the Forest Service; the National Agricultural Library; the National Agricultural Statistics Service; the Soil Conservation Service; and other agencies within the Department deemed appropriate by the Secretary.

Sec. 2605. Regulation of hazardous chemical substances and mixtures

- (a) Scope of regulation
If the Administrator finds that there is a reasonable basis to conclude that the manufacture, processing, distribution in commerce, use, or disposal of a chemical substance or mixture, or that any combination of such activities, presents or will present an unreasonable risk of injury to health or the environment, the Administrator shall by rule apply one or more of the following requirements to such substance or mixture to the extent necessary to protect adequately against such risk using the least burdensome requirements:
 - (3) A requirement that such substance or mixture or any article containing such substance or mixture be marked with or accompanied by clear and adequate warnings and instructions with respect to its use, distribution in commerce, or disposal or with respect to any combination of such activities. The form and content of such warnings and instructions shall be prescribed by the Administrator.
 - (5) A requirement prohibiting or otherwise regulating any manner or method of commercial use of such substance or mixture.
 - (6)
 - (A) A requirement prohibiting or otherwise regulating any manner or method of disposal of such substance or mixture, or of any article containing such substance or mixture, by its manufacturer or processor or by any other person who uses, or disposes of, it for commercial purposes.

Sec. 1311. Effluent limitations

- (a) Illegality of pollutant discharges except in compliance with law Except as in compliance with this section and sections 1312, 1316, 1317, 1328, 1342, and 1344 of this title, the discharge of any pollutant by any person shall be unlawful.

Sec. 1319. Enforcement

- (a) State enforcement; compliance orders
 - (1) Whenever, on the basis of any information available to him, the Administrator finds that any person is in violation of any condition or limitation which implements section 1311, 1312, 1316, 1317, 1318, 1328, or 1345 of this title in a permit issued by a State under an approved permit program under section 1342 or 1344 of this title he shall proceed under his authority in paragraph (3) of this subsection or he shall notify the person in alleged violation and such State of such finding. If beyond the thirtieth day after the Administrator's notification the State has not commenced appropriate enforcement action, the Administrator shall issue an order requiring such person to comply with such condition or limitation or shall bring a civil action in accordance with subsection (b) of this section.
 - (2) Whenever, on the basis of information available to him, the Administrator finds that violations of permit conditions or limitations as set forth in paragraph (1) of this subsection are so widespread that such violations appear to result from a failure of the State to enforce such permit conditions or limitations effectively, he shall so notify the State. If the Administrator finds such failure extends beyond the thirtieth day after such notice, he shall give public notice of such finding. During the period beginning with such public notice and ending when such State satisfies the Administrator that it will enforce such conditions and limitations (hereafter referred to in this section as the period of "federally assumed enforcement"), except where an extension has been granted under paragraph (5)(B) of this subsection, the Administrator shall enforce any permit condition or limitation with respect to any person –
 - (A) by issuing an order to comply with such condition or limitation, or
 - (B) by bringing a civil action under subsection (b) of this section.
 - (3) Whenever on the basis of any information available to him the Administrator finds that any person is in violation of section 1311, 1312, 1316, 1317, 1318, 1328, or 1345 of this title, or is in violation of any permit condition or limitation implementing any of such sections in a permit issued under section 1342 of this title by him or by a State or in a permit issued under section 1344 of this title by a State, he shall issue an order requiring such person to comply with such section or requirement, or he shall bring a civil action in accordance with subsection (b) of this section.

- (4) A copy of any order issued under this subsection shall be sent immediately by the Administrator to the State in which the violation occurs and other affected States. In any case in which an order under this subsection (or notice to a violator under paragraph (1) of this subsection) is issued to a corporation, a copy of such order (or notice) shall be served on any appropriate corporate officers. An order issued under this subsection relating to a violation of section 1318 of this title shall not take effect until the person to whom it is issued has had an opportunity to confer with the Administrator concerning the alleged violation.
- (5)
 - (A) Any order issued under this subsection shall be by personal service, shall state with reasonable specificity the nature of the violation, and shall specify a time for compliance not to exceed thirty days in the case of a violation of an interim compliance schedule or operation and maintenance requirement and not to exceed a time the Administrator determines to be reasonable in the case of a violation of a final deadline, taking into account the seriousness of the violation and any good faith efforts to comply with applicable requirements.
 - (B) The Administrator may, if he determines (i) that any person who is a violator of, or any person who is otherwise not in compliance with, the time requirements under this chapter or in any permit issued under this chapter, has acted in good faith, and has made a commitment (in the form of contracts or other securities) of necessary resources to achieve compliance by the earliest possible date after July 1, 1977, but not later than April 1, 1979; (ii) that any extension under this provision will not result in the imposition of any additional controls on any other point or nonpoint source; (iii) that an application for a permit under section 1342 of this title was filed for such person prior to December 31, 1974; and (iv) that the facilities necessary for compliance with such requirements are under construction, grant an extension of the date referred to in section 1311(b)(1)(A) of this title to a date which will achieve compliance at the earliest time possible but not later than April 1, 1979.
- (6) Whenever, on the basis of information available to him, the Administrator finds (A) that any person is in violation of section 1311(b)(1)(A) or (C) of this title, (B) that such person cannot meet the requirements for a time extension under section 1311(i)(2) of this title, and (C) that the most expeditious and appropriate means of compliance with this chapter by such person is to discharge into a publicly owned treatment works, then, upon request of such person, the Administrator may issue an order requiring such person to comply with this chapter at the earliest date practicable, but not later than July 1, 1983, by discharging into a publicly owned treatment works if such works concur with such order. Such order shall include a schedule of compliance.

TITLE 42 Chapter 6A Safe Drinking Water Act (SDWA)

(Formerly known as the Public Health Services Act)

Sec. 300i. Emergency powers

- (a) Actions authorized against imminent and substantial endangerment to health
Notwithstanding any other provision of this subchapter the Administrator, upon receipt of information that a contaminant which is present in or is likely to enter a public water system or an underground source of drinking water may present an imminent and substantial endangerment to the health of persons, and that appropriate State and local authorities have not acted to protect the health of such persons, may take such actions as he may deem necessary in order to protect the health of such persons. To the extent he determines it to be practicable in light of such imminent endangerment, he shall consult with the State and local authorities in order to confirm the correctness of the information on which action proposed to be taken under this subsection is based and to ascertain the action which such authorities are or will be taking. The action which the Administrator may take may include (but shall not be limited to) (1) issuing such orders as may be necessary to protect the health of persons who are or may be users of such system (including travelers), including orders requiring the provision of alternative water supplies by persons who caused or contributed to the endangerment, and (2) commencing a civil action for appropriate relief, including a restraining order or permanent or temporary injunction.

Sec. 300i-1. Tampering with public water systems

- (a) Tampering
Any person who tampers with a public water system shall be imprisoned for not more than 5 years, or fined in accordance with title 18, or both.
- (b) Attempt or threat
Any person who attempts to tamper, or makes a threat to tamper, with a public drinking water system be imprisoned for not more than 3 years, or fined in accordance with title 18, or both.
- (c) Civil penalty
The Administrator may bring a civil action in the appropriate United States district court (as determined under the provisions of title 28) against any person who tampers, attempts to tamper, or makes a threat to tamper with a public water system. The court may impose on such person a civil penalty of not more than \$50,000 for such tampering or not more than \$20,000 for such attempt or threat.
- (d) "Tamper" defined
For purposes of this section, the term "tamper" means -
 - (1) to introduce a contaminant into a public water system with the intention of harming persons; or
 - (2) to otherwise interfere with the operation of a public water system with the intention of harming persons.

Sec. 300j-13. Source water quality assessment

(a) Source water assessment

- (2) Program requirements

A source water assessment program under this subsection shall -

- (A) delineate the boundaries of the assessment areas in such State from which one or more public water systems in the State receive supplies of drinking water, using all reasonably available hydrogeologic information on the sources of the supply of drinking water in the State and the water flow, recharge, and discharge and any other reliable information as the State deems necessary to adequately determine such areas; and
- (B) identify for contaminants regulated under this subchapter for which monitoring is required under this subchapter (or any unregulated contaminants selected by the State, in its discretion, which the State, for the purposes of this subsection, has determined may present a threat to public health), to the extent practical, the origins within each delineated area of such contaminants to determine the susceptibility of the public water systems in the delineated area to such contaminants.

(3) Approval, implementation, and monitoring relief

A State source water assessment program under this subsection shall be submitted to the Administrator within 18 months after the Administrator's guidance is issued under this subsection and shall be deemed approved 9 months after the date of such submittal unless the Administrator disapproves the program as provided in section 300h-7(c) of this title. States shall begin implementation of the program immediately after its approval. The Administrator's approval of a State program under this subsection shall include a timetable, established in consultation with the State, allowing not more than 2 years for completion after approval of the program. Public water systems seeking monitoring relief in addition to the interim relief provided under section 300g-7(a) of this title shall be eligible for monitoring relief, consistent with section 300g-7(b) of this title, upon completion of the assessment in the delineated source water assessment area or areas concerned.

- (4) Timetable

The timetable referred to in paragraph (3) shall take into consideration the availability to the State of funds under section 300j-12 of this title (relating to State loan funds) for assessments and other relevant factors. The Administrator may extend any timetable included in a State program approved under paragraph (3) to extend the period for completion by an additional 18 months.

- (5) Demonstration project

The Administrator shall, as soon as practicable, conduct a demonstration project, in consultation with other Federal agencies, to demonstrate the most effective and protective means of assessing and protecting source waters serving large metropolitan areas and located on Federal lands.

- (6) Use of other programs

To avoid duplication and to encourage efficiency, the program under this section may make use of any of the following:

- (A) Vulnerability assessments, sanitary surveys, and monitoring programs.
- (B) Delineations or assessments of ground water sources under a State wellhead protection program developed pursuant to this section.
- (C) Delineations or assessments of surface or ground water sources under a State pesticide management plan developed pursuant to the Pesticide and Ground Water State Management Plan Regulation (subparts I and J of part 152 of title 40, Code of Federal Regulations), promulgated under section 136a(d) of title 7.
- (D) Delineations or assessments of surface water sources under a State watershed initiative or to satisfy the watershed criterion for determining if filtration is required under the Surface Water Treatment Rule (section 141.70 of title 40, Code of Federal Regulations).
- (E) Delineations or assessments of surface or ground water sources under programs or plans pursuant to the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.).

TITLE 42 Chapter 82 Resource Conservation and Recovery Act (RCRA)

Sec. 6902. Objectives and national policy

- (a) Objectives

The objectives of this chapter are to promote the protection of health and the environment and to conserve valuable material and energy resources by –

- (3) prohibiting future open dumping on the land and requiring the conversion of existing open dumps to facilities which do not pose a danger to the environment or to health;
 - (4) assuring that hazardous waste management practices are conducted in a manner which protects human health and the environment;
- (b) National policy

The Congress hereby declares it to be the national policy of the United States that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible. Waste that is nevertheless generated should be treated, stored, or disposed of so as to minimize the present and future threat to human health and the environment.

Sec. 6905. Application of chapter and integration with other Acts

- (b) Integration with other Acts
 - (1) The Administrator shall integrate all provisions of this chapter for purposes of administration and enforcement and shall avoid duplication, to the maximum extent practicable, with the appropriate provisions of the Clean Air Act (42 U.S.C. 7401 et seq.), the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.), the Safe Drinking Water Act (42 U.S.C. 300f et seq.), the Marine Protection, Research and Sanctuaries Act of 1972 (16 U.S.C. 1431 et seq., 1447 et seq., 33 U.S.C. 1401 et seq., 2801 et seq.), and such other Acts of Congress as grant regulatory authority to the Administrator. Such integration shall be effected only to the extent that it can be done in a manner consistent with the goals and policies expressed in this chapter and in the other acts referred to in this subsection.

TITLE 42 Chapter 103 Comprehensive Environmental Response, Compensation, and Liability Act
(CERCLA)

Sec. 9606. Abatement actions

- (a) Maintenance, jurisdiction, etc.

In addition to any other action taken by a State or local government, when the President determines that there may be an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance from a facility, he may require the Attorney General of the United States to secure such relief as may be necessary to abate such danger or threat, and the district court of the United States in the district in which the threat occurs shall have jurisdiction to grant such relief as the public interest and the equities of the case may require. The President may also, after notice to the affected State, take other action under this section including, but not limited to, issuing such orders as may be necessary to protect public health and welfare and the environment.

- (b) Fines; reimbursement

- (1) Any person who, without sufficient cause, willfully violates, or fails or refuses to comply with, any order of the President under subsection (a) of this section may, in an action brought in the appropriate United States district court to enforce such order, be fined not more than \$25,000 for each day in which such violation occurs or such failure to comply continues.

US Code of Federal Regulations

Sec. 144.7 Identification of underground sources of drinking water and exempted aquifers.

(a) The Director may identify (by narrative description, illustrations, maps, or other means) and shall protect, except where exempted under paragraph (b) of this section, as an underground source of drinking water, all aquifers or parts of aquifers which meet the definition of an ``underground source of drinking water'' in Sec. 144.3. Even if an aquifer has not been specifically identified by the Director, it is an underground source of drinking water if it meets the definition in Sec. 144.3.

(b)(1) The Director may identify (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) which are clear and definite, all aquifers or parts thereof which the Director proposes to designate as exempted aquifers using the criteria in 40 CFR 146.04.

(2) No designation of an exempted aquifer submitted as part of a UIC Program shall be final until approved by the Administrator as part of a UIC program.

(3) Subsequent to program approval or promulgation, the Director may, after notice and opportunity for a public hearing, identify additional exempted aquifers. For approved State programs exemption of aquifers identified (i) under Sec. 146.04(b) shall be treated as a program revision under Sec. 145.32; (ii) under Sec. 146.04(c) shall become final if the State Director submits the exemption in writing to the Administrator and the Administrator has not disapproved the designation within 45 days. Any disapproval by the Administrator shall state the reasons and shall constitute final Agency action for purposes of judicial review.

(c)(1) For Class III wells, the Director shall require an applicant for a permit which necessitates an aquifer exemption under Sec. 146.04(b)(1) to furnish the data necessary to demonstrate that the aquifer is expected to be mineral or hydrocarbon producing. Information contained in the mining plan for the proposed project, such as a map and general description of the mining zone, general information on the mineralogy and geochemistry of the mining zone, analysis of the amenability of the mining zone to the proposed mining method, and a time-table of planned development of the mining zone shall be considered by the Director in addition to the information required by Sec. 144.31(g).

(2) For Class II wells, a demonstration of commercial producibility shall be made as follows:

(i) For a Class II well to be used for enhanced oil recovery processes in a field or project containing aquifers from which hydrocarbons were previously produced, commercial producibility shall be presumed by the Director upon a demonstration by the applicant of historical production having occurred in the project area or field.

(ii) For Class II wells not located in a field or project containing aquifers from which hydrocarbons were previously produced, information such as logs, core data, formation description, formation depth, formation thickness and formation parameters such as permeability and porosity shall be considered by the Director, to the extent such information is available.

Sec. 144.11 Prohibition of unauthorized injection.

Any underground injection, except into a well authorized by rule or except as authorized by permit issued under the UIC program, is prohibited. The construction of any well required to have a permit is prohibited until the permit has been issued.

Sec. 144.12 Prohibition of movement of fluid into underground sources of drinking water.

(a) No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR part 142 or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.

(b) For Class I, II and III wells, if any water quality monitoring of an underground source of drinking water indicates the movement of any contaminant into the underground source of drinking water, except as authorized under part 146, the Director shall prescribe such additional requirements for construction, corrective action, operation, monitoring, or reporting (including closure of the injection well) as are necessary to prevent such movement. In the case of wells authorized by permit, these additional requirements shall be imposed by modifying the permit in accordance with Sec. 144.39, or the permit may be terminated under Sec. 144.40 if cause exists, or appropriate enforcement action may be taken if the permit has been violated. In the case of wells authorized by rule, see Secs. 144.21 through 144.24. For EPA administered programs, such enforcement action shall be taken in accordance with appropriate sections of the SDWA.

(c) For Class V wells, if at any time the Director learns that a Class V well may cause a violation of primary drinking water regulations under 40 CFR part 142, he or she shall:

- (1) Require the injector to obtain an individual permit;
- (2) Order the injector to take such actions (including, where required, closure of the injection well) as may be necessary to prevent the violation. For EPA administered programs, such orders shall be issued in accordance with the appropriate provisions of the SDWA; or
- (3) Take enforcement action.

(d) Whenever the Director learns that a Class V well may be otherwise adversely affecting the health of persons, he or she may prescribe such actions as may be necessary to prevent the adverse effect, including any action authorized under paragraph (c) of this section.

(e) Notwithstanding any other provision of this section, the Director may take emergency action upon receipt of information that a contaminant which is present in or likely to enter a public water system or underground source of drinking water may present an imminent and substantial endangerment to the health of persons. If the Director is an EPA official, he must first determine that the appropriate State and local authorities have not taken appropriate action to protect the health of such persons, before taking emergency action.

Subpart C--Authorization of Underground Injection by Rule

Sec. 144.24 Class V wells.

- (a) A Class V injection well is authorized by rule until further requirements under future regulations become applicable.
- (b) Duration of well authorization by rule. Well authorization under this section expires upon the effective date of a permit issued pursuant to Secs. 144.25, 144.31, 144.33 or 144.34, or upon proper closure of the well.
- (c) Prohibition of injection. An owner or operator of a well which is authorized by rule pursuant to this section is prohibited from injecting into the well:
 - (1) Upon the effective date of an applicable permit denial;
 - (2) Upon failure to submit a permit application in a timely manner pursuant to Secs. 144.25 or 144.31;
 - (3) Upon failure to submit inventory information in a timely manner pursuant to Sec. 144.26; or
 - (4) Upon failure to comply with a request for information in a timely manner pursuant to Sec. 144.27.

Section V: Authorities Enacted Through Interstate Agreements

Delaware River Basin Compact

Effective Date: October 27, 1961

Agency: Delaware River Basin Commission

Members: Delaware, New Jersey, New York, Pennsylvania, and Federal Appointee

Address: 25 State Police Drive
P.O. Box 7360
West Trenton, NJ 08628

Article 3 Powers and Duties of the Commission

Section 3.1 Purpose and Policy

The commission shall develop and effectuate plans, policies, and projects relating to the water resources of the basin. It shall adopt and promote uniform and coordinated policies for water conservation, control, use, and management in the basin. It shall encourage the planning, development and financing of water resources projects according to such plans and policies.

Section 3.3 Allocations, Diversions and Releases

The commission shall have the power from time to time as need appears to, in accordance with the doctrine of equitable apportionment, to allocate the waters of the basin to and among the states signatory to this compact and to and among their respective political subdivisions, and to impose conditions, obligations, and release requirements related thereto, subject to the following limitations:

- (a) The commission, without the unanimous consent of the parties to the United States Supreme Court decree in *New Jersey v. New York*, 347 U.S. 995 (1954), shall not impair, diminish or otherwise adversely affect the diversions, compensating releases, rights, conditions, obligations, and provisions for the administration thereof as provided in said decree; provided however, that after consultation with the river master under said decree the commission may find and declare a state of emergency resulting from a drought or catastrophe and it may thereupon by unanimous consent of its members authorize and direct an increase or decrease in any allocation or diversion permitted or releases required by the decree, in such manner and for such limited time as may be necessary to meet such an emergency condition.
- (b) No allocation of waters hereafter made pursuant to this section shall constitute a prior appropriation of the waters of the basin or confer any superiority of right in respect to the use of those waters, nor shall any such action be deemed to constitute an apportionment of the waters of the basin among the parties hereto: *Provided*, That this paragraph shall not be deemed to limit or restrict the power of the commission to enter into covenants with respect to water supply, with a duration not exceeding the life of this compact, as it may deem necessary for a benefit or development of the water resources of the basin.
- (c) Any proper party deeming itself aggrieved by action of the commission with respect to an out-of-basin diversion or compensating releases in connection therewith, notwithstanding the powers delegated to the commission by this compact may invoke the original jurisdiction of the United States Supreme Court within one year after such action for an adjudication and

determination thereof de novo. Any other action of the commission pursuant to this section shall be subject to judicial review in any court of competent jurisdiction.

Section 3.6 General Powers.

The commission may:

- (b) Establish standards of planning, design, and operation of all projects and facilities in the basin which affect its water resources, including without limitation thereto water and waste treatment plants, stream and lake recreational facilities, trunk mains for water distribution, local flood protection works, small watershed management programs, and ground water recharging operations;
- (h) Exercise such other and different powers as may be delegated to it by this compact or otherwise pursuant to law, and have and exercise all powers necessary or convenient to carry out its express powers or which may be reasonably implied therefrom.

Article 14 General Provisions

Section 14.17 Penal Sanction

Any person, association or corporation who violates or attempts or conspires to violate any provision of this compact or any rule, regulation or order of the commission duly made, promulgated or issued pursuant to the compact in addition to any other remedy, penalty or consequence provided by law shall be punishable as may be provided by statute of any of the signatory parties within which the offense is committed; provided that in the absence of such provision any penalty of not less than \$50 nor more than \$1,000 for each such offense to be fixed by the court which the commission may recover in its own name in any court of competent jurisdiction, and in a summary proceeding where available under the practice and procedure of such court. For the purposes of this section in the event of a continuing offense each day of such violation, attempt or conspiracy shall constitute a separate offense.

Delaware River Basin Water Code

Effective Date: December 1996

Agency: Delaware River Basin Commission

Members: Delaware, New Jersey, New York, Pennsylvania, and Federal Appointee

Address: 25 State Police Drive
P.O. Box 7360
West Trenton, NJ 08628

Article 2 Conservation, Development and Utilization of Delaware River Basin Water Resources

Section 2.10 Surface Waters

2.10.1 Storage and Release of Waters

The commission shall have the power to acquire, operate, and control projects and facilities for the storage and release of waters, for the regulation of flows and supplies of surface and ground waters of the basin, for the protection of public health, stream quality control, economic development, improvement of fisheries, recreation, dilution and abatement of pollution, the prevention of undue salinity and other purposes.

No signatory party shall permit any augmentation of flow to be diminished by the diversion of any water of the basin during any period in which waters are being released from storage under the direction of the commission for the purpose of augmenting such flow, except in such cases where such diversion is duly authorized by this compact, or by the commission pursuant thereto, or by the judgement, order, or decree of a court of competent jurisdiction.

Section 2.20 Underground Waters

2.20.1 Equitable Apportionment (Resolution No. 64-11)

Underground waters of the basin shall be subject to the doctrine of equitable apportionment as provided by Section 3.3 of the compact.

2.20.2 Preservation (Resolution No. 64-11)

The underground water-bearing formations of the basin, their waters, storage capacity, recharge areas, and ability to convey water shall be preserved and protected.

2.20.3 Safeguard Public Interest (Resolution 64-11)

Projects that withdraw underground waters shall be planned and operated in such manner as will reasonably safeguard the present and future public interest in the affected water resources.

2.20.4**Withdrawal Limits (Resolution 80-23)**

Except as may be otherwise determined by the Commission to be in the public interest, withdrawals from the underground waters shall be limited to the maximum draft of all withdrawals from a ground water basin, aquifer, or aquifer system that can be sustained without rendering supplies unreliable, causing long-term progressive lowering of ground water levels, water quality degradation, permanent loss of storage capacity, or substantial impact on low flows of perennial streams. In confined coastal plain aquifers, the Commission shall consider and apply aquifer management levels, if any, established by a signatory state in determining compliance with criteria relating to "long-term progressive lowering of ground water levels".

2.20.5**Protection of Recharge Areas (Resolution No. 64-11)**

The principal natural recharge areas through which the underground waters of the basin are replenished shall be protected from unreasonable interference with their recharge function. No underground waters or surface waters which are or may be the sources of replenishment thereof, shall be polluted in violation of water quality standards duly promulgated by the Commission or any of the signatory parties.

2.20.6**Activities Subject to Review (Resolution No. 64-11)**

The underground water resources of the basin shall be used, conserved, developed, managed, and controlled in view of the needs of present and future generations, and in view of the resources available to them. To that end, interference, impairment, penetration, or artificial recharge shall be subject to review and evaluation under the compact.

Article 3**Water Quality Standards for the Delaware River Basin****Section 3.1****General****3.1.1****Policy and Standards (Compact, Section 5.2)**

The commission may assume jurisdiction to control future pollution and abate existing pollution in the waters of the basin, whenever it determines after investigation and public hearing upon due notice that the effectuation of the comprehensive plan so requires. The standard of such control shall be that pollution by sewage or industrial or other waste originating within a signatory state shall not injuriously affect waters of the basin as contemplated by the comprehensive plan. The commission, after such public hearing may classify the waters of the basin and establish standards of treatment of sewage, industrial or other waste, according to such classes including allowance for the variable factors of surface and ground waters, such as size of the stream, flow movement, location, character, self purification, and usage of the waters affected. After such investigation, notice and hearing the commission may adopt and from time to time amend and repeal rules, regulations and standards to control such future pollution and abate existing pollution, and to require such treatment of sewage, industrial or other waste in a time reasonable for the construction of the necessary works, as may be required to protect the public health or to preserve the waters of the basin for uses in accordance with the comprehensive plan.

(Resolution No. 76-16)

Date: January 1, 1977

Agency: Delaware River Basin Commission

Members: Delaware, New Jersey, New York, Pennsylvania, and Federal Appointee

Address: 25 State Police Drive
P.O. Box 7360
West Trenton, NJ 08628

**Article 6 General, Definitions
Section 6.3 Standards**

6.3.2 Prohibited Uses

A. Within the floodway, except as permitted by special permit, the following uses are prohibited:

1. Erection of any structure for occupancy at any time by humans or animals.
2. Placing, or depositing, or dumping any spoil, fill, or solid waste.
3. Stock piling or disposal of pesticides, domestic or industrial waste, radioactive materials, petroleum products or hazardous material which, if flooded, would pollute the waters of the basin.
4. The storage of equipment or of buoyant materials, except for the purposes of public safety.

B. Within the flood fringe, except as permitted by special permit, the following uses are prohibited:

1. Stock piling or disposal of pesticides, domestic or industrial waste, radioactive materials, petroleum products or hazardous material which, if flooded, would pollute the waters of the basin.
2. Any use which will adversely affect the capacity of channels or floodways of any tributary to the main stream, drainage ditch, or any other drainage facility.

PART II: Authority Enabled Through State Agency Regulation

Delaware Pesticide Rules and Regulations

Agency: Delaware Department of Agriculture
Section: Pesticides
Date: February 10, 1999

SECTION 1 GENERAL

1.01 Scope

These regulations establish general operating rules and procedures for the enforcement of the Delaware Pesticide Law, including, but not limited to the certification of users of restricted and general use pesticides.

1.02 Authority

These Regulations are issued under the authority of Title 3 Part II Chapter 12 of the Annotated Code of Delaware

SECTION 2 DECLARATION OF POLICY

3 Del. C. Part II, Chapter 12, Section 1237, places the enforcement of the Delaware Pesticide Law with the Department of Agriculture and empowers the Department to establish regulations.

By virtue of the authority vested in me as Secretary of Agriculture by **3 Del. C.** Part II, Chapter 12, I, John F. Tarburton, Secretary of Agriculture, do hereby promulgate the following rules and regulations governing the sale, use, and application of pesticides in Delaware.

SECTION 16 STORING AND DISPOSAL OF PESTICIDES AND PESTICIDE CONTAINERS

16.01 PROHIBITED ACTS

No person shall dispose of or store (or receive for disposal or storage) any pesticide, pesticide container or pesticide container residue:

- (a) In a manner inconsistent with its label or labeling;
- (b) So as to cause the open dumping of pesticides or pesticide containers;
- (d) So as to cause or allow dumping of pesticides in any stream, river, pond, sewer or lake, except in conformance with permits issued by the Delaware Department of Agriculture or other state agency having jurisdiction regarding water pollution;
- (e) So as to violate any applicable state or federal pollution control standard

16.03 PESTICIDE STORAGE

- (a) Pesticides shall be stored in such a manner as to prevent the contamination of food, feed, and/or water.

SECTION 18 APPLICATION AND EQUIPMENT

18.02 All hoses, pumps or other equipment used to fill pesticide handling, storage, or application equipment shall be fitted with an effective valve or device to prevent backflow of pesticides or pesticide use-dilutions into water supply systems, streams, lakes, other sources of water or other materials. Provided, however, such backflow devices or valves are not required for separate water storage tanks used to fill agricultural pesticide application equipment by gravity systems when the fill spout, tube, or pipe is not allowed to contact or fall below the water level of the application equipment being filled and no other possible means of establishing a backsiphon or backflow exists.

State of Delaware Regulations Governing Public Drinking Water Systems

Agency: Department of Health and Social Services
Division: Public Health
Section: Office of Drinking Water
Date: August 11, 1999

Section 22.3 SOURCE AND PROTECTION

- 22.301 **Water Source Desirability:** Drinking water shall be obtained from the most desirable source which is feasible, and efforts must be made to prevent or control pollution of the source. If the source fails to meet the bacteriological standards of section 22.5 and is not already disinfecting pursuant to section 22.802, it may be required to do so in order to meet the bacteriological standards.
- 22.302 **Sanitary Surveys:** Sanitary surveys shall be made by the Division in order to locate and identify health hazards which might exist in the water supply system. The manner and frequency of making these surveys, and the rate at which discovered health hazards are to be removed, shall be in accordance with a program approved by the Division.
- 22.303 **Protection of Water:** Water delivered to every consumer by any public water supplier shall be so protected by natural means, by proper constructions or by treatment so as to consistently equal or exceed the requirements herein established.
- 22.304 **Monitoring Water Quality:** Quality of water delivered by any public water supplier shall be continuously and/or periodically monitored in accordance with requirements herein established or in accordance with such monitoring water system of equal or greater effect as may be proposed by a public water supplier for its own use, subject to Division approval.
- 22.305 **Responsibility:** For the purpose of application of these regulations, the supplier of water shall be responsible for the water quality at the users free flowing outlet except for turbidity and VOCs, which are measured at a representative entry point(s) to the water distribution system.

Delaware Regulations Governing Hazardous Substance Cleanup

Agency: Department of Natural Resources and Environmental Control
Division: Air and Waste Management
Section: Hazardous Waste Management Branch
Date: September, 1996

SECTION 1: SCOPE AND APPLICABILITY

Subsection 1.1: Scope

These regulations establish the administrative processes and standards to identify, investigate, and cleanup facilities with a release or imminent threat of release of hazardous substances. The goal of these regulations is to implement the purpose and intent declared in 7 Del. C., Chapter 91, the Delaware Hazardous Substance Cleanup Act. These regulations provide a workable process to accomplish effective and expeditious cleanups to protect public health, welfare, and the environment, and provide opportunities to encourage the remedy of facilities to yield economic revitalization and redevelopment within the State.

Subsection 1.3: Authority

- (3) These regulations are enacted pursuant to 7 Del. C., Chapter 91 entitled “Delaware Hazardous Substance Cleanup Act.”

Subsection 1.4: Applicability; Other Laws and Regulations

- (1) These regulations shall apply to all facilities with release or imminent threat of release without regard to whether the facility is publicly or privately owned.
- (2) Nothing in these regulations shall be construed to limit the authority of the Department to act pursuant to other existing laws and regulations.

Subsection 1.5: Compliance with Other Laws and Regulations Required

Any action taken under the authority of these regulations shall be in compliance with all applicable federal and state laws and regulations. Subject to the provisions of 7 Del. C. Chapter 60, Sections 6011, 6012, and 6314, the Department may waive the requirements of any environmental permits for an on-facility activity during remedial action if substantive requirements of the permit have been met for the selected remedy. At the time of initiation of operation and maintenance, the potentially responsible parties responsible for such operation and maintenance, shall submit a complete application to the Department for all activities which require a permit under Delaware laws and regulations.

SECTION 5: Facility Evaluation

Subsection 5.1: Applicability

- (3) The purpose of the facility evaluation is to develop sufficient information and sampling data to satisfy one or more of the following:
- (a) Confirm the release or imminent threat of release;
 - (b) Identify the hazardous substances and collect any information regarding the extent, amount, or concentration of the substances;
 - (c) Identify facility characteristics that could result in the hazardous substances entering and moving through the environment;
 - (d) Perform a preliminary risk assessment;
 - (e) Evaluate the threat to public health, welfare, and the environment;
 - (f) Determine the relative priority of the facility using the Delaware Hazard Ranking Model; and
 - (g) Determine if further response action is necessary.

Subsection 5.2: Scope

- (1) The scope of a facility evaluation will depend on the specific needs of the facility. The process will remain flexible; however, in all cases sufficient information must be collected, developed, and evaluated to perform a preliminary risk assessment.
- (2) A facility evaluation may include one or more of the following:
- (a) General facility information;
 - (b) Review of existing information;
 - (c) Field investigations that address:
 - (i) Surface water and sediments;
 - (ii) Soils;
 - (iii) Geology and groundwater systems;
 - (iv) Air;
 - (v) Meteorological data;
 - (vi) Human population distribution;
 - (vii) Preassessment for natural resource damages;
 - (d) Land use;
 - (e) Critical habitats;
 - (f) Hazardous substances and their sources;
 - (g) Receptor identification;
 - (h) Any other information to accomplish the purposes of a facility evaluation;
 - (i) Preliminary risk assessment.

Subsection 5.3: Further Action

Based on the information obtained about the facility during the facility evaluation, the Department may decide to do one or more of the following:

- (a) Conduct, or require a potentially responsible party to conduct, a remedial investigation and or feasibility study;
- (c) Require or conduct an immediate response action

SECTION 8: Response Activities

Subsection 8.1: Response Activities by the Department or Any Other Person

- (1) At any facility where the Department determines that there is a release or imminent threat of release of hazardous substances, the Department may require the identified potentially responsible parties to undertake appropriate response activities to abate, minimize, stabilize, mitigate, or eliminate the threat of release or imminent threat of release of hazardous substances.
- (2) At any facility where the Department determines that there is a release or imminent threat of release of hazardous substances, the Department may take any action to minimize, stabilize, mitigate, or eliminate the threat of release or imminent threat of release of a hazardous substance when no potentially responsible parties have carried out the necessary activities in a timely manner or no potentially responsible parties can be identified to undertake the response action.

Subsection 8.2: Interim Response Activities

- (1) The Department may require an interim response activity at a facility. Interim response activities other than those listed in Section 8.2(3) shall only be conducted with concurrent oversight of the Department. An interim response activity must not be inconsistent with and must not interfere with any potential final remedies. When the Department conducts, requires, or oversees an interim response activity, the following factors may be considered in determining the appropriateness of performing such activity:
 - (a) Actual or potential exposure to hazardous substances of nearby human population, animals, or foodchain;
 - (b) Actual or potential contamination of drinking water supplies or sensitive ecosystems;
 - (c) Actual or potential injury to natural resources
 - (d) Presence of hazardous substances in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release;
 - (e) High levels of hazardous substances in soils largely at or near the surface that are likely to migrate;
 - (f) The likelihood that weather conditions will cause hazardous substances to migrate or be released;
 - (g) The threat of fire or explosion;
 - (h) Other factors which pose threats to the public health, welfare, or the environment.

(2) Interim response activities may include, but are not limited to, any of the following:

- (a) Drainage controls where precipitation or run-off from other sources can enter the release area and spread hazardous substances;
 - (b) Stabilization of berms, dikes, or impoundments where needed to maintain the integrity of the structures;
 - (c) Temporary capping of the contaminated soils or sludges where needed to prevent the migration of hazardous substances into the environment;
 - (d) Using chemicals or other materials to retard the spread of a release or mitigate its effects;
 - (e) Removal of contaminated soil, from the drainage or other areas to reduce the spread of hazardous substances;
 - (f) Removal of drums, barrels, tanks, or other bulk storage containers that contain hazardous substances when it will reduce the likelihood of any of the following:
 - i. spillage,
 - ii. leakage,
 - iii. exposure to humans, animals, or the foodchain,
 - iv. fire or explosion,
 - (g) Groundwater control or removal systems;
 - (h) Removal of free product;
 - (i) Provision of alternate water supply where it will reduce the risk to public health;
 - (j) Temporary evacuation to protect public health or welfare;
 - (k) Other measures judged by the Department to be technically sound and necessary to protect human health, welfare, and the environment.
- (3) Interim response activities also include the placement of fences and warning signs, securing a facility or taking control precautions, supplying bottled water and human evacuations. These activities may be conducted without oversight of the Department.

Subsection 8.3: Remedial Investigation

- (1) The Department may require a potentially responsible party to conduct a remedial investigation, may itself conduct a remedial investigation, or may provide oversight of the results of a remedial investigation conducted by any person at the person's request. Any person may elect to obtain concurrent oversight of the Department by entering into a settlement agreement for the purposes described in Subsection 1.2(3) hereof.
- (2) The Department may determine that existing information constitutes the equivalent of all or part of a remedial investigation.
- (3) The purpose of the remedial investigation is to clearly describe risks to public health, welfare, or the environment and to identify the specific problems that require remediation. An understanding of these risks forms the basis of all actions to be taken at the facility.
- (4) A remedial investigation conducted pursuant to this subsection may address the following:
 - (a) The nature and extent of the contamination at the facility;

- (b) Routes of exposure;
 - (c) All of the following with respect to hazardous substances that are present:
 - i. amount,
 - ii. concentrations,
 - iii. characteristics,
 - iv. environmental fate and transport,
 - v. bioaccumulative properties,
 - vi. persistence,
 - vii. mobility,
 - viii. form,
 - (d) All of the following with respect to the physical setting of the facility:
 - i. geology,
 - ii. hydrology,
 - iii. hydrogeology,
 - iv. soils,
 - v. depth to saturated zone,
 - vi. hydraulic gradient,
 - vii. proximity to human population,
 - viii. proximity to drinking water aquifers,
 - ix. proximity to surface water,
 - x. proximity to flood plains,
 - xi. proximity to wetlands,
 - (e) Current and potential groundwater and surface water use;
 - (f) Climate;
 - (g) Source identification and characterization;
 - (h) Whether substances at the facility can be reused or recycled;
 - (i) The extent to which natural or manmade barriers currently contain the substances and the adequacy of the barriers;\
 - (j) The extent to which the substances have migrated or are expected to migrate from the area of release and the impact of the migration;
 - (k) An assessment of ecological injury including injury to natural resources resulting from the release; and
 - (l) Contribution of the substances to contamination of the air, land, water, or foodchain.
- (5) Risk Assessment. Following the determination of the factors identified in paragraph (4) of this subsection, any risk assessment conducted or required by the Department, or conducted by any other person, will consider the following:
- (a) Carcinogenic risk posed to human health by the release or imminent threat of release of hazardous substances;
 - (b) Non-carcinogenic risk posed to human health by the release or imminent threat of release of hazardous substances;
 - (c) Any other risk posed to human health by the release or imminent threat of release of hazardous substances;

- (d) Risk to the environment including, but not limited to, contamination of groundwater, surface water, air, or soil produced by the release or imminent threat of release of hazardous substances; and
- (e) Risk to public welfare.

SECTION 9: CLEANUP LEVELS

Subsection 9.1: General Procedures

- (1) All remedies performed under these regulations shall attain a degree of cleanup of hazardous substances and control of further releases of hazardous substances that ensures protection of public health, welfare, and the environment. The Cleanup levels will be determined using a risk-based approach on a site specific basis. The risk-based approach may include consideration of existing and likely future uses of the facility and related natural resources.
- (2) Cleanup levels may be based on current and potential future resource uses and reasonable maximum exposures expected to occur under both current and potential future use conditions of areas that could be impacted by a release or imminent threat of release of hazardous substances.
- (6) When multiple carcinogens and/or non-carcinogens exist at a facility for which inadequate toxicological data is available, the Department may set more stringent cleanup levels than those established under subsections 9.2-9.4 of these regulations

Subsection 9.2: Groundwater Cleanup Levels

- (1) Groundwater cleanup levels may be based on estimates of the highest beneficial use and the reasonable maximum exposure expected to occur under both current and potential future use conditions of areas that could be impacted by release or imminent threat of release of hazardous substances or may otherwise reasonably be determined by the Department to abate the threat to public health, welfare, and the environment.
- (2) The Department has determined that, unless demonstrated otherwise by the potentially responsible parties, the current use or potential for the use of groundwater as drinking water, including domestic uses, is the beneficial use which shall be protected. This beneficial use will require the highest quality of groundwater and exposure to hazardous substances via ingestion of drinking water and other domestic water uses represent the most common exposure pathways. For beneficial uses other than drinking water or domestic uses, appropriate exposure pathways will be determined by the Department consistent with the use. In the event of a release of hazardous substances, treatment, removal, or containment measures shall be implemented to reduce the concentration of the hazardous substances in groundwater to concentrations consistent with its use as follows:

- (a) When the natural background level exceeds 10E-05 cancer risk level or a level corresponding to a hazard index value of one level, then the natural background level shall be the cleanup level; and
 - (b) When the natural background level exceeds 10E-05 cancer risk level or a level corresponding to a hazard index value of one level, then the 10E-05 cancer risk level or a level corresponding to a hazard index value of one level shall be the level for cleanup; provided, however, that the MCL may be used as the cleanup level if the Department determines it is protective of human health and the environment and it is consistent with the policy and purposes of the Act and these regulations.
 - (c) When there are multiple contaminants at a facility, the cleanup level of each contaminant shall be such that the sum of the risks posed by the contaminants shall not exceed 10E-05 cancer risk or a hazard index value of one.
- (3) When the area contains high levels of contaminants as a result of human activity, such as in an urban or industrial area, and where the Department has determined that no active remediation is appropriate, then the goal shall be either no further degradation, or a level established by the Department. The goal is not only prevention of further degradation, but also, with the implementation of improved technology, remediation under other state or federal programs or allowing natural processes to occur, restoring the groundwater to natural background conditions.
- (4) Groundwater cleanup levels shall be established so that releases of hazardous substances to groundwater of the State shall not cause violations of surface water, sediments, soil, or air cleanup levels established pursuant to these regulations or other applicable state and federal laws.
- (5) In establishing groundwater cleanup levels, risk to the environment shall be considered.
- (6) Risk-based concentration values for hazardous substances in groundwater which comply with Subsection 9.2(1) and (2), or cleanup standards and guidances established under 7 Del. C Chapter 74 for groundwater, may be used as cleanup levels for groundwater.

Section 9.3: Surface Water Cleanup Levels

Cleanup levels for soils, and cleanup levels for groundwater that discharges to water bodies, shall not be at levels which may cause an exceedance of the State of Delaware Surface Water Quality Standards. Surface water cleanup levels shall meet the State of Delaware Surface Water Quality Standards.

Regulations Governing Hazardous Waste

Agency: Department of Natural Resources and Environmental Control
Division: Air and Waste Management
Section: Hazardous Waste Management Branch
Date: January 1, 1999

PART 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

SUBPART F Ground-Water Protection

Note: In this subpart, **At least the uppermost aquifer** means any aquifer which the facility has the potential to affect.

Section 264.90 Applicability

(a)(1) Except as provided in paragraph (b) of this section, the regulations in this subpart apply to owners or operators of facilities that treat, store or dispose of hazardous waste. The owner or operator must satisfy the requirements in paragraph (a)(2) of this section for all wastes (or constituents thereof) contained in solid waste management units at the facility, regardless of the time at which waste was placed in such units.

(2) All solid waste management units must comply with the requirements in §264.101. A surface impoundment, waste pile, and land treatment unit or landfill that receives hazardous waste after July 26, 1982 (hereinafter referred to as a “regulated unit”) must comply with the requirements of §264.91-§264.100 in lieu of §264.101 for purposes of detecting, characterizing and responding to releases to the uppermost aquifer. The financial responsibility requirements of §264.101 apply to regulated units.

Section 264.92 Ground-water Protection Standard

The owner or operator must comply with conditions specified in the facility permit that are designed to ensure that hazardous constituents under §264.93 detected in the ground water from a regulated unit do not exceed the waste management area beyond the point of compliance under §264.95 during the compliance period under §264.96. The Secretary will establish this ground-water protection standard in the facility permit when hazardous constituents have been detected in the ground water.

Regulations Governing the Location of Hazardous Waste Storage, Treatment, and Disposal Facilities

Agency: Department of Natural Resources and Environmental Control
Division: Air and Waste Management
Section: Hazardous Waste Management Branch
Date: October 22, 1996

Section 1. Scope and Applicability

Pursuant to 7 Delaware Code, Chapter 63 Sections 6303(a)(4) and 6305(a)(15), the Department is authorized to develop and promulgate criteria and regulations governing the location of hazardous waste management facilities.

This regulation is based on the premise that facilities should be located in areas which minimize the consequences of an unintentional release on public health, safety, welfare, and the environment. The purpose of the location criteria, therefore, is to provide an additional margin of safety beyond the protection already afforded by the design, operational, and monitoring requirements for hazardous waste management facilities contained in *the Delaware Regulations Governing Hazardous Waste*. The approval of location does not relieve the applicant from compliance with all other applicable federal, state, or local rules and regulations. Except as provided for in Section 6 of this regulation, all hazardous waste treatment, storage, or disposal facilities must receive location approval from the Secretary prior to issuance of a hazardous waste permit or written approval for a new unit, or prior to the alteration of an existing unit such that the alterations would require a major modification or a Class 3 modification per *Delaware Regulations Governing Hazardous Waste*, Sections 122.41 and 122.42.

Section 3 Location Criteria for Land Emplacement Facilities

3.1.1 Land emplacement units shall be prohibited in the following:

1. The 100-year flood hazard area;
2. Wetlands;
3. Freshwater wetlands;
4. Carbonate bedrock areas;
5. Carbonate bedrock drainage areas;
6. Public water supply watersheds upstream from the points of withdrawal;
7. Subcropping aquifers and aquifer recharge areas;
8. Significant environmental lands;
9. Areas where the transmissivity of the unconfined aquifer is greater than 10,000 ft²/day;

10. Areas where groundwater under natural conditions could come into contact with the waste;
11. Wellhead protection areas;
12. Areas within 500 feet of a fault that has experienced movement within the last 35,000 years (capable fault).

3.2 Cautionary Criteria

3.2.1 The location of land emplacement units below shall be considered acceptable:

4. Proximity to Surface Water
The location of a proposed unit shall provide that monitoring and frequency of sampling detect the presence of contaminants, and initiation of appropriate remedial action before degradation of surface water quality.
5. Groundwater Use.
Units shall be located at least .25-mile from, and not hydraulically upgradient of, any drinking water wells where no effective hydrogeologic barrier to flow exists.
12. Proximity to Flood Hazard Area
Sites should be outside of the 500-year floodplain.

Section 4 Location Criteria for Non-Land Emplacement Storage, Treatment and Disposal Facilities

4.1 Exclusionary Criteria

4.1.1 Non-land emplacement storage, treatment and disposal units shall be prohibited in the following:

1. The 100-year flood hazard area;
2. Wetlands;
3. Freshwater wetlands;
4. Carbonate bedrock areas;
5. Carbonate bedrock drainage areas;
6. Public water supply watersheds upstream from reservoirs;
7. Significant environmental lands;
8. Areas within 500 feet of a fault that has experienced movement within the last 35,000 years (capable fault).
9. Wellhead protection areas.

4.2 Cautionary Criteria

4.2.1

The location of non-land emplacement storage, treatment, and disposal units meeting the criteria listed below shall be considered acceptable:

2. Depth to Groundwater.

If, under natural conditions, groundwater may encroach upon any subsurface unit, then that groundwater shall be kept below the bottom of the facility by means of properly designed drainage.

4. Groundwater Use.

Units shall be located at least .25-mile from, and not hydraulically upgradient of, any drinking water wells where no effective hydrogeologic barrier to flow exists.

11. Subcropping Aquifers and Aquifer Recharge Areas.

Units should not be located in areas where major pre-quaternary coastal plain aquifers outcrop or subcrop beneath surficial sediments and receive or could receive significant recharge by natural or induced ground water flow. These include areas where sands of the Potomac and Magothy formations; sands of the Rancocas Group; the Cheswold, Frederica, Manokin, and Pocomoke aquifers; and some finer grained aquifers through which substantial leakage may be induced by pumping.

Regulations Governing Solid Waste

Agency: Department of Natural Resources and Environmental Control
Division: Air and Waste Management
Section: Solid Waste Management Branch
Date: December 21, 1994

Section 5: Sanitary Landfills

(NOTE: This section applies only to landfills that accept household waste.)

A. SITING

1. Sanitary landfill facilities shall be located only in areas where the potential for degradation of the quality of air, land, and water is minimal.
2. All sanitary landfill facilities shall be constructed to at least minimum design requirements as contained in Section 5.B. More stringent designs will be required where deemed necessary by the Department for the protection of ground water resources.
3. The owner or operator of any proposed sanitary landfill within a 5-mile radius of any airport runway must notify the airport and the Federal Aviation Administration (and provide proof of notification to the Department).
4. No new cell of a sanitary landfill shall be located:
 - a. Within the 100-year flood plain as delineated by the Federal Emergency Management Agency.
 - b. In an area that may cause or contribute to the degradation of any state or federally regulated wetlands unless the owner or operator can demonstrate to the satisfaction of the appropriate wetlands regulatory agency that:
 - (1) there is no impact to any regulated wetlands on the site, or
 - (2) any impact will be mitigated as required.
 - c. Within one mile of any state or federal wildlife refuge, wildlife area, or park, unless specifically exempted from this requirement by the Department.
 - d. Within 10,000 feet of any airport runway currently used by turbojet aircraft or 5,000 feet of any airport runway currently used by piston-type aircraft, unless a waiver is granted by the Federal Aviation Administration.
 - e. So as to be in conflict with any locally adopted land use plan or zoning requirement.
 - f. Within the wellhead protection area of a public water supply well or well field or a formally designated aquifer resource protection area.
 - g. Within 200 feet of a fault that has had displacement during Holocene time (unless it can be demonstrated that a lesser setback distance would prevent damage to the structural integrity of the landfill unit and be protective of human health and the environment.)
 - h. Within a seismic impact zone unless it can be demonstrated that all containment structures, including liners, leachate collection systems and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

For the purposes of this section:

(1) Seismic impact zone means an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years.

(2) Maximum horizontal acceleration in lithified earth material means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

(3) Lithified earth material means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete and asphalt or unconsolidated earth materials, soil or regolith lying at or near the earth surface.

i. In unstable areas, unless engineering measures have been incorporated in the design to insure the integrity of the structural components of the waste facility (including liners, leachate collection systems, run-on/run-off control, capping and anything affecting the containment and/or possible release of contaminants.) Unstable areas include those of (1) poor foundation conditions (possible subsidence), (2) susceptibility to mass movement or (3) Karst terrane.

j. In areas where valuable aquifers would be threatened by contaminant releases, unless viable alternatives have been dismissed and stringent design measures have been incorporated to minimize the possibility and magnitude of releases.

k. Within 200 feet of the facility property boundary unless otherwise approved by the Department.

SECTION 6: INDUSTRIAL LANDFILLS

(NOTE: This section applies to those landfills that dispose of only industrial and/or dry waste.)

A. SITING

1. Industrial landfill facilities shall be located only in areas where the potential for degradation of the quality of air, land, and water is minimal.
2. All industrial landfill facilities shall be constructed to at least minimum design requirements as contained in Section 6.B. More stringent designs will be required where deemed necessary by the Department for the protection of ground water resources.
3. No new cell of an industrial landfill shall be located in an area such that solid waste would at any time be deposited:
 - a. Within the 100 year flood plain.
 - b. In an area that may cause or contribute to the degradation of any state or federally regulated wetlands unless the owner or operator can demonstrate to the satisfaction of the appropriate wetlands regulatory agency that:
 - (1) there is no impact to any regulated wetlands on the site, or
 - (2) any impact will be mitigated as required.

- c. Within one mile of any state or federal wildlife refuge, wildlife area, or park, unless specifically exempted from this requirement by the Department.
- d. So as to be in conflict with any locally adopted land use plan or zoning requirement.
- e. Within the wellhead protection area of a public water supply well or well field.
- f. In areas where valuable aquifers would be threatened by contaminant releases, unless viable alternatives have been dismissed and stringent design measures have been incorporated to minimize the possibility and magnitude of releases.
- g. Within 200 feet of the facility boundary unless otherwise approved by the Department.
- h. In an area that is environmentally unique or valuable.

Regulations Governing Underground Storage Tank Systems

Agency: Department of Natural Resources and Environmental Control
Division: Air and Waste Management
Section: Underground Storage Tank Branch
Date: March 12, 1995

PART A

GENERAL REQUIREMENTS FOR ALL UNDERGROUND STORAGE TANK SYSTEMS

SECTION 1. General Provisions

1.01 Statement of Authority

A. The Delaware Department of Natural Resources and Environmental Control (DNREC) is responsible for protecting, preserving and enhancing the environmental quality of the water, air, and land of the State. The Department recognizes that groundwater quality protection and improvement is an important goal. In addition, the General Assembly of the State of Delaware has found "that it is necessary to provide for more stringent control of the installation, operation, retrofitting and abandonment of underground storage tanks to prevent leaks, and where leaks should occur, to detect them at the earliest possible stage and thus minimize further degradation of groundwater." The Regulations Governing Underground Storage Tank Systems are intended to deal with existing and potential sources of pollution that may result from underground storage tanks.

The intent of the Department with these Regulations is three-fold. First, to ensure the detection of a release if one occurs. This will be achieved by ensuring an acceptable design and installation of new tanks and upgrading of existing tanks. Second, to prevent the release of product to the environment by requiring underground storage tank systems that are designed to contain a release. Finally, to remediate any releases that have occurred and provide for the protection of human health, safety and the environment.

B. Authority for these regulations are in accordance with 7 Del. C. Chapter 60, the Water and Air Resources Act, and 7 Del. C. Chapter 74, the Delaware Underground Storage Tank Act.

1.04 Enforcement

Any person who fails to comply with these regulations shall be subject to the penalty provisions set forth in 7 Del. C. Section 7411 or 7 Del. C. Chapter 60.

PART B
STANDARDS FOR PETROLEUM UNDERGROUND STORAGE TANK SYSTEMS

1.02 Secondary Containment Requirements

A. The Department reserves the right to require secondary containment or equivalent protection for underground storage tank system installations where aquifers underlying the UST facility are determined to need such protection, or where groundwater below the UST facility is within a well head protection area, or where groundwater is susceptible to contamination in order to protect the safety, health, welfare and/or environment of the State.

PART C
STANDARDS FOR HEATING FUEL UNDERGROUND STORAGE TANK SYSTEMS

2.02 Secondary Containment Requirements

- A. The Department reserves the right to require secondary containment or equivalent protection for underground storage tank system installations where aquifers underlying the UST facility are determined to need such protection, or where groundwater below the UST facility is within a well head protection area, or where natural resources are determined to need such protection in order to protect human health, safety, or the environment.
- B. All secondary containment systems must be designed, constructed and installed in accordance with manufacturer's specifications, and accepted engineering and corrosion engineering practices and procedures; and in a manner which will prevent releases of regulated substances to the ground waters, surface waters or soils of the State due to corrosion, structural failure, spills and overfills for the operational life of the tank. The material used in the construction of the secondary containment system shall be compatible with the substance to be stored. The systems must be designed, constructed and installed to meet the following requirements as well:
- (1) Must direct a release to a monitoring point where the product can be detected and recovered.
 - (2) Contain any regulated substances released from the UST system until it is detected and removed;
 - (3) Be monitored for evidence of a release at least every thirty (30) days;
 - (4) Monitoring wells must be clearly marked and secured to avoid unauthorized access and tampering; and
 - (5) For single-walled cathodically protected tanks, the secondary barrier shall be installed so that it does not interfere with the proper operation of the cathodic protection system.

PART D
STANDARDS FOR HAZARDOUS SUBSTANCE UNDERGROUND STORAGE TANK SYSTEMS

1.01 Design and Construction Requirements

A. All new UST system installed for the storage of hazardous substance must be designed, constructed and installed in accordance with manufacturer's specifications, and accepted engineering practices and procedures; and in a manner which will prevent releases of hazardous substances to the ground waters, surface waters or soils of the State due to corrosion, structural failure, spills and overfills for the operational life of the tank. The material used in the construction and/or lining of the tank must be compatible with the substance to be stored.

1.03 Installation Requirements for New Hazardous Substance UST Systems

- A. Prior to the installation of any underground storage tank system a site survey must be initiated by the facility owner and operator. The pre-installation site survey must be conducted to determine the locations of nearby buildings, underground utilities and sewer lines. Private/public drinking water wells, rivers, streams, lakes, canals, and other environmentally sensitive locations shall be recorded and incorporated into the design of the underground storage tank system facility.
- B. Owners and operators must submit a written plan of the tank facility to the Department or to a designated state or local government agency for approval thirty (30) days before the installation. The scale of the plan must be one inch to ten feet (1" - 10') or less. The plan(s) must include the following information:
- (1) Size and location of tanks
 - (2) Piping dimensions and layout
 - (3) Dimensions and locations of vents, observation tubes, monitoring wells, vadose zone vapor detection tubes, U-tubes, gauges and monitoring
 - (4) Type of product to be stored
 - (5) Location of dispensers
 - (6) Location of overfill device, spill prevention system and monitoring devices
 - (7) Materials of tank(s) and lines construction
 - (8) Location of and access to check valves, flexible connectors, swing joints, etc.
 - (9) Location of cathodic protection components and test stations
 - (10) Location of utilities (both above and underground)
 - (11) Location of electrical service components
 - (12) Details of hold-down pads or anchoring
 - (13) Location of nearby private/public drinking water wells and surface water bodies
 - (14) Survey results from §1.03 A of this Part.

Policy Statement on Secondary Containment and Tagging of Underground Storage Tanks

Agency: Department of Natural Resources and Environmental Control
Division: Air and Waste Management
Section: **Underground Storage Tank Branch**
Date: **January 1990**

The Department of Natural Resources and Environmental Control recognizes the need to protect groundwater in the State from leaking underground storage tanks. Title 7, Del. Code Section 7416 of the Underground Storage Tank Act provides that:

"Because groundwater protection and management is an underlying issue related to leaking underground storage tanks, information on the risks to groundwater resources will be needed to facilitate implementation of the regulations. The Delaware Geological Survey shall, under the auspices and direction of the Committee, and in cooperation with the Department, examine the need for prioritizing possible leak risks. The Survey may assist the Committee by identifying areas where existing or abandoned leaking underground storage tanks would pose the most significant risk."

As a result, the Department, in conjunction with the Delaware Geological Survey, has developed guidelines and a set of maps which will be used to determine areas where additional measures such as secondary containment or additional leak detection monitoring of underground storage tank systems are required to protect the State's groundwater. The maps are a compilation of data from a variety of sources and include the locations of public water supply wells which obtain their water from unconfined and semi-confined aquifers, valuable water resource areas where unconfined aquifers have high transmissivity, a groundwater recharge zone near Dover, and aquifer subcrop areas.

In general, the Department is currently requiring secondary containment as required for all tanks installed within 1000 feet of a public water supply system (a well which serves 25 or more people or which has more than fourteen connections) and in areas which have the potential to be used for public water supplies in the near future. The maps showing these areas are currently available for public review in the Department's New Castle Office at 391 Lukens Drive, New Castle.

The Department also recognizes the need to develop a system for easily identifying underground storage tanks registered with the Department. Therefore, the Department will develop a tag which can be distributed for attachment to all registered underground storage tanks. The owner will be able to attach the tag to the fill neck of the tank. This means of identification will facilitate the job of the Department's compliance inspectors and also will enable drivers of product delivery vehicles to identify registered and unregistered tanks quickly and easily.

Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems

Agency: Department of Natural Resources and Environmental Control
Division: Water Resources
Section: Ground Water Discharges
Date: January 31, 1995

Section 3.0000 General Standards, Prohibitions, and Provisions

- 3.07000** These Regulations, being necessary for the health and welfare of the State and its inhabitants, shall be liberally construed in order to preserve the land, surface water and groundwater resources of the State.
- 3.08000** At the sole discretion of the Department, if the proposed operation of a system would cause pollution of public waters or create a public health hazard, system installation or use shall not be authorized.
- 3.11000** Discharge of untreated or partially treated wastewater or septic tank effluent directly or indirectly onto the ground surface or surface waters of the State, unless authorized by a permit issued by the Department, constitutes a public health hazard and is prohibited.

Guidance and Regulations Governing the Land Treatment of Wastes

Agency: Department of Natural Resources and Environmental Control
Division: Water Resources
Section: Ground Water Discharges
Date: June 1994

PART II Land Treatment of Wastewaters

B. Regulations for Slow Rate Land Treatment

Section 300. Required Design Considerations

Subsection 312. Buffer Zones, Public Access and Protection of Water Supply Wells

(1) Buffer Zones

The following minimum buffer zones around the irrigation site must be provided for restricted public access sites:

- c. A 100-foot buffer is required between the wetted edge of spray fields and the edge of any perennial lake or stream. A 50-foot buffer is required between spray fields and the edge of any channelized, intermittent watercourse. If wastewater irrigation causes an intermittent stream to become perennial, the 100-foot buffer requirement will apply.

(3) Protection of Water Supply Wells

The potential effect of wastewater irrigation on water supply aquifers is site specific and difficult to predict. Abandoned wells within the treatment site must be identified as well as all domestic wells within 1000 linear feet and irrigation, commercial, industrial, and public wells within 2500 linear feet (L.F.) of the land treatment site. There must be a satisfactory demonstration (through an evaluation of the depth of water supply aquifer, its gradient, the condition of the aquitard(s), the condition of existing water supply wells, and their capacity) that the LTS system will not have an adverse effect on those wells. Shallow and poorly constructed wells within the land treatment system will require abandonment and sealing.

Subsection 313. Surface Drainage and Runoff Control

Drainage of storm runoff shall be considered in design. Spray fields must be protected against flooding, ponding, and erosion. Runoff shall be channelized through or around the wastewater irrigation site. However, the collection and channelization of irrigated wastewater must be avoided. Direct application of wastewater to drainage ditches and seasonal watercourses is prohibited.

A properly designed and operated slow rate land treatment system will not produce direct runoff; i.e., all water applied will infiltrate into the soil profile. Thus, irrigation on frozen soils must not be practiced. Sites that experience direct runoff as a result of wastewater irrigation will be required to reduce hydraulic loading rates. Tailwater return systems may be required as a remedial action. Indirect runoff as a result of interflow, changes in slope, and shallow restrictive soil layers can be expected at some low rate land treatment sites. Indirect runoff is acceptable when it is dispersed over a wide area. However, monitoring of streams affected by such indirect runoff shall be addressed in the Plan for Operations and Management.

Subsection 314. Subsurface Drainage

(1) General

Sites with a seasonal high water table less than 5 feet in depth, including groundwater mounding as a result of wastewater irrigation, may require drainage improvements to assure a desired zone of aeration for optimum wastewater treatment and plant growth. A minimum 2-foot depth for this zone shall be maintained at all times.

(2) Discharges from drainage systems for wastewater irrigation facilities fall under point source discharge rules and regulations that require a National Pollutant Discharge Elimination System (NPDES) permit. The required quality of the discharge from the drainage system is dependent upon the receiving stream and will be determined on a case-by-case basis. Water quality monitoring of the drainage system discharges will be in accordance with NPDES permit requirements.

Part III Land Treatment of Sludges and Sludge Products

B Regulations

Section 700. Utilization Methods

Subsection 701. The Agricultural Application of Sludge

(4) Buffer Zones

Unless treated by Processes to Further Reduce Pathogens (PFRP), sewage sludge may not be land applied within the following buffer zones.

	Surface Application	Subsurface Injection
(i) Occupied off-site dwelling	200 feet	100 feet
(ii) Occupied on-site dwelling	100 feet	50 feet
(iii) Potable wells	100 feet	100 feet
(iv) Non-potable wells	25 feet	25 feet
(v) Public Roads	25 feet	15 feet

(vi)	Property lines	50 feet	25 feet
(vii)	Bedrock Outcrops	50 feet	25 feet
(viii)	Streams, tidal waters, other water bodies	50 feet	25 feet
(ix)	Drainage ditches	25 feet	25 feet

(7) Site Characteristics

No person shall apply sludge to a site unless the site complies with all of the following:

- (b) The site shall have a minimum depth from surface to seasonal high water table of 20 inches. The operator may establish this minimum depth through the use of a tile drain system. A NPDES permit will be required for the discharge from the tile drain. Sites where the seasonal high water table is less than 20 inches but no less than 12 inches may be considered if application to the soil is restricted to:
 - (i) May, June, or July and appropriate vegetation is established and harvested prior to November of the same year, and
 - (ii) Those periods when actual water table depth is at least 20 inches below the maximum depth of tillage to be used for the vegetation.

Regulations Governing Underground Injection Control

Agency: Department of Natural Resources and Environmental Control
Division: Water Resources
Section: Ground Water Discharges
Date: August 15, 1983

PART 122 STATE ADMINISTERED UNDERGROUND INJECTION CONTROL PROGRAM

SUBPART A DEFINITIONS AND GENERAL PROGRAM REQUIREMENTS

§122.23 Prohibition of unauthorized injection; Prohibition of all Class II, III, and IV wells; Prohibition of Class I and V wells except as specifically provided

- (a) Any underground injection, except as authorized by permit issued under the UIC program or otherwise authorized herein, is prohibited. The construction of any well required to have a permit is prohibited until the permit is issued.
- (b) The construction, use, operation or modification of any Class II, III, or IV well as defined in these regulations is hereby expressly prohibited and no permit may be issued for any such activity.
- (c) The construction, use, operation or modification of Class I and V wells, as defined in these regulations, is hereby prohibited except as provided in this subsection and subsection (d) below; the following Class I and Class V wells may be permitted upon proper application and review as set forth in these regulations:
 - (1) Class I wells as defined in §122.22 (a) (2) herein;
 - (2) Class V wells as defined in §122.22 (e)(3)(v), (e)(4)(i) and (e)(4)(ii) herein
- (d) The following Class V wells, as defined in §122.22 (e) (i) through (e) (vi) herein, are exempt from both the prohibition and UIC permit requirements in (c) above; however, water well allocation permits must be obtained from DNREC in accordance with applicable regulations:
 - (1) Air conditioning return flow wells (§122.22 (e) (1) (i))
 - (2) Cooling water return flow wells (§122.22 (e) (1) (ii))
 - (3) Drainage wells (§122.22 (e) (1) (iii))
 - (4) Recharge wells (§122.22 (e) (1) iv))
 - (5) Saltwater intrusion barrier wells (§122.22 (e) (1) (v))
 - (6) Subsidence control wells (§122.22 (e) (1) (vi))

§122.24 Prohibition of movement of fluid into underground sources of drinking water

- (a) No owner or operator shall construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 142 or may otherwise adversely affect the health of persons. The applicant for a permit shall have the burden of showing that the requirements of this paragraph are met.
- (b) for Class I wells, if any water quality monitoring of an underground source of drinking water indicates the movement of any contaminant into the underground source of drinking water, except as authorized under Part 146, the Secretary shall prescribe such additional requirements for construction, corrective action, operation, monitoring, or reporting (including closure of the injection well) as are necessary to prevent such movement. In the case of wells authorized by a permit, these additional requirements shall be imposed by modifying the permit in accordance with §124.4 if cause exists, or appropriate enforcement action may be taken if the permit has been violated.
- (c) for Class V wells, if at any time the Secretary learns that a Class V well may cause a violation of primary drinking water regulations under 40 CFR Part 142, he or she shall:
 - (1) Require the injector to obtain an individual permit;
 - (2) Order the injector to take such actions (including where required, closure of the injection well) as may be necessary to prevent the violation; or
 - (3) Take enforcement action.
- (d) Whenever the Secretary learns that a Class V well may be otherwise adversely affecting the health of persons, he or she may prescribe such actions as may be necessary to prevent the adverse effect, including any action authorized under paragraph (c) of this section.
- (e) Notwithstanding any other provision of this section, the Secretary may take emergency action upon receipt of information that a contaminant which is present in or is likely to enter a public water system may present an imminent and substantial endangerment to the health of persons.

§122.25 Identification of underground sources of drinking water and exempted aquifers

- (a) The Secretary may identify (by narrative description, illustrations, maps, or other means) and shall protect, except where exempted under paragraph (b) of this section, as an underground source of drinking water, all aquifers or parts of aquifers which meet the definition of an "underground source of drinking water" in §122.3. Even if an aquifer has not been specifically identified by the Secretary, it is an underground source of drinking water if it meets the definition in §122.3.

- (b) (1) The Secretary may identify (by narrative description, illustrations, maps, or other means) and describe in geographic or geometric terms (such as vertical and lateral limits and gradient) which are clear and definite, all aquifers or parts thereof which the Secretary proposes to designate as exempted aquifers using the criteria in §146.04.
- (2) No designation of an exempted aquifer submitted as part of a UIC program shall be final until approved by the Administrator as part of the State program.
- (3) Subsequent to program approval, the Secretary may, after notice and opportunity for a public hearing, identify additional exempted aquifers. Exemption of aquifers identified (i) under §146.04 (b) shall be treated as a program revision; (ii) under §146.04 (c) shall become final if the Secretary submits the exemption in writing to the Administrator and the Administrator has not disapproved the designation within 45 days. Any disapproval by the Administrator shall state the reasons and shall constitute final agency action for purposes of judicial review.

**PART 146 UNDERGROUND INJECTION CONTROL PROGRAM:
CRITERIA AND STANDARDS**

SUBPART B Criteria and Standards Applicable to Class I Wells

§146.13 Operating, Monitoring, and Reporting Requirements

(a) **Operating Requirements:** Operating requirements shall, at a minimum, specify that:

- (1) Except during stimulation, injection pressure at the wellhead shall not exceed a maximum which shall be calculated so as to assure that the pressure in the injection zone during injection does not initiate new fractures or propagate existing fractures in the confining zone or cause the movement of injection or formation fluids into an underground source of drinking water.
- (2) Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited.

(b) **Monitoring Requirements:** Monitoring requirements shall, at a minimum, include:

- (4) the type, number, and location of wells within the area of review to be used to monitor any migration of fluids into and pressure in the underground sources of drinking water, the parameters to be measured, and the frequency of monitoring.

Regulations Governing the Control of Water Pollution

Agency: Department of Natural Resources and Environmental Control
Division: Water Resources
Section: Surface Water Discharges
Date: June 30, 1993

Section 3 Prohibition of Discharge

- 3.01 No person shall discharge any pollutant from a point source into surface or groundwater, directly or indirectly, except as authorized pursuant to a permit granted under Section 4, unless such discharge is specifically exempted from such permit requirement.
- 3.02 No person shall discharge any liquid waste on land or in any subsurface excavation except as authorized pursuant to a permit granted under Section 4, unless such discharge is specifically exempted from such permit requirement.
- 3.03 A violation of subsection 3.01 or 3.02 of this section (or both) shall be punishable as provided by statute.
- 3.04 No permit pursuant to Section 4 shall be issued for the following:
- (a) Any discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste; and
 - (c) Any discharge of liquid wastes which is in conflict with an areawide waste treatment management plan approved under the CWA, as amended; and
 - (e) Any discharge of liquid waste to a well. No well shall be used for recharge, injection, or disposal purposes. This subsection shall not be construed to prevent recharge of treated liquid wastes for the purpose of water resources.
- 3.05 No person shall discharge liquid waste from an existing septic tank or other system where such liquid waste flows to the surface of the ground or into surface water.
- 3.06 No person shall operate any existing pipeline or bulk transfer facility which causes or contributes to the discharge of pollutants onto the surface of the ground or into surface or groundwater.

Section 7 Minimum Treatment Requirements for Sewage Prior to Discharge to a Surface Water

7.04 No person shall cause or permit any discharge of liquid waste to a stream, tidal or non-tidal, except liquid waste which has received at least secondary treatment, filtration, and disinfection, but this subsection shall not govern discharge into the Delaware River, the Delaware Bay or the Atlantic Ocean, which shall be governed by paragraph 7.01 hereof. For existing facilities, filtration may not be required if the existing facility has demonstrated the ability to continuously meet secondary treatment levels.

Regulations Governing the Construction and Use of Wells

Agency: Department of Natural Resources and Environmental Control
Division: Water Resources
Section: Water Supply
Date: April 6, 1997

SECTION 1 - GENERAL PROVISIONS

1.01 Statutory Authority

The Department of Natural Resources and Environmental Control establishes and adopts the following Regulations pursuant to the authority granted by §6010(a) of the Delaware Environmental Protection Act, 7 Del. C., Chapter 60.

1.02 Scope and Applicability

- A. Minimum requirements are hereby prescribed governing the location, design, installation, use, disinfection, modification, repair, and abandonment of all wells and associated pumping equipment as well as certain requirements for the protection of potable water supply wells. These Regulations supersede all other well construction Regulations.
- B. No person shall conduct any activity contrary to the provisions of these Regulations. All such activities which are contracted for shall be carried out only by those persons having a valid license pursuant to the provisions of the "Regulations for Licensing Water Well Contractors, Pump Installer Contractors, Well Drillers, Well Drivers and Pump Installers."
- C. These Regulations apply to well construction activities from the initial penetration or excavation of the ground through development, equipment installation, disinfection and abandonment. Set up of construction equipment before actual penetration or excavation is not considered part of construction.
- D. The installation of any well, as defined in Section 2.61 of these Regulations, including any well installed for the purpose of obtaining geologic or hydrologic information shall receive the prior approval of the Department in the form of a well permit.
- E. If any part of these Regulations or the application of any part thereof is held invalid or unconstitutional, the application of such part to other persons or circumstances and the remainder of these Regulations shall not be affected thereby and shall be deemed valid and effective.
- F. The DNREC shall have the right to require that the well permit and permit conditions be recorded with the Recorder of Deeds office in the county where the well is located.
- G. These Regulations, being necessary for the protection and conservation of the water resources of the State, shall be liberally construed in order to preserve the land, surface water and ground water resources of the State of Delaware.
- H. The Department shall have the right to enter at reasonable times upon any private or public property for the purpose of inspecting and investigating conditions relative to the

enforcement of these Regulations; upon given verbal notice and after presenting official identification to the owner, occupant, custodian, or agent of the property.

1.03 Enforcement and Penalties

The provisions of these Regulations shall be enforced by the Department as provided in 7 Del. C., Chapter 60. Such enforcement may include revocation of any permit for cause. The failure of the Department to enforce any of the provisions of this Regulation shall not constitute a waiver by the Department of any such provisions.

SECTION 3 - GENERAL REQUIREMENTS AND PROCEDURES

3.01 Permit Required

- A. A well may not be constructed until the Department has issued a well permit to the applicant, unless otherwise authorized under Section 3.11 of these Regulations. A well permit is not required for the construction of piezometers with a hand auger or hand operated driver or for the construction of wick drains in the unconfined aquifer.
- B. A permit is required for the use of all wells.

3.03 License Required

The construction, repair, modification, or abandonment of wells and the installation of pumps and pumping equipment in and for water wells shall be performed by or under the direct on-site supervision of an individual licensed pursuant to the requirements of 7 Del. C., §6023 and the requirements of the "Regulations for Licensing Water Well Contractors, Pump Installer Contractors, Well Drillers, Well Drivers, and Pump Installers."

SECTION 4 - WELL CONSTRUCTION STANDARDS

4.01 Siting Criteria

- A. All wells, except for monitor, recovery, dewatering, and observation wells shall satisfy the following minimum horizontal separation distance requirements:
 - 1 Ten (10) feet from a property line (except as required in Section 4.01(J) of these Regulations) to allow access to the well without encroaching on adjoining properties. Wells may be constructed less than ten (10) feet from a property line if prior approval is granted by the Department for the purpose of maximizing other horizontal separation distances as required by this Section.
 - 2 For any parcel, lot, or subdivision created or recorded within fifty (50) feet of, or within the boundaries of, an Agricultural Lands Preservation District (as defined in Title 3, Del. C., Chapter 9); all wells constructed on such parcels shall be

located a minimum of fifty (50) feet from any boundary of the Agricultural Lands Preservation District. This requirement does not apply to parcels recorded prior to the implementation date of these Regulations. However, it is recommended that all wells be placed the maximum distance possible from lands which are or have been used for the production of crops which have been subjected to the application of land applied federally regulated chemicals.

- 3 Wells shall not be permitted within any dedicated State of Delaware right-of-way unless written permission is obtained from the right-of-way holder and is submitted for review with the application, unless otherwise approved by the Department.
 - 4 One hundred (100) feet from identifiable potential or existing sources of contamination, except that public and industrial water wells shall have a minimum separation of one hundred fifty (150) feet. Heat pump closed loop and heat pump recharge wells may be as close as fifty (50) feet to identifiable potential or existing sources of contamination, as stated in Sections 5.04(B) and 5.05(A) of these Regulations. The Department may consider approval of a lesser isolation distance from agricultural and irrigation wells on a case-by-case basis.
 - 5 Fifty (50) feet from approved septic tanks, diversion valves or boxes, dosing chambers, holding tanks and grease traps, with the exception of public and industrial water wells where the minimum separation distance shall be one hundred fifty (150) feet.
 - 6 Fifty (50) feet from any underground sewage force main. The isolation distance may be decreased to no less than ten (10) feet when the section of the sewer line within fifty (50) feet of the proposed well is double cased with watertight joints; or when the well is constructed into a confined aquifer.
 - 7 Fifty (50) feet from any gravity sewer line. The minimum separation distance shall be decreased to ten (10) feet when the sewer line is constructed of SDR 35 polyvinyl chloride (PVC) pipe and the joints are watertight slip joints with rubber gaskets.
 - 8 Unless otherwise approved by the Department, no industrial or public water well may be constructed within one hundred fifty (150) feet of any identifiable potential or existing source(s) of contamination as defined by these Regulations.
- B. When any well, with the exception of industrial and public water wells, cannot be physically placed the required isolation distance from identifiable potential or existing sources of contamination as specified in this section, the isolation distance may be decreased to no less than fifty (50) feet, but kept to a maximum possible distance, provided the well is screened in a confined aquifer and pressure grouted, as described in Section 4.07(K)(3) of these Regulations, from at least ten (10) feet into the confining layer immediately above the source aquifer. Where the confining layer is less than ten

(10) feet in thickness, the well shall be pressure grouted entirely through the confining layer. In areas where a confined aquifer does not exist within one hundred fifty (150) feet of the natural ground surface, the depth of the casing shall be at least one hundred (100) feet and the casing shall be grouted in accordance with the requirements of Section 4.07(K)(4) of these Regulations. The final grout height in all cases shall be in accordance with the requirements of Section 4.07(K)(7) of these Regulations.

- C. A well may not be constructed within or under any building other than a separate structure constructed specifically for the housing of pumping equipment, unless otherwise approved in writing by the Department. Such structures shall be properly marked to indicate the classification of and the well permit number of the well contained therein.
- D. Suction lines from wells shall be at least ten (10) feet from all identifiable potential or existing sources of contamination. However, if high water table conditions may submerge the suction pipe during any portion of the year, the suction pipe shall be at least fifty (50) feet from all identifiable potential or existing sources of contamination unless the suction line is double cased from the well to the pump.
- E. Any subsurface pressure water supply line shall be at least ten (10) feet removed from any subsurface wastewater disposal area.
- F. All wells shall be located so as to be accessible for cleaning, treatment, repair, testing, inspection, and any other such work as may be necessary.
- G. All wells shall be protected from surface water run off and flooding, as stated in Section 4.10 of these Regulations.
- H. The Department may require special location and depth requirements for a proposed water supply well to minimize its exposure to potential or existing sources of contamination or interference with other water supply wells. Such requirements may include, but may not be limited to, the submission of drawdown data and capture zone analyses.
- I. Wells subject to flooding, as defined in Section 5.02(A) of these Regulations, are subject to the additional siting requirements contained in Section 5.02(B) of these Regulations.
- J. All public water wells within a housing development, subdivision, or strip development recorded on or after the implementation date of these Regulations shall be located at least one hundred fifty (150) feet within the subdivision's or development's outermost property lines.

4.02 Sanitary Protection During Well Construction

- A During well construction, the well and any water bearing formation shall be protected against contamination by any cause, including surface water drainage.
- B Whenever construction stops before the well is grouted and pumping equipment is installed, the open annular space shall be covered and protected from surface water drainage, and the well casing capped in accordance with the requirements of Section 4.10(D) of these Regulations.
- C In the event that contaminants are encountered during the drilling process, the well driller shall ensure that adequate precautions are taken to decontaminate the drilling and related apparatus to prevent the transfer of contaminants from the site.
- D Whenever contamination is observed during the drilling process, and the contamination was not anticipated or evaluated during the permit application and approval process, the well driller shall cease work and notify the Department immediately.

4.05 Well Screens

- H Screening of more than one aquifer shall not be allowed in any well. The Department may consider an exception to this requirement in the case of wick drain construction, on a case-by-case basis.

4.06 Gravel Packed Wells

- A Gravel which is packed in annular spaces shall be washed with water and free of clay, silt, and organic material.
- B The gravel pack shall not contain iron or manganese in concentrations that will adversely affect the quality of water withdrawn from the well.
- E Gravel packs may not connect different aquifers.

4.07 Well Grouting

Standards for Grouting

1. Well grouting shall be performed to provide a water tight seal through the annular spaces of a well to prevent fluid migration through the annulus.
2. The annular spaces of all wells, except for the wells exempted in Section 4.07(D) of these Regulations, shall be pressure grouted to a depth of at least eighteen (18) feet. Monitor, observation, recovery, and large diameter bored wells may be grouted to a lesser depth depending on the length of the casing. The Department

may require grouting to a greater depth. All wells constructed on a parcel less than one-half acre in size and which is or will utilize an on-site wastewater disposal system shall be grouted to a minimum depth of forty (40) feet.

3. For wells penetrating confined, unconsolidated sand and gravel aquifers, the annular space shall be pressure grouted from at least ten (10) feet into the confining layer, immediately above the source aquifer. Where the confining layer is less than ten (10) feet in thickness, the well shall be pressure grouted entirely through the confining layer. The final grout height shall be in accordance with the requirements of Section 4.07(K)(7) of these Regulations.
4. Wells installed with a minimum casing depth of one hundred (100) feet, as provided for in Section 4.01(B) of these Regulations, shall be grouted from a minimum of five (5) feet above the screen to a point on the casing in accordance with the requirements of Section 4.07(K)(7) of these Regulations.
5. If the annular space cannot be grouted in accordance with these Regulations, the well shall be abandoned in accordance with Section 9 of these Regulations.

Regulations Governing the Allocation of Water

Agency: Department of Natural Resources and Environmental Control
Division: Water Resources
Section: Water Supply
Date: March 1, 1987

1. General Provisions Section

1.01 Statement of Policy and Authority

The availability of adequate water supplies is paramount to the health, safety, and economic welfare of the people of the State of Delaware and its environment. As provided in statute (7 Del. Code, Section 6001), the State, in the exercise of its sovereign power, acting through the Department of Natural Resources and Environmental Control should “control the development and use of the land and water... resources of the state so as to effectuate full utilization, conservation, and protection of the water resources of the State... to make the maximum contribution to the public benefit”. These water resources include water occurring in any water course, lake, aquifer, or any other water body in the State.

The responsibility for management and regulation of these assets rests in the State as trustee of its water resources for the public benefit. The State acts through the Department of Natural Resources and Environmental Control. The Department has the power to adopt, enforce, amend, or repeal pursuant to established administrative procedures, rules, regulations to control, conserve, and manage the waters of the State and the use of those waters in the public interest.

According to statute, the Secretary (of the Department) shall approve the allocation of waters in the State on the basis of equitable apportionment (7 Del. Code, Section 6010 (f)). These regulations provide for the allocation and reallocation of the waters of the State in such a manner as to provide an adequate quantity and quality of water for the needs of the people of Delaware in the present and future.

The State’s position as trustee of water resources was recognized in the Administrative Principles of the 1969 Regulations Governing the Use of Water Resources adopted pursuant to the 1966 Water and Air Resources Act, which stated in section 2.016 “The rights of the public are considered to be usufructuary upon approval by the Department”, meaning the public may make use of the water resources upon approval by the Department. Permits are required for “any activity which may cause or contribute to the withdrawal of ground water or surface waters or both” (7 Del Code, Section 6003 (a)).

1.02 Scope

Water allocation permits are required for all water withdrawals greater than 50,000 gallons in any 24 hour period. (Water withdrawals of less than 50,000 gallons or less in 24 hours are granted with the permits to construct the water facilities with which the withdrawals are

made). The water allocation permit allows the permittee to withdraw water subject to the terms and conditions specified. These regulations prescribe the procedures for obtaining water allocation permits.

1.03 Applicability

- A. These regulations apply to all water users presently holding a water allocation permit or withdrawing or claiming to have authority to withdraw more than 50,000 gallons of water in any 24 hour period from one or more sources combined and to all persons who in the future wish to withdraw more than 50,000 gallons of water in any 24 hour period from one or more sources except in cases of emergency withdrawal.
- B. Compliance with these regulations does not exempt those who make water withdrawals within the Delaware River Basin from the requirements of the Delaware River Basin Commission (DRBC). All water withdrawals having a substantial effect on the water resources of the basin – i.e., averaging more than 100,000 gallons per day over any 30 day period—must have DRBC approval. Application for DRBC approval will be forwarded through the Department and in accordance with the provisions specified in DRBC/Department administrative agreements.

1.07 Enforcement

- A. Any person presently withdrawing or claiming the right to withdraw more than 50,000 gallons of water during any 24 hour period who does not apply for a water allocation permit pursuant to the provisions of sections 1.04 and 6 shall forfeit his claim and privilege to withdraw water.
- B. Any person who fails to comply with these regulations, the Act, or conditions specified in water allocation permits shall be subject to the penalty provisions set forth in the Act.

Section 3. Criteria for Permit Approval

3.03 Surface Water Withdrawal Limits

Withdrawals from surface waters shall be limited to those rates which:

- A. do not interfere with other permitted withdrawals unless compensation for such injury is provided satisfactory to the Department;
- B. allow dilution and flushing of waste discharges and maintain adopted water quality standards;
- C. protect valuable fish and wildlife;

- D. maintain adequate flow over spillways of downstream impoundment's;
- E. prevent intrusion of saline waters where such intrusion threatens ground or surface water supplies; and
- F. provide other ecological, recreational, aesthetic, and private benefits which are dependent upon surface water flows.

3.04 Ground Water Withdrawal Limits

Withdrawals from ground waters shall be limited to those rates which will not cause:

- A. long-term progressive lowering of water levels, except in compliance with management water levels established by the Department;
- B. significant interference with the withdrawals of other permit holders unless compensation for such injury is provided satisfactory to the Department;
- C. violation of water quality criteria for existing or potential water supplies;
- D. significant permanent damage to aquifer storage and recharge capacity; or
- E. substantial impact on the flow of perennial streams below those rates specified for surface waters in the preceding section.

Regulations For Licensing Water Well Contractors, Pump Installer Contractors, Well Drillers, Well Drivers, and Pump Installers

Agency: Department of Natural Resources and Environmental Control
Division: Water Resources
Section: Water Supply
Date: January 1, 1999

Section 16 Responsibilities of Water Well Contractors, Pump Installer Contractors, Well Drillers, Well Drivers, and Pump Installers

16.01 Pursuant to these regulations, licensed water well contractors, pump installer contractors, well drillers, well drivers, and pump installers shall be responsible for the following:

- a. Initiating work only on wells for which proper approval has been granted;
- b. compliance with all applicable regulations and requirements;