

**HAZARDOUS SUBSTANCES PROTECTION OVERLAY DISTRICT  
MODEL ZONING ORDINANCE**

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**Prepared by  
Nashua Regional Planning Commission  
July 2019**

**This project was funded by a grant from  
the New Hampshire Department of  
Environmental Services.**

## **Executive Summary**

This project is inspired by lessons learned from the Elk River incident in Charleston, WV where 10,000 gallons of 4-Methylcyclohexanemethanol were released into the public water supply that left 400,000 people without drinking water for nine days. The cause of this disaster was a structural failure of a poorly maintained storage tank coupled with compromised secondary containment. Compounding factors included a lack of clear chemical inventory and a slow and incomplete notification of the spill.

Within the Nashua Regional Planning Commission (NRPC) region, Pennichuck Water Works is the primary public water system, serving nearly 90,000 people. Currently, Pennichuck is undergoing an aggressive service territory expansion into areas of Amherst and Litchfield, primarily as a result of PFOA contamination of local groundwater sources in these areas. Pennichuck's primary water source is Pennichuck Brook, a tributary of the Merrimack River, together with its associated supply ponds. In addition, three Pennichuck intakes currently draw on the Merrimack River, primarily as a secondary drinking water source during the summer months. Though the importance of Pennichuck Brook and the Merrimack River as water supply sources is widely recognized, threats to these supplies from the use and storage of potentially harmful substances within the watershed are well documented.

A Hydrologic Area of Concern (HAC) defines the portion of the watershed in which land uses are likely to have the greatest impact on water quality. The Lower Merrimack HAC is characterized by numerous potential contamination sources of hazardous pollutants. In January 2015, the NHDES completed a GIS analysis and identified no fewer than 100 EPCRA Tier II Reporting Facilities and/or above ground storage tank locations within northern Nashua and the upstream communities of Merrimack, Litchfield, Londonderry, Bedford, and Manchester. The NHDES also noted that a number of these locations were known to have high health risk and/or ranked high for potential risk of spill/release. These sites are particularly concerning due to their relative proximity to the Merrimack River and upstream location from Pennichuck Water Works surface water intakes.

Within the seven communities in the NRPC region's portion of the Merrimack River watershed, there have been hundreds of documented spills and releases of potentially harmful substances. To date, 196 documented hazardous spills have occurred. Of these, 76 spills occurred within the Hydrologic Area of Concern, and storage of potentially harmful substances along the Lower Merrimack River and its tributaries poses an ever-present risk of discharge into the source waters of the public water supply.



# HAZARDOUS SUBSTANCES PROTECTION OVERLAY DISTRICT MODEL ZONING ORDINANCE

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## Section XXX Hazardous Substances Protection Overlay District

### XXX Purpose

The purpose of this ordinance is, in the interest of public health, safety, and general welfare, to preserve, maintain, and protect from contamination existing and potential public drinking water supply sources from accidental spills/releases. This purpose is to be accomplished by regulating land uses having the potential to affect the quality of source water, public health and ability to treat source water to state and federal drinking water standards. This ordinance is consistent with the stated purposes under RSA 485:1, New Hampshire's Safe Drinking Water Act, and the natural resource goals expressed within the [municipal] master plan.<sup>1</sup> The goals of this ordinance are to:

- A. To preserve the availability of safe drinking water, and prevent the degradation of source water used by a public water system;
- B. To prevent development and land use practices that could contaminate public drinking water sources;
- C. To promote future growth and development of the [Town/City] in accordance with the master plan by ensuring the future availability of public water supplies;
- D. To encourage uses are appropriately and safely located in the Hazardous Substances Protection Overlay District;
- E. To ensure that new development incorporates design features to minimize possible public safety, public health and environmental risks, and
- F. To minimize the likelihood of accidental spills by ensuring best management practices are incorporated into design plans, implemented and enforced.

### XXX District Boundaries

The boundaries of the Hazardous Substances Protection Overlay District include all areas within the any Hydrologic Areas of Concern (HAC)<sup>2</sup> for the Lower Merrimack River as shown on the Map entitled *Lower Merrimack River Source Water Protection Area*, prepared by the Nashua Regional Planning Commission dated \_\_\_\_\_, 2019, and all areas within (300) three-hundred feet of the reference line of the following tributary surface waters:

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<sup>1</sup> Local authority to adopt environmental characteristics zoning is granted under RSA 674:21 Innovative Land Use Controls.

<sup>2</sup> Hydrologic Areas of Concerns (HACs) are defined by NHDES through a technical study for certain water supply rivers as the outer geographic extent a spill or release would flow downstream within that river and reach a surface water intake within six hours.

A. [List surface waters here or in appendix]

**XXX Conflict**

In any case where a provision of this Ordinance is found to be in conflict with a provision of any other ordinance, regulation, code, or covenant in effect in the [Town/City] or with any State statute, rule or code, the provision which is the more restrictive shall prevail.

**XXX Severability**

The invalidity of any section, subsection, paragraph, sentence, clause, phrase, or word of this Ordinance shall not be held to invalidate any other section, subsection, paragraph, sentence, clause, phrase, or word of this Ordinance.

**XXX Definitions**

**Best Management Practices:** measures and actions as required under N.H. Code of Administrative Rule, Env-Wq 401 Best Management Practices for Groundwater Protection to prevent the release of regulated substances.<sup>3</sup>

**Buffer:** A buffer is a land surface area within which no development or alteration of the natural landscape is allowed.

**Containment:** Physical systems or operational practices that are used to prevent the release of Regulated Substances to the environment. Physical containment systems should be capable of containing 110 percent of the volume of the largest container or storage system.

**Contamination:** an impairment of water quality by chemical, biological, or other extraneous matter affecting the potential or intended beneficial use of water.<sup>4</sup>

**New Development:**

For the purposes of this Ordinance, *New Development* means any application for subdivision or site plan approval; any new construction that involves grade modification, excavation, blasting, land clearing, or the deposit of earth, rocks or other materials that places an additional load upon the soil, and any new construction that requires a building permit that involves new construction. New Development within the Hazardous Substances Protection Overlay District includes, but is not be limited to:

- A. New Buildings or building additions;
- B. Parking lots and parking structures;
- C. Roads and driveways;

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<sup>3</sup> New Hampshire Department of Environmental Services, "Environmental Factsheet: Best Management Practices (BMPs) for Groundwater Protection."

<sup>4</sup> United States Environmental Protection Agency, "Groundwater Protection Overlay District - Example Ordinance."

- D. Utilities and associated infrastructure, either above or below ground;
- E. Irrigation water management facilities, retention ponds, and other storm water management infrastructure systems, and
- F. Individual water supplies (wells), small public/private water systems and sanitary disposal systems (septic tanks, leach fields and drain fields)<sup>5</sup>

*Note: other restrictions may apply to new development within the Hazardous Substances Protection Overlay District including the provisions of Env-DW 902: Protecting the Purity of Surface Water Sources of Drinking Water.*

**Outdoor Storage:** storage of materials where they are not protected from the elements by a roof, walls, and a floor with an impervious surface.

**Petroleum Products:** Fuels (gasoline, diesel fuel, kerosene, and mixtures of these products), lubricating oils, motor oils, hydraulic fluids, and other similar products, but not including liquefied petroleum gas;

**Regulated Container:** any device in which a regulated substance is stored, transported, treated, disposed of, or otherwise handled, with a capacity of greater than or equal to 5 gallons, other than a fuel tank attached to a motor vehicle for the sole purpose of supplying fuel to that motor vehicle for that vehicle's normal operation.

**Regulated substance:** any substance defined as a Regulated Substance under NHDES Env-Wq 401.

**Reference Line:** For the purposes of this ordinance, the term reference line is defined in conformity with the New Hampshire Shoreland Protection Act as being the surface elevation listed on the Consolidated List of Water Bodies subject to the Shoreland Water Quality Protection Act as maintained by the NH Department of Environmental Services for all Lakes, Ponds and Impoundments greater than 10 acres and as the ordinary high water mark; a line on the shore, running parallel to the main stem of the river, established by the fluctuations of water. It is indicated by physical characteristics such as a clear, natural line impressed on the immediate bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. Where the ordinary high-water mark is not easily discernible, the ordinary high-water mark may be determined by NHDES.

**Secondary containment:** Physical structures such as curbing, trays, double-walled tanks, spill pallets, or other structural controls used to prevent the release of a spill of Regulated Substances to the environment. Physical containment systems should be capable of containing 110 percent of the volume of the largest container or storage system within the containment area.

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<sup>5</sup> Nashua Regional Planning Commission, "A Model Ordinance for a Pipeline Safety Planning Overlay District."

**Surface Waters:** Those portions of waters of the state, as defined by RSA 482-A:4 and Part Env-Wt 101.99, as amended, of the New Hampshire Code of Administrative Rules which have standing or flowing water at or on the surface of the ground. This includes but is not limited to streams, lakes, ponds, and wetlands, including marshes, water-courses and other bodies of water, natural or artificial.<sup>6</sup>

**Toxic or Hazardous Materials/Substances:** Any substance or mixture of such physical, chemical, or infectious characteristics as to pose a significant, actual or potential hazard to water supplies, or other hazard to human health, if such substances or mixtures thereof were discharged to water supply source waters. Toxic or hazardous materials/substances include, without limitation, volatile organic compounds, petroleum products, heavy metals, radioactive or infectious wastes, acids and alkalis and include products such as pesticides, herbicides used in a non-agricultural activity, solvents and thinners, and such other substances as defined in New Hampshire Code of Administrative Rules Env-Wm 1403, 1304.5 Groundwater Management and Groundwater Release Detection Permits.

**Water Supply Intake Protection Area:** Critical lands adjacent to public water supply intakes on surface waters.

### **XXX Uses and Restrictions**

#### **A. Permitted Uses**

All uses and accessory uses permitted by right or allowed by special exception or conditional use in the underlying district are permitted unless specifically prohibited or modified by the requirements of this ordinance.

#### **B. Conditional Uses**

The following uses are permitted only as Conditional Uses within the Hazardous Substances Protection Overlay District subject to the conditions and requirements below:

1. Animal feedlots;<sup>7</sup>
2. Automotive, marine and similar service and repair shops including gasoline service stations;
3. Businesses involved in the practice of dyeing, printing, or photo processing;
4. Dry-cleaning establishments;
5. Chemical processing/storage facility;
6. Machine shops;
7. Metal plating, finishing, and fabricating facilities;
8. Wood preserving/treating facility;

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<sup>6</sup> Town of Amherst, NH, "Ordinances, Laws, and Regulations for the Town of Amherst."

<sup>7</sup> New Hampshire Department of Environmental Services, "Watershed Rules: Env-DW 902."

9. Disposal of liquid, septage or leachable wastes from non-residential subsurface disposal systems.
10. Other uses involving regulated substances in quantities that are regulated and/or reported to state or federal agencies;
11. On site handling, disposal, storage, processing or recycling of hazardous or toxic materials or wastes in amounts reportable to or registered with a state or federal agency;
12. Outdoor or enclosed storage or use of road salt or other de-icing chemicals;

The uses listed above may be permitted upon approval by the Planning Board subject to the following conditions:

1. The use is permitted in the underlying zoning district;
2. A satisfactory Spill Prevention, Control and Countermeasure Plan (SPCC) has been provided as described in Section XXX of this ordinance;
3. Sufficient containment and secondary containment are provided for all tanks or storage areas designed to contain regulated substances if any;
4. Sufficient evidence is provided to ensure the complete separation of any tanks or storage areas for regulated substances from source waters or stormwater management systems discharging directly or indirectly into any surface water described in Section XXX herein, and
5. A satisfactory Maintenance and Inspection Plan is provided consistent with the requirements of Section XXX herein.

### **C. Prohibited Uses**

The following uses are prohibited in the Hazardous Substances Protection Overlay District, except where permitted to continue as a non-conforming use:

1. Disposal of solid waste including brush or stumps;
2. Junkyards and salvage yards;
3. Storage and treatment of hazardous material, except rehabilitation programs authorized by a government agency to treat hazardous material present at a site prior to the adoption of this ordinance;
4. Industrial uses which discharge contact type process waters on-site. Non-contact cooling water is permitted;
5. Storage of more than 660 gallons of a regulated substance in one container, or storage of more than 1,320 gallons of a regulated substance in multiple containers.
6. Any use that is subject to federal reporting under the Emergency Planning and Community Right to Know Law.<sup>8</sup>

### **D. Exemptions**

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<sup>8</sup> "Toxics Release Inventory (TRI) Program: TRI-Covered Industry Sectors."



The following uses are exempt from the provisions of Source Water Protection Overlay District:

1. Residential Uses: All residential uses including any residentially related use of Regulated Substances for ordinary and customary cleaning, maintaining, pest control, or any other use by households;
2. Construction: construction work that lies entirely within an existing building footprint, such as residential or commercial remodeling projects, and minor modifications to existing structures that do not involve significant on-site land disturbance or changes to off-site improvements;
3. Retail/Wholesale Activities: Retail and Wholesale establishments that store or handle Regulated Substances for resale in their original unopened containers provided that no individual container of Regulated Substances exceeds five (5) gallons if liquid, or fifty (50) pounds if solid;
4. Office Use: Office uses, including the use of Regulated Substances for the ordinary and customary maintenance and cleaning of office buildings, and
5. Emergency Services: Fire, Police, Emergency Medical Services and County Emergency Management services and facilities.

**E. Non-Conforming Uses**

Any non-conforming use may continue and may be maintained, repaired and improved, unless such use is determined to be an imminent hazard to public health and safety. No non-conforming use may be expanded, changed to another non-conforming use, or renewed after it has been discontinued for a period of twelve (12) months or more.

**XXX Buffers Required**

A vegetated, non-disturbance buffer not less than three-hundred (300') feet wide shall be maintained along the edge of the Merrimack River and Pennichuck Brook and not less than one-hundred (100) feet from all other surface waters shall be maintained. The required buffer area distance shall be measured from the Reference Line as defined herein. The buffer area shall be maintained in its natural state to the maximum extent possible and shall be planted with an erosion resistant vegetative cover in those areas that have been disturbed. *Note: smaller buffer requirements may be necessary in urbanized areas where significant development has historically existed in close proximity to surface waters.*

- A. No development shall be permitted within the required buffer area, except for the following:
  1. Development which is appurtenant to the production, supply, distribution or storage of water by a public water supplier.

2. Roads, driveways, utilities, or stormwater management structures, consistent with state Alteration of Terrain (AoT) requirements, and provided the following performance standards are met as determined by the Planning Board:
  - a. Road and main-line utility crossings are limited to the shortest path possible and that which causes the least amount of land disturbance and alteration to the hydrology of the watershed.
  - b. Any stormwater management facilities located within the buffer are sited within the context of a larger watershed stormwater management program.
  - c. No more land is to be disturbed than is necessary.
  - d. Indigenous vegetation is preserved to the maximum extent possible.
  - e. Wherever possible, disturbed areas are planted with trees and shrubs.
  - f. Erosion and control or runoff control measures as deemed necessary to protect source water quality.
  
- B. A reduction in the required buffer width down to an absolute minimum of one hundred-fifty (150) feet along the edge of the Merrimack River and Pennichuck Brook and fifty (50) feet along other surface waters may be granted by the Planning Board upon presentation of sufficient documentation and justification that even with the reduction, the same or a greater degree of water quality protection would be afforded as would be with the full-width buffer. Note that within Water Supply Intake Protection Areas, all discharges must be setback at least 100 feet from water supply source waters or associated tributaries.

### **XXX Performance Standards**

The following Performance Standards apply to all uses in the Source Water Protection Overlay District unless specifically exempted under Section XXX herein:

- A. A stormwater management plan is required that identifies pollution prevention measures necessary to avoid the release of regulated substances into stormwater;
- B. Animal manures, fertilizers, and compost must be stored in accordance with Manual of Best Management Practices for Agriculture in New Hampshire, NH Department of Agriculture, Markets, and Food, (June 2011) and any subsequent revisions;
- C. All regulated substances stored in containers with a capacity of five gallons or more must be stored in product-tight containers on an impervious surface designed and maintained to prevent flow to exposed soils, floor drains, and outside drains;
- D. Facilities where regulated substances are stored must be secured against unauthorized entry by means of a door and/or gate that is locked when authorized personnel are not present and must be inspected weekly by the facility owner;
- E. Outdoor storage areas for regulated substances, associated material or waste must be protected from exposure to precipitation and isolated from any stormwater drains, swales or retention ponds;
- F. Secondary containment must be provided for outdoor storage of regulated substances in regulated containers and the containment structure must include a cover to minimize

accumulation of water in the containment area and contact between precipitation and storage container(s);

- G. Containers in which regulated substances are stored must be clearly and visibly labeled and must be kept closed and sealed when material is not being transferred from one container to another;
- H. All transfers of petroleum from delivery trucks and storage containers over five gallons in capacity shall be conducted over an impervious surface having a positive limiting barrier at its perimeter.
- I. Facilities where regulated substances are stored in reportable quantities must develop a notification plan in accordance with the requirements of RSA 485-A:13, I (c).<sup>9</sup>

### **XXX Spill Prevention, Control and Countermeasure Plan**

Conditional uses, as described under Section XXX herein, using regulated substances or any uses that store Regulated Substances in excess of five (5) gallons if liquid, or fifty (50) pounds if solid shall submit a spill control and countermeasure (SPCC) plan to the Planning Board who shall determine whether the plan will adequately prevent and contain releases from ordinary or catastrophic events such as spills, floods or fires that may cause large releases of regulated substances. The SPCC shall include:

- A. A description of the physical layout and a facility diagram, including all surrounding surface source waters;
- B. Contact lists and phone numbers for the current facility response coordinator(s), cleanup contractors, and all appropriate federal, state, and local agencies who must be contacted in case of a release to the environment;
- C. A list of all regulated substances in use and locations of use and storage;
- D. A prediction of the direction, rate of flow, and total quantity of regulated substance that could be released where experience indicates a potential for equipment failure;
- E. A description of containment and/or diversionary structures or equipment to prevent regulated substances from infiltrating into the ground;
- F. Detail inspection and preventative maintenance protocol of equipment to ensure proper operation and to check for leaks or evidence of discharge (stains);
- G. Clear procedures to ensure that needed repairs are completed and provide temporary leak containment until such repairs can be implemented;
- H. A list of positions within the facility that require training to respond to spills of regulated substances;
- I. Prevention protocols that are to be followed after an event to limit future large releases of any regulated substance;
- J. Spill prevention, control, and countermeasure plans are to be updated whenever changes occur in the types of chemicals used or stored onsite.

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<sup>9</sup> New Hampshire Department of Environmental Services, "Emergency Response Planning Guide."

### **XXX Maintenance and Inspections**

All uses permitted as a conditional use or that otherwise use, manage or store Regulated Substances in excess of five (5) gallons if liquid, or fifty (50) pounds if solid shall develop a Maintenance and Inspection Plan that provides:

- A. Internal protocols for managing the use, transport or storage of regulated substances;
- B. Maintenance and inspection protocols for containment and secondary containment facilities;
- C. Maintenance and inspection protocols for on-site stormwater management systems;
- D. Contact lists of key personnel;
- E. Emergency response and reporting protocols for any discharge or spill of a Regulated Substance;
- F. An affirmation that the [City/Town] through its designated inspectors are authorized and empowered to make inspections at normal operational hours of all facilities or activities regulated by this Ordinance in order to determine that all regulated substances are stored and managed in a manner consistent with the requirements of this ordinance including any required containment, secondary containment or to determine whether a discharge has occurred, and
- G. An Affirmation that Inspections may be conducted upon 24-hour notification except that inspection may be conducted without notice provided there is sufficient evidence that a discharge has occurred or is occurring.

## References:

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