

# **MUNICIPAL ASSISTANCE PROGRAM FOR AQUIFER PROTECTION**

Prepared by:

Source Water Protection Committee  
CT Section American Water Works Association

In cooperation with the

Department of Environmental Protection  
Bureau of Water Protection and Land Reuse  
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## **PREFACE**

This document has been prepared pursuant to Section 22a-354y of the Connecticut General Statutes (CGS), which requires that water companies serving 10,000 or more customers with wells in stratified drift aquifers provide a municipal assistance program to the municipalities in which those wells are located. This document serves as guidance for water utilities on how they may assist municipalities that are responsible for implementing aquifer protection land use regulations under the State of Connecticut's Aquifer Protection Area Program. The Aquifer Protection Area Program provides for special protection of stratified drift aquifers in Connecticut serving certain existing public water supply wells or those identified for future development. This manual outlines the process for implementing a municipal assistance program which includes recommendations for site plan reviews, evaluation of risks and advice on procedures for dealing with hazardous material spills in aquifer areas. This document is not intended to serve as a reference for interpreting environmental regulations. Detailed information concerning environmental regulations should be obtained by consulting the applicable regulation, the appropriate regulatory agency, legal counsel, or other sources.

## **INTRODUCTION**

This document is intended to provide water utilities with a basic understanding of the process for implementing a municipal aquifer protection program, provide guidance on how they may help municipalities fulfill the requirements of the Aquifer Protection Area Program and minimize the potential negative impacts of development on the quality and quantity of groundwater used for public drinking water supplies. This document addresses the requirements that municipalities have for reviewing registrations of existing activities to ensure compliance with accepted Best Management Practices (BMP's), for approving stormwater management plans and hazardous materials management plans, reviewing permits for new activities and determining non-regulated activities. Other guidance materials include site inspection guidelines, a land use risk assessment methodology, and guidelines for preparing an emergency spill response plan. Water utilities should also refer to the Aquifer Protection Area Land Use Regulations that have been approved by the Department of Environmental Protection (DEP) and the municipality's adopted aquifer protection area regulations.

## **I. SITE PLAN REVIEW**

### **I. OVERVIEW**

This section provides town and water utilities with guidance on how to review applications to determine compliance with the Aquifer Protection Regulations and technical review process including site inspections.

### **II. REGISTRATION AND PERMIT APPLICATION REQUIREMENTS**

The aquifer protection land use regulations become effective upon adoption of the regulations and designation of the aquifer protection area by the municipality. Regulated activities in existence as of the effective date of the regulations must be registered with the municipality's Aquifer Protection Agency ("Agency"), unless the regulated activity is determined by the Commissioner of the DEP to be exempt from the regulations. Newly proposed regulated activities on new sites are prohibited within Aquifer Protection Areas. Anyone proposing to change from one regulated activity to a different regulated activity or adds a regulated activity to an existing registered activity must apply for a permit. Registrations and permit applications must be submitted on forms prescribed by the DEP and must be filed with the Agency or the Department of Environmental Protection. The Department of Public Health and the water utility receive a copy. In addition, applicants proposing non-regulated activities need to notify the Agency or duly authorized agent in order for the agent to determine if the activity is a non-regulated activity.

#### **A. Registration of Existing Activities**

Within 180 days after the adoption of the municipal aquifer protection regulations, anyone conducting a regulated activity that requires registration must register that activity with the Agency. Registration information includes information regarding the business and property owner, property location and a list of the regulated activities occurring on the property. In addition, the person registering the activity needs to certify the activity is being conducted with best management practices as outlined in the regulation.

Each registration is reviewed to determine its completeness. If the registration is not complete, the Agency must notify the registrant within 180 days of receipt of the incomplete registration. If the registrant is not notified of an incomplete registration within 180 days of the submitted registration, the registration will automatically be determined to be complete. The Agency may also request submittal and certification of a stormwater management plan and a materials management plan.

Due to the 180 days timeframe for submitting registrations, it is advisable that municipalities develop an inventory of the existing regulated activities within the aquifer protection area that will identify the sites that may have to register. This can be started once the final (Level A) aquifer map is approved by DEP. This inventory will also assist in program notifications and determining regulated activities that have not registered.

### **B. Newly Proposed Activities**

Anyone wishing to add a new regulated activity to an existing registered site must submit a permit application to the Agency. The Agency provides an application form to obtain a permit. The form should clearly identify all information the applicant must prepare or document for submittal to the Agency. Necessary revisions or additional information may be required. The applicant is required to provide the water utility with a copy of the application, site plans and other supporting documents. The applicant should also be made aware of the entire procedure and the type of information to be submitted in order to reduce delays related to incomplete information.

### **C. Non-Regulated Activities**

The regulations have identified a list of activities which have been determined to be non-regulated including agriculture, residential use, storage or use of small amounts of hazardous materials (two and one-half gallons containers less than 55 gallons total). Also subject to conditions of less than 110 gallon maximum, activities located inside a sewer building that use no more than 10% of the floor area, and does not involve repair/maintenance of engineers or underground storage. Dispensing of oil from above-ground storage tank with a capacity of 2000 gallons or less with containment conditions is allowed. The Agency can require submission of a form with sufficient information for the Agency to determine if the activity is a regulated or non-regulated activity. The applicant should also provide the water utility with a copy of the form and other supporting documents.

## **III. Technical Review Process**

A technical review process can be used by water utility staff to review registrations of existing activities; applications for a permit to add a regulated activity to a registered facility where a registered regulated activity occurs; the conversion of one regulated activity to another regulated activity; or non-regulated activity. The process will help the water utility and the Agency identify the possible impacts of regulated or non-regulated activities on the aquifer and determine if best management practices are being used to reduce the potential risks to the groundwater. The process involves gathering data concerning the potential impacts of an existing or proposed regulated activity or non-regulated activity on the aquifer, evaluating the information gathered, and producing a

concise report summarizing existing and proposed activities, potential impacts to the aquifer, inconsistencies with applicable regulations, and comments for consideration by the municipal Aquifer Protection Agency in making a decision.

### **A. Information Review**

Once a registration or permit application has been deemed complete, the reviewer can then determine if the use and site activities are in conformance with the aquifer protection area regulations and to begin to evaluate the proposal to assess the potential impact of the proposed project upon the aquifer protection area. In addition to the registrant's or applicants' submitted information, additional reference material can be useful. Such information could include the following:

- **Maps** - U.S.G.S. topographic, aquifer protection area (APA), soil surveys, municipal sanitary sewer/ stormwater systems, and watersheds. A set of APA maps should be maintained in the Agency's office and made available to applicants.
- **File review** - Files located at State and local agencies, water utilities, etc., including files from the Planning and Zoning Commission, Inland Wetlands Commission, Fire Marshal's office, Building office, local health department, DEP, water utility inspection or site plan review files, etc. These files often contain valuable information relating to site history such as permits, the presence of underground storage tanks, septic system design and maintenance, and enforcement actions.
- **Background information on proposed activities** - Types of processes, materials and design standards associated with the proposed site activities.
- **Reference materials** - Manuals or guidebooks concerning BMP's for aquifer protection, hazardous materials, stormwater management, etc.
- **Personal communications** - Discussions with staff or outside contacts familiar with the site and/or site activities, such as; municipal planners and enforcement officers, local health agencies, fire marshals, water utility environmental staff, State/federal environmental regulatory staff, and other environmental/land use experts. Any questions by the applicant should be communicated and resolved as soon as possible. Depending on the complexity of the proposed activity, it may be helpful, when deemed necessary, to schedule meetings between Agency staff, the applicant, and other individuals related to the project. This will allow for the exchange of ideas and open up communication lines. In addition, concerns, questions, and potential problems regarding the project can be discussed and resolved.

## **B. Site Review**

The reviewer may want to schedule a site visit with the APA Agency staff and owner after receiving a copy of the registration or permit application for a regulated activity. The site visit is an opportunity to acquire a visual understanding of the existing facility or a facility where changes are proposed and to determine if additional information is needed for the registration or application process. During the site visit, any natural or man-made site features that may influence water quality should be noted. Site features and activities to consider include topography, indoor and outdoor drainage systems, chemical and fuel storage and handling areas, waste storage areas, and waste and wastewater disposal methods. This will identify site –specific information to be used in making recommendations for project design, management practices, facility operation and maintenance, stormwater management and corrective actions, which are intended to minimize the risk of groundwater contamination. Any signs of illegal disposal of hazardous materials or contamination from past use or adjacent properties should be noted. Site visits often generate additional questions and informational needs. Following the site visit, the reviewer should discuss any additional informational requirements with the Agency staff and the applicant. Caution should always be used when doing a site visit to ensure there is prior permission from the owner, it is a reasonable hour and excludes private residences.

## **C. Evaluation**

Once all the submitted information has been reviewed and a site visit conducted, if any deficiencies relating to groundwater protection have been identified they should be reported to the Aquifer Protection Agency. Both existing and proposed site activities should be evaluated. Examples of actual or potential adverse groundwater impacts include: lack of adequate stormwater management controls, improper waste disposal practices, lack of secondary containment for fuel and/or chemical storage, illegal wastewater discharges, evidence of previous chemical releases to the environment and lack of adequate fuel and/or chemical handling procedures. A systematic method of evaluating regulated activities should be followed to ensure consistency among reviews. (Refer to Appendix A- Regulated Activity Evaluation Form).

## **D. Report**

The information obtained from the technical review process should be submitted to the Agency, with a copy to the applicant. If necessary the report should include the following:

1. Reference to the project address, title, the date of the site plans and information reviewed, and the date the information was received.

2. Description of existing and proposed site conditions and activities, including land use activities, type of ground coverage (i.e.; asphalt pavement, gravel parking area, lawn), structures, parking areas, water resources such as ponds or streams on the property, or nearby fuel and chemical storage facilities, underground storage tanks, stormwater drainage systems, sanitary systems, floor drains, types and volumes of hazardous materials and hazardous wastes, and any other information the reviewer believes might be pertinent to aquifer protection.
3. Additional Information requirements, particularly the need for stormwater or materials management plans for activities that are being registered.
4. List of items that need to be addressed to comply with APA regulations and required BMPs. Documents for BMP's and other management practices to lessen the potential impacts of land use activities to an acceptable level are listed in Appendix B.
5. List of activities- the reviewer should identify any existing situations on a site that pose a threat to groundwater quality and/or violate existing aquifer protection or other environmental regulations. The technical review process can be a valuable opportunity to get existing problems corrected, as municipal agencies sometimes stipulate corrective site improvements as conditions of permit approval. If the proposed project is acceptable 'as is' and the reviewer feels that no modifications are necessary, the application can simply be accepted without additional comments. (See Hazardous Risk Assessment Appendix C.)

## **II. AQUIFER REVIEW GUIDELINES**

### **I. INTRODUCTION**

This section is intended to serve as a guide for conducting inspections of land use activities within aquifer protection areas to identify conditions that may negatively impact the quality of groundwater. This document can be used by both water utility personnel and APA Agency staff in accordance with the municipal Aquifer Protection Area Regulations.

Aquifer inspection is one part of a multi-faceted approach for the protection of groundwater used for public drinking water supplies. Other important components include site plan and application reviews, water quality monitoring, and cooperative land use planning and education efforts with water utilities, municipal officials and state agencies.

#### **A. Purpose**

Inspections are performed to identify existing and potential conditions that could impact the quality of groundwater. This is accomplished by determining if facilities are in compliance with Aquifer Protection Areas (APA), and other environmental regulations, and suggesting best management practices and/or procedural changes in order to mitigate potential risks to the aquifer. In addition, aquifer inspections educate and increase the awareness level of property owners on water quality issues and other environmental regulations. Property owners can become an asset in source protection through education on pollution prevention and water quality concerns.

#### **B. Procedure**

Inspections may be initiated as a result of one of the following:

- a. Review of the land use inventory of the aquifer protection area to determine potential regulated activities
  - b. As part of a routine inspection program
  - c. Response to a complaint
  - d. Review of an application
1. Routine Inspections
- An inspection program targets high-risk sites, such as automotive service

stations, fuel or chemical storage sites and industrial properties, and should concentrate on those sites closest to the wellfield. Prioritizing inspection sites will allow for the wisest use of limited resources. A general "windshield" survey of the aquifer should be conducted at least on an annual basis. Two people together will allow the passenger to view aquifer maps, identify boundaries, and observe changes or developments on properties.

The process for performing inspections should include the following:

- Identification of site within APA - Determine sites located within the aquifer protection area. A general survey of the aquifer should be conducted at least on an annual basis.
- Site file review - Review of existing APA, planning, and zoning files on the site to be inspected. In addition, this could include Department of Environmental Protection (DEP) files, the local or regional health department and local water utility files.
- Review of on-site activities - Viewing the activities that occur on the property and the processes involved in those activities will allow the inspector to ask appropriate and pertinent questions and evaluate the answers to those questions. Generic background information on industrial activity can be obtained from trade journals and DEP publications such as Best Management Practices for the Protection of Groundwater, DEP, 1992. The 1989 Aquifer Protection Task Force Report Land Use/Activities of Concern, also lists land uses and the activity or chemicals of concern to groundwater.
- Inspections - The local aquifer protection agent and health/zoning department should consider contacting the water utility or water department to request their assistance in inspecting a facility. This would improve the inspection by having people with different areas of expertise present and would add an additional set of eyes to observe site conditions.
- Educational Materials - Obtain pamphlets and brochures concerning septic system maintenance, proper hazardous waste disposal, environmentally friendly cleaners/pesticides, and general information concerning aquifers and groundwater. These materials should be distributed during the inspection.

Inspectors should be familiar with statutes and guidelines which apply to aquifer protection, including the Aquifer Protection Area Regulations, State

and local environmental regulations concerning underground storage tanks, floor drain and wastewater discharges, chemical handling and disposal and the Public Health Code.

Local police departments should be informed of routine inspections within a given area. Canvassing a neighborhood may lead residents to report suspicious activities to the police. Proper identification and prior contact with the police department will alleviate potential negative interactions with local departments.

## 2. Complaint Inspections

Inspections conducted in response to complaints should follow the same procedure as regular inspections, including location of site within APA, review of files and contact with other interested agencies.

Cooperation of the property or business owner is necessary in order to perform an investigation of a complaint. The inspector responding to a complaint may find himself in an antagonistic situation. A calm and professional approach in a potentially hostile environment is necessary. Complaint inspections should be performed with two inspectors, one acting as the spokesperson and one as an observer/witness.

If access onto a property is denied, politely leave without aggravating the business or property owner. This refusal should be documented in writing, and followed-up with a written request to inspect the property. Copies of the letter should be mailed to the property owner (if different), the DEP, Department of Public Health (DPH), and the local health department. Make a follow-up phone call to determine if an alternate inspection time can be arranged; if not, request assistance from the local health department. If an imminent contamination problem is known or suspected on the property, also seek assistance from the DEP. Municipal APA regulations may include provisions for inspecting properties where access was denied and the site is subject to a registration or permit.

### **C. Documentation/Follow-up**

Observations made during the inspection should be recorded on an inspection form (see Appendix A). This will assist in evaluating the risks of the site to the aquifer. Documentation of existing conditions with photographs may be very helpful in the event formal action is taken. Photographs should be labeled with the location, date, time, a brief description, and the signature of the inspector. This will assist regulatory agencies by allowing them to examine the problem prior to conducting a site visit.

Many water quality concerns can be remediated by the business or property owner without the need for regulatory intervention. Outdoor storage of liquid chemicals can be moved inside. An outdoor storage tank can be equipped with secondary containment.

Environmental concerns that cannot be corrected through Best Management Practices (BMPs) or procedural changes, such as failing septic systems, floor drains with unknown discharges, leaking tanks and chemical spills, need to be brought to the attention of a regulatory agency. Depending upon the type of environmental problem, regulatory agencies such as the DEP, local Aquifer Protection Agency, local health department, planning and zoning and inland wetlands commissions may need to be notified. Property/business owners should be informed as to who will be notified in the event a water quality concern is noted on the property.

Every effort should be made to keep the owner informed as to what steps are to be taken after an inspection. Telephone calls to an agency should be followed by letters, with copies going to the owner. Contact these agencies periodically to determine the status of these violations.

#### **D. Record Keeping**

A file should be maintained for each site inspected. This will reduce the need to repeatedly collect background information and over time will give a historical account of the site. The site file should contain a written account of inspections, background information on the site and correspondence concerning the site.

Information obtained during an inspection should include:

##### **1. Site Background Information**

- \_ Names, addresses and phone numbers of business owner, property owner and contact person for inspections
- \_ Address of inspection site
- \_ Inspectors name and date of the inspection

##### **2. Facility Information**

- \_ Type of business and activities that occur on-site
- \_ Information on water supply, sewage disposal, type of heating fuel, and the number and locations of buildings

- A hand drawn location map to assist in identifying locations of buildings, storage areas, water supply wells, septic system leaching fields, underground storage tanks, etc.
3. Chemical Handling
- Types and amounts of chemicals stored on-site, storage and transfer areas, types of waste streams and disposal methods
  - Age, size, location and contents of underground and above-ground tanks and distribution lines
4. Drainage Information
- Location and discharge points for floor drains, sumps, slop sinks and other wastewater sources should be identified
  - Stormwater management system, including discharge points, catch basins and drywells, should be examined

## **II. REVIEW ELEMENTS**

Aquifer inspections of industrial and commercial facilities have several common elements. These elements can contribute to the degradation of water quality. They should be evaluated to determine if they are, or could possibly cause, a water quality problem.

The following elements should be reviewed during an aquifer inspection:

### **A. Heating Source**

If oil is used, determine whether the tank is stored above or below the ground. The age, size, type and location of the oil tank and distribution lines should be identified.

#### **1. Above-ground Storage Tanks**

Tanks stored above ground outside should have secondary containment designed to contain 110 percent of the volume of the tank. The storage area should be within a structure or roofed to prevent rain water from collecting in the containment area. Tanks in basements should be situated on an impervious floor. A basement sump pump can be an

avenue for oil to enter the environment in the event of a leak. Oil should be prevented from entering a sump or floor drain by means of a berm around the tank. Tanks should have level indicators and overflow protection.

## 2. Underground Storage Tanks

Nonresidential underground tanks for on-site heating or intermittent stationary power production, with a capacity of 2,100 gallons or more, must be registered with the DEP and must comply with all technical standards and testing requirements in the registration regulations (Sec 22a-449(d)-(1) of the Connecticut General Statutes). In addition, all underground tanks, of any size containing petroleum liquids other than those used for on-site heating or intermittent stationary power production (e.g., waste oil, oil for resale, and gasoline), must be registered with the DEP and must also comply with all technical standards testing and inventory requirements. Refer to the DEP's guidance booklet regarding nonresidential underground storage tank regulations for further information; or contact the DEP's Underground Storage Tank Program. Also check for compliance with any applicable local and federal regulations for underground storage of fuel, oil and chemicals. Underground storage tanks for #2 fuel oil located greater than 500 feet from the well field are not regulated under the Aquifer Protection Area regulations.

## **B. Drainage Systems**

### 1. Interior

Determine if floor drains are present and, if so, note their discharge point. Discharges other than to the sanitary sewer or holding tank are illegal. Domestic wastes from bathroom and kitchen floor drains are allowed per the Public Health Code. Note any violations. In many cases, e.g., vehicle maintenance areas, floor drain discharges to the sanitary sewer require a DEP General Permit and pretreatment in a 1,000-gallon oil and grit separating tank prior to discharge.

Holding tanks may, in some cases, also be regulated under State DEP Underground Petroleum Storage Tank Regulations.

### 2. Exterior

Inquire as to the drainage discharge points for swimming pool backwash water and water softeners, if present. It is illegal to discharge these wastes into septic systems.

Contact the DEP for further information and guidelines on swimming pool wastewaters. Examine stormwater catch basins for their discharge points and evidence of illegal disposal. Stormwater discharge to drywells or leaching structures should be examined and limited to clean water, such as from roofs. Stormwater contact with materials and wastes should be prevented. Stormwater discharge including overland flow, swales, open channels, basins, roofs and parking lots should discharge to the land surface.

### **C. Chemical Handling and Storage**

Inquire as to the facilities hazardous waste generator status. Hazardous wastes need to be manifested when transported to a disposal site. Material and wastes should be stored within secondary containment. Note any signs of leakage or spills. Stormwater contact should be prevented. Recommend that spill containment equipment be stored on-site and that employees be trained to deploy it. Check nearby catch basins, streams etc. for signs of illegal discharges such as oil slicks, and hydrocarbon and septic or chemical odors.

### **D. Outside Observations**

Look at general conditions of the property, and note conditions of refuse storage and outdoor work areas. Certain outdoor activities, such as minor maintenance, may be of little concern on paved soils but inappropriate on unpaved soil. On-site equipment such as steam cleaners or power washers, should not be used outdoors on a regular basis and can pose a water quality threat to the aquifer.

### **E. General Survey**

A general survey is an overall inspection of the aquifer. It consists of a drive-by "windshield survey" of the entire aquifer protection zone to identify changes in land use or other activities, water courses, aquifer boundaries, vacant or non-developed lots susceptible to dumping.

#### **1. Dumping**

Check dirt and logging roads or vacant lots for illegal dumping, abandoned motor vehicles and parts, fuel or waste drums, and other debris.

## 2. Water Bodies

Note the existence of nearby ponds or watercourses, and inspect for possible impacts from activities occurring on the inspected property. Problems noted on streams and ponds can be indicators of problems upland.

## 3. Erosion and Sedimentation

Look for signs of erosion and sedimentation which may be affecting nearby watercourses or drainage systems. Although not an aquifer issue, work with the property owner, local inland wetlands and zoning agencies, and the Natural Resource Conservation Service to see that any problems are corrected. Inspect control measures for proper maintenance. Note any violations.

## 4. Stormwater

The basic stormwater principals for Aquifer Protection Areas are to prevent inadvertent pollution discharges/releases to the ground, while encouraging recharge of stormwater where it does not endanger groundwater quality. Prevent illicit discharges to storm water, including fuel/chemical pollution releases to the ground. Provide necessary pavement in stormwater “hot spots” areas where potential pollutant release to the ground is high including: storage and loading areas, fueling areas, intense parking areas and roadways. Minimize impervious coverage and disconnect large impervious areas with natural or landscape areas. Direct paved surface runoff to aboveground type land treatment structures including sheet flow, surface swales, depressed grass islands, detention/retention and infiltration basins, and wet basins. (See Appendix G-Stormwater Management Fact Sheet)

## 5. Construction/Development Property

Significant storage of fuel and maintenance chemical fluids for excavation vehicles and equipment (as well as any other hazardous materials) should be off-site (out of the Aquifer Protection Area). If necessary, moveable fuel storage tanks should be stored on an impervious surface. If possible, they should be stored in a secured area. Spill response equipment should be available on-site for spills and leaks.

## 6. Septic systems

Chemicals should not be disposed of via the septic system. Chemicals can pollute groundwaters and inhibit the biological breakdown of wastes and,

thus, negatively affect the normal operation of the system. Hazardous waste should be stored and disposed of properly, and household hazardous waste may be disposed of at collection centers. Local health authorities should be notified of any improperly functioning septic system.

Agricultural Property are currently not regulated under the Aquifer Protection Agency until DEP develops regulations, however this land use is regulated by DEP under their wastewater and pesticide programs.

Concerns include USTs, fertilizer/pesticide use, manure storage, exposed soils, silage.

#### 1. Animals

If livestock (horses, cows, etc.) are present, determine proximity to watercourses, wetlands and the well field; and determine whether the method of manure storage and disposal or erosion could impact these resources, thus reducing the ability of a wetland to remove pollutants from runoff or releasing pollutants to the aquifer through stormwater or storage.

#### 2. Fertilizers/Pesticides

Inspect storage and mixing areas of pesticides and fertilizers, especially at farms, nurseries and orchards. Storage and mixing areas should be impervious, with no floor drains, covered (preferably indoors), and secure. Recommend that paved areas and storm drains be avoided when applying fertilizers and pesticides, and that buffer strips be left in between the application area and wetlands and watercourses and the well field.

Note: Most agricultural operations will be regulated under the Aquifer Protection Agency Farm Resource Management Plan Regulations when adopted and will be administered by the state and federal agricultural agencies.

### III. LAND USE RISK ASSESSMENT

#### I. OVERVIEW

This methodology can be used to evaluate land uses within aquifer protection areas so that the relative risk to an aquifer of a certain land use can be compared to other land uses in a systematic manner. Assigning the risk parameter values to sites is a judgmental process. The process is intended to be used as a comparative guide to land uses rather than an exact determination of risk.

Identification of high risk sites can be useful in several ways. By identifying the highest risk sites, limited inspection and monitoring resources can be prioritized. High risk sites could be inspected on a more frequent basis than low risk sites with minor potential to impact the aquifer. Also, identification of high risk sites can prioritize land uses that may be acquired to eliminate the risk from the aquifer.

By evaluating certain individual site parameters, the potential overall risk of a site can be determined. Actual risk of a site depends on the practices that occur at each specific site. As an example, two machine shops would have the same relative risk, but depending on certain practices such as waste disposal and general housekeeping, the actual risks to the aquifer could be quite different. (See Appendix C for examples.)

#### II. RISK PARAMETERS

Proximity to Wellfield. As the distance from the wellfield increases the potential risk is lessened to a certain extent. Contamination occurring adjacent to the wellfield will pose a more severe threat to water quality than contamination at the edge of the aquifer protection area. Reduced travel times reduce the opportunity to identify and contain a contaminant before it reaches a well. The site proximity to wellfield risk values are:

- 8 - 10 For locations within 1,500 feet
- 5 - 7 For locations between 1,500 and 3,000 feet
- 2 - 4 For locations greater than 3,000 feet

Wastewater Disposal. The risk from sewage disposal systems varies depending on the volume and type of materials disposed. Municipal sanitary disposal systems generally pose a lesser risk than on-site septic systems by removing waste to a central location typically outside the APA and treating it under controlled and monitored conditions. The ability of a septic system to treat waste material can be highly variable depending on (a) the materials disposed through the system, (b) the design and maintenance of the system, and (c) the soil characteristics where the leaching field is located.

- 9 -10 Commercial/industrial facilities using hazardous materials connected to on-site septic systems
- 7 - 8 Commercial/industrial facilities with very low, incidental hazardous materials connected to an on-site septic system
- 5 - 6 Multiple residential septic systems, institutions, restaurants
- 3 - 4 Single family residential connected to on-site systems
- 0 - 2 Properties connected to municipal sanitary sewer systems

Fuel/Chemical Storage. As the volume and hazard type of stored material increases, the risk to the aquifer from spills and leaks increases. Above-ground tanks with secondary containment offer the greatest protection from spills and leaks. The extent and type of tank monitoring should be considered when assigning a risk value. Fuel/Chemical risk values are:

- 9 - 10 Facilities with multiple underground tanks 1,000 gallons or larger
- 7 - 8 Facilities with an underground storage tank and additional above-ground tanks without secondary containment
- 6 Facilities with one underground storage tank
- 5 Facilities with above-ground tanks without secondary containment
- 2 - 4 Facilities with above-ground tanks with secondary containment
- 1 Minor chemical storage in individual containers stored in a secured area
- 0 No chemical storage

Chemical Usage. Aquifer contamination can occur as a result of improper chemical usage or spills. Chemical usage risk values are:

- 9 - 10 Large quantities of various chemicals used (55 gallons or more), outdoor storage, no secondary containment, EPA hazardous waste large quantity generator
- 7 - 8 Large quantities, stored in secondary containment, minimal wastes produced, small quantity generator status

5 - 6 Moderate quantities of various chemicals and waste products, conditionally exempt small quantity generator

2 - 4 Minimal quantities used, typical office and household products

Outside Activity. Outdoor activities such as material storage, equipment maintenance, and refuse disposal can impact the quality of groundwater. Outside activity risk values are:

9 - 10 Outdoor equipment maintenance, manufacturing and production processes, material and waste storage

7 - 8 Outdoor storage of equipment, materials and refuse

5 - 6 Temporary storage of materials on impervious surface, loading dock

2 - 4 Outdoor storage of materials in covered secured area unpaved vehicle storage and parking areas

1 No outdoor storage or activities

Land Uses. Certain types of land uses increase the risk of aquifer contamination. Land use risk values are:

7 - 10 Industrial properties, commercial processor

5 - 6 Retail/Commercial mix

4 High Density Residential (less than 1 acre zoning)

3 Agriculture/Golf Courses

2 Low Density Residential (greater than or equal to 1 acre zoning)

1 Open Space

## IV. GUIDELINES FOR EMERGENCY SPILL RESPONSE PLANS

### I. OVERVIEW

These guidelines have been developed to assist municipalities with the development of a comprehensive Emergency Spill Response Plan. These are only guidelines and are not meant to serve as rigid standards. Incidents involving the release of hazardous or toxic materials including vehicle accidents, fuel or chemical storage tank leaks, or illegal dumping that occur within an aquifer area may present a serious threat of contamination to public water supply wells. By virtue of their familiarity with the source areas and the water supply system, water utility personnel are uniquely qualified to respond rapidly and effectively to a threat of contamination. To protect public water supplies, municipalities and water utilities should be prepared to respond to hazardous materials spills through defensive measures, using proper equipment and trained personnel, in cooperation with a primary response unit such as the local fire department or the Department of Environmental Protection (DEP).

To enhance preparedness, municipalities should develop and periodically update an emergency spill response plan which at a minimum establishes procedures and provides information necessary for effective communication and implementation of response activities. The plan should also address personnel training needs.

**Municipalities should carefully review OSHA regulations in 49 CFR 1910.120 to ensure compliance with all appropriate requirements pertaining to their emergency response operations.**

### II. GENERAL GUIDELINES

A spill or release of a hazardous material within an aquifer area of a public water supply can pose a significant threat to the water supply source. Prompt recognition of and response to a spill or release incident can minimize the threat to drinking water supplies. Planning and preparation are critical to effective execution of emergency response actions and should, at a minimum, address the types of incidents which may occur, procedures for communications and spill response, and staff training needs as appropriate.

Various types of incidents may cause a spill or release of hazardous materials. Some examples of these incidents include:

- 1) An overturned or leaking tanker truck containing fuel oil, gasoline, or any other hazardous chemicals.

- 2) Large vehicle fires or accidents involving fire department wash down.
- 3) A leaking underground storage tank.
- 4) A sanitary sewer line break.
- 5) A fire or accidental release at a facility which uses, produces, or stores hazardous materials.
- 6) Hazardous or toxic materials deposited in or near a watercourse (pesticides, salts, leaking chemical containers, etc.)

Extreme caution must be exercised by spill response personnel at the scene of a spill or release incident. **Protection of individual health and safety is the first and foremost concern.** Actions by municipal and water utility personnel should be defensive in nature for the purpose of protecting the source of supply without risk to an individual's health or safety. Offensive control activities (e.g. plug-and-patch, clean up) should be performed only by emergency response units which are appropriately trained to handle the material in question.

### III. COMMUNICATION/ NOTIFICATION PROCEDURES

When a call is received, specific information is needed to assess the potential hazard and to determine appropriate response measures to be initiated. Information needed includes location and type of incident, type of hazardous material involved, names of individuals contacted, etc. A form for recording this information is included in Appendix D. A copy of the completed form should be provided to the water utility.

An internal notification procedure should be developed for calls received both during and after business hours. Employees directly involved in coordinating the spill response procedures should be listed in the plan as well as those employees responsible for responding to the spill. A public information officer should be designated to notify the DEP, Department of Public Health, Department of Public Utility Control, local agencies, media, etc. A list of these state agencies is included in Appendix E.

The municipality should establish a separate communication procedure with local fire departments, the Local Emergency Preparedness Commission and the water utility for spills within the aquifer area. Copies of aquifer maps should be provided to these agencies and a list of municipal and utility contact names. The municipality should stress to these agencies the importance of notifying the municipality and water utility of any spill incidents within the aquifer area. The municipality and water utility should also discuss with these agencies how their response to a spill could potentially impact a water utility's source of supply, such as wash-down of chemicals into a catch basin. The municipality and water utility should work with the town's Public Works department and/or the state Department of Transportation for installation of aquifer area notification signs along major transportation routes.

#### **IV. RECORD KEEPING**

An in-house spill response information record should be maintained for each incident. This record should include the initial report and a brief but detailed log of events and contacts made throughout the response effort both from the office and in the field. (See Appendix D). A copy of the completed form should be provided to the water utility.

#### **V. SPILL RESPONSE PROCEDURES**

General procedures should be developed to guide the municipality with coordinating the municipality's response actions. The procedures addressed may include incident reconnaissance, risk assessment, establishment of a chain-of-command, deployment of personnel and equipment, strategic planning, and implementation of control measures. The municipality's response should be coordinated with the water utility. The specific response effort should be based on a risk assessment protocol which considers the type of spill and risk to the water supply source. The "DOT Hazardous Materials Emergency Response Guidebook" should be used to identify the type of material, the potential hazards and emergency action necessary to respond to the spill.

Only those employees with appropriate spill response training should be involved in spill response activities. Extreme caution must be used when approaching any type of spill. Employee training must include an appropriate level of hazardous materials emergency response training in accordance with the OSHA requirements of 29 CFR 1910.120. Training should cover hazardous identification, site health and safety precautions, and proper deployment of spill containment equipment.

#### **VI. SPILL RESPONSE EQUIPMENT LIST**

Emergency spill response equipment should be stored at key locations within or near the aquifer areas. A list of these locations and type of equipment available should be included in the plan. (See suggested list of spill equipment in Appendix F).

#### **VII. SPILL CLEAN-UP CONTRACTOR LIST**

A list of spill clean-up contractors should be included in the plan. Only DEP permitted contractors should be listed in the plan.

#### **VIII. AQUIFER PROTECTION AREA MAPS**

Maps showing the aquifer areas should be made part of the plan. Key locations for deployment of containment equipment should be noted on the maps.

# APPENDICES

# APPENDIX A

## REGULATED ACTIVITY EVALUATION FORM

Site address: \_\_\_\_\_ Contact name: \_\_\_\_\_

Proposed activity: \_\_\_\_\_

Date application submitted: \_\_\_\_\_ Address: \_\_\_\_\_

Aquifer Commission meeting date: \_\_\_\_\_ Phone: \_\_\_\_\_

Date of Public Hearing: \_\_\_\_\_ Reviewer: \_\_\_\_\_

### SITE CHARACTERISTICS

#### **Stormwater Management**

Existing System Description \_\_\_\_\_

Oil/water separator: Yes\_\_\_ No\_\_\_ Location: \_\_\_\_\_

Dry wells: Yes\_\_\_ No\_\_\_ Number:\_\_\_ Location: \_\_\_\_\_

Infiltration galleries: Yes\_\_\_ No\_\_\_

Stormwater basins: Yes\_\_\_ No\_\_\_

Maintenance: \_\_\_\_\_

Proposed System Description \_\_\_\_\_

Oil/water separator: Yes\_\_\_ No\_\_\_ Location: \_\_\_\_\_

Dry wells: Yes\_\_\_ No\_\_\_ Number:\_\_\_ Location: \_\_\_\_\_

Infiltration galleries: Yes\_\_\_ No\_\_\_

Stormwater basins: Yes\_\_\_ No\_\_\_

Stormwater maintenance schedule: \_\_\_\_\_

Other: \_\_\_\_\_

Amount of impervious surface: \_\_\_\_\_

#### **Wastewater**

Sewered system \_\_\_\_\_

Septic system \_\_\_\_\_ Cleaning frequency: \_\_\_\_\_

Floor drains: Yes\_\_\_ No\_\_\_ Discharge point: \_\_\_\_\_

Holding tanks: Yes\_\_\_ No\_\_\_

#### **Chemical Storage**

Volume of chemicals stored: \_\_\_\_\_

Types of chemicals stored: \_\_\_\_\_

Storage containers/tanks: \_\_\_\_\_

underground \_\_\_ aboveground \_\_\_\_\_

Storage area: secondary containment: Yes \_\_\_ No \_\_\_ Type: \_\_\_\_\_

Heating source: ust \_\_\_ ast \_\_\_ Size: \_\_\_\_\_

Type of fuel: gasoline \_\_\_ oil \_\_\_ propane \_\_\_ other \_\_\_\_\_

Type of containment: vault \_\_\_ diked area \_\_\_ other \_\_\_\_\_

**Waste Chemicals**

Generator Status: LQG \_\_\_ SQG \_\_\_ CESQG

Volume of waste stored: \_\_\_\_\_

Types of waste stored: \_\_\_\_\_

Storage containers: \_\_\_\_\_

Storage area: secondary containment: Yes \_\_\_ No \_\_\_ Type: \_\_\_\_\_

Notes: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Follow-up required: Yes \_\_\_ No \_\_\_

Additional information requested: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Date of review: \_\_\_\_\_

## **APPENDIX B**

### **BEST MANAGEMENT PRACTICES FOR AQUIFER PROTECTION AREAS**

Registered and permitted facilities in Aquifer Protection Areas must certify compliance with best management practices (BMPs) in accordance with Sec. 22a-354i-9 of the RCSA. The requirements are outlined below, but please refer to the regulations for the full text.

- (a) Every regulated activity shall be conducted in accordance with the following:
  - (1) hazardous materials may be stored above ground within an aquifer protection area only in accordance with the following conditions:
    - (A) hazardous material shall be stored in a building or under a roof that minimizes storm water entry to the hazardous material storage area, except that a roof is not required for a bulk storage facility as defined in section 2 of the APA Regulations,
    - (B) floors within a building or under a roof where hazardous material may be stored shall be constructed or treated to protect the surface of the floor from deterioration due to spillage of any such material,
    - (C) a structure which may be used for storage or transfer of hazardous material shall be protected from storm water run-on, and ground water intrusion,
    - (D) hazardous material shall be stored within an impermeable containment area which is capable of containing at least the volume of the largest container of such hazardous material present in such area, or 10% of the total volume of all such containers in such area, whichever is larger, without overflow of released hazardous material from the containment area,
    - (E) hazardous material shall not be stored with other hazardous materials that are incompatible and may create a hazard of fire, explosion or generation of toxic substances,
    - (F) hazardous material shall be stored only in a container that has been certified by a state or federal agency or the American Society of Testing Materials as suitable for the transport or storage of such material,
    - (G) hazardous material shall be stored only in an area that is secured against unauthorized entry by the public, and
    - (H) the requirements of this subdivision are intended to supplement, and not to supersede, any other applicable requirements of federal, state, or local law, including applicable requirements of the Resource Conservation and Recovery Act of 1976;

- (2) no person shall increase the number of underground storage tanks used to store hazardous materials;
- (3) an underground storage tank used to store hazardous materials shall not be replaced with a larger tank unless (A) there is no more than a 25% increase in volume of the larger replacement tank, and (B) the larger replacement tank is a double-walled tank with co-axial piping, both meeting new installation component standards pursuant to §22a-449(d)-1(e) and §22a-449(d)-102 of the Regulations of Connecticut State Agencies, and with interstitial monitoring;
- (4) no person shall use, maintain or install floor drains, dry wells or other infiltration devices or appurtenances which allow the release of waste waters to the ground, unless such release is permitted by the Commissioner in accordance with §22a-430 or §22a-430b of the Connecticut General Statutes; and
- (5) a materials management plan shall be developed and implemented in accordance with the following:
  - (A) a materials management plan shall contain, at a minimum, the following information with respect to the subject regulated activity:
    - (i) a pollution prevention assessment consisting of a detailed evaluation of alternatives to the use of hazardous materials or processes and practices that would reduce or eliminate the use of hazardous materials, and implementation of such alternatives where possible and feasible,
    - (ii) a description of any operations or practices which may pose a threat of pollution to the aquifer, which shall include the following:
      - (aa) a process flow diagram identifying where hazardous materials are stored, disposed and used, and where hazardous wastes are generated and subsequently stored and disposed,
      - (bb) an inventory of all hazardous materials which are likely to be or will be manufactured, produced, stored, utilized or otherwise handled, and
      - (cc) a description of waste, including waste waters generated, and a description of how such wastes are handled, stored and disposed,
    - (iii) the name, street address, mailing address, title and telephone number of the individual(s) responsible for implementing the materials management plan and the individual(s) who should be contacted in an emergency,
    - (iv) a record-keeping system to account for the types, quantities, and disposition of hazardous materials which are manufactured, produced, utilized, stored, or otherwise handled or which are discharged or emitted; such record-keeping system shall be maintained at the subject facility and

shall be made available thereat for inspection during normal business hours by the Commissioner and the municipal aquifer protection agency, and

- (v) an emergency response plan for responding to a release of hazardous materials. Such plan shall describe how each such release could result in pollution to the underlying aquifer and shall set forth the methods used or to be used to prevent and abate any such a release;
  - (B) when a materials management plan is required under either section 8(c) or 9(d) of the APA Regulations, such materials management plan shall be completed and certified by a professional engineer or a certified hazardous materials manager, or, if the facility where the regulated activity is conducted has received and maintained an ISO 14001 environmental management system certification, then the registrant may complete and certify the materials management plan; and
  - (C) the materials management plan shall be maintained at the subject facility and shall be made available thereat for inspection during normal business hours by the Commissioner and the municipal aquifer protection agency.
- (b) The development and implementation of a storm water management plan required for regulated activities in accordance with sections 8(c) and 9(d) of the APA Regulations, shall be as follows: A storm water management plan shall assure that storm water run-off generated by the subject regulated activity is (i) managed in a manner so as to prevent pollution of ground water, and (ii) shall comply with all of the requirements for the General Permit of the Discharge of Storm Water associated with a Commercial Activity issued pursuant to §22a-430b of the Connecticut General Statutes.

## **OTHER BEST MANAGEMENT PRACTICES FOR AQUIFER PROTECTION AREAS**

### **STORMWATER RUNOFF**

**AQUIFER IMPACT** - Stormwater runoff from developed areas can contain a variety of contaminants including fertilizers, pesticides, hydrocarbons, salt and heavy metals. As the impervious area overlying an aquifer increases, the amount of stormwater infiltrating through the soil is reduced. Ultimately, this increases peak flows during storm events, decreases stream base flows during dry periods, and reduces the amount of groundwater available for water supply.

### **STORMWATER RUNOFF BEST MANAGEMENT PRACTICES (BMPs)**

- Mitigate post-development increases in contaminant loading, peak storm flows, and loss of infiltration capacity
- Avoid stormwater contact with material storage areas; divert stormwater away from potential contamination sources.
- Select BMPs on site specific basis depending on available land area, impervious coverage, soils, depth to groundwater, infiltration rate, topography, and type of land use
- Provide pre-treatment of runoff from impervious areas prior to infiltration or discharge.
- Specific stormwater management BMPs include but are not limited to manmade wetlands, retention basins/wet-ponds, sediment basins, wet ponds, sediment-oil separators, infiltration trenches, subsurface infiltration structures, grass swales, and vegetated buffer strips.
- Surface controls, e.g. stormwater management basins, vegetated buffer strips, are preferred over subsurface management structures, e.g. drywells etc. Surface controls facilitate easier detection of chemical or fuel spills, less complicated spill cleanups, and are easier to maintain. Also, surface BMPs promote additional pollutant removal mechanisms such as volatilization, photodegradation, and biological processes associated with vegetation.
- An inspection and maintenance program is critical to ensuring optimal long-term performance of stormwater management BMPs.

For more information on stormwater management see [2004 Connecticut Stormwater Quality Manual](#).

**GROUNDWATER RECHARGE** - Although groundwater recharge should generally be encouraged, groundwater contamination resulting from chemical leaks and spills is a concern that has been raised with BMPs used to infiltrate stormwater runoff. Stormwater from land uses that pose a high risk of contamination may be better managed by directing discharges to a surface watercourse rather than being infiltrated to the aquifer. However, this does not

eliminate the need to remove contaminants from the runoff using stormwater runoff BMPs prior to being discharged to a surface watercourse.

**DEP GENERAL PERMITS** - Stormwater runoff discharges involving certain construction and industrial activities must be registered with the Department of Environmental Protection (DEP). The preparation of a stormwater pollution prevention plan certified by a professional engineer is required for each site.

**OUTLET PIPE SETBACK REQUIREMENTS** - Sec. 19-13-B32(i) of the Connecticut Public Health Code regulates setback distances from stormwater drain pipes outlets to watercourses within public water supply watersheds.

### **APPLICABLE REGULATIONS**

Section 22a-430b Connecticut General Statutes - Stormwater general permits for construction and industrial activities

CT Public Health Code 19-13-B32(i) - Stormwater discharges on public water supply watersheds

Applicable local regulations and Aquifer Protection Area regulations

### **WASTEWATER DISPOSAL**

**AQUIFER IMPACT** - Improperly sited, installed, or maintained sewage disposal systems can negatively impact the aquifer through the discharge of improperly treated sewage effluent. In addition, groundwater can be contaminated by improper disposal of hazardous chemicals or wastewaters via a septic system. Floor drains and other non-domestic wastewaters to drywells and septic systems serve as direct conduits for contaminants to enter an aquifer.

### **SEPTIC SYSTEMS**

- Connection of high risk land uses to a municipal sanitary sewer is preferable over on-site septic systems in APAs. On-site septic systems can serve as a conduit for contaminants to enter the aquifer. Septic systems should be properly sited and approved by the local health department.
- Septic systems must be maintained on a regular basis and used for domestic type waste disposal only. Hazardous chemicals, such as paint, solvents, degreasers, and petroleum products, must not be discharged to a septic system. When designed, sited, installed, used and maintained properly, on-site systems are effective treatment systems for domestic wastewater.

## **NON-DOMESTIC DISCHARGES**

- Discharges of non-domestic wastes to the environment requires a permit from the DEP. Floor drains that discharge to a public sanitary sewer will also need a DEP permit. Floor drain discharges should be directed to municipal sanitary sewers or holding tanks meeting DEP requirements. Floor drain discharges to the environment (e.g. drywells, septic systems, watercourses) without a permit are prohibited.
- Pretreatment of floor drain wastewaters may be required. The DEP requires that in automotive service operations, floor drain discharges to a sanitary sewer may be allowed only with a discharge permit and must be connected to an oil/water separator conforming to DEP regulations. Where connection to a sanitary sewer is not possible, service area floor drains must discharge to a holding tank (1000 gallon minimum capacity). Wastes collected in a holding tank, or oil collected in a separator, must be pumped out and disposed of by a hauler licensed by the DEP Bureau of Waste Management.

## **APPLICABLE REGULATIONS**

CT Public Health Code Section 19-13-B103a through 103f - System approval by delegated local health authority

CT Public Health Code Section 19-13-B51d - Separating distances between water supply wells and sewage disposal systems

Connecticut General Statutes Section 22a-416 through 22a-447 - Water Pollution Control

Connecticut General Statutes Section 22a-430 through 22a-438 - Discharges

Applicable local regulations and Aquifer Protection Area regulations

## **PETROLEUM STORAGE**

**AQUIFER IMPACTS** - Overfills, spillage, and leaks from underground and above-ground fuel storage tanks, and distribution lines containing oil or gasoline, can migrate into the aquifer and contaminate groundwater.

## **ABOVE-GROUND STORAGE**

- Above-ground storage of petroleum products is highly preferable to below ground storage. If properly designed and constructed, above-ground tanks are better protected from the elements, facilitate faster and easier leak detection, and, in the event of a system failure, allow for less costly and complicated environmental clean-ups. Monitoring and regulatory requirements are also less onerous and costly than those for underground tanks. Overall, properly designed and constructed above-ground tanks pose a lesser risk of groundwater contamination and liability than underground systems.

- Federal regulations require that a Spill Prevention Control and Countermeasure Plan (SPCC) be developed by facilities with above-ground storage greater than 1,320 gallons, or a single above-ground container larger than 660 gallons. The SPCC plan is required to include preventative measures, spill response scenarios, and certification by a professional engineer.
- Above-ground tanks should be located on a bermed, impervious surface capable of containing at least 110% of the volume of the tank. The containment area should be lined with a sealant suitable for contact with the contents of the tank. If located outdoors, the tank should be protected by a roofed structure to prevent the accumulation of stormwater in the containment area. If a tank is located in the basement, and a containment area is not constructed around the tank, the basement should not contain floor drains or sumps.

## **UNDERGROUND STORAGE**

Underground storage tanks (USTs) are regulated by State and federal regulations. The extent of regulation is largely dependent upon tank age, tank capacity, type of material stored, and the total volume stored at a site. An SPCC is required for facilities with underground storage greater than 42,000 gallons. Federal regulations include requirements for installation, spill and overfill protection, corrosion protection, and leak detection. State regulations cover nonresidential USTs for petroleum and petroleum distillates. State regulations include requirements for installation, reporting and notification, record keeping, life expectancy, and failure determination.

## **LEAKS AND SPILLS**

Spillage of petroleum products requires notification to the Department of Environmental Protection's Oil and Chemical Spills Unit (566-3338). In addition the local water utility should also be notified. Discharges to navigable waters of the United States need to be reported to the National Response Center (800-424-8802).

For more information on UST regulations, see the EPA publication entitled Musts for USTs, and the State of Connecticut Regulations for Control of the Nonresidential Underground Storage and Handling of Oil and Petroleum Liquids.

## **APPLICABLE REGULATIONS**

Regulations of Connecticut State Agencies Section 22a-449(d)-1 - Control of nonresidential underground storage and handling of oil and petroleum liquids.

40 CFR Part 112 - Oil pollution prevention, SPCC

40 CFR Part 280 - Federal Underground Storage Tank regulations

NFPA Code 30, 30A, 31, 395, 30A Connecticut Supplement

Connecticut General Statutes Section 22a-450 - Spill reporting requirement

Applicable local regulations and Aquifer Protection Area Regulations

## **CHEMICAL HANDLING**

**AQUIFER IMPACT** - Improper chemical storage, handling, and disposal can result in releases to the environment and contamination of the aquifer. Siting of land uses involving substantial storage and use of hazardous chemicals should be strongly discouraged.

## **CHEMICAL USE**

- Risks associated with chemicals can be reduced by storing less chemicals, storing smaller containers, substituting less hazardous chemicals in the production process, or altering the production process to use less chemicals and generate less hazardous waste.
- Hazardous wastes are regulated more stringently than non hazardous wastes. Regulations become stricter with increasing volumes of hazardous wastes produced. Various levels of generator status determine the degree and complexity of regulatory requirement. Workers should be trained in the proper handling and disposal of chemicals and be made aware of the consequences of improper disposal and noncompliance with State and federal hazardous waste regulations.

## **STORAGE**

- Above-ground storage of chemicals with secondary containment is preferable to underground storage. There is less potential for container degradation, and leak detection and monitoring is easier. The regulatory requirements for above ground tanks are less severe and the overall risk of liability is lower.
- If indoor storage is not feasible, chemicals stored outdoors should be located within a secured secondary containment area to prevent leaks from entering the environment, exposure to precipitation, and vandalism.
- Areas used for loading or transferring of hazardous materials should be paved and should not contain any drywells or catchbasins. Adequate spill control and containment equipment should be maintained on-site.
- Underground storage tanks, containing hazardous chemicals, which are regulated by the federal Resource, Conservation, and Recovery Act (RCRA), must have secondary containment and interstitial monitoring in addition to the requirements specified for petroleum USTs.

## **SPILLS**

- The CT DEP requires all spills to be reported to the DEP Oil and Chemical Spills Unit (203-566-3338).
- Federal notification of certain quantities and types of spills to the National Response Center (800-424-8802) is required under the Clean Water Act, the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).
- The Emergency Planning and Community Right to Know Act (EPCRA) requires the reporting of a release of a reportable quantity (listed in the regulations) of an extremely hazardous substance or CERCLA hazardous substance beyond site boundaries to the Local Emergency Planning Committee (LEPC) and State Emergency Response Commission (SERC), in addition to the National Response Center.
- Affected public water utilities should also be notified in the event of a spill.

- Site spill response and notification plans should be developed, and implemented in the event of a spill.

### **APPLICABLE REGULATIONS**

40 CFR Parts 260-299 - Hazardous Waste Management System (RCRA)

40 CFR Parts 300-399 - Emergency Planning and Community Right to Know Act (EPCRA)

CT General Statutes 22a-450 - Spill Reporting

Connecticut General Statutes Section 22a-600 thru 604 Community-Right-To-Know Act

Regulations of Connecticut State Agencies Section 22a-449(c)-100 through 110 and 22a-449(c)-11 - Hazardous Waste Management

Applicable local regulations and Aquifer Protection Area regulations

## APPENDIX C

### RISK ASSESSMENT EXAMPLES

A municipal solid waste collection facility, vehicles stored on unpaved soils, outdoor storage of refuse containers, underground storage of diesel and heating fuel, located within 1,500 feet of wellfield

Location:	10
Wastewater disposal:	9
Fuel/Chemical Storage:	9
Chemical Usage:	8
Outside Activity:	10
Land Use:	<u>9</u>
	55

A trucking company on septic system with an outdoor loading dock, diesel and motor oil UST\_s, outside fueling of trucks, gravel parking area, close to wellfield.

Location:	10
Wastewater disposal:	10
Fuel/Chemical Storage:	9
Chemical Usage:	8
Outside Activity:	8
Land Use:	<u>9</u>
	54

Commercial equipment wholesaler/repair, close to wellfield, septic, oil heat, unpaved soils, outdoor storage and maintenance of equipment.

Location:	9
Wastewater disposal:	9
Fuel/Chemical Storage:	7
Chemical Usage:	7
Outside Activity:	8
Land Use:	<u>8</u>
	48

A vehicle repair facility close to wellfield on a septic system, oil tank in ground, outdoor storage of vehicles.

Location:	10
Wastewater disposal:	10
Fuel/Chemical Storage:	4
Chemical Usage:	7
Outside Activity:	3
Land Use:	<u>7</u>
	41

A high school, on septic system, 10,000 #2 fuel oil tank, an automotive and other industrial art classes, greater than 1,500 from wellfield.

Location:	6
Wastewater disposal:	8
Fuel/Chemical Storage:	6
Chemical Usage:	7
Outside Activity:	3
Land Use:	<u>5</u>
	35

A machine shop connected to the municipal sewer system, outside storage of chips and tailings roofed secured area, gas heat, greater than 1,500 feet from the wellfield.

Location:	5
Wastewater disposal:	2
Fuel/Chemical Storage:	1
Chemical Usage:	5
Outside Activity:	6
Land Use:	<u>7</u>
	26

A video rental store, gas heat, sewerred, paved parking area, greater than 3,000 feet from the wellfield.

Location:	2
Wastewater disposal:	0
Fuel/Chemical Storage:	0
Chemical Usage:	2
Outside Activity:	2
Land Use:	<u>5</u>
	11

# APPENDIX D

## SPILL RESPONSE INFORMATION AND EVENT LOG

1. **LOCATION:**

Town: \_\_\_\_\_  
Nearest address or street intersection: \_\_\_\_\_  
Source(s) that may be impacted: \_\_\_\_\_  
Proximity to reservoir, tributary stream or well: \_\_\_\_\_

2. **DATE:**

**TIME OF INCIDENT:** \_\_\_\_\_  
**TIME REPORTED TO UTILITY:** \_\_\_\_\_

3. **NATURE OF INCIDENT:** (vehicle accident; container of chemicals, fuel tank rupture; spill during delivery; fire; explosion; etc.)

\_\_\_\_\_  
\_\_\_\_\_

4. **DESCRIPTION OF MATERIAL RELEASED:**

Type: \_\_\_\_\_ HAZARDOUS? \_\_\_\_ Yes \_\_\_\_ No  
Quantity & Concentration: \_\_\_\_\_

5. **TYPE AND CONDITION OF CONTAINERS:**

\_\_\_\_\_

6. **SPILL REPORTING:** Get names and phone numbers of the individuals who reported the incident or other officials as well as the names of the persons who received the report at their office (Fire, DPH, etc.). Get this information at the scene if possible. Mark NA if no contact made.

<u>CONTACT</u>	<u>NAME &amp; NUMBER OF PERSON REPORTING INCIDENT</u>	<u>NAME &amp; NUMBER OF PERSON WHO RECEIVED REPORT</u>
Fire/Police	_____	_____
DEP	_____	_____
Health Dept.	_____	_____
Spill Contractor	_____	_____
Water Utility	_____	_____

7. **INITIAL SPILL RESPONSE:** Describe initial response measures taken by the municipality or others at the scene (i.e. deploy booms, call spill contractor)

\_\_\_\_\_  
\_\_\_\_\_

8. **OTHER INFORMATION:** Provide pertinent information such as:

- Extent of contamination/potential impact on water supplies?
- Any restrictions for access to scene?
- Water supply source shut down? (name of source, time, duration)
- Name of shipper/carrier, receiver and/or driver involved in transport

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Prepared by: \_\_\_\_\_

Date: \_\_\_\_\_

## **APPENDIX E**

### **SPILL RESPONSE NOTIFICATION**

The DEP Oil and Chemical Spill Response Unit must be notified of the spill. The person coordinating the spill response operation should be responsible to make the contact with DEP. Call immediately and report the basic information found in Appendix D. Always insist DEP come out and inspect the situation as soon as possible. Make it clear if the incident has occurred on an aquifer protection area and find out how soon they will respond.

Department of Environmental Protection  
Oil and Chemical Spill Response Unit  
Bureau of Waste Management  
79 Elm Street  
Hartford, CT 06106-5127  
860-424-3338 (weekdays and after hours, including weekends and holidays)

### **ADDITIONAL NOTIFICATION**

The person handling the spill may have to contact the following agencies listed below when a spill occurs.

#### **State and National Agencies**

1) CHEMTREC 1-800-424-9300

CHEMTREC, a public service offered by the Chemical Manufacturers Association, will help to identify the spill, give advise on how to approach a known spill, advise medical care for victims exposed to the spill, and will contact the shipper of the hazardous materials involved for more detailed assistance and appropriate action to be taken.

2) National Response Center 1-800-424-8802

The National Response Center (NRC), which is operated by the Coast Guard, receives reports required from spillers of hazardous substances. Federal law requires that anyone who releases a reportable quantity of a hazardous substance into the environment must immediately notify the NRC.

3) Connecticut Department of Public Health

Drinking Water Section

Business Hours (8:30 a.m.-4:00 p.m.) 860-509-7333 or 860-509-8000

4) Department of Public Utility Control

Water Unit

10 Franklin Square

New Britain, CT 06051

Business Hours (8:30 a.m.- 4:00 p.m.) 860-827-2600

## **APPENDIX F**

### **SPILL RESPONSE EQUIPMENT**

Containment Boom  
Sorbent Boom  
Square Sorbent Pads  
Razorback Shovel  
Bow Rake  
Short Handle Hammer  
Vinyl Gloves  
Tyvek Suits  
Hip Boots  
Polybags  
Rope  
Flashlight  
Wood Stakes  
DOT Hazardous Material Emergency Response Book

## APPENDIX G

### AQUIFER PROTECTION AREA GUIDANCE INFORMATION STORMWATER MANAGEMENT PLANS

**Overall a stormwater management plan shall consider measures to reduce or mitigate water quality impacts to the groundwater aquifer. While the emphasis should be to protect groundwater quality, the plan should also consider impacts to surface waters and runoff rates where possible.**

The DEP Aquifer Protection Area regulations require stormwater management plans for all permits, and can also be required for registrations. The management plans shall assure that storm water runoff is managed to prevent groundwater pollution and shall meet the requirements of the DEP Commercial Stormwater General Permit including:

- Facility information: primary activity
- Stormwater discharge information: number and type of conveyance
- Stormwater management measures: pollution prevention, pavement sweeping, outdoor storage and washing restriction, spill control/response, and maintenance and inspection of storm water structures.

The basic stormwater principals for Aquifer Protection Areas (and other groundwater drinking supply areas) are to prevent inadvertent pollution discharges/releases to the ground, while encouraging recharge of stormwater where it does not endanger groundwater quality. Management measures include:

- **prevent illicit discharges** to storm water, including fuel/chemical pollution releases to the ground.
- **provide necessary impervious pavement in high potential pollutant release areas.** These “storm water hot spots” include certain lands use types or storage and loading areas, fueling areas, intensive parking areas and roadways (see table below).
- direct paved surface runoff to **aboveground type land treatment structures**- sheet flow, surface swales, depressed grass islands, detention/retention and infiltration basins, and wet basins. These provide an opportunity for volatilization of volatile organic compounds to the extent possible before the stormwater can infiltrate into the ground.
- **only use subsurface recharge structures** such as dry wells, galleries, or leaching trenches, to directly infiltrate clean runoff such as rooftops, or other clean surfaces. These structures do not adequately allow for attenuation of salts, solvents, fuels or other soluble compounds in groundwater that may be contained in runoff.
- minimize pavement deicing chemicals, or use an environmentally suitable substitute such as sand only, or alternative de-icing agents such as calcium chloride or calcium magnesium.

While the emphasis is to minimize groundwater quality impacts of the runoff, a plan should also the extent possible address water quantity changes between pre-development and post-development runoff rates and volumes where possible. Minimizing impervious coverage, disconnecting large impervious areas with natural or landscape areas, and other low impact

development techniques should be considered, however direct infiltration of stormwater should be restricted under the following site conditions:

- ***Land Uses or Activities with Potential for Higher Pollutant Loads:*** Infiltration of stormwater from these land uses or activities (refer to Table 7-5 below), also referred to as stormwater “hotspots,” can contaminate public and private groundwater supplies. Infiltration of stormwater from these land uses or activities may be allowed by the review authority with appropriate source controls or pretreatment. Pretreatment could consist of one or a combination of the primary or secondary treatment practices described in the Ct. Stormwater Quality Manual provided that the treatment practice is designed to remove the stormwater contaminants of concern.
- ***Subsurface Contamination:*** Infiltration of stormwater in areas with soil or groundwater contamination such as brownfield sites and urban redevelopment areas can mobilize contaminants.
- ***Groundwater Supply Well Field Areas:*** Infiltration of stormwater can potentially contaminate groundwater drinking water supplies in the immediate well field area.

## Land Uses or Activities with Potential for Higher Pollutant Loads

D. Table 7-5 of the 2004 Stormwater Quality Manual

<b>Land Use/Activities</b>	
<ul style="list-style-type: none"> <li>• Industrial facilities subject to the DEP Industrial Stormwater General Permit or the U.S. EPA National Pollution Discharge Elimination System (NPDES) Stormwater Permit Program</li> <li>• Vehicle salvage yards and recycling facilities</li> <li>• Vehicle fueling facilities (gas stations and other facilities with on-site vehicle fueling)</li> <li>• Vehicle service, maintenance, and equipment cleaning facilities</li> <li>• Fleet storage areas (cars, buses, trucks, public works)</li> <li>• Commercial parking lots with high intensity use (shopping malls, fast food restaurants, convenience stores, supermarkets, etc.)</li> <li>• Public works storage areas</li> </ul>	<ul style="list-style-type: none"> <li>• Road salt storage facilities (if exposed to rainfall)</li> <li>• Commercial nurseries</li> <li>• Flat metal rooftops of industrial facilities</li> <li>• Facilities with outdoor storage and loading/unloading of hazardous substances or materials, regardless of the primary land use of the facility or development</li> <li>• Facilities subject to chemical inventory reporting under Section 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA), if materials or containers are exposed to rainfall</li> <li>• Marinas (service and maintenance)</li> <li>• Other land uses and activities as designated by the review authority</li> </ul>

For further information regarding the design of stormwater collection systems, see the DEP 2004 Connecticut Stormwater Quality Manual, which is also available on the DEP's website at <http://www.dep.state.ct.us/wtr/stormwater/stmwrman.htm> . Contact the Aquifer Protection Area Program at (860) 424-3020 for further questions or information.