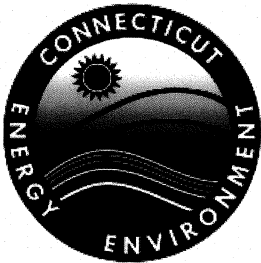


**AQUIFER PROTECTION
STORMWATER MANAGEMENT PLAN
SUPPLEMENT FORM**

August 2011



**DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
BUREAU OF WATER PROTECTION AND LAND REUSE
PLANNING AND STANDARDS DIVISION
AQUIFER PROTECTION AREA PROGRAM
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INTRODUCTION

This document was prepared by the Department of Energy and Environmental Protection to assist you with the stormwater management requirements of the Aquifer Protection Area Program. When aquifer protection area regulations require a storm water management plan, the plan shall assure that storm water run-off generated by the subject regulated activity is managed in a manner so as to prevent pollution of ground water, and shall comply with all of the requirements for the DEEP General Permit of the Discharge of Storm Water associated with a Commercial Activity (Commercial GP)

The Commercial GP requires the following:

1. Registration Form: including facility information, type of activity, stormwater discharge information: number and type of conveyance
2. Stormwater Management Plan: including measures for pollution prevention, pavement sweeping, outdoor storage and washing restriction, illicit discharge control, spill control/response, and maintenance and inspection of storm water structures.

The additional stormwater measures for Aquifer Protection Areas are to prevent contaminated stormwater discharges/releases to the ground, apply stormwater discharge and treatment measures that protect groundwater quality, and encourage safe recharge of stormwater where it does not endanger groundwater quality. Additional management measures include:

- prevent illicit discharges to stormwater discharged to the ground
- provide necessary impervious pavement in high potential pollutant release areas or "storm water hot spots" such as storage and loading areas, fueling areas, intensive parking areas and roadways.
- discharge paved surface runoff to aboveground type land treatment structures- surface drains, sheet flow, surface swales, depressed grass islands, detention/retention and infiltration basins, and wet basins. These measures take advantage of natural treatment processes in soil and vegetation before discharge to the groundwater, and promote natural aquifer recharge.

The DEEP 2004 Connecticut Stormwater Quality Manual provides comprehensive stormwater guidance including potential groundwater concerns and is available on the DEEP's website at www.ct.gov/deep/stormwater.

While the emphasis is to minimize groundwater quality impacts of the runoff, a plan should be balanced and the extent possible include a combination of approaches to protect all water resources concerns including surface water quality, water quantity changes between pre-development and post-development runoff rates and volumes where possible. Most alternative site design designs, low impact development, and green infrastructure techniques will be beneficial to groundwater except for certain direct infiltration techniques.

INSTRUCTIONS

Many of the facilities in Aquifer Protection Areas may have already registered for under the General Permit Associated with Commercial Activity (GP-Commercial). Those forms and the accompanying Stormwater Management Plan serve as the basis for the Aquifer Protection Stormwater Management Plan (APSMP). Note: a registration under the General Permit for the Discharge of Stormwater Associated with Industrial Activity (GP-Industrial) also can serve as the basis for the APSMP. Due to the sensitivity of aquifer protection areas, there are some special considerations beyond those in the general permits, so an Aquifer Protection Stormwater Supplement to the GP-Commercial Stormwater Management Plan is required. The Supplement should be used to revise or add to your existing stormwater management plan. For new facilities, or those without an existing stormwater general

permit, complete the GP-Commercial registration form and develop the associated stormwater management plan, taking into consideration the Aquifer Protection Stormwater Supplement.

The APSMP therefore has 3 components:

1. The GP-Commercial Registration Form. This form covers basic facility site location and stormwater information;
2. The Stormwater Management Plan for the GP-Commercial. This plan covers basic pollution prevention and source controls for stormwater, including the following:
 - a. The Pollution Prevention Team or individual responsible for implementation of the plan;
 - b. Identification of discharge points or potential pollution sources;
 - c. Housekeeping measures;
 - d. Spill control and response measures;
 - e. Maintenance and inspection provisions and checklists;
 - f. Employee training;
 - g. Regular compliance evaluations;
 - h. Future Considerations;
 - i. Record keeping requirements;
 - j. Plan Certification
3. The Aquifer Protection Stormwater Supplement. This Supplement covers additional components required only in Aquifer Protection Areas due to areas of concern to groundwater, this includes:
 - a. Additional site features of concern to groundwater
 - b. Prevention of illicit discharges to ground
 - c. No outside storage of hazardous materials
 - d. Runoff management practices
 - e. Use of subsurface infiltration devices
 - f. Infiltration of clean roof runoff
 - g. Including aquifer protection information in employee training
 - h. Aquifer protection certification

If you have an existing Stormwater Management Plan go through each item in the Aquifer Protection Stormwater Supplement. Ensure that each item in the Supplement is addressed in the Stormwater Management Plan, if not modify the Plan to address each. Once modifications are made (if any are necessary), add the certification required by the Supplement and sign and date it.

Please keep in the following in mind when completing the Plan:

1. *If any section does not apply to your facility, state that it is not applicable. Do not skip it or leave it blank.*
2. You do not need to type your forms as long as they are legible.
3. If other similar information has already been prepared for the site for other purposes (i.e. site plans, material management plans, emergency response procedures, spill plans, etc.) and meets the APSMP requirement, it may be submitted as an attachment instead of the APSMP form information. **Note: in many cases the APA Material Management Plan will have addressed many of the pollution prevention and source controls for stormwater.**

Once the Plan is complete, you are required by the Aquifer Protection Area Program to keep your APSWP on file at your facility and use it to assist you in maintaining your site. Keep the Plan up to date. By using common sense, good housekeeping and by following your Plan, pollutants that could

potentially contaminate ground water can be managed or eliminated without significant cost. Remember, it costs less to keep pollutants out of the ground water than to remediate later.

Below are some phone numbers you may find useful in assembling your Plan.

Aquifer Protection Area Program: 860-424-3020 (for any questions specific to completing the Plan, its format or its contents)

Pollution Prevention: 860-424-3297 (for any question about pollution prevention or best management practices)

Bureau of Materials Management and Compliance Assistance: 860-424-3023 (for any questions about spills, hazardous materials, waste engineering and enforcement)

Wastewater Permitting and Enforcement: 860-424-3018 (for any questions about stormwater discharges)

Emergency Response and Spill Prevention

Emergency Line: 860-424-3333 OR 860-424-3338 (to report spills)

General Information: 860-424-3024 (for questions on underground storage tanks or spill preparedness)

The Aquifer Protection Stormwater Supplement

The Aquifer Protection Stormwater Supplement is to be used in conjunction with the Commercial Stormwater General Permit Registration Forms, and the associated Stormwater Management Plan. This supplement includes additional stormwater considerations to minimize the potential for stormwater to cause groundwater contamination in aquifer protection areas, where stormwater can potentially impact a public water supply well. Discussed below are special considerations for Aquifer Protection Areas. These requirements may exceed those of the Commercial Stormwater General Permit, but because groundwater from sites in Aquifer Protection Areas feed into public water supply wells, such special requirements are warranted.

Consider each of the following, and make any needed changes to the SMP. Update the SMP to reflect these changes and keep it on file at the facility. Submit the SMP to the Aquifer Protection Agency or DEEP as required.

A. Additional stormwater and site features of concern to groundwater (as applicable):

- Outline of buildings, sheds or other storage structures, pavement
- Stormwater structures and conveyances to the ground- drainage flow direction, infiltration areas and structures, and treatment or controls
- Location of fueling stations
- Location of loading/unloading areas
- Location of wastewater disposal systems- sewer line or septic system
- Location of waste storage and disposal areas including: dumpsters, used oil storage tanks, and other waste storage
- Location of liquid storage areas including: underground and above ground storage tanks, and their filling and discharging or distribution lines
- Location of any other outdoor structures or processing service areas that may impact groundwater or have materials exposed to precipitation

B. Prevention of illicit discharges to the stormwater system.

Nothing but stormwater, uncontaminated groundwater seepage or permitted discharges should be in your stormwater system, and should be evaluated to ensure that there are no unpermitted non-stormwater discharges at the facility should be documented. Methods could include visual inspections of the facility and review of site plans, dry weather inspection of storm drains to ensure that there is no dry-weather flow, and dye or smoke testing if necessary.

Ensure that no washing of equipment or vehicles takes place outside where it can flow to the storm drain system, and include a statement to that effect in the SMP. Any washing must take place indoors, in an area where a permit has been obtained to discharge washwater through an approved oil/water/grit separator to a municipal sewage treatment facility, or in an area where all washwater discharges to a holding tank.

C. Ensure that no outside storage of hazardous materials is taking place.

Outside storage of hazardous materials (including salt storage) is prohibited in Aquifer Protection Areas. All hazardous materials must be stored in a building or under a roof, on an impermeable surface that is protected from stormwater run-on. Verify that no outside storage of materials is taking place, and include this as an item in the regular inspection schedule.

D. Runoff management practices

List any runoff management practices used at the facility. Note appropriate descriptions or qualifications to the practices listed, such as the portion of the site affected. Runoff management practices might include catch basins, drainage swales, riprap channels or pools, detention/ retention basins, infiltration basins or structures, impervious areas, sheet flow, biofilters or other measures used to manage/treat runoff. Management practices to be followed include:

- Runoff from paved surfaces should be directed to above-ground land treatment structures- surface drains, 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.
- Direct infiltration structures such as galleries, drywells, and leaching trenches, do not allow for attenuation of salt or other soluble compounds that may be contained in parking lot runoff. New direct infiltration structures should not be installed and existing ones should be considered for replacement. If clean roof runoff can be segregated from stormwater, it is a good source of recharge to the aquifer. In this case, subsurface infiltration structures such as dry wells, galleries, or leaching trenches are appropriate and encouraged.
- While the emphasis is to minimize groundwater quality impacts of the runoff, a plan should be balanced and the extent possible include a combination of approaches to protect all water resources concerns including surface water quality, water quantity changes between pre-development and post-development runoff rates and volumes where possible. Most alternative site designs, low impact development, and green infrastructure techniques will be beneficial to groundwater except for certain direct infiltration techniques.
- Non-structural measures to dissipate and treat runoff are encouraged, including sheetflow from uncurbed pavement and vegetated swales/basins. These provide an opportunity for volatilization of volatile organic compounds to the extent possible before the stormwater can infiltrate into the ground.
- If a stormwater collection system must be installed, it should discharge to an above-ground outlet point (swales, basins, channels, etc.).
- 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.
- 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 impervious coverage, disconnect large impervious areas with natural or landscape areas, and use other low impact development techniques where possible.
- Minimize pavement deicing chemicals, or use an environmentally suitable substitute.
- Other measures to protect groundwater.

E. Identify and address existing subsurface infiltration devices in stormwater hot spots.

Stormwater "hot spots" are areas or activities on the site with greater potential for high pollutant loads that may threaten groundwater quality. Examples of these include salvage areas, fueling facilities, dumpster or chemical storage areas, loading docks and large parking lots. In these areas, existing direct infiltration structures (galleries, dry wells, leaching trenches) are of particular concern as they can serve as a direct conduit for chemical pollutants to enter the groundwater and do not allow for attenuation of those chemical pollutants. Management of these stormwater hot spots should include measures to reduce potential impacts to groundwater such as the following:

- Isolate the "hot spot" by separating the activity or moving the activity to another location on the site. For example, a berm may be placed surrounding the activity to isolate it and redirect the stormwater runoff away from the infiltration device; a swale may be used to take the drainage from the hot spot away from the infiltration device; or the activity, such as storage of vehicles, may be moved or confined to an area that does not drain to the infiltration structures.
- Pre-treat the stormwater by modifying the infiltration device to include: a grass or stone filter strip area around entrance, an oil-water separator, or a media filters or inserts.
- Regular monitoring and inspection of the area by employees, temporary spill control devices such as speedy dry and absorbent pads, regular maintenance and cleaning of the drainage area and infiltration structure should be included in the SMP
- In some high-risk areas, if the above measures are not adequate it may be necessary to remove the infiltration device and use other above-ground stormwater measures such as sheet flow, swales and basins keeping the stormwater above ground to allow time for any volatile compounds to volatilize off before the stormwater enters the ground.

F. Include information on aquifer protection in the employee training program.

Ensure that the employee training required under the SMP includes basic information about the aquifer protection area. Include that the facility is within an APA, what that means and why it is important. Summary information on the program, including a fact sheet, can be found at www.ct.gov/deep/aquiferprotection .

Aquifer Protection Certification

Remember that when you develop or modify your SMP you must certify the Plan by signing and dating it. To show that you have considered the items discussed above, add the following certification to the Plan, as appropriate:

Certification by owner/operator

"I certify that the [SMP or P2P] prepared for this site meets the criteria set forth in Sections 22a-354i-9(b) of the Aquifer Protection Area Regulations. This certification is based on my review of

the [SMP or P2P] for the site and an inspection of the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements."

Owner/Operator Signature

Date

Owner/Operator Name (printed or typed)

Certification by professional engineer

"I certify that, in my professional judgment, the [SMP or P2P] prepared for this site meets the criteria set forth in Sections 22a-354i-9(b) of the Aquifer Protection Area Regulations. This certification is based on my review of the [SMP or P2P] for the site and an inspection of the site. I am aware that there are significant penalties for false statements in this certification, including the possibility of fine and imprisonment for knowingly making false statements."

P.E. Signature

P.E. Number and Seal

P.E. Name (printed or typed)

Date

J. Questions

Any questions regarding this supplement can be directed to the Aquifer Protection Area Program at (860) 424-3720 or deep.aquiferprotection@ct.gov.