The Applicant's Toolkit for

Siting New Small Community Wells

In New Hampshire

(Wells<57,600 gallons in any 24-hour period)

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Revised May 2009

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(Administrative Rule Env-Dw 301)
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Prepared by

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Introduction

This document was prepared to assist the applicant in preparing preliminary and final reports for siting new small wells for small community water systems in New Hampshire. The siting of a new small well is regulated under Administrative Rule Env-Dw 301, *Small Production Wells for Small Community Water Systems*. The applicant should refer to the rules, and may obtain copies by contacting the Public Information Center (PIC) at (603) 271-2975 or from the Department of Environmental Services (NHDES) website, www.des.nh.gov . Choose the A-Z menu in the upper right-hand corner and click on the headings "Public Information & Permitting, Administrative Rules." Under these rules, small wells are those with permitted production volumes (PPV) less than 57,600 gallons. PPV means the maximum volume of groundwater allowed by NHDES to be withdrawn or pumped from a public water supply production well in any 24-hour period. Community water systems are public water systems that serve at least 15 service connections or at least 25 year-round residents.

The siting of large production wells (57,600 gallons or more in a 24-hour period from a single well or multiple hydraulically connected wells) for community water systems is subject to different rules, Env-Dw 302, *Large Production Wells for Community Water Systems*, and Env-Ws 387 & 388, *Large Groundwater Withdrawals*. If you are siting a large production well for a community water system, contact NHDES staff at 603-271-8866 for information.

Water Conservation Rules, Env-Ws 390, have been developed by NHDES pursuant to RSA 385:61. Please note that Water Conservation Plans must be submitted in conjunction with applications for new wells for small community water systems. Preliminary well siting approval will not be granted until approval of a Water Conservation Plan has been obtained. These rules and a Small Community Water System Water Conservation Plan form can be obtained from PIC or online at http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm .

Part I: Work That Must Be Done

The Instruction Manual

The steps on the next page outline the tasks that must be completed for siting new small wells for small community water systems. The following pages contain more detailed instructions for completing these tasks. Additional information can be found in the Report Forms available from PIC at (603) 271-2975 or from the NHDES website, http://des.nh.gov/organization/divisions/water/dwgb/dwspp/well_siting/index.htm .

Process for Siting Small Community Wells

A: Select a Well Site and Gather Information for Preliminary Report Activities (Consider the "Big Four")

B: Submit a Water Conservation Plan-These plans require a 21-day comment period.

C: Complete Preliminary Report Activities

1. Collect and present general site information.
2. Describe source water requirements & existing system.
3. Document well siting setbacks.
4. Identify a sanitary protective area.
5. Estimate a wellhead protection area.
6. Compile a water use & contamination source inventory & identify potential impacts.
7. Perform a windshield survey & file review.
8. Propose a constant rate pumping test.
9. Propose water quality sampling procedures & choose a laboratory.
10. Propose a wellhead protection area refinement method.

D: Obtain NHDES Approval of the Preliminary Report & Water Conservation Plan

E: Perform the Constant Rate Pumping Test & Water Quality Sampling

F: Complete Final Report Activities

1. Document control of sanitary protective area.
2. Document and analyze pumping test data.
3. Assess impact of pumping the production well.
4. Document water quality.
5. Refine the wellhead protection area.
6. Update the water use & contamination source inventory.
7. Prepare a wellhead protection program.
8. Present a contamination control program for existing contamination sources.

G: Obtain NHDES Approval of the Final Report

H: Obtain Approval to Connect New Well to Water System & a Chemical Monitoring Schedule

The following pages contain more detailed instructions on completing the tasks listed above.

A. Select a Well Site & Gather Information for Preliminary Report Activities

The purpose of the well siting rules for new small community wells is to ensure that new wells can consistently provide an adequate supply of water that meets drinking water quality. NHDES evaluates a potential well site in terms of how it meets the objectives of the rules: water conservation, wellhead protection, well yield dependability, and acceptable water quality. NHDES strongly encourages the applicant to review the rules and this toolkit before considering a site for a new well.

Who can Prepare an Application for New Small Well Siting?

The application must be prepared by a person who by training and experience is familiar with any of the following and hold the license or certification listed in parentheses:

1. Hydrology or geology of drinking water wells (Licensed Professional Geologist or Engineer).
2. Drinking water system design or maintenance (Licensed Professional Engineer or Certified Water System Operator).
3. Drinking water well construction or maintenance (Licensed Water Well Contractor or Pump Installer).

a. Select a Small Community Well Site for Further Evaluation:

Consider the "Big Four"

The rules cover activities performed **after** selection of a potential well site. Several factors can render a proposed well site unacceptable. Uncontrolled contaminated sites, surface water and floodplain proximity, and features such as buildings, driveways and septic systems and other potential contamination sources (PCSs) within the sanitary protective area (SPA) may cause the site to be unsatisfactory. The SPA is the area in the immediate vicinity of the wellhead, and is meant to provide a buffer around the well to protect it from direct contamination. The SPA must be legally controlled by the water system. The well site may not be approved if the water system is unable to obtain legal control of all the land in the SPA. In addition, the proposed well may not be approved if its use impacts surrounding water users and resources, or if the groundwater proves to be under the influence of surface water.

Prior to submitting a preliminary application the applicant should complete an assessment to identify any items that may disqualify the well site from final approval. NHDES's experience has shown that if a proposed location for a new source does not comply with Env-Dw 301, usually, one or more of the "Big Four" items below were not carefully considered. NHDES may be contacted for help during the site selection process; however, staff cannot choose the well site for the applicant.

1. Control of existing contamination sources

Applicants are required to delineate a wellhead protection area (WHPA), which is the area surrounding a well through which contaminants are likely to move toward and reach the well. The WHPA should not be confused with the SPA. No activities other than the siting of new landfills or salvage yards are prohibited in WHPAs. Existing contamination sources may exist near a proposed well site as long as they are outside the SPA. These rules require that an applicant have

adequate knowledge about, and demonstrate control of, existing contamination sources. Known contamination sources are identified and evaluated during development of the water use and contamination source inventory. **NHDES cannot approve a well site with a known contamination source located in the WHPA without the implementation of an acceptable control program.**

2. Control and maintenance of the sanitary protective area

The SPA is a circle, centered on the well, with a radius dependant upon the amount of water withdrawn from the well. For a small community well the SPA radius will be 150, 175 or 200 feet, depending on the withdrawal volume (Env-Dw 301.06). Any activity not directly related to the operation and maintenance of the well and the water system is not permitted in the SPA. Pay careful attention to the present and future activities within the SPA of the proposed well when choosing a new well site.

The water supplier must have legal control of the SPA. Legal control can take many forms. Ownership, perpetual easement, condominium covenants, and joint use agreements are the most common. Any form of legal control is acceptable provided it gives the **water system** complete jurisdiction over all activities within the SPA. When system ownership changes the legal control must remain with the water system. See Part III Section A for a copy of suggested easement language.

To ensure protection from contamination the SPA must be maintained in a natural state for the life of the well. No terrain alteration or tree removal is allowed in the SPA except for the minimal amount required for construction of the well and water system. No structures, other than those directly related to water supply functions, may be located within the SPA. Also, discharging storm water into retention or detention ponds, drainage swales, storm drains, or similar man-made structures is not allowed in or across an SPA. Only natural drainage is allowed in the SPA. Please note that the Alteration of Terrain Bureau will not issue a permit if the application does not meet all Env-Dw 301 SPA requirements. **Final well site approval will not be granted until all sanitary radius requirements are adequately met.**

3. Setbacks from surface waters and the 100-year floodplain

To avoid the condition where groundwater is under the influence of surface water, the wellhead and pumping station must be set back from surface water and not be subject to flooding. Wells must be sited at least 50 feet from any surface water, including but not limited to streams, ponds, lakes, and wetlands that are inundated for at least 30 consecutive days. Groundwater under the direct influence of surface water may contain disease-causing viruses and bacteria, or be more vulnerable to contamination by point or non-point releases. Therefore, for any bedrock well located less than 200' from a surface water or any overburden well located less than 100' from a surface water, Microscopic Particulate Analysis (MPA) must be performed on samples collected during the pumping test. “A Field Guide For Pumping Test Operators,” located under the 'Guidance' section at
http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/nhdes-wd-03-33.pdf has complete information on MPA sampling requirements.

The well may not be sited within the floodplain of the 100-year flood. If there is no alternative site outside this floodplain, the elevation of the well must be raised so that the well will not be subject to flooding by the 100-year flood.

Adverse Impacts

There can be no unmanageable adverse impacts either to or from the new well. Effects due to pumping the well can include an adverse change in water levels in nearby non-system wells (public or private), a change in water levels in nearby surface waters, migration of an existing contaminated groundwater plume towards the well, or saltwater intrusion into the fresh water aquifer. **If any adverse impacts occur, well siting approval will not be given until the impact is adequately addressed and an acceptable management plan is in place.** Carefully consider the surrounding water resources when siting a new well.

b. Wellhead Protection

A major objective of the rules is to incorporate wellhead protection into the siting of new small community wells. The goal of wellhead protection is to protect water quality by implementing educational activities and best management practices. It expands the contamination management area beyond the SPA. Unlike the SPA, the WHPA is not prohibitive; all types of existing activities are allowed there unless groundwater in the area has been reclassified. It incorporates a program that encourages all tenants, homeowners, businesses, or industries to prevent the release of pollution that may result from their activities by properly using and disposing of hazardous substances and implementing best management practices where applicable.

As part of the final report, **the applicant must develop a wellhead protection program**. If there are no uncontrolled known contamination sources in the wellhead protection area, the program consists of educational mailings to everyone in the WHPA. Examples of sample letters and an educational mailing packet can be found in Part III Section B.

Wellhead protection not only protects the owner's investment in the well, but can also reduce chemical sampling requirements once the well is operational. Contact NHDES at (603) 271-7017 for information on obtaining waivers for certain chemical sampling requirements.

c. Water System Requirements

Env-Ws 372, *Design Standards for Small Community Water Systems*, sets requirements for the source capacity of a community water system. The source capacity for a new community water system is twice the design flow. Design flow is calculated based on the number of proposed service connections and the number of bedrooms per service connection. If the proposed development will be age-restricted senior housing, 100 gallons per day (gpd) per bedroom may be used to calculate design flow. Otherwise, 150 gpd per bedroom must be used.

If in-ground irrigation is planned for the project, the expected daily volume must be added to source capacity calculations. Generally, 700-1,400 gallons per day/structure is an average water use volume for these types of systems. However, if extensive landscaping is planned, the volume of water used by the irrigation system may be much greater.

Source capacity and Permitted Production Volume (PPV) are not necessarily the same volume. Source capacity refers to the water system needs. PPV is the volume of water extracted from a

particular well in a 24-hour period and is demonstrated during the pumping test. In addition, the pumping test must demonstrate that all the water system wells pumping together can deliver at least the volume of water necessary to meet source capacity requirements. Therefore, the total PPVs for all the system wells must add up to at least the source capacity. The total PPVs for the wells may exceed the source capacity, but if the total PPV is less than the source capacity, another well(s) must be installed.

d. Well Yield Dependability

Before well siting rules were adopted, many well pumping tests were limited to answering the question: "What is the maximum rate that water can be pumped from this well?" Under Env-Dw 301, well testing also must address the question: "Will there be enough good quality water available to the well to meet the water system's needs under drought and high use conditions?" Many wells suffer reduced yields during drought periods because of an inadequate water supply available to the well. In addition, excessive, uncontrolled or unaccounted for irrigation water use wastes and depletes drinking water supplies. Increased withdrawals from other water users tapping the same aquifer may lower the water table. This could reduce the capacity of existing wells. Water shortages place public health at risk. Therefore, the pumping test was designed to conservatively determine the sustainable production volume. **Well site approval will not be granted without documentation of an adequate and dependable well yield.**

The requirements for a standard pumping test are listed in the following table. The document, "A Field Guide For Pumping Test Operators," located under the 'Guidance' section at http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/nhdes-wd-03-33.pdf , contains in-depth guidance for planning and running a pumping test. The Guide includes directions for setting up discharge lines, instrumenting the well(s), troubleshooting the test, determining stabilization, and taking water quality and MPA samples. The Guide may also be obtained from the PIC at 603-271-2975.

Standard Pumping Test Method
(Notify NHDES at least two weeks before the pumping test start date.)

Duration of Pumping	Until water level has been **stable for at least 12 hours** or the theoretical 180-day drawdown does not exceed 90% of available drawdown at the time of the test
Minimum Duration of Pumping	48 hours **only if** 12 hours of a stable water level has already been recorded
Stable Water Level	A water level that changes less than one inch over any two-hour period for at least12 hours.
Water Level Measurement Precision	To the nearest 0.01 foot.
Water Level Measurement Frequency	Every 5 minutes for the first hour and at least once an hour after that during the pumping period.
Pre-test Data Collection	Precipitation amounts during the one week prior to the test.
Weather	On-site weather conditions recorded twice in each 24-hour period, include any precipitation.
Pumping Rate & Measurement Precision	Must remain constant. +/- 5 %
Pumping Rate Measurement Frequency	Every 15 minutes for the first 2 hours and at least once an hour thereafter.
Recovery	At least 10 measured water levels until 95% recovery or until 24 hours has passed.

e. Acceptable Water Quality

The water quality from the well must meet standards designed to protect public health or satisfy those requirements with approved treatment. The rules require that a water quality sample be taken during the pumping test and analyzed by a laboratory accredited by the State of New Hampshire for all Safe Drinking Water Act (SDWA) analyses. A complete list of SDWA parameters to be sampled can be found online at http://des.nh.gov/organization/divisions/water/dwgb/documents/sdwalist.pdf . **The well site will not be approved if adequate water quality cannot be demonstrated.**

Please note that the drinking water standard for arsenic is now10 parts per billion (ppb) and 30 ppb for Uranium. A maximum standard for radon will also be established in the future. At standard for perchlorate may also be implemented and NHDES encourages applicants to prove analysis results for this constituent.

B. Water Conservation Plan

A Water Conservation Plan (WCP) must be approved before Preliminary Report approval will be given. Since there is a mandatory 21-day public response period, it is advisable to submit the WCP either before or in conjunction with the Preliminary Report. A draft WCP must be directed to Derek Bennett at Derek.Bennett@des.nh.gov for review. Do not send a WCP to the governing boards until finalized and the wording has been accepted by NHDES. A WCP form may be found at http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm .

C. Complete Preliminary Report Activities

A preliminary report must be completed and approved **before** conducting a pumping test and preferably before drilling the well(s). In this way, the applicant will avoid spending money on a site that cannot be approved. A Preliminary Report Form can be obtained from PIC at 603-271-2975, at our website, http://des.nh.gov/organization/divisions/water/dwgb/dwspp/well_siting/index.htm, or contact NHDES at (603) 271-2947 for a copy of the report in MS Word format. The applicant is not obligated to use this form, but NHDES strongly recommends it be employed as a checklist to ensure the report is complete. An incomplete report will be returned along with a report form highlighting the missing information. This causes a delay in the approval process.

NHDES requires the applicant to compile a water use and contamination source inventory and identify potential impacts as part of the Wellhead Protection Program.

To generate the preliminary inventory:

1. Obtain a GIS Map and Inventory from NHDES: Directions for doing this are included in the Preliminary Report Form and in the Windshield Survey Guide found in Part III Section D. If the inventory indicates any known contamination sources within the wellhead protection area, schedule a file review. Usually, known contamination sources are listed as “Source Water Hazard Inventory Sites.” Please do not attempt to gather this information from the OneStop data retrieval system. Due to security constraints the inventory generated by OneStop may be incomplete.
2. Conduct a file review. Directions for scheduling and conducting a file review can be found in Part III Section C.
3. To ensure the inventory is complete, conduct a windshield survey of the Potential Contamination Sources (PCS) in the Wellhead Protection Area. Directions for performing a windshield survey and a list of PCSs are contained in Part III Sections D and E respectively.
4. Identify public and private water supplies within 1,000 feet of the well. Assume that anything not served by a public water supplier has an on-site well.
5. Compile all the information and present it in the Preliminary Report.

Additional Information that Will Help You Complete the Preliminary Report.

(a). Floodplain Elevation and Setbacks

Include the current Flood Hazard Boundary Map (FHBM), depicting floodplain boundaries and elevations. Be sure to mark the proposed well location on the map. The local municipality should be able to provide a current photocopy of the FHBM. If the town does not have a copy of this map or will not allow copying of the map, maps are also available for download from the following website: mcs.fema.gov. Follow the instructions for creating a "FIRMette," a free printable copy of the section of the FHBM for the well site.

(b). Wetlands Permits

If fill will be used to raise the wellhead and/or pump station above flood elevation, obtain permits through NHDES Wetlands Bureau. To obtain wetlands permitting information call (603) 271-2147.

(c). Overburden Wells

Overburden wells require Phase I WHPA delineation. This may mean collecting additional hydrogeologic data during the pumping test. Contact NHDES staff at (603) 271-2947 for guidance on Phase I delineation.

(d). MPA Sampling

If an MPA is required, contact NHDES at 271-2947 for a list of laboratories that perform the analysis and provide the necessary filter equipment for collecting the samples.

Submit the preliminary report and water conservation plan to:

Groundwater Technical Section
NHDES Drinking Water & Groundwater Bureau
PO Box 95; Concord NH 03302-0095.

D: Obtain Preliminary Report Approval

NHDES will contact the applicant during the review of the preliminary proposal, if necessary, to discuss the content of the report in order to facilitate an efficient review. NHDES will use the Preliminary Report Form to assess report completion. The applicant will be notified in writing within 30 days of the receipt of the preliminary report as to whether or not the report is approved. **Preliminary report approval expires within four (4) years if no final report is received.**

E: Perform the Constant Rate Pumping Test and Water Quality Sampling

The constant rate pumping test and water quality sampling proposed in the preliminary report should be performed **after** receiving written preliminary report approval from NHDES. Contact NHDES at (603) 271-2947 before making any changes to the approved program. Notify NHDES at least **10 business days** before the start of the pumping test. A staff member will attend the test.

Refer to “A Field Guide For Pumping Test Operators,” found at http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/nhdes-wd-03-33.pdf or through the NHDES PIC at 603-271-2975, for guidance on setting up and running the pumping test. Included in the pumping test guide is a sample pumping test log. Feel free to copy it. The pumping test operator does not have to follow this format but should include all the information listed in the sample log on the log submitted to NHDES. Remember to record cumula-

tive meter readings and all recovery data. Submit a copy of the **original** well log and a copy of the well completion report with the final report.

Water quality sampling should be done very carefully. Refer to "How to Take Chemical Monitoring Samples" found in the pumping test guide, for the proper methods of sampling all the required Safe Drinking Water Act (SDWA) parameters. Refer to the “Guidance for Reporting SDWA Analysis,” also found in the pumping test guide, for a listing of all parameters that must be sampled during the pumping test.

E. Complete Final Report Activities

A final report must be approved **before** the well may be connected to the community water system. A Final Report Form can be obtained from the PIC at (603) 271-2975, the NHDES website at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/well_siting/documents/final_report.pdf , contact NHDES at (603) 271-2947 for a copy of the report in MS Word format. The applicant does not have to use this form but NHDES recommends it be employed as a checklist, because it will be used as one during the review process.

• *Additional Information That Will Help Complete the Final Report*

1. Document Control of Sanitary Protective Area

Provide legal documentation of SPA control, such as copies of **recorded** easements, deeds, condominium covenants, or joint use agreements. Generally, unrecorded copies are unacceptable since they are not legally binding.

2. Assess the Sustainable Yield of the Well

Document and analyze the pumping test data. The final report should include the following pumping test information and data:

(a) A pumping test log that includes all of the information listed below.

- Water system name.
- System and well location.
- Well depth, casing length and diameter, pump elevation (even if using a temporary pump).
- Time and dates pumping test started and ended, including the recovery period.
- Weather conditions, twice in any 24-hour period.
- Static (no pumping) water level in feet below top of casing.
- Height of casing stickup.
- Water levels during pumping & recovery* periods in feet below top of casing, date, time each measurement was taken, and pumping rate (in gpm) during pumping period. (Please note that water levels must be recorded in increments of 0.01 foot and if a 24-hour clock was not used, indicate AM or PM.) Also, if a datalogger was used, do not submit the entire printout, especially if the datalogger was programmed to record frequently. Provide only enough data to demonstrate the well meets the stabilization and water level recording requirements of Env-Dw 301.10.

(b) Name and address of pumping test operator.
(c) Description of how other system wells were operated during the test.
(d) Description of discharge locations.
(e) Graphs of water levels versus log time and theoretical 180-day drawdown, if necessary.**
(f) Well completion report and any pertinent boring logs.
(g) Water level logs for non-system wells monitored during the pumping test.

* At least 10 recovery water level measurements should be taken over a 24-hour period or until 95% recovery, whichever is shorter.
**See guidance on estimating a 180-day theoretical drawdown in "A Field Guide For Pumping Test Operators".

Assess and document the sustainable yield of the well. The 180-day theoretical drawdown is a tool in this assessment process. Provide any additional information including all calculations and computer modeling used for the assessment.

3. Assess the Impacts of Pumping the Production Well

Estimate how pumping the well at the permitted production volume impacted the following and provide a management plan for any occurring impacts:

- Saltwater intrusion into the freshwater aquifer.
- Water levels in nearby surface waters and inundated wetlands.
- Any existing groundwater contamination plumes.
- Water levels in private and public wells within 1,000 feet.

Include all pertinent water level measurements and supporting data in the management plan. See the impact guide located in Part III Section F for guidance on assessing impacts to and from the production well.

4. Document Water Quality

Document in the final report that the new well delivers acceptable water quality to the system by submitting complete copies of all laboratory results, including MPA. If water derived from the well exhibits natural substances that exceed groundwater standards, the final report must include a brief description of the proposed treatment program for the detected substance.

Detections of naturally occurring substances, such as iron or manganese, above allowable drinking water concentrations, require treatment to bring water quality within acceptable limits. Certain naturally occurring substances that pose a health risk to consumers, like arsenic or uranium, require specialized treatment and may require additional water quality analysis to determine the appropriate treatment method. Contact the Drinking Water & Groundwater Bureau (DWGB) at (603) 271-2513 to address treatment options and gain treatment system approval.

If water derived from a well exhibits contamination from human activities or artificial sources, it will not be approved by NHDES. Detections of substances that are not naturally occurring indicate an existing contamination source. **Until the contamination source is characterized and under control, the well site will not be approved.** This applies even if the water can be treated to remove the detected compounds. It is not pos-

sible to ensure effective treatment until the nature and extent of the contamination is understood. The final report should include a contamination source control program, if necessary.

5. Wellhead Protection Program

(a) Refine the WHPA for bedrock wells based on the PPV sustained during the pumping test. Please note that if more than one bedrock well is located on site the PPVs of the wells must be combined to determine the WHPA radius of the new well(s). However, the WHPA radius for a new bedrock well shall not exceed 4,000'. Overburden wells require Phase I delineation. Contact NHDES staff at (603) 271-2947 for guidance on Phase I delineation.

(b) Update the water use and contamination source inventory and perform another windshield survey if more than 90 days have passed since the previous one.

(c) After refining the WHPA, provide a complete wellhead protection program and refined WHPA map in the final report. If no active known contamination sources exist in the WHPA, the program will consist of educational mailings. Examples of the components of an educational packet are available in Part III Section B. The education mailing type of wellhead protection program consists of two separate packets, one for PCSs and one for non-PCSs.

A Non-PCS Mailing Packet-
All residents, tenants, and non-PCS businesses in the WHPA are given a cover letter on water system letterhead, a copy of the “Do’s and Don’ts” flyer printed on colored paper, the Backyard Mechanic’s BMPs, and a copy of the gasoline fact sheet (WMD-REM-14). The NHDES flier used for the waiver program, combining do's and don'ts and the gasoline fact sheet is acceptable.

A PCS Mailing Packet-
All PCSs in the WHPA receive the appropriate letter on water system letterhead, the “Do’s and Don’ts” flyer, the gasoline fact sheet (WMD-REM-14), the refueling of construction equipment fact sheet (WD-WSEB 22-6) if applicable, and a copy of Env-Wq 401, *Best Management Practices for Preventing Groundwater Contamination*, (BMP). The BMP rules are available from PIC at (603) 271-2975 or from the website at
http://des.nh.gov/organization/divisions/water/dwgb/dwspp/bmps/index.htm

Submit two complete educational mailing packets, including cover letters on water system letterhead. The letterhead may be simulated if the water system has not been created yet. Do not combine the educational literature for the packets. Also, describe in the final report how and when the program will be implemented and who is responsible for the mailings. As a rule, educational mailings are due within 90 days of system start-up for new systems. For new wells on existing systems, educational mailings are due either within 90 days of new well approval or at the next regularly scheduled chemical sampling waiver renewal, whichever applies.

(d) If an active known contamination source exists in the WHPA, the applicant must perform a complete review of all Waste Management Division files relating to the site. Using the information gleaned from those files, pumping test and water quality data, and geology of the well site, the applicant must propose a contamination control plan. The plan may propose, but not be limited to, frequent water quality sampling and analysis, placement of monitoring wells between the contamination source and the well, alternate well sites, and/or treatment methods. The plan must

demonstrate that the contamination is unlikely to reach the production well, but if it does it can be managed so that water meeting acceptable drinking water standards will continue to be provided to the water system.

F. Obtain Final Report Approval

Submit the final report to:

Small Well Siting Program
Groundwater Technical Section
NHDES Drinking Water & Groundwater Bureau
29 Hazen Drive, PO Box 95
Concord NH 03302-0095

NHDES will contact the applicant during the review of the final report, if necessary, to discuss the content. NHDES will use the Final Report Form to assess report completion. The applicant is urged to do the same, as incomplete reports can slow the application review and approval process. The applicant will be notified in writing within 30 days of the receipt of the final report as to whether or not NHDES approves the final report. Final well siting approval expires within four (4) years if the well is not connected to a water system.

G. Connect New Well to Community System & Sign Up For Chemical Monitoring Schedule.

The new well may be connected to an existing community system only **after** receipt of written well siting approval. Refer to the "Connection Requirements" fact sheet located in Part III Section G, for guidance regarding the connection requirements for new wells to existing water supply systems. Please note that existing systems must comply with the requirements of Env-Ws 363, *Capacity Assurance for Existing Public Water Systems.* Contact Cynthia Klevens at (603) 271-3108 or cynthia.klevens@des.nh.gov for more information.

Once well siting approval is given for a new well that will be connected to an existing system, NHDES will assign an EPA ID source number to the new well, and the system owner will receive a sampling schedule from NHDES. The owner is obligated to notify NHDES when the well is connected to the system. **Failure to do so may result in enforcement action by NHDES that could include administrative fines.**

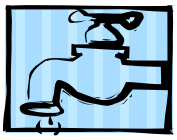
New water systems must also obtain concept, system design, and business plan approval under Env-Ws 372, *Design Standards for Small Public Drinking Water Systems* and Env-Ws 371, *Capacity Assurance for Proposed Public Water Systems,* before new wells may be connected to the water distribution system. Contact Jim Gill at (603) 271-2949 or james.gill@des.nh.gov with any connection or design review questions and Cynthia Klevens at (603) 271-3108 or cynthia.klevens@des.nh.gov for capacity assurance questions.

For new systems, an EPA ID number is assigned only when the system becomes operational. Upon approval of the well, NHDES will contact the owner with a sampling schedule. The water system owner must contact NHDES when the well and water supply system become operational. Contact Chemical Monitoring staff at (603) 271-3907 for further information regarding chemical

monitoring. **Failure to notify NHDES when the well and water system become operational may result in enforcement action by NHDES.**

Please note that an Emergency Plan, in accordance with New Hampshire Administrative Rule Env-Ws 360.14, must be filed or updated and submitted to NHDES in March every six years. This regulation also requires the plan to be reviewed annually by the system and updated as needed. Additionally, the plan will be a checklist item during each sanitary survey and lack of one will be a survey deficiency. Contact Johnna McKenna at (603) 271-7017 or johnna.mckenna@des.nh.gov for more information or assistance in completing emergency planning for the water system. Guidance documents and other emergency planning information are available at the following website: http://des.nh.gov/organization/divisions/water/dwgb/wseps/index.htm .

Part II: Replacement Wells, Regaining Lost Capacity, & Special Cases



Replacement, Hydrofracture, or Deepening

Please note that these types of well siting or redevelopment do not require compliance with Env-Ws 390, *Water Conservation Rules*.

A. Replacement Wells

Replacement wells may be sited under Env-Dw 301.26 if they meet certain criteria. The replacement well must be of the same construction and draw from the same aquifer as the well it replaces. The water system must be able to document lost well capacity and/or degraded water quality; and that all conservation efforts have failed to remediate the problems. If water quality issues mandate the construction of a replacement well, the water system must be able to document that treatment is not feasible, cost-effective, or possible. **The replacement well cannot be used to expand the water system by adding new service connections and will not be permitted for a greater volume than was originally approved or demonstrated for the well it replaces.**

NHDES encourages the applicant to request a site visit prior to commencing the application process. The applicant must supply the following information before performing a constant rate pumping test on the replacement well.

1. A description of the project including:
    a. The owner's name, address and phone number.
    b. The consultant's name, address and phone number.
    c. The water system name.
    d. Federal EPA ID for the well.
    e. The water supply requirements for the system established during design approval. Meter readings, if available, or source capacity calculations will satisfy this requirement.
2. A description of the sanitary protective area (SPA) that includes all existing activities in the SPA and any proposed efforts to improve conditions in the SPA. (Such as proposing a no-salt zone on an existing roadway.)

3. Setbacks to surface water, inundated wetlands, and the 100-year floodplain.
4. A site plan showing the replacement well and the existing well, the SPAs associated with both, and all activities within 500' of the replacement well.
5. A description of the current water quality of the existing well, if available.
6. A plan for completing a constant rate pumping test lasting at least 12 hours and collection of water quality samples from the replacement well.
7. A plan for abandonment of the existing well by a licensed New Hampshire water well contractor. Please note that the existing well must be abandoned unless a waiver is granted by NHDES.

A letter or the Preliminary Report Form may be used to document 1-7 above.

Once DWGB receives the above information the pumping test and water quality sampling may be performed. NHDES staff may visit the site during the pumping test and a groundwater discharge permit must be obtained, as for a standard pumping test. Once the pumping test and water quality analysis is complete, the applicant must submit the following to the DWGB.

- A copy of the well completion report for the replacement well.
- A copy of the pumping test log and water quality analysis results.
- A map depicting all activities in the sanitary protective area (SPA) and a discussion of how the SPA was improved to meet the requirements of Env-Dw 301.06.

A letter or the Final Report Form may be used to document the above items.

Within 90 days of replacement well approval the applicant must submit a copy of the well abandonment form for the existing well from a licensed water well contractor.

The replacement well will be approved for the volume sustained during the pumping test or the yield of the abandoned well, whichever is less.

B. Regaining Lost Well Capacity by Hydrofracture or Deepening

A system owner may request approval to regain lost capacity of an existing production well if the project is necessary to meet the original source capacity requirements and will not be used to expand the existing system. Common methods of regaining lost capacity include hydrofracture and deepening. The applicant must supply NHDES with the following information prior to deepening or hydrofracturing the well:

1. A description of the project including:
    a. The owner's name, address and phone number.
    b. The consultant's name, address and phone number.
    c. The water system name.
    d. Federal EPA ID for the well.
    e. The water supply requirements for the system established during design approval. Meter readings, if available, or source capacity calculations will satisfy this requirement.
2. A description of the sanitary protective area (SPA) that includes all existing activities in the SPA and any proposed efforts to improve conditions in the SPA. (Such as proposing a no-salt zone on an existing roadway.)
3. Setbacks to surface water, inundated wetlands, and the 100-year floodplain.
4. A plan for completing a constant rate pumping test lasting at least 6 hours and collection of water quality samples from the replacement well.

A letter or the Preliminary Report Form may be used to document 1-4 above. Once the information in 1-4 above has been submitted to NHDES, the applicant must perform the following tasks and document the results in a final report.

5. Determine sustainable yield by pumping the well for at least 6 hours at a constant rate and recording water level measurements. Submit the results to NHDES.
6. Demonstrate water quality meets current drinking water standards. Purge the well for at least 6 hours prior to collecting the sample. Submit the water quality sampling results to NHDES.
7. If necessary, treatment will be installed to bring the water withdrawn from the well into compliance with current drinking water standards. Propose a treatment method, if needed.
8. Document that there is no contamination in the vicinity of the well that is likely to reach the wellhead as a result of the increased withdrawal. Obtain a GIS map and Inventory from NHDES to help with this determination.

The Final Report Form may be used to document tasks 5-8 above.

Special Cases

C. Interim Emergency Wells

Sometimes a water system runs into trouble and needs to develop a new emergency water supply in a very short amount of time. NHDES has developed a policy to site a temporary emergency water supply well in a matter of days. Interim emergency well approvals are temporary only, and if the system wishes to continue to use the well, standard well siting approval must be obtained. After 60 days the interim emergency well must be either disconnected from the water system or approved under Env-Dw 301. **Failure to do so will result in enforcement action by NHDES.**

To obtain Interim Emergency Well approval the water system must:

- Notify NHDES and document that an emergency exists, usually in writing, though email is acceptable.
- Locate the well where it meets all the SPA and setback requirements of Env-Dw 301.
- Provide NHDES with nitrate and bacteria sampling analyses that document the well meets drinking water standards for these constituents.
- Obtain Interim Emergency Well approval from DWGB design review staff. This approval may be verbal followed by a formal letter.

D. Demonstration of Source Capacity

The DWGB design review staff sometimes requires that decommissioned or unused wells demonstrate source capacity before being reactivated. The requirements for this condition are as follows:

1. The water system must be able to demonstrate that, historically, an approval for the source was granted.
2. A standard pumping test and water quality analysis as required by Env-Dw 301.10.

All results of the above must be submitted to DWGB before the well can be reactivated. If such information is available, the well will be approved for not more than the volume or flow rate demonstrated for the original approval. If the original volume or flow rate data is not available the well can be approved for the volume necessary to meet current water system needs. Final approved volume will be that which was demonstrated during the pumping test.

If the inactive well is to be used to expand the water system by adding additional service connections, all of the requirements of Env-Dw 301 must be met as though it were a new well.

A Wellhead Protection Program is not required, but if the water system does not have an active program it is suggested that one be implemented at this time. A source water protection program will protect the quality of water used by the water system and could reduce regular water sampling requirements and costs. Contact NHDES at (603) 271-7017 for further information.

Part III: The Tools

Contents:

Section A

SAMPLE EASEMENT LANGUAGE
FOR
PUBLIC WATER SUPPLY WELL SANITARY PROTECTIVE AREA

The grantor hereby grants an easement for the sanitary protective area for the wells known as _____ , said easement being described as follows:_____
_____
_____
_____ The purpose of this easement is to establish a protective area to prevent contamination of the aforementioned water supply well(s). Hereafter, and for so long as the well(s) is (are) used for a source of public water supply, the area of the above described easement shall be kept in a natural state. No use of the area shall be permitted which could directly or indirectly degrade the quality of the aforementioned well(s) water. Uses that would be prohibited include:

Transportation corridors;
Underground utilities or structures except those that are associated with potable water, electricity or communication.
The storage, handling, transport, treatment, or disposal of the following:
Domestic or industrial wastewater; or,
Hazardous or regulated substances such as pesticides, gas and oil, and other chemicals; or,
Hazardous or solid wastes; or,
Fertilizers.
Any other use that the New Hampshire Department of Environmental Services determines would be detrimental to water quality.

No change in use of the area of the protective easement may be undertaken without approval from the New Hampshire Department of Environmental Services, which approval shall not be unreasonably withheld.

The grantor and his successors in interest shall retain full ownership interests in the area of the protective easement.

Section B

Wellhead Protection Program Educational Mailings

Contents of Section B

Example of a Cover Letter for PCSs

Dear _____ (Customer, Neighbor, Facility Owner - fill in appropriate term),

The purpose of this letter is to ask for your cooperation in ensuring safe drinking water for the _____Water System. If we are all careful, substances that could pollute our drinking water will never find their way to our wells.

No one wants to drink polluted water. Who would pour gasoline, motor oil, paint, garden chemicals or household chemicals into their drinking water? Yet, the equivalent is done when someone pours any of these products down their toilet, sink drain, or onto the ground.

To help you avoid activities that could threaten water quality, we are enclosing a Do's and Don’ts flyer, a gasoline flyer and a copy of the Best Management Practices for Preventing Groundwater Contamination (Env-Wq 401). Compliance with these rules is mandatory if you use, store, handle or dispose of regulated substances in other than household quantities. By complying with these rules and implementing the suggested practices contained on the flyer you will both help us to protect our wells while at the same time reducing your own environmental liability.

Please take the time to review and implement these rules and recommendations. **We need your help to protect this valuable source of drinking water!**

The management and users of this public water supply appreciate your cooperation.

Sincerely,

Contact person's name
_____ Water System

Example of a Cover Letter for Homeowners, Tenants, and Non-PCS Businesses

Dear _____(Customer, Neighbor, Homeowner - fill in with appropriate term),

The purpose of this letter is to ask for your cooperation in ensuring safe drinking water for the _____ Water System. If we are all careful, substances that could pollute our drinking water will never find their way to our wells.

Your property has been identified as being located within the area from which water flows to our wells. As such it is important that you are aware that what you do on your property could affect the quality of the water our system uses. Your activities could also affect the water quality of your own well if you have one.

No one wants to drink polluted water. Who would pour gasoline, motor oil, paint garden chemicals or household chemicals into their drinking water? Yet, the equivalent is done when someone pours any of these products down their toilet, sink drain, or onto the ground. By following the Do's and Don'ts on the attached flyer, gasoline fact sheet, and Backyard Mechanic's BMPs your family can avoid activities that could threaten water quality.

Please take time to review and follow the flyer's suggestions. **We need you help to protect this valuable source of drinking water!**

Sincerely,

Contact person's name
_____ Water System

Clean Drinking Water Is Up To You!

Where does your drinking water come from?

Your drinking water comes from groundwater. Groundwater is the water that flows through the spaces between soil particles and through fractures in rock. It comes from rain and snowmelt percolating through the ground.

Why should you be concerned?

While some pollutants (such as bacteria, viruses, and phosphorus) can be reduced by passing through soil under certain conditions, groundwater can be easily contaminated by chemicals and oils. Surface water is also affected by soil and pollutants picked up as water flows over land.

Automotive fluids
Auto batteries
Used motor oil
Paint
Paint thinner
Other solvents
Pesticides
Cleaning products

What can you do to protect your drinking water?

Do use non-toxic and less-toxic alternatives to household chemicals such as cleaners, oil-based paints, insecticides.
Do take leftover household chemicals to your town's household hazardous waste collection day.
Do follow package directions on pesticides, fertilizers, and other household chemicals.
Do check your underground fuel storage tank (USTs) frequently for leaks. Have an UST removed if it is more than 20 years old; replace it with above-ground storage that has a concrete slab underneath it and a cover over it.
Do take care of your septic system. Inspect the septic tank every year and have it pumped out every three years or when the combined thickness of sludge and scum equals 1/3 or more of the tank depth.
Do Avoid damage to your leach field and distribution lines by keeping vehicles, livestock, and other heavy objects off the leach field.

Don't buy more hazardous chemicals than you need.
Don't dispose of hazardous chemicals by pouring them down the drain or onto the ground.
Don't over-use household chemicals. More is not better.
Don't have your underground fuel storage tank removed by a contractor who is not familiar with new State guidelines for UST removal.
Don't overload your septic system with solids by using a garbage grinder (unless the system was specifically designed for a grinder).
Don't pour chemicals down the sink or toilet.
Don't use septic system cleaners or additives containing acids or chemical solvents such as trichloroethylene (TCE).

Reduce - Reuse - Recycle

Keep Gasoline From Your Drinking Water

Gasoline is one of the most dangerous products commonly found around the home, yet people sometimes use it and store it with little care. Some of the more toxic chemicals in gasoline that have been found in gasoline spills can contaminate your drinking water well or public water supply.

How to Protect Your Drinking Water from Gasoline

Avoid spilling gasoline on the ground, especially near wells.

- Keep refueling and engine work away from water supply wells. Do the work over a concrete floor or similar barrier, and immediately clean up any gas or oil spills.
- Don't top off your tank when filling your lawn mower, snow blower, etc.
- Don't drain gasoline from these machines onto the ground.
- Don't ever use gasoline to burn brush.
- Don't use gasoline as a weed killer.
- Don't pour gasoline down animal burrows.
- Don't use gasoline as an insect killer.

Avoid spilling gasoline in lakes, ponds, and rivers

- Fill portable tanks from outboard engines on shore, not near water. If you own a larger boat, make sure it has no-spill tank vents.
- Keep special gasoline-absorbing pads on your gasoline-powered boat; know how to use them.
- Refuel snowmobiles and ice augers onshore; do not take gasoline storage tanks onto ice-covered ponds.

Store gasoline properly

- Use a clearly labeled container made for gasoline, with a spout to avoid spills.
- Keep gasoline containers in a dry, well-ventilated shed or detached garage away from water supply wells. Don't keep metal gasoline cans on a dirt floor for extended periods.

Dispose of waste gasoline properly

- Handle old or dirty gasoline as hazardous waste. Bring it to a household hazardous waste collection site in a proper gasoline container.

What To Do If A Petroleum Spill Occurs

First, stop the discharge and prevent any further spillage. Then contact your local fire department. If the spill affects any surface or groundwater, or if the spill is greater than 25 gallons, you must notify the N.H. Department of Environmental Services at (603) 271-3644 during normal working hours (8:00 a.m. - 4:00 p.m., Monday - Friday). At all other times, contact with the NHDES may be made via N.H. State Police Dispatch at 1-800-346-4009.

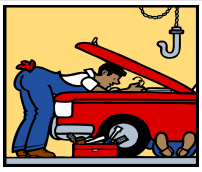
Best Management Practices for Backyard Mechanics and Hobbyists

Every year homeowners, backyard mechanics, and hobbyists spill or dispose of gas, oil, antifreeze and other motor vehicle or power equipment fluids that end up in the groundwater the majority of New Hampshire's residents use as a drinking water source.

Restoring contaminated groundwater can cost millions, and sometimes billions, of dollars. Here in New Hampshire an estimated $400,000/month is spent on remediation of MtBE alone, and that's only one of the constituents in gasoline that can pollute our drinking water.

Backyard mechanics and motor vehicle enthusiasts can easily help prevent groundwater contamination of drinking water supplies by following a few simple practices to prevent spills, leaks, and other potential sources of contamination. These practices are easy to follow and usually cost nothing but a little time and effort.

Did you Know?



- **Home vehicle repair enthusiasts in this country dump nearly 50 times more used oil on the ground in a year than the Exxon Valdes spilled in Prince William Sound.**
- **One quart of oil or ½ cup of gasoline can contaminate as much as 250,000 gallons of drinking water.**

- Never pour used oil, gasoline, transmission fluid, or antifreeze on the ground or down a drain. Local garages, waste transfer facilities, or household hazardous waste collection sites usually accept these used fluids for recycling, often for little or no charge.
- Refuel or repair engines over an impervious surface such as a concrete garage floor or a tarp on the ground. Always use a drip pan large enough to contain the motor vehicle or power equipment fluids being replaced or drained.
- Completely drain used oil filters over a drip pan or pail before disposal. Filters can take at least two days to fully drain. Many transfer facilities accept used oil filters for recycling. Store and transport used oil filters in a covered leak-proof container, like a plastic 5-gallon pail, until disposal.
- Always use a funnel or similar device when transferring new or used motor vehicle fluids from one container to another or from a container to the vehicle.
- Store as little gasoline or kerosene as possible around the home and always in UL-listed containers stored under cover and on an impervious surface. Make sure the containers' built-in spouts pour without spilling. Check all containers of motor vehicle fluids for leaks, at least once a month.
- Drain all fluids from used motor vehicle parts before removing them from the vehicle (Do this over a drip pan or impervious surface.) and store them on an impervious surface under cover or inside a covered leak-proof container, such as a large lidded tub.
- Keep absorbent materials such as pads, speedee-dri, kitty litter, or other clay-based products handy to the work area and clean up all spills as soon as they occur. Dispose of all used absorbents immediately in a leak-proof receptacle.

CHAPTER Env-Wq 400 GROUNDWATER PROTECTION

PART Env-Wq 401 BEST MANAGEMENT PRACTICES FOR GROUNDWATER PROTECTION

Statutory Authority: RSA 485-C:4, VII; RSA 485-C:11

Env-Wq 401.01 Purpose. The purpose of these rules is to establish the minimum required management practices to be employed when using, storing, or otherwise handling regulated substances, so that the risk of groundwater contamination is minimized.

Env-Wq 401.02 Applicability.

(a) Subject to (b), below, these rules shall apply only to persons who use, store, or otherwise handle any regulated substances in regulated containers.

(b) Pursuant to RSA 485-C:11, I, these rules shall not apply to:

(1) Potential contamination sources listed in RSA 485-C:7, II(j); or

(2) Those regulated substances defined as pesticides under RSA 430:28, XXVI.

(c) These rules also shall not apply to:

(1) Aboveground and underground storage tanks regulated under Env-Wm 1401, Env-Wm 1402, or successor rules in subtitle Env-Or; or

(2) On-premise-use facilities as defined in RSA 146-E:2, III.

(d) Potential contamination sources shall be subject to inspections by the department in any area.

Env-Wq 401.03 Definitions.

(a) “Department” means the New Hampshire department of environmental services.

(b) “Floor drain” means an opening in a floor that is not specifically included in an authorized discharge under one or more of the following regulatory mechanisms:

(1) A NH groundwater discharge permit;

(2) A registration required by Env-Ws 1500 or successor rules in subtitle Env-Wq;

(3) A national pollutant discharge elimination system permit; or

(4) A local authorization to discharge to the local wastewater treatment facility.

(c) “Impervious surface” means a surface through which regulated contaminants cannot pass when spilled. The term includes concrete and asphalt unless unsealed cracks or holes are present, but does not include earthen, wooden, or gravel surfaces or other surfaces that could react with or dissolve when in contact with the substances stored on them.

(d) “Owner” means the owner of the facility or site on which the potential contamination source is located and, if different, the person who is responsible for the day-to-day management of the facility or site.

(e) “Person” means “person” as defined in RSA 485-C:2, XI, namely “any individual, partner-

ship, company, public or private corporation, political subdivision or agency of the state, department, agency or instrumentality of the United States, or any other legal entity."

(f) "Potential contamination source" means, as specified in RSA 485-C:7, I, human activities or operations upon the land surface that pose a foreseeable risk of introducing regulated substances into the environment in such quantities as to degrade the natural groundwater quality. Examples of potential contamination sources are listed in RSA 485-C:7, II.

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

(h) "Regulated substance" means any of the following, with the exclusion of ammonia, sodium hypochlorite, sodium, acetic acid, sulfuric acid, potassium hydroxide, and potassium permanganate:

(1) Oil as defined in RSA 146-A:2, III;

(2) Any substance that contains a regulated contaminant for which an ambient groundwater quality standard has been established pursuant to RSA 485-C:6; and

(3) Any substance listed in 40 CFR 302, 7-1-05 edition.

(i) "Secondary containment" means a structure, such as a berm or dike with an impervious surface, that is adequate to hold any spills or leaks at 110% of the volume of the largest regulated container in the storage area.

(j) "Storage area" means a place where a regulated container is kept for a period of 10 or more consecutive days.

(k) "Work sink" means a sink necessary for the performance of activities that require use of a regulated substance that is not specifically included in an authorized discharge under one or more of the following regulatory mechanisms:

(1) A NH groundwater discharge permit;

(2) A registration required by Env-Ws 1500 or successor rules in subtitle Env-Wq;

(3) A national pollution discharge elimination system permit; or

(4) A local authorization to discharge to the local wastewater treatment facility.

Env-Wq 401.04 Storage of Regulated Substances.

(a) The owner shall store all hazardous wastes in compliance with applicable federal requirements and state requirements as specified in RSA 147-A and Env-Wm 100-1100 or successor rules in subtitle Env-Hw.

(b) The owner shall store all regulated containers on an impervious surface. The owner shall inspect the impervious surface to ensure no cracks or holes exist prior to storage of any regulated containers and annually thereafter during continued use of the storage area.

(c) The owner shall secure all storage areas against unauthorized entry by personal surveillance, physically-restricted access, or a combination of personal surveillance and physically-restricted access.

(d) The owner shall inspect all storage areas weekly for signs of spills or leakage from regulated containers. The aisle space between regulated containers that cannot be moved by hand shall be of ample size to allow an inspector to determine the condition of individual regulated containers.

(e) Each regulated container shall be clearly and visibly labeled with the chemical and trade name of the material stored within.

(f) Each regulated container shall remain closed and sealed at all times except to add or remove regulated substances. Regulated containers equipped with spigots, valves, or pumps shall be considered closed and sealed when the spigots, valves, or pumps are closed or in the "off" position, provided that drip pans are placed and maintained under the spigots, valves, or pumps.

(g) Spill control and containment equipment, including, as a minimum, absorbents to pick up spills and leaks, shall be located in the immediate area where regulated substances are transferred, used, or stored.

(h) Regulated containers in outdoor storage areas shall:

(1) Have secondary containment;

(2) Be kept covered at all times unless the regulated containers are in the process of being transferred to another location;

(3) Have a covering to keep the regulated container and the secondary containment structure free of rain, snow, or ice; and

(4) Not be stored within any of the following set-backs:

a. For surface waters, 50 feet;

b. For private wells, 75 feet;

c. The protective radius of any public water supply well; or

d. For storm drains, 50 feet.

Env-Wq 401.05 Transferring Regulated Substances. Regulated substances shall be transferred from or to regulated containers only under the following conditions:

(a) Funnels and drip pans shall be used; and

(b) Fueling or transferring shall be done only over an impervious surface.

Env-Wq 401.06 Floor Drains. Interior floor drains shall discharge only to a holding tank registered in accordance with Env-Ws 1500 or successor rules in subtitle Env-Wq.

Env-Wq 401.07 Work Sinks. Work sinks shall discharge only to a holding tank registered in accordance with Env-Ws 1500 or successor rules in subtitle Env-Wq.

Env-Wq 401.08 Holding Tanks. Holding tanks that receive discharges from floor drains or work sinks shall be registered and maintained in accordance with Env-Ws 1500 or successor rules in subtitle Env-Wq.

Env-Wq 401.09 Release Response Information.

(a) The owner shall post release response information in accordance with (b), below, at every storage area.

(b) Release response information shall contain the information necessary to contact emergency response personnel, including the following:

(1) The name of the individual designated by the owner to be contacted if a spill occurs;

(2) The method by which the designated individual can be contacted when there is a release, such as by phone, or in-person at the main office;

(3) The procedure for spill containment; and

(4) Emergency phone numbers including 911 and, depending on local protocol:

a. State police;

b. Local police and fire department;

c. Local hospital;

d. Department of environmental services;

e. Poison control center; and

f. Office of emergency management.

Env-Wq 401.10 Waivers.

(a) The rules contained in this part are intended to apply to a variety of conditions and circumstances. It is recognized that strict compliance with all rules prescribed herein might not fit every conceivable situation. Thus, persons subject to these rules may request a waiver of specific rules in this part in accordance with this section.

(b) The person requesting the waiver(s) shall submit the following information in writing to the department:

(1) A description of the facility or site to which the waiver request relates, including the name, address, and identification number of the facility or site;

(2) A reference to the specific section of the rules from which a waiver is being sought;

(3) A full explanation of why a waiver is necessary;

(4) Whether the waiver is needed for a limited or indefinite period of time;

(5) A full explanation with supporting data of the alternative(s), if any, proposed to be implemented or used in lieu of the section’s requirements; and

(6) A full explanation of how the proposed alternative(s), if any, would be consistent with the intent of RSA 485-C and would adequately protect human health and the environment.

(c) The department shall grant a waiver if it determines that the intent of RSA 485-C will be met and human health and the environment will be protected. In granting the waiver, the department shall impose such conditions, including time limitations, as the department deems necessary to ensure that the activities conducted pursuant to the waiver will be protective of human health and the environment.

(d) No waiver shall be granted to any requirement specified in statute unless the statute expressly allows such requirement to be waived.

(e) The department shall issue a written response to a request for a waiver within 90 days of receipt of the request. If the department denies the request, the reasons(s) for the denial shall be clearly stated in the written response.

APPENDIX

Rule Section(s)	**State Statute(s) Implemented**
Env-Wq 401 (see also specific section listed below)	RSA 485-C:1; RSA 485-C:4, VII; RSA 485-C:11
Env-Wq 401.10	RSA 541-A:22, IV

Chemical Monitoring Waivers

The sampling waiver program can save public water suppliers up to several hundred dollars per sampling location per year in sampling costs! Community and non-transient non-community water suppliers are required under the Safe Drinking Water Act to test annually for both volatile organic compounds (VOCs) and synthetic organic compounds (SOCs). Water suppliers will sample less often for VOCs and SOCs if they obtain sampling waivers. Waivers are granted based on source protection criteria. As of March 2007, 76 percent of the eligible water systems in New Hampshire had been granted sampling waivers. There is no cost to apply, the application process is not difficult, and help is available.

To qualify for waivers, a water supplier must put into effect a four-step source protection program.

1. **Delineate the area to be protected.** For groundwater sources, the area is called a wellhead protection area. The wellhead protection area is the land area from which groundwater may flow to the well. If you have a bedrock well, your wellhead protection area may simply be a circle drawn around the well with the size of the circle dependant upon the maximum daily volume withdrawn from the well. For non-bedrock or overburden wells, existing hydrogeologic information may be used to delineate the wellhead protection area. The wellhead protection area for new bedrock and overburden wells may be more accurately delineated on a current hydrogeologic assessment approved by DES. For surface water sources, the protection area consists of the portion of the watershed within 4,000 feet upgradient of the intake. All existing surface water sources already have delineated protection areas. DES provides a map to all waiver applicants that will show any existing protection area delineations for your source(s).
2. **Inventory potential contamination sources (PCSs)**. PCSs are facilities that use or handle greater than household quantities of regulated substances (see a list of common PCSs on reverse). To apply for waivers, you must list all PCSs within the source protection area. The map provided by the DES will assist you with this task.
3. **List land usage in the sanitary radius.** The sanitary radius is the land immediately around a well. It ranges from 75 feet to 400 feet depending upon the type of water system and the maximum daily volume. Land usage in the sanitary radius is critical to a well's protection due to its proximity. To apply for waivers, you must list man-made items in the sanitary radius. This step does not apply to surface sources.
4. **Manage PCSs** and other activities that may contribute to contamination of groundwater in your protection area. Management activities required for the waiver program depend on the size of the water system and the number of PCSs. All public water suppliers must educate (by means of informational flyers and form letter) residents and businesses within the source protection area. Large public water systems must also develop a program to visit all PCSs at least once every three years. Large systems with a significant number of PCSs must obtain legal authority to enforce state rule Env-Wq 421 that applies to the storage and handling of hazardous substances by PCSs.

How the Waiver Process Works

- First, the water supplier calls DES at (603) 271-7017 to request an application. The completed application is returned to DES for review.
- If a VOC waiver is granted, required VOC sampling is reduced from annually to as little as once every three years, depending on source protection criteria. Approximately 35 percent of systems receive a VOC waiver.
- If a SOC waiver is granted, required SOC sampling is reduced from annually to as little as once every six years. The length of the SOC waiver is either three or six years depending on source protection criteria. Approximately 99 percent of systems receive a SOC waiver.
- A water system must submit a complete and accurate waiver application and be in compliance with the DES, Drinking Water and Groundwater Bureau to be eligible for the sampling waiver program.
- All sampling waivers must be renewed every three years, regardless of waiver duration.

List of PCSs that Need to be Inventoried

- Vehicle service and repair shops
- General service and repair shops
- Manufacturing facilities
- Waste and scrap processing and storage
- Petroleum and chemical storage tanks
- Laboratories
- Fueling and maintenance of earthmoving equipment
- Cleaning services
- Food processing plants
- Hazardous waste facilities
- Medical, dental, veterinary offices
- Concrete, asphalt, tar plants
- Metalworking shops

Section C

File Review Guide and Worksheet

- Reviewing Files of Contaminated Sites
- Types of Projects Whose Files Must be Reviewed
- Guide to Conducting a File Review
- File Review Worksheet
- Example of an Inventory

Reviewing Files of Contaminated Sites for the Community Well Siting Process

1. Under N.H. Administrative Rules Env-Dw 301 for the siting of wells for small community water systems, applicants must identify potential and known sources of contamination within the wellhead protection area (WHPA) of proposed wells. Applicants must review NHDES Waste Management Division files relative to those sources and summarize certain information in well-siting reports submitted to NHDES. This fact sheet outlines the steps in the process and the types of information that the applicant must glean from the files. The applicant should contact NHDES staff to request an inventory of the wellhead protection area (WHPA). The staff person will need a location map (usually a USGS Map) of the well site. This may be faxed to (603) 271-0656 to the attention of "GIS Map & Inventory Request".
2. The Source Water Protection Program staff member will send the applicant a map accompanied by a list of known and potential sources of contamination that NHDES is aware of. As a rule, projects listed as "closed" do not need file review.
3. Call the NHDES file librarian at (603) 271-8808 to make an appointment to look at specific files. You do not necessarily need to review files for every project on the list. Table I summarizes the types of projects for which files must be reviewed and summarized.
4. When reviewing the files, obtain and summarize the information below for each contaminated site whose project type is listed in Table I. The following information for each site must be presented within the Well Siting Report. The first three bullets below should be listed in the Inventory provided by NHDES.

- NHDES project type
- NHDES project number
- NHDES project manager. (If not clear from the file, ask the NHDES file librarian). If the project manager is listed as "closed," no further information needs to be listed about the site.
- Site name and address
- Property owner’s name and address
- A general description of activities at the site and the current status of the project
- A chronology of events, including any releases, investigation, and remediation activities
- When applicable, a description of the nature, extent, amount, and location of the contamination or suspected release, and status of the remediation. Include copies of mapped contamination plumes, groundwater contours, and the Groundwater Management Zone, if available. For each project file reviewed, the well siting report should address each of the following questions.
    - Is groundwater contamination suspected or detected?
    - Has the source (the container(s), material(s) or soil(s) from which contaminants may migrate into groundwater) been removed?
    - Is the contamination being controlled? Has a groundwater management permit been issued? Is there any indication whether the terms of the permit are being followed?
    - Has the contamination been removed or remediated?
    - How much contamination is left in the ground? What are the concentrations and extent of contaminants still in the ground and/or in groundwater?
    - Has NHDES required further action?

Table I: Types Of Projects Whose Files Must Be Reviewed

Project Type Abbreviation	Description
CERCLA	Superfund site
COMPLAINTS	A complaint made and another project type has not been assigned
FUEL	Fuel oil leak at a bulk storage facility
H2O SAMPLE	Isolated sample with contamination detection not tied to a known source
HAZWASTE	Site has non-petroleum related contamination (e.g. solvents)
LAND/UNLN	Existing landfill or landfill closure
LAST	Motor fuel leak from an above-ground tank
LUST	Leaking underground storage tank
MOST	Leaking motor oil storage tank
OLD DUMP	Old open dump site (non-landfill)
OPUF	Leaking heating oil tank
RAPIDINF	Rapid infiltration basin
REMED/RCHG	Remediated or treated groundwater discharged to groundwater
SEPT/LAG	Septage lagoon
SITEEVAL	Unsolicited site assessment
SLUD/LAG	Sludge lagoon
SPILL/RLS	Oil spill or release
UWW/LAG	Unlined wastewater lagoon

Disclaimer: Information contained in this fact sheet is current as of December 2007. Statutory or regulatory changes that may occur after this date, may cause part or all of the information to be invalid. If there are any questions concerning the status of the information, please contact NHDES at (603) 271-2947.

Guide To
Conducting a File Review for
Siting New Water Supply Sources

Step 1. <u>Schedule a File Review Appointment.</u>

Review the GIS Map and Inventory obtained from NHDES to identify the site and town files that you must review. Any sites listed as 'closed' usually do not need file review. The exception would be a project located in near proximity to the proposed well and where groundwater contamination occurred. See the sample GIS Map and Inventory at the end of this section for an example of the information included in both. Files that must be reviewed are described below. Contact the Waste Management Division file librarian at (**603) 271-8808** with the town name(s), site name(s) and site number(s) of the files that you need to review. File review resources are limited and you need to provide two weeks advance notice for an appointment. Please note that not all file information may be available through One-Stop.

a. Town Files for each town in the 4000-foot preliminary WHPA.

Currently, there are two sets of town files in the Waste Management Division and you must review both sets. The town files contain correspondence regarding incidents and complaints that did not or have not yet become a NHDES project. These items may represent a release of contamination, but initial response activities by NHDES did not reveal a significant threat to groundwater. Generally these sites are not significant, but the applicant must decide if any item in the town files may have an effect on the proposed source and if they should do further evaluation of the incident or complaint as part of the new well siting.

b. Known contamination sites in the 4000-foot preliminary WHPA.

Known contamination sources are those with the project types listed below. They are listed on the GIS Map and Inventory that you obtained from NHDES. You must provide the file librarian with the site numbers and site names for these projects when making your file review appointment:

CERCLA	COMPLAINTS	FUEL	HAZWASTE
H2O SAMPLE	LAND/UNLN	LAST	LUST
MOST OLD DUMP	OPUF	REMED/RCHG	
SEPT/LAG	SITEEVAL	SLUD/LAG	SPILL/RLS
UWW/LAG			

Step 2. <u>Conduct the File Review</u>

a). Bring the following material to your file review appointment:

- This guide
- Your GIS Map and Inventory
- Street maps for the towns in your SWPA
- A copy of the attached worksheet for each project file being reviewed
- Cash to make copies if needed
- Notepaper and pen for taking notes

b). Arrive at your appointed time. Workspace and seating is limited.

c). Review Town Files: Review the correspondence and other material in the town files. Review both sets of town files. Identify any correspondence about a property in your preliminary WHPA. Make an assessment of the potential threat each may pose to the proposed source. It is the applicant's responsibility to be aware of these incidents, and to identify and assess any threats to their new well.

d). Review Known Contamination Site Files: Complete the attached worksheet for each contaminated site. The information must be included in your well siting report. Most applicants find it easier to scan the material to get a general idea of the project before trying to find answers to specific questions. The information requested in the attached table is required.

Step 3. <u>Update the Inventory and File Review, if necessary.</u>

When submitted to NHDES, the GIS Map, Inventory and file review information must not be more than 90 days old. The date of the inventory is shown in the map legend.

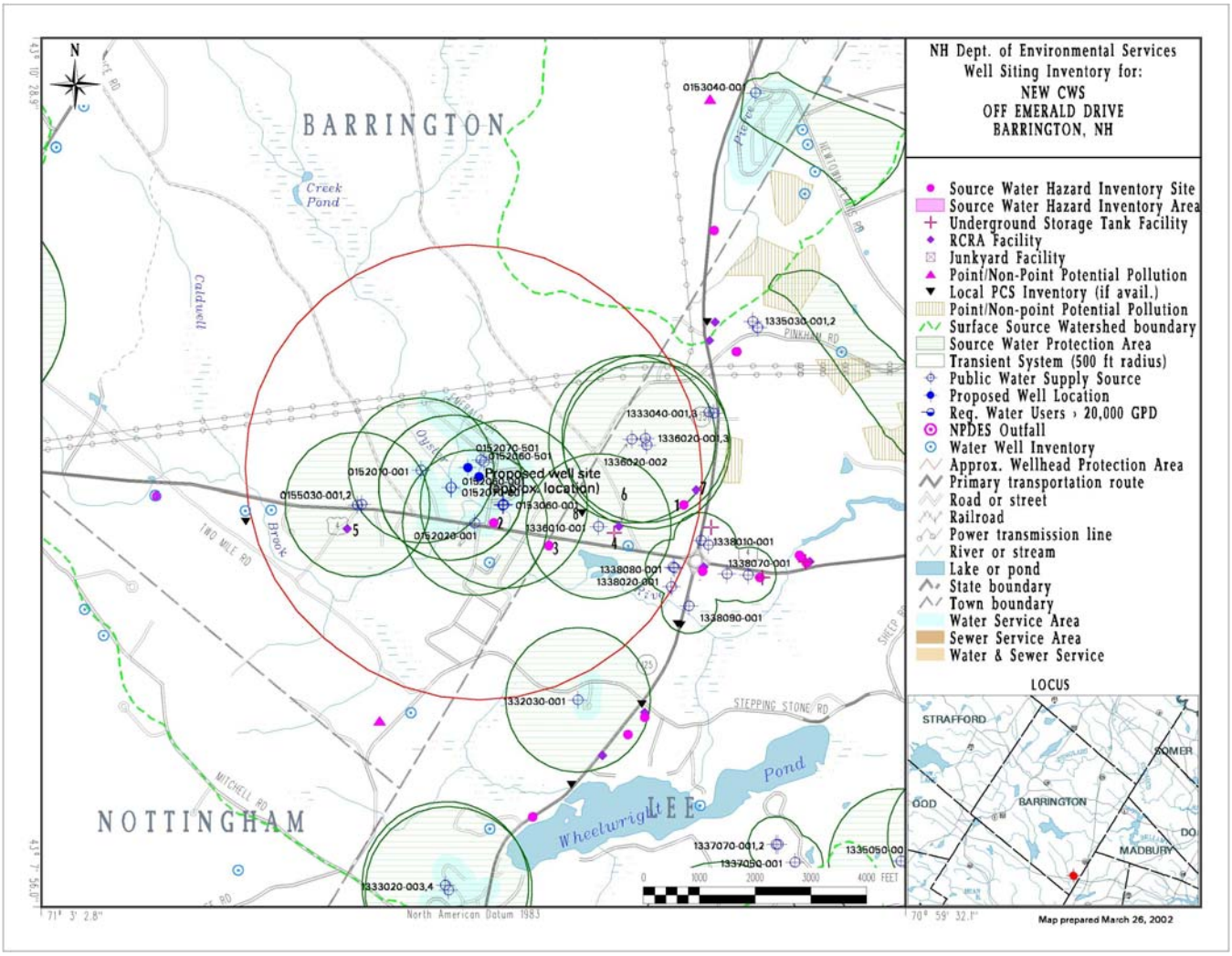
Reminder: This inventory must be expanded, see guidance on conducting a windshield survey in Section D.

<u>Need Assistance?</u>
Contact Diana Morgan at (603) 271-2947 with questions.

File Review Worksheet

NHDES Project Type		
NHDES Project Number		
NHDES Project Manager		
Site Name and Address		
Property Owner's Name and Address		
A description of the nature, extent, amount and location of the contamination or suspected released?		
General chronology of events at the site including release, discovery, investigation and remediation activities.		
Answer the following questions:		
	Is groundwater contamination suspected or detected? What chemicals were detected and in what concentrations?	
	Has the source of groundwater contamination been removed (such as the storage tank, container, waste material or soil)? Describe removal efforts.	
	Is the groundwater contamination being controlled and how?	
	Has a groundwater management permit been issued? (If yes, list the permit number)	
	Is further action being required by NHDES? (If yes, describe what actions)	
	Do you anticipate that contamination from this site is a threat to your well source? Describe Why or Why not? Include all supporting documentation.	

*Attach extra sheets as needed.


NH Dept. of Environmental Services
Well Siting Inventory for:
NEW CWS
OFF EMERALD DRIVE
BARRINGTON, NH
Source Water Hazard Inventory Site
Source Water Hazard Inventory Area
Underground Storage Tank Facility
RCRA Facility
Junkyard Facility
Point/Non-Point Potential Pollution
Local PCS Inventory (if avail.)
Point/Non-point Potential Pollution
Surface Source Watershed boundary
Source Water Protection Area
Transient System (500 ft radius)
Public Water Supply Source
Proposed Well Location
Req. Water Users › 20,000 GPD
NPDES Outfall
Water Well Inventory
Approx. Wellhead Protection Area
Primary transportation route
Road or street
Railroad
Power transmission line
River or stream
Lake or pond
State boundary
Town boundary
Water Service Area
Sewer Service Area
Water & Sewer Service
LOCUS
BARRINGTON
NOTTINGHAM
Proposed well site
(approx. location)
Creek Pond
Caldwell
Wheelwright Pond
STEPPING STONE RD
TWO MILE RD
MITCHELL RD
PINKHAM RD
0153040-001
1335030-001,2
1333040-001,3
1336020-001,3
1336020-002
0152070-501
0152060-501
0152010-001
0155030-001,2
0153060-001
0152020-001
1336010-001
1338010-001
1338070-001
1338080-001
1338020-001
1338090-001
1332030-001
1337070-001,2
1337090-001
1335050-001
1333020-003,4
0 1000 2000 3000 4000 FEET
North American Datum 1983
Map prepared March 26, 2002

Inventory of Potential and Existing Sources of Groundwater Contamination within the well siting area for:

SITE NAME: NEW CWS
ADDRESS:
TOWN:

MAP SITE#	FACILITY ID#	SITE NAME AND ADDRESS		PROJECT TYPE(S)
Source Water Hazard Inventory sites (January 2002) (* Inactive sites are marked with an asterisk) This includes all sites regulated by NHDES to ensure water resource protection.				
1	199407053	MARKET PLACE 72 CALEF RD LEE	HOLDTANK, Tax map 0004, Lot 0002 000 Risk: 8, Staff: %%	
2	199408028	APARTMENTS ROUTE 4 BARRINGTON	OPUF*, Tax map , Lot Risk: 8, Staff: CLOSED	
3	199712012	FUNERAL SERVICES ROUTE 4 (AT TOWN LINE) LEE	UIC, Tax map 7, Lot 1 Risk: 8, Staff: REGISTRATION	
Underground Storage Tank sites (January 2002) (* Inactive sites are marked with an asterisk) These are sites where there are, or were in the case of inactive sites, underground storage tanks. If there is a documented release from a tank, it becomes a LUST project type and is listed above in the Source Water Hazard Inventory.				
4	0113500	UNH - DUNLAP CENTER RTE 4 LEE	Tax map: 4, Lot: 02-01	UST
Resource Conservation & Recovery Act (RCRA) sites (Nov 2001) These are facilities that generate hazardous waste. If a release is documented, it is listed in the Source Water Hazard Inventory.				
5	NHD510121007	EQUIPMENT SYSTEMS INC US RTE 4 & GLASS LN BARRINGTON		RCRA
6	NHD982746760	UNIVERSITY OF NEW HAMPSHIRE 213 MAIN ST DURHAM		Type MANIF, Generator: SQG
7	NHD510003478	OSCO DRUG 5424 58 CALEF HWY LEE		Type , Generator:
Point/Non-point Potential Pollution Sources (March 1995) (* Inactive sites are marked with an asterisk.) These include local land use inventories performed by regional planning commissions in 1995. (Note: combined sewer outfalls and storm drains are excluded from this report.)				
No occurrences.				
Local Inventory of Potential Contamination Sources (January 2002) Includes potential contamination sources within a source water protection area. Located by public water systems applying for a sampling waiver or during windshield surveys performed by NHDES-WSEB staff.				
8	waiver302	USNH - MEYERS CENTER ROUTE 4 LEE		UST
Salvage Yards with 50+ automobiles (Nov 1991) Junk/salvage yards with 50 or more automobiles and registered with NHDES.				
No occurrences.				
National Pollutant Discharge Elimination System (NPDES) outfalls (December 2001) All facilities which discharge any pollutant from point sources to surface waters (directly or indirectly) are required to obtain a federal permit from the US Environmental Protection Agency and State Water Discharge Permit from NHDES.				
No occurrences.				

WELL SITING INVENTORY
NEW CWS

Registered Water Users >20,000 gal/day (February 2001)
"Use of water" includes the withdrawal of water from the ground or surface water body, the delivery of water from another supplier to the user indicated, the release of water from the user indicated to another facility, and/or the return of water to the environment.

No occurrences.

Water Well Inventory (April 1999) Due to the density of private wells, these sites are not numbered on the map. The coverage is not updated as frequently as the Well Completion Report Data Summaries. Includes wells installed since 1984; 30% have been field located.

WRB#	SITE NAME & ADDRESS			DATE WELL COMPLETED
015.0035	NAME 12/03/1984			
		HILLTOP RD BARRINGTON	Tax map: 13, Lot: 99A-36 & 37	
015.0129	NAME 08/15/1986			
		RTE 4 BARRINGTON	Tax map: 13, Lot: 32-3	
135.0463	APARTMENTS			09/02/1998
		RTE 4 LEE	Tax map: , Lot:	

Public Water Supplies (January 2002)

1338020-001	DRIVE IN		TRANSIENT	GROUNDWATER	BRW, 80' SW OF S CORNER OF BLDG.
	RTE 125, LEE TRAFFIC CIRCLE		INACTIVE	INACTIVE	
	LEE	Pop served by System: 100		Well depth: 895	
0152060-001	APTS I/EAST		COMMUNITY	GROUNDWATER	BRW 1 /300' S OF APT I EAST
	3 EMERALD DR	ACTIVE	ACTIVE		
	BARRINGTON	Pop served by System: 30		Well depth: 75	
0152070-001	APTS II/WEST		COMMUNITY	GROUNDWATER	BRW /300' S OF APT II WEST
	7 EMERALD DR	ACTIVE	ACTIVE		
	BARRINGTON	Pop served by System: 30		Well depth: 90	
1336010-001	MYERS CTR		NON-COMMUNITY	GROUNDWATER	BRW 1, 30' N OF MYERS BUILDING
	RTE 4, 27/25 CONCORD RD		ACTIVE	ACTIVE	
	LEE	Pop served by System: 60		Well depth: 460	
0155030-001	WORKSHOP		NON-COMMUNITY	GROUNDWATER	DUG 1
	RTE 4	ACTIVE	INACTIVE		
	BARRINGTON	Pop served by System: 34		Well depth: 0	
0155030-002	WORKSHOP		NON-COMMUNITY	GROUNDWATER	BRW 1 /75' SE OF BLDG
	RTE 4	ACTIVE	ACTIVE		
	BARRINGTON	Pop served by System: 34		Well depth: 300	
0152020-001	ARMS		COMMUNITY	GROUNDWATER	BRW 1, 40' SE OF APT BUILDING
	RTE 4	ACTIVE	ACTIVE		
	BARRINGTON	Pop served by System: 38		Well depth: 600	
0152010-001	APTS #3		COMMUNITY	GROUNDWATER	BRW 1, 350' NORTH OF NORTH BLDG
	RTE 4	ACTIVE	ACTIVE		
	BARRINGTON	Pop served by System: 45		Well depth: 300	
1336020-002	MARKETPLACE		NON-COMMUNITY	GROUNDWATER	BRW 2, 215' NNW OF PUMPSTATION
	CALEF RD, LEE TRAFFIC CIRCLE		ACTIVE	ACTIVE	
	LEE	Pop served by System: 25		Well depth: 700	
1336020-003	MARKETPLACE		NON-COMMUNITY	GROUNDWATER	BRW 3, 230' ENE OF PUMPSTATION
	CALEF RD, LEE TRAFFIC CIRCLE		ACTIVE	ACTIVE	
	LEE	Pop served by System: 25		Well depth: 1100	
1336020-001	MARKETPLACE		NON-COMMUNITY	GROUNDWATER	BRW 1, 175' EAST OF PUMPSTATION
	CALEF RD, LEE TRAFFIC CIRCLE		ACTIVE	ACTIVE	
	LEE	Pop served by System: 25		Well depth: 700	

PAGE 3
WELL SITING INVENTORY
NEW CWS

0153060-001	WATER SYSTEM RTE 4 BARRINGTON	COMMUNITY ACTIVE Pop served by System: 250	GROUNDWATER ACTIVE	BRW 1 /12' S OF PH Well depth: 425	
1338080-001	RESTAURANT ROUTE 125 LEE	TRANSIENT ACTIVE Pop served by System: 1400	GROUNDWATER ACTIVE	BRW 1 /20' S OF BLDG Well depth: 801	
0152070-501	APTS II/WEST 7 EMERALD DR BARRINGTON	COMMUNITY ACTIVE Pop served by System: 30	TREATMENT FACILITY ACTIVE	 Well depth: 0	UTILITY ROOM BASEMENT LEVEL
0152060-501	APTS I/EAST 3 EMERALD DR BARRINGTON	COMMUNITY ACTIVE Pop served by System: 30	TREATMENT FACILITY ACTIVE	 Well depth: 0	UTILITY ROOM BASEMENT LEVEL
1338080-501	RESTAURANT ROUTE 125 LEE	TRANSIENT ACTIVE Pop served by System: 1400	TREATMENT FACILITY ACTIVE	 Well depth: 0	TREATMENT CLOSET /KITCHEN AREA
0153060-002	WATER SYSTEM RTE 4 BARRINGTON	COMMUNITY ACTIVE Pop served by System: 250	GROUNDWATER ACTIVE	BRW 2 /29' SW OF PH Well depth: 800	
0153060-501	WATER SYSTEM RTE 4 BARRINGTON	COMMUNITY ACTIVE Pop served by System: 250	TREATMENT FACILITY ACTIVE	 Well depth: 0	PUMPHOUSE

DISCLAIMER: The coverages presented in this program are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. Feature attribute data are periodically (approximately once a month) downloaded from associated NHDES databases. The NH Department of Environmental Services is not responsible for the use or interpretation of this information. Please report any inaccuracies on either the map or inventory to Johnna McKenna (271-7017) so that they may be corrected as soon as possible. To schedule an appointment for file reviews please contact the librarian, at 271-3578. Please contact Diana Morgan (271-2947) with any questions regarding the New Well Siting process.

Section D

Windshield Survey Guide and Worksheet

- Conducting and Reporting a Windshield Survey
- Worksheet for Reporting

Conducting and Reporting on a Windshield Survey
For Siting New Water Supply Sources

As part of siting a new community water supply well, you must conduct a windshield survey (drive around) of your Wellhead Protection Area (WHPA) and find any potential contamination sources (PCS) not known to NHDES. State law defines a PCS as those activities on the list in Section E. They are activities that generally use larger than household quantities of regulated substances, which, if released to the environment, could pose a risk of groundwater contamination.

Step 1: **Obtain a GIS Map and Inventory.**

Contact NHDES staff to request an inventory of the wellhead protection area (WHPA). Submit a site map of your well location on a color USGS topographic map at 1:24000 or 1:25000 scales. The well location must be accurate to within 100 feet of the well's true location. Fax the map to (603) 271-0656 to the attention of "GIS Map & Inventory Request".

Step 2 Review your GIS map and inventory and the list of PCSs.

Think about the type and number of PCSs and other land uses in your WHPA. You may recall seeing other PCSs during your past travels through the area. Make a list of those so you can look for them during your survey.

Step 3: Become familiar with your WHPA.

Obtain and review a map of your WHPA that shows road locations. Try to use a large-scale map, such as a map of the town, showing all roads or a USGS quadrangle map, rather than a road map that covers the whole state. A copy of the town tax maps for the area is an excellent choice. It can be helpful to mark your road map with the PCSs identified on the GIS Map and Inventory.

Step 4: Plan a Route.

Decide which way you'll head first and how you'll explore the entire WHPA. We recommend you write this plan down and highlight it on the road map. When you're out exploring you will have plenty of other things to do, so knowing which way you're going to turn ahead of time will be a big help.

Step 5: Load your vehicle with the things you'll need:

-Your GIS Map and Inventory
-Your Route Plan
-The List of PCSs
-Maps
-Pen and Notepaper

Step 6: <u>Drive and Compare.</u>

Drive along all public roadways and compare the land uses you see to those on the PCS list. When you find or think you may have found:

a. A PCS not on the GIS Map, or
b. A business on the GIS Inventory that has changed in any manner, or
c. A private well within 1000 feet of the production well that must be monitored during the pumping test.

Pull off the road safely and do the following:

a. On the GIS map or road map, mark the location of any PCS or private well as accurately as possible using nearby intersecting roads or other features. If you have a personal GPS unit, you may use it to note the location. However, do not enter private property without the owner's permission.
b. Cross off any business on the GIS Inventory that is no longer a PCS.
c. Fill in the attached worksheet for reporting on the windshield survey.

It is important to note that PCSs don't always have a sign that says what they are doing. If you think something might be a PCS, make a note of what type of activity, the location and street address. You don't need to go up a private driveway or into a building during your windshield survey. You'll get the facts on site use later, from town offices or the building owner, in step 7.

Step 7: <u>Contact Town Offices and Building Owners.</u>

Tax, health department, code enforcement, fire department, or planning board records may be of use in identifying a PCS business, confirming a change in site activity, or identifying a spill or other contamination source. Document these contacts on the following worksheet.

When you make contact with a local official,

a. Explain that you are siting a new small community water supply well and are interested in learning more about land uses in the area. Stress that documenting land use is required by rule.
b. Request any owner or address information you couldn't get on your windshield survey;
c. Request information on any land uses that were not obvious during your windshield survey.
d. Request information on events or historic uses in your WHPA that may have resulted in a release of hazardous materials to the environment. The memories of local people can be a great source of this information, sometimes it is the only source.
e. Remember that many town officials in New Hampshire are volunteers and/or offices may only be open part-time.

Worksheet for Reporting on Windshield Survey

Water System Name:_____

Date:_____

Table 1. Potential Contamination Sources Found

Business Name or Resident	Land Use	Address	Location Marked on Map or GPS Coordinates?

Note: Make copies of this form if you identify more sites.

Table 2. Activities on NHDES's GIS Inventory that are no longer PCSs

Business Name or Resident	Address	Old PCS Activity (from GIS Inventory)	New Non-PCS Activity (from windshield survey)

Table 3. Contact with Local Officials and Property Owners

(May not be necessary, if water supplier has long-term knowledge of local land uses and can provide appropriate information.)

Local Officials You Contacted	Person Contacted & Date of Contact	Incident or Land Use Identified*	Address	Location Marked on Map or GPS Coordinates?
Health Officer				
Fire Department				
Code Enforcement Officer				
Zoning/Planning Board				
Town Clerk				
Tax Assessor				
Building Owner				
Other				

*Add sheets if needed to describe Incident or Land Use

Section E

Potential Contamination Source List

(Source: Groundwater Protection Act, RSA 485:C)

Vehicle service and repair shops* -- including but not limited to: automobile, truck and equipment service and repair shops; autobody shops; aircraft refueling, deicing and maintenance areas.

General service and repair shops* -- including but not limited to: furniture stripping, painting and refinishing; photographic processing; printing; appliance and small engine repair; boat repair, service, and refinishing; refrigeration, heating, ventilating and air conditioning shops.

Metalworking shops* -- including but not limited to: machine shops, metal plating, heat-treating, smelting and jewelry making shops.

Manufacturing facilities* -- including but not limited to: electronic and chemical manufacturing, processing, and reclamation; paper, leather, plastic, fiberglass, rubber, silicon and glass making; pharmaceutical production; pesticide manufacture; and chemical preservation of wood and wood products.

Underground and aboveground storage facilities -- for oil & hazardous substances, as define in RSA 146-C.

Waste and scrap processing and storage* -- including but not limited to: junkyards, scrap yards, and auto salvage yards; wastewater treatment plants; dumps, landfills, transfer stations and other solid waste facilities; and wastewater or septage lagoons.

Transportation corridors -- including but not limited to highways and railroads.

Septic systems -- large septic systems that require a groundwater discharge permit under RSA 485A:13.

Laboratories and professional offices* -- including but not limited to: medical, dental, and veterinary offices; and research and analytical laboratories.

Use of agricultural chemicals -- including but not limited to: golf courses; feedlots, kennels, piggeries, manure stockpiles; parks; nurseries and sod farms; and the usage of registered pesticides.

Snow dumps, **salt storage and use*** -- for winter road and parking lot maintenance.

Stormwater infiltration ponds or leaching catch basins

Cleaning services* -- including but not limited to: dry cleaners, laundromats; beauty salons; and car washes.

Food processing plants* -- including but not limited to: meat packing and slaughterhouses; dairies; and processed food manufacture.

Fueling and maintenance of excavation and earthmoving equipment*

Concrete, asphalt and tar manufacture*

Cemeteries

Hazardous waste facilities* -- regulated under the Resource Conservation & Recovery Act; as implemented by RSA 147-A.III.

*Sources subject to inspections for compliance with Best Management Practice for Groundwater Protection rules (Env-Wq 401)

Section F

Guidance for Assessing Impacts to and From Small Community Water Supply Wells

New Hampshire Administrative Rule Env-Dw 301, *Site Selection of Small Production Wells for Community Water Systems* requires the applicant assess impacts during a pumping test. An impact is defined as the effect of pumping the production well at the Permitted Production Volume on or from the following:

- Water levels in public and private wells within 1000 feet of the production well.
- Water levels in nearby surface waters.
- Existing groundwater plumes.
- Saltwater intrusion into the aquifer
- Surface water intrusion into the production well.

Impact to Non-System Wells

The most common impact is to water levels in other wells in the vicinity of the production wells. However, if impacts other than these occur, NHDES will provide remediation guidance. Though the rules only require monitoring of wells within 1000 feet of the production well, serious effects on water levels in wells much farther away have occurred. The applicant or NHDES may be contacted by irate residents of the area complaining about impacts to their water supplies. A thorough assessment prior to the pumping test can avoid some unwelcome surprises later on.

NHDES may work with the applicant during the assessment process by researching available geologic data such as lineament maps and stratified drift aquifer maps and identifying areas outside a 1000-foot radius that may be influenced by the pumping of the production well. Though monitoring private wells outside the area required by rule may seem onerous or unnecessary to the applicant, it may allay the fears of existing residents. This is especially important where there is strong local opposition to the development. The following outlines some steps the applicant can take during the assessment process.

Assessment:

- Prior to the pumping test, perform a survey to identify water supply wells that should be monitored during the pumping test. Use the information provided by NHDES to help define the extent of the area to be surveyed. NHDES can also supply a GIS map showing the locations of water distribution lines that will help the applicant identify areas not served by public water supplies. Contact the owners by certified mail and get permission to monitor the wells. It is very important to document refusals as well as those who accept monitoring.
- Research available data including the Water Well Program Well Completion Reports (available online at http://des.nh.gov/organization/divisions/water/dwgb/wwb/index.htm and One-Stop), and town records to determine historic water levels in the area. Talk to local officials such as Town Planners, Health Officers and Fire Department personnel. This can be done as part of your inventory and windshield survey. Does the area have a history of diminishing water levels? Have there been any disputes over water rights? Provide a contact list of homeowner names and lot numbers where wells will be monitored, and a cover letter to be sent to well owners asking permission to monitor their well. A sample cover letter can be found at the end of this section.

- Monitor the wells identified in your survey. Owners should document daily use of their wells.

NHDES must address adverse impact complaints received in the course of the well siting approval process. NHDES encourages the applicant to negotiate with the well owner to provide an agreeable solution to any problems that arise. The following suggested methods, or combination of methods, of addressing impacts due to pumping a production well are acceptable. Other solutions may be presented to NHDES for approval.

Suggested Methods for Addressing Impacts:

- Replacement of the impacted source.
- Replacement may include deepening of the impacted source or setting the pump deeper in the well.
- Connecting the impacted source to the community water system.
- Periodic monitoring of the impacted source.
- Periodic monitoring of the pumping volume of the production well.
- Reduction in withdrawals from the production well.
- Water conservation following Water Efficiency BMPs by the users of the community water system that has produced the impact.

The water system owner may appoint a contact person who is prepared to address impact complaints. NHDES must be notified in writing of all concerns raised by the public and if they are being addressed by the water system's owner. NHDES will make the final determination of adverse impacts.

Impacts from the pumping of the production well only will be considered under the assessment process. Private well owners who feel they have been impacted by the pumping of the production well must be able to demonstrate an impact occurred. Those owners who refused to allow monitoring of their wells during the pumping test will need other documentation to support their claim of an impact.

Potential impacts to the production well will have been identified during the file review/windshield survey process. As a result, NHDES may require extra water quality sampling during the pumping test to assess possible impacts to the well from PCSs located near the site. Methods for addressing an impact may include treatment and a reduced pumping rate, but usually a well that experiences a water quality impact from a man-made source cannot be approved.

[Date]

[Project Name] - Community Water System
[Physical location] Road – [Town], New Hampshire
Water Supply Well Testing
New Water Supply Well(s) No. [#'s]

Dear Neighbor:

A new community water system is presently planned adjacent to your property; at [street location of new project]. The proposed public water system will obtain its drinking water from a small community production well(s) instead of individual private wells. The New Hampshire Department of Environmental Services, Drinking Water & Groundwater Bureau (DWGB), has received a preliminary well siting report and water conservation plan for review, and a new bedrock well(s) will be drilled when these documents are approved. The next step is to test the new well(s) by pumping each continuously for 48 hours, in accordance with the New Hampshire Administrative Rule Env-Dw 301, *Small Production Wells for Small Community Water Systems*.

The DWGB requires us to contact all homeowners with private wells within 1,000 feet of the new well(s) and offer you the opportunity to have the water level of your well monitored during the pumping test. This monitoring is necessary to assess if any impacts occur during testing. Monitoring can only be performed with your permission. Please be advised that we do not anticipate any adverse influence on your well from the pumping of the new well(s). Monitoring your well is a precaution. However, if impacts do occur DWGB requires us to address them before the new well(s) can be approved.

Testing is presently scheduled to begin [Date]. Monitoring your well is optional. You may decline this offer. [Pumping test company and business location town] will be conducting the 48-hour test and will complete the monitoring work. Wells will usually be monitored early morning and late afternoon. If you wish to have your well monitored, please fill out the attached form and return it in the accompanying stamped self-addressed envelope or call us at the number below my signature. We ask that you respond promptly as the test is scheduled to begin in [#] weeks.

If you have any questions about the new community well siting process or the monitoring of your well, please contact Diana Morgan of the DWGB at 603-271-2947 or by email at Diana.Morgan@des.nh.gov.

Respectfully,
[Company name]

[Signature]

[Consultant's name and licensing, if applicable. Eg: Sam Water Man, PG.]
[Phone number]

WELL MONITORING FORM

- YES - _____ I would like to have my well monitored.

- NO - _____ I do not wish to have my well monitored.

Name: _____ Date: _____

Address: _____ Tel. (W) _____, (H) _____

Email:_____

Best time to reach me is: _____

We need to know the following information to coordinate monitoring of your well:

1. The location of your well should be clearly marked. The cap must be clean and accessible, as the well will have to be opened (cover removed) to monitor water levels during the test.

2. Year well was installed: _____. Depth of Well _____.

3. Number of persons in household _____.

Please keep a time log of when water is being used in the home during the testing, as this affects the water level in your own home well.

Monitoring of the water level in your well will take place at regular intervals during the entire test. Please be aware that this will mean early morning, daytime and/or late evening monitoring. We will not measure water levels in your well after dark.

[Company performing pumping test] will enter your property only to measure water levels in the well. Access to your home will not occur or be necessary.

Section G

Connection Requirements Fact Sheet

All wells at small community systems must meet requirements of the Department of Environmental Services (NHDES) **before** being put into service for use by the public. A small community system, with an unapproved source on-line, is subject to a fine. Env-C 602.08(c) provides for a fine of **$1,000** per well that is connected, activated, or re-activated at a small community water system without NHDES approval.

Before using any water supply well or activating/re-activating any existing well, the following requirements must be met.

- **Well Siting Approval:** All wells must meet well siting criteria and obtain approval under Env-Dw 301. Contact Diana Morgan at (603) 271-2947 or Diana.Morgan@des.nh.gov with any siting concerns.

- **Design Approval:** If connection requires installation of more than 500 feet of waterline, treatment facilities, or any other appurtenances; then plans and specifications must be approved by NHDES before the start of any construction. Contact Jim Gill at (603) 271-2949 or james.gill@des.nh.gov with submittal questions.

- **Water Meters:** Each source must have its own water meter. It must be installed in the line between the source and the first storage tank.

- **Sampling Taps:** Each well must have its own sampling tap. Each tap shall be placed in the line between the source and the first storage tank. It shall be at least 12 inches above the floor or finished grade.

- **Department Inspection:** Source connections requiring design approval as described above and those where new treatment will be applied shall also require an inspection by NHDES staff. The inspection shall occur after construction and **before** the source is used to provide water to the system.

- **Disinfection:** Wells and all waterlines, storage tanks, etc. must be flushed, disinfected with chlorine, reflushed, and sampled for acceptable bacteria quality **before** being used to provide water to the system.

- **Sampling Schedule Update**: Each well must be sampled according to a revised schedule provided by NHDES. Contact Tricia Madore at (603) 271-3907 or triacia.madore@des.nh.gov with any questions about schedules.

- **Blend Approval:** Multiple sources may be sampled as a single, blended sample, only if all the system's active sources are wired to operate either simultaneously or to automatically alternate between pumping cycles. New blends must be approved by NHDES. Contact engineering field staff at (603) 271-2513 to obtain blend approval.