



Small Production Wells for Small
Community Water Systems
Preliminary Report
Drinking Water and Groundwater Bureau



RSA/Rule: RSA 485:8, RSA 485:48, Env-Dw 305

PRELIMINARY REPORT COVER PAGE

PROJECT NAME	
PROJECT TOWN	
PWS ID	

APPLICANT (Project/Water System Owner)

Name	
Mailing Address	
Daytime Phone Number	
Email Address	

WELL SITE OWNER (Property Owner)

Name	
Mailing Address	
Daytime Phone Number	
Email Address	

PROJECT CONTACT/REPORT PREPARER

Name	
Company Name	
Mailing Address	
Daytime Phone Number	
Email Address	

PUMPING TEST PERFORMER/CONTACT

Name	
Mailing Address	
Daytime Phone Number	
Email Address	

SUBMITTAL INFORMATION

1. Project Type:
 - a. ___ New well(s) for New System
 - b. ___ New well(s) for Existing System
 - c. ___ Replacement well(s) for Existing System
 - d. ___ Hydrofractured or Deepened well(s) for Existing System

2. Proposed source capacity volume in gallons per day: _____

DWGBinfo@des.nh.gov or phone (603) 271-2513
PO Box 95, Concord, NH 03302-0095

CERTIFICATION STATEMENT

By signing this preliminary report the signer certifies that the information contained in or otherwise submitted with this preliminary report is true, complete and not misleading to the best of the signer’s knowledge and belief.

By signing this preliminary report the signer understands that submission of false, incomplete or misleading information is grounds for:

- Not approving the report;
- Revoking any approval that is granted based on the information;
- Suspending or revoking the professional license held by the signer if the department is the licensing authority or referring the matter to the appropriate licensing authority for potential action against the professional license held by the signer if other than the department; and
- If the signer is acting as or on behalf of a listed engineer as defined in Env-C 502.10, debarring the listed engineer from the roster.

By signing this preliminary report, the signer understands that they are subject to the penalties specified in NH law, currently RSA 641:3, for making unsworn false statements.

By signing this preliminary report, the signer and applicant agree to comply with all applicable rules and conditions of the approval, if one is issued.

SIGNATURES

APPLICANT: _____ **DATE:** _____

PRINTED NAME: _____

***PRELIMINARY REPORT PREPARER:** _____ **DATE:** _____

PRINTED NAME: _____

PROFESSIONAL LICENSE TYPE: _____

PROFESSIONAL LICENSE NUMBER: _____

**If the preliminary report preparer is a NH-licensed Professional Engineer (P.E.) or Professional Geologist (P.G.), this cover page must bear the stamp or seal of the licensed professional.*

For additional information contact NHDES’ Community Well Siting program manager at (603) 271-8866.

PRELIMINARY REPORT FORM

PURPOSE: This form will provide the information required for a preliminary report for a new small production well(s) under Env-Dw 305, *Small Production Wells for Small Community Water Systems*. Please be advised that this form is provided for the convenience of applicants, and you are not obligated to use it. If you prefer to produce an original report, remember to provide the form cover page and **all of the information** required under the rules. Helpful information and reminders are provided throughout this form and are printed in *italics*. This form, other related publications and contact information for NHDES' Community Well Siting program staff can be found on NHDES' website at http://des.nh.gov/organization/divisions/water/dwgb/dwspp/well_siting/index.htm.

INSTRUCTIONS:

- A. Reviewing the following materials will help you complete this form. You can obtain copies of the following well siting materials from NHDES' Public Information Center at (603) 271- 8876 or from the website listed above.
1. NH Administrative Rule, Env-Dw 305, *Small Production Wells for Small Community Water Systems*.
 2. The well siting guide, *The Applicant's Toolkit for Siting New Small Community Wells in New Hampshire*.
 3. The pumping test guide, *A Field Guide for Pumping Test Operators*.
 4. NH Administrative Rule, Env-Dw 405, *Design Standards for Small Community PWS*.
 5. NH Administrative Rule, Env-Wq 2101, *Water Conservation* and the Water Conservation Plan Guidance Document. (Copies of these documents can be found on NHDES' website at http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/index.htm)
- B. Email NHDES' Community Well Siting program to request a GIS map and inventory of known and potential contamination sources and water users in the project area. The staff person will need coordinates or a location map of the site (USGS map or equivalent). When you receive the map and inventory, if any active known contamination sources exist in the Wellhead Protection Area, review the applicable Hazardous Waste Division files to determine if the site poses a contamination risk to the proposed new well. Contact NHDES' Public Information and Permitting Unit at (603) 271-8876 to schedule a file review or submit a request online at <https://xml2.des.state.nh.us/FileReview/FileReview.aspx>. For further instructions on conducting a file review, refer to *The Applicant's Toolkit for Siting New Small Community Wells in New Hampshire*.
- C. NHDES reviews submissions in the order they are received. If the information submitted is incomplete, NHDES will respond in writing noting the missing or incorrect information.
- D. If you need to provide additional information, please include additional pages directly after the page containing the pertinent section.
- E. Before submitting, review the form to ensure all questions are answered and all attachments are included. When complete, submit the form in a portable document format (PDF) via email to NHDES' Community Well Siting program.

Section 1.0 GENERAL INFORMATION

1.1 Project Information

1.1a Does the applicant (project or water system owner) own or otherwise have legal control of the well site(s) and the land within the Sanitary Protective Area(s) (SPA) of the well(s)?

YES ___ NO ___

If **YES**, attach a copy of the recorded deed, easement or other legally binding document.

If **NO**, attach a letter or equivalent document signed by the owner of the well site property that authorizes the applicant to apply for a new small production well(s) on the property.

1.1b Will the applicant retain ownership of the water system after approval for the new production well(s) is obtained?

YES ___ NO ___

If **YES**, go to **Section 1.2** below.

If **NO**, identify the future water system owner:

Name _____

Address _____

Company _____

Daytime Phone Number _____

1.1c Describe when and how ownership will be transferred to this future owner.

1.2 Water Conservation

Has a Water Conservation Plan (WCP) been submitted, in accordance with Env-Wq 2101, *Water Conservation*?

YES ___ NO ___

Date of Submittal: _____

(Please be advised that NHDES cannot issue final approval for the new well until a WCP has been approved. Please use the Water Conservation Plan Guidance Document located at http://des.nh.gov/organization/divisions/water/dwqb/water_conservation/index.htm or contact NHDES' Water Conservation program at (603) 271-0659 for WCP assistance.)

1.3 Site Location Maps and Sketch

1.3a. Site Map *(Show the well location on a US Geological Survey [USGS] topographic map.)*

Name and Date of USGS Map _____

1.3b. Tax Map

(Show the well location on a municipal tax map or surveyed site plan and identify the map and lot numbers.)

Town tax map and lot number _____

1.3c. Site Sketch

Provide a sketch **with a scale of 1"=100' or larger**, showing the well location, elevation contours, stormwater drainage structures, and **everything** within at least 1,000 feet of the new well. Incorporate historic, existing and proposed land uses, including:

- livestock areas
- foot paths
- homes
- sand/soil/wood piles
- mowed areas
- recreational areas
- pump houses
- septic systems
- surface waters
- gravel roads
- driveways
- farm animals
- roads (and ROW)
- farm fields
- athletic fields
- wetlands
- easement areas
- landscaped areas
- protected lands
- parking
- buildings/sheds
- other wells
- flood plain
- fuel tanks
- fences
- trails
- dumpsters
- storage
- salt piles

(Please Note: Other sections of this form require additional information that should be included on this sketch. If this is a new well for an existing system and no surveyed site plan exists, an aerial photograph base map may be used as long as all features listed above are clearly shown and labeled.)

Section 2.0 SOURCE CAPACITY REQUIREMENTS

(This information is needed to ensure that the new well(s) will meet the intended purpose and the pumping test is designed appropriately.)

2.1 Water System

Is this a new water system? YES___ NO___

If **YES**, go to **Section 2.2**

If **NO**, go to **Section 2.3**

2.2 PROPOSED (NEW) Water System

A request for Concept Approval under Env-Dw 405.04 will be reviewed as part of the Preliminary Report provided the following information is submitted with this form.

2.2a. Concept Approval

Will this water system be a public water utility subject to regulations under the NH Public Utilities Commission and/or charge any connections or customers for water based on metered water use?

YES___ NO___

(If **YES**, please contact NHDES' Small Systems Engineering program at (603) 271-2953 for further instructions. Provide a map locating the proposed service area.)

2.2b Type of System

- Single Family Homes
- Mobile Home Park
- Apartment or Condominium Complex or Clustered Townhouse/Duplex, not age-restricted
- Nursing Home or Assisted Living Facility
- Age-restricted Elderly Housing (*Standalone units, Clusters or Townhouse/Duplexes, etc.*)
- Other. Describe: _____

2.2c. Source Capacity Requirements (*Size of the system.*)

2.2c.1 What is the total source capacity required for the system under Env-Dw 405? *Use Worksheet A to calculate source capacity and to explain how the calculations were developed.*

_____ gallons/day (gpd).

*Please note that Env-Dw 405 requires irrigation be included in source capacity estimates. If **landscape irrigation** is planned for this project, this use **must** be included in the source capacity calculations, even if a separate well and system will be installed for irrigation purposes.*

*(If the source capacity requirements for the new system exceed 57,600 gpd, **STOP!** This project will require a large groundwater withdrawal permit under Env-Wq 403, Large Groundwater Withdrawals. Contact NHDES' Community Well Siting program at (603) 271-8866 for further guidance.)*

2.2c.2 How will source capacity requirements be met? (*Complete Table 2-1.*)

(How many wells are planned, are they bedrock or overburden and what yield is anticipated from each well? System source capacity equals the sum of the permitted production volumes of all wells, new and existing. The permitted production volume of a new well is the maximum amount that can be withdrawn over any 24-hour period and is demonstrated by a constant rate pumping test.)

Table 2-1, PROPOSED NEW WELLS (For a New Water System)

Well Name and Number (<i>ex. Bedrock Well 1</i>)	Well Type (<i>Bedrock or Overburden</i>)	Proposed Pumping Rate (gpm)	Proposed Permitted Production Volume (gpd)

*(If you have answered all the questions in **Section 2.2** above, Go To **Section 3.0.**)*

2.3 EXISTING Water System

2.3a Project Type *(check one)*

- Installation of a new well(s) **(Complete Sections 2.3-7.0)**
- Reactivation of an inactive well(s) **(Complete Sections 2.3-7.0)**
- Increasing the approved maximum daily withdrawal or permitted production volume of an existing active well(s) **(Complete Sections 2.3-7.0)**
- Deepening or hydrofracturing an existing active well(s) to regain lost capacity **(Complete Sections 2.3b-f, 3.1-3.3 & 4.0-6.0)**
- Replacement of an existing active well **(Complete Sections 2.3b-f, 3.0-6.0)**

2.3b Type of Need *(Why does the system need a new well? Check all that apply.)*

- To obtain approval for an increase in users. *(a system expansion; please note that engineering review and approval for the expansion is required)*
- To meet current demand or design requirements. *(a system deficiency)*
- To meet unusual demands. *(more than the standard flows)*
- To supplement declining yields of existing wells
- To replace an existing well. Explain why a replacement well is needed.
- Other. Describe: _____

2.3c Water Shortages

2.3c.1 Has the water system experienced any water shortages?

YES ___ NO ___

If **NO**, go to (2.3d.) below.

If **YES**, describe the events and measures taken, including dates if available and provide a general assessment of where and how customers are using water. Attach water meter records for the well(s) for the past two years and provide daily meter records that show peak use, if available.

2.3c.2 Were water conservation measures implemented?

YES _____ NO _____

If **YES**, describe the measures taken.

2.3c.3 Will it be necessary to connect the new well to the water system prior to final approval due to a water system emergency?

YES _____ NO _____

If **YES**, describe the emergency.

2.3d. Describe the existing system.

How many wells does the system have (*active & inactive*)? _____

How many wells are being used now? _____

How many of the existing wells were constructed after July 1998? _____

Specify which wells were constructed after July 1998. _____

How many service connections does the system have? _____

What type(s) of use(s) does the system serve (*refer to Env-Dw 405 to identify use type*)?

2.3e. What is the total source capacity required for the existing system under Env-Dw 405? (*Please use worksheet A to ensure calculations are complete and describe how those calculations were developed. If **landscape irrigation** is planned for this project, or already exists at the water system, this use **must** be included in the source capacity calculations.*)

Total Source Capacity Required under Env-Dw 405 = _____ gpd

2.3f. Are more service connections proposed?

YES ___ NO ___

If **NO**, go to (2.3g.) below.

2.3f.1 If **YES**, how many new connections are proposed? _____ (*Go to 2.3f.2.*)

2.3f.2. What is the total source capacity required for the system under Env-Dw 405 after the expansion?

Total Source Capacity Required for the expanded system = _____ gpd

2.3g. Number and Operation of Existing Wells

2.3g.1 Describe the existing wells in Table 2-2 and provide well logs (*Well Completion Report, if available*) for each well. Document the **maximum sustainable capacity** of each well. (*This is the maximum rate, in gpm, at which the well can operate on a continuous, long-term basis, without running out of water. Include wells that will be replaced, reactivated or improved to regain lost capacity by deepening, increasing the pumping rate or by hydrofracturing.*) Attach extra sheets as needed.

Table 2-2, EXISTING WELLS (Show all well locations on the site sketch in **Section 1.3c.**)

Well Name or PWS Source ID Number/ Date Installed or Well Completion Report # (Include wells not currently in use that will be reactivated or improved)	Current Use		Proposed (Improved)Use	
	Pumping Rate (gpm)	Maximum Total Daily Withdrawal or Permitted Production Volume (gpd)	Pumping Rate (gpm)	Maximum Total Daily Withdrawal or Permitted Production Volume (gpd)

2.3g.2 Describe in Table 2-3 how the maximum sustainable capacity was determined for each well. (For example, water meter records, sanitary survey reports, driller's log, pumping test report, etc.)

Table 2-3, CAPACITY

Well Name/ PWS Source ID	Description of How Maximum Sustainable Capacity was Determined

2.3h Number and Operation of Proposed (New) Wells

Describe proposed new wells in Table 2-4. (Show all proposed new well locations on the site sketch in **Section 1.3c.**)

Table 2-4, PROPOSED NEW WELLS (New Wells for an Existing Water System)

Well Name and Location	Well Type, Bedrock or Overburden	Proposed Use	
		Maximum Pumping Rate (gpm)	Proposed Permitted Production Volume (PPV) (gpd)

2.3i. Meeting Source Capacity Requirements

(If the PPVs of all of the system’s existing wells constructed after July 1998 PLUS the PPVs of the proposed new wells are greater than 57,600 gpd, STOP! This project will require a large groundwater withdrawal permit under Env-Wq 403, Large Groundwater Withdrawals. Contact NHDES’ Community Well Siting program at (603) 271-8866 for further guidance.)

Section 3.0 SOURCE WATER PROTECTION

(This information is needed to evaluate the appropriateness of the well site based on land uses.)

3.1 Land Uses in Immediate Area

3.1a. Historic Land Uses Describe historic use(s) *(a 50-year history)* of the well site property within at least 500 feet of the new well. List sources of information.

3.1b. Existing Land Uses Describe the existing land use(s) on the property within at least 500 feet of each new well. *(Include any activity listed in Section 1.3c.)*

3.1c. Proposed Land Uses Describe proposed use(s) of the property within at least 500 feet of each new well. *(Include any activity listed in Section 1.3c.)*

3.1d. Site Sketch Do all of the land uses described above appear on the site sketch required by Section 1.3c?

YES ___ NO ___

If **YES**, go to Section 3.2.

If **NO**, return to the site sketch and add this information before going on to Section 3.2.

3.2 Proximity to Surface Water and Floodplain

3.2a. Setback from floodplain *(This information must be obtained using the Federal Emergency Management Agency’s (FEMA) Flood Hazard Maps, which can be obtained from the town in which the project is located or FEMA’s website at <http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping>.)*

3.2a.1. Will the proposed new well be located in the 100-year flood plain? YES ___ NO ___

If **YES**, What is the flood elevation? _____

What is the elevation of the well site? _____

What will be the final wellhead elevation? _____

How were these elevations determined? _____

If **NO**, (If the well site is not in a 100-year floodplain) then how far is the well site from the nearest floodplain? _____ Feet

3.2a.2 Attach copies of the relevant portions of the Flood Hazard Map (formerly the Flood Insurance Rate Map) or any engineering calculations or surveyed information used to identify floodplain locations and elevations in relation to the proposed new well, if a Flood Hazard Map is not available.

3.2b. Setback from surface water

How far from the well site is the nearest surface water or persistent wetland? _____ (Surface water includes streams, brooks, ponds, drainage ditches, detention ponds, fire ponds or lakes. A persistent wetland is one that is flooded with water above the ground surface for at least 30 consecutive days. New wells must be located at least 50 feet from surface water or persistent wetlands.)

Describe all surface waters and wetlands within 1,000 feet of the proposed new well(s). Include distances. (Be prepared to sample for Microscopic Particulate Analysis (MPA) if a proposed overburden well is within 100 feet of a surface water or wetland or if a proposed bedrock well is within 200 feet of a surface water or wetland. The location and extent of all surface waters and wetlands should be shown accurately on the map required in Section 1.3. In some instances wetland delineation by a New Hampshire-certified wetland scientist may be required.)

3.3 Sanitary Protective Area

3.3a. Sanitary Protective Area (SPA) Radius

What is the radius of the SPA around each proposed new well? (Complete Table 3-1 for each proposed new well. The size of the SPA depends on the proposed permitted production volume(s) [PPV] of the well(s). Match the proposed PPV for each well to the SPA radius in the table below. **If more than one well is within an SPA, then the SPA radius for each well will be based on the combined PPV for those wells. Please note, each well must have a separate SPA. The SPA for each well is a circle, centered on the well, with an appropriately identified radius.**)

SANITARY PROTECTIVE AREA RADII

<u>Permitted Production Volume (gpd)</u>	<u>Radius (feet)</u>
less than 14,400	150
14,401 to 28,800	175
28,801 to 57,599	200

Table 3-1, SANITARY PROTECTIVE AREA RADII

Well Name/Number	Proposed Permitted Production Volume (gpd)	Radius (ft)

3.3b. Provide a site sketch of the SPA(s) showing the well location, the SPA radius for each well, and property lines. *(You may use the map provided in Section 1.3c.)*

3.3c. Sanitary Protective Area Land Use Evaluation

Is all the land inside the SPA in a natural, undisturbed state and will it remain that way after build out of the project?

YES ___ NO ___

If **NO**, show **all** land uses, alterations, and activities *(See Section 1.3c for a listing of these types of activities.)* on the site sketch in **Section 3.3b** and provide a schedule for removal of all non-conforming uses. *(If any land uses not required for operation and maintenance of the well cannot be removed, the system must obtain a waiver, see Worksheet B for a waiver application.)*

3.3d. Legal Control of Sanitary Protective Area

Does the water system own all of the land in the SPA?

YES ___ NO ___

If **YES**, identify the recorded deed book and page number(s), county name and date(s) of record and provide tax maps.

Deed Book and Page Number _____

County _____ Date Recorded _____

If **NO**, does the water system intend to gain control by purchasing the land or obtaining a land use easement?

YES ___ NO ___

If **NO**, the water system must obtain a waiver for those portions of the SPA that they will not own or control through easements. *(See Worksheet B for a waiver application.)*

If **YES**, attach a copy of the proposed easement language and describe when the easement will be recorded, if pertinent. *(Recorded easements must accompany the final report.)*

3.4 Preliminary Wellhead Protection Area (WHPA)

3.4a. Draw the Preliminary Wellhead Protection Area on the USGS map in **Section 1.3a** or submit a copy of the GIS Map provided by NHDES depicting the WHPA.

3.4b. Collection of Information

3.4b.1 Have you obtained a GIS Map and Inventory of water users, potential contaminant sources (PCS) and known contaminant sources within the WHPA from NHDES that is less than 90 days old? *(Submit a copy of the GIS Map and Inventory with this form.)*

YES _____ NO _____

If **NO**, do not complete any more of this form until you have obtained an updated inventory and map.

3.4b.2 Have you completed a windshield survey for PCSs within the WHPA, including a review of municipal records?

YES ___ NO ___

If **NO**, see the *Applicant's Toolkit* for guidance on completing a windshield survey. **Do not complete any more of this form until you have completed a windshield survey.**

If **YES**, complete and attach a copy of the windshield survey worksheet found in the *Applicant's Toolkit* or at the end of this form (*Worksheet C*).

3.4c. Inventory Review

Using the information collected above *(in 3.4b)* answer the following:

3.4c.1 Are public or private wells located within 1,000-feet of the proposed new wells? *(All developed lots not served by a public water system should have a private well.)*

YES ___ NO ___

If **YES**, how many? _____ *(Show private well locations on the tax map provided in Section 1.3b.)*

3.4c.2 Provide a list of all public and private well owners within 1,000 feet of the proposed new well(s). *(List names, addresses and lot numbers.)*

If there are any active known contamination sources within the WHPA for the well, NHDES files for these projects must be reviewed to determine if contamination from the site poses a risk to the proposed new well. *(Projects listed as "inactive" or "closed" or are listed as UICs do not require a file review.)*

If no active known contamination sources exist within the WHPA, go to **Section 4.0**, Pumping Test Proposal.

3.4c.3 Have NHDES files for active known contamination sources been reviewed?

YES ___ NO ___

If **NO**, see the *Applicant's Toolkit* for guidance on conducting a file review. **Do not complete any more of this form until you have completed any necessary file review.**

If **YES**, attach the pertinent file review information.

File Review completed by

Date completed _____

3.4c.4 Based on the file review findings, is there an active known contamination site that might affect the quality of water derived from the proposed new well(s)?

YES ___ NO ___

If **YES**, propose work to evaluate the potential impact on the proposed new well(s). *(For example, pumping the well longer and taking more water quality samples and/or monitoring or sampling other wells during the pumping test.)*

If **NO**, *(If there is an active known site but you don't believe it will affect the proposed new well(s)),* then explain why the contamination does not pose a threat. Support the explanation with documentation. *(Such as groundwater flow maps indicating that the plume is migrating away from the well site.)*

Section 4.0 PUMPING TEST PROPOSAL

NHDES experience shows that there are often discrepancies between the pumping test proposal and what happens during the test. This sometimes results in a need to repeat the test. To **avoid repeating the pumping test**, NHDES asks that a **complete description** of the proposed pumping test be provided. (See *Env-Dw 305.14 and the Field Guide for Pumping Test Operators for a discussion of pumping test design and requirements.*)

4.1 Test Setup

Who is the company responsible for installing the pump and discharge setup for the pumping test and/or reading and recording measurements during the test. (*List all responsible parties and describe the tasks they will perform. Please note that if the pump will be permanently installed, the company performing this task must have a New Hampshire pump installer license.*)

Company _____

License Number _____

4.2 Operation of Wells

4.2a. Existing Well(s)

4.2a.1 How will the system's existing wells be operated during the test? (*Complete Table 4-1.*)

4.2a.2 If existing wells will be pumped at a constant rate, how will pumping rates be both measured and maintained? (*Complete Table 4-2 for each well. Standard equipment is a calibrated in-line cumulative flow meter that reads in gallons and is properly sized for the expected flow rate. Pumping rates must be measured as often as water level measurements are taken, after the first 10 minutes of pumping. All cumulative flow meter readings must be recorded after the first hour of the test. The pumping rate should not vary by more than +/-5%.*)

4.2b. Proposed New Well(s)

How will constant pumping rates be maintained for the proposed new well(s) during the pumping test? Describe how the rates will be managed to offset hydraulic head changes (i.e., drawdown). (*Complete Tables 4-1 and 4-2.*) (*Pumping rates shall be constant and not vary by more than +/-5% after the first 24 hours of pumping. All proposed new wells required to meet the source capacity requirements of the system must be pumped together during the testing.*)

Table 4-1, PROPOSED OPERATION OF WELLS (Existing & Proposed)

Well Name/Number	Pumping Rate (gpm)	Operation Schedule (<i>Constant Rate, As Needed, or Off</i>)

Table 4-2, PUMPING RATE MEASUREMENTS (Existing & Proposed New Wells)

Well Name/ Number	Equipment	Method	Schedule (<i>Frequency of Measurement</i>)

4.2c. Where will the pumped water be discharged? (*Complete Table 4-3 for each proposed new well and show the location(s) on the site sketch in Section 1.3c. The discharge from all wells must be directed to locations that ensure the water will flow unrestricted away from all wells and explain why you believe the discharge will not affect aquifer hydraulics. A temporary discharge permit is required for all pumping tests.*)

TABLE 4-3, PROPOSED DISCHARGE LOCATIONS

Well Name/Number	Discharge Location/Explanation	Distance from and Name/Number of Nearest Well

4.3 Water Level Measurements

4.3a. How and when will water levels be measured in each well during the pumping and recovery periods? *(Complete Table 4-4 for each well.) (The standard equipment is a data-logger, pressure transducer or electronic water level indicator. For the pumped well; water level measurements must be taken just before pumping begins, every 5 minutes for the first hour of pumping and at least once per hour thereafter. For water level recovery monitoring; at least 10 measurements shall be collected over a period equivalent to the pumping period of the pumping test or until the water level in the new well has recovered to 90% of the pre-pumping water level. Water level measurements in existing wells shall be recorded just before pumping of the proposed new well(s) begins, at least every 2 hours during pumping and just after pumping ends. Water level measurements may be recorded more frequently, if desired.)*

Table 4-4, WATER LEVEL MEASUREMENTS (Existing & Proposed New Wells)

Well Name/Number	Measurement Schedule <i>(Frequency)</i>	Equipment

4.3b. Static Water Levels

Can existing wells be shut down before the start of the pumping test to obtain static water levels? *(The static water level is the water level in the well under natural, non-pumping conditions. To get accurate static water levels wells should be shut down for as long as possible.)*

YES___ NO___

If **YES**, how long will wells be shut down and how will water be provided to the system. *(During shut-down, water can be provided to the system from existing storage or tanked-in bulk water.)*

If **NO**, describe why not and how static water levels will be determined.

4.4 Monitoring of Non-System Wells

(You must provide an assessment in the final report of how the proposed new well(s) will influence other wells within a 1,000-foot radius. You also need to gather data to identify the effect other wells have on water levels in the proposed new well(s) and to correct the data for any effect, if necessary.)

Will pumping and water levels in non-system wells be monitored?

YES___ NO___

If **NO**, describe why not and how the effect of the proposed new well(s) on other wells will be determined and how you will separate the effects of the other wells on water levels in the proposed new well(s).

If **YES**, describe the monitoring plan for each well in Table 4-5. *(Show the locations of non-system wells on the tax map provided for **Section 1.3b**.)* Attach an example of a letter requesting permission to monitor the non-system well(s) and an example permission form that will be returned to you by the well owner indicating whether they grant permission. *(Note: if a non-system well(s) will be monitored using a device that will come in contact with the water in the well, you will be required to sample the well for bacteria prior to installing and after removing the device.)*

Table 4-5, PROPOSED MONITORING OF NON-SYSTEM WELLS

Well Name/Number	Water Level Measurement Method	Water Level Measurement Schedule <i>(Time of day and frequency)</i>

Section 5.0 SUSTAINABLE YIELD EVALUATION

NHDES experience shows that the evaluation of the well's yield under the rules and its impact on conducting the pumping test is often misunderstood. In some cases, this has meant the applicant has had to repeat the pumping test. To **avoid repeat testing**, NHDES asks the applicant to provide a complete description, **in their own words**, of how the sustainable yield of the proposed new well(s) will be determined. Stabilization during the pumping test and a 180-day extrapolated estimate of drawdown are two methods for determining sustainable yield. (*Refer to Env-Dw 305 and the Field Guide for Pumping Test Operators.*) How will sustainable yield be identified for each well tested? (*Describe the criteria used to determine when to end the test and how water level data will be used to identify yield of each well in Table 5-1.*)

Table 5-1, EVALUATION OF SUSTAINABLE YIELD

Well Name/Number	Description of Yield Evaluation to be Performed

Section 6.0 WATER QUALITY SAMPLING

*(All samples collected from proposed new wells must be analyzed by a NH accredited laboratory for radon, low level 1,4-dioxane, plus all parameters required by the Safe Drinking Water Act (SDWA). These samples must be collected while the wells are still pumping, but near the end of the pumping test. See NHDES guidance on SDWA Sampling and Reporting. **Additional sampling may be required** to evaluate contamination sources, justify a waiver or evaluate an existing water quality problem.)*

6.1 Sample Collection and Delivery

6.1a. Who is responsible for collecting water quality samples and delivering them to the laboratory?

Name _____

6.1b. How will the samples be stored and transported to the laboratory? (*VOC and bacteria samples must be kept cold.*)

6.2 Analyses and Laboratory

6.2a. Sample Collection and Analyses

Provide well numbers or names, when the samples will be collected and what parameters will be analyzed. (*Complete Table 6-1 for each well.*)

Table 6-1, PROPOSED WATER QUALITY SAMPLING

Well Name/Number	When Sample Will be Collected	Parameters to be Analyzed

6.2b. What laboratory will analyze the samples and for which parameters? (*Complete Table 6-2 for each laboratory. The laboratory must have current accreditation in New Hampshire for performing the analyses using methods approved for the analysis for drinking water.*)

Table 6-2, PROPOSED LABORATORY

Laboratory	Certification Number	Analyses This Lab Will Perform

Section 7.0 REFINEMENT OF WELLHEAD PROTECTION AREA

(Refer to Env-Dw 305.21 and the guide, Applicant's Toolkit, for a discussion of the standard method and reporting requirements.)

Do you intend to use the default WHPA radii? *(Please note that small overburden wells require an analytical delineation method. This may affect how you design the pumping test. Contact the NHDES Community Well Siting program for guidance.)*

YES ___ NO ___

7.1 If **NO**, you need to provide a detailed proposal including technical justification. Provide the proposal on separate sheets and include **all** of the following information:

- 7.1a.** Map showing preliminary WHPA.
- 7.1b.** Description and justification for analytical groundwater delineation method.
- 7.1c.** Description of additional data collection activities including the Pumping Test Program.
- 7.1d.** Description and justification of how the data will be analyzed and reported.

7.2 If **YES**, identify the anticipated radius of each WHPA. *(Complete Table 7-1 for each well. The size of the WHPA will depend on the permitted production volume(s) of the well(s) and how they will be operated to meet source capacity requirements for the system.)*

WELLHEAD PROTECTION AREA RADII

<u>Permitted Production Volume (gpd)</u>	<u>Radius (feet)</u>
Zero to 7,200	1,300
7,201 to 14,400	1,500
14,401 to 28,800	2,050
28,801 to 43,200	2,850
43,201 to 57,599	3,600

Table 7-1, WELLHEAD PROTECTION AREAS

Well Name/Number	Proposed Permitted Production Volume (gpd)	WHPA Radius (ft)

Before submitting, thoroughly check this form to ensure that all questions are answered, all information is provided and all necessary attachments are included.

Note: NHDES approval must be obtained for any changes in the pumping test proposed in this Preliminary Report. NHDES will review the Preliminary Report to determine completeness of the pumping test and water quality sampling programs and appropriateness of the well site, based on what is known at the time of the submittal. The Final Report required by Env-Dw 305 must clearly justify any deviation in what is presented in the Preliminary Report.

As a reminder, have you included the following?

1. USGS map and tax map.
2. Flood Hazard Map.
3. Site map showing well locations, SPAs, surface waters, wetlands, roads, buildings, ground contours, stormwater drainage structures, pumping test discharge location and all other features within 1000' of the well(s).
4. A GIS Map and inventory.
5. Windshield survey worksheet.
6. File review worksheet.
7. Source capacity calculations.
8. Wellhead Protection Area map.
9. Description of the analytical groundwater method, if used, and all attendant documentation.
10. List of public & private well owners within 1,000 feet of the well.
11. Example of letter requesting permission for monitoring non-system wells and permission form.

WORKSHEET A: CALCULATION SHEET FOR SOURCE CAPACITY REQUIREMENTS

Step 1. Calculate Source Capacity Required for Residential Uses.

Single Family Homes, Mobile Homes or Apartments/Condominiums

- a. Number of service connections _____
- b. Number of bedrooms per connection _____

Calculate

- a. Design Flow $(\frac{\text{_____}}{\text{No. Connections}}) \times (\frac{\text{_____}}{\text{No. Bdrms/Connection}}) \times (150\text{gpd/bdrm}) = \text{_____ gpd}$
- b. Source Capacity $(\frac{\text{_____}}{\text{Design Flow}}) \times (2) = \text{_____ gpd}$

OR

Elderly Housing *(May only be used for age-restricted developments)*

- a. Number of service connections _____
- b. Number of bedrooms per connection _____

Calculate

- a. Design Flow $(\frac{\text{_____}}{\text{No. Connections}}) \times (\frac{\text{_____}}{\text{No. Bdrms/Connection}}) \times (150\text{gpd/1-bdrm units and/or } 100\text{ gpd/2-bdrm units}) = \text{_____ gpd}$
- b. Source Capacity $(\frac{\text{_____}}{\text{Design Flow}}) \times (2) = \text{_____ gpd}$

Step 2. Calculate Source Capacity Required for all Non-Residential & Irrigation Uses.

Use #1. Irrigation.

Estimate shall reflect system type, total irrigated area, system design components (# of heads, flow rates, etc.) and overall system size. Contact NHDES' Water Conservation/Water Use program at (603) 271-6685 for guidance. Please attach an estimate of irrigation demand for the project that is based on an irrigation system design that includes the above-listed components or that is developed using the EPA's WaterSense Water Budget Tool, which is available online at https://www3.epa.gov/watersense/water_budget/.

Total Irrigation Water Use = _____ gpd

Use #2. Type of Use _____

Number of Units (i.e., bedrooms, seats, sites, etc.) _____

Calculate

- a. Design Flow $(\frac{\text{_____}}{\text{No. Units}}) \times (\frac{\text{_____}}{\text{Flow/Unit}}) = \text{_____ gpd}$
- b. Source Capacity $(\frac{\text{_____}}{\text{Design Flow}}) \times (2) = \text{_____ gpd}$

Step 3. Calculate Total Source Capacity Required for Water System.

(Total source capacity is all residential plus all non-residential and irrigation uses)

Add all Source Capacity values calculated in Step 1 and Step 2 above

$(\text{_____}) + (\text{_____}) + (\text{_____}) + (\text{_____}) = \text{_____ gpd}$

WORKSHEET B: WAIVER APPLICATION

Project Name _____ Project Town _____

Date _____

Which section of the **rule** are you requesting be waived? Env-Dw 305. _____

Explain what, specifically, needs to be waived. Provide diagrams where helpful.

Describe what hardship would be caused if the rule were adhered to.

Explain the alternative solution in detail. Provide diagrams where helpful.

Explain how the alternative is consistent with the intent of the rules.

Explain how the alternative would adequately protect human health and the environment.

WORKSHEET C: RESULTS OF WINDSHIELD SURVEY

Project Name _____ Project Town _____

Date _____

Table 1. Potential Contamination Sources (PCS) Identified

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

Note: Make copies of this page if you identify additional sites.

Table 2. Activities on the NHDES 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.)

Examples of Local Officials You Could Contact	Person Contacted & Date of Contact	Incident or Land Use Identified*	Address	Location Marked on Map?
Health Officer				
Fire Department				
Zoning Enforcement				
Town Clerk				
Tax Assessor				
Building Owner				

*Add sheets if needed to describe Incident or Land Use