MODULE 5

The Variance Hearing, part II

INTRODUCTION

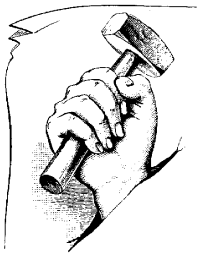
Of all of the modules these authors have put together, Modules 4 and 5 have been the most difficult for reasons that bear some mention. Foremost, as Board of Health members we understand that many hearings are not black and white. A decision made by one Board of Health may not exactly match what another Board of Health might have done. The goal in Board of Health decision-making is to develop a consistency which in large part and broad principle (not fine detail) would find agreement with any Board of Health that is knowledgeable of Title 5 and would be considered as enforcing the spirit of the code. As you read the cases presented below, you may be thinking "our board would never have done that" or "our board would have denied that application". In some aspects of the cases below, there is no right or wrong answer. What we encourage you to do as a Board of Health is to hold regular discussions and evaluations on the quality of your decisions. Good decisions are ones in which the facts, the knowledge of the code, reason, and consistency play major roles. Every Board of Health should periodically review its recent cases to make sure that is establishing a consistent review of applications that are in line with Title 5 and local regulations. When "mistakes" are found, it is often better to admit them and correct any faulty patterns as opposed to letting a mistake set a precedent that then has further reaching implications.

In the coming months, our department will be attempting to develop additional ways to allow Board of Health members to participate in working through more scenarios of hypothetical cases. If you have any particular issues you are concerned with or have grappled with in the past, send them along to us or call us up for discussion, and we will attempt to frame them in case scenarios that others can share. We hope to be breaking into the technological world by supplying all our information on the internet.

Daaahn Da Dant Dunt

- Daaahn Da Dant Dunt Daaaaauuuh! My name is Friday, Joe Friday

-



The cases you are about to hear are fictitious. Any resemblance to detail or individuals that you or your board have had experience with is merely coincidental. The reader should also understand that the opinions expressed herein are those of the authors and do not necessarily reflect the opinions of DEP.

A VARIANCE FOR NEW CONSTRUCTION

For our first case scenario, we have chosen a typical situation for new construction.

Your board has passed a local regulation requiring a 150-foot setback between a leaching facility and private drinking water wells. An applicant approaches your board with a request to build a new house. While the applicant can meet all the requirements of Title 5, he cannot meet the local requirement of a 150-foot setback to the private wells located on two of the abutter's lots.

The leaching field, if constructed, will be located 110 feet from the well located on the abutting lot to the north, and 120 feet from the well on the abutting lot to the east of the applicant's lot. There is nowhere else on the applicant's lot that the leaching facility can physically be located such that this variance is not necessary. In short, the applicant has maximized the distance between his leaching facility and adjacent wells, but still would require a variance from your local regulation. The wells on the abutting lots cannot be moved, because then they would not meet required setbacks from their own septic systems. Town water is not available on the street; it could be brought into this street from a main road located 500 feet away. The applicant asks your board to grant two variances of 40 and 30 feet from your local regulation and allow construction of the applicant's house to occur.

In his effort to prove equal environmental and public health protection, the applicant's engineer states that groundwater in this area is known to generally be moving in a southerly direction. He further states that the abutters' wells are located to the north and east of the proposed leaching facility; therefore, the engineer contends that the proposed septic system should have no impact on the neighbors' wells. Further, the applicant argues that since Title 5 requires only a 100-foot setback, DEP considers this setback to be sufficiently protective of public health.

In an effort to demonstrate manifest injustice[1], the applicant states that he has owned this lot and paid taxes on it for 10 years, and further, to deny the variance and not allow construction would deny him use of his property and would be manifestly unjust. He also argues that the only other possible solution -- to bring town water down the street -- would be extremely costly and it would be unfair to impose this cost on one person. Lastly, the applicant argues that this is one of the last unbuilt lots in this subdivision; it is not fair that the placement of existing wells and septic systems on neighbors' lots have precluded his ability to build on his lot.

The board begins to consider the variance request. Discussion focuses on evaluating each of the arguments individually to determine whether they meet the required standards of equal environmental protection and demonstration of manifest injustice.

The applicant's claim, that the Title 5 requirement of a 100-foot separation between a well and leaching field is fully protective of public health initially sounds valid. The Board of Health, however, reviews the rationale for their 150-foot requirement[2] and affirms its validity, especially in light of the sandy soils, which have little retentive capacity for effluent, and little adsorptive capacity for viruses. In essence, the board insists that a 150-foot setback be required to protect public health unless the applicant can demonstrate evidence to the contrary.

One way the applicant can demonstrate that the setback requirements between leaching facility and drinking water wells should be varied in this instance is to demonstrate that leaching field is

[1] See pages 9 and 10 of Module 4 for explanation of manifest injustice as it relates to new construction.
[2] The Board of Health is allowed to implement local increases to the setback requirements of a leaching facility to a drinking water well under 310 CMR 15.003(1) which states that "specific site or design conditions, however, may require that additional criteria be met in order to achieve the purpose and/or intent of 310 CMR 15.000."

located hydraulically downgradient from the well. The applicant's very general argument, that groundwater is traveling in a southerly direction, is questioned. The board reasons that while this might be true on a macro scale (i.e. groundwater south of the mid-Cape moraine generally flows southward) it may not be true on the micro-scale of the lot's location. It is commonly accepted that, on a micro scale, groundwater flow direction is often influenced by local factors such as groundwater discharge to nearby ponds or embayments, small scale differences in porosity or transmissivity of the underlying soil, or changes in groundwater direction induced by pumping of large municipal wells nearby. These factors can change the direction of local groundwater flow by as much as 90 degrees. So, while groundwater flow direction may be toward the south on a macro scale, local factors can alter flow direction toward the southeast or southwest. The only way to determine the exact direction of groundwater flow on a lot in question is to install monitoring wells. The board requests that the applicant to do this[3]; if the applicant can show that groundwater flow direction will cause the leaching facility to be hydraulically downgradient from the abutters' wells, some relief from the 150 foot separation requirement may be justified.

What about the applicant's claim of manifest injustice? Remember that Title 5, section 15.410 requires that the applicant prove manifest injustice **and** equal environmental protection before a variance is granted. The board decides to apply the same tests to its local regulation. The code also gives a clear standard by which to judge manifest injustice in the case of new construction when it states:

> **"with regard to variances for new construction, enforcement of a provision for which a variance is sought must be shown to deprive the applicant of substantially all beneficial use of the property in order to be manifestly unjust".**

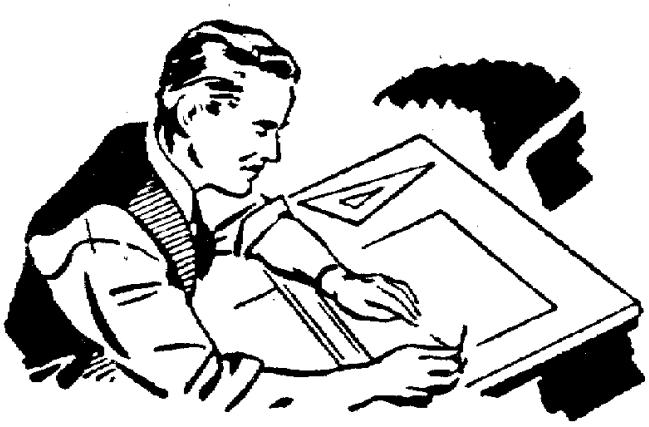
Clearly, the board does not want to deny the applicant the right to build on his lot unless it is absolutely necessary. When might this be the case? If the applicants fails to demonstrate that he can provide for the protection of public health by either meeting the regulation or providing an adequate compensating factor to offset the requirements of Title 5 or the local regulations the

[3]Determining groundwater flow direction usually requires the installation of three wells so that groundwater level in each can be measured, triangulated, and the direction of flow established. The installation of three monitoring wells typically costs about $1000.00.

board should deny the variance.

It is clearly not manifestly unjust for the board to require the applicant to undertake extra efforts and costs to protect public health when a variance is requested. These efforts can include establishing groundwater direction, providing advanced wastewater treatment, or having the applicant bear the cost of connecting his neighbors to town water as well as restrictions on use of the dwelling (for example, limiting the number of bedrooms with a deed restriction). As long as there is a reasonable nexus between the additional requirements and the assurance of protection of public health, the board is within its responsibility to require them, even if it causes the applicant to incur substantial costs. These requirements should serve to protect public health while not denying the applicant reasonable use of his property.

In this case, the board agrees that it is not reasonable to require the applicant to bring town water down the street; it is simply too costly for one individual to do. While the board affirms the applicant's choice to supply town water to the potentially-impacted homes, should he decide not to, the board requires the applicant to install monitoring wells to determine the direction of groundwater flow if he wishes to seek the variance. The board makes this request to the applicant, and the hearing is continued until the applicant either decides to supply potable water to the potentially-impacted houses or he can provide information on the groundwater flow. As a courtesy, the applicant is advised that the information from the groundwater wells may not support his case, and that the information will be evaluated on its merits.



At a hearing a month later, the applicant's engineer presents the data from the monitoring wells. The data show that groundwater is traveling in a southeasterly direction. The proposed leaching facility is not clearly hydraulically downgradient from the well on the lot located to the east of the system. After much debate, the board determines that the applicant has not proven an equal

degree of public health protection. They also decide that to deny the variances will not be manifestly unjust. The board believes that they have not completely denied the applicant all use of his property-- the lot could become buildable in the future if water is installed on the street. Accordingly, the board decides to deny the variances.

What circumstances might legitimately have altered the board's decision?

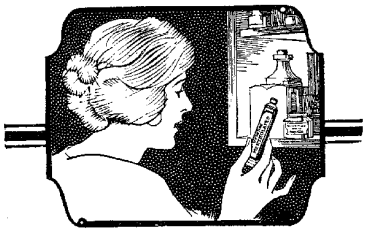
The decision obviously might have been altered if the applicant could have demonstrated that the proposed leaching was clearly hydraulically downgradient of the wells in question. Alternately, the decision might have been altered if the applicant had offered to provide acceptable[4] disinfection of his wastewater before it is discharged to the leaching field. This can accomplished through the use of an ultraviolet light disinfection unit, which in turn requires some type of advanced treatment unit that reduces suspended solids in the wastewater. Disinfection is a costly option but one that could reasonably be effective in this situation.

The decision might also have been altered if the issue of town water was resolved. If the applicant decided, after weighing the chance of an unsuccessful groundwater study, that he would bear the costs of supplying town water to potentially impacted homes, then again, variances would not be required and the applicant could proceed with the project.

What about the case where town water is available on the street and the applicant offers to bear the cost of supplying it to potentially-impacted homes, but the neighbors refuse to be connected? This is not an unusual scenario and as board members we've seen neighbors do this in the hope that their refusal will prevent the abutting lot from being built upon. These authors believe that this scenario ties in to the issue of manifest injustice. If the applicant is willing to bear the cost of connecting a neighbor to town water, but the neighbor refuses (primarily to maintain an empty lot next door) it seems somewhat unjust to deny the applicant the right to build on his lot since he has clearly demonstrated that he is willing to expend extra effort and money to

[4] A disinfection with no harmful by-products (i.e. ultraviolet light disinfection). Chlorination, which is commonly used to disinfect wastewater in municipal systems is unacceptable in situations near drinking water resources due to the chemical (trihalomethane) residuals it produces.

protect his neighbor's health. In this case it is reasonable for the board to consider that the availability of town water (either by the fact that it is already available or is made available by some expenditure of the applicant) gives enough assurance that the neighbor's health can be protected if a problem arises later with the well.



What about a scenario where the applicant cannot meet even the minimal Title 5 setback requirement of 100 feet between the leaching field and the abutter's well? Let's take a case where the applicant is proposing to build a new house and is only able to locate his leaching field 85 feet from a neighbor's well. Should the board approach this variance differently than it approached a variance from the local regulation of 150 feet?

As Board of Health members, we believe that the board should view this variance in a significantly different light. Firstly, Title 5 clearly states that full compliance with the code is presumed to be protective of public health and the environment (15.003 (1)). The board should therefore hesitate before granting variances from Title 5 for new construction. These authors believe that, in considering a variance of this type for new construction, the board should look for **overriding** proof that public health will be protected.

What might constitute such protection? As above, the applicant should demonstrate that the leaching facility would clearly be hydraulically downgradient of the well. Town water must be available on the street, should the neighbor's well become contaminated. The board should require that the applicant provide disinfection of the wastewater and should require the applicant to monitor the effluent for fecal coliform on a regular basis to ensure that the disinfection process is effective. It is reasonable that the board require **all three** of the above if a variance to Title 5 is to be granted. If the applicant cannot demonstrate this overriding degree of protection, it may be prudent to deny the variance.

VARIANCES UNDER MAXIMUM FEASIBLE COMPLIANCE, WITH NO INCREASE IN FLOW

Upgrade on an environmentally difficult site

Let's first take a scenario that all of us have encountered as board members: the upgrade of an existing septic system on a lot with serious site constraints. This case will probably be somewhat more complex than many you will encounter, but it presents many of the issues you typically must consider for upgrades on difficult lots.

The facts of this case are as follows:

There is an existing 5-bedroom house located on a 1.65 acre lot abutting a salt marsh. Although the lot is large, over half the area of the lot is wetland (salt marsh). The surrounding salt marsh (including some of the marsh located on the lot) floods during spring and storm tides; a concrete retaining wall was built in the past to keep these flood waters out of the developed area of the property. In fact, at a site visit it becomes apparent that at one time the entire lot was salt marsh that has been filled to create a building lot. This is confirmed by a deep-hole test that shows a fill layer from 14 to 20 inches depth, and a layer of peat from 20 to 48 inches depth. Groundwater is encountered at 21 inches depth (elevation 2.85) at the top of the peat layer. The owner wishes to renovate and raise the entire dwelling to meet FEMA standards (the house is located in a FEMA A-11 zone). This means that the renovated house will be constructed on piles with the bottom of the house proposed at elevation 11.67. The ground surface is approximately at elevation 4.6 feet, which means that the bottom of the house will be about 7 feet above ground. Renovation of the house will of course necessitate upgrading the existing cesspools (which are in groundwater, 25 feet from the edge of wetland) and so the applicant appears before your board.

The applicant's engineer proposes the following :

1. For design purposes, use the elevation at which groundwater was observed, 2.85. The groundwater adjustment in this area, based on USGS monitoring wells, would be 1.2 feet;

using this adjustment would put groundwater at elevation 4.0. The engineer argues that, due to the lot's proximity to coastal waters, the groundwater adjustment should not be made; mean high water is at elevation 2.2, so a groundwater elevation of 2.85 (observed groundwater) is reasonable for design purposes.

2. Because the bottom of the house is so high, the engineer proposes that the leaching field be a simple gravity-distributed system. The engineer plans to use one of the approved plastic leaching chamber units with stone; the leaching field will have a 1 foot effective depth. The leaching field will be constructed as a mound with a retaining wall; all unsuitable material will be excavated for 5 feet in all directions around the field. The bottom of the leach field will be at elevation 7.85, maintaining a 5 foot separation to groundwater (the top of the leaching field will be at about elevation 9, or 4.5 feet above the ground surface; this project is going to seriously change the topography of this lot)

3. The leaching field will be located 50 feet from the edge of the wetland. This meets Title 5 but does not meet the Board of Health regulation of 100 feet separation to a wetland; a 50-foot variance from the local regulation is required.

4. In order to maximize the horizontal distance to the wetland (thereby elimination the need for a Title 5 variance) the engineer proposes to reduce the required size of the leaching field by 20%. Instead of providing the required 744 s.f. (550 gpd / 0.75gal/sf = 744 s.f. required) the engineer proposes to provide 595 s.f.; this will create an effective dosing rate of 0.92 gal/s.f. This will require a variance from Title 5, but this variance is clearly allowed under 310 CMR 15.405: Contents of Local Upgrade Approval.

So, a total of 2 variances will be needed: 1) a variance from Title 5 to allow the leaching field size to be reduced by 20%, and 2) a variance from the local regulation to allow the leaching field to be located 50 feet from the edge of the wetland.

The board listens to the engineer's presentation. On the one hand, they are sympathetic to the owner's desire to improve his property and upgrade an existing system. The board recognizes that any upgrade will be an improvement over the existing cesspools, which are located in groundwater 25 feet from the wetland. On the other hand, the board is troubled by the environmental sensitivity of the site. The lot is located on a sensitive embayment, which is used for swimming and shellfishing and has experienced chronic bacterial contamination problems. The board recognizes that this upgrade will be its only chance to improve conditions on this lot for probably the next 20 to 30 years. The existing house has no heat and so can only be occupied seasonally, but after the house is renovated it will be possible for it to be occupied year-round. The board recognizes the owner's desire to upgrade his system for a reasonable cost; on the other hand, the board realizes that the owner will be spending a significant amount of money on the renovation of the property as a whole, so it may not be unreasonable to require the owner to spend additional money on the septic system to obtain the best upgrade possible.

As the board discusses these concerns and reviews the plan for the proposed upgrade, debate and discussion focus on the following issues

- What is the appropriate elevation to use for groundwater?
- Does the proposed plan conform to the requirements of Title 5 section 15.403 to 15.405, Maximum Feasible Compliance and Local Upgrade Approval?
- Since the leaching field cannot be located 100 feet from the wetland, which the board considers to be minimally protective of public health, should the owner be required to provide some type of advanced sewage treatment to remove pathogens? Can advanced treatment be physically accommodated in the small space available for the septic system? What will be the cost of this treatment? Is this a reasonable cost to impose on the owner?

After discussion with the applicant engineer, the board decides that the engineer's groundwater elevation of 2.85 is reasonable to use for design purposes. The board recognizes that the Frimpter groundwater adjustment should not be applied in this situation, due to the proximity of the site to coastal waters.

The board determines that the proposed plan clearly meets the requirements of Title 5 for local upgrade approvals. Section 15.405 prioritizes the order in which variances should be considered. In this case, the engineer's request to reduce the size of the leaching field in lieu of requesting a horizontal setback variance to wetlands clearly meets with this prioritization.

The board asks the engineer to investigate the possibility of using advanced treatment to remove pathogens at this site. Specifically, the board asks the engineer to provide information on: 1) the cost of advanced treatment with disinfection and whether it can be physically accommodated on the lot from an engineering standpoint; 2) whether a sand filter (which has some ability to reduce pathogens) could physically be accommodated on the lot (this option requires installation of 2 extra tanks for the pump chamber and sand filter); 3) whether a pressure dosing system could physically be installed as part of the system (this option requires installation of 1 extra tank for a pump chamber) and the cost of this option. The engineer agrees to provide this information, and the hearing is continued for 2 weeks at the engineer's request.

At the next meeting, the engineer presents the information that the board requested. The engineer says that there will be space within the area planned for the septic system to accommodate a pump chamber, so that the leaching field could be pressure dosed. The cost of this option would be about $1000-$1500 above the cost of the system already planned. The Board and the engineer recognize that to provide UV disinfection will require some type of advanced treatment unit, which reduces total suspended solids; this could be accomplished with a sand filter or an alternative unit such as a Bioclere® or FAST® unit. There is not enough space available to accommodate both a pump chamber and a sand filter, so a sand filter is not a realistic option from an engineering standpoint. Both the Bioclere and the FAST unit could be accommodated in the space available; either would add approximately $6000 to the cost of the system. An ultraviolet disinfection unit would add an additional $1000 to the cost. The engineer argues against the use of the alternative unit plus UV disinfection based on the fact that 1) the house is occupied only seasonally. This means that the Bioclere or FAST unit will not work particularly well to remove nitrogen or BOD; in addition, the public health threat from the septic system is low since the system is used for only 8-10 weeks per year; 2) the cost imposed is

unreasonably high for a home that is only seasonally, to require alternative treatment would add significantly to the cost of upgrading the septic system; 3) the leaching field meets the 50 foot setback to wetlands required by Title 5 and there is over 100 feet between the leaching field and open water. The engineer argues that the simple mounded system he has designed is sufficiently protective of public health, and the variances he requested should be granted.

The board listens to the engineer's arguments. They are not satisfied with the simple mounded system. After discussing all the material presented, the board decides that the cost of an alternative treatment unit with UV disinfection is not warranted in this situation and would not be a reasonable requirement. They agree with the engineer that it is preferable to reduce the size of the leaching field if this makes it possible to maintain a 50-foot setback to the wetland. However, to compensate for the reduction in leaching field size, the board votes to require pressure dosing of the leaching field to ensure that effluent is evenly distributed over the entire field (SEE IN MODULE 2).

<u>Upgrade of an existing system in a nitrogen sensitive area</u>

Let's take a look at a scenario that all of us are increasingly being asked to consider, and for which DEP has given minimal and sometimes conflicting guidance.

The case is an existing 4 bedroom house on a half acre lot located in a Zone II of a public supply well -- a nitrogen sensitive area, as defined by Title 5. The existing septic system consists of a cesspool and an overflow precast leaching pit, clearly a pre-1978 code system. The septic system has been inspected for a real estate transfer and has been deemed failed because the water level in the existing cesspool and leaching pit is less than 6 inches below the inlet invert (hydraulic failure). The owners, who are anxious to sell the property, want to upgrade the system quickly and for a reasonable cost. A new system, which meets Title 5 and local regulations in all other respects, has been designed for the property. There's only one hitch-- the existing property does not meet the nitrogen loading requirements of Title 5 section 15.214, Nitrogen Loading Limitations. Because the property is located in a nitrogen sensitive area and is only a half acre in size, allowable design flow should be 220 gpd instead of the existing 440 gpd. The Health Agent, unsure of what the code requires for an upgrade in this situation, brings

the case to the board for a decision.

The Board consults section 15.404, Maximum Feasible Compliance. 15.401(1) states clearly a goal of full compliance: "wherever feasible, a failed or nonconforming system...shall be brought into full compliance through installation of one or more of the flowing: a) an upgraded system which is in full compliance with 310 CMR 15.100 through 15.293; b) **an alternative system which has been approved for such use pursuant to 310 CMR 15.284 (remedial use), 15.285 (piloting), 15.286 (provisional approval), or 15.288 (certification for general use)**; c) where proposed by the owner or operator, a shared system which has been approved for such use ; or d) connection to a sewer system.

However, the end of section 15.410(1) also states "where failure of the system is solely due to failure of the septic tank, distribution box, soil absorption system, and/or building sewer, upgrade of that component(s) in full compliance with 310 CMR 15.000 shall be deemed to meet the goal of full compliance; provided that the upgraded component functions properly with the other system components, the system functions properly hydraulically, and the owner obtains a certificate of compliance from the approving authority".

Should the board take the position that this is a relatively simple upgrade -- the existing cesspool with overflow pit is clearly a non-conforming system but that alone does not make it a failed system[5]; failure in this case is due only to hydraulic failure of the soil absorption system. Obviously, the system must be upgraded to include a septic tank, D-box and properly sized leaching field, but this upgrade meets the intent of the above paragraph.

Or, should the board take the position that this system clearly does not meet the requirements of even the 1978 code in terms of its design, and because it is a non-conforming system it must be upgraded to meet full compliance with the 1995 code, including use of alternative treatment to meet the nitrogen loading requirements of 15.214.

Clearly, DEP has anticipated this situation, in that the Remedial Use approvals of many nitrogen

[5] See 310 CMR 15.303 for complete listing of failure criteria.

removal alternative systems specifically allow them to be installed to gain design flows above the 440 gpd per acre allowed in nitrogen sensitive areas. The Bioclere®, Cromaglass®, FAST®, and RUCK® systems, when installed for remedial use, entitle an owner of an existing house to a 4 bedroom or 440 gpd design flow on a lot of 15000 s.f. or greater

The board considers alternative nitrogen removal treatment. Clearly this will be an expensive option, costing the homeowner about $6000 to install above the cost of the new system. It will also commit the owner to significant costs to operate, maintain and monitor the system in the future. In addition, it will commit the town's health department to some level of oversight to ensure that the system is properly maintained and operated.

There's also the issue of consistently. The board does not want to be arbitrary and capricious. If it is going to require nitrogen removal technology for the simple upgrade on this lot, it must require it for all upgrades, which are above allowable design flows in all nitrogen sensitive areas in town. To decide to do this is a major policy decision for the Board of Health; it will have far reaching implications as it means that large numbers of nitrogen removal systems will be installed on a fairly random basis throughout town. The board must carefully consider whether the town has the present resources or the political will to develop resources to address this issue. In short, the board has reached a crossroad at this point. Should the Board take the position that in these situations they simply grant a local upgrade approval for repair of the system (as long as there is no increase in design flow), or should they take the position that every system which is non-conforming in terms of nitrogen limitations must be brought into full compliance with all requirements of Title 5, including nitrogen loading? This is a critical decision that the board must make for itself.

One way to approach the decision is to look at the nitrogen sensitive areas in your town individually. That is, look at water quality in the wells located in each Zone II. If the wells in a Zone II are showing increasing levels of nitrogen[1], perhaps it is prudent for the board to start

[1] What constitutes a nitrogen impacted well? Any well that is consistently showing nitrate levels above 3 mg/L nitrate may be considered nitrogen impacted. Wells that are occasionally showing levels of 3 mg/L or for which historical water quality data are clearly showing a trend toward increasing levels of nitrate should also be viewed with concern

requiring all septic system upgrades in that individual Zone II to come into conformance with the nitrogen loading limitations of Title 5. This can be done in the context of a Board of Health policy decision (i.e. a formal policy statement that all upgrades in this particular nitrogen sensitive area will now have to come into conformance with the nitrogen loading requirements of Title 5) or the creation of a formal wastewater management district for this Zone II. If the zone II is not showing clear nitrogen impacts, perhaps the Board will wish delay requiring compliance with nitrogen loading requirements for upgrades, where no increase in flows are being requested. Approaching the issue in this way will allow the board to phase in an approach to managing nitrogen, which may lend itself, in the long-term, to more planned installation and better management of nitrogen removal technology.

Well, as you have probably already have determined, the endless scenarios that play out at your hearings make it impossible to give you specific advice. What we have hoped to do in this module is to start some discussion among boards and board members about the decision-making process. Many board members today have tenures that have spanned the phasing in of the revisions to Title 5. They have seen a relatively simple code develop in complexity and appear to recognize that the onsite septic system is here to stay in many situations. The renewed burden on Boards of Health is to encourage the best and most appropriate level of treatment possible for each situation. They do this by careful scrutiny of those situations where full compliance with the code can not be achieved. The new "twist" for Boards of Health is clearly the nitrogen loading issues. The 1995 revision to Title 5 and its sequel has already, and will continue in the future, to open the door further for technologies that control nitrogen and other contaminants better than the standard system. The challenge to Boards of Health will be to determine when and where these new technologies should be applied. The issues of their expense and effective management must factor into each decision.

As your Board of Health continues in its vigil, we would encourage you again to periodically set aside time at a regular meeting to review and assess the direction of the board. Begin by reviewing the difficult cases that you have had during the previous six months. Confirm that the judgements in each case show a pattern of consistency with the overall direction of the board. A good starting point is to prioritize environmentally sensitive areas and establish that in the

highest priority areas, you have required a higher standard of treatment. It may be helpful to write down the succession of items from least to greatest in regard to methods that compensate for deficiencies in the code. For instance, regarding proximity to wetlands or watercourses, in situations where full compliance with Title 5 and your local regulations can not be met, the succession of strategies from least to most involved would be:

Standard system merely granting the variances

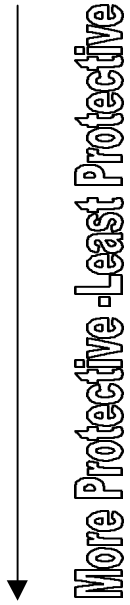
Dosed-to-distribution box, leachfield fully-sized

Pressure-dosed leachfield fully sized

Advanced treatment (alternative septic system to address pollutant of concern) with standard leachfield.

Advanced treatment with Ultra-violet light disinfection and standard leachfield.

Advanced treatment, ultra-violet light disinfection, pressure dosed leachfield



Remember that alternative septic systems seeking Remedial Use credits such as reduction in distance to groundwater or a reduction in the size of the leachfield MUST have pressure dosed leachfield.

As you review the succession of methods to achieve better protection of the public health and the environment, review the situations which would "trigger" a stepping up to each successive level, and whether, in general you have been rendering decisions consistent with these. For instance, using the table above, if an applicant can achieve a separation of

75-100 ft. from a wetland and is ***repairing/upgrading*** his system with no proposed increase in flows, you might require dosing to the leachfield (since this meets the requirements of Title 5 but does not meet the full requirement of your 100 ft. separation requirement). If the applicant can only achieve 50-75 ft separation, you might "step up" the requirement to a pressure dosed leachfield, since the applicant is more out of compliance with your regulation but still can meet Title 5. Your Board may shift up the table in the case of ***new*** construction, requiring a pressure dosed or advanced treatment for systems proposed between 75-100 ft to the wetland, and denying applications requesting systems in the 50-75' range from the wetland. In any event, a periodic review of difficult cases should assist in maintaining a consistency that best serves the public health and the environment.

As your board strives for consistency, we would encourage you to make use of the resources you have to obtain training and advice. The regional offices of DEP have staff trained in Title 5 and other watershed issues who are available for advice. Over the coming months, our department plans on making training available on the WorldWideWeb. We welcome your input on how we can better serve you as Boards of Health. Please feel free to contact me at gheufeld @ capecod.net or Susan Rask at the Department (1-508-375-6625) with your suggestions.