

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
ADMINISTRATIVE ADJUDICATION DIVISION

RE: GARDNER, BRUCE  
APPLICATION NO. 9905-3244 Map 9 Lot 387

AAD NO. 08-007/ISA

DECISION AND ORDER

This is an appeal before the Administrative Adjudication Division for Environmental Matters ("AAD") of the Department of Environmental Management ("DEM") filed by the Applicants, Bruce Gardner et al ("Applicants" or "Gardner") on April 14, 2008. The appeal, filed on April 14, 2008, seeks review of a Notice of Denial ("Denial") dated March 7, 2008 of the Applicants' application for installation of a proposed individual sewage disposal system ("ISDS") on real estate located on Sea Lea Avenue in the Town of Charlestown, Rhode Island and further described as Lot 387 on Assessor's Plat 9 (the "Property").

The Applicants were represented by Joseph DeAngelis, Esq. and the Office of Water Resources ("OWR") was represented by Susan B. Forcier, Esq. An Administrative Hearing was held on August 24 and 25 of 2009. Applicants and OWR filed their Post Hearing Memoranda and Final Arguments on December 11, 2009. The parties filed a joint motion for permission to file Reply Memoranda which were filed on February 1, 2010.

BACKGROUND AND TRAVEL

On September 25, 2007 the Applicants filed an application (Joint Exhibit 1 Full and Applicants' K Full) for the installation of an ISDS on the property which sought four (4) from the *Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Individual Sewage Disposal Systems, dated January 2002* ("ISDS Regulations"). The four (4) variances sought were as follows: (1) Regulation SD 2.14

which requires an alternative area; (2) SD 3.05.1 which establishes a minimum distance of 100 feet from a private well; (3) SD3.05.4 which provides for a minimum distance of 10 feet between the system and the property line and (4) SD 19.02.4 which provides for a minimum distance from Critical Resource Area of 150 feet.

The Notice (Joint Exhibit 1 Full) from OWR denying the application stated that “the Department determined that this project, as proposed, to be not in the best public interest as stated in SD 20.02. Accordingly, your application for a variance to the *Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Individual Sewage Disposal Systems* is hereby DENIED.” The Applicants filed a timely appeal on April 14, 2008. Applicants filed a Motion for Statement of Grounds for Denial with its Notice of Appeal. OWR filed no objection. On June 6, 2008 an Order was entered requiring OWR to provide to Applicants a concise statement as to why the application was denied within thirty (30) days. OWR by letter dated July 24, 2008 provided a concise statement of why the application was denied (App. Exhibit Q Full).

In its concise statement OWR stated that in spite of mitigating measures including proposed use of composting toilet, a separate advanced treatment ISDS for gray water and a system for recharge of groundwater using roof runoff, the Applicants did not meet the standard for approval of the variance application. OWR noted a “substantial” deviation in the standard. “Whereas ISDS regulations require setbacks of 150 feet, 100 feet and 10 feet respectively to coastal pond, private well and property line, the design only affords 40 feet, 71 feet and 2 feet from these features.” OWR also referenced the already degraded nature of Green Hill Pond and the risk of pollution of shallow wells. There was no reference to the need to establish an alternative area as required by SD 2.14.

A Prehearing Conference was held on June 3, 2009 and a Prehearing Conference Record and Order was issued on June 8, 2009. The Order reflects that the parties agreed on the following Statements of Fact:

1. Applicants are the current owners of the property at issue, identified as Plat 9 Lot 387 in the land evidence records for the Town of Charlestown.
2. No less than four applications for variances to the ISDS Regulations have been submitted for this property between 1999 and the present.
3. Applicants requested variances to the following Sections of the ISDS Regulations:
  - (a) SD 3.05 (4), requiring a ten foot (10') setback from the property line.
  - (b) SD 3.05 (1), requiring a one hundred foot (100') setback from all private wells
  - (c) SD 2.14, requiring that there be an alternate leachfield location available on the property.
  - (d) SD 19.02.5 (b) (1), requiring a twenty-five foot (25') setback from any floodplain.
  - (e) SD 19.02.4, requiring a one hundred fifty foot (150') setback from Green Hill Pond.
4. The latest application for variances to the ISDS Regulations was denied on March 7, 2008.

The Order also reflected that the parties agreed on the following exhibits being marked as

Full:

**DEM's Exhibits:**

OWR Ex. #1 Resume of Russell J. Chateaufneuf, P.E.; one page.  
Full

OWR Ex. #2 Resume of Brian M. Moore, P.E.; two pages.  
Full

OWR Ex. #3 Resume of Mohammed J. Freij, P.E.; two pages  
Full

Appellants' Exhibits:

Appellants' Ex. C Total Maximum Daily Load analysis for Green Hill Pond, Ninigret Pond,  
Full Factory Pond Stream and Teal Pond Stream, South Kingstown and  
Charlestown, Rhode Island, Final February 9, 2006 RIDEM

Appellants' Ex. D Identification of Bacteria Sources in Green Hill Pond Using Polymerase  
Full Chain Reaction, 8 July 2003, RIDEM

HEARING SUMMARY

The first witness for the Applicants was Dr. Daniel Urish. The parties stipulated to the fact that Dr. Urish is an expert in the area of hydrogeology. He testified that he had been retained by Mr. Frisella, one of the Applicants in 2005. He reviewed existing information and existing monitor wells and excavations. He identified the site as a coastal peninsula surrounded by saltwater. He used the monitor wells to determine the groundwater level and flow. He also took samples from two adjacent private wells.

Dr. Urish testified that the groundwater flows in a north/northwesterly direction toward Green Hill Pond. He said that it was important to determine the direction of the groundwater flow in relation to the existing wells and the coastal feature. Dr. Urish gave a power point presentation which incorporated documents from Applicants' Exhibit G, H and I. He said that there were three monitor wells already on the site and that he put two more in. He measured from five measurement features (see Figure 9 Applicants' Exhibit G Full). He compared his findings of 2005 and 2006 with findings from 2000.

The witness testified regarding the issue of a rooftop water retention system which was originally part of the plan. The proposal was removed from the plan. Counsel for DEM argued that the rooftop recharge system was part of the plan which was rejected. Counsel for Applicants advised that the rooftop recharge was not a reason for denial by DEM in its response to request for more concise statement. DEM argued that appellate review of the application is limited to that which was before DEM and that the reasons for denial included but were not limited to the points listed in its "concise statement". The Hearing Officer advised that he would not consider changes made to the plan after the denial.

Dr. Urish reviewed his findings. He said that he "found the flow of groundwater to be consistently to the north-northwest under different yearly conditions as well as from year to year" (Vol.1 p 64). He testified that he was confident that "there would not be a reversal of flow from the ISDS system to the wells" (Vol. 1 p 64). He went on to say that with the enhanced system which uses ultraviolet light for bacteria it would eliminate concern about bacteria movement. He said that the nitrate level which is good would not change. The effluent would remain at around two to three parts per milliliter of nitrate, well below any public health concern. The water table is seven to eight feet on the subject lot.

Dr. Urish testified that it was his opinion based on reasonable degree of engineering certainty that the system as proposed would not in any manner be a danger to the public health. This was based on the fact that the nitrate level would be less than five (5) or four (4) parts per million whereas in a conventional system forty five (45) parts per million of nitrate enter the septic system leach field.

Dr. Urish testified that in his opinion the system if installed, located, operated and maintained properly, would prevent the contamination of any drinking water supply. He went on to say that it was his opinion based on a reasonable degree of engineering certainty that the waste from this system would not pollute any body of water or wetland, specifically Green Hill Pond. His opinion was that the waste from the proposed system would not create a public or private nuisance. His final opinion was that there is a sufficient quantity of water available to operate a shallow well without the rooftop recharging system. He testified that the rooftop recharging system was eliminated due to contamination concerns raised by the Department.

Counsel for Applicants moved that Applicants' Exhibit H, G and I be admitted as Full exhibits. The Counsel for DEM objected to the admission of Exhibit I. Applicants' Exhibit H and G were entered as Full exhibits. Counsel for DEM argued that Applicants' Exhibit I was a report that was prepared over a year after the denial and related to an incinerator toilet rather than a composting toilet as contained in the application. Applicants' Exhibit I was not entered as a Full exhibit.

Counsel for DEM conducted a cross-examination of Dr. Urish. The witness testified that the distance from the proposed system on lot 387 and a well on lot 388 was approximately 71 feet and that the regulations call for 100 feet minimum separation distance. He said that 71 feet separation would be adequate because of the groundwater flow direction. All the wells in the area are shallow dug wells. He testified that the proposed and existing wells would be protected from the proposed system because the groundwater into which the effluent would go flows away from the wells. He acknowledged that the direction of flow could change in extreme weather such as an epoch (i.e. 1938 Hurricane). Such an event would flood out all the wells in this area. He said that increased drawdown from wells can alter groundwater flow but gave no specific facts.

Applicants called Joseph W. Frisella as their next witness. Mr. Frisella was shown Applicants' Exhibit O, his resume, which was later admitted as a Full exhibit. Mr. Frisella, after testifying to his education and experience, was admitted, without objection, as an expert in professional engineering, design and installation of ISDS systems including advanced systems and soil evaluation. He testified that he is certified to inspect systems. He owns a company called Septic Snooper which inspects and maintains systems. Mr. Frisella testified that he first became involved with the subject property since 1999 and with prior denials. He identified himself as a current one-third owner, together with a Bruce Gardner and Charles Sweet. Mr. Frisella referred to Applicants' Exhibit K for identification, which he identified as the plan which was denied. He said that he drafted the plan. He identified wells on lots 388 and 53 of Assessor's Plat 9. He said that he attempted to negotiate with the owner of lot 388 to dig a shared well without success.

Mr. Frisella testified about the variance request beginning with the alternate area requirement. He said that because of the size of the lot (approximately 5,800 square feet) that it was not possible to have an alternate area designated. He said that the alternate area variance was typically granted and was not part of the newly adopted regulations. He went on to say that the alternate area requirement would be moot because with the AdvanTex AX20 unit there would be no possible way for the leach field to fail.

Mr. Frisella next addressed the variance request from Section 305.4 which requires a ten (10) foot separation between the proposed system and the property line. This separation was reduced to two (2) feet to create a greater distance from the well on lot 388 as well as the proposed well. He said that in his experience including submission of approximately 5,000 system applications, this is a requirement typically granted a variance upon a showing of hardship.

The next variance involved Section 305.1 which governs the distance from the bottomless sand filter ("BSF") and the existing and proposed wells. He said that the 100 foot requirement has been in existence since 1968. In his opinion the 100 foot separation was arbitrary and that the federal government had a 75 foot requirement. The final variance requested was from the standard of 150 feet from a coastal feature. He testified the distance between the edge of the BSF and Green Hill Pond was 50 feet. The Department later said it was 40 feet. He said that because of the size of the lot he could not meet the required distance and he did not want to move the BSF farther away from the coastal feature because it would be closer to the wells.

Mr. Frisella began describing his plan by saying that the effluent would be only "gray water" and no "black water" effluent. The effluent is raised up into an AdvanTex AX20 unit which is a nitrifier. It cleans the effluent. It gets rid of about 98 percent of the suspended solids, 98 percent of the biological BOD, biological oxygen demands and then through a cycle. He went on to describe how the system removes the nitrates. The system circulates about five times. In the pump chamber the effluent goes around an ultraviolet light which removes 99 to 100 percent of the bacteria.

Mr. Frisella testified that the effluent goes from the pump chamber into the BSF which acts as a leaching field. The sand further scrubs and removes any bacteria and pathogens. He said that when dealing with "gray water" there may be very minute suspended solids such as lint from washing machine water. Mr. Frisella said that the "gray water" would include bath water and dishwater and may contain detergent or minute forms of skin or hair.

Mr. Frisella was referred to Applicants' Exhibit J for identification which is a "Cumulative Impact Assessment" for the subject lot. He reviewed his conclusions on page 14.

He said the "AdvanTex units remove 98 percent of the BOD and TSS and about 60 to 80 percent of the nitrogen resulting in ten milligrams per liter. He concluded that since the proposed ISDS will not have any "black water", very little to no nutrients and pathogens will enter the ISDS" (Vol 1, pg 143, 144). He said that this was because the decision had been made to use a composting toilet and also the use of an ultraviolet light system. If the ultraviolet system is not functioning as intended an alarm will go off to alert the owners, the pumps would be shut off and a message will be sent to the maintenance company through telemetry.

Mr. Frisella reviewed Applicants' Exhibit C Full which is a report dated February 9, 2006 and entitled "Total Daily Load Analysis for Green Hill Pond and Other Ponds" issued by DEM. This report establishes by DNA the various contributing factors that contribute to contamination of Green Hill Pond. The report indicates that 30.7 percent of bacteria was from DNA from birds. 11.2 percent of bacteria was from humans. Mr. Frisella said the significance of the report is that most people think that pollution in the form of nitrates and bacteria come from septic systems when in fact animals including birds are responsible for almost 90 percent of the pollutants in Green Hill Pond. Mr. Frisella testified that he used the DEM reports reflected in Applicants' Exhibits C and D Full as well as Applicants' Exhibit F for identification when preparing his plan.

Mr. Frisella stated that, within a reasonable degree of engineering certainty, the waste from the proposed system will not be a danger to the public health. The reason is that the effluent from the dwelling will be only "gray water" and not "black water". The system runs five (5) cycles to remove any minute nitrogen. The ultraviolet light will remove most, if not all, bacteria and pathogens. Then the BSF will remove any pathogens that may remain.

Mr. Frisella said there is no difference between composting toilets and incinerator toilets with regard to the operation of the ISDS system. The important point is that both systems deal

with the human waste, "black water" which never makes its way into the ISDS system.

Mr. Frisella expressed his opinion within a reasonable degree of engineering certainty that the system would prevent the contamination of a drinking water supply in any of the wells in this area. He said that the way the system functions and maintained will prevent contamination.

Mr. Frisella expressed an opinion that no waste from the proposed system will pollute any body of water, more specifically Green Hill Pond. He based his opinion upon the fact that no "black water" will be introduced into the system and what effluent is introduced will be effectively treated.

Mr. Frisella expressed his opinion to a degree of engineering certainty that the waste from the proposed system would not interfere with the public use and enjoyment of the recreational resource. Mr. Frisella expressed his opinion that the waste will not create a public or private nuisance.

Applicants' Counsel moved for the admission of a manual for the Salcor, Inc. ultraviolet light system as a Full exhibit and without objection it was marked as Applicants' Exhibit A Full. Counsel for Applicants offered Applicants' B1 entitled "Fecal Coliform Reduction with AdvanTex AX20" and without objection it was marked Applicants' Exhibit B1 Full. Applicants' Counsel offered two reports marked as Applicants' Exhibits E and F for identification as Full exhibits but upon objection from OWR they were not admitted. Applicants' Counsel offered Applicants' Exhibit J as a Full exhibit and, without objection, it was so marked. Without objection Applicants' Exhibit K was entered as a Full exhibit. Applicants' Exhibit K is comprised of two sheets which depicts the plan and system description. This exhibit also includes two enlargements of these documents which were used during the testimony.

Mr. Frisella testified that he had forty years of experience as an ISDS engineer in the Town of Charlestown and is familiar with its planning and zoning laws. The subject parcel has a zoning designation of R20 residential. His review of the zoning code led him to the conclusion that if they could not build a residence on the property their only option was agricultural use, which was not good for the environment or practical. He said without the permit the Applicants would be deprived of any beneficial use.

Counsel for DEM then cross examined Mr. Frisella. In answer to Counsel's questions Mr. Frisella testified that he first became involved with the subject premises as a consultant not owner in 1999. After the second denial he purchased the property with two partners; Bruce Gardner and Charles Sweet in October 2005 for \$100,000. He testified that when they purchased the property they were aware of the fact that it would not be developed as a residence without the four variances. Counsel had the witness read from the table 20.1 on page 57 of the regulations. Mr. Frisella testified that they considered their application to be of the most unique of circumstances. He went on to say that this was because of the groundwater flow, the lack of any "black water" and the extent to which the advanced system treats the "gray water" effluent. Counsel went on to have the witness review the minimum distances where a variance is granted according to table 20.1 guidelines. The distance from a coastal feature is 100 feet and the variance requests 40 or 50 feet depending on interpretation. The witness added that because there would not be toilet discharge the daily water use would be 30 percent less going from 300 gallons per day to 210. He could not recall any application where a variance of 50 feet from Green Hill Pond was granted for new construction.

Mr. Friscella testified that his plan called for a composting toilet but when he became aware of the DEM concerns he agreed to an incinerator toilet. He became aware of a DEM concern that the composting material may be used in the garden and therefore accessing the environment. He acknowledged that their application was for a composting toilet and not incinerator. DEM concluded its cross-examination.

On redirect examination Counsel for Applicants continued the line of questioning to the extent that during meetings with DEM they suggested a composting toilet. The issue of spreading composted materials was never brought up until after the denial and was expressed in the more definite statement of June 2008. He also testified that when he purchased the property he believed that this lot was a unique parcel of real estate that should be permitted by DEM. Counsel completed his redirect examination.

Counsel for DEM conducted a recross examination. Mr. Friscella agreed that the purpose of the composting toilet is to remove nitrogen and pathogens from the waste entering the system. He agreed that the composted materials should not be spread on land or in the garden.

On redirect examination Mr. Friscella said that DEM has no regulations relating to disposal of material from a composting toilet and that these concerns could be addressed in express deed restrictions.

On recross it was established that no deed restriction was submitted with the application. The witness explained that he did not know it was an issue until after the denial and appeal.

The Applicants called Mohamed Freij as their next witness. Mr. Freij testified that he is employed by DEM and has been involved in the four applications submitted relative to the subject premises. His title is principal sanitary engineer and that he is the staff person who made the decision and recommendation that led to the denial of those applications.

Mr. Freij acknowledged that the water table for this parcel is seven to eight feet which is more advantageous than two to three feet. He testified that the ultraviolet light system has not been officially approved by DEM but that in his opinion it is beneficial with proper maintenance.

Mr. Freij testified that the variance under section 2.14 for alternate area is not considered a severe variance standing on its own. The new regulations no longer require an alternate area. He was next directed to the variance from section 3.05.04 which requires a ten foot separation from the BSF. He said the eight foot variance creates a bigger hazard and does not recall in his nineteen years the Department ever granting a variance that close to the property line. The reason is because the owner of the system will not have sufficient control over the area. He expressed concern that if the area was disturbed, sewage would be released and exposed on the neighbor's property.

Counsel for Applicants' asked Mr. Freij if he was familiar with the letter described as a more definite statement dated September 24, 2008. Mr. Freij said that he was familiar with the letter but did not prepare it. The witness acknowledged preparing the original denial letter dated March 7, 2008. He said that DEM considered five factors and concluded that the variance is not in the best public interest. He said there is no definition in the regulations for "best public interest" and the letter was in the form that typically goes with the denial. The letter of denial was entered as Joint Exhibit 1.

Mr. Freij testified that the system as proposed is the most advanced available. When asked about other uses for the property if not as a residence he said it could be used for camping, storage or two car garage. He volunteered that the system is a good system, an advanced system but the limitations are with the lot, not with the system.

On cross-examination Counsel for DEM had Mr. Freij read from page one of the regulations. The parties agreed to the admission of a letter dated July 24, 2008, the more definite statement, as Applicants' Exhibit Q Full. The Applicants rested.

Counsel for DEM made a brief opening statement and then recalled Mohamed Freij as its own witness. He testified that he has reviewed approximately 3500 applications. Mr. Freij reviewed his educational background and the fact that he has previously been qualified as an expert witness. DEM offered Mr. Freij as an expert in the area of professional engineering, land surveying, and the application and compliance with the ISDS regulations. Counsel for Applicants was allowed to conduct a brief voir dire. Mr. Freij was qualified, without objection, as an expert in the area of professional engineering and land surveying. He was not qualified as an expert in the area of interpretation of regulations.

Mr. Freij testified that the main issues with their specific lot were the wells, both existing and proposed. The concern is the distance from the proposed system and wells as well as the direction of groundwater movement in the area. He said if the groundwater flows away from the existing and proposed wells it will be less of a potential impact.

Mr. Freij stated that he thought Dr. Urish was very qualified and knowledgeable. He said he was concerned about a reversal of groundwater flow because the slope of the groundwater was shallow. He said the type of well, shallow dug well, was a concern. Mr. Freij acknowledged that DEM applies a different standard to replacement of existing systems as opposed to new construction.

Mr. Freij testified that the distance required in the regulations between the BSF and the coastal pond is 100 feet and that the Applicants' place provided for 40 feet. Applicants interpret the distance to be 50 feet. The witness said that in his mind it made no difference if it were 50 feet as opposed to 40 feet. The main issue in the variance is the risk that the system may affect the current condition of the pond by adding nitrates and fecal coliform.

Mr. Freij testified that composting and incinerating toilets are both approved by DEM. He called them "no-flush toilets" and described how both alternatives work. This application proposed a composting toilet. They are only proposed when a variance is needed. In his opinion the denial was not based on concern of the disposition of the product of the composting toilet. He said that the Chief of the Division had indicated his concern about spreading the material on the ground.

Mr. Freij testified that his opinion of the BSF and UV systems is that they are good systems and are approved by DEM. The UV system must be maintained but that was not the reason that the application was denied. He said the application was denied as it was 71 feet from existing or proposed wells. They are shallow dug wells and sensitive to groundwater flow.

The second issue is the distance to Green Hill Pond. He acknowledged that the system will capture a good percentage of nitrates and it will remove some fecal coliform using the UV.

The third issue was the distance from the system and the property line. The Applicants will not have control and there is a danger of the septic system from breaking out or failing. Finally, under the old regulations, an alternative area was required but it is not under the new regulations.

Mr. Freij testified that, in his opinion, the application did not provide the same degree of protection as provided under strict application of the regulations because of the shallow wells and

potential change in groundwater flow. He said that the system would not function as proposed because of the shallow wells and possible reversal of the groundwater flow. He testified that, in his opinion, the proposed plan will cause potential impact to public health because of the distance to existing and potential wells. It is a potential problem. He also said that the proposed plan would be contrary to public interest due to impact on wells and the pond.

Mr. Freij testified that the proposed plan would be contrary to environmental quality based on the fact of the distance of the system to the pond. He said that the pond is impacted by nitrates but acknowledges that the nitrate source does not come only from systems.

Mr. Freij testified that the waste from the system has a potential to contaminate drinking water because the system is only 71 feet from a shallow well. Shallow wells are easily contaminated not just from septic systems but from animal waste.

Mr. Freij testified that the waste from the system had a potential to pollute Green Hill Pond because waste from the system has potential to interfere with the use and enjoyment of the recreational resource. Mr. Freij testified that the waste from the system had the potential to create a public and/or private nuisance as the system would be too close to the Applicants' property line.

Mr. Freij testified that the sewage that comes out of the system is clean but not clean enough to drink. He said fecal coliform and nitrates will enter the system. He said that it is cleaner than what comes out of a septic tank because it gets filtered through the BSF. When asked by the Hearing Officer how fecal coliform gets in the system if the toilet is not involved in the system, he said that there is fecal coliform in "gray water" too. He said that fecal coliform can come from people taking showers. He said that when people go to the toilet they can have fecal coliform on their hands which could be washed in the sink. He referred to studies but did not specifically identify them.

Mr. Freij said that the only way that a building could be put on this property would be with the use of the neighbor's lot. He said that if Applicants could put the wells more to the east, they could shift the system ten more feet from the pond and five feet from the property line.

Applicants' Counsel conducted a brief cross examination. Mr. Freij acknowledged that DEM used the information contained in neighbors' objections to evaluate the application but never mentioned them in the letter of denial or the more concise statement of reasons for denial. He testified that Dr. Urish's report indicated that nitrates in the neighbors' wells were 3.1 milligrams per liter which is less than the maximum allowed for drinking, which is 10 milligrams per liter. He said that although deep dug wells (250, 500 or 750 feet) would be more protective, in this particular locality shallow dug wells are the only alternative because a deep dug well would be contaminated with salt water.

Mr. Freij testified that the fecal coliform found in the well at lot 52 across the street could have come from animal droppings, surface rainwater or its septic system which is 30 feet away.

Mr. Freij testified about the fact that in the Town of Charlestown, if you have a cesspool and live in this area, you would have to convert to an advanced system with BSF by a certain timetable. The DEM standards are less strict for existing houses because it would be an improvement from the existing situation. He said that they regularly approve the removal of cesspools and the replacement of those systems with a BSF system at distances that are significantly less than 71 feet from existing wells.

Mr. Freij acknowledged that if the Applicants' could move the two wells to 100 feet away and could shift the system slightly to the south to maximize distance to the pond he would consider that an improvement and recommend approval of the application. Upon the completion of cross examination the Department rested. Counsel for the Department moved to have letters

from objectors entered into the record as exhibits. Applicants objected and a ruling was made denying their admission as exhibits. The hearing was adjourned after a brief discussion and agreement between the parties regarding a schedule for the submission of post-hearing memoranda.

### **BURDEN OF PROOF AND STANDARD OF REVIEW**

The burden of proof and standard of review is set out in SD 21.02 as follows:

- A. At the adjudicatory hearing, the Applicant shall have the burden of proof to demonstrate through clear and convincing evidence that:
- (1) A literal enforcement of the regulations will result in unnecessary hardship;
  - (2) That the system will function as proposed in the application; and
  - (3) That the issuance of a permit will not be contrary to the public interest, public health and the environment.
- B. In order to demonstrate that the proposed Individual Sewage Disposal System will not be contrary to the public interest, public health and the environment, the Applicants must introduce clear and convincing evidence to the satisfaction of the Director that:
- (1) The waste from such system will not be a danger to the public health.
  - (2) The disposal system to be installed will be located, operated and maintained so as to prevent the contamination of any drinking water supply or tributary thereto;
  - (3) The waste from the proposed system will not pollute any body of water or wetland;
  - (4) The waste from the proposed system will not interfere with the public use and enjoyment of any recreational resource; and
  - (5) The waste from the proposed system will not create a public or private nuisance.
- C. The Director, or his/her designee, may approve a permit or grant a variance from any provision of these rules and regulations where he/she finds that:
- (1) A literal enforcement of such provisions will result in unnecessary hardship to the Applicants;
  - (2) That the system will function as proposed in the application; and
  - (3) That the permit or variance sought will not be contrary to the public interest, public health and the environment. ISDS Regulations, SD 21.02.

The Applicants in their "Applicants' Reply Memorandum" argue that there is no statutory authority for the AAD to apply the clear and convincing evidence standard. This is an issue of first impression and no argument was made by OWR. It is not appropriate for the AAD to go beyond its duly adopted regulations and question their legality or constitutionality. The AAD has consistently held that constitutional issues cannot be addressed before this tribunal. As pointed out by the U.S. District Court for the District of Rhode Island in *Bowen v. Hackett*, 361 F. Supp. 854,860 (D.R.I. 1973) the "expertise of state administrative agencies does not extend to issues of constitutional law." Applicants' constitutional arguments are preserved for the record but will not be addressed further in this decision.

#### ANALYSIS

This analysis is based on a review of the stipulated facts, duly admitted exhibits and testimony of the witnesses at the Administrative Hearing. Both sides have presented their case in a thorough and professional manner which has been helpful in the understanding of the underlying issues.

The Applicants argue that OWR has not adequately addressed reasons for denying individual variances. OWR responds that it does not review individual requests for variances in a vacuum but instead evaluates all circumstances surrounding an application and makes a decision whether to approve or deny the application on all relevant circumstances. After filing their appeal Applicants filed a Motion for Statement of Grounds for Denial. OWR filed a response on July 24, 2008 providing a more concise statement of why the application was denied (Applicants' Exhibit Q Full). It is important that OWR be as specific as possible in listing the deficiencies in the Applicants' plan. This assists the Applicants and the Hearing Officer to define and address the

relevant issues. It is also an issue of fairness to the Applicants as it affects their ability to challenge any of the conclusions upon which OWR based its decision to deny the application.

The application, which is the subject of this appeal, attempts to provide a plan and system which would satisfy the requirements of the ISDS Regulations for a lot that is too small to meet the proscribed distances. The Applicants proposed to construct a two bedroom residence on land bordering on Green Hill Pond in the Town of Charlestown, RI. Due to the size and location of the subject lot, the Applicants proposed installing a composting toilet, and "advanced and innovative" system (AdvanTex AX20) with Salcor ultraviolet disinfection unit.

OWR acknowledges that the Applicants have selected the best possible treatment system but that due to the size of the lot there is not enough distance between the septic and the proposed and existing wells (71' when 100' is required) between the system and the coastal feature (40' when 150' is required) and between the system and the property line (2' when 10' is required). OWR also points to the fact that the plan does not provide for an "alternate area" as required by ISDS SD 2.14 which provides for an additional site should the system fail.

The Applicants argue that their plan does not present a probability of adverse effects to public health safety and welfare. Their position is presented through the testimony and exhibits present through two witnesses: Dr. Daniel W. Urish, PHD, PLS and Joseph W. Frisella, P.E., R.L.S. Their reports are part of the record as Applicants' Exhibit G Full and Applicants' Exhibit J Full respectively.

Dr. Urish during his testimony was qualified without objection as an expert in hydrogeology. Dr. Urish testified as to his observations and testing as reflected in his report entitled "Evaluation of Groundwater Flow for Lot 387 of Assessor's Map 9 also designated as Sea Lea Colony Lot 121 Charlestown, RI" (Applicants' Exhibit G Full). Dr. Urish reviewed his

methodology of testing and his findings. The most relevant findings are that the water table ranges from 7.0 to 8 feet. He said that the water table levels vary up to 0.1 ft. on a daily basis due to tidal influences and as much as 1.5 ft. on a long term basis due to seasonal groundwater recharge and atmospheric storm conditions. Fresh groundwater flow at the site is to the N-NW area of the pond at an estimated velocity of 2-3 ft./day.

Dr. Urish referred to laboratory analysis of water samples taken from two neighboring wells and reported that the chemical content of the local groundwater is good. Total dissolved solids is less than 150 mg/L as compared with recommended health limits of 500 mg/L, and nitrate-nitrogen averages 2.7 mg/L, well below the recommended health limits of 10.0 mg/L. His report and testimony advised that there were no other chemical constituents of note. Coliform bacteria was found in one well, mostly likely a local problem caused by inadequate well sealing and was not expected to be a regional problem that would affect the proposed new well.

Dr. Urish also reported that the water budget analysis of area precipitation provides an area groundwater recharge estimated of 12-18 inches/year. He said that this is sufficient to provide the 300 gpd required for the proposed new residence, without adverse effect on existing wells. It was represented at the hearing that with a composting toilet in use the estimated water requirement would drop to 210 gpd. Dr. Urish also testified about a proposed pool water runoff option which was abandoned by Applicants due to concerns relative to contamination. Dr. Urish concluded in his testimony and report that "Based on field groundwater investigations and associated analysis . . . the proposed new residence with a new well and on-site sewage disposal is not expected to experience, or cause any adverse effects." (see page iii, Applicants' Exhibit G Full).

On cross examination Dr. Urish acknowledged that the distance from system to well was less than required but that due to the fact that the groundwater flow was away from the wells, both proposed and existing, that the distance was adequate. He said that in the event of extreme weather such as a 1938-type hurricane, the wells would not be protected. He testified later that such an extreme weather even as a hurricane would adversely affect all the wells in the area and it would take several years to recover. He acknowledged that high discharges from the well caused by extreme pumping could have an affect on the groundwater flow.

The Applicants' other witness was Joseph Frisella, who in addition to being the person who designed the plan and system is also one of the owners of the subject property. Mr. Frisella was qualified without objection as an expert in the areas of professional engineering design and installation of ISDS systems including advanced systems and soil evaluation. The relevant testimony from Mr. Frisella is also reflected in his report entitled "Cumulative Impact Assessment for Lot 387 of Assessor's Map 9 also designated as Lot 121 of the Sea Lea Colony Plot in the Town of Charlestown, Rhode Island owned by Bruce Gardner and others" (Applicants' Exhibit J Full).

Mr. Frisella's testimony included description of the ISDS plan including the placement of the well and advanced system. He described the use of a composting toilet with an advanced system. The composting toilet is not hooked up to the treatment system and therefore none of the effluent, "black water", would be deposited therein would find its way into the system. The only effluent to be deposited in the advanced treatment system would be what is called "gray water" which includes dishwater, water from the washing machine as well as water from the sinks. The "gray water" would enter the AdvanTex AX20 where it would be circulated five times to remove the BOD's and suspended solids.

Mr. Frisella described the advanced system he designed and said his experience shows that it has been very effective in treating "black water". He said this system would be much more protective since it will deal only with "gray water". In addition he has included a trap for capturing lint and solids from the washing machine. He has added to his treatment design the "Salcor 3G Waste Water Ultraviolet Disinfection Unit" as described in App Exhibit A Full. This addition to the treatment system will remove bacteria and pathogens as it passes through the ultraviolet light. The effluent would then go through the BSF where any remaining pathogens would be removed. The witness pointed out that the BSF is usually employed where the system is only two to three feet above the water. In this case it is at least seven to eight feet. The witness testified about the safeguards against a malfunction including a shutdown with telemetric alarm to the owner and maintenance provider.

The Applicants have taken great lengths to design a plan which is most protective to the environment. When you begin with a composting toilet which leaves only "gray water" for advancement treatment, you are creating as a final product an effluent which is not a threat to the environment. OWR witness Freij testified that there is still the possibility of fecal coliform in the "gray water" which may come from the shower water. Mr. Freij stated that this is due to people not completely wiping themselves after using the toilet and then taking a shower. When asked for specific data the witness said that there were studies but he did not have any to present. He suggested that the Hearing Officer could go on the internet and find the articles.

If I accept the testimony of Mr. Freij that there is fecal coliform in the "gray water", that minute amount of fecal coliform then goes through a very effective treatment process. The uncontradicted testimony is that the AdvanTex AX20 removes 98% of suspended solids and

BOD's from the effluent by a five cycle cleansing process. There is an approximately 70% reduction of nitrates prior to being further reduced by the BSF. The uncontroverted testimony is that the Salcor ultraviolet disinfection unit removes 99% to 100% of any bacteria and pathogens in the effluent.

The evidence as presented by the Applicants proves that by the use of a "gray water" system there will be a very minute amount of fecal coliform being deposited into the system. The system then reduces that minute amount so that the end product will be almost infinitesimal. This having been said we must next review the possible threat of this infinitesimal effluent to the public and private health safety and welfare.

The Applicants' lot is too small to allow for a system without variances. The plan shows only a 71 foot separation between the proposed BSF and the existing and proposed wells. The plan also provides for only 40 to 50 feet to the coastal feature and 2 feet of separation to the property line. Is this separation sufficient to provide protection from possible adverse effect?

The testimony of Dr. Urish established that the groundwater, which is at a depth of 7 to 8 feet, travels in a north/northwesterly direction at a rate of 2 to 3 feet per day. The proposed and existing wells are located or will be located to the south of the BSF and therefore in the opposite direction of the groundwater flow. OWR through cross examination of Dr. Urish was able to establish two occasions in which the groundwater flow may reverse: an episodic hurricane and extreme draw off of wells in the area. The episodic hurricane would contaminate all wells in the area. No specific evidence was offered on the issue of extreme draw off of wells in the area. I find that under the proposed plan ("gray water" and advanced treatment) and in light of the established groundwater flow, the placement of the BSF within 71 feet of the

proposed and existing wells will not create a threat to the public or private health safety and welfare.

OWR expressed concern with regard to the distance between the proposed BSF and the coastal feature. The parties disagree on the exact distance; the Applicants say 50 feet and OWR says 40 feet. The Regulations call for 150 feet and OWR's witness Freij testified that it would not make a difference to him if it was 40 or 50 feet; it was not enough either way. Later in his testimony Mr. Freij testified about a possible way that the Applicants could develop the property. He suggested that the Applicants could enter into an agreement with the abutting property owner to place a well on his property. Mr. Freij testified that his primary concern was the separation between BSF and the wells. He said, "I think I clearly testified that if the two wells are moved a hundred feet from the system and if you shift the system slightly to the south to maximize distance to the pond, I will consider that an improvement and recommend it." (TR. V III p. 98) (emphasis added). The "shift" was described in greater detail when Mr. Freij said, "He could shift the system maybe ten feet to the south and maximize the distance to the pond and maybe five feet from the property line". (TR V III p. 63). The fact that by moving the system slightly farther away from the pond (ten feet) and from the property line (five feet), this representative of OWR would be satisfied enough to recommend it, casts doubt on the concerns of OWR. I find that the minute amount of contaminants in the effluent when passed through the BSF and deposited into the 7 to 8 foot groundwater table will not have a likelihood of adverse effect on the pond.

The same analysis can be applied to the question of separation between the BSF and the property line (2 feet when 10 feet is required). The character and content of the effluent after treatment and the depth of the water table totally minimizes any reason for concern. The

stated concern of OWR is possible "breakout" when the effluent comes to the surface. This is a concern when there is a high water table which is not the case in this site.

The final concern is the lack of an alternative site because the property is too small. The testimony was that this requirement is no longer contained in the new regulations but is optional. It was also acknowledged that this requirement was frequently waived when the size of the lot made it impossible.

While we are operating under the regulations in place at the time of the application, I can only conclude the prior practice and the removal of the requirement from the new regulations means that it is not necessary to protect the public or private health, safety and welfare.

Finally I find that the Applicants will suffer an unnecessary hardship if they are not allowed to develop their property in the manner put forth in their application. The Applicants purchased the property for \$100,000 with the hope that a plan with composting toilet and advanced system would be sufficient to satisfy the concerns of OWR. I have found that the proposed plan, in light of all the surrounding circumstances, is sufficient and therefore to deny the application will constitute an unnecessary hardship to the Applicants. Applicants testified that without the approval there was no use to which they could put the property. OWR did not present evidence to the effect that there was any other beneficial use to which the property could be put.

#### CONCLUSION

In summary the Applicants have gone to great lengths to satisfy the concerns of OWR and protect the public and private health, safety and welfare. The Applicants have incorporated a composting toilet which will limit the effluent to "gray water" with little or no fecal coliform

coming from the residence. This effluent will be extensively treated in the AdvanTex AX20 where 98% suspended solids and BOD's will be removed. The system will also remove approximately 70% of nitrates, which will be further reduced by passage through the BSF. In addition the Applicants have incorporated an ultraviolet disinfection unit which removes 99% to 100% of any bacteria and pathogens in the effluent. These facts have not been rebutted by OWR.

The surrounding circumstances of the subject lot were established by the geohydrologist, Dr. Urish, whose testimony I have given great weight. His testimony established that the groundwater flow was away from the proposed and existing wells. The only rebuttal presented by OWR was in the form of Dr. Urish's testimony to the effect that the groundwater flow could change as a result of an episodic (1938 type) hurricane or excessive draw down of the wells. OWR did not present specific testimony of its own on these issues but relied on Applicants' witness testimony.

In light of the above I find that the Applicants have met their burden of proof by clear and convincing evidence that the proposed plan will not constitute a threat to public and private health, safety and welfare. OWR has not presented evidence to rebut the proof presented by the Applicants. I, therefore, find that OWR improperly denied the subject application and said application should be granted.

#### **FINDINGS OF FACT**

1. The Applicants are the current owners of property identified as Lot 387 of Assessor's Map 9 in the Town of Charlestown, Rhode Island ("property").
2. On September 25, 2007 Applicants filed an application for the instillation of an ISDS on the property, Application No. 9905-3244 ("Application").

3. The Application sought four variances from the *Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction, and Maintenance of Individual Sewage Disposal System*, dated January 2002. ("ISDS" Regulations") as follows:
  - (a) SD 3.05 (4), requiring a ten foot (10") setback from the property line.
  - (b) SD 3.05 (1), requiring a one hundred foot (100') setback from all private wells.
  - (c) SD 2.14, requiring that there be an alternate leachfield location available on the property.
  - (d) SD 19.02.4, requiring a one hundred fifty foot (150') setback from Green Hill Pond.
4. The Office of Water Resources ("OWR") issued a Notice of Denial ("Denial") dated March 7, 2008 denying Applicants' application.
5. Applicants filed a timely appeal on April 14, 2008 requesting Administrative Hearing.
6. An Administrative Hearing was held on August 24 and 25, 2009.
7. The property is too small to construct a residence with ISDS and well without obtaining relief from the ISDS Regulations.
8. The Applicants' plan submitted with their application included a composting toilet, AdvanTex AX20 system, ultraviolet disinfection unit and Bottomless Sand Filter (BSF).
9. The plan indicated that the BSF was to be located 71 feet from the proposed and existing wells, 40 to 50 feet from the coastal feature and 2 feet from the property line.
10. The groundwater table is at 7 or 8 feet and the groundwater flows in a north/northwesterly direction at a rate of 2 to 3 feet per day.
11. The proposed and existing wells are located 71 feet to the south of the proposed BSF.
12. The coastal feature is to the north of the proposed BSF at a distance of 40 to 50 feet.
13. The proposed two bedroom residence, with composting toilet, will generate "gray water" only and no "black water".
14. "Gray water" is comprised of bath water, dishwasher water and sink water.
15. "Gray water" may contain minute quantities of fecal coliform which may result from bathing.

16. The approximate discharge of "gray water" from the proposed residence with composting toilet is 210 gallons per day.
17. The system proposed by the Applicants, the AdvanTex AX20 ("system"), includes a 1500 gallon tank which circulates the effluent five (5) times before discharge.
18. A deed restriction should be required to insure the continued use of a composting toilet by the Applicants; their successors and assignees.
19. The system removes approximately 98% of suspended solids and BODs from the effluent before discharging same through the BSF.
20. The system removes approximately 70% of nitrates in the effluent before discharging same through the BSF.
21. The system proposes ultraviolet disinfectant unit which removes 99% to 100% of any bacteria and pathogens in the effluent.
22. The effluent is further scrubbed during passage through the sand and gravel in the BSF removing additional bacteria, pathogens and nitrates.
23. The level of nitrates discharged from the BSF is within acceptable levels.
24. An episodic (1938 type) hurricane could result in a change in the groundwater flow towards the wells.
25. An episodic (1938 type) hurricane would result in contamination of all wells in the area.
26. The plan submitted and the surrounding factor constitute the most unique of circumstances to justify going below the established baseline.
27. A literal enforcement of the regulations will result in unnecessary hardship to the Applicants.
28. The system will function as proposed in the application.
29. The issuance of a permit will not be contrary to the public interest, public health and the environment.
30. The waste from the proposed system will not be a danger to public health.
31. The disposal system to be installed will be located, operated and maintained so as to prevent the contamination of any drinking water supply or tributary thereto.

32. The waste from the proposed system will not pollute any body of water or wetland.
33. The waste from the proposed system will not interfere with the public use and enjoyment of any recreational resource.
34. The waste from the proposed system will not create a public or private nuisance.
35. A deed restriction is required to insure that the occupants of the property will retain the composting toilet.

#### CONCLUSIONS OF LAW

Based upon all of the documentary and testimonial evidence of record, I conclude as a matter of law:

1. All hearings were conducted in accordance with the Rhode Island General Laws, the Rules and Regulations of DEM for ISDS and the Rules of Practice and Procedure for the Administrative Adjudication Division for Environmental Matters.
2. Individual Sewage Disposal System Regulation SD 2.01 (a) requires the Applicant to obtain a permit to install, construct, alter or repair an Individual Sewage Disposal System. The variance from SD 3.05 (10), which Applicant seeks, is not contrary to the purposes and policies set forth in the Administrative Findings and Policy of the Individual Sewage Disposal System Rules and Regulations.
3. The burden of proof in this appeal as set out in SD 21.02 of the Regulations is "clear and convincing evidence".
4. Applicant has met the burden of proving by clear and convincing evidence that the disposal system to be installed will be located, operated and maintained so as to prevent the contamination of any drinking water supply or tributary thereto; and that the waste from the disposal system will not create a danger to the public health.
5. Applicant has demonstrated through clear and convincing evidence that the system will function as proposed in the application, and that the issuance of a permit will not be contrary to the public interest, public health and the environment.
6. Denial of the variances requested will result in a denial of all beneficial use of the property; therefore, a literal enforcement of the provisions of the Individual Sewage Disposal System Regulations will result in any unnecessary hardship to the Applicant.
7. Application No 9905-3244 conforms to the requirements of the ISDS Regulations, and therefore should be granted.

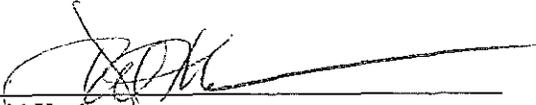
Therefore it is hereby

**ORDERED**

1. Application No. 9905-3244 and the request for variances from ISDS Regulations submitted by Applicants be and they are hereby GRANTED.
2. The Applicants and their successors and assignees are required to include in any conveyance a requirement to utilize only a composting toilet.

Entered as an Administrative Order this 13<sup>th</sup> day of April, 2010 and

herewith recommended to the Director for issuance as a Final Agency Order.

  
\_\_\_\_\_  
David Kerins  
Chief Hearing Officer  
Department of Environmental Management  
Administrative Adjudication Division  
235 Promenade Street, Third Floor  
Providence, RI 02908  
(401) 222-1357

Entered as a Final Agency Decision and Order this \_\_\_\_ day of \_\_\_\_\_, 2010.

\_\_\_\_\_  
W. Michael Sullivan Ph.D.  
Director  
Department of Environmental Management  
235 Promenade Street, Fourth Floor  
Providence, Rhode Island 02908

RE: GARDNER, BRUCE  
APPLICATION NO. 9905-3244 Map 9 Lot 387  
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**CERTIFICATION**

I hereby certify that I caused a true copy of the within Decision and Order to be forwarded, via regular mail, postage prepaid to: Joseph DeAngelis, Esquire, Adler Pollock & Sheehan P.C., One Citizens Plaza, 8<sup>th</sup> Floor, Providence, RI 02903; via interoffice mail to Susan B. Forcier, Esq., DEM Office of Legal Services, 235 Promenade Street, Providence, RI 02908 on this \_\_\_\_\_ day of \_\_\_\_\_, 2010.

\_\_\_\_\_

**NOTICE OF APPELLATE RIGHTS**

This Final Order constitutes a final order of the Department of Environmental Management pursuant to RI general Laws § 42-35-12. Pursuant to R.I. Gen. Laws § 42-35-15, a final order may be appealed to the Superior Court sitting in and for the County of Providence within thirty (30) days of the mailing date of this decision. Such appeal, if taken, must be completed by filing a petition for review in Superior Court. The filing of the complaint does not itself stay enforcement of this order. The agency may grant, or the reviewing court may order, a stay upon the appropriate terms.

APPENDIX A

EXHIBITS

The following are the exhibits as Full in the Administrative Hearing:

JOINT EXHIBIT

Joint Exhibit #1 Full Copy of Letter of Denial from DEM to the Applicants dated March 7, 2008 (three (3) sheets)

DEM EXHIBITS

DEM Exhibit #1 Full Copy of CV of Russell J. Chateaufneuf, P.E.

DEM Exhibit #2 Full Copy of CV of Brian M. Moore, P.E.

DEM Exhibit #3 Full Copy of CV of Mohammed J. Freij, P.E., P.L.S.

APPLICANTS' EXHIBITS

Applicants' Exhibit A Full Salcor, Inc. Waste Water ultraviolet Disinfection Unit

Applicants' Exhibit B-1 Full Fecal Coliform Reduction with AdvanTex AX20

Applicants' Exhibit C Full Total Maximum Daily Load analysis for Green Hill Pond, Ninigret Pond, Factory Pond Stream, South Kingstown and Charlestown, Rhode Island, Final February 9, 2006 RIDEM

Applicants' Exhibit D Full Identification of Bacteria Sources in Green Hill Pond Using Polymerase Chain Reaction, 8 July 2003, RIDEM

Applicants' Exhibit G Full Evaluation of Groundwater Flow by Dr. Daniel W. Urish  
December 2006

Applicants' Exhibit H Full Urish Supplemental Report dated August 2007

Applicants' Exhibit J Full Cumulative Impact Assessment prepared by Joseph W. Frisella

Applicants' Exhibit K Full Plans dated November 2006 (four (4) sheets, two (2) large and two (2) small)

RE: GARDNER, BRUCE  
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<u>Applicants' Exhibit O Full</u>	Joseph Frisella Resume
<u>Applicants' Exhibit P Full</u>	Daniel W. Urish Resume
<u>Applicants' Exhibit Q Full</u>	Copy of letter from RIDEM to Applicants' dated July 24, 2009