



STATE OF DELAWARE
**DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL**

OFFICE OF THE
SECRETARY

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Secretary's Order No. 2012-W-0052

Re: Application of Artesian Wastewater Management, Inc. for a Groundwater Discharge Permit to construct the 'Artesian Northern Sussex Regional Water Recharge Facility' near Milton, Sussex County.

Date of Issuance: March 12, 2013

Effective Date: March 12, 2013

This Order considers the attached December 12, 2012 Report from the Department's presiding hearing officer, which recommends issuance to Artesian Wastewater Management, Inc. (Applicant or Artesian) a groundwater discharge permit¹ to construct a large community on-site wastewater treatment and disposal system (OWTDS). The Report is hereby adopted to the extent it is consistent with this Order.

BACKGROUND FINDINGS

Applicant seeks to construct the "Artesian Northern Sussex Regional Water Recharge Facility" (ANSRWRf or Facility) in an unincorporated area of Sussex County northwest of the Town of Milton. The Facility would have a 3 million gallon per day (MGD) wastewater treatment and disposal capacity, which would be capable of serving approximately 10,000 residences. Most of Applicant's proposed customers for the sewer

¹ Applicant submitted an application to the Division of Water, Groundwater Discharge Section (GDS) for the permit pursuant to the Department's *Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems*, 7 DE Admin Code 7101 (OWTDS Regulation) and *Guidance and Regulations Governing the Land Treatment of Wastes*, 7 DE Admin. 7103 (Spray Irrigation Regulation).

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service would be in 'The Village of Elizabethtown,' a planned community to be built north west of Milton. In addition, service would be provided to any other customer within Applicant's Public Service Commission approved and regulated public utility service territory. Applicant's proposes phasing the construction to add capacity when needed to meet the expected demand from its public utility sewer customers. The Facility also may serve existing houses that now use an individual OWTDS, particularly if an individual OWTDS fails and Applicant's system is nearby.

The Facility would have treatment buildings and storage pond capacity to hold sufficient volumes for spray irrigation usage as required by the Department's Spray Irrigation Regulation. The treatment part of the Facility would be built on 75 acres in three phases, with each phase capable of treating up to 1 million gallon per day.

The Facility's treatment process would have wastewater enter a headworks building for primary screening and grit removal. The process would then have treatment by Biolac aeration basin treatment with internal clarifiers. The treated wastewater then be would undergo coagulation, flocculation, filtration and finally ultraviolet disinfection. The treated wastewater would be subject to continuous water quality monitoring before any discharge to a storage pond. The treatment level would reduce phosphorous from 12 mg/L to 3 mg/l and reduce nitrogen from 60 mg/L to 10 mg/L, but the treatment process is adjustable to allow nitrogen up to 25 mg/L when needed for crop production on the spray fields. The crops will use nitrogen so that no more than 10 mg/L would be discharged into the groundwater and groundwater monitoring would ensure this limit is met.

The Facility would use 1,722 leased acres for the spray irrigation disposal of the treated wastewater. This land is wooded or used for agricultural crop production, and the farming use would continue largely unchanged if the Facility is built except more acres would eventually be irrigated as flows increased. The farm's fields would use the treated wastewater for its irrigation to essentially recycle the water and avoid the farmer from pumping groundwater from agricultural irrigation wells. The use of the Facility's treated wastewater also provides a benefit in that the agricultural use will further reduce nitrogen and phosphorous from entering the groundwater because crops will absorb these and allow the farmer to reduce the amount of nitrogen and phosphorous fertilizer that otherwise may be applied. Finally, the farmer will avoid the energy costs in pumping groundwater from wells that will be replaced by use of the Facility's treated wastewater. The farm land is subject to an agricultural preserve agreement that will allow farming usage to continue and preserve the farm land as open space.

ANSRWRF's treatment process would reduce considerably the amount of pollutants that would enter the groundwater compared to the pollutants discharged by an individual OWTDS, which would be the only alternative to serve a lot approved by Sussex County. For example, an individual OWTDS discharges approximately 50.0 mg/L of nitrogen and 18.0 mg/L of phosphorous. In contrast, the Facility would discharge either 10.0 or 25.0 mg/L of nitrogen depending on agricultural need and 3.0 mg./L of phosphorous. The treatment process also will meet the Department's highest level for discharge for use on land applications, which is the level required for a discharges on recreational lands, such as golf courses or parks. The treatment level is higher than the level required for the proposed land application on farm lands. Thus, the

Facility provides a much better environmental method for wastewater disposal to any lot approved by Sussex County using an individual OWTDS.

Sussex County's planning approval conditions required the treatment plant to be designed to look like an agricultural building and have landscaping to screen it from view from its neighbors.

The Department held a public hearing on June 6, 2012 before the Department's presiding hearing officer, who allowed public comments to be received until July 6, 2012. The public comments opposed the application except for one comment from the farmer who had leased the lands to Applicant.

The Department's Division of Water, Groundwater Discharge Section (GWDS) assisted the hearing officer with its expertise in an October 4, 2012 technical response memorandum (TRM) attached to the Report. GWDS' TRM recommends issuance of a construction permit, but subject to certain permit conditions that are designed to protect the environment and public health.

DISCUSSION AND REASONS

The Department finds that the application should be approved to allow the construction to occur based upon the permit to be prepared by GGWDSDS and issued to Applicant prior to when construction is to commence. GWDS' permit will impose reasonable permit conditions designed to protect the environment and public health.

The Report discusses benefits from the Facility's construction. One significant benefit is the high level of treatment of wastewater produced from the development of lots approved by Sussex County. While the Facility may allow development to occur in greater density than would occur if each approved lot had to install an individual

OWTDS, the record demonstrates that the advanced treatment provided by the Facility will reduce the amount of pollutants potentially entering the groundwater compared to the alternative of installing individual OWTDS on each approved lot. The Facility is the best environmental method to treat and dispose of wastewater produced by the development of the approved lots. Nevertheless, the Facility will not be built unless the demand is there for its wastewater treatment and disposal service. Thus, houses need to be built first to justify its construction, or the conversion of existing individual OWTDS users to become Applicant's public utility customers.

A second major benefit is that the Facility will use spray irrigation as its disposal method, which the Department considers the most protective method of disposal of treated wastewater. The treated wastewater will be applied to existing farm lands, which will reduce pollutants entering the groundwater and preserve farm land and open space from development.

The application was opposed by local residents, who voiced valid concerns about the proposed construction and operation of a wastewater treatment and disposal facility near their residences. The comments also noted that the Facility may result in the construction of the houses that may be served by the Facility, but again Sussex County already has determined that lots may be developed so houses may be constructed with or without the Facility if the lots are suitable for an OWTDS.

The Department's continuing regulation of the Facility that would be built will ensure that the Facility will operate properly. This means that it will produce treated wastewater that essentially meets Delaware's drinking water standards. The Department considers that the Facility, if operated properly, could be a good neighbor to the local

residences and could be a beneficial use because it will preserve open space from development. The Department and Sussex County's planning approval will ensure that there will be virtually no change in the farming operations as a result of the Facility, which will have its treatment facilities appear to be agricultural and have ponds and agricultural fields that will retain the rural and farming look of the existing farm operations.

The comments on the operation of the storage ponds will be addressed by permit condition that will prevent the ponds from becoming a breeding ground for mosquitos. Sussex County already has required buffers for the spray fields and a landscaping around the treatment building and the Department also will include Sussex County's conditions in its permit to provide even more regulatory protection that the Department can enforce independent of Sussex County.

All the public comments were addressed in the Report and GDS' TRM. The public comments' concerns will not be forgotten, but will be part of the Department's ongoing regulation of the Facility once constructed. The Facility will require an operating permit that will allow the Department the authority to monitor its operation to ensure compliance with the permit conditions designed to satisfy the concerns raised by the public comments. Moreover, the Department can impose additional permit conditions to address any problems that may arise that have not been identified by the public comments. The Department's continuing regulation under an operating permit will allow the Department to make changes to an operating permit when necessary and appropriate. Thus, to the extent the Facility does not operate as it was designed to operate, the

Department has the authority to correct any problems that may develop or take enforcement action to obtain compliance with the permit conditions.

The Department has weighed the position presented and relies on the advice of its experts, which consider that the Facility should be constructed as a protective method to provide wastewater treatment and disposal service to public utility customers within a public utility service area.

CONCLUSIONS

The Department finds and concludes that sound environmental reasons support approval of the construction of ANSWRF and the issuance of a groundwater discharge permit as drafted by GWDS. In sum, as more fully described in the above findings and reasons, in the Report, and GWDS' TRM, the Department directs the following as a final order:

1. The Department has jurisdiction under its statutory authority to make a determination in this proceeding;
2. The Department provided adequate public notice of Applicant's application and the public hearing;
3. The Department considered all timely and relevant public comments in the record and the advice of its experts making its determination;
4. The record supports approval of the application and issuance of a permit drafted by GWDS that imposes reasonable conditions to protect the environment and public health; and that

5. The Department shall provide notice of this Order to the persons affected by this Order, as determined by the Department, including those who participated in the public hearing process.

A handwritten signature in black ink, appearing to read 'Collin P. O'Mara', written over a horizontal line.

Collin P. O'Mara
Secretary

HEARING OFFICER'S REPORT

TO: The Honorable Collin P. O'Mara
Secretary, Department of Natural Resources and Environmental Control

FROM: Robert P. Haynes, Esquire
Hearing Officer, Office of the Secretary
Department of Natural Resources and Environmental Control

RE: Application of Artesian Wastewater Management, Inc. for a Large Community On-site Wastewater Treatment and Disposal Permit to Construct the Northern Sussex Regional Water Recharge Facility near Milton, Sussex County.

DATE: December 12, 2012

I. PROCEDURAL HISTORY

In a December 8, 2006 letter, Artesian Wastewater Management, Inc. (Applicant) notified the Department of Natural Resources and Environmental Control's Division of Water, Ground Water Discharge Section (GWDS or Department) of its intent to begin a soils investigation on 1,739.8 acres near Milton, Sussex County. The investigation was to determine whether the soils were suitable for future use as the site for a regional On-site Wastewater Treatment and Disposal System (OWTDS) capable of treating between 3 to 6 million gallons per day (MGD). DNREC Ex. 4.

In a January 8, 2007 cover letter, Applicant submitted to GWDS a "Site Selection and Evaluation Report (SSER) for the Proposed The Villages of Elizabethtown Regional Spray Irrigation Project." DNREC Ex. 5.

In a January 7, 2007 letter, GWDS accepted Applicant's SSER as complying with the Department's current criteria for land disposal of treated wastewater, and notified Applicant that it could proceed with the next step in the permit process by preparing a Design Development Report (DDR) as per Department guidelines. DNREC Ex. 6.

In a June 19, 2009 letter, Applicant submitted its DDR for the "Artesian Northern Sussex Regional Water Recharge Facility" (ANSRWRF), which identified seven areas where the soils

would be suitable for the proposed spray irrigation disposal of treated wastewater. DNREC Ex. 8.

In an August 11, 2009 memorandum, GWDS' Jack Hayes reviewed Applicant's DDR and provided comments. DNREC Ex. 9.

In an October 28, 2009 memorandum, the Department's expert in the Division of Water's Groundwater Protection Branch, Blair Venables, P.G., commented on the DDR and requested that Applicant provide additional information. DNREC Ex. 10.

In a March 3, 2010 submission, Applicant provided the information requested by Mr. Venables. DNREC Ex. 11.

In a November 12, 2009 report, Applicant provided an updated DDR based upon a meeting with Department staff on October 1, 2009. DNREC Ex. 12

In a January 27, 2010 letter, GWDS' Marlene M. Baust, P.E., requested information required by the Department's regulations and guidance documents. DNREC Ex.13.

In March 2, 2010 and March 8, 2010 letters, Applicant provided the information Ms. Baust requested. DNREC Ex. 14.

In a March 25, 2010 memorandum, Mr. Venables provided additional comments and conditionally approved the DDR subject to Applicant fulfilling certain requirements. DNREC Ex. 15.

In April 22, 2010 and April 26, 2010 letters, Applicant provided further responses and agreed to the conditions in Mr. Venables' comments. DNREC Ex. 16.

In an April 29, 2010 letter, GWDS' Marlene Baust, P. E., approved the DDR, which allowed Applicant to prepare ANSRWRF's detailed plans and specifications. DNREC Ex. 17.

On October 18, 2011, Applicant submitted the detailed Plans and Specifications for ANSRWRF (DNREC Ex. 18) and a map of the area. DNREC Ex. 20.

On January 30, 2012, Applicant submitted to GWDS the Department's two page form application for ANSRWRF and paid the filing fee, and on April 27, 2012 submitted a revised application that contained more description of the requested permit. DNREC Ex. 19.

On February 12, 2012, the Department had published public notice of the spray irrigation permit application to construct ANSRWRF. DNREC Ex. 1.

In a March 14, 2012 letter, Maggie Fryer, President of Sylvan Acres Homeowners Association, requested a public hearing on the application. DNREC Ex. 2.

On May 13, 2012, the Department had published public notice of a public hearing to be held on June 6, 2012 on the ANSRWRF application.

On June 6, 2012, this hearing officer presided over a public hearing on the ANSRWRF application.

In a memorandum dated October 4, 2012, this hearing officer requested GWDS to prepare a technical response memorandum (TRM), which was submitted October 4, 2012 and attached hereto.

I requested additional information from the Applicant on the proposed service area, and Applicant provided its response on

I consider the record, as reviewed below, complete and sufficient to support this Report's recommendations that the permit drafted by GWDS be issued by an Order of the Secretary.

II. SUMMARY OF THE RECORD¹

The record that supports this Report includes: 1) the verbatim transcript of the public hearing, 2) documents submitted as exhibits, and 3) this Report, including the attached TRM and other documents referenced herein.

¹ This summary reviews a record of public comments but does not determine any factual accuracy.

At the public hearing, Ron Graeber, Manager of GWDS' Large Systems Branch, provided for the record² selected relevant documents from the Department's files, some of which are summarized in the above procedural history. Mr. Graeber summarized the application as seeking a permit to build a wastewater treatment facility capable of eventually treating and disposing of up to 3 MGD. The disposal would use land application by spray irrigation on three separate parcels totaling 740 acres. He indicated that ANSRWRF would use a high level treatment process with screening, grit removal, biological treatment with a bio-lock process, seven clarifiers, coagulation, filtration, flocculation and ultra violet disinfection. The spray irrigation would support existing agricultural operations, which would reduce the farming's use of pumping groundwater and applying fertilizer.

The Applicant's representative at the hearing was Brian Carbaugh, Applicant's Director of Engineering and Design, who was available for answering public questions.

The public comments at the public hearing began with comments from Tom DiOrio, who asked a question on his concern with groundwater contamination of the wells located in the vicinity of the proposed ANSRWRF. Mr. Graeber answered it by explaining the groundwater monitoring that would be required and that the treated effluent would meet federal drinking water standards. Mr. DiOrio also asked about prescription drugs entering the wastewater flow as a possible source of contamination. Mr. Graeber explained how advanced treatment and land application by spray irrigation would reduce this risk of contamination more than continued use of standard septic systems. Mr. DiOrio also asked about spray irrigation causing wet conditions. Mr. Graeber replied explaining that the spray regulation controls how much may be sprayed and during weather conditions in order to prevent causing any undue level of wet conditions. Mr.

² The Department's role at the hearing is that it takes no position on the merits of the application until after a public hearing. Instead, the Department develops the hearing record with certain information solely to assist the public in providing comments.

DiOreo also asked upon the holding pond for the treated effluent and how mosquitoes would be controlled. Mr. Graeber responded by indicating that the water levels would be constantly changing.

Joe Montani asked about the size of the holding pond, and Mr. Graeber told him it would hold 60,000,000 gallons. He spoke against the application because of his concern with the devaluation of his property's value from being near ANSRWRF and its odor. Mr. Graeber replied that similar facilities in Sussex County do not produce odors absent some significant failure of the equipment.

Virginia Weeks asked about the plant's sludge or bio-solids. Mr. Carbaugh replied that bio-solids would be dried on the site using a natural process of reed drying beds, which is based upon plants that grow in wetlands. The dried bio-solids would be removed for reuse on agricultural lands. Mr. Graeber also indicated that the Department regulates the use of bio-solids under the federal bio-solids program.

III. DISCUSSION OF FINDINGS AND REASONS

A. Legal Authority

The Department regulates this permit application pursuant to the authority provided in 7 *Del C. §6003(a)(4)*, which allows the Department to regulate by permit "any activity... [i]n a way which may cause or contribute to discharge of a pollutant into any surface or ground water...." Applicant's proposed facility would, if approved, discharge the pollutants nitrogen and phosphorus into the groundwater.

This discharge will occur despite the proposed wastewater treatment that meets or exceeds the Department's current regulatory standards, as established by the: 1) *Regulations Governing the Control of Water Pollution*, (Water Regulations); 7 *DE. Admin. Code 7200*, 2) *Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment*

and Disposal Systems (OWTDS Regulations); 7 DE Admin Code 7101, 3) TMDLs for (TMDLs); 7 DE Admin. Code 7407, 4) Surface Water Quality Standards, 7 DE Admin. Code 7401; and 5) Guidance and Regulations Governing the Land Treatment of Wastes (Spray Regulations)³, 7 DE Admin. Code 7103.

The OWTDS Regulations provide that the Department may deny a permit “when it determines that a denial “best implement the purposes of 7 Del. C. Ch. 60 and these Regulations.” 7 DE Admin 7101 section 5.5.1.

B. Applicant’s Proposed Construction.

Applicant seeks to construct a 3 MGD capacity large community OWTDS under the OWTDS Regulations and the Spray Regulations. The specific timing of the construction will occur in three phases, with the phases dependent on the demand for sewer service within Applicant’s PSC regulated service territory. Each phase would add 1 MGD capacity.

I find the proposed phasing is reasonable in concept because it will allow a gradual and extended construction of the facility that will coincide with the phased increases in demand for sewer service. The proposed phasing of construction allows the Department the opportunity to phase its review of the construction, including requiring changes when the Department determines a permit modification is appropriate. The Department also will have further regulatory review possible for the operating permit and its amendments, as may be required periodically as treatment capacity is added.

I also find that Applicant’s phases are appropriate in that they will follow the increased demand for sewer service. This demand may be from new residential and commercial development, and the abandonment of existing OWTDS users. The abandonment of existing OWTDS users may occur voluntarily or be required by the Department’s OWTDS Regulations.

³ These apply to any land application of treated wastewater and the biosolids (sludge) from treatment.

The potential demand from existing OWTDSs is harder to predict as it may arise from: 1) the failure of an individual OWTDS or a large community OWTDS; 2) the higher cost of advanced treatment individual OWTDS that will be required by the PCS for any new or replacement OWTDS; or 3) mandated by Department regulations based upon the proximity of central sewer facilities. I find the connection of existing OWTDS an important environmental reason for constructing the facility. Any prediction of future demand for central sewer service is difficult given the many variables involved. Nevertheless, the Department's environmental purposes are served by encouraging the use of central sewer service over construction of many individual OWTDS.

Applicant, as a public utility, has a public service obligation to serve its service territory under the terms, conditions and rates approved by the Public Service Commission. Applicant has determined, in its exercise of managerial discretion, the need to construct ANSRWRF as a regional treatment and disposal facility. The Department's role is to protect the environmental impact from undue harm.

I find that the phased approval is consistent with the Department's administration of Chapter 60 authority's statutory purposes, as set forth below:

The State, in the exercise of its sovereign power, acting through the Department should control the development and use of the land, water, underwater and air resources of the State so as to effectuate full utilization, conservation and protection of the water and air resources of the State.

(c) Purpose. -- It is the purpose of this chapter to effectuate state policy by providing for:

(1) A program for the management of the land, water, underwater and air resources of the State so directed as to make the maximum contribution to the interests of the people of this State;

(2) A program for the control of pollution of the land, water, underwater and air resources of the State to protect the public health, safety and welfare;

(3) A program for the protection and conservation of the land, water, underwater and air resources of the State, for public recreational purposes, and for the conservation of wildlife and aquatic life;

(4) A program for conducting and fostering research and development in order to encourage maximum utilization of the land, water, underwater and air resources of the State;

(5) A program for cooperating with federal, interstate, state, local governmental agencies and utilities in the development and utilization of land, water, underwater and air resources.

7 Del. C. §6001.

The above statutory language allows the permit process to be crafted to meet the particular circumstances. The Department readily could require the Applicant to submit a new application for each construction phase, but I do not recommend this procedure when the phasing is appropriate so long as the Department may effectively regulate the phases as recommended herein.

V. RECOMMENDED FINDINGS AND CONCLUSIONS

Based upon the discussion findings and reasons, I find and conclude that the record supports the issuance of a permit to allow Applicant to construct a 3 MGD treatment facility in 3 phases in order to serve Applicant's public utility service territory. This recommendation is made based upon the conditions in the draft permit prepared by GWDS, and the discussion of the phased review and approval process discussed in connection with spray irrigation plans and the need to assess the spray disposal performance periodically. I recommend the Secretary adopt the attached draft Order.


Robert P. Hayes, Esquire
Hearing Officer

MEMORANDUM

TO: Robert Haynes, Hearing Officer

FROM: Ronald Graeber, Program Manager I 

RE: Application submitted by Artesian Wastewater Management Inc.,(AWMI) to construct the Artesian Northern Sussex Regional Water Recharge Facility (ANSRWRF)

DATE: October 4, 2012

On Wednesday July 6, 2012 the Groundwater Discharges Section (GDS), Division of Water, Department of Natural Resources and Environmental Control (Department) conducted a Public Hearing to receive comments regarding the application submitted by AWMI to construct and operate a 3.0 Million Gallon per Day Regional Wastewater Treatment and Spray Irrigation Facility (Facility) near Milton, Delaware. Approximately 50 people attended the hearing and many provided comment on the application, most in opposition to the application. Given the amount of feedback the Department received during the public hearing, the Hearing Officer decided to leave the hearing record open for a period of 30 days to provide the attendees additional time to submit documentation for the record.

Response to Public Comments

In general, most of the people attending the Public Hearing were opposed to the proposed facility for the following reasons:

Issue 1 – Concern over potential ground water contamination from spray irrigation of treated wastewater onto agricultural fields

Response 1 – The wastewater will receive advanced treatment before it is discharged to the storage lagoon for spray irrigation. The treated effluent will meet most drinking water standards, including the standard for nitrogen, prior to discharge. Additionally, a detailed ground water

monitoring program will be implemented on the site in order to gauge compliance with drinking water standards.

Issue 2 – Concerns that emerging contaminants like pharmaceuticals will be in this treated wastewater and adversely impact ground water quality.

Response 2 – It has been established that emerging contaminants such as pharmaceuticals have been found in low concentrations in wastewater. These contaminants are found in such low concentrations that their adverse impact on humans has not been documented. However, the high level of treatment being proposed will remove the majority of these contaminants. Additionally, spray irrigation of the treated effluent provides additional mechanisms to trap or breakdown these contaminants, such as volatilization, soil bacteria breakdown, and soil storage.

Issue 3 – Concerns that spraying treated wastewater during wet weather periods would cause flooding and runoff from the farms to local residents.

Response 3 – Spray irrigation will be prohibited during periods of rain that could lead to runoff, or when the soils are saturated, or when the water table rises to within 24 inches of the surface. The facility will include a 60 day storage lagoon that will store the water during wet weather periods. Consequently, wastewater runoff should not occur; however, if wastewater does run off the fields, this would be a violation and the permittee would be required to reduce the wastewater loading rate to eliminate runoff.

Issue 4 – Concern that the storage pond would act as a breeding ground for mosquitos and other vectors.

Response 4 – The storage lagoons are dynamic ponds that receive and discharge treated water on a daily basis. Lagoon levels fluctuate on a regular basis; these are not static lagoons. There are currently 23 spray irrigation storage lagoons in use in Delaware, and none have experienced problems associated with excessive breeding of mosquitos or any other insects.

Issue 5 – Concerns that the facility, including the proposed sludge drying beds, would generate unacceptable odors, similar to odors generated by the Blessing Composting facility located approximately 2 miles from the proposed ANSRWRF facility.

Response 5 – The proposed ANSRWRF facility is a state-of-the-art Membrane Biological Reactor (MBR), which will include a 60 day capacity storage lagoon for treated wastewater. Biosolids generated at the facility will be treated by an aerobic digester, then discharged to a series of Reed phragmites beds for final treatment. These types of systems are in operation in Delaware and across the country, and generate little odor. In comparison, the Blessing Facility receives industrial processing biosolids, food waste and municipal wastes which is then composted on site, in the open, generating significant odors when anaerobic pockets are disturbed.

Issue 6 – Concerns that treated wastewater will egress the farm via aerosols or runoff.

Response 6 – The wastewater will be treated to levels deemed safe for human contact; consequently, a minimum of 25 foot buffer is normally required however, it must be acknowledged that nuisance aerosols may egress the site on windy days. The proposed spray irrigation fields are not near any residential developments, except one. The north-west corner of the Sylvan Acres Development is near the south-east corner of one of the spray irrigation fields. In order to allay residents' concerns, the GWDS recommends requiring a 100 foot buffer from the wetted field area to the Sylvan Acres Development.

Issue 7 – Questions were asked about how ground water monitoring would track ground water quality over time.

Response 7 – Ground water monitoring wells will be installed upgradient of each irrigation fields, within each irrigation field, and down gradient of each irrigation field. A minimum of 3 ground water samples will be collected from each well and analyzed for a variety of parameters to determine background ground water quality. Thereafter, ground water monitoring wells continue on a quarterly basis once irrigation activities commence. This will allow the GWDS staff to determine any potential impact to the ground water from spray irrigation.

Issue 8 – Concerns were raised over what would happen to the storage lagoons and spray irrigations fields in the event of a huge flood.

Response 8 – The storage lagoon is equipped with two feet of freeboard. Consequently, even if the area experienced a twelve (12) inch rain event, the storage lagoon would be capable of receiving the precipitation, and still have over twelve inches of freeboard. Furthermore, spray irrigation is prohibited during precipitation events. Consequently, any runoff egressing the farm will be simple storm water.

Issue 9 – Several attendees raised objection to the facility due to its proximity to residential areas.

Response 9 – There is only one residential development within any proximity to the proposed facility: Sylvan Acres. Owing to the hodge-podge manner in which residential developments are approved in Sussex County, it is impossible to locate a facility of the nature in an area devoid of development. However, the area is zoned Agricultural/Residential, and spray irrigation is a normal agricultural activity.

Issue 10 – Several attendees stated they were opposed to the facility because it would allow for significant growth in the area, noting that the facility could serve up to 10,000 homes. Sussex County Councilwoman, Joan Devers, also voiced this concern.

Response 10 – The ANSRWF facility is being constructed to serve future developments. It must be noted that Sussex County Counsel has the final say in approving new developments. Sussex County Counsel Woman Joan Devers, who attended the Hearing, will have the opportunity to address future developments through Sussex County's land use approval process.

Issue 11 – An attendee asked if a large (~100') heavily vegetated buffer could be constructed along the perimeter of the spray irrigation fields if the facility, were permitted. Most attendees agreed with the request.

Response 11 – The GWDS opposes requiring a 100' vegetated buffer around the perimeter of the spray fields. This would significantly reduce the area available for irrigation, while providing no increase in public health protection. The GWDS does, however, support a minimum 100' buffer be provided from the proposed irrigation field and the Sylvan Acres Development.

Conclusions and Recommendations

The majority of the questions raised either dealt with the treatment technology proposed (MBR with a storage lagoon, spray irrigation of the treated wastewater, and reed drying beds for biosolid treatment) or a concern over potential ground water contamination. The wastewater treatment system is a state-of-the-arts MBR system which is capable of providing a very high level of treatment. There are many of these types of systems in operation throughout the country, and two in Delaware (Millsboro and Lewes); they generate minimal odors and are very reliable. The storage lagoon will only hold treated wastewater. There are 23 wastewater storage lagoons operating in Delaware. None generate odors, nor do they act as breeding areas for nuisance vectors. Spray irrigation of treated wastewater is one of the most environmentally sound methods of managing wastewater, as the nutrients found in the wastewater are taken up by the crops.

The potential for ground water contamination to occur at a land treatment facility is significantly less than at a conventional agricultural site where nutrient loadings occur only once or twice per year. This, coupled with an extensive ground water monitoring network, will satisfactorily protect public health. Consequently, staff recommends the issuance of the ANSRWF permit to construct a regional wastewater spray irrigation facility at the Milton-area site.