Spray Irrigation Permit

Issued by: Groundwater Discharges Section
Division of Water
Department of Natural Resources
and Environmental Control
89 Kings Highway
Dover Delaware 19901
302-739-9948

DEN Number: 528516-06
Effective Date: February 7, 2017
Amended Date: July 19, 2018
Expiration Date: July 30, 2020

AUTHORIZATION TO OPERATE AND MAINTAIN
UNDER THE LAWS OF THE
STATE OF DELAWARE

PERMITTEE: The Town of Millsboro
322 Wilson Highway
Millsboro DE 19966

FACILITY: Town of Millsboro Wastewater Treatment Facility

Spray Irrigation Systems: Millsboro Middle School
White Farm

1. Pursuant to the provisions of 7 Del. C. §6003, the **Town of Millsboro** is herein authorized to operate and maintain the beneficial reuse spray irrigation system to spray irrigate treated domestic wastewater from the **Town of Millsboro Wastewater Treatment Facility** onto:

   Millsboro Middle School - Sussex County Tax Map/Parcel Numbers: 1-33-17.14-18.00 and 1-33-17.14-17.00, located south of County Road 331, east of Wilson Hwy, north of Union Street and west of Old Landing Rd (CR 339), Sussex County, Delaware. The Millsboro Middle School wetted area is 8.75 acres.

   White Farm - Sussex County Tax Map/Parcel Numbers: 1-33-15.00-30.00 and 1-33-16.00-75.03, located approximately 3.5 miles west of the Town of Millsboro Wastewater treatment plant along the north side of Route 20 between CR 433 and CR 432. The White Farm spray irrigation wetted area will be 82.24 acres.

2. The effluent limitations, monitoring requirements and other permit conditions are set forth herein.

Marlene M. Baust

Marlene M. Baust, P.E.
Environmental Engineer IV
Groundwater Discharges Section
Division of Water
Delaware Department of Natural Resources
and Environmental Control

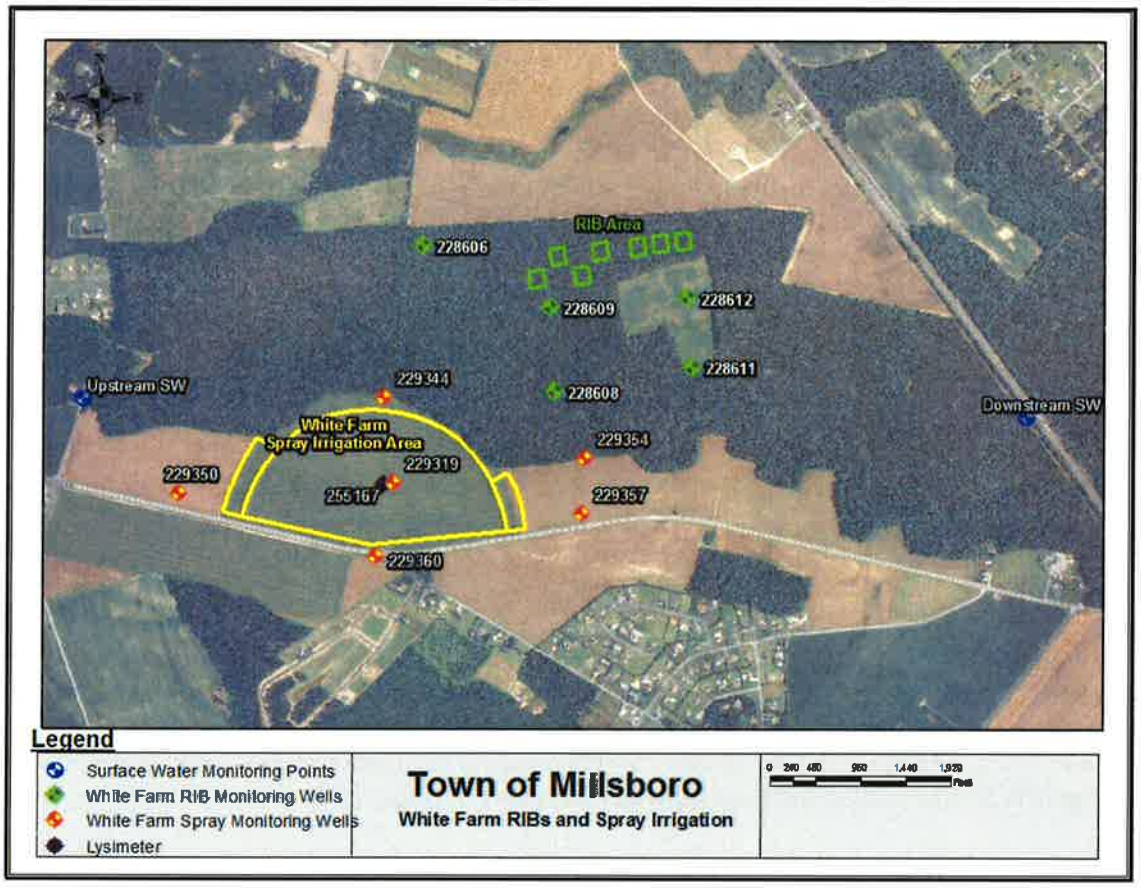
July 19, 2018
Date Signed

SITE LOCATION – MILLSBORO MIDDLE SCHOOL

SITE MAP – MILLSBORO MIDDLE SCHOOL

SITE LOCATION – WHITE FARM

SITE MAP – WHITE FARM



Part I

A. GENERAL DESCRIPTION:

This permit authorizes the Town of Millsboro to operate a beneficial reuse spray irrigation system at both the Millsboro Middle School and the White Farm. The Town of Millsboro's Wastewater Treatment Facility and RIBs are permitted under State of Delaware Permit DEN Number 528516-05. The beneficial reuse of treated filtered wastewater to the White Farm or the Millsboro Middle School does not increase the permitted disposal capacity for the Town of Millsboro's Wastewater Treatment Facility.

The wastewater utilized for beneficial reuse will undergo advanced treatment using a biological nutrient removal system with membrane filtration and ultraviolet (UV) disinfection to produce an effluent that meets unlimited public access criteria. A system process flow diagram may be found in the January 2012 Design Development Report as Exhibit III-1.

The Millsboro Middle School is located on Sussex County Tax Map Parcels 133-17.14-17.00 and 133-17.14-18.00. The parcels are comprised of approximately 15 acres. Spray irrigation occurs on 8.75 acres of turf at the Millsboro Middle School via solid set pop-up sprinklers. The turf at the Millsboro Middle School is spray irrigated on an as-needed basis.

The White Farm spray irrigation system is located on Sussex County tax map parcels 1-33-15.00-30.00 and 1-33-16.00-75.03. The parcels are comprised of approximately 275.7 acres, with spray irrigation currently existing over 82.24 acres via a single center pivot irrigation system. The corn-soybean-wheat rotation at the White Farm will be irrigated at agronomic rates. A 2.74 million gallon storage tank will be used to hold treated wastewater until it is required.

B. DOCUMENTATION:

The Beneficial Reuse Spray Irrigation Systems shall be operated in accordance with the following documents:

1. The State of Delaware, Department of Natural Resources and Environmental Control's Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems (Regulations).
2. June 24, 2010 Design Development Report and Technical Drawings for Beneficial Reuse of Treated Wastewater at the Millsboro Middle School and W.B. Atkins Memorial Park.
3. January 20, 2011 letter from Ronald E. Graeber, DNREC to Lee J. Beetschen, CABE Associates, Inc.
4. February 24, 2011 letter and revised technical drawings from Scott C. Hoffman, CABE Associates, Inc. to Ronald E. Graeber, DNREC.
5. February 24, 2011 Application for a Permit to Spray Irrigate Wastewater (Construction Permit).
6. April 7, 2011 letter from Ronald E. Graeber, DNREC to Scott C. Hoffman, CABE.
7. January 9, 2012 letter from Scott C. Hoffman, CABE to Ronald E. Graeber, DNREC.
8. April 27, 2012 Application for a Permit to Spray Irrigate Wastewater (Operations Permit).
9. February 2013 Plan of Operation and Management received March 19, 2013.

10. March 4, 2015 Application for a Permit to Spray Irrigate Wastewater (Renewal Operations Permit).
11. August 19, 2011 Design Engineer's Report and Technical Specifications with DNREC approved stamp dated 07/23/2012.
12. August 19, 2011 Construction Drawings noted as sheets 1 through 23 as submitted by Scott C. Hoffman, PE of CABE Associates, Inc with DNREC approved stamp dated 07/23/2012.
13. January 2012 Design Development Report for Beneficial Reuse of Treated Wastewater at the White Farm.
14. January 2012 Hydrogeologic Technical Report and Ground Water Impact Assessment for the Millsboro White Farm Wastewater Spray Irrigation Facility Volume 1 and Volume 2 prepared by Maser Consulting PA.
15. March 21, 2012 Letter from Ronald E. Graeber, DNREC to Scott C. Hoffman, PE, CABE with attachment.
16. April 12, 2012 Letter from Scott C. Hoffman, PE, CABE to Ronald E. Graeber, DNREC with attachments.
17. May 09, 2012 Letter from Ronald E. Graeber, DNREC to Scott C. Hoffman, PE, CABE with attachment.
18. May 24, 2012 Letter from Scott C. Hoffman, PE, CABE to Ronald E. Graeber, DNREC with attachments.
19. July 2016 Plan of Operation and Management prepared by Duffield Associates.
20. April 27, 2018 Application for Operation Permit for White Farm.
21. Any other correspondence, documentation and/or reports related to the **Millsboro Middle School and White Farm Beneficial Reuse Spray Irrigation Systems** received and approved by the Groundwater Discharges Section and/or sent by the Groundwater Discharges Section.

C. INFLUENT LIMITATIONS

N/A

D. SPRAYED EFFLUENT LIMITATIONS

During the period beginning on the effective date and lasting through the expiration date of this permit, the Permittee is authorized to discharge to the spray irrigation field(s)/area(s) identified on page 1, in Part I.A, and depicted on page 3 and page 5 of this permit the quantity and quality of effluent specified below and in accordance with the design documents listed in Part I.B of this permit:

1. The quantity of effluent discharged to the Millsboro Middle School shall be limited to the amount of water needed to support vegetative growth.

2. The total volume of treated wastewater that may be distributed to the White Farm must not exceed agronomic rates.

   a. Assuming all 82.24 acres are utilized, the total volume of treated wastewater distributed to the White Farm shall not exceed 5,579,000 gallons per week during a peak week at 2.5 inches per acre.

   b. White Farm is designed for an annual loading of approximately 145.1 million gallons per year per the entire 82.24 acres.

3. The average weekly quantity of effluent discharged to any portion of the spray irrigation field/areas shall not exceed 2.5 inch per acre averaged over a 7 day rolling period.

4. The quantity of effluent discharged to any portion of the spray irrigation field/areas shall not exceed 0.25 inches/acre/hour.

5. The effluent must meet the following daily permissible average concentrations. The daily average concentration shall be determined by the summation of all the measured daily concentrations obtained from composite samples during each calendar month divided by the number of days during the calendar month when the measurements were made.

   a. The 5-day Biochemical Oxygen Demand (BOD5) of the treated wastewater must not exceed 10 mg/L.

   b. Disinfection of wastewaters containing domestic waste is required to yield a discharge not to exceed 20 col/100 mL Fecal Coliform.

   c. The treated wastewater must not contain more than 10 mg/L Total Suspended Solids.

   d. The turbidity of the treated wastewater must not exceed five (5) NTU.

6. The facility has been designed for an effluent Total Nitrogen concentration of 5.0 mg/L (2012 DDR, III-1).

7. The total amount of nitrogen that may be applied to each spray field acre at the White Farm shall not exceed 224 lbs/year in accordance with the 2012 Design Development Report Exhibit VI-1 Nitrogen Balance. This amount includes supplemental fertilizers, the nitrogen supplied from the effluent, and any other source.

   Adjustments and reductions for denitrification, ammonia volatilization, evapotranspiration and plant uptake are ***not*** to be factored into the annual reporting of Total Nitrogen Loading for demonstration of compliance with this limit.

   If any crops are not removed from the spray irrigation fields, then the total nitrogen application rate for the field must be reduced by the amount of nitrogen that would be removed by harvesting the crop as detailed in the facility's Design Engineer Report.

8. There must be a sufficient rest period between applications to prevent saturation and runoff from occurring in any part of the spray field/areas.

9. The pH of the effluent shall not be less than 5.5 standard units nor greater than 9.0 standard units at any time.

10. The total residual chlorine concentration shall not be less than 1.0 mg/L nor more than 4.0 mg/L at any time.

11. The Chloride concentration of the effluent shall not exceed 250 mg/L on an average annual basis.

12. The Sodium concentration of the effluent shall not exceed 210 mg/L on an average annual basis.

13. The discharge to the spray irrigation fields/areas shall be free from material such as floating solids, sludge deposits, debris, scum, oil and grease.

14. Spray irrigation activities at the Millsboro Middle School must be limited to periods of time when the public is less likely to be accessing the site. Direct irrigation onto people and pets is prohibited.

15. The beneficial reuse of treated filtered wastewater to the White Farm or the Millsboro Middle School does not increase the permitted disposal capacity for the Town of Millsboro's Wastewater Treatment Facility.

16. The distribution line must have redundant back flow controls if the distribution line will also be connected to a ground, surface, or fresh water supply.

E. FACILITY CLASSIFICATION

1. A classification was performed on the permitted facility in accordance with Regulations Licensing Operators of Wastewater Facilities. The wastewater treatment system is designated as a Class IV Facility. The facility must be under the direction of a Class IV Licensed Operator in Direct Responsible Charge for the facility who is available at all times. A licensed operator, operating under the direction of the licensed operator in Direct Responsible Charge for the facility, must be available when the spray irrigation system is in operation.

F. SCHEDULE OF COMPLIANCE

1. The permittee shall submit information necessary for proper operation of the spray irrigation system in accordance with the following schedule:

   N/A

2. The permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance by specified date. In the event of noncompliance, the notice shall include the cause of noncompliance, any remedial action taken, and the probability of meeting the next scheduled requirement.

G. BUFFER REQUIREMENTS

N/A

H. SLUDGE HANDLING REQUIREMENTS

N/A

PART II

A. MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through the expiration date of this permit, the Permittee is authorized to discharge to spray irrigation fields/areas identified on page 1, in Part I.A, and depicted on page 3 and page 5 of this permit. Such discharge shall be monitored by the Permittee as specified herein.

For samples required to be taken 'monthly' and/or 'twice per month', the samples for each monitoring location (i.e. effluent, well, lysimeter, etc.) shall be taken a minimum of 14 days apart.

Requests for monitoring modifications must be submitted to the Department's Groundwater Discharges Section in writing. Such requests must clearly state the reason for and nature of the proposed modification and, where applicable, must contain supporting scientific information, analysis, and justification. Requests will be addressed by the Department on a case by case basis.

Permittee shall initiate periodic reporting required under Part II.B upon initiation of irrigation activities for all of the following monitoring requirements.

1. INFLUENT MONITORING REQUIREMENTS

N/A

2. SPRAYED EFFLUENT MONITORING REQUIREMENTS

Samples taken in compliance with the monitoring requirements for all parameters specified below shall be taken from the Final Effluent Lift Station Wet Well except for the turbidity meter which is located upstream of the ultraviolet disinfection system.

Annual metals testing for Cadmium, Copper, Lead, Nickel and Zinc shall be performed in the beginning of April and reported to the Department.

As also required by State Permit 528516-05, permittee shall monitor for the following Parameters:

Parameter	**Unit Measurement**	**Monitoring Frequency**	**Sample Type**
Flow	Gallons Per Day	Continuous	Recorded
BOD_5	mg/L	2 x Month	Composite
Total Suspended Solids	mg/L	2 x Month	Composite
Total Dissolved Solids	mg/L	Quarterly	Grab
Fecal Coliform	Col/100 ml	Quarterly	Grab
Total Nitrogen	mg/L	2 x Month	Composite
Ammonia Nitrogen	mg/L	Monthly	Composite
Nitrate+Nitrite as Nitrogen	mg/L	Monthly	Composite
pH	S.U.	3 x per week	Composite
Total Phosphorus	mg/L	Monthly	Composite
Chloride	mg/L	Quarterly	Composite

Additionally, Permittee shall sample the effluent for the following parameters:

Parameter	Unit Measurement	Monitoring Frequency	Sample Type*
Cadmium	mg/L	Annually	Composite
Copper	mg/L	Annually	Composite
Fecal Coliform	Col/100 ml	Twice per month	Grab
Lead	mg/L	Annually	Composite
Nickel	mg/L	Annually	Composite
Organic Nitrogen	mg/L	Monthly	Calculation
Potassium	mg/L	Quarterly	Composite
Sodium	mg/L	Quarterly	Composite
Turbidity	NTU	Continuous	Recorded
Zinc	mg/L	Annually	Composite

Additionally, Permittee shall provide the following information:

Parameter	Unit Measurement	Monitoring Frequency	Sample Type
Total Effluent Flow to all Zones combined	Gallons	Monthly	Data
Max Daily Effluent Flow to all Zones	Gallons	Monthly	Data
Average Daily Effluent to all Zones combined	MGD or gpd	Monthly	Calculation
Number of Days Sprayed During the Month to all Zones combined	Days	Monthly	Data
Nitrogen Loading Rate to each Zone	lbs/acre	Monthly	Calculation
Phosphorus Loading Rate to each Zone	lbs/acre	Monthly	Calculation

3. GROUNDWATER MONITORING REQUIREMENTS

Groundwater samples shall be taken from each monitoring well for the facility. Groundwater monitoring well locations are depicted on the Site Maps found on Page 3 and Page 5 of this Permit.

Samples taken in compliance with the monitoring requirements specified shall be taken at each monitoring well in accordance with procedures approved by the Department and listed in the State of Delaware, Field Manual for Groundwater Sampling (Custer, 1988).

Groundwater monitoring results for each monitoring well shall be reported using the State of Delaware Well Identification Tag Number that is required on all wells in accordance with the Delaware Regulations Governing the Construction and Use of Wells, Section 11.1.

All field sampling logs and laboratory results for samples obtained from a well shall be identified by the DNREC ID affixed to the well.

Groundwater samples shall be tested from the following wells for the following parameters:

Millsboro Middle School		
DNREC ID	**Local ID**	**General Location** (also depicted on the site map on Page 3 of this Permit)
229330	MW-01	behind the school and near the track
229331	MW-02	near the cemetery
229332	MW-03	flush mounted and located near the ball field
White Farm		
DNREC ID	**Local ID**	**General Location** (also depicted on the site map on Page 5 of this Permit)
229319	MW-20	Infield
229344	MW-12	North Center Pivot
229350	MW-18	West Center Pivot
229354	MW-22	East Center Pivot

Parameter	**Unit Measurement**	**Monitoring Frequency**	**Sample Type**
pH	S.U.	Quarterly	Field Test
Temperature	°F	Quarterly	Field Test
Specific Conductance	µS/cm	Quarterly	Field Test
Dissolved Oxygen	mg/L	Quarterly	Field Test
Depth to Water Table	Hundredth of a foot	Monthly	Field Test
Ammonia Nitrogen	mg/L	Quarterly	Grab
Nitrate + Nitrite Nitrogen	mg/L	Quarterly	Grab
Total Nitrogen	mg/L	Quarterly	Grab
Total Coliforms	Col/100 ml	Quarterly	Grab
Fecal Coliform	Col/100 ml	Quarterly	Grab
Total Phosphorus	mg/L	Quarterly	Grab
Sodium	mg/L	Quarterly	Grab
Chloride	mg/L	Quarterly	Grab
Total Dissolved Solids	mg/L	Quarterly	Grab

4. GROUNDWATER TABLE ELEVATION MONITORING REQUIREMENTS

While performing the monitoring as required by Part II.A.3 of this permit, if the 'Depth to Water' in any one of the monitoring wells has reached within 3 feet of the ground surface, the Permittee shall be required to collect additional weekly depth to water measurements from the monitoring wells. The additional monitoring is necessary to ensure that spray irrigation ceases on any areas of spray irrigation where the groundwater may reach within 2 feet of the ground surface in accordance with Part III.A.5 of this permit. The Permittee may discontinue the additional weekly sampling for depth to water when the groundwater table elevation readings in all wells exceed a 3 foot separation between groundwater and ground surface. The additional groundwater table elevation measurements must be recorded in the operator's log and reported to the Groundwater Discharges Section in accordance with Part II.B.2 of this permit.

5. LYSIMETER MONITORING REQUIREMENTS

Samples shall be taken from each lysimeter for the facility. Lysimeter location(s) are depicted on the Site Map found on Page 3 of this Permit.

Samples must be tested from the following well(s) for the following parameters. The constituents are listed below in highest priority first. In the event that sufficient sample volume may not be obtained to test for all parameters listed, the sample shall be tested for as many constituents possible in the following order:

White Farm		
DNREC ID	**Local ID**	**General Location**
255167	Lys-1	Infield

Parameter	**Unit Measurement**	**Measurement Frequency**	**Sample Type**
Total Nitrogen	mg/L	Monthly	Grab
Total Phosphorus	mg/L	Monthly	Grab
Nitrate + Nitrite as Nitrogen	mg/L	Monthly	Grab
Ammonia as Nitrogen	mg/L	Monthly	Grab
Chloride	mg/L	Monthly	Grab
Sodium	mg/L	Monthly	Grab
Total Dissolved Solids	mg/L	Monthly	Grab
pH	S.U.	Monthly	Field Test
Specific Conductance	µS/cm	Monthly	Field Test
Temperature	°C	Monthly	Field Test

6. SOIL MONITORING REQUIREMENTS

Composite soil samples representing each soil series within the wetted spray field/areas shall be taken separately from both soil depths of 0–12 inches and 12–24 inches. A minimum of one composite sample for each of the both aforementioned depths is required for every 20 acres of each soil series. The composite soil sampling must represent the average conditions in the sampled body of material. The discrete samples that are to be composited must be collected from the same soil horizon and depth interval.

Soil sample locations shall be plotted on a scaled drawing and labeled consistent with the sample nomenclature. Each spray area must also be identified so that sample results may be tracked and properly assessed for site life limiting factors.

Soil chemical testing should be in accordance with Methods of Soil Analysis published by the American Society of Agronomy, Madison, Wisconsin.

Results of soils sampling and the calculated remaining site life on a constituent by constituent basis for phosphorus, cadmium, copper, lead, nickel and zinc must be reported to the Groundwater Discharges Section in accordance with Section 6.11.6.2.3 and 6.11.7.1.1.3 of the Regulations.

If a Compliance Monitoring Report (CMR) is required for the facility, testing for Cadmium, Nickel, Lead, Zinc and Copper should be performed approximately one year prior to permit renewal so results may be utilized by the Permittee in the CMR. Reference Part IV.A.1 of the Permit and Section 6.5.4 of the Regulations regarding CMR requirements.

Soil Monitoring was last performed for both the Middle School and the White Farm in 2010 and should be performed again by June 2019 for use in preparation of the CMR for permit renewal.

		Middle School	**White Farm**	
Parameter	**Unit Measurement**	**Measurement Frequency**	**Measurement Frequency**	**Sample Type**
pH	S.U.	Decennially	Annually	Soil Composite
Organic Matter	%	Decennially	Annually	Soil Composite
Phosphorus (as P_2O_5)	mg/kg	Decennially	Annually	Soil Composite
Potassium	mg/kg	Decennially	Annually	Soil Composite
Sodium Adsorption Ratio	meq/100g	Decennially	Annually	Soil Composite
Cadmium	mg/kg	Decennially	Once per 5 years	Soil Composite
Nickel	mg/kg	Decennially	Once per 5 years	Soil Composite
Lead	mg/kg	Decennially	Once per 5 years	Soil Composite
Zinc	mg/kg	Decennially	Once per 5 years	Soil Composite
Copper	mg/kg	Decennially	Once per 5 years	Soil Composite
Cation Exchange Capacity	meq/100g	*Only if soil pH changes significantly	*Only if soil pH changes significantly	Soil Composite
Phosphorus Adsorption (Mehlich 3 acceptable)	meq/100g	**Only if soil phosphorus levels become excessive for plant growth	**Only if soil phosphorus levels become excessive for plant growth	Soil Composite
Percent Base Saturation	%	*Only if soil pH changes significantly	*Only if soil pH changes significantly	Soil Composite

*A significant change in soil pH is defined as a change of one or more standard units from the original value established in the Design Development Report.

** Excessive levels of soil phosphorus are defined by the Delaware Nutrient Management Commission. Soil phosphorus levels must be tested in accordance with the University of Delaware soil testing methods (Gartley, 2002). If the soil phosphorus levels become excessive, the Permittee must perform a Phosphorus Site Index (PSI) study. The results must be submitted to the Groundwater Discharges Section within 30 days of completion. Based on these, the Groundwater Discharges Section may require the Permittee to submit a plan for detailing steps to reduce the phosphorus loading rates at the site.

7. VEGETATION MONITORING

N/A

8. OPERATIONS MONITORING REQUIREMENTS

N/A

9. SURFACE WATER MONITORING REQUIREMENTS

Surface Water samples shall be obtained from two locations on Sheep Pen Ditch as approximately depicted on the Site Map found on Page 5 of this Permit. The surface water sampling locations include one upstream at the intersection of Sheep Pen Ditch and Stockley Road; and one downstream at the intersection of Sheep Pen Ditch and Route 113.

The geographic coordinates of the two (2) surface water sampling locations must be determined in the field using a global positioning system (GPS) and reported to the DNREC in the following format: Delaware State Plane, meters, NAD83.

Surface Water Monitoring results for each monitoring point shall be reported using the established geographic coordinates.

Parameter	Unit Measurement	Measurement Frequency	Sample Type*
Ammonia as Nitrogen	mg/L	Quarterly	Grab
BOD_5	mg/L	Quarterly	Grab
Chloride	mg/L	Quarterly	Grab
Dissolved Oxygen	mg/L	Quarterly	Field Test
Enterococcus	Col/100mL	Quarterly	Grab
Nitrate + Nitrite as Nitrogen	mg/L	Quarterly	Grab
pH	S.U.	Quarterly	Field Test
Sodium	mg/L	Quarterly	Grab
Specific Conductance	µS/cm	Quarterly	Field Test
Temperature	°C	Quarterly	Field Test
Total Dissolved Solids	mg/L	Quarterly	Grab
Total Nitrogen	mg/L	Quarterly	Grab
Total Phosphorus	mg/L	Quarterly	Grab
Total Suspended Solids	mg/L	Quarterly	Grab

B. MONITORING SPECIFICATIONS AND REPORTING REQUIREMENTS

1. Representative Sampling

   Samples and measurements taken as required in the operation permit shall be representative of the volume and nature of the monitored discharge. If there has been significant increase (> 25%) in the characterization of any one parameter of the effluent wastewater as established in the Design Engineer Report, the permittee shall resample the wastewater and submit the additional analyses to the Department. The permittee shall re-characterize the wastewater to determine if a change in treatment is required and/or if the land limiting constituent has changed. If a change in treatment is required and/or if the land limiting constituent has changed, a revised Design Engineer Report shall be submitted to the Department. After a review of these results, the Department may invoke the provisions of Part V.A.1 of this permit.

2. Reporting

   Monitoring results obtained during the previous one month/quarter shall be summarized and reported on an approved monitoring report form(s) postmarked no later than the 28th day of the month following the completed reporting period. Laboratory analytical results and sampling logs must be submitted with the corresponding month's monitoring report. Signed reports/forms, laboratory analytical results, laboratory sampling logs and field data sheets shall be submitted in one complete package to the Department at the following address:

   Spray Irrigation Program
   Groundwater Discharges Section
   Division of Water
   Department of Natural Resources and Environmental Control
   89 Kings Hwy
   Dover DE 19901
   (302) 739-9948 Office
   (302) 542-9735 Cell

3. The Permittee must report the following information to the appropriate representative managing each spray irrigation area (i.e. White Farm – farmer, Millsboro Middle School – grounds keeper) for utilization in the determination of nutrient management requirements:
   a. Monthly - Copies of all effluent monitoring results, volume irrigated and nutrient loading calculations shall be provided to each recipient on a monthly basis.
   b. Annual – An annual summary of volume irrigated and nutrient loading calculations shall be provided to each recipient on an annual basis.

4. Annual Report

   The Permittee shall submit to the Department an Annual Report summarizing the operations, management, administration and maintenance of the facility for the calendar year. The Annual Report must be submitted to the Department on or before February 28th of each year. The Annual Report must include all applicable items found in Section 6.8.2.4.1.3 and Section 6.9 of the Regulations.

5. Monitoring results reported as less than the detectible limit should be reported with the less than symbol "<" before the detection limit. The result must still be utilized in any necessary calculations resulting in a less than symbol provided with the result.

6. Additional Monitoring by Permittee

   If the permittee monitors any parameter at the location(s) designated herein more frequently than required, using approved analytical methods, the results shall be reported to the Department on an approved monitoring report form. Such increased frequency shall also be indicated.

7. Test Procedures

Test procedures for analysis of pollutants shall conform to the applicable test procedures identified in 40 CFR, Part 136 or the most recently adopted copy of Standard Methods unless otherwise specified in this permit.

8. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the Permittee shall record the following information:

a. The exact place, date and time of sampling and/or measurement;

b. The person(s) who performed the sampling and/or measurement;

c. The date(s) the analyses were performed and the time the analyses were begun;

d. The person(s) who performed the analyses; and

e. The results of each analysis.

9. Records Retention

All records and information resulting from the monitoring activities required by this permit or the Regulations including all records of performed analyses, calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation shall be retained for five years. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee or as requested by the Department.

10. Availability of Reports

All reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Natural Resources and Environmental Control. Monitoring data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in 7 Del. C., §6013.

11. Operator Log

An operator log must be kept on site at all times. Each spray system section shall be numbered and referred to by number in the operator log. All records and reports shall also be kept in a bound log book on site at all times and must be made available upon request for review by the Department. This log shall, at a minimum, include the applicable items listed in Section 6.7.3 of the Regulations.

12. Quality Assurance Practices

The Permittee is required to show the validity of all monitoring data by requiring its laboratory to adhere to quality assurance practices in accordance with Section 6.8.2.4 of the Regulations.

PART III

A. OPERATIONAL REQUIREMENTS

1. Groundwater Requirements

   Operation of the wastewater treatment facility and spray irrigation system shall not cause the quality of Delaware's groundwater resources to be in violation of applicable Federal or State Drinking Water Standards on an average annual basis.

2. Facilities Operation

   The Permittee must properly maintain and operate all structures, pipelines, systems and equipment for treatment control and monitoring which are used by the permittee to achieve compliance with the terms and conditions of the permit. Proper operation and maintenance includes, but is not limited to, effective performance based on designed facility removals, adequate funding, effective management, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures.

3. The spray irrigation fields/areas shall be managed to assure at a minimum that:

   a. Spray irrigation of wastewater shall not occur on barren fields/areas (excluding the ballfield's infields and track).

   b. The spray fields/areas shall be maintained in such a manner as to prevent wastewater pooling and/or discharge of wastewater to any surface waters. Should pooled areas become evident, spraying on those areas shall be prohibited until saturated conditions no longer exist.

   c. Aerosols or nuisance odors shall not extend beyond the boundary of the spray irrigation site when treated wastewater is being applied. If odors are produced that are considered to be a public nuisance, the Permittee shall take the necessary steps to eliminate such odors. All action taken shall be reported to the Department in accordance with Part IV.A.3 of this permit.

   d. Erosion controls must be employed to prevent wastewater runoff from the spray irrigation fields/areas. The Permittee must notify the Department immediately if any wastewater runoff occurs.

   e. The Middle School spray irrigation field/area's turf grass shall be maintained in satisfactory condition including any necessary weed management, reseeding, other vegetative management, or soil amendment. Satisfactory condition shall be defined as a healthy, uniform, close stand of grass, with coverage exceeding 90% over any 10 foot by 10 foot area.

   f. The White Farm's crops must be maintained in optimal condition, including any necessary weed management, reseeding, or other vegetative management.

   g. The wastewater must be applied in a manner such that the application is even and uniform over the irrigation area.

4. Spray irrigation is prohibited when saturated or frozen soil conditions exist.

5. The groundwater mound created by the added infiltration shall at no time reach within two feet of the ground surface in any section of the spray irrigation fields/areas. Should the groundwater mound exceed this limit, the Permittee shall cease all irrigation of wastewater to the affected fields/areas until the groundwater mound recedes to acceptable levels.

6. Connections or additions to the spray irrigation system other than those indicated on the approved plans are prohibited without prior approval from the Department's Groundwater Discharges Section.

7. Roof downspouts, foundation drains, area drains, storm sewers, combined sewers or appurtenances thereto or any sewer or device carrying storm water shall not be connected to the spray irrigation system.

8. The Permittee shall take appropriate measures to protect the spray irrigation system from damage due to sub-freezing conditions.

9. Any leaks shall be reported to the Department and repaired immediately.

10. Signs

    Unlimited Public Access: Unlimited public access sites must have advisory signs posted at all entry points that indicate the site is spray irrigated with treated wastewater. Verbiage should include the following wording: "RECYCLED WASTEWATER – DO NOT DRINK". Alternate verbiage may be used if approved in writing by the Department.

11. Potable ground or surface water may be used for distribution system testing and irrigation to establish vegetation when sufficient treated effluent is not available.

12. In the event that the permittee installs new monitoring wells or replaces any existing monitoring wells, the Permittee shall submit to the Department's Groundwater Discharges Section new elevation details relative to the common benchmark previously established. Additionally, the permittee shall conduct a groundwater quality sampling program prior to initiation of wastewater disposal activities on the area incorporating the well. The sampling program shall be sufficient to establish representative groundwater quality at each well prior to initiation of the wastewater disposal activities. A minimum of three samples shall be collected at least one month apart and analyzed. A summary report detailing all analyses shall be submitted to the Department's Groundwater Discharges Section prior to initiation of wastewater disposal activities. Analyses shall include the parameters iterated in Section 6.8.1 of the Regulations.

13. The Permittee shall calibrate all flow meters in accordance with the Manufacturer's recommendations. Calibration shall include, but not be limited to influent, effluent, continuous online turbidity and chlorine residual monitors. The calibration documentation must be submitted with the Annual Report in accordance with Part II.B.5

14. The Permittee shall operate and maintain the land treatment system in accordance with the approved Operation and Maintenance Plan. A copy of the Operation and Maintenance Plan must be on site at all times. The Permittee must maintain the O&M's accuracy and applicability in accordance with both their Permit and the Regulations. In the event of a discrepancy between the O&M and the Permit or Regulations, the requirements of the Permit and the Regulations would govern.

15. Fencing is required at treatment facilities, pump stations and storage/treatment ponds. Fencing of spray fields/areas is not required.

16. The collection and channelization of irrigated wastewater for purposes other than retreatment is prohibited.

17. Direct application of treated wastewater to drainage ditches, any water bodies, and wetlands is prohibited.

18. Emergency Repairs

Emergency repairs or the replacement of critical "like kind" components of the wastewater treatment facility necessary for the continued operation of the facility may be performed without first obtaining a construction permit from the Department.

A report must be submitted to the Department within five (5) days of completion of the emergency repairs. The report must summarize the nature of the emergency and the repairs performed. All violations must also be reported in accordance with Section 6.5.9.

19. Adverse Impact

The Permittee shall take all steps to minimize any adverse impact to the Waters of the State resulting from operation under this permit. Such steps shall include, but not be limited to, accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or mitigation of such impacts.

20. Bypassing

The diversion of flow from any portion of the treatment facility's process flow (including, but not limited to, pretreatment, storage, distribution and land application) necessary to maintain compliance with the terms and conditions of this permit is prohibited unless:

a. The bypass is unavoidable to prevent personal injury, loss of life, severe property damage, or materially adversely affect public health and/or the environment; or

b. There are no alternatives readily available.

The Groundwater Discharges Section must be orally notified within 24 hours after such bypass; and, a written submission regarding the bypass must be submitted within five days of the Permittee's becoming aware of the bypass. Where the need for a bypass is known (or should have been known) in advance, this notification must be submitted to the Groundwater Discharges Section for approval at least ten days prior, or as soon as possible, before the date of bypass.

The treatment facility must be repaired and restored to the permitted design operations process flow.

21. Removed Substances

Solids, sludges, filter backwash or other pollutants removed in the course of treatment or control of wastewater shall be disposed of in a manner such as to prevent any pollutant from entering the surface water or groundwater and to comply with applicable federal or state laws and regulations.

PART IV

A. MANAGEMENT REQUIREMENTS AND RESPONSIBILITIES

1. Operation Permit Re-Issuance

   At least 180 days before the expiration date of this permit, the Permittee must submit an application for renewal or notify the Department of the intent to cease discharging by the expiration date. The application package for systems with a design flow $\geq$ 100,000 gpd, must include a five (5) year Compliance Monitoring Report (CMR). The CMR must be in accordance with Section 6.5.4.3 of Regulations. In the event that a timely and complete application has been submitted as determined by the Department, and the Department is unable, through no fault of the Permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable until a decision is made on the new application.

2. Change in Discharge

   All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.

   Any anticipated facility expansions, production increases, or process modifications that will result in new, different, or increased discharges of pollutants must be reported in writing to the Department's Groundwater Discharges Section for approval. A new permit may be required.

   Any other activity which would constitute cause for modification or revocation and reissuance of this permit as described in Part V.A.1 of this permit shall be reported to the Groundwater Discharges Section. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

3. Non-compliance Notification

   The Permittee shall report to the Department's Enforcement Section at (800) 662-8802 any unpermitted release or discharge of any contaminant into the air, or a pollutant, including petroleum substances, into surface waters, groundwater, or onto land as soon as the Permittee has knowledge of, or should have had knowledge of, the release or discharge.

   The Permittee shall report to the Groundwater Discharges Section orally within 24 hours from the time the Permittee became aware of any noncompliance that may endanger the public health or the environment by contacting the Groundwater Discharges Section at the telephone numbers cited in Part II.B.2 of this permit.

   If for any reason the Permittee does not comply with, or will be unable to comply with, any effluent limitations or other conditions specified in this permit, the Permittee shall provide the Department with the following information in writing within five days of becoming aware of any actual or potential non-compliance:

   a. A description and cause of the non-compliance with any limitation or condition;

   b. The period of non-compliance including exact dates and times; or, if not yet corrected, the anticipated time the non-compliance is expected to continue; and

   c. The steps being taken or planned to reduce, eliminate and/or prevent recurrence of the non-compliant condition.

4. Facility and Construction Changes

The Permittee shall submit a written report to the Department for review and approval, of any changes to the facility or construction of the system within the following time periods:

a. Thirty days before any planned activity, physical alteration to the permitted facility or addition to the permitted facility if that activity, alteration or addition would result in a change in information that was previously submitted to the Department;

b. Thirty days before any anticipated change which would result in noncompliance with any permit condition or the regulations; or

b. Immediately after the Permittee becomes aware of relevant facts omitted from, or incorrect information submitted in, a permit application or report to the Department.

5. Right of Entry

The permittee shall allow the Department entry and access, consistent with 7 Del.C. Ch. 60, to:

a. Enter the permitted facility.

b. Inspect any records that must be kept under the conditions of the permit.

c. Inspect any facility, equipment, practice, or operation permitted or required by the permit.

d. Sample or monitor for the purpose of assuring permit compliance of any substance or any parameter at the facility.

6. Permit Transferability

Permits may be transferred to a new owner or operator. The permittee must notify the Department by requesting a change of ownership of the permit before the date of transfer. The transfer must be consistent with any notarized legal documents and/or CPCN required by the Regulations. The legal documentation must be provided with the application. The application must be received 30 days before the transfer.

a. No person shall transfer a permit from one (1) person to another unless 30 days written notice is given to the Department, indicating the transfer is agreeable to both persons, and approval of such transfer is obtained in writing from the Department, and any conditions of the approval of such transfer is obtained in writing from the Department, and any conditions of the transfer approved by the Department are complied with by the transferor and the transferee.

b. The notice to the Department shall contain a written agreement between the transferor and the transferee, indicating the specific date of proposed transfer of permit coverage and acknowledging responsibilities of current and new permittees for compliance with and liability for the terms and conditions of this permit. The notice shall be signed by both the transferor and the transferee.

PART V

A. PROVISIONS

1. Permit Revocation

   The Department may revoke a permit if, among other things, the permittee violates any permit condition, these regulations, fails to pay applicable Departmental fees, obtains the permit by misrepresentation or fails to fully disclose all relevant facts.

   Except in cases of emergency, the Department shall issue a written notice of intent to revoke to the permittee prior to final revocation. Revocation shall become final within 20 days of receipt of the notice by the permittee, unless within that time the permittee requests an administrative hearing in writing.

   The Department shall notify the permittee in writing of any revocation hearing at least 20 days prior to the date set for such hearing.

   If the Department finds the public health, safety or welfare requires emergency action, the Department shall incorporate findings in support of such action in a written notice of emergency revocation issued to the permittee. Emergency revocation shall be effective upon receipt by the permittee. Thereafter, if requested by the permittee in writing, the Department shall provide the permittee a revocation hearing.

2. Permit Modifications/Amendments

   In consultation with the permittee, the Department may modify or amend an existing permit provided that the modifications would not result in an increased impact or risk to the environment or to public health.

3. State Laws

   This permit shall not be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation.

4. Property Rights

   The issuance of this permit does not convey any property rights of either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

5. Severability

   The provisions of this permit are severable. If any provision of this permit, or the application of any provision of this permit, to any circumstances is held invalid; the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

6. This permit does not relieve the Permittee of complying with any applicable Federal, State or local regulations.

7. In the event that the Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems or applicable federal regulations are revised, this permit may be opened and modified accordingly after notice and opportunity for a public hearing.

8. This permit supersedes all previous spray irrigation operation permits issued to the Permittee.