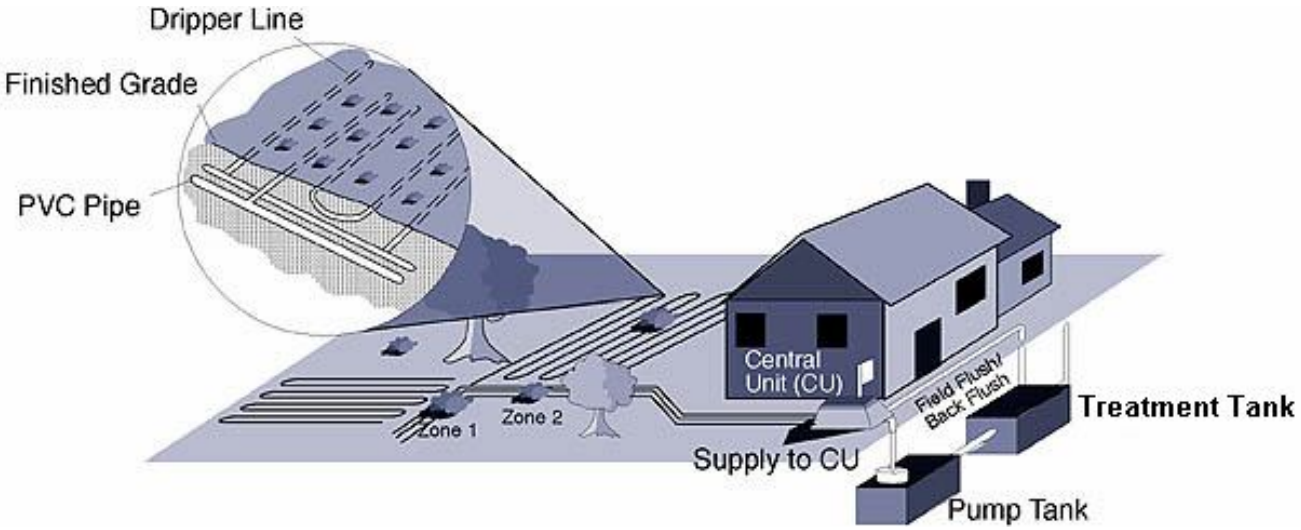
Drip Dispersal
Wastewater Disposal System
Guidance Document



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER QUALITY

BUREAU OF GROUND WATER, RESIDUALS, AND PERMIT ADMINISTRATION

JANUARY 2022

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Cover graphics were provided by the National Environmental Services Center located at West Virginia University.

A. Purpose

This guidance document is limited in applicability to onsite wastewater treatment systems subject to regulation under N.J.A.C. 7:9A.

The use of a drip dispersal system may be allowed, as described below, for new construction, expanded project or to alter an existing, malfunctioning system. Under these circumstances, these drip dispersal systems may be considered by the local administrative authority, at their discretion. The issuance of this guidance does not exempt the applicant or his agents from the responsibility to comply with all applicable Federal, State, County and Municipal rules and regulations.

Proposals for use of a drip dispersal system for a new or expanded project must be directed to the Department for an individual treatment works approval (TWA). The location of the onsite wastewater treatment system must conform to all provisions of N.J.A.C. 7:9A for new or expanded systems. The application must demonstrate that the site can support an individual subsurface sewage disposal system, which meets strict conformance with the requirements of N.J.A.C. 7:9A, on the property. TWA's will contain requirements for the proper maintenance and management of these systems that must be performed by the system owner and enforced by the administrative authority.

In accordance with N.J.A.C. 7:9A-3.3, alterations to repair existing, malfunctioning systems may be made in a manner that is in more compliance with current standards than the malfunctioning system. The Department interprets that regulation to provide the local administrative authority with the ability to approve of alterations using advanced treatment technologies, coupled in application with a drip dispersal system, described herein. These guidelines may not be construed as a device to require the use of a technology in any jurisdiction, does not limit the local administrative authority's ability to have additional requirements in their permit or other approval, and does not limit the local administrative authority's ability to apply the technology in applications that do not strictly meet these guidelines. As stated in the guidelines for administrative authorities, below, any questions regarding variances from these guidelines should be conveyed by the affected local administrative authority directly to the Department.

B. General Conditions

1. The Department may revise these guidelines or discontinue the use of any drip dispersal systems at any time.

2. The Department will maintain a list of applicable manufacturers and system integrators that have agreed to the provisions of this guidance and have demonstrated the ability to comply with the conditions of the guidance.

3. Any dripperline manufacturer or system integrator that wishes to be listed as applicable under this guidance document shall submit a written request and a report to the Department that details how the manufacturer will achieve compliance with the appropriate portions of this guidance document.

4. Any dripperline manufacturer or system integrator that fails to comply with the provisions of this document will be removed from the applicability list subject to this guidance. The Department will advise any affected party in writing prior to taking this action.

5. The dripperline shall be color coded by the drip tube manufacturer to be easily recognized as suitable for wastewater dispersal. The dripperline shall be warranted fully by the dripperline manufacturer for protection against root intrusion for a minimum period of ten (10) years.

6. For the life of the system, the owner of the system must have in place a preventative maintenance and monitoring contract with an Authorized Service Provider to ensure it is functioning properly and to optimize treatment performance. As part of this contract, the Authorized Service Provider must conduct a visual inspection of the internal components, including any treatment media, and maintain the complete treatment system. Upon expiration of a maintenance and monitoring contract, a new contract, which shall be at least one year in duration, shall be entered into by the property owner with an Authorized Service Provider. If the property owner fails to renew the maintenance and monitoring contract, written notification of such must be directed, by the Authorized Service Provider, to the local administrative authority.

C. Drip Dispersal Technology Description

Subsurface drip dispersal is an efficient method for dispersal of wastewater into the soil. It is a precise method for applying wastewater effluent over an infiltration surface in small volume doses throughout the day. The uniformity of the dosing and equal distribution can be designed and operated to provide for unsaturated flow over the entire infiltration area.

The unique feature of drip dispersal networks is the use of uniformly spaced drip emitters that are inserted within flexible tubing to control the rate of wastewater discharges out the tubing through small orifices. Typically, the dripperline is installed directly into the soil without aggregate or other media. Pumps are used to fill and pressurize the dripperline sufficiently to achieve uniformity of distribution.

The drip emitter is designed to create a high headloss between the in-line pressure of the dripperline and the outlet orifice in dripperline wall. The pressure loss that is created controls the pressure at the outlet orifice so that the discharge is maintained within a desired range. Each emitter acts as a point discharge, which releases water at a rate nearly equal to the discharge rate from other emitters in the same dripperline.

The pressure compensating emitter discharges water at a nearly constant rate over a wide range of pressures above a minimum pressure. Below the minimum pressure the pressure compensating emitter operates similarly to a turbulent flow emitter.

The treated wastewater is dosed to each drip dispersal zone intermittently. Intermittent dosing provides several significant benefits. It allows time for the soil at the infiltrative surface to reaerate so the soil can maintain an aerobic environment for biochemical treatment of the wastewater to occur. It makes better use of the hydraulic capacity of the system to accept the wastewater by avoiding few, large doses. Timed dosing protects the infiltration system from receiving wastewater in excess of the daily design flow storing excessive flows in the dose tank for later dispersal.

Monitoring system function and performance is essential to proper operation. In addition, metering the volume of water dispersed is a critical monitoring item for evaluating performance.

The dispersal system is to be operated by an integrated controller, which is programmed to activate the pumps to dose the dripperline at appropriate intervals and duration. The controller can also be programmed to flush the dripperline and backflush/flush the liquid/solid separator device. It also may be used to store operating data for later use in documenting system performance and diagnosing system malfunctions.

D. Effluent Quality

1. Sewage from the realty improvement(s) must be treated to at least secondary treatment levels prior to entering a drip dispersal system. Secondary effluent quality must be provided by a technology which is indicated as appropriate for use with drip dispersal systems in a Department issued document. Final determinations regarding the acceptability of any treatment technology used with a drip dispersal system is at the discretion of the local administrative authority.

2. Due to the relatively low concentrations of $CBOD_5$ and TSS that result from secondary wastewater treatment, the soil is relied upon more for dispersal capabilities rather than treatment of effluent.

E. Drip Dispersal System Design

1. All pre-engineered drip dispersal system designs from a system integrator must be signed and sealed by a New Jersey licensed professional engineer (N.J.P.E.). The N.J.P.E. must be trained and authorized by a system integrator as an Authorized Designer to design that system integrator's drip dispersal system.

2. All drip dispersal systems and components shall be designed according to the most recent dripperline manufacturer and/or system integrator design criteria.

3. Any Authorized Designer that submits a drip dispersal system design to any local administrative authority must notify the Department, within 24 hours of the submittal to the local administrative authority, in writing or by email at CH199@dep.nj.gov.

4. Drip Dispersal System Design Review:

    a. Residential Drip Dispersal Systems: Prior to issuing a construction approval, the local administrative authority may require the design to be reviewed by a system integrator or their authorized representative as being consistent with minimum specifications and recommendations.

    b. Commercial Drip Dispersal Systems: Prior to submitting the drip dispersal system design for construction approval, the drip dispersal system design shall be reviewed by a system integrator representative. The system integrator or their authorized representative shall issue a letter to the designer indicating the design is consistent with manufacturer's minimum specifications and recommendations.

5. Both the Authorized Designer and/or a system integrator's representative may be required by the local administrative authority to conduct a final construction inspection and/or certify that as-built conditions are in conformance with the approved system design and/or submit "as-built" plans.

6. All drip dispersal systems shall be equipped with devices or methods to prevent the redistribution of effluent by gravity in the dispersal area and which will minimize the effluent remaining in the lines after the end of a dose cycle from redistribution to lower portions of the drip zone (Variable distribution due to drain down shall be 10% or less).

7. All drip dispersal systems shall be equipped with self cleaning, pressure compensating or turbulent flow emitters. The discharge rate of any two emitters shall not vary by more than 10% in order to ensure that the

effluent is uniformly distributed over the entire drip field or zone. Pressure gauge access points (Schrader valves) are required at appropriate locations on system networks utilizing turbulent flow emitters to verify design and operational performance. Pressure gauge access points are recommended to be installed on all systems.

8. All drip dispersal systems shall incorporate a method of filtration sufficient to remove suspended solids and prevent clogging of the emitters as specified by the drip tubing manufacturer. The filter shall achieve the drip tubing manufacturer's minimum specified filtration at a rate equal to or greater than the peak discharge rate, typically during network forward flushing. The filter(s) are to be washed automatically on a routine basis. Any filter backwash is to return to the head of the pretreatment train or a settling tank to allow for primary settling prior to a dosing station.

9. The system shall be capable of forward flushing each drip field or zone at a minimum fluid velocity as required by the dripperline manufacturer back to the head of the pre-treatment train or a settling tank to allow for primary settling prior to a dosing station. Field flushing velocity shall be designed at the distal end of each lateral connection. Field flushing shall be accomplished automatically according to manufacturer's recommendations to prevent damage to the drip tubing and maintain product warranty.

10. The flush return volume is not to exceed the hydraulic capacity of the pretreatment unit.

11. The approved system shall provide the means, at minimum, to accurately calculate flows, pump cycle counter, pump elapsed time, counts of automated flushing events and alarm events. This may be accomplished by having a flow meter and a control unit that counts pump cycles, pump run time and counts flushing and alarm events. These functions are necessary to provide proper operation and maintenance and to verify and monitor emitter performance, scouring or flushing performance, and water use.

12. Pump selection shall take account of the operating volume and pressure for the drip dispersal field when calculating the total dynamic head required for filter flushing and/or back flushing, field dosing, and dripperline flushing. All disposal and flushing parameters must fall within the operational range of the pump selected.

13. The Dripperline Manufacturer and/or system integrator shall make available head loss charts, tables and/or formulas for various drip tubing lateral lengths during the disposal cycle. The Dripperline Manufacturer and/or system integrator shall also identify a minimum scouring/flushing velocity for the distal end of the drip tubing lateral and minimum and maximum operating pressures.

14. All piping, valves, fittings, level control switches, and all other components shall be designed and manufactured to resist the corrosive effects of wastewater and common household chemicals.

15. A dosing chamber shall be employed after the treatment device and before the drip dispersal system, and shall be sized and equipped so as to permit timed dosing of the daily sewage flow with adequate reserve storage capacity for those times when the system is inoperable. The system design shall comply with the following:

    (a) The dosing chamber working volume (surge storage) shall be at a minimum 75% of the peak design flow volume. This volume may be calculated from the timer enable to the high water alarm floats. The Authorized Designer and the system integrator shall calculate and verify the flows appropriate for systems using Program Logic Controls (PLC) or other methods alternative to timers. In no case shall a pump tank volume be less than what is typically required for a standard septic tank for the system.

(b) The dosing chamber shall be equipped with an audible and visual high-water alarm set to provide reserve capacity to allow for the prompt repair of the system. The minimum amount of reserve volume above the high water alarm is 25% of the peak daily flow. A low-water cutoff device shall be provided to prevent damage to the pump during low-water conditions and shall be separate from the timer enable device. The Authorized Designer and the system integrator shall calculate and verify the flows appropriate for systems using Program Logic Controls (PLC) or other methods alternative to timers.

(c) The dosing chamber shall be fitted with watertight access risers to grade that are secured against unauthorized entry.

(d) Each drip dispersal field or zone shall be time-dosed at regular intervals, throughout the day, based on the peak design flow, as specified by the manufacturer, system integrator and Authorized Designer. To maintain uniform distribution, the minimum dose volume in a drip dispersal network is calculated using 80% of the dose being dispersed during times of equal distribution, accounting for pressurization time and redistribution at pump shut off and no less than three times the volume of the pipe (plus the volume of supply /return lines and field manifolds where applicable). Requests for alternative minimum dose volumes shall be accompanied by a detailed justification by the Authorized Designer and verified as acceptable by the system integrator.

(e) A programmable timer and control panel shall be employed to regulate dosing frequency / volume, record the number doses, field flushing events and other pertinent information.

F. Drip Dispersal System Siting & Sizing Criteria

1. Permeability testing to determine the size of a dispersal area must be completed in native soils. Testing conducted on fill material should not be used. Permeability testing should be conducted in the most hydraulically restrictive zone within the 24 inches of soil material below the proposed bottom of the installed dripperline. If the permeability of the zone of dispersal for a soil replacement system is greater than 20 inches per hour, the Authorized Designer may use a design value of 6 inches per hour for the purposes of designing the drip dispersal field.

2. The Department recommends using percolation tests to measure native soil permeability for designing drip dispersal systems. When soil permeability class rating tests are used, the lowest permeability for that range of K-class shall be used.

3. When a basin flood test is the only permeability test possible, a permeability of 0.2 inches per hour may be used for areas that pass the test. However, if the basin flooding test drains in less than three hours on each and every filling, the permeability of the select fill may be used, provided percolation testing or tube permeameter testing is completed in the fill material after emplacement and compaction of the material.

4. The bottom of the dripperline shall be at least 24 inches above any limiting zone.

5. Dispersal areas are sized in accordance with the following. The minimum area of a drip dispersal system should be determined using the permeability of the most restrictive native soils, above the limiting zone, in the proposed dispersal area and from the following table:

Table 1

Percolation Rate	Area Loading	Percolation Rate	Area Loading
Mpi	gal/ft^2/day	Mpi	gal/ft^2/day
5	0.303	*65	0.146
10	0.278	*70	0.139
15	0.253	*75	0.133
20	0.228	*80	0.127
25	0.211	*85	0.122
30	0.203	*90	0.117
35	0.196	*95	0.116
40	0.189	*100	0.105
45	0.180	*105	0.096
50	0.173	*110	0.088
55	0.162	*115	0.080
60	0.154	*120	0.073

(*Rates above 60 Mpi are provided only for alterations to correct malfunctioning systems.)

The minimum amount of tubing required is the area divided by 2 (two foot center).

> For example, based on 60 mpi, 500 gpd / 0.154 gal/ft^2/day = 3247 ft^2 of area, 3247 ft^2 of area / 2' center = 1624' of tubing, an area approximately 101' x 30'.

Authorized Designers may specify lesser or greater tubing separation depending on the specific site conditions. However, the minimum tubing length must be provided. A minimum of two zones is recommended. In the case of smaller dispersal areas, and in consideration of a system provider's minimum zone size, single zone systems, and/or closer tubing spacings may be permissible.

6. Mounded soil replacement drip dispersal designs.

   a. Mounded soil replacement drip dispersal systems require a minimum soil depth of 18" from the pre-existing natural ground surface to any limiting condition and should not be used at sites where there is a 30" depth or more to a limiting zone where a traditional drip dispersal system can be designed as described above.

   b. Undisturbed soil and the depth of dispersal, is to be maximized below the bed bottom but in no case is to be less than 12" in thickness. The minimum depth of soil excavation for select fill depth is to be 4". In all cases the select fill is to be mounded, extending a minimum of 6" above grade to provide a minimum of 24" of separation, select fill and soil, to limitation. For the purposes of this section, the term "select fill" means material which meets the requirements of N.J.A.C. 7:9A-10.1(f)4 or Treatment Works Approval 03-3487-4SG.

   c. The bed bottom is to be installed level. The length to width ratio of the bed(s) is to be maximized as the site allows and to be no less than 3:1. The use of two or more narrow beds to maintain the required minimum depth to a limiting condition and geometry may be necessary. One bed may be possible on sites where the pre-existing natural ground surface is flat across the entire area required for the bed, however re-grading

shall not be allowed in any case. The minimum separation between beds (sidewall to sidewall) is to be 6' of native soil material.

d. Permeability testing should be conducted in the most hydraulically restrictive zone within the 24 inches of soil / fill material (see below) below the proposed bottom of the installed dripperline.

e. The beds will be sized in accordance with Table 1 except the bed bottom loading rate is to be the "Area Loading" multiplied by three.

For example, based on 60 mpi, 0.154 gal/ft^2/day area loading rate x 3 = 0.462 gal/ft^2/day bed loading rate. 500 GPD / 0.462 = 1083 ft^2 of bed bottom. If there was 45' of available length (contour) the bed would be 45' x 23' (1083 ft^2 of bed bottom / 45') representing a ratio of approximately 2:1. Two beds, each 45' x 12', and separated by a minimum of 6', would be required, representing a ratio of 3.75:1 per bed. In the case of these smaller dispersal areas, and in consideration of a system provider's minimum zone size, single zone systems, and/or closer tubing spacing (typically 12" or less) may be indicated.

f. An additional lateral fill extension is not required. The minimum distance from the edge of the fill bed to any drip line is to be one (1) foot. Tubing separation over the soil replacement bed may be less (minimum of 0.5 feet) to accommodate minimum zone sizes in accordance with manufacturer's recommendations. The drip tubing is to be covered with a minimum 2" of additional select fill. Drainage fabric, which meets the requirements of N.J.A.C. 7:9A-10.3(e)3ii., shall then be placed over the additional select fill covering the drip tubing. Salt-hay or straw shall not be used in these installations.

g. If the permeability of the zone of dispersal for a soil replacement system is greater than 20 inches per hour, the Authorized Designer shall use a design value of 6 inches per hour for the purposes of designing the drip dispersal field. For areas where only a basin flood test is possible, a permeability of 0.2 inches per hour may be used for a passing basin flood test. However, if the basin flooding test drains in less than three hours on each and every filling, the permeability of the select fill may be used, provided percolation testing or tube permeameter testing is completed in the fill material after emplacement and compaction of the material.

h. All other considerations regarding the design of a mounded soil replacement drip dispersal system shall be in conformance with N.J.A.C. 7:9A-10.6.

7. An additional zone of disposal is not required for drip dispersal systems. Typical subsurface installation depths are 6-12" below the ground surface.

8. For drip dispersal systems located in areas where the existing, malfunctioning system infringes upon a setback to a well and the new system will not fully meet current setback requirements, ultraviolet (UV) disinfection of the wastewater may be required on the well and/or prior to discharge into the dispersal field.

9. The dripperlines shall be laid level as possible and shall run with the contour. The maximum lateral length of a dripperline, measured from supply to return manifolds, shall be specified by the Authorized Designer in accordance with dripperline manufacturer and/or system integrator recommendations. The Authorized Designer, in accordance with manufacturer and/or system integrator recommendations, shall also specify the maximum linear feet of dripperline that may be placed in a zone.

10. Minimum horizontal separation distances are stipulated in Table 2 for new construction or expansion projects. For alterations to correct a malfunctioning condition, the setbacks should be brought into closer conformance with these requirements than what previously existed with the malfunctioning system.

11. In cases where setbacks to wells can not be increased to meet current requirements, the local administrative authority should consider ultraviolet disinfection on the well in addition to, or instead of, disinfection of the wastewater.

Table 2. Minimum Required Horizontal Separation Distances (in feet)

Land Feature or Component	Drip Dispersal Area	Septic Tank, Processing Tank, Secondary Treatment Units
Water Course	50	25
Well or suction line	100	50
Water Service Line	10	10
Occupied Building	25	10
Property Line	10	5
Disposal Field	50	0
Existing Seepage Pit or Cesspool	50	0
In-ground Swimming Pool	20	10

G. Drip Dispersal System Installation

1. A preconstruction conference is highly recommended prior to beginning construction of the system and should be attended by the Authorized Designer of the system, the Authorized Installer, and the local administrative authority.

2. All drip dispersal systems shall be installed according to directions provided in the drip dispersal system manufacturer's installation manual, installation requirements specified by the system integrator (if applicable) and approved drip dispersal system design.

3. All companies/personnel installing the drip dispersal system shall be in possession of all necessary permits and licenses before attempting any portion of an installation.

4. Only an Authorized Installer shall install the drip dispersal system.

5. The Authorized Installer must notify the Department at least one week prior to the installation of the drip dispersal system at CH199@dep.nj.gov and coordinate inspections with the Department in addition to any inspections required by the local administrative authority.

6. An Authorized Installer must be present at all times during drip dispersal system installation. No work on the drip dispersal system may be conducted unless under the direct supervision of an Authorized Installer.

7. Watertightness of any septic, processing and dispersal system dosing tanks specified in the design must be watertight tested at the installation site after being installed using hydrostatic or vacuum tests. Testing of the

tanks shall include all upper portions of the tank, including riser joints. Testing must be done in accordance with the following:

a. Water tightness testing procedures and criteria for concrete tanks shall follow the methods described in ASTM C-1227 standards or National Precast Concrete Association appropriate testing criteria and procedures

b. Tanks made of materials other then concrete shall be tested, after installation, in accordance with the methods described in ASTM C-1227 standards, if applicable, or other hydrostatic or vacuum testing methods approved by the tank manufacturer.

c. Water used for this testing shall be either from a potable water source or Reclaimed Water for Beneficial Reuse authorized by a NJPDES permit.

d. The use of an onsite potable well for purposes of supplying water for this testing is not recommended. If an onsite potable well is to be used, pumping of the well must be done in a manner which will withdraw water at a rate less than 50% of the safe yield of that well and will not damage the pump or any other component of the well.

8. The dripperline shall be installed by a method that will prevent pulling, stretching, or crimping of the dripperline, and smearing, compaction, or altering of the soil texture. The method shall be acceptable to the dripperline manufacturer, system integrator and the Authorized Designer.

9. Drip tubing shall not be installed when soils are saturated. In soil textures other than sands or loamy sands, drip tubing installation shall not be carried out when the soil moisture content is above the lower plastic limit from the surface of the ground to 12" below the proposed tubing installation depth. This means that when a small lump of soil, taken within the above depth, can be rolled out with the fingers to form a wire or rod, one-eighth of an inch in thickness, and does not crumble when handled, the soil is too wet to proceed with the installation.

10. On sites where vegetation will be removed, methods to minimize soil disturbance must be used. Any soil disturbance below four (4) inches shall be backfilled with material meeting the specifications of N.J.A.C. 7:9A-10.1(f)4. Additional fill material and/or topsoil may be used above this level, provided the drip tubing will be installed within at least two (2) inches of specified fill above the top of the drip tubing.

11. All system control units, valve boxes, drip dispersal lines, conveyance lines and other system appurtenances shall be designed and installed to prevent freezing per the system integrator and dripperline manufacturer recommendations.

12. Both the Authorized Designer and/or a system integrator's representative may be required by the local administrative authority to conduct a final construction inspection and/or certify that as-built conditions are in conformance with the approved system design and/or submit "as-built" plans.

H. Drip Dispersal System Start-up

1. The Authorized Service Provider shall inspect the drip dispersal system following each installation. The Authorized Service Provider shall complete the drip dispersal system start-up checklist. The Authorized Service Provider shall provide the completed start-up checklist to the local administrative authority.

2. The Authorized Installer shall be present at the time of start-up.

I. Drip Dispersal System Operation, Maintenance & Monitoring

1. All drip dispersal systems shall be maintained according to the system integrator's current Operation and Maintenance Manual by an Authorized Service Provider.

2. Drip dispersal systems shall be inspected by an Authorized Service Provider on the following schedule, at a minimum:
    a. Once within 30 days of system start up.
    b. Once per year for systems equipped with Telemetry control panels.
    c. Twice per year for the first two years of system operation for systems equipped with auto dialers and control panels; once per year thereafter.
    d. Three times per year for the first two years for all other systems; twice per year thereafter.
    e. For all systems, a meeting with a new operator of the system is recommended at the time of transfer of the property. The local administrative authority should be notified of this meeting and invited to participate.
    f. Additionally, as required by the dripperline manufacturer and/or system integrator.

3. At each regularly scheduled maintenance visit the Authorized Service Provider shall, at minimum, observe, monitor and record:
    a. General condition of the drip dispersal system;
    b. Wastewater level in the tanks,
    c. Any effluent/pump filter for clogging,
    d. Ponding of sewage or effluent around the drip dispersal system;
    e. Pump cycle, run time and all other meters
    f. All other parameters recommended by the drip tubing manufacturer and/or system integrator.

4. All drip dispersal systems require an operation and maintenance contract to be in place with an Authorized Service Provider for the life of the system.

5. Authorized Service Providers shall be trained and authorized by the system integrator. An up to date list of Authorized Service Providers shall be maintained by the system integrator and be made available upon request.

6. The operation and maintenance contract must be signed by the property owner and an Authorized Service Provider prior to issuance of the occupancy permit.

7. The Authorized Service Provider must have proper equipment and training to access and program any system control panel on site.

J. Training & Education

1. The system integrator or authorized representative shall hold, at minimum, one training event annually for Designers, Service Providers, and Installers.

2. The system integrator or authorized representative shall provide a written and dated authorization for Designers, Service Providers and Installers. This authorization shall be valid for one year for those who have completed the appropriate requirements.

3. A list of these authorized Designers, Service Providers, and installers shall be kept up-to-date by the system integrator and made available upon request or on its website.

4. The system integrator shall hold free training for New Jersey regulators, when necessary, that covers the design, installation and service of the drip dispersal system.

5. All Authorized Designers, Service Providers and Installers shall be required to receive annual, or more frequently as needed, refresher training as a requirement to continue to be authorized by the system integrator. An updated system integrator authorization shall be provided after refresher training has been successfully attended.

K. Reporting

1. The system integrator or their authorized representative shall submit an annual report to the Department by March 1st of each year containing the following information for the previous 12 months:
    a. Number of drip dispersal systems installed;
    b. The address of each installed drip dispersal system, the owners name and address, municipal tax block and lot, and the type of use (e.g. residential, commercial);
    c. Date when the drip dispersal system was installed and started up;
    d. Administrative authority and permit number;
    e. Status of the maintenance and monitoring contract;
    f. Number of inspection/maintenance calls conducted;
    g. The inspection results recorded on a manufacturer or system integrator approved inspection form and/or checklist, copies of which are available from the manufacturer or system integrator (as applicable). The forms must be completed by the drip dispersal system Authorized Service Provider and submitted to the Department upon written request;
    h. General summary of the results for the year, all known problems or failures with a brief summary of the cause and remedial measures taken;
    i. Any recommended changes to the design, installation and/or operation and maintenance procedures and a schedule for implementing those changes; and
    j. Original equipment manufacturer name and model of the wastewater treatment system(s) providing secondary treated effluent to the drip dispersal system.

2. Web access to online information and reports regarding the systems may be considered by the local administrative authority as an alternative or in addition to paper reporting.

3. Failure of a client to renew a service agreement shall be reported to the Department and local administrative authority by the Authorized Service Provider within 30 days.

4. Each drip tubing manufacturer and system integrator shall submit a summary of any changes made to that manufacturer's design, installation or service documents to the Department within seven (7) days of those changes. Design, installation or service documents shall be submitted to the Department upon request.

L. Manufacturer/System Integrator Responsibilities

1. All sites shall be tracked by the system integrator or an authorized representative to update site and system information, manage contact information, manage maintenance activities, and generate reports.

2. The drip tubing shall be warranted fully by the Dripperline Manufacturer for protection against root intrusion for a minimum period of ten (10) years. This warranty shall be fully transferable to assure the current homeowner that any equipment failure will be covered as stipulated in that warranty during the warranty period. This is provided that operation and maintenance of the treatment system is done in conformance with manufacturer's requirements as stipulated in that warranty.

3. The system integrator or their authorized representative shall provide the property owner with a copy of all warranty information for each component of the system provided.

4. The system integrator or their authorized representative shall provide the property owner with a copy of this guidance document, the operation, maintenance and monitoring agreement and obtain their written acknowledgement of the need to comply with the provisions of this document via signature prior to the sale of any a drip dispersal system.

5. The system integrator or their authorized representative shall institute and maintain a training program for prospective designers, installers, and service providers in the proper design, installation, and servicing of their system.

6. The system integrator or their authorized representative shall maintain up to date lists of Authorized Designers, Installers and Service Providers that have passed the training program and make these lists available to the Department upon request or made available on its website.

7. The system integrator or their authorized representative shall establish a process for investigating complaints and removing authorized personnel from authorized lists as appropriate.

8. The system integrator or their authorized representative shall provide the Department or any local administrative authority with all training materials and the expected qualifications for the installer and service providers upon request. The Department should be notified of any training event at least two weeks prior to the event. No administrative authority shall approve a drip dispersal system without receiving all training and materials that are requested from the manufacturer or system integrator.

M. Property Owner Responsibilities

1. The local administrative authority may require the property owner to record with the deed to the property a notice that identifies the technology, acknowledges the owner's responsibility to have in place at all times a maintenance and monitoring contract, and grants access to the property for the purpose of system monitoring, inspection and maintenance.

2. Have in place, at all times, an operation, maintenance and monitoring agreement with an Authorized Service Provider. Failure to maintain this agreement threatens and endangers human health and the environment by not providing an adequately operated and maintained system and shall constitute a public health nuisance violation and a violation of N.J.A.C. 7:9A-3.2 and/or 3.3(e), as applicable.

3. In accordance with applicable law, the Department and the local administrative authority may require the owner of the drip dispersal system to cease use of the drip dispersal system and/or to take any other actions as it deems necessary to protect public health, safety, welfare or the environment.

4. The drip dispersal system may be approved for use in conjunction with the treatment and dispersal of sanitary sewage only. Non-sanitary sewage generated or used at the facility shall not be introduced into the drip dispersal system and shall be lawfully disposed of.

5. Provide any future purchaser of the property with a copy of this guidance, the operation, maintenance and monitoring agreement, any deed notices required by the local administrative authority for the property and obtain their approval via signature prior to entering into a contract of sale for the subject property.

N. Administrative Authority Responsibilities

1. The Department recommends that the local municipality in which the drip dispersal system is proposed adopt a local ordinance authorizing the use of this technology for alterations to malfunctioning systems. At a minimum, this ordinance should include monitoring and enforcement provisions to ensure that annual service agreements are maintained for the life of the drip dispersal system and appropriate fees to allow the local administrative authority to implement a tracking program. Establishment of a septic management program will be required for Treatment Works Approvals for new construction or expansion applications using a drip dispersal system.

2. Track all approvals issued under this guidance in a database format. The information recorded shall include, at a minimum:

    a. municipal block and lot information,
    b. street address, date of installation,
    c. date of system start-up, type of dispersal area,
    d. the number of bedrooms at the facility and
    e. the type of dispersal area and size in square feet,
    f. the type of drip dispersal system used and
    g. identification of the drip dispersal system designer and installer.

3. Contact the Department directly with any questions regarding the application of drip dispersal system applications which include variances from this guidance document or to discuss issues not addressed by this guidance. In no instance should any other party seek alternative guidance for a site specific drip dispersal

system from the Department until the local administrative authority has expressed its position directly to the Department.

4. Identify in the construction approval for this system that the New Jersey Department of Environmental Protection must be notified at least one week prior to the installation of any component of the proposed system and the anticipated date of installing the dripperlines.

5. Identify in the construction approval for this system that failure to operate and maintain the system in accordance with the requirements outlined in this document and failure to maintain an agreement with an authorized service provider threatens and endangers human health and the environment by not providing an adequately operated and maintained system and shall constitute a public health nuisance violation and a violation of N.J.A.C. 7:9A-3.2 and/or 3.3(e).

Appendix A: Definitions

Authorized Dealer (or authorized representative): Company(s) who has been "authorized" by the system integrator to distribute drip dispersal systems.

Authorized Designer: A licensed New Jersey Professional Engineer who has completed all Manufacturer training requirements, including annual refresher training, and has been identified as "authorized" by the Manufacturer to design drip dispersal systems.

Authorized Installer: An individual person who has completed all Manufacturer training requirements, including annual refresher training, and has been identified as "authorized" by the Manufacturer to install drip dispersal systems.

Authorized Service Provider: An individual person who has completed all Manufacturer training requirements, including annual refresher training, and has been identified as "authorized" by the Manufacturer to service drip dispersal systems.

$CBOD_5$: Carbonaceous Biochemical Oxygen Demand (5 day, uninhibited)

Department: New Jersey Department of Environmental Protection

Disposal Field: defined by N.J.A.C. 7:9A-2.1

Drip Dispersal System: A pre-engineered wastewater treatment and disposal system that incorporates a high pressure, low flow disposal mechanisms in a manner that does not create saturated flow conditions with associated treatment units, tanks, filters, pumps, control panels, piping and all other equipment that is designed, installed, operated and maintained in accordance with this document by a drip dispersal system manufacturer.

Drip Emitter: The engineered flow control device that is typically attached to the inside wall of the dripperline over each orifice. The emitter discharges water at a predictable rate under a given pressure, typically stated in gallons per hour.

Dripperline (or drip tubing): The wastewater rated polyethylene tubing that has uniformly spaced drip emitters along its length, which are attached to the inside wall of the tubing.

Dripperline (or drip tubing) Manufacturer: Company who directly produces the original dripperline/drip tubing component of a drip dispersal system consisting of the dripperline and pressure compensating or turbulent flow emitters and holds proprietary rights to that component of a drip dispersal system. For the purposes of this document the applicable Manufacturer's are listed by the Department in a separate document available on the Department's website or by request at CH199@dep.nj.gov.

Emitter, pressure compensating (PC): A drip emitter that discharges water out an orifice of the dripperline at a constant rate over a range of operating pressures.

Emitter, turbulent flow: a non-pressure compensating (non-PC) emitter that discharges water out an orifice of the dripperline at a rate that varies directly with the operating pressure.

Flow, pressurizing: The portion of a dosing event during which the dispersal system is being filled to its operating pressure.

Flow equalization: The process of reducing the variability of the influent flow to a system component by storing peak flows and metering their release at a predetermined rate close to the average daily flow.

Flushing: The process by which dripperlines are hydraulically cleansed to prevent emitter clogging by increasing the velocity of water flow through the dripperlines to scour and transport solid materials that may have accumulated in or on the interior surfaces of the dripperlines.

Minimum dose volume: The is volume of water discharged during a dosing event that is necessary to pressurize the entire drip dispersal system and sustain that pressure over a sufficient period to achieve the desired uniformity of discharges between all orifices. It is commonly specified as a multiple of the total volume of the laterals in the drip dispersal system (*e.g.*, four times the volume of the piping network).

NTU: Nepholometric Turbidity Units. Measure of clarity

Return manifold: The pipe to which the distal ends of each lateral in a dispersal zone are connected. Its purposes are to help equalize the pressure between laterals of a zone, provide an alternative pathway to a lateral that may be obstructed, and collects the wastewater from the laterals during field flushing for discharge to the return flush main.

Supply manifold: The pipe to which the proximal ends of the laterals of a dispersal zone are connected to supply water to the dripperline during dosing events.

System: An onsite wastewater treatment system which is subject to regulation under N.J.A.C. 7:9A-1 et seq. For the purpose of this document the "System" is a pre-engineered drip dispersal system with associated treatment units, tanks, pumps, effluent distribution network, control panels and all other associated components.

System Integrator: A company that is responsible for the pre-engineering of drip dispersal systems, authorizing designers, installers and service providers, and maintains the overall responsibility of the system management. For the purposes of this document the applicable system integrators are listed by the Department in a separate document available on the Department's website or by request at CH199@dep.nj.gov.

TSS: Total Suspended Solids