

August 2, 2000

To: Environmental Health Managers
District Directors
Virginia Tech Contract Soil Scientist
OEHS

From: Donald J. Alexander, Director
Division of Onsite Sewage and Water Services

Subject: Generic Drip Disposal Policy **GMP #107**

Attached please find GMP #107, which addresses all drip disposal systems. This policy is effective immediately and supercedes GMP #96, which is hereby rescinded.

All applications for drip dispersal systems made after the effective date of this policy shall comply with this policy. Please note that the engineering requirements have been relaxed.

Should you have any questions regarding this policy, please call me.

Drip systems under 1,200 GPD
Conditions for Use
GMP #107, August 2, 2000

Introduction. Drip dispersal of wastewater is a rapidly developing technology. As requests for varying drip dispersal design approaches have been received and reviewed, providing separate but equal policies for each manufacturer have become increasingly difficult. This policy is intended to provide guidance on the design, use, and application of drip dispersal systems used in Virginia regardless of manufacturer. Effective immediately, drip systems must be permitted and installed in accordance with this policy.

Process Description. Drip dispersal is a method of applying wastewater effluent in an even and controlled manner over an absorption area where final treatment and dispersal occurs. Drip systems components include a septic tank or aerobic treatment unit, a filtration system designed to protect the tubing emitters against clogging, small diameter pipe with emitters designed to evenly disperse effluent along the tubing and over an absorption area and a control center that operates the electromechanical components of the system. Additional components may be used as deemed appropriate by the manufacturer or designer to treat and disperse wastewater.

Scope of Policy. This policy addresses all drip systems where the design flow is less than 1,200 G.P.D and where the effluent is residential strength. Wastewater flow from single family dwellings and duplexes maybe assumed to comply with these effluent limits. A professional engineer shall characterize flows from other sources.

System Type. Drip dispersal systems shall be considered Type II systems and subject to the requirements of 12 VAC 5-610-250.B including:

1. The submission of an application; and
2. A preliminary conference as necessary; and
3. The submission of informal plans, specifications, design criteria, and other data, as may be required by the district or local health department.
Depending on the size and complexity of the system, the submission of formal plans and specifications may be required.

Site and Soil Requirements. All sites where drip dispersal is utilized shall meet the site and soil requirements contained in the *Sewage Handling and Disposal Regulations* (12 VAC 5-610-10 et. sec., the *Regulations*) for low pressure distribution systems.

Absorption Area. Absorption area as used in this policy means the total soil area used to treat and disperse effluent. For conventional trench systems, §950 of the *Regulations* defines the absorption area as the soil between and around the absorption trenches. The absorption area therefore describes the "footprint" of the absorption system and not just the trench bottom area.

This policy intends in part to provide a uniform method of calculating the absorption area for a drip system that is substantially equivalent to what is used for a low-pressure distribution system. Where slopes and restrictive horizons are not a consideration (see §950D of the *Regulations*) the absorption area for a drip system shall be calculated by multiplying the trench bottom area required for a low pressure distribution system in Table 5.4 of the *Regulations* by three. Where slopes and/or restrictive horizons are a consideration, the following table shall be used to increase the absorption area required. No increase in depth is required for drip systems installed on sloping sites as is required for conventional gravel trench systems.

Absorption Area Increase (percent)				
Depth to Impervious Strata	Slope of site (percent)			
	10-19	20-29	30-39	40-50
Drip Tubing <24" off rock, pans, or impervious strata	17%	33%	50%	67%
Drip Tubing 24" or more off rock, or impervious strata	0%	17%	33%	50%

**Design Requirements and
 Recommended Considerations**

General.

1. Nothing contained herein is intended to prevent the application of accepted engineering practice or manufacturers recommendations when designing a drip dispersal system.
2. A minimum of 6 hours of storage (above alarm condition) shall be provided. An additional volume equal to 18 hours of storage is recommended below the alarm level for flow equalization.
3. Demand dosing of drip disposal systems is prohibited. Timed dosing with frequent small doses is the preferred method of applying effluent to the soil.
4. All materials shall meet applicable ASTM standards and be resistant to common household chemicals. Drip tubing must be certified by the manufacturer as designed and manufactured for the dispersal of wastewater. The drip tubing must be color coded by the manufacturer to be easily identified as tubing designed for wastewater disposal.

5. Filtration shall be provided for on all systems to prevent solids from clogging emitters.
6. Provisions shall be made to allow the field lines to be flushed on an automatic basis in order to remove solids that accumulate over time. Drip systems shall be designed to provide a minimum velocity of 2 feet per second at the distal end of the pipe network to keep solids in suspension. All systems shall be designed to be capable of delivering velocities sufficient to remove accumulated organic solids. Automatic field flushing shall be designed to occur on a routine schedule in order to prevent excessive solids accumulation rather than respond to clogging. Flush water shall be returned to the inlet of the treatment facility.
7. The maximum flow variation between any two emitters in a single zone shall not exceed 10 percent. When determining flow variation consideration shall be given to the effect of "drain down", an effect which occurs in the field laterals after the pump shuts off that results in unequal distribution and excess flows in the runs of pipe placed at the lowest elevation.
8. All systems shall be provided with an audiovisual alarm meeting the requirements of the *Sewage Handling and Disposal Regulations* or the *Sewage Collection and Treatment Regulations*.
9. For components not specifically addressed in this policy, such as the septic tank (if required), the pump tank, and effluent conveyance components, the *Sewage Handling and Disposal Regulations* shall be used to establish the design, installation, and location criteria.

Absorption (Dispersal) Area Criteria and Considerations

1. The minimum linear requirement for tubing shall be calculated by dividing the absorption area required by two. However, no increase in the linear feet of tubing is required when the absorption area is increased as a result of slope. Drip dispersal tubing shall be placed in the landscape in a manner that distributes effluent over the absorption area in a manner consistent with the manufacturer's recommendations and the design engineer's specifications. This policy is not intended to prevent the installation of more than the minimum tubing with a properly sized absorption area.
2. The minimum installation depth shall be as specified in the *Regulations* for trench systems or as established by the manufacturer for a proprietary system.

3. All tubing shall be placed on contour. When designing the dispersal field area, linear loading rates shall be considered. To the greatest extent practical,
4. Designers are strongly encouraged to optimize hydraulic dispersal and soil based treatment by using long narrow designs placed on contour as opposed to many short runs "stacked" on contour.

Other Requirements.

In addition to preparing the plans and specifications for the system design, the designer shall be responsible for establishing the installation method(s) and preparing an operation and maintenance manual for the system owner.

No operation permit shall be issued until the following conditions are met.

1. The system has been inspected and a written report is filed with the local health department. The report shall confirm that the permitted system components have been properly installed and that the drip tubing was placed in the permitted area at the proper depth.
2. The system designer or a professional engineer certifies in writing to the Department that the system was installed substantially in accordance with plans on which the construction permit was based.
3. The Department receives a recommendation from the system designer or other professional engineer or designer that an operation permit should be issued for the system.