

## **MEMORANDUM**

**DATE:** August 15, 2006

**TO:** Environmental Health Managers  
District Health Directors  
VPI/SU Soil Scientists  
Authorized Onsite Soil Evaluators  
Professional Engineers

**GMP #91A**

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

**SUBJECT:** Tire Chip Aggregate – Elimination of forms sent to the  
Department of Environmental Quality

This GMP #91A replaces GMP #91 and is effective immediately. GMP #91 authorized the use of tire chips as an alternative aggregate in lieu of stone in gravel absorption trenches under the conditions in Appendix I.

After nine years of using tire chips in absorption trenches, the Virginia Department of Health (VDH) has found it to be a viable option for consumers and designers. It's efficacy in providing storage and renovation of effluent is documented in papers such as "Analysis of Tire Chips as a Substitute for Stone Aggregate in Nitrification Trenches of Onsite Septic Systems" by B. Grimes, S. Steinbeck, and A. Amoozegar and "Tire Chips: A Growing Trend as Aggregate in Soil Absorption Systems" by C. McKenzie. For more information visit the following link: [http://www.nesc.wvu.edu/nsfc/sfq\\_fall03/SFQ\\_f03.pdf](http://www.nesc.wvu.edu/nsfc/sfq_fall03/SFQ_f03.pdf)

Neither VDH nor the Department of Environmental Quality (DEQ) find it necessary to receive the tire chip certification forms required in GMP #91. Therefore, an Environmental Health Specialist Senior or Authorized Onsite Soil Evaluator (AOSE)/Professional Engineer (PE) conducting an inspection where tire chips have been used are no longer required to

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complete or send the forms to DEQ. As before, no permit changes are necessary in designing a system using tire chips. Any drainfield installer may, at their discretion, substitute chipped tire aggregate meeting the attached specifications, for gravel in any nonproprietary subsurface absorption system designed by VDH which requires aggregate. In general, these will be conventional drainfield systems, pressure dosed systems, and low pressure distribution systems. This GMP #91A does not apply to use in proprietary systems unless specifically allowed in the proprietary approval (as of this date, there are no such approvals). Also, systems designed by an AOSE or PE (including formal or informal plans) must specifically authorize in writing or in the design the use of tire chip as an absorption trench aggregate.

When tire chips are used in a sewage system design, please indicate such by completing the tire chip field in the Virginia Environmental Health Information System (VENIS) database. Also, remember that there is no reduction in the absorption area with the use of tire chips.

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Appendix I

**Application**

1. Tire chips are approved by the Virginia Department of Health (VDH) and the Virginia Department of Environmental Quality (DEQ) for use as coarse aggregate in nonproprietary subsurface absorption fields and may be substituted for stone aggregate on a one-for-one basis, volumetrically. Trench design, installation, and location are to remain unchanged.
2. Untreated building paper or a geotextile (synthetic) fabric cover shall be provided to prevent soil infiltration.
3. Each installation must have a valid VDH permit.
4. Proprietary systems and systems designed by a professional engineer are not automatically authorized for use. On AOSE/PE permit designs, changes to the aggregate must be approved in writing by the AOSE/PE prior to installation.

**Chip Specifications**

1. Chips are to be a nominal 2 inches in size and may range from one-half ( $\frac{1}{2}$ ) to a maximum of four (4) inches in any one dimension.
2. Exposed wire may protrude no more than one-half ( $\frac{1}{2}$ ) inch from the chip.
3. At least 95% of the aggregate by weight shall comply with the above specifications.
4. Fines are defined as any material less than 2 mm in size and are prohibited

GMP #91  
Appendix I

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1. Tire chips are approved by the Virginia Department of Health (VDH) and the Virginia Department of Environmental Quality (DEQ) for use as coarse aggregate in non-proprietary subsurface absorption fields and may be substituted for stone aggregate on a one-for-one basis, volumetrically.
2. Trench design, installation, and location are to remain unchanged. Untreated building paper or a geotextile (synthetic) fabric cover shall be provided to prevent soil infiltration.
3. Each installation must have a valid VDH permit, must be authorized by the property owner and certified by VDH and the installation contractor using the 4 part VDH-DEQ Certification of Use of Tire Chips in a Residential Septic Tank Drainfield system.
4. Proprietary systems and systems designed by a professional engineer are not automatically authorized for use. Changes to the aggregate must be approved in writing by either the manufacturer or the professional engineer prior to approval.

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