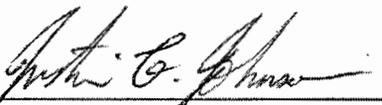


RESIDUALS MANAGEMENT SECTION  
WASTEWATER MANAGEMENT DIVISION  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
AGENCY OF NATURAL RESOURCES  
STATE OF VERMONT

COMPREHENSIVE  
SHORT PAPER FIBER MANAGEMENT  
PROCEDURE

December 23, 2009

  
Justin G. Johnson, Commissioner  
Department of Environmental Conservation

12/29/2009  
Date

§ 1. BACKGROUND

The purpose of this Procedure is to establish management practices and to require testing and reporting by large generators of short paper fiber that is distributed in the State of Vermont for any use allowed under this Procedure.

Short paper fiber is the byproduct of the paper making process and consists primarily of clay and cellulose left over after the paper making process, and contains minimal chemical components and no sanitary waste. VT DEC has historically had three primary concerns that had previously prevented short paper fiber from being beneficially reused in Vermont. These concerns (dioxin concentrations, uncertainties about what value is available from the use of short paper fiber as soil amendments, and biocides employed to control slime molds) have been addressed over the past decade through changes in industry practices, demonstrations in neighboring states and the collection of analytical data.

Dioxin concentrations have been significantly reduced, typically to the single digit parts per trillion TEQ range; the use of chloro-pentaphenate type biocides has been eliminated and replaced with a simple chlorinator commonly used in swimming pools; and the value of short paper fiber in increasing soil structure and organic matter content has been demonstrated, along with it's value as a soil pH conditioner.

Based on the resolution of these concerns, the Vermont Department of Environmental Conservation (VT DEC) recommended adoption of a procedure for the conditional, beneficial use of the short paper fiber without obtaining a Solid Waste Management Facility Certification for each specific site upon which it is used. Specifically, this

Procedure enables short paper fiber to be used as a soil amendment for crop production on agricultural land, or as an amendment for low quality loam or other mineral base to improve or manufacture topsoils.

The use of short paper fiber for animal bedding is consistent with Vermont Accepted Agricultural Practices and is not covered by this Procedure, other than to require that any short paper fiber used for animal bedding in Vermont shall first obtain a Certificate of Approval pursuant to this Procedure.

This Procedure is intended to serve as an interim means of regulating the use of short paper fiber until such time as corresponding standards can be promulgated as a part of the Vermont Solid Waste Management Rules. It is further acknowledged that such rules will be based upon reevaluation of the contaminant standards established herein, particularly those for chromium and copper, as they relate to concerns of the Agency of Agriculture, Food, and Markets.

## § 2. DEFINITIONS

As used in this Procedure:

- (1) "Short Paper Fiber" means dewatered solids remaining after completion of the paper making process.
- (2) "Secretary" means the Secretary of the Vermont Agency of Natural Resources or such person as the Secretary may designate.
- (3) "Sub-standard short paper fiber" means any short paper fiber that does not meet the criteria established in §5(3)(a) of this Procedure.
- (4) "Large quantity generator" means any facility that annually produces 2,500 wet tons or more of short paper fiber.
- (5) "Small quantity generator" means any facility that annually produces less than 2,500 wet tons of short paper fiber.

## § 3. APPLICABILITY

- (1) This Procedure will apply to all short paper fiber that is demonstrated to meet the quality criteria and is used in accordance with the management practices included in this Procedure.
- (2) The Residuals Management Section of the Vermont Department of Environmental Conservation shall have regulatory oversight of the implementation and administration of this Procedure.

- (3) Pending the Secretary's issuance of a Certificate of Approval to a generator, short paper fiber may be managed in compliance with §5 of this Procedure upon its signature by the Secretary provided that the generator submits an application for a Certificate of Approval no later than thirty (30) days following the date on which this Procedure is signed by the Secretary. Should the generator fail to submit an application for a Certificate of Approval as established in this subsection or upon the Secretary's determination that such an application must be denied, the generator shall immediately cease all management of short paper fiber as allowed by this procedure.
- (4) This Procedure shall only apply to short paper fiber that is free of all sanitary waste. Short paper fiber which contains any amount of sanitary waste shall be disposed only at an appropriate and certified solid waste management facility.
- (5) Persons managing short paper fiber in the State of Vermont shall manage the short paper fiber in accordance with the full requirements of this section or by disposal at a certified solid waste management facility.
- (6) No person shall discard or permit another to discard of short paper fiber except at a certified solid waste facility. Short paper fiber shall not be considered a discarded solid waste, pursuant to §6-201 of the Vermont Solid Waste Management Rules, provided that all the following are met:
  - (a) The short paper fiber has a maximum percent moisture content of 80%;
  - (b) The short paper fiber is used in one or more of the following manners:
    - (i) for use as a soil amendment based on agronomic recommendation of a certified crop advisor;
    - (ii) as a component of manufactured topsoil; or
    - (iii) for other acceptable uses as determined by the Secretary; and
  - (c) The generator of the short paper fiber complies with §4 and §5 of this Procedure.

Upon the issuance of a Certificate of Approval to a generator or when used as animal bedding consistent with Vermont Accepted Agricultural Practices, the short paper fiber generated by the facility listed in the Certificate of Approval shall be considered a commodity, pursuant to the exemption afforded by the definition of "discarded" in §6-201(2) of the Vermont Solid Waste Management Rules, except as specifically established in this Procedure.

- (7) When used in accordance with the terms of the Procedure, short paper fiber and the lands upon which it is treated, stored, or used are exempt from the permitting requirements of the Vermont Solid Waste Management Rules, but only insofar as the management of short paper fiber is concerned and within the Secretary's right reserved in (8) of this section.
- (8) The Secretary reserves the right, on a case by case basis, to require certification under the Vermont Solid Waste Management Rules of a generator and/or short paper fiber use sites and usages where a public health or environmental risk is demonstrated by the Agency.

#### § 4. CERTIFICATE OF APPROVAL

- (1) Prior to the management of short paper fiber produced by a generator for any use approved under this Procedure, the generator shall obtain a Certificate of Approval from the Secretary, except that disposal of short paper fiber in a certified solid waste management facility is exempt from this provision.
- (2) An application to the Secretary for a Certificate of Approval shall consist of the following information. If the application is for multiple generating facilities under the generator's ownership, the required information shall be submitted for each generating facility:
  - (a) an application form approved by the Secretary, which shall include the following information;
    - (i) the name, mailing address, and telephone number of the generating facility's parent company;
    - (ii) the name, mailing address, telephone number, and physical location of the facility generating the short paper fiber;
    - (iii) the name, mailing address, and telephone number of a primary and secondary contact person for the generating facility;
    - (iv) the name, mailing address, and telephone number of an authorized agent, if applicable;
    - (v) the estimated annual amount of short paper fiber, in wet tons per year, that will be managed by a use approved under this Procedure; and
    - (vi) the signature of an officer or an authorized agent of the generating facility.

- (b) The analytical results for all parameters listed in §5(3)(a) performed in the 365 day period preceding the date of application. For a new facility or a facility which does not have previously existing analytical data, the applicant may submit the results of an analysis conducted on a composite sample of its existing short paper fiber production for the parameters established in §5(3)(a).
- (3) Within sixty (60) days of the date that an application for a Certificate of Approval is received by the Secretary, the Secretary shall either deny or issue the Certificate of Approval.
- (4) A Certificate of Approval shall be valid for a period of not more than five years from the date of issuance.
- (5) Upon receipt by the generator of any analytical result documenting an exceedence of any ceiling concentration established in §5(3)(a)(i) or (iv), the Certificate of Approval for the generating facility involved shall immediately be suspended for a minimum period of thirty (30) days. In such instances, the short paper fiber from the affected generating facility shall be managed only in accordance with the Vermont Solid Waste Management Rules. If the Certificate of Approval covers more than one generating facility under the control of a parent company, only the Certificate of Approval for the generating facility so involved shall be considered suspended.
- (6) The Certificate of Approval for the involved facility may be reinstated by the Secretary upon submittal of the following:
  - (a) the results of a chemical analysis of four (4) consecutive weekly composite samples of short paper fiber generated at the involved facility documenting that the short paper fiber quality is again in compliance with §5 (3)(a)(i) or (iv);
  - (b) at the Secretary's discretion, testing of the soils for the parameters established in §5(3)(a)(i) or (iv), on the Vermont site(s) to which sub-standard short paper fiber was applied; and
  - (c) a written explanation of how the exceedence occurred; the amount of short paper fiber not meeting the requirements of §5(3)(a)(i) or (iv) that was distributed in Vermont for a use approved under this Procedure; the names, mailing addresses, and telephone numbers of the person or person to whom the short paper fiber was distributed; and a written explanation of steps that have been taken to prevent a recurrence of the exceedence.

§ 5. MANAGEMENT PRACTICES, TESTING, AND REPORTING

(1) Storage:

(a) Short paper fiber that is stored in the State of Vermont for any use allowed under this Procedure shall be stored in a manner and location that reasonably secures the short paper fiber from public access, the stored paper fiber shall either be stored under cover or shaped in windrows to facilitate the shedding of rain water, will not be driven on by rubber tired equipment, and which is, at a minimum, in compliance with the Nutrient and Pesticide Storage requirements, §4.02, of the Vermont Accepted Agricultural Practices as adopted by the Vermont Agency of Agriculture, Food and Markets. Specifically, short paper fiber shall not be stored:

- (i) within one hundred (100) feet of any private well or drinking water supply source unless the short paper fiber is stored in a structure that minimizes leaching and runoff potential;
- (ii) within two hundred (200) feet of any public well or drinking water supply source or within Zone 1 of an approved Public Water Supply Source Protection Area unless the short paper fiber is stored in a structure that minimizes leaching and runoff potential;
- (iii) on unimproved sites within one hundred (100) feet of any waters of the State; and,
- (iv) on lands subject to annual overflow from adjacent waters;
- (v) within two hundred (200) feet of a property line;
- (vi) in amounts greater than 2,500 cubic yards per windrow; and,
- (vii) longer than eight (8) months.

(2) Land application and topsoil amendment:

- (i) The use of short paper fiber as a soil amendment on any agricultural lands in the State of Vermont shall require a current soil analysis for each field where short paper fiber shall be applied. Rates of application shall be based on specific, documented recommendations of a certified nutrient management planner. The use of short paper fiber on agricultural lands shall be consistent with an approved nutrient management plan for the site and shall comply with the Accepted Agricultural Practice rules and any applicable provisions of a Medium Farm Permit or a Large Farm Operating Permit as appropriate. Each field's soils shall be analyzed for the parameters in Table 5(3)(a)(v);

- (ii) Where short paper fiber is used on any farm subject to the State of Vermont's medium or large farm operation permitting requirements, those permits shall have been issued to the subject farm prior to any delivery or use of short paper fiber and the use of short paper fiber shall be included in the farm's approved Nutrient Management Plan;
- (iii) Short paper fiber shall not be applied to the land within two hundred (200) feet of any public well or drinking water supply source or within Zone 1 of an approved Public Water Supply Source Protection Area unless the short paper fiber is stored in a structure that minimizes leaching and runoff potential;
- (iv) Short paper fiber shall not be applied on unimproved sites within one hundred (100) feet of any waters of the State;
- (v) Short paper fiber shall not be applied to any site in excess of the cumulative loading limits established in Table 5(2)(v);

Table 5(2)(v)		
Metal	Kilograms per Hectare	Pounds per Acre
Arsenic (As)	6.66	(5.94)
Cadmium (Cd)	1.77	(1.58)
Chromium (Cr)	1200	(1071.6)
Cobalt (Co)	13.23	(11.80)
Copper (Cu)	1500	(1339.5)
Lead (Pb)	41.08	(36.62)
Mercury (Hg)	0.43	(0.38)
Molybdenum (Mo)	1.77	(1.58)
Nickel (Ni)	16.00	(14.26)
Selenium (Se)	1.23	(1.10)
Zinc (Zn)	164.44	(146.58)

Note: the established regulatory standards are those given in units of Kilograms per Hectare. Those numbers in parentheses (Pounds per Acre) are rounded conversions of the officially established standards and are provided for informational purposes only.

- (vi) Short paper fiber applied to agricultural lands shall be incorporated within forty-eight (48) hours of application on fields subject to annual overflow unless the field is in cover crop or no till management.

(3) Requirements for generators:

Short paper fiber that is sold, offered for sale, or otherwise distributed in the State of Vermont for a use allowed under this Procedure by a generator shall meet the sampling, testing, and reporting requirements of this section. A generator shall not sell, offer for sale, or otherwise distribute short paper fiber for a use allowed under this Procedure that does not meet the lower of the standards established in §5(3)(a)(i) and (iv) of this Procedure or the corresponding standards of the state in which the short paper fiber is generated, even if any given parameter relevant to this requirement is not otherwise regulated under this Procedure.

(a) Sampling and testing:

- (i) A minimum of two data points, sampled at least 60 days apart, for the following parameters shall be submitted with the initial Application for Certification. The short paper fiber shall not contain dioxin or PCBs in concentrations greater than the ceiling concentrations established in Table 5(3)(a)(i). This testing shall be required upon initial application, and a single set of data shall be required for subsequent renewals. The Secretary reserves the right to require more frequent testing if any short paper fiber distributed in the State of Vermont is determined to exceed the constituent concentration limits established in §5(3)(a) of this Procedure.

Parameter	Ceiling Concentration
Total TEQ Concentration	27 (ng/kg., dry wt.)
Total PCB	10 (mg/kg., dry wt.)

"Total TEQ concentration" means the toxic equivalency quotient for all congeners of chlorinated dibenzo-p-dioxins, chlorinated dibenzo furans, and polychlorinated biphenyls which are chlorinated at the positions for which the World Health Organization has established the 1998 Toxic Equivalency Factors. The total TEQ concentration is calculated as the sum of the products of each congener's concentration times its corresponding Toxic Equivalency Factor, for each congener of chlorinated dibenzo-p-dioxins and chlorinated dibenzo furans for which the World Health Organization has established the 1998 Toxic Equivalency Factors. For the purposes of this calculation, if the analysis reports a result for any congener as being less than a stated detection limit, the calculation shall be made using the full reported detection limit.

- (ii) Large quantity generators of short paper fiber shall be tested on a quarterly basis using a representative composite sample for all parameters listed in §5(3)(a)(iv) and (v) of this Procedure. The quarterly composite sample shall be derived from representative sampling at the papermill. The Secretary reserves the right to require more frequent testing if any short paper fiber distributed in the State of Vermont is determined to exceed the constituent concentration limits established in §5(3)(a) of this Procedure.
- (iii) Small quantity generators of short paper fiber shall be tested biannually using a representative composite sample for all parameters listed in §5(3)(a)(iv) and (v) of this Procedure. The biannual composite sample shall be derived from representative sampling at the papermill. The Secretary reserves the right to require more frequent testing if any short paper fiber distributed in the State of Vermont is determined to exceed the constituent concentration limits established in §5(3)(a) of this Procedure.
- (iv) Analyses of representative composite samples of short paper fiber collected pursuant to §5(3)(a)(ii) or (iii) of this Procedure shall be tested for the total concentration (and reported in units of mg/kg dry weight) of each of the following metals and shall not contain metals in concentrations greater than the lowest of:
  - (A) the ceiling concentrations established in Table 5(3)(a)(iv)

Metal	Concentration (mg/kg, dw)
Arsenic	15
Cadmium	21
Chromium	1200
Copper	1500
Lead	300
Mercury	10
Molybdenum	75
Nickel	420
Selenium	100
Zinc	2800

or;

- (B) the corresponding contaminant standards for the state in which the short paper fiber is generated, even if any given parameter relevant to this procedure is not otherwise regulated under this Procedure.
- (v) Analyses of composite samples of short paper fiber collected pursuant to §5(3)(a)(ii) or (iii) of this Procedure shall be tested for the total concentration (and reported in units of mg/kg dry weight) of each of the following parameters to be used in determining appropriate amendment rates by the certified crop advisor:

<b>Table 5(3)(a)(v)</b>
<b>Parameter</b>
pH
Nitrate/Nitrite-N
Total Kjeldahl-N
Ammonia-N
Total Organic-N
Potassium
Phosphorus
Calcium
Magnesium
% LOI
% Total Organic-C
% CaCO <sub>3</sub> Equiv.

- (b) Management Practices:
  - (i) Short paper fiber shall not be applied to the land:
    - (A) in a threatened or endangered species habitat area as designated by the Agency unless specifically approved by the Secretary;
    - (B) on frozen or snow covered ground;
    - (C) between December 15 and April 1, inclusive, of consecutive years;
    - (D) within fifty (50) feet of any waters of the State unless specifically approved by the Secretary;
    - (E) in Class I and Class II wetlands and their associated buffer zones, as defined in the Vermont Wetlands Rules, unless a Conditional Use Determination has been issued by the Agency;
    - (F) in Class III wetlands, as defined by the Vermont Wetlands Rules, unless a Water Quality Certification has been issued pursuant to 40 CFR Part 401, or has been waived by the Agency;
    - (G) in a National Wildlife Refuge as designated by the United States Fish and Wildlife Service unless approved by the United States Fish and Wildlife Service;
    - (H) in wildlife management area as designated by the Agency unless specifically approved by the Secretary;
    - (I) within Zone 1 of an approved Public Water Supply Source Protection Area; and
    - (J) within one hundred (100) feet of any private well or drinking water supply source.

- (ii) Short paper fiber shall be used in accordance with Table 5(3)(b)(ii) or Table 5(b)(3)(iii), as appropriate for the intended use.

<b>Table 5(3)(b)(ii)</b>	
<b>Site Management Conditions for Topsoil Manufacturing</b>	
Carbon to nitrogen ratio of manufactured topsoil	Minimum C:N = 35:1
Application rate of manufactured topsoil	Not to exceed 9-inch lift, in place
Mix ratio for manufactured topsoil	Not to exceed one part short paper fiber to one part sand or mineral base, on a volumetric basis

<b>Table 5(3)(b)(iii)</b>	
<b>Site Management Conditions for Agricultural Application or Conventional Loam</b>	
Increase soil organic matter	Application rates not to exceed 40 dry tons of organic matter per acre (to provide approximately an additional 4% fresh organic matter to agricultural soil or conventional loam)
Carbon to nitrogen ratio	minimum C:N = 30:1

- (c) Recordkeeping and Reporting:
  - (i) Generators of short paper fiber shall maintain records of the use and distribution of the short paper fiber for any locations in Vermont; and document compliance with the provisions of §5(1) Storage, §5(2) Land application and topsoil amendment, and §5(3)(b) Management Practices.
    - (A) Records shall include longitude and latitude coordinates for sites, a site map depicting site and application areas, current soil analyses, application rates, crop type, cumulative metals loading, and dates of application.
    - (B) These records shall be made available upon specific request from the Secretary, for a period of 5 years after final application to sites in Vermont.

- (ii) Large quantity generators of short paper fiber shall submit quarterly reports to the Residuals Management Section of the VT DEC, using a form provided by the Secretary. The reports shall be submitted by January 15<sup>th</sup>, April 15<sup>th</sup>, July 15<sup>th</sup>, and October 15<sup>th</sup> of each year. Such reports shall, at a minimum, include the following information:
  - (A) the quantity and testing results of any short paper fiber distributed in the State of Vermont for use under this Procedure as required in §5(3)(a)(iv) or §5(3)(a)(v) as applicable; and
  - (B) a statement, signed by the generator or its authorized agent, stating that the short paper fiber meets the standards established in §5(3)(a) of this Procedure.
- (iii) Small quantity generators of short paper fiber shall submit biannual reports to the Residuals Management Section of the VT DEC, using a form provided by the Secretary. The reports shall be submitted by April 15<sup>th</sup> and October 15<sup>th</sup> of each year. Such reports shall, at a minimum, include the following information:
  - (A) the quantity and testing results of any short paper fiber distributed in the State of Vermont for use under this Procedure as required in §5(3)(a)(iv) or §5(3)(a)(v) as applicable; and
  - (B) a statement, signed by the generator or its authorized agent, stating that the short paper fiber meets the standards established in §5(3)(a) of this Procedure.
- (v) All generators of short paper fiber shall submit a report to the Secretary within five (5) working days of the receipt of any information indicating non-compliance with any term or condition of this Procedure.
- (vi) Any generator of short paper fiber that is used in the State of Vermont pursuant to this Procedure shall submit the final destination of short paper fiber so used by reporting the name of the landowner and the town, and the quantity and source of the short paper fiber, and reports documenting compliance as specified in §5(3)(c)(i) upon specific request from the Secretary of the Agency of Natural Resources or the Secretary of the Agency of Agriculture, Food, and Markets.

§ 6. ENFORCEMENT

- (i) The Secretary reserves the right to pursue an enforcement action against the generator and/or the manager of any short paper fiber used pursuant to this Procedure which, after any use allowed by this Procedure, is determined by the chemical analysis required under §5(3)(a) to not meet the quality criteria established in this Procedure.
- (ii) This Procedure shall in no way limit the right of the Vermont Agency of Agriculture, Food, and Markets to unilaterally pursue an enforcement action in matters related to the management of short paper fiber for any violation of rules and regulations under its jurisdiction.
- (iii) In cases where the Secretary lacks clear enforcement powers under the statutes and/or administrative rules of the State of Vermont as reserved under subsection (i) of this section, the Secretary also reserves the right to refer such cases to the U.S.E.P.A. or other regulatory jurisdiction for enforcement action.