

**SITE MANAGEMENT PLAN (SMP) ADDENDUM  
DOVER MUNICIPAL LANDFILL SUPERFUND SITE  
DOVER, NEW HAMPSHIRE**

## **OVERVIEW**

The April 2005 Site Management Plan (SMP) associated with the Dover Municipal Landfill Superfund Site will be updated in 2010 in conjunction with completion of the Source Control Remedial Design. At the request of the United States Environmental Protection Agency (USEPA), this SMP Addendum was prepared to describe the current condition of the landfill and compost staging activities that were conducted at the landfill by the City of Dover in late 2008 and early 2009. The City suspended staging of compost at the landfill in early 2009 and currently does not plan to re-initiate these activities. The SMP Addendum also describes site management protocols associated with compost that remains at the landfill. This SMP Addendum will be incorporated into the revised SMP later in 2010.

## **LANDFILL CONDITIONS**

Current conditions at the landfill are consistent with those described in Section 2.1 (page 4) of the April 2005 SMP. Access to the landfill is through a locked gate near the southeast corner of the landfill along Tolend Road. Since 2005, the most significant changes at the landfill include the seasonal operation of a ground water extraction system associated with the Southern Plume MOM remedy, which has been operational since 2008, and the installation (in late 2008 and early 2009) and operation of the Northwest Landfill Hotspot Air Sparge/Soil Vapor Extraction (AS/SVE) system. The primary physical changes to the landfill associated with Southern Plume MOM activities are the presence of a 20,000-gallon fractionation tank located adjacent to the Butler building at the southwest corner of the landfill, and the seasonal laying of flexible piping from the extraction wells to the tank. The primary physical changes associated with the Northwest Landfill Hotspot AS/SVE system include an approximately 1-acre "field" of air sparge and soil vapor extraction wells and associated piping that were installed on top of the northwest portion of the landfill, an AS/SVE treatment trailer located along side the gravel access road that traverses the middle of the landfill, and an off-gas stack located adjacent to the Butler building. The Southern Plume and Northwest Landfill Hotspot remedial systems are operated seasonally from approximately April through the end of November.

## **HISTORICAL COMPOSTING ACTIVITIES**

The City of Dover Publicly Owned Treatment Works (POTW) generates Class A compost using sludge generated at the POTW. The compost meets USEPA and New Hampshire Department of Environmental Services requirements for classification as Class A compost including:

- meeting concentration limits for heavy metals specified in Env-Ws 800;
- containing less than one part per million of polychlorinated biphenyls;
- produced using a minimum retention time of 90 days or achieving a 60 percent reduction in organic content;
- containing no metal, glass, or plastic of a size or shape that could cause injury;
- containing no more than 2 percent by weight of non-organic and non-mineral material, excluding sand and other inorganic soil; and

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- achieving pathogen reduction requirements specified in Title 40 of the Code of Federal Regulations, Section 503.32a.

The City sells the compost through an annual bid to commercial contractors for use as a soil amendment and makes the compost available free of charge to citizens for use at their homes.

Compost was first placed at the landfill in the mid-1990s for use as a soil amendment when the proposed remedy was a cap that would be loamed and seeded as a final cover. Subsequent proposed remedies deferred an impermeable cap construction in favor of allowing infiltration of precipitation. Reconnaissance activities were performed to identify areas with insufficient vegetative cover that would require improvement. Several areas with barren and sparse vegetation were identified. Additional compost was transferred to the landfill in late 2008 and early 2009 in anticipation of supplementing the existing soil cover in those barren areas with a more suitable medium for plant development. The rise in fuel prices and the economic downturn drastically reduced the demand for the City's compost by commercial contractors, but it provided an opportunity for future use at the landfill. Street sweepings, catch basin spoils, and leaf debris are to be mixed with the compost and then spread over the barren areas. Presently, approximately 3,000 to 5,000 cubic yards of compost are located in the central portion of the landfill. The location of the compost is shown on the attached Site Plan.

The City does not plan to bring additional compost to the landfill (unless specifically needed for vegetating the permeable cover). The compost that is currently stored at the landfill will be used to enhance the final cover during source control remedial activities that are anticipated to be conducted at the landfill in late 2010 and 2011.

### **COMPOST MANAGEMENT**

Prior to the time that the compost is used in final grading activities, the compost will be managed as set forth in the New Hampshire Department of Environmental Service's *Requirements For the Use of Sludge-Based, Class A Biosolids*, June 16, 2005. The Dover Compost Label for 2010 and the NHDES Requirements are attached.

Questions regarding the status of the current and historical use of compost at the landfill can be directed to Dean Peschel, Environmental Project Manager for the City of Dover, at (603) 516-6094. Questions regarding current and anticipated future remedial actions at the landfill can be directed to Darryl Luce of USEPA at (617) 918-1336 or Michael Webster of GeoInsight, Inc. at (978) 692-1114.

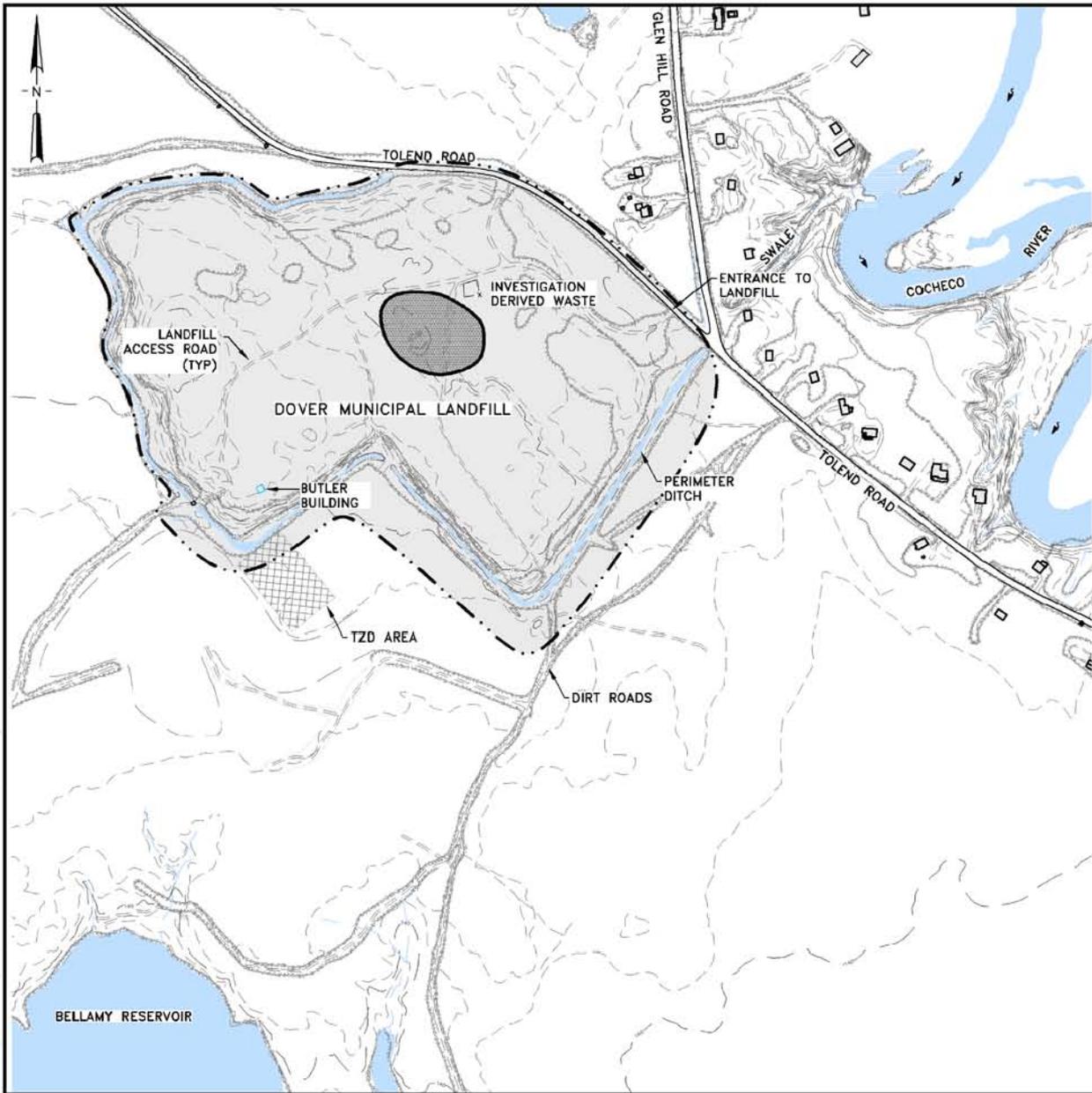
### **ATTACHMENT:**

Updated SMP Site Plan  
Dover Compost Label for 2010 and NHDES Requirements

January 20, 2010  
GeoInsight Project 2009-005

**Christene  
Binger**

Digitally signed by Christene Binger  
DN: cn=Christene Binger, o=GeoInsight,  
Inc., ou, email=cabinger@geoinc.com,  
c=US  
Reason: I am approving this document  
Date: 2010.01.21 10:57:00 -05'00'

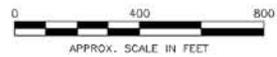


**LEGEND**

- 150 EXISTING TOPOGRAPHIC CONTOUR
- PAVED ROAD
- UNPAVED ROAD OR DRIVE
- SOURCE CONTROL WORK AREA
- APPROXIMATE COMPOST STORAGE AREA

**NOTES:**

1. EXISTING CONDITIONS TAKEN FROM TOPOGRAPHIC WORKSHEET OF THE DOVER (NH) LANDFILL FOR GOLDER ASSOCIATES INC., MANCHESTER NH, BY EASTERN TOPOGRAPHICS, WOLFBORO, NH. ORIGINAL SCALE 1"=50', CONTOUR INTERVAL 2', PHOTO DATE: 13 APRIL 92.
2. SITE FEATURES UPDATED IN NOVEMBER 2007, BASED UPON COMPREHENSIVE SITE SURVEY PERFORMED BY VERMONT SURVEY AND ENGINEERING, INC. OF MONTPELIER, VERMONT.



PLOT DATE: 1-16-10  
 FILE: M:\Projects\Info Projects\2009-Dover Landfill\FIGURES-DOVER\2009D262.dwg

CLIENT: DOVER GROUP			
PROJECT: DOVER LANDFILL SUPERFUND SITE DOVER, NEW HAMPSHIRE			
TITLE: SITE PLAN			
DESIGNED: JT	DRAWN: NMT	CHECKED: CAB	APPROVED: MJW
SCALE: 1" = 400'	DATE: 08/11/09	FILE NO.: 2009D262	PROJECT NO.: 2009-007



FIGURE NO.: 2

# DOVER COMPOST LABEL

2010

Dover Wastewater Treatment Facility  
484 Middle Road, Dover, NH 03820  
603-516-6475

Since 1991, the New Dover Wastewater Treatment Facility has been treating municipal wastewater and as a result, producing excellent compost for local farmers, landscapers and homeowners. Dover compost is enhanced with sawdust, wood ash and paper fiber to make a more balanced fertilizer product comprising nitrogen, phosphorus, potassium, and calcium. Achieving outstanding results when used on lawns, fields and topsoil, locals refer to Dover compost as "black gold".

Dover compost is made by blending the biosolids produced at the wastewater facility with sawdust, wood ash and short-paper fiber. The mixed material is placed on a series of aeration pipes which are covered with finished material. Air is blown through the pile to facilitate growth of organisms which break down the materials into the humus like compost. After a minimum of 14 days and temperatures reaching as high as 150 degrees Fahrenheit, the majority of the work has been accomplished by the organisms breaking down the organic materials. The compost is then placed in a storage area where it remains until it is utilized by farmers, landscapers and homeowners.

Dover compost has many benefits as a soil amendment. The nutrients in compost are very stable as a result of the composting process. This means that unlike most commercial fertilizers, the *slow release nutrients* in compost are available for the plant in the same manner that plants use nutrients in nature. Use of compost is the most natural way to recycle nutrients for the environment. In addition, the compost is an excellent source of organic matter which helps hold moisture and provides air spaces in the soil. Dover compost also has a higher pH that helps to sweeten native soils, which tend to be acidic. Studies done on turf grass have shown that applications of compost help to suppress diseases in the turf.

There are a number of uses for high quality Dover compost. Some of the more popular uses are as a fertilizer on lawns, a nutrient balanced soil amendment for new lawns or gardens, and as the organic component in manufactured topsoil. The following are some suggested methods for using Dover compost.

USE	APPLICATION RATES
New Lawns and Gardens	1 inch to 1½ inch thick layer over area, and rototil into soil
Existing Gardens	½ inch to 1 inch thick layer over area, and rototil into soil
Existing Lawns	¼ inch to ½ inch to the lawn and rake in thoroughly
Topsoil Manufacturing	1 part compost with 2 parts sand, mix thoroughly, use like loam

## AVERAGE NUTRIENT AND METALS CONCENTRATIONS IN DOVER COMPOST

T. O. NITROGEN - 8,745 mg/kg	PHOSPHORUS - 4,300 mg/kg	POTASSIUM - 8,575 mg/kg
ARSENIC - 2.2 mg/kg	CADMIUM - 3.0 mg/kg	COPPER - 148 mg/kg
CHROMIUM - 8.6 mg/kg	MERCURY - .5 mg/kg	MOLYBDENUM 2.9 mg/kg
NICKEL - 11.6 mg/kg	LEAD - 21.5 mg/kg	ZINC - 496 mg/kg
SILVER - 1.0 mg/kg	THALLIUM - .6 mg/kg	BERYLLIUM - .5 mg/kg
SELENIUM - 2.4 mg/kg	ANTIMONY - 1.5 mg/kg	

## NHDES SQC LIMITS 807.03

ARSENIC - 10 mg/kg	CADMIUM - 10 mg/kg	COPPER - 1,000 mg/kg	CHROMIUM - 160mg/kg	MERCURY - 7 mg/kg
MOLY. - 18 mg/kg	NICKEL - 98 mg/kg	LEAD - 270 mg/kg	ZINC - 1,780 mg/kg	SELENIUM - 18 mg/kg

Dover compost may be picked up between the hours of 7:00 a.m. and 1:00 p.m., Monday through Friday. Saturday by appointment only.

See reverse for (NHDES) REQUIREMENTS FOR THE USE OF SLUDGE-BASED COMPOST



# Requirements For the Use of Sludge-Based, Class A Biosolids

June 16, 2005

Any person who intends to use compost or other class A biosolids derived from municipal wastewater sludge must use such material in accordance with the requirements of rules adopted by the New Hampshire Department of Environmental Services under Env-Ws 810. The rules are few and simple to follow for those wishing to utilize class A products to establish a new landscape or to enhance an existing one. For those who choose to use class A materials on a broader scale, such as blending topsoil for sale, or in agricultural settings where the area exceeds 5 acres, there are additional requirements. Below are the rules that must be observed when using class A biosolids derived from sludge:

- The rate of application should not exceed the rate recommended on the label provided with the class A biosolids;
- Class A biosolids should not be applied within 35 feet of a pond, stream, lake, or river;
- Land application of Class A biosolids must comply with the requirements of RSA 483, the Rivers Management and Protection Act. Specifically, applications should be setback 250 feet from a designated river and immediately incorporated within  $\frac{1}{4}$  mile of a designated river. For information on the Rivers Management and Protection Act see the DES website (<http://des.nh.gov/factsheets/r&l/rl-2.htm>).
- For a person(s) planning to use class A biosolids on a area of more than five acres or for topsoil blending or manufacturing, the following rules apply:
  - Stockpiles of stored biosolids should be maintained to minimize the amount of water running into and through the stockpile; and
  - A nutrient recommendation from UNH Cooperative Extension (Tom Buob, 787-6944) must be obtained and followed during application of the biosolids.

For additional information, please contact the Residuals Management Section of the Department of Environmental Services at (603) 271-2818 or (603) 271-3503.

**City of Dover, N.H. WWTP**  
**Sewage Sludge Certification Statement**  
**2009**  
**PERMIT#NH0101311**

I certify, under penalty of law, that the Class A pathogen requirements in 503.32 (a) and the vector attraction reduction requirements in 503.33(b)(5) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

**Description of How Class A Pathogen Requirements are Met**

The City of Dover WWTP uses the alternative found in 503.32(a)(7) to meet its Class A pathogen requirements. Class A pathogen requirements in 503.32(a)(7) are met either prior to or at the same time the Vector Attraction Reduction requirements in 503.33(b)(5) are met. The PFRP process used is composting by the aerated static pile method. Compost pile temperatures are maintained at 55 degrees Celsius or higher for 3 days. Quarterly Fecal coliform is randomly sampled prior to sale or give away.

**Description of How Vector Attraction Reduction Requirements are Met**

The City of Dover WWTP uses the alternative found in 503.33(b)(5) to meet its Vector Attraction Reduction requirement. Sewage sludge is combined with amendment materials and treated in an aerobic process for 14 days or longer. During this time, the temperature of the sewage sludge is maintained at 40 degrees Celsius or above and the average temperature of the sewage sludge is 45 degrees Celsius or higher.



Raymond A. Vermette  
WWTP Supervisor