

REQUEST FOR APPROVAL

To: **Howard Levenson**
Deputy Director, Materials Management and Local Assistance Division

From: **Brenda Smyth**
Branch Chief, Statewide Technical and Analytical Resources Branch

Request Date: May 6, 2013

Decision Subject: Approval of Scope of Work and UC Davis as Contractor for the
Evaluation of Environmental Impacts of Direct Land Application of Un-
composted Green and Woody Wastes on Air and Water Quality Contract

Action By: May 13, 2012

Summary of Request:

Staff requests the approval of the Scope of Work and the University of California, Davis, Office of Research (UCD) as Contractor for the Evaluation of Environmental Impacts of Direct Land Application of Un-composted Green and Woody Wastes on Air and Water Quality Contract.

Recommendation:

Staff recommends that CalRecycle enter into a contract with the Regents of the University of California, Davis using FY 2012/13 funds to complete the tasks outlined in the attached Scope of Work.

Deputy Director Action:

On the basis of the information and analysis in this Request for Approval and the findings set out below, I hereby approve the scope of work and contract with University of California, Davis, Office of Research in an amount not to exceed one hundred seventy-five thousand dollars (\$175,000), subject to availability of funds appropriated to this program.

Dated: 5/13/13


Howard Levenson
Deputy Director

Attachments: Scope of Work

Background Information, Analysis, and Findings:

California's existing compost and chip/grind infrastructure is already handling approximately 10 million tons of organics per year. In addition, there are some 10 million more tons of compostable organics (primarily food, greenwaste, soiled paper) still being disposed in landfills annually, as well as more than 4 million tons of lumber. California's organics infrastructure will need to roughly double in order to achieve Assembly Bill (AB) 341 (Chesbro, Stats. of 2011, Ch. 476) composting goals and AB 32 (Núñez, Stats. of 2006, Ch. 488) greenhouse gas reduction targets. GHG reductions that would result by diverting 75 percent of these organic materials from landfills to composting and/or anaerobic digestion are on the order of 4 to 5 million metric tons of CO₂ or equivalents (MMTCO_{2e}) per year.

Increased pressure to divert organics from landfills, however, may also result in an increase in direct land application of organics, an area of growing concern due to the unknown potential impacts on air and water quality. Direct land application may result in increased GHG and volatile organic compound (VOC) emissions in the course of degradation, due to the potential for anaerobic degradation which produces methane and other constituents, similar to what occurs in a landfill. The amount and characterization of GHG and VOC emissions from the direct application of un-composted greenwastes to farmland has not been previously investigated.

There are also water quality concerns associated with direct land application of organics. When greenwaste is applied directly to land without composting or other processes to stabilize the material and reduce pathogens, it creates a potential for groundwater contamination. One constituent of concern for groundwater is nitrate, which is a wide-spread problem in agricultural areas of California. Others include dissolved organic carbon, the major ions comprising 'salts', and minor metal ions, as well as non-metals which may impact water quality.

The purpose of this contract is to measure GHG and criteria pollutant emissions and water quality constituents of concern from surface application and various levels of incorporation of greenwaste directly to land, and to compare these measurements to previous estimates of emissions from compost facilities. The outcome of this research will provide essential data on direct land application of organics that will be useful on multiple fronts including: the implementation of the Waste Sector portion of the AB 32 Scoping Plan update, considerations in the rulemaking for CalRecycle's organic handling regulations, and the Environmental Impact Report for the State Water Board's Draft Statewide General Order for Compost Waste Discharge Requirements.

If approved, CalRecycle will enter into an agreement with UC Davis to complete this research. Proposed funding for this contract will utilize \$125,000 from FY 2012/13 obtained through an Interagency Agreement from the Air Resources Board, as well as \$50,000 in FY 2012/13 funds from CalRecycle's Integrated Waste Management Account (IWMA), as summarized in the table below.

Fund Source	Amount Available	Amount to Fund Item	Line Item
Integrated Waste Management Account (via interagency agreement with California Air Resources Board)	\$125,000	\$125,000	Research on VOC and GHG emissions from direct land application of greenwaste
Integrated Waste Management Account	\$50,000	\$50,000	Research on groundwater constituents of concern from direct land application of greenwaste

