



Florida Organics Recycling Center for Excellence (FORCE)
DEP Contract: SW204
Annual Report -Year 5

The Florida Organics Recycling Center for Excellence (FORCE) was created to centralize a facility capable of promoting and supporting focused, comprehensive, and integrated organics recycling throughout the State of Florida. The FORCE project commenced as a cooperative effort among Sumter County (County), the Department of Environmental Protection (DEP), and public/private researchers. The partnership between these entities is intended to offer an ideal combination of practical experience, research capability, and public education resources. FORCE is designed to provide the structure necessary to develop Florida's organics recycling infrastructure and to support it with research and development of processing and marketing technologies.

This report will describe the events and activities of the fifth year of the FORCE project. Some of the more significant highlights include completion of research and demonstration (R&D) projects that began in Year 4 and the obtainment of a grant from the Department of Transportation for \$150,000.00. Additionally, the digester was utilized in Year 5 for feedstock testing trials.

The accomplishments conveyed below are grouped according to the six project activities:

- Design
- Construction
- Operation
- Market Development, Education, and Training
- Evaluation, Monitoring, and Testing
- Project Management

1.0 Design

1.1 Engineering, Planning, Construction, and Inspection:

Throughout year 5, all of the necessary engineering work related to FORCE has been continually reviewed by County and FORCE staff as well as Kessler Consulting, Inc. (KCI) to ensure proper planning and inspection of the FORCE site and relevant equipment as required by the DEP's Tampa office.

1.2 Plan Certification and Permitting:

The following regulatory documents are continually reviewed to meet the said permit requirements

and deadlines to operate the digester purchased through FORCE. KCI is currently responsible for overseeing Sumter County solid waste staff, and the firms of PBS&J and The Colinas Group to meet deadlines and maintain proper communication with the DEP's Tampa office.

1. Composting Permit
2. MRF Permit
3. Model Consent Order

The County has decided to stay with the odor control system that was installed and utilized during the FORCE R&D process. The Tampa DEP office was pleased with the fact that there were no odor control issues during this period or in quite some time.

2.0 Construction

2.1 Office Space Trailer:

During the past year, the FORCE office was remodeled and reorganized to complete the development of the FORCE library. New office furniture was also purchased, as approved in the Year 5 Operating Plan. The FORCE office now houses the FORCE library, reading room, and the technology database. The goal of the FORCE office is to provide a comfortable library environment for individuals from the public and private sectors interested in learning more about organics recycling.

No other changes to the FORCE office occurred during this past year.

2.2 Demonstration Farm Site Preparation and Maintenance:

UF/Dr. Rockwood's Forestry Project:

Any preparation or maintenance work that occurs on the farm is performed to maintain the acreage on which Dr. Rockwood's project is housed. County staff continues to mow and maintain the farm with the newly purchased Kubota industrial riding lawnmower on an as needed basis each quarter.

2.3 Installation and Maintenance of Digester:

The County continues to oversee the proper maintenance of the FORCE digester. In order to track and record all of the mechanical issues and resolution for the digester to date, KCI/County staff, in conjunction with A-C Equipment Services (A-C), has prepared a *Digester Historical Mechanical Issues and Resolutions* tracking document. *A copy of this document is attached.*

This year County staff oversaw the under-warranty repair of the rotary coupling on the digester by A-C and held discussions with A-C regarding the brake pad wear and replacement. In May 2005, the brake pads on the new drum style holding brake failed. The initial inspection by County staff showed that the pads separated from the metal shoes in certain areas causing friction and heat

between the pad and the brake drum. County staff removed the pads and returned them to A-C. The digester continued operating without the pads and shoes. Under the warranty, an A-C representative was sent to modify the brake support, install new brake shoes, and make sure the brake operated properly. The modification to the brake support will insure proper brake functioning in the future. The exact cause of failure is still unknown and under analysis.

Although the digester has been working without incident since the brake was replaced, a periodic maintenance check conducted by FORCE and County staff, found six (6) wear bars were missing from the digester tube. These wear bars have been replaced by County staff and the digester continues to operate as intended. County staff also cleaned and greased all of the 184 rollers on the discharge doors, after identifying that some of the rollers were not turning. The FORCE Specialist has set-up a regular maintenance schedule for every quarter to ensure that the digester is operating normally.

During this year, the County stopped utilizing the digester for the production of Sumter County compost from MSW and biosolids. With a new County Administrator and some new County Commissioners in place, the facility is undergoing an assessment of the economic viability and efficiency of the entire solid waste, recycling and composting operation.

2.4 Laboratory:

During the first quarter of Year 5, approval was received from the DEP for the purchase of laboratory equipment and supplies. The procurement of the necessary lab supplies and equipment occurred.

2.5 Irrigation System and Maintenance:

During the past year, the installation of the new Netafim irrigation system was completed on the 40-acre demonstration site. The system was nonfunctional for a period of time due to a missing connector on the distribution system. The items needed to complete the system were eventually received by FORCE/Dr. Rockwood. An assistant of Dr. Rockwood's came to the site on July 28th to install the final connector needed to complete the installation of the Netafim system. Once installed, Dr. Rockwood's assistant signed off on the Netafim system as completed. The system is now fully functional. The county has established a new low-flow meter instead of a high-flow one. Currently, County staff is investigating an operational issue that is occurring with the new low-flow system.

3.0 Operation

3.1 Process Technology Procurement and Testing:

Wright Environmental System (Grant Project):

Due to the fact that the period in which the County received the contract back from UF coincided with the end of Year 5, the project titled *Addition of Aerobic Composting Equipment to Anaerobic*

Digestion Facility at the University of Florida utilizing the Wright Environmental System will be a year 6 project.

Earth Tub (Grant Project):

In January, the Earth Tub project began being utilized for research and demonstration activities with the loading of horse manure and oak leaves into the unit. The resulting compost will be unloaded in early April and will be utilized by the Master Gardeners' program. On February 22, 2006, 23 new Sumter County Master Gardener trainees received 1.5 hours of training on composting, including a tour of the Earth Tub project at the Sumter County Youth Center. Photographs were provided at the TAG meeting held in March and are attached. A copy of the quarterly report is also attached.

Demonstration Event:

On January 16th, sixteen (16) yards of compost were delivered to the new Agricultural Center for the *Sumter County Water Conservation & Pollution Prevention* project. Florida native plants were planted. Cisterns are being used to capture rainfall for irrigation. This project is funded by both FORCE and a grant from the Withlacoochee Regional Water Supply Authority. Photographs were provided at the TAG meeting held in March and are attached.

3.2 Feedstock Procurement/Processing:

No new feedstock materials were procured in this quarter; however FORCE has successfully completed feedstock additive events (tests) for the year. The feedstock additives have been tested using the protocol of the SAC and compost permit requirements which include the analytical tests agreed upon between the DEP and County. The feedstock testing schedule is attached.

3.3 Administrative Costs – Supplies and Travel:

FORCE staff attended the Recycle Florida Today (RFT) Annual Conference, RFT Issues Forums and organic committee meetings, as well as the United States Composting Council's Annual Conference. The specific information regarding attendance at these conferences/events is listed in Section 4.0.

4.0 Market Development, Education, and Training

4.1 Educational Analysis, Outreach, and Website:

Outreach News:

On July 27, 2005, Senator Paula Dockery presented the Board of Sumter County Commissioners with a *resolution* praising the FORCE partnership. This resolution recognized the Board for its work in supporting and staffing the Florida Organics Recycling Center for Excellence. A copy of the resolution is attached as well as a photo.

On December 7th a FORCE/RFT/SWANA Florida Sunshine Chapter/DOT/DEP *Organics Workshop* was held in Sumter County at Sumter Community College which included a tour of the FORCE facility and Dr. Rockwood's forestry project area. FORCE grant recipients in attendance were recognized for their participation in the FORCE program and were given a plaque. *A copy of the attendance list and agenda is attached.*

Newsletter:

In an attempt to enhance communications and better serve Florida's organics recycling industry, FORCE will continue to offer a periodic e-newsletter. The newsletter was sent to approximately 250 members of the organics and recycling industry each quarter. This distribution list continues to grow as visitors to the new website can now request to be added to the FORCE electronic newsletter distribution list. Three electronic newsletters were published this year. They were:

1. Spring 2005 Newsletter
2. Summer 2005 Newsletter
3. Winter 2005 Newsletter

The goal is to provide timely, relevant, and useful information as well as to solicit feedback from readers. *A copy of all the newsletters is attached.*

Website:

The new FORCE website was completely overhauled last contract year and has been up and running for a full year now. FORCE staff continues to get approximately 6-8 email inquiries per month. In addition to monitoring requests from website visitors, FORCE staff has been reviewing the website for content and quality assurance. FORCE staff has also uploaded the latest FORCE newsletter on to the website. To date the website has received approximately 7,412 hits.

FORCE Brochure:

During this contract year FORCE completely redesigned the FORCE brochure. Working with the designers at Xposure Group Inc., the brochure was designed to be a standalone marketing piece that will convey the benefits of FORCE. On November 5, 2005, County staff participated in the Government Day held each year in The Villages, Florida. FORCE provided 100 copies of the new FORCE brochure as well as 100 copies of the article from *Biocycle* magazine to provide information and promotion of the FORCE program and activities. *A copy of the brochure is attached for your review.*

FORCE 1-800 Number:

The FORCE toll-free telephone line was transferred from the KCI office in Tampa to the FORCE office. Calls continually come in and staff provides answers, solutions, and/or direction as appropriate. On average, a half to one dozen calls come in monthly regarding organics related assistance.

USCC Listserv:

The USCC listserv is monitored by KCI regularly for items of relevance to the FORCE program. Additionally, industry journals and the Florida Clipping Services are monitored for articles of relevance to the project and appropriate articles are forwarded to TAG members.

Industry Articles and Publications:

FORCE staff continues to monitor the local and regional newspapers to identify any articles that may have been written about the project. The newspapers being reviewed include the Sumter County Times, The Villages Daily Sun, The Ocala Star Banner, and the Lake County Daily Commercial.

FORCE technical consultant, Miriam Zimms, garnered national exposure for FORCE with the publication of an August 2005 article in *BioCycle* magazine (the industry journal of composting and organics recycling). *A copy of the article is attached for your review.*

R&D Education Project (Grant Project):

UF/Dr. Monica Ozores-Hampton Organics Training Project:

Funded by FORCE, Drs. Ozores-Hampton and Roe conducted all three of their education and training events on compost. All outstanding invoicing issues were brought to closure. *A copy of the final report detailing all activities is attached.*

4.2 Technical Advisory Group (TAG) Committee Meetings:

Members of the TAG met on March 9th with special guests in attendance from the DEP Tallahassee office and the private sector. *A copy of the meeting notes is attached.*

4.3 Market Development:

The information below provides an update on the status of the State Organics Regulatory Report and the other R&D projects funded through FORCE.

State Organics Regulatory Research Report:

The first edition of the organics regulatory report was completed; DEP edits were received and incorporated into it. The second edition of this report will be revised in Year 6 to include industry comments. A meeting will be held to discuss feedback from the private sector. *A copy of the first edition is attached.*

Research, Demonstration, Marketing, and Outreach Projects (Grant Projects):

UF-IFAS/Dr. Rockwood's Forestry Project:

A site visit for the 2005 NSF-sponsored Summer Science Program, involving a one day visit to

FORCE was held on June 21, 2005, by participating Alachua County school science teachers and students. In Charlotte, NC, a presentation entitled *Silviculture Applications with MSW Compost* was given by Dr. Rockwood on November 15, 2005 at the Biocycle Southeast Conference. The following lists the different tree species being utilized in this R&D project. The preliminary results of using compost or fertilizer are underlined below:

- Cottonwood (*P. deltoides*) performs better with compost than fertilizer over its 1st year growth.
- Cypress performs better with compost than fertilizer over its 1st year growth.
- Eucalyptus *Amplifolia* performs better with fertilizer than compost over its 1st year growth.
- *E. grandis* performs better with fertilizer than compost over its 1st year growth.

Dr. Rockwood's quarterly reports for the year are attached.

Ronnie Barron and Jim Stevens, Organic Matters (OM) – Food Waste to Animal Feed Project:
A final report was finally received from OM after months of dialogue and feedback to the principals regarding this required documentation. Final funds will be released and paid to OM. *A copy of the final report is attached.*

Robert Broom, GOC – Vapor and Odor Control Project at FORCE Sumter County, FL:
This project is complete. The final report was edited and revised by FORCE staff to include staff feedback about the system and vapor product, as well as information on the equipment that was kept and is continuing to be used on site. *A copy of the final report is attached.*

Department of Transportation – Proposal Submission and Funding:
Sumter County FORCE submitted a research proposal to the DOT. The DOT's environmental office awarded a \$150,000 research project to Sumter County. The project will include some matching funds from FORCE to be expended in Year 6. This was one of the proposed Year 5 R&D projects. Work for this research project will begin in Year 6. *A copy of the proposal is attached.*

4.4. Conferences and Meetings:

FORCE facility staff attended the *2005 Annual RFT Conference* in West Palm Beach, Florida from Monday, June 6th through Wednesday, June 8th. A FORCE update presentation was given by FORCE Specialist, Stacie Stokes at the conference. FORCE sponsored the half-day Texas DOT Organics Workshop held during the conference. KCI staff provided a FORCE update to the attendees at the workshop which terminated with an organics committee meeting. Reimbursement by County staff for this travel is being billed to this task.

FORCE Specialist, Stacie Stokes attended the Organics Committee meeting held in Flagler Beach on August 25, 2005. The purpose of the meeting was to give updates on FORCE to the respective industry participants and to take a tour of Flagler CDS. The charges for this will reflect in this line

item.

On October 26, 2005, FORCE Specialist Stacie Stokes joined other industry professionals for the E-Session *Modern Composting Technologies*, which was offered online by SWANA, in conjunction with *Bicycle* magazine. The purpose of the session was to seek new and innovative ways for better compost production.

In October, FORCE Specialist, Stacie Stokes was scheduled for the four-day composting course at Louisiana State University. The course was cancelled due to the impacts of Hurricane Katrina; it is tentatively rescheduled for May 2006.

Jackey Jackson, the new FORCE Superintendent, will be attending the USCC Composting Council conference in January 2006.

4.5 Demonstration Farm Operations

See section: 4.3 – UF/Rockwood project update, which is occurring on the FORCE 40-acre farm and will continue to be funded for its third year in Year 6.

5.0 Evaluation, Monitoring and Testing:

5.1 Scientific Advisory Council (SAC) Protocol Development

SAC member Rufus Cheney was very helpful in assisting FORCE staff and KCI with various scientific questions over the last contract year.

5.2 Feedstock and Products Testing:

FORCE staff has appointed Test America out of Orlando, Florida to perform all 36 test required by the SAC Protocol. In addition, the project team has decided to perform the same testing required by the County's composting permit in order to compare the Year 5 feedstock items to the FORCE /Sumter County-produced compost. There were some problems with calculations and testing performed by Test America. Those issues will be addressed and described in the feedstock report. Test America did work to rectify all issues with the project team.

5.3 Environmental Monitoring:

The environmental monitoring is ongoing and relates to the information reported in Section 5.2.

6.0 Project Management

It is the intent of the County to continue to house FORCE on-site at its existing location for the duration of the existing contract period and beyond. No impact to FORCE is expected as a result of

the activities regarding the future retrofits to the Solid Waste and Recycling Facility. FORCE will continue on in Year 5 with no changes and will seek additional funding through various avenues and partners to help support statewide organics education, outreach and research. The FORCE digester will continue to operate and process MSW/Biosolids for compost production as well as focus primarily on the feedstock listed in the Year 5 Operating plan. The County commits to this obligation and hopes to do more research feedstock testing in years to come in the digester tube warranting funding availability.

6.1 Personnel:

The County feels that at this time, the FORCE project team has the goals and management of the State's organics objectives on track with a working combination of team players that understand the County's commitment to organics and its commitment to the requirements of the DEP contract.

The FORCE office is currently being operated and various FORCE activities are being coordinated by the FORCE specialist, Stacie Stokes. She will continue to develop the FORCE office into a statewide composting education and resource center. She will continue to be trained by KCI. Jimmy Wise is the FORCE digester specialist who ran the year's feedstock trials in the digester. With the retirement of Bernard Dew, Sandra Howell was appointed the new FORCE Director. In addition, Jackey Jackson, replacing Chuck Jett as the FORCE Superintendent, will manage and oversee Stacie Stokes and Jimmy Wise on the FORCE project.

6.2 Administrative Fees – Indirect Costs:

No activity to report this year.

6.3 Annual Work Plans and Budgets:

All four quarterly reports were prepared and transmitted to the DEP.

6.4 Project Coordination and Administration:

Mitch Kessler of KCI is the project co-director along with Sandra Howell. KCI continues to play its role as project technical consultant and is working with the County on every task, where applicable. In addition, KCI provides contractual support and management in conjunction with County staff. In addition, KCI is training the FORCE specialists on all aspects of the project including contractual items, invoicing, R&D project coordination, database maintenance, and administration.

The FORCE project team meets once per month, or as needed, either by telephone conferencing or in meetings at the FORCE modular office, or at the FORCE Director's office located in the County Administration building to discuss all facets of the project.

It is the goal of the project team to continue to pursue additional legislative and private sector

funding. Avenues of funding continue to be vigorously investigated, including state funds, the potential for additional legislative funds, and other Federal grants in the areas of solid waste, energy, water, and agriculture. It is the goal of Sumter County to continue to house and support FORCE through Year 6.