

According to the Alliance of Foam Packaging Recyclers, EPS had a national recycling rate in 2000 of only 12.1%. This project was written to establish a statewide mobile collection, processing and recovery program for this material.

Polk County was successful in obtaining an Innovative Waste Reduction and Recycling Grant for this project and the project was funded for \$67,500 from the State Department of Environmental Protection for the 2004-2005 fiscal year. Due to delays with execution of the grant agreement, the project did not officially begin until October 1, 2004 and the project was subsequently extended from the initial one year period (October 1, 2004 - November 30, 2005) to May 31, 2006. Therefore, the total project period for this grant was 18 months.

2. Project Objective/Goals

This proposed project objective/goal was originally to establish a statewide mobile collection, processing and recovery program for polystyrene packaging waste. In addition to Polk County, two private partners were identified to assist in this proposed project. Plastic Grinding and Recycling, Inc., a minority owned Florida plastic recycling business would operate a mobile collection and processing program for commercial/institutional polystyrene packaging waste and Timbron International, the second key private partner would use the recovered polystyrene to manufacturer interior molding products.

As the project progressed, it became apparent to change the objectives from a mobile collection program to a stationary program due to the volume of waste EPS located in Polk County. In addition, Recycle-Tech Corp, another minority owned business took the lead roll as project processor due to the inkind contributions they could make. Finally, the intent of the project was to utilize Timbron International as an outlet for the waste EPS processed as part of this project, but due to the fact that Timbron could not use the bulk of the EPS waste collected and processed because of the flame retardant content, Recycle-Tech's contacts in the industry would be utilized more effectively.

3. Innovativeness of the Project

This project was considered innovative because there were no other identified collection and processing facilities in Florida for waste EPS.

4. Transferability

SWIX presented several presentations on the project throughout 2005 and the first part of 2006, including the 2005 EPS Expo, 2005 FDEP Regulator's Meeting, and the 2006 Southeast Recycling Conference. Project participants also plan to report on project results at both Solid Waste Association of North America (SWANA) and Recycle Florida Today (RFT) workshops and/or conferences in calendar year 2006. In addition, articles related to this project are planned for Resource Recycling magazine and Waste News, and Recycle Today. This project has demonstrated that if waste EPS quantities are sufficient within a geographic region that it is feasible to construct a EPS waste collection and processing plant elsewhere in Florida and other regions of the United States.

B. Project Implementation

1. Equipment/Services Purchased

Equipment purchased under the grant funds of this project were purchased by Polk County. A total of \$50,000 of the \$67,500 of the grant funds received was used for this purpose. In addition, as in-kind contributions to this project, Recycle-Tech Corp. purchased three additional pieces of EPS waste processing equipment totaling \$108,056.00.

2. Elements of the Project and Timeline

Project elements in addition to equipment included the following:

- a) Polk County Project Coordination and Management
- b) Data Collection and Analysis
- c) Project Concept Transfer
- d) Quarterly and Final Reports

3. Problems Encountered

Several problems were encountered during the implementation of the project, including:

1. The time it took to research the desired expanded polystyrene processing equipment and finalize the procurement procedures for the equipment. This process took longer than expected.
2. The length of time encountered to obtain the processing equipment and warehouse location selection. This process took longer than expected.
3. A density issue of the EPS waste and the processing of this material with the Heger unit acquired as part of the grant. The facility is a "recycling facility" rather than a molder. Molders are normally compacting much of the same density, and whether wet or dry, the part have more consistent properties than what we have seen in Lakeland. In our situation, there is virtually no control over the moisture content, density or shape of the parts we receive for compacting. Very dry parts and wet parts which have been rained on are commingled for processing. The moisture is a problem with the normal steel tube. According to the distributor (Foam Equipment) they generally do not see wet parts except in the case of fish box recycling. They believe part of the EPS received has been stored outside in the rain. This moisture was unexpected and not part of the original equipment specification. Additionally, the humidity level in Lakeland is very high and may also contribute to the moisture problem.
4. The variety of densities, sizes and shapes that are feed into the compactor. This has resulted

in several issues relating to feeding rate, log density, and throughput speed.

5. Late in June 2005, the compactor plugged with a meltdown of EPS waste. This resulted in a break of the shaft of the compacting screw.
6. A lack of supply of waste EPS. The facility needed more material. The logistics of getting Publix's waste EPS delivered to the facility for processing. The contract team retained Southpoint Distribution to pickup Publix's waste EPS from the Jacksonville and Lakeland facilities and deliver to Recycle Tech operation. Southpoint was backlogged with deliveries due to Hurricane Katrina.
7. The quality of Publix waste EPS did not meet spec for Recycle-Tech so the material was rejected.

C. Project Results

1. Meeting the Goals of the Project

- Identified project partners including, Polk County, Plastic Grinding and Recycling, Recycle-Tech Corp., Timbron Industries, SWIX as well as the identification of several large volume generators of expanded polystyrene (Publix, Insulfoam, Master Container, Foam Masters, and Carpenter Company).
- Held an initial project team meeting in Lakeland Florida.
- Held several project team teleconference meetings to discuss various project concepts including the identification of processing equipment, warehouse location and markets for waste expanded polystyrene.
- Determined the focus of the project should change from a mobile collection project to a stationary project do to the large volume of waste EPS in Polk County.
- Researched various expanded polystyrene processing equipment and worked with Polk County Purchasing Department to issue a Bid for the desired equipment.
- Polk County Purchasing Department issued a Purchase Order to Foam Equipment Company for processing equipment.
- Researched various market outlets for waste expanded polystyrene including both flame retardant and non-flame retardant markets.
- Held several project team teleconference meetings to discuss various project concepts including the identification of processing equipment, warehouse location and markets for waste expanded polystyrene.
- Researched various warehouse locations in Lakeland.
- Presented a paper at the ESP Expo in Atlanta, GA concerning the Project

- Received the processing equipment.
- Selected warehouse location in Lakeland. Recycle Tech retained a 28,000 sq. ft. warehouse for processing EPS waste.
- Installed the processing equipment.
- Began receiving EPS waste from Insulfoam, Carpenter and Master Container.
- Began processing EPS waste. Sent several loads to Timbron, but Timbron indicated that the materials flame retardant value was too high and they could not use the material. The remaining loads were sent to Recycle Tech's outlets in Korea and China.
- 1,288,058 pounds of EPS waste were collected and processed in the grant period. Attachment 1 contains a breakdown by month.
- The projects EPS Waste Generators saved \$262,080 in avoided disposal, transportation and labor costs as a result of the project.

2. Demonstration of Advanced Technologies Not in Common Use On a Statewide Basis

This Project demonstrated a technology (that is, the collection, processing and use of EPS waste) that had NOT been attempted or assessed previously in Florida.

3. How Project Led to Greater Quantities of Recovered Materials and/or Created a Product That Is More Recyclable or Marketable

This project did collect approximately 1,288,058 pounds of EPS waste materials. This material was therefore never landfilled as it would have had this project not taken place.

4. Transferability of Technology/Process from Project

This project has demonstrated that if waste EPS quantities are sufficient within a geographic region that it is feasible to construct a EPS waste collection and processing plant elsewhere in Florida and other regions of the United States.

5. Analysis and Discussion of How Project Resulted in Substantial Improvements in Recycling Program Efficiency as Measured Against Statewide Average Costs for Same or Similar Programs

a) *Total Costs of Various Elements of Components of the Project*

Component costs of the Project are presented in Attachment 3.

b) *Project Expenditures Categorized by Private and Public Sources*

Project expenditures categorized by the Private and Public Sectors are presented in Attachment 3.

c) *Tipping Avoided as a Result of Project*

The projects EPS Waste Generators saved \$262,080 in avoided disposal, transportation and labor costs as a result of the project. Attachment 2 contains a breakdown on the calculations used to determine these savings.

d) *Cost /Benefit Ratio for Project*

This project's cost /benefit ratio is a positive one because the project benefited greatly from a large infusion of in-kind and cash matching funds from project participants, mainly from Recycle-Tech Corp. Attachment 3 outlines the total cash match by Recycle-Tech Corp. for the project as well as in-kind services matches provided by the other project partners.

The total cash and in-kind match of project participates equals over 11.5 times the State project funding. This does not include the project's avoided disposal, transportation and labor costs (reported above as \$262,080) or land or landfill cell conservation achieved by avoiding the landfilling of the EPS waste.

e) *How Project Collected and Recycled Non-Traditional Materials and Enhanced Their Marketability*

This project collected a material (i.e., EPS) that was usually landfilled.

The marketability of the waste EPS was enhanced for some markets because waste EPS is typically not marketable with out being densified. This Project demonstrated that if you have sufficient quantities of waste EPS and that if that material is densified, it can be transported long distances from an economical standpoint.

Attachment 1	
Summary of EPS Waste Collected and Processed	
June 2005 - May 2006	
Month	Material Accepted*
June	108,400
July	191,000
August	148,000
September	97,800
October	72,700
November	121,200
December	82,200
January	91,529
February	59,699
March	83,555
April	95,557
May	136,418
Total:	1,288,058
* - in pounds	

Attachment 2

**Summary of Avoided Disposal, Transportation
and Labor Costs**

June 2005 - May 2006

Description	Estimated		Hours Per Load	Hourly Rate*	Number of Days	Total Savings
	Tractor Trailer Loads Per Day	Tip Fee Per Load				
Disposal Costs	4	\$60			252	\$60,480
Transportation and Labor Costs	4		4	\$ 50.00	252	\$201,600
Total:						\$262,080

* = Hourly rate includes transportation costs

Attachment 3

Work Period 1-5 Ending Date May 31, 2006

Summary of Expenditures

(1) Tasks	Categories								Local Match		(12) Total Grant Request
	(2) Personnel	(3) Travel	(4) Equipment	(5) Supplies	(6) Contractual	(7) Construction	(8) Other	(9)* Total Expenditures	(10) In-Kind Match	(11) Cash Match	
1. Development and implementation	\$8,555.00	\$5,930.39	\$74,759.33	\$950.00	\$10,500.00	\$20,398.88	\$2,823.43	\$123,917.03	\$116,417.03		\$7,500.00
2. Equipmnet Procurement	\$3,257.00	\$1,800.00	\$149,999.00	\$3,000.00	\$0.00	\$0.00	\$0.00	\$158,056.00	\$108,056.00		\$50,000.00
3. Implementation and Collection	\$250,056.63	\$34,711.04	\$2,500.00	\$1,800.00	\$31,000.00	\$4,825.54	\$219,184.89	\$544,078.10	\$541,578.10		\$2,500.00
4. Data Collection/Report Preparation	\$600.00	\$750.00	\$1,500.00	\$1,000.00	\$8,500.00	\$0.00	\$0.00	\$12,350.00	\$4,850.00		\$7,500.00
5. Technology Transfer	\$1,380.00	\$1,659.35	\$0.00	\$500.00	\$500.00	\$0.00	\$0.00	\$4,039.35	\$4,039.35		\$0.00
								\$0.00			\$0.00
								\$0.00			\$0.00
								\$0.00			\$0.00
								\$0.00			\$0.00
TOTALS	\$263,848.63	\$38,920.39	\$228,758.33	\$7,250.00	\$50,500.00	\$25,224.42	\$222,008.32	\$842,440.48	\$774,940.48	\$0.00	\$67,500.00
In-Kind Contributions by Public and Private Sector*											
Organization	Sector	Amount									
Polk County	Publix	\$ 4,000.00									
Plastic Grinding and Recycling	Private	\$ 3,000.00									
Recycle-Tech Corp.	Private	\$ 766,000.00									
SWIX	Private	\$ 2,000.00									
		\$ 775,000.00									
*Rounded to the nearest \$1,000											

**Florida Innovative Waste
Reduction and Recycling Grant
(IG05-08)**

**Statewide Mobile Collection,
Processing and Recovery
Program for Polystyrene
Packaging Waste**

- State of Florida Grant 2004/2005
- \$67,500 from State
- \$774,940 of In-Kind
- Establish a Processing and Recovery Program for EPS Waste

Project Partners

- Polk County
- Plastic Grinding and Recycling
- Timbron International
- Southern Waste Information eXchange, Inc.

- Recycle-Tech Corp.

Polk County EPS Waste Generators

- Publix SuperMarkets, Inc.
- Insulfoam
- Carpenter Co.
- Master Containers, Inc.

- 4 companies combined generation rate at 5,000 lbs per day of waste EPS



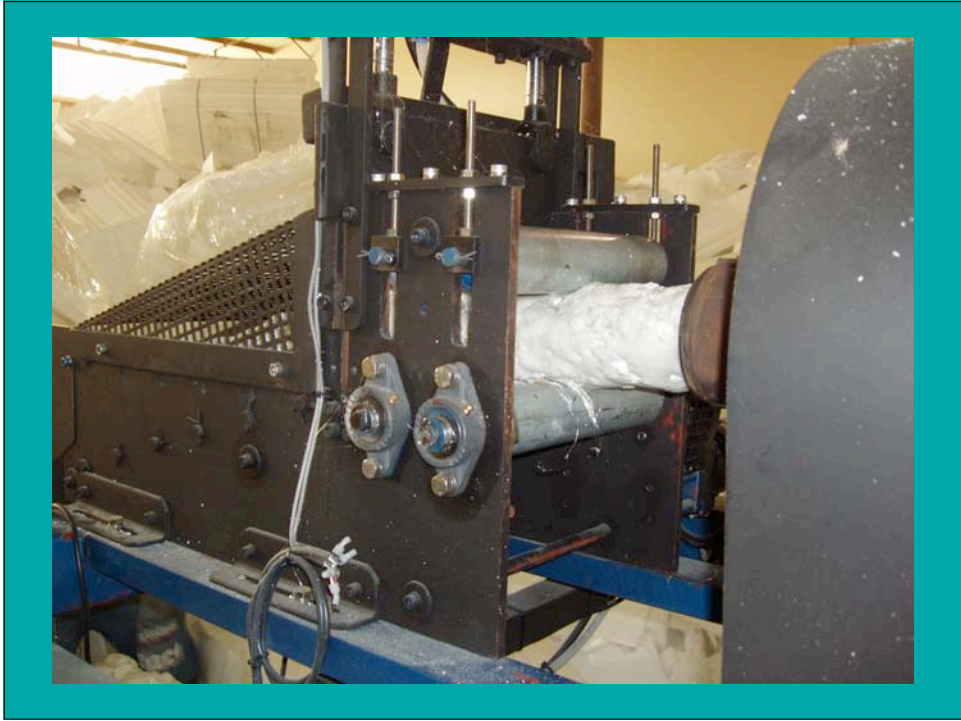














Results

- 1,288,058 pounds of EPS waste were collected and processed in the grant period.
- The projects EPS Waste Generators saved \$262,080 in avoided disposal, transportation and labor costs as a result of the project.
- This project has demonstrated that if waste EPS quantities are sufficient within a geographic region that it is feasible to construct a EPS waste collection and processing plant elsewhere in Florida and other regions of the United States.
- The total cash and in-kind match of project participates equals over 11.5 times the State project funding.