



**kessler consulting inc.**  
innovative waste solutions

June 4, 2007

Tommy Hurst  
Public Works Director  
Sumter County Public Works  
319 East Anderson Ave.  
Bushnell, FL 33513

**RE: Letter Report on Yard Waste Processing Equipment Demonstration and Evaluation  
for Florida Department of Transportation Project  
KCI Project Number 06-08**

Dear Mr. Hurst:

Kessler Consulting, Inc. (KCI) is pleased to submit this letter report regarding the yard waste processing equipment demonstration and evaluation conducted on behalf of the County and the Florida Department of Transportation (FDOT). The information contained in this letter report completes the requirements of Task 4 in the County's scope of services with the FDOT.

With the partnership of FDOT, Sumter County and the Florida Organics Recycling Center for Excellence (FORCE), Seminole County, Consolidated Resource Recovery (CRR), and KCI, a public demonstration event was arranged to test and evaluate yard waste processing equipment that effectively separates plastic bags from compost and yard waste. The demonstration event was held on January 25, 2007 at the Seminole County Yard Waste Processing Facility. All public and private sector yard waste processing industry personnel, solid waste managers, recycling coordinators, and DEP/FDOT representatives within the state of Florida were invited to attend the event.

The goal of this equipment evaluation was to improve the marketability of compost and yard waste products that are often undervalued due to residue contamination like plastic bags. Two different vendors and pieces of equipment were identified as being applicable for the demonstration:

1. Komptech – Multistar L3 – Star Screen with Air Classifier
2. Airlift Separator – AL 200D Diesel

## **EQUIPMENT DESCRIPTION**

This event demonstrated and evaluated two different mechanical systems for removing plastic bag contamination from ground yard waste.

The Airlift machine uses vacuum pressure and a large hose to suck up light materials (i.e. plastic bags) from the overs discharge conveyor of a trommel screen. It is a free standing piece of equipment that is retro-fitted to a screener. The unit tested in Seminole County was trailer-mounted and self-powered with its own diesel motor. A large hose is suspended over the discharge conveyor, and “airlifted” material is discharged into a cloth “sock” although it is also possible for the Airlift to discharge waste directly to a roll-off or enclosed box. The system produces three fractions: screen unders, screen overs after air classifier, and material separated by air classifier.

The Komptech is a free-standing unit with two separate star screens and air classifiers. The machine separates four fractions: screen unders, screen mids after air classifier, screen overs after air classifier, and material separated by air classifier. It is possible to air classify either the mid or over fractions separately, or both at the same time.

## **WORK ACTIVITIES**

### Wed, Jan 24<sup>th</sup> – Set up and Preparation

KCI arrived on site at 11:30AM; KCI personnel were Peter Engel and Jessica DelGrosso. County personnel had cleaned the site and set up traffic cones to separate regular operations from the demonstration area. KCI introduced Airlift personnel to County and CRR. The group discussed the objectives for the demonstration and evaluation, equipment needs, and the site layout.

CRR had stockpiled sufficient quantities of aged and fresh ground yard waste near the edge of the asphalt pad as requested. According to site personnel the aged material was 4 – 6 months old; while the fresh material has been ground no more than a couple days previously.

County towed the Airlift trailer from the Maintenance facility to the site. CRR and Airlift personnel worked together to connect the Airlift to the Powerscreen trommel screen, which was fitted with a ½ inch mesh screen.

Airlift stated that they had experience with the kind of machine – Powerscreen 830 – used at the Seminole facility. However, it was discovered that CRR’s trommel screen is modified to increase throughput: the conveyor and trommel speed ranges are faster than normal in order to process material more quickly. Consequently, Airlift expressed concern that 1) the trommel would deliver too much material for the Airlift to handle, and 2) the screen overs would contain a high percentage of fines. Both of which they claimed would reduce their equipment’s ability to

remove plastic bags. It was generally agreed that the trommel would be operated at its slowest speed and in addition, yard waste would be fed slowly.

Airlift completed set up. With CRR personnel loading the trommel as slowly as possible, Airlift ran and adjusted its equipment to maximize effectiveness. When loading yard waste very slowly into the trommel, the Airlift was able to remove a significant amount of the plastic. However, an unacceptable amount still remained in the screen overs. In fact it was difficult to visually differentiate the output from unscreened input material. Airlift stated that the yard waste was too coarse and not sufficiently decomposed; that their equipment is really designed to remove plastics from the overs fraction of finished compost.

To begin the evaluation work, KCI gathered 20-gallon samples from the stockpiles of unscreened fresh and aged yard waste. The 20-gallon samples were weighed and their bulk density calculated. The samples were then manually sorted to separate plastic film from all other material. KCI noted that the yard waste contained a number of other physical contaminants such as metal, rigid plastics, textiles, and paper. These were not separated and weighed because the project is plastic film (see Results below).

KCI then gathered three one-gallon samples from each stockpile. These bags were sealed and shipped by overnight courier to the FORCE laboratory for moisture analysis (see Results below).

KCI contacted Komptech who stated that their equipment would be delivered to the site early Thursday morning.

#### Thurs, Jan 25<sup>th</sup> – Equipment Demonstration

Weather conditions for the demonstration day were light to moderate rain. Discussions were held with CRR, County and Komptech personnel to determine location for their equipment and the roll-off container needed to collect air-separated waste. KCI set-up a small canopy and table for sign-in sheets and product literature. The County provided an additional two canopies. KCI explained the schedule and operational plan for the demonstration and evaluation to the various parties – Komptech, Airlift, CRR, and County.

The public demonstration began at approximately 10:00AM with approximately 40 guests in attendance – most of the pre-registered guests did attend (see Attendee List below). Introductions were provided by Seminole County and KCI. Then Airlift described its equipment and demonstrated its operations for approximately 20 minutes, after which Komptech was given time to describe and demonstrate its equipment. Guests then informally talked with the vendors and amongst themselves as both pieces of equipment continued to operate simultaneously. The demonstration event concluded with a bagged lunch provided by KCI for guests as well as vendors, CRR and County personnel.

After the demonstration, KCI collected 20-gallon samples of processed materials from both processing systems as follows:

- Airlift & trommel screen: screen unders, screen overs after plastic separation, material separated by the Airlift
- Komptech L3: screen unders, screen mids after plastic separation, screen overs after plastic separation, and material separated by the air classifier

KCI determined the bulk density of each sample and sorted them on Thursday and Friday to determine how much plastic film they contained (see Results below).

KCI worked with the equipment vendors and County and CRR personnel to simultaneously run both systems for approximately 40 minutes and measure the amount of material processed and assess the quality of the processed materials. This entailed recording time, counting the number of bucket loads, and measuring the volume of discharge piles. Results of the throughput analysis are provided below.

The Airlift was operated first at the same (slow) feed rate used during the demonstration event in an effort to maximize plastic removal. It was then operated at a faster throughput rate (and much lower plastic separation efficiency). The Komptech L3 was operated at the same feed rate used during the demonstration.

At the conclusion of Thursday, Airlift disassembled its equipment and removed it from the site. The company was been invited to demonstrate the Airlift in Orange County the following day. Komptech kept the L3 on site for further testing on Friday to be coordinated with CRR.

#### Fri, Jan 26<sup>th</sup> – Equipment Evaluation

As described above, a number of analytical tasks were accomplished prior to Friday – bulk density, moisture content, and plastic film content. The objectives for Friday were to complete the materials analysis and observe Komptech's work with CRR to screen ground yard waste discharged directly from a tubgrinder. KCI sorted all remaining samples collected on Thursday to determine quantities of plastic film (see Results below).

During the demonstration the L3 had been run with air classification on both the overs and mid fraction. CRR and Komptech agreed that since the overs fraction in Seminole County is essentially trash, there is little reason to air classify it. CRR also expressed interest in trying to screen material directly discharged from their tub grinder. KCI observed this test (see Results below), at the conclusion of which Komptech shut down its equipment and removed it from the site. CRR and County staff removed stockpiled materials and KCI packed up its equipment and supplies.

## RESULTS

The information below summarizes the quantitative results of the equipment evaluation including characteristics of the feedstocks and performance of the Airlift and Komptech machinery. Results described below are summarized in tables on pages 7 through 10 of this report.

### Feedstock Analysis

The materials utilized for this project were representative of the overall quality and character of materials on site. Samples from windrows of fresh material had a bulk density of 420 pounds per cubic yard and moisture content of 48%. Samples of aged processed material had a bulk density of 835 pounds per cubic yard and moisture content of 46%.

Processed yard waste at the Seminole County facility has a significant amount of film plastic contamination throughout it. Samples of fresh material had 1.5% film plastic (weight basis). While this appears small, the contamination on a volumetric basis was approximately 15% – visually the material has too much plastic to be marketable for traditional horticultural and landscape applications.

### Equipment Performance – Airlift

As indicated previously, the Airlift personnel stated that they could not properly retrofit their unit to the Powerscreen because CRR had modified the equipment to run at a high rate of throughput. To address this issue, the screen was operated at its lowest speed and the loader operator slowly loaded material into the screen in an effort to limit the volume of overs traveling up the discharge conveyor. The processing rate measured during the evaluation was 87 cubic yards per hour. Material fractions produced by the Powerscreen and Airlift were measured as follows (volume basis): screen unders = 43%, screen overs = 50%, and material separated by the Airlift = 7%.

During the demonstration and evaluation, the ½ inch trommel produced a fine-textured product that was essentially free of film plastic; CRR currently markets this product. The Airlift system did not remove a high percentage of plastic film from the overs. Samples of the overs after plastic removal contained approximately 3% plastic film (weight basis) or an estimated 18% (volume basis), which is higher than the percent of plastics in unscreened material. The trommel screen concentrated the plastics in the overs, and while the Airlift removed some of the plastic the percent remaining in the overs was greater than in the initial unscreened material. From a visual perspective, the overs looked no better than the unscreened feedstock with regard to plastic contamination. The material separated by the Airlift was approximately 8% plastic with remainder being light weight yard waste such as shredded wood and leafy material sucked up by the Airlift.

Airlift personnel attributed poor results to two factors: (a) material characteristics – yard waste that is coarse textured and not fully decomposed, and (b) incompatibility of the Powerscreen for the Airlift – machine was modified to run at a high feed rate beyond ability of Airlift. However, KCI believes that the real problem is character of the feedstock, because even when yard waste was fed into the trommel screen very slowly it was unable to pull out much of the plastic film. Florida yard waste tends to be very coarse and stringy – plastic bag fragments are easily tangled in it and resist being separated with an air vacuum. The Airlift did remove some plastics, but the visual appearance of the overs after plastic separation was barely distinguishable from the unscreened feedstock.

### Equipment Performance – Komptech L3

Being a free-standing piece of machinery, there was no equipment interface issues with the Komptech. The machine was run at its normal operating rate for the duration of the evaluation. The processing rate was measured at 160 cubic yards per hour. Material fractions produced by the Komptech were measured as follows: screen unders = 32%, screen mids = 23%, screen overs = 36%, and separated plastic = 10%.

During the demonstration and evaluation, the Komptech produced a fine-textured product free of film plastics. This material was comparable to the unders produced by the Powerscreen. The mid fraction which had been subject to air classification had a small amount of plastic in it (less than 1% on a weight basis), and CRR indicated that it was almost clean enough to be marketable in the horticulture industry. The Komptech was not able to remove a high percentage of plastic from the overs. Samples of the overs after plastic removal contained approximately 2% plastic film (weight basic) or an estimated 10% (volume basis), which is slightly higher than the percent of plastics in unscreened material. Materials separated by the air classifier were comprised of approximately 10% plastic, the remainder being light weight yard waste.

As with the Airlift, it appears that characteristics of processed yard waste posed a significant problem for the Komptech, i.e. coarse textured material in which pieces of shredded plastic become easily tangled.

**AIRLIFT  
 EQUIPMENT THROUGHPUT**

|                               |      |
|-------------------------------|------|
| Loader Bucket Size (cy):      | 3.75 |
| Bucket of Material Size (cy): | 3.75 |

|                        | Start Time:                          | Stop Time: | Net Time: |
|------------------------|--------------------------------------|------------|-----------|
| Time (minutes)         | 12:54:00                             | 13:06:00   | 0:12:00   |
| Time (minutes)         | 13:15:00                             | 13:32:00   | 0:17:00   |
| Time (minutes)         | 13:34:00                             | 13:36:00   | 0:02:00   |
| Reasons for Stoppages: | 1) Sock full 2) Nozzle came off hose |            |           |

|                    |    |
|--------------------|----|
| Number of Buckets: | 12 |
|--------------------|----|

|                       |      |
|-----------------------|------|
| Total Operating Time: | 0.52 |
|-----------------------|------|

|   | Volume<br>(cy) | Bulk Density<br>(lb/cy) | Quantity<br>(tons) |
|---|----------------|-------------------------|--------------------|
| Infeed (Avg Bucket * Number Of Buckets) | 45             | 835                     | 18.8               |
| Throughput (per hour)                   | 87             | 835                     | 36.3               |

|                                    | Volume<br>(cy) | Fraction |
|------------------------------------|----------------|----------|
| Screen Unders                      | 17             | 42.7%    |
| Screen Overs                       | 20             | 50.2%    |
| Separated Plastic (25'x2'dia tube) | 3              | 7.1%     |

**Notes:** First timing - slow feed = 2 buckets, 10 buckets regular feed speed

**AIRLIFT  
PLASTIC SEPARATION RATE**

| <b>Quantity of Plastic (lbs):</b>  | Sample 1 | Sample 2 | Total |
|------------------------------------|----------|----------|-------|
| Unscreened feedstock               | 0.5      | 0.7      | 1.2   |
| Screen Unders                      | 0.1      |          | 0.1   |
| Screen Overs After Plastic Removal | 1.0      |          | 1.0   |
| Separated Plastic                  | 1.3      |          | 1.3   |

| <b>Quantity of Other Material (lbs):</b> | Sample 1 | Sample 2 | Total |
|--|----------|----------|-------|
| Unscreened feedstock                     | 41.7     | 39.3     | 81.0  |
| Screen Unders                            | 57.2     |          | 57.2  |
| Screen Overs After Plastic Removal       | 33.8     |          | 33.8  |
| Separated Plastic                        | 15.6     |          | 15.6  |

| <b>Percent Plastic (weight basis):</b> | Sample 1 | Sample 2 | Average |
|--|----------|----------|---------|
| Unscreened feedstock                   | 1.2%     | 1.8%     | 1.5%    |
| Screen Unders                          | 0.2%     |          | 0.2%    |
| Screen Overs After Plastic Removal     | 2.7%     |          | 2.7%    |
| Separated Plastic                      | 7.7%     |          | 7.7%    |

**KOMPTECH  
 EQUIPMENT THROUGHPUT**

|                               |      |
|-------------------------------|------|
| Loader Bucket Size (cy):      | 4.00 |
| Bucket of Material Size (cy): | 5.00 |

|                        | Start Time:     | Stop Time: | Net Time: |
|------------------------|-----------------|------------|-----------|
| Time (minutes)         | 13:11:00        | 13:27:00   | 0:16:00   |
| Time (minutes)         | 13:29:00        | 13:43:00   | 0:14:00   |
| Time (minutes)         |                 |            |           |
| Reasons for Stoppages: | Move stockpiles |            |           |

|                    |    |
|--------------------|----|
| Number of Buckets: | 16 |
|--------------------|----|

|                       |      |
|-----------------------|------|
| Total Operating Time: | 0.50 |
|-----------------------|------|

|   | Volume<br>(cy) | Bulk Density<br>(lb/cy) | Quantity<br>(tons) |
|---|----------------|-------------------------|--------------------|
| Infeed (Avg Bucket * Number Of Buckets) | 80             | 835                     | 33                 |
| Throughput (per hour)                   | 160            | 835                     | 67                 |

|                   | Volume<br>(cy) | Fraction |
|-------------------|----------------|----------|
| Screen Unders     | 32             | 31.8%    |
| Screen Mids       | 23             | 22.6%    |
| Screen Overs      | 36             | 35.7%    |
| Separated Plastic | 10             | 9.9%     |

**KOMPTECH  
PLASTIC SEPARATION RATE**

| <b>Quantity of Plastic (lbs):</b> | Sample 1 | Sample 2 | Total |
|-----------------------------------|----------|----------|-------|
| Unscreened feedstock              | 0.5      | 0.7      | 1.2   |
| Screen Unders                     | 0.1      |          | 0.1   |
| Screen Mids                       | 0.1      |          | 0.1   |
| Screen Overs                      | 0.4      |          | 0.4   |
| Separated Plastic                 | 1.8      |          | 1.8   |

| <b>Quantity of Other Material (lbs):</b> | Sample 1 | Sample 2 | Total |
|--|----------|----------|-------|
| Unscreened feedstock                     | 41.2     | 39.3     | 80.5  |
| Screen Unders                            | 45.2     |          | 45.2  |
| Screen Mids                              | 27.3     |          | 27.3  |
| Screen Overs                             | 18.6     |          | 18.6  |
| Separated Plastic                        | 15.5     |          | 15.5  |

| <b>Percent Plastic (weight basis):</b> | Sample 1 | Sample 2 | Average |
|--|----------|----------|---------|
| Unscreened feedstock                   | 1.2%     | 1.8%     | 1.5%    |
| Screen Unders                          | 0.2%     |          | 0.2%    |
| Screen Mids                            | 0.4%     |          | 0.4%    |
| Screen Overs                           | 2.1%     |          | 2.1%    |
| Separated Plastic                      | 10.4%    |          | 10.4%   |

## CONCLUSION

The demonstration event provided an excellent opportunity for many in the Florida organics industry to observe two mechanical systems that have been used elsewhere to effectively remove plastic bag contamination. However, based on observation of the systems and quantitative results of the evaluation, KCI concludes that the greatest barrier was the material characteristics. The Seminole facility employs procedures similar to many sites around Florida:

- Yard waste collection allows residents to use plastic bags
- Bagged yard waste is delivered to a processing facility where it is ground using a tubgrinder
- The tubgrinder shreds the plastic into relatively small pieces that become entwined in the coarse and stringy yard waste
- Given site and economic constraints, ground yard waste is moved offsite quickly or allowed to age for a limited time; it is not allowed to fully decompose

The character of the material makes plastic film separation extremely difficult, even when being sorted by hand. Future evaluation should focus on 1) the economic and political implications of prohibiting plastic bags from yard waste collection, and 2) more expensive processing systems that may be able to effectively remove plastic bags (e.g. low-speed shear shredder and two-stage screening).

The event on January 25, 2007 was a great success and met with positive feedback from over 35 public and private sector attendees. Both equipment vendors were invited to conduct further performance tests within Florida; the Komptech machine performed a follow up demonstration immediately after the public event for Consolidated Resource Recovery at the Seminole County Yard Waste Facility. They were also invited to demonstrate in Okaloosa County on February 7, 2007, at the Wright Yard Waste Facility in Fort Walton Beach. This public event was again offered to industry representatives in the Florida Panhandle. The Airlift Separator was requested to perform another demonstration in Orange County with Bell Corp, immediately following the January 25<sup>th</sup> event. The demonstration results were featured in the Florida Organics Recycling Center, Kessler Consulting, Inc, and Recycle Florida Today newsletters.

KCI appreciates this opportunity to assist Sumter County and looks forward to reporting the results of other work activities of the FDOT project. Should you have any questions or comments regarding this letter report or study results, please do not hesitate to contact me.

Sincerely,

Kessler Consulting, Inc.

Peter Engel  
Associate

Attachment

xc: Sandra Howell, Sumter County Administrator  
Tommy Hurst/Denise Warnock, Sumter County, Public Works  
Jimmy Wise, Sumter County Solid Waste Facility  
Josh Boan, Florida Department of Transportation  
Miriam Zimms, Kessler Consulting, Inc.

**Attachment – Attendee List**

| Name              | Affiliation         | Address  | Email  | Phone        | Interestd in product literature |
|-------------------|---------------------|--|--|--------------|---------------------------------|
| Larry Gast        | Orange County       | 5901 Young Pine Rd                             | <a href="mailto:larry.gast@ocfl.net">larry.gast@ocfl.net</a>                 | 407-836-6667 | Yes                             |
| Mark Cooley       | Orange County       | 5901 Young Pine Rd                             | <a href="mailto:mark.coolet@ocfl.net">mark.coolet@ocfl.net</a>               | 407-836-6663 | Yes                             |
| Jim Reece         | Okaloosa County     | 84 Ready Ave.<br>Fort Walton Beach, FL 32548   | <a href="mailto:jreece@co.okaloosa.fl.us">jreece@co.okaloosa.fl.us</a>       | 850-651-7395 | Yes                             |
| Jennifer Stirk    | Volusia County      | 1990 Tomoka Farms Rd.<br>Daytona Beach, FL     | <a href="mailto:jstirk@co.volusia.fl.us">jstirk@co.volusia.fl.us</a>         | 386-947-2952 | Yes                             |
| Christopher Ellis | Volusia County      | 1991 Tomoka Farms Rd.<br>Daytona Beach, FL     |  | 386-947-2952 | Yes                             |
| Irv Slike         | Waste Management    | 255 W. Keene Rd.                               | <a href="mailto:islike@wm.com">islike@wm.com</a>                             |              |                                 |
| Danny Sheaffer    | Osceola County      | 750 S. Bass Rd.                                | <a href="mailto:dshe@osceola.org">dshe@osceola.org</a>                       | 407-962-1102 | Yes                             |
| Larry Alexander   | Sarasota County     | 2817 Cattleman Rd.                             | <a href="mailto:lalexand@scgov.net">lalexand@scgov.net</a>                   | 941-861-6731 | Yes                             |
| Matt Biegler      | Compost USA         | 6021 Beggs Rd.<br>Orlando, FL                  | <a href="mailto:mbiegler@fpsoils.com">mbiegler@fpsoils.com</a>               | 407-291-1676 | Yes                             |
| Darren Midlane    | Harvest Quest       | 6022 Beggs Rd.<br>Orlando, FL                  | <a href="mailto:dmindlane@harvest-quest.com">dmindlane@harvest-quest.com</a> | 407-291-1677 | Yes                             |
| Frank Coggins     | Sarasota County     | 4000 Knights Trace Rd.<br>Nokomis, FL          | <a href="mailto:fcoggins@scgov.net">fcoggins@scgov.net</a>                   |              | No                              |
| Gary Debo         | Lake County         | 13130 County Landfill Rd.<br>Tavares, FL 32778 | <a href="mailto:gdebo@co.lake.fl.us">gdebo@co.lake.fl.us</a>                 | 352-343-3776 | No                              |
| Art Gilpin        | CFP                 | 320 Millinor Rd.<br>Perry, FL                  | <a href="mailto:artces@msn.com">artces@msn.com</a>                           | 813-477-5486 | Yes                             |
| Bobby Wines       | Down to Earth Mulch |  |  | 386-478-1588 | Yes                             |
| Joe Grusauskas    | Volusia County      | 1991 Tomoka Farms Rd.<br>Daytona Beach, FL     |  | 386-943-7889 | No                              |
| Tom Valenteen     | Evergreen - Energy  | 1915 Wigmore St.<br>Jacksonville, FL           | <a href="mailto:valenteen4@tds.net">valenteen4@tds.net</a>                   | 904-483-6988 | Yes                             |
| Peter Beaulieu    | Evergreen - Energy  | 1915 Wigmore St.<br>Jacksonville, FL           | <a href="mailto:pbeaulieu@elmlc.com">pbeaulieu@elmlc.com</a>                 | 904-483-6988 | Yes                             |
| Jim Johnson       | Evergreen - Energy  | PO Box 699<br>Yulee, FL                        | <a href="mailto:ProjectsForInd@aol.com">ProjectsForInd@aol.com</a>           | 912-484-0505 | Yes                             |

**Attachment – Attendee List (continued)**

| Name            | Affiliation                             | Address                                       | Email  | Phone        | Interestd in product literature |
|-----------------|---|---|--|--------------|---------------------------------|
| Keith Bartron   | Natures Choice                          | 1111 Springfield Rd.<br>Springfield, NJ 07083 | <a href="mailto:kbartron@natureschoicecorp.com">kbartron@natureschoicecorp.com</a> | 732-684-7099 | Yes                             |
| Chris Snow      | Hillsborough County                     | PO Box 1110<br>Tampa, FL 33601                | <a href="mailto:snowC@hillsboroughcounty.org">snowC@hillsboroughcounty.org</a>     | 813-276-8408 | Yes                             |
| Ron Zehr        | BelCorp, Inc                            | 11530 Phillips Hwy.<br>Jacksonville, FL 32256 | belcorp.com  | 904-268-1236 | Yes                             |
| Tom Bell        | BelCorp, Inc                            | 11530 Phillips Hwy.<br>Jacksonville, FL 32256 | <a href="mailto:tombell@bellcorp-inc.com">tombell@bellcorp-inc.com</a>             | 904-268-1236 |                                 |
| Dave Dean       | PBS&J                                   | 410 Keller Rd.<br>Orlando, FL 32810           | <a href="mailto:dedeans@pbsj.com">dedeans@pbsj.com</a>                             | 407-806-4104 | Yes                             |
| Martin Bey      | Volusia County                          | 1990 Tomoka Farms Rd.<br>Daytona Beach, FL    | <a href="mailto:mbey@co.volusia.fl.us">mbey@co.volusia.fl.us</a>                   | 386-947-9512 |                                 |
| Pat Byers       | Palm Beach County Solid Waste Authority | 7501 N. Jog Rd.<br>W. Palm Beach, FL 33412    | <a href="mailto:pbyers@swa.com">pbyers@swa.com</a>                                 | 501-640-4000 | Yes                             |
| Sam Levin       | S2Li                                    |   | <a href="mailto:slevin@s2li.com">slevin@s2li.com</a>                               | 407-475-9163 |                                 |
| David Gregory   | Seminole County                         | 1950 SR 419<br>Longwood, FL                   | <a href="mailto:dgregory@seminolecofl.gov">dgregory@seminolecofl.gov</a>           | 407-665-2022 | Yes                             |
| Jim Flynt       | Orange County                           | 5901 Young Pine Rd<br>Orlando, FL 32892       | <a href="mailto:james.flynt@ocfl.net">james.flynt@ocfl.net</a>                     | 407-836-6605 | Yes                             |
| Ben Williams    | City of Oviedo                          | 406 Alexandria Blvd.<br>Oviedo, FL 32765      | <a href="mailto:bwilliams@cityofoviedo.net">bwilliams@cityofoviedo.net</a>         | 407-920-1070 | Yes                             |
| Colleen Puglisi | City of Kissimmee                       | 2201 Mabbette St.<br>Kissimmee, FL 34741      | <a href="mailto:cpgulisi@kissimmee.org">cpgulisi@kissimmee.org</a>                 | 321-624-6082 | Yes                             |
| Chuck Quinn     | Volusia County                          | 1990 Tomoka Farms Rd.<br>Daytona Beach, FL    |  | 386-947-2952 |                                 |
| Ray Lotito      | SCS Engineers                           | Tampa, FL                                     | <a href="mailto:rlotito@scsengineers.com">rlotito@scsengineers.com</a>             | 813-621-0080 | Yes                             |
| Pat McCromack   | Volusia County                          | Deland, FL                                    | <a href="mailto:pmccormack@co.volusia.fl.us">pmccormack@co.volusia.fl.us</a>       |              | Yes                             |