Tennessee Pollution Prevention Webinar: Sustainability at the Office
Mark Valencia is an Environmental Scientist with the Office of Policy and Sustainable Practices and has been working for TDEC for 2 years.

Mark’s prior experience includes surface/groundwater conservation and monitoring, indoor/outdoor air quality, waste reduction and recycling, and native plant conservation.

He assists with the TN Sustainable Spirits Program, Sustainable Workplace Program and State Government Solid Waste/Recycling Measurement and Reporting Project.

He holds a Bachelor of Science degree in Health Science with a concentration in Environmental Health from California State University – San Bernardino.

Mark became interested in sustainability while assisting with the development of sustainability programs for a Southern California Native American Tribe.
TDEC Sustainable Workplace
TDEC Sustainable Workplace

- **Leading By Example**
  - TDEC wanted to improve sustainable practices within our own workplace

- **Assessment**
  - Evaluation of current operations at the Central Office and all eight (8) Environmental Field Offices (EFOs)

- **Survey**
  - Asked for input from employees for program improvement and additional services
Survey

• External Affairs Directors
  – Existing sustainable practices at their field office
  – Employee engagement regarding sustainability

• Survey Results:

<table>
<thead>
<tr>
<th>Sustainable Practice</th>
<th>Participation</th>
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<tbody>
<tr>
<td>Recycling</td>
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<td>Composting</td>
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<td>Unwanted Items Exchange Space</td>
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<td>Signage</td>
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<tr>
<td>Community Service Event</td>
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– 7 of 8 Field Offices are leased space
Program

• Development
  – Survey Results
  – Office Resources
  – Employee Engagement

• Implementation (three-pronged)
  – Informational Signage
    • Energy Use, Water Use, Food Waste
  – Community Outreach
    • Clothing Drive, Stream Cleanups, School/Office Supplies Collection
  – Green Cube
    • Recycling and Reuse of Assorted Items
Informational Signage

• Sustainable Practices Signage
  – Included facts as well as useful tips for employees that could be implemented both at home and in the workplace

ENERGY

Approximately 30% of energy used in buildings is used inefficiently or unnecessarily.

Biomass is now the largest source of renewable energy in the US. There are 200 existing plants giving electricity to 1.5 million American homes.

ENERGY REDUCTION TIPS:

• Install a programmable thermostat to save up to 10% on cooling and heating costs.
• Turn off all lights, appliances, and electronics not in use. A power strip can help turn off multiple items at once.
• Change to new and improved light bulbs. Reduce energy use from about a third to as much as 80% with today’s increasing number of energy-efficient LEDs.
• Clean or replace all filters in your home regularly. Dirty filters make your system work harder and run longer than necessary.
• Don’t peek in the oven while baking! Every time you peek, the temperature drops 25°F, making your oven use more energy to bring the temperature back up.
• Don’t leave your mobile phone plugged in overnight. It only takes a couple of hours to charge.

ENERGY USE IN YOUR HOME

FOOD WASTE

About 1.3 billion tons of food produced for human consumption is lost or wasted globally per year.

EPA estimates that more food reaches landfills and incinerators than any other single material in our everyday trash, constituting 21.6 percent of discarded municipal solid waste.

FOOD WASTE REDUCTION TIPS:

• Plan your meals for the week before you go shopping and only buy the ingredients you need for those meals.
• Include quantities on your shopping list to keep from buying too much.
• Keep a running list of foods that are frequently enjoyed in your house.
• Check your refrigerator and pantry when making your shopping list to avoid buying items you already have.
• Order only what you can finish at restaurants, or plan to take home leftovers for a future meal.
• Label your leftovers so you can keep track of how long they’ve been in your fridge or freezer.

WATER USE

The Earth might seem like it has abundant water, but in fact less than 1 percent is available for human use.

The average American family uses more than 300 gallons of water per day at home.

WATER USAGE REDUCTION TIPS:

• Fix your leaky faucet; left alone it can waste up to 100 gallons of water a day.
• Only run your dishwasher and washing machine when full. Partially full loads result in gallons of wasted water.
• Collect rainfall for irrigation in a screened container (to prevent mosquito larva growth).
• When cooking, peel and clean vegetables in a large bowl of water instead of under running water.
• Opt for low-flow water fixtures. A low-flow faucet can save 3.5 gallons per minute and a low-flow toilet can save 5 gallons per flush.
• Only water your lawn when necessary and water in the early morning or late in the evening to maximize the amount of water which reaches plant roots.
Community Outreach

• Coordinated with EFO management to implement and further develop outreach activities in local communities

• Three Annual Events:
  – Stream Cleanup
  – Operation StandDown Clothing Drive
  – Used School/Office Supply Collection

White’s Creek Cleanup

1,291 Pounds Donated to OSD
Green Cube

- TDEC Central Office
  - Created in 2014
  - Metrics tracked and reported

- TDEC Environmental Field Offices
  - Expanded in 2018
Green Cube

• Purpose
  – Reduce waste
  – Increase recycling education and awareness
  – Provide a convenient outlet for employees to properly dispose of items that would normally be thrown away

• Accepted Items
  – Recycle
    • Batteries, small electronics, CD's and ink toner/cartridges
  – Reuse
    • Books, office supplies, hangers, clothing, hotel toiletries, plastic bags, packing supplies, pill bottles, mascara wands
Green Cube

- TDEC Central Office
# Green Cube

- **Creating your own Green Cube**
  - Set up will involve coordination with various parties

<table>
<thead>
<tr>
<th>Facilities Manager</th>
<th>Environmental Health &amp; Safety Manager</th>
<th>IT Manager</th>
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<td>• Health and safety planning</td>
<td>• Oversees the disposal of computers and networking equipment</td>
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- Establish a permanent location (convenient and accessible)
- Create a list of items that can be accepted
- Have containers for items that are collected
- Establish a layout for the Green Cube
- Coordinate with vendors for collection and disposal of materials ($)
- Have a management plan and champion in place
- Track metrics
Green Cube

• Signage
  – Uniform signage helps clearly communicate what items are accepted and not accepted and where they belong

What can the GREEN CUBE accept?

**YES**
- Electronics (cell phones, cords, CDs, floppy disks)
- Ink Cartridges
- Batteries
- Incandescent/LED Light Bulbs
- Miscellaneous Office Supplies
- Lightly Used Items

**NO**
- Fluorescent Light Bulbs (tubes/compact)
- Appliances
- TVs
- Hazardous Waste
- Chemicals
Green Cube

• Tips for a Successful Green Cube
  – Maintain a clean and organized area
  – Have backup vendors in place
  – Call ahead before dropping off recyclables/donations
  – Update your contacts (janitorial, facility maintenance...)
  – Maintain open and ongoing communication with janitorial services
  – Update materials list as markets change
Questions?

Mark Valencia
Office of Policy and Sustainable Practices
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(615) 253-5239
Rachel Friend

- Bachelor of Science in Environmental Science from Virginia Tech.
- Originally from Pulaski, VA.
- Converted from a career in banking to environmental work.
- 6 years at Trane managing the environmental and facility program.
Window Replacement and Tint

• Replaced old aluminum frame windows with new double paned glass windows and added tint.
• Summer temperature change of 5 degrees, 73-78°
• Winter temperature stayed 5 degrees cooler than thermostat setting.
Office Thermostat Settings

• Winter: 72°
• Summer: 74°
• Each degree of set back gains 1% of savings per 8 hour period
  (https://www.energy.gov/energysaver/articles/program-your-thermostat-fall-and-winter-savings)
Lights, Lights and more Lights!

- Convert T8 Fluorescent to LED
- Add occupancy sensors set to 15 minutes
Ductless HVAC units

- More efficient
- Less expensive and easier to install
Recycling

- Batteries
Recycling

• Electronic Scrap
  - Rebekah Dopp, 615-828-5040

www.electronicsrecyclingsolutions.org
Recycling

• Xerox Supplies
Recycling

- Junk Mail
Recycling

• Break Room
Recycling

- Throughout Office,
  https://www.clearstreamrecycling.com/default.asp
Recycling

- Cubicles
Recycling

- Cardboard
Work in Progress

• Creating Smart Office
  - Upgraded BAS (Building Automation System)
    ▪ Capability to tie controls into BAS for lighting and HVAC automation
  - Installed electric sub meters
  - Utilize Energy Performance
    ▪ Look for inefficiencies, correct from anywhere, anytime.
Helpful Tidbits

• Make recycling as easy as possible.
• Color code and label.
• Be prepared for employees voicing concerns over change. Usually last about 3 months.
• If you are not passionate about sustainability……

Sustainability is an ongoing marathon, never a sprint.
Janice Boren
HSE Specialist for Ideal Clamps Products

• Credentials: Industrial Technology Management degree from MTSU
  Masters in Safety, MTSU
• Experience: >25 years in Safety, 10 of those in environmental and safety
  Most of her experience is in the automotive or automotive
  supply industry:
  • Ideal/Tridon (2nd time here for total of 14 years)
  • Calsonic- 2 yrs.
  • Nissan- 6.5 yrs.
  • Aerostructures- 2 yrs.
  • Pillsbury- 1 yr.
  • Private consulting Georgia & Tennessee- 2 yrs.
    (Tennessee: Center for Industrial Studies, UT- third party
     consultant)
    (Georgia: Private consultant, SCS, Gwinnett County)
Ideal Clamp Products
Office Environmental Improvements & Recycling
• Metal fabricator & manufacturer of hose clamps (worm drive, non-perf, T-Bolt, etc.)
• Smyrna facility is approximately 40 yrs. old, about 150,000 ft², on 70 acres off I-24
• Corporate office (Matamoros, Mexico, Kudoba, Poland, Suzhou, China & warehouses in several other countries)
• Approximately 350 employees, 100 are office employees
• ISO 14001 certified since 2004
Communication is crucial...

Environmental awareness & recycling covered in orientation and annual meetings.
Convenience makes a difference....

Recycle bins at the desks

Recycle Center Upstairs & Downstairs

Recycle Center Venditeria including Shred Paper station for employee use
Conference rooms equipped with the environment in mind.....

- Conference rooms with projectors & screens to prevent multiple copies of reports for meetings.
- Automatic light sensors to ensure lights are off when the room is not in use.
- Thermostat kept at reasonable settings (69 in winter, 72 in summer)
- Water refill stations replaced regular water fountains to encourage drinking water instead of sugary drinks

“Bring Tap Back!”
Paper is the main recyclable in the office.

Recycle bins at main printers
- Upstairs in smaller bins
- Downstairs with large roller bin
- Lift device to move paper between floors

- Printer cartridges are recycled by placing in a recycling bin at our Toolcrib when you get a new cartridge (HP), or by returning the cartridge in the box the new one came out of (Ricoh)
HSE Website for ease of getting to information....
# Waste Disposal Chart

<table>
<thead>
<tr>
<th>DEPT.</th>
<th>TYPE OF WASTE</th>
<th>CLASSIFICATION</th>
<th>HANDLING REQUIREMENTS</th>
<th>VENDOR</th>
<th>TELEPHONE NUMBER</th>
<th>COLLECTION &amp; SHIPPING REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>GENERAL TRASH</td>
<td>SPECIAL WASTE</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>REPUBLIC</td>
<td>816-244-8260 ACCT.# 0765300 LOCATION 101</td>
<td>INSELECTABLE FOR DISPOSAL</td>
</tr>
<tr>
<td></td>
<td>OILY MATT, GLOVE &amp; ETC.</td>
<td>SPECIAL WASTE</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>REPUBLIC</td>
<td>816-244-8260 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST NO DRIPPING</td>
</tr>
<tr>
<td></td>
<td>SCRAP STEEL</td>
<td>RECYCLED</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>PURCHA BINO</td>
<td>816-244-8260 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST TAPE CONTACTS BEFORE PLACING IN BUCKET'S</td>
</tr>
<tr>
<td></td>
<td>CORRUGATED CARDBOARD</td>
<td>RECYCLED</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>WE STROCK</td>
<td>816-328-4566 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
</tr>
<tr>
<td></td>
<td>BATTERIES</td>
<td>UNIVERSAL</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>SOUTHEAST SAFETY-KLEINE</td>
<td>816-269-5112 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
</tr>
<tr>
<td></td>
<td>PLASTICS</td>
<td>RECYCLED</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>WE STROCK</td>
<td>816-328-4566 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
</tr>
<tr>
<td></td>
<td>ALUMINUM CAN</td>
<td>RECYCLED</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>EMPLOYEE</td>
<td>816-244-8260 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
</tr>
<tr>
<td></td>
<td>PALLET OR SKID &amp; SPool &amp; TOTE &amp; BALE</td>
<td>RECYCLED/BULK DISPO</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>ITINOLAP</td>
<td>816-328-4566 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
</tr>
<tr>
<td></td>
<td>RICOH LASER PRINTER/COPIER TONER CYLINDER CARTRIDGE (MP SERIES)</td>
<td>NON-HAZARDOUS</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>RICOH</td>
<td>816-244-8260 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
</tr>
<tr>
<td></td>
<td>RICOH LASER PRINTER/COPIER TONER CARTRIDGE (BP SERIES)</td>
<td>NON-HAZARDOUS</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>RICOH</td>
<td>816-244-8260 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
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<td></td>
<td>PRINTER INK JET CARTRIDGE</td>
<td>NON-HAZARDOUS</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>HP</td>
<td>816-244-8260 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
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<td>WHITE PAPER</td>
<td>NON-HAZARDOUS</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>WE STROCK</td>
<td>816-328-4566 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
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<tr>
<td></td>
<td>JANITORIAL ALL ITEM</td>
<td>SPECIAL WASTE</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>REPUBLIC</td>
<td>244-8260 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
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<tr>
<td></td>
<td>FIRST RESPONDER MATERIAL CONTAMINATED WITH BLOOD OR BODY FLUID</td>
<td>HAZARDOUS WASTE</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>$TERI-CYCLE</td>
<td>816-328-4566 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
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<tr>
<td></td>
<td>INFO ENGINEERING SD CARTRIDGE &amp; SCRAP</td>
<td>RECYCLE</td>
<td>INDIVIDUAL COLLECTION CONTAINERS, TRANSFERRED TO COMPOST</td>
<td>SD SYSTEM &amp; 8032-3263000 ACCT.# 0765300 LOCATION 101</td>
<td>SHIP WITH SPECIAL WASTE MANIFEST</td>
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</tbody>
</table>

**INSTRUCTIONS:**
1. Observe closely all of the above handling, collection & shipping requirements.
2. Anyone signing a manifest must be fully aware of what the waste is and that it matches the description on the manifest. Only hazmat trained employees may sign for hazardous wastes. Send to HSE.
3. Forward all copies of manifests, bills of lading or other shipping documents to the HSE Coordinator and Accounts Payable.
Annual Earth Day Event

- Coincides with National event April 20
- All employees encouraged to participate
- Includes all Universal Wastes
- Great cost reduction in Manning and coordinating in-house
Other environmental activities.....

Electronics

Metal

Recycle Oil

Biohazard Disposal

Lighting

Batteries
Questions?
Thank you for attending!