

**RECYCLING TECHNICAL ASSISTANCE**  
**Project #561**

**FINAL REPORT**

**MILLCREEK TOWNSHIP**  
**ERIE COUNTY, PENNSYLVANIA**

**MILLFAIR EMPLOYEE & COMPOSTING GUIDE**



**DECEMBER 2014**

**Sponsored by the Pennsylvania Department of Environmental Protection through the  
Pennsylvania State Association of Township Supervisors**

**RECYCLING TECHNICAL ASSISTANCE**  
**Project #561**

**MILLCREEK TOWNSHIP**  
**ERIE COUNTY, PENNSYLVANIA**

**MILLFAIR EMPLOYEE & COMPOSTING GUIDE**

*Project Completed By:*



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## 1.0 STATEMENT OF PROBLEM

This study was conducted for Millcreek Township (Township) under the Recycling Technical Assistance program that is sponsored by the Pennsylvania Department of Environmental Protection (PADEP) through the Pennsylvania State Association of Township Supervisors (PSATS). The Township operates the Millfair Compost & Recycling Center (Millfair) - a joint effort between Millcreek and Fairview Townships. The facility is open seven (7) days a week from April through December and processes leaves and woody wastes into finished mulch and compost.

As the Millfair composting program has grown, so has the number of staff, the number of visitors, and the complexity of its operations. The Township requested a solid waste expert to assist in developing an employee and composting guide as a resource for Millfair employees and managers regarding employee guidelines and daily and seasonal operating procedures.

## 2.0 SUMMARY OF WORK

### 2.1 Background information

The Millfair Recycling Coordinator supplied background information including draft text from a preliminary reference guide and handbook. Gannett Fleming reviewed the information and provided recommendations regarding the structure of the guidance information and content.

### 2.2 Employee and Compost Operator's Guide Content Development

Gannett Fleming revised and reorganized information provided by the Recycling Coordinator into an updated Employee and Compost Operator's Guide (Guide). The Guide is divided into two primary sections: one section for employee information and one section specific to composting operations. Gannett Fleming developed new text and changed existing text and content to align with current Millfair operations. This included developing an employee Code of Conduct and obtaining updated information on safety, operational procedures, and equipment.

### 2.3 Guide Formatting

After finalizing text in MS Word format, the document was formatted using Adobe InDesign. InDesign was used to format the document and create a bookmarked pdf file. The document design included the use of tabs to separate information and allow for user friendly printing of sections or forms for use or distribution.

## 3.0 SOLUTIONS

Millcreek Township was provided a revised employee and compost guide to serve as a resource to employees and managers (**Appendix A**). This guide is intended to be a "living" document that will evolve to include updated information each composting season. It is

recommended Millfair continue to customize and update the information in the Guide to explain the operating requirements that impact the facility for the benefit of Millfair employees. At the end of each compost season, Millfair should meet with its employees including compost operators, booth operators, and managers to review the Guidebook and to verify the information is comprehensive, updated, and beneficial to daily and seasonal operations and the success of the business.



**APPENDIX**

**Appendix A – Millfair Employee & Compost Operators Guide**

# MILLFAIR COMPOST & RECYCLING CENTER



## Employee & Compost Operators Guide

2301 MILLFAIR ROAD  
ERIE, PA 16506  
814-812-2982



*Fairview Township*  
Erie County, Pennsylvania



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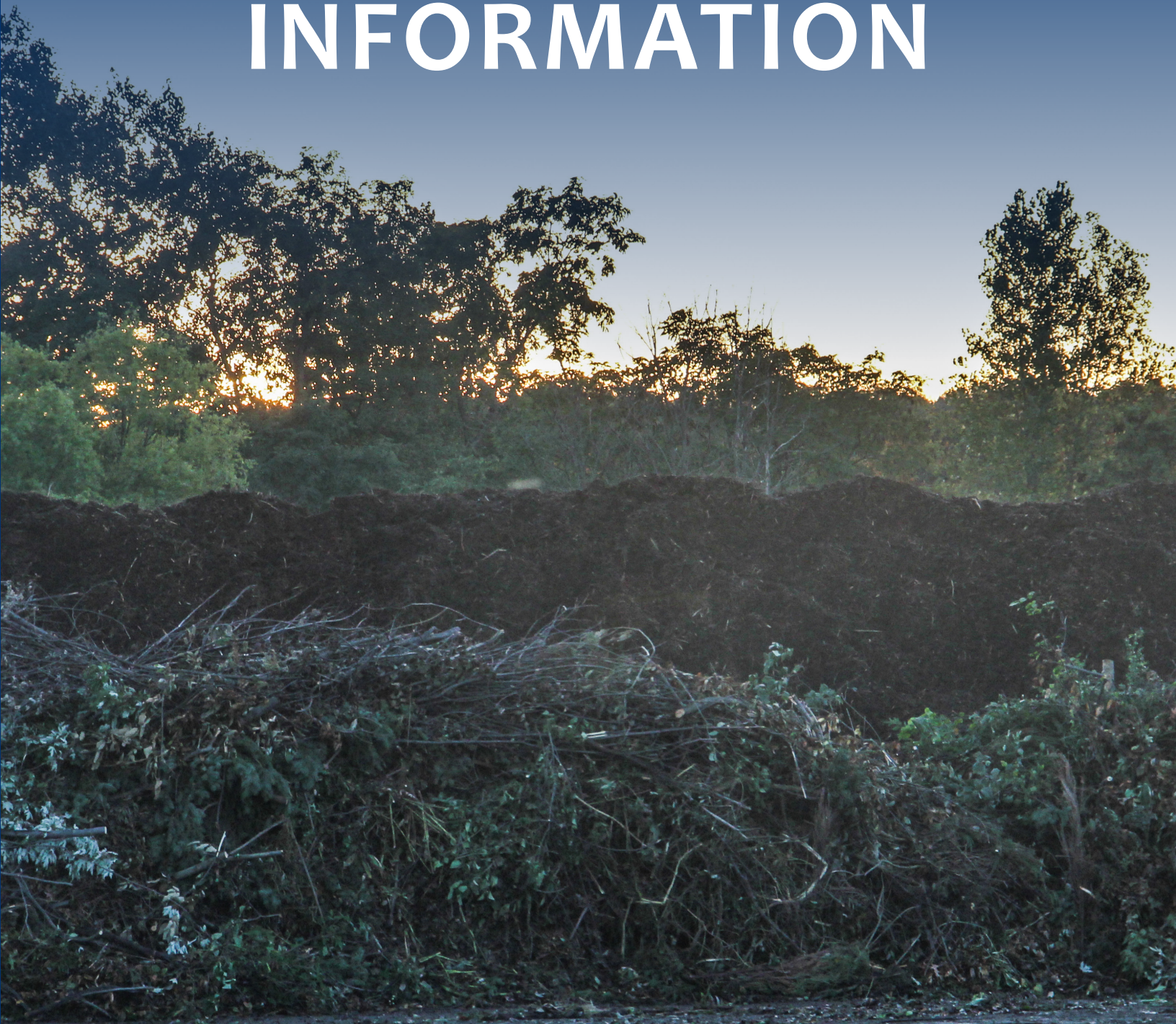
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Millfair Compost & Recycling Center

# EMPLOYEE INFORMATION







## Introduction

The Millfair Compost & Recycling Center (Facility) has been a joint partnership between Millcreek and Fairview Townships since 2004. The Facility operates in accordance with the Pennsylvania Code, Title 25, § 271.103(h) for permit-by-rule for municipal yard waste compost facilities. The Facility is visited by approximately 18,000 customers each year and processes the yard waste collected through Millcreek's residential curbside program.

## Mission and Vision

To serve our community through the safe operation of a sustainable composting business where employees value professionalism, customer service, and quality and are committed to the economic, social, and environmental responsibilities that preserve our natural resources and protect our planet.



## Millfair Compost & Recycling Center

2301 Millfair Road

Erie, PA 16506

Booth phone: 814-812-2982

Website: <http://www.millcreektownship.com/Departments/MillfairCompostandRecyclingCenter.aspx>

## Emergency Contact Numbers

<b>EMERGENCY: 9-1-1!!</b>	
<p><b>Police</b> 3608 West 26th Street Erie, PA 16506 <b>814-833-7777</b></p>	<p><b>West Ridge Fire Department (Station 46)</b> 3142 West 26th Street Erie, PA 16506 <b>814-833-4440</b></p>
<p><b>Emergency Management Coordinator &amp; Fire Code Official</b> Matt Exley: 814-397-6546</p>	
<p><b>Millcreek Community Hospital</b> 5515 Peach Street Erie, PA 16509 <b>814-864-4031</b></p>	<p><b>UPMC Hamot Hospital</b> 201 State Street Erie, PA 16507 <b>814-877-6000</b></p>
<p><b>St. Vincent Hospital</b> 232 West 25th Street Erie, PA 16544 <b>814-452-2000</b></p>	

## Millcreek Township Contacts

<b>Brian McGrath</b> Millcreek Township Supervisor	<b>Judy Zelina</b> Director of Public Services & Recycling Manager
<b>Jessica James</b> Recycling Coordinator	<b>Mark Dietz</b> On-Site Supervisor
<b>Ron Wisniewski</b> Heavy Equipment Operator	<b>Steve Cornelius</b> Heavy Equipment Operator
<b>Jim Seifert</b> Heavy Equipment Operator	

## Fairview Township Contacts

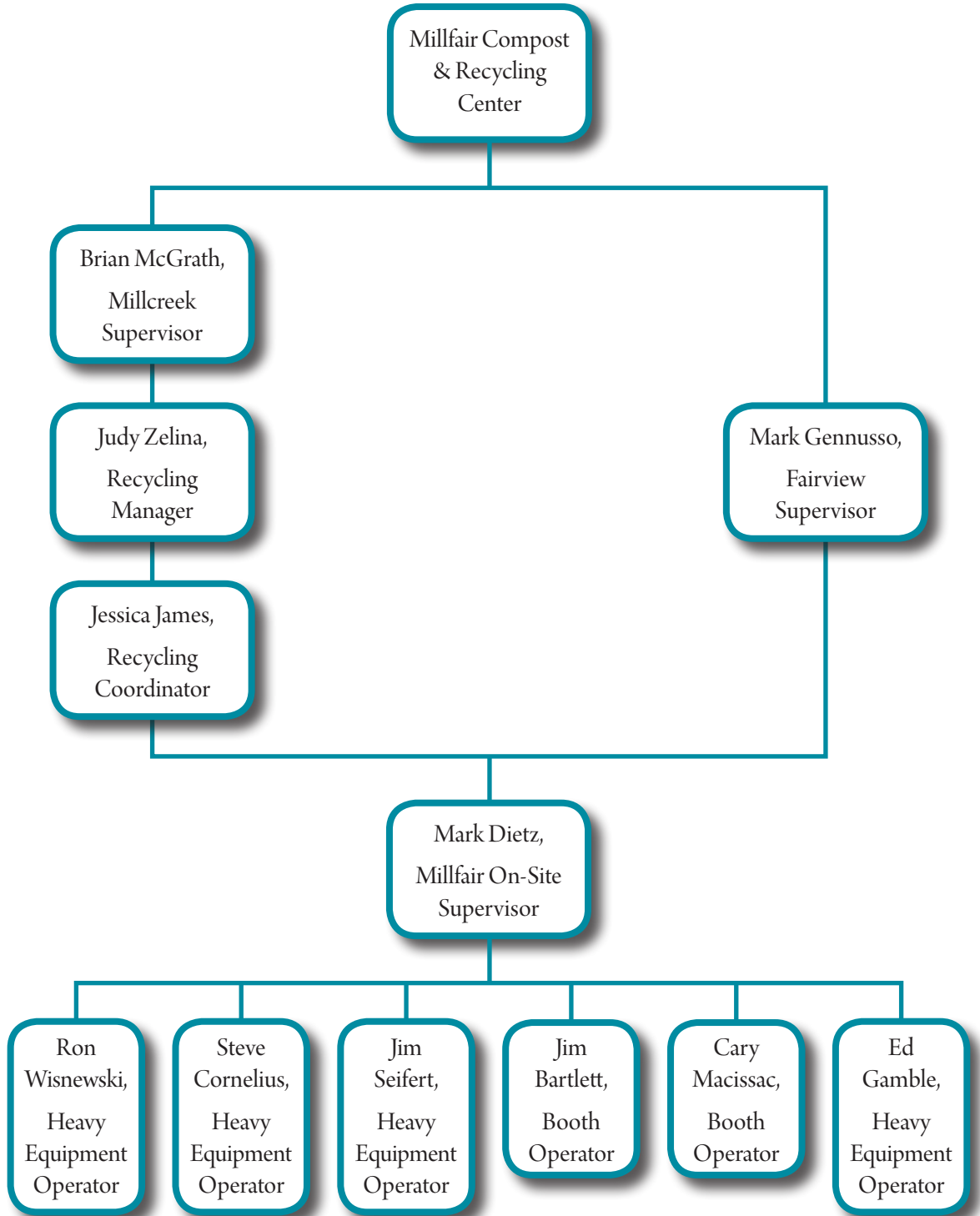
<b>Mark Gennuso</b> <b>Fairview Township</b> <b>Supervisor</b>	<b>Jim Bartlett</b> <b>Booth Operator</b>
<b>Cary MacIssac</b> <b>Booth Operator</b>	<b>Ed Gamble</b> <b>Heavy Equipment</b> <b>Operator</b>

## Equipment and Maintenance Contacts

<u>Millcreek Electrician</u> <b>Dick Whitbred</b>	<u>Millcreek Maintenance</u> <b>Jeff Tenney</b>
<u>Computer IT Department</u> <b>Kris Filson</b>	<u>Waste Management</u> <b>Elden Veach</b>
<u>Equipment Diesel</u> <b>Erie Petroluem</b>	<u>Premium Coffee and Water Co. of Erie (Water Bottles)</u> <b>Bob Attalla</b>
<u>Port-A-John Rentals</u> <b>Powell's Sanitation</b>	



# Organizational Chart







## Roles and Responsibilities

Roles and Responsibilities are provided below for different employee categories at Millfair. The roles and responsibilities provided relate to Millfair and are not intended to cover other work tasks that are not directly related to the compost facility.

### Millcreek Supervisor

- 🔗 Responsible for staff allocation to Millfair from Millcreek Township.

### Fairview Supervisor

- 🔗 Responsible for staff allocation to Millfair from Fairview Township.
- 🔗 Budgeting for employee staff.
- 🔗 Procurement.
- 🔗 Employee complaint Management.

### Recycling Manager

- 🔗 Oversees budgeting for Millfair and Recycling Department.
- 🔗 Invoicing.
- 🔗 Procurement.

### Recycling Coordinator

- 🔗 Manage and oversee Millfair administrative functions.
- 🔗 Primary media interface.
- 🔗 Public education and outreach.
- 🔗 Events coordination.
- 🔗 Coordination with Supervisors, Managers, and employees.
- 🔗 Information distribution to Millfair employees and others.

### On-Site Supervisor

- 🔗 Manage and oversee Millfair Employees.
- 🔗 Oversee the day to day and seasonal compost facility operations including safety, equipment, and supplies.

### Heavy Equipment Operator

- 💡 Make safety your top priority every day.
- 💡 Inspect work areas for vehicles, equipment, structures, debris and people continuously while operating equipment.
- 💡 Check vehicles, fuel, and oil needs prior to the start of your shift. Advise the Manager of any problems or concerns you may have after your inspection. If any equipment is out of service, post the information on the bulletin board and pull the keys. Additional signage may be placed on the steering wheel as needed.
- 💡 Be certain to have the portable unit for communication charged and mounted in the Loader cab. This will be used to advise you when either compost or mulch needs to be loaded.

### Booth Operator

- 💡 Keep the booth and site entrance clean.
- 💡 Keep booth equipment, including the television, computer, cameras, POS systems, and radios, clean and in good working order.
- 💡 Keep radio units charged. Place radio units on chargers at the end of each day.
- 💡 Report equipment problems to the On-site Supervisor, Recycling Coordinator or other Millfair Manager immediately.
- 💡 Maintain supplies of informational handouts, invoices, calendars, permit cards and other office supplies.
- 💡 Maintain first aid supplies.
- 💡 Follow these check-in procedures:
  - ✦ Greet incoming vehicles at the booth in a timely and friendly manner.
  - ✦ Scan permit number and confirm contact information is accurate. Enter visitor contact information into Merchant OS. Refer to the Merchant OS guidebook in the booth desk under the computer.
  - ✦ Ensure incoming materials are accepted at the Millfair site.
  - ✦ Direct visitors to appropriate drop-off or load areas.
  - ✦ Direct visitors with questions or concerns to side parking area to allow time to address questions without restricting the flow of incoming vehicles.
- 💡 Issue corresponding Millcreek or Fairview residential permits.
- 💡 Commercial accounts must sign up through the Recycling Office directly.

# Monday – Friday Schedule

Monday										
Employee	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm	4 pm	Hours
Mark Dietz	X	X	X	X	X	X	X	X	1/2	8 am–4 pm
Ron Wisniewski	X	X	X	X	X	X	X			8 am–3 pm
Steve Cornelius			X	X	X	X	X	X	X	10 am–5 pm
Jim Seifert					X	X	X	X	X	12 pm–5 pm
Jim Bartlett										
Cary MacIssac										
Ed Gamble										
Tuesday										
Mark Dietz	1/2	X	X	X	X	X	X	X	X	8:30 am–5 pm
Ron Wisniewski	X	X	X	X	X	X	X			8 am–3 pm
Steve Cornelius				X	X	X	X	X	X	10 am–5 pm
Jim Seifert	X	X	X	X	X	X				8 am–2 pm
Jim Bartlett										
Cary MacIssac										
Ed Gamble										
Wednesday										
Mark Dietz	1/2	X	X	X	X	X	X	X	X	8:30am–5 pm
Ron Wisniewski	X	X	X	X	X	X	X			8 am–3 pm
Steve Cornelius			X	X	X	X	X	X	X	10 am–5 pm
Jim Seifert	X	X	X	X						8 am–12 pm
Jim Bartlett										
Cary MacIssac										
Ed Gamble										
Thursday										
Mark Dietz	X	X	X	X	X	X	X	X	1/2	8 am–4:30 pm
Ron Wisniewski	X	X	X	X						8 am–12 pm
Steve Cornelius										
Jim Seifert	X	X	X	X						8 am–12 pm
Jim Bartlett					X	X	X	X	X	12 pm–5 pm
Cary MacIssac					X	X	X	X	X	12 pm–5 pm
Ed Gamble					X	X	X	X	X	12 pm–5 pm
Friday										
Mark Dietz	X	X	X	X	X	X	X	X	1/2	8 am–4:30 pm
Ron Wisniewski										
Steve Cornelius										
Jim Seifert										
Jim Bartlett		X	X	X	X	X	X	X	X	9 am–5 pm
Cary MacIssac		X	X	X	X	X	X	X	X	9 am–5 pm
Ed Gamble		X	X	X	X	X	X	X	X	9 am–5 pm

Millcreek

Fairview

Work Schedules

## Saturday – Sunday Schedule

Saturday										
Employee	8 am	9 am	10 am	11 am	12 pm	1 pm	2 pm	3 pm	4 pm	Hours
Mark Dietz										
Ron Wisniewski										
Steve Cornelius										
Jim Seifert										
Jim Bartlett		X	X	X	X	X	X	X	X	9 am–5 pm
Cary MacIssac		X	X	X	X	X	X	X	X	9 am–5 pm
Ed Gamble		X	X	X	X	X	X	X	X	9 am–5 pm
Sunday										
Mark Dietz										
Ron Wisniewski										
Steve Cornelius										
Jim Seifert										
Jim Bartlett					X	X	X	X	X	12 am–5 pm
Cary MacIssac					X	X	X	X	X	12 am–5 pm
Ed Gamble					X	X	X	X	X	12 am–5 pm

Millcreek

Fairview







## Employees Under 18

Millfair hires and employs persons under the age of 18 in accordance with applicable regulations regarding child labor. Refer to the Abstract of the **Child Labor Act Hours Provisions** in the subsequent pages.



**Insert Abstract of the Child Labor Act**

Millfair Compost & Recycling Center

Employee Operations:

# CODE OF CONDUCT





Dear Employees,

The Millfair Compost & Recycling Center (Millfair) is proud of its reputation that values professionalism, customer service, quality, and economic, social, and environmental responsibility. Our reputation enables us to serve our community and sustain our business.

Our business interacts with the public and the media on an ongoing basis. Millfair's Employee Code of Conduct outlines the general ethical standards that all of our employees are expected to live by with a clear understanding of the importance of our image and integrity. While this Code does not address all ethical concerns that you may face during your employment, I hope it gives you the information necessary to make ethical decisions on a daily basis. You are encouraged to ask for guidance whenever you need help. We sleep better at night knowing that we all act ethically during the day.

Thank you for helping Millfair continue its commitment to our community as a positive example of a sustainable and professional business.

Sincerely,

Recycling Coordinator





# Employee Code of Conduct

## I. Introduction

This Employee Code of Conduct (“Code”) details guidelines and policies for Millfair Compost & Recycling Center (Millfair) employees. Millfair is committed to a quality business and reputation that values professionalism, respect, customer service, quality, and economic, social, and environmental responsibility as supported through a commitment to ethical standards. The Code applies to employee interactions with customers and other visitors, the employers, coworkers, vendors, government and regulatory agencies, media and the general public. Employees shall review and be familiar with this Code and adhere to its guidelines.

This Code is not a comprehensive guide of all ethical issues that employees may face. In dealing with ethical problems not detailed in this Code, employees are expected to use common sense and their best moral judgment. If an employee has ethical questions, please contact the Recycling Coordinator or Recycling Department. This policy may be modified or updated at any time. Employee suggestions on changes in this Code are encouraged.

## II. Employee Practices

For a description of Employee Roles and Responsibilities refer to the Roles and Responsibilities section of the Employee Guide.

### Discrimination and Harassment

- 🔑 Discrimination and harassment of employees, customers, public or other persons is prohibited whether or not the incidents occur on Millfair premises and whether or not the incidents occur during business hours.
- 🔑 Millfair follows federal, state, and local law to ensure equal recruitment, employment, compensation, development and advancement opportunity for all qualified individuals, and prohibits deliberate harassment based on federally protected categories of race, color, religion, sex, national origin, age, or disability.

**Weapons** – Employees may not care firearms or other weapons on Millfair property. Weapons are defined by as any firearm, knife, or blade over four inches in length that may serve to cause harm to another person. Carrying concealed weapons and/or guns requires approval from the Manager and/or Human Resources Department of Millcreek Township. Small knives and personal tools used on-site to debug leaves or maintain the operations at Millfair are permitted. This policy applies to employees, commercial, and residential permit holders, customers, visitors and any other individuals entering any of our facility.

**Workplace Violence** – threats, threatening behavior, harassment, intimidation, assaults or similar conduct is not tolerated.

## Millfair Center Employee Guidebook

### Illegal Drugs and Alcohol Policy

- 🔔 Millfair employees are prohibited from distributing, possessing, or using illegal drugs, drug paraphernalia, or alcohol on Millfair property, or in connection with the business or while performing duties for the Millfair Compost & Recycling Center while away from the premises, and/or during working hours.
- 🔔 For purposes of this policy, the term “premises” or “property” includes all property owned, leased, used or under the control of Millcreek Township including but not limited to Township offices, facilities, parking areas, land, buildings, structures, all work locations, vehicles, and equipment.
- 🔔 The substances prohibited by this policy include such items as: any illegal or unlawfully obtained drugs or controlled substances; “designer” or synthetic drugs; “over the counter” or prescribed medications not being used for purposes or in the manner intended; mood or mind-altering substances; and alcoholic or intoxicating beverages.
- 🔔 Compliance with this policy is required by Millcreek Township as a condition of employment for qualified applicants or for continued employment of current employees. The presence of a detectable amount of any prohibited substance in an employee while working and/or during working hours may be deemed a violation of this policy, regardless of when or where the substance entered the employee’s system.

**Smoking** – Smoking is prohibited in the Check-In booth and within 50 feet of leaf, wood, or product piles. Employees shall instruct customers to put out the cigarettes in these areas. Employees are permitted to smoke under the picnic shelter provided cigarette butts are stifled and disposed of properly. A smoking receptacle is located in the picnic shelter.

**Lunchtime Protocol** – Employees get 30 minutes for lunch which may be taken at the discretion of the employee and/or manager. Employees may stay on-site or leave the site for lunch. Employees are permitted to use the refrigerator, vending machine, coffee pot, and port-a-john restroom as needed.

### III. Use of Millfair Resources

**Computer and Internet** – All employees are required to acknowledge receipt and confirm that they have understood and agree to abide by the following Computer and Internet guidelines. Use of the Internet by employees of the Millfair Compost & Recycling Center is permitted and encouraged where such use supports the goals and objectives of the business. All Internet data that is composed, transmitted and/or received by Millcreek Township’s computer systems belongs to Millcreek Township and Millfair and is recognized as part of its official data. This data is subject to disclosure for legal reasons or to provide to other appropriate third parties. The equipment, services, and technology used to access the Internet are the property of Millfair. Millcreek Township reserves the right to monitor Internet traffic and access data that is composed, sent or received through its online connections and to prohibit use of computer or internet by any employee for any reason. All websites and downloads may be monitored and/or blocked by Millcreek Township. Violation of computer and internet guidelines may result in disciplinary and/or legal action leading up to and including termination of employment. Employees may also be held personally liable for damages caused by any violations of this policy. Employees using Center or Millcreek Township computer, email, and internet shall adhere to the following guidelines:

- 🔊 Employees shall use the Internet responsibly and productively and limit use to job-related activities including research, educational tasks, and information or news that supports the employee's role.
- 🔊 Mozilla Firefox is the default Internet browser at the Center. The Center must remain under Mozilla Firefox to properly access the Merchant OS online point-of-sale system. If usage of a particular website changes the default browser, employees should terminate use of that website.
- 🔊 Personal Internet use is prohibited.
- 🔊 Emails sent via the company email system shall not contain content deemed to be offensive. Sending or posting discriminatory, harassing, or threatening messages or images on the Internet or via Millcreek Township's email service is prohibited.
- 🔊 The installation of software such as instant messaging technology and movie streaming not affiliated with the operation of the Center is prohibited.
- 🔊 Perpetrating any form of fraud, and/or software, film, or music piracy is prohibited.
- 🔊 Stealing, using, or disclosing passwords without authorization are prohibited.
- 🔊 Downloading, copying, or pirating software and electronic files that are copyrighted or without authorization is prohibited.
- 🔊 Sharing confidential material, trade secrets, or proprietary information outside of the organization is prohibited.
- 🔊 Hacking into websites is prohibited.
- 🔊 Sending or posting information that is defamatory to the Township, its products/services, colleagues and/or customers is prohibited.
- 🔊 Introducing malicious software onto the Township network and/or jeopardizing the security of the organization's electronic communications systems is prohibited.
- 🔊 Sending or posting chain letters, solicitations, or advertisements not related to business purposes or activities is prohibited.
- 🔊 Passing off personal views as representing those of the Township is prohibited.

**Music and Radio Stations** – Listening to music including internet radio stations (e.g. Pandora) is permitted during business hours provided these activities do not negatively impact other employees, visitors, customers or the Computer or Internet service. Music volume should be set at a level that does not interfere with communications among employees, customers, or other visitors. Music containing vulgar or offensive language is prohibited.

**Equipment and Supplies** – All equipment and supplies purchased by Millfair remain Millfair property, including but not limited to office supplies, office furniture, fax machines, computers, software, hardware, supplies, vehicles, machinery and equipment, and may not be used by Millfair employees or Millfair visitors for personal reasons.

## Millfair Center Employee Guidebook

### IV. Book Keeping and Records

**Accurate and Complete Business Records** – Employees must act in good faith not to misrepresent material facts for Millfair books and records or in any internal or external correspondence, memoranda, or communication of any type, including telephone or electronic communications.

### V. Public Communications and Media

Millfair is an established and highly respected compost facility. We have developed and wish to maintain a reputation for providing excellent and professional services and high quality organic products. News media and other media gather and distribute information about Millfair regularly. We have a responsibility to be open and responsive to media information requests. The media plays a key role educating our customers, business partners, and employees about composting and Millfair's role within our community. The following Public Communications and Media guidelines have been developed to assure that information disclosed about the Center is approved, timely, accurate, comprehensive, authoritative, and representative of the Center. This Guideline applies to all Employees of the Center and covers all external news media including broadcast, electronic, and print.

**Designation of Company Spokesperson** – The Recycling Coordinator will convey the official position of Millcreek Township on issues or situations that may be potentially controversial or sensitive. The Supervisor, Recycling Coordinator, Recycling Manager, and/or corresponding Supervisor represent the primary media contacts unless another spokesperson is approved by the Recycling Department. Depending on the situation or specific issue or topic, an individual external to the Center and Recycling Department may be asked to be a spokesperson.

**Refer Media Calls to the Recycling Coordinator** – When contacted directly by the media, refer reporter to the Recycling Coordinator and provide the phone number (814-833-1111 ext. 317). Do not say that you do not have permission to speak to the reporter and do not let reporters compel you to answer questions on the spot. Be courteous and professional as Media calls may be the first impression of the Center. Act quickly when approached by the media to ensure media deadlines are met. Contact the Recycling Coordinator shortly after being contacted by the media to discuss the conversation and to determine if you will be needed to help formulate the response.

**Media Photographs and Video** – If media attempts to take photos or video of the Center without permission, politely explain that media are required to get permission from the Recycling Coordinator before taking photographs or videos.

### VI. Privacy and Confidentiality

**Confidential Information** – Millfair employees must exercise care to avoid disclosing non-public, internal, secret, or proprietary information related to Millfair operations or its employees to unauthorized persons, either within or outside Millfair during employment or afterwards, except as such disclosure is legally mandated or approved by Millfair.

**Employee Access to Confidential Information** – Only Millfair employees that truly need to know confidential information to conduct their business shall have access to confidential information. Such employees shall take necessary steps to keep this information private and confidential.

**Confidential Information of Employees** – Employment and medical records of [insert school name] employees are confidential and private. Medical Records may only be disclosed if the employee provides a written release or required by applicable law.

## **VII. Compliance with the Code**

All Millfair employees must know this Code and adhere to its guidelines. If questions arise please contact the Recycling Coordinator or Recycling Department.

**Supervisors/Managers** – Supervisors and Managers must take reasonable care to assure that subordinate employees are complying with the Code. Supervisors and Managers are responsible for misconduct by employees if the supervisor orders misconduct; ratifies the conduct, even by inaction; the supervisor has direct authority and knows of the conduct but fails to act appropriately; or should have known with reasonable diligence that the actions occurred.

**Requirement to Report Actual or Suspected Violations of the Code** – Employees must report any actual or suspected violations of this Code to the Recycling Coordinator or Recycling Department. Failure to report any actual or suspected violations of the Code is in itself a violation of this Code.

**Non-Retaliation Policy** – Employees will not be retaliated against or subject to any form of reprisal for raising a good faith concern under this Code or participating in an investigation into any such concerns. Retaliation is a violation of this Code and should be reported immediately.

**Investigation of Alleged Violations of the Code: All inquiries, complaints, and reports will be promptly investigated. Employees are expected to cooperate in the investigation. Reasonable measures will be taken to preserve confidentiality of the claim and the identity of anyone who reports a suspected violation or participated in the investigation. If you are unsure whether a violation has occurred, Millfair encourages you to seek advice from the Recycling Coordinator or Recycling Department before acting.**



## Acknowledgement Form for Code of Conduct and Ethics

I have read and am familiar with Millfair’s Employee Code of Conduct. I will comply with, and as applicable, will enforce the guidelines in this Code.

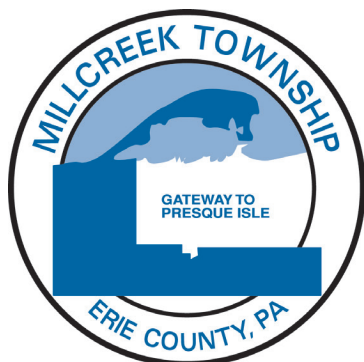
I understand my responsibility to promptly report any incident of misconduct or perceived misconduct that I may experience or witness. I further understand that violations of this Code may result in termination of employment.

By signing this acknowledgement I am indicating that I have read and will abide by Millfair’s Employee Code of Conduct.

\_\_\_\_\_  
Employee Signature

\_\_\_\_\_  
Employee name (printed)

\_\_\_\_\_  
Date







# Millfair Compost & Recycling Center

## COMPOST OPERATIONS





# SAFETY PROCEDURES

The continuous interaction of employees, varied work activities, vehicles and equipment, and visitors at Millfair can potentially be very dangerous. Safety is our top priority. All employees are responsible for maintaining a safe work environment. Each employee has the right to stop working if he or she believes the work or working conditions are unsafe or potentially unsafe.

## Emergencies

- 💡 In case of an emergency, Call 9-1-1
- 💡 If time allows, call 9-1-1 from booth landline so operators have the address.
- 💡 If conditions safely allow, secure the emergency area from vehicle and pedestrian traffic.
- 💡 If conditions safely allow, establish open access for emergency vehicles.
- 💡 Notify the Site Supervisor or another manager if the Site Supervisor is unavailable.

## General Safety Tips

Be aware of your surroundings at all times. Familiarize yourself with equipment and the work area before starting work activities each day.

## Personal Protective Equipment (PPE)

Millfair employees are required to use appropriate personal protective equipment (PPE). PPE is used to protect the eyes, face, head, body, arms, hands, legs, and feet. PPE includes items such as goggles or safety glasses, hardhats, hearing protection, gloves, safety shoes, etc. Employees may be responsible for providing their own PPE. Millfair PPE, including safety glasses, gloves, hearing protection, facemasks, tyvek suits and rain suits are located in old and new sheds. Prior to taking PPE, employees must request PPE from the On-site Supervisor in order to assure an adequate supply of PPE supplies are maintained. PPE is required as follows:

- 💡 All employees are required to wear high visibility clothing.
- 💡 All employees are required to wear steel-toed boots or another approved work boot.
- 💡 In addition, compost operators or heavy equipment operators are required to wear safety glasses, use gloves, and wear hearing protection at all times unless the activity presents no potential harm.

## Heavy Equipment

The heavy equipment listed below is located at the Millfair Compost & Recycling Center. The equipment can only be operated by trained operators:

- 💡 Grinder/Chipper

## Millfair Center Employee Guidebook

- 🔧 Screener
- 🔧 Small JCB (1-yard bucket)
- 🔧 Large JCB (2-yard bucket)
- 🔧 Brown Bear Windrow Turner Attachment

### Equipment Safety

- 🔧 Do not operate Millfair equipment unless you are properly trained and authorized to do so.
- 🔧 Inspect equipment before operating including hoses, tires, fluids, filters, windows, grease, wear points, etc.
- 🔧 Use three points of contact with hands and feet when mounting or dismounting machines.
- 🔧 Do not move equipment without a 360 degree survey of surroundings to identify potential hazards, structures, and persons in the work area.
- 🔧 Always look before backing up and make eye contact with each person within your work area before moving equipment or equipment attachments.
- 🔧 Lower buckets and similar equipment attachment to rest safely on the ground before leaving the equipment.
- 🔧 When piling brush, do not leave overhanging branches.
- 🔧 Apply parking brake before leaving equipment.
- 🔧 If machine is being taken out of service, place note on steering wheel or other highly visible location explaining the problem. Remove the keys or other ignition source of any equipment if taken out of service or otherwise unsafe to operate. Notify the On-site supervisor.
- 🔧 Keep equipment clean inside cabs. Remove all trash daily.
- 🔧 Keep equipment exteriors clean, including undercarriage, so maintenance and safety issues can be easily detected. Pressure wash equipment after each use unless the activity did not contribute to accumulation of dirt or greases, etc.
- 🔧 Remove accumulated mud, snow, ice and debris from steps as needed to maintain safe equipment entrance and exit.
- 🔧 Do not use fingers or hands to find hydraulic leaks. Use paper, cardboard, a rag or similar.

### Fire

There are two primary types of fires that may occur at compost facilities. The type of fire determines the appropriate methods for fire prevention and for extinguishing the fire.



Compost Pile Fires - Fires within compost piles may ignite from external sources like cigarettes or lightning strikes but also ignite from spontaneous combustion. Compost piles can self-heat inside the pile to a temperature high enough to ignite. The key conditions that lead to spontaneous combustion and can be controlled to prevent ignition include:

- 💡 biological activity
- 💡 relatively dry materials or dry pockets
- 💡 large well-insulated piles
- 💡 limited air flow
- 💡 time (for temperatures to build)



### Compost Pile Fire Procedures

- 💡 Notify the On-site Supervisor and determine if the compost pile fire can be safely managed without outside assistance from the Fire Department.
- 💡 For manageable compost fires, move machines or other fire hazards or flammable materials away from burning piles or move the piles if this can be done safely.
- 💡 Use a loader to separate burning piles into smaller piles. Move separated piles away from other compost piles to prevent spreading.
- 💡 Apply water to small burning piles to control the fire.
- 💡 Monitor compost piles to verify the fire has been extinguished.
- 💡 If the compost pile cannot be effectively controlled, call the Fire Department.

**Structure or Equipment Fire Procedures** – For any fire that involves or may potentially involve Millfair structures or equipment call 9-1-1, notify the Fire Department, and notify the On-site Supervisor, Recycling Coordinator, or other Millfair Manager.

### Safety Training

Training in safety, compost basics, and best management practices improve compost facility operations. Mandatory training includes the following:

- 💡 Heavy equipment operators shall demonstrate experience in heavy equipment operation prior to employment at Millfair.
- 💡 Millfair employees are required to attend a pre-season meeting on a day schedule every March before the facility opens to review fire safety protocol, AED Units, general safety, and other operating procedures.

As needed, additional operator training and/or safety training may be scheduled by the Millfair On-site supervisor and be required for Millfair employees.

### Accident Reporting

- 💡 Report all accidents and near misses to the On-site Supervisor, Recycling Coordinator, or other Millfair Manager immediately.
- 💡 After the incident is stabilized, complete an Accident Report Form within 48 hours.
- 💡 If necessary to review or investigate the incident, the security video tapes will be pulled by the On-site Supervisor, Recycling Coordinator, or other Millfair Manager immediately.

## Insert Accident Reporting Forms

## Millfair Compost & Recycling Center Hours of Operation April 1 to December \_\_, 201\_\_

Day	Operating Hours
Monday	8:00am - 5:00pm
Tuesday	8:00am - 5:00pm
Wednesday	8:00am - 5:00pm
Thursday	8:00am - 5:00pm
Friday	9:00am - 5:00pm
Saturday	9:00am - 5:00pm
Sunday	12:00pm – 5:00pm



Hours of Operation

# Millfair Special Events Schedule

Year \_\_\_\_\_

Event	Event Description & Special Procedures	Date & Time
<b>Adult Probation</b>	Curbside Leaf waste is accepted from Millcreek, Fairview, and Harborcreek Townships. Probation volunteers are managed and assist in the debagging of leaves.	TBD depending on scheduled WM Leaf Collection Weeks.
<b>Full Special Collection Events</b>	<b>Accepted items:</b> Appliances (with or without Freon), auto batteries, bicycles, construction & demolition waste, hot water tanks, lawnmowers, paper shredding, propane tanks, scrap metal, textiles, tires, and washers/dryers.  Picnic lunch provided.	Third Saturday in May, 2015 (9am to 2pm).
<b>Partial Special Collection Events</b>	Tire and paper shredding collection events.  Picnic lunch provided.	Third Saturday in May, 2016 (9am to 2pm).
<b>Christmas Tree Recycling</b>	Volunteers help unload unwanted Christmas Trees while accepting donations for the Emmaus Soup Kitchen.  Christmas Trees are chipped and screened.  Residents throughout Erie county may participate.	Annually on the first or second Saturday of January. (9am – 12pm)
<b>Other Events</b>		

Note: Expect high volumes of traffic and visitors along with the potential changes in operating procedures for special events.



# Spring Opening Checklist

## Facility

- Complete Security breach inspection of the grounds including fences and gates.
- Inspect building and structures for any damages from ice, snow, or animals.
- Check level of fuel in storage tanks along with the general condition of the tank.
- Inventory at start up, and on a monthly basis, equipment supplies (e.g. teeth, bolts, filters, oil, grease) and submit supply order list to the Recycling Coordinator.
- Check fire pump for operation and inspect fire extinguishers. Inspect building and structures for any damages from ice, snow, or animals.
- Place aeration pumps in pond and verify operation.
- Order portable toilet and drinking water.
- Inventory gloves, earplugs, and hand cleaners.
- Turn compost piles as needed.
- Set up orange cones and signage for driving around check-in booth.
- Set up stakes and tarp in picnic shelter area.
- Traffic Department to inspect security systems/cameras and verify proper operation.

## Booth

- Inspect booth for any damages from ice, snow, or animals.
- Inventory booth office supplies and reorder supplies through Recycling Coordinator.
- Check lighting, heating or air conditioning operation.
- Connect PC and verify operation.
- Start and verify POS system operation.

## Comments/Action Items:

Completed by: \_\_\_\_\_

Date: \_\_\_\_\_



# Fall Closing Checklist

## Facility

- Place picnic tables in storage building.
- Roll up all tarps and place in storage building.
- Clean up debris from around compost and mulch piles.
- Break largest compost piles into smaller piles to reduce heat building and fire hazard.
- Organize leaves into windrows.
- Drain fire pump and rain barrels as well as remove aeration pumps from pond.
- Test antifreeze in the engines of the machinery.
- Check air pressure in tires of all equipment and inflate or deflate as needed.
- Store grinder and screener inside storage building.
- Top off loaders with fuel and add fuel stabilizer if needed.
- Park loaders inside storage building.
- Turn off or disconnect equipment batteries.
- Fill up fuel storage tank.
- Request pick-up for portable toilets.
- Return water bottles to Premium Coffee and Water Co. of Erie.
- Place signs and cones inside storage building.
- Traffic Department to inspect security systems/cameras and verify proper operation.
- Lock and secure all buildings.

## Comments/Action Items:

Completed by: \_\_\_\_\_

Date: \_\_\_\_\_

## Fall Closing Checklist Continued

### Booth

- Clean booth and remove all trash.
- Clean, close, and lock windows.
- Remove booth computer and take to the Township Recycling Office.
- Lock booth and give booth keys to Recycling Coordinator.

### Comments/Action Items:

Completed by: \_\_\_\_\_

Date: \_\_\_\_\_

# Daily Opening Checklist

## Facility

- All employees MUST sign in at the beginning of the shift. Millcreek employees sign in electronically and Fairview employees sign in on paper templates provided by Fairview Township Payroll.
- Unlock all buildings.
- Perform daily inspection and maintenance check of machines.
- Check fire pump operation.
- Start machines and allow for warm-up time.
- Unlock and open gate at least 5 minutes prior to posted opening time.
- Verify all employees have arrived and signed in by the posted opening time.

## Booth

- Turn on computer, log in, and verify computer is functioning properly.
- Check POS operation.
- Turn on lights, heater, and/or air conditioner.

## Comments/Action Items:



Daily Procedures

# Daily Closing Checklist

## Facility

- Shut down and secure all equipment (e.g. grinder and screener).
- Complete routine cleaning and site organization assuring processed and unprocessed materials are orderly.
- Inspect site for possible fire hazards including compost pile hot spots.
- Park and lock loaders.
- Secure equipment keys in lock box.
- Secure all buildings.
- Lock back gate and fuel tank.
- Verify all employees have signed out at the end of the shift or when leaving for the remainder of the day.
- Verify all employees have exited the facility and close and lock the main gate.

## Booth

- Close out cash.
- Place sales receipts in small manila envelope. Write the date on outside of envelope and keep the receipt envelope in the booth for pick up.
- Log off and shut down computer system.
- Turn of POS systems.
- Turn off all lights, heaters, and air conditioners.

## Comments/Action Items:

Daily Procedures

## Weekend Procedures

Due to the high volume of incoming and outgoing traffic, pedestrians, and materials, the following procedures are in place for Millfair during weekend operations:

- 🔧 Grinding, screening, and windrow turning are prohibited.
- 🔧 Conserve fuel and reduce emissions by parking and shutting off equipment after customer loading or other use.
- 🔧 Adhere to daily opening and closing procedures and checklists.



## Vehicle Capacity Table

(Cubic Yards)

Use the following vehicle capacity table to estimate incoming and outgoing material quantities.

Type of Vehicles	Approximate Volume
<b>Pick-up Truck (6 ft. bed)</b>	1 cubic yard
<b>Pick-up Truck (8 ft. bed)</b>	2 cubic yards
<b>Small Trailer (up to 8 ft)</b>	1-2 cubic yards
<b>Pick-up Dump Truck</b>	3-4 cubic yards
<b>Trailer (8 ft. to 12 ft.)</b>	3-4 cubic yards
<b>Stake Body Truck (10 ft. bed)</b>	3-4 cubic yards
<b>Stake Body Truck (12 ft. bed)</b>	4-5 cubic yards
<b>Single Axle Dump Truck</b>	4-5 cubic yards
<b>Enclosed Chipper Truck</b>	5-8 cubic yards
<b>Tandem-Axle Dump Truck</b>	15-20 cubic yards
<b>Tri-Axle Dump Truck</b>	25-30 cubic yards



## Compost Products

Each year Millfair generates a variety of composting products that are made available to the public. In order to assure there is a high demand for our compost products, Millfair produces high quality products that are free of unwanted materials and chemicals. Revenues from the sale of compost products play an important role in sustaining our business. Each year, Millfair develops information for the general public and our customers regarding our compost products and services.



## Composting Products

**Insert Brochure**

Millfair Compost & Recycling Center

Compost Operations:

**MILLFAIR  
COMPOSTING  
GUIDE**





## Purpose

This information has been developed to provide guidance to Millfair employees and operators regarding the compost process, organics processing, and materials management, monitoring, and compost products at the Millfair Compost & Recycling Center (Millfair).

## Pennsylvania’s Yard Waste Management Regulations

Pennsylvania regulations are the foundation for the development of the Millfair Compost & Recycling Center. PA Act 101 of 1988, the “Municipal Waste Planning, Recycling and Waste Reduction Act,” establishes the framework for separating and recycling components, including leaf waste, from the municipal waste stream. PA landfills, waste to energy facilities, and other disposal facilities are prohibited to accept shipments comprised primarily of leaf wastes unless provisions are made to compost those materials. Millfair is regulated and permitted as a “Permit-by-Rule” facility under Chapter 281 of PA DEP’s Municipal Waste Regulations, Section 271.101 (h). These guidelines establish minimum siting, operating, and reporting criteria for Millfair. The Pennsylvania Department of Environmental Protection defines yard waste and yard waste composting facility as follows:

“Yard Waste”	“Yard Waste Composting Facility”
Leaves, grass clippings, garden residue, tree trimmings, chipped shrubbery and other vegetative material.	A facility that is used to compost leaf waste, or leaf waste and grass clippings, garden residue, tree trimmings, chipped shrubbery, and other vegetative material. The term includes land affected during the lifetime of the operation including, but not limited to, areas where composting actually occurs, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated on-site or contiguous collection and transportation activities, and other activities in which the natural surface has been disturbed as a result of or incidental to operation of the facility.

## Health and Safety Precautions

Health and safety precautions must be taken to avoid injury or illness at Millfair. To avoid injury, care must be taken at all times, and particularly when heavy equipment is operating. Heavy equipment may include waste or material drop-off vehicles, front-end loaders, and any specialized mixing, shredding, turning or aeration equipment. Personal protective equipment (PPE) is required and may include eye, ear, foot, and head protection.

Possible illness due to microorganisms does exist, but risks are dependent on the type of waste being composted, site conditions, worker’s resistance to disease, weather, and many other factors. Fungi, mold, and bacteria thrive in compost, including municipal yard waste and leaf compost.

Although few organisms of public health significance are found in yard wastes, proper sanitary measures such as washing hands before touching face or food is required. Exposure to large quantities of airborne endotoxins (noxious substances produced by certain bacteria) can produce flu-like symptoms in humans. Individuals who have allergies, asthma, or a weakened immune system should not work in active composting areas. In addition, some medications such as antibiotics and hormones, or a punctured eardrum, can predispose

## Millfair Center Employee Guidebook

individuals to infection or an allergic reaction. During dry and dusty conditions, Occupational Health and Safety Administration (OSHA)-approved dust masks or respirators should be worn to minimize risk of infection, especially during windrow turning activities. Wetting piles and other surfaces during dry and/or windy conditions is recommended to reduce air borne bacteria, dust, and pathogens.

### COMPOSTING PROCESS

Composting is the controlled decomposition of organic matter by microorganisms into a relatively humus-like product. The microorganisms responsible for composting are aerobic or oxygen-loving. Microorganisms require water and nutrients and generate heat as they decompose wastes.

#### Key Factors and Conditions for Successful Composting

The key conditions for successful composting include balancing the following factors. These environmental factors work together to provide desired extent and rate of decomposition.

- 🌱 Substrate (i.e. the feedstock or waste being composted)
- 🌱 moisture content
- 🌱 oxygen
- 🌱 temperature
- 🌱 pH

#### *Substrate (material or feed stocks)*

The conditions for successful composting change according to the material being composted or substrate. The substrate at Millfair includes leaves and other yard wastes. The substrate determines the available nutrients, particle size, and the need for inoculants. Substrate may or may not require processing to achieve optimal particle size for microbial decomposition.

#### *Carbon to Nitrogen Ratio (C:N)*

The microorganisms required for composting use carbon sources to obtain energy and consume nitrogen for protein and synthesis of new cellular material (population growth). Carbon (brown) sources include leaves and brush. Nitrogen (greens) includes grass clippings, garden vegetation, and digested sewage sludge (although composting of sewage sludge requires a PA DEP permit). The ideal proportion of carbon to nitrogen, for optimal aerobic microbial action, is 30 parts carbon (browns) to 1 part nitrogen (greens) by weight. This ratio may need to be adjusted based on the bioavailability of carbon and nitrogen.

Insufficient nitrogen (greens) limits the growth of the microbial population and the rate of composting slows if the C:N ratio is very high. Conversely, excess nitrogen (greens) leads to rapid microbial growth and accelerates decomposition, but this can quickly deplete oxygen available causing the compost mixture to go anaerobic and create serious odor problems.

#### *Surface Area/Particle Size*

The microorganisms act on the surface of the substrate. Smaller particles have greater surface area (for the same amount of material) and are broken down more quickly. However, very small particles compress

together, limiting porosity and limiting movement of water and oxygen. Furthermore, the size reduction of some fresh vegetation turns the waste into a slurry material which is harder to manage and has very low porosity.

Some size reduction is recommended for branches and twigs, primarily to make handling easier. Tearing or shredding of leaves may be considered if the composting rate is inadequate (too slow) or if uneven decomposition within the pile is evident; usually, leaves compost well without shredding. Little or no size reduction is recommended for fresh, green vegetation.

### *Inoculants*

Decomposition is performed by the microorganisms naturally present in leaf and yard wastes. The microorganisms grow rapidly on the organic material, using it as a source of food. Naturally occurring microorganisms are present in sufficient quantities for proper yard waste composting operations. Rarely does composting require inoculums, or the deliberate addition of microorganisms to the substrate, but should an inoculum be desired, the following sources of microbes can be considered: finished compost, decomposed horse manure, or a rich loamy soil.

### *Moisture Content*

Water is essential to the survival of microorganisms. Moisture aids in dissolving nutrients and provides a suitable environment for bacterial population growth. The optimal moisture content for leaf composting is between 40 and 60 percent. This is about the consistency of a wrung-out sponge. Leaves should feel damp but with only a drop or two of water expelled when tightly squeezed. Leaves very often require water at the start of the composting process. As a rule of thumb, dry leaves initially need about 20 gallons of water for every cubic yard of leaves. However, excessive moisture inhibits the flow of oxygen and anaerobic conditions develop under wet conditions.

Water for the compost pile wetting can be provided from potable or non-potable piped sources (such as a hydrant connection), from a stream/pump discharge, from a well supply, or from a tanker truck. Rewetting of the pile during turning may be necessary to maintain optimal moisture conditions. Water can be added to the compost pile by hosing as the windrow is turned, by turning the piles on rainy days, or by injecting water to the center of the pile via pressurized means.

The shape of the composting piles affect moisture content. Piles forming a peak shed water, thus minimizing absorption. This is the recommended method of pile construction during wet weather periods. Piles with a depression on top (forming a concave shape) maximize water absorption. Concave piles, however, are a potential breeding ground for mosquitoes and insects. Rounded windrow peaks are recommended for compost during typical rainfall periods in Pennsylvania.

### *Oxygen*

The microorganisms responsible for composting are aerobic, or oxygen-loving. Thus, composting occurs in the presence of oxygen. An adequate supply of air is necessary for rapid decomposition of organic material. The oxygen content of the air we breathe is about 21%. Compost microorganisms can survive at oxygen levels to about 5%, but below this, aerobic microorganisms die. Below the oxygen level of 10%, parts of the compost can become anaerobic. Such anaerobic conditions can lead to the decreased composting efficiency and can cause odor problems. Therefore, maintaining an adequate oxygen supply is essential to proper compost operations.

## Millfair Center Employee Guidebook

Air can be supplied by forced aeration systems, though these systems are generally suitable (cost justified) only when nitrogen sources are causing frequent odor problems or if the yard waste is being composted with sludge. Air is most commonly added by turning the compost pile with equipment, like a front-end loader or specialized compost turner. This only provides several hours of oxygen, but it also loosens the piles allowing air to flow more freely in and through the pile via natural convection. Natural convection is driven by a chimney effect with cool outside air pulled in from the bottom sides of the piles, while heated air from the pile center/core rises out of the top of the pile. The effectiveness of natural convection depends upon the particle size, moisture content, and pile construction.

### *Temperature*

Heat is generated by the metabolism of the microorganisms as they naturally decompose waste. The optimum temperature range is between 90 degrees F and 140 degrees F. Below 90 degrees F, decomposition slows down significantly, and above 140 degrees F, the rate of decomposition rapidly declines as beneficial organisms begin to die or become dormant. The compost piles may also be susceptible to spontaneous combustion at these higher temperatures.

Compost pile temperature not only depends on the heat generated by the microorganisms, but also by the heat lost through aeration or surface cooling. During periods of cool weather, piles may need to be larger than usual to minimize surface heat loss. In specialized compost operations that process large amounts of nitrogen-high sources like grass clippings or sludge, smaller piles and frequent turning may be needed to provide oxygen and release excess heat.

Compost temperatures should be monitored frequently. Weekly temperature readings are recommended and should be taken along 65 to 75 ft. sections of the pile (e.g. at least 3-4 measurements per windrow). There is an initial high temperature period of a few days to several weeks, followed by a gradual drop in temperature. Turning the piles exposes new surfaces to decomposition, causing temperatures to rise again. It is important to monitor temperatures and turn the compost when temperatures exceed 140 degrees F to optimize the compost process. When pile temperatures drop below 70 degrees F, the composting process is nearly complete. Turning compost piles when temperatures are above or below the optimum range (90 to 140 degrees F) promotes the production of high quality compost in the shortest time frame. The frequency of temperature readings can be reduced as compost piles stabilize.

### *pH*

Active composting and rapid decomposition is most efficiently at or near neutral pH conditions. It is common for the pH of compost to become slightly acidic (i.e. down to 5.0) during the early stages of decomposition because of organic acid formation. The pH then begins to rise near neutral conditions, and may reach levels as high as 8.5. Normally, leaf composting operations do not present a pH (acidic) problem, especially if piles are turned and active composting occurs. The pH of the material should be monitored periodically and when temperature readings are atypical or if other composting issues are observed.

### **Turned Windrow Composting**

Turned windrow system – Millfair uses a “turned windrow” system to process leaves and yard wastes. The term “turned” refers to the method of aerating and mixing piles. Turning includes using heavy equipment to build compost piles or windrows, tear them down, and rebuild them.



Other windrow systems include “Mechanical” and “Static” windrow systems - Mechanical compost system are enclosed systems, where a reactor provides adequate aeration and adds moisture. Some reactors, like in-vessel compost systems rely on tumbling mechanisms, while others utilize a forced air technique. Mechanical compost systems are expensive and primarily used for high volume applications and/or applications where special feedstocks are involved (e.g. food waste, animal wastes, etc.). Mechanical systems can be very effective at controlling odors. Mechanical systems are considered cost-prohibitive and unnecessary for yard waste composting operations, unless special feedstocks are introduced. Static windrow system - The static system or forced aeration composting involves pushing air through compost piles without moving or turning the compost piles. Static systems are effective for substrate with relatively uniform particle size less than 2 inches in any dimension. Static systems are often used for sewage sludge composting. Forced-aeration systems are typically not utilized in yard waste composting unless special feedstocks like food waste are accepted. Static windrow systems usually pre-process or mix feedstocks to achieve relatively uniform particle size within piles.

### *Windrow Construction*

Construct windrows for incoming yard wastes within one week of delivery. All bags and non-compostable materials should be removed prior to processing materials and constructing windrows. If several types of waste are composted together such as leaves and woodchips or shredded woody wastes, they should be mixed prior to windrow construction using a front-end loader, grinder, windrow turner, or mixer.

As needed, add water to reach the required moisture content between 40 and 60 percent for leaf and yard waste compost piles. Adding water is most important during initial pile construction to accelerate composting in this active composting phase. Use water from the detention or “frog” pond or hydrants to water piles.

Construct windrows comprised primarily of leaves 6 to 8 feet tall and 12 to 18 feet wide at the base. Leaf waste piles may be built to 8 to 10 feet tall in the mid-winter months. Avoid driving on or compacting piles. The material should be allowed to cascade down from the bucket of a front-end loader to form a loose pile with a rounded peak. Space permitting, windrows should be constructed in pairs so that two piles can be combined into one pile after the piles initial composting phase.

Avoid constructing pile too large or too small. In oversized piles, oxygen cannot reach the center. Small piles do not effectively maintain optimum compost temperatures.

Grass clippings are not currently accepted at Millfair. If grass clippings are accepted in the future, grass can be placed on top of existing windrows and incorporated into the pile. Windrows of grass clippings with leaves may need to be smaller, often only 5 feet high and 10 feet wide (however, with a 3:1 minimum ratio of leaves to grass, reduction of the windrow pile size is probably not necessary). PADEP require grass clippings to be incorporated windrows within 24 hours of grass delivery at a ratio of no less than 3 parts leaves to 1 part grass.

### *Turning Frequency*

To promote active composting, turn windrows when compost pile temperatures drop below 90 degrees F or exceed 140 degrees F. Composting is very active upon initial pile construction, so turn the windrows once per week for the initial month after pile construction. Turning the piles increases the rate of decomposition by mixing of materials, exposing new surfaces, and breaking up cool spots.

After the initial turnings in the first month, reduce windrow turning dramatically; turning piles only based on temperatures or as part of combining smaller windrows to form a larger windrow. Turning is not required during the winter months since cold weather decreases the decomposition rate. Windrows which include

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grass clippings or other sources of nitrogen require more frequent turning to prevent odors and optimize composting conditions.

Windrows may only need to be turned 3-4 times between initial fall delivery (pile construction) and the middle of the next summer.

### *Curing*

After a period of 8-10 months of composting for leaves and yard wastes, decomposition slows substantially and compost is ready for curing. Curing is a critical final step used to eliminate microbes that break down the compost pile components into nutrient-rich, organic soil. Unfinished or uncured compost still contains these microbes and they can damage young plants.

Confirm piles are ready for curing by monitoring compost temperatures, which should be cool (80 to 100 degrees F). Move material from the windrow composting area to the curing area. Stack curing piles 10-14 feet high and allow the piles to cure or stabilize for at least 30 days and ideally two to four months. Do not turn curing piles.

### *Grinding and Screening*

Millfair grinds and screens incoming leaf and yard wastes to size-reduce feed stocks and to produce finished compost products.

### *Odors*

Managing and minimizing odors generated by Millfair is critical. Millfair is located near commercial and residential property owners. Proper site and operations management minimize odor occurrences. The primary odor management strategies include monitor incoming feedstocks, using proper composting techniques to avoid anaerobic conditions, and maintain active or stabilized conditions in piles and windrows.

### *Troubleshooting*

Millfair managers and operators should understand composting concepts and limitations of the composting process to troubleshoot problems. Pile monitoring is necessary because pile characteristics offer clues to identify compost process issues. High or low temperatures, odor, ponding, leachate discharge and others, are indications of problems with the compost process. Use the Millfair Compost Troubleshooting Guide as needed to identify compost problems and optimize composting rates and quality.

**Millfair Compost Troubleshooting Guide**

Problem	Cause	Recommendation
<b>Foul Odor</b>	<ul style="list-style-type: none"> <li>✦ Anaerobic conditions piles are too large</li> <li>✦ Piles are too wet or excess grass (nitrogen)</li> <li>✦ Temperature is too high</li> <li>✦ Leaf compaction</li> <li>✦ Surface Ponding</li> </ul>	<ul style="list-style-type: none"> <li>✦ Reduce windrow size (16-18 ft wide x 6 ft. height)</li> <li>✦ Turn or mix windrow, add dry material</li> <li>✦ Turn windrow</li> <li>✦ Turn windrow or reduce windrow size</li> <li>✦ Fill in or otherwise eliminate ponding</li> </ul>
<b>Standing Water/ Surface Ponding</b>	<ul style="list-style-type: none"> <li>✦ Ruts and holes</li> <li>✦ Inadequate slope</li> <li>✦ Improper construction</li> </ul>	<ul style="list-style-type: none"> <li>✦ Regrade, reconstruct or fill as needed.</li> <li>✦ Regrade at recommended slope design</li> <li>✦ Align windrows downslope, not across</li> </ul>
<b>Inadequate Composting Rate</b>	<ul style="list-style-type: none"> <li>✦ Insufficient moisture</li> <li>✦ Uneven distribution of air, moisture, or nutrients</li> </ul>	<ul style="list-style-type: none"> <li>✦ Add more water initially, or add water while turning</li> <li>✦ Consider size reduction methods – turn pile, adding water if necessary</li> </ul>
<b>Inadequate Composting Rate With Low Temp</b>	<ul style="list-style-type: none"> <li>✦ Windrow too small – heat loss</li> </ul>	<ul style="list-style-type: none"> <li>✦ Construct piles to minimum of 6 ft high, or higher for cold seasons</li> </ul>
<b>Inadequate Composting Rate With High Temp</b>	<ul style="list-style-type: none"> <li>✦ Lack of nitrogen</li> <li>✦ Windrow too large or dense (anaerobic)</li> </ul>	<ul style="list-style-type: none"> <li>✦ Mix in a nitrogen source (greens)</li> <li>✦ Make piles smaller, turn to loosen compacted materials</li> </ul>
<b>Fires &amp; Dry Piles</b>	<ul style="list-style-type: none"> <li>✦ Temperatures too high</li> <li>✦ Not enough water</li> <li>✦ Stray sparks and embers</li> </ul>	<ul style="list-style-type: none"> <li>✦ Reduce pile size and turn.</li> <li>✦ Add water and turn piles</li> <li>✦ Keep fire sources away from piles</li> </ul>
<b>Surface Water Pollution</b>	<ul style="list-style-type: none"> <li>✦ Leachate Discharge</li> </ul>	<ul style="list-style-type: none"> <li>✦ Configure windrows perpendicular to slope. Treat leachate before it leaves the site by conveying to catch basin. Use BMP's for to divert surface water away from compost or curing piles (e.g. woodchips or sawdust berms).</li> </ul>
<b>Mosquitos</b>	<ul style="list-style-type: none"> <li>✦ Stagnant water</li> </ul>	<ul style="list-style-type: none"> <li>✦ Reconstruct piles to eliminate ponding</li> </ul>
<b>Noise</b>	<ul style="list-style-type: none"> <li>✦ Equipment operation</li> </ul>	<ul style="list-style-type: none"> <li>✦ Isolate equipment to the extent feasible to reduce noise impacts. Reduce or cease equipment operation during periods of high volume or visitors.</li> </ul>
<b>Dust</b>	<ul style="list-style-type: none"> <li>✦ Turning operations</li> </ul>	<ul style="list-style-type: none"> <li>✦ Avoid turning dry piles on windy days. Use wetting or other dust control methods. Add shrub and/or trees to disrupt dust flow off site.</li> </ul>

### Monitoring Procedures

Periodic pile monitoring is required to verify compost conditions and quality. Monitoring can be completed on paper forms or via compost applications “apps” that may be downloaded to PC or smartphones. Compost monitoring should be performed periodically to determine proper compost operating procedures, including: turning frequency, adding water, moving piles from windrows to curing piles, and to verify when compost products are cured and ready for sale. The following information should be recorded periodically for leaf and yard waste windrows:

#### Initial Pile Construction Data:

- 🌱 Type and quantity of materials or substrate
- 🌱 Method of size reduction
- 🌱 Method of mixing
- 🌱 Amount of water added and method of watering
- 🌱 Date of windrow construction
- 🌱 Size and shape of windrow

#### Process Data (recorded periodically or during turning)

- 🌱 Temperature (3-6 foot long temperature probe)
- 🌱 pH
- 🌱 moisture content
- 🌱 oxygen levels
- 🌱 odor
- 🌱 texture

**Insert Monitoring Form**

**Insert Monitoring Form**

## Compost Quality Testing and Lab Analysis

Periodically, Millfair submits compost samples to the Penn State Agricultural Analytical Services lab (or another lab) for analysis. Analytical results help to verify compost quality, consistency, and can identify unwanted chemicals or pollutants.

Penn State Agricultural Analytical Services Lab  
 Tower Road  
 University Park, PA 16802  
**Phone:** 814-863-0841  
**Fax:** 814-863-4540  
**Email:** aaslab@psu.edu

An example of the service fees for compost testing are provided below (other fees may apply):

Service	Includes the following:	Fee
<b>Compost Test 1A</b>	Percent solids, organic matter, pH, soluble salts, total nitrogen, total carbon, Carbon:Nitrogen ratio	\$40.00
<b>Compost Test 1B</b>	Compost Test 1A plus ammonium nitrogen, phosphorus and potassium	\$55.00
<b>Compost Test 1C</b>	Compost Test 1A plus ammonium nitrogen, phosphorus, potassium, aluminum, calcium, magnesium, manganese, sodium, copper, iron, sulfur and zinc	\$75.00

*Sample size required for Compost Tests 1A, 1B, or 1C: approximately 1 quart.*

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## REFERENCES

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- Curbside Recycling: How-To Guide for Pennsylvania Local Governments*, The Pennsylvania State Association of Township Supervisors for Pennsylvania Department of Environmental Resources, Harrisburg, PA, September 1990.
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