2017 SWANA

Safety Award Submission

Category: Biggest Safety Improvement

Maryland Environmental Service: Prince George’s County Material Recycling Facility
Sustainable Materials Management
Approx. Population: 834,000

SWANA Member # 28278
Steven Tomczewski
Managing Director of Environmental Operations
410.729.8371
stomc@menv.com
EXECUTIVE SUMMARY

The Maryland Environmental Service (MES), an independent State agency - along with Prince George’s County - are dedicated to providing a safe work environment for their employees, contractors, clients, and visitors. MES employees work hard every day to improve the environment, but they also work hard to improve on safety. In fact, the employees of our Prince George’s County Material Recycling Facility (MRF) have gone above and beyond to establish a robust safety program from scratch. Despite facing extraordinarily difficult circumstances upon taking over this facility, employees designed a unique safety program which strongly adheres to MES standards and has made significant impacts on safety outcomes. Moreover, this facility has maintained a stellar record as compared to national industry standards. MES is proud to submit for this award because it is the outstanding dedication, focus, and intellectual capital of our people that has empowered an extraordinary record for personal safety.

SECTION 1

Describe your safety program, including your use of Safety Monday and other safety information provided by SWANA.

Maryland Environmental Service has maintained an aggressive safety program for the past 29 years that strives to provide a safe working environment for their employees, contractors, visitors, and clients. Managers, supervisors, and employees have built a coordinated effort to provide training, personal protective equipment, and assistance in identifying and correcting potential hazards. The primary goal is to provide a safe working environment for our workers, while protecting our client’s assets and the Agency from potential liability.

Management is committed to providing appropriate staffing and funding to ensure that employees maintain a safe working environment. Each major MES facility has an employee designated as a Safety Committee Member and serves as the representative for all of the workers at their location. This employee takes on a position of responsibility over and above their regular work requirements, and he or she also provides assistance in training and educating their fellow employees.

Through the effort of the Safety Department and manager commitment, a culture of “Safety First” has been brought to the forefront of all operations. Each employee’s dedication to act responsibly has reduced the Agency’s “Lost Hours Taken due to an Injury versus the Man-Hours Worked” to a rate of 0.081%. This ratio reflects the full commitment of managers and employees to ensure their workplace is safe. Safety-related concerns are immediately addressed and the appropriate corrective actions are taken. Employees are encouraged to discuss concerns with their supervisor and suggest possible corrective actions for any observed issues. These concerns are thoroughly evaluated by management in coordination with the employee and, where applicable, are addressed throughout the facility.

When MES assumes the operation of any new facility, a safety culture is built and instilled in all new employees. They attend a safety orientation on their first day of the job and the supervisor reviews the safety
The Safety Monday literature provided by SWANA is highly valued. MES presents this material to both MES employees and our third party contractor staff each Monday morning. With the material provided in both English and Spanish our employees and contractors are provided the same information for safety awareness. When Safety Alerts are provided, this information is disseminated to all employees who work in and around the hazard specifically involved in the incident. These are key training components for employees to raise their awareness level for safety. Along with Safety Alerts, supervisors review the Weekly Job Hazard documents and the Agency Kicksheets relevant to their tasks.

Hazard Communication Program/GHS was instituted at the facility. Proper signage was purchased, installed and employees were trained on the requirements of how to handle and store chemicals safely. A chemical information list was developed and is updated every 6 months along with maintaining vendors Safety Data Sheets. All existing material was identified and labeled per the GHS labeling standard. Flammable cabinets and shelving was installed to adequately store the materials.

A Lockout/Tagout program was put into place which included employees being trained in the proper procedures. Individual locks and tags were provided to specified employees who would be utilizing and securing the system for repairs and/or maintenance. Specific procedures were developed to de-energize the main system control panel and the balers in a systematic sequence to ensure all energy sources are eliminated prior to performing maintenance. Lockout boxes were provided for the maintenance and operations staff with individual locks assigned to the employees.

Confined Space procedures were established and areas were designated as permit-required or non-permit required confined space within the facility. Appropriate retrieval and fall protection equipment was purchased for safe confined space entry into these areas. Employees were trained on the Agency Program, which included a drill with retrieval equipment to ensure their competency with safe entry.

Respiratory protection within the facility was evaluated. Employees were medically evaluated to ensure their physical capability to wear respiratory protection and then proper fit testing was conducted with the Agency Air Purifying Respirators (APR’s). Designated employees were assigned Air Purifying Respirators and HEPA dust masks were made available for all workers for voluntary usage, as needed.

Job Hazard Analysis (JHA) was developed through coordination with employees, managers and maintenance personnel. The JHA process identifies in detail the equipment needed, Personal Protective Equipment (PPE) required, and
the potential hazards associated with completing each specific task. Employees and contractors were trained on the proper procedures and safety measures they needed to be aware of, and the protocols to be followed to safely perform their tasks. As additional tasks were identified, the employee developed a JHA to ensure the safety of all involved with the job.

- **Health and Safety Plan (HASP)** was created to provide a framework of tasks and potential hazards throughout the facility. Each process area was evaluated to ensure hazards were identified; appropriate training required; PPE worn; and the proper safety procedures were put in place. This involved extensive involvement of managers, employees, and the Safety Department. The HASP Manual contains 13 sections along with 9 attachments including the Emergency Response Plan and Exposure Control Plan. All MES employees and contractual labor were trained on the components of the HASP to ensure worker knowledge of safety requirements within the facility.

- **Forklift/JLG** training and certification was provided to all employees and contractual labor that had the potential to utilize the equipment. Drills were coordinated with the workers handling any baled materials at the facility. Certification was provided once competency was established with the equipment. Operator visibility was stressed due to the significant volume of pedestrian traffic in and around the facility.

- **Personal Protective Equipment (PPE)** need was evaluated for specific tasks conducted throughout the facility. PPE was purchased and provided to all MES employees and contract workers along with the proper procedures for wearing and maintaining the equipment. The benefits to wearing appropriate PPE and keeping it clean was stressed in the training to ensure that employees and contract workers utilized the equipment in a safe manner. All personnel involved in recycling operation are required to wear safety-toed work boots, reflective gear, hard hats and safety glasses. Supervisors utilize two-way radios to maintain constant contact within the facility.

- **Fall Protection** was installed for cleaning and performing repairs to the star screen processing equipment. A fixed point was installed for attaching a fall protection hoist for employees to attach their harnesses while cleaning the star screen. Employee harnesses were purchased and specific training conducted on the safety requirements for utilizing this equipment.

- **Cut resistant glove** evaluations were conducted for the different processing areas of the material separation facility. A coordinated strategy of working with select vendors who provided a variety of glove samples allowed for a thorough evaluation in order to determine the appropriate hand protection depending on the specific task. The pre-sort workers need a higher cut and puncture resistance glove than the sorters handling paper materials. Extensive effort was put into providing the best glove protection for the specified work area. Employees and contractor labor were assigned cut-resistant gloves relevant to their designated location within the processing area.

- **Tailgate and Safety Kicksheet** training is provided to all MES employees and contractual labor working within the facility. Each Kicksheet is designed to detail a specific concern and the safe way to operate the equipment for prevention of an injury. The tailgates are more detailed but cover a broader range of subjects such as Back Safety, Loader Operation, Conveyor...
Safety, etc. All training is documented with each employee’s signature and the Agency Safety Department maintains a spreadsheet of training the employees have completed. This ensures they have the knowledge necessary to work safely. All regulatory required training is conducted through a formal class structure and employees are provided documentation of completion. This spreadsheet allows for a continual review of specified needs of the employees to better provide them with the tools necessary to work safely.

- This overall training regimen is also required for each employee of CMT Services, Inc. CMT is our third party contact labor supplier. CMT provides 24 employees on a daily basis to the MRF – sorters, laborers and supervisory personnel. MES and CMT work closely together to ensure the same employees work at the facility each day and perform the same function. CMT has instituted a pre-training program at their office location prior to workers starting at the MRF. MES supplies this training information to CMT which is tailored to the job functions to be encountered at the MRF.

**SECTION 2**

**How do you measure results for your safety program?**

The solid waste industry experiences a high rate of injuries and accidents. Many are from the collection side of solid waste, but there is a high percentage within the materials recycling facilities. These generally involve heavy equipment or moving equipment, which due to the size and impact of the equipment can result in an unfavorable outcome for the worker.

The national recordable rate for material recovery facilities is 5.1 with a rate of 3.4 cases with days away from work. Statistics are high for this industry.

*The Prince George’s County MRF experienced 2 minor injuries since operation began in December 2015, and neither case had lost time associated with the injury.*

MES employees worked 43,386 hours, in addition to our CMT contract labor employees working 77,420 hours during this same time period. **With over 120,000 total hours worked in the operation of the facility, only 2 minor incidents occurred. This equates to 0.001% injuries versus man-hours worked.** The effective safety program at the facility is directly related to providing a safe working environment for employees and contractors and this has a direct correlation to these statistics.

All recordable injuries are coordinated with our workers compensation carrier. The Safety Department and the adjuster review these injuries and ensure that a preventive or corrective action is implemented at the facility. This proactive coordination results in a reduction in lost man hours due to early intervention and assistance provided to the employee. Each injury or accident is reviewed by the Agency Safety Committee to determine if there is any action needed at other facilities to help prevent a similar incident from occurring again at the same or different operating location. Many times the employee is required to attend additional training and
create a Job Hazard Analysis (JHA) on how to safely complete the specific task. Once these JHA’s are finalized, they are distributed for all MES facilities to review and conduct employee training to enhance safety awareness. Many incidents are immediately reviewed by the Agency Safety Department and recommended corrective action discussed with the Group Managers. MES has won various awards from the insurance carrier related to the reduction in injuries and lost days of the employees as well as individual and group awards. Recognition has been awarded to the Agency Safety Committee, individual employees and groups for their outstanding commitment to the safety of their employees. This emphasizes the Agency commitment and dedication to the safety and well-being of our employees.

Material Recycling Facilities have a high injury and fatality rate due to unsafe working conditions around operating machinery and exposure to hazardous items on the sorting line. Many of these injuries are attributable to temporary workers and their lack of proper personal protective equipment and proper training. MRF’s also experience a higher incident rate of fires due to the constant paper dust filtered through the facility. Historically 9% of these fires are related to paper products. These operations require the constant diligence of employees and managers to ensure that worker protection is provided and all preventive maintenance is conducted.

*Due to the incorporation of a preventive maintenance program at the PG County MRF, this facility has not experienced any fires throughout 2016.*

This result is due to the focused efforts of maintaining the facility in a safe manner at all times for the well-being of the workers, clients, visitors and contractors. This is noteworthy because this facility had been shut down for over a month prior to MES stepping in to operate the site in December 2015 due to a fire experienced inside the processing building in the fall of 2015. There were 2 other fire incidents at the facility in the summer of 2015.

### SECTION 3

**What results did you use as a baseline for comparison to determine improvement between 2015 and 2016?**

At the time of acquiring the facility, there were neither safety programs nor procedures in place for employee protection. These programs were instituted at other facilities operated by the Maryland Environmental Service and ultimately had to be incorporated into the facility as well as change the mindset of the operations staff. The managers coordinated with the Agency Safety Department to systematically incorporate policies, programs, training and general equipment safety. It was an extensive process in 2016 to incorporate all these entities for the safety of the employees and the contractual workers. Enhanced awareness was a key to the success on all aspects of safety throughout the facility.

The Maryland Environmental Service acquired the contractual operations of the facility through Prince George’s County on November 1, 2015. The operations had previously been leased to a third party firm by the County. Due to the safety concerns with operating the facility in its current condition, MES personnel spent the first month rehabilitating the facility for safe operation and proficiency. There were numerous health and safety concerns with the operational equipment as well as the varmint habitation due to the overwhelming multitude of debris within the processing area. Conditions at the facility were classified as “imminent danger” by the Agency Safety Department through an intensive inspection resulting in over 120 hazards addressed. Operational processing could not occur until these issues were resolved for the safety and health of our
employees, contractors and visitors. The Prince George’s County Department of Environment fully supported these actions and emphasized their first priority was the safety and health of the operational staff. Through their coordinated effort, the following conditions were remediated:

**Safety Hazard Abatements/Corrections:**

- One of the first priorities was to remove the significant debris that had built up on the working floor area and the equipment. A month of intensive labor was performed in order to remove the debris of over 932 tons on the tipping floor and processing area so that repairs could be made to the equipment for operational and safety concerns. The facility had major vector infestation due to the large amount of debris that had accumulated over time throughout the working area. A pest control company was brought in to eliminate this health concern. The facility also had major dust build-up on piping and structures that had to be removed to reduce the potential of a fire. The inside of control panels and electric power boxes were also packed with accumulated dust and silt-like materials and dirt.

- All safety escape ladders from the processing area were unable to be utilized. Most ladders/cages were damaged, fasteners damaged and the ladders were broke or removed so that they were unusable. Some were filled with accumulated debris making them inaccessible. All emergency escape ladders were repaired or replaced prior to the startup of the processing operations.

- Each sorting station has e-stops which had been dismantled or jumped out so that the equipment would not trip off, ultimately providing an imminent danger situation for the sorters. Each one of these e-stops was evaluated and repaired or replaced prior to startup of the process to ensure the sorters’ ready access in case an emergency situation arose.

- Many of the machine guards were removed allowing for excessive pinch/crushing points with the operating machinery. Guards were purchased from the manufacturer or fabricated to cover all moving equipment within the work area to eliminate the potential of employees being injured.
Electrical wiring components had exposed wiring and switches all throughout the processing area operating equipment. Many of the panel covers had been removed allowing for electrical shock hazards to workers and electrical extension cords were used as a permanent means of power source. Each of these hazards had to be traced to their designated breaker and either repaired or replaced. Instances occurred where the existing cable was removed due to extensive damage and an entire new system was installed. Proper voltage was traced and labeled on all electrical components per the NEC standards.

The facility had previously experienced a major fire that damaged the windows, insulation and some structural components. The burnt insulation was left hanging from the ceiling which ultimately could cause a health hazard and various windows and structural components had to be evaluated repaired or replaced for efficiency and protection of the workers.

The process area ventilation system was inoperable at the time. This system was repaired in order to provide adequate ventilation within the working area. Without this system operating efficiently, additional health and safety concerns were imminent for the workers as well as the increased potential of a fire.

The work areas for the sorting crew were dimly lit which could result in employee injury due to lack of visibility. The existing lighting was unevenly spaced over the work stations and many were not operating sufficiently. Additional lighting was installed with a higher quality light to enable efficient visibility within the sorting area for the workers providing a 45% increase in visibility for worker safety.

The facility utilizes compressed air for operation of various components in the process. The system had not been maintained and additional airlines had been strung throughout the process area causing a safety concern for the workers. New lines had to be installed with the proper identification as to the PSI contained within and at the nozzle end point.

The emergency lighting was not operable in the processing area. Each light was traced and repaired or replaced for utilization in an emergency.

Chemicals were strewn throughout the facility and improperly stored with incompatibles. Each chemical was evaluated to determine their usage and associated hazard to ensure safe storage. Chemicals no longer in use were disposed of properly. Flammable cabinets and secondary containment was
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purchased in order to store chemicals to eliminate the potential of a release to the environment. Employees were trained on the proper means to handle chemicals utilized for the maintenance of the equipment. These chemical items were stored properly and the area was cleaned. Chemicals were evaluated and labeled per the GHS labeling requirement for identification. Employees continue to monitor this area, keeping it organized and tidy to prevent additional hazards.

SECTION 4
How did you measure the safety improvement that you achieved in 2016?

The Maryland Recycling Act of 1992 requires that counties within Maryland recycle a proportion of their waste, based on the county population. Under this regulation, Prince George’s County is required to recycle a minimum of 35% of their waste, and in 2015 (most recent available data) the County recycled 59.59% of their waste. The Prince George’s County MRF plays an integral role in the recycling success enjoyed by the County. In 2015, the facility processed over 42,000 tons of single stream material into high quality baled commodities. The produced bales have low levels of contamination and command high prices in the market. The professional and conscientious staff at PG MRF runs a safe and efficient facility that produces premium recyclable materials. This is demonstrated in accompanying graph which reflects the increase in the average price per ton during 2016.

The enhanced production and quality of the recycled material steadily increased as the safety and equipment proficiency increased. These variables ran hand in hand throughout the year. The employees worked diligently to repair/replace equipment for production proficiency and constantly maintained safety as their first priority. As shown in the chart below, the facility’s processing capability ramped up during the year while experiencing only 2 minor injuries during the 120,000 work hours. This speaks directly to the staff’s focused effort to evaluate the safety concerns prior to performing any work. This rate is far below the standard for the industry and emphasizes the total commitment of the employees to work safely.

Employees and managers worked to correct the over 120 deficiencies throughout the facility that the Agency Safety Department identified. Many of these concerns are previously identified. As operations stepped up, so did the employees safety. Ensuring all employees and contractors were trained in the safety regulations applicable to the facility was an intensive coordinated effort. These trainings were conducted in English and Spanish to ensure all workers understood the dangers, and how to protect themselves while working around specific situations. The housekeeping at the facility has resulted in a workplace the employees take pride in and enjoy the opportunity to show touring groups.
The turnaround in the safety performance at the Prince George’s County Material Recycling Facility is the direct result of the following:

- The MES safety-focused culture.
- Prince George’s County’s cooperation and continued support.
- MES personnel and their experience in the solid waste and recycling industry.
- CMT Services, Inc. - our contract labor staffing agency.

MES has developed a safety culture throughout the organization and the Safety Department developed the logo above to exemplify this commitment. The MES belief is if each employee performs his/her function in a safe manner at all times – **SAFETYWORKS!** The Prince George’s MRF results reflect this belief through no loss time, productivity increases, product quality improvement, etc.

Prince George’s County has been a committed partner from the initial transition of the project. The County has provided funding for all of the improvements and repairs that have taken place at the MRF – well over $1 million dollars has been committed. The funding went to improving the facility and to make a safer, healthier, and more efficient workplace for our employees, contractors, vendors, and clients - along with the hundreds of tour groups who came through the facility in 2016.

The significant improvement in safety at the facility is no doubt directly attributable to the **SAFETYWORKS** culture and the support from the Prince George’s County, but without quality personnel, this transformation could not have taken place. Our Chief of Safety has served for 30 years in the field of Safety, and brings hands-on experience and knowledge to the facility. The MES management team directly responsible for this facility also has many years of experience in the solid waste and recycling field - over 75 years of combined experience.

The total commitment to safety by the management at the MRF is embraced by all of the MES employees and CMT Services, Inc. There are weekly safety meetings, regular tailgate meetings, Safety Kicksheets, and a timely dissemination of safety related events. The MRF participates in the Agency Safety Week, Safety Awareness Day, and Driver Safety Week. All of these events provide additional hands-on awareness to make safety become a way of life for employees. The CMT Services employees are included in the entire Agency training regimen to ensure they have the same knowledge, awareness and commitment to Safety as the MES team. The Agency stresses that Safety is a way of life…on the job and off….and are committed to providing employees the tools necessary to assure their health and safety. The outstanding improvement at this facility is due to each and every employee having the desire and tools necessary to make the commitment to a safe working environment.
Safety is a way of life for MES. Faced with extraordinarily challenging circumstances, the employees of our MRF rose above the challenge to create a model safety program with stellar results. Moreover, this facility is quite large - making the clean-up, planning, and implementation process that much more challenging.

The MRF is a 65,000 square foot facility, which includes the tipping floor and process area located on a seven-acre site. The process machinery is Bollegraaf single-stream recycling sorting equipment. We are currently processing 250 tons of material each day with a high quality of product and working safely. The facility has various sorting stations along the process to eliminate any contaminated materials that are not recyclable. This includes 17 MES employees and 24 contractual laborers. The waste or trash material are then baled and transported by tractor trailer to the Prince George’s County Landfill.

The Prince George’s County MRF was brought from an inoperable condition due to safety risk for the workers into the show place it is today. These involved extensive hours in maintenance and operations that was conducted in a safe manner. The 2 minor injuries were early in the year and additional training was provided to all employees to ensure there was complete understanding of all safety procedures. The managers and employees spent many hours working to provide a safe work environment which involved corrections, PPE, training and awareness.

Safety is an ongoing process and has to be the priority of all employees each minute of the day. With the ever changing regulations and new technology, employees are constantly provided training to ensure they have the knowledge required to work safely. The managers, supervisors and employees are dedicated to ensuring a safe working environment and adapting to updated knowledge and experience from other organizations. Many of the lessons learned are from unfortunate experiences that other organizations have experienced and definitely lessons that we take seriously. The goal of our Agency is to provide a safe, productive workplace for our employees and contractors and to ensure that our clients and visitors see the dedication of each and every worker with a total commitment to safety. The hard work these employees have put into enhancing the facility, its production, and its safety, is evident in our safe operations. They deserve to be recognized for their efforts of achievement.