FI Y In O D EMPIRE

EMS Annual Fiscal Year Oct. 2021-Sep. 2022

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Appendix A

EXECUTIVE SUMMARY

This EMS Annual Report covers Empire Screen Printing's fiscal year, **October 2021-September 2022.**

Empire is a family owned, award-winning business nestled between the beautiful bluffs of the Mississippi River valley. We're a full service company in OEM and POP markets, producing overlays, vinyl decals, crystal-line domes, and many more products.

Our landscape provides a constant reminder of our responsibility to our environment. We believe that it is our duty as an organization to implement sustainable business practices to preserve this beauty and our natural resources for future generations.



OUR COMPANY MISSION

At Empire, we are dedicated to being a cutting-edge print supplier. We create custom products that enrich our customers' brand and identity by providing a friendly, knowledgeable customer experience every time.

OUR COMPANY VISION

Empire is customer focused. We listen to both our internal and external customers and look to improve based upon their input. Through relentless pursuit of customer satisfaction, we work to grow our customer base and make our company strong. We develop our people by investing in education and training to empower them to make improvements to the products, services, processes and themselves. We concentrate on implementing sustainable production methods that are environmentally safe to protect our planet for future generations.

OUR CORE VALUES

Respect • Integrity • Responsibility • Continual Improvement • Knowledge • Excellence

OUR ENVIRONMENTAL POLICY

Focus | Empire's focus is providing our customers with products and services that produce sustainable results and business practices. Through our relentless pursuit of customer satisfaction, we will grow Empire's customer base and strengthen our company. We will strive to improve our process by listening to our customers, collaborating with our business partners and developing our people through education and training. Our employees will be empowered to continually make improvements to the process, their work environment and themselves. We will develop production methods that implement sustainable environmental, health and safety (EHS) practices into all aspects of our operations.

Commit | We commit to being compliant with all applicable EHS and labor regulations (federal and state). We will continue to implement programs and procedures in accordance with these requirements.

Pledge | We pledge to look for new opportunities and innovations that will help enhance and improve our sustainability program beyond regulatory compliance. We will strive to incorporate activities and procedures that will reduce our impact on the environment as well as improving the quality of health and wellness of the employees. We will measure our progress through regular audits and annual reviews.

Strive | Empire will strive to implement procedures to target prevention of activities, services or products that may cause harm to human health, safety, or the environment. These procedures will be designed to affect Empire and/or the surrounding community.

Communicate | We will communicate our sustainability commitment to our employees, vendors, customers and community through educational training and marketing. We will encourage their input on meeting our goals and improving our procedures.



SIGNIFICANT ENVIRONMENTAL ASPECTS | IMPACTS

UV LED Technology | Screen printing has always been an industry with health, safety and environmental hazards, due to the use of high VOC solvents, and/or mercury vapor UV lights that produce ozone and require special waste disposal. Empire realized over a decade ago that our culture was changing; customers were looking for "greener" solutions in their material options. Although manufacturers began printing on sustainable materials, they used a printing process that pollutes the environment. This mixed result was not conducive to a sustainable outcome.

In 2011, Empire introduced the first UV LED ink curing technology process with a Roll-to-Roll Kammann press, changing the future of screen printing. Fast-forward to 2022: we have removed all solvent inks from our facility to be 100% UV ink. The conversion to UV inks directly relates to providing a working environment that eliminates the harmful use of high VOC solvent inks. Creating a climate controlled facility, free of hazardous materials is a fundamental policy that we take very seriously.

Empire's leadership works with suppliers throughout the industry to replace traditional solvent-based inks and mercury UV-cured inks with a more sustainable option.

This annual report will show the progression and investments we are continually making with this technology. These changes and innovations are ones we have made on our own - not because of government policies, but because we believe in the benefits for our employees, our customers and the environment.

We've learned that there is simply no downside to sustainable printing and production.

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John Freismuth, President of Empire Screen Printing. Excerpt from <u>Graphic Display World</u> Article

Althouses out reader of the second se



Above picture: Roll-to-Roll printing press. Picture to the left: UV LED Curing Station on a screen print press.

ENVIRONMENTAL PERFORMANCE

ADDED VALUE

Green Tier Participation As a member of the Wisconsin Green Tier program since 2013, we commit to our sustainability policy and have established our own environmental management system, which is audited internally and externally.

The Green Tier program guidelines hold us accountable and provide validation for our efforts. With the improvement of a business index included in the Green Tier Metrics this year, we are better able to compare our energy and waste output to our production, providing a more realistic view of our sustainability efforts.

BEYOND COMPLIANCE PROJECTS

UV Solvents Currently, Empire has removed all solvent inks from our facility to be 100% UV ink. Within the industry, Empire is above regulatory guidelines; the industry standard is still solvent ink.

In addition, 92% of Empire's screen print manufacturing now uses UV LED curing technology. After conversion, UV LED presses emit zero CFM emissions. This has significantly reduced our CFM emissions by an average of 3,166 CFMs per press, and our average kWh consumption per press/unit has decreased 89.95% (averages are based on three presses of various sizes and 5,000 max. production hours).

PERFORMANCE IMPROVEMENTS

Internal Assessment Survey | This was part of our <u>Objective #4</u>. In order to engage our internal stakeholders, an EMS assessment survey was performed in April, 2022 within our company. This provided information on environmental risk and opportunity for improvement. The assessment included various aspects within each department, such as heavy lifting, hazardous chemicals used, waste disposal, etc. The supervisors would rate the impact of each activity: how often the activity occurs and how often (if any) injuries happen from that activity.

We created a spreadsheet, using the information from the surveys. The spreadsheet was used to update the EMS Impact/Aspect Master file, determine areas that may have a significant impact, and establish future objectives.

PERFORMANCE IMPROVEMENTS (continued)

UV LED Press Conversions Empire converted two 25x38 Mercury he other was an existing press at Empire. The smaller size allows the material to automatically go through the auto-lamination machine which turns sheets into a roll format. From there it goes to the Preco station, which cuts and finishes the product. This process uses camera registration technology, making the graphic-to-diecut registration below the industry standard. This process also reduces the amount of conveyance waste, handling, and extra material needed. Quality is part of the process because it flows from one task to another without human touch, automating raw materials to finished goods.

See **<u>Objective #2</u>** for additional information.

"Big Jim" automation robot

SETBACKS OR CHALLENGES

Audit Results On a tour of the facility during our external audit, there were two (2) minor nonconformities regarding the requirements of 299.83(1) (dg)5m. These areas involved the machine shop (disposal of flammables/spray cans) and small value stream (solvent-containing rag management). Both nonconformities had corrective actions submitted and approved on 08/05/2022.

See **<u>Compliance Reporting section</u>** for more detailed information.

Water Usage | In 2021, we set out a goal to improve our screen-making by purchasing equipment that automates the screen-making process. We started with a 10-magazine Dane 250 reclaiming unit. This unit is fully enclosed, washes the ink out, removes the emulsions, and gives a final rinse before releasing it into a clean screen magazine where screens are hazed and degreased for coating and reused. In late 2021, we purchased a 10-magazine CST laser exposure unit with an inline Zetner auto-developer. Automation is now used for both reclaiming and developing screens.

Both units and improvements have significantly increased our efficiencies in processing screens. They have also eliminated the heavy lifting for the employees, reducing the number of touches by more than half. The closed loop systems eliminates the exposure to chemicals, allowing for a work environment that reduces risk to employee health and safety. This also allows us to reclaim and reuse screen mesh.

Going into this implementation, we thought the water would be reduced due to the built-in systems with some level of water and chemical recycling systems. We were hoping for a 2-5% reduction in water usage. However, our results have been steadily increasing.

The Dane's recycling of the water never worked as intended. After implementation, the solids built up and backed up the system, so the water, instead of being recycled, was discharged to our holding tanks. The Zetner uses recycled water up to the final rinse, but we're seeing this hasn't helped with water savings either. Based on the numbers, more water is needed to clean and flush the screens than our previous high-pressure manual washing process.

See **<u>Objective #3</u>** for more information.



Awards | Recognitions

Wisconsin Sustainable Business Council. **Empire Screen Printing**

Innovative Service: UV LED Curing Technology

for

Innovative Service of the Year Nomination

The Wisconsin Sustainable Business Council (WSBC) Awards celebrate recipients that



demonstrate cutting-edge environmental, social, and governance leadership and recognizes them for being pioneers in their industry and community. The winners exhibit leadership, initiative, and innovation and make measurable impacts across their businesses and the communities they serve.

Empire was selected as the INNOVATIVE SERVICE OF THE YEAR, highlighting UV LED ink curing technology for screen printing. The two other companies were SolarShare WI Coop with Cooperative Solar Investment Service, and Legacy Solar Coop with Tax Sponsorship. The award was presented at the WSBC Sustainable Business Awards Reception on November 15th, 2022.

Green Masters Program

The Wisconsin Sustainable Business Council (WSBC) named Empire Screen Printing as a **GREEN PROFESSIONAL** within its Green Masters Program in August 2021. Recognizing sustainable



actions by businesses from across the state of Wisconsin, the Green Masters program works to identify businesses that have taken at least one action within each of the nine pillars of sustainability. Participants in the program receive recognition for their sustainability accomplishments and develop ideas for future sustainability actions.

Awards | Recognitions (continued)

Wisconsin Manufacturer of the Year Nominee

Empire was nominated by 3M Insurance for the **WISCONSIN MANUFACTURER OF THE YEAR, Large Category** by the Wisconsin Manufacturers & Commerce (WMC) in April 2022. "The finalists showcase the strength and vibrancy of the manufacturing sector that sustains high-wage, family-supporting careers. The MOTY

program recognizes the state's top manufacturers of all sectors and sizes for their commitment to quality careers, good business practices, financial growth, innovative processes and reinvestment into local communities."

[wmc.org]

Empire was selected as a finalist. We were not selected as the winner, but consider it an honor to be an award nominee among a wide variety of manufacturing sectors throughout Wisconsin.

Webinar Participation

On June 23, 2022, we had the opportunity to be a part of a **WEBINAR PANELIST** put on by the **Wisconsin Sustainable Business**

L-R: Steve Limpert (Director of Finance), John Freismuth (President), Alexis Marsh (Vice President of Operations), Steve Johnson (Director of Quality Assurance), Mike Wakeen (Director of Manufacturing)

Council. This webinar focused on, "How to build and leverage an Environmental Management System (EMS)".

The webinar discussed the development of an environmental management system (EMS) and how to leverage it for continuous improvement. The panelists shared tips and best practices for data collection and management, how to best use that data for decision-making, and how to work across departments to enhance communication and organizational goals.

Participants included: Jennifer Birkholz, Environmental Business Support Coordinator for the WI Department of National Resources and representing the Green Tier Program; Jessica Haasser, the Quality and EHS Manager for Inpro Corporation; and **Jennifer Schloesser, Creative Director at Empire Screen Printing**.

Riverland Rebate

Every year, **Riverland Energy** has rebates available to members, as an incentive to purchase or retrofit energy efficient products. These rebates are decided on at the end of every year. In January 2022, employees Jeff Gierok (Electrical Technician) and Cathy Buttell (Art Project Manager) put together two rebate proposals for submission for the 2021 year: the UV 12x14 Retrofit and the Aquaflex UV Retrofit^{*}. We were very fortunate to receive a total of \$17,000 in rebates!

*These projects can be found in the 2020-2021 EMS Annual Report.





WISCONSIN MANUFACTURER

OF THE YEAR

Jeff Gierok, electrician (L) and Jim Brush, CEO (R) receiving rebate checks from Riverland Energy

Awards | Recognitions (continued)



Earth Week Clean-Up

Earth Day started 52 years ago on April 21, 1970. A Wisconsin Senator, Gaylord Nelson, was inspired by student activists after the 1969 oil spill in Santa Barbarba, CA. Nelson and activist Denis Hayes formed a staff and organized a nationwide environmental teach-in.

In 1990, Hayes put in the work to make Earth Day an international event. Now, in 2022, millions of people honor this event. In celebration of Earth Day, 16 Empire employees volunteered to clean up the outside areas at Empire. They got lucky with a 60° sunny day during a week that contained snow, rain, and wind. After an hour outside, the volunteers gathered 58 pounds of trash.

These employees should be recognized for the hard word and effort they put in to making our company look beautiful from the outside (as well as the inside).



ENGAGEMENT



MANAGEMENT ENGAGEMENT

At the beginning of each year, our Management Team reviews the objectives set forth by the company strategic plan from the previous year. During this meeting, we discuss the outcomes and set goals for the next year. These objectives work towards a 3-year business plan.

One of the reviews is with our EMS management team, which took place on 01/10/2023. Attendees included upper management and our Green Team stakeholders. Our agenda included the following items:

- 1. Changes/developments in legal or other requirements to environmental aspects
- 2. Status of any corrective and preventive actions & the results of internal/external audits
- 3. Final outcomes of our fiscal year's objectives and goals
- 4. Defining objectives for the next fiscal year.

STAKEHOLDERS RELATIONSHIPS

DNR Relationship | Our Green Tier 1 status with the Wisconsin DNR holds us accountable and provides validation for our efforts. To promote this environmentally-friendly means of printing, we as a company share our technology. Green Tier provides a third-party platform so we can spread our message and build awareness.

Memberships | Manufacturing with UV LED technology has put Empire at the forefront of sustainability and is leading the print industry with this technology. It has been our focus to share this technology and our story. We are members of a variety of associations. To be part of an industry, we believe you have to fully embrace and develop through like-minded associations, businesses, and organizations to better understand your own company philosophy, and to improve through others. Some of the memberships include:

- » PRINTING United Alliance
- » National Association of Graphic and Production Identification Manufacturers (GPI)
- » Great Lakes Graphics Association (GLGA)
- » Printing Industry Midwest (PIM)
- » Manufacturers' Agents National Association (MANA)
- » Wisconsin Sustainable Business Council (WSCB)







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WE WANT TO

BE A BEACON

OF CHANGE

FOR OTHERS

INDUSTRY.

JOHN FREISMUTH, PRESIDENT OF EMPIRE

IN OUR

STAKEHOLDERS RELATIONSHIPS (continued)

EMS Audit Value | Our Environmental Management System (EMS) ensures that Empire is integrating procedures and processes that will help our company reduce environmental impacts and increase operating efficiency. This includes training employees, defining and monitoring operational controls, maintaining all legal and other requirements, and determining environmental objectives, targets and programs.

At Empire, we follow the EOS Traction organizer. Each week, our upper management team holds a level 10 meeting. During these meetings, they go over the company scorecard, rock review, employee and/or customer headlines, issues list and our IDS (Identify, define and solve). These meetings help define and address any potential environmental impacts, which helps us stay on track with our EMS.

OUTSIDE REPS | Empire works with independent sales rep agencies to sell our product. These sales representatives are positioned throughout the United States. Monthly Group meetings and one-on-one meetings are held with each rep agency to help build the relationship between Empire and the Reps. These meetings focus on marketing strategies, market leads, and new process improvements that Empire has undertaken. These meetings also address any issues or concerns. Empire provides our reps with leads and marketing materials to help support our mutual business and environmental goals.

RAISING AWARENESS

In order to make an impact in our industry, Empire believes in promoting sustainable technologies and practices which encourage transparency in our processes and products. We've shared our UV LED curing technology with our industry in hopes that it will change screen printing production, not just within our doors but throughout the industry:

"This isn't something we felt we could keep to ourselves. UV LED is the future of screen printing. It has allowed us to increase our productivity, improve our quality, empower our employees. It provides a safe working environment for our people and our planet. If that's our secret, then we're doing a disservice to the advancements of our industry." [John Freismuth, Empire Screen Printing President]

Empire uses a variety of outlets to help keep our **CUSTOMERS**, **OUTSIDE REPS**, **EMPLOYEES**, and the **COMMUNITY** up-to-date and informed of new and exciting sustainable methods.

Bi-Annual Partners In Printing Expo | Our Partners in Printing Expo provides education on printing, promotes the industry and its suppliers, provides unique networking opportunities, illustrates good stewards of the environment and leaves a legacy for future generations. This event is open to the public, as well as our competitors. Our next convention will be held this coming July, 2023.

Empire's Website | Our website is an integral tool for customers, vendors and suppliers to keep current with our sustainable printing methods, EMS reports, our sustainability policy and Green Tier status. Our blog page features recent publications about Empire, within the industry: https://www.empirescreen.com



Visit Empire's Website

RAISING AWARENESS (continued)

Online Articles | In 2021, Empire hired an outside public relations company to help establish Empire as an industry leader. One of the means is through published articles highlighting our capabilities, products and services, and our sustainable production process. In the last year, we've written 16 articles and press releases, which were published in 91 different online publications.

Due to this activity, we were also sought out directly by **SCREEN PRINT Magazine**, which published *Why Screen Printers Should Invest in UV LED for Ink Curing*, written by Empire's Creative Director, Jennifer Schloesser; and **The Business News**, who wrote and published an article about Empire: *Screen Printer has built an Empire in Onalaska*.

Social Media Posts | **f y in O b** Empire utilizes Facebook, Twitter, LinkedIn, and Instagram to post daily messages promoting our brand, bringing awareness to our sustainability efforts, innovations, products, and services.

Empire's T.E.A.M. Facebook page is an extra resource for employees only. Here they will find information about what's going on at Empire, such as new equipment, department updates, employee events and reminders.

Constant Contact | Empire converted to Constant Contact in August 2022, which is a customer relationship management tool. We are able to setup an Empire Contact List, allowing us to streamline more internal communications to our customers, suppliers and employees. We notify them of recent publications, our sustainability efforts, and any information that helps build our internal and external customer relations.

Newsletters | Empire's newsletters highlight the activities happening at Empire. The newsletter spotlights our culture and policies, from safety to sustainability; employee engagement and activities; new equipment; new hires and retirees. Employees are encouraged to contribute articles as well. The newsletter is printed quarterly for employees and is shared online with our outside reps, customers, and suppliers.

Sustainability Boards | These are used to keep employees current with our policies and any updates on objectives and goals.



COMPLIANCE REPORTING

EMS EXTERNAL AUDIT Compliance Summary

Empire is required to perform an external audit every three years for our EMS. This is in accordance with our DNR Green Tier compliance. Our external audit was performed on June 30th, 2022 by Douglas Johnson of Environmental Intelligence, Inc.

The audit is based on ISO 14001:2004 requirements, including Green Tier Law, \$299.83(dg), and its objectives are:

- 1. To determine the conformity of our processes and documented procedures.
- **2.** To determine effectiveness of the management system to ensure the client organization is continually meeting its specified objectives.
- 3. To identify areas for potential improvement of the management system.

In the final audit report, it stated, "Empire continues to improve outcomes in society and nature and achieves superior environmental performance through innovation in production processes, increased automation, and technical developments that improve productivity, reduce energy consumption and lower costs."

"Empire demonstrates outstanding forward thinking, a culture of innovation and an uncanny ability to fabricate the future."

On a tour of the facility, there were two (2) minor nonconformities regarding the requirements of 299.83(1) (dg)5m: "Establishment, implementation, and maintenance of resources, roles, and responsibilities for establishing, implementing, maintaining, and improving the environmental management system. These areas involved the machine shop (flammables/spray cans) and small value stream (solvent-containing rag management).

Auditor observed eight opportunities for improvement:

- No VOCs in the building remove highly flammable/VOCs air fresheners in the bathrooms
- 5S Audit Teams (4-6 people, rotating a 3-year term)
- Air Leaks in the infrastructure
- Do some Solar training and testing to see if this is a viable energy for our company
- With rising cost of natural gas, it was suggested to look at natural gas efficiency projects
- Calculate the difference in energy now that we have a weekend shift (cost differential)
- Fuel cost for four 10-hour shifts and three 12-hours shifts versus five 8-hour days
- Create a "Living Machine" greenhouse that uses a plant filtration system, which would reduce our water pickup.

(continued on next page)

[EMS Audit continued]

1. NON-CONFORMANCE: FLAMMABLES / SPRAY CANS IN THE MACHINE SHOP Observations:

- » Steel and aerosol cans in the same receptable
- » Flammable cans not in cabinets (Machine Shop and some places in plant)

Cause | There was no work instruction in place for disposing of aerosol cans, so steel and aerosol ended up in the same place. Immediate steps were taken to remove the cans from the scrap material waste receptacle. They were placed in a separate bin labeled for aerosol cans. Cans not in use were placed back in their proper locations.

Corrective Action Taken | Our plant manager took steps to research WI DNR publication WA-1784 for aerosol can management. He implemented a work instruction for proper disposal of Aerosol Cans. This instruction is located on Empire's network.

The work instruction states that aerosol cans be thrown in a clearly marked receptacle for only aerosol cans. The waste aerosol cans will be picked up weekly by maintenance, and the maintenance team will puncture and drain the cans, utilizing a newly purchased aerosol can puncture tool. The waste can then be thrown out in scrap or garbage. All affected employees have been trained on this new work instruction/procedure.

Corrective Action was submitted and approved on 08/05/2022.

Aerosol Can Disposal.pdf [QMS:Operations:Maintenance]

Metal waste and aerosol cans in same disposal bin

2. NON-CONFORMANCE: SCREEN PRODUCTION FLOOR | Solvent Rags

Observations:

» Soiled solvent rags sitting on tables - emitting VOCs

Cause | It was verbally communicated to the employees to use the solvent rags for multiple uses in order to conserve rags before throwing them into the red solvent waste receptacle. No written documentation supported this instruction.

Corrective Action Taken | Management is implementing production to use ½ rags and then throw them in the red solvent waste receptacle after one use. A work instruction has been created for the proper use and disposal of solvent rags, and all necessary areas have been trained to the new instruction.

Corrective Action was submitted and approved on 08/05/2022.

Solvent Use and Rag Disposal.pdf [QMS:Policies:Safety]



2021-2022 GOALS & OBJECTIVES

Empire had four objectives for the fiscal year: October 2021-September 2022. The following pages will show what actions were taken for each goal and what the outcomes were.

By 2022, reduce our annual **LANDFILL WASTE** to **23.85%**

Implement SUSTAINABLE print methods with equipment using UV LED TECHNOLOGY

Implement SUSTAINABLE equipment used in the MANUFACTURING PROCESS

Make
IMPROVEMENTS
based on our 2019
EXTERNAL
AUDIT

Progress on Goals & Objectives • 14

Reduce our annual landfill waste to 23.85% by 2022

Empire Screen identified 2012 as the baseline year for setting a waste reduction goal. In 2012, 47.69% of waste generated was sent to the landfill. By 2022, Empire Screen will reduce the waste sent to the landfill by 50%, with an annual reduction of 2.39%, resulting in no more than 23.85% of all the waste generated being sent to the landfill.

ACTION ITEM:

a. Create a Preco cutting Procedure and Work Instruction for roll stock to be left unwound. Materials could then be placed in Recycle bin or sent to the Energy compactor. The percentage will be reflected in our overall decrease in landfill waste.

PROGRESS: COMPLETE

After looking at this objective more closely and examining the manufacturing process for cutting on the Graphium, it was determined that a majority of our thicker material roll stock substrates were being cut on the Preco rather than using the inline cutting unit on the press. When this change was made, the waste material was not wound back up on the roll. Instead, it was loose; therefore, it could be sent to the burn-forenergy compactor, rather than being thrown in the landfill compactor as a roll. The end result allows us to throw approximately 20% of the waste in the bin for energy. Essentially the Preco became the chopper that we were looking into purchasing.

Since this follows our current recycling procedure, no additional procedure is needed.

ACTION ITEM:

b. Improve internal communication regarding this objective, especially to new employees. This will be accomplished by posting more information and graphs on the green boards, including more articles in the newsletters, and publish quick reference points on our T.E.A.M Facebook page.

PROGRESS: COMPLETE

Recycling charts were updated and printed for the sustainability boards, and articles were written for the Winter/Spring 2022 newsletter. We now have employees in <u>Constant Contact</u> (see Engagement section of report), which will help reach more employees with our sustainability efforts.

In 2012 Empire set out to make a difference to change our culture, moving towards a path of environmental stewardship. Working with department managers, employees, maintenance, and refuse companies, we set out to eliminate waste sent to the landfill. We realized that the materials we printed on could be recycled, along with daily use of water or pop bottles, and paper. All these items were either being put in landfills or disposed of in our burn-for-energy compactor. We also didn't have a waste stream map for the employees to determine where to put the waste.

During this implementation, we determined what could be recycled and created a procedure to help support the employees within the manufacturing process. Information was shared, and employees were trained. This was one of the most effortless transitions, because the employees fully embraced the change and took ownership while looking for opportunities to improve the process. In the initial year, we set our 10-year goal to eliminate landfill waste by half.

During the last ten years, we had some setbacks as the recycling market changed. Some of the materials originally on our list were no longer accepted as recycled, due to market needs and relations with China. Through research, we learned that even though the material could not be recycled, it could be burned for energy, still reducing our landfill disposal. Year after year, our landfill numbers had decreased, but the way we were initially tracking our waste, we would not meet our goal.

OBJECTIVE #1 Reduce our annual landfill waste to 23.85% by 2022

In 2021, Wisconsin Green Tier implemented its new metric system, establishing a way to normalize the data by comparing it to a business index. When looking at just the physical amount of waste (the way we were initially tracking), we weren't able to meet our objective, but when you take production into account, (the business index), we **surpassed** our goal, ending at 11.31% going to the landfill (as shown in **Figure 2**).

Our employees are engaged in improving the process and keeping as much waste out of landfills. Empire will continue to look at new ways to eliminate waste, whether by not producing it in the first place or keeping most of the waste out of the landfill by making sure we are either recycling, reusing, or converting it to energy.

This 10-year objective has now been completed. Moving forward, we plan to continue with our current recycling procedures, along with researching new ways to re-use and re-cycle, as the technology presents itself.



FISCAL YEAR	Landfill %	Energy %	Recycle %	Total Waste (tons)
2011-12	47.69%	52.31%	0.00%	369.64
2012-13	35.77%	40.44%	23.79%	370.96
2013-14	34.49%	39.63%	25.87%	351.24
2014-15	34.59%	42.56%	22.85%	372.28
2015-16	34.78%	46.17%	19.05%	347.28
2016-17	34.41%	44.05%	21.54%	408.66
2017-18	38.99%	46.34%	14.68%	409.64
2018-19	36.44%	43.66%	19.90%	408.57
2019-20	34.16%	42.09%	23.75%	426.11
2020-21	26.26%	32.15%	40.59%	561.33
2021-22	36.87%	51.17%	11.96%)	342.48



The sudden drop in our recycling was brought up and discussed at the Management Review. The procedure of adding a **RECYCLE STICKER** to the job folder is still being done, and maintenance hasn't seen recycled materials in the landfill bins. The majority of material that doesn't have the Recycle logo symbol on the Work Ticket is going to Burn-for-Energy.



Implement sustainable print methods with equipment using UV LED technology.

Empire Screen will continue with the design/conversion of UV LED screen print presses.

OBJECTIVE 2A:

2

Purchase a used, six-color (25x38) UV Mercury screen print press and convert to an 18x30 UV LED curing press. This press will be purchased in November 2021. Conversion to UV LED will be completed in June 2022. The press will first be used as an R&D Automation Press, and then be put into production by December 2022. It will use 0 CFM exhaust (versus 1,500 CFM for UV Mercury press) and have a 92.15% reduction in energy (kWh) compared to traditional printing methods.

PROGRESS: COMPLETE

The press was purchased in December 2021. It was converted to UV LED curing in April 2022. We used the LED lights that were originally purchased for the 25x38 conversion. It was put into production as R&D to work out some of the bugs, and then it was put into full production (with two full-time operators) in June 2022 (six months ahead of schedule). It produced a 95.71% reduction in energy (see Fig. 1)

In addition to this press, we converted another 23x38 press we currently had. The existing press originally used a semichemical/semisynthetic fluid which is a coolant and lubricant in metal-removal processes and a heat-transferring agent. The Mercury curing was very hot, so without the coolant, we would have to wait for the material to cool down before we could apply adhesive. This prevented us from working in-flow. The coolant was eliminated once the press was converted to LED. We saw a 97.03% reduction in energy on that press (see Fig. 2).

We plan to use both presses in our Middle Value Stream (MVS) and work on automating the process using less labor and implementing robotics to handle the material conveyance from the printing press to Lamination. (see **Performance Improvements section** of report for additional information on the 25x38 conversions)

	FIGURE 1		FIGURE 2								
18x30 6-0 CONSUN Purchased Used (Ba	COLOR PRESS PC IPTION COMPARI sed on hourly rate, 50%	DWER SON % run/50% idle)	18x30 6-COLOR PRESS POWER CONSUMPTION COMPARISON Was 25x38 press (Based on hourly rate, 50% run/50% idle)								
DESCRIPTION	U.V. MERCURY	UV LED	DESCRIPTION	U.V. MERCURY	UV LED						
Average Amps	71 Amps	8 Amps	Average Amps	94 Amps	8 Amps						
Voltage	480 Volts (3 Phase)	208 Volts (3 Phase)	Voltage	480 Volts (3 Phase)	208 Volts (3 Phase)						
Kilowatts/Hour (kW/h)	59 kW/h	3 kW/h	Kilowatts/Hour (kW/h)	78 kW/h	3 kW/h						
CFM Exhaust for press	1,500 CFM (11 kW/h)	0 CFM	CFM Exhaust for press	3,000 CFM (23 kW/h)	0 CFM						
# of Bulbs replaced per year	Mercury Bulbs (10)	0 (replace >10 yrs)	# of Bulbs replaced per year	Mercury Bulbs (10)	0 (replace >10 yrs)						
TOTAL kW/h	70 kW/h	3 kW/h	TOTAL kW/h	101 kW/h	3 kW/h						

^{95.71%} reduction in kWh

OBJECTIVE 2B:

Purchase a new Nine-color ROQ press and add UV LED curing.

Empire will purchase a new, nine-color carousel screen press with no curing lights. We will retrofit it with our UV LED technology, to be completed and put into production by December 2022. It will use 0 CFM exhaust (versus 1,500 CFM for UV Mercury press) and have a 92.15% reduction in energy (kWh) compared to traditional printing methods.

PROGRESS: POSTPONED

The press was not delivered until November 2022, which falls outside the fiscal year. This will continue into next year's report, as a 2-year project.

^{97.03%} reduction in kWh

Implement sustainable equipment used in the manufacturing process.



Empire Screen will Research different reclaiming attachments to be used with the automatic screen-washing unit (Dane). This is a continuation of last year's objective to achieve a system that can clean the water enough to be re-used on screens. The objective has been changed to have a 2-5% reduction in water amount being picked up (monthly). This will be completed by September 2022.

ACTION ITEMS:

- a. Continue to research various types of units to determine cost-effective options.
- b. Research a 2-tank setup, involving a settling and cleaning tank.
- c. Do research and development on utilizing settling tanks for water re-use part of the research will consider number of gallons per day needed, how clean the water is after removing sediment, and if any additional filtration or treatment of the water will be needed. These efforts are directly related to sending less water to be treated and to reduce the use of ground water.

PROGRESS: COMPLETE

We were hoping for a 2-5% reduction in water usage. However, our results have been steadily increasing. The Dane's recycling of the water never worked as intended. After implementation, the solids built up and backed up the system, so the water, instead of being recycled, was discharged to our holding tanks. The Zetner uses recycled water up to the final rinse, but we're seeing this hasn't helped with water savings either. More water is needed to clean and flush the screens than our previous high-pressure manual washing process. Based on our business index for 2022, we saw an increase of 180% in water usage from our baseline year of 2019.

After reviewing our A-1 Advanced Pumping bills, A-1 was coming five days a week to pick up and empty our water tanks. Along with the increased water usage, another possible contributor was operating seven days a week with the addition of a weekend shift. In December of 2022, production needs no longer needed the 7-day work week. We are now operating four days a week, so during our Management Review, it was determined to reduce A-1 pickup to four days.

We researched additional equipment to aid in this objective, but due to a slow-down in production, management has determined to put this project on hold. We believe that the other benefits in production, recycled mesh, and employee safety have still contributed to a meaningful contribution towards our environmental policy.

Make improvements based on our 2019 external audit

Reevaluate and rate the aspects and impact resolutions based on the new scoring system, as well as updating all documentation. This is a continuing objective due to setbacks in 2020 with our Covid policies that were implemented, so the deadline for this extension will be extended to 2022 fiscal year.

PROGRESS: COMPLETE

Section 1 of 4

GT_2.1_1 DEPARTMENTAL EMS ASPECT/IMPACT ASSESSMENT

- a. Send online assessment form to the rest of the department supervisors, all shifts.
 All shifts (1st, 2nd, 3rd and Weekend) were sent the online assessment form on April 2022. Assessments were completed by supervisors &/or Leads by July 2022.
- b. The Green Team will update the Impact/Aspect Master file based on information gathered from the assessment form.
 A list of updated equipment was provided and added to the Master Impact/Aspect file. Assessment results were used to score the Impacts and Aspects on the Master file. This was completed on September 2022, and will be annually reviewed to confirm any new equipment or add additional procedures.

After the surveys were completed and reviewed, we found that our systems are being monitored and maintained for safety. Nothing indicated a high risk, or required additional attention. We will continue to monitor and update as new equipment is added or eliminated from our facility.

X :



This form will be used to assess environmental risk and opportunity for improvement within departments. A Supervisor & for Lead will review and fill out the form. It is recommended to include one or more employees in this assessment. This form will be used to uodate the master file: GT 2.1 EMS assect Recording Sheet

Examples of Online Assessment

s	ection 3 of 4							
	MPACT: I NJURIES	NJURIE:	S & FRI ACTIVI	EQUE TIES/	ENCY EQUI	OF PMEI	NТ	X
F	low often do the Please select an a	following activit answer for each	ties happen o 1 one.	or equipm	ent get us	sed in you	ır departm	ent?
Ι.		Continuously	Once a Day	Weekly	Monthly	Annually	>5 years	Never
	Discomfort	0	0	0	0	0	0	0
	Medical Treatment	\circ	0	0	0	0	\bigcirc	0
	Lost Time	\circ	0	0	0	0	0	0
	Disabling Injury	\bigcirc	0	0	0	0	0	0

ENVIRONMENTAL METRICS

ADDING A BUSINESS INDEX TO METRICS

In the past, when we documented our energy and waste metrics, we didn't take into account our production output, so data was not necessarily as precise as it could be. To remedy this, the Wisconsin DNR Green Tier metrics has now implemented a **BUSINESS INDEX**:

"The business index characterizes your business activity. By reporting environmental metrics normalized with a business index, you are better able to compare your business activity efficiencies over time. Using a business index can help explain whether fluctuations in your environmental metrics stem from changes in efficiency or changes in level of business activity. This will help you set meaningful, relevant goals and improve your environmental management system."

Empire chose IMPRESSIONS as our business index. Impressions refer to a single sheet or repeat length (if produced on a roll) of material that is used to produce the product. The number of impressions per job determines the set quantity needed to complete the order. This number also includes the setup material. Impressions measure the total throughput of our product, as the equipment needed to produce the product is now being measured. The new metric is a significant improvement as we look at the numbers based on the entire company rather than individual equipment or area and year-over-year usage that isn't based on throughput. This indicator supports increases and decreases in company performance, establishing a bigger picture of the company's sustainable efforts.

As a company, we started monitoring Impressions in 2016, which will be our new baseline year for most metrics.

7	

Baseline year	2016-17
Current Year Reporting	2021-22
Number of full-time employees	222
Number of Annual Impressions	15,328.1

general info



Water Used*...... 870,420 gallons *Screen Making Tanks (does not include septic)

water



Volatile Organic Compounds (VOC) .. 16,149 lbs/yr Air emissions are recorded annualy



	Solid Wa
	Solid Wa
	Solid Wa
	Hazardo
	*February 2
waste	

Solid Waste Recycled	41* tons/yr
Solid Waste Burn-for-Energy	175.3 tons/yr
Solid Waste to Landfill	126.3 tons/yr
Hazardous Waste Generated	4,587 lbs/yr
*February 2022 record not recorded	



Electricity Used	3,061,705 kWh/yr
Natural Gas Used	6,851,055,352 MMBtus/yr
Diesel (Emergency Gen	erator)792 gallons/yr

energy



Fleet: Gasoline vehicles	2
Fleet: Hybrid Vehicles	1
Equipment Using Gasoline	1
Equipment Using Diesel	1

transportation

%'s represent increase/decrease from the baseline (B) year and are formulated using the Business Index (per Green Tier Metrics Form)

ENVIRONMENTAL METRICS

ANNUAL IMPRESSIONS













BS PER 1.000	IMPRESSIONS	(ACTUAL	ANNUAL	TOTAL)







AIR: OZONE-DEPLETING SUBSTANCES

LBS PER 1,000 IMPRESSIONS (ACTUAL ANNUAL TOTAL)

	B (2016-17)0042 (54.93) lbs	
\bigcirc	2017-20180050 (68.09) lbs	
	2018-20190041 (62.89) lbs	





%'s represent increase/decrease from the baseline (B) year and are formulated using the Business Index (per Green Tier Metrics Form)

ENVIRONMENTAL METRICS

SOLID WASTE RECYCLED

TONS PER 1,000 IMPRESSIONS (ACTUAL ANNUAL TOTAL)

B (2016-17) 007 (88.0) tons	2019-2020 007 (101.2) tons
2017-2018 004 (60.1) tons	2020-2021 014 (227.9) tons
2018-2019 005 (81.3) tons	2021-2022003 (41.0) tons* *Feb report is missing



SOLID WASTE-TO-ENERGY

TONS PER 1,000 IMPRESSIONS (ACTUAL ANNUAL TOTAL)





SOLID WASTE TO LANDFILL

TONS PER 1,000 IMPRESSIONS (ACTUAL ANNUAL TOTAL)

- B (2016-17) --- .011 (140.6) tons 2019-2020 --- .010 (145.6) tons **2017-2018** ---- .011 (159.7) tons **2020-2021** --- .009 (147.4) tons 2018-2019 ---- .010 (148.9) tons 2021-2022 --- .008 (126.3) tons
- 110% 65% -9.00% -2.70% -16.00% -23.10% 7.20% 20% B -25% -70% '16 -17 '17-18 '18-19 '19-20 '20-21 21-22



LBS PER 1,000 IMPRESSIONS (ACTUAL ANNUAL TOTAL)

B (2016-17) 22 (2890) lbs	
2017-2018 231 (3211) lbs	
2018-2019 30 (4587) lbs	





%'s represent increase/decrease from the baseline (B) year and are formulated using the Business Index (per Green Tier Metrics Form)

ENVIRONMENTAL METRICS

WATER USAGE*







ENERGY: NATURAL GAS



- B (2016-17) ------ 5,246,240,600
 20
 2017-2018 ------ 6,603,314,824
 20
 2018-2019 ------ 6,239,602,136
 20
- 2019-2020 ------ 5,872,490,264
 2020-2021 ------ 6,410,661,072
 2021-2022 ------ 6,851,055,352





Environmental Metrics • 23

FUTURE GOALS 2022-2023

Objective #1

Implement Sustainable Print Methods using UV LED Technology

PURCHASE A NEW 9-COLOR PRESS (ROQ) AND ADD UV LED CURING

This is a continuous objective from last year, due to the late delivery of the press. The ROQ was a T-Shirt press purchased with no lights, which will be converted to LED curing. There is no baseline comparison.

This will be a two-year plan.

ACTION ITEMS FOR YEAR #1 (2022-23):

- a. Retrofit with UV LED technology by January 2023.
- b. Put press into semi-production, using it as an R&D press, by September 2023

ACTION ITEMS FOR YEAR #2 (2023-24):

- c. Put into production by September 2024
- d. Create metrics for energy usage.



Objective #2

Implement Sustainable Equipment used in the Manufacturing process

BUILD TWO AUTO-LAMINATORS

The Auto Laminator combines a Laminator and Splitter into one automatic process. Instead of having a person to laminate and another person to split. The person doing the printing will drop the sheet onto the Auto Laminator. The Auto Laminator will then center the sheet, laminate it and split it. It comes out the back in a web format. The lamination or adhesive that is applied makes the sheets combine end to end like a web. This web can then go directly into a Preco machine to get cut and finished or if there is no Preco in that cell, it can be cut off into sheets and die cut by hand.

The energy savings is negligible, but it will reduce the equipment footprint, improve material conveyance, manufacturing efficiency, and automate the process. It also reduces the amount of labor needed within a cell by two people, which means less handling of the material. This is a process improvement.

Objective #3

Make Improvements to our EMS Manual with an alignment to ESG Regulations

In order to improve our day-to-day procedures as well as long-term objectives and goals, we will update our EMS to reflect new requirements brought forth by the WI DNR and ISO, including an alignment to the ESG regulations.

ACTION ITEMS:

- a. Update the Sustainability Policy by June 2023.
- b. Update the EMS Manual to ISO 14001_2015 requirements by June 2023.
- c. Apply EMS Audit suggested improvements:
 - 1. No VOC air fresheners in bathroom
 - 2. 5S Audit Teams
 - 3. Solar Power Training/Assessment to determine if our location would meet the needs of our facility as a supportive use of power.
- d. Research and incorporate activities that follow ESG (Environmental, Social, Corporate Governance) regulations:
 - 1. Research and keep current on the latest ESG regulations send Management team to at least one ESG seminar and/or webinar on this subject.
 - 2. 17 Sustainability Goals
 - Choose one charitable activity for a local non-profit organization, to support local community needs.
 - Social: Create written policies in our company handbook that incorporates diversity, human trafficking, anticorruption, anti-discrimination, and pay equity.

Objective #4

Map Out Electrical Meters

In order to meet the needs of the future and create a plan for the future energy infastructure of the plant, we've created an electrical grid outline as a succession plan to identify power sources and activities throughout the production floor.

ACTION ITEMS:

- a. Create a Line 1 Electrical Diagram by January 2023.
- b. Update the Meters Plant Map by August 2023.
- c. Create an accountability process that updates the Line 1 map when equipment is moved or added to the grid.

	Μ	ETRICS FOI	RM RESULT	S	
Submit this tab as your Metrics I	Data with your and	ual report			
See "Instructions" tab for more in	nformation on how	to save this tab	as a separate file	with your report.	
Participant Name	Empire Screen F	Printing			
Reporting Year Start	10/1/2021				
Reporting Year End	9/30/2022				
Did you enter your data in the ra Type Yes or No	w format (not norr	nalized)?		Yes	*This is the only cell you to fill out on this tab
GENERAL INFO					
Metric	% Change	% Change	Current	Baseline	
# of Employees	-14.00%	-14.00%	222	258	
Primary NAICS Code			323113		
Secondary NAICS Code			323111		
% Local Purchases	#VALUE!	0.00%	UNK	UNK	
% In-State Purchases	#VALUE!	0.00%	UNK	UNK	_
WASTE	% Change	% Chango	Current	Pacolino	Lipite
Solid Wasto Bousod				LINK	Units
Solid Waste Reuseu	0NK				US tons / 1000 impressio
Solid Waste Composted	-00.10%	-00.10%	0.003	0.007	US tons / 1000 impressio
Solid Waste Composied	1/a	1/a	11/a	n/a	US tons / 1000 impressio
Solid Waste-to-Energy	-10.30%	-10.30%	0.011	0.014	US tons / 1000 impressio
Solid Waste to Lanunin	-23.10%	-23.10%	0.008	0.011	US tons / 1000 impressio
					lbs / 1000 impressions
Hazardous Waste Generated	35.90%	35.90%	0.299	0.22	lbs / 1000 impressions
WATER					
Metric	% Change	% Change	Current	Baseline	Units
Water used	180.80%	180.80%	56.786	20.222	gallons / 1000 impression
Water recycled/reused	UNK	UNK	UNK	UNK	gallons / 1000 impression
Wastewater Discharged	#VALUE!	0.00%	UNK	20.2	gallons / 1000 impression
	% Change	% Change	Current	Baseline	Linits
Electricity from utility	_24 80%	_24 80%	100 749	265 522	k//h / 1000 improceione
Natural Gas	-24.00%	-24.00%	446 960 50	390 654 30	MMBtus / 1000 impressions
Coal	n/a	n/a	n/a	n/2	US tons / 1000 impressio
Pronane (I P)					gallons / 1000 impression
Diesel (#2 Fuel Oil)	-59 70%	-59 70%	0.052	0.128	gallons / 1000 impression
Biodiesel	UNK	UNK	UNK	UNK	gallons / 1000 impression
Residual Fuel Oil (#4-6)	n/a	n/a	n/a	n/a	gallons / 1000 impression
Wind	n/a	n/a	n/a	n/a	kWh / 1000 impressions
Hvdro	n/a	n/a	n/a	n/a	kWh / 1000 impressions
Solar Photovoltaic (PV)	n/a	n/a	n/a	n/a	kWh / 1000 impressions
Solar Thermal	n/a	n/a	n/a	n/a	MMBtus / 1000 impressio
	1.00		1 100		

Biomass	n/a	n/a	n/a	n/a	US tons / 1000 impressions
Biogas	n/a	n/a	n/a	n/a	MMBtus / 1000 impressions
Other (quantity)	n/a	n/a	n/a	n/a	/ 1000 impressions
Other (fuel type)			N/A		
ON-SITE RENEWABLE ENERG	GY CAPACITY				
Metric	% Change	% Change	Current	Baseline	Units
Wind	N/A	N/A	N/A	N/A	kW
Hydro	N/A	N/A	N/A	N/A	kW
Solar Photovoltaic (PV)	N/A	N/A	N/A	N/A	kW
Solar Thermal	N/A	N/A	N/A	N/A	MMBtus
Geothermal	N/A	N/A	N/A	N/A	MMBtus
Biomass	N/A	N/A	N/A	N/A	US tons
Biodigester	N/A	N/A	N/A	N/A	US tons
Other (quantity)	N/A	N/A	N/A	N/A	N/A
Other Energy Type			N/A	N/A	
REC Amount Purchased	N/A	N/A	N/A	N/A	kW
REC Energy Source			N/A		
AIR					
Metric	% Change	% Change	Current	Baseline	Units
Volatile Organic Compounds	-3.20%	-3.20%	1.054	1.088	lbs / 1000 impressions
Ozone-depleting Substances	-3.20%	-3.20%	0.0041	0.0042	lbs / 1000 impressions
Greenhouse Gas Emissions	n/a	n/a	n/a	n/a	lbs / 1000 impressions
Hazardous Air Pollutants	n/a	n/a	n/a	n/a	lbs / 1000 impressions
FRANSPORTATION	Totals of each fu	el type			
Netric - Fleet	% Change	% Change	Current	Baseline	
Gasoline	-50.00%	-50.00%	1	2	
Diesel	N/A	N/A	N/A	N/A	
Electric - plugin	N/A	N/A	N/A	N/A	
Electric - hybrid	200.00%	200.00%	2	2	
CNG	N/A	N/A	N/A	N/A	
Propane	N/A	N/A	N/A	N/A	
Biodiesel	N/A	N/A	N/A	N/A	
RNG/BioGas	N/A	N/A	N/A	N/A	
Other (quantity)	N/A	N/A	N/A	N/A	
Other (fuel type)			N/A	N/A	
Total	-25.00%	-25.00%	3	4	
METRIC - Equipment		% Change	Current	Baseline	
Gasoline	100.00%	100.00%	1	1	
Diesel	100.00%	100.00%	1	1	
Electric - plugin	100.00%	100.00%	N/A		
CNG	100.00%	100.00%	N/A		
Propane			NI/A		1
ropano	100.00%	100.00%	IN/A		
Biodiesel	100.00% 100.00%	100.00%	N/A N/A		
Biodiesel	100.00% 100.00% 100.00%	100.00% 100.00% 100.00%	N/A N/A N/A		
Biodiesel RNG/BioGas Other (quantity)	100.00% 100.00% 100.00% 100.00%	100.00% 100.00% 100.00% 100.00%	N/A N/A N/A N/A		
Biodiesel RNG/BioGas Other (quantity) Other Fuel Type (enter fuel ype used for "other" above)	100.00% 100.00% 100.00%	100.00% 100.00% 100.00% 100.00%	N/A N/A N/A N/A		